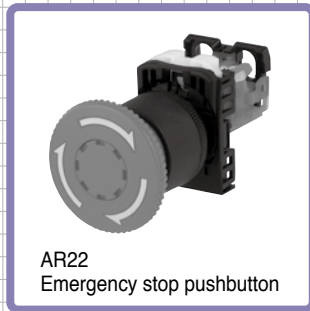


AR22  
Pushbutton switches



AR22  
Emergency stop pushbutton

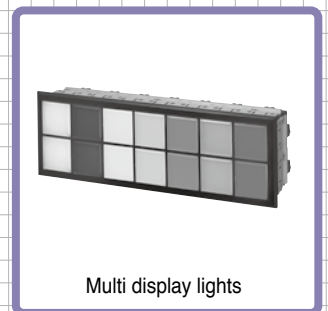


AR30  
Selector switches

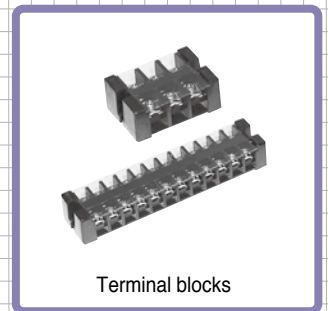


DR30  
Pilot lights

- PUSHBUTTON SWITCHES
- SELECTOR SWITCHES
- EMERGENCY STOP PUSHBUTTON SWITCHES
- PILOT LIGHTS
- MULTI DISPLAY LIGHTS
- TERMINAL BLOCKS



Multi display lights



Terminal blocks

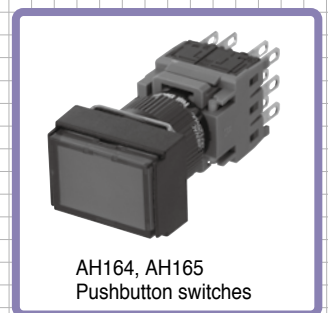
LOW  
VOLTAGE  
EQUIPMENT  
Up to 600 Volts



minico  
AR16  
Illuminated pushbutton



minico  
AR16  
Selector switches(Key)



AH164, AH165  
Pushbutton switches

# INDIVIDUAL CATALOG 04

from D&C CATALOG 20th Edition

01 02 03 **04** 05 06 07 08 09 10 11 12

# minico $\varnothing 16$

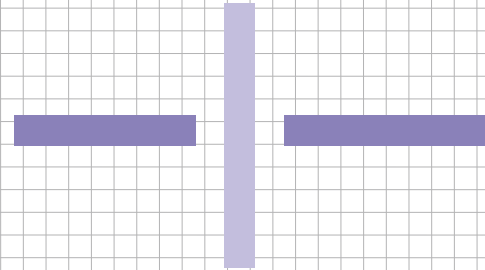
## Command Switches

### AR16•DR16, AF16•DF16

- An integrated structure with built-in contacts that can reduce control panel depth.
- A wide variety of sockets are available to simplify wiring.



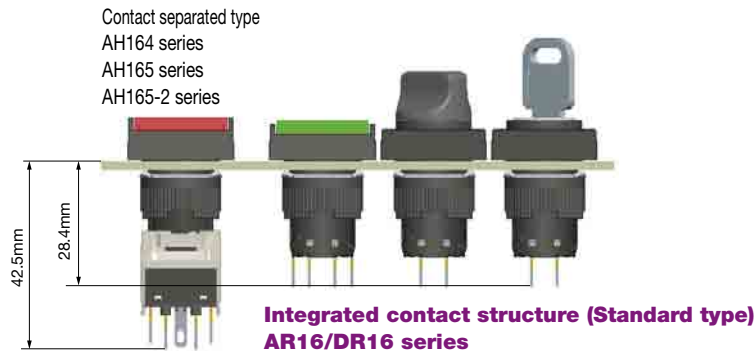
Operator • Contacts



Mounting panel

#### Supporting smaller and thinner operator's panels

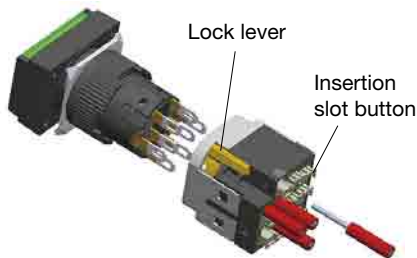
A structure that integrates operator and contacts to reduce panel-mounting depth. Terminals extending to the rear of the switch ensure easy wiring work.



#### A wide variety of sockets reduce wiring work

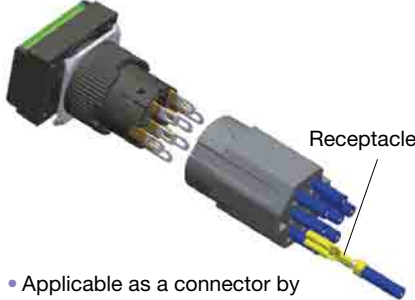
Switches combine with a variety of sockets to simplify wiring.

##### ● Fast-connection socket



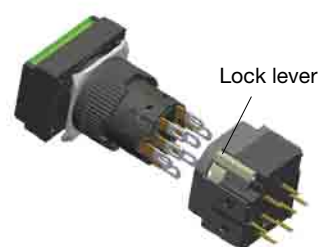
- Applicable as a fast-connection terminal switch by combining the socket with a switch.
- Easily wired by simply removing the wire sheath and inserting the wires while pressing the insertion slot button (no soldering required).
- Incorporates a branch terminal for easy branching.

##### ● Connector socket

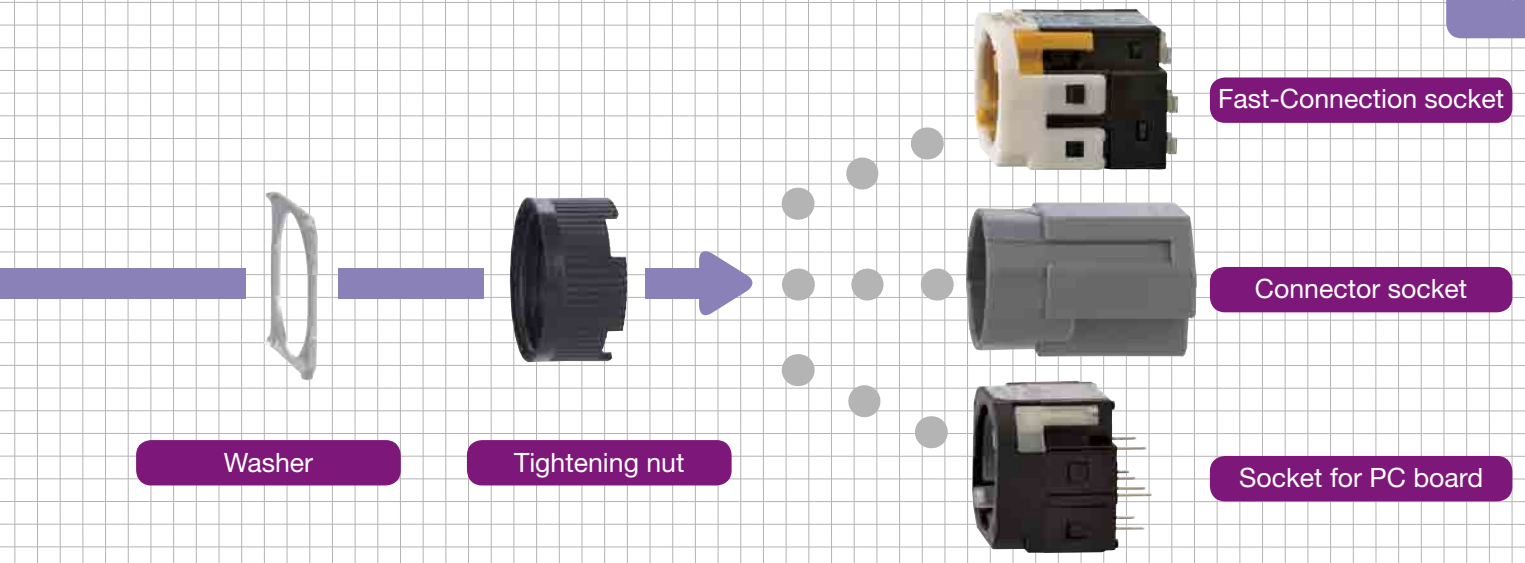


- Applicable as a connector by combining the socket with receptacles.
- The socket holds the receptacles, making it easy to connect the receptacle to the switch with a single operation.

##### ● Socket for PC board



- Applicable as a switch for PC board by combining the socket with a switch.
- Pattern wiring reduces the number of wiring man-hour and helps prevent faulty wiring.



**Contributes to attractive panel designs**

In addition to the standard type, a thin type with a panel protrusion of only 2 mm is available, allowing high-density mounting for attractive panel designs.

**Integrated contact structure (Thin type) AF16/DF16 series**



- Keep in mind that the panel cutout size for the thin type depends on the operator shape. See page 04/167 for details.
- The panel depth is unified to 35.9mm.

**Brighter illuminated surface**

Less power consumption helps to save energy. A longer service life helps to reduce maintenance costs.



**Dedicated LED lamp**

**Degrees of protection IP65**

The operator has IP65 protection for smooth operation without adverse effects from oil, water, or dusts. Applicable to a wide variety of equipment, from machine tools to OA equipment.

**Highly reliable contact mechanism**

Gold-plated contacts and a snap-action mechanism enables IC-level applications (with a switching current of 1 mA at 5 V).

**Meets EU RoHS requirements**

Standard models meet RoHS requirements (EU Directive 2002/95/C).

**Standard models meet international standards**

Standard models meet UL/CSA requirements, China Compulsory Certification (CCC) standards, and TÜV EN standards, making them ideal for equipment for export.

Note: Command switches shipped as single articles to China must conform to the Product Quality Law. Check with your Fuji Electric representative.

**The insertion/extraction life of the key is greatly extended**

The key selector switch incorporates a pin tumbler type key (reversible type) to improve the insertion/extraction performance of the key.

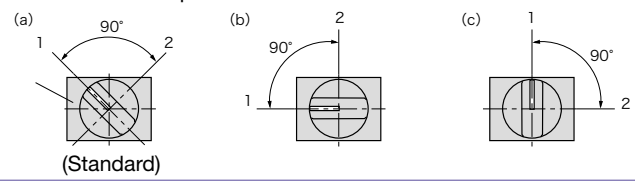


- Six key types are available.
- The pin tumbler construction improves security.

**The operating angle position of the selector switch can be easily changed.**

The bezel is separate from the knob (key), so the operating angle position can be easily changed in 45° increments (with the AR16 series rectangular or square type only). The following figure shows a knob type example. Same applies to the key type.

- Two-position model example.



# Ø22 (Ø25) AR22 and DR22 Command Switches

The use of a release arm enables easy mounting.



Operator • Contacts

Mounting panel

## Easy attachment and detachment with a release arm

The separate structure with a unique wedge mechanism enables one-step attachment and detachment of the operating section and contact section, without the use of any tool.

### One-step lock!

Attachment



Push

Detachment



**One Touch!**

**One-step release!**

## Contact block and transformer unit can also be added or replaced in a single step

All contact block and transformer unit are designed with snap-on mounting, so no tools are required.

**One Touch!**

Attachment



**One Step!**

Detachment



## Improved work efficiency through bi-directional wiring

Terminals can be wired from two directions. This is ideal for wiring crossovers or wiring in narrow spaces. Square washers are used to enable wiring with solid wires.

**Utility**

### Wiring from two directions



1NO

Blue



1NC

Red



Lamp terminals and Transformer Unit

Black



Color coding of contact blocks, lamp terminal and transformer unit makes wiring and checking easy.

## Panel thickness need not be adjusted

Because the back surface of the operating section is mounted with a tightening nut, there is absolutely no need to adjust the panel thickness.

Also, the operator can be mounted on the panel along with a previously installed button and knob.

**Easy**



Mounting panel



## Superior contact reliability

All the contacts are double break type and feature self-cleaning action. Every time the switch is operated, the contact surfaces are wiped with a sliding movement, thus ensuring high contact reliability even at low voltage and small current levels (5V, 5mA).

## Buzzers are also available

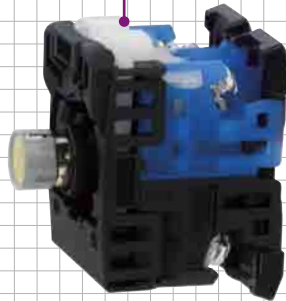
Electronic or electromagnetic buzzers provide audible feedback on the status of the equipment. Splash-proof buzzers that conform to EN 60204-1 (degrees of protection) are also available (enclosure used in general industry: IP54).







Tightening nut

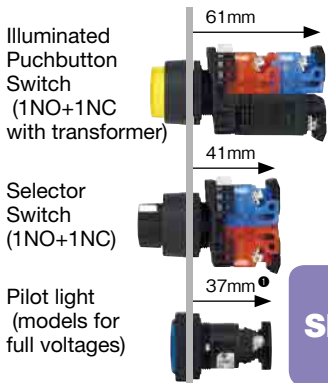


Release arm

Contact section

### Depth of the short body

A short design enables full use of the available depth of the equipment.



**Short**

① The Short-body Pilot light is 21.5mm long.

### Switches with IP2X-compliant terminals are also available

Switches with IP2X-compliant terminals with a finger protection structure conforming to EN 60204-1 (Protection against electric shock) are available. (A test finger that simulates a human finger does not come into contact with live parts.)

**Safety**



Contacts Transformer unit

Note: For details, refer to AR22 and DR22-series Special Products.

### High brightness LED illuminated model, "PIKARI-KUN"

- Standard models feature (1) higher equipment grade, (2) enhanced safety that enables easy identification of the status, and (3) adoption of pure green illumination color through a major improvement in visibility (Luminance) through the adoption of four elements LED.
- Along with a significant improvement in Luminance, energy is saved through a reduction in power consumption.
- The maintenance cost is also reduced by increasing the service life.

### Terminal cover for charged parts provided as a standard accessory

A terminal cover that covers the terminals is provided as a standard accessory to help prevent electric shock by reducing exposure to charged parts.

Note: Not provided on all models.

### Lamp base shape facilitates easy replacement

The same lamp base shape of BA9s/13 for both high brightness LED lamps and incandescent lamps facilitates application.

### Standard models meet international standards

Standard models meet UL/CSA requirements and TÜV EN standards, making them ideal for equipment for export.

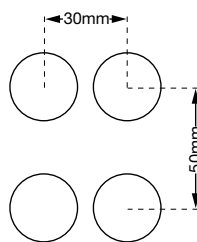
Chinese CCC-compliant models are also available.

Note: For details, refer to List of Models.

See page 04/3 to 04/6

**Global Standardization**

### Features 30 × 50 mm tight mounting

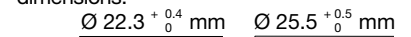


Note: Not applicable to all models.

### Panel cutout dimensions of 22.3 mm and 25.5 mm diameter

By providing a projection on the tightening nut, one switch can be mounted on two different panel cutout dimensions.

Therefore, switches do not need to be purchased to match the panel cutout dimensions.



Units can be mounted on a 25.5-mm diameter hole simply by turning over the tightening nut.

# Safety equipment

## 16 to 30 mm diameter

### Command Switch Emergency Stop (Illuminated) Pushbutton Switches

These pushbutton switches comply with various international standards, so they can be reliably used as emergency stop devices.

Ø16 (AH165, AR16)

minico



AR16V0R

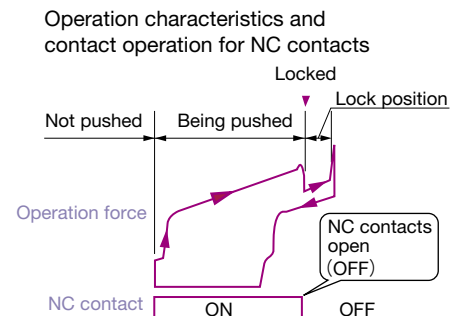
### Compliance with International Standards

The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism. They are suitable for emergency stop and safety.

This mechanism prevents the contacts from moving until the button is pushed and locked.

- Provided with a Trigger Action mechanism conforming to EN 480.
- Provided with direct opening action (approved by TÜV) conforming to EN60947-5-1 and EN60947-5-5. (→)

| Button section                | Not pushed | Being pushed | Locked |
|-------------------------------|------------|--------------|--------|
| Contact operation transitions |            |              |        |
| NC contacts                   | Closed     | Closed       | Open   |



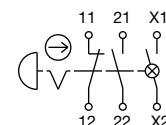
### Emergency stop pushbutton switches available with an integrated contact structure

Emergency stop pushbutton switches are available with an integrated contact structure in which the operating section and contact section are combined into one unit (AH165-V, AR16V, and AR22VG). By arranging the contacts in an integrated structure, the reliability of the safety protection function is increased.

- The AR16V types feature a panel depth dimension of 28 mm for non-illuminated models and can have up to four sets of contacts.
- The AR22VGF types are equipped with a lamp circuit interlocking structure in which a lamp lights when the switch is locked.

Non-illuminated

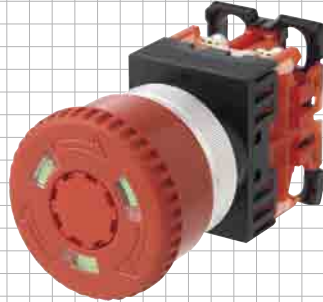
Illuminated



**Ø22 (AR22, AM22)**

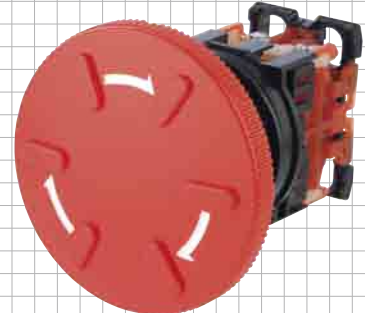


AR22V0L



AM22VME

**Ø30 (AR30)**

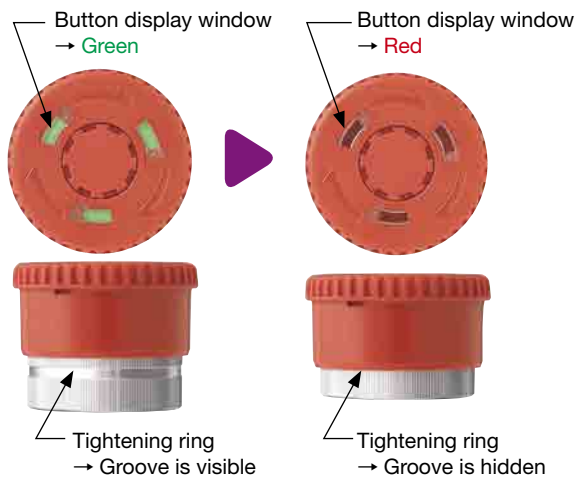


AR30V1R

**A mechanical indicator mechanism by which the operating status can be seen at a single glance is available.**

In AM22VME types, the operating status is indicated mechanically in the form of green and red colors in three button display windows

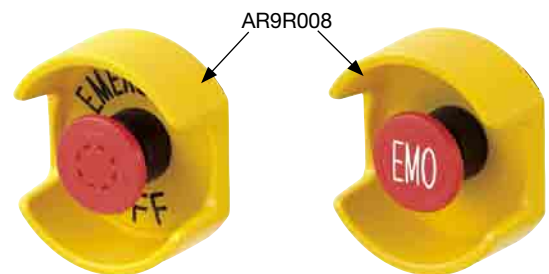
Reset status (no operation being performed): **Green**      Locked status (during operation): **Red**



- Ideal for mechanical control panels in which display power supply is difficult to ensure.

**SEMI-compliant guard rings are also available**

This guard ring can be combined with our emergency stop switches to comply with the SEMI standards required for semiconductor manufacturing devices.



Combination of an AR9R008 guard ring with an AR22V2R switch

Combination of an AR9R008 guard ring with an AR22V3R Z286 switch

- Emergency stop switches with the "EMO" mark are available (AR22V3R Z286).
- EMERGENCY OFF labels are available.



Note: For details, refer to SEMI-compliant guard rings.

AR22V3R Z286

**Standard models meet international standards**

Standard models meet UL/CSA requirements and TÜV, EN Standard are available and exhibit CE marking. Chinese CCC-compliant models are also available.



Note: For details, refer to the list of models.



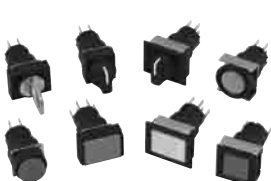


**Emergency stop pushbutton switches with IP2X -compliant terminals are also available**

Emergency stop pushbutton switches with IP2X-compliant terminals with a finger protection structure conforming to EN 60204-1 (protection against electric shock) are available. (A test finger that simulates a human finger does not come in contact with live parts.)

Note: The AR16V types is IP2X compliant when used with a terminal cover for charged parts (AR9Y262, sold separately). Switches from the AH165-V types are not IP2types compliant. For details on the AR22, 30V, Q, and AM22V types, refer to Special Products. The standard AR22VG types are IP2X compliant.

## General information

### Command Series







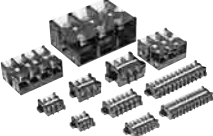
| Series         | Type  | Features   |
|----------------|---|--|
| Command Series | <p><b>AR22 and DR22</b></p>                    | <ul style="list-style-type: none"> <li>• Standard models feature illumination with high brightness LEDs.</li> <li>• No adjusting of panel thickness is necessary.</li> <li>• The button and lens can be mounted on a panel while the operator is engaged.</li> <li>• Easy replacing contact block and transformer.</li> <li>• Wiring from two directions is possible.</li> <li>• The shortest among industrial pushbuttons. The transformer now occupies far less space.</li> <li>• A terminal cover are provided, assuring safety and security.</li> <li>• The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism. They are suitable for emergency stop and safety.</li> <li>• Mountable even on panel cutout 25mm diameter.</li> <li>• AR22 and DR22 series of the ø22 Command Switches are approved by UL/CSA CCC and TÜV (EN standard).</li> <li>• Bearing CE markings.</li> </ul>   |
|                | <p><b>AR30 and DR30</b></p>                   | <ul style="list-style-type: none"> <li>• Standard models feature illumination with high brightness LEDs.</li> <li>• Easy replacing contact block and transformer.</li> <li>• The shortest among industrial pushbuttons. The transformer now occupies far less space.</li> <li>• A terminal cover are provided, assuring safety and security.</li> <li>• The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism. They are suitable for emergency stop and safety.</li> <li>• AR30 and DR30 series of the ø30 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard).</li> <li>• Bearing CE markings.</li> </ul>   |
|                | <p><b>AR16 and AF16</b></p>                | <ul style="list-style-type: none"> <li>• An integrated operator component and contact mechanism that reduces control panel's depth. A unified depth of 28.4mm for the Standard type and 35.9mm for the Thin type.</li> <li>• Thin type and Standard types available for your control panel design. Select an optimum one to match your control panel design.</li> <li>• A wide variety of sockets help to reduce wiring.</li> <li>• Incorporating a gold-flashed SPDT or 2PDT contact mechanism with a snap-action structure that makes and breaks 1mA at 5V.</li> <li>• A key selector switch with a pin tumbler key and reversible type mechanism provides improved key insertion and removal (extraction) performance.</li> <li>• Complies with RoHS (EU Directive 2002/95/EC).</li> <li>• The standard AR16 and DR16, AF16 and DF16 series of the ø16 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard).</li> <li>• Bearing CE markings.</li> </ul> |
|                | <p><b>AH164 and AH165<br/>AH165-2</b></p>  | <ul style="list-style-type: none"> <li>• Standard models feature illumination with high brightness LEDs.</li> <li>• Unified depth dimension of 24 mm for type with indicator and 42.5 mm for other types.</li> <li>• Application possible at 1 mA, 5 V due to gold-plated contacts and sliding structure.</li> <li>• Incandescent, neon and LED lamps are available.</li> <li>• Easy replacing contact block.</li> <li>• AH165-2 series are about twice as large as the AH165 series.</li> <li>• AH164 and AH165, AH165-2 series of the ø16 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard).</li> <li>• Bearing CE markings.</li> </ul>   |
|                | <p><b>AM22 and DM22</b></p>                | <ul style="list-style-type: none"> <li>• Standard models feature illumination with high brightness LEDs.</li> <li>• Easy addition or replacement of text plates with front tightening nut mounting system.</li> <li>• Easy replacing contact block and transformer.</li> <li>• The shortest among industrial pushbuttons. The transformer now occupies far less space.</li> <li>• A terminal cover are provided, assuring safety and security.</li> <li>• The emergency stop pushbuttons employ FUJI's original Trigger Action mechanism. They are suitable for emergency stop and safety.</li> <li>• AM22 and DM22 series of the ø22 Command Switches are approved by UL/CSA, CCC and TÜV (EN standard).</li> <li>• Bearing CE markings.</li> </ul>   |

|  |          |                |         |      | Page |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
|--|----------|----------------|---------|------|------|-------|-------|---------|------|----------------------|------|------|------|--|---------------------------------|---|---|---|---|---------------------|---|---|---|---|------------------------------------|---|---|---|---|--|---|---|---|---|-------------------|---|---|---|---|-------------------------------|----------|----------|---|---|-----------------------------|---|---|--|--|----------|---|----------------|--|--|--------------|---|---|--|--|-------|
| <table border="1"> <thead> <tr> <th>Type</th> <th>AR22</th> <th colspan="3">DR22</th> </tr> </thead> <tbody> <tr> <td>Degree of protection</td> <td colspan="4">IP65</td> </tr> <tr> <td>Illuminated pushbutton switches</td> <td>●</td> <td colspan="3"></td> </tr> <tr> <td>Pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Emergency stop pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Emergency stop illuminated pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Illuminated selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Joy stick selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Buzzer</td> <td>—</td> <td colspan="3">● (IP00, IP54)</td> </tr> <tr> <td>Pilot lights</td> <td>—</td> <td colspan="3">●</td> </tr> </tbody> </table>  |          |                |         |      | Type | AR22  | DR22  |         |      | Degree of protection | IP65 |      |      |  | Illuminated pushbutton switches | ● |   |   |   | Pushbutton switches | ● | — |   |   | Emergency stop pushbutton switches | ● | — |   |   | Emergency stop illuminated pushbutton switches | ● | — |   |   | Selector switches | ● | — |   |   | Illuminated selector switches | ●        | —        |   |   | Joy stick selector switches | ● | — |  |  | Buzzer   | — | ● (IP00, IP54) |  |  | Pilot lights | — | ● |  |  | 04/2  |
| Type   | AR22     | DR22           |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Degree of protection   | IP65     |                |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated pushbutton switches  | ●        |                |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pushbutton switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop pushbutton switches   | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop illuminated pushbutton switches   | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Joy stick selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Buzzer   | —        | ● (IP00, IP54) |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pilot lights   | —        | ●              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| <table border="1"> <thead> <tr> <th>Type</th> <th>AR30</th> <th colspan="3">DR30</th> </tr> </thead> <tbody> <tr> <td>Degree of protection</td> <td colspan="4">IP65</td> </tr> <tr> <td>Illuminated pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Emergency stop pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Emergency stop illuminated pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Illuminated selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Joy stick selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Buzzer</td> <td>—</td> <td colspan="3">● (IP00, IP54)</td> </tr> <tr> <td>Pilot lights</td> <td>—</td> <td colspan="3">●</td> </tr> </tbody> </table> |          |                |         |      | Type | AR30  | DR30  |         |      | Degree of protection | IP65 |      |      |  | Illuminated pushbutton switches | ● | — |   |   | Pushbutton switches | ● | — |   |   | Emergency stop pushbutton switches | ● | — |   |   | Emergency stop illuminated pushbutton switches | ● | — |   |   | Selector switches | ● | — |   |   | Illuminated selector switches | ●        | —        |   |   | Joy stick selector switches | ● | — |  |  | Buzzer   | — | ● (IP00, IP54) |  |  | Pilot lights | — | ● |  |  | 04/55 |
| Type   | AR30     | DR30           |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Degree of protection   | IP65     |                |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated pushbutton switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pushbutton switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop pushbutton switches   | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop illuminated pushbutton switches   | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Joy stick selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Buzzer   | —        | ● (IP00, IP54) |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pilot lights   | —        | ●              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| <table border="1"> <thead> <tr> <th>Type</th> <th>AR16</th> <th>DR16</th> <th>AF16</th> <th>DF16</th> </tr> </thead> <tbody> <tr> <td>Degree of protection</td> <td colspan="4">IP65</td> </tr> <tr> <td>Illuminated pushbutton switches</td> <td>●</td> <td>—</td> <td>●</td> <td>—</td> </tr> <tr> <td>Pushbutton switches</td> <td>●</td> <td>—</td> <td>●</td> <td>—</td> </tr> <tr> <td>Emergency stop pushbutton switches</td> <td>●</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Emergency stop illuminated pushbutton switches</td> <td>●</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>Selector switches</td> <td>●</td> <td>—</td> <td>●</td> <td>—</td> </tr> <tr> <td>Pilot lights</td> <td>—</td> <td>●</td> <td>—</td> <td>●</td> </tr> </tbody> </table>   |          |                |         |      | Type | AR16  | DR16  | AF16    | DF16 | Degree of protection | IP65 |      |      |  | Illuminated pushbutton switches | ● | — | ● | — | Pushbutton switches | ● | — | ● | — | Emergency stop pushbutton switches | ● | — | — | — | Emergency stop illuminated pushbutton switches | ● | — | — | — | Selector switches | ● | — | ● | — | Pilot lights                  | —        | ●        | — | ● | 04/129                      |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Type   | AR16     | DR16           | AF16    | DF16 |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Degree of protection   | IP65     |                |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated pushbutton switches  | ●        | —              | ●       | —    |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pushbutton switches  | ●        | —              | ●       | —    |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop pushbutton switches   | ●        | —              | —       | —    |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop illuminated pushbutton switches   | ●        | —              | —       | —    |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Selector switches  | ●        | —              | ●       | —    |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pilot lights   | —        | ●              | —       | ●    |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| <table border="1"> <thead> <tr> <th>Type</th> <th>AH164</th> <th>AH165</th> <th colspan="2">AH165-2</th> </tr> </thead> <tbody> <tr> <td>Degree of protection</td> <td>IP40</td> <td>IP65</td> <td colspan="2">IP65</td> </tr> <tr> <td>Illuminated pushbutton switches</td> <td>●</td> <td>●</td> <td colspan="2">●</td> </tr> <tr> <td>Pushbutton switches</td> <td>●</td> <td>●</td> <td colspan="2">●</td> </tr> <tr> <td>Emergency stop pushbutton switches</td> <td>—</td> <td>●</td> <td colspan="2">—</td> </tr> <tr> <td>Selector switches</td> <td>●</td> <td>●</td> <td colspan="2">●</td> </tr> <tr> <td>Pilot lights</td> <td>●</td> <td>●</td> <td colspan="2">●</td> </tr> <tr> <td>Buzzer</td> <td>● (IP00)</td> <td>● (IP54)</td> <td colspan="2">—</td> </tr> </tbody> </table>  |          |                |         |      | Type | AH164 | AH165 | AH165-2 |      | Degree of protection | IP40 | IP65 | IP65 |  | Illuminated pushbutton switches | ● | ● | ● |   | Pushbutton switches | ● | ● | ● |   | Emergency stop pushbutton switches | — | ● | — |   | Selector switches                              | ● | ● | ● |   | Pilot lights      | ● | ● | ● |   | Buzzer                        | ● (IP00) | ● (IP54) | — |   | 04/186                      |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Type   | AH164    | AH165          | AH165-2 |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Degree of protection   | IP40     | IP65           | IP65    |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated pushbutton switches  | ●        | ●              | ●       |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pushbutton switches  | ●        | ●              | ●       |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop pushbutton switches   | —        | ●              | —       |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Selector switches  | ●        | ●              | ●       |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pilot lights   | ●        | ●              | ●       |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Buzzer   | ● (IP00) | ● (IP54)       | —       |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| <table border="1"> <thead> <tr> <th>Type</th> <th>AM22</th> <th colspan="3">DM22</th> </tr> </thead> <tbody> <tr> <td>Degree of protection</td> <td colspan="4">IP65</td> </tr> <tr> <td>Illuminated pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Emergency stop pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Emergency stop illuminated pushbutton switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Illuminated selector switches</td> <td>●</td> <td colspan="3">—</td> </tr> <tr> <td>Pilot lights</td> <td>—</td> <td colspan="3">●</td> </tr> </tbody> </table>   |          |                |         |      | Type | AM22  | DM22  |         |      | Degree of protection | IP65 |      |      |  | Illuminated pushbutton switches | ● | — |   |   | Pushbutton switches | ● | — |   |   | Emergency stop pushbutton switches | ● | — |   |   | Emergency stop illuminated pushbutton switches | ● | — |   |   | Selector switches | ● | — |   |   | Illuminated selector switches | ●        | —        |   |   | Pilot lights                | — | ● |  |  | 04CD/2/1 |   |                |  |  |              |   |   |  |  |       |
| Type   | AM22     | DM22           |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Degree of protection   | IP65     |                |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated pushbutton switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pushbutton switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop pushbutton switches   | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Emergency stop illuminated pushbutton switches   | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Illuminated selector switches  | ●        | —              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |
| Pilot lights   | —        | ●              |         |      |      |       |       |         |      |                      |      |      |      |  |                                 |   |   |   |   |                     |   |   |   |   |                                    |   |   |   |   |  |   |   |   |   |                   |   |   |   |   |                               |          |          |   |   |                             |   |   |  |  |          |   |                |  |  |              |   |   |  |  |       |



## General information

### Command Series

| Series          | Type   | Features  |
|-----------------|--|---|
| Command Series  | <b>AH25</b>                   | <ul style="list-style-type: none"> <li>• Standard models feature illumination with high brightness LEDs.</li> <li>• Easy replacing contact block and transformer.</li> <li>• A terminal cover are provided, assuring safety and security.</li> <li>• The standard AH25 series of the ø25 Command Switches are approved by UL/ CSA.</li> </ul>   |
|                 | <b>AG22 and AG23</b>          | <ul style="list-style-type: none"> <li>• Application possible at 1 mA, 5 V due to gold-plated contacts and sliding structure.</li> <li>• Easy replacing contact block.</li> <li>• Compact design with a short depth.</li> <li>• Solder/tab terminals.</li> <li>• The standard AG22 and AG23 series are approved by UL/CSA.</li> </ul>   |
| Multi Display   | <b>AP30F and AP40F</b>       | <ul style="list-style-type: none"> <li>• High brightness for more vivid colors</li> <li>• Newly added blue and pure white LEDs improve visibility.</li> <li>• Transformer-free design for lighter structure and shorter depth (for 100-V and 200-V models)</li> <li>• Easy color and voltage changes.</li> <li>• Wide window size selection. A wide selection, including half-size windows.</li> <li>• UL/CSA-compliant models also available.</li> </ul> |
| Rotary Switches | <b>AB09, AB16 and AB32</b>  | <ul style="list-style-type: none"> <li>• Rotary switches with code output.</li> <li>• Three types of code output are available.</li> <li>• Select either soldered or connector connections.</li> </ul>  |
| Cam Type        | <b>RC310</b>                | <ul style="list-style-type: none"> <li>• A wide range of models available for control, instrumentation, and motor starting and with bifurcated contacts, keys, and indicators.</li> </ul>   |
| Panel Switches  | <b>NS387</b>                | <ul style="list-style-type: none"> <li>• Ideal for switching all types of electric circuits.</li> </ul>   |
| Terminal Blocks |                             | <ul style="list-style-type: none"> <li>• FUJI can supply a variety of terminal blocks for switchboard or switchgear use.</li> </ul>   |

|   |                                   |   |  |   |                  | Page     |
|---|-----------------------------------|---|--|---|------------------|----------|
| <b>Type</b>                                       |                                   | <b>AH25</b>   |  |   |                  | 04CD/3/1 |
| <b>Degree of protection</b>                       |                                   | IP40  |  | IP65  |                  |          |
| <b>Illuminated pushbutton switches</b>            |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Pushbutton switches</b>                        |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Selector switches</b>                          |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Pilot lights</b>                               |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Mechanical interlocked pushbutton switches</b> |                                   | —   |  | ●   |                  |          |
| <b>Mounting hole dimensions</b>                   |                                   | <b>23.5×22.5</b>  |  | <b>23.5×30.5</b>  |                  | 04CD/1/1 |
| <b>Type</b>                                       |                                   | <b>AG22</b>   |  | <b>AG23</b>   |                  |          |
| <b>Degree of protection</b>                       |                                   | IP40  |  | IP40  |                  |          |
| <b>Illuminated pushbutton switches</b>            |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Pilot lights</b>                               |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Illuminated lever switches</b>                 |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Illuminated rocker switches</b>                |                                   | ● (Square type)   |  | ●   |                  |          |
| <b>Type</b>                                       | <b>Illuminated face</b>           | <b>Face size</b>  | <b>Type</b>  | <b>Illuminated face</b>   | <b>Face size</b> | 04/235   |
| <b>AP30F</b>                                      | Half size (H)                     | 15×30   | <b>AP40F</b>   | Half size (H)   | 20×40            |          |
|   | Square (S)                        | 30×30   |  | Square (S)  | 40×40            |          |
|   | Rectangular horizontally long (T) | 30×60   |  | Rectangular horizontally long (T)   | 40×80            |          |
|   | Rectangular vertical long (V)     | 60×30   |  | Rectangular vertical long (V)   | 80×40            |          |
|   | Mixture of S, T, V (X)            | —   |  | Mixture of S, T, V (X)  | —                |          |
| <b>Type</b>                                       |                                   | <b>Type of code</b>   |  |   |                  |          |
|   |                                   | <b>Real binary code</b>   | <b>Complementary binary code</b>   | <b>Real gray code</b>   |                  |          |
| <b>AC09</b>                                       |                                   | ●   | ●  | ●   |                  |          |
| <b>AC16</b>                                       |                                   |   |  |   |                  |          |
| <b>AC32</b>                                       |                                   |   |  |   |                  |          |
| <b>Type</b>                                       | <b>Mounting</b>                   | <b>Rated insulation voltage</b>   | <b>Rated thermal current</b>   | <b>Remarks</b>  |                  |          |
| <b>RC310-1</b>                                    | 40 x 40, mounted with 4 screws    | 600V  | 10A  | The following are also available:<br>Keys, indicators, bifurcated contacts, case covers, etc. |                  |          |
| <b>Type</b>                                       | <b>Rated thermal current</b>      | <b>Application</b>  |  |   |                  |          |
| <b>NS387</b>                                      | 15A                               | Voltmeter changeover switches<br>Ammeter changeover switches<br>Industrial control switches |  |   |                  |          |
| <b>Type</b>                                       | <b>Rated insulation voltage</b>   | <b>Rated thermal current</b>  | <b>Application</b>   |   |                  |          |
| <b>AYBN</b>                                       | 600V                              | 15 to 600A  | General purpose terminal blocks  |   |                  |          |
| <b>AYBS</b>                                       | 600V                              | 49 to 115A  | High quality terminal blocks   |   |                  |          |
| <b>LT4D</b>                                       | 660V                              | 20A   | Rail mounted terminal blocks with isolating switch   |   |                  |          |
| <b>SKT</b>  | 600V                              | 50 to 200A  | Terminal block with pressure solderless box lug type connector on one side and screw type connector on the other |   |                  |          |
| <b>LT2E</b>                                       | 600V                              | 22 to 600A  | Rail mounted terminal blocks   |   |                  |          |
| <b>LT5</b>  | 250V                              | 30A   | Testing terminal and link for VT and CT circuit  |   |                  |          |

# 04

## Pushbuttons, Selector Switches Pilot Lights, Control Selector Switches Panel Switches, Terminal Blocks



|  |  | Page   |        |
|--|--|--|--------|
| <b>Command Series</b>                          | <b>AR22 and DR22</b>   | General information .....  | 04/2   |
|  |  | Quick reference guide .....                                      | 04/3   |
|  |  | Type number nomenclature .....                                   | 04/7   |
|  |  | Ratings and specifications .....                                 | 04/12  |
|  |  | Pushbuttons, selectors, pilot lights and buzzers.....            | 04/17  |
|  |  | Dimensions .....   | 04/40  |
|  |  | Notes on use .....   | 04/50  |
|  | <b>AR30 and DR30</b>   | General information .....  | 04/55  |
|  |  | Quick reference guide .....                                      | 04/56  |
|  |  | Type number nomenclature .....                                   | 04/60  |
|  |  | Ratings and specifications .....                                 | 04/65  |
|  |  | Pushbuttons, selectors, pilot lights and buzzers.....            | 04/71  |
|  |  | Dimensions .....   | 04/94  |
|  |  | Notes on use .....   | 04/105 |
|  |  | Accessories for AR22/DR22 and AR30/DR30 .....                    | 04/108 |
|  |  | Special products .....   | 04/122 |
|  |  | Mass (AR22/DR22 and AR30/DR30).....                              | 04/125 |
|  | <b>AR16, DR16 and AF16, DF16</b>                                       | General information .....  | 04/129 |
|  |  | Quick reference guide .....                                      | 04/130 |
|  |  | Ratings and specifications .....                                 | 04/136 |
|  |  | Type number nomenclature .....                                   | 04/139 |
|  |  | Type numbers and dimensions (AR16 and DR16) .....                | 04/143 |
|  |  | Type numbers and dimensions (AF16 and DF16).....                 | 04/154 |
|  |  | Panel cutout and mounting .....                                  | 04/167 |
|  |  | Notes on use .....   | 04/169 |
|  |  | Accessories .....  | 04/175 |
|  |  | Integrated contact structure AR16V series .....                  | 04/180 |
| <b>AH164 and AH165</b>                         | General information .....  | 04/186   |        |
|  | Quick reference guide .....  | 04/187   |        |
|  | Type number nomenclature .....   | 04/191   |        |
|  | Ratings and specifications .....                                       | 04/193   |        |
|  | Pushbuttons, selectors, pilot lights and buzzers.....                  | 04/195   |        |
|  | Mounting space .....   | 04/209   |        |
| <b>AH165-2</b>                                 | General information .....  | 04/186   |        |
|  | Quick reference guide .....  | 04/187   |        |
|  | Type number nomenclature .....   | 04/191   |        |
|  | Ratings and specifications .....                                       | 04/212   |        |
|  | Pushbuttons, selectors and pilot lights .....                          | 04/213   |        |
|  | Mounting space .....   | 04/223   |        |
|  | Notes on use (AH164, AH165 and AH165-2) .....                          | 04/224   |        |
| Accessories for AH164, AH165 and AH165-2 ..... | 04/227   |  |        |
| Mass (AH164, AH165 and AH165-2) .....          | 04/233   |  |        |
| <b>Multi Display Lights</b>                    | <b>AP30F and AP40F</b>   | General information .....  | 04/235 |
|  |  | Type number nomenclature .....                                   | 04/236 |
|  |  | Specifications and performance .....                             | 04/237 |
|  |  | Dimensions .....   | 04/239 |
|  |  | Notes on use .....   | 04/243 |
|  |  | Accessories .....  | 04/247 |
|  |  | Window layout sheet .....  | 04/254 |
| <b>Rotary Switches</b>                         | <b>AC09, AC16 and AC32</b>   | Digital code output type .....                                   | 04/256 |
| <b>Cam Type</b>                                | <b>RC310</b>   | Control selector switches .....                                  | 04/263 |
| <b>Panel Switches</b>                          | <b>NS387 and RC310</b>   | Instrument switches .....  | 04/270 |
|  |  | Control switches .....   | 04/272 |
| <b>Terminal Blocks</b>                         | <b>AYBN<br/>AYBS<br/>LT4D<br/>SKT<br/>LT2E<br/>Testing Terminal TT</b> | General information .....  | 04/276 |
|  |  | General purpose terminal blocks .....                            | 04/278 |
|  |  | High quality terminal blocks .....                               | 04/279 |
|  |  | Channel mounted type terminal blocks with isolating switch ..... | 04/280 |
|  |  | Power terminal blocks .....                                      | 04/281 |
|  |  | Rail mounted terminal blocks .....                               | 04/283 |
|  |  | Testing terminals for VT and CT circuits.....                    | 04/288 |
| <b>Command Series</b>                          |  | CCC approved .....   | 04/289 |

|  |  | Page  |
|--|--|---|
| <b>Command Series</b>                    | <b>AG22 and AG23</b>                                   | General information .....04CD/1/1   |
|  |  | Quick reference guide .....04CD/1/2   |
|  |  | Type number nomenclature .....04CD/1/4                                      |
|  |  | Ratings and specifications .....04CD/1/6                                    |
|  |  | Pushbuttons, pilot lights, lever switches and rocker switches .....04CD/1/8 |
|  |  | Dimensions .....04CD/1/12   |
|  |  | Notes on use .....04CD/1/13   |
|  |  | Accessories .....04CD/1/17  |
|  |  | Mass .....04CD/1/19   |
|  | <b>AM22 and DM22</b>                                   | General information .....04CD/2/1   |
|  |  | Quick reference guide .....04CD/2/2   |
|  |  | Type number nomenclature .....04CD/2/4                                      |
|  |  | Ratings and specifications .....04CD/2/8                                    |
|  |  | Pushbuttons, selectors and pilot lights .....04CD/2/13                      |
|  |  | Dimensions .....04CD/2/29   |
|  |  | Notes on use .....04CD/2/36   |
|  |  | Accessories .....04CD/2/39  |
|  |  | Special products .....04CD/2/46   |
|  | <b>AH25</b>  | Mass .....04CD/2/49   |
| CCC approved .....04CD/2/50              |  |   |
| General information .....04CD/3/1        |  |   |
| Quick reference guide .....04CD/3/2      |  |   |
| Type number nomenclature .....04CD/3/5   |  |   |
| Ratings and specifications .....04CD/3/7 |  |   |
| <b>Command box</b>                       | Pushbuttons, selectors and pilot lights .....04CD/3/10 |   |
|  | Notes on use .....04CD/3/27                            |   |
|  | Accessories .....04CD/3/30                             |   |
|  | Mass .....04CD/3/34                                    |   |
|  | AHX9 .....04CD/4/1                                     |   |

## **MINIMUM ORDERS**

Orders amounting to **less than ¥10,000** net per order will be charged as ¥10,000 net per order plus freight and other charges.

## **WEIGHTS AND DIMENSIONS**

Weights and dimensions appearing in this catalog are the best information available at the time of going to press.

FUJI ELECTRIC FA has a policy of continuous product improvement, and design changes may make this information out of date.

Please confirm such details before planning actual construction.

**INFORMATION IN THIS CATALOG IS SUBJECT TO CHANGE WITHOUT NOTICE.**



■ Command series

**AR22/DR22**



AF94-320



AF94-310



AF98-88

- 22mm diameter hole
- Mountable even on panel cutout 25mm in diameter.
- Provided with newly developed release arm
- Provided with terminal cover for safety and security
- UL, CSA, TÜV and CCC approved

**AH164, 165**



SK-1103



SK-1138

- 16mm diameter hole, finger-sized button
- Incandescent, neon and LED lamps are available.
- Block type contact
- AH165 series is oil-tight
- UL, CSA, TÜV and CCC approved

**AR30/DR30**



AF95-4



AF95-6



AF98-195

- 30mm diameter hole
- Provided with terminal cover for safety and security
- UL, CSA, TÜV and CCC approved

**AH165-2**



AF87-211



AF87-208

- 16mm diameter hole
- AH165-2 series are about twice as large as the AH165 series
- Incandescent, neon and LED lamps are available.
- Block type contact
- AH165-2 series is oil-tight
- UL, CSA, TÜV and CCC approved

**AR16/DR16, AF16/DF16**



KKD07-157



KKD07-171



KKD07-183

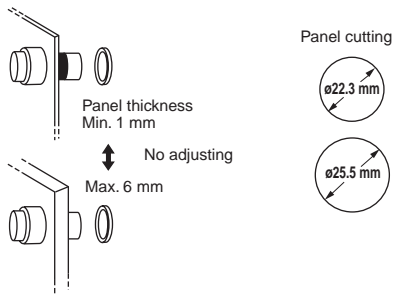
- 16mm diameter hole, finger-sized button
- Integrated contact structure
- AR16 series is standard type.
- AF16 series is thin type.
- UL, CSA, TÜV and CCC approved

The AR22 now uses a release arm with a wedge mechanism developed by Fuji Electric FA. This enables you to mount or remove the operator and contact block without using any tools. When fitting the switch to a panel, you can ignore the panel thickness. You have only to secure the operator with a locking nut from behind the panel without any need for adjustment. The improved locking nut is capable of mounting the operator in both 22.3mm and 25.5mm dia. panel cutout holes.

#### ■ Features

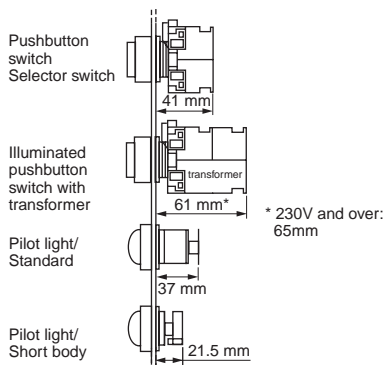
##### Facilitated mounting

- No adjusting of panel thickness is necessary.
- The button and lens can be mounted on a panel while the operator is engaged.
- Mountable even on a panel cutout 25.5mm in diameter.



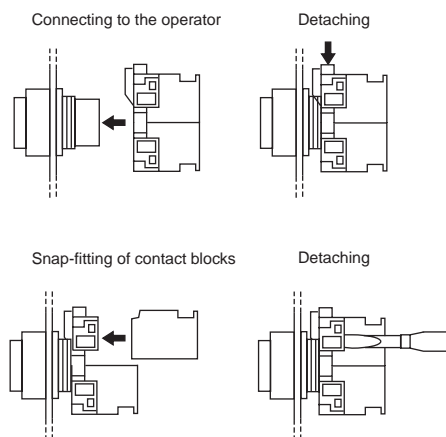
##### Miniaturization

- Pushbuttons and selector switches with 1NO+1NC: 41mm deep
- Pilot lights: 37mm deep
- The transformer now occupies far less space.



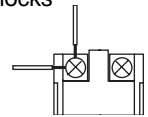
#### Easy replacing contact block and transformer

- Because of a snap-on mounting, replacement or addition of the contact block and transformer unit is very simple.
- The contact block is common to all the pushbuttons of this series.
- Contact block is easily replaced even when the pushbuttons are mounted closely together.
- Replacement of the contact block can be done with a screwdriver, without the need for any special tool.



#### Wiring

- Wiring from two directions is possible.
- Wiring in both vertical and lateral directions facilitates wiring in narrow spaces.
- Color coding of contact blocks makes wiring easy. 1NO: Blue, 1NC: Red
- Lamp terminal and transformer unit: Black



#### Safety

- A terminal cover is provided, assuring safety and security.
- FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.
- Reliability of safety functions increased by integrated operator and contact block construction. (AR22VG)

#### Protection

- Excellent oil-tight construction (IP65) of the operator.
- Closure of the contact block has been improved.

#### ■ Approvals




For further information related to approved type, see page 04/3 to 04/06.

# Pushbuttons/Selectors/Pilot Lights/Buzzers







## AR22 and DR22

### Quick reference guide

#### ■ Illuminated pushbutton switches

| Operator   | Type   | Operator  | Type  | Operator  | Type   |
|--|--|---|---|---|--|
| Flush round head<br><br><i>See page 04/17, 04/40</i>                                       | <b>AR22F0L, F5L</b><br><br>AF94-318   | Extended with full guard<br>(24mm dia. with openings)<br><br><i>See page 04/17, 04/40</i> | <b>AR22G2L, G7L</b><br><br>AF99-319   | Flush round head<br>with square bezel<br><br><i>See page 04/18, 04/40</i>             | <b>AR22F0P, F5P</b><br><br>AF94-315 |
| Extended round head<br><br><i>See page 04/17, 04/40</i>                                    | <b>AR22E0L, E5L</b><br><br>AF94-317   | Extended with full guard<br>(24mm dia.)<br><br><i>See page 04/18, 04/40</i>               | <b>AR22G1L, G6L</b><br><br>AF02-70    | Extended round head<br>with square bezel<br><br><i>See page 04/18, 04/40</i>          | <b>AR22E0P, E5P</b><br><br>AF94-314 |
| Mushroom head<br>(40mm dia.)<br><br><i>See page 04/17, 04/40</i>                           | <b>AR22M0L, M5L</b><br><br>AF94-367  | Push-lock, turn-reset<br>(40mm dia. with white arrow)<br><br><i>See page 04/18, 04/40</i> | <b>AR22V5L</b><br><br>KKD06-335      | Mushroom head with<br>square bezel<br>(29mm dia.)<br><br><i>See page 04/19, 04/40</i> | <b>AR22M4P</b><br><br>AF94-440     |
| Mushroom head<br>(29mm dia.)<br><br><i>See page 04/17, 04/40</i>                           | <b>AR22M4L, M9L</b><br><br>AF94-369 | Flush square head<br><br><i>See page 04/18, 04/40</i>                                     | <b>AR22F0M, F5M</b><br><br>AF97-68  |   |  |
| Extended with<br>transparent full guard<br>(24mm dia.)<br><br><i>See page 04/17, 04/40</i> | <b>AR22G4L, G9L</b><br><br>AF94-294 | Extended square head<br><br><i>See page 04/18, 04/40</i>                                  | <b>AR22E0M, E5M</b><br><br>AF94-357 |   |  |

#### ■ Pushbutton switches

| Operator  | Type   | Operator  | Type  | Operator   | Type   |
|---|--|---|---|--|--|
| Flush round head<br><br><i>See page 04/20, 04/41</i>    | <b>AR22F0R, F5R</b><br><br>AF94-320 | Flush round head<br>Symbol mark type<br><br><i>See page 04/20, 04/41</i>    | <b>AR22FAR, FBR</b><br><br>AF98-193 | Mushroom head<br>(40mm dia.)<br><br><i>See page 04/20, 04/41</i> | <b>AR22M0R, M5R</b><br><br>AF94-293 |
| Extended round head<br><br><i>See page 04/20, 04/41</i> | <b>AR22E0R, E5R</b><br><br>AF94-319 | Extended round head<br>Symbol mark type<br><br><i>See page 04/20, 04/41</i> | <b>AR22EAR, EBR</b><br><br>AF98-192 | Mushroom head<br>(29mm dia.)<br><br><i>See page 04/20, 04/41</i> | <b>AR22M4R, M9R</b><br><br>AF94-321 |

Note (CCC) : See page 04/289

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22















### Quick reference guide

#### ■ Pushbutton switches

| Operator  | Type   | Operator  | Type   | Operator   | Type   |
|---|--|---|--|--|--|
| Extended with full guard (24mm dia.)<br><br><i>See page 04/20, 04/41</i><br>        | <b>AR22G3R, G8R</b><br><br>AF94-292   | Pushbutton with selector ring (2-position)<br><br><i>See page 04/22, 04/41</i><br>         | <b>AR22S1R, S2R, S3R, S6R</b><br><br>AF97-507 | Flush round head with square bezel<br><br><i>See page 04/20, 04/41</i><br>            | <b>AR22F0Y, F5Y</b><br><br>AF94-295 |
| Flush with full guard (24mm dia.)<br><br><i>See page 04/20, 04/41</i><br>           | <b>AR22G2R, G7R</b><br><br>AF02-68    | Push-lock, turn-reset (40mm dia. with white arrow)<br><br><i>See page 04/20, 04/41</i><br> | <b>AR22V5R</b><br><br>KKD08-042               | Extended round head with square bezel<br><br><i>See page 04/21, 04/41</i><br>         | <b>AR22E0Y, E5Y</b><br><br>AF94-297 |
| Extended with half guard<br><br><i>See page 04/20, 04/41</i><br>                  | <b>AR22G0R, G5R</b><br><br>AF96-236  | Flush square head<br><br><i>See page 04/20, 04/41</i><br>                                | <b>AR22F0S, F5S</b><br><br>AF94-316          | Mushroom head with square bezel (29mm dia.)<br><br><i>See page 04/21, 04/41</i><br> | <b>AR22M4Y</b><br><br>AF94-298     |
| Mushroom head with full guard (40mm dia.)<br><br><i>See page 04/20, 04/41</i><br> | <b>AR22M3R, M8R</b><br><br>AF94-372 | Extended square head<br><br><i>See page 04/20, 04/41</i><br>                             | <b>AR22E0S, E5S</b><br><br>AF94-296         |  |  |

Note: AR22M8R: Not approved standard

#### ■ Emergency stop pushbutton switches (conform to EN418)

| Operator  | Type  | Operator   | Type   | Operator   | Type  |
|---|---|--|--|--|---|
| Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)<br><br><i>See page 04/23, 04/42</i><br> | <b>AR22V0R</b><br><br>KKD08-042  | Push-lock, turn-reset (29mm dia.)<br><br><i>See page 04/23, 04/42</i><br>             | <b>AR22V4R</b><br><br>KKD06-339 | Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)<br><br><i>See page 04/23, 04/42</i><br> | <b>AR22VGE</b><br><br>KKD05-023b       |
| Push-lock, turn-reset (40mm dia.)<br><br><i>See page 04/23, 04/42</i><br>                             | <b>AR22V2R</b><br><br>KKD05-020b | Key release push-lock, turn-reset (40mm dia.)<br><br><i>See page 04/23, 04/42</i><br> | <b>AR22V7R</b><br><br>KKD09-020 | Push-lock, turn-reset (40mm dia. with "EMO" character)<br><br><i>See page 04/120</i><br>                      | <b>AR22V3R-■RZ286</b><br><br>KKD05-261 |
| Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)<br><br><i>See page 04/23, 04/42</i><br> | <b>AR22VSR</b><br><br>KKD06-346  | Push-lock, pull-reset (35mm dia.)<br><br><i>See page 04/23, 04/42</i><br>             | <b>AR22Q2R</b><br><br>KKD06-334 |  |   |






Notes: Provided with the  (Direct opening action)  : *See page 04/289*

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Quick reference guide

#### ■ Emergency stop illuminated pushbutton switches (conform to EN418)



| Operator  | Type   | Operator   | Type  | Operator   | Type   |
|---|--|--|---|--|--|
| Push-lock, turn-reset<br>(Soft-touch 40mm dia.<br>with white arrow)<br><br><i>See page 04/24, 04/43</i> | <b>AR22V0L</b><br><br>KKD06-335 | Push-lock, turn-reset<br>(Soft-touch 40mm dia.<br>transparent in all colors<br>with white arrow)<br><br><i>See page 04/24, 04/43</i> | <b>AR22VDL</b><br><br>KKD06-342 | Push-lock, turn-reset<br>(Soft touch 29mm dia.<br>with white arrow)<br><br><i>See page 04/24, 04/43</i>            | <b>AR22VSL</b><br><br>KKD06-344 |
| Push-lock, turn-reset<br>(40mm dia.)<br><br><i>See page 04/24, 04/43</i>                                | <b>AR22V2L</b><br><br>KKD06-337 | Push-lock, turn-reset<br>(40mm dia. transparent<br>in all colors)<br><br><i>See page 04/24, 04/43</i>                                | <b>AR22VAL</b><br><br>KKD06-340 | Unibody push-lock,<br>turn-reset<br>(Soft-touch 40mm dia.<br>with white arrow)<br><br><i>See page 04/24, 04/43</i> | <b>AR22VGF</b><br><br>KKD05-150 |

Note: Provided with the  (Direct opening action)

#### ■ Selector switches

| Operator   | Type  | Operator   | Type  | Operator  | Type   |
|--|---|--|---|---|--|
| Knob<br><br><i>See page 04/25, 04/44</i>             | <b>AR22PR, PCR</b><br><br>AF94-310 | Key<br><br><i>See page 04/25, 04/44</i>                    | <b>AR22JR, JCR</b><br><br>KKD09-018 | Lever with square bezel<br><br><i>See page 04/25, 04/44</i>               | <b>AR22WY, WCY</b><br><br>AF94-323  |
| Lever<br><br><i>See page 04/25, 04/44</i>            | <b>AR22WR, WCR</b><br><br>AF94-324 | Key (Long durability)<br><br><i>See page 04/25, 04/44</i>  | <b>AR22JAR</b><br><br>KKD09-015     | Cylindrical knob<br>with square bezel<br><br><i>See page 04/25, 04/44</i> | <b>AR22RY, RCY</b><br><br>AF94-362  |
| Cylindrical knob<br><br><i>See page 04/25, 04/44</i> | <b>AR22RR, RCR</b><br><br>AF94-308 | Knob with square bezel<br><br><i>See page 04/25, 04/44</i> | <b>AR22PY, PCY</b><br><br>AF94-309  | Key with square bezel<br><br><i>See page 04/25, 04/44</i>                 | <b>AR22JY, JCY</b><br><br>KKD09-019 |

#### ■ Illuminated selector switches

| Operator                                 | Type   | Operator   | Type  |
|--|--|--|---|
| Knob<br><br><i>See page 04/32, 04/45</i> | <b>AR22PL</b><br><br>AF94-306 | Knob with square bezel<br><br><i>See page 04/32, 04/45</i> | <b>AR22PP</b><br><br>AF94-318 |

Note  : *See page 04/289*



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22







### Quick reference guide

#### ■ Pilot lights






| Lens   | Type   | Lens  | Type   | Lens  | Type   |
|--|--|---|--|---|--|
| Dome   | <b>DR22D0L</b><br><br>AF94-333  | Flush square  | <b>DR22F3M</b><br><br>AF94-330  | Extended square   | <b>DR22E3M</b><br><br>AF94-380  |
| <i>See page 04/34, 04/45</i>   |  | <i>See page 04/34, 04/47</i>  |  | <i>See page 04/34, 04/46</i>  |  |
|    |  |    |  |    |  |
| Extended round   | <b>DR22E3L</b><br><br>AF94-332  | Flush square<br>(Transparent lens)  | <b>DR22F4M</b><br><br>AF94-443  | Flush rectangular   | <b>DR22E3N</b><br><br>AF96-237  |
| <i>See page 04/34, 04/46</i>   |  | <i>See page 04/34, 04/47</i>  |  | <i>See page 04/34, 04/48</i>  |  |
|    |  |    |  |    |  |
| Faceted  | <b>DR22K0L</b><br><br>AF96-189 | Flush square<br>(12mm high frame)   | <b>DR22F5M</b><br><br>AF95-658 | Extended round<br>with square bezel   | <b>DR22E3P</b><br><br>AF94-331 |
| <i>See page 04/34, 04/46</i>   |  | <i>See page 04/34, 04/47</i>  |  | <i>See page 04/34, 04/46</i>  |  |
|  |  |  |  |  |  |

Note: With resistor unit type: Not approved standard

#### ■ Joy stick selector switches

| Handle   | Type  | Handle  | Type  | Handle  | Type  |
|--|---|---|---|---|---|
| Ball type  | <b>AR22A0, A5</b><br><br>AF97-49 | Ball type with lock   | <b>AR22A1, A6</b><br><br>AF97-45 | Rubber cap type   | <b>AR22A2, A7</b><br><br>AF97-56 |
| <i>See page 04/38, 04/48</i>   |   | <i>See page 04/38, 04/48</i>  |   | <i>See page 04/38, 04/49</i>  |   |
|  |   |  |   |  |   |

#### ■ Buzzers

| Sound  | Type  | Sound                        | Type   | Sound   | Type   |
|--|---|------------------------------|--|---|--|
| Electronic sound   | <b>DR22B5 *</b><br><br>KKD08-053 | Magnetic sound               | <b>DR22B3</b><br><br>AF96-376 | Electronic sound<br>(IP54)  | <b>DR22B8 *</b><br><br>AF96-244 |
| <i>See page 04/39, 04/49</i>   |   | <i>See page 04/39, 04/49</i> |  | <i>See page 04/39, 04/49</i>  |  |
|  |   |                              |  |  |  |

Note: \* 6V AC, 110V DC types: Not approved standard

Note (CC): See page 04/289

**Illuminated pushbuttons**

**AR22 E0L – 10 E3 R**

① **Product category**

AR22: 22mm-dia. illuminated pushbutton  
 22mm-dia. emergency stop illuminated pushbutton

② **Operator**

- Illuminated pushbutton
- F0L: Flush round head
- F5L: Flush round head (Alternate)
- E0L: Extended round head
- E5L: Extended round head (Alternate)
- M0L: Mushroom head (40mm dia.)
- M5L: Mushroom head (40mm dia. alternate)
- M4L: Mushroom head (29mm dia.)
- M9L: Mushroom head (29mm dia. alternate)
- G4L: Extended with transparent full guard (24mm dia.)
- G9L: Extended with transparent full guard (24mm dia. alternate)
- G2L: Extended with full guard (24mm dia. with openings)
- G7L: Extended with full guard (24mm dia. with openings, alternate)
- G1L: Extended with full guard (24mm dia.)
- G6L: Extended with full guard (24mm dia. alternate)
- V5L: Push-lock, turn-reset (40mm dia. with white arrow) \*1
- F0M: Flush square head
- F5M: Flush square head (Alternate)
- E0M: Extended square head
- E5M: Extended square head (Alternate)
- F0P: Flush round head with square bezel
- F5P: Flush round head with square bezel (Alternate)
- E0P: Extended round head with square bezel
- E5P: Extended round head with square bezel (Alternate)
- M4P: Mushroom head with square bezel (29mm dia.)
- Emergency stop illuminated pushbutton
- V0L: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
- V2L: Push-lock, turn-reset (40mm dia.)
- VDL: Push-lock, turn-reset (Soft-touch 40mm dia. transparent in all colors with white arrow)
- VAL: Push-lock, turn-reset (40mm dia. transparent in all colors)
- VSL: Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)
- VGF: Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)

③ **Contact arrangement**

- |             |         |
|-------------|---------|
| 10: 1NO     | 30: 3NO |
| 01: 1NC     | 03: 3NC |
| 11: 1NO+1NC | 40: 4NO |
| 20: 2NO     | 04: 4NC |
| 02: 2NC     | 50: 5NO |
| 22: 2NO+2NC | 05: 5NC |

④ **Lamp voltage**

- Incandescent lamp
- 54: 5.5V AC/DC, without transformer
- C4: 15V AC/DC, without transformer
- D4: 20V AC/DC, without transformer
- E4: 24V AC/DC, without transformer
- H4: 100-110V AC, with transformer
- L4: 115-127V AC, with transformer
- M4: 200-220V AC, with transformer
- Q4: 230-254V AC, with transformer
- S4: 350-380V AC, with transformer
- T4: 400-440V AC, with transformer
- V4: 480V AC, with transformer
- W4: 500-550V AC, with transformer
- LED lamp
- A3: 6V AC, without transformer
- 63: 6V DC, without transformer
- B3: 12V AC/DC, without transformer
- C3: 15V AC/DC, without transformer
- E3: 24V AC/DC, without transformer
- H3: 100-110V AC, with transformer
- L3: 115-127V AC, with transformer
- M3: 200-220V AC, with transformer
- Q3: 230-254V AC, with transformer
- S3: 350-380V AC, with transformer
- T3: 400-440V AC, with transformer
- V3: 480V AC, with transformer
- W3: 500-550V AC, with transformer

- Neon lamp (For AR22VGF)
- H1: 110V AC, without transformer
- K1: 120V AC, without transformer
- M1: 220V AC, without transformer
- P1: 240V AC, without transformer

⑤ **Color of lens**

- |           |           |
|-----------|-----------|
| G: Green  | Y: Yellow |
| R: Red *2 | A: Orange |
| W: White  | S: Blue   |

⑥ **Special product**

- Z9: Resisting water-soluble cutting oils and heat
- Z8: With a contact protection cover
- Z4: Resisting sulfuration gas
- ZB: Meeting IP2X finger-protection standards

Notes: \*1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.



- \*2 Button color of emergency stop illuminated switches are Red only.
- The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Type number nomenclature

#### Pushbuttons

**AR22 E0R – 10 R**  

① ② ③ ④ ⑤ ⑥

#### ① Product category

AR22: 22mm-dia. pushbutton  
22mm-dia. emergency stop pushbutton

#### ② Operator

- Pushbutton switch
- F0R: Flush round head
- F5R: Flush round head (Alternate)
- E0R: Extended round head
- E5R: Extended round head (Alternate)
- FAR: Flush round head (Symbol mark type)
- FBR: Flush round head (Symbol mark type, alternate)
- EAR: Extended round head (Symbol mark type)
- EBR: Extended round head (Symbol mark type, alternate)
- M0R: Mushroom head (40mm dia.)
- M5R: Mushroom head (40mm dia. Alternate)
- M4R: Mushroom head (29mm dia.)
- M9R: Mushroom head (29mm dia. Alternate)
- G3R: Extended with full guard (24mm dia.)
- G8R: Extended with full guard (24mm dia. Alternate)
- G2R: Flush with full guard (24mm dia.)
- G7R: Flush with full guard (24mm dia. Alternate)
- G0R: Extended with half guard
- G5R: Extended with half guard (Alternate)
- M3R: Mushroom head with full guard (40mm dia.)
- M8R: Mushroom head with full guard (40mm dia. Alternate)
- S1R: Push-button with selector ring (2-position)
- S2R: Push-button with selector ring (2-position)
- S3R: Push-button with selector ring (2-position)
- S6R: Push-button with selector ring (2-position)
- V5R: Push-lock, turn-reset (40mm dia. with white arrow) \*1
- F0S: Flush square head
- F5S: Flush square head (Alternate)
- E0S: Extended square head
- E5S: Extended square head (Alternate)
- F0Y: Flush round head with square bezel
- F5Y: Flush round head with square bezel (Alternate)
- E0Y: Extended round head with square bezel
- E5Y: Extended round head with square bezel (Alternate)
- M4Y: Mushroom head with square bezel (29mm dia.)
  - Emergency stop pushbutton switch
- V0R: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
- V2R: Push-lock, turn-reset (40mm dia.)
- VSR: Push-lock, turn-reset (Soft-touch 29mm dia. with white arrow)
- V4R: Push-lock, turn-reset (29mm dia.)
- V7R: Key-release push-lock, turn-reset (40mm dia.)
- Q2R: Push-lock, pull-reset (35mm dia.)
- VGE: Unibody push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)

#### ③ Contact arrangement

|             |             |
|-------------|-------------|
| 10: 1NO     | 30: 3NO     |
| 01: 1NC     | 03: 3NC     |
| 11: 1NO+1NC | 33: 3NO+3NC |
| 20: 2NO     | 40: 4NO     |
| 02: 2NC     | 04: 4NC     |
| 22: 2NO+2NC | 50: 5NO     |
|             | 05: 5NC     |

#### ④ Color of button

|                                    |                              |
|------------------------------------|------------------------------|
| G: Green                           | Y: Yellow                    |
| R: Red <sup>2</sup>                | A: Orange                    |
| B: Black                           | S: Blue                      |
| W: White                           | C: Clear                     |
| T: Green, Red, Black (For AR22F0R) | (For AR22FAR, FBR, EAR, EBR) |

#### ⑤ Symbol mark (For AR22FAR, FBR, EAR, EBR)

|                 |       |       |       |       |       |       |             |
|-----------------|-------|-------|-------|-------|-------|-------|-------------|
| Symbol mark     | ○     | I     | ⊕     | ○     | I     | ⊕     |             |
| Color of button | White | Black | White | Black | White | Black | Clear       |
| Color of mark   | Red   |       | Green |       | Green |       | Black       |
| Code            | 01    | 02    | 03    | 04    | 11    | 12    | 02B 04B 12B |

#### ⑥ Special product

Z9: Resisting water-soluble cutting oils and heat  
Z8: With a contact protection cover  
Z4: Resisting sulfuration gas  
ZB: Meeting IP2X finger-protection standards

Notes: \*1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.

\*2 Button color of emergency stop switches are Red only.

• The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

**Selector and illuminated selector switches**

**AR22 PL – 2** □ **10 E3 G** □ □  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① **Product category**

AR22: 22mm dia. selector switch and illuminated selector switch

② **Operator**

- Selector switch
  - PR: Knob
  - PCR: Knob operated control type
  - WR: Lever
  - WCR: Lever operated control type
  - RR: Cylindrical knob
  - RCR: Cylindrical knob operated control type
  - JR: Key
  - JCR: Key operated control type
  - JAR: Key (Long durability)
  - PY: Knob with square bezel
  - PCY: Knob operated control type with square bezel
  - WY: Lever with square bezel
  - WCY: Lever operated control type with square bezel
  - RY: Cylindrical knob with square bezel
  - RCY: Cylindrical knob operated control type with square bezel
  - JY: Key with square bezel
  - JCY: Key operated control type with square bezel
- Illuminated selector switch
  - PL: Knob
  - PP: Knob with square bezel

③ **Operation**

- 2: 2-position, maintained
- 0: 2-position, spring return
- 3: 3-position, maintained
- 6: 3-position, spring/manual return (Left to center)
- 7: 3-position, spring/manual return (Right to center)
- 1: 3-position, spring return
- 4: 4-position, maintained (For AR22PCR, WCR, RCR)
- 5: 5-position, maintained (For AR22PCR, WCR, RCR)

④ **Key removable position**

- A: Left
- B: Left and right
- C: Left, right and center
- D: Right
- E: Center
- F: Right and center
- G: Left and center

⑤ **Contact arrangement**

- |             |             |
|-------------|-------------|
| 10: 1NO     | 30: 3NO     |
| 01: 1NC     | 03: 3NC     |
| 11: 1NO+1NC | 33: 3NO+3NC |
| 20: 2NO     | 40: 4NO     |
| 02: 2NC     | 04: 4NC     |
| 22: 2NO+2NC | 50: 5NO     |
|             | 05: 5NC     |

Note: Control type: See page 04/29 to 04/31

⑥ **Lamp voltage**

- Incandescent lamp
  - 54: 5.5V AC/DC, without transformer
  - C4: 15V AC/DC, without transformer
  - D4: 20V AC/DC, without transformer
  - E4: 24V AC/DC, without transformer
  - H4: 100-110V AC, with transformer
  - L4: 115-127V AC, with transformer
  - M4: 200-220V AC, with transformer
  - Q4: 230-254V AC, with transformer
  - S4: 350-380V AC, with transformer
  - T4: 400-440V AC, with transformer
  - V4: 480V AC, with transformer
  - W4: 500-550V AC, with transformer
- LED lamp
  - A3: 6V AC, without transformer
  - 63: 6V DC, without transformer
  - B3: 12V AC/DC, without transformer
  - C3: 15V AC/DC, without transformer
  - E3: 24V AC/DC, without transformer
  - H3: 100-110V AC, with transformer
  - L3: 115-127V AC, with transformer
  - M3: 200-220V AC, with transformer
  - Q3: 230-254V AC, with transformer
  - S3: 350-380V AC, with transformer
  - T3: 400-440V AC, with transformer
  - V3: 480V AC, with transformer
  - W3: 500-550V AC, with transformer

⑦ **Color of knob**

- B: Black (Not available for illuminated selector switch)
- G: Green
- R: Red
- W: White (Not available for selector switch)
- Y: Yellow (Not available for selector switch)
- A: Orange (Not available for selector switch)
- S: Blue (Not available for selector switch)

⑧ **Key type No.**

A, B, C, D, E or F  
 ("A" is standard)

⑨ **Special product**

- Z9: Resisting water-soluble cutting oils and heat
- Z8: With a contact protection cover
- Z4: Resisting sulfuration gas
- ZB: Meeting IP2X finger-protection standards

Note: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

## AR22 and DR22

### Type number nomenclature

#### Pilot lights

**DR22 D0L – E3 W □**

① ② ③ ④ ⑤

#### ① Product category

DR22: 22mm dia. pilot light

#### ② Lens

D0L: Dome

E3L: Extended round

K0L: Faceted

F3M: Flush square

F4M: Flush square (Transparent lens)

F5M: Flush square (12mm high frame)

E3M: Extended square

E3N: Flush rectangular

E3P: Extended round with square bezel

#### ③ Lamp voltage

##### • Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

##### • LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

H7: 110V DC, with resistor unit

58: 5.5V AC/DC, short-body without transformer

C8: 15V AC/DC, short-body without transformer

D8: 20V AC/DC, short-body without transformer

E8: 24V AC/DC, short-body without transformer

H8: 100-110V AC, short-body with transformer

L8: 115-127V AC, short-body with transformer

M8: 200-220V AC, short-body with transformer

A9: 6V AC, short-body without transformer

69: 6V DC, short-body without transformer

B9: 12V AC/DC, short-body without transformer

C9: 15V AC/DC, short-body without transformer

E9: 24V AC/DC, short-body without transformer

H9: 100-110V AC, short-body with transformer

L9: 115-127V AC, short-body with transformer

M9: 200-220V AC, short-body with transformer

#### ④ Color of lens

G: Green

Y: Yellow

R: Red

A: Orange

W: White

S: Blue

#### ⑤ Special product

Z9: Resisting water-soluble cutting oils and heat

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

Note: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.



**Joy stick selector switches**

**AR22A 0 N – A0A0 B**

① ②③ ④ ⑤

① **Product category**

AR22A: 22mm-dia. Joy stick selector switch

② **Handle**

- 0: Ball type (without lock, manual return)
- 1: Ball type with lock (manual return)
- 2: Rubber cap type (without lock, manual return)
- 5: Ball type (without lock, spring return)
- 6: Ball type with lock (spring return)
- 7: Rubber cap type (without lock, spring return)

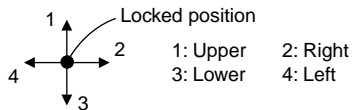
③ **Terminal**

- N: Screw
- H: Solder/tab

④ **Contact arrangement**

| Contact arrangement | Blank      | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 2NO+2NC |
|---------------------|------------|-----|-----|---------|-----|-----|---------|
| Code                | Screw      | 0   | A   | B       | 1   | D   | E       |
|                     | Solder/tab | 0   | -   | -       | 1   | -   | 2       |

Operating direction code of contacts



Ex. AR22A0N-A 0 A 0 B  
1 2 3 4

⑤ **Handle color**

- B: Black

■ **Ordering information**

Specify the following:

1. Type number

For the CCC approved product, add the suffix **(CCC)** to the type number

Example: Pushbutton switch **AR22F0R-11B(CCC)**

**Buzzers**

**DR22B 5 – E B**

① ② ③ ④

① **Product category**

DR22B: 22mm-dia. buzzer

② **Sound**

- 5: Electronic sound
- 3: Magnetic sound
- 8: Electronic sound (IP54)

③ **Operating voltage**

- A: 6V AC (Type “5”, “8”)
- 6: 6V DC (Type “5”, “8”)
- E: 12-24V AC/DC (Type “3” : 24V AC/DC)
- F: 35-48V AC/DC (Type “5”, “8”)
- H: 100-110V AC
- M: 200-220V AC
- 1: 100-110V DC (Type “5”, “8”)

④ **Color of head**

- B: Black

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Ratings and specifications

#### ■ Standards approved

|                                 |  |
|---------------------------------|--|
| UL508                           | File No. E44592  |
| CSA C22.2 No.14                 | File No. LR20479<br>cUL File No. E44592 (For AR22VG)   |
| TÜV: EN60947-5-1                | Pushbutton, Illuminated pushbutton: R9551062,<br>Selector, Illuminated selector: R9551060<br>Pilot lights: R9551061<br>Joy stick selector switch: R2050803<br>(Lever switch)<br>Buzzer: J9950091 |
| TÜV: EN60947-5-1<br>EN60947-5-5 | Emergency stop pushbutton<br>Emergency stop illuminated pushbutton<br>: R50028146, R50028137 (For AR22VG)  |

#### ■ Specifications (Indoor use)

| Description  | Pushbutton switch<br>Illuminated pushbutton switch<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch<br>Selector switch<br>Illuminated selector switch | Joy stick selector<br>(Lever switch)               | Pilot light                                    |
|--|--|--|--|
| Rated insulation voltage                             | 600V AC/DC *1  | 250V AC/DC   | 250V AC/DC *2                                  |
| Mechanical durability                                | See page 04/13   | 250,000 operations                                 | –  |
| Electrical durability                                | 500,000 operations at 220V AC 6A<br>1 million operations at 220V AC 3A<br>(AR22VG type: 100,000 operations)  | 100,000 operations<br>at 220V AC 1A<br>(Res. load) | –  |
| Operating frequency                                  | 1200 operations/hour (On-load factor: 40%)<br>AR22VG type: 1800 operations/hour (On-load factor: 40%)  |  | –  |
| Dielectric strength                                  | 2500V AC, 1 minute *3  | 2000V AC, 1 minute *4                              |  |
| Insulation resistance                                | 100MΩ or more (500V DC megger)   |  |  |
| Rated impulse dielectric strength                    | 6kV (AR22VG type: 4kV)   | –  | 6kV  |
| Conditional short-circuit current                    | 1000A  | 1000A  | –  |
| Short-circuit protective device                      | Fuse 15A   | Fuse 1A  | –  |
| Pollution degree                                     | 3  |  |  |
| Vibration  | Resonance: 10 to 55Hz, double amplitude 0.1mm *5<br>Constant: 16.7Hz, double amplitude 3mm   |  |  |
| Shock  | Malfunction durability: 100m/s <sup>2</sup> *6<br>Mechanical durability: 500m/s <sup>2</sup>   |  | Mechanical durability<br>: 500m/s <sup>2</sup> |
| Ambient temperature<br>(No condensation or no icing) | -20 to +70°C *7  | -5 to +70°C  | -20 to +50°C                                   |
| Storage temperature                                  | -40 to +80°C   |  |  |
| Humidity   | 45 to 85% RH (within -5 to +40°C)  |  |  |
| Degree of protection                                 | IP65   |  |  |

Notes: \*1 Illuminated type without transformer and AR22VG type: 250V AC/DC

\*2 Pilot light with transformer: 600V AC

\*3 Illuminated type without transformer: 2000V AC, 1 minute (except AR22VGF type)

\*4 Pilot light with transformer: 2500V AC, 1 minute

\*5 Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/s<sup>2</sup>), according to the test condition of EN60947-5-5 (1997)

\*6 Emergency stop type: 150m/s<sup>2</sup>

\*7 AR22VGE type: -20 to +60°C, illuminated type: -20 to +50°C

# Pushbuttons/Selectors/Pilot Lights/Buzzers AR22 and DR22 Ratings and specifications

### ● Mechanical durability

| Description                           |   | Operations |
|---------------------------------------|---|------------|
| Pushbutton switch                     | Momentary action                                  | 5 million  |
| Illuminated pushbutton switch         | Alternate action                                  | 1 million  |
| Emergency stop pushbutton switch      | With selector ring                                | 100,000    |
| Emergency stop illuminated pushbutton | Push-lock, turn-reset                             | 100,000    |
|                                       | Push-lock, pull-reset                             | 30,000     |
| Selector switch                       | Maintained 1, 2, 3, 4-contact                     | 1 million  |
|                                       | Maintained 5, 6-contact                           | 500,000    |
|                                       | Control type, spring return, spring/manual return | 200,000    |
| Illuminated selector switch           | Maintained  |            |
|                                       | Without transformer 1, 2, 3-contact               | 1 million  |
|                                       | 4-contact   | 500,000    |
|                                       | With transformer 1, 2-contact                     | 1 million  |
|                                       | 3-contact   | 500,000    |
|                                       | Spring return, spring/manual return               | 200,000    |

Note: Key insertion/removal durability for selector switch key types  
 • Key type 10,000  
 • Key (Long durability) type 20,000

### ● Buzzers

| Item                     | DR22B5  | DR22B3                               | DR22B8                     |
|--------------------------|---|--------------------------------------|----------------------------|
| Rated insulation voltage | Without transformer: 60V AC/DC With transformer: 250V AC                                  |                                      |                            |
| Sound level              | 90dB (0.1m)<br>70dB (1m)  | 80 to 90dB (0.1m)<br>60 to 70dB (1m) | 80dB (0.1m)<br>60dB (1.0m) |
| Durability               | 1000h   | 200h                                 | 1000h                      |
| Frequency                | 2.4 to 3.3kHz   |                                      |                            |
| Intermittent cycle       | Approx. 170-cycle/min   |                                      |                            |
| Current consumption      | See the table below   |                                      |                            |
| Dielectric strength      | Without transformer: 1000V AC 1 minute With transformer: 2000V AC 1 minute                |                                      |                            |
| Insulation resistance    | 100MΩ or more (500V DC megger)  |                                      |                            |
| Pollution degree         | 3   |                                      |                            |
| Vibration                | Resonance: 10 to 55Hz, double amplitude 0.1mm<br>Constant: 16.7Hz, double amplitude 3.0mm |                                      |                            |
| Shock                    | Mechanical durability: 500m/s <sup>2</sup>  |                                      |                            |
| Ambient temperature      | -20 to +60°C (No condensation or no icing)<br>(with resistor unit: -20 to +40°C)          |                                      |                            |
| Storage temperature      | -30 to +70°C  |                                      |                            |
| Humidity                 | 45 to 85%RH (within -5 to 40°C)   |                                      |                            |
| Degree of protection     | IP00  |                                      | IP54                       |

### ● Current consumption

| Operational voltage | Current consumption |                  |
|---------------------|---------------------|------------------|
|                     | DR22B5, DR22B8      | DR22B3           |
| 6V AC               | 70mA AC             | —                |
| 6V DC               | 35mA DC             | —                |
| 24V AC/DC           | 40mA AC, 25mA DC    | 30mA AC, 20mA DC |
| 48V AC/DC           | 65mA AC, 20mA DC    | —                |
| 110V AC             | 30mA AC             | 30mA AC          |
| 110V DC             | 30mA DC             | —                |
| 220V AC             | 15mA AC             | 15mA AC          |

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Ratings and specifications

■ **Contact ratings**  
 ● **UL/CSA standards**  
**AC (COS  $\phi$ =0.35)**

| Contact rated code | 120V           |                  | 240V           |                  | 480V           |                  | 600V           |                  |
|--------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|
|                    | Making current | Breaking current | Making current | Breaking current | Making current | Breaking current | Making current | Breaking current |
| A600               | 60A            | 6.0A             | 30A            | 3.0A             | 15A            | 1.5A             | 12A            | 1.2A             |
| B300 (AR22VG)      | 30A            | 3.0A             | 15A            | 1.5A             | –              | –                | –              | –                |

**DC**  $T_{0.95}$  = 6P (Max. 300ms)

| Description  | Contact rated code | Making current · Breaking current |       |           |
|--|--------------------|-----------------------------------|-------|-----------|
|  |                    | 125V                              | 250V  | 301V–600V |
| Illuminated pushbutton switch<br>Pushbutton<br>(Ring type selector switch: AR22S2R only)<br>Emergency stop pushbutton switch   | P600               | 1.1A                              | 0.55A | 0.2A      |
| Emergency stop illuminated pushbutton switch<br>(Except the overlap contact types)   | Q300<br>(AR22VG)   | 0.55A                             | 0.27A | –         |
| Overlap contact types of products shown above<br>Pushbutton<br>(Ring type selector switch: AR22S1R, S6R only)<br>Selector switch (2-position only, except the overlap contact types)<br>Illuminated selector switch<br>(2-position only, except the overlap contact types) | Q600               | 0.55A                             | 0.27A | 0.1A      |
| Pushbutton<br>(Ring type selector switch: AR22S3R only)<br>Selector switch (2-pos./overlap contact type, 3-, 4-, 5-pos. type)<br>Illuminated selector switch (2-pos./overlap contact type, 3-pos. type)  | R300               | 0.22A                             | 0.11A | –         |

Note: Joy stick selector switches (Lever switches): 250V AC, 5A (Res. load) 125V DC, 0.2A 24V DC, 1A (Res. load)

● **EN standard/TÜV approved**

| Description   | Rated operational current |                           |                           |                           |
|---|---------------------------|---------------------------|---------------------------|---------------------------|
|   | Rated thermal current     | Rated operational voltage | AC15 (Ind. load)          | DC13 (Ind. load)          |
|   |                           |                           | Rated operational current | Rated operational current |
| Illuminated pushbutton switch<br>Pushbutton (Except the selector ring type)<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch<br>Selector switch (2-position)<br>Illuminated selector switch (2-position) | 10A                       | 24V                       | 6.0A                      | 4.0A (AR22VG: 1.5A)       |
|   |                           | 120V                      | 6.0A (AR22VG: 3A)         | –                         |
|   |                           | 125V                      | –                         | 1.3A (AR22VG: 0.3A)       |
|   |                           | 240V                      | 6.0A (AR22VG: 3A)         | –                         |
|   |                           | 250V                      | –                         | 0.45A (AR22VG: 0.15A)     |
|   |                           | 480V                      | 2.5A (AR22VG: –)          | –                         |
|   |                           | 600V                      | 2.0A (AR22VG: –)          | –                         |
| Selector switch (3, 4, 5-position)<br>Illuminated selector switch (3-position)<br>Pushbutton with selector ring   | 10A                       | 24V                       | 6.0A                      | 2.0A                      |
|   |                           | 120V                      | 6.0A                      | –                         |
|   |                           | 125V                      | –                         | 0.65A                     |
|   |                           | 240V                      | 6.0A                      | –                         |
|   |                           | 250V                      | –                         | 0.23A                     |
|   |                           | 480V                      | 2.5A                      | –                         |
|   |                           | 600V                      | 2.0A                      | –                         |
| Joy stick selector switch (Lever switch)  | 5A                        | 24V                       | –                         | 0.7A                      |
|   |                           | 120V                      | 0.3A                      | –                         |
|   |                           | 125V                      | –                         | 0.15A                     |
|   |                           | 240V                      | 0.3A                      | –                         |

Lamp rated voltage UL/CSA standards, TÜV approved

|                                    | LED lamp                                     | Incandescent lamp | Neon lamp    |
|------------------------------------|--|-------------------|--------------|
| Full-voltage (without transformer) | Max. 24V AC/DC                               | Max. 30V AC/DC    | Max. 240V AC |
| With transformer                   | Max. 550V AC (Short-body type: Max. 220V AC) |                   | –            |

# Pushbuttons/Selectors/Pilot Lights/Buzzers AR22 and DR22 Ratings and specifications

## ■ Operating characteristic (1NO+1NC)

| Description                   | Pushbutton<br>Illuminated pushbutton   | Emergency stop pushbutton   |                | Selector *2  |                            |  |
|-------------------------------|--|---|----------------|--|----------------------------|--|
|                               |  | Emergency stop illuminated pushbutton   |                | Illuminated selector   |                            |  |
|                               |  | Push-lock type  | Push-pull type | Maintained   | Spring/manual return       | Spring return  |
| Ave. required operating force | 9N (Push-lock type: 20N)   | 30N (AR22VG: 22N)*1   | 45N            | 0.15N•m  | 0.13N•m                    | 0.1N•m   |
| Operating travel              | Approx. 6mm<br><br>(Push-lock type:<br>Approx. 9mm, operation<br>angle: Approx. 45°) | Approx. 9mm<br><br>(AR22VG:<br>Approx. 10mm, operation<br>angle: Approx. 45°) | Approx. 9mm    | 2-position:<br>Approx. 90°<br>3-position:<br>Approx. 45°<br>4-position:<br>Approx. 40°<br>5-position:<br>Approx. 30° | 3-position:<br>Approx. 45° | 2-position:<br>Approx. 60°<br>3-position:<br>Approx. 45° |
| Required return force         | –<br>(Push-lock type: 0.6N•m)  | 0.6N•m<br>(AR22VG: 0.2N•m)  | 30N (pull)     | 0.15N•m  | 0.13N•m                    | –  |

Notes: \*1 AR22V2R, V4R, V7R, VAL types: 45N

\*2 4-position, 5-position: 2NO+2NC

## ■ Lamp ratings

### ● Illuminated pushbuttons, illuminated selectors, pilot lights

| Transformer                                     | Lamp voltage                             | LED             |                |   | Incandescent     |                        |                                  |
|---|--|-----------------|----------------|---|------------------|------------------------|----------------------------------|
|   |  | Type            | Rated voltage  | Consumption   | Type             | Rated voltage          | Consumption                      |
| Without transformer                             | 5.5V AC/DC                               | –               | –              | –   | AHX135           | 6.3V AC/DC             | 0.9W                             |
|   | 6V AC                                    | APX510-6□       | 6V AC          | Green, red, orange, amber, blue: 7mA AC<br>Yellow: 50mA AC                    | –                | –                      | –                                |
|   | 6V DC                                    | APX510-D6□      | 6V DC          | Green, red, orange, amber, blue: 11mA DC<br>Yellow: 33mA DC                   | –                | –                      | –                                |
|   | 12V AC/DC                                | APX510-12□      | 12V AC/DC      | Green, red, orange, amber, blue: 14mA AC, 11mA DC<br>Yellow: 28mA AC, 22mA DC | –                | –                      | –                                |
|   | 15V AC/DC                                | APX510-15□      | 15V AC/DC      | Green, red, orange, amber, blue: 13mA AC, 11mA DC<br>Yellow: 26mA AC, 22mA DC | AHX279           | 18V AC/DC              | 0.8W                             |
|   | 20V AC/DC<br>24V AC/DC                   | –<br>APX510-24□ | –<br>24V AC/DC | –<br>12mA AC, 11mA DC   | AHX144<br>AHX129 | 24V AC/DC<br>30V AC/DC | 0.9W<br>0.8W                     |
| With transformer<br>(Standard type:<br>AR9T511) | 110V AC                                  | APX510-6□       | 6V AC          | 1.5VA   | AHX135           | 6.3V AC/DC             | 2VA                              |
|   | 127V AC                                  |                 |                |   |                  |                        | 2VA                              |
|   | 220V AC                                  |                 |                |   |                  |                        | 2VA                              |
|   | 254V AC                                  | APX510-6□       | 6V AC          | 2.5VA   | AHX135           | 6.3V AC/DC             | 2.5VA                            |
|   | 380V AC<br>440V AC<br>480V AC<br>550V AC |                 |                |   |                  |                        | 2.5VA<br>2.5VA<br>2.5VA<br>2.5VA |
| With resistor unit<br>(AR9T519-H)               | 110V DC                                  | APX510-24□      | 24V AC/DC      | 1.2W  | –                | –                      | –                                |

Notes: • Short body pilot lights: 110V AC, 127V AC, 220V AC only

• Replace the □ mark by the lamp luminous color code, see page 04/16

• Except AR22VGF type

### ● Emergency stop illuminated pushbuttons (AR22VGF type)

| Transformer         | Lamp | Voltage   | Type       | Rated voltage | Consumption        |
|---------------------|------|-----------|------------|---------------|--------------------|
| Without transformer | LED  | 24V AC/DC | AR9L002-ER | 24V AC/DC     | 12mA AC<br>11mA DC |
|                     | Neon | 110V AC   | AR9N001-HA | 110V AC       | 0.19VA             |
|                     |      | 120V AC   | AR9N001-KA | 120V AC       | 0.21VA             |
|                     |      | 220V AC   | AR9N001-MA | 220V AC       | 0.30VA             |
|                     |      | 240V AC   | AR9N001-PA | 240V AC       | 0.30VA             |

Notes: Lamp base: BA9S/13

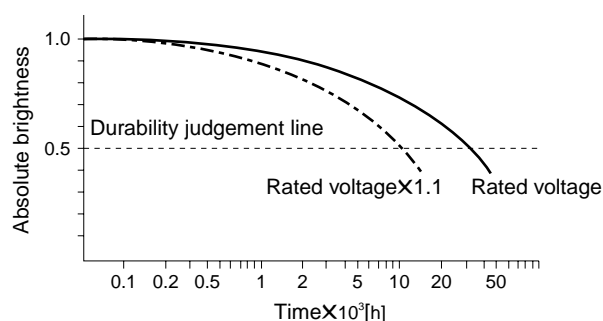
# Pushbuttons/Selectors/Pilot Lights/Buzzers AR22 and DR22 Ratings and specifications

## ■ Lamp durability

| Lamp         | Durability (reference) | Judgement criterion   |
|--------------|------------------------|---|
| LED          | Approx. 30000h         | When brightness is less than 50% of initial value                                     |
| Incandescent | Approx. 5000h (AC)     | When the bulb burns out   |
| Neon         | Approx. 5000h          | When a remarkable blackening appears in the glass bulb and the using becomes improper |

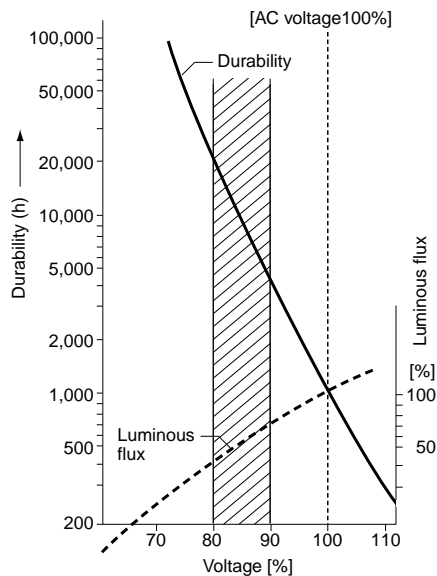
Notes: • The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.  
• The durability of LED lamp is a mean value in all colors.

## Estimated durability for LED lamps



Notes: • Durability at  $T_a=25^{\circ}\text{C}$   
• Durability is affected by temperature, humidity, and voltage fluctuation.

## Incandescent lamp voltage characteristics









## ■ Combination of lens color and LED or neon lamp luminous color

| Lens Color    | Code | LED or neon lamp Luminous color | Type       |
|---------------|------|---------------------------------|------------|
| Green         | G    | Green                           | APX510-■G  |
| Red           | R    | Red                             | APX510-■R  |
| White         | W    | Orange                          | APX510-■O  |
| Yellow        | Y    | Yellow                          | APX510-■Y  |
| Orange *      | A    | Amber                           | APX510-■A  |
| Blue          | S    | Blue                            | APX510-■S  |
| Red (AR22VGF) | R    | Red                             | AR9L002-ER |
|               |      | Orange (Neon lamp)              | AR9N001-■A |

Notes: \* DR22F4M: LED lamp color is orange. (APX510-■O)  
• Replace the ■ mark by the lamp voltage code

■ Illuminated pushbutton switches

| Operator   | Transformer | Contact                          | LED lamp<br>Momentary action<br>Type                             | Alternate action<br>Type                             | Incandescent lamp<br>Momentary action<br>Type                    | Alternate action<br>Type                             |
|--|-------------|----------------------------------|--|--|--|--|
| Flush round head<br><br>AF94-318  | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22F0L-10■3□<br>AR22F0L-01■3□<br>AR22F0L-11■3□<br>AR22F0L-22■3□ | AR22F5L-10■3□<br>AR22F5L-01■3□<br>AR22F5L-11■3□<br>— | AR22F0L-10■4□<br>AR22F0L-01■4□<br>AR22F0L-11■4□<br>AR22F0L-22■4□ | AR22F5L-10■4□<br>AR22F5L-01■4□<br>AR22F5L-11■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR22F0L-10■3□<br>AR22F0L-01■3□<br>AR22F0L-11■3□                  | AR22F5L-10■3□<br>AR22F5L-01■3□<br>AR22F5L-11■3□      | AR22F0L-10■4□<br>AR22F0L-01■4□<br>AR22F0L-11■4□                  | AR22F5L-10■4□<br>AR22F5L-01■4□<br>AR22F5L-11■4□      |
| Extended round head<br><br>AF94-317                                     | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22E0L-10■3□<br>AR22E0L-01■3□<br>AR22E0L-11■3□<br>AR22E0L-22■3□ | AR22E5L-10■3□<br>AR22E5L-01■3□<br>AR22E5L-11■3□<br>— | AR22E0L-10■4□<br>AR22E0L-01■4□<br>AR22E0L-11■4□<br>AR22E0L-22■4□ | AR22E5L-10■4□<br>AR22E5L-01■4□<br>AR22E5L-11■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR22E0L-10■3□<br>AR22E0L-01■3□<br>AR22E0L-11■3□                  | AR22E5L-10■3□<br>AR22E5L-01■3□<br>AR22E5L-11■3□      | AR22E0L-10■4□<br>AR22E0L-01■4□<br>AR22E0L-11■4□                  | AR22E5L-10■4□<br>AR22E5L-01■4□<br>AR22E5L-11■4□      |
| Mushroom head<br>(40mm dia.)<br><br>AF94-367                          | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22M0L-10■3□<br>AR22M0L-01■3□<br>AR22M0L-11■3□<br>AR22M0L-22■3□ | AR22M5L-10■3□<br>AR22M5L-01■3□<br>AR22M5L-11■3□<br>— | AR22M0L-10■4□<br>AR22M0L-01■4□<br>AR22M0L-11■4□<br>AR22M0L-22■4□ | AR22M5L-10■4□<br>AR22M5L-01■4□<br>AR22M5L-11■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR22M0L-10■3□<br>AR22M0L-01■3□<br>AR22M0L-11■3□                  | AR22M5L-10■3□<br>AR22M5L-01■3□<br>AR22M5L-11■3□      | AR22M0L-10■4□<br>AR22M0L-01■4□<br>AR22M0L-11■4□                  | AR22M5L-10■4□<br>AR22M5L-01■4□<br>AR22M5L-11■4□      |
| Mushroom head<br>(29mm dia.)<br><br>AF94-369                          | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22M4L-10■3□<br>AR22M4L-01■3□<br>AR22M4L-11■3□<br>AR22M4L-22■3□ | AR22M9L-10■3□<br>AR22M9L-01■3□<br>AR22M9L-11■3□<br>— | AR22M4L-10■4□<br>AR22M4L-01■4□<br>AR22M4L-11■4□<br>AR22M4L-22■4□ | AR22M9L-10■4□<br>AR22M9L-01■4□<br>AR22M9L-11■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR22M4L-10■3□<br>AR22M4L-01■3□<br>AR22M4L-11■3□                  | AR22M9L-10■3□<br>AR22M9L-01■3□<br>AR22M9L-11■3□      | AR22M4L-10■4□<br>AR22M4L-01■4□<br>AR22M4L-11■4□                  | AR22M9L-10■4□<br>AR22M9L-01■4□<br>AR22M9L-11■4□      |
| Extended with transparent<br>full guard (24mm dia.)<br><br>AF94-294   | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22G4L-10■3□<br>AR22G4L-01■3□<br>AR22G4L-11■3□<br>AR22G4L-22■3□ | AR22G9L-10■3□<br>AR22G9L-01■3□<br>AR22G9L-11■3□<br>— | AR22G4L-10■4□<br>AR22G4L-01■4□<br>AR22G4L-11■4□<br>AR22G4L-22■4□ | AR22G9L-10■4□<br>AR22G9L-01■4□<br>AR22G9L-11■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR22G4L-10■3□<br>AR22G4L-01■3□<br>AR22G4L-11■3□                  | AR22G9L-10■3□<br>AR22G9L-01■3□<br>AR22G9L-11■3□      | AR22G4L-10■4□<br>AR22G4L-01■4□<br>AR22G4L-11■4□                  | AR22G9L-10■4□<br>AR22G9L-01■4□<br>AR22G9L-11■4□      |
| Extended with full guard<br>(24mm dia. with openings)<br><br>AF99-319 | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22G2L-10■3□<br>AR22G2L-01■3□<br>AR22G2L-11■3□<br>AR22G2L-22■3□ | AR22G7L-10■3□<br>AR22G7L-01■3□<br>AR22G7L-11■3□<br>— | AR22G2L-10■4□<br>AR22G2L-01■4□<br>AR22G2L-11■4□<br>AR22G2L-22■4□ | AR22G7L-10■4□<br>AR22G7L-01■4□<br>AR22G7L-11■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR22G2L-10■3□<br>AR22G2L-01■3□<br>AR22G2L-11■3□                  | AR22G7L-10■3□<br>AR22G7L-01■3□<br>AR22G7L-11■3□      | AR22G2L-10■4□<br>AR22G2L-01■4□<br>AR22G2L-11■4□                  | AR22G7L-10■4□<br>AR22G7L-01■4□<br>AR22G7L-11■4□      |

Note: ■ □ See page 04/19


# Illuminated Pushbuttons

## AR22

| Operator  | Transformer | Contact                          | LED lamp<br>Momentary action<br>Type                             | Alternate action<br>Type   | Incandescent lamp<br>Momentary action<br>Type                    | Alternate action<br>Type   |
|---|-------------|----------------------------------|--|--|--|--|
| Extended with full guard<br>(24mm dia.)<br><br><small>KK02-127A</small>                  | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22G1L-10■3□<br>AR22G1L-01■3□<br>AR22G1L-11■3□<br>AR22G1L-22■3□ | AR22G6L-10■3□<br>AR22G6L-01■3□<br>AR22G6L-11■3□<br>—             | AR22G1L-10■4□<br>AR22G1L-01■4□<br>AR22G1L-11■4□<br>AR22G1L-22■4□ | AR22G6L-10■4□<br>AR22G6L-01■4□<br>AR22G6L-11■4□<br>—             |
|   | With        | 1NO<br>1NC<br>1NO+1NC            | AR22G1L-10■3□<br>AR22G1L-01■3□<br>AR22G1L-11■3□                  | AR22G6L-10■3□<br>AR22G6L-01■3□<br>AR22G6L-11■3□                  | AR22G1L-10■4□<br>AR22G1L-01■4□<br>AR22G1L-11■4□                  | AR22G6L-10■4□<br>AR22G6L-01■4□<br>AR22G6L-11■4□                  |
| Push-lock, turn-reset<br>(40mm dia. with white<br>arrow)<br><br><small>KKD06-335</small> | Without     | 1NO<br>1NC<br>1NO+1NC<br>3NC     | —<br>—<br>—<br>—   | AR22V5L-10■3□<br>AR22V5L-01■3□<br>AR22V5L-11■3□<br>AR22V5L-03■3□ | —<br>—<br>—<br>—   | AR22V5L-10■4□<br>AR22V5L-01■4□<br>AR22V5L-11■4□<br>AR22V5L-03■4□ |
|   | With        | 1NO<br>1NC<br>1NO+1NC            | —<br>—<br>—  | AR22V5L-10■3□<br>AR22V5L-01■3□<br>AR22V5L-11■3□                  | —<br>—<br>—  | AR22V5L-10■4□<br>AR22V5L-01■4□<br>AR22V5L-11■4□                  |
| Flush square head<br><br><small>AF97-68</small>   | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22F0M-10■3□<br>AR22F0M-01■3□<br>AR22F0M-11■3□<br>AR22F0M-22■3□ | AR22F5M-10■3□<br>AR22F5M-01■3□<br>AR22F5M-11■3□<br>—             | AR22F0M-10■4□<br>AR22F0M-01■4□<br>AR22F0M-11■4□<br>AR22F0M-22■4□ | AR22F5M-10■4□<br>AR22F5M-01■4□<br>AR22F5M-11■4□<br>—             |
|   | With        | 1NO<br>1NC<br>1NO+1NC            | AR22F0M-10■3□<br>AR22F0M-01■3□<br>AR22F0M-11■3□                  | AR22F5M-10■3□<br>AR22F5M-01■3□<br>AR22F5M-11■3□                  | AR22F0M-10■4□<br>AR22F0M-01■4□<br>AR22F0M-11■4□                  | AR22F5M-10■4□<br>AR22F5M-01■4□<br>AR22F5M-11■4□                  |
| Extended square head<br><br><small>AF94-357</small>                                    | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22E0M-10■3□<br>AR22E0M-01■3□<br>AR22E0M-11■3□<br>AR22E0M-22■3□ | AR22E5M-10■3□<br>AR22E5M-01■3□<br>AR22E5M-11■3□<br>—             | AR22E0M-10■4□<br>AR22E0M-01■4□<br>AR22E0M-11■4□<br>AR22E0M-22■4□ | AR22E5M-10■4□<br>AR22E5M-01■4□<br>AR22E5M-11■4□<br>—             |
|   | With        | 1NO<br>1NC<br>1NO+1NC            | AR22E0M-10■3□<br>AR22E0M-01■3□<br>AR22E0M-11■3□                  | AR22E5M-10■3□<br>AR22E5M-01■3□<br>AR22E5M-11■3□                  | AR22E0M-10■4□<br>AR22E0M-01■4□<br>AR22E0M-11■4□                  | AR22E5M-10■4□<br>AR22E5M-01■4□<br>AR22E5M-11■4□                  |
| Flush round head<br>with square bezel<br><br><small>AF94-315</small>                   | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22F0P-10■3□<br>AR22F0P-01■3□<br>AR22F0P-11■3□<br>AR22F0P-22■3□ | AR22F5P-10■3□<br>AR22F5P-01■3□<br>AR22F5P-11■3□<br>—             | AR22F0P-10■4□<br>AR22F0P-01■4□<br>AR22F0P-11■4□<br>AR22F0P-22■4□ | AR22F5P-10■4□<br>AR22F5P-01■4□<br>AR22F5P-11■4□<br>—             |
|   | With        | 1NO<br>1NC<br>1NO+1NC            | AR22F0P-10■3□<br>AR22F0P-01■3□<br>AR22F0P-11■3□                  | AR22F5P-10■3□<br>AR22F5P-01■3□<br>AR22F5P-11■3□                  | AR22F0P-10■4□<br>AR22F0P-01■4□<br>AR22F0P-11■4□                  | AR22F5P-10■4□<br>AR22F5P-01■4□<br>AR22F5P-11■4□                  |
| Extended round head<br>with square bezel<br><br><small>AF94-314</small>                | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR22E0P-10■3□<br>AR22E0P-01■3□<br>AR22E0P-11■3□<br>AR22E0P-22■3□ | AR22E5P-10■3□<br>AR22E5P-01■3□<br>AR22E5P-11■3□<br>—             | AR22E0P-10■4□<br>AR22E0P-01■4□<br>AR22E0P-11■4□<br>AR22E0P-22■4□ | AR22E5P-10■4□<br>AR22E5P-01■4□<br>AR22E5P-11■4□<br>—             |
|   | With        | 1NO<br>1NC<br>1NO+1NC            | AR22E0P-10■3□<br>AR22E0P-01■3□<br>AR22E0P-11■3□                  | AR22E5P-10■3□<br>AR22E5P-01■3□<br>AR22E5P-11■3□                  | AR22E0P-10■4□<br>AR22E0P-01■4□<br>AR22E0P-11■4□                  | AR22E5P-10■4□<br>AR22E5P-01■4□<br>AR22E5P-11■4□                  |

Note: ■ □ See page 04/19



| Operator   | Trans-<br>former | Contact | LED lamp                 |                          | Incandescent lamp        |                          |
|--|------------------|---------|--------------------------|--------------------------|--------------------------|--------------------------|
|  |                  |         | Momentary action<br>Type | Alternate action<br>Type | Momentary action<br>Type | Alternate action<br>Type |
| Mushroom head with<br>square bezel<br>(29mm dia.)<br><br>AF94-440 | Without          | 1NO     | AR22M4P-10■3□            | —                        | AR22M4P-10■4□            | —                        |
|  |                  | 1NC     | AR22M4P-01■3□            | —                        | AR22M4P-01■4□            | —                        |
|  |                  | 1NO+1NC | AR22M4P-11■3□            | —                        | AR22M4P-11■4□            | —                        |
|  |                  | 2NO+2NC | AR22M4P-22■3□            | —                        | AR22M4P-22■4□            | —                        |
|  | With             | 1NO     | AR22M4P-10■3□            | —                        | AR22M4P-10■4□            | —                        |
|  |                  | 1NC     | AR22M4P-01■3□            | —                        | AR22M4P-01■4□            | —                        |
|  |                  | 1NO+1NC | AR22M4P-11■3□            | —                        | AR22M4P-11■4□            | —                        |

• **Lens color**

Replace the □ mark by the lens color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

Note: AR22V5L type: Red, yellow only

• **Contact arrangements**

Contact arrangements other than above are available

| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO |
|---------------------|-----|-----|---------|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  |

| Contact arrangement | 3NC | 2NO+2NC | 4NO | 4NC | 5NO | 5NC |
|---------------------|-----|---------|-----|-----|-----|-----|
| Code                | 03  | 22      | 40  | 04  | 50  | 05  |

Available numbers of contact blocks

| Operation                                 | Without transformer | With transformer |
|---|---------------------|------------------|
| Momentary action                          | 5-contact block     | 3-contact block  |
| Alternate action<br>Push-lock, turn-reset | 3-contact block     | 2-contact block  |

• **Voltage**

Replace the ■ mark by the lamp voltage code

| Transformer         |                        | Code   |              |
|---------------------|------------------------|--------|--------------|
|                     |                        | LED    | Incandescent |
| Without transformer | 6V DC                  | 6      | —            |
|                     | 6V AC                  | A      | —            |
|                     | 5.5V AC/DC             | —      | 5            |
|                     | 12V AC/DC              | B      | —            |
|                     | 15V AC/DC              | C      | C            |
|                     | 20V AC/DC<br>24V AC/DC | —<br>E | D<br>E       |
| With transformer    | 100-110V AC            | H      | H            |
|                     | 115-127V AC            | L      | L            |
|                     | 200-220V AC            | M      | M            |
|                     | 230-254V AC            | Q      | Q            |
|                     | 350-380V AC            | S      | S            |
|                     | 400-440V AC            | T      | T            |
|                     | 480V AC                | V      | V            |
|                     | 500-550V AC            | W      | W            |



# Pushbuttons


## AR22


### ■ Pushbutton switches

| Operator   | Contact  | Momentary action Type  | Alternate action Type |
|--|--|--|-----------------------|
| Flush round head<br><br><small>AF94-320</small>                       | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22F0R-10</b> □ <b>AR22F5R-10</b> □<br><b>AR22F0R-01</b> □ <b>AR22F5R-01</b> □<br><b>AR22F0R-11</b> □ <b>AR22F5R-11</b> □<br><b>AR22F0R-20</b> □ <b>AR22F5R-20</b> □<br><b>AR22F0R-02</b> □ <b>AR22F5R-02</b> □<br><b>AR22F0R-22</b> □ <b>AR22F5R-22</b> □             |                       |
| Extended round head<br><br><small>AF94-319</small>                    | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22E0R-10</b> □ <b>AR22E5R-10</b> □<br><b>AR22E0R-01</b> □ <b>AR22E5R-01</b> □<br><b>AR22E0R-11</b> □ <b>AR22E5R-11</b> □<br><b>AR22E0R-20</b> □ <b>AR22E5R-20</b> □<br><b>AR22E0R-02</b> □ <b>AR22E5R-02</b> □<br><b>AR22E0R-22</b> □ <b>AR22E5R-22</b> □             |                       |
| Flush round head symbol mark type<br><br><small>AF98-193</small>     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22FAR-10C</b> ■ <b>AR22FBR-10C</b> ■<br><b>AR22FAR-01C</b> ■ <b>AR22FBR-01C</b> ■<br><b>AR22FAR-11C</b> ■ <b>AR22FBR-11C</b> ■<br><b>AR22FAR-20C</b> ■ <b>AR22FBR-20C</b> ■<br><b>AR22FAR-02C</b> ■ <b>AR22FBR-02C</b> ■<br><b>AR22FAR-22C</b> ■ <b>AR22FBR-22C</b> ■ |                       |
| Extended round head symbol mark type<br><br><small>AF98-192</small> | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22EAR-10C</b> ■ <b>AR22EBR-10C</b> ■<br><b>AR22EAR-01C</b> ■ <b>AR22EBR-01C</b> ■<br><b>AR22EAR-11C</b> ■ <b>AR22EBR-11C</b> ■<br><b>AR22EAR-20C</b> ■ <b>AR22EBR-20C</b> ■<br><b>AR22EAR-02C</b> ■ <b>AR22EBR-02C</b> ■<br><b>AR22EAR-22C</b> ■ <b>AR22EBR-22C</b> ■ |                       |
| Mushroom head (40mm dia.)<br><br><small>AF94-293</small>            | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22M0R-10</b> □ <b>AR22M5R-10</b> □<br><b>AR22M0R-01</b> □ <b>AR22M5R-01</b> □<br><b>AR22M0R-11</b> □ <b>AR22M5R-11</b> □<br><b>AR22M0R-20</b> □ <b>AR22M5R-20</b> □<br><b>AR22M0R-02</b> □ <b>AR22M5R-02</b> □<br><b>AR22M0R-22</b> □ <b>AR22M5R-22</b> □             |                       |
| Mushroom head (29mm dia.)<br><br><small>AF94-321</small>            | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22M4R-10</b> □ <b>AR22M9R-10</b> □<br><b>AR22M4R-01</b> □ <b>AR22M9R-01</b> □<br><b>AR22M4R-11</b> □ <b>AR22M9R-11</b> □<br><b>AR22M4R-20</b> □ <b>AR22M9R-20</b> □<br><b>AR22M4R-02</b> □ <b>AR22M9R-02</b> □<br><b>AR22M4R-22</b> □ <b>AR22M9R-22</b> □             |                       |
| Extended with full guard (24mm dia.)<br><br><small>AF94-292</small> | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22G3R-10</b> □ <b>AR22G8R-10</b> □<br><b>AR22G3R-01</b> □ <b>AR22G8R-01</b> □<br><b>AR22G3R-11</b> □ <b>AR22G8R-11</b> □<br><b>AR22G3R-20</b> □ <b>AR22G8R-20</b> □<br><b>AR22G3R-02</b> □ <b>AR22G8R-02</b> □<br><b>AR22G3R-22</b> □ <b>AR22G8R-22</b> □             |                       |

Note: ■ □ See page 04/21

| Operator  | Contact  | Momentary action Type  | Alternate action Type  |
|---|--|--|--|
| Flush with full guard (24mm dia.)<br><br><small>AF02-68</small>                      | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22G2R-10</b> □ <b>AR22G7R-10</b> □<br><b>AR22G2R-01</b> □ <b>AR22G7R-01</b> □<br><b>AR22G2R-11</b> □ <b>AR22G7R-11</b> □<br><b>AR22G2R-20</b> □ <b>AR22G7R-20</b> □<br><b>AR22G2R-02</b> □ <b>AR22G7R-02</b> □<br><b>AR22G2R-22</b> □ <b>AR22G7R-22</b> □ |  |
| Mushroom head with full guard (40mm dia.)<br><br><small>AF94-372</small>             | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22M3R-10</b> □ <b>AR22M8R-10</b> □<br><b>AR22M3R-01</b> □ <b>AR22M8R-01</b> □<br><b>AR22M3R-11</b> □ <b>AR22M8R-11</b> □<br><b>AR22M3R-20</b> □ <b>AR22M8R-20</b> □<br><b>AR22M3R-02</b> □ <b>AR22M8R-02</b> □<br><b>AR22M3R-22</b> □ <b>AR22M8R-22</b> □ |  |
| Extended with half guard<br><br><small>AF96-236</small>                             | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22G0R-10</b> □ <b>AR22G5R-10</b> □<br><b>AR22G0R-01</b> □ <b>AR22G5R-01</b> □<br><b>AR22G0R-11</b> □ <b>AR22G5R-11</b> □<br><b>AR22G0R-20</b> □ <b>AR22G5R-20</b> □<br><b>AR22G0R-02</b> □ <b>AR22G5R-02</b> □<br><b>AR22G0R-22</b> □ <b>AR22G5R-22</b> □ |  |
| Push-lock, turn-reset (40mm dia. with white arrow)<br><br><small>KKD08-042</small> | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | —<br>—<br>—<br>—<br>—<br>—   | <b>AR22V5R-10</b> □<br><b>AR22V5R-01</b> □<br><b>AR22V5R-11</b> □<br><b>AR22V5R-20</b> □<br><b>AR22V5R-02</b> □<br><b>AR22V5R-22</b> □ |
| Flush square head<br><br><small>AF94-316</small>                                   | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22F0S-10</b> □ <b>AR22F5S-10</b> □<br><b>AR22F0S-01</b> □ <b>AR22F5S-01</b> □<br><b>AR22F0S-11</b> □ <b>AR22F5S-11</b> □<br><b>AR22F0S-20</b> □ <b>AR22F5S-20</b> □<br><b>AR22F0S-02</b> □ <b>AR22F5S-02</b> □<br><b>AR22F0S-22</b> □ <b>AR22F5S-22</b> □ |  |
| Extended square head<br><br><small>AF94-296</small>                                | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22E0S-10</b> □ <b>AR22E5S-10</b> □<br><b>AR22E0S-01</b> □ <b>AR22E5S-01</b> □<br><b>AR22E0S-11</b> □ <b>AR22E5S-11</b> □<br><b>AR22E0S-20</b> □ <b>AR22E5S-20</b> □<br><b>AR22E0S-02</b> □ <b>AR22E5S-02</b> □<br><b>AR22E0S-22</b> □ <b>AR22E5S-22</b> □ |  |
| Flush round head with square bezel<br><br><small>AF94-295</small>                  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22F0Y-10</b> □ <b>AR22F5Y-10</b> □<br><b>AR22F0Y-01</b> □ <b>AR22F5Y-01</b> □<br><b>AR22F0Y-11</b> □ <b>AR22F5Y-11</b> □<br><b>AR22F0Y-20</b> □ <b>AR22F5Y-20</b> □<br><b>AR22F0Y-02</b> □ <b>AR22F5Y-02</b> □<br><b>AR22F0Y-22</b> □ <b>AR22F5Y-22</b> □ |  |

| Operator  | Contact | Momentary action Type | Alternate action Type |
|---|---------|-----------------------|-----------------------|
| Extended round head with square bezel<br> AF94-297 | 1NO     | AR22E0Y-10□           | AR22E5Y-10□           |
|   | 1NC     | AR22E0Y-01□           | AR22E5Y-01□           |
|   | 1NO+1NC | AR22E0Y-11□           | AR22E5Y-11□           |
|   | 2NO     | AR22E0Y-20□           | AR22E5Y-20□           |
|   | 2NC     | AR22E0Y-02□           | AR22E5Y-02□           |
|   | 2NO+2NC | AR22E0Y-22□           | AR22E5Y-22□           |

| Operator   | Contact | Momentary action Type | Alternate action Type |
|--|---------|-----------------------|-----------------------|
| Mushroom head with square bezel (29mm dia.)<br> AF94-298 | 1NO     | AR22M4Y-10□           | —                     |
|  | 1NC     | AR22M4Y-01□           | —                     |
|  | 1NO+1NC | AR22M4Y-11□           | —                     |
|  | 2NO     | AR22M4Y-20□           | —                     |
|  | 2NC     | AR22M4Y-02□           | —                     |
|  | 2NO+2NC | AR22M4Y-22□           | —                     |

• **Button color**

Replace the □ mark by the button color code

| Color | Green | Red | White | Blue | Yellow | Orange | Black |
|-------|-------|-----|-------|------|--------|--------|-------|
| Code  | G     | R   | W     | S    | Y      | A      | B     |

Note: AR22V5R type: Red, yellow, black only

• **Contact arrangements**

Contact arrangements other than above are available

| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO | 3NC |
|---------------------|-----|-----|---------|-----|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  | 03  |

| Contact arrangement | 2NO+2NC | 4NO | 4NC | 5NO | 5NC | 3NO+3NC |
|---------------------|---------|-----|-----|-----|-----|---------|
| Code                | 22      | 40  | 04  | 50  | 05  | 33      |

• **Available numbers of contact blocks**




|                  |   |
|------------------|---|
| Momentary action | Alternate action<br>Push-lock, turn-reset |
| 6-contact block  | 4-contact block                           |

• **Symbol mark** (For AR22FAR, FBR, EAR, EBR)

Replace the ■ mark by the symbol mark code

| Symbol mark     | ○     | I     | Ⓢ     | Ⓢ     | Ⓢ     | Ⓢ     | Ⓢ     | Ⓢ       |
|-----------------|-------|-------|-------|-------|-------|-------|-------|---------|
| Color of button | White | Black | White | Black | White | Black | Clear |         |
| Color of mark   | Red   |       | Green |       | Green |       | Black |         |
| Code            | 01    | 02    | 03    | 04    | 11    | 12    | 02B   | 04B 12B |

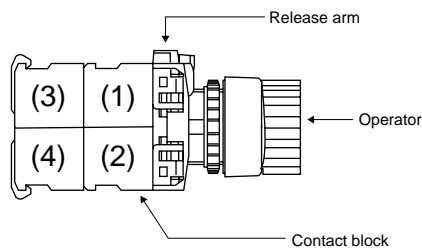
# Pushbuttons AR22

| Operator   | Contact<br>(The following contact is only available.) | Button color   | Type   | Contact operation |      |  |           |   |           |
|--|---|--|--|-------------------|------|--|-----------|---|-----------|
|  |   |  |  | Contact block     |      | Left  |           | Right  |           |
|  |   |  |  | Mounting position | Type | Free   | Depressed | Free  | Depressed |
| Pushbutton with selector ring (2-position)<br><br>AF94-355 | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR22S1R-22G</b><br><b>AR22S1R-22R</b><br><b>AR22S1R-22B</b><br><b>AR22S1R-22W</b><br><b>AR22S1R-22Y</b><br><b>AR22S1R-22A</b><br><b>AR22S1R-22S</b> | (1)               | NC   | —  | —         | ●   | —         |
|  |   |  |  | (2)               | NC   | —  | —         | ●   | —         |
|  |   |  |  | (3)               | NO   | —  | ●         | —   | ●         |
|  |   |  |  | (4)               | NO   | —  | ●         | —   | ●         |
|  | 2NO   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR22S2R-20G</b><br><b>AR22S2R-20R</b><br><b>AR22S2R-20B</b><br><b>AR22S2R-20W</b><br><b>AR22S2R-20Y</b><br><b>AR22S2R-20A</b><br><b>AR22S2R-20S</b> | (1)               | NO   | —  | ●         | —   | —         |
|  |   |  |  | (2)               | NO   | —  | —         | —   | ●         |
|  |   |  |  | (3)               |      |  |           |   |           |
|  |   |  |  | (4)               |      |  |           |   |           |
|  | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR22S2R-22G</b><br><b>AR22S2R-22R</b><br><b>AR22S2R-22B</b><br><b>AR22S2R-22W</b><br><b>AR22S2R-22Y</b><br><b>AR22S2R-22A</b><br><b>AR22S2R-22S</b> | (1)               | NC   | ●  | —         | ■   |           |
|  |   |  |  | (2)               | NC   | ■  |           | ●   | —         |
|  |   |  |  | (3)               | NO   | —  | ●         | —   | —         |
|  |   |  |  | (4)               | NO   | —  | —         | —   | ●         |
|  | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR22S3R-22G</b><br><b>AR22S3R-22R</b><br><b>AR22S3R-22B</b><br><b>AR22S3R-22W</b><br><b>AR22S3R-22Y</b><br><b>AR22S3R-22A</b><br><b>AR22S3R-22S</b> | (1)               | NC   | —  | —         | ■   |           |
|  |   |  |  | (2)               | NC   | ■  |           | —   | —         |
|  |   |  |  | (3)               | NO   | —  | ●         | —   | —         |
|  |   |  |  | (4)               | NO   | —  | —         | —   | ●         |
|  | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR22S6R-22G</b><br><b>AR22S6R-22R</b><br><b>AR22S6R-22B</b><br><b>AR22S6R-22W</b><br><b>AR22S6R-22Y</b><br><b>AR22S6R-22A</b><br><b>AR22S6R-22S</b> | (1)               | NC   | ●  | —         | —   | Locked    |
|  |   |  |  | (2)               | NC   | ●  | —         | —   |           |
|  |   |  |  | (3)               | NO   | —  | ●         | ●   |           |
|  |   |  |  | (4)               | NO   | —  | ●         | ●   |           |

Note: (1) to (4): Contact block mounting position





● Contact closed  
— Contact open

## ● Position of contact block






## ■ Emergency stop pushbutton switches

☞ (Direct opening action), conform to EN418

| Operator   | Contact  | Type   |
|--|--|--|
| Push-lock, turn-reset<br>(Soft-touch<br>40mm dia. With<br>white arrow) <br><small>KKD08-042</small> | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR22V0R-01R</b><br><b>AR22V0R-11R</b><br><b>AR22V0R-02R</b><br><b>AR22V0R-03R</b><br><b>AR22V0R-22R</b><br><b>AR22V0R-04R</b> |
| Push-lock, turn-reset<br>(40mm dia.) <br><small>KKD05-020b</small>                                  | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR22V2R-01R</b><br><b>AR22V2R-11R</b><br><b>AR22V2R-02R</b><br><b>AR22V2R-03R</b><br><b>AR22V2R-22R</b><br><b>AR22V2R-04R</b> |
| Push-lock, turn-reset<br>(Soft-touch<br>29mm dia. with<br>white arrow) <br><small>KKD06-346</small> | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR22VSR-01R</b><br><b>AR22VSR-11R</b><br><b>AR22VSR-02R</b><br><b>AR22VSR-03R</b><br><b>AR22VSR-22R</b><br><b>AR22VSR-04R</b> |
| Push-lock, turn-reset<br>(29mm dia.) <br><small>KKD06-339</small>                                 | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR22V4R-01R</b><br><b>AR22V4R-11R</b><br><b>AR22V4R-02R</b><br><b>AR22V4R-03R</b><br><b>AR22V4R-22R</b><br><b>AR22V4R-04R</b> |







Notes: • Button color : Red only  
 • Contact arrangements indicated in the table can be supplied.

| Operator  | Contact  | Type   |
|---|--|--|
| Key release push-lock,<br>turn-reset<br>(40mm dia.) <br><small>KKD09-020</small>                             | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR22V7R-01R</b><br><b>AR22V7R-11R</b><br><b>AR22V7R-02R</b><br><b>AR22V7R-03R</b><br><b>AR22V7R-22R</b><br><b>AR22V7R-04R</b> |
| Push-lock, pull-reset<br>(35mm dia.) <br><small>KKD06-334</small>  | 1NC<br>1NO+1NC<br>2NC                          | <b>AR22Q2R-01R</b><br><b>AR22Q2R-11R</b><br><b>AR22Q2R-02R</b>   |
| Unibody push-lock,<br>turn-reset (Soft-touch<br>40mm dia. with<br>white arrow) <br><small>KKD05-023b</small> | 1NC<br>1NO+1NC<br>2NC                          | <b>AR22VGE-01R</b><br><b>AR22VGE-11R</b><br><b>AR22VGE-02R</b>   |

# Emergency Stop Illuminated Pushbuttons AR22

## ■ Emergency stop illuminated pushbutton switches

☺ (Direct opening action), conform to EN418

| Operator   | Transformer | Contact                       | LED lamp Type  | Incandescent lamp Type   | Neon lamp Type  |
|--|-------------|-------------------------------|--|--|---|
| Push-lock, turn-reset<br>(Soft-touch 40mm dia.<br>with white arrow)<br><br>KKD06-335                                  | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC  | AR22V0L-01■3R<br>AR22V0L-11■3R<br>AR22V0L-02■3R<br>AR22V0L-03■3R | AR22V0L-01■4R<br>AR22V0L-11■4R<br>AR22V0L-02■4R<br>AR22V0L-03■4R | —<br>—<br>—<br>—  |
|  | With        | 1NC<br>1NO+1NC<br>2NC         | AR22V0L-01■3R<br>AR22V0L-11■3R<br>AR22V0L-02■3R                  | AR22V0L-01■4R<br>AR22V0L-11■4R<br>AR22V0L-02■4R                  | —<br>—<br>—   |
| Push-lock, turn-reset<br>(40mm dia.)<br><br>KKD06-337   | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC  | AR22V2L-01■3R<br>AR22V2L-11■3R<br>AR22V2L-02■3R<br>AR22V2L-03■3R | AR22V2L-01■4R<br>AR22V2L-11■4R<br>AR22V2L-02■4R<br>AR22V2L-03■4R | —<br>—<br>—<br>—  |
|  | With        | 1NC<br>1NO+1NC<br>2NC         | AR22V2L-01■3R<br>AR22V2L-11■3R<br>AR22V2L-02■3R                  | AR22V2L-01■4R<br>AR22V2L-11■4R<br>AR22V2L-02■4R                  | —<br>—<br>—   |
| Push-lock, turn-reset<br>(Soft-touch 40mm dia.<br>transparent in all<br>colors with<br>white arrow)<br><br>KKD06-342 | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC  | AR22VDL-01■3R<br>AR22VDL-11■3R<br>AR22VDL-02■3R<br>AR22VDL-03■3R | AR22VDL-01■4R<br>AR22VDL-11■4R<br>AR22VDL-02■4R<br>AR22VDL-03■4R | —<br>—<br>—<br>—  |
|  | With        | 1NC<br>1NO+1NC<br>2NC         | AR22VDL-01■3R<br>AR22VDL-11■3R<br>AR22VDL-02■3R                  | AR22VDL-01■4R<br>AR22VDL-11■4R<br>AR22VDL-02■4R                  | —<br>—<br>—   |
| Push-lock, turn-reset<br>(40mm dia.<br>transparent in all<br>colors)<br><br>KKD06-340                               | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC  | AR22VAL-01■3R<br>AR22VAL-11■3R<br>AR22VAL-02■3R<br>AR22VAL-03■3R | AR22VAL-01■4R<br>AR22VAL-11■4R<br>AR22VAL-02■4R<br>AR22VAL-03■4R | —<br>—<br>—<br>—  |
|  | With        | 1NC<br>1NO+1NC<br>2NC         | AR22VAL-01■3R<br>AR22VAL-11■3R<br>AR22VAL-02■3R                  | AR22VAL-01■4R<br>AR22VAL-11■4R<br>AR22VAL-02■4R                  | —<br>—<br>—   |
| Push-lock, turn-reset<br>(Soft-touch 29mm dia.<br>with white arrow)<br><br>KKD06-344                                | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC  | AR22VSL-01■3R<br>AR22VSL-11■3R<br>AR22VSL-02■3R<br>AR22VSL-03■3R | AR22VSL-01■4R<br>AR22VSL-11■4R<br>AR22VSL-02■4R<br>AR22VSL-03■4R | —<br>—<br>—<br>—  |
|  | With        | 1NC<br>1NO+1NC<br>2NC         | AR22VSL-01■3R<br>AR22VSL-11■3R<br>AR22VSL-02■3R                  | AR22VSL-01■4R<br>AR22VSL-11■4R<br>AR22VSL-02■4R                  | —<br>—<br>—   |
| Unibody push-lock, turn-reset<br>(Soft-touch 40mm dia.<br>with white arrow)<br><br>KKD05-150                        | Without     | 1NC<br><br>1NO+1NC<br><br>2NC | AR22VGF-01E3R<br><br>AR22VGF-11E3R<br><br>AR22VGF-02E3R          | —<br><br>—<br><br>—  | AR22VGF-01■1R<br><br>AR22VGF-11■1R<br><br>AR22VGF-02■1R |

Notes: • Button color: Red only • AR22VGF type: Lamp circuit contacts are provided, see page 04/43. • Contact arrangements indicated in the table can be supplied.

### • Voltage

Replace the ■ mark by the lamp voltage code

| Transformer | Code      | Code |              |      |
|-------------|-----------|------|--------------|------|
|             |           | LED  | Incandescent | Neon |
| Without     | 6V DC     | 6    | —            | —    |
|             | 6V AC     | A    | —            | —    |
|             | 5V AC/DC  | —    | 5            | —    |
|             | 12V AC/DC | B    | —            | —    |
|             | 15V AC/DC | C    | —            | —    |
|             | 20V AC/DC | —    | D            | —    |
|             | 24V AC/DC | E    | —            | —    |
|             | 110V AC   | —    | —            | H    |
|             | 120V AC   | —    | —            | K    |
|             | 220V AC   | —    | —            | M    |
|             | 240V AC   | —    | —            | P    |

Notes: AR22VGF: LED 24V AC/DC and neon only

| Transformer | Code        | Code |              |
|-------------|-------------|------|--------------|
|             |             | LED  | Incandescent |
| With        | 100-110V AC | H    | H            |
|             | 115-127V AC | L    | L            |
|             | 200-220V AC | M    | M            |
|             | 230-254V AC | Q    | Q            |
|             | 350-380V AC | S    | S            |
|             | 400-440V AC | T    | T            |
|             | 480V AC     | V    | V            |
|             | 500-550V AC | W    | W            |

## ■ Selector switches 2-position

| Operator   | Operation     | Knob color or key removable position  | Contact  | Type   |  | Contact operation (Example)  |  |
|--|---------------|---|--|--|--|--|--|
|  |               |   |  | Switch with round bezel  | Switch with square bezel   | Contact arrangement  | Operator position  |
|  |               |   |  |  |  |  | <div style="display: flex; justify-content: space-around;"> <span>Left</span> <span>Right</span> </div> <div style="display: flex; justify-content: space-around;"> </div> |
| <b>Knob</b><br><br><br><small>AF94-310</small>             | Maintained    | Color code:<br>B: Black<br>(Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22PR-210B</b><br><b>AR22PR-201B</b><br><b>AR22PR-211B</b><br><b>AR22PR-220B</b><br><b>AR22PR-202B</b><br><b>AR22PR-222B</b>                         | <b>AR22PY-210B</b><br><b>AR22PY-201B</b><br><b>AR22PY-211B</b><br><b>AR22PY-220B</b><br><b>AR22PY-202B</b><br><b>AR22PY-222B</b>                         | 1NO (1)  | Upper contact<br>  |
|  | Spring return |   | <br>60°  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC   | <b>AR22PR-010B</b><br><b>AR22PR-001B</b><br><b>AR22PR-011B</b><br><b>AR22PR-020B</b><br><b>AR22PR-002B</b><br><b>AR22PR-022B</b>                         | <b>AR22PY-010B</b><br><b>AR22PY-001B</b><br><b>AR22PY-011B</b><br><b>AR22PY-020B</b><br><b>AR22PY-002B</b><br><b>AR22PY-022B</b>                   | 1NC (1)  |
| <b>Lever</b><br><br><br><small>AF94-324</small>            | Maintained    |   | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22WR-210B</b><br><b>AR22WR-201B</b><br><b>AR22WR-211B</b><br><b>AR22WR-220B</b><br><b>AR22WR-202B</b><br><b>AR22WR-222B</b>                         | <b>AR22WY-210B</b><br><b>AR22WY-201B</b><br><b>AR22WY-211B</b><br><b>AR22WY-220B</b><br><b>AR22WY-202B</b><br><b>AR22WY-222B</b>                         | 1NO+1NC (1)  | Upper contact<br>  |
|  | Spring return |   | <br>60°  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC   | <b>AR22WR-010B</b><br><b>AR22WR-001B</b><br><b>AR22WR-011B</b><br><b>AR22WR-020B</b><br><b>AR22WR-002B</b><br><b>AR22WR-022B</b>                         | <b>AR22WY-010B</b><br><b>AR22WY-001B</b><br><b>AR22WY-011B</b><br><b>AR22WY-020B</b><br><b>AR22WY-002B</b><br><b>AR22WY-022B</b>                   | 2NO+2NC (1)  |
| <b>Cylindrical knob</b><br><br><br><small>AF94-308</small> | Maintained    |   | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22RR-210B</b><br><b>AR22RR-201B</b><br><b>AR22RR-211B</b><br><b>AR22RR-220B</b><br><b>AR22RR-202B</b><br><b>AR22RR-222B</b>                         | <b>AR22RY-210B</b><br><b>AR22RY-201B</b><br><b>AR22RY-211B</b><br><b>AR22RY-220B</b><br><b>AR22RY-202B</b><br><b>AR22RY-222B</b>                         | (3)  | Upper contact<br>  |
|  | Spring return |   | <br>60°  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC   | <b>AR22RR-010B</b><br><b>AR22RR-001B</b><br><b>AR22RR-011B</b><br><b>AR22RR-020B</b><br><b>AR22RR-002B</b><br><b>AR22RR-022B</b>                         | <b>AR22RY-010B</b><br><b>AR22RY-001B</b><br><b>AR22RY-011B</b><br><b>AR22RY-020B</b><br><b>AR22RY-002B</b><br><b>AR22RY-022B</b>                   | (4)  |
| <b>Key</b><br><br><br><small>KKD09-018</small>             | Maintained    | ■: Key removable position<br>( ): Key type<br><br>See page 04/27  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22J□R-2■10( )</b><br><b>AR22J□R-2■01( )</b><br><b>AR22J□R-2■11( )</b><br><b>AR22J□R-2■20( )</b><br><b>AR22J□R-2■02( )</b><br><b>AR22J□R-2■22( )</b> | <b>AR22JY-2■10( )</b><br><b>AR22JY-2■01( )</b><br><b>AR22JY-2■11( )</b><br><b>AR22JY-2■20( )</b><br><b>AR22JY-2■02( )</b><br><b>AR22JY-2■22( )</b>       | (1)  |  |
|  | Spring return |   | <br>60°  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC   | <b>AR22J□R-0A10( )</b><br><b>AR22J□R-0A01( )</b><br><b>AR22J□R-0A11( )</b><br><b>AR22J□R-0A20( )</b><br><b>AR22J□R-0A02( )</b><br><b>AR22J□R-0A22( )</b> | <b>AR22JY-0A10( )</b><br><b>AR22JY-0A01( )</b><br><b>AR22JY-0A11( )</b><br><b>AR22JY-0A20( )</b><br><b>AR22JY-0A02( )</b><br><b>AR22JY-0A22( )</b> |  |

Notes: • (1) to (4): Contact block mounting position  
 • ① - ②, ③ - ④: Contact block terminal No.  
 • Contact arrangements: See page 04/27




● Contact closed

### ● Operator


Replace the □ mark by the cylinder key type code  
 Standard type: Blank  
 Long durability type: A

# Selector Switches AR22

## 3-position

| Operator  | Operation                                | Knob color  | Contact                          | Type<br>Switch with<br>round bezel   | Switch with<br>square bezel  | Contact operation (Example) |                            |                            |           |
|---|--|---|----------------------------------|--|--|-----------------------------|----------------------------|----------------------------|-----------|
|   |  |   |                                  |  |  | Contact<br>arrange-<br>ment | Operation position         |                            |           |
|   |  |   |                                  |  |  |                             | L                          | C                          | R         |
| <br>AF94-310   | Maintained<br>each 45°                   | Color code:<br>B: Black<br>(Standard)<br>Color other than<br>above are<br>available<br>(G: Green)<br>(R: Red) | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22PR-311B</b><br><b>AR22PR-320B</b><br><b>AR22PR-302B</b><br><b>AR22PR-322B</b> | <b>AR22PY-311B</b><br><b>AR22PY-320B</b><br><b>AR22PY-302B</b><br><b>AR22PY-322B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring/manual<br>return<br>⤴<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22PR-611B</b><br><b>AR22PR-620B</b><br><b>AR22PR-602B</b><br><b>AR22PR-622B</b> | <b>AR22PY-611B</b><br><b>AR22PY-620B</b><br><b>AR22PY-602B</b><br><b>AR22PY-622B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring/manual<br>return<br>⤵<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22PR-711B</b><br><b>AR22PR-720B</b><br><b>AR22PR-702B</b><br><b>AR22PR-722B</b> | <b>AR22PY-711B</b><br><b>AR22PY-720B</b><br><b>AR22PY-702B</b><br><b>AR22PY-722B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring return<br>⤴<br>each 45°           |   | 2NO+2NC                          | <b>AR22PR-122B</b><br><b>AR22PY-122B</b>   | 2NO+2NC<br>(1) (2)   | Upper contact<br>①       ②  | Lower contact<br>①       ② | ③       ④                  | ③       ④ |
| <br>AF94-324 | Maintained<br>each 45°                   |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22WR-311B</b><br><b>AR22WR-320B</b><br><b>AR22WR-302B</b><br><b>AR22WR-322B</b> | <b>AR22WY-311B</b><br><b>AR22WY-320B</b><br><b>AR22WY-302B</b><br><b>AR22WY-322B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring/manual<br>return<br>⤴<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22WR-611B</b><br><b>AR22WR-620B</b><br><b>AR22WR-602B</b><br><b>AR22WR-622B</b> | <b>AR22WY-611B</b><br><b>AR22WY-620B</b><br><b>AR22WY-602B</b><br><b>AR22WY-622B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring/manual<br>return<br>⤵<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22WR-711B</b><br><b>AR22WR-720B</b><br><b>AR22WR-702B</b><br><b>AR22WR-722B</b> | <b>AR22WY-711B</b><br><b>AR22WY-720B</b><br><b>AR22WY-702B</b><br><b>AR22WY-722B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring return<br>⤴<br>each 45°           |   | 2NO+2NC                          | <b>AR22WR-122B</b><br><b>AR22WY-122B</b>   | 2NO+2NC<br>(1) (2)   | Upper contact<br>①       ②  | Lower contact<br>①       ② | ③       ④                  | ③       ④ |
| <br>AF94-308 | Maintained<br>each 45°                   |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22RR-311B</b><br><b>AR22RR-320B</b><br><b>AR22RR-302B</b><br><b>AR22RR-322B</b> | <b>AR22RY-311B</b><br><b>AR22RY-320B</b><br><b>AR22RY-302B</b><br><b>AR22RY-322B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring/manual<br>return<br>⤴<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22RR-611B</b><br><b>AR22RR-620B</b><br><b>AR22RR-602B</b><br><b>AR22RR-622B</b> | <b>AR22RY-611B</b><br><b>AR22RY-620B</b><br><b>AR22RY-602B</b><br><b>AR22RY-622B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring/manual<br>return<br>⤵<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR22RR-711B</b><br><b>AR22RR-720B</b><br><b>AR22RR-702B</b><br><b>AR22RR-722B</b> | <b>AR22RY-711B</b><br><b>AR22RY-720B</b><br><b>AR22RY-702B</b><br><b>AR22RY-722B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br>③       ④ | Lower contact<br>①       ② |           |
|   | Spring return<br>⤴<br>each 45°           |   | 2NO+2NC                          | <b>AR22RR-122B</b><br><b>AR22RY-122B</b>   | 2NO+2NC<br>(1) (2)   | Upper contact<br>①       ②  | Lower contact<br>①       ② | ③       ④                  | ③       ④ |



| Operator  | Operation                             | Key removable position                     | Contact                          | Type<br>Switch with round bezel                                      | Switch with square bezel   | Contact operation (Example) |                    |                    |   |
|---|---------------------------------------|--|----------------------------------|--|--|-----------------------------|--------------------|--------------------|---|
|   |                                       |  |                                  |  |  | Contact arrangement         | Operator position  |                    |   |
|   |                                       |  |                                  |  |  |                             | L                  | C                  | R |
| <br><small>KKD09-018</small> | Maintained<br>each 45°                | ■: Key removable position<br>(:): Key type | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AR22J□R-3■11()<br>AR22J□R-3■20()<br>AR22J□R-3■02()<br>AR22J□R-3■22() | AR22JY-3■11()<br>AR22JY-3■20()<br>AR22JY-3■02()<br>AR22JY-3■22() | 1NO+1NC<br>(1) (2)          | Upper contact<br>③ | Lower contact<br>① |   |
|   | Spring/manual return<br>①<br>each 45° |  | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AR22J□R-6■11()<br>AR22J□R-6■20()<br>AR22J□R-6■02()<br>AR22J□R-6■22() | AR22JY-6■11()<br>AR22JY-6■20()<br>AR22JY-6■02()<br>AR22JY-6■22() | (1) (2)                     | Upper contact<br>③ | Lower contact<br>① |   |
|   | Spring/manual return<br>①<br>each 45° |  | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AR22J□R-7■11()<br>AR22J□R-7■20()<br>AR22J□R-7■02()<br>AR22J□R-7■22() | AR22JY-7■11()<br>AR22JY-7■20()<br>AR22JY-7■02()<br>AR22JY-7■22() | (1) (2)                     | Upper contact<br>③ | Lower contact<br>① |   |
|   | Spring return<br>①<br>each 45°        |  | 2NO+2NC                          | AR22J□R-1E22()<br>AR22JY-1E22()                                      | AR22JY-1E22()  | (1) (2)                     | Upper contact<br>① | Lower contact<br>① |   |

Notes: • Operator position L:Left, C:Center, R:Right  
 • (1) to (4): Contact block mounting position  
 • ① - ②, ③ - ④: Contact block terminal No.

● Contact closed

### • Contact arrangements

Contact arrangements other than above are available

| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO | 3NC |
|---------------------|-----|-----|---------|-----|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  | 03  |








  

| Contact arrangement | 2NO+2NC | 4NO | 4NC | 5NO | 5NC | 3NO+3NC |
|---------------------|---------|-----|-----|-----|-----|---------|
| Code                | 22      | 40  | 04  | 50  | 05  | 33      |

### • Available numbers of contact blocks

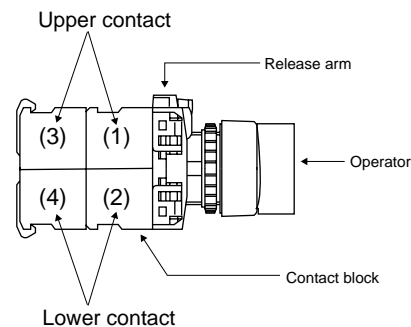
| Mainted         | Spring return<br>Spring/manual return |
|-----------------|---------------------------------------|
| 6-contact block | 4-contact block                       |

### • Key removable positions

| Code               | A   | B   | C   | D   | E   | F   | G  |
|--------------------|---|---|---|---|---|---|--|
| Removable position |  |  |  |  |  |  |  |
| AR22J□R-2          | ●   | ●   | —   | ●   | —   | —   | —  |
| AR22J□R-0          | ●   | —   | —   | —   | —   | —   | —  |
| AR22J□R-3          | ●   | ●   | ●   | ●   | ●   | ●   | ●  |
| AR22J□R-6          | —   | —   | —   | ●   | ●   | ●   | —  |
| AR22J□R-7          | ●   | —   | —   | —   | ●   | —   | ●  |
| AR22J□R-1          | —   | —   | —   | —   | ●   | —   | —  |

●: Available    —: Not available

### • Position of contact block



### • Key code No.

Replace the ( ) mark with one of the following key code.  
 A, B, C, D, E and F  
 Standard key code is A.

















### • Operator

Replace the □ mark by the cylinder key type code  
 Standard type: Blank  
 Long durability type: A








# Selector Switches AR22

## ■ Selector switches (control type)

### 3-position

| Operator   | Operation   | Knob color or key removable position   | Contact arrangement  | Type<br>Switch with round bezel | Switch with square bezel |
|--|---|--|--|---------------------------------|--------------------------|
| Knob<br><br><small>AF94-435</small>               | Maintained each 45°   | Color code:<br>B: Black (Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | Replace the ■ mark by the contact arrangement code (shown on next page). | <b>AR22PCR-3■B</b>              | <b>AR22PCY-3■B</b>       |
|  | Spring/manual return  each 45°   |  |  | <b>AR22PCR-6■B</b>              | <b>AR22PCY-6■B</b>       |
|  | Spring/manual return  each 45°   |  |  | <b>AR22PCR-7■B</b>              | <b>AR22PCY-7■B</b>       |
|  | Spring return  each 45°          |  |  | <b>AR22PCR-1■B</b>              | <b>AR22PCY-1■B</b>       |
| Lever<br><br><small>AF94-436</small>              | Maintained each 45°   |  | Replace the ■ mark by the contact arrangement code (shown on next page). | <b>AR22WCR-3■B</b>              | <b>AR22WCY-3■B</b>       |
|  | Spring/manual return  each 45°   |  |  | <b>AR22WCR-6■B</b>              | <b>AR22WCY-6■B</b>       |
|  | Spring/manual return  each 45°   |  |  | <b>AR22WCR-7■B</b>              | <b>AR22WCY-7■B</b>       |
|  | Spring return  each 45°         |  |  | <b>AR22WCR-1■B</b>              | <b>AR22WCY-1■B</b>       |
| Cylindrical knob<br><br><small>AF94-433</small> | Maintained each 45°   |  | Replace the ■ mark by the contact arrangement code (shown on next page). | <b>AR22RCR-3■B</b>              | <b>AR22RCY-3■B</b>       |
|  | Spring/manual return  each 45° |  |  | <b>AR22RCR-6■B</b>              | <b>AR22RCY-6■B</b>       |
|  | Spring/manual return  each 45° |  |  | <b>AR22RCR-7■B</b>              | <b>AR22RCY-7■B</b>       |
|  | Spring return  each 45°        |  |  | <b>AR22RCR-1■B</b>              | <b>AR22RCY-1■B</b>       |
| Key<br><br><small>KKD09-016</small>              | Maintained each 45°   | Replace the □ mark by the key removable position code:<br>A, B, C, D, E, F or G                      | Replace the ■ mark by the contact arrangement code (shown on next page). | <b>AR22JCR-3□( )</b>            | <b>AR22JCY-3□( )</b>     |
|  | Spring/manual return  each 45° |  |  | <b>AR22JCR-6□( )</b>            | <b>AR22JCY-6□( )</b>     |
|  | Spring/manual return  each 45° |  |  | <b>AR22JCR-7□( )</b>            | <b>AR22JCY-7□( )</b>     |
|  | Spring return  each 45°        |  |  | <b>AR22JCR-1E■( )</b>           | <b>AR22JCY-1E■( )</b>    |

### ● Key removable positions

| Code               | A   | B   | C   | D   | E   | F   | G   |
|--------------------|---|---|---|---|---|---|---|
| Removable position |  |  |  |  |  |  |  |
| AR22JCR-3          | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
| AR22JCR-6          | -   | -   | -   | ●   | ●   | ●   | -   |
| AR22JCR-7          | ●   | -   | -   | -   | ●   | -   | ●   |
| AR22JCR-1          | -   | -   | -   | -   | ●   | -   | -   |

●: Available    -: Not available

### ● Key code No.

Replace the ( ) mark with one of the following key code.  
 A, B, C, D, E and F  
 Standard key code is A.

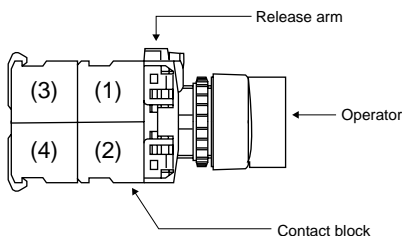
• Contact arrangement code (Typical example)

| Contact arrangement | Contact arrangement code  | Contact operation |      |   |        |       |
|---------------------|---------------------------|-------------------|------|---|--------|-------|
|                     |                           | Contact block     |      | Operator position                       |        |       |
|                     |                           | Mounting position | Type | Left                                    | Center | Right |
| 2NC                 | 01F                       | (1)               | NC   | [Diagram: Solid bar in Center position] |        |       |
|                     |                           | (2)               | NC   | [Diagram: Solid bar in Right position]  |        |       |
|                     |                           | -                 | -    | -                                       | -      | -     |
|                     |                           | -                 | -    | -                                       | -      | -     |
| 2NO+2NC             | 014                       | (1)               | NC   | [Diagram: Solid bar in Center position] |        |       |
|                     |                           | (2)               | NC   | [Diagram: Solid bar in Right position]  |        |       |
|                     |                           | (3)               | NO   |   |        | ●     |
|                     |                           | (4)               | NO   | ●                                       |        |       |
| 4NC                 | 01J                       | (1)               | NC   | [Diagram: Solid bar in Center position] |        |       |
|                     |                           | (2)               | NC   | [Diagram: Solid bar in Right position]  |        |       |
|                     |                           | (3)               | NC   | [Diagram: Solid bar in Left position]   |        |       |
|                     |                           | (4)               | NC   | [Diagram: Solid bar in Right position]  |        |       |
| 2NO+2NC             | 024                       | (1)               | NC   | [Diagram: Solid bar in Center position] |        |       |
|                     |                           | (2)               | NC   |   | ●      |       |
|                     |                           | (3)               | NO   |   |        | ●     |
|                     |                           | (4)               | NO   | ●                                       |        | ●     |
| 2NO+2NC             | 03C*<br>(Maintained only) | (1)               | NC   | [Diagram: Solid bar in Center position] |        |       |
|                     |                           | (2)               | NC   |   |        | ●     |
|                     |                           | (3)               | NO   |   |        | ●     |
|                     |                           | (4)               | NO   | ●                                       |        |       |
| 2NO+2NC             | 044*                      | (1)               | NC   | [Diagram: Solid bar in Center position] |        |       |
|                     |                           | (2)               | NC   |   | ●      |       |
|                     |                           | (3)               | NO   |   |        | ●     |
|                     |                           | (4)               | NO   | ●                                       |        |       |
| 2NO+2NC             | 054                       | (1)               | NC   | [Diagram: Solid bar in Center position] |        |       |
|                     |                           | (2)               | NC   |   | ●      |       |
|                     |                           | (3)               | NO   |   |        | ●     |
|                     |                           | (4)               | NO   |   |        | ●     |

Notes: ●: Contact closed Blank: Contact open

\* There may be some overlap in the contact when switching between notches.

• Position of contact block



| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |   |       |
|---------------------|---------------------------|-------------------|------|-------------------|---|-------|
|                     |                           | Contact block     |      | Operator position |   |       |
|                     |                           | Mounting position | Type | Left              | Center                                  | Right |
| 2NO+2NC             | 064                       | (1)               | NC   |                   | [Diagram: Solid bar in Center position] |       |
|                     |                           | (2)               | NC   |                   | ●                                       |       |
|                     |                           | (3)               | NO   | ●                 |   |       |
|                     |                           | (4)               | NO   | ●                 |   | ●     |
| 1NO+1NC             | 07F                       | (1)               | NC   |                   | [Diagram: Solid bar in Center position] |       |
|                     |                           | (2)               | NO   |                   |   | ●     |
|                     |                           | -                 | -    | -                 | -                                       | -     |
|                     |                           | -                 | -    | -                 | -                                       | -     |
| 2NO+2NC             | 07C*<br>(Maintained only) | (1)               | NC   |                   | [Diagram: Solid bar in Center position] |       |
|                     |                           | (2)               | NC   |                   |   | ●     |
|                     |                           | (3)               | NO   | ●                 |   |       |
|                     |                           | (4)               | NO   | ●                 |   |       |
| 2NO+2NC             | 084                       | (1)               | NC   |                   | [Diagram: Solid bar in Center position] |       |
|                     |                           | (2)               | NC   |                   | ●                                       |       |
|                     |                           | (3)               | NO   | ●                 |   |       |
|                     |                           | (4)               | NO   | ●                 |   |       |
| 2NO+2NC             | 094*                      | (1)               | NC   |                   | [Diagram: Solid bar in Center position] |       |
|                     |                           | (2)               | NC   |                   | ●                                       |       |
|                     |                           | (3)               | NO   | ●                 |   |       |
|                     |                           | (4)               | NO   |                   |   | ●     |
| 2NO+2NC             | 104                       | (1)               | NC   |                   | ●                                       |       |
|                     |                           | (2)               | NC   |                   | ●                                       |       |
|                     |                           | (3)               | NO   | ●                 |   | ●     |
|                     |                           | (4)               | NO   | ●                 |   | ●     |
| 2NO+2NC             | 11C*<br>(Maintained only) | (1)               | NC   |                   | ●                                       |       |
|                     |                           | (2)               | NC   |                   |   | ●     |
|                     |                           | (3)               | NO   | ●                 |   | ●     |
|                     |                           | (4)               | NO   | ●                 |   |       |

04

# Selector Switches AR22

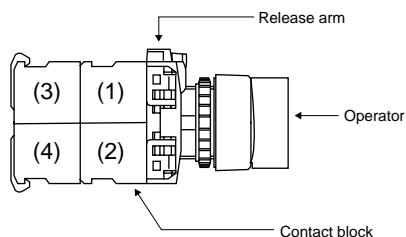
## • Contact arrangement code (Typical example)

| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |        |       |
|---------------------|---------------------------|-------------------|------|-------------------|--------|-------|
|                     |                           | Contact block     |      | Operator position |        |       |
|                     |                           | Mounting position | Type | Left              | Center | Right |
| 2NO+2NC             | 124*                      | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 134*                      | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 3NO+1NC             | 14D*<br>(Maintained only) | (1)               | NO   | ●                 |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 3NO+1NC             | 15A*                      | (1)               | NO   |                   |        | ●     |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 164                       | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 174*                      | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 2NO+2NC             | 184                       | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   |                   |        | ●     |

Notes: ●: Contact closed Blank: Contact open




\* There may be some overlap in the contact when switching between notches.

## • Position of contact block



| Contact arrangement | Contact arrangement code | Contact operation |      |                   |        |       |
|---------------------|--------------------------|-------------------|------|-------------------|--------|-------|
|                     |                          | Contact block     |      | Operator position |        |       |
|                     |                          | Mounting position | Type | Left              | Center | Right |
| 2NO+2NC             | 194                      | (1)               | NC   |                   | ●      |       |
|                     |                          | (2)               | NC   | ●                 |        |       |
|                     |                          | (3)               | NO   | ●                 |        |       |
|                     |                          | (4)               | NO   |                   |        | ●     |
| 4NO                 | 20B                      | (1)               | NO   |                   |        | ●     |
|                     |                          | (2)               | NO   | ●                 |        |       |
|                     |                          | (3)               | NO   |                   |        | ●     |
|                     |                          | (4)               | NO   | ●                 |        |       |

4, 5-position

| Operator   | Contact<br>(The following contact is only available.) | Operation             | Knob color   | Contact arrangement  | Type                    |                          |
|--|---|-----------------------|--|--|-------------------------|--------------------------|
|  |   |                       |  |  | Switch with round bezel | Switch with square bezel |
| Knob<br><br>AF94-435              | 2NO+2NC   | 4-position maintained | Color code:<br>B: Black (Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | Replace the ■ mark by the contact arrangement code (shown below) | AR22PCR-4■B             | AR22PCY-4■B              |
|  |   | 5-position maintained |  |  | AR22PCR-5■B             | AR22PCY-5■B              |
| Lever<br><br>AF94-436             | 2NO+2NC   | 4-position maintained |  |  | AR22WCR-4■B             | AR22WCY-4■B              |
|  |   | 5-position maintained |  |  | AR22WCR-5■B             | AR22WCY-5■B              |
| Cylindrical knob<br><br>AF94-433 | 2NO+2NC   | 4-position maintained |  |  | AR22RCR-4■B             | AR22RCY-4■B              |
|  |   | 5-position maintained |  |  | AR22RCR-5■B             | AR22RCY-5■B              |

04

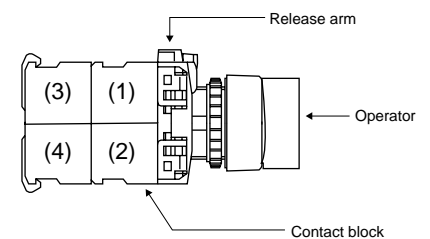
● Contact arrangement code

| Position   | Contact arrangement | Contact arrangement code | Contact operation |      | Operator position |   |   |   |   |
|------------|---------------------|--------------------------|-------------------|------|-------------------|---|---|---|---|
|            |                     |                          | Contact block     |      | 1                 | 2 | 3 | 4 | 5 |
|            |                     |                          | Mounting position | Type |                   |   |   |   |   |
| 4-position | 2NO+2NC             | 41C* (Maintained only)   | (1)               | NC   |                   |   | ● |   |   |
|            |                     |                          | (2)               | NC   | ●                 |   |   |   |   |
|            |                     |                          | (3)               | NO   |                   | ● |   |   |   |
|            |                     |                          | (4)               | NO   |                   |   |   | ● |   |
| 5-position | 2NO+2NC             | 51C* (Maintained only)   | (1)               | NC   |                   |   |   | ● |   |
|            |                     |                          | (2)               | NC   |                   | ● |   |   |   |
|            |                     |                          | (3)               | NO   | ●                 |   |   |   |   |
|            |                     |                          | (4)               | NO   |                   |   |   |   | ● |

Notes: ●: Contact closed

\* There may be some overlap in the contact when switching between notches.

● Position of contact block



Operator position  
4-position

5-position







# Illuminated Selector Switches





## AR22

### ■ Illuminated selector switches

#### 2-position

| Operator   | Operation  | Contact                          | LED lamp                         |  | Incandescent lamp  |  |  |
|--|--|----------------------------------|----------------------------------|--|--|--|--|
|  |  |                                  | Transformer                      | Type   | Transformer  | Type   |  |
| Knob<br><br><small>AF94-306</small> | Maintained   | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | Without                          | AR22PL-210■□<br>AR22PL-201■□<br>AR22PL-211■□<br>AR22PL-222■□ | Without  | AR22PL-210■□<br>AR22PL-201■□<br>AR22PL-211■□<br>AR22PL-222■□ |  |
|  |  |                                  | With                             | AR22PL-210■□<br>AR22PL-201■□<br>AR22PL-211■□<br>AR22PL-220■□ | With   | AR22PL-210■□<br>AR22PL-201■□<br>AR22PL-211■□<br>AR22PL-220■□ |  |
|  | Spring return<br><br>60°                                | 1NO<br>1NC<br>1NO+1NC<br>2NO     | Without                          | AR22PL-010■□<br>AR22PL-001■□<br>AR22PL-011■□<br>AR22PL-020■□ | Without  | AR22PL-010■□<br>AR22PL-001■□<br>AR22PL-011■□<br>AR22PL-020■□ |  |
|  |  |                                  | With                             | AR22PL-010■□<br>AR22PL-001■□<br>AR22PL-011■□<br>AR22PL-020■□ | With   | AR22PL-010■□<br>AR22PL-001■□<br>AR22PL-011■□<br>AR22PL-020■□ |  |
|  | Knob with square bezel<br><br><small>AF94-360</small> | Maintained                       | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | Without  | AR22PP-210■□<br>AR22PP-201■□<br>AR22PP-211■□<br>AR22PP-222■□ | Without  | AR22PP-210■□<br>AR22PP-201■□<br>AR22PP-211■□<br>AR22PP-222■□ |
|  |  |                                  |                                  | With   | AR22PP-210■□<br>AR22PP-201■□<br>AR22PP-211■□<br>AR22PP-220■□ | With   | AR22PP-210■□<br>AR22PP-201■□<br>AR22PP-211■□<br>AR22PP-220■□ |
| Spring return<br><br>60°          |  | 1NO<br>1NC<br>1NO+1NC<br>2NO     | Without                          | AR22PP-010■□<br>AR22PP-001■□<br>AR22PP-011■□<br>AR22PP-020■□ | Without  | AR22PP-010■□<br>AR22PP-001■□<br>AR22PP-011■□<br>AR22PP-020■□ |  |
|  |  |                                  | With                             | AR22PP-010■□<br>AR22PP-001■□<br>AR22PP-011■□<br>AR22PP-020■□ | With   | AR22PP-010■□<br>AR22PP-001■□<br>AR22PP-011■□<br>AR22PP-020■□ |  |

### 3-position

| Operator   | Operation   | Contact            | LED lamp    |                              | Incandescent lamp |                              |
|--|---|--------------------|-------------|------------------------------|-------------------|------------------------------|
|  |   |                    | Transformer | Type                         | Transformer       | Type                         |
| Knob<br><br><small>AF94-306</small>                   | Maintained  | 1NO+1NC<br>2NO+2NC | Without     | AR22PL-311■□<br>AR22PL-322■□ | Without           | AR22PL-311■□<br>AR22PL-322■□ |
|  |   |                    | With        | AR22PL-311■□                 |                   | AR22PL-311■□                 |
|  | Spring/manual return<br><br>each 45° | 1NO+1NC<br>1NO+1NC | Without     | AR22PL-611■□<br>AR22PL-611■□ | Without           | AR22PL-611■□<br>AR22PL-611■□ |
|  |   |                    | With        | AR22PL-711■□<br>AR22PL-711■□ | Without           | AR22PL-711■□<br>AR22PL-711■□ |
| Knob with square bezel<br><br><small>AF94-360</small> | Maintained  | 1NO+1NC<br>2NO+2NC | Without     | AR22PP-311■□<br>AR22PP-322■□ | Without           | AR22PP-311■□<br>AR22PP-322■□ |
|  |   |                    | With        | AR22PP-311■□                 |                   | AR22PP-311■□                 |
|  | Spring/manual return<br><br>each 45° | 1NO+1NC<br>1NO+1NC | Without     | AR22PP-611■□<br>AR22PP-611■□ | Without           | AR22PP-611■□<br>AR22PP-611■□ |
|  |   |                    | With        | AR22PP-711■□<br>AR22PP-711■□ | Without           | AR22PP-711■□<br>AR22PP-711■□ |

Note: □, ■ See page 04/33

- Replace the ■ mark by the following lamp voltage code

| Transformer | Voltage     | Code |              |
|-------------|-------------|------|--------------|
|             |             | LED  | Incandescent |
| Without     | 5V AC/DC    | —    | 5            |
|             | 6V DC       | 6    | —            |
|             | 6V AC       | A    | —            |
|             | 12V AC/DC   | B    | —            |
|             | 15V AC/DC   | C    | C            |
|             | 20V AC/DC   | —    | D            |
|             | 24V AC/DC   | E    | E            |
| With        | 100-110V AC | H    | H            |
|             | 115-127V AC | L    | L            |
|             | 200-220V AC | M    | M            |
|             | 230-254V AC | Q    | Q            |
|             | 350-380V AC | S    | S            |
|             | 400-440V AC | T    | T            |
|             | 480V AC     | V    | V            |
|             | 500-550V AC | W    | W            |

- Replace the □ mark by the following knob color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

- Up to 4-contact of contact arrangement can be made.  
Available numbers of contacts are as follow.

| No. of position | Operation            | Without transformer | With transformer |
|-----------------|----------------------|---------------------|------------------|
| 2-position      | Maintained           | 4-contact           | 3-contact        |
|                 | Spring return        | 3-contact           | 2-contact        |
| 3-position      | Maintained           | 4-contact           | 3-contact        |
|                 | Spring/manual return | 3-contact           | 2-contact        |

- Contact arrangement and operator position

### 2-position

| Transformer  | Contact arrangement | Contact block     |      | Operator position |       |
|--------------|---------------------|-------------------|------|-------------------|-------|
|              |                     | Mounting position | Type | Left              | Right |
| With/without | 1NO                 | (1)               | NO   | —                 | ●     |
| With/without | 1NC                 | (1)               | NC   | ●                 | —     |
| Without      | 1NO+1NC             | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NC   | ●                 | —     |
| With         | 1NO+1NC             | (1)               | NC   | ●                 | —     |
|              |                     | (2)               | NO   | —                 | ●     |
| With/without | 2NO                 | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NO   | —                 | ●     |
| Without      | 2NO+2NC<br>*1       | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NC   | ●                 | —     |
|              |                     | (3)               | NO   | —                 | ●     |
|              |                     | (4)               | NC   | ●                 | —     |

Notes: \*1: AR22PL-2, AR22PP-2

●: Contact closed, —: Contact open

### 3-position

| Transformer | Contact arrangement | Contact block     |      | Operator position |        |       |
|-------------|---------------------|-------------------|------|-------------------|--------|-------|
|             |                     | Mounting position | Type | Left              | Center | Right |
| Without     | 1NO+1NC<br>*1       | (1)               | NO   | ●                 | —      | —     |
|             |                     | (2)               | NC   | —                 | —      | ●     |
|             | 1NO+1NC<br>*2       | (1)               | NO   | —                 | —      | ●     |
|             |                     | (2)               | NC   | ●                 | —      | —     |
|             | 2NO+2NC<br>*3       | (1)               | NO   | ●                 | —      | —     |
|             |                     | (2)               | NC   | —                 | —      | ●     |
| (3)         | NO                  | ●                 | —    | —                 |        |       |
| (4)         | NC                  | —                 | —    | ●                 |        |       |
| With        | 1NO+1NC<br>*1       | (1)               | NC   | —                 | —      | ●     |
|             |                     | (2)               | NO   | ●                 | —      | —     |
|             | 1NO+1NC<br>*2       | (1)               | NC   | ●                 | —      | —     |
|             |                     | (2)               | NO   | —                 | —      | ●     |

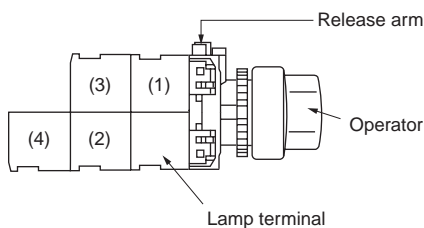
Notes: \*1: AR22PL-3, 6 AR22PP-3, 6 \*3: AR22PL-3 AR22PP-3

\*2: AR22PL-7, AR22PP-7

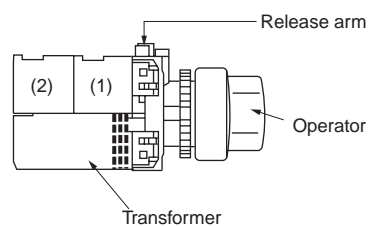
●: Contact closed, —: Contact open

- Position of contact block

#### Without transformer




#### With transformer



# Pilot Lights DR22

## ■ Pilot lights/standard

| Lens   | Transformer | LED lamp<br>Lamp voltage                 | Type   | Incandescent lamp<br>Lamp voltage         | Type   |
|--|-------------|--|--|---|--|
| Dome<br><br>AF94-333                                  | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22D0L-A3□<br>DR22D0L-63□<br>DR22D0L-B3□<br>DR22D0L-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22D0L-54□<br>—<br>DR22D0L-C4□<br>DR22D0L-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22D0L-H3□<br>DR22D0L-M3□                               | 100–110V AC<br>200–220V AC                | DR22D0L-H4□<br>DR22D0L-M4□                     |
| Extended round<br><br>AF94-332                        | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22E3L-A3□<br>DR22E3L-63□<br>DR22E3L-B3□<br>DR22E3L-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22E3L-54□<br>—<br>DR22E3L-C4□<br>DR22E3L-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22E3L-H3□<br>DR22E3L-M3□                               | 100–110V AC<br>200–220V AC                | DR22E3L-H4□<br>DR22E3L-M4□                     |
| Faceted<br><br>AF96-189                               | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22K0L-A3□<br>DR22K0L-63□<br>DR22K0L-B3□<br>DR22K0L-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22K0L-54□<br>—<br>DR22K0L-C4□<br>DR22K0L-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22K0L-H3□<br>DR22K0L-M3□                               | 100–110V AC<br>200–220V AC                | DR22K0L-H4□<br>DR22K0L-M4□                     |
| Flush square<br><br>AF94-330                        | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22F3M-A3□<br>DR22F3M-63□<br>DR22F3M-B3□<br>DR22F3M-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22F3M-54□<br>—<br>DR22F3M-C4□<br>DR22F3M-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22F3M-H3□<br>DR22F3M-M3□                               | 100–110V AC<br>200–220V AC                | DR22F3M-H4□<br>DR22F3M-M4□                     |
| Flush square<br>(Transparent lens)<br><br>AF94-443  | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22F4M-A3□<br>DR22F4M-63□<br>DR22F4M-B3□<br>DR22F4M-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22F4M-54□<br>—<br>DR22F4M-C4□<br>DR22F4M-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22F4M-H3□<br>DR22F4M-M3□                               | 100–110V AC<br>200–220V AC                | DR22F4M-H4□<br>DR22F4M-M4□                     |
| Flush square<br>(12mm high frame)<br><br>AF94-380   | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22F5M-A3□<br>DR22F5M-63□<br>DR22F5M-B3□<br>DR22F5M-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22F5M-54□<br>—<br>DR22F5M-C4□<br>DR22F5M-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22F5M-H3□<br>DR22F5M-E3□                               | 100–110V AC<br>200–220V AC                | DR22F5M-H4□<br>DR22F5M-M4□                     |
| Extended square<br><br>AF95-685<br>AF94-380         | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22E3M-A3□<br>DR22E3M-63□<br>DR22E3M-B3□<br>DR22E3M-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22E3M-54□<br>—<br>DR22E3M-C4□<br>DR22E3M-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22E3M-H3□<br>DR22E3M-M3□                               | 100–110V AC<br>200–220V AC                | DR22E3M-H4□<br>DR22E3M-M4□                     |
| Flush rectangular<br><br>AF96-237                   | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22E3N-A3□<br>DR22E3N-63□<br>DR22E3N-B3□<br>DR22E3N-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22E3N-54□<br>—<br>DR22E3N-C4□<br>DR22E3N-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22E3N-H3□<br>DR22E3N-M3□                               | 100–110V AC<br>200–220V AC                | DR22E3N-H4□<br>DR22E3N-M4□                     |
| Extended round with<br>square bezel<br><br>AF94-331 | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DR22E3P-A3□<br>DR22E3P-63□<br>DR22E3P-B3□<br>DR22E3P-E3□ | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DR22E3P-54□<br>—<br>DR22E3P-C4□<br>DR22E3P-E4□ |
|  | With        | 100–110V AC<br>200–220V AC               | DR22E3P-H3□<br>DR22E3P-M3□                               | 100–110V AC<br>200–220V AC                | DR22E3P-H4□<br>DR22E3P-M4□                     |

Note: □ See page 04/37



■ Pilot lights/short-body without transformer

| Lens   | LED lamp     |             | Incandescent lamp |             |
|--|--------------|-------------|-------------------|-------------|
|  | Lamp voltage | Type        | Lamp voltage      | Type        |
| <br>AF98-88     | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22D0L-58□ |
|  | 6V AC        | DR22D0L-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22D0L-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22D0L-B9□ | 15V AC/DC         | DR22D0L-C8□ |
|  | 24V AC/DC    | DR22D0L-E9□ | 24V AC/DC         | DR22D0L-E8□ |
| <br>AF98-90     | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22E3L-58□ |
|  | 6V AC        | DR22E3L-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22E3L-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22E3L-B9□ | 15V AC/DC         | DR22E3L-C8□ |
|  | 24V AC/DC    | DR22E3L-E9□ | 24V AC/DC         | DR22E3L-E8□ |
| <br>AF98-89     | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22K0L-58□ |
|  | 6V AC        | DR22K0L-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22K0L-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22K0L-B9□ | 15V AC/DC         | DR22K0L-C8□ |
|  | 24V AC/DC    | DR22K0L-E9□ | 24V AC/DC         | DR22K0L-E8□ |
| <br>AF98-92   | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22F3M-58□ |
|  | 6V AC        | DR22F3M-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22F3M-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22F3M-B9□ | 15V AC/DC         | DR22F3M-C8□ |
|  | 24V AC/DC    | DR22F3M-E9□ | 24V AC/DC         | DR22F3M-E8□ |
| <br>AF98-92   | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22F4M-58□ |
|  | 6V AC        | DR22F4M-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22F4M-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22F4M-B9□ | 15V AC/DC         | DR22F4M-C8□ |
|  | 24V AC/DC    | DR22F4M-E9□ | 24V AC/DC         | DR22F4M-E8□ |
| <br>AF98-94   | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22F5M-58□ |
|  | 6V AC        | DR22F5M-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22F5M-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22F5M-B9□ | 15V AC/DC         | DR22F5M-C8□ |
|  | 24V AC/DC    | DR22F5M-E9□ | 24V AC/DC         | DR22F5M-E8□ |
| <br>AF98-93   | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22E3M-58□ |
|  | 6V AC        | DR22E3M-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22E3M-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22E3M-B9□ | 15V AC/DC         | DR22E3M-C8□ |
|  | 24V AC/DC    | DR22E3M-E9□ | 24V AC/DC         | DR22E3M-E8□ |
| <br>KK02-234B | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22E3N-58□ |
|  | 6V AC        | DR22E3N-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22E3N-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22E3N-B9□ | 15V AC/DC         | DR22E3N-C8□ |
|  | 24V AC/DC    | DR22E3N-E9□ | 24V AC/DC         | DR22E3N-E8□ |
| <br>AF98-91   | 5.5V AC/DC   | —           | 5.5V AC/DC        | DR22E3P-58□ |
|  | 6V AC        | DR22E3P-A9□ | 6V AC             | —           |
|  | 6V DC        | DR22E3P-69□ | 6V DC             | —           |
|  | 12V AC/DC    | DR22E3P-B9□ | 15V AC/DC         | DR22E3P-C8□ |
|  | 24V AC/DC    | DR22E3P-E9□ | 24V AC/DC         | DR22E3P-E8□ |

Note: □ See page 04/37

# Pilot Lights DR22

## ■ Pilot lights/short-body with transformer

| Lens   | LED lamp     |                     | Incandescent lamp |                     |
|--|--------------|---------------------|-------------------|---------------------|
|  | Lamp voltage | Type                | Lamp voltage      | Type                |
| Dome<br><br><small>AF97-137</small>                                 | 100–110V AC  | <b>DR22D0L-H9</b> □ | 100–110V AC       | <b>DR22D0L-H8</b> □ |
|  | 200–220V AC  | <b>DR22D0L-M9</b> □ | 200–220V AC       | <b>DR22D0L-M8</b> □ |
| Extended round<br><br><small>AF97-138</small>                       | 100–110V AC  | <b>DR22E3L-H9</b> □ | 100–110V AC       | <b>DR22E3L-H8</b> □ |
|  | 200–220V AC  | <b>DR22E3L-M9</b> □ | 200–220V AC       | <b>DR22E3L-M8</b> □ |
| Faceted<br><br><small>KK02-130A</small>                             | 100–110V AC  | <b>DR22K0L-H9</b> □ | 100–110V AC       | <b>DR22K0L-H8</b> □ |
|  | 200–220V AC  | <b>DR22K0L-M9</b> □ | 200–220V AC       | <b>DR22K0L-M8</b> □ |
| Flush square<br><br><small>AF97-134</small>                       | 100–110V AC  | <b>DR22F3M-H9</b> □ | 100–110V AC       | <b>DR22F3M-H8</b> □ |
|  | 200–220V AC  | <b>DR22F3M-M9</b> □ | 200–220V AC       | <b>DR22F3M-M8</b> □ |
| Flush square<br>(Transparent lens)<br><br><small>AF97-133</small> | 100–110V AC  | <b>DR22F4M-H9</b> □ | 100–110V AC       | <b>DR22F4M-H8</b> □ |
|  | 200–220V AC  | <b>DR22F4M-M9</b> □ | 200–220V AC       | <b>DR22F4M-M8</b> □ |
| Flush square<br>(12mm high frame)<br><br><small>AF97-136</small>  | 100–110V AC  | <b>DR22F5M-H9</b> □ | 100–110V AC       | <b>DR22F5M-H8</b> □ |
|  | 200–220V AC  | <b>DR22F5M-M9</b> □ | 200–220V AC       | <b>DR22F5M-M8</b> □ |
| Extended square<br><br><small>KK02-134A</small>                   | 100–110V AC  | <b>DR22E3M-H9</b> □ | 100–110V AC       | <b>DR22E3M-H8</b> □ |
|  | 200–220V AC  | <b>DR22E3M-M9</b> □ | 200–220V AC       | <b>DR22E3M-M8</b> □ |
| Flush rectangular<br><br><small>KK02-235B</small>                 | 100–110V AC  | <b>DR22E3N-H9</b> □ | 100–110V AC       | <b>DR22E3N-H8</b> □ |
|  | 200–220V AC  | <b>DR22E3N-M9</b> □ | 200–220V AC       | <b>DR22E3N-M8</b> □ |
| Extended round with square bezel<br><br><small>AF97-135</small>   | 100–110V AC  | <b>DR22E3P-H9</b> □ | 100–110V AC       | <b>DR22E3P-H8</b> □ |
|  | 200–220V AC  | <b>DR22E3P-M9</b> □ | 200–220V AC       | <b>DR22E3P-M8</b> □ |

Note: □ See page 04/37

• **Lens color**

Replace the □ mark by the following lens color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

• **Lamp voltage**




Available lamp voltage are as follow.

| Description         | Voltage     | Code                 |              | Short-body type |              |
|---------------------|-------------|----------------------|--------------|-----------------|--------------|
|                     |             | Standard type<br>LED | Incandescent | LED             | Incandescent |
| Without transformer | 5.5V AC/DC  | –                    | 54           | –               | 58           |
|                     | 6V AC       | A3                   | –            | A9              | –            |
|                     | 6V DC       | 63                   | –            | 69              | –            |
|                     | 12V AC/DC   | B3                   | –            | B9              | –            |
|                     | 15V AC/DC   | C3                   | C4           | C9              | C8           |
|                     | 20V AC/DC   | –                    | D4           | –               | D8           |
|                     | 24V AC/DC   | E3                   | E4           | E9              | E8           |
| With transformer    | 100-110V AC | H3                   | H4           | H9              | H8           |
|                     | 115-127V AC | L3                   | L4           | L9              | L8           |
|                     | 200-220V AC | M3                   | M4           | M9              | M8           |
|                     | 230-254V AC | Q3                   | Q4           | –               | –            |
|                     | 350-380V AC | S3                   | S4           | –               | –            |
|                     | 400-440V AC | T3                   | T4           | –               | –            |
|                     | 480V AC     | V3                   | V4           | –               | –            |
|                     | 500-550V AC | W3                   | W4           | –               | –            |
| With resistor unit  | 110V DC     | H7                   | –            | –               | –            |

# Joy Stick Selector Switches

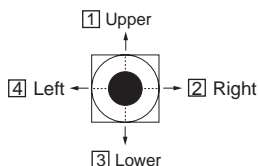
## AR22

### ■ Joy stick selector switches

| Handle   | Terminal   | Operating directions | Contact arrangement  | Type                 |                      |
|--|------------|----------------------|----------------------|----------------------|----------------------|
|  |            |                      |                      | Manual return        | Spring return        |
| Ball type without lock<br><br><small>AF97-49</small>         | Screw      | ↑<br>↓               | 1NO X 2              | <b>AR22A0N-A0A0B</b> | <b>AR22A5N-A0A0B</b> |
|  |            |                      | 1NO + 1NC X 2        | <b>AR22A0N-1010B</b> | <b>AR22A5N-1010B</b> |
|  |            | ↔                    | 1NO X 4              | <b>AR22A0N-AAAAB</b> | <b>AR22A5N-AAAAB</b> |
|  |            |                      | 1NO + 1NC X 4        | <b>AR22A0N-1111B</b> | <b>AR22A5N-1111B</b> |
|  | Solder/tab | ↑<br>↓               | 1NO + 1NC X 2        | <b>AR22A0H-1010B</b> | <b>AR22A5H-1010B</b> |
|  |            |                      | 2NO + 2NC X 2        | <b>AR22A0H-2020B</b> | <b>AR22A5H-2020B</b> |
| ↔  | ↑<br>↓     | 1NO + 1NC X 4        | <b>AR22A0H-1111B</b> | <b>AR22A5H-1111B</b> |                      |
|  |            | 2NO + 2NC X 4        | <b>AR22A0H-2222B</b> | <b>AR22A5H-2222B</b> |                      |
| Ball type with lock<br><br><small>AF97-45</small>           | Screw      | ↑<br>↓               | 1NO X 2              | <b>AR22A1N-A0A0B</b> | <b>AR22A6N-A0A0B</b> |
|  |            |                      | 1NO + 1NC X 2        | <b>AR22A1N-1010B</b> | <b>AR22A6N-1010B</b> |
|  |            | ↔                    | 1NO X 4              | <b>AR22A1N-AAAAB</b> | <b>AR22A6N-AAAAB</b> |
|  |            |                      | 1NO + 1NC X 4        | <b>AR22A1N-1111B</b> | <b>AR22A6N-1111B</b> |
|  | Solder/tab | ↑<br>↓               | 1NO + 1NC X 2        | <b>AR22A1H-1010B</b> | <b>AR22A6H-1010B</b> |
|  |            |                      | 2NO + 2NC X 2        | <b>AR22A1H-2020B</b> | <b>AR22A6H-2020B</b> |
| ↔  | ↑<br>↓     | 1NO + 1NC X 4        | <b>AR22A1H-1111B</b> | <b>AR22A6H-1111B</b> |                      |
|  |            | 2NO + 2NC X 4        | <b>AR22A1H-2222B</b> | <b>AR22A6H-2222B</b> |                      |
| Rubber cap type without lock<br><br><small>AF97-56</small> | Screw      | ↑<br>↓               | 1NO X 2              | <b>AR22A2N-A0A0B</b> | <b>AR22A7N-A0A0B</b> |
|  |            |                      | 1NO + 1NC X 2        | <b>AR22A2N-1010B</b> | <b>AR22A7N-1010B</b> |
|  |            | ↔                    | 1NO X 4              | <b>AR22A2N-AAAAB</b> | <b>AR22A7N-AAAAB</b> |
|  |            |                      | 1NO + 1NC X 4        | <b>AR22A2N-1111B</b> | <b>AR22A7N-1111B</b> |
|  | Solder/tab | ↑<br>↓               | 1NO + 1NC X 2        | <b>AR22A2H-1010B</b> | <b>AR22A7H-1010B</b> |
|  |            |                      | 2NO + 2NC X 2        | <b>AR22A2H-2020B</b> | <b>AR22A7H-2020B</b> |
| ↔  | ↑<br>↓     | 1NO + 1NC X 4        | <b>AR22A2H-1111B</b> | <b>AR22A7H-1111B</b> |                      |
|  |            | 2NO + 2NC X 4        | <b>AR22A2H-2222B</b> | <b>AR22A7H-2222B</b> |                      |

#### ● Operating direction

- Directions other than those shown in the table above can be provided.
- For types AR22A□N-**1** **2** **3** **4** B, designate the contact arrangement codes for the necessary operating directions (**1**: Upper, **2**: Right, **3**: Lower, **4**: Left). Designate "0" for unnecessary directions.






#### ● Contact arrangement

| Contact arrangement            |            | – | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 2NO+2NC |
|--------------------------------|------------|---|-----|-----|---------|-----|-----|---------|
| Manual return<br>Spring return | Screw      | 0 | A   | B   | 1       | D   | E   | –       |
|                                | Solder/Tab | 0 | –   | –   | 1       | –   | –   | 2       |

- Spring/manual return are also available, contact FUJI.

■ Buzzers

| Sound  | Description  | Transformer        | Operating voltage                                    | Type   |
|--|--|--------------------|--|--|
| <br>KKD08-053 | <ul style="list-style-type: none"> <li>• LED operation indicator (Red)</li> <li>• Intermittent/continuous sound selection</li> <li>• Sound level: 90dB (0.1m)<br/>70dB (1m)</li> </ul> | Without            | 6V AC<br>6V DC<br>12 to 24V AC/DC<br>35 to 48V AC/DC | <b>DR22B5-AB</b><br><b>DR22B5-6B</b><br><b>DR22B5-EB</b><br><b>DR22B5-FB</b> |
|  |  | With               | 100 to 110V AC<br>200 to 220V AC                     | <b>DR22B5-HB</b><br><b>DR22B5-MB</b>   |
|  |  | With resistor unit | 100 to 110V DC                                       | <b>DR22B5-1B</b>   |
| <br>AF96-376  | <ul style="list-style-type: none"> <li>• Sound volume adjustment</li> <li>• Sound level: 80 to 90dB (0.1m)<br/>60 to 70dB (1m)</li> </ul>  | Without            | 24V AC/DC  | <b>DR22B3-EB</b>   |
|  |  | With               | 100 to 110V AC<br>200 to 220V AC                     | <b>DR22B3-HB</b><br><b>DR22B3-MB</b>   |
| <br>AF96-244  | <ul style="list-style-type: none"> <li>• Intermittent/continuous sound selection</li> <li>• Sound level: 80dB (0.1m)<br/>60dB (1m)</li> </ul>  | Without            | 6V AC<br>6V DC<br>12 to 24V AC/DC<br>35 to 48V AC/DC | <b>DR22B8-AB</b><br><b>DR22B8-6B</b><br><b>DR22B8-EB</b><br><b>DR22B8-FB</b> |
|  |  | With               | 100 to 110V AC<br>200 to 220V AC                     | <b>DR22B8-HB</b><br><b>DR22B8-MB</b>   |
|  |  | With resistor unit | 100 to 110V DC                                       | <b>DR22B8-1B</b>   |

- Notes:
- Intermittent/continuous sound selection (DR22B5, B8)  
See the "Short-circuit terminal" in the dimensions diagram on the 04/49 page, and select as follows:
    - Short-circuit terminal mounted → Intermittent sound
    - Short-circuit terminal not mounted → Continuous sound

- Sound volume adjustment (DR22B3)  
Use a flat-bladed screwdriver with a narrow tip to gently turn "Control knob" shown in the dimensions diagram on the 04/49 page, as follows.
  - Clockwise → Increase sound pressure
  - Counterclockwise → Decrease sound pressure

04

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

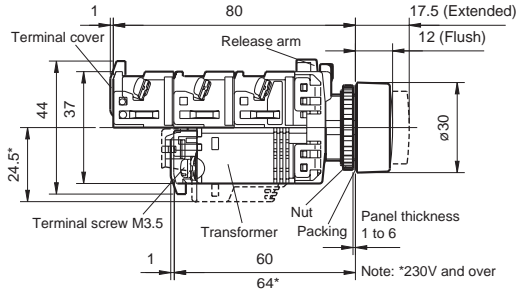
### Dimensions

■ Dimensions, mm

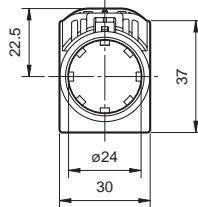
● Illuminated pushbutton switches

#### Flush/Extended

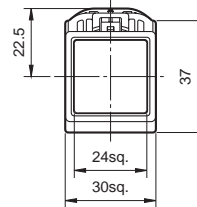
With transformer



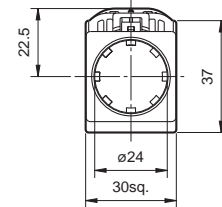
AR22F0L, F5L  
AR22E0L, E5L



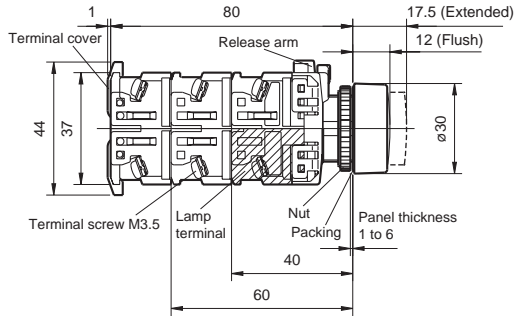
AR22F0M, F5M  
AR22E0M, E5M



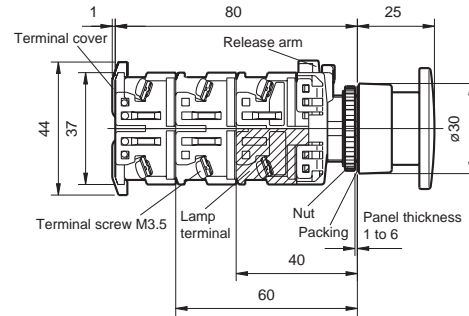
AR22F0P, F5P  
AR22E0P, E5P



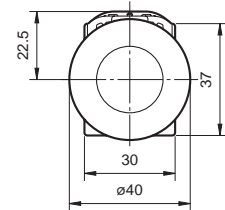
Without transformer



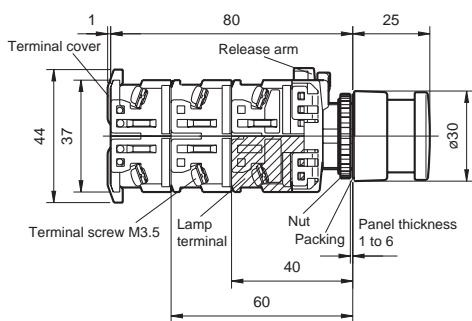
#### Mushroom (40mm dia.)



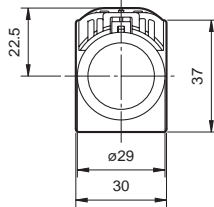
AR22M0L, M5L



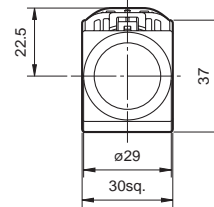
#### Mushroom (29mm dia.)



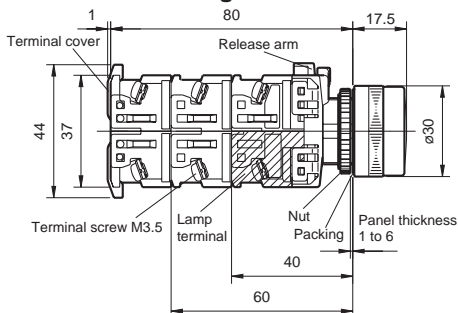
AR22M4L, M9L



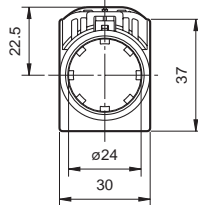
AR22M4P



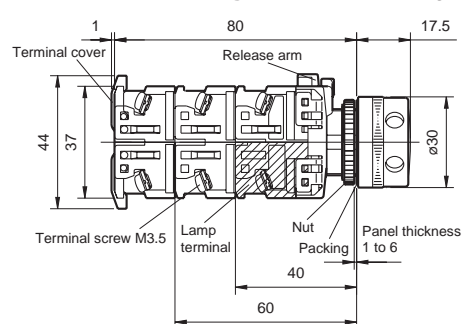
#### Extended with full guard



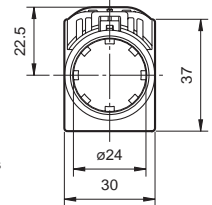
AR22G4L, G9L  
AR22G1L, G6L



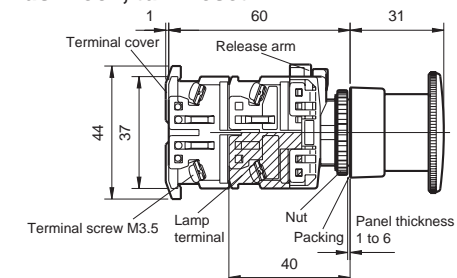
#### Extended with full guard (with openings)



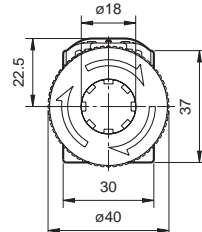
AR22G2L, G7L



#### Push-lock, turn-reset



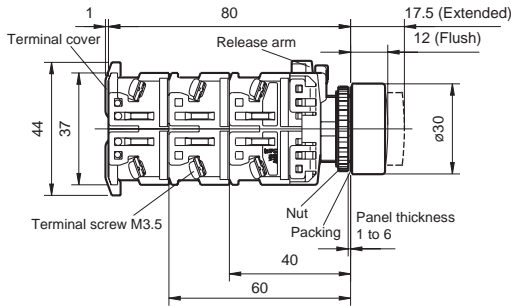
AR22V5L



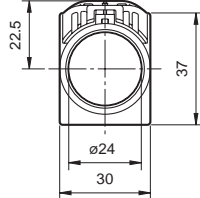
# Pushbuttons/Selectors/Pilot Lights/Buzzers AR22 and DR22 Dimensions

■ Dimensions, mm  
● Pushbutton switches

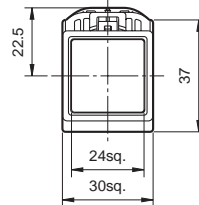
**Flush/Extended**



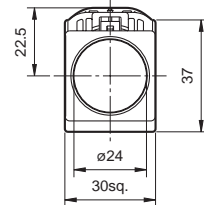
AR22F0R, F5R  
AR22E0R, E5R  
AR22FAR, FBR  
AR22EAR, EBR



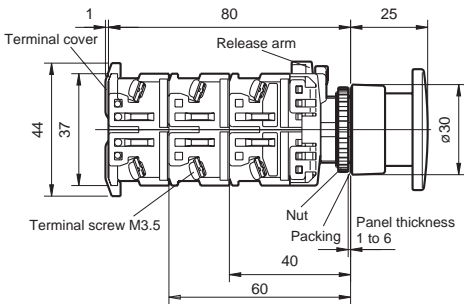
AR22F0S, F5S  
AR22E0S, E5S



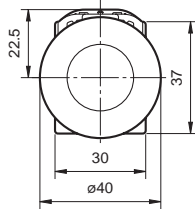
AR22F0Y, F5Y  
AR22E0Y, E5Y



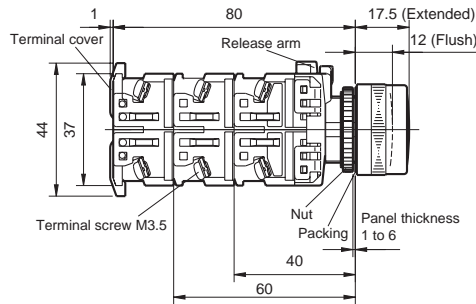
**Mushroom (40mm dia.)**



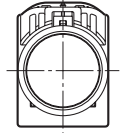
AR22M0R, M5R



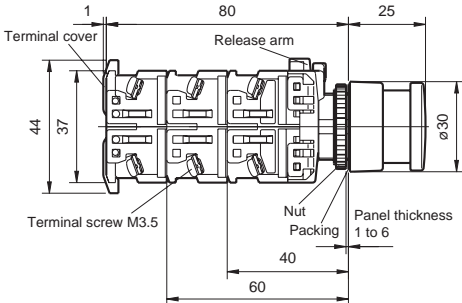
**Flush/Extended with full guard**



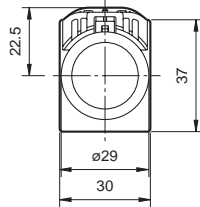
AR22G3R, G8R  
AR22G2R, G7R



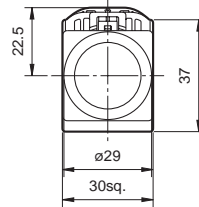
**Mushroom (29mm dia.)**



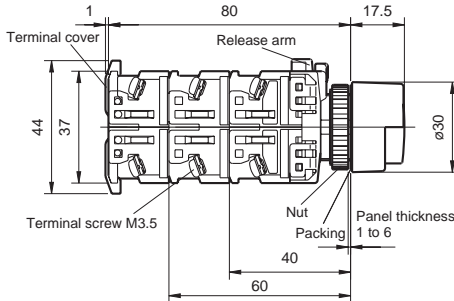
AR22M4R, M9R



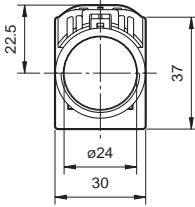
AR22M4Y



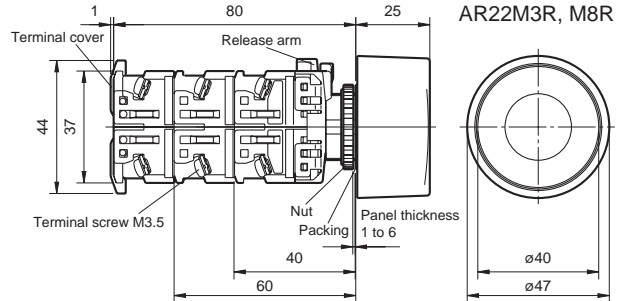
**Extended with half guard**



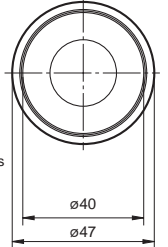
AR22G0R, G5R



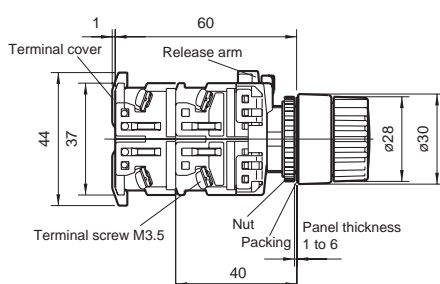
**Mushroom with full guard (40mm dia.)**



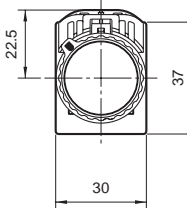
AR22M3R, M8R



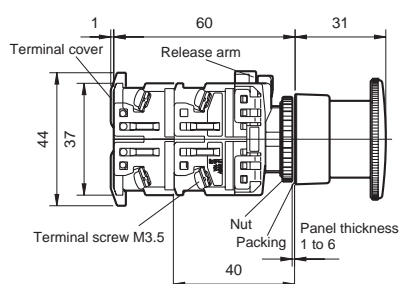
**Pushbutton with selector ring**



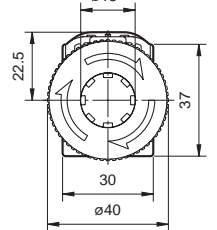
AR22S1R, S2R  
AR22S3R, S6R



**Push-lock, turn-reset**



AR22V5R



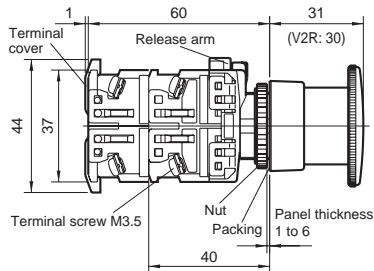


# Pushbuttons/Selectors/Pilot Lights/Buzzers AR22 and DR22 Dimensions

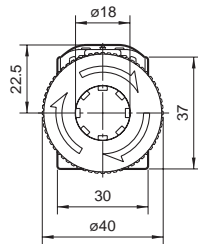
## ■ Dimensions, mm

### ● Emergency stop pushbutton switches

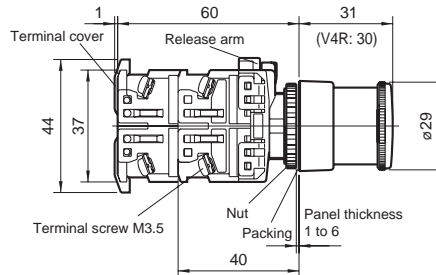
#### Push-lock, turn-reset (40mm dia.)



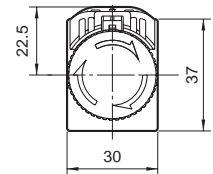
AR22V0R, V2R



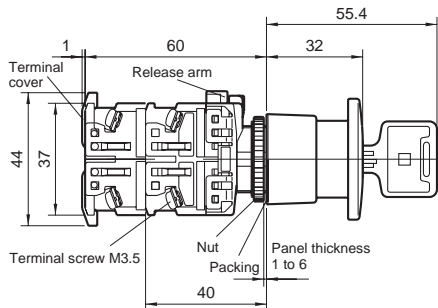
#### Push-lock, turn-reset (29mm dia.)



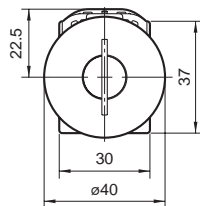
AR22VSR, V4R



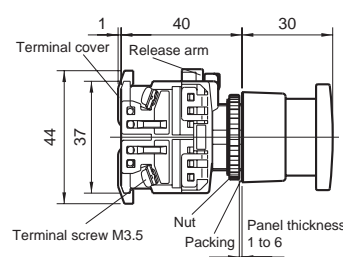
#### Key release push-lock, turn-reset (40mm dia.)



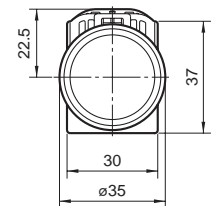
AR22V7R



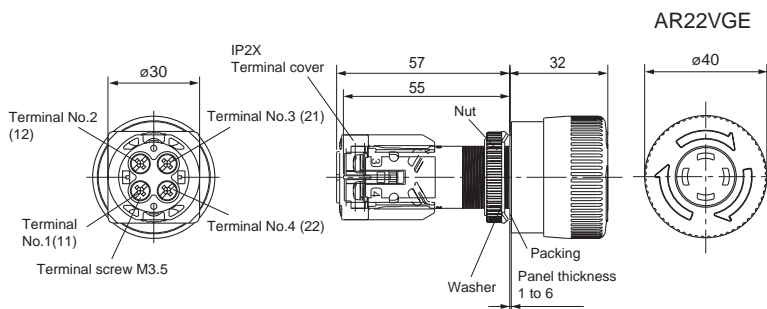
#### Push-lock, pull-reset (35mm dia.)



AR22Q2R



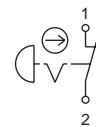
#### Unibody push-lock, turn-reset (40mm dia.)



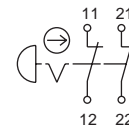
AR22VGE

#### Wiring diagrams

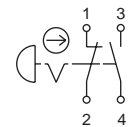
1NC



2NC



1NO+1NC

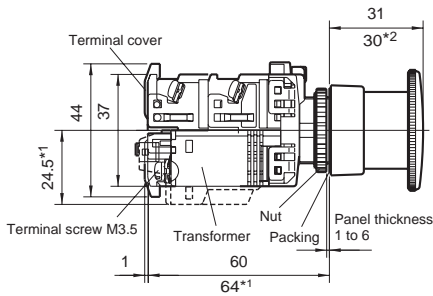


Note: Terminal No. shown in ( ) are for contact arrangement 2NC.

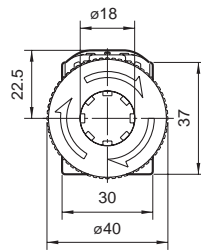
■ Dimensions, mm  
 ● Emergency stop illuminated pushbutton switches

**Push-lock, turn-reset (40mm dia.)**

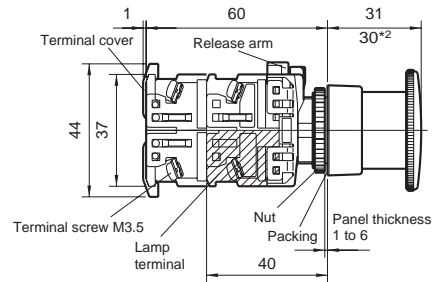
With transformer



AR22V0L, V2L  
 AR22VDL, VAL



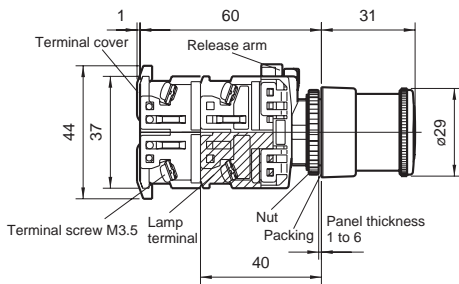
Without transformer



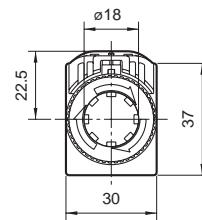
Note: \*1 230V and over  
 \*2 AR22V2L and VAL types only

**Push-lock, turn-reset (29mm dia.)**

Without transformer

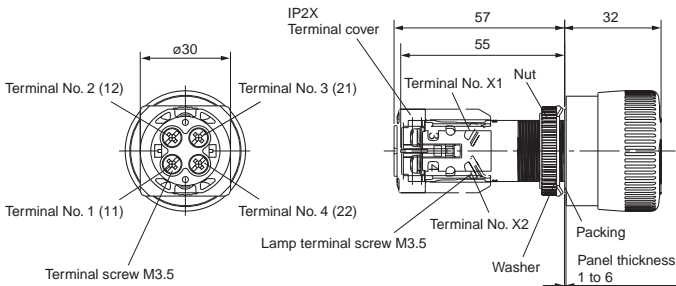


AR22VSL

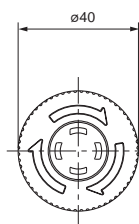


**Unibody push-lock, turn-reset (40mm dia.)**

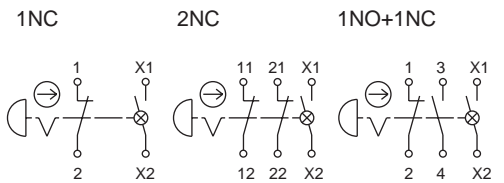
Without transformer



AR22VGF



Wiring diagrams



Note: Terminal No. shown in ( ) are for contact arrangement 2NC.

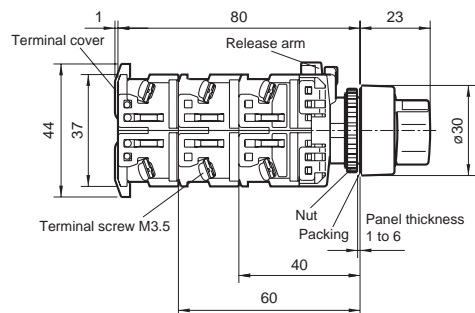
# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

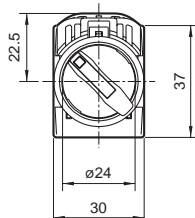
### Dimensions

■ Dimensions, mm  
● Selector switches

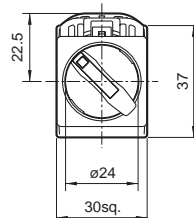
#### Knob



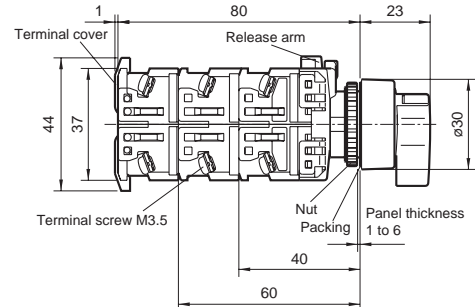
AR22PR, PCR



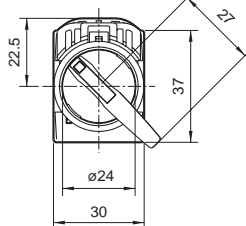
AR22PY, PCY



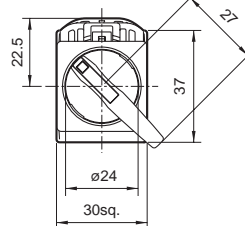
#### Lever



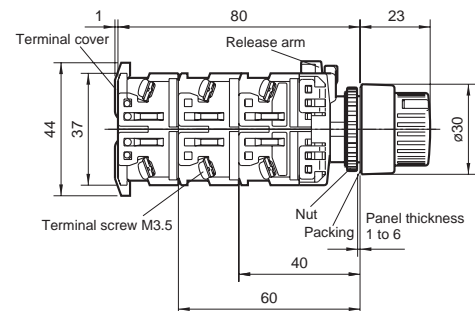
AR22WR, WCR



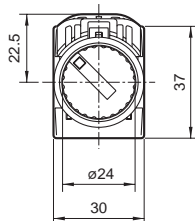
AR22WY, WCY



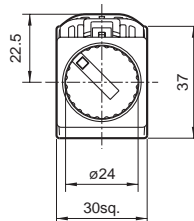
#### Cylindrical knob



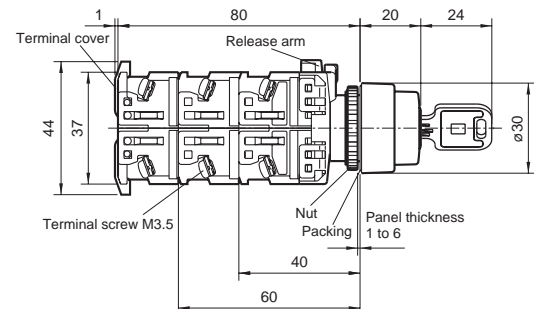
AR22RR, RCR



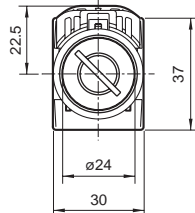
AR22RY, RCY



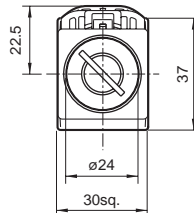
#### Key



AR22JR, JCR  
AR22JAR



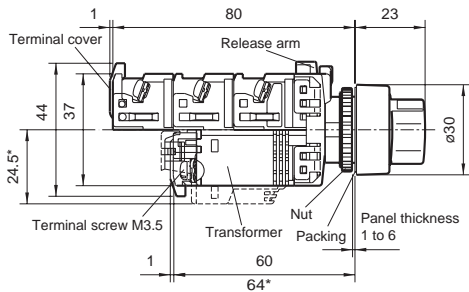
AR22JY, JCY



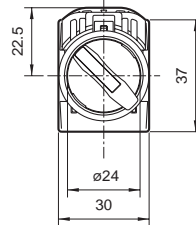
■ **Dimensions, mm**

● **Illuminated selector switches**

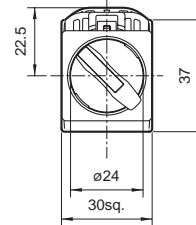
With transformer



AR22PL

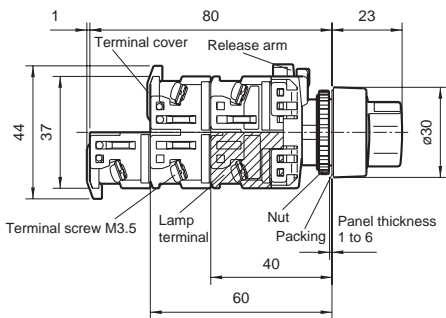


AR22PP



Note: \* 230V and over

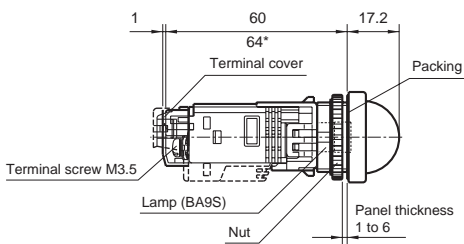
Without transformer



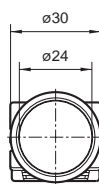
● **Pilot lights**

**Dome**

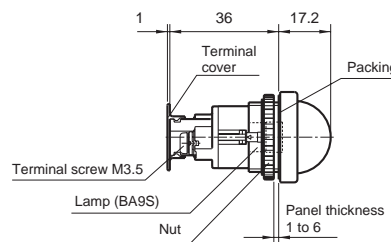
With transformer, with resistor unit



DR22D0L



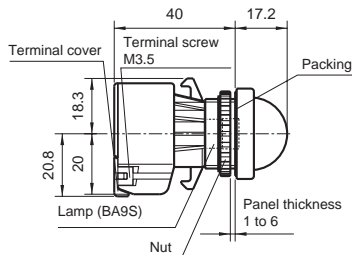
Without transformer



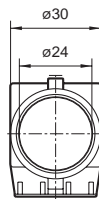
DR22D0L



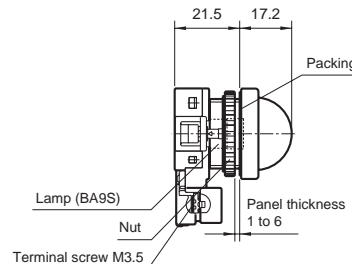
Short body/with transformer



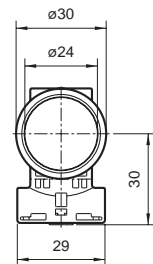
DR22D0L



Short body/without transformer



DR22D0L



Note: \* Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

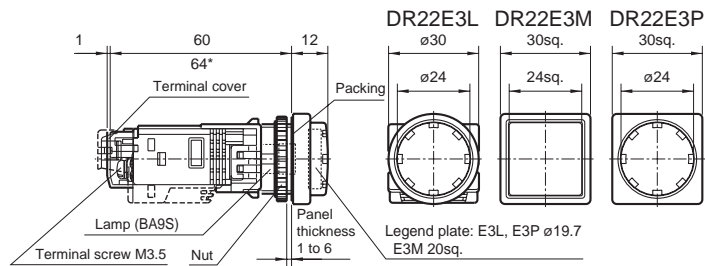
## AR22 and DR22

### Dimensions

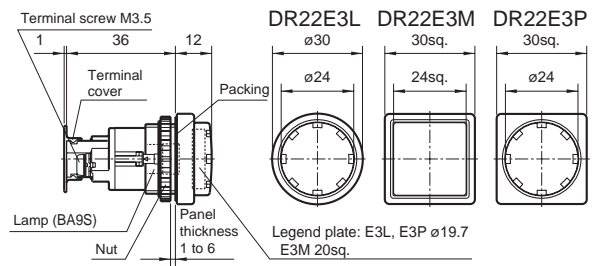
■ Dimensions, mm  
● Pilot lights

#### Extended

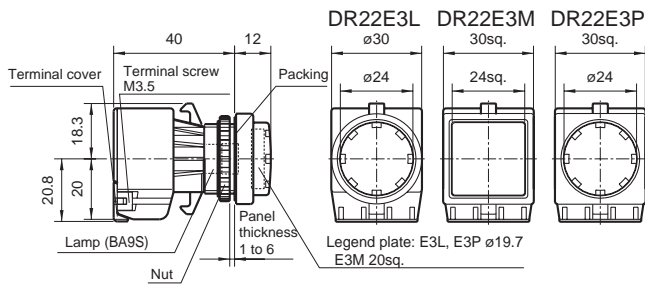
With transformer, with resistor unit



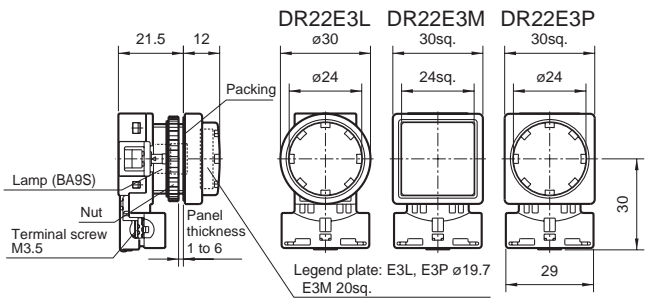
Without transformer



Short body/with transformer



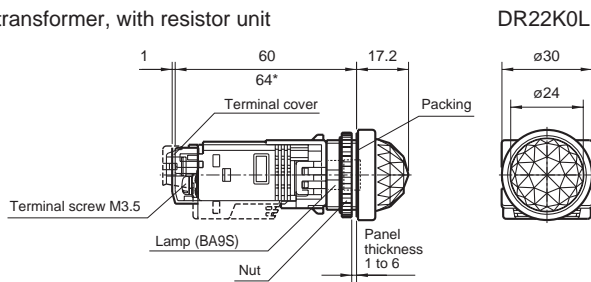
Short body/without transformer



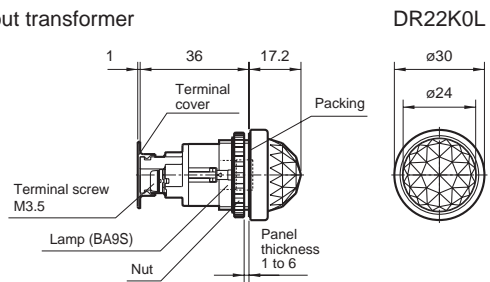
Note: \* Except for the types 110V AC, 127V AC and 220V AC.

#### Faceted

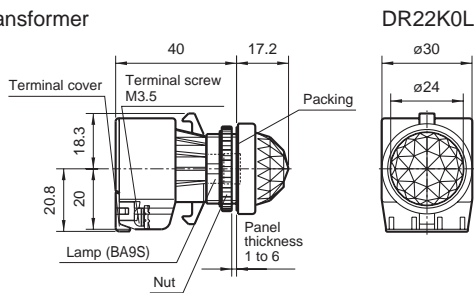
With transformer, with resistor unit



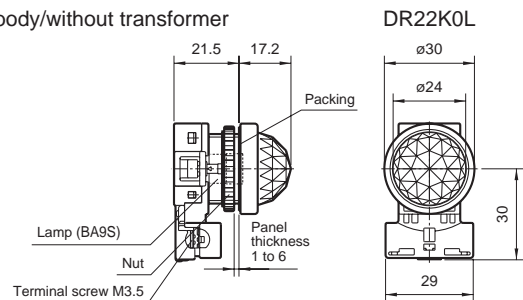
Without transformer



Short body/with transformer



Short body/without transformer



Note: \* Except for the types 110V AC, 127V AC and 220V AC.

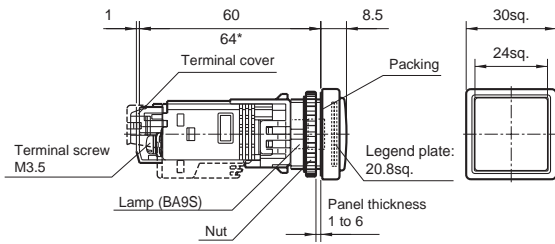
# Pushbuttons/Selectors/Pilot Lights/Buzzers AR22 and DR22 Dimensions

## ■ Dimensions, mm ● Pilot lights

### Flush

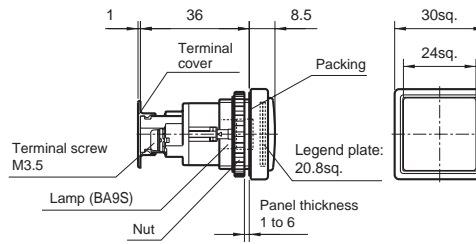
With transformer, with resistor unit

DR22F3M, F4M



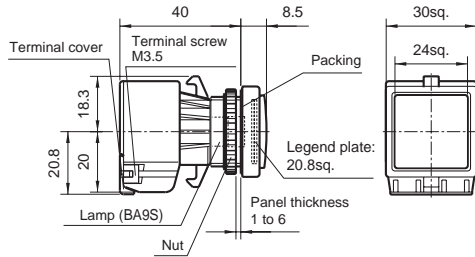
Without transformer

DR22F3M, F4M



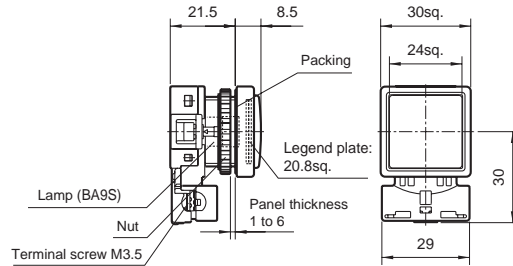
Short body/with transformer

DR22F3M, F4M



Short body/without transformer

DR22F3M, F4M

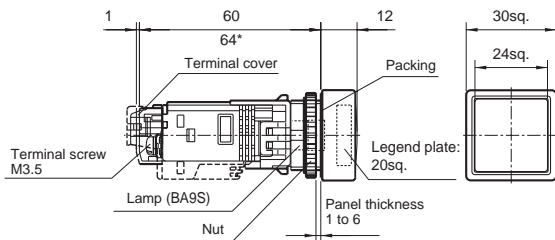


Note: \* Except for the types 110V AC, 127V AC and 220V AC.

### Flush (12mm high frame)

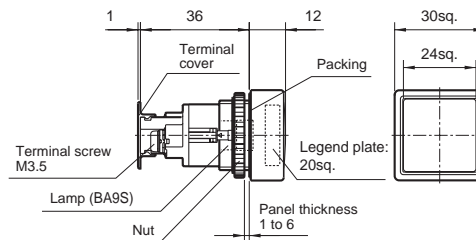
With transformer, with resistor unit

DR22F5M



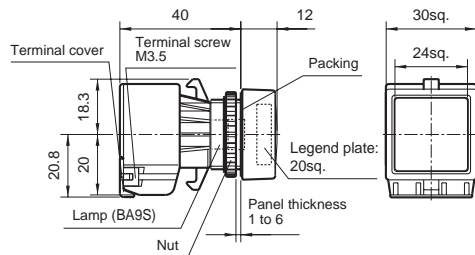
Without transformer

DR22F5M



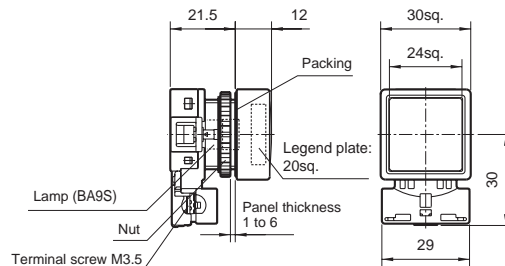
Short body/with transformer

DR22F5M



Short body/without transformer

DR22F5M



Note: \* Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

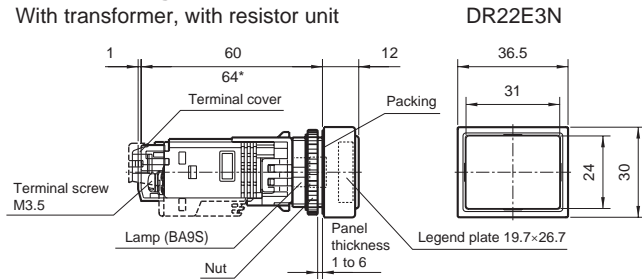
## AR22 and DR22

### Dimensions

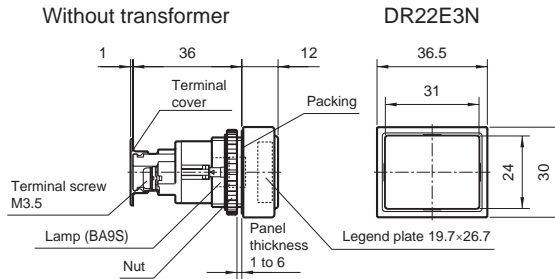
■ Dimensions, mm  
● Pilot lights

#### Flush rectangular

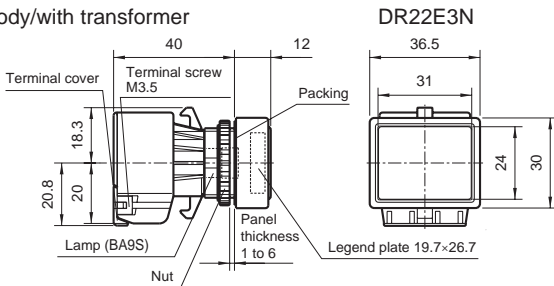
With transformer, with resistor unit



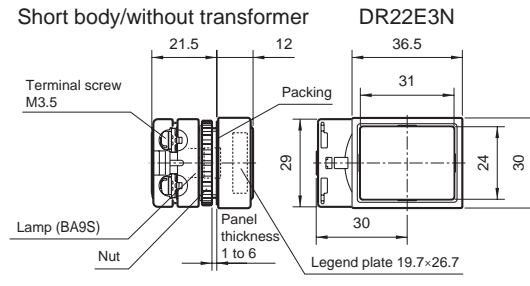
Without transformer



Short body/with transformer



Short body/without transformer

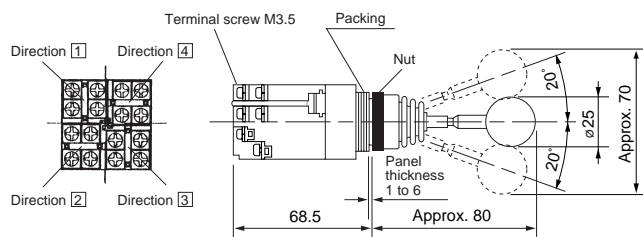


Note: \* Except for the types 110V AC, 127V AC and 220V AC.

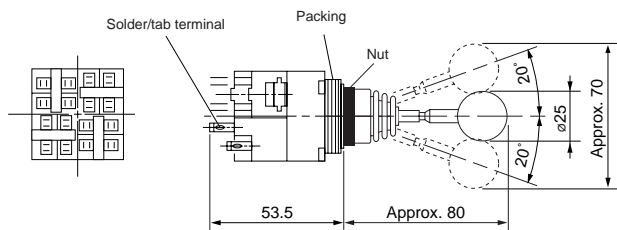
#### ● Joy stick selector switches

##### Ball type without lock

Screw terminal AR22A0N, A5N



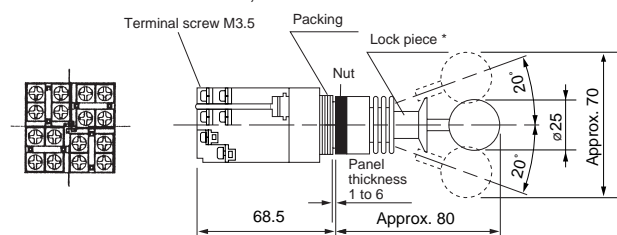
Solder/tab terminal AR22A0H, A5H



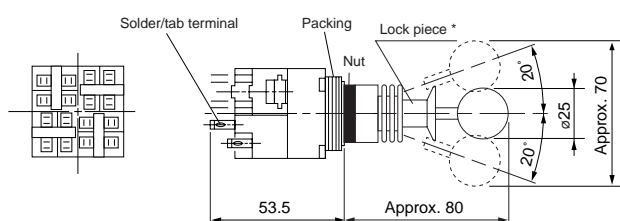
Notes \* The contact arrangement is operable in the designated direction by pulling the lock piece in the central position with the fingers. The lock piece will return automatically and locks when the lock piece is released in the central position. The lock piece locks in the central position only.

##### Ball type with lock

Screw terminal AR22A1N, A6N



Solder/tab terminal AR22A1H, A6H

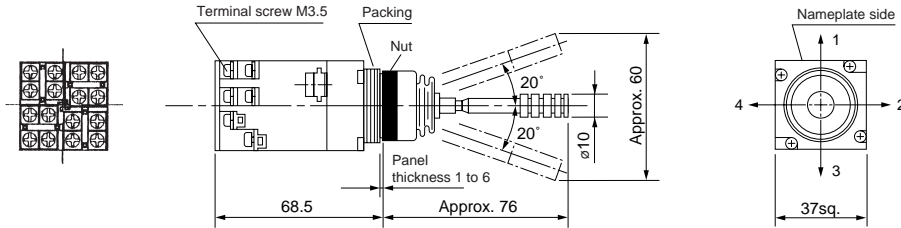


■ Dimensions, mm

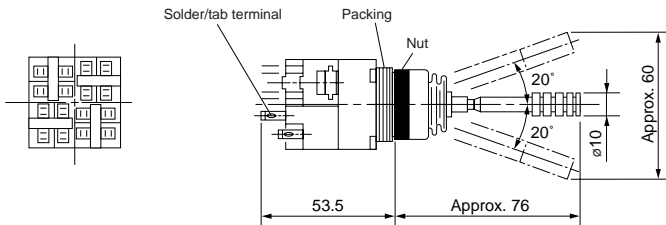
● Joy stick selector switches

**Rubber cap type without lock**

Screw terminal AR22A2N, A7N



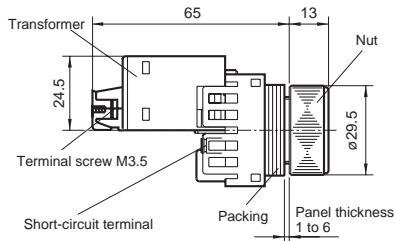
Solder/tab terminal AR22A2H, A7H



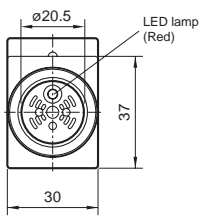
● Buzzers

**Electronic sound**

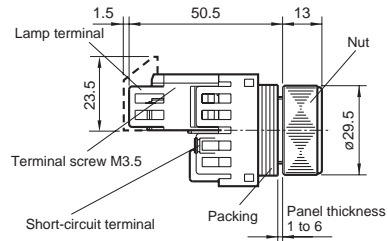
With transformer



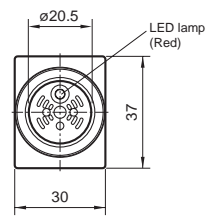
DR22B5



Without transformer

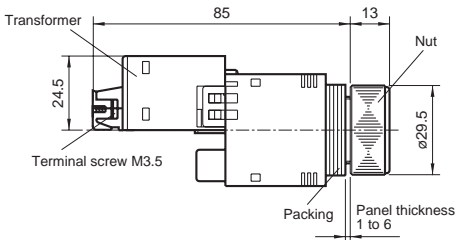


DR22B5

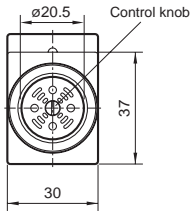


**Magnetic sound**

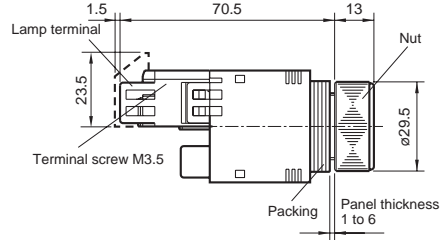
With transformer



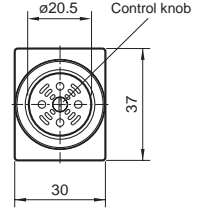
DR22B3



Without transformer

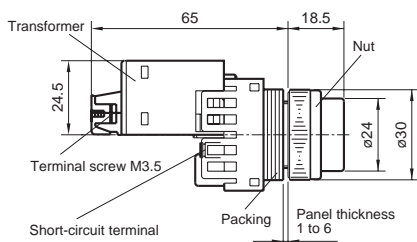


DR22B3

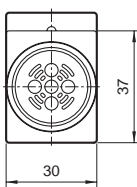


**Electronic sound (IP54)**

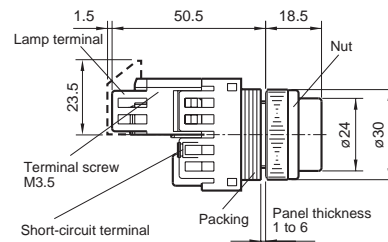
With transformer



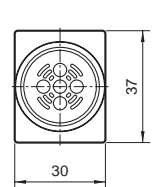
DR22B8



Without transformer



DR22B8





# Pushbuttons/Selectors/Pilot Lights/Buzzers AR22 and DR22 Notes on use

## Notes on use

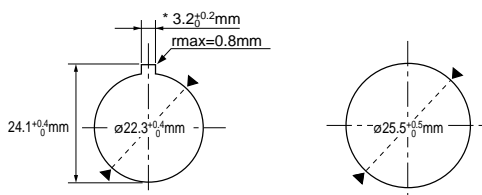
### ■ Fit two sizes of panel cutout holes

\* The unique nut with a step allows switch to be mounted in either 22.3mm- or 25.5mm-dia. holes as shown in Fig. 1 without any extra adapter.

**Fig. 1 Panel cutout**

The switch mounted as a  $\phi 22$ mm diameter unit.

The switch mounted as a  $\phi 25$ mm diameter unit.

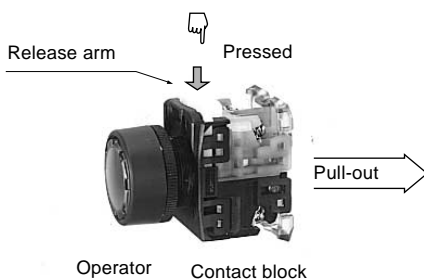


Note: \* If key-washer or legend plate are not used, 3.2mm-wide location holes need not be cutout.

### ■ Detaching contact block from the operator

While keeping the white release arm pressed with one finger, pull-out the contact block in the direction by the arrow.

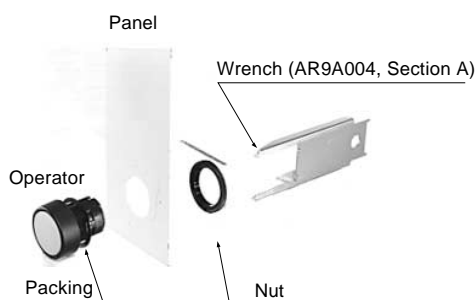
**Fig. 2 Detaching contact block from the operator**



### ■ Mounting operator to panel

① In a 22.3mm-dia. panel cutout hole  
Insert the operator into the cutout hole from the panel front as shown in the Fig. 3.  
Then, fit section "A" of the AR9A004 wrench from behind the panel and secure the operator with nut. (See page 04/108 for the wrench)

**Fig. 3 Mounting an operator in a 22.3mm-dia. hole**

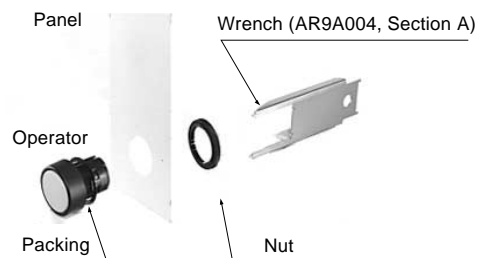


Note: Recommended tightening torque is from 1 to 1.5N•m

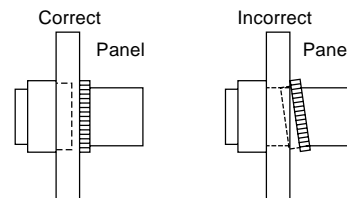
② In a 25.5mm-dia. panel cutout hole

As shown in Fig. 4, with the nut step-out side oriented to the panel, use the wrench to tighten the nut and secure the operator.

**Fig. 4 Mounting a operator in a 25.5mm-dia. hole**

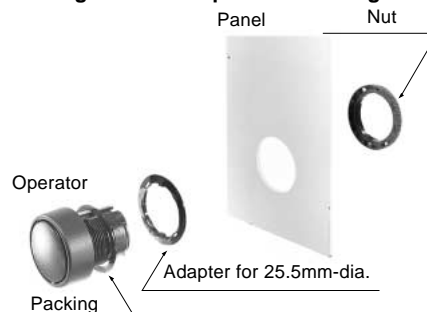


Note: 1. Recommended tightening torque is from 1 to 1.5N•m  
2. Ensure that the step-out portion of the nut is correctly fitted in the cutout hole.



For easier mounting in the 25.5mm-dia. hole, the AR9Y718 adapter is also available separately.

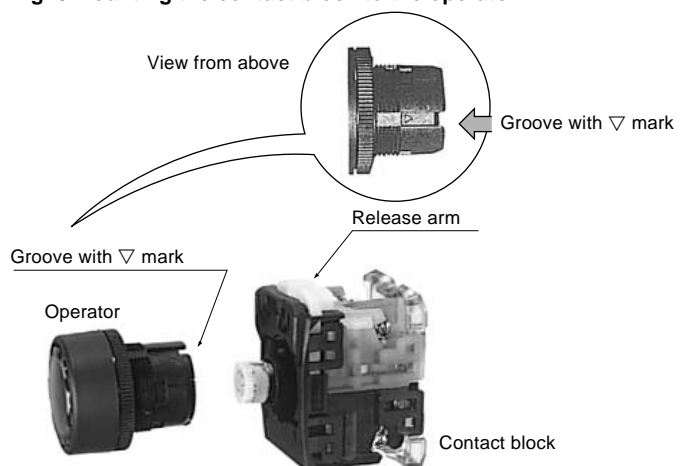
**Fig. 5 Mounting with an adapter and locking nut**



### ■ Mounting contact block to the operator

As shown in Fig. 6, align the protruding part of the contact block release arm with the operator groove at the  $\nabla$  mark. Then, insert the contact block into the operator until it clicks.

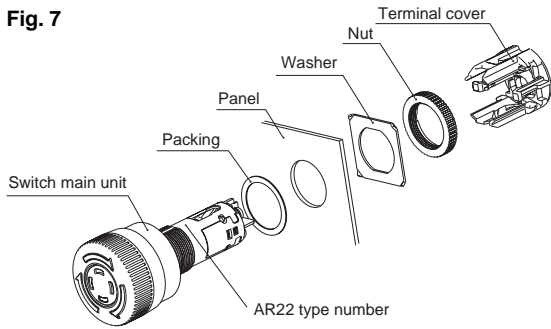
**Fig. 6 Mounting the contact block to the operator**



■ **VG type panel mounting**

As shown in the illustration, remove the live section cover, nut, and washer, and insert the main unit into a panel which has been cut from the front side of the panel. Place the type number AR22 facing upward, and secure the main unit with the nut using a wrench AHX701. The appropriate tightening torque is 1 to 1.5N•m.

Fig. 7

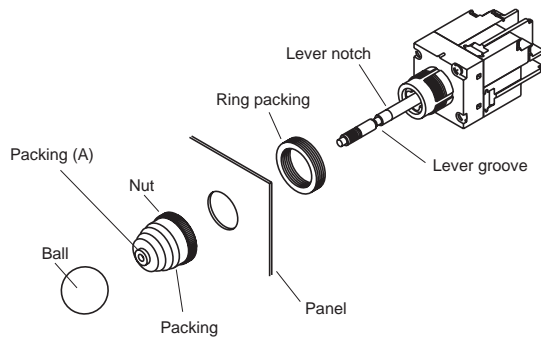


■ **Joy stick selector switch mounting on panel**

- (1) Twist and remove the ball from the operator.
- (2) Loosen the nut and remove the switch if the switch is provided with a lock.
- (3) If no locking nut is provided, loosen the nut and remove the switch after the packing part (A) shown in the illustration is stretched to the lever groove.
- (4) Mount the switch in the order opposite to removal. Set the packing to the notch on the lever as a reference. Do not separate the nut from the packing.
- (5) Use a torque wrench AR9A006 to tighten the nut from the front of the panel.

Note: Recommended tightening a torque is 1 to 1.5N•m.

Fig. 8



■ **Buzzer mounting on panel**

- (1) Remove the nut, and insert the main unit into the mounting hole from the back of the panel.
- (2) Tighten the buzzer using a wrench AR9A006 from the front side of the panel.

Note:

- Recommended tightening torque is 1 to 1.5N•m.
- Electronic sound (IP54) type has a all-in-one unit with nut and cap.

■ **Applicable panel thickness**

The AR22/DR22 series switches are mountable to panels with thickness as given in Table below.

| Mounting condition  |   | Applicable panel thickness (mm) |          |
|---------------------|---|---------------------------------|----------|
| Without accessories |   | 1 to 6                          |          |
| With accessories    | Protective cover, water-proof cap, legend plate | 1 to 4                          |          |
|                     | Key washer                                      | without hole                    | 1 to 4   |
|                     |   | with hole                       | 1 to 5   |
|                     | Adapter for a 25.5mm-dia. hole                  |                                 | 1 to 5.5 |

- When using a joy stick selector switch and buzzer  
 The applicable panel thickness is 1 to 6mm. Five 1.3mm packings (single-piece type) are included as standard equipment. Insert as many as required depending on the panel thickness, using the following table as a guide. When using a key washer, legend plate, or adapter, their thickness will have to be added to the values in the guide.

| Panel thickness (mm)<br>(plus key washer, legend plate) | Number of packings<br>(reference) |
|---|-----------------------------------|
| 1.0 to 1.6  | 5                                 |
| 1.6 to 2.8  | 4                                 |
| 2.8 to 3.8  | 3                                 |
| 3.8 to 4.8  | 2                                 |
| 4.8 to 6.0  | 1                                 |

04

# Pushbuttons/Selectors/Pilot Lights/Buzzers

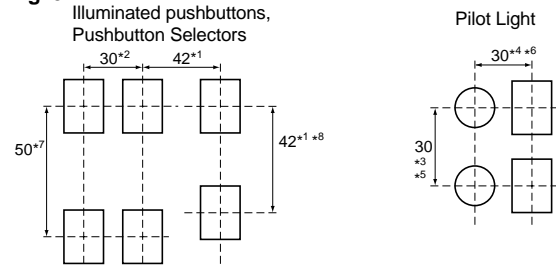
## AR22 and DR22

### Notes on use

#### ■ Minimum mounting space, mm

(1) Minimum mounting space

Fig. 9



- Notes:
- \*1 AR22M0□, M5□, V5□, V0□, V2□, V7R, VG□: 42mm  
AR22M3R, M8R: 49mm  
AR22Q2R, WR, W0R, WY, WCY: 40mm
  - \*2 When mounting contact blocks at 30mm pitch, use it circuit of 380V or less.
  - \*3 Short body with transformer types: 50mm.
  - \*4 Rectangular types: 36.5mm (except for short body without transformer types).
  - \*5 Short body without transformer types: 60mm.
  - \*6 Rectangular short body without transformer types: 60mm.
  - \*7 This dimension applies when transformer units or contact blocks face each other.
  - \*8 This dimension applies when transformer unit or contact block is mounted on only one side.

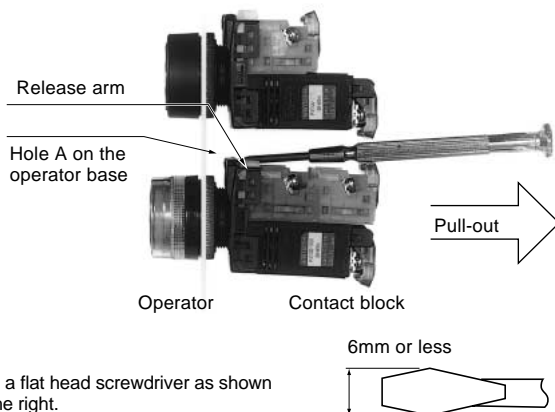
When mounting operators on a panel, orient all ▽ marks on the operator upwards.

(The operator release arms are oriented upwards.) This aligns the terminals of all contact blocks, thus making wiring easy.

(2) Detaching contact blocks from operators

As shown in Fig. 10, insert a flat-head screw driver into the groove of the white release arm on the contact block. Then, while inserting the driver in hole A of the operator base, lower the driver grip and take out the contact block.

Fig. 10

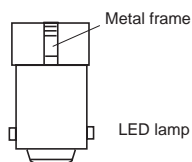


Note: Use a flat head screwdriver as shown at the right.

#### ■ Products with blue and green LEDs

The LED devices on products with high-brightness (blue and green) LEDs are very sensitive to static electricity. When replacing LED lamps do not allow static electricity to come into direct contact with the metal frame on the upper side of the LED lamp. The LED device may be damaged if this part is subjected to static electricity. When installing or removing an LED lamp, it is recommended that you use the lamp changer (AHX790).

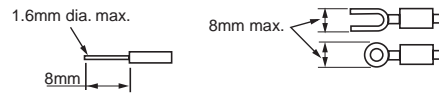
Fig. 11



#### ■ Wiring

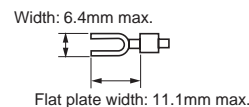
(1) The terminal screws are M3.5 pan head screws. Solid wires, stranded wires, or crimp terminals can be connected.

Fig. 12



(2) Two crimp terminals can be used by putting one of them on top of the other. If fork-type crimp terminals are used in the horizontal direction, however, use ones as shown in the figure below. (i.e., Toei Tanshi's F2-3.5S or an equivalent).

Fig. 13



- (3) The terminal washers are a self-lifting type.
- (4) Tighten the terminal screws to a tightening torque of 0.8 to 1N•m.
- (5) Keep the terminals free of external force while wiring or after wiring, or operational failures may result.
- (6) Do not use screws other than the provided terminal screws.

Notes:

- If solid wires are connected to the lamp terminals in the horizontal direction (on the side), be sure to insert the solid wires into the square washers.
- Terminal layout., see page 04/54
- See page 04/53 for the wiring of the joy stick selector switch and VG type.

#### ■ LED Indicator

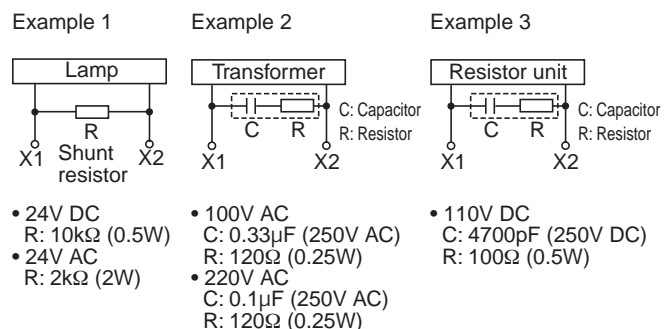
(1) LED Lamp Malfunctioning

The LED lamp is lit by a very small level of current. Therefore, it may be erroneously lit by a leaking current from the surge absorption circuit or semiconductor circuit or due to stray capacitance between cables. In that case, provide a countermeasure (e.g., connect a resistor in parallel with the LED lamp).

##### • Countermeasure for Malfunctioning

The LED lamp malfunctions can be prevented by connecting a shunt resistor (R) or CR elements (a capacitor and resistor) in parallel with the LED lamp terminal. The resistance and CR values vary depending on the model and the operating conditions.

Fig. 14



- 24V DC  
R: 10kΩ (0.5W)
- 24V AC  
R: 2kΩ (2W)
- 100V AC  
C: 0.33μF (250V AC)  
R: 120Ω (0.25W)
- 220V AC  
C: 0.1μF (250V AC)  
R: 120Ω (0.25W)
- 110V DC  
C: 4700pF (250V DC)  
R: 100Ω (0.5W)

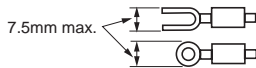
(2) Incoming surge

High luminance LED products use an element sensitive to static electricity. They may not be lit by an abnormal voltage like surge. Please note it.

■ Joy stick selector switch

- Screw terminal wiring
- (1) The terminals use M3.5 pan head screws. Use crimp terminals to wire the terminals.

Fig. 15



- (2) The terminal washers are a self-lifting type.
- (3) Tighten the terminal screws to a tightening torque of 0.8 to 1.0N•m. Keep the terminals free of external force during and after wiring, or operational failures may result.

• Solder (tab terminal) wiring

- (1) Pay attention to the following items when soldering the terminals.
  - Use a soldering iron with a power consumption of 30W. Use resin-core solder.
  - If a 30W soldering iron is used, finish soldering the terminals within five seconds. If a 20W soldering iron is used, finish soldering the terminals within 10 seconds. Make sure that the soldering iron tip length is at least 20mm long. Do not apply external force to the terminals. Because lead-free solder's melting point is slightly high, soldering work may be difficult. Use a soldering iron whose tip is rather large or whose calorific value is rather high.
- (2) When using adjacent terminals, use insulation tubes to prevent the terminals from short-circuiting. Utmost attention must be paid to the solder terminals if especially thick wires are used or if a large quantity of solder is used.
- (3) Connectable wires
  - Solid wire: 2 wires, 0.8mm dia. max.
  - Stranded wire: 1 wire, 0.75mm<sup>2</sup> max.
- (4) Use the 110 (2.8mm) series receptacle for the tab terminals.
- (5) Wire the tab terminals with the contact unit connected to the main unit.

• Operation

Operation shall be made after the joy stick operation lever is surely returned to the center position. Do not apply excessive force to the operation lever. The maximum permissible force is 100N.

• Use of contact blocks

If NO and NC contacts are used in the same contact block, check that there is no difference in potential. Do not connect different type of power source different in type.

■ Buzzer

- Noise
- If the application circuit is likely to generate excessively strong noise, connect a surge absorber (e.g., FUJI's ENC390D, provided that the switch is a 24V type) in parallel with the buzzer.
- Place of Use

The buzzer does not have a drip-proof construction. Do not use the buzzer in places where oil or water is sprayed or where dust accumulates. If the buzzer is a splash-proof type, it will resist sprays of water.

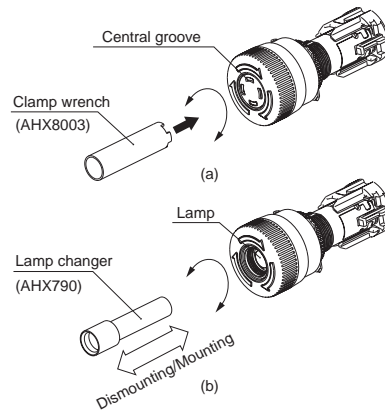
- Do not use the buzzer in places that are subject to an excessive amount of corrosive gas.
- Note that the buzzer is likely to sound erroneously due to leakage current or the like.

■ AR22VG type

- As shown in Fig. 16 (a), engage the tip of the wrench (AHX8003) with the groove in the center to mount or remove the locking unit. The recommended tightening torque is 0.6 to 1N•m.

- As shown in Fig. 16 (b), insert the lamp changer (AHX790) and press the lamp changer to mount or remove the lamp. Turn the lamp changer clockwise when mounting the lamp and counterclockwise when removing it.

Fig. 16

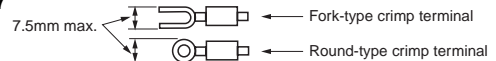


Note: The lamp and neon lamp are special models for the AR22VGF. Use only these special lamps for replacement.

• Wiring

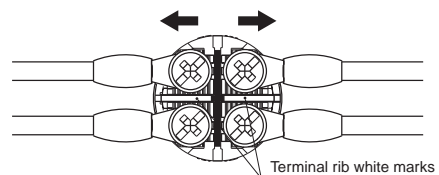
The terminals use M3.5 pan head screws. Use crimp terminals for wiring and cover the crimp terminals with insulation tubes.

Fig. 17



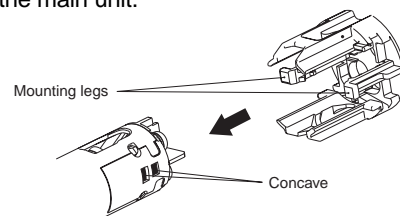
- The terminal washers are a self-lifting type.
- Tighten the terminal screws to a torque of 0.8 to 1N•m. Keep the terminals free of external force during and after wiring, or operational failures may result.
- Wiring precautions
  - (1) Use of round-type crimp terminal
  - Remove the live section cover, and half-tighten to the point parallel with the terminal rib white marks in the direction of the arrows as shown in the illustration below.
  - Mount the live section cover and tighten the terminals securely.

Fig. 18



As shown in the illustration below, mount the live section cover so that the mounting legs of the cover engage with the concave parts of the main unit.

Fig. 19



- (2) If fork-type crimp terminals are used, wiring will be possible without removing the live section cover.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

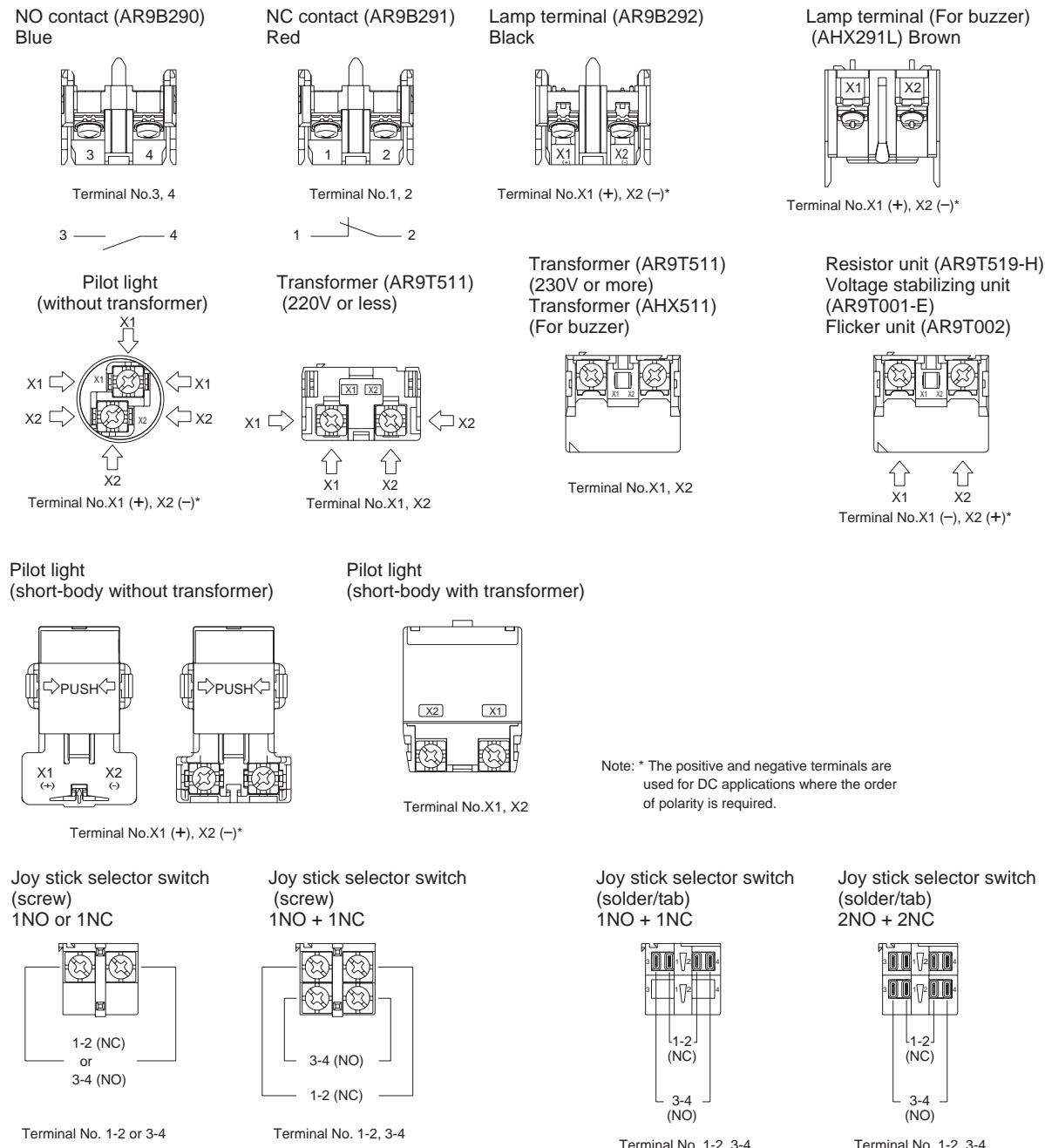
### Notes on use

#### ■ Operation

- Do not use a hitting or bouncing action to operate the button, or the switch may break. Always operate the switch by hand. Do not pull mushroom head pushbuttons or alternate buttons other than the Q2.
- Do not rotate the selector ring type while the button is pressed, or the mechanism may break.
- The control type incorporates make-before-break contacts. Prepare a protection circuit for the application.
- The dial of the selector switch rotates with a light force. Do not apply force in excess of 1N•m. Please do not pull out or insert the key forcibly.
- To release the lock of the push-lock type, rotate the button clockwise as shown by the arrow. Do not pull the button, or the latch may break and the lock may fail to work.
- Do not lock the emergency stop pushbutton switch and emergency stop illuminated pushbutton switch in use. Push and lock the switch in case of an emergency only.

#### ■ Terminal layout

Fig. 20



The full range of the contact blocks and transformer units suitable for the AR22 and DR22 series may also be fitted to the AR30 and DR30 series.

■ **Features**

**Quick-replacement contact blocks and transformer units**

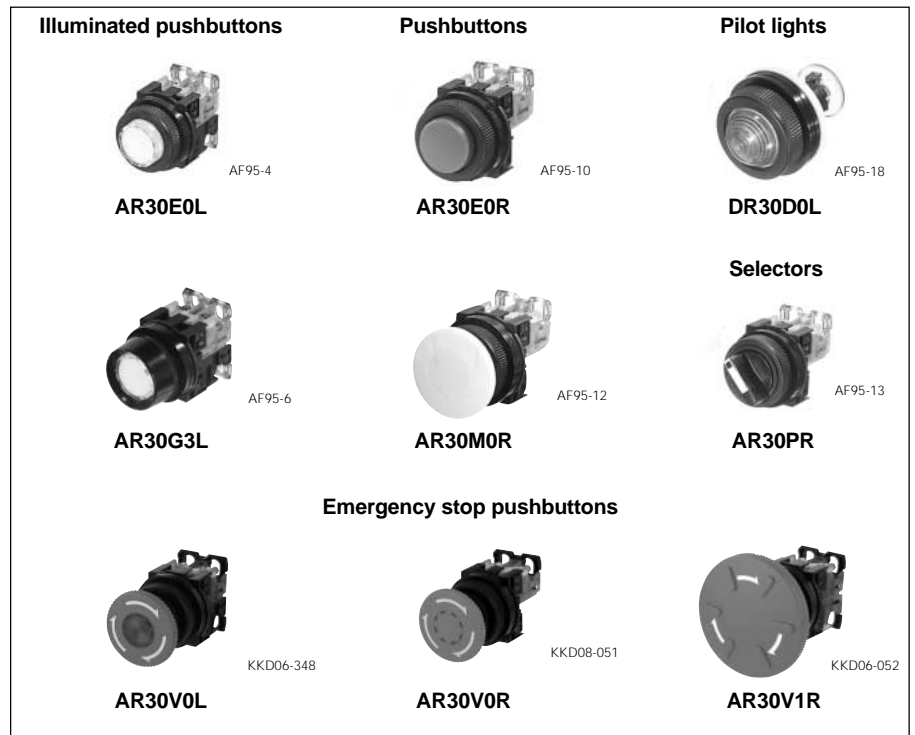
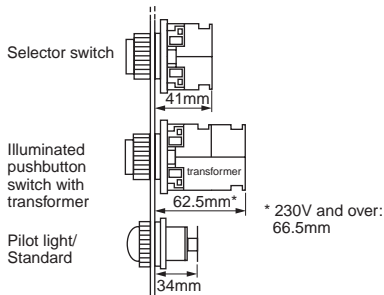
The snap-on construction makes replacement and addition of contact blocks and transformer units very simple and straightforward.

**Oil-and dust-proof operator module construction**

The protection level of the AR30/DR30 operator modules conforms to IEC Standard IP65. The special seals protect the operator modules and switch mechanisms against oil, dust, and grime, thus ensuring high performance in dusty and moist environments.

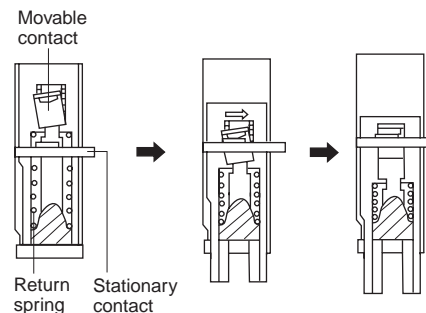
**Miniaturization**

- Selector switches with 1NO+1NC: 41mm deep  
Pilot lights: 34mm deep
- The transformer now occupies far less space.



**Self-cleaning contacts**

All the contacts are double break type and feature self-cleaning action. Every time the switch is operated, the contact surfaces are wiped with a sliding movement, thus ensuring high contact reliability even at low voltage and small current levels (5V, 5mA).



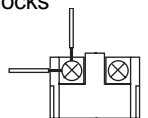
**Metal nut**

Safer model with metal nut is also available



**Wiring**

- Wiring from two directions is possible.
- Wiring in both vertical and lateral directions facilitates wiring in narrow spaces.
- Color coding of contact blocks makes wiring easy.  
1NO: Blue, 1NC: Red  
Lamp terminal and transformer unit: Black



**Safety**

- A terminal cover is provided, assuring safety and security.
- FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.

**Protection**

- Excellent oil-tight construction (IP65) of the operator.
- Closure of the contact block has been improved.

■ **Approvals**



For further information related to approved type, see page 04/56 to 04/59.



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Quick reference guide

#### ■ Illuminated pushbutton switches

| Operator  | Type  | Operator   | Type   | Operator   | Type   |
|---|---|--|--|--|--|
| Extended round head<br><br><i>See page 04/71, 04/94</i><br>                                 | <b>AR30E0L, E5L</b><br><br>AF95-4    | Extended with full guard<br>(24mm dia. with openings)<br><br><i>See page 04/71, 04/94</i><br> | <b>AR30G2L, G7L</b><br><br>AF99-328 | Push-lock, turn-reset<br>(40mm dia. with white arrow)<br><br><i>See page 04/71, 04/95</i><br> | <b>AR30V5L</b><br><br>KKD06-348 |
| Extended with transparent full guard<br>(24mm dia.)<br><br><i>See page 04/71, 04/94</i><br> | <b>AR30G4L, G9L</b><br><br>KKD05-164 | Extended with full guard<br>(24mm dia.)<br><br><i>See page 04/71, 04/94</i><br>               | <b>AR30G3L, G8L</b><br><br>AF95-6   | Push-pull<br><br><i>See page 04/71, 04/95</i><br>   | <b>AR30Q7L</b><br><br>AF96-185  |

#### ■ Pushbutton switches

| Operator  | Type   | Operator  | Type  | Operator  | Type  |
|---|--|---|---|---|---|
| Flush round head<br><br><i>See page 04/73, 04/96</i><br>                        | <b>AR30F0R, F5R</b><br><br>AF95-11  | Mushroom head<br>(29mm dia.)<br><br><i>See page 04/73, 04/96</i><br>                 | <b>AR30M4R</b><br><br>AF95-8       | Mushroom head with full guard<br>(35mm dia. metal nut)<br><br><i>See page 04/73, 04/96</i><br> | <b>AR30GSR</b><br><br>AF96-239 |
| Extended round head<br><br><i>See page 04/73, 04/96</i><br>                     | <b>AR30E0R, E5R</b><br><br>AF95-10  | Extended with full guard<br>(24mm dia.)<br><br><i>See page 04/73, 04/96</i><br>      | <b>AR30G1R, G6R</b><br><br>AF95-16 | Giant head<br><br><i>See page 04/73, 04/97</i><br>   | <b>AR30B0R</b><br><br>AF95-579 |
| Flush round head<br>Symbol mark type<br><br><i>See page 04/73, 04/96</i><br>    | <b>AR30FAR, FBR</b><br><br>AF98-195 | Extended with half guard<br><br><i>See page 04/73, 04/96</i><br>                     | <b>AR30G0R, G5R</b><br><br>AF95-9  | Giant head with guard<br><br><i>See page 04/73, 04/97</i><br>                                  | <b>AR30B1R</b><br><br>AF95-582 |
| Extended round head<br>Symbol mark type<br><br><i>See page 04/73, 04/96</i><br> | <b>AR30EAR, EBR</b><br><br>AF98-194 | Pin lock<br><br><i>See page 04/73, 04/96</i><br>                                     | <b>AR30GPR</b><br><br>AF96-240     | Giant head with full guard<br><br><i>See page 04/73, 04/97</i><br>                             | <b>AR30B2R</b><br><br>AF95-580 |
| Mushroom head<br>(40mm dia.)<br><br><i>See page 04/73, 04/96</i><br>            | <b>AR30M0R, M5R</b><br><br>AF95-12  | Mushroom head with full guard<br>(40mm dia.)<br><br><i>See page 04/73, 04/96</i><br> | <b>AR30M3R, M8R</b><br><br>AF95-17 | Giant head with full guard<br><br><i>See page 04/74, 04/97</i><br>                             | <b>AR30B3R</b><br><br>AF95-581 |





Note: AR30M8R: Not approved standard  : *See page 04/289*

■ **Pushbutton switches**

| Operator  | Type   | Operator  | Type  | Operator   | Type  |
|---|--|---|---|--|---|
| Pushbutton with selector ring (2-position)<br><br>See page 04/75, 04/97<br><br>UL, CE, CE, CE, CE | <b>AR30S1R, S2R, S3R, S6R</b><br><br>AF97-506 | Push-lock, turn-reset (40mm dia. with white arrow)<br><br>See page 04/74, 04/97<br><br>UL, CE, CE, CE, CE, CE | <b>AR30V5R</b><br><br>KKD08-051 | Pushbutton with emergency operating cap<br><br>See page 04/74, 04/97<br><br>UL, CE, CE, CE, CE | <b>AR30FVR</b><br><br>AF96-187 |
| Push, turn-lock<br><br>See page 04/74, 04/97<br><br>UL, CE, CE, CE, CE                            | <b>AR30N0R</b><br><br>AF95-583                |   |   |  |   |

04

■ **Emergency stop pushbutton switches (conform to EN418)**


| Operator   | Type   | Operator  | Type  | Operator   | Type   |
|--|--|---|---|--|--|
| Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)<br><br>See page 04/76, 04/98<br><br>UL, CE, CE, CE, CE, CE | <b>AR30V0R</b><br><br>KKD08-051 | Push-lock, turn-reset (65mm dia. with white arrow)<br><br>See page 04/76, 04/98<br><br>UL, CE, CE, CE, CE, CE | <b>AR30V1R</b><br><br>KKD06-352 | Push-lock, pull-reset (35mm dia.)<br><br>See page 04/76, 04/98<br><br>UL, CE, CE, CE, CE, CE | <b>AR30Q2R</b><br><br>KKD06-347 |
| Push-lock, turn-reset (40mm dia.)<br><br>See page 04/76, 04/98<br><br>UL, CE, CE, CE, CE, CE                             | <b>AR30V2R</b><br><br>KKD06-353 |   |   |  |  |

Notes: Provided with the  (Direct opening action)

■ **Emergency stop illuminated pushbutton switches (conform to EN418)**

| Operator   | Type   | Operator   | Type  |
|--|--|--|---|
| Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)<br><br>See page 04/77, 04/98<br><br>UL, CE, CE, CE, CE, CE | <b>AR30V0L</b><br><br>KKD06-348 | Push-lock, turn-reset (40mm dia.)<br><br>See page 04/77, 04/98<br><br>UL, CE, CE, CE, CE, CE | <b>AR30V2L</b><br><br>KKD06-350 |

Note: Provided with the  (Direct opening action)

 : See page 04/289











# Pushbuttons/Selectors/Pilot Lights/Buzzers



## AR30 and DR30

### Quick reference guide



#### ■ Selector switches

| Operator   | Type   | Operator  | Type   | Operator   | Type   |
|--|--|---|--|--|--|
| Knob   | <b>AR30PR, PCR</b>   | Key   | <b>AR30JR, JCR</b>   | Key (Long durability)  | <b>AR30JAR</b>   |
| <i>See page 04/78, 04/99</i>   | <br>AF95-13 | <i>See page 04/78, 04/99</i>  | <br>KKD09-023 | <i>See page 04/78, 04/99</i>   | <br>KKD09-021 |
|  |  |  |  |  |  |
| Lever  | <b>AR30WR, WCR</b>   |   |  |  |  |
| <i>See page 04/78, 04/99</i>   | <br>AF95-14 |   |  |  |  |
|  |  |   |  |  |  |

#### ■ Illuminated selector switches

| Operator   | Type  |
|--|---|
| Knob   | <b>AR30PL</b>   |
| <i>See page 04/87, 04/99</i>   | <br>AF95-5 |
|  |   |

#### ■ Lever type selector switches


| Operator  | Type   |
|---|--|
| Lever (metal type)  | <b>AR30HR</b>  |
| <i>See page 04/85, 04/099</i>   | <br>KKD05-115 |
|  |  |

#### ■ Pilot lights







| Lens   | Type   | Lens  | Type   | Lens   | Type   |
|--|--|---|--|--|--|
| Dome   | <b>DR30D0L</b>   | Dome with dimmer control  | <b>DR30D1L</b>   | Flush square (40mm sq. transparent lens)   | <b>DR30M4M *</b>   |
| <i>See page 04/89, 04/100</i>  | <br>AF95-18 | <i>See page 04/89, 04/101</i>   | <br>AF02-63 | <i>See page 04/91, 04/102</i>  | <br>AF97-63 |
|  |  |  |  |  |  |
| Extended round   | <b>DR30E3L</b>   | Flush square (34mm sq. transparent lens)  | <b>DR30F4M *</b>   |  |  |
| <i>See page 04/89, 04/100</i>  | <br>AF95-20 | <i>See page 04/91, 04/102</i>   | <br>AF97-65 |  |  |
|  |  |  |  |  |  |
| Faceted  | <b>DR30K0L</b>   | Flush rectangular (Transparent lens)  | <b>DR30F4N *</b>   |  |  |
| <i>See page 04/90, 04/101</i>  | <br>AF95-19 | <i>See page 04/91, 04/102</i>   | <br>AF97-64 |  |  |
|  |  |  |  |  |  |

Note: With resistor unit and resistor types: Not approved standard







\* LED 12V AC type: Not approved standard

 : See page 04/289

■ Joy stick selector switches

| Handle  | Type   | Handle  | Type  | Handle  | Type   |
|---|--|---|---|---|--|
| Ball type   | <b>AR30A0, A5</b>  | Ball type with lock   | <b>AR30A1, A6</b>   | Rubber cap type   | <b>AR30A2, A7</b>  |
| See page 04/92, 04/103  | <br>AF97-48 | See page 04/92, 04/103  | <br>AF97-44 | See page 04/92, 04/103  | <br>AF97-57 |
|  |  |  |   |  |  |

■ Buzzers

| Sound   | Type   | Sound                  | Type   | Sound   | Type  |
|---|--|------------------------|--|---|---|
| Electronic sound  | <b>DR30B5*</b>   | Magnetic sound         | <b>DR30B0</b>  | Electronic sound (IP54)   | <b>DR30B8 *</b>   |
| See page 04/93, 04/104  | <br>KKD08-058 | See page 04/93, 04/104 | <br>AF96-378 | See page 04/93, 04/104  | <br>AF96-245 |
|    |  |                        |  |  |   |
| Electronic sound (economy)  | <b>DR30B6</b>  |                        |  |   |   |
| See page 04/93, 04/104  | <br>KK02-17 |                        |  |   |   |
|  |  |                        |  |   |   |

Note: \* 6V AC, 110V DC types: Not approved standard

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Type number nomenclature

#### Illuminated pushbuttons

**AR30 E0L – 10 E3 R □**

① ② ③ ④ ⑤ ⑥

#### ① Product category

AR30: 30mm-dia. illuminated pushbutton  
30mm-dia. emergency stop illuminated pushbutton

#### ② Operator

- Illuminated pushbutton
- E0L: Extended round head
- E5L: Extended round head (Alternate)
- G4L: Extended with transparent full guard (24mm dia.)
- G9L: Extended with transparent full guard (24mm dia. alternate)
- G2L: Extended with full guard (24mm dia. with openings)
- G7L: Extended with full guard (24mm dia. with openings, alternate)
- G3L: Extended with full guard (24mm dia.)
- G8L: Extended with full guard (24mm dia. alternate)
- V5L: Push-lock, turn-reset (40mm dia. with white arrow) \*1
- Q7L: Push-pull
- Emergency stop illuminated pushbutton
- V0L: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
- V2L: Push-lock, turn-reset (40mm dia.)

#### ③ Contact arrangement

|             |             |
|-------------|-------------|
| 10: 1NO     | 30: 3NO     |
| 01: 1NC     | 03: 3NC     |
| 11: 1NO+1NC | 33: 3NO+3NC |
| 20: 2NO     | 40: 4NO     |
| 02: 2NC     | 04: 4NC     |
| 22: 2NO+2NC | 50: 5NO     |
|             | 05: 5NC     |

#### ④ Lamp voltage

- Incandescent lamp
- 54: 5.5V AC/DC, without transformer
- C4: 15V AC/DC, without transformer
- D4: 20V AC/DC, without transformer
- E4: 24V AC/DC, without transformer
- H4: 100-110V AC, with transformer
- L4: 115-127V AC, with transformer
- M4: 200-220V AC, with transformer
- Q4: 230-254V AC, with transformer
- S4: 350-380V AC, with transformer
- T4: 400-440V AC, with transformer
- V4: 480V AC, with transformer
- W4: 500-550V AC, with transformer
- LED lamp
- A3: 6V AC, without transformer
- 63: 6V DC, without transformer
- B3: 12V AC/DC, without transformer
- C3: 15V AC/DC, without transformer
- E3: 24V AC/DC, without transformer
- H3: 100-110V AC, with transformer
- L3: 115-127V AC, with transformer
- M3: 200-220V AC, with transformer
- Q3: 230-254V AC, with transformer
- S3: 350-380V AC, with transformer
- T3: 400-440V AC, with transformer
- V3: 480V AC, with transformer
- W3: 500-550V AC, with transformer

#### ⑤ Color of lens

|           |           |
|-----------|-----------|
| G: Green  | Y: Yellow |
| R: Red *2 | A: Orange |
| W: White  | S: Blue   |

#### ⑥ Special product

Z9: Resisting water-soluble cutting oils and heat  
Z8: With a contact protection cover  
Z4: Resisting sulfuration gas  
ZB: Meeting IP2X finger-protection standards  
ZM: Metal nut

Notes: \*1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.

\*2 Button color of emergency stop illuminated switches are Red only.

- The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Type number nomenclature

#### Pushbuttons

#### AR30 E0R – 10 R □ □

① ② ③ ④ ⑤ ⑥

##### ① Product category

AR30: 30mm-dia. pushbutton  
30mm-dia. emergency stop pushbutton

##### ② Operator

- Pushbutton switch
- F0R: Flush round head
- F5R: Flush round head (Alternate)
- E0R: Extended round head
- E5R: Extended round head (Alternate)
- FAR: Flush round head (Symbol mark type)
- FBR: Flush round head (Symbol mark type, alternate)
- EAR: Extended round head (Symbol mark type)
- EBR: Extended round head (Symbol mark type, alternate)
- M0R: Mushroom head (40mm dia.)
- M5R: Mushroom head (40mm dia. Alternate)
- M4R: Mushroom head (29mm dia.)
- G1R: Extended with full guard (24mm dia.)
- G6R: Extended with full guard (24mm dia. Alternate)
- GPR: Pin lock
- G0R: Extended with half guard
- G5R: Extended with half guard (Alternate)
- M3R: Mushroom head with full guard (40mm dia.)
- M8R: Mushroom head with full guard (40mm dia. Alternate)
- GSR: Mushroom head with full guard (35mm dia. metal nut)
- B0R: Giant head
- B1R: Giant head with guard
- B2R: Giant head with full guard
- B3R: Giant head with full guard
- S1R: Pushbutton with selector ring (2-position)
- S2R: Pushbutton with selector ring (2-position)
- S3R: Pushbutton with selector ring (2-position)
- S6R: Pushbutton with selector ring (2-position)
- N0R: Push, turn-lock
- V5R: Push-lock, turn-reset (40mm dia. with white arrow) \*1
- FVR: Pushbutton with emergency operating cap
  - Emergency stop pushbutton switch
- V0R: Push-lock, turn-reset (Soft-touch 40mm dia. with white arrow)
- V2R: Push-lock, turn-reset (40mm dia.)
- V1R: Push-lock, turn-reset (Soft-touch 65mm dia. with white arrow)
- Q2R: Push-lock, pull-reset (35mm dia.)

##### ③ Contact arrangement

|             |             |
|-------------|-------------|
| 10: 1NO     | 30: 3NO     |
| 01: 1NC     | 03: 3NC     |
| 11: 1NO+1NC | 33: 3NO+3NC |
| 20: 2NO     | 40: 4NO     |
| 02: 2NC     | 04: 4NC     |
| 22: 2NO+2NC | 44: 4NO+4NC |
|             | 50: 5NO     |
|             | 05: 5NC     |

##### ④ Color of button

|                                    |                              |
|------------------------------------|------------------------------|
| G: Green                           | Y: Yellow                    |
| R: Red <sup>2</sup>                | A: Orange                    |
| B: Black                           | S: Blue                      |
| W: White                           | C: Clear                     |
| T: Green, Red, Black (For AR30F0R) | (For AR30FAR, FBR, EAR, EBR) |

##### ⑤ Symbol mark (For AR30FAR, FBR, EAR, EBR)

|                 |       |       |       |       |       |         |
|-----------------|-------|-------|-------|-------|-------|---------|
| Symbol mark     | ○     | I     | Ⓢ     | ○     | I     | Ⓢ       |
| Color of button | White | Black | White | Black | White | Black   |
| Color of mark   | Red   | Green | Green | Black |       |         |
| Code            | 01    | 02    | 03    | 04    | 11    | 12      |
|                 |       |       |       |       | 02B   | 04B 12B |

##### ⑥ Special product

- Z9: Resisting water-soluble cutting oils and heat
- Z8: With a contact protection cover
- Z4: Resisting sulfuration gas
- ZB: Meeting IP2X finger-protection standards
- ZM: Metal nut

Notes: \*1 Products with no trigger action mechanism. These products cannot be used as emergency stop switches that comply with EN standards.

\*2 Button color of emergency stop switches are Red only.

- The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Type number nomenclature

#### Selector and illuminated selector switches

AR30 PL – 2 □ 10 E3 G □ □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

#### ① Product category

AR30: 30mm dia. selector switch and illuminated selector switch

#### ② Operator

- Selector switch

PR: Knob

PCR: Knob operated control type

WR: Lever

WCR: Lever operated control type

JR: Key

JCR: Key operated control type

JAR: Key (Long durability)

HR: Lever (Metal type)

- Illuminated selector switch

PL: Knob

#### ③ Operation

2: 2-position, maintained

0: 2-position, spring return

3: 3-position, maintained

6: 3-position, spring/manual return (Left to center)

7: 3-position, spring/manual return (Right to center)

1: 3-position, spring return

4: 4-position, maintained (For AR30PCR, WCR)

5: 5-position, maintained (For AR30PCR, WCR)

#### ④ Key removable position

A: Left

B: Left and right

C: Left, right and center

D: Right

E: Center

F: Right and center

G: Left and center

#### ⑤ Contact arrangement

10: 1NO 30: 3NO

01: 1NC 03: 3NC

11: 1NO+1NC 33: 3NO+3NC

20: 2NO 40: 4NO

02: 2NC 04: 4NC

22: 2NO+2NC 44: 4NO+4NC

50: 5NO

05: 5NC

Note: Control type: See page 04/82 to 04/84

#### ⑥ Lamp voltage

- Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

- LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

#### ⑦ Color of knob

B: Black (Not available for illuminated selector switch)

G: Green

R: Red

W: White (Not available for selector switch)

Y: Yellow (Not available for selector switch)

A: Orange (Not available for selector switch)

S: Blue (Not available for selector switch)

#### ⑧ Key type No.

A, B, C, D, E or F

("A" is standard)

#### ⑨ Special product

Z9: Resisting water-soluble cutting oils and heat

Z8: With a contact protection cover

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

ZM: Metal nut

Note: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

**Pilot lights**

**DR30 D0L – E3 W** □  
 ① ② ③ ④ ⑤

① **Product category**

DR30: 30mm dia. pilot light

② **Lens**

D0L: Dome  
 E3L: Extended round  
 K0L: Faceted  
 D1L: Dome with dimmer control  
 F4M: Flush square (34mm sq. transparent lens)  
 F4N: Flush rectangular (Transparent lens)  
 M4M: Flush square (40mm sq. transparent lens)

③ **Lamp voltage**

• Incandescent lamp

|                                     |  |
|-------------------------------------|--|
| 54: 5.5V AC/DC, without transformer | H8: 100-110V AC, short-body with transformer |
| C4: 15V AC/DC, without transformer  | L8: 115-127V AC, short-body with transformer |
| D4: 20V AC/DC, without transformer  | M8: 200-220V AC, short-body with transformer |
| E4: 24V AC/DC, without transformer  |  |
| H4: 100-110V AC, with transformer   |  |
| L4: 115-127V AC, with transformer   |  |
| M4: 200-220V AC, with transformer   |  |
| Q4: 230-254V AC, with transformer   |  |
| S4: 350-380V AC, with transformer   |  |
| T4: 400-440V AC, with transformer   |  |
| V4: 480V AC, with transformer       |  |
| W4: 500-550V AC, with transformer   |  |
| FQ: 50V DC, with resistor*          |  |
| HQ: 110V DC, with resistor*         |  |
| MQ: 220V DC, with resistor*         |  |

• LED lamp

|                                    |  |
|------------------------------------|--|
| A3: 6V AC, without transformer     | H9: 100-110V AC, short-body with transformer |
| 63: 6V DC, without transformer     | L9: 115-127V AC, short-body with transformer |
| B3: 12V AC/DC, without transformer | M9: 200-220V AC, short-body with transformer |
| C3: 15V AC/DC, without transformer |  |
| E3: 24V AC/DC, without transformer |  |
| H3: 100-110V AC, with transformer  |  |
| L3: 115-127V AC, with transformer  |  |
| M3: 200-220V AC, with transformer  |  |
| Q3: 230-254V AC, with transformer  |  |
| S3: 350-380V AC, with transformer  |  |
| T3: 400-440V AC, with transformer  |  |
| V3: 480V AC, with transformer      |  |
| W3: 500-550V AC, with transformer  |  |
| H7: 110V DC, with resistor unit    |  |
| FR: 50V DC, with resistor*         |  |
| HR: 110V DC, with resistor*        |  |
| MR: 220V DC, with resistor*        |  |

• LED unit

(For DR30F4M, F4N, M4M type)

65: 6V DC, without transformer  
 25: 12V AC, without transformer  
 B5: 12V AC/DC, without transformer  
 E5: 24V AC/DC, without transformer  
 H5: 100-110V AC, with transformer  
 L5: 115-127V AC, with transformer  
 M5: 200-220V AC, with transformer  
 Q5: 230-254V AC, with transformer  
 S5: 350-380V AC, with transformer  
 T5: 400-440V AC, with transformer  
 V5: 480V AC, with transformer  
 W5: 500-550V AC, with transformer  
 HE: 110V DC, with resistor unit

Note: \* DR30D0L, K0L type only

④ **Color of lens or color plate**

|          |           |
|----------|-----------|
| G: Green | Y: Yellow |
| R: Red   | A: Orange |
| W: White | S: Blue   |

⑤ **Special product**

Z9: Resisting water-soluble cutting oils and heat  
 Z4: Resisting sulfuration gas  
 ZB: Meeting IP2X finger-protection standards  
 ZM: Metal nut

Note: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Type number nomenclature

#### Joy stick selector switches

##### AR30A 0 N – A0A0 B

① ②③ ④ ⑤

##### ① Product category

AR30A: 30mm-dia. Joy stick selector switch

##### ② Handle

- 0: Ball type (without lock, manual return)
- 1: Ball type with lock (manual return)
- 2: Rubber cap type (without lock, manual return)
- 5: Ball type (without lock, spring return)
- 6: Ball type with lock (spring return)
- 7: Rubber cap type (without lock, spring return)

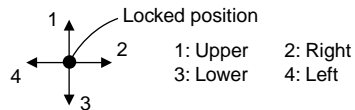
##### ③ Terminal

- N: Screw
- H: Solder/tab

##### ④ Contact arrangement

| Contact arrangement | Blank      | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 2NO+2NC |   |
|---------------------|------------|-----|-----|---------|-----|-----|---------|---|
| Code                | Screw      | 0   | A   | B       | 1   | D   | E       | – |
|                     | Solder/tab | 0   | –   | –       | 1   | –   | –       | 2 |

Operating direction code of contacts



Ex. AR30A0N-A0A0B  
1 2 3 4

##### ⑤ Handle color

- B: Black

#### ■ Ordering information

Specify the following:

##### 1. Type number

For the CCC approved product, add the suffix **(CCC)** to the type number

Example: Pushbutton switch AR30F0R-11B**(CCC)**

#### Buzzers

##### DR30B 5 – E B

① ② ③④

##### ① Product category

DR30B: 30mm-dia. buzzer

##### ② Sound

- 5: Electronic sound
- 6: Electronic sound (economy)
- 0: Magnetic sound
- 8: Electronic sound (IP54)

##### ③ Operating voltage

- A: 6V AC (Type "5", "8")
- 6: 6V DC (Type "5", "8")
- E: 12-24V AC/DC (Type "6" : 24V DC)
- F: 35-48V AC/DC (Type "5", "8")
- G: 24V AC (Type "6")
- H: 100-110V AC
- M: 200-220V AC
- 1: 100-110V DC (Type "5", "8")

##### ④ Color of head

- B: Black

■ **Standards approved**

|                                 |   |
|---------------------------------|---|
| UL508                           | File No. E44592   |
| CSA C22.2 No.14                 | File No. LR20479  |
| TÜV: EN60947-5-1                | Pushbutton, Illuminated pushbutton: R9551062<br>Selector, Illuminated selector: R9551060<br>Pilot lights: R9551061<br>Joy stick selector switch: R2050803<br>(Lever switch)<br>Buzzer: J9950091 |
| TÜV: EN60947-5-1<br>EN60947-5-5 | Emergency stop pushbutton<br>Emergency stop illuminated pushbutton<br>: R50028146   |

■ **Specifications (Indoor use)**

| Description  | Pushbutton switch<br>Illuminated pushbutton switch<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch<br>Selector switch<br>Illuminated selector switch | Joy stick selector<br>(Lever switch)               | Pilot light                                   |
|--|--|--|---|
| Rated insulation voltage                             | 600V AC/DC *1  | 250V AC/DC   | 250V AC/DC *2                                 |
| Mechanical durability                                | <i>See page 04/66</i>  |  |   |
| Electrical durability                                | 500,000 operations at 220V AC 6A<br>1 million operations at 220V AC 3A   | 100,000 operations<br>at 220V AC 1A<br>(Res. load) | –   |
| Operating frequency                                  | 1200 operations/hour (On-load factor: 40%)   |  | –   |
| Dielectric strength                                  | 2500V AC, 1 minute *3  | 2000V AC, 1 minute *4                              |   |
| Insulation resistance                                | 100MΩ or more (500V DC megger)   |  | 100MΩ or more (500V DC megger)                |
| Rated impulse dielectric strength                    | 6kV  | –  | 6kV   |
| Conditional short-circuit current                    | 1000A  | 1000A  | –   |
| Short-circuit protective device                      | Fuse 15A   | Fuse 1A  | –   |
| Pollution degree                                     | 3  |  |   |
| Vibration  | Resonance: 10 to 55Hz, double amplitude 0.1mm *5<br>Constant: 16.7Hz, double amplitude 3mm   |  |   |
| Shock  | Malfunction durability: 100m/s <sup>2</sup> *6<br>Mechanical durability: 500m/s <sup>2</sup>   |  | Mechanical durability:<br>500m/s <sup>2</sup> |
| Ambient temperature<br>(No condensation or no icing) | -20 to +70°C   | -5 to +70°C  | -20 to +50°C                                  |
| Storage temperature                                  | -40 to +80°C   |  |   |
| Humidity   | 45 to 85% RH (within -5 to +40°C)  |  |   |
| Degree of protection                                 | IP65 *7  |  |   |

Notes: \*1 Illuminated type without transformer: 250V AC/DC  
\*2 Pilot light with transformer: 600V AC  
\*3 Illuminated type without transformer: 2000V AC, 1 minute  
\*4 Pilot light with transformer: 2500V AC, 1 minute  
\*5 Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/s<sup>2</sup>), according to the test condition of EN60947-5-5 (1998)  
\*6 Emergency stop type: 150m/s<sup>2</sup>  
\*7 AR30Q7L and DR30D1L type: IP40



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Ratings and specifications

#### ● Mechanical durability

| Description                           |   | Operations |
|---------------------------------------|---|------------|
| Pushbutton switch                     | Momentary action                                  | 5 million  |
| Illuminated pushbutton switch         | Alternate action                                  | 1 million  |
| Emergency stop pushbutton switch      | With selector ring                                | 100,000    |
| Emergency stop illuminated pushbutton | Push-lock, turn-reset                             | 100,000    |
|                                       | Push-lock, pull-reset                             | 30,000     |
| Selector switch                       | Maintained 1, 2, 3, 4-contact                     | 1 million  |
|                                       | Maintained 5, 6, 7, 8-contact                     | 500,000    |
|                                       | Control type, spring return, spring/manual return | 200,000    |
| Illuminated selector switch           | Maintained  |            |
|                                       | Without transformer 1, 2, 3-contact               | 1 million  |
|                                       | 4-contact   | 500,000    |
|                                       | With transformer 1, 2-contact                     | 1 million  |
|                                       | 3-contact   | 500,000    |
|                                       | Spring return, spring/manual return               | 200,000    |

Note: Key insertion/removal durability for selector switch key types

- Key type 10,000
- Key (Long durability) type 20,000

#### ● Buzzers

| Item                     | DR30B5  | DR30B6        | DR30B0 | DR30B8                     |
|--------------------------|---|---------------|--------|----------------------------|
| Rated insulation voltage | Without transformer: 60V AC/DC With transformer: 250V AC *1                               |               |        |                            |
| Sound level              | 90dB (0.1m)<br>70dB (1m)  |               |        | 80dB (0.1m)<br>60dB (1.0m) |
| Durability               | 1000h   |               | 80h    | 1000h                      |
| Frequency                | 2.4 to 3.3kHz   | 1.9 to 2.5kHz |        | 2.4 to 3.3kHz              |
| Intermittent cycle       | Approx. 170-cycle/min   | –             | –      | Approx. 170-cycle/min      |
| Current consumption      | See the table below   |               |        |                            |
| Dielectric strength      | Without transformer: 1000V AC 1 minute With transformer: 2000V AC 1 minute *2             |               |        |                            |
| Insulation resistance    | 100MΩ or more (500V DC megger)  |               |        |                            |
| Pollution degree         | 3   |               |        |                            |
| Vibration                | Resonance: 10 to 55Hz, double amplitude 0.1mm<br>Constant: 16.7Hz, double amplitude 3.0mm |               |        |                            |
| Shock                    | Mechanical durability: 500m/s <sup>2</sup>  |               |        |                            |
| Ambient temperature      | –20 to +60°C (No condensation or no icing)<br>(with resistor unit: –20 to +40°C)          |               |        |                            |
| Storage temperature      | –30 to +70°C  |               |        |                            |
| Humidity                 | 45 to 85%RH (within –5 to 40°C)   |               |        |                            |
| Degree of protection     | IP00  |               |        | IP54                       |

Note: \*1 DR30B0 (without transformer): 250V AC

\*2 DR30B0 (without transformer): 2000V AC 1 minute

#### ● Current consumption

| Operational voltage | Current consumption |                  |         |
|---------------------|---------------------|------------------|---------|
|                     | DR30B5, DR30B8      | DR30B6           | DR30B0  |
| 6V AC               | 70mA AC             | –                | –       |
| 6V DC               | 35mA DC             | 25mA AC          | –       |
| 24V AC              | –                   | 45mA AC          | –       |
| 24V DC              | –                   | 30mA DC          | –       |
| 24V AC/DC           | 40mA AC, 25mA DC    | 30mA AC, 20mA DC | –       |
| 48V AC/DC           | 65mA AC, 20mA DC    | –                | –       |
| 110V AC             | 30mA AC             | 30mA AC          | 30mA AC |
| 110V DC             | 30mA DC             | –                | –       |
| 220V AC             | 15mA AC             | 15mA AC          | 20mA AC |

Pushbuttons/Selectors/Pilot Lights/Buzzers  
**AR30 and DR30**  
**Ratings and specifications**

■ **Contact ratings**  
 ● **UL/CSA standards**  
**AC (COS  $\phi$ =0.35)**

| Contact rated code | 120V           |                  | 240V           |                  | 480V           |                  | 600V           |                  |
|--------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|
|                    | Making current | Breaking current | Making current | Breaking current | Making current | Breaking current | Making current | Breaking current |
| A600               | 60A            | 6.0A             | 30A            | 3.0A             | 15A            | 1.5A             | 12A            | 1.2A             |

**DC  $T_{0.95}$  = 6P (Max. 300ms)**

| Description  | Contact rated code | Making current · Breaking current |       |           |
|--|--------------------|-----------------------------------|-------|-----------|
|  |                    | 125V                              | 250V  | 301V–600V |
| Illuminated pushbutton switch<br>Pushbutton<br>(Ring type selector switch: AR30S2R only)<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch<br>(Except the overlap contact types)   | P600               | 1.1A                              | 0.55A | 0.2A      |
| Overlap contact types of products shown above<br>Pushbutton<br>(Ring type selector switch: AR30S1R, S6R only)<br>Selector switch (2-position only, except the overlap contact types)<br>Illuminated selector switch<br>(2-position only, except the overlap contact types) | Q600               | 0.55A                             | 0.27A | 0.1A      |
| Pushbutton<br>(Ring type selector switch: AR30S3R only)<br>Selector switch (2-pos./overlap contact type, 3-, 4-, 5-pos. type)<br>Illuminated selector switch (2-pos./overlap contact type, 3-pos. type)  | R300               | 0.22A                             | 0.11A | –         |

Note: Joy stick selector switches (Lever switches): 250V AC, 5A (Res. load) 125V DC, 0.2A 24V DC, 1A (Res. load)

● **EN standard/TÜV approved**

| Description   | Rated operational current |                           |                           |                           |
|---|---------------------------|---------------------------|---------------------------|---------------------------|
|   | Rated thermal current     | Rated operational voltage | AC15 (Ind. load)          | DC13 (Ind. load)          |
|   |                           |                           | Rated operational current | Rated operational current |
| Illuminated pushbutton switch<br>Pushbutton (Except the selector ring type)<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch<br>Selector switch (2-position)<br>Illuminated selector switch (2-position) | 10A                       | 24V                       | 6.0A                      | 4.0A                      |
|   |                           | 120V                      | 6.0A                      | –                         |
|   |                           | 125V                      | –                         | 1.3A                      |
|   |                           | 240V                      | 6.0A                      | –                         |
|   |                           | 250V                      | –                         | 0.45A                     |
|   |                           | 480V                      | 2.5A                      | –                         |
|   |                           | 600V                      | 2.0A                      | –                         |
| Selector switch (3, 4, 5-position)<br>Illuminated selector switch (3-position)<br>Pushbutton with selector ring   | 10A                       | 24V                       | 6.0A                      | 2.0A                      |
|   |                           | 120V                      | 6.0A                      | –                         |
|   |                           | 125V                      | –                         | 0.65A                     |
|   |                           | 240V                      | 6.0A                      | –                         |
|   |                           | 250V                      | –                         | 0.23A                     |
|   |                           | 480V                      | 2.5A                      | –                         |
| Joy stick selector switch (Lever switch)  | 5A                        | 24V                       | –                         | 0.7A                      |
|   |                           | 120V                      | 0.3A                      | –                         |
|   |                           | 125V                      | –                         | 0.15A                     |
|   |                           | 240V                      | 0.3A                      | –                         |

**Lamp rated voltage UL/CSA standards, TÜV approved**

|                                    | LED lamp                                     | Incandescent lamp |
|------------------------------------|--|-------------------|
| Full-voltage (without transformer) | Max. 24V AC/DC                               | Max. 30V AC/DC    |
| With transformer                   | Max. 550V AC (Short-body type: Max. 220V AC) |                   |

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Ratings and specifications

#### ■ Operating characteristic (1NO+1NC)

| Description                   | Pushbutton<br>Illuminated pushbutton   | Emergency stop pushbutton<br>Emergency stop illuminated pushbutton |                | Selector *2<br>Illuminated selector  |                            |  |
|-------------------------------|--|--|----------------|--|----------------------------|--|
|                               |  | Push-lock type   | Push-pull type | Maintained   | Spring/manual return       | Spring return  |
| Ave. required operating force | 9N (Push-lock type: 20N)   | 30N *1   | 45N            | 0.15N•m  | 0.13N•m                    | 0.1N•m   |
| Operating travel              | Approx. 6mm<br><br>(Push-lock type:<br>Approx. 9mm, operation<br>angle: Approx. 45°) | Approx. 9mm<br><br>(Operation angle:<br>Approx. 45°)               | Approx. 9mm    | 2-position:<br>Approx. 90°<br>3-position:<br>Approx. 45°<br>4-position:<br>Approx. 40°<br>5-position:<br>Approx. 30° | 3-position:<br>Approx. 45° | 2-position:<br>Approx. 60°<br>3-position:<br>Approx. 45° |
| Required return force         | –<br>(Push-lock type: 0.6N•m)  | 0.6N•m   | 30N (pull)     | 0.15N•m  | 0.13N•m                    | –  |

Notes: \*1 AR30V2R type: 45N  
\*2 4-position, 5-position: 2NO+2NC

#### ■ Lamp ratings

##### ● Illuminated pushbuttons, illuminated selectors, pilot lights (round type)

| Transformer                                     | Lamp voltage                             | LED (lamp base: BA9S/13) |                |   | Incandescent (lamp base: BA9S/13) |                        |                                  |
|---|--|--------------------------|----------------|---|-----------------------------------|------------------------|----------------------------------|
|   |  | Type                     | Rated voltage  | Consumption   | Type                              | Rated voltage          | Consumption                      |
| Without transformer                             | 5.5V AC/DC                               | –                        | –              | –   | AHX135                            | 6.3V AC/DC             | 0.9W                             |
|   | 6V AC                                    | APX510-6□                | 6V AC          | Green, red, orange, amber, blue: 7mA AC<br>Yellow: 50mA AC                    | –                                 | –                      | –                                |
|   | 6V DC                                    | APX510-D6□               | 6V DC          | Green, red, orange, amber, blue: 11mA DC<br>Yellow: 33mA DC                   | –                                 | –                      | –                                |
|   | 12V AC/DC                                | APX510-12□               | 12V AC/DC      | Green, red, orange, amber, blue: 14mA AC, 11mA DC<br>Yellow: 28mA AC, 22mA DC | –                                 | –                      | –                                |
|   | 15V AC/DC                                | APX510-15□               | 15V AC/DC      | Green, red, orange, amber, blue: 13mA AC, 11mA DC<br>Yellow: 26mA AC, 22mA DC | AHX279                            | 18V AC/DC              | 0.8W                             |
|   | 20V AC/DC<br>24V AC/DC                   | –<br>APX510-24□          | –<br>24V AC/DC | –<br>12mA AC, 11mA DC   | AHX144<br>AHX129                  | 24V AC/DC<br>30V AC/DC | 0.9W<br>0.8W                     |
| With transformer<br>(Standard type:<br>AR9T511) | 110V AC                                  | APX510-6□                | 6V AC          | 1.5VA   | AHX135                            | 6.3V AC/DC             | 2VA                              |
|   | 127V AC                                  |                          |                |   |                                   |                        | 2VA                              |
|   | 220V AC                                  |                          |                |   |                                   |                        | 2VA                              |
|   | 254V AC                                  | APX510-6□                | 6V AC          | 2.5VA   | AHX135                            | 6.3V AC/DC             | 2.5VA                            |
|   | 380V AC<br>440V AC<br>480V AC<br>550V AC |                          |                |   |                                   |                        | 2.5VA<br>2.5VA<br>2.5VA<br>2.5VA |
| With resistor unit<br>(AR9T519-H)               | 110V DC                                  | APX510-24□               | 24V AC/DC      | 1.2W  | –                                 | –                      | –                                |

Notes: • Short body pilot lights: 110V AC, 127V AC, 220V AC only  
• Replace the □ mark by the lamp luminous color code, see page 04/70

##### ● Pilot lights with resistor

| Lamp Voltage | LED (lamp base: E12/15) |               |             | Incandescent (lamp base: E12/15) |               |             |
|--------------|-------------------------|---------------|-------------|----------------------------------|---------------|-------------|
|              | Type                    | Rated voltage | Consumption | Type                             | Rated voltage | Consumption |
| 50V DC       | APX507-24□ *            | 24V AC/DC     | 0.8W        | AHX130                           | 18V AC/DC     | 5W          |
| 110V DC      |                         |               | 1.7W        |                                  |               | 10W         |
| 220V DC      |                         |               | 3.3W        |                                  |               | 20W         |

Notes: \* White: APX509-24O  
• Replace the □ mark by the lamp luminous color code, see page 04/70

Pushbuttons/Selectors/Pilot Lights/Buzzers  
**AR30 and DR30**  
**Ratings and specifications**

• **Pilot lights (DR30F4M, F4N, M4M types)**

| Transformer  | Lamp voltage | LED (lamp base: BA9S/13) |               |  | Incandescent (lamp base: BA9S/13) |               |             |
|--|--------------|--------------------------|---------------|--|-----------------------------------|---------------|-------------|
|  |              | Type                     | Rated voltage | Consumption  | Type                              | Rated voltage | Consumption |
| Without transformer  | 5.5V AC/DC   | –                        | –             | –  | AHX135                            | 6.3V AC/DC    | 0.9W        |
|  | 6V DC        | DR9Q005-6□               | 6V DC         | Green, red, amber: 20mA DC<br>White: 33mA DC<br>Yellow: 48mA DC  | –                                 | –             | –           |
|  | 12V AC       | DR9Q005-2□               | 12V AC        | Red, amber: 18mA AC<br>Green: 10mA AC<br>White: 30mA AC<br>Yellow: 50mA AC                                     | –                                 | –             | –           |
|  | 12V AC/DC    | DR9Q005-B□               | 12V AC/DC     | Red, amber: 22mA AC, 20mA DC<br>Green: 13mA AC, 10mA DC<br>White: 36mA AC, 30mA DC<br>Yellow: 54mA AC, 48mA DC | –                                 | –             | –           |
|  | 15V AC/DC    | –                        | –             | –  | AHX279                            | 20V AC/DC     | 0.8W        |
|  | 20V AC/DC    | –                        | –             | –  | AHX144                            | 24V AC/DC     | 0.9W        |
|  | 24V AC/DC    | DR9Q005-E□               | 24V AC/DC     | Green, red, amber: 11mA AC, 10mA DC<br>White: 12mA AC, 11mA DC<br>Yellow: 16mA AC, 12mA DC                     | AHX129                            | 30V AC/DC     | 0.8W        |
| With transformer unit<br>(LED: AR9T557)<br>(Incandescent: AR9T511) | 110V AC      | DR9Q005-2□               | 12V AC        | 3VA  | AHX135                            | 6.3V AC/DC    | 2VA         |
|  | 127V AC      |                          |               |  |                                   |               | 2VA         |
|  | 220V AC      |                          |               |  |                                   |               | 2VA         |
|  | 254V AC      |                          |               |  |                                   |               | 2.5VA       |
|  | 380V AC      |                          |               |  |                                   |               | 2.5VA       |
|  | 440V AC      |                          |               |  |                                   |               | 2.5VA       |
|  | 480V AC      |                          |               |  |                                   |               | 2.5VA       |
|  | 550V AC      |                          |               |  |                                   |               | 2.5VA       |
| With resistor unit<br>(AR9T519-H)                                  | 110V DC      | DR9Q005-E□               | 24V AC/DC     | 1.4W   | –                                 | –             | –           |

Notes: • Replace the □ mark by the lamp luminous color code, see page 04/70

04

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

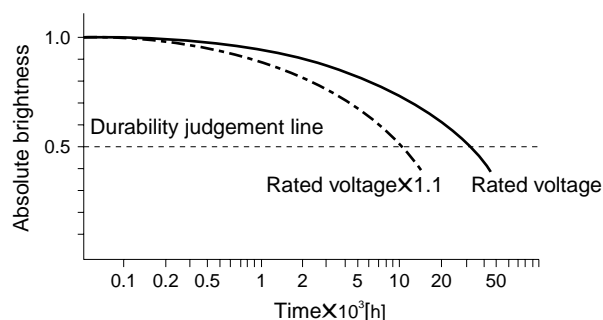
### Ratings and specifications

#### ■ Lamp durability

| Lamp         | Durability (reference) | Judgement criterion                               |
|--------------|------------------------|---|
| LED          | Approx. 30000h         | When brightness is less than 50% of initial value |
| Incandescent | Approx. 5000h (AC)     | When the bulb burns out                           |

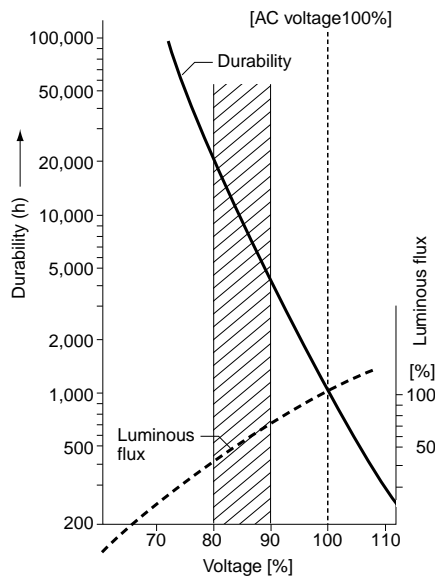
Notes: •The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.  
•The durability of LED lamp is a mean value in all colors.

#### Estimated durability for LED lamps



Notes: • Durability at  $T_a=25^{\circ}\text{C}$   
• Durability is affected by temperature, humidity, and voltage fluctuation.

#### Incandescent lamp voltage characteristics



#### ■ Combination of lens color and LED luminous color

| Button color<br>(lens or color plate) |      | LED lamp<br>(high-brightness) |           |            | LED lamp<br>(high-brightness) |            |
|---------------------------------------|------|-------------------------------|-----------|------------|-------------------------------|------------|
| Color                                 | Code | Luminous color                | Type      | Type *1    | Luminous color                | Type *2    |
| Green                                 | G    | Green                         | APX510-■G | APX507-24G | Green                         | DR9Q005-■G |
| Red                                   | R    | Red                           | APX510-■R | APX507-24R | Red                           | DR9Q005-■R |
| White                                 | W    | Orange                        | APX510-■O | APX509-24O | White                         | DR9Q005-■W |
| Yellow                                | Y    | Yellow                        | APX510-■Y | APX507-24Y | Yellow                        | DR9Q005-■Y |
| Orange                                | A    | Amber                         | APX510-■A | APX507-24A | Amber                         | DR9Q005-■A |
| Blue                                  | S    | Blue                          | APX510-■S | APX507-24S | -                             | -          |

Notes: \*1 For pilot light with resistor

\*2 For DR30 F4M, F4N, M4M type

• Replace the ■ mark by the lamp voltage code, see page 04/68, 04/69

■ Illuminated pushbutton switches

| Operator   | Transformer | Contact                          | LED lamp<br>Momentary action<br>Type                             | Alternate action<br>Type   | Incandescent lamp<br>Momentary action<br>Type                    | Alternate action<br>Type   |
|--|-------------|----------------------------------|--|--|--|--|
| Extended round head<br><br><br>AF95-4   | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR30E0L-10■3□<br>AR30E0L-01■3□<br>AR30E0L-11■3□<br>AR30E0L-22■3□ | AR30E5L-10■3□<br>AR30E5L-01■3□<br>AR30E5L-11■3□<br>—             | AR30E0L-10■4□<br>AR30E0L-01■4□<br>AR30E0L-11■4□<br>AR30E0L-22■4□ | AR30E5L-10■4□<br>AR30E5L-01■4□<br>AR30E5L-11■4□<br>—             |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR30E0L-10■3□<br>AR30E0L-01■3□<br>AR30E0L-11■3□                  | AR30E5L-10■3□<br>AR30E5L-01■3□<br>AR30E5L-11■3□                  | AR30E0L-10■4□<br>AR30E0L-01■4□<br>AR30E0L-11■4□                  | AR30E5L-10■4□<br>AR30E5L-01■4□<br>AR30E5L-11■4□                  |
| Extended with transparent<br>full guard (24mm dia.)<br><br><br>KKD05-164        | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR30G4L-10■3□<br>AR30G4L-01■3□<br>AR30G4L-11■3□<br>AR30G4L-22■3□ | AR30G9L-10■3□<br>AR30G9L-01■3□<br>AR30G9L-11■3□<br>—             | AR30G4L-10■4□<br>AR30G4L-01■4□<br>AR30G4L-11■4□<br>AR30G4L-22■4□ | AR30G9L-10■4□<br>AR30G9L-01■4□<br>AR30G9L-11■4□<br>—             |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR30G4L-10■3□<br>AR30G4L-01■3□<br>AR30G4L-11■3□                  | AR30G9L-10■3□<br>AR30G9L-01■3□<br>AR30G9L-11■3□                  | AR30G4L-10■4□<br>AR30G4L-01■4□<br>AR30G4L-11■4□                  | AR30G9L-10■4□<br>AR30G9L-01■4□<br>AR30G9L-11■4□                  |
| Extended with full guard<br>(24mm dia. with openings)<br><br><br>AF99-328     | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR30G2L-10■3□<br>AR30G2L-01■3□<br>AR30G2L-11■3□<br>AR30G2L-22■3□ | AR30G7L-10■3□<br>AR30G7L-01■3□<br>AR30G7L-11■3□<br>—             | AR30G2L-10■4□<br>AR30G2L-01■4□<br>AR30G2L-11■4□<br>AR30G2L-22■4□ | AR30G7L-10■4□<br>AR30G7L-01■4□<br>AR30G7L-11■4□<br>—             |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR30G2L-10■3□<br>AR30G2L-01■3□<br>AR30G2L-11■3□                  | AR30G7L-10■3□<br>AR30G7L-01■3□<br>AR30G7L-11■3□                  | AR30G2L-10■4□<br>AR30G2L-01■4□<br>AR30G2L-11■4□                  | AR30G7L-10■4□<br>AR30G7L-01■4□<br>AR30G7L-11■4□                  |
| Extended with full guard<br>(24mm dia.)<br><br><br>AF95-6                     | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | AR30G3L-10■3□<br>AR30G3L-01■3□<br>AR30G3L-11■3□<br>AR30G3L-22■3□ | AR30G8L-10■3□<br>AR30G8L-01■3□<br>AR30G8L-11■3□<br>—             | AR30G3L-10■4□<br>AR30G3L-01■4□<br>AR30G3L-11■4□<br>AR30G3L-22■4□ | AR30G8L-10■4□<br>AR30G8L-01■4□<br>AR30G8L-11■4□<br>—             |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | AR30G3L-10■3□<br>AR30G3L-01■3□<br>AR30G3L-11■3□                  | AR30G8L-10■3□<br>AR30G8L-01■3□<br>AR30G8L-11■3□                  | AR30G3L-10■4□<br>AR30G3L-01■4□<br>AR30G3L-11■4□                  | AR30G8L-10■4□<br>AR30G8L-01■4□<br>AR30G8L-11■4□                  |
| Push-lock, turn-reset<br>(40mm dia. with white<br>arrow)<br><br><br>KKD06-348 | Without     | 1NO<br>1NC<br>1NO+1NC<br>3NC     | —<br>—<br>—<br>—   | AR30V5L-10■3□<br>AR30V5L-01■3□<br>AR30V5L-11■3□<br>AR30V5L-03■3□ | —<br>—<br>—<br>—   | AR30V5L-10■4□<br>AR30V5L-01■4□<br>AR30V5L-11■4□<br>AR30V5L-03■4□ |
|  | With        | 1NO<br>1NC<br>1NO+1NC            | —<br>—<br>—  | AR30V5L-10■3□<br>AR30V5L-01■3□<br>AR30V5L-11■3□                  | —<br>—<br>—  | AR30V5L-10■4□<br>AR30V5L-01■4□<br>AR30V5L-11■4□                  |
| Push-pull<br>(35mm dia.)<br><br><br>AF96-185                                  | Without     | 1NO+1NC                          | AR30Q7L-11■3□  | —  | AR30Q7L-11■4□  | —  |
|  | With        | 1NO+1NC                          | AR30Q7L-11■3□  | —  | AR30Q7L-11■4□  | —  |

Note: ■ □ See page 04/72

# Illuminated Pushbuttons

## AR30

### • Lens color

Replace the □ mark by the lens color code

|       |       |     |       |      |        |        |
|-------|-------|-----|-------|------|--------|--------|
| Color | Green | Red | White | Blue | Yellow | Orange |
| Code  | G     | R   | W     | S    | Y      | A      |

Note: AR30V5L type: Red, yellow only

### • Contact arrangements

Contact arrangements other than above are available

|                     |     |     |         |     |     |     |
|---------------------|-----|-----|---------|-----|-----|-----|
| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO |
| Code                | 10  | 01  | 11      | 20  | 02  | 30  |

|                     |     |         |     |     |     |     |
|---------------------|-----|---------|-----|-----|-----|-----|
| Contact arrangement | 3NC | 2NO+2NC | 4NO | 4NC | 5NO | 5NC |
| Code                | 03  | 22      | 40  | 04  | 50  | 05  |

Note: AR30Q7L type: 1NO + 1NC only

### Available numbers of contact blocks

|   |                     |                  |
|---|---------------------|------------------|
| Operation                                 | Without transformer | With transformer |
| Momentary action                          | 6-contact block     | 4-contact block  |
| Alternate action<br>Push-lock, turn-reset | 3-contact block     | 2-contact block  |

### • Contact operation (AR30Q7L)

| Contact block |      | Button position |      |      |
|---------------|------|-----------------|------|------|
| No.           | Type | Pull            | Free | Push |
| (1)           | NC   | ●               |      |      |
| (2)           | NC   | ■               |      |      |

● Contact closed

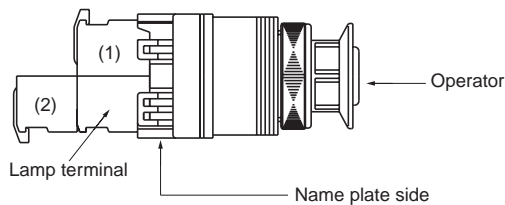
### • Voltage

Replace the ■ mark by the lamp voltage code

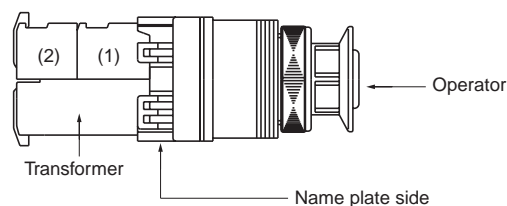
| Transformer         |                        | Code   |              |
|---------------------|------------------------|--------|--------------|
|                     |                        | LED    | Incandescent |
| Without transformer | 6V DC                  | 6      | —            |
|                     | 6V AC                  | A      | —            |
|                     | 5.5V AC/DC             | —      | 5            |
|                     | 12V AC/DC              | B      | —            |
|                     | 15V AC/DC              | C      | C            |
|                     | 20V AC/DC<br>24V AC/DC | —<br>E | D<br>E       |
| With transformer    | 100-110V AC            | H      | H            |
|                     | 115-127V AC            | L      | L            |
|                     | 200-220V AC            | M      | M            |
|                     | 230-254V AC            | Q      | Q            |
|                     | 350-380V AC            | S      | S            |
|                     | 400-440V AC            | T      | T            |
|                     | 480V AC                | V      | V            |
|                     | 500-550V AC            | W      | W            |

### • Position of contact block

AR30Q7L (without transformer)










AR30Q7L (with transformer)



■ Pushbutton switches



| Operator   | Contact  | Momentary action Type  | Alternate action Type  |
|--|--|--|--|
| Flush round head<br> AF95-11                        | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30F0R-10</b> □<br><b>AR30F0R-01</b> □<br><b>AR30F0R-11</b> □<br><b>AR30F0R-20</b> □<br><b>AR30F0R-02</b> □<br><b>AR30F0R-22</b> □       | <b>AR30F5R-10</b> □<br><b>AR30F5R-01</b> □<br><b>AR30F5R-11</b> □<br><b>AR30F5R-20</b> □<br><b>AR30F5R-02</b> □<br><b>AR30F5R-22</b> □       |
| Extended round head<br> AF95-10                     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30E0R-10</b> □<br><b>AR30E0R-01</b> □<br><b>AR30E0R-11</b> □<br><b>AR30E0R-20</b> □<br><b>AR30E0R-02</b> □<br><b>AR30E0R-22</b> □       | <b>AR30E5R-10</b> □<br><b>AR30E5R-01</b> □<br><b>AR30E5R-11</b> □<br><b>AR30E5R-20</b> □<br><b>AR30E5R-02</b> □<br><b>AR30E5R-22</b> □       |
| Flush round head symbol mark type<br> AF98-195     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30FAR-10C</b> ■<br><b>AR30FAR-01C</b> ■<br><b>AR30FAR-11C</b> ■<br><b>AR30FAR-20C</b> ■<br><b>AR30FAR-02C</b> ■<br><b>AR30FAR-22C</b> ■ | <b>AR30FBR-10C</b> ■<br><b>AR30FBR-01C</b> ■<br><b>AR30FBR-11C</b> ■<br><b>AR30FBR-20C</b> ■<br><b>AR30FBR-02C</b> ■<br><b>AR30FBR-22C</b> ■ |
| Extended round head symbol mark type<br> AF98-194 | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30EAR-10C</b> ■<br><b>AR30EAR-01C</b> ■<br><b>AR30EAR-11C</b> ■<br><b>AR30EAR-20C</b> ■<br><b>AR30EAR-02C</b> ■<br><b>AR30EAR-22C</b> ■ | <b>AR30EBR-10C</b> ■<br><b>AR30EBR-01C</b> ■<br><b>AR30EBR-11C</b> ■<br><b>AR30EBR-20C</b> ■<br><b>AR30EBR-02C</b> ■<br><b>AR30EBR-22C</b> ■ |
| Mushroom head (40mm dia.)<br> AF95-12             | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30M0R-10</b> □<br><b>AR30M0R-01</b> □<br><b>AR30M0R-11</b> □<br><b>AR30M0R-20</b> □<br><b>AR30M0R-02</b> □<br><b>AR30M0R-22</b> □       | <b>AR30M5R-10</b> □<br><b>AR30M5R-01</b> □<br><b>AR30M5R-11</b> □<br><b>AR30M5R-20</b> □<br><b>AR30M5R-02</b> □<br><b>AR30M5R-22</b> □       |
| Mushroom head (29mm dia.)<br> AF95-8              | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30M4R-10</b> □<br><b>AR30M4R-01</b> □<br><b>AR30M4R-11</b> □<br><b>AR30M4R-20</b> □<br><b>AR30M4R-02</b> □<br><b>AR30M4R-22</b> □       | —<br>—<br>—<br>—<br>—<br>—   |
| Extended with full guard (24mm dia.)<br> AF95-16  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30G1R-10</b> □<br><b>AR30G1R-01</b> □<br><b>AR30G1R-11</b> □<br><b>AR30G1R-20</b> □<br><b>AR30G1R-02</b> □<br><b>AR30G1R-22</b> □       | <b>AR30G6R-10</b> □<br><b>AR30G6R-01</b> □<br><b>AR30G6R-11</b> □<br><b>AR30G6R-20</b> □<br><b>AR30G6R-02</b> □<br><b>AR30G8R-22</b> □       |

Note: ■ □ See page 04/74

| Operator   | Contact  | Momentary action Type  | Alternate action Type  |
|--|--|--|--|
| Extended with half guard<br> AF95-9                                | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30G0R-10</b> □<br><b>AR30G0R-01</b> □<br><b>AR30G0R-11</b> □<br><b>AR30G0R-20</b> □<br><b>AR30G0R-02</b> □<br><b>AR30G0R-22</b> □ | <b>AR30G5R-10</b> □<br><b>AR30G5R-01</b> □<br><b>AR30G5R-11</b> □<br><b>AR30G5R-20</b> □<br><b>AR30G5R-02</b> □<br><b>AR30G5R-22</b> □ |
| Pin lock<br> AF96-240  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30GPR-10</b> □<br><b>AR30GPR-01</b> □<br><b>AR30GPR-11</b> □<br><b>AR30GPR-20</b> □<br><b>AR30GPR-02</b> □<br><b>AR30GPR-22</b> □ | —<br>—<br>—<br>—<br>—<br>—   |
| Mushroom head with full guard (40mm dia.)<br> AF95-17             | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30M3R-10</b> □<br><b>AR30M3R-01</b> □<br><b>AR30M3R-11</b> □<br><b>AR30M3R-20</b> □<br><b>AR30M3R-02</b> □<br><b>AR30M3R-22</b> □ | <b>AR30M8R-10</b> □<br><b>AR30M8R-01</b> □<br><b>AR30M8R-11</b> □<br><b>AR30M8R-20</b> □<br><b>AR30M8R-02</b> □<br><b>AR30M8R-22</b> □ |
| Mushroom head with full guard (35mm dia. metal nut)<br> AF96-239 | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30GSR-10</b> □<br><b>AR30GSR-01</b> □<br><b>AR30GSR-11</b> □<br><b>AR30GSR-20</b> □<br><b>AR30GSR-02</b> □<br><b>AR30GSR-22</b> □ | —<br>—<br>—<br>—<br>—<br>—   |
| Giant head<br> AF95-579  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30B0R-10</b> □<br><b>AR30B0R-01</b> □<br><b>AR30B0R-11</b> □<br><b>AR30B0R-20</b> □<br><b>AR30B0R-02</b> □<br><b>AR30B0R-22</b> □ | —<br>—<br>—<br>—<br>—<br>—   |
| Giant head with guard<br> AF95-582                               | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30B1R-10</b> □<br><b>AR30B1R-01</b> □<br><b>AR30B1R-11</b> □<br><b>AR30B1R-20</b> □<br><b>AR30B1R-02</b> □<br><b>AR30B1R-22</b> □ | —<br>—<br>—<br>—<br>—<br>—   |
| Giant head with full guard<br> AF95-580                          | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30B2R-10</b> □<br><b>AR30B2R-01</b> □<br><b>AR30B2R-11</b> □<br><b>AR30B2R-20</b> □<br><b>AR30B2R-02</b> □<br><b>AR30B2R-22</b> □ | —<br>—<br>—<br>—<br>—<br>—   |



# Pushbuttons AR30

| Operator  | Contact | Momentary action Type | Alternate action Type |
|---|---------|-----------------------|-----------------------|
| Giant head with full guard<br><br>AF95-581 | 1NO     | <b>AR30B3R-10</b> □ — |                       |
|   | 1NC     | <b>AR30B3R-01</b> □ — |                       |
|   | 1NO+1NC | <b>AR30B3R-11</b> □ — |                       |
|   | 2NO     | <b>AR30B3R-20</b> □ — |                       |
|   | 2NC     | <b>AR30B3R-02</b> □ — |                       |
|   | 2NO+2NC | <b>AR30B3R-22</b> □ — |                       |
| Push, turn-lock<br><br>AF95-583            | 1NO     | <b>AR30N0R-10</b> □ — |                       |
|   | 1NC     | <b>AR30N0R-01</b> □ — |                       |
|   | 1NO+1NC | <b>AR30N0R-11</b> □ — |                       |
|   | 2NO     | <b>AR30N0R-20</b> □ — |                       |
|   | 2NC     | <b>AR30N0R-02</b> □ — |                       |
|   | 2NO+2NC | <b>AR30N0R-22</b> □ — |                       |

### • Button color

Replace the □ mark by the button color code

| Color | Green | Red | White | Blue | Yellow | Orange | Black |
|-------|-------|-----|-------|------|--------|--------|-------|
| Code  | G     | R   | W     | S    | Y      | A      | B     |



Note: AR30V5R type: Red, yellow, black only

### • Contact arrangements

Contact arrangements other than above are available

| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO | 3NC |
|---------------------|-----|-----|---------|-----|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  | 03  |

| Contact arrangement | 2NO+2NC | 4NO | 4NC | 5NO | 5NC | 3NO+3NC | 4NO+4NC |
|---------------------|---------|-----|-----|-----|-----|---------|---------|
| Code                | 22      | 40  | 04  | 50  | 05  | 33      | 44      |

| Operator   | Contact | Momentary action Type | Alternate action Type |
|--|---------|-----------------------|-----------------------|
| Push-lock, turn-reset (40mm dia. with white arrow)<br><br>KKD08-051 | 1NO     | —                     | <b>AR30V5R-10</b> □   |
|  | 1NC     | —                     | <b>AR30V5R-01</b> □   |
|  | 1NO+1NC | —                     | <b>AR30V5R-11</b> □   |
|  | 2NO     | —                     | <b>AR30V5R-20</b> □   |
|  | 2NC     | —                     | <b>AR30V5R-02</b> □   |
|  | 2NO+2NC | —                     | <b>AR30V5R-22</b> □   |
| Pushbutton with emergency operating cap<br><br>AF96-187             | 1NO     | <b>AR30FVR-10</b> □   | —                     |
|  | 1NC     | <b>AR30FVR-01</b> □   | —                     |
|  | 1NO+1NC | <b>AR30FVR-11</b> □   | —                     |
|  | 2NO     | <b>AR30FVR-20</b> □   | —                     |
|  | 2NC     | <b>AR30FVR-02</b> □   | —                     |
|  | 2NO+2NC | <b>AR30FVR-22</b> □   | —                     |




### • Available numbers of contact blocks

|                  |   |
|------------------|---|
| Momentary action | Alternate action<br>Push-lock, turn-reset |
| 8-contact block  | 4-contact block                           |

### • Symbol mark (For AR30FAR, FBR, EAR, EBR)

Replace the ■ mark by the symbol mark code

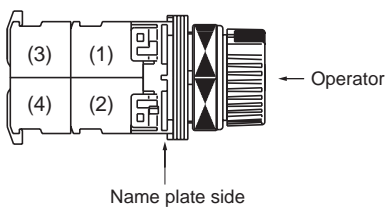
| Symbol mark     | ○             | I             | ⊕             | ○         | I   | ⊕ |
|-----------------|---------------|---------------|---------------|-----------|-----|---|
| Color of button | White   Black | White   Black | White   Black | Clear     |     |   |
| Color of mark   | Red           | Green         | Green         | Black     |     |   |
| Code            | 01   02       | 03   04       | 11   12       | 02B   04B | 12B |   |

| Operator  | Contact<br>(The following contact is only available.) | Button color   | Type   | Contact operation |      |  |           |   |           |
|---|---|--|--|-------------------|------|--|-----------|---|-----------|
|   |   |  |  | Contact block     |      | Left  |           | Right  |           |
|   |   |  |  | Mounting position | Type | Free   | Depressed | Free  | Depressed |
| Pushbutton with selector ring (2-position)<br><br>AF97-506 | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR30S1R-22G</b><br><b>AR30S1R-22R</b><br><b>AR30S1R-22B</b><br><b>AR30S1R-22W</b><br><b>AR30S1R-22Y</b><br><b>AR30S1R-22A</b><br><b>AR30S1R-22S</b> | (1)               | NC   | —  | —         | ●   | —         |
|   |   |  |  | (2)               | NC   | —  | —         | ●   | —         |
|   |   |  |  | (3)               | NO   | —  | ●         | —   | ●         |
|   |   |  |  | (4)               | NO   | —  | ●         | —   | ●         |
|   | 2NO   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR30S2R-20G</b><br><b>AR30S2R-20R</b><br><b>AR30S2R-20B</b><br><b>AR30S2R-20W</b><br><b>AR30S2R-20Y</b><br><b>AR30S2R-20A</b><br><b>AR30S2R-20S</b> | (1)               | NO   | —  | ●         | —   | —         |
|   |   |  |  | (2)               | NO   | —  | —         | —   | ●         |
|   |   |  |  | (3)               | NO   | —  | ●         | —   | —         |
|   |   |  |  | (4)               | NO   | —  | —         | —   | ●         |
|   | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR30S2R-22G</b><br><b>AR30S2R-22R</b><br><b>AR30S2R-22B</b><br><b>AR30S2R-22W</b><br><b>AR30S2R-22Y</b><br><b>AR30S2R-22A</b><br><b>AR30S2R-22S</b> | (1)               | NC   | ●  | —         | ██████████  |           |
|   |   |  |  | (2)               | NC   | ██████████   |           | ●   | —         |
|   |   |  |  | (3)               | NO   | —  | ●         | —   | —         |
|   |   |  |  | (4)               | NO   | —  | —         | —   | ●         |
|   | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR30S3R-22G</b><br><b>AR30S3R-22R</b><br><b>AR30S3R-22B</b><br><b>AR30S3R-22W</b><br><b>AR30S3R-22Y</b><br><b>AR30S3R-22A</b><br><b>AR30S3R-22S</b> | (1)               | NC   | —  | —         | ██████████  |           |
|   |   |  |  | (2)               | NC   | ██████████   |           | —   | —         |
|   |   |  |  | (3)               | NO   | —  | ●         | —   | —         |
|   |   |  |  | (4)               | NO   | —  | —         | —   | ●         |
|   | 2NO+2NC   | Green<br>Red<br>Black<br>White<br>Yellow<br>Orange<br>Blue | <b>AR30S6R-22G</b><br><b>AR30S6R-22R</b><br><b>AR30S6R-22B</b><br><b>AR30S6R-22W</b><br><b>AR30S6R-22Y</b><br><b>AR30S6R-22A</b><br><b>AR30S6R-22S</b> | (1)               | NC   | ●  | —         | —   | Locked    |
|   |   |  |  | (2)               | NC   | ●  | —         | —   |           |
|   |   |  |  | (3)               | NO   | —  | ●         | ●   |           |
|   |   |  |  | (4)               | NO   | —  | ●         | ●   |           |

Note: (1) to (4): Contact block mounting position

● Contact closed  
— Contact open





● Position of contact block



# Emergency Stop Pushbuttons AR30

## ■ Emergency stop pushbutton switches



⇒ (Direct opening action), conform to EN418

| Operator   | Contact  | Type   |
|--|--|--|
| Push-lock, turn-reset<br>(Soft-touch<br>40mm dia. with<br>white arrow) <br><small>KKD08-051</small> | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR30V0R-01R</b><br><b>AR30V0R-11R</b><br><b>AR30V0R-02R</b><br><b>AR30V0R-03R</b><br><b>AR30V0R-22R</b><br><b>AR30V0R-04R</b> |
| Push-lock, turn-reset<br>(40mm dia.) <br><small>KKD06-353</small>                                   | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR30V2R-01R</b><br><b>AR30V2R-11R</b><br><b>AR30V2R-02R</b><br><b>AR30V2R-03R</b><br><b>AR30V2R-22R</b><br><b>AR30V2R-04R</b> |
| Push-lock, turn-reset<br>(Soft-touch<br>65mm dia. with<br>white arrow) <br><small>KKD06-352</small> | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AR30V1R-01R</b><br><b>AR30V1R-11R</b><br><b>AR30V1R-02R</b><br><b>AR30V1R-03R</b><br><b>AR30V1R-22R</b><br><b>AR30V1R-04R</b> |
| Push-lock, pull-reset<br>(35mm dia.) <br><small>KKD06-347</small>                                 | 1NC<br>1NO+1NC<br>2NC                          | <b>AR30Q2R-01R</b><br><b>AR30Q2R-11R</b><br><b>AR30Q2R-02R</b>   |

- Notes:
- Button color: Red only
  - Contact arrangements indicated in the table can be supplied.

■ Emergency stop illuminated pushbutton switches

⇒ (Direct opening action), conform to EN418

| Operator  | Transformer | Contact                      | LED lamp Type  | Incandescent lamp Type   |
|---|-------------|------------------------------|--|--|
| Push-lock, turn-reset<br>(Soft-touch 40mm dia.<br>with white arrow)<br><br>KKD06-348 | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC | AR30V0L-01■3R<br>AR30V0L-11■3R<br>AR30V0L-02■3R<br>AR30V0L-03■3R | AR30V0L-01■4R<br>AR30V0L-11■4R<br>AR30V0L-02■4R<br>AR30V0L-03■4R |
|   | With        | 1NC<br>1NO+1NC<br>2NC        | AR30V0L-01■3R<br>AR30V0L-11■3R<br>AR30V0L-02■3R                  | AR30V0L-01■4R<br>AR30V0L-11■4R<br>AR30V0L-02■4R                  |
| Push-lock, turn-reset<br>(40mm dia.)<br><br>KKD06-350                                | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC | AR30V2L-01■3R<br>AR30V2L-11■3R<br>AR30V2L-02■3R<br>AR30V2L-03■3R | AR30V2L-01■4R<br>AR30V2L-11■4R<br>AR30V2L-02■4R<br>AR30V2L-03■4R |
|   | With        | 1NC<br>1NO+1NC<br>2NC        | AR30V2L-01■3R<br>AR30V2L-11■3R<br>AR30V2L-02■3R                  | AR30V2L-01■4R<br>AR30V2L-11■4R<br>AR30V2L-02■4R                  |

Notes: • Button color: Red only  
• Contact arrangements indicated in the table can be supplied.

● Voltage

Replace the ■ mark by the lamp voltage code



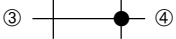





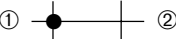



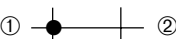
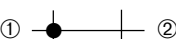
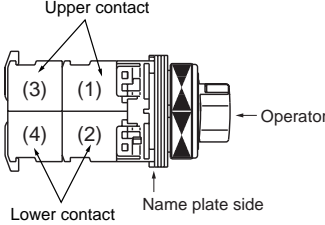
| Transformer |           | Code | Incandescent |
|-------------|-----------|------|--------------|
|             |           | LED  |              |
| Without     | 6V DC     | 6    | —            |
|             | 6V AC     | A    | —            |
|             | 5V AC/DC  | —    | 5            |
|             | 12V AC/DC | B    | —            |
|             | 15V AC/DC | C    | C            |
|             | 20V AC/DC | —    | D            |
|             | 24V AC/DC | E    | E            |

| Transformer |             | Code | Incandescent |
|-------------|-------------|------|--------------|
|             |             | LED  |              |
| With        | 100-110V AC | H    | H            |
|             | 115-127V AC | L    | L            |
|             | 200-220V AC | M    | M            |
|             | 230-254V AC | Q    | Q            |
|             | 350-380V AC | S    | S            |
|             | 400-440V AC | T    | T            |
|             | 480V AC     | V    | V            |
|             | 500-550V AC | W    | W            |

04

# Selector Switches AR30

## ■ Selector switches 2-position

| Operator  | Operation   | Knob color or key removable position   | Contact  | Type<br>Switch with round bezel  | Contact operation (Example)   |  |
|---|---|--|--|--|---|--|
|   |   |  |  |  | Contact arrangement   | Operator position<br>Left Right<br> |
| <br>AF95-13     | Maintained<br><br>each 90°  | Color code:<br>B: Black (Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30PR-210B</b><br><b>AR30PR-201B</b><br><b>AR30PR-211B</b><br><b>AR30PR-220B</b><br><b>AR30PR-202B</b><br><b>AR30PR-222B</b>                         | 1NO (1)   | Upper contact<br>                   |
|   | Spring return<br><br>60°   |  |  |  | 1NC (1)<br>Upper contact<br> |  |
| <br>AF95-14  | Maintained<br><br>each 90°  |  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30WR-210B</b><br><b>AR30WR-201B</b><br><b>AR30WR-211B</b><br><b>AR30WR-220B</b><br><b>AR30WR-202B</b><br><b>AR30WR-222B</b>                         | 1NO+1NC (1)   | Upper contact<br>                   |
|   | Spring return<br><br>60° |  |  |  | (2) Lower contact<br>      |  |
| <br>KKD09-023 | Maintained<br><br>each 90°  | <b>■</b> : Key removable position<br>( ): Key type<br><i>See page 04/80</i>                          | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30J□R-2■10( )</b><br><b>AR30J□R-2■01( )</b><br><b>AR30J□R-2■11( )</b><br><b>AR30J□R-2■20( )</b><br><b>AR30J□R-2■02( )</b><br><b>AR30J□R-2■22( )</b> | (3)   | Upper contact<br>                 |
|   | Spring return<br><br>60° |  |  |  | (2) Lower contact<br>      |  |
|   |   |  |  |  | (4)   | Lower contact<br>                 |
|   |   |  |  |  |                            |  |


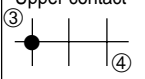
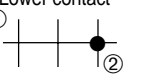

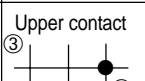
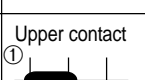

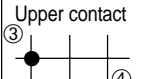

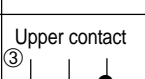
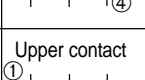
Notes: • (1) to (4): Contact block mounting position  
 • ① – ②, ③ – ④: Contact block terminal No.  
 • Contact arrangements: *See page 04/80*

● Contact closed

### • Operator

Replace the □ mark by the cylinder key type code  
 Standard type: Blank  
 Long durability type: A

3-position


| Operator   | Operation                                | Knob color  | Contact                          | Type<br>Switch with<br>round bezel   | Contact operation (Example) |  |  |  |
|--|--|---|----------------------------------|--|-----------------------------|--|--|--|
|  |  |   |                                  |  | Contact<br>arrange-<br>ment | Operation position   |  |  |
|  |  |   |                                  |  |                             | L  | C  | R  |
|  <p>AF95-13</p>   | Maintained<br>each 45°                   | Color code:<br>B: Black<br>(Standard)<br>Color other than<br>above are<br>available<br>(G: Green )<br>(R: Red ) | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30PR-311B</b><br><b>AR30PR-320B</b><br><b>AR30PR-302B</b><br><b>AR30PR-322B</b> | 1NO+1NC<br>(1) (2)          | Upper contact<br> | Lower contact<br> |  |
|  | Spring/manual<br>return<br>①<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC |  |                             | <b>AR30PR-611B</b><br><b>AR30PR-620B</b><br><b>AR30PR-602B</b><br><b>AR30PR-622B</b>                 | 1NO+1NC<br>(1) (2)   | Upper contact<br>   |
|  | Spring/manual<br>return<br>①<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30PR-711B</b><br><b>AR30PR-720B</b><br><b>AR30PR-702B</b><br><b>AR30PR-722B</b> | 1NO+1NC<br>(1) (2)          |  |  | Upper contact<br>   |
|  | Spring return<br>①<br>each 45°           |   | 2NO+2NC                          |  |                             | <b>AR30PR-122B</b>   | 2NO+2NC<br>(1) (2)   | Upper contact<br>   |
|  <p>AF95-14</p> | Maintained<br>each 45°                   |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30WR-311B</b><br><b>AR30WR-320B</b><br><b>AR30WR-302B</b><br><b>AR30WR-322B</b> | 1NO+1NC<br>(1) (2)          |  |  | Upper contact<br> |
|  | Spring/manual<br>return<br>①<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC |  |                             | <b>AR30WR-611B</b><br><b>AR30WR-620B</b><br><b>AR30WR-602B</b><br><b>AR30WR-622B</b>                 | 1NO+1NC<br>(1) (2)   | Upper contact<br> |
|  | Spring/manual<br>return<br>①<br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AR30WR-711B</b><br><b>AR30WR-720B</b><br><b>AR30WR-702B</b><br><b>AR30WR-722B</b> | 1NO+1NC<br>(1) (2)          |  |  | Upper contact<br> |
|  | Spring return<br>①<br>each 45°           |   | 2NO+2NC                          |  |                             | <b>AR30WR-122B</b>   | 2NO+2NC<br>(1) (2)   | Upper contact<br> |

Note: • Contact arrangements: See page 04/80

● Contact closed

04

# Selector Switches AR30

| Operator   | Operation                             | Key removable position                     | Contact                          | Type<br>Switch with<br>round bezel                                       | Contact operation (Example)       |  |
|--|---------------------------------------|--|----------------------------------|--|-----------------------------------|--|
|  |                                       |  |                                  |  | Contact arrangement               | Operator position  |
|  |                                       |  |                                  |  | L C R                             | L C R  |
|  |                                       |  |                                  |  | ⊖ ⊕ ⊗                             | ⊖ ⊕ ⊗  |
| <br>KKD09-023 | Maintained<br>each 45°                | ■: Key removable position<br>( ): Key type | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AR30J□R-3■11( )<br>AR30J□R-3■20( )<br>AR30J□R-3■02( )<br>AR30J□R-3■22( ) | 1NO+1NC<br>(1) (2)                | Upper contact<br>③ ●       ● ④<br>Lower contact<br>①       ● ②                                   |
|  | Spring/manual return<br>⊕<br>each 45° |  | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AR30J□R-6■11( )<br>AR30J□R-6■20( )<br>AR30J□R-6■02( )<br>AR30J□R-6■22( ) | 1NO+1NC<br>(1) (2)                | Upper contact<br>③       ● ④<br>Lower contact<br>①       ● ②                                     |
|  | Spring/manual return<br>⊕<br>each 45° |  | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AR30J□R-7■11( )<br>AR30J□R-7■20( )<br>AR30J□R-7■02( )<br>AR30J□R-7■22( ) | 1NO+1NC<br>(1) (2)                | Upper contact<br>③       ● ④<br>Lower contact<br>①       ● ②                                     |
|  | Spring return<br>⊖<br>each 45°        |  | 2NO+2NC                          | AR30J□R-1E22( )  | 2NO+2NC<br>(1) (2)<br><br>(3) (4) | Upper contact<br>① ●       ● ②<br>Lower contact<br>①       ● ②<br><br>③       ● ④<br>③       ● ④ |

Notes: • Operator position L: Left, C: Center, R: Right  
• (1) to (4): Contact block mounting position  
• ① – ②, ③ – ④: Contact block terminal No.

● Contact closed

### • Contact arrangements

Contact arrangements other than above are available








| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO | 3NC |
|---------------------|-----|-----|---------|-----|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  | 03  |

| Contact arrangement | 2NO+2NC | 4NO | 4NC | 5NO | 5NC | 3NO+3NC | 4NO+4NC |
|---------------------|---------|-----|-----|-----|-----|---------|---------|
| Code                | 22      | 40  | 04  | 50  | 05  | 33      | 44      |

### • Available numbers of contact blocks

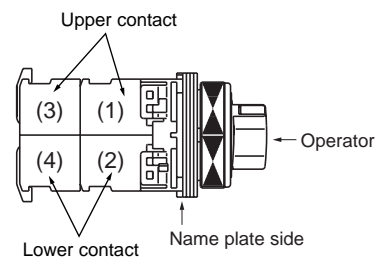
| Maintained      | Spring return<br>Spring/manual return |
|-----------------|---------------------------------------|
| 8-contact block | 4-contact block                       |

### • Key removable positions

| Code               | A   | B   | C   | D   | E   | F   | G   |
|--------------------|---|---|---|---|---|---|---|
| Removable position |  |  |  |  |  |  |  |
| AR30J□R-2          | ●   | ●   | —   | ●   | —   | —   | —   |
| AR30J□R-0          | ●   | —   | —   | —   | —   | —   | —   |
| AR30J□R-3          | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
| AR30J□R-6          | —   | —   | —   | ●   | ●   | ●   | —   |
| AR30J□R-7          | ●   | —   | —   | —   | ●   | —   | ●   |
| AR30J□R-1          | —   | —   | —   | —   | ●   | —   | —   |

●: Available    —: Not available

### • Position of contact block






### • Key code No.

Replace the ( ) mark with one of the following key code.  
A, B, C, D, E and F  
Standard key code is A.








### • Operator

Replace the □ mark by the cylinder key type code  
Standard type: Blank  
Long durability type: A

■ Selector switches (control type)  
3-position

| Operator  | Operation                          | Knob color or key removable position  | Contact arrangement   | Type<br>Switch with round bezel |
|---|------------------------------------|---|---|---------------------------------|
| <b>Knob</b><br><br><br><small>AF95-475</small>   | Maintained<br>each 45°             | Color code:<br>B: Black<br>(Standard)<br>Color other than<br>above are<br>available<br>(G: Green)<br>(R: Red) | Replace the ■<br>mark by the contact<br>arrangement code<br>(shown on next page). | <b>AR30PCR-3■B</b>              |
|   | Spring/manual<br>return ⌚ each 45° |   |   | <b>AR30PCR-6■B</b>              |
|   | Spring/manual<br>return ⌚ each 45° |   |   | <b>AR30PCR-7■B</b>              |
|   | Spring return<br>⌚ each 45°        |   |   | <b>AR30PCR-1■B</b>              |
| <b>Lever</b><br><br><br><small>KK02-140A</small> | Maintained<br>each 45°             |   | Replace the ■<br>mark by the contact<br>arrangement code<br>(shown on next page). | <b>AR30WCR-3■B</b>              |
|   | Spring/manual<br>return ⌚ each 45° |   |   | <b>AR30WCR-6■B</b>              |
|   | Spring/manual<br>return ⌚ each 45° |   |   | <b>AR30WCR-7■B</b>              |
|   | Spring return<br>⌚ each 45°        |   |   | <b>AR30WCR-1■B</b>              |
| <b>Key</b><br><br><br><small>KKD09-022</small> | Maintained<br>each 45°             | Replace the □<br>mark by the<br>key removable<br>position code:<br>A, B, C, D, E<br>F or G                    | Replace the ■<br>mark by the contact<br>arrangement code<br>(shown on next page). | <b>AR30JCR-3□■( )</b>           |
|   | Spring/manual<br>return ⌚ each 45° |   |   | <b>AR30JCR-6□■( )</b>           |
|   | Spring/manual<br>return ⌚ each 45° |   |   | <b>AR30JCR-7□■( )</b>           |
|   | Spring return<br>⌚ each 45°        |   |   | <b>AR30JCR-1E■( )</b>           |

● Key removable positions

| Code               | A   | B   | C   | D   | E   | F   | G   |
|--------------------|---|---|---|---|---|---|---|
| Removable position |  |  |  |  |  |  |  |
| AR30JCR-3          | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
| AR30JCR-6          | -   | -   | -   | ●   | ●   | ●   | -   |
| AR30JCR-7          | ●   | -   | -   | -   | ●   | -   | ●   |
| AR30JCR-1          | -   | -   | -   | -   | ●   | -   | -   |

●: Available    -: Not available

● Key code No.

Replace the ( ) mark with one of the following key code.  
A, B, C, D, E and F  
Standard key code is A.



# Selector Switches AR30

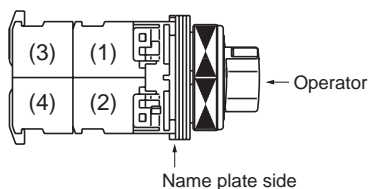
## • Contact arrangement code (Typical example)

| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |        |       |
|---------------------|---------------------------|-------------------|------|-------------------|--------|-------|
|                     |                           | Contact block     |      | Operator position |        |       |
|                     |                           | Mounting position | Type | Left              | Center | Right |
| 2NC                 | 01F                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        |       |
|                     |                           | -                 | -    | -                 | -      | -     |
|                     |                           | -                 | -    | -                 | -      | -     |
| 2NO+2NC             | 014                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 4NC                 | 01J                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        |       |
|                     |                           | (3)               | NC   |                   |        |       |
|                     |                           | (4)               | NC   |                   |        |       |
| 2NO+2NC             | 024                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        | ●     |
| 2NO+2NC             | 03C*<br>(Maintained only) | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        | ●     |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 044*                      | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 054                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   |                   |        | ●     |

Notes: ●: Contact closed Blank: Contact open

\* There may be some overlap in the contact when switching between notches.

## • Position of contact block



| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |        |       |
|---------------------|---------------------------|-------------------|------|-------------------|--------|-------|
|                     |                           | Contact block     |      | Operator position |        |       |
|                     |                           | Mounting position | Type | Left              | Center | Right |
| 2NO+2NC             | 064                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        | ●     |
| 1NO+1NC             | 07F                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NO   |                   |        | ●     |
|                     |                           | -                 | -    | -                 | -      | -     |
|                     |                           | -                 | -    | -                 | -      | -     |
| 2NO+2NC             | 07C*<br>(Maintained only) | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        | ●     |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 084                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 094*                      | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 2NO+2NC             | 104                       | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        | ●     |
| 2NO+2NC             | 11C*<br>(Maintained only) | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   |        | ●     |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        | ●     |

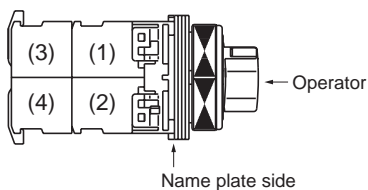
• Contact arrangement code (Typical example)

| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |            |           |
|---------------------|---------------------------|-------------------|------|-------------------|------------|-----------|
|                     |                           | Contact block     |      | Operator position |            |           |
|                     |                           | Mounting position | Type | Left<br>          | Center<br> | Right<br> |
| 2NO+2NC             | 124*                      | (1)               | NC   |                   | ●          |           |
|                     |                           | (2)               | NC   |                   | ●          |           |
|                     |                           | (3)               | NO   | ●                 |            | ●         |
|                     |                           | (4)               | NO   | ●                 |            |           |
| 2NO+2NC             | 134*                      | (1)               | NC   |                   | ●          |           |
|                     |                           | (2)               | NC   |                   | ●          |           |
|                     |                           | (3)               | NO   | ●                 |            | ●         |
|                     |                           | (4)               | NO   |                   |            | ●         |
| 3NO+1NC             | 14D*<br>(Maintained only) | (1)               | NO   | ●                 |            |           |
|                     |                           | (2)               | NC   |                   | ●          |           |
|                     |                           | (3)               | NO   | ●                 |            |           |
|                     |                           | (4)               | NO   |                   |            | ●         |
| 3NO+1NC             | 15A*                      | (1)               | NO   |                   |            | ●         |
|                     |                           | (2)               | NC   |                   | ●          |           |
|                     |                           | (3)               | NO   |                   |            | ●         |
|                     |                           | (4)               | NO   | ●                 |            |           |
| 2NO+2NC             | 164                       | (1)               | NC   |                   | ●          |           |
|                     |                           | (2)               | NC   |                   | ●          |           |
|                     |                           | (3)               | NO   | ●                 |            |           |
|                     |                           | (4)               | NO   | ●                 |            |           |
| 2NO+2NC             | 174*                      | (1)               | NC   |                   | ●          |           |
|                     |                           | (2)               | NC   |                   | ●          |           |
|                     |                           | (3)               | NO   | ●                 |            |           |
|                     |                           | (4)               | NO   |                   |            | ●         |
| 2NO+2NC             | 184                       | (1)               | NC   |                   | ●          |           |
|                     |                           | (2)               | NC   |                   | ●          |           |
|                     |                           | (3)               | NO   |                   |            | ●         |
|                     |                           | (4)               | NO   |                   |            | ●         |

Notes: ●: Contact closed Blank: Contact open

\* There may be some overlap in the contact when switching between notches.

• Position of contact block





| Contact arrangement | Contact arrangement code | Contact operation |      |                   |            |           |
|---------------------|--------------------------|-------------------|------|-------------------|------------|-----------|
|                     |                          | Contact block     |      | Operator position |            |           |
|                     |                          | Mounting position | Type | Left<br>          | Center<br> | Right<br> |
| 2NO+2NC             | 194                      | (1)               | NC   |                   |            |           |
|                     |                          | (2)               | NC   |                   |            |           |
|                     |                          | (3)               | NO   | ●                 |            |           |
|                     |                          | (4)               | NO   |                   |            | ●         |
| 4NO                 | 20B                      | (1)               | NO   |                   |            | ●         |
|                     |                          | (2)               | NO   | ●                 |            |           |
|                     |                          | (3)               | NO   |                   |            | ●         |
|                     |                          | (4)               | NO   | ●                 |            |           |

04

# Selector Switches AR30

## 4, 5-position

| Operator   | Contact<br>(The following contact is only available.) | Operation             | Knob color   | Contact arrangement  | Type<br>Switch with round bezel |
|--|---|-----------------------|--|--|---------------------------------|
| <br>AF95-475  | 2NO+2NC   | 4-position maintained | Color code:<br>B: Black (Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | Replace the ■ mark by the contact arrangement code (shown below) | <b>AR30PCR-4■B</b>              |
|  |   | 5-position maintained |  |  | <b>AR30PCR-5■B</b>              |
| <br>KK02-140A | 2NO+2NC   | 4-position maintained |  |  | <b>AR30WCR-4■B</b>              |
|  |   | 5-position maintained |  |  | <b>AR30WCR-5■B</b>              |

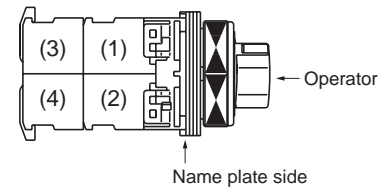
### ● Contact arrangement code

| Position   | Contact arrangement | Contact arrangement code | Contact operation |      | Operator position |
|------------|---------------------|--------------------------|-------------------|------|-------------------|
|            |                     |                          | Contact block     |      |                   |
|            |                     |                          | Mounting position | Type |                   |
| 4-position | 2NO+2NC             | 41C* (Main-tained only)  | (1)               | NC   | ●                 |
|            |                     |                          | (2)               | NC   | ●                 |
|            |                     |                          | (3)               | NO   | ●                 |
|            |                     |                          | (4)               | NO   | ●                 |
| 5-position | 2NO+2NC             | 51C* (Main-tained only)  | (1)               | NC   | ●                 |
|            |                     |                          | (2)               | NC   | ●                 |
|            |                     |                          | (3)               | NO   | ●                 |
|            |                     |                          | (4)               | NO   | ●                 |

Notes: ●: Contact closed

\* There may be some overlap in the contact when switching between notches.

### ● Position of contact block




### Operator position



### 5-position



■ Lever type selector switches  
2-position

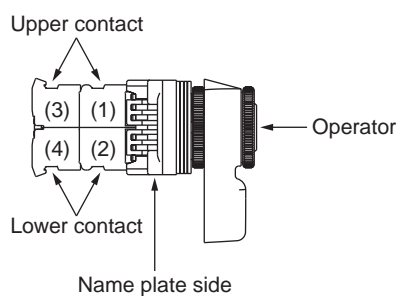
| Operator   | Operation                        | Contact | Type                             | Contact operation   |                                  |       |
|--|----------------------------------|---------|----------------------------------|---------------------|----------------------------------|-------|
|  |                                  |         |                                  | Contact arrangement | Operator position                |       |
|  |                                  |         |                                  |                     | Left                             | Right |
|  <p>KKD05-115</p> | Maintained<br><br>each 90°       | 1NO     | AR30HR-210                       | 1NO (1)             | Upper contact<br>③ ——— ● ——— ④   |       |
|  |                                  | 1NC     | AR30HR-201                       | 1NC (1)             | Upper contact<br>① — ● ———   — ② |       |
|  |                                  | 1NO+1NC | AR30HR-211                       | 1NO (1)             | Upper contact<br>③ ——— ● ——— ④   |       |
|  |                                  |         |                                  | 1NC (2)             | Lower contact<br>① — ● ———   — ② |       |
|  |                                  | 2NO     | AR30HR-220                       | 1NO (1)             | Upper contact<br>③ ——— ● ——— ④   |       |
|  |                                  |         |                                  | 1NO (2)             | Lower contact<br>③ ——— ● ——— ④   |       |
|  |                                  | 2NC     | AR30HR-202                       | 1NC (1)             | Upper contact<br>① — ● ———   — ② |       |
| 1NC (2)  | Lower contact<br>① — ● ———   — ② |         |                                  |                     |                                  |       |
| 2NO+2NC  | AR30HR-222                       | 1NO (1) | Upper contact<br>③ ——— ● ——— ④   |                     |                                  |       |
|  |                                  | 1NO (3) | ③ ——— ● ——— ④                    |                     |                                  |       |
|  |                                  | 1NC (2) | Lower contact<br>① — ● ———   — ② |                     |                                  |       |
|  |                                  | 1NC (4) | ① — ● ———   — ②                  |                     |                                  |       |

04

Notes: • Contact arrangements in the table can be supplied.



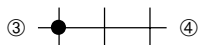
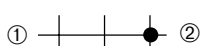

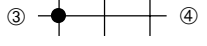
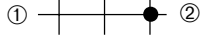
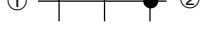


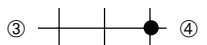
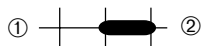

● Contact closed

● Position of contact block



# Illuminated Selector Switches AR30

## 3-position

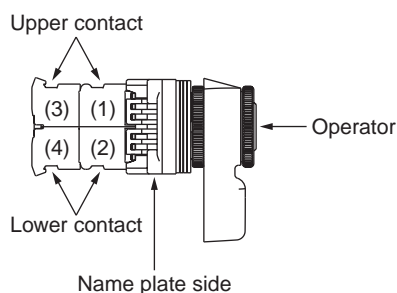
| Operator  | Operation  | Contact           | Type   | Contact operation  |  |        |       |
|---|--|-------------------|--|--|--|--------|-------|
|   |  |                   |  | Contact arrangement  | Operator position  |        |       |
|   |  |                   |  |  | Left   | Center | Right |
|   |  |                   |  |  |   |        |       |
| <br>KKD05-114 | Maintained<br><br>each 45°   | 1NO+1NC           | <b>AR30HR-311</b>                                    | 1NO (1)<br><br>1NC (2)   | Upper contact<br><br>Lower contact<br>   |        |       |
|   |  | 2NO+2NC           | <b>AR30HR-322</b>                                    | 1NO (1)<br><br>1NO (3)<br><br>1NC (2)<br><br>1NC (4)   | Upper contact<br><br><br>Lower contact<br><br> |        |       |
|   | Spring return<br><br>each 60° | <b>AR30HR-122</b> | 1NC (1)<br><br>1NO (3)<br><br>1NC (2)<br><br>1NO (4) | Upper contact<br><br><br>Lower contact<br><br> |  |        |       |

Notes: • Contact arrangements in the table can be supplied.



● Contact closed

• Contact arrangements. The NO contacts at (1) and (2) use special parts. Do not interchange these parts.

### • Position of contact block





■ Illuminated selector switches  
2-position

| Operator  | Operation   | Contact                          | LED lamp    |  | Incandescent lamp |  |
|---|---|----------------------------------|-------------|--|-------------------|--|
|   |   |                                  | Transformer | Type   | Transformer       | Type   |
| <br>AF95-5 | Maintained  | 1NO<br>1NC<br>1NO+1NC<br>2NO+2NC | Without     | AR30PL-210■3□<br>AR30PL-201■3□<br>AR30PL-211■3□<br>AR30PL-222■3□ | Without           | AR30PL-210■4□<br>AR30PL-201■4□<br>AR30PL-211■4□<br>AR30PL-222■4□ |
|   |   |                                  | With        | AR30PL-210■3□<br>AR30PL-201■3□<br>AR30PL-211■3□<br>AR30PL-220■3□ | With              | AR30PL-210■4□<br>AR30PL-201■4□<br>AR30PL-211■4□<br>AR30PL-220■4□ |
|   | Spring return<br><br><br>60° | 1NO<br>1NC<br>1NO+1NC<br>2NO     | Without     | AR30PL-010■3□<br>AR30PL-001■3□<br>AR30PL-011■3□<br>AR30PL-020■3□ | Without           | AR30PL-010■4□<br>AR30PL-001■4□<br>AR30PL-011■4□<br>AR30PL-020■4□ |
|   |   |                                  | With        | AR30PL-010■3□<br>AR30PL-001■3□<br>AR30PL-011■3□<br>AR30PL-020■3□ | With              | AR30PL-010■4□<br>AR30PL-001■4□<br>AR30PL-011■4□<br>AR30PL-020■4□ |

04

3-position

| Operator  | Operation   | Contact            | LED lamp    |                                | Incandescent lamp |                                |
|---|---|--------------------|-------------|--------------------------------|-------------------|--------------------------------|
|   |   |                    | Transformer | Type                           | Transformer       | Type                           |
| <br>AF95-5 | Maintained  | 1NO+1NC<br>2NO+2NC | Without     | AR30PL-311■3□<br>AR30PL-322■3□ | Without           | AR30PL-311■4□<br>AR30PL-322■4□ |
|   |   |                    | With        | AR30PL-311■3□                  | With              | AR30PL-311■4□                  |
|   | Spring/manual return<br><br><br>each 45° | 1NO+1NC<br>1NO+1NC | Without     | AR30PL-611■3□<br>AR30PL-611■3□ | Without           | AR30PL-611■4□<br>AR30PL-611■4□ |
|   |   |                    | With        | AR30PL-611■3□<br>AR30PL-611■3□ | With              | AR30PL-611■4□<br>AR30PL-611■4□ |

Note: □, ■ See page 04/88

# Illuminated Selector Switches AR30

- Replace the ■ mark by the following lamp voltage code

| Transformer | Voltage     | Code |              |
|-------------|-------------|------|--------------|
|             |             | LED  | Incandescent |
| Without     | 5V AC/DC    | —    | 5            |
|             | 6V DC       | 6    | —            |
|             | 6V AC       | A    | —            |
|             | 12V AC/DC   | B    | —            |
|             | 15V AC/DC   | C    | C            |
|             | 20V AC/DC   | —    | D            |
|             | 24V AC/DC   | E    | E            |
| With        | 100-110V AC | H    | H            |
|             | 115-127V AC | L    | L            |
|             | 200-220V AC | M    | M            |
|             | 230-254V AC | Q    | Q            |
|             | 350-380V AC | S    | S            |
|             | 400-440V AC | T    | T            |
|             | 480V AC     | V    | V            |
|             | 500-550V AC | W    | W            |

- **Contact arrangement and operator position**  
2-position

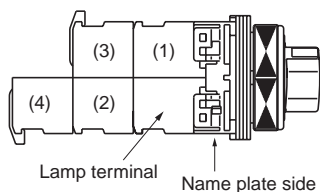
| Transformer  | Contact arrangement | Contact block     |      | Operator position |       |
|--------------|---------------------|-------------------|------|-------------------|-------|
|              |                     | Mounting position | Type | Left              | Right |
| With/without | 1NO                 | (1)               | NO   | —                 | ●     |
| With/without | 1NC                 | (1)               | NC   | ●                 | —     |
| Without      | 1NO+1NC             | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NC   | ●                 | —     |
| With         | 1NO+1NC             | (1)               | NC   | ●                 | —     |
|              |                     | (2)               | NO   | —                 | ●     |
| With/without | 2NO                 | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NO   | —                 | ●     |
| Without      | 2NO+2NC<br>*1       | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NC   | ●                 | —     |
|              |                     | (3)               | NO   | —                 | ●     |
|              |                     | (4)               | NC   | ●                 | —     |
| With         | 2NO+2NC<br>*1       | (1)               | NC   | ●                 | —     |
|              |                     | (2)               | NC   | ●                 | —     |
|              |                     | (3)               | NO   | —                 | ●     |
|              |                     | (4)               | NO   | —                 | ●     |

Notes: \*1: AR30PL-2

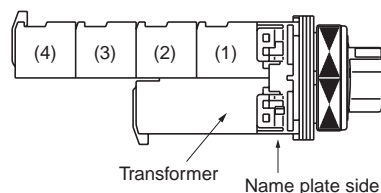
●: Contact closed, —: Contact open

- **Position of contact block**

Without transformer



With transformer



- Replace the □ mark by the following knob color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

- Up to 4-contact of contact arrangement can be made.  
Available numbers of contacts are as follow.

| No. of position | Operation            | Without transformer | With transformer |
|-----------------|----------------------|---------------------|------------------|
| 2-position      | Maintained           | 6-contact           | 4-contact        |
|                 | Spring return        | 3-contact           | 2-contact        |
| 3-position      | Maintained           | 6-contact           | 4-contact        |
|                 | Spring/manual return | 3-contact           | 2-contact        |

- 3-position








| Transformer   | Contact arrangement | Contact block     |      | Operator position |        |       |
|---------------|---------------------|-------------------|------|-------------------|--------|-------|
|               |                     | Mounting position | Type | Left              | Center | Right |
| Without       | 1NO+1NC<br>*1       | (1)               | NO   | ●                 | —      | —     |
|               |                     | (2)               | NC   | —                 | —      | ●     |
|               | 1NO+1NC<br>*2       | (1)               | NO   | —                 | —      | ●     |
|               |                     | (2)               | NC   | ●                 | —      | —     |
|               | 2NO+2NC<br>*3       | (1)               | NO   | ●                 | —      | —     |
|               |                     | (2)               | NC   | —                 | —      | ●     |
| With          | 1NO+1NC<br>*1       | (1)               | NC   | —                 | —      | ●     |
|               |                     | (2)               | NO   | ●                 | —      | —     |
|               | 1NO+1NC<br>*2       | (1)               | NC   | ●                 | —      | —     |
|               |                     | (2)               | NO   | —                 | —      | ●     |
| 2NO+2NC<br>*3 | (1)                 | NC                | —    | —                 | ●      |       |
|               | (2)                 | NC                | —    | —                 | ●      |       |
|               |                     | (3)               | NO   | ●                 | —      | —     |
|               |                     | (4)               | NO   | ●                 | —      | —     |

Notes: \*1: AR30PL-3, 6 \*3: AR30PL-3

\*2: AR30PL-7

●: Contact closed, —: Contact open

■ Pilot lights/standard




| Lens   | Transformer   | LED lamp<br>Lamp voltage                              | Type  | Incandescent lamp<br>Lamp voltage              | Type  |
|--|---------------|---|---|--|---|
| Dome<br><br>AF95-18                         | Without       | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC              | DR30D0L-A3□<br>DR30D0L-63□<br>DR30D0L-B3□<br>DR30D0L-E3□                | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC      | DR30D0L-54□<br>—<br>DR30D0L-C4□<br>DR30D0L-E4□      |
|  | With          | 100–110V AC<br>200–220V AC                            | DR30D0L-H3□<br>DR30D0L-M3□  | 100–110V AC<br>200–220V AC                     | DR30D0L-H4□<br>DR30D0L-M4□                          |
| Dome<br><br>AF97-674                        | With resistor | 50V DC<br>110V DC<br>220V DC                          | DR30D0L-FR□<br>DR30D0L-HR□<br>DR30D0L-MR□                               | 50V DC<br>—<br>—                               | DR30D0L-FQ□<br>—<br>—                               |
|  | With resistor | —<br>—  | —<br>—  | 110V DC<br>220V DC                             | DR30D0L-HQ□<br>DR30D0L-MQ□                          |
| Extended round<br><br>AF95-20             | Without       | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC              | DR30E3L-A3□<br>DR30E3L-63□<br>DR30E3L-B3□<br>DR30E3L-E3□                | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC      | DR30E3L-54□<br>—<br>DR30E3L-C4□<br>DR30E3L-E4□      |
|  | With          | 100–110V AC<br>200–220V AC                            | DR30E3L-H3□<br>DR30E3L-M3□  | 100–110V AC<br>200–220V AC                     | DR30E3L-H4□<br>DR30E3L-M4□                          |
| Faceted<br><br>AF95-19                    | Without       | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC              | DR30K0L-A3□<br>DR30K0L-63□<br>DR30K0L-B3□<br>DR30K0L-E3□                | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC      | DR30K0L-54□<br>—<br>DR30K0L-C4□<br>DR30K0L-E4□      |
|  | With          | 100–110V AC<br>200–220V AC                            | DR30K0L-H3□<br>DR30K0L-M3□  | 100–110V AC<br>200–220V AC                     | DR30K0L-H4□<br>DR30K0L-M4□                          |
| Faceted<br><br>AF97-673                   | With resistor | 50V DC<br>110V DC<br>220V DC                          | DR30K0L-FR□<br>DR30K0L-HR□<br>DR30K0L-MR□                               | 50V DC<br>—<br>—                               | DR30K0L-FQ□<br>—<br>—                               |
|  | With resistor | —<br>—  | —<br>—  | 110V DC<br>220V DC                             | DR30K0L-HQ□<br>DR30K0L-MQ□                          |
| Faceted<br><br>AF97-671                   | With resistor | —<br>—  | —<br>—  | 110V DC<br>220V DC                             | DR30K0L-HQ□<br>DR30K0L-MQ□                          |
|  | With resistor | —<br>—  | —<br>—  | 110V DC<br>220V DC                             | DR30K0L-HQ□<br>DR30K0L-MQ□                          |
| Dome with dimmer control<br><br>KK02-144A | Without       | 6V AC<br>6V DC<br>12V AC/DC<br>15V AC/DC<br>24V AC/DC | DR30D1L-A3□<br>DR30D1L-63□<br>DR30D1L-B3□<br>DR30D1L-C3□<br>DR30D1L-E3□ | 5.5V AC/DC<br>—<br>—<br>15V AC/DC<br>24V AC/DC | DR30D1L-54□<br>—<br>—<br>DR30D1L-C4□<br>DR30D1L-E4□ |
|  | With          | 100V–110V AC<br>200V–220V AC                          | DR30D1L-H3□<br>DR30D1L-M3□  | 100V–110V AC<br>200V–220V AC                   | DR30D1L-H4□<br>DR30D1L-M4□                          |

Note: □ See page 04/90



# Pilot Lights DR30

## ■ Pilot lights/short-body with transformer

| Lens  | LED lamp                   |  | Incandescent lamp          |  |
|---|----------------------------|--|----------------------------|--|
|   | Lamp voltage               | Type                                       | Lamp voltage               | Type                                       |
| Dome<br><br><small>KK02-141A</small>           | 100–110V AC<br>200–220V AC | <b>DR30D0L-H9</b> □<br><b>DR30D0L-M9</b> □ | 100–110V AC<br>200–220V AC | <b>DR30D0L-H8</b> □<br><b>DR30D0L-M8</b> □ |
| Extended round<br><br><small>KK02-142A</small> | 100–110V AC<br>200–220V AC | <b>DR30E3L-H9</b> □<br><b>DR30E3L-M9</b> □ | 100–110V AC<br>200–220V AC | <b>DR30E3L-H8</b> □<br><b>DR30E3L-M8</b> □ |
| Faceted<br><br><small>KK02-143A</small>       | 100–110V AC<br>200–220V AC | <b>DR30K0L-H9</b> □<br><b>DR30K0L-M9</b> □ | 100–110V AC<br>200–220V AC | <b>DR30K0L-H8</b> □<br><b>DR30K0L-M8</b> □ |

### ● Lens color

Replace the □ mark by the following lens color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

### ● Lamp voltage

Available lamp voltage are as follow.

| Description         | Voltage     | Code Standard type |              | Code Short-body type |              |
|---------------------|-------------|--------------------|--------------|----------------------|--------------|
|                     |             | LED                | Incandescent | LED                  | Incandescent |
| Without transformer | 5.5V AC/DC  | –                  | 54           | –                    | –            |
|                     | 6V AC       | A3                 | –            | –                    | –            |
|                     | 6V DC       | 63                 | –            | –                    | –            |
|                     | 12V AC/DC   | B3                 | –            | –                    | –            |
|                     | 15V AC/DC   | C3                 | C4           | –                    | –            |
|                     | 20V AC/DC   | –                  | D4           | –                    | –            |
|                     | 24V AC/DC   | E3                 | E4           | –                    | –            |
| With transformer    | 100-110V AC | H3                 | H4           | H9                   | H8           |
|                     | 115-127V AC | L3                 | L4           | L9                   | L8           |
|                     | 200-220V AC | M3                 | M4           | M9                   | M8           |
|                     | 230-254V AC | Q3                 | Q4           | –                    | –            |
|                     | 350-380V AC | S3                 | S4           | –                    | –            |
|                     | 400-440V AC | T3                 | T4           | –                    | –            |
|                     | 480V AC     | V3                 | V4           | –                    | –            |
|                     | 500-550V AC | W3                 | W4           | –                    | –            |
| With resistor unit  | 110V DC     | H7                 | –            | –                    | –            |
| With resistor       | 50V DC      | FR                 | FQ           | –                    | –            |
|                     | 110V DC     | HR                 | HQ           | –                    | –            |
|                     | 220V DC     | MR                 | MQ           | –                    | –            |

■ Pilot lights/standard

| Lens   | Transformer | LED unit                        |   | Incandescent lamp                    |   |
|--|-------------|---------------------------------|---|--------------------------------------|---|
|  |             | Lamp voltage                    | Type                                      | Lamp voltage                         | Type                                      |
| Flush square (34mm sq. transparent lens)<br> | Without     | 6V DC<br>15V AC/DC<br>24V AC/DC | DR30F4M-65□<br>DR30F4M-C5□<br>DR30F4M-E5□ | 5.5V AC/DC<br>15V AC/DC<br>24V AC/DC | DR30F4M-54□<br>DR30F4M-C4□<br>DR30F4M-E4□ |
|  | With        | 100–110V AC<br>200–220V AC      | DR30F4M-H5□<br>DR30F4M-M5□                | 100–110V AC<br>200–220V AC           | DR30F4M-H4□<br>DR30F4M-M4□                |
| Flush rectangular (Transparent lens)<br>     | Without     | 6V DC<br>15V AC/DC<br>24V AC/DC | DR30F4N-65□<br>DR30F4N-C5□<br>DR30F4N-E5□ | 5.5V AC/DC<br>15V AC/DC<br>24V AC/DC | DR30F4N-54□<br>DR30F4N-C4□<br>DR30F4N-E4□ |
|  | With        | 100–110V AC<br>200–220V AC      | DR30F4N-H5□<br>DR30F4N-M5□                | 100–110V AC<br>200–220V AC           | DR30F4N-H4□<br>DR30F4N-M4□                |
| Flush square (40mm sq. transparent lens)<br> | Without     | 6V DC<br>15V AC/DC<br>24V AC/DC | DR30M4M-65□<br>DR30M4M-C5□<br>DR30M4M-E5□ | 5.5V AC/DC<br>15V AC/DC<br>24V AC/DC | DR30M4M-54□<br>DR30M4M-C4□<br>DR30M4M-E4□ |
|  | With        | 100–110V AC<br>200–220V AC      | DR30M4M-H5□<br>DR30M4M-M5□                | 100–110V AC<br>200–220V AC           | DR30M4M-H4□<br>DR30M4M-M4□                |

● Color plate

Replace the □ mark by the following color plate color code

| Color | Green | Red | White | Blue* | Yellow | Orange |
|-------|-------|-----|-------|-------|--------|--------|
| Code  | G     | R   | W     | S     | Y      | A      |

Note: \* Incandescent lamp only




● Lamp voltage

Available lamp voltage are as follow.

| Description         | Voltage     | Code          |              |
|---------------------|-------------|---------------|--------------|
|                     |             | Standard type |              |
|                     |             | LED           | Incandescent |
| Without transformer | 5.5V AC/DC  | –             | 54           |
|                     | 6V AC       | A5            | –            |
|                     | 6V DC       | 65            | –            |
|                     | 12V AC      | 25            | –            |
|                     | 12V AC/DC   | B5            | –            |
|                     | 15V AC/DC   | C5            | C4           |
|                     | 20V AC/DC   | –             | D4           |
|                     | 24V AC/DC   | E5            | E4           |
| With transformer    | 100-110V AC | H5            | H4           |
|                     | 115-127V AC | L5            | L4           |
|                     | 200-220V AC | M5            | M4           |
|                     | 230-254V AC | Q5            | Q4           |
|                     | 350-380V AC | S5            | S4           |
|                     | 400-440V AC | T5            | T4           |
|                     | 480V AC     | V5            | V4           |
|                     | 500-550V AC | W5            | W4           |
| With resistor unit  | 110V DC     | HE            | –            |

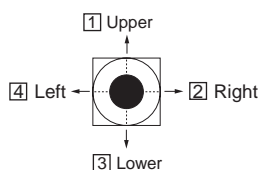
# Joy Stick Selector Switches AR30

## ■ Joy stick selector switches

| Handle  | Terminal   | Operating directions | Contact arrangement | Type          |               |
|---|------------|----------------------|---------------------|---------------|---------------|
|   |            |                      |                     | Manual return | Spring return |
| <br>AF97-48   | Screw      | ↑<br>↓               | 1NO X 2             | AR30A0N-A0A0B | AR30A5N-A0A0B |
|   |            |                      | 1NO + 1NC X 2       | AR30A0N-1010B | AR30A5N-1010B |
|   |            | ↔                    | 1NO X 4             | AR30A0N-AAAAB | AR30A5N-AAAAB |
|   |            |                      | 1NO + 1NC X 4       | AR30A0N-1111B | AR30A5N-1111B |
|   | Solder/tab | ↑<br>↓               | 1NO + 1NC X 2       | AR30A0H-1010B | AR30A5H-1010B |
|   |            |                      | 2NO + 2NC X 2       | AR30A0H-2020B | AR30A5H-2020B |
| Solder/tab  | ↔          | 1NO + 1NC X 4        | AR30A0H-1111B       | AR30A5H-1111B |               |
|   |            | 2NO + 2NC X 4        | AR30A0H-2222B       | AR30A5H-2222B |               |
| <br>AF97-44  | Screw      | ↑<br>↓               | 1NO X 2             | AR30A1N-A0A0B | AR30A6N-A0A0B |
|   |            |                      | 1NO + 1NC X 2       | AR30A1N-1010B | AR30A6N-1010B |
|   |            | ↔                    | 1NO X 4             | AR30A1N-AAAAB | AR30A6N-AAAAB |
|   |            |                      | 1NO + 1NC X 4       | AR30A1N-1111B | AR30A6N-1111B |
|   | Solder/tab | ↑<br>↓               | 1NO + 1NC X 2       | AR30A1H-1010B | AR30A6H-1010B |
|   |            |                      | 2NO + 2NC X 2       | AR30A1H-2020B | AR30A6H-2020B |
| Solder/tab  | ↔          | 1NO + 1NC X 4        | AR30A1H-1111B       | AR30A6H-1111B |               |
|   |            | 2NO + 2NC X 4        | AR30A1H-2222B       | AR30A6H-2222B |               |
| <br>AF97-57 | Screw      | ↑<br>↓               | 1NO X 2             | AR30A2N-A0A0B | AR30A7N-A0A0B |
|   |            |                      | 1NO + 1NC X 2       | AR30A2N-1010B | AR30A7N-1010B |
|   |            | ↔                    | 1NO X 4             | AR30A2N-AAAAB | AR30A7N-AAAAB |
|   |            |                      | 1NO + 1NC X 4       | AR30A2N-1111B | AR30A7N-1111B |
|   | Solder/tab | ↑<br>↓               | 1NO + 1NC X 2       | AR30A2H-1010B | AR30A7H-1010B |
|   |            |                      | 2NO + 2NC X 2       | AR30A2H-2020B | AR30A7H-2020B |
| Solder/tab  | ↔          | 1NO + 1NC X 4        | AR30A2H-1111B       | AR30A7H-1111B |               |
|   |            | 2NO + 2NC X 4        | AR30A2H-2222B       | AR30A7H-2222B |               |

### ● Operating direction

- Directions other than those shown in the table above can be provided.
- For types AR30A□N-**1** **2** **3** **4** B, designate the contact arrangement codes for the necessary operating directions (**1**: Upper, **2**: Right, **3**: Lower, **4**: Left). Designate "0" for unnecessary directions.







### ● Contact arrangement

| Contact arrangement            |            | – | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 2NO+2NC |
|--------------------------------|------------|---|-----|-----|---------|-----|-----|---------|
| Manual return<br>Spring return | Screw      | 0 | A   | B   | 1       | D   | E   | –       |
|                                | Solder/Tab | 0 | –   | –   | 1       | –   | –   | 2       |

- Spring/manual return are also available, contact FUJI .

■ Buzzers

| Sound   | Description  | Transformer        | Operating voltage                                    | Type   |
|---|--|--------------------|--|--|
| <br>KKD08-058  | <ul style="list-style-type: none"> <li>• LED operation indicator (Red)</li> <li>• Intermittent/continuous sound selection</li> <li>• Sound level: 90dB (0.1m)<br/>70dB (1m)</li> </ul> | Without            | 6V AC<br>6V DC<br>12 to 24V AC/DC<br>35 to 48V AC/DC | DR30B5-AB<br>DR30B5-6B<br>DR30B5-EB<br>DR30B5-FB |
|   |  | With               | 100 to 110V AC<br>200 to 220V AC                     | DR30B5-HB<br>DR30B5-MB                           |
|   |  | With resistor unit | 100 to 110V DC                                       | DR30B5-1B  |
| <br>KK02-145A  | <ul style="list-style-type: none"> <li>• Sound level: 90dB (0.1m)<br/>70dB (1m)</li> </ul>   | Without            | 6V DC<br>24V AC<br>24V DC                            | DR30B6-6B<br>DR30B6-GB<br>DR30B6-EB              |
|   |  | With               | 100 to 110V AC<br>200 to 220V AC                     | DR30B6-HB<br>DR30B6-MB                           |
| <br>AF96-378   | <ul style="list-style-type: none"> <li>• Sound level: 90dB (0.1m)<br/>70dB (1m)</li> </ul>   | Without            | 100 to 110V AC<br>200 to 220V AC                     | DR30B0-HB<br>DR30B0-MB                           |
| <br>AF96-245 | <ul style="list-style-type: none"> <li>• Intermittent/continuous sound selection</li> <li>• Sound level: 80dB (0.1m)<br/>60dB (1m)</li> </ul>  | Without            | 6V AC<br>6V DC<br>12 to 24V AC/DC<br>35 to 48V AC/DC | DR30B8-AB<br>DR30B8-6B<br>DR30B8-EB<br>DR30B8-FB |
|   |  | With               | 100 to 110V AC<br>200 to 220V AC                     | DR30B8-HB<br>DR30B8-MB                           |
|   |  | With resistor unit | 100 to 110V DC                                       | DR30B8-1B  |

Notes: • Intermittent/continuous sound selection (DR30B5, B8)  
See the "Short-circuit terminal" in the dimensions diagram on the 04/104 page, and select as follows:  
• Short-circuit terminal mounted → Intermittent sound  
• Short-circuit terminal not mounted → Continuous sound

04

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

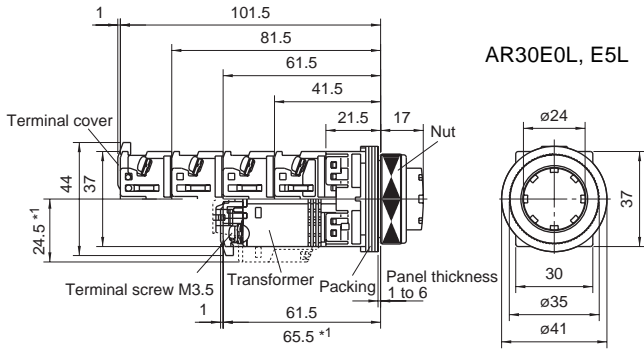
### Dimensions

#### ■ Dimensions, mm

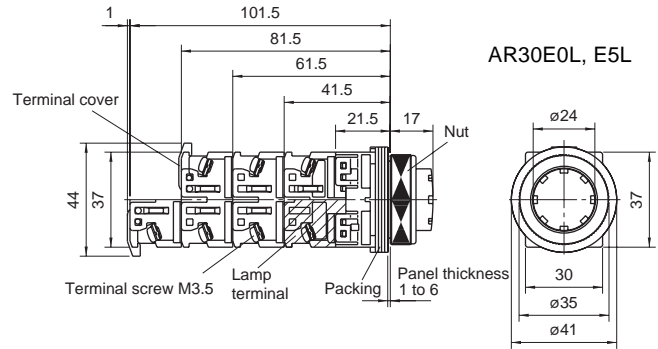
#### ● Illuminated pushbuttons

#### Extended

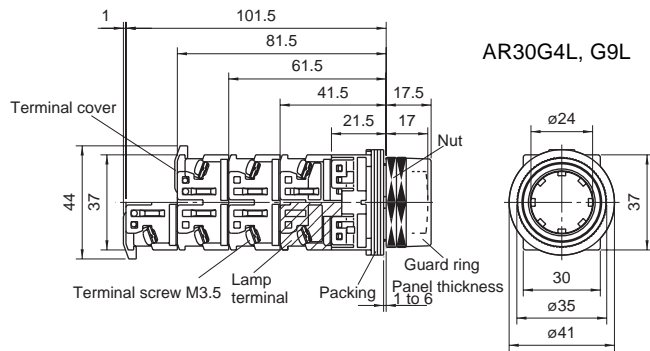
With transformer



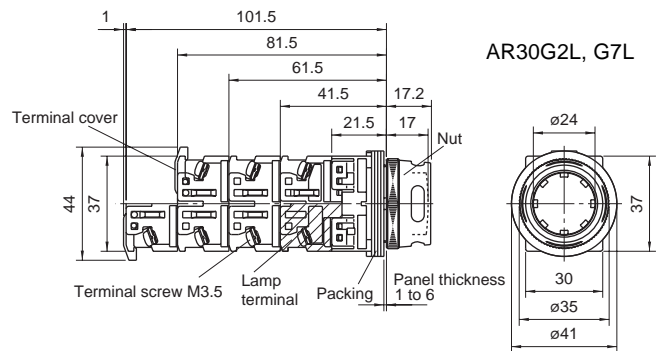
Without transformer



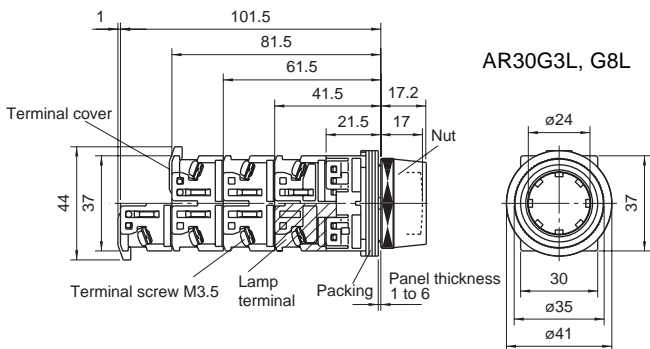
Extended with transparent full guard (24mm dia.)



Extended with full guard (24mm dia. with openings)



Extended with full guard (24mm dia.)



Note: \*1 Except for the types 110V AC, 127V AC and 220V AC.

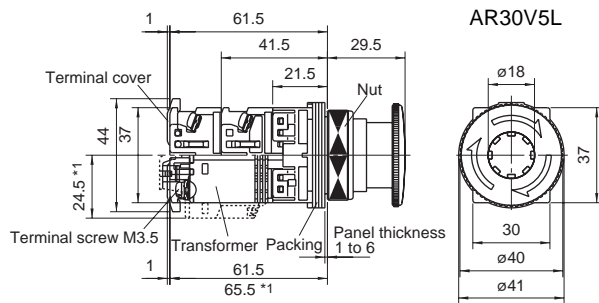
# Pushbuttons/Selectors/Pilot Lights/Buzzers AR30 and DR30 Dimensions

## ■ Dimensions, mm

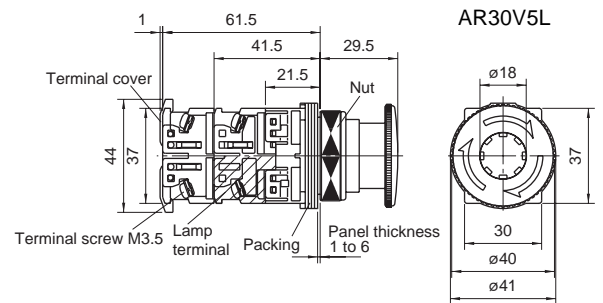
### ● Illuminated pushbuttons

#### Push-lock, turn-reset (40mm dia. with white arrow)

With transformer

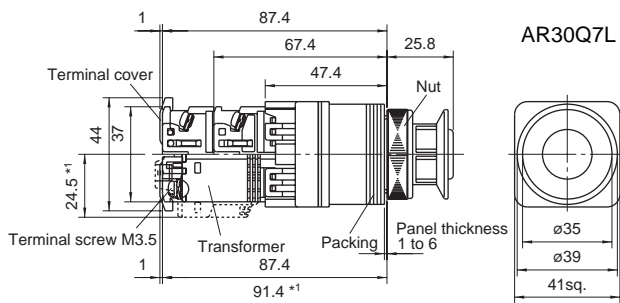


Without transformer

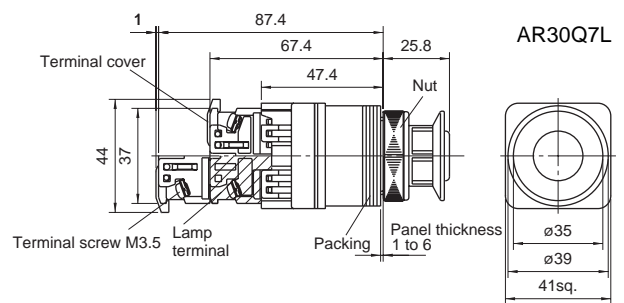


#### Push-pull

With transformer



Without transformer



Note: \*1 Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

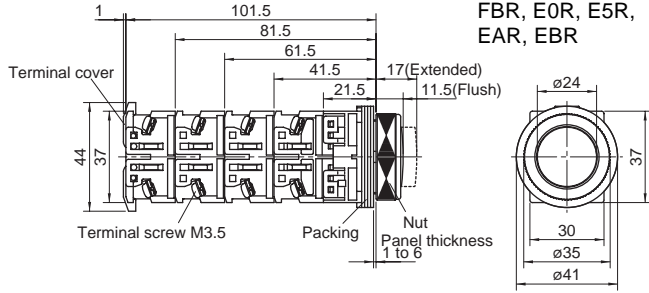
## AR30 and DR30

### Dimensions

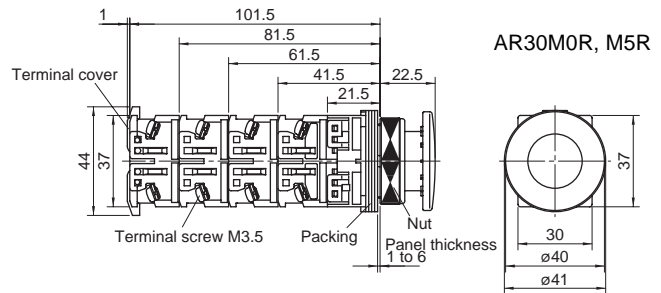
#### ■ Dimensions, mm

#### ● Pushbuttons

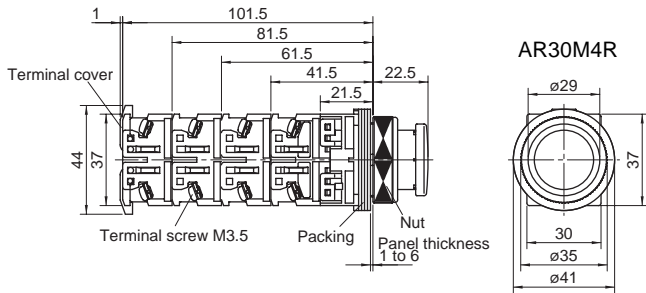
#### Flush/Extended



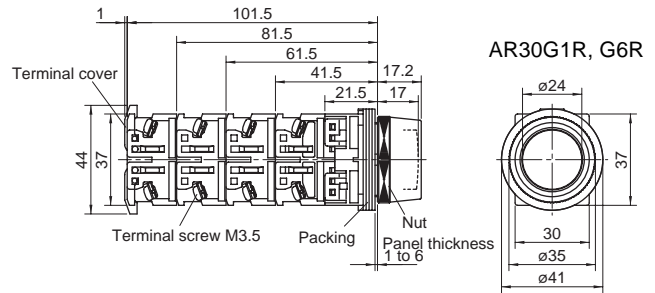
#### Mushroom (40mm dia.)



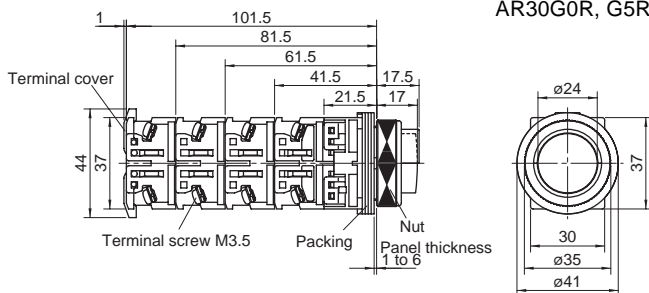
#### Mushroom (29mm dia.)



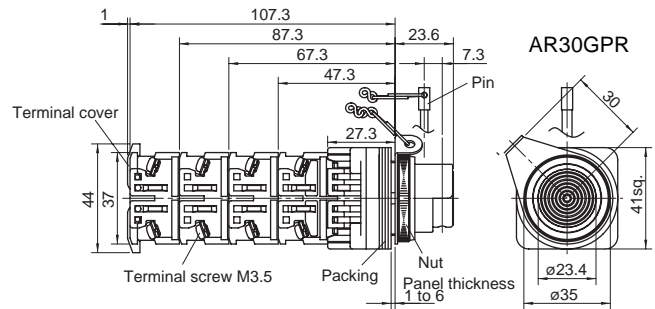
#### Extended with full guard (24mm dia.)



#### Extended with half guard

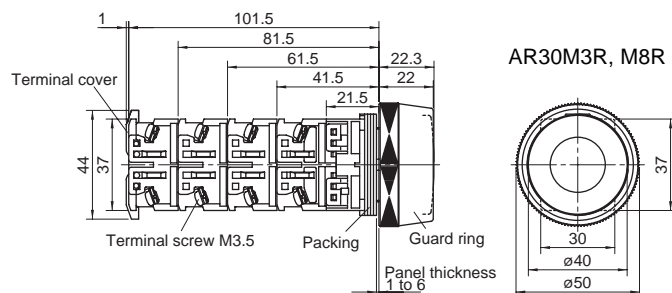


#### Pin lock

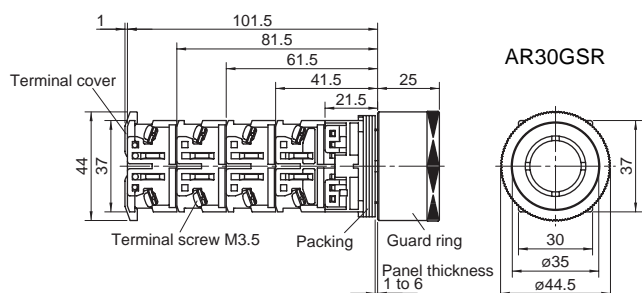


Note:  
The enclosed pin can be inserted to lock the pushbutton in a pushed or not pushed state.

#### Mushroom with full guard (40mm dia.)



#### Mushroom with full guard (35mm dia. metal nut)

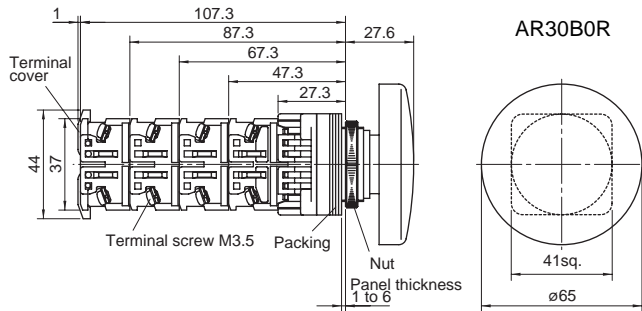


# Pushbuttons/Selectors/Pilot Lights/Buzzers AR30 and DR30 Dimensions

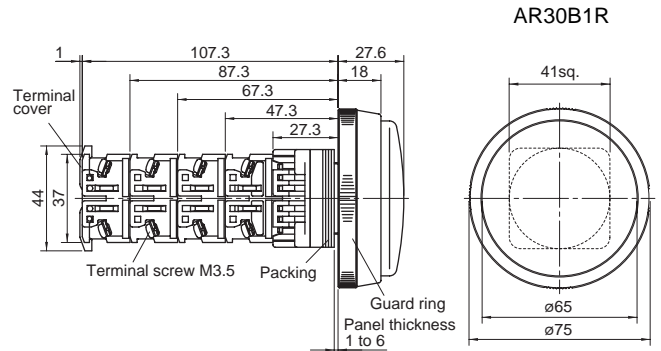
## ■ Dimensions, mm

### ● Pushbuttons

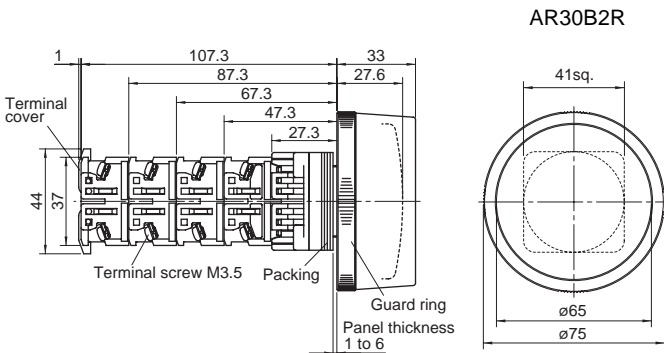
#### Giant



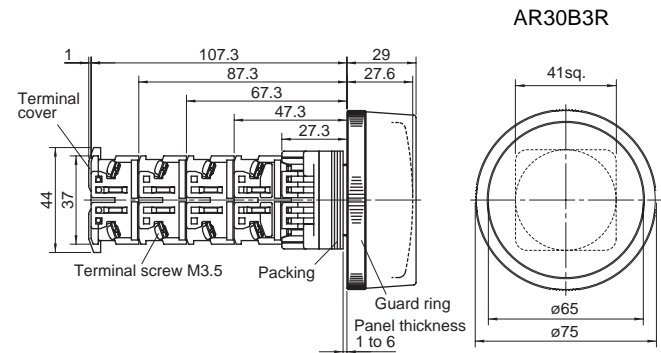
#### Giant with guard



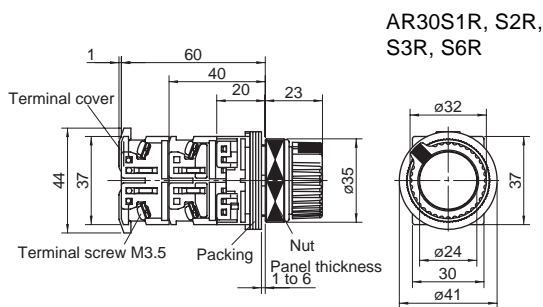
#### Giant with full guard



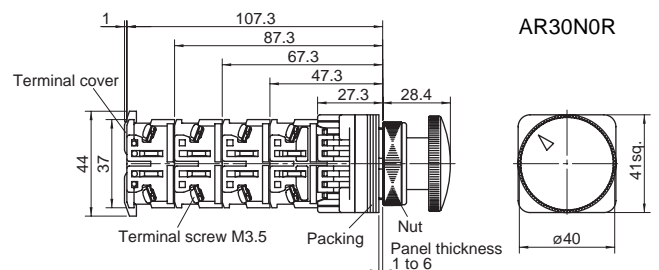
#### Giant with full guard



#### Pushbutton with selector ring (2-position)

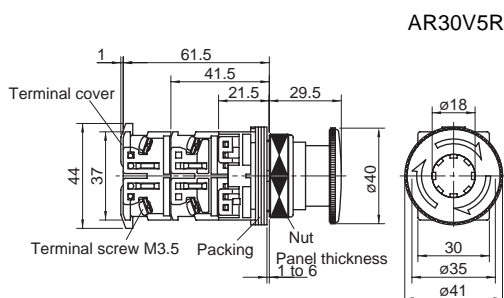


#### Push, turn-lock

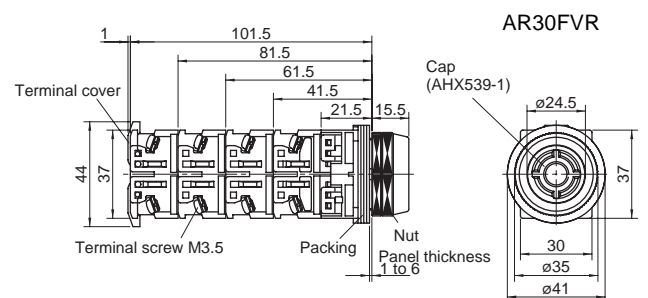


Note:  
When the push button is pressed in the left position, it resets automatically (momentary operation).  
When pressed and turned to the right it locks, and to the left it resets.

#### Push-lock, turn-reset (40mm dia. with white arrow)



#### Emergency operating cap



Note:  
This pushbutton switch is operated while holding the cap with the fingertips.  
The cap (AHX539) can be exchanged.



# Pushbuttons/Selectors/Pilot Lights/Buzzers

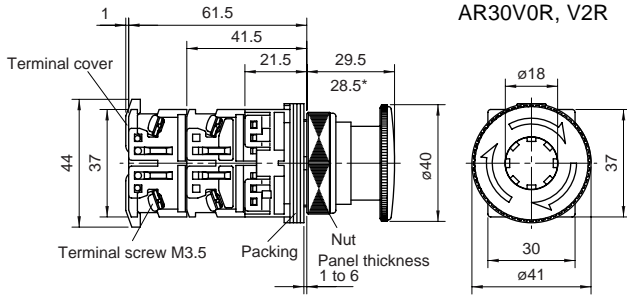
## AR30 and DR30

### Dimensions

#### ■ Dimensions, mm

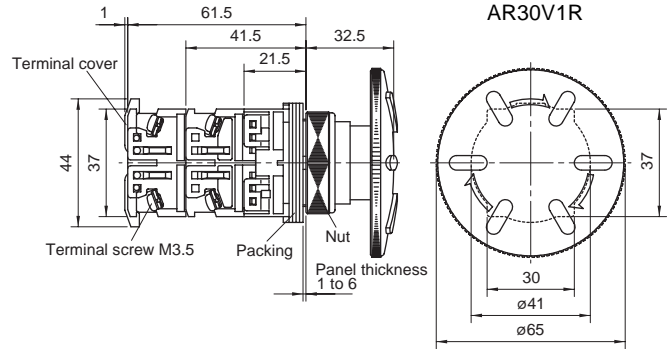
#### ● Emergency stop pushbuttons

##### Push-lock, turn-reset (40mm dia.)

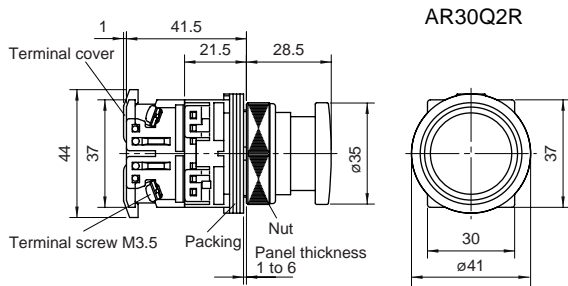


Note: \* AR30V2R type

##### Push-lock, turn-reset (65mm dia. with white allow)



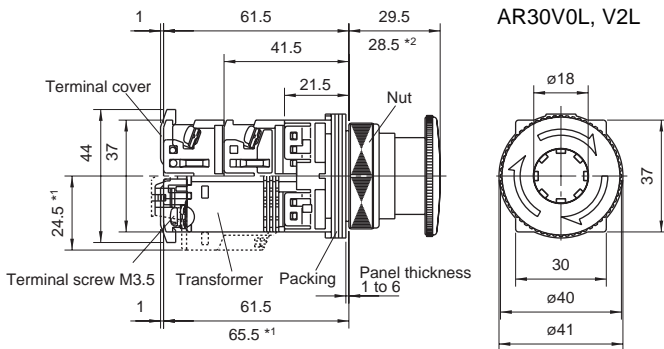
##### Push-lock, pull-reset (35mm dia.)



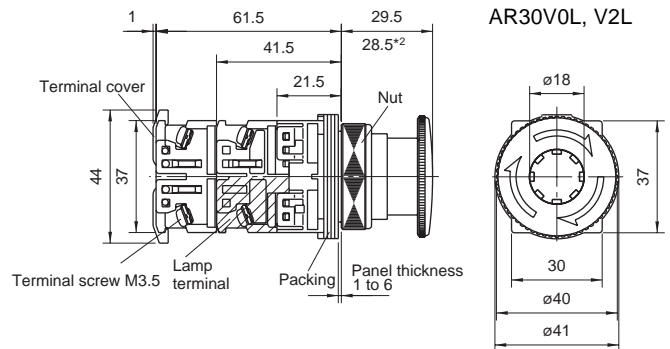
#### ● Emergency stop illuminated pushbuttons

##### Push-lock, turn-reset (40mm dia.)

##### With transformer



##### Without transformer



Notes: \*1 Except for the types 110V AC, 127V AC and 220V AC.

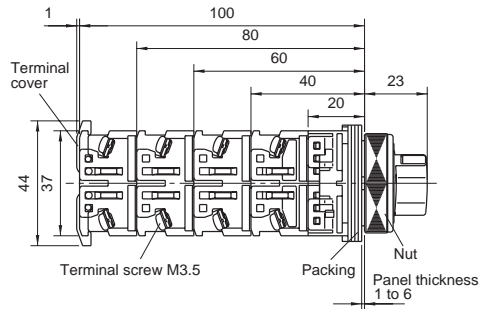
\*2 AR30V2L type

# Pushbuttons/Selectors/Pilot Lights/Buzzers AR30 and DR30 Dimensions

## ■ Dimensions, mm

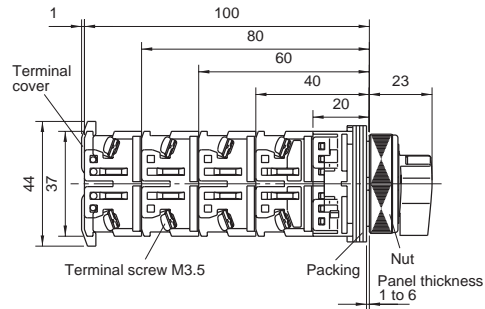
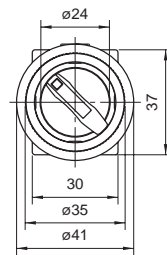
### ● Selector switches

#### Knob

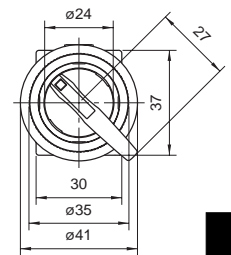


#### Lever

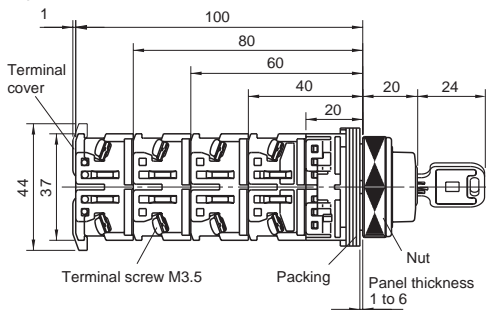
AR30PR, PCR



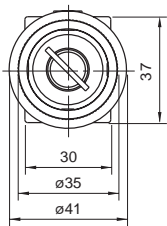
#### AR30WR, WCR



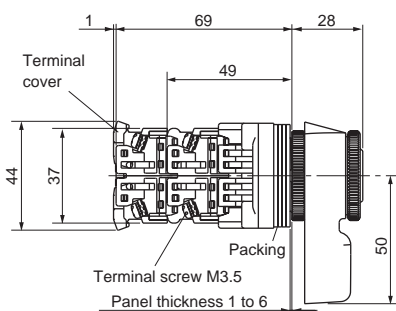
#### Key



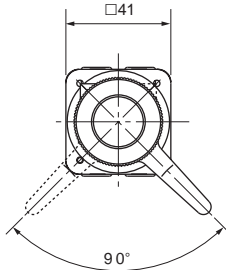
#### AR30JR, JCR, JAR



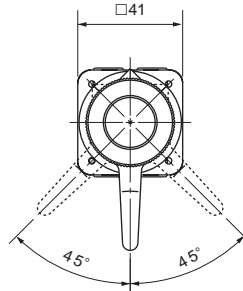
### ● Lever type selector switches



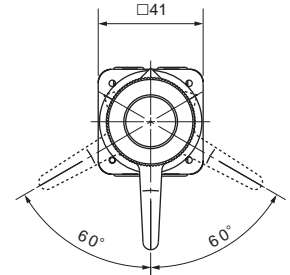
#### AR30HR-2



#### AR30HR-3



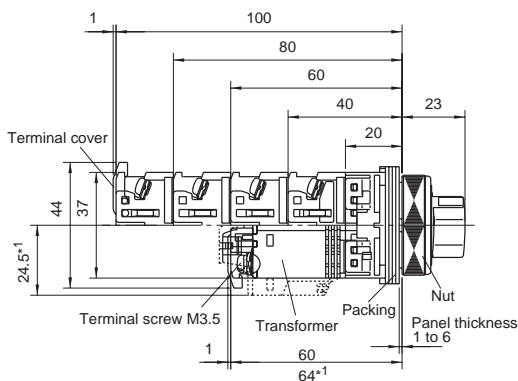
#### AR30HR-1



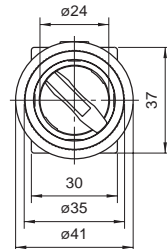
### ● Illuminated selector switches

#### Knob

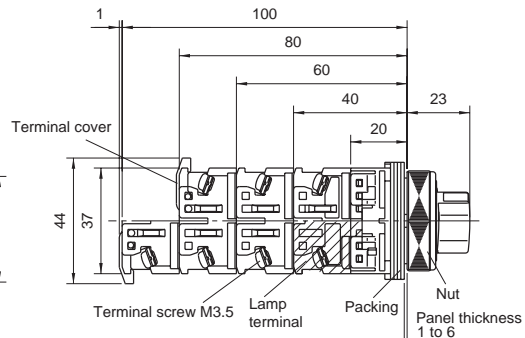
#### With transformer



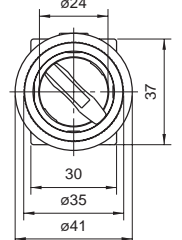
#### AR30PL



#### Without transformer



#### AR30PL



Notes: \*1 Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

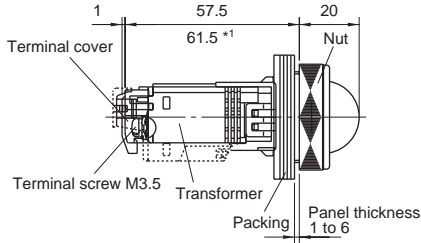
### Dimensions

#### ■ Dimensions, mm

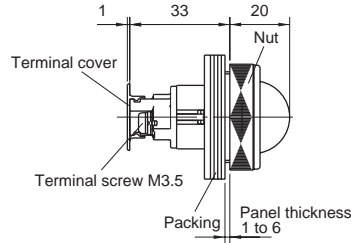
#### ● Pilot lights

##### Dome

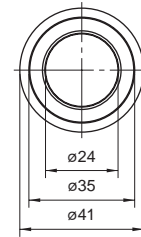
With transformer, with resistor unit



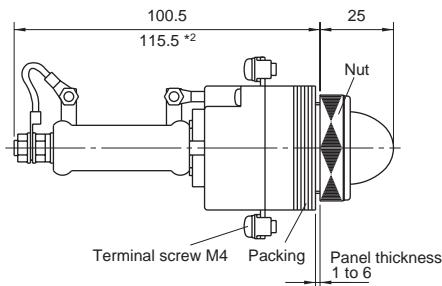
Without transformer



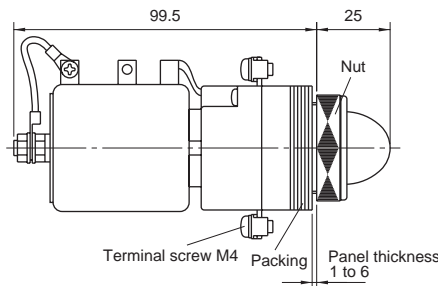
DR30D0L



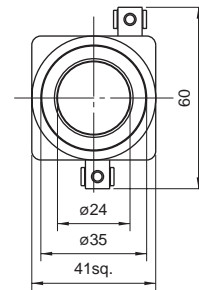
With resistor LED, incandescent (50V DC)



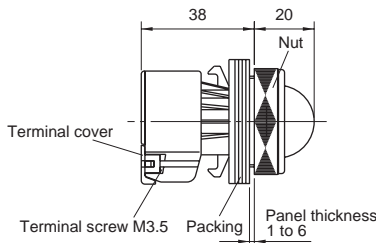
With resistor Incandescent (110, 220V DC)



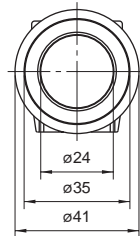
DR30D0L



Short-body / with transformer

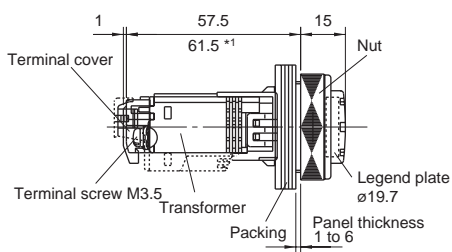


DR30D0L

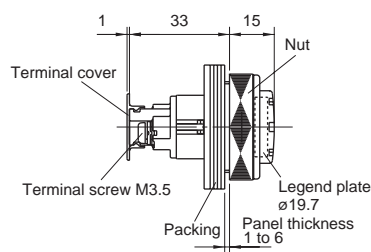


##### Extended

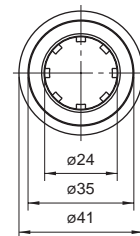
With transformer, with resistor unit



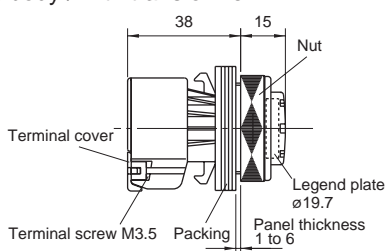
Without transformer



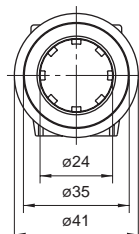
DR30E3L



Short-body / with transformer



DR30E3L



Notes: \*1 Except for the types 110V AC, 127V AC and 220V AC.  
\*2 Incandescent (50V DC) type only

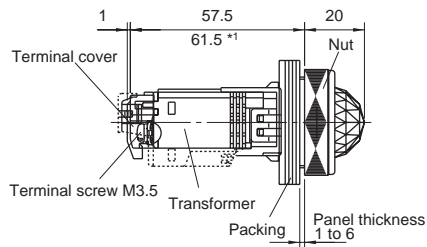
# Pushbuttons/Selectors/Pilot Lights/Buzzers AR30 and DR30 Dimensions

## ■ Dimensions, mm

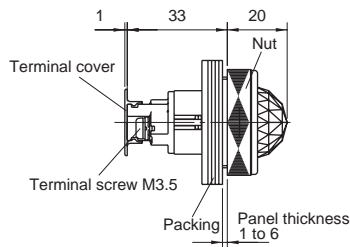
### ● Pilot lights

#### Faceted

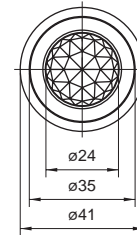
With transformer, with resistor unit



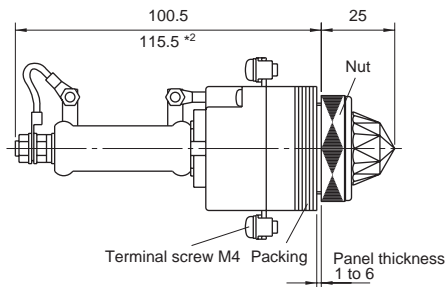
Without transformer



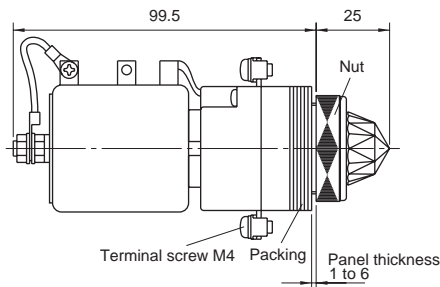
DR30K0L



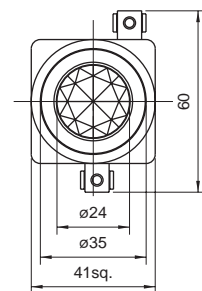
With resistor LED, incandescent (50V DC)



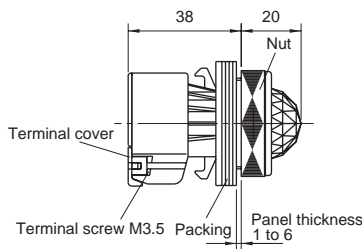
With resistor LED, incandescent (110, 220V DC)



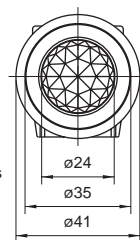
DR30K0L



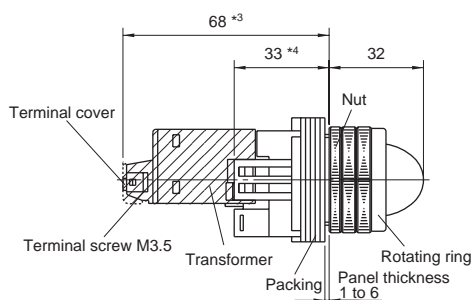
Short-body / with transformer



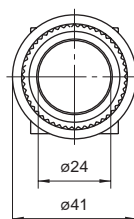
DR30K0L



Dome with dimmer control



DR30D1L



- Notes: \*1 Except for the types 110V AC, 127V AC and 220V AC.  
\*2 Incandescent (50V DC) type only  
\*3 With transformer, with resistor unit type only  
\*4 For without transformer types, add 1 mm when mounting the terminal cover.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

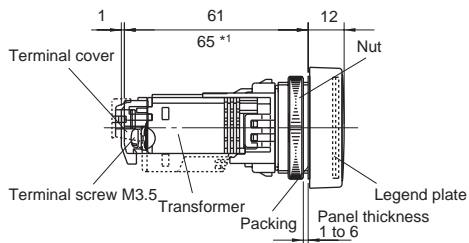
### Dimensions

#### ■ Dimensions, mm

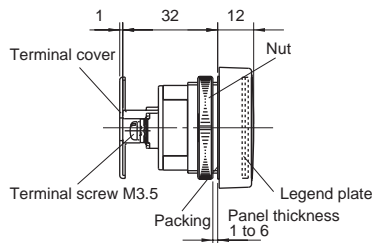
#### ● Pilot lights

#### Flush square (34mm sq. transparent lens)

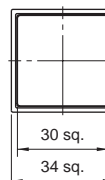
With transformer, with resistor unit



Without transformer

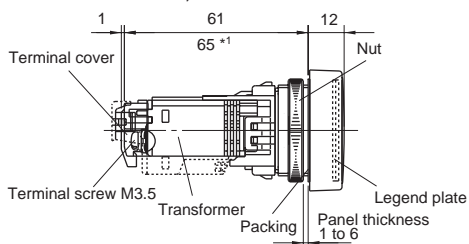


DR30F4M

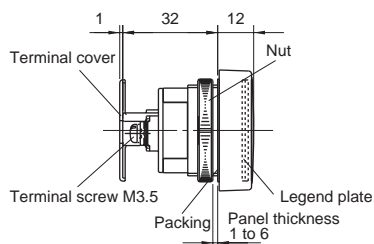


#### Flush rectangular (Transparent lens)

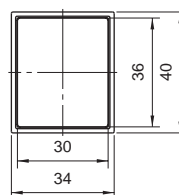
With transformer, with resistor unit



Without transformer

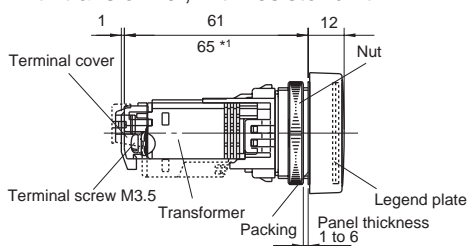


DR30F4N

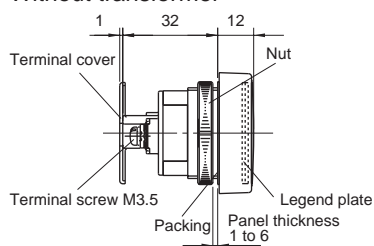


#### Flush square (40mm sq. transparent lens)

With transformer, with resistor unit



Without transformer



DR30M4M



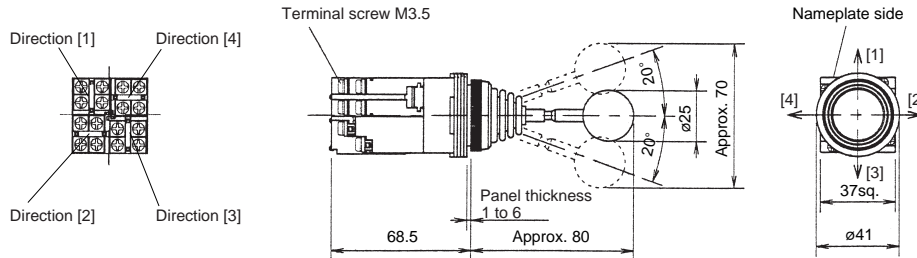
Note: \*1 Except for the types 110V AC, 127V AC and 220V AC.

■ **Dimensions, mm**

● **Joy stick selector switches**

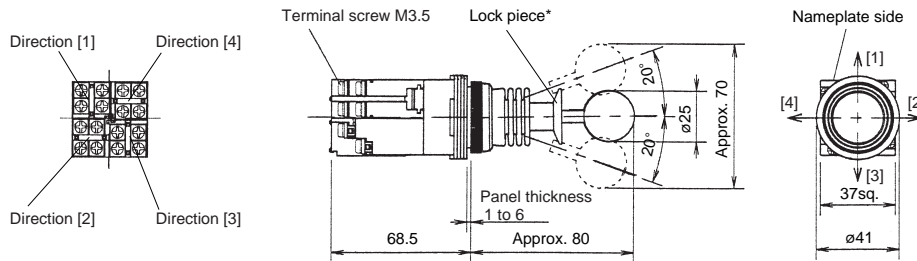
**Ball type (without lock)**

AR30A0N, A5N: Screw terminal



**Ball type with lock**

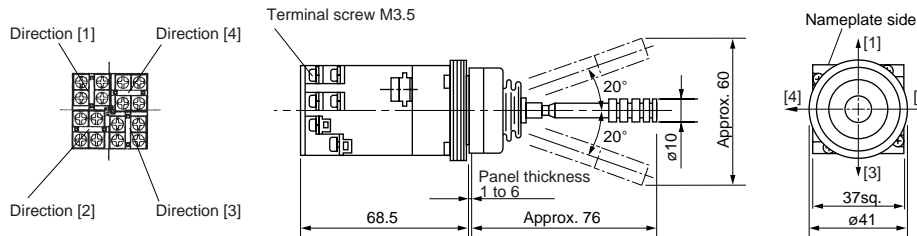
AR30A1N, A6N: Screw terminal



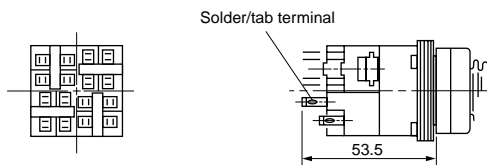
Notes \* The contact arrangement is operable in the designated direction by pulling the lock piece in the central position with the fingers. The lock piece will return automatically and locks when the lock piece is released in the central position. The lock piece locks in the central position only.

**Rubber cap type (without lock)**

AR30A2N, A7N: Screw terminal



**Solder/tab terminal: AR30□H**



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

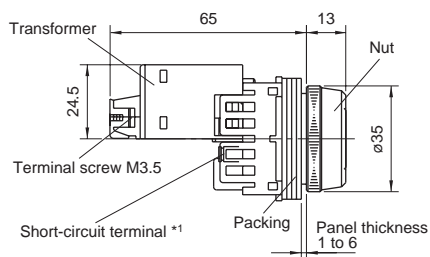
### Dimensions

#### ■ Dimensions, mm

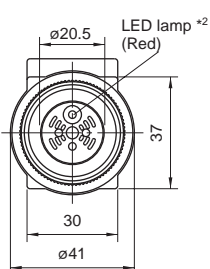
#### ● Buzzers

#### Electronic sound

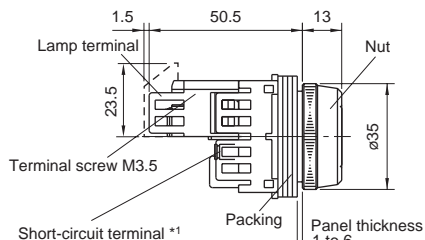
#### With transformer



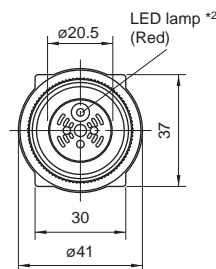
DR30B5, B6



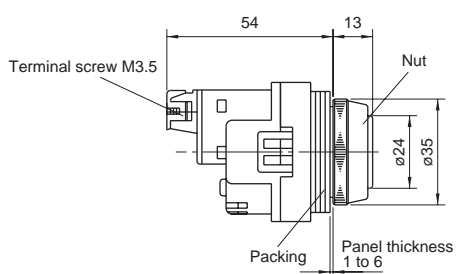
#### Without transformer



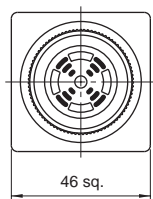
DR30B5, B6



#### Magnetic sound

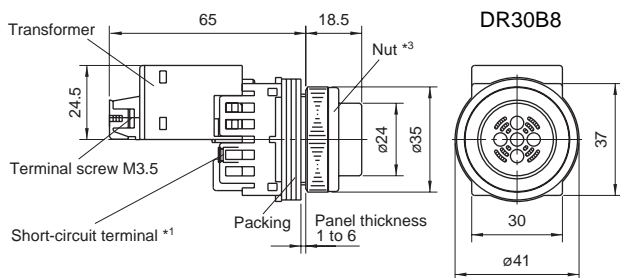


DR30B0

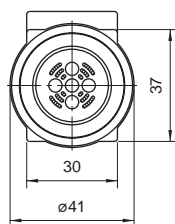


#### Electronic sound (IP54)

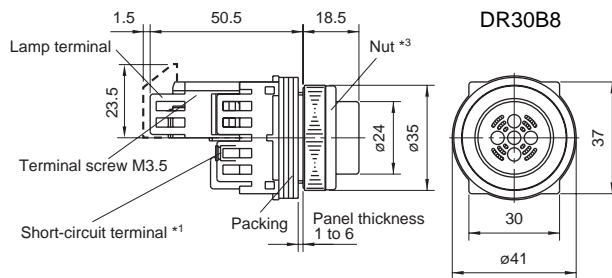
#### With transformer



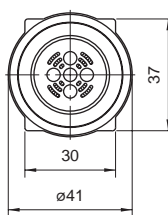
DR30B8



#### Without transformer



DR30B8



Notes: \*1 There are no short-circuit terminals with DR30B6. (Continuous sound only)

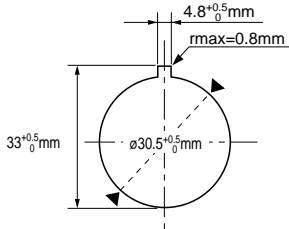
\*2 There are no LED lamps with DR30B6.

\*3 The nut and cap are united with DR30B8.

**Notes on use**

■ **Panel cutout hole**

**Fig. 1 Panel cutout hole dimensions, mm**



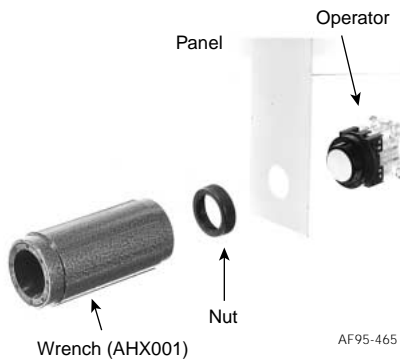
Note : If key-washer or legend plate are not used, 4.8mm-wide, location holes shown in Fig. 1 need not be cutout.

■ **Mounting operator to panel**

**1. Pushbutton with a round bezel (ordinary mounting)**

Insert the operator into the cutout hole from the back of the panel, and tighten the nut with the AHX001 wrench from the front of the panel to secure the operator as shown in Fig.2.

**Fig. 2 Pushbutton with a round bezel**

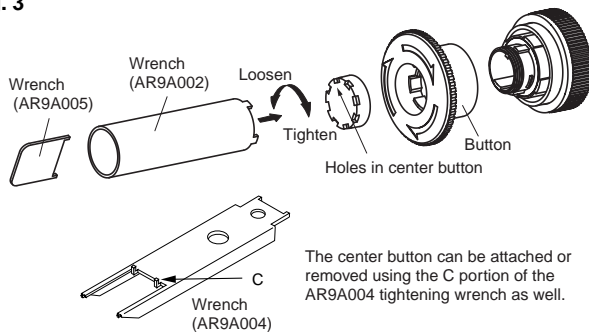


Note : Recommended tightening torque is from 1.5 to 2N•m.

**2. AR30V0R, V0L, V2R, V2L, V5R, V5L**

- (1) The button is removed after loosening the center button by inserting the end of the AR9A002 tightening wrench or the AR9A005 wrench (enclosed with pushbutton) into the holes in the center button and turning counterclockwise, as shown in Fig.3.
- (2) Attach the operator in the same manner as described in step 1.

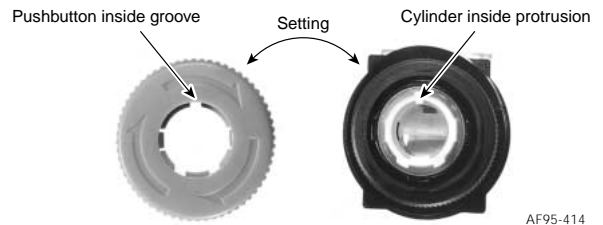
**Fig. 3**



The center button can be attached or removed using the C portion of the AR9A004 tightening wrench as well.

Insert the operator into the cutout hole from the back of the panel, and as shown in Fig.4, insert the pushbutton into the operator cylinder while aligning the grooves inside the pushbutton with the protrusions on the operator.

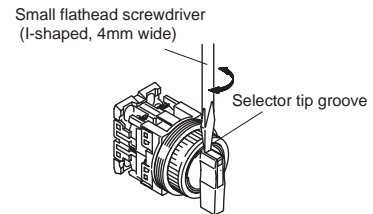
**Fig. 4 Setting pushbutton to operator cylinder**



**3. AR30WR, WCR**

- (1) As shown in the following figure, insert the tip of a flathead screwdriver into the selector tip groove. Rotate the screwdriver in the direction indicated by the arrow until the selector tip rises, and draw out the knob.
- (2) Attach the operator in the same manner as described in step 1.
- (3) Insert the knob, with the selector tip in the floated state, into the original position of the rotation tube, and push the selector tip into place.

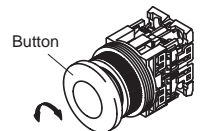
**Fig. 5**



**4. AR30M0R, M4R, M5R, B0R, Q7L**

- (1) Loosen the button by hand.
- (2) Attach the operator in the same manner as described in step 1.
- (3) Screw in the button by hand, making sure that the button is screwed in all the way. (Recommended tightening torque: 0.3 to 0.5 N•m)

**Fig. 6**

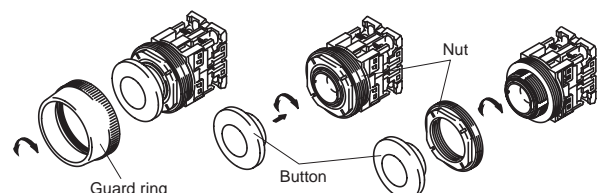


**5. AR30M3R, M8R, B1R, B2R and B3R**

The outer circumference of the nut is threaded, so be careful not to cut your hand on it.

- (1) Loosen and remove the guard ring by hand.
- (2) Loosen and remove the button and nut by hand.
- (3) Insert the operator into the cutout hole from the back of the panel, and tighten the nut to secure it in place. (Recommended tightening torque: 0.3 to 0.5 N•m)
- (4) Screw in the button by hand, making sure that it is screwed in all the way. (Recommended tightening torque: 0.3 to 0.5 N•m)
- (5) Loosen and remove the guard ring by hand. (Recommended tightening torque: 1.5 to 2.5 N•m)

**Fig. 7**

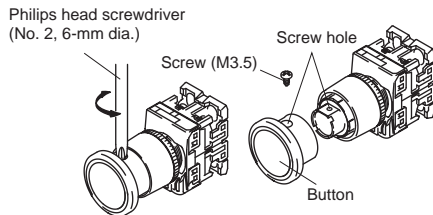




#### 6. AR30N0R, V1R, Q2R

- (1) Loosen and remove the screw on the side of the button, taking care not to loosen the screw.
- (2) Attach the operator in the same manner as described in step 1.
- (3) Attach and secure the button in place with the screw, making sure that the head of the screw does not protrude from the side.
- (4) Recommended tightening torque: N0R, V1R 0.5 to 1.0N•m  
Q2R 0.3 to 0.5N•m

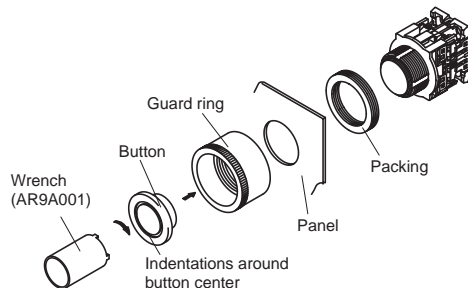
Fig. 8



#### 7. AR30GSR

- (1) Insert the tips of the AR9A001 wrench into the indentations around the button center, and turn the wrench to loosen and remove the button.
- (2) Loosen and remove the guard ring by hand.
- (3) Insert the switch operator into the cutout hole from the back of the panel, and secure it with the guard ring from the front of the panel. (Recommended tightening torque: 1.5 to 2.5 N•m)
- (4) Attach and secure the button with the AR9A001 wrench. (Recommended tightening torque: 0.3 to 0.5 N•m)

Fig. 9

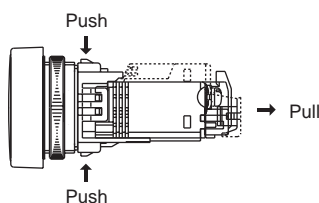


#### 8. DR30F4M, F4N, M4M

Insert the pilot lights from the front of the panel and fix it with the AHX536 tightening wrench from the back of the panel.

- (1) Recommended tightening torque: 1 to 1.5N•m
- (2) For pilot lights with transformers and resistance units, remove the transformer or resistance unit in advance. (Fig.10)

Fig. 10

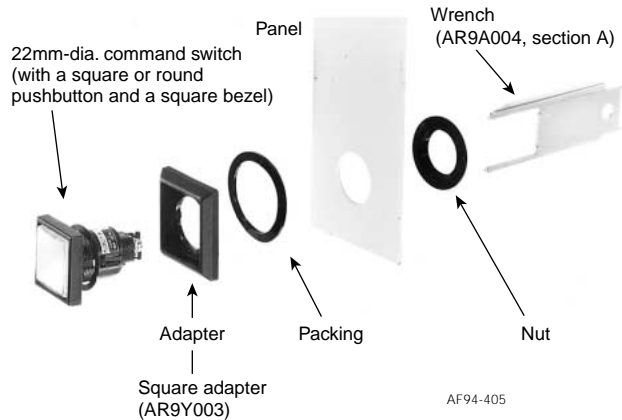


#### 9. Mounting a 22mm-dia. command switch with a square button and a square bezel, or with a round button and a square bezel, to a panel cutout hole for a 30mm-dia. command switch using an adapter

As shown in Fig. 11, mount an adapter and packing onto a 22mm-dia. command switch (AR22, DR22 series) with a square button and a square bezel or one with a round button and a square bezel. Then, insert the switch operator into the panel cutout hole from the front of the panel. Use AR9A004 wrench section A to tighten the locking nut from behind the panel to secure the switch.

Use the adapter accessory nut for this purpose. Do not use the command switch accessory nut.

Fig. 11 Command switch with a square button and a square bezel, and command switch with a round button and a square bezel



Note : • Recommended tightening torque is from 1 to 1.5N•m.  
• Panel thickness: 2.5 to 5mm

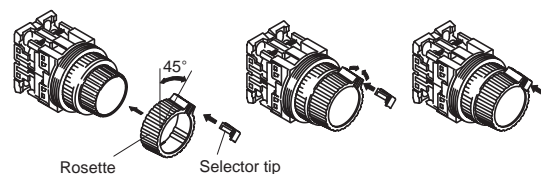
This adapter can be used with the following 22mm-dia. Command switches :

- AR22F0M, F5M, E0M, E5M, F0P, F5P, E0P, E5P, M4P
- AR22F0S, F5S, E0S, E5S, F0Y, F5Y, E0Y, E5Y, M4Y
- AR22PY, PCY, WY, WCY, RY, RCY, JY, JCY, PP
- DR22F3M, F4M, F5M, E3M, E3P

#### 10. AR30S1R, S2R, S3R, S6R

- (1) Attach the operator in the same manner as described in step 1.
- (2) Attach the rosette assembly to the operator.
- (3) Pressing the rosette from the directions indicated by the arrows, insert the selector tip in the groove.
- (4) Make sure that the selector tip is inserted completely.
- (5) To remove the rosette, use a small flathead screwdriver to remove the selector tip as described in step 3, and then remove the rosette.

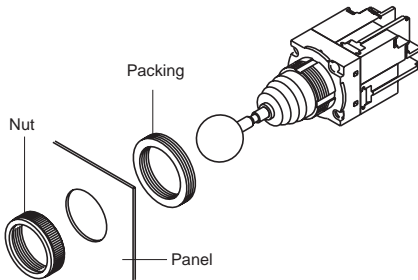
Fig. 12



**11. AR30A (joy stick selector)**

- (1) Remove the clamp ring as shown in the following figure.
  - (2) Attach the operator in the same manner as described in step 1.
- Note: Even if a lock type is used, remove the clamp ring in the same manner.

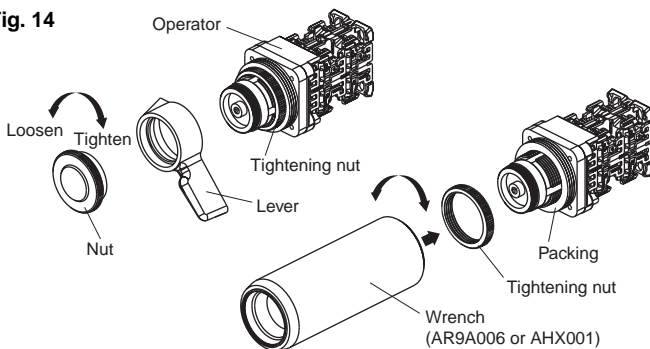
**Fig. 13**



**12. AR30HR**

- (1) The lever is removed after loosening the nut by hand.
- (2) Loosen and remove the tightening nut by hand.
- (3) Insert the operator into the cutout hole from the back of the panel, and tighten the tightening nut with the AHX001 wrench or AR9A006 wrench from the front of panel to secure the operator as shown in Fig. 14. (Recommended tightening torque : 1.5 to 2.5N • m)
- (4) Attach the lever assembly to the operator.
- (5) Screw in the nut by hand, making sure that it is screwed in all the way.

**Fig. 14**



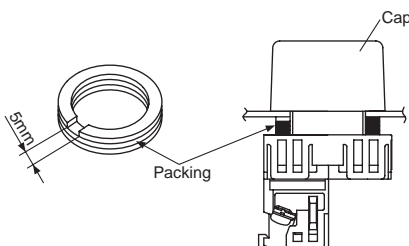
**Water-proof and dust-proof cap**

Applicable type: Water-proof cap AHX052  
 Dust-proof cap AHX032, 033, 034, 113, 157

When attached to the panel in combination with a water-proof or dust-proof cap, the water-proof cap or dust-proof cap may sink downward and prevent the depressed button from returning to its original position.

As shown in the following figure, cut an approximately 5-mm air outlet in the portion of the ring packing touching the panel surface. Also, reduce the number of packing rings by one below the standard number. The clamp ring tightening torque is 1.5 to 2.5 N•m.

**Fig. 15**



**Degree of protection**

The water-proof cap or dust-proof cap seals the panel surface to provide IP65 protection.

**Applicable panel thickness**

The AR30/DR30 series switches are mountable to panels with the thickness given in the table below.

| Switch mounting condition | Applicable panel thickness    |
|---------------------------|-------------------------------|
| Without accessories       | 1 to 6mm                      |
| With accessories          | AR9Y003 adapter<br>2.5 to 5mm |

**Using accessory ring-packings**

Use the required number of ring-packings (1.6mm-thick, 4 pieces, resin mold).

Table below is a guideline for using the packings.

If a locking nut or legend plate is used, the thickness must be counted as an additional panel thickness.

**Panel thickness vs. number of packings (reference data)**

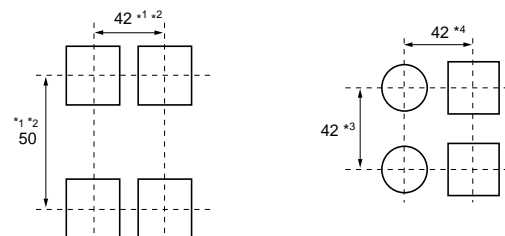
| Effective panel thickness including lock-ring and legend plate thicknesses | Number of packings |
|--|--------------------|
| 1.0mm to less than 2.0mm   | 4                  |
| 2.0mm to less than 3.6mm   | 3                  |
| 3.6mm to less than 5.0mm   | 2                  |
| 5.0mm to less than 6.0mm   | 1                  |

**Minimum mounting space, mm**

The minimum mounting spaces required for AR30/DR30 command switches are given below. (Fig. 16)

**Fig. 16**

- Illuminated pushbutton and pushbutton
- Emergency stop illuminated pushbutton and emergency stop pushbutton
- Illuminated and non-illuminated selectors
- Pilot light



Notes: \*1 AR30M3R, M8R, GSR: 55mm  
 \*2 AR30B□R, GPR, V1R: 80mm

| Type                                     | *3 | *4 |
|--|----|----|
| F4M                                      | 34 | 34 |
| F4N (Vertical lengthwise mounting)       | 40 | 34 |
| (Horizontal lengthwise mounting)         | 34 | 40 |
| M4M                                      | 40 | 40 |
| Pilot lights short-body with transformer | 50 | 42 |
| Pilot lights with resistor               | 80 | 42 |

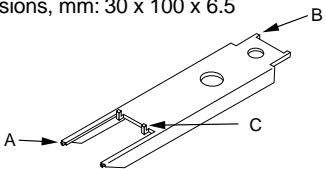






Other items are the same as for the AR22 and DR22 series, see page 04/50 to 04/54.








# Pushbuttons/Selectors/Pilot Lights


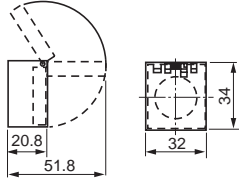

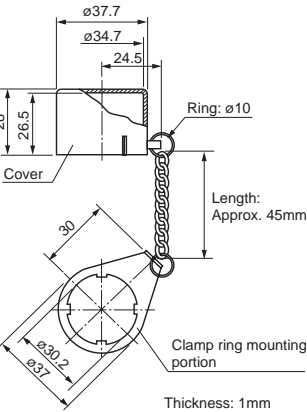

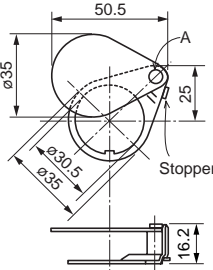
## AR22/DR22 and AR30/DR30


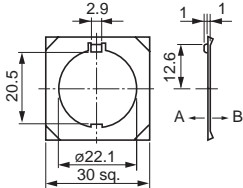

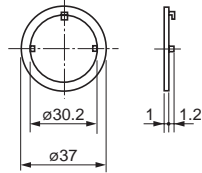


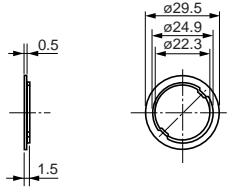
### Accessories

#### ■ Accessories

| Description                | Type  |
|----------------------------|---|
| Wrench                     | <p><b>AR9A004</b><br/>Dimensions, mm: 30 x 100 x 6.5</p>  <p>Remarks<br/>Section "A"<br/>Use this section to tighten the nut for mounting the operator on a panel.<br/>Section "B"<br/>Use this section to tighten or remove the lens.<br/>Applicable type:<br/>AR22F0L, F5L, E0L, E5L, F0P, F5P, E0P, E5P<br/>AR22G1L, G2L, G4L, G6L, G7L, G9L<br/>DR22E3L, E3P<br/>AR30E0L, E5L, G2L, G3L, G4L, G7L, G8L, G9L<br/>DR30E3L<br/>Section "C"<br/>Fit the tabs on the section "C" in the center button, and turn the wrench to tighten or remove the button.<br/>Applicable type:<br/>AR22V (except V4R, VG type)<br/>AR30V (except V1R type)</p>  <p>KK02-261</p> |
| Wrench for AR22, DR22      | <p><b>AR9A701</b><br/>Dimensions, mm: <math>\varnothing 28 \times 70</math></p> <p>Application:<br/>AR22, DR22 nut tightening</p>    |
| Wrench                     | <p><b>AHX536</b><br/>Dimensions, mm: <math>\varnothing 32 \times 76</math></p> <p>Application:<br/>DR30F4M, F4N, M4M, N1, N2 nut tightening</p>  <p>KK02-097A</p>  |
| Wrench                     | <p><b>AR9A001</b><br/>Dimensions, mm: <math>\varnothing 22 \times 35</math></p> <p>Application:<br/>AR22, DR22 round-type lens tightening<br/>AR22E0M, E5M oil-proof cap tightening<br/>AR30, DR30 round-type lens tightening<br/>AR30GSR button tightening</p>  <p>KK02-098A</p>  |
| Wrench (for center button) | <p><b>AR9A002</b><br/>Dimensions, mm: <math>\varnothing 18 \times 60</math></p> <p>Application:<br/>AR22V center button tightening (except V4R, VG type)<br/>AR30V center button tightening (except V1R type)</p>    |
| Wrench                     | <p><b>AHX701</b><br/>Dimensions, mm: <math>\varnothing 25 \times 72.5</math></p> <p>Application:<br/>DR22N, AR22VG nut tightening</p>  <p>AF03-5</p>   |

| Description                     | Type  |
|---------------------------------|---|
| Wrench (for center button)      | <p><b>AHX8003</b><br/>Dimensions, mm: <math>\varnothing 14 \times 50</math></p> <p>Attaching and removing the center button of the AR22VGF type.</p>  <p>AF93-6</p>  |
| Wrench for AR22,30 and DR22, 30 | <p><b>AR9A006</b><br/>Dimensions, mm: <math>\varnothing 40 \times 100</math></p> <p>To mount an AR22, 30 or DR22, 30 command switch to a panel, use this wrench to tighten the nut securely. It is very easy to fit this wrench onto the nut.<br/>The wrench with an inside rubber-lining can be easily used with either your right or left hand.</p>  <p>For <math>\varnothing 22</math> For <math>\varnothing 30</math></p> <p>AF96-241</p>   |
| Wrench for AR30, DR30           | <p><b>AHX001</b><br/>Dimensions, mm: <math>\varnothing 47 \times 100</math></p> <p>To mount an AR30 or DR30 command switch to a panel, use this wrench to tighten the nut securely.</p>  <p>AF95-467</p>  |
| Special tool                    | <p><b>AHX321</b><br/>Dimensions, mm: 42 x 130 x 6.5<br/>For all types except pilot lights</p> <p><b>DR9A321-T</b><br/>Dimensions, mm: 57 x 130 x 30<br/>For pilot lights</p> <ul style="list-style-type: none"> <li>• This tool is used to remove contact blocks and transformer units.</li> <li>• The AHX321 can remove round color lens of switches.</li> </ul>  <p>AHX321 SG-873</p>  <p>DR9A321-T AF95-21</p>   |
| Wrench/Lamp changer             | <p><b>AHX702</b><br/>Dimensions, mm: <math>\varnothing 36 \times 55</math></p> <p>Use this wrench to tighten or remove the lens and lamp.</p> <p>Used with:<br/>Lens of DR22D0L, K0L and DR30D0L, K0L<br/>Incandescent lamp of pilot lights and illuminated pushbuttons</p>  <p>SI-1030</p>  |
| Lamp changer                    | <p><b>AHX790</b><br/>Dimensions, mm: <math>\varnothing 14 \times 55</math></p> <ul style="list-style-type: none"> <li>• Use this rubber wrench for mounting or removing lamps from pilot lights and illuminated pushbutton switches.</li> <li>• This wrench can be used for both LED and incandescent lamps.</li> <li>• One end is for the BA9S/13 lamp, and the other is for the E12/15 lamp (for use with 30mm dia. pilot lights with resistor).</li> <li>• For 30mm dia. pilot lights with resistor, this tool can also be used to attach or remove incandescent lamps.</li> </ul>  <p>For BA9S/13 lamp For E12/15 lamp</p> <p>AF95-22</p> |


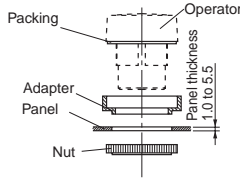
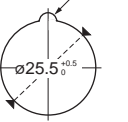
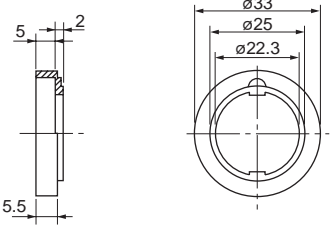

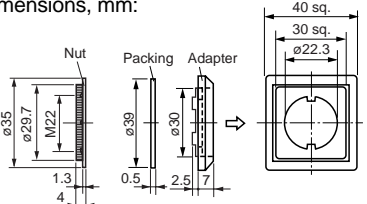
| Description  | Type   |
|--|--|
| <p>Protection cover</p>  <p>AF95-29</p>   | <p><b>AR9E760</b></p> <p>This cover protects against accidental operation.<br/>The cover lid is returned home with a spring force. (Packing is provided)</p> <p>Used with:<br/>AR22F0L, F5L, E0L, E5L, F0M, F5M, E0M, E5M, F0P, F5P, E0P, E5P<br/>AR22F0R, F5R, E0R, E5R, F0S, F5S, E0S, E5S, E0Y, E5Y, F0Y, F5Y, FAR, FBR, EAR, EBR</p> <p>Dimensions, mm:</p>   |
| <p>Cover for preventing operating errors with 30mm dia. types</p>  <p>AF91-671</p>  | <p><b>AR9E538</b></p> <p>Inadvertent operation can be prevented by fitting a transparent cover with chain in the clamp ring.</p> <p>Used with:<br/>AR30F0R, F5R, E0R, E5R, E0L, E5L</p> <p>Dimensions, mm:</p>    |
| <p>Cover for preventing operating errors with 30mm dia. types</p>  <p>.AF93-420</p> | <p><b>AHX408</b></p> <p>This is a metallic cover for preventing inadvertent operation.</p> <p>Used with: AR30F0R, F5R</p> <p>Dimensions, mm:</p>  <p>When attaching the cover to a vertical panel, if you attach it so that the portion indicated by an "A" is at the upper right, the stopper causes the cover to stop above the push button to halt further rotation.</p> <p>The material is steel (zinc plated).</p> |

| Description  | Type   |
|--|--|
| <p>Key washer for AR22, DR22</p>  <p>AF95-25</p> | <p><b>AR9Y715</b></p> <p>Use this metal washer when securing a operator in a 22.3mm dia. panel cutout hole.</p> <p>Dimensions, mm:</p>  <ul style="list-style-type: none"> <li>When the periphery of the panel cutout has a hole to stop rotation, use with side A contacting the panel (except for Joy stick selector types).</li> <li>Even when the periphery of the panel cutout does not have a hole to stop rotation, if used with side B contacting the panel it can serve as a washer for eliminating play (except for Joy stick selector types).</li> </ul> |
| <p>Key washer for ø30</p>  <p>SC-1016</p>      | <p><b>AHX082</b></p> <p>Use this metal washer when securing an operator in a 30.5mm dia. panel cutout hole.</p> <p>Dimension, mm:</p>   |
| <p>Operator base cover</p>  <p>AF95-26</p>     | <p><b>AR9Y002</b></p> <p>Attach this cover to the operator base of a pushbutton switch with only one contact block (1NO or 1NC) to protect against dust.</p>   |
| <p>Adapter for AR22, DR22</p>  <p>AF95-28</p>  | <p><b>AR9Y718</b></p> <p>Use this resin adapter to mount the AR22/DR22 (switch/pilot light) in a 25.5mm dia. cutout hole on a panel.</p> <p>Dimensions, mm:</p>   |

# Pushbuttons/Selectors/Pilot Lights

## AR22/DR22 and AR30/DR30

### Accessories

| Description   | Type   |
|---|--|
| Adapter for AR22 and DR22<br>  | <b>AR9Y008</b><br>Use this resin adapter to mount the AR22/DR22 (switch/pilot light) in a 25.5mm dia. cutout hole on a panel.<br>Mounting, mm:<br><br>Panel cutout, mm:<br><br>Equipped with device for stopping rotation<br>Used with:<br>AR22, DR22 round head types (except for M3R, M8R, VG□, joy stick selectors and buzzers)<br>Dimensions, mm:<br><br>AF98-198 |
| Adapter for AR30 and DR30<br> | <b>AR9Y003</b><br>Mount this adapter onto a 22mm dia. command switch with a square button and a square bezel to obtain a 30mm dia. command switch with a square/round button and a square bezel.<br>A resin ring-packing and a nut are accessories of the adapter.<br>Dimensions, mm:<br><br>Note: Panel thickness: 2.5 to 5mm<br>AF95-416  |

| Description  | Type  |
|--|---|
| Round-frame adapter for 30mm dia. types<br>   | <b>AR9Y004</b><br>By using this adapter in combination with the round type 22mm dia. command switch, the 22mm dia. command switch can be used as a 30mm dia. command switch/round frame type.<br>Used with:<br>AR22, DR22 round types (except for M3R, M8R, VG□, Joy stick selectors, buzzers)<br>Dimensions, mm<br><br>Note: Panel thickness: 2.5 to 5mm<br>KK02-100A   |
| Round-frame adapter for 30mm dia. type VG<br><br><br> | <b>AHX958</b><br>Using this adapter in combination with model AR22VG (22mm dia.) allows mounting to a 30.5mm panel cutout hole.<br>The attachment method is as follows. <ul style="list-style-type: none"> <li>• The washer and nut (22.3mm dia.) originally attached to the operator will not be used, so remove them.</li> <li>• Attach the 22mm dia. packing (included), the 30mm dia. adapter and the 30mm dia. packing to the operator in that order, and insert the operator into the cutout hole.</li> <li>• From the back of the panel cutout hole, fasten the 30mm-dia. nut using the AHX701 wrench. The correct tightening torque is 1 to 1.5 N•m.</li> </ul> <br>*1 Adapter for 30mm dia. (AHX958)<br>Panel cutout, mm:<br><br>Dimensions, mm:<br><br>Note: Panel thickness: 1 to 6mm<br>AF93-4 |

|                       |  |
|-----------------------|--|
| Description           | Type   |
| Legend plate for AR22 | <b>AR9P711-①②③</b><br>① Color<br>B: Black<br>A: Aluminum<br>This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)                    |
|                       | Legend      Code<br>②      ③<br>Blank      0      0<br>ON          0      A<br>OFF        0      B<br>START     0      C<br>STOP      0      D<br>OFF-ON    2      A |
|                       | Dimensions, mm:<br>  |
| SI-1033               |  |

|                       |  |
|-----------------------|--|
| Description           | Type   |
| Legend plate for AR22 | <b>AR9P712-①②③</b><br>① Color<br>B: Black<br>A: Partially black<br>This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)             |
|                       | Legend      Code<br>②      ③<br>Blank      0      0<br>ON          0      A<br>OFF        0      B<br>START     0      C<br>STOP      0      D<br>OFF-ON    2      A |
|                       | Dimensions, mm:<br>  |
| SI-1032               |  |

|                       |  |
|-----------------------|--|
| Description           | Type   |
| Legend plate for AR22 | <b>AR9P713-①②③</b><br>① Color<br>B: Black<br>A: Partially black<br>This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)             |
|                       | Legend      Code<br>②      ③<br>Blank      0      0<br>ON          0      A<br>OFF        0      B<br>START     0      C<br>STOP      0      D<br>OFF-ON    2      A |
|                       | Dimensions, mm:<br>  |
| AF95-114              |  |

|                                      |   |
|--------------------------------------|---|
| Description                          | Type  |
| Legend plate for AR22 emergency stop | <b>AR9P719-①②</b><br>Plate color: Yellow<br>Letter color: Black<br>This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)  |
|                                      | Legend                      Code                      Letter<br>①                      ②                      hight<br>Blank                      0                      0                      -<br>EMERGENCY              5                      A                      7mm<br>STOP                      5                      B                      13mm<br>EMERGENCY              5                      C                      13mm<br>OFF |
|                                      | Dimensions, mm:<br>   |
| KK02-265A                            | Note: Engraving for making letters is not available.  |





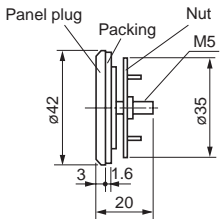
# Pushbuttons/Selectors/Pilot Lights


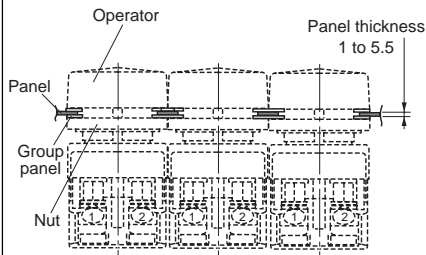
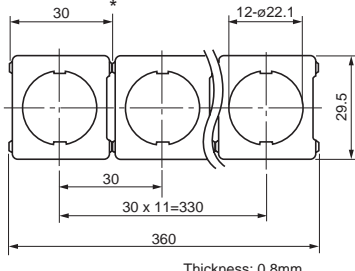
## AR22/DR22 and AR30/DR30

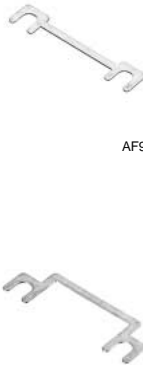
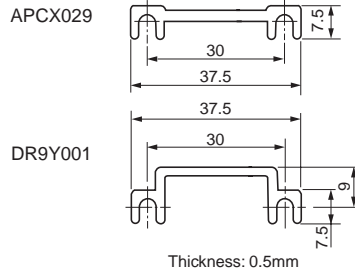
### Accessories

| Description                            | Type  |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
|--|---|--------------|------------------|------------|--------------------------------|--------------|------------------|------------|---------------------------------|--------------|------------------|------------|---------------------------------|------------|------|---|-------|---|---|------|---|---|--------|---|---|-------|---|---|------|---|---|--------|---|---|
| Legend plate for AR22<br>(width: 34mm) | <b>AR9P015-B</b> ①② : Hight 36mm<br><b>AR9P014-B</b> ①② : Hight 40.3mm<br><br>Color: black<br><br><table border="1"> <thead> <tr> <th>Legend</th> <th colspan="2">code</th> </tr> <tr> <td></td> <th>①</th> <th>②</th> </tr> </thead> <tbody> <tr> <td>Blank</td> <td>0</td> <td>0</td> </tr> <tr> <td>ON</td> <td>0</td> <td>A</td> </tr> <tr> <td>OFF</td> <td>0</td> <td>B</td> </tr> <tr> <td>START</td> <td>0</td> <td>C</td> </tr> <tr> <td>STOP</td> <td>0</td> <td>D</td> </tr> <tr> <td>OFF-ON</td> <td>2</td> <td>A</td> </tr> </tbody> </table> <p>Optimal for use in combination with a 3-position selector switch.<br/>Legend plates are available in two types: short, 36 mm; and long, 40.3mm.</p> <p>Dimensions, mm:</p> <p>.AF96-190</p>   | Legend       | code             |            |                                | ①            | ②                | Blank      | 0                               | 0            | ON               | 0          | A                               | OFF        | 0    | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 | A |       |   |   |      |   |   |        |   |   |
| Legend                                 | code  |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
|  | ①   | ②            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Blank                                  | 0   | 0            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| ON                                     | 0   | A            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| OFF                                    | 0   | B            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| START                                  | 0   | C            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| STOP                                   | 0   | D            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| OFF-ON                                 | 2   | A            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Legend plate with name plate for AR22  | <table border="1"> <tbody> <tr> <td>Legend plate</td> <td><b>AR9P009-B</b></td> </tr> <tr> <td>Name plate</td> <td><b>AR9P010-B</b> ①② (34 × 8mm)</td> </tr> <tr> <td>Legend plate</td> <td><b>AR9P011-B</b></td> </tr> <tr> <td>Name plate</td> <td><b>AR9P012-B</b> ①② (34 × 13mm)</td> </tr> <tr> <td>Legend plate</td> <td><b>AR9P007-B</b></td> </tr> <tr> <td>Name plate</td> <td><b>AR9P008-B</b> ①② (27 × 16mm)</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Name plate</th> <th colspan="2">Code</th> </tr> <tr> <td></td> <th>①</th> <th>②</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>0</td> <td>A</td> </tr> <tr> <td>OFF</td> <td>0</td> <td>B</td> </tr> <tr> <td>START</td> <td>0</td> <td>C</td> </tr> <tr> <td>STOP</td> <td>0</td> <td>D</td> </tr> <tr> <td>OFF-ON</td> <td>2</td> <td>A</td> </tr> </tbody> </table> <p>Dimensions, mm:</p> <p>.AF96-190</p> | Legend plate | <b>AR9P009-B</b> | Name plate | <b>AR9P010-B</b> ①② (34 × 8mm) | Legend plate | <b>AR9P011-B</b> | Name plate | <b>AR9P012-B</b> ①② (34 × 13mm) | Legend plate | <b>AR9P007-B</b> | Name plate | <b>AR9P008-B</b> ①② (27 × 16mm) | Name plate | Code |   |       | ① | ② | ON   | 0 | A | OFF    | 0 | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 | A |
| Legend plate                           | <b>AR9P009-B</b>  |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Name plate                             | <b>AR9P010-B</b> ①② (34 × 8mm)  |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Legend plate                           | <b>AR9P011-B</b>  |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Name plate                             | <b>AR9P012-B</b> ①② (34 × 13mm)   |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Legend plate                           | <b>AR9P007-B</b>  |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Name plate                             | <b>AR9P008-B</b> ①② (27 × 16mm)   |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| Name plate                             | Code  |              |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
|  | ①   | ②            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| ON                                     | 0   | A            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| OFF                                    | 0   | B            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| START                                  | 0   | C            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| STOP                                   | 0   | D            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |
| OFF-ON                                 | 2   | A            |                  |            |                                |              |                  |            |                                 |              |                  |            |                                 |            |      |   |       |   |   |      |   |   |        |   |   |       |   |   |      |   |   |        |   |   |

| Description           | Type  |          |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
|-----------------------|---|----------|---------------|-------|---|-------|--------|---|----------|-------|---|--|----------|--------|------|--|--|---|---|-------|---|---|----|---|---|-----|---|---|-------|---|---|------|---|---|--------|---|---|--------|------|--|---------------|--|---|---|--|-------|---|---|---|----------------|---|---|-----|
| Legend plate for AR30 | <b>AHX177-①②③④</b> This legend plate is for a 30.5mm dia. panel cutout hole.<br><table border="1"> <thead> <tr> <th>Code</th> <th>Material</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>S</td> <td>Brass</td> <td>Silver</td> </tr> <tr> <td>B</td> <td>Aluminum</td> <td>Black</td> </tr> <tr> <td>A</td> <td></td> <td>Aluminum</td> </tr> </tbody> </table> <p>② Size<br/>H: Standard<br/>S: Short size</p> <table border="1"> <thead> <tr> <th>Legend</th> <th colspan="2">Code</th> </tr> <tr> <td></td> <th>③</th> <th>④</th> </tr> </thead> <tbody> <tr> <td>Blank</td> <td>0</td> <td>0</td> </tr> <tr> <td>ON</td> <td>0</td> <td>A</td> </tr> <tr> <td>OFF</td> <td>0</td> <td>B</td> </tr> <tr> <td>START</td> <td>0</td> <td>C</td> </tr> <tr> <td>STOP</td> <td>0</td> <td>D</td> </tr> <tr> <td>OFF-ON</td> <td>2</td> <td>A</td> </tr> </tbody> </table> <p>Dimensions, mm:</p> <p>Legend plate for AR30 emergency stop</p> <p><b>AHX720-①②</b> This aluminum legend plate is for a 30.5mm dia. panel cutout hole.<br/>Plate color: Yellow<br/>Letter color: Black</p> <table border="1"> <thead> <tr> <th>Legend</th> <th colspan="2">Code</th> <th>Letter height</th> </tr> <tr> <td></td> <th>①</th> <th>②</th> <td></td> </tr> </thead> <tbody> <tr> <td>Blank</td> <td>0</td> <td>0</td> <td>—</td> </tr> <tr> <td>EMERGENCY STOP</td> <td>5</td> <td>A</td> <td>7mm</td> </tr> </tbody> </table> <p>Dimensions, mm:</p> <p>Note: Engraving for making letters is not available.</p> | Code     | Material      | Color | S | Brass | Silver | B | Aluminum | Black | A |  | Aluminum | Legend | Code |  |  | ③ | ④ | Blank | 0 | 0 | ON | 0 | A | OFF | 0 | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 | A | Legend | Code |  | Letter height |  | ① | ② |  | Blank | 0 | 0 | — | EMERGENCY STOP | 5 | A | 7mm |
| Code                  | Material  | Color    |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| S                     | Brass   | Silver   |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| B                     | Aluminum  | Black    |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| A                     |   | Aluminum |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| Legend                | Code  |          |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
|                       | ③   | ④        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| Blank                 | 0   | 0        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| ON                    | 0   | A        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| OFF                   | 0   | B        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| START                 | 0   | C        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| STOP                  | 0   | D        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| OFF-ON                | 2   | A        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| Legend                | Code  |          | Letter height |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
|                       | ①   | ②        |               |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| Blank                 | 0   | 0        | —             |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |
| EMERGENCY STOP        | 5   | A        | 7mm           |       |   |       |        |   |          |       |   |  |          |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |        |      |  |               |  |   |   |  |       |   |   |   |                |   |   |     |

| Description   | Type  |
|---|---|
| Panel plug for AR22 and DR22<br><br><small>SI-1027</small> | Round:<br><b>AHX725-B</b> Black<br><b>AHX725-H</b> Gray<br><br>Square:<br><b>AHX726-B</b> Black<br><b>AHX726-H</b> Gray<br><br>Dimensions, mm: $\phi 29.5 \times 17$ (AHX725)<br>$29.5 \text{ sq.} \times 17$ (AHX726)<br>Use this plug to cover up unused panel cutout holes.<br>For oil proof usage, use together with packing (AR9Y730) and a nut (AR9R744). |
| Panel plug for AR30 and DR30<br><br><small>T-1993</small> | <b>AHX004</b><br>Color: Silver (metal)<br>This plug is used to cover up unused panel cutout hole.<br><br>Dimensions, mm:<br>  |

| Description  | Type  |
|--|---|
| Group panel for 22mm dia. type<br> | <b>DR9Y004</b><br>These new 22mm dia. command switch/square types can be neatly aligned side by side on this group panel at a 30mm pitch to form a uniform panel face with no misalignment between mounted switches. Depending on the number of switches to be grouped (maximum 12), the panel can be divided (by cutting at the portion indicated by an asterisk (*)).<br><br>Mounting, mm:<br>(example showing a group of three) <br><br>Dimensions, mm:<br><br><small>AF97-233</small> |

| Description   | Type  |
|---|---|
| Jumper<br><br><small>AF95-153</small><br><br><br><br><small>AF95-27</small> | <b>APCX029</b> (For pilot light without transformer)<br><b>DR9Y001</b> (For pilot light with transformer)<br><br>Use this jumper to connect terminals allocated in a 30mm pitch.<br>Rated current is 3A<br><br>Dimensions, mm:<br><br>Thickness: 0.5mm |



04








# Pushbuttons/Selectors/Pilot Lights






## AR22/DR22 and AR30/DR30








### Accessories

| Description  | Type  |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|--|---|---|-----------|---------------------------------|---|---------------------------------|---|---------------------------------|--------------|---------------------------------|------------------------------|-------------------|------------------------------|-------------------|--|-------------------|----------------------------------|-------------------|----------------------------------|------------------|----------------------------|------------------|---------|------------------|-----------------|---------------------------------|---------|------------------|---------|---------------------------------|---------|
| Lens for illuminated pushbutton switch and pilot lights<br><br>  | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9C011</b>-□*<sup>1</sup></td> <td>AR22F0L, F5L, F0P, F5P</td> </tr> <tr> <td><b>AR9C012</b>-□*<sup>1</sup></td> <td>AR22E0L, E5L, E0P, E5P<br/>AR22G1L, G2L, G4L, G6L, G7L, G9L<br/>DR22E3L, E3P<br/>AR30E0L, E5L, G2L, G3L, G4L, G7L, G8L, G9L<br/>DR30E3L</td> </tr> <tr> <td><b>AR9C013</b>-□*<sup>1</sup></td> <td>AR22F0M, F5M</td> </tr> <tr> <td><b>AR9C014</b>-□*<sup>1</sup></td> <td>AR22E0M, E5M<br/>DR22E3M, F5M</td> </tr> <tr> <td><b>AR9C015</b>-□</td> <td>AR22M4L, M4P</td> </tr> <tr> <td><b>AR9C016</b>-□</td> <td>AR22M0L, M5L</td> </tr> <tr> <td><b>DR9C001</b>-□</td> <td>DR22D0L<br/>DR30D0L*<sup>2</sup></td> </tr> <tr> <td><b>DR9C002</b>-□</td> <td>DR22K0L<br/>DR30K0L*<sup>2</sup></td> </tr> <tr> <td><b>DR9C120-C</b></td> <td>DR30M4M</td> </tr> <tr> <td><b>DR9C121-C</b></td> <td>DR30F4N</td> </tr> <tr> <td><b>DR9C122-C</b></td> <td>DR30F4M</td> </tr> <tr> <td><b>DR9C126</b>-□*<sup>1</sup></td> <td>DR22F3M</td> </tr> <tr> <td><b>DR9C126-C</b></td> <td>DR22F4M</td> </tr> <tr> <td><b>DR9C127</b>-□*<sup>1</sup></td> <td>DR22E3N</td> </tr> </tbody> </table> | Type  | Used with | <b>AR9C011</b> -□* <sup>1</sup> | AR22F0L, F5L, F0P, F5P  | <b>AR9C012</b> -□* <sup>1</sup> | AR22E0L, E5L, E0P, E5P<br>AR22G1L, G2L, G4L, G6L, G7L, G9L<br>DR22E3L, E3P<br>AR30E0L, E5L, G2L, G3L, G4L, G7L, G8L, G9L<br>DR30E3L | <b>AR9C013</b> -□* <sup>1</sup> | AR22F0M, F5M | <b>AR9C014</b> -□* <sup>1</sup> | AR22E0M, E5M<br>DR22E3M, F5M | <b>AR9C015</b> -□ | AR22M4L, M4P                 | <b>AR9C016</b> -□ | AR22M0L, M5L                           | <b>DR9C001</b> -□ | DR22D0L<br>DR30D0L* <sup>2</sup> | <b>DR9C002</b> -□ | DR22K0L<br>DR30K0L* <sup>2</sup> | <b>DR9C120-C</b> | DR30M4M                    | <b>DR9C121-C</b> | DR30F4N | <b>DR9C122-C</b> | DR30F4M         | <b>DR9C126</b> -□* <sup>1</sup> | DR22F3M | <b>DR9C126-C</b> | DR22F4M | <b>DR9C127</b> -□* <sup>1</sup> | DR22E3N |
|  | Type  | Used with   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C011</b> -□* <sup>1</sup>   | AR22F0L, F5L, F0P, F5P  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C012</b> -□* <sup>1</sup>   | AR22E0L, E5L, E0P, E5P<br>AR22G1L, G2L, G4L, G6L, G7L, G9L<br>DR22E3L, E3P<br>AR30E0L, E5L, G2L, G3L, G4L, G7L, G8L, G9L<br>DR30E3L |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C013</b> -□* <sup>1</sup>   | AR22F0M, F5M  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C014</b> -□* <sup>1</sup>   | AR22E0M, E5M<br>DR22E3M, F5M  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C015</b> -□   | AR22M4L, M4P  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C016</b> -□   | AR22M0L, M5L  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C001</b> -□   | DR22D0L<br>DR30D0L* <sup>2</sup>  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C002</b> -□   | DR22K0L<br>DR30K0L* <sup>2</sup>  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C120-C</b>  | DR30M4M   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C121-C</b>  | DR30F4N   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C122-C</b>  | DR30F4M   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C126</b> -□* <sup>1</sup>   | DR22F3M   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C126-C</b>  | DR22F4M   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>DR9C127</b> -□* <sup>1</sup>   | DR22E3N   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <table border="1"> <thead> <tr> <th colspan="5">Replace the □ mark by the lens color code</th> </tr> <tr> <th>Color</th> <th>Green</th> <th>Red</th> <th>Clear</th> <th>Yellow</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>G</td> <td>R</td> <td>C</td> <td>Y</td> </tr> </tbody> </table>   | Replace the □ mark by the lens color code   |           |                                 |   |                                 | Color   | Green                           | Red          | Clear                           | Yellow                       | Code              | G                            | R                 | C                                      | Y                 |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | Replace the □ mark by the lens color code   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | Color   | Green   | Red       | Clear                           | Yellow  |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | Code  | G   | R         | C                               | Y   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| <table border="1"> <thead> <tr> <th colspan="3">Replace the □ mark by the lens color code</th> </tr> <tr> <th>Color</th> <th>Orange</th> <th>Blue</th> <th>White</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>A</td> <td>S</td> <td>W</td> </tr> </tbody> </table>                           | Replace the □ mark by the lens color code   |   |           | Color                           | Orange  | Blue                            | White   | Code                            | A            | S                               | W                            |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Replace the □ mark by the lens color code  |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Color  | Orange  | Blue  | White     |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Code   | A   | S   | W         |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Notes: * <sup>1</sup> When the main unit code is "W" (white), use a lens of clear color.<br>* <sup>2</sup> Except for pilot lights with resistor   |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| AF94-458   |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Button for pushbutton switch<br><br>  | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9C001</b>-□</td> <td>AR22F0R, F5R, F0Y, F5Y, G2R, G7R<br/>AR30F0R, F5R, FVR<br/>AR22S1R, S2R, S3R, S6R<br/>AR30S1R, S2R, S3R, S6R</td> </tr> <tr> <td><b>AR9C003</b>-□</td> <td>AR22E0R, E5R, G0R, G3R, G5R, G8R<br/>AR22E0Y, E5Y<br/>AR30E0R, E5R, G0R, G1R, G5R, G6R</td> </tr> <tr> <td><b>AR9C004</b>-□</td> <td>AR22F0S, F5S</td> </tr> <tr> <td><b>AR9C005</b>-□</td> <td>AR22E0S, E5S</td> </tr> <tr> <td><b>AR9C006</b>-□</td> <td>AR22M4R, M9R, M4Y<br/>AR30M4R</td> </tr> <tr> <td><b>AR9C007</b>-□</td> <td>AR22M0R, M5R<br/>AR30M0R, M3R, M5R, M8R</td> </tr> <tr> <td><b>AR9C024</b>-□</td> <td>AR30B0R, B1R, B2R, B3R</td> </tr> <tr> <td><b>AR9C027-C</b></td> <td>AR22FAR, FBR, AR30FAR, FBR</td> </tr> <tr> <td><b>AR9C028-C</b></td> <td>AR22EAR, EBR, AR30EAR, EBR</td> </tr> <tr> <td><b>AR9C041-R</b></td> <td>AR30N0R</td> </tr> <tr> <td><b>AHX539</b></td> <td>Cap for AR30FVR</td> </tr> </tbody> </table>   | Type  | Used with | <b>AR9C001</b> -□               | AR22F0R, F5R, F0Y, F5Y, G2R, G7R<br>AR30F0R, F5R, FVR<br>AR22S1R, S2R, S3R, S6R<br>AR30S1R, S2R, S3R, S6R | <b>AR9C003</b> -□               | AR22E0R, E5R, G0R, G3R, G5R, G8R<br>AR22E0Y, E5Y<br>AR30E0R, E5R, G0R, G1R, G5R, G6R  | <b>AR9C004</b> -□               | AR22F0S, F5S | <b>AR9C005</b> -□               | AR22E0S, E5S                 | <b>AR9C006</b> -□ | AR22M4R, M9R, M4Y<br>AR30M4R | <b>AR9C007</b> -□ | AR22M0R, M5R<br>AR30M0R, M3R, M5R, M8R | <b>AR9C024</b> -□ | AR30B0R, B1R, B2R, B3R           | <b>AR9C027-C</b>  | AR22FAR, FBR, AR30FAR, FBR       | <b>AR9C028-C</b> | AR22EAR, EBR, AR30EAR, EBR | <b>AR9C041-R</b> | AR30N0R | <b>AHX539</b>    | Cap for AR30FVR |                                 |         |                  |         |                                 |         |
|  | Type  | Used with   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C001</b> -□   | AR22F0R, F5R, F0Y, F5Y, G2R, G7R<br>AR30F0R, F5R, FVR<br>AR22S1R, S2R, S3R, S6R<br>AR30S1R, S2R, S3R, S6R                           |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C003</b> -□   | AR22E0R, E5R, G0R, G3R, G5R, G8R<br>AR22E0Y, E5Y<br>AR30E0R, E5R, G0R, G1R, G5R, G6R  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C004</b> -□   | AR22F0S, F5S  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C005</b> -□   | AR22E0S, E5S  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C006</b> -□   | AR22M4R, M9R, M4Y<br>AR30M4R  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C007</b> -□   | AR22M0R, M5R<br>AR30M0R, M3R, M5R, M8R  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C024</b> -□   | AR30B0R, B1R, B2R, B3R  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
|  | <b>AR9C027-C</b>  | AR22FAR, FBR, AR30FAR, FBR  |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| <b>AR9C028-C</b>   | AR22EAR, EBR, AR30EAR, EBR  |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| <b>AR9C041-R</b>   | AR30N0R   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| <b>AHX539</b>  | Cap for AR30FVR   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| <table border="1"> <thead> <tr> <th colspan="5">Replace the □ mark by the button color code</th> </tr> <tr> <th>Color</th> <th>Green</th> <th>Red</th> <th>Black</th> <th>White</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>G</td> <td>R</td> <td>B</td> <td>W</td> </tr> </tbody> </table> | Replace the □ mark by the button color code   |   |           |                                 |   | Color                           | Green   | Red                             | Black        | White                           | Code                         | G                 | R                            | B                 | W                                      |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Replace the □ mark by the button color code  |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Color  | Green   | Red   | Black     | White                           |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Code   | G   | R   | B         | W                               |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| <table border="1"> <thead> <tr> <th colspan="3">Replace the □ mark by the button color code</th> </tr> <tr> <th>Color</th> <th>Yellow</th> <th>Orange</th> <th>Blue</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>Y</td> <td>A</td> <td>S</td> </tr> </tbody> </table>                        | Replace the □ mark by the button color code   |   |           | Color                           | Yellow  | Orange                          | Blue  | Code                            | Y            | A                               | S                            |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Replace the □ mark by the button color code  |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Color  | Yellow  | Orange  | Blue      |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| Code   | Y   | A   | S         |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| KK02-101A  |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| KK02-102A  |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |
| KK02-103A  |   |   |           |                                 |   |                                 |   |                                 |              |                                 |                              |                   |                              |                   |  |                   |                                  |                   |                                  |                  |                            |                  |         |                  |                 |                                 |         |                  |         |                                 |         |

| Description   | Type   |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|---|--|------------------------------|-----------|-------------------|-------------------------------------|-------------------|------------------|------------------|---|-------------------|--------------------|------------------|----------------------------|-------------------|------------------------------|------------------|---------|------------------|---------|------------------|--------------|
| Center button (For V type)<br><br>   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9C020-R</b></td> <td>AR22V0R, V2R, VSR<br/>AR30V0R, V2R</td> </tr> <tr> <td><b>AR9C020</b>-□</td> <td>AR22V5R, AR30V5R</td> </tr> <tr> <td><b>AR9C018-R</b></td> <td>AR22V0L, V2L, VDL, VAL, VSL<br/>AR30V0L, V2L</td> </tr> <tr> <td><b>AR9C018</b>-□</td> <td>AR22V5L*, AR30V5L*</td> </tr> </tbody> </table>  | Type                         | Used with | <b>AR9C020-R</b>  | AR22V0R, V2R, VSR<br>AR30V0R, V2R   | <b>AR9C020</b> -□ | AR22V5R, AR30V5R | <b>AR9C018-R</b> | AR22V0L, V2L, VDL, VAL, VSL<br>AR30V0L, V2L | <b>AR9C018</b> -□ | AR22V5L*, AR30V5L* |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | Type   | Used with                    |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9C020-R</b>  | AR22V0R, V2R, VSR<br>AR30V0R, V2R  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9C020</b> -□   | AR22V5R, AR30V5R   |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9C018-R</b>  | AR22V0L, V2L, VDL, VAL, VSL<br>AR30V0L, V2L  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9C018</b> -□   | AR22V5L*, AR30V5L*   |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <table border="1"> <thead> <tr> <th colspan="4">Replace the □ mark by the button color code</th> </tr> <tr> <th>Color</th> <th>Red</th> <th>Black</th> <th>Yellow</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>R</td> <td>B</td> <td>Y</td> </tr> </tbody> </table> | Replace the □ mark by the button color code  |                              |           |                   | Color                               | Red               | Black            | Yellow           | Code  | R                 | B                  | Y                |                            |                   |                              |                  |         |                  |         |                  |              |
| Replace the □ mark by the button color code   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Color   | Red  | Black                        | Yellow    |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Code  | R  | B                            | Y         |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Note: * V5L: Red and yellow only  |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| AF95-32   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Push-lock, turn-reset button (V and Q types)<br><br>  | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9C008-R</b></td> <td>AR22V4R</td> </tr> <tr> <td><b>AR9C010-R</b></td> <td>AR22Q2R, AR30Q2R</td> </tr> <tr> <td><b>AR9C017-R</b></td> <td>AR22V2R, V2L, AR30V2R, V2L</td> </tr> <tr> <td><b>AR9C019-R</b></td> <td>AR22VAL</td> </tr> <tr> <td><b>AR9C021-R</b></td> <td>AR22V0R, V0L, AR30V0R, V0L</td> </tr> <tr> <td><b>AR9C021</b>-□</td> <td>AR22V5R, V5L*, AR30V5R, V5L*</td> </tr> <tr> <td><b>AR9C026-R</b></td> <td>AR22VDL</td> </tr> <tr> <td><b>AR9C029-R</b></td> <td>AR30V1R</td> </tr> <tr> <td><b>AR9C040-R</b></td> <td>AR22VSR, VSL</td> </tr> </tbody> </table> | Type                         | Used with | <b>AR9C008-R</b>  | AR22V4R                             | <b>AR9C010-R</b>  | AR22Q2R, AR30Q2R | <b>AR9C017-R</b> | AR22V2R, V2L, AR30V2R, V2L                  | <b>AR9C019-R</b>  | AR22VAL            | <b>AR9C021-R</b> | AR22V0R, V0L, AR30V0R, V0L | <b>AR9C021</b> -□ | AR22V5R, V5L*, AR30V5R, V5L* | <b>AR9C026-R</b> | AR22VDL | <b>AR9C029-R</b> | AR30V1R | <b>AR9C040-R</b> | AR22VSR, VSL |
|   | Type   | Used with                    |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C008-R</b>   | AR22V4R                      |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C010-R</b>   | AR22Q2R, AR30Q2R             |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C017-R</b>   | AR22V2R, V2L, AR30V2R, V2L   |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C019-R</b>   | AR22VAL                      |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C021-R</b>   | AR22V0R, V0L, AR30V0R, V0L   |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C021</b> -□  | AR22V5R, V5L*, AR30V5R, V5L* |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C026-R</b>   | AR22VDL                      |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | <b>AR9C029-R</b>   | AR30V1R                      |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9C040-R</b>  | AR22VSR, VSL   |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <table border="1"> <thead> <tr> <th colspan="4">Replace the □ mark by the button color code</th> </tr> <tr> <th>Color</th> <th>Red</th> <th>Black</th> <th>Yellow</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>R</td> <td>B</td> <td>Y</td> </tr> </tbody> </table> | Replace the □ mark by the button color code  |                              |           |                   | Color                               | Red               | Black            | Yellow           | Code  | R                 | B                  | Y                |                            |                   |                              |                  |         |                  |         |                  |              |
| Replace the □ mark by the button color code   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Color   | Red  | Black                        | Yellow    |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Code  | R  | B                            | Y         |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Note: * V5L: Red and yellow only  |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| AF95-31   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| KK02-104A   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Knob<br><br>   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9M006</b>-□</td> <td>AR22PR, PCR, PY, PCY<br/>AR30PR, PCR</td> </tr> </tbody> </table>   | Type                         | Used with | <b>AR9M006</b> -□ | AR22PR, PCR, PY, PCY<br>AR30PR, PCR |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | Type   | Used with                    |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9M006</b> -□   | AR22PR, PCR, PY, PCY<br>AR30PR, PCR  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <table border="1"> <thead> <tr> <th colspan="4">Replace the □ mark by the knob color code</th> </tr> <tr> <th>Color</th> <th>Black</th> <th>Green</th> <th>Red</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>B</td> <td>G</td> <td>R</td> </tr> </tbody> </table>    | Replace the □ mark by the knob color code  |                              |           |                   | Color                               | Black             | Green            | Red              | Code  | B                 | G                  | R                |                            |                   |                              |                  |         |                  |         |                  |              |
| Replace the □ mark by the knob color code   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Color   | Black  | Green                        | Red       |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Code  | B  | G                            | R         |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| AF95-43   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Lever<br><br>  | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9M007</b>-□</td> <td>AR22WR, WCR, WY, WCY<br/>AR30WR, WCR</td> </tr> </tbody> </table>   | Type                         | Used with | <b>AR9M007</b> -□ | AR22WR, WCR, WY, WCY<br>AR30WR, WCR |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | Type   | Used with                    |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9M007</b> -□   | AR22WR, WCR, WY, WCY<br>AR30WR, WCR  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <table border="1"> <thead> <tr> <th colspan="4">Replace the □ mark by the lever color code</th> </tr> <tr> <th>Color</th> <th>Black</th> <th>Green</th> <th>Red</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>B</td> <td>G</td> <td>R</td> </tr> </tbody> </table>   | Replace the □ mark by the lever color code   |                              |           |                   | Color                               | Black             | Green            | Red              | Code  | B                 | G                  | R                |                            |                   |                              |                  |         |                  |         |                  |              |
| Replace the □ mark by the lever color code  |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Color   | Black  | Green                        | Red       |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Code  | B  | G                            | R         |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| AF95-42   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Cylindrical knob<br><br>   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9M008</b>-□</td> <td>AR22RR, RCR, RY, RCY</td> </tr> </tbody> </table>   | Type                         | Used with | <b>AR9M008</b> -□ | AR22RR, RCR, RY, RCY                |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
|   | Type   | Used with                    |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <b>AR9M008</b> -□   | AR22RR, RCR, RY, RCY   |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| <table border="1"> <thead> <tr> <th colspan="4">Replace the □ mark by the knob color code</th> </tr> <tr> <th>Color</th> <th>Black</th> <th>Green</th> <th>Red</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>B</td> <td>G</td> <td>R</td> </tr> </tbody> </table>    | Replace the □ mark by the knob color code  |                              |           |                   | Color                               | Black             | Green            | Red              | Code  | B                 | G                  | R                |                            |                   |                              |                  |         |                  |         |                  |              |
| Replace the □ mark by the knob color code   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Color   | Black  | Green                        | Red       |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| Code  | B  | G                            | R         |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |
| AF95-44   |  |                              |           |                   |                                     |                   |                  |                  |   |                   |                    |                  |                            |                   |                              |                  |         |                  |         |                  |              |

# Pushbuttons/Selectors/Pilot Lights AR22/DR22 and AR30/DR30 Accessories





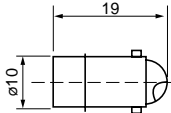
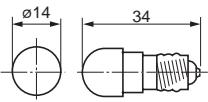
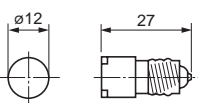
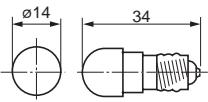
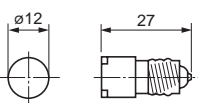
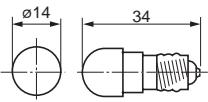
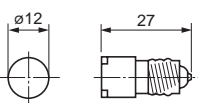
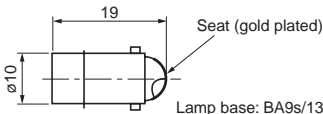
|  |   |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
|--|---|-------------|------------------|-----------------------|----------------------------|-----------------------|----------------------------|---------------|-------|-------------|---|---|---|--------------|--------------|--------|------|-------------|---|---|---|-------|---------------|-----|-------|-------|-------|--|--|--|-------------|----|----|----|----|----|----|-------------|
| <p><b>Description</b></p> <p>Knob<br/>(for illuminated selector switch)</p>  <p style="text-align: right; font-size: small;">AF94-465</p> | <p><b>Type</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Type</b></td> <td style="width: 15%;"><b>Used with</b></td> </tr> <tr> <td><b>AR9M005</b>-□</td> <td>AR22PL, PP<br/>AR30PL</td> </tr> </table> <p>Replace the □ mark by the knob color code</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Color</b></td> <td style="width: 15%;">Green</td> <td style="width: 15%;">Red</td> <td style="width: 15%;">White</td> </tr> <tr> <td><b>Code</b></td> <td>G</td> <td>R</td> <td>W</td> </tr> </table> <hr/> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Color</b></td> <td style="width: 15%;">Yellow</td> <td style="width: 15%;">Orange</td> <td style="width: 15%;">Blue</td> </tr> <tr> <td><b>Code</b></td> <td>Y</td> <td>A</td> <td>S</td> </tr> </table>   | <b>Type</b> | <b>Used with</b> | <b>AR9M005</b> -□     | AR22PL, PP<br>AR30PL       | <b>Color</b>          | Green                      | Red           | White | <b>Code</b> | G | R | W | <b>Color</b> | Yellow       | Orange | Blue | <b>Code</b> | Y | A | S |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Type</b>  | <b>Used with</b>  |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>AR9M005</b> -□  | AR22PL, PP<br>AR30PL  |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Color</b>   | Green   | Red         | White            |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Code</b>  | G   | R           | W                |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Color</b>   | Yellow  | Orange      | Blue             |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Code</b>  | Y   | A           | S                |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <p><b>Key</b></p>  <p style="text-align: right; font-size: small;">KKD09-012</p>  | <p><b>Type</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Type</b></td> <td style="width: 15%;"><b>Used with</b></td> </tr> <tr> <td><b>AR9C022</b>-□</td> <td>AR22JR, JCR, AR30JR, JCR,</td> </tr> <tr> <td><b>AR9C025</b>-□</td> <td>AR22JAR, AR30JAR</td> </tr> </table> <p>Replace the □ mark by the key type code.<br/>Code: A, B, C, D, E or F, 6 types.</p>   | <b>Type</b> | <b>Used with</b> | <b>AR9C022</b> -□     | AR22JR, JCR, AR30JR, JCR,  | <b>AR9C025</b> -□     | AR22JAR, AR30JAR           |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Type</b>  | <b>Used with</b>  |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>AR9C022</b> -□  | AR22JR, JCR, AR30JR, JCR,   |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>AR9C025</b> -□  | AR22JAR, AR30JAR  |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <p><b>Legend plate</b><br/>(for F type with round bezel)</p>  <p style="text-align: right; font-size: small;">AF94-459</p>              | <p><b>AR9P001-W</b></p> <p>This part is made of acrylic resin.<br/>Use paint or thinner compatible with resin.</p> <p>Dimensions, mm: ø17.8 x 0.9</p>   |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <p><b>Legend plate</b><br/>(for E type with round bezel)</p>  <p style="text-align: right; font-size: small;">AF94-459</p>              | <p><b>AR9P002-W</b></p> <p>This part is made of acrylic resin.<br/>Use paint or thinner compatible with resin.</p> <p>Dimensions, mm: ø19.7 x 4.2</p>   |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <p><b>Symbol mark plate</b></p>  <p style="text-align: right; font-size: small;">AF98-197</p>   | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Type</b></td> <td style="width: 15%;"><b>Used with</b></td> </tr> <tr> <td><b>AR9P019</b>-□ □ ■</td> <td>AR22FAR, FBR, AR30FAR, FBR</td> </tr> <tr> <td><b>AR9P020</b>-□ □ ■</td> <td>AR22EAR, EBR, AR30EAR, EBR</td> </tr> </table> <p>□ □ ■ :</p> <table style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <td style="width: 10%;"><b>Symbol</b></td> <td style="width: 10%;">○</td> <td style="width: 10%;"> </td> <td style="width: 10%;">⊕</td> <td style="width: 10%;">○</td> <td style="width: 10%;"> </td> <td style="width: 10%;">⊕</td> </tr> <tr> <td><b>Plate</b></td> <td>W</td> <td>B</td> <td>W</td> <td>B</td> <td>W</td> <td>B</td> <td>Clear</td> </tr> <tr> <td><b>Symbol</b></td> <td>Red</td> <td>Green</td> <td>Green</td> <td>Black</td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>Code</b></td> <td>01</td> <td>02</td> <td>03</td> <td>04</td> <td>11</td> <td>12</td> <td>02B 04B 12B</td> </tr> </table> <p>W: White, B: black</p> | <b>Type</b> | <b>Used with</b> | <b>AR9P019</b> -□ □ ■ | AR22FAR, FBR, AR30FAR, FBR | <b>AR9P020</b> -□ □ ■ | AR22EAR, EBR, AR30EAR, EBR | <b>Symbol</b> | ○     |             | ⊕ | ○ |   | ⊕            | <b>Plate</b> | W      | B    | W           | B | W | B | Clear | <b>Symbol</b> | Red | Green | Green | Black |  |  |  | <b>Code</b> | 01 | 02 | 03 | 04 | 11 | 12 | 02B 04B 12B |
| <b>Type</b>  | <b>Used with</b>  |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>AR9P019</b> -□ □ ■  | AR22FAR, FBR, AR30FAR, FBR  |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>AR9P020</b> -□ □ ■  | AR22EAR, EBR, AR30EAR, EBR  |             |                  |                       |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Symbol</b>  | ○   |             | ⊕                | ○                     |                            | ⊕                     |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Plate</b>   | W   | B           | W                | B                     | W                          | B                     | Clear                      |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Symbol</b>  | Red   | Green       | Green            | Black                 |                            |                       |                            |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |
| <b>Code</b>  | 01  | 02          | 03               | 04                    | 11                         | 12                    | 02B 04B 12B                |               |       |             |   |   |   |              |              |        |      |             |   |   |   |       |               |     |       |       |       |  |  |  |             |    |    |    |    |    |    |             |


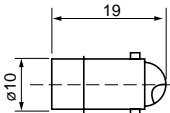
|   |   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
|---|---|-------------|------------------|------------------|------------------------------|-------------------|---------|------------------|-----------------|-------------------|---------|------------------|-----------------|-------------------|---------|------------------|-----------------|-------------|------------------|-------------------|--------------|-------------------|---------|-------------------|---------|-------------------|---------|--------------|-------|-----|-------|-------------|---|---|---|--------------|--------|--------|------|-------------|---|---|---|
| <p><b>Description</b></p> <p>Legend plate and color plate<br/>(for F type with square bezel)</p>  <p style="text-align: right; font-size: small;">AF94-460</p>  <p style="text-align: right; font-size: small;">KK02-105A</p>  <p style="text-align: right; font-size: small;">KK02-106A</p>  <p style="text-align: right; font-size: small;">KK02-107A</p> | <p><b>Type</b></p> <ul style="list-style-type: none"> <li>• Legend plate</li> </ul> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Type</b></td> <td style="width: 15%;"><b>Used with</b></td> </tr> <tr> <td><b>DR9P241-W</b></td> <td>AR22F0M, F5M<br/>DR22F3M, F4M</td> </tr> <tr> <td><b>DR9P242-WP</b></td> <td>DR30M4M</td> </tr> <tr> <td><b>DR9P242-W</b></td> <td>DR30M4M, LED(W)</td> </tr> <tr> <td><b>DR9P243-WP</b></td> <td>DR30F4N</td> </tr> <tr> <td><b>DR9P243-W</b></td> <td>DR30F4N, LED(W)</td> </tr> <tr> <td><b>DR9P244-WP</b></td> <td>DR30F4M</td> </tr> <tr> <td><b>DR9P244-W</b></td> <td>DR30F4M, LED(W)</td> </tr> </table> <p>Types DR9P242, 243 and 244-W are LED illuminated, and used exclusively with operators having a "W" in the type number.</p> <ul style="list-style-type: none"> <li>• color plate</li> </ul> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Type</b></td> <td style="width: 15%;"><b>Used with</b></td> </tr> <tr> <td><b>DR9P241</b>-□</td> <td>DR22F3M, F4M</td> </tr> <tr> <td><b>DR9P242</b>-□</td> <td>DR30M4M</td> </tr> <tr> <td><b>DR9P243</b>-□</td> <td>DR30F4N</td> </tr> <tr> <td><b>DR9P244</b>-□</td> <td>DR30F4M</td> </tr> </table> <p>Replace the □ mark by the color code</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Color</b></td> <td style="width: 15%;">Green</td> <td style="width: 15%;">Red</td> <td style="width: 15%;">White</td> </tr> <tr> <td><b>Code</b></td> <td>G</td> <td>R</td> <td>W</td> </tr> </table> <hr/> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Color</b></td> <td style="width: 15%;">Yellow</td> <td style="width: 15%;">Orange</td> <td style="width: 15%;">Blue</td> </tr> <tr> <td><b>Code</b></td> <td>Y</td> <td>A</td> <td>S</td> </tr> </table> <p>This part is made of acrylic resin.<br/>Use paint or thinner compatible with resin.</p> <p>Dimensions, mm:<br/>DR9P241: 20.8 sq. x 0.8<br/>DR9P242: 33.4 sq. x 1<br/>DR9P243: 33.4 x 27.4 x 1<br/>DR9P244: 27.4 sq. x 1</p> | <b>Type</b> | <b>Used with</b> | <b>DR9P241-W</b> | AR22F0M, F5M<br>DR22F3M, F4M | <b>DR9P242-WP</b> | DR30M4M | <b>DR9P242-W</b> | DR30M4M, LED(W) | <b>DR9P243-WP</b> | DR30F4N | <b>DR9P243-W</b> | DR30F4N, LED(W) | <b>DR9P244-WP</b> | DR30F4M | <b>DR9P244-W</b> | DR30F4M, LED(W) | <b>Type</b> | <b>Used with</b> | <b>DR9P241</b> -□ | DR22F3M, F4M | <b>DR9P242</b> -□ | DR30M4M | <b>DR9P243</b> -□ | DR30F4N | <b>DR9P244</b> -□ | DR30F4M | <b>Color</b> | Green | Red | White | <b>Code</b> | G | R | W | <b>Color</b> | Yellow | Orange | Blue | <b>Code</b> | Y | A | S |
| <b>Type</b>   | <b>Used with</b>  |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P241-W</b>  | AR22F0M, F5M<br>DR22F3M, F4M  |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P242-WP</b>   | DR30M4M   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P242-W</b>  | DR30M4M, LED(W)   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P243-WP</b>   | DR30F4N   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P243-W</b>  | DR30F4N, LED(W)   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P244-WP</b>   | DR30F4M   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P244-W</b>  | DR30F4M, LED(W)   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>Type</b>   | <b>Used with</b>  |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P241</b> -□   | DR22F3M, F4M  |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P242</b> -□   | DR30M4M   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P243</b> -□   | DR30F4N   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P244</b> -□   | DR30F4M   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>Color</b>  | Green   | Red         | White            |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>Code</b>   | G   | R           | W                |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>Color</b>  | Yellow  | Orange      | Blue             |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>Code</b>   | Y   | A           | S                |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <p><b>Legend plate</b><br/>(for E type with square bezel)</p>  <p style="text-align: right; font-size: small;">AF94-460</p>  <p style="text-align: right; font-size: small;">AF94-460</p>   | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Type</b></td> <td style="width: 15%;"><b>Used with</b></td> </tr> <tr> <td><b>AR9P003-W</b></td> <td>AR22E0M, E5M<br/>DR22F5M, E3M</td> </tr> <tr> <td><b>DR9P001-W</b></td> <td>DR22E3N</td> </tr> </table> <p>This part is made of acrylic resin.<br/>Use paint or thinner compatible with resin.</p> <p>Dimensions, mm:<br/>AR9P003-W: 20 sq. x 4.8<br/>DR9P001-W: 19.7 x 26.7 x 4.5</p>   | <b>Type</b> | <b>Used with</b> | <b>AR9P003-W</b> | AR22E0M, E5M<br>DR22F5M, E3M | <b>DR9P001-W</b>  | DR22E3N |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>Type</b>   | <b>Used with</b>  |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>AR9P003-W</b>  | AR22E0M, E5M<br>DR22F5M, E3M  |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <b>DR9P001-W</b>  | DR22E3N   |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |
| <p><b>Legend sheet</b></p>  <p style="text-align: right; font-size: small;">AF95-34</p>   | <p><b>AHX727</b></p> <p>Affix this seal to the DR9P241-□/AR9P003 legend plate for marking or labeling.</p> <p>Dimensions, mm: 20 sq. x 0.025</p>  |             |                  |                  |                              |                   |         |                  |                 |                   |         |                  |                 |                   |         |                  |                 |             |                  |                   |              |                   |         |                   |         |                   |         |              |       |     |       |             |   |   |   |              |        |        |      |             |   |   |   |

# Pushbuttons/Selectors/Pilot Lights

## AR22/DR22 and AR30/DR30


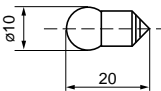

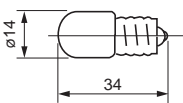



### Accessories





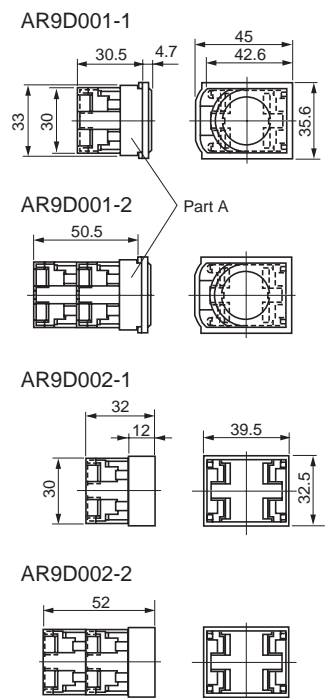
| Description  | Type  |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|--|---|--------------|--------------|-------------|-----------|-------------|-------|-------------|---|-------------|---|-------------|-----------|----------------|--------|-----|-------|------|---|---|---|------------|---|---|---|----------------|-------|--------|------|------|---|---|---|------------|---|-------|---|
| LED lamp<br><br><br><br><br><br><br><br> | <table border="1"> <thead> <tr> <th>Type</th> <th>Lamp voltage</th> </tr> </thead> <tbody> <tr> <td>APX510-6 □</td> <td>6V AC</td> </tr> <tr> <td>APX510-D6 □</td> <td>6V DC</td> </tr> <tr> <td>APX510-12 □</td> <td>12V AC/DC</td> </tr> <tr> <td>APX510-15 □</td> <td>15V AC/DC</td> </tr> <tr> <td>APX510-24 □</td> <td>24V AC/DC</td> </tr> </tbody> </table> <p>Replace the □ mark by the luminous color code</p> <table border="1"> <thead> <tr> <th>Luminous color</th> <th>Yellow</th> <th>Red</th> <th>Green</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>Y</td> <td>R</td> <td>G</td> </tr> <tr> <td>Lens color</td> <td>Y</td> <td>R</td> <td>G</td> </tr> </tbody> </table><br><table border="1"> <thead> <tr> <th>Luminous color</th> <th>Amber</th> <th>Orange</th> <th>Blue</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>A</td> <td>O</td> <td>S</td> </tr> <tr> <td>Lens color</td> <td>A</td> <td>W, A*</td> <td>S</td> </tr> </tbody> </table> <p>* Orange is available only for the DR22F4M pilot light.</p> <p>Dimensions, mm:</p>  <p>Lamp base: BA9s/13</p> | Type         | Lamp voltage | APX510-6 □  | 6V AC     | APX510-D6 □ | 6V DC | APX510-12 □ | 12V AC/DC   | APX510-15 □ | 15V AC/DC   | APX510-24 □ | 24V AC/DC | Luminous color | Yellow | Red | Green | Code | Y | R | G | Lens color | Y | R | G | Luminous color | Amber | Orange | Blue | Code | A | O | S | Lens color | A | W, A* | S |
|  | Type  | Lamp voltage |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | APX510-6 □  | 6V AC        |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | APX510-D6 □   | 6V DC        |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | APX510-12 □   | 12V AC/DC    |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | APX510-15 □   | 15V AC/DC    |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | APX510-24 □   | 24V AC/DC    |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | Luminous color  | Yellow       | Red          | Green       |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | Code  | Y            | R            | G           |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
|  | Lens color  | Y            | R            | G           |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| Luminous color   | Amber   | Orange       | Blue         |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| Code   | A   | O            | S            |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| Lens color   | A   | W, A*        | S            |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| LED lamp (for DR30 with resistor)  | <table border="1"> <thead> <tr> <th>Type</th> <th>Lamp voltage</th> </tr> </thead> <tbody> <tr> <td>APX507-24 □</td> <td>24V AC/DC</td> </tr> <tr> <td>APX509-24O</td> <td></td> </tr> </tbody> </table> <p>Note:<br/>The symbol in the box indicates the color of light emitted. (See note APX510.)<br/>When the code is "W" (white), use an LED lamp ((APX.509-24O)</p> <p>Dimensions, mm:</p> <table border="1"> <tbody> <tr> <td>APX507</td> <td></td> </tr> <tr> <td>APX509</td> <td></td> </tr> </tbody> </table> <p>Lamp base: E12/15</p>  | Type         | Lamp voltage | APX507-24 □ | 24V AC/DC | APX509-24O  |       | APX507      |  | APX509      |  |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| Type   | Lamp voltage  |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| APX507-24 □  | 24V AC/DC   |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| APX509-24O   |   |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| APX507   |    |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| APX509   |    |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| LED lamp (for AR22VGF type)  | <table border="1"> <thead> <tr> <th>Type</th> <th>Lamp voltage</th> </tr> </thead> <tbody> <tr> <td>AR9L002-ER</td> <td>24V AC/DC</td> </tr> </tbody> </table> <p>Luminous color: Red</p> <p>Dimensions, mm:</p>  <p>Lamp base: BA9s/13</p> <p>Do not use the LED lamp for other types.</p>  | Type         | Lamp voltage | AR9L002-ER  | 24V AC/DC |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| Type   | Lamp voltage  |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |
| AR9L002-ER   | 24V AC/DC   |              |              |             |           |             |       |             |   |             |   |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |       |   |

| Description                     | Type   |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
|---------------------------------|--|--------|--------------|-------------|---------|-------------|---------|-------------|-----------|-------------|-----------|----------------|--------|-----|-------|------|---|---|---|------------|---|---|---|----------------|-------|--------|------|---|---|------------|---|---|
| Neon lamp (for AR22VGF type)    | <table border="1"> <thead> <tr> <th>Type</th> <th>Lamp voltage</th> </tr> </thead> <tbody> <tr> <td>AR9N001-HA</td> <td>110V AC</td> </tr> <tr> <td>AR9N001-KA</td> <td>120V AC</td> </tr> <tr> <td>AR9N001-MA</td> <td>220V AC</td> </tr> <tr> <td>AR9N001-PA</td> <td>240V AC</td> </tr> </tbody> </table> <p>Luminous color: Orange</p> <p>Dimensions, mm:</p><br><br><p>KK03-038 Do not use the LED lamp for other types.</p>   | Type   | Lamp voltage | AR9N001-HA  | 110V AC | AR9N001-KA  | 120V AC | AR9N001-MA  | 220V AC   | AR9N001-PA  | 240V AC   |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| Type                            | Lamp voltage   |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| AR9N001-HA                      | 110V AC  |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| AR9N001-KA                      | 120V AC  |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| AR9N001-MA                      | 220V AC  |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| AR9N001-PA                      | 240V AC  |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| LED lamp for DR30 (square type) | <table border="1"> <thead> <tr> <th>Type</th> <th>Lamp voltage</th> </tr> </thead> <tbody> <tr> <td>DN6Q005-6 □</td> <td>6V DC</td> </tr> <tr> <td>DN6Q005-2 □</td> <td>12V AC</td> </tr> <tr> <td>DN6Q005-B □</td> <td>12V AC/DC</td> </tr> <tr> <td>DN6Q005-E □</td> <td>24V AC/DC</td> </tr> </tbody> </table> <p>Replace the □ mark by the luminous color code</p> <table border="1"> <thead> <tr> <th>Luminous color</th> <th>Yellow</th> <th>Red</th> <th>Green</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>Y</td> <td>R</td> <td>G</td> </tr> <tr> <td>Lens color</td> <td>Y</td> <td>R</td> <td>G</td> </tr> </tbody> </table><br><table border="1"> <thead> <tr> <th>Luminous color</th> <th>Amber</th> <th>Orange</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>Y</td> <td>W</td> </tr> <tr> <td>Lens color</td> <td>Y</td> <td>W</td> </tr> </tbody> </table> <p>Dimensions, mm:</p>  <p>Lamp base: BA9s/13</p> <p>KK06-208 Do not use the LED lamp for other types.</p> | Type   | Lamp voltage | DN6Q005-6 □ | 6V DC   | DN6Q005-2 □ | 12V AC  | DN6Q005-B □ | 12V AC/DC | DN6Q005-E □ | 24V AC/DC | Luminous color | Yellow | Red | Green | Code | Y | R | G | Lens color | Y | R | G | Luminous color | Amber | Orange | Code | Y | W | Lens color | Y | W |
| Type                            | Lamp voltage   |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| DN6Q005-6 □                     | 6V DC  |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| DN6Q005-2 □                     | 12V AC   |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| DN6Q005-B □                     | 12V AC/DC  |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| DN6Q005-E □                     | 24V AC/DC  |        |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| Luminous color                  | Yellow   | Red    | Green        |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| Code                            | Y  | R      | G            |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| Lens color                      | Y  | R      | G            |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| Luminous color                  | Amber  | Orange |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| Code                            | Y  | W      |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |
| Lens color                      | Y  | W      |              |             |         |             |         |             |           |             |           |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |   |   |            |   |   |

# Pushbuttons/Selectors/Pilot Lights AR22/DR22 and AR30/DR30 Accessories

04


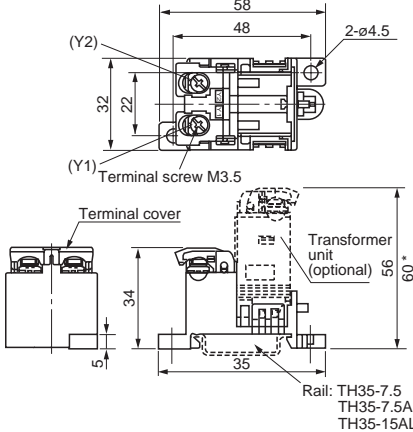



| Description   | Type  |                     |                            |
|---|---|---------------------|----------------------------|
| <br><br><small>AF89-427</small>            | Type  | Lamp voltage        | Rated voltage, consumption |
|   | <b>AHX135</b>   | 5.5V AC/DC          | 6.3V AC/DC, 1W             |
|   | <b>AHX279</b>   | 15V AC/DC           | 18V AC/DC, 1W              |
|   | <b>AHX144</b>   | 20V AC/DC           | 24V AC/DC, 1W              |
|   | <b>AHX129</b>   | 24V AC/DC           | 30V AC/DC, 1W              |
| Dimensions, mm:<br><br>Lamp base: BA9s/13  |   |                     |                            |
| <br><br><small>KK02-115A</small>          | Type  | Lamp voltage        | Rated voltage, consumption |
|   | <b>AHX130</b>   | 15V AC/DC           | 18V AC/DC, 2W              |
| Dimensions, mm:<br><br>Lamp base: E12/15 |   |                     |                            |
| <br><br><small>AF94-455</small>          | <b>AR9B290</b><br><b>AR9B290-S</b>  | Standard<br>Overlap |                            |
|   | Color: Blue<br>Dimensions, mm: 19.3 x 29 x 27<br><br>Note: Terminal cover is not supplied with this.  |                     |                            |
| <br><br><small>AF94-455</small>          | <b>AR9B291</b><br><b>AR9B291-S</b>  | Standard<br>Overlap |                            |
|   | Color: Red<br>Dimensions, mm: 19.3 x 29 x 27<br><br>Note: Terminal cover is not supplied with this.   |                     |                            |
| <br><br><small>AF94-456</small>          | <b>AR9B292</b>  |                     |                            |
|   | Color: Black<br>Dimensions, mm: 19.3 x 29 x 27<br><br>Note: Terminal cover is not supplied with this. |                     |                            |






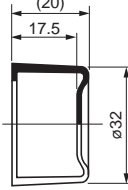

| Description  | Type  |                      |                  |           |
|--|---|----------------------|------------------|-----------|
| <br><br><small>KK02-117A</small><br><br><br><br><small>KK02-118A</small><br><br><br><br><small>AF94-457</small><br><br><br><br><small>AF95-33</small> | Type  | Used with *          |                  |           |
|  | <b>AR9D001-1</b>  | AR22, 1-step contact |                  |           |
|  | <b>AR9D001-2</b>  | AR22, 2-step contact |                  |           |
|  | <b>AR9D002-1</b>  | AR30, 1-step contact |                  |           |
|  | <b>AR9D002-2</b>  | AR30, 2-step contact |                  |           |
|  | <ul style="list-style-type: none"> <li>The contact is covered with a silicon rubber cover to keep out foreign matter such as dust, etc.</li> <li>Section A of the AR9D001 is separate.</li> </ul> * See page 04/122, "AR22 □ Z8, AR30 □ Z8" |                      |                  |           |
|  | Dimensions, mm:<br>   |                      |                  |           |
|  | Transformer unit  | Type                 | Primary voltage  | Used with |
|  | <b>AR9T511-H</b>  | 100-110V AC          | Standard type    |           |
|  | <b>AR9T511-L</b>  | 115-127V AC          | (except buzzers) |           |
| <b>AR9T511-M</b>   | 200-220V AC   |                      |                  |           |
| <b>AR9T511-Q</b>   | 230-254V AC   |                      |                  |           |
| <b>AR9T511-S</b>   | 350-380V AC   |                      |                  |           |
| <b>AR9T511-T</b>   | 400-440V AC   |                      |                  |           |
| <b>AR9T511-V</b>   | 480V AC   |                      |                  |           |
| <b>AR9T511-W</b>   | 500-550V AC   |                      |                  |           |
| <b>AR9T557-H</b>   | 100-110V AC   | DR30F4N, F4M,        |                  |           |
| <b>AR9T557-L</b>   | 115-127V AC   | M4M                  |                  |           |
| <b>AR9T557-M</b>   | 200-220V AC   |                      |                  |           |
| <b>AR9T557-Q</b>   | 230-254V AC   |                      |                  |           |
| <b>AR9T557-S</b>   | 350-380V AC   |                      |                  |           |
| <b>AR9T557-T</b>   | 400-440V AC   |                      |                  |           |
| <b>AR9T557-V</b>   | 480V AC   |                      |                  |           |
| <b>AR9T557-W</b>   | 500-550V AC   |                      |                  |           |
| Dimensions, mm:<br>Up to 220 V 22.4 x 30 x 45<br>Over 220 V 25.3 x 29 x 48<br><br>Note: With terminal cover  |   |                      |                  |           |

# Pushbuttons/Selectors/Pilot Lights



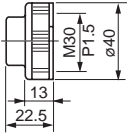
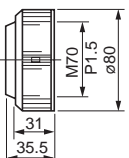


## AR22/DR22 and AR30/DR30






### Accessories

| <p>Description</p> <p>Base unit for transformer separate mounting</p>  <p>KK02-118A</p>   | <p>Type</p> <p><b>AR9T003</b></p> <p>Use this base in combination with a transformer unit. This base unit can be mounted using screws or rails.</p> <p>Dimensions, mm</p>  <p>* Except for the types 110V AC, 127V AC and 220V AC.</p>  |                |           |                |                |             |           |                |                               |           |
|--|---|----------------|-----------|----------------|----------------|-------------|-----------|----------------|-------------------------------|-----------|
| <p>Resistor</p> <p>Voltage stabilizer</p> <p>Device for LED lamp flickering</p>  <p>AF95-33</p>                                 | <p>Resistor: <b>AR9T519-H</b> (110V DC)<br/>Fit this resistor when using LED of 24V DC rating with 110V DC power.</p> <p>Voltage stabilizer: <b>AR9T001-E</b><br/>This unit allows an LED lamp of 24V DC rating to be used in a circuit with voltage from 27V to 35V (AC or DC).</p> <p>Flickering device:</p> <p>6V AC: <b>AR9T002-A</b><br/>6V DC: <b>AR9T002-6</b><br/>12 to 24V AC: <b>AR9T002-G</b> *<br/>12 to 24V DC: <b>AR9T002-E</b> *</p> <p>* Used in combination with 12V, 15V, or 24V rated LED lamp.</p> <p>Note: With terminal cover</p> |                |           |                |                |             |           |                |                               |           |
| <p>Nut</p>  <p>AF94-462</p>  <p>KK2-119A</p> | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> <th>Dimensions, mm</th> </tr> </thead> <tbody> <tr> <td><b>AR9R744</b></td> <td>AR22, DR22*</td> <td>ø29.7 x 4</td> </tr> <tr> <td><b>DR9R001</b></td> <td>DR30F4M<br/>DR30F4N<br/>DR30M4M</td> <td>ø33.8 x 5</td> </tr> </tbody> </table> <p>* Except AR22VG□, Joy stick selectors, buzzers and numerical indicators</p>  | Type           | Used with | Dimensions, mm | <b>AR9R744</b> | AR22, DR22* | ø29.7 x 4 | <b>DR9R001</b> | DR30F4M<br>DR30F4N<br>DR30M4M | ø33.8 x 5 |
| Type   | Used with   | Dimensions, mm |           |                |                |             |           |                |                               |           |
| <b>AR9R744</b>   | AR22, DR22*   | ø29.7 x 4      |           |                |                |             |           |                |                               |           |
| <b>DR9R001</b>   | DR30F4M<br>DR30F4N<br>DR30M4M   | ø33.8 x 5      |           |                |                |             |           |                |                               |           |

| <p>Description</p> <p>Nut for 30mm dia. types (Resin types are black, metallic types are silver.)</p>  <p>KK2-120A</p>  <p>KK2-121A</p>  <p>KK2-122A</p>  <p>KK2-123A</p> | <p>Type</p> <p><b>AR9R001</b>: Resin types are black (standard)<br/><b>AHX088</b>: Metallic types are silver</p> <p>Used with:<br/>AR30F0R, F5R, FAR, FBR, E0R, E5R, EAR, EBR, E0L, E5L, Q7L<br/>DR30D0L, E3L, K0L</p> <p><b>AR9R002</b>: Resin types are black (standard)<br/><b>AHX093</b>: Metallic types are silver</p> <p>Used with:<br/>AR30M0R, M5R, M4R, G0R, G5R, N0R, S□R, V□R, Q2R, V□L, PR, PCR, WR, WCR, JR, JCR, JAR, PL, A□N, A□H</p>  |      |       |   |       |   |     |   |       |   |        |       |                  |
|--|---|------|-------|---|-------|---|-----|---|-------|---|--------|-------|------------------|
| <p>Water-tight cap for 22mm dia. types</p>  <p>KK2-124A</p>   | <p><b>AR9D797</b> □</p> <p>This rubber cap protects the operator and switch mechanism against dust and water. Use this cap in a dusty or moist environment.</p> <p>Used with:<br/>AR22E0L, E5L<br/>AR22E0R, E5R</p> <p>Replace the □ mark by the luminous color code.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>G</td> <td>Green</td> </tr> <tr> <td>R</td> <td>Red</td> </tr> <tr> <td>B</td> <td>Black</td> </tr> <tr> <td>Y</td> <td>Yellow</td> </tr> <tr> <td>Blank</td> <td>Clear (standard)</td> </tr> </tbody> </table> <p>Dimensions, mm:</p>  | Code | Color | G | Green | R | Red | B | Black | Y | Yellow | Blank | Clear (standard) |
| Code   | Color   |      |       |   |       |   |     |   |       |   |        |       |                  |
| G  | Green   |      |       |   |       |   |     |   |       |   |        |       |                  |
| R  | Red   |      |       |   |       |   |     |   |       |   |        |       |                  |
| B  | Black   |      |       |   |       |   |     |   |       |   |        |       |                  |
| Y  | Yellow  |      |       |   |       |   |     |   |       |   |        |       |                  |
| Blank  | Clear (standard)  |      |       |   |       |   |     |   |       |   |        |       |                  |
| <p>Water-tight cap for 30mm dia. types</p>  <p>Y-1559</p>   | <p><b>AHX052</b></p> <p>This rubber cap protects the operator and switch mechanism against dust and water. Use this cap in a dusty or moist environment. The only color available is transparent.</p> <p>Used with:<br/>AR30E□R, E□L</p> <p>Dimensions, mm: ø36 x 22.5</p>  |      |       |   |       |   |     |   |       |   |        |       |                  |

# Pushbuttons/Selectors/Pilot Lights AR22/DR22 and AR30/DR30 Accessories

| Description  | Type   |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|--|--|---------|--------------------|--------------------|-------|---------------|-----|---------|-----------|---------------|-------|--|--|---------------|-------|--|--|---------------|-----|---------|-----------|---------------|-------|--|--|---------------|-------|--|--|-----------------|-----|----------|-----------|-----------------|-------|-----|--|-----------------|-------|--|--|-----------------|-----|---------|--------------------|-----------------|-------|--|--|-----------------|-------|--|--|-----------------|-----|---------|--------------------|-----------------|-------|--|--|-----------------|-------|--|--|
| Dust-proof cap for 30mm dia. types   | <table border="1"> <thead> <tr> <th>Type</th> <th>Color</th> <th>Used with</th> <th>Spec.</th> </tr> </thead> <tbody> <tr> <td><b>AHX032</b></td> <td>Red</td> <td>AR30E0R</td> <td>Oil-proof</td> </tr> <tr> <td><b>AHX033</b></td> <td>Green</td> <td></td> <td></td> </tr> <tr> <td><b>AHX034</b></td> <td>Black</td> <td></td> <td></td> </tr> <tr> <td><b>AHX041</b></td> <td>Red</td> <td>AR30F0R</td> <td>Oil-proof</td> </tr> <tr> <td><b>AHX042</b></td> <td>Green</td> <td></td> <td></td> </tr> <tr> <td><b>AHX043</b></td> <td>Black</td> <td></td> <td></td> </tr> <tr> <td><b>AHX157-R</b></td> <td>Red</td> <td>AR30B2R,</td> <td>Oil-proof</td> </tr> <tr> <td><b>AHX157-G</b></td> <td>Green</td> <td>B3R</td> <td></td> </tr> <tr> <td><b>AHX157-B</b></td> <td>Black</td> <td></td> <td></td> </tr> <tr> <td><b>AHX113-R</b></td> <td>Red</td> <td>AR30E0R</td> <td>Weather resistance</td> </tr> <tr> <td><b>AHX113-G</b></td> <td>Green</td> <td></td> <td></td> </tr> <tr> <td><b>AHX113-B</b></td> <td>Black</td> <td></td> <td></td> </tr> <tr> <td><b>AHX111-R</b></td> <td>Red</td> <td>AR30F0R</td> <td>Weather resistance</td> </tr> <tr> <td><b>AHX111-G</b></td> <td>Green</td> <td></td> <td></td> </tr> <tr> <td><b>AHX111-B</b></td> <td>Black</td> <td></td> <td></td> </tr> </tbody> </table> | Type    | Color              | Used with          | Spec. | <b>AHX032</b> | Red | AR30E0R | Oil-proof | <b>AHX033</b> | Green |  |  | <b>AHX034</b> | Black |  |  | <b>AHX041</b> | Red | AR30F0R | Oil-proof | <b>AHX042</b> | Green |  |  | <b>AHX043</b> | Black |  |  | <b>AHX157-R</b> | Red | AR30B2R, | Oil-proof | <b>AHX157-G</b> | Green | B3R |  | <b>AHX157-B</b> | Black |  |  | <b>AHX113-R</b> | Red | AR30E0R | Weather resistance | <b>AHX113-G</b> | Green |  |  | <b>AHX113-B</b> | Black |  |  | <b>AHX111-R</b> | Red | AR30F0R | Weather resistance | <b>AHX111-G</b> | Green |  |  | <b>AHX111-B</b> | Black |  |  |
|  | Type   | Color   | Used with          | Spec.              |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX032</b>  | Red     | AR30E0R            | Oil-proof          |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX033</b>  | Green   |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX034</b>  | Black   |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX041</b>  | Red     | AR30F0R            | Oil-proof          |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX042</b>  | Green   |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX043</b>  | Black   |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX157-R</b>  | Red     | AR30B2R,           | Oil-proof          |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX157-G</b>  | Green   | B3R                |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX157-B</b>  | Black   |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX113-R</b>  | Red     | AR30E0R            | Weather resistance |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX113-G</b>  | Green   |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|  | <b>AHX113-B</b>  | Black   |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
| <b>AHX111-R</b>  | Red  | AR30F0R | Weather resistance |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
| <b>AHX111-G</b>  | Green  |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
| <b>AHX111-B</b>  | Black  |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|   | SC-993   |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|    | AF89-772   |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
| <p>Dimensions, mm:</p> <p>AHX032 to 034, 041 to 043<br/>AHX111, 113</p>  <p>AHX157</p>  <p>Used for sealing the operator from foreign debris such as dust, oil (oil-proof), and water (weather resistance) in environments where the unit is in contact with such elements.</p> |  |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
| Packing  | <p><b>AR9Y730:</b><br/>AR22 and DR22 (Rubber)</p> <p>Note: Except for joystick selector switches, buzzers</p> <p><b>AHX282:</b><br/>AR30 and DR30 (Resin-standerd)</p> <p>Note: Except for DR30F4M, F4N, M4M, numerical indicators</p> <p><b>AHX149:</b><br/>AR30 and DR30 (Rubber)</p> <p>Note: Except for DR30F4M, F4N, M4M, numerical indicators</p>  |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|   | AF94-462   |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |
|   | KK2-125A   |         |                    |                    |       |               |     |         |           |               |       |  |  |               |       |  |  |               |     |         |           |               |       |  |  |               |       |  |  |                 |     |          |           |                 |       |     |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |                 |     |         |                    |                 |       |  |  |                 |       |  |  |

| Description  | Type  |                  |                |                |                |  |                  |                |  |               |                |  |               |
|--|---|------------------|----------------|----------------|----------------|--|------------------|----------------|--|---------------|----------------|--|---------------|
| Terminal cover   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> <th>Dimensions, mm</th> </tr> </thead> <tbody> <tr> <td><b>AR9Y305</b></td> <td>Contact unit<br/>Lamp terminal<br/>Transformer unit *1</td> <td>18.4 x 29 x 8.4</td> </tr> <tr> <td><b>DR9Y320</b></td> <td>Pilot lights *2<br/>(without transformer)</td> <td>ø22 x 5.8</td> </tr> <tr> <td><b>DR9Y321</b></td> <td>DR30F4M, F4N, M4M<br/>(without transformer)</td> <td>34 sq. x 8.7</td> </tr> </tbody> </table>  | Type             | Used with      | Dimensions, mm | <b>AR9Y305</b> | Contact unit<br>Lamp terminal<br>Transformer unit *1 | 18.4 x 29 x 8.4  | <b>DR9Y320</b> | Pilot lights *2<br>(without transformer) | ø22 x 5.8     | <b>DR9Y321</b> | DR30F4M, F4N, M4M<br>(without transformer)         | 34 sq. x 8.7  |
|  | Type  | Used with        | Dimensions, mm |                |                |  |                  |                |  |               |                |  |               |
| <b>AR9Y305</b>   | Contact unit<br>Lamp terminal<br>Transformer unit *1  | 18.4 x 29 x 8.4  |                |                |                |  |                  |                |  |               |                |  |               |
| <b>DR9Y320</b>   | Pilot lights *2<br>(without transformer)  | ø22 x 5.8        |                |                |                |  |                  |                |  |               |                |  |               |
| <b>DR9Y321</b>   | DR30F4M, F4N, M4M<br>(without transformer)  | 34 sq. x 8.7     |                |                |                |  |                  |                |  |               |                |  |               |
|    | AF94-466  |                  |                |                |                |  |                  |                |  |               |                |  |               |
|    | KK2-126A  |                  |                |                |                |  |                  |                |  |               |                |  |               |
| Terminal cover   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> <th>Dimensions, mm</th> </tr> </thead> <tbody> <tr> <td><b>AHX305</b></td> <td>Buzzers<br/>(without transformer)</td> <td>23.5 x 27.5 x 16</td> </tr> <tr> <td><b>AHX426</b></td> <td>DR30D1L<br/>(without transformer)</td> <td>27.5 x 31 x 8</td> </tr> <tr> <td><b>AHX376</b></td> <td>DR30D1L<br/>(with transformer)<br/>Buzzers (B0 type)</td> <td>13 x 29 x 6.5</td> </tr> </tbody> </table> <p>With transformer *<br/>With short-body transformer<br/>With resistor unit</p> <p>* 230V and over</p> <p>The terminal cover is provided as standard with the applicable types listed above.</p> | Type             | Used with      | Dimensions, mm | <b>AHX305</b>  | Buzzers<br>(without transformer)                     | 23.5 x 27.5 x 16 | <b>AHX426</b>  | DR30D1L<br>(without transformer)         | 27.5 x 31 x 8 | <b>AHX376</b>  | DR30D1L<br>(with transformer)<br>Buzzers (B0 type) | 13 x 29 x 6.5 |
| Type   | Used with   | Dimensions, mm   |                |                |                |  |                  |                |  |               |                |  |               |
| <b>AHX305</b>  | Buzzers<br>(without transformer)  | 23.5 x 27.5 x 16 |                |                |                |  |                  |                |  |               |                |  |               |
| <b>AHX426</b>  | DR30D1L<br>(without transformer)  | 27.5 x 31 x 8    |                |                |                |  |                  |                |  |               |                |  |               |
| <b>AHX376</b>  | DR30D1L<br>(with transformer)<br>Buzzers (B0 type)  | 13 x 29 x 6.5    |                |                |                |  |                  |                |  |               |                |  |               |
|   | AHX305<br>SG-842  |                  |                |                |                |  |                  |                |  |               |                |  |               |
|  | AHX426<br>AF92-339  |                  |                |                |                |  |                  |                |  |               |                |  |               |
|  | AHX376<br>SG-5  |                  |                |                |                |  |                  |                |  |               |                |  |               |

04

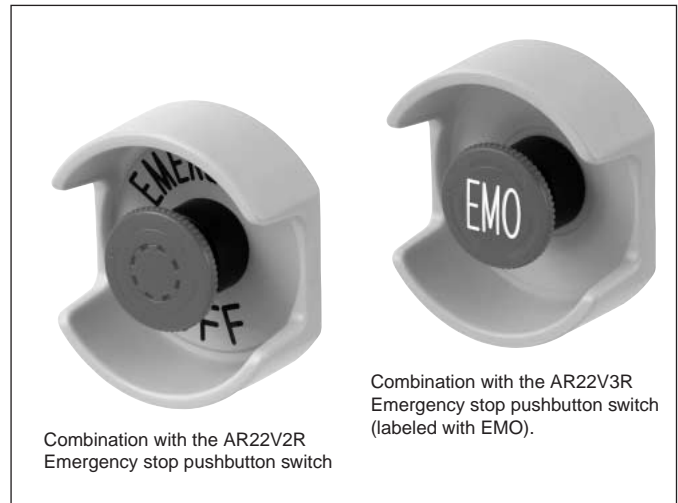
# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 Special products



### Semi standard compliant guarding

#### ■ Features


- Combine a guard ring with a Fuji electric emergency stop pushbutton switches to comply with SEMI (SEMI-S2, SEMATECH Application Guide for SEMI S2-93).
- EMERGENCY OFF legend plates are available.
- Emergency stop pushbutton switches labeled with "EMO" are available.



#### ■ Accessories

| Description  | Type              | Color                    |
|--|-------------------|--------------------------|
| <br>(KKD05-263)   | <b>AR9R008</b>    | Yellow                   |
| Legend plate for AR9R008 emergency off<br><br>(KKD05-262) | <b>AR9P721-5C</b> | Yellow<br>(Black legend) |

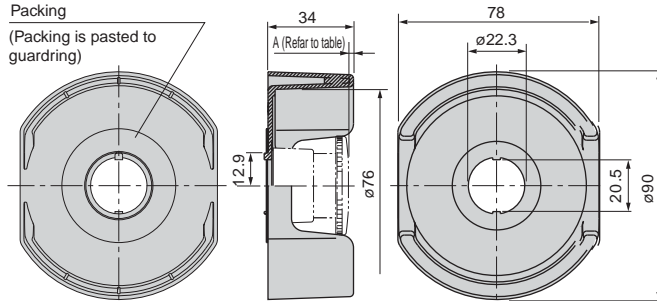
#### ■ Emergency stop pushbutton switches

| Operator   | Contact | Type                   | Color                 |
|--|---------|------------------------|-----------------------|
| <br>(KKD05-261) | 1NC     | <b>AR22V3R-01RZ286</b> | Red<br>(White legend) |
|  | 1NO+1NC | <b>AR22V3R-11RZ286</b> |                       |
|  | 2NC     | <b>AR22V3R-02RZ286</b> |                       |
|  | 1NO+2NC | <b>AR22V3R-12RZ286</b> |                       |
|  | 3NC     | <b>AR22V3R-03RZ286</b> |                       |
|  | 1NO+3NC | <b>AR22V3R-13RZ286</b> |                       |
|  | 2NO+2NC | <b>AR22V3R-22RZ286</b> |                       |
|  | 4NC     | <b>AR22V3R-04RZ286</b> |                       |

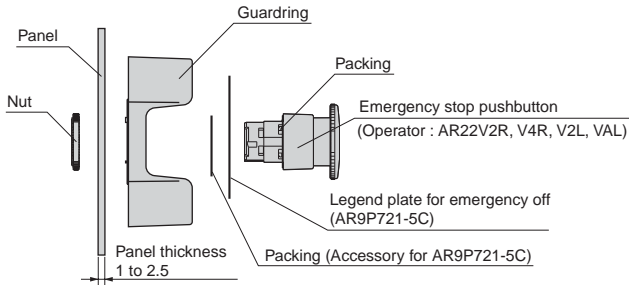
Note : Contact arrangements indicated in the table can be supplied.

■ Dimensions, mm

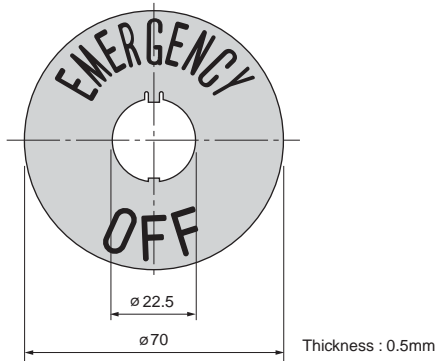
● Guardring (AR9R008)



● Installation



● Legend plate for emergency off (AR9P721-5C)



Note : • Engraving for marking letters is not available.  
• Letter height : 13mm

■ Notes on use

This guardring conform to SEMI standard. Please do not use it for the emergency stops other than Semiconductor manufacturing Equipment.

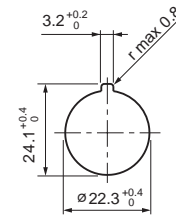
■ Applicable types

AR22V2R, V4R, V2L, VAL and V3R Z286

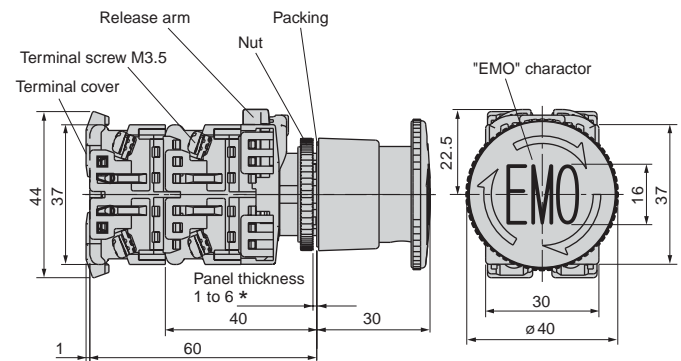
\* Dimension A (the height difference between the switch and guardring) depends on the emergency stop (Illuminated) pushbutton switch that is being used. Refer to the following table.

| Type           | Panel thickness | A (Reference)       |
|----------------|-----------------|---------------------|
| AR22V2R        | 1~2.5           | 2mm With AR9P721-5C |
| AR22V4R        | 1~2.5           | 2mm With AR9P721-5C |
| AR22V2L        | 1~2.5           | 2mm With AR9P721-5C |
| AR22VAL        | 1~2.5           | 2mm With AR9P721-5C |
| AR22V3R (Z286) | 1~3.6           | 3mm                 |

● Panel cutout hole dimensions, mm



● Emergency stop pushbutton switches (AR22V3R-□□RZ286)



\* Without accessories



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22/DR22 and AR30/DR30

### Special products

#### Products equipped with contact protection cover

##### ■ Features

A silicon rubber cover is provided for the contact block to keep out foreign matter such as dust, etc.  
Other ratings and specifications are the same as those of the standard type.

##### ■ Type

**AR22 □ Z8**

**AR30 □ Z8**

Specify "Z8" at the end of the type number of the standard type.

##### ■ Dimensions

The only thing different from the standard product is the addition of a 1-mm thick silicon rubber cover around the contact block.

##### ■ Applicable types

| Type  | Contact arrangement                      | Remarks                          |
|---|--|----------------------------------|
| • Pushbuttons *1<br>• Emergency stop pushbuttons *2<br>• Selectors *3 | 1NO+1NC,<br>2NO*5, 2NC                   | For use with a<br>1-step contact |
|   | 1NO+3NC, 2NO+2NC,<br>3NO+1NC, 4NO*5, 4NC | For use with a<br>2-step contact |
| • Illuminated pushbuttons *4<br>(without transformer)                 | 1NO*6, 1NC                               | For use with a<br>1-step contact |
| • Emergency stop illuminated<br>pushbuttons*2 (without transformer)   | 1NO+2NC, 2NO+1NC,<br>3NO*6, 3NC          | For use with a<br>2-step contact |
| • Illuminated selectors<br>(without transformer)                      |  |                                  |

Notes: \*1 Except for AR30B0R, B1R, B2R, B3R, N0R, and GPR.

\*2 Except for unibody (VG types)

\*3 Except for AR30HR

\*4 Except for AR30Q7L

\*5 Except for emergency stop pushbutton switch

\*6 Except for emergency stop illuminated pushbutton switch

#### Resisting water-soluble cutting oils and heat

##### ■ Features

Safer operation in environments exposed to water-miscible cutting fluids, machining oils, lubricating oils, cleaning oils and high humidity (up to 95%) is made possible by using materials that protect against rust and corrosion of components.  
Other ratings and specifications are the same as those of the standard type.

##### ■ Type

**AR22 □ Z9, DR22 □ Z9**

**AR30 □ Z9, DR30 □ Z9**

Specify "Z9" at the end of the type number of the standard type.

##### ■ Dimensions

Same as those of the standard type

##### ■ Applicable types

• AR22, DR22 series

AR 22 (Except for joy stick selectors, FAR, FBR, EAR, EBR types and VG types)

DR22 (Except for pilot lights with resistor unit and buzzers)

• AR30, DR30 series

AR30 (Except for Q7L, FAR, FBR, EAR, EBR, HR types and joy stick selectors)

DR30 (Except for D1L, F4M, F4N, M4M types, pilot lights with resistor/resistor unit and buzzers)

## Meeting IP2X finger protection standards

### ■ Features

Conforms to EN standard EN60204-1 (protecting against electric shock). The terminal has IEC60529 degree of protection; IP2X finger protection secured (a mock human finger used in testing did not come into contact with charged parts). The contact block and lamp terminal can be easily mounted or removed with the terminal cover mounted.

### ■ Type

AR22 □ ZB, DR22 □ ZB

AR30 □ ZB, DR30 □ ZB

Specify "ZB" at the end of the type number of the standard type.

### ■ Accessories

- Contact block (plus terminal cover)  
 NO contact: AR9B290-D  
 NC contact: AR9B291-D
- Transformer unit (plus terminal cover)  
 AR9T511-□ D

### ■ Ratings and specifications

- Protection degree: IP2X
- Terminal screw: M3.5  
 Wiring can be done with a solid wire or fork shaped crimp terminal.

Note: Ring-type crimp terminals cannot be used.

- Other ratings and specifications are the same as those of the standard type.

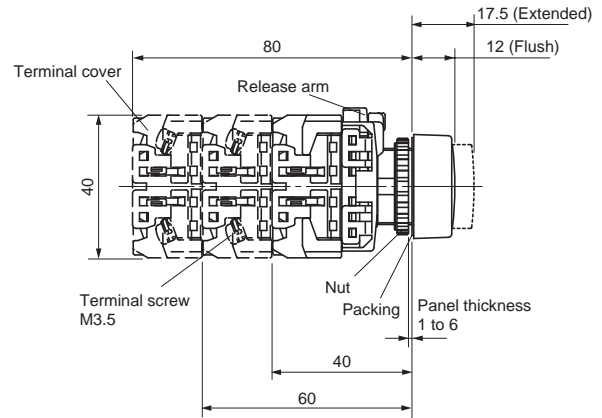
### ■ Applicable types

- AR22, DR22 series  
 AR22 (except for joy stick selectors)  
 DR22: Without transformer, with transformer (except for short-body types, buzzers and numerical indicators)
- AR30, DR30 series  
 AR30 (except for HR and joy stick selectors)  
 DR30: Without transformer, with transformer (except for D1L, F4M, F4N, M4M types and buzzers)

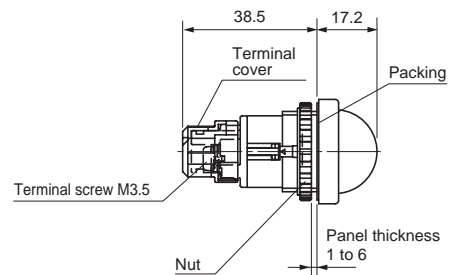
Note: The terminal of the standard type VG has IP2X protection.

## ■ Dimensions, mm

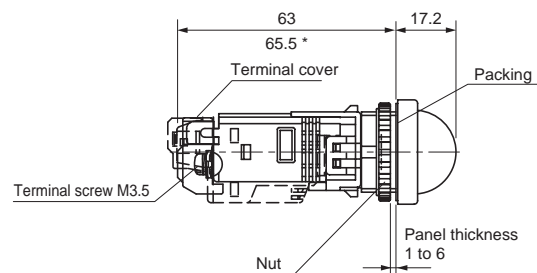
AR22/Pushbutton switches



DR22/Without transformer



DR22/With transformer



Note: \* Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22/DR22 and AR30/DR30

### Special products

#### Metal nut (chrome plated) types

##### ■ Features

The nut is a metallic ring (chrome plated).  
Other ratings and specifications are the same as those of the standard model.

##### ■ Type

AR30  ZM

DR30  ZM

Specify "ZM" at the end of the type number of the standard type.

##### ■ Dimensions, mm

Same as those of the standard types.

##### ■ Applicable types

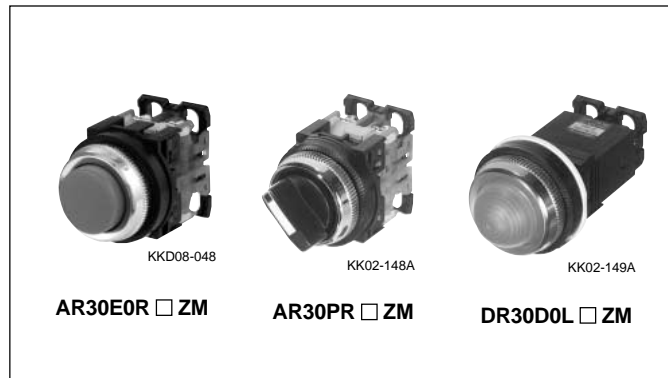
• AR30, DR30 series

AR30 (except for G4L, G9L, GSR\*1, GPR\*1, BOR\*1, and HR\*1 types)

DR30 with round bezel (except for IP54 buzzer type B8)\*2

Notes: \*1 Standard type is a metallic ring (chrome plated).

\*2 The nut of types DR30B0, B5 and B6 buzzers are resin (chrome plated).



#### Resisting sulfuration gas

##### ■ Features

These products can be used in environments having a concentration of hydrogen sulfide gas of 0.5 ppm or less. The metallic parts have been subjected to an anti-corrosion treatment (see note).

The contacts of the AR series are gold plated.

Note: The body is made of resin and cannot be used with gases that affect resins (plastics).

##### ■ Type

AR22  Z4, DR22  Z4

AR30  Z4, DR30  Z4

Specify "Z4" at the end of the type number of the standard type.

##### ■ Notes on use

- This product is resistant to light corrosive gas exposure.
- Other measures, such as covering the entire switch with a box, and the degree of protection of the panel should be taken into consideration.

##### ■ Ratings and specifications

Hydrogen sulfide gas concentration of 0.5 ppm max.

Ambient storage temperature: 8 to 37°C

Humidity: 62 to 81%

Other ratings and specifications are the same as those of the standard type.

##### ■ Dimensions, mm

Same as those of the standard types.

##### ■ Applicable types

• AR22, DR22 series

AR22 (except for Joy stick selectors and VG type)

DR22 (except for pilot lights with resistor unit and buzzers)

• AR30, DR30 series

AR30 (except for HR and Joy stick selectors)

DR30 (except for F4M, F4N, M4M types, pilot lights with resistor/resistor unit and buzzers)

■ Mass, gram

● Illuminated pushbuttons

| Type                         | Without transformer |                           |         | With transformer * |                           |
|------------------------------|---------------------|---------------------------|---------|--------------------|---------------------------|
|                              | 1NO<br>(1NC)        | 2NO<br>(2NC)<br>(1NO+1NC) | 2NO+2NC | 1NO<br>(1NC)       | 2NO<br>(2NC)<br>(1NO+1NC) |
| AR22F0L                      | 39                  | 48                        | 67      | 85                 | 94                        |
| F5L                          | 39                  | 48                        | –       | 85                 | 94                        |
| F0M, F0P                     | 40                  | 49                        | 68      | 86                 | 95                        |
| F5M, F5P                     | 40                  | 49                        | –       | 86                 | 95                        |
| E0L                          | 41                  | 50                        | 69      | 87                 | 96                        |
| E5L                          | 41                  | 50                        | –       | 87                 | 96                        |
| E0M, E0P, M4L, G1L, G2L, G4L | 42                  | 51                        | 70      | 88                 | 97                        |
| E5M, E5P, M9L, G6L, G7L, G9L | 42                  | 51                        | –       | 88                 | 97                        |
| M4P                          | 43                  | 52                        | 71      | 89                 | 98                        |
| M0L                          | 44                  | 53                        | 72      | 90                 | 99                        |
| M5L                          | 44                  | 53                        | –       | 90                 | 99                        |
| V5L                          | 48                  | 57                        | –       | 94                 | 103                       |

Note: \* 230V and over : +17grams

● Pushbuttons

| Type                    | 1NO<br>(1NC) | 2NO<br>(2NC)<br>(1NO+1NC) | 2NO+2NC |
|-------------------------|--------------|---------------------------|---------|
| AR22F0R, FAR, F5R, FBR  | 27           | 36                        | 55      |
| E0R, EAR, F0S, F0Y, G0R | 28           | 37                        | 56      |
| E5R, EBR, F5S, F5Y, G5R |              |                           |         |
| E0S, E0Y, M4R, G2R      | 29           | 38                        | 57      |
| E5S, E5Y, M9R, G7R      |              |                           |         |
| M0R, M5R                | 31           | 40                        | 59      |
| S1R, S2R, S3R, S6R      | –            | 43                        | 62      |
| M3R, M8R                | 44           | 53                        | 72      |
| V5R                     | 49           | 58                        | 77      |

● Emergency stop pushbuttons

| Type     | 1NC | 2NC<br>(1NO+1NC) | 2NO+2NC |
|----------|-----|------------------|---------|
| AR22VSR  | 34  | 43               | 62      |
| V0R, V4R | 36  | 45               | 64      |
| Q2R      | 36  | 45               | –       |
| V2R      | 38  | 47               | 66      |
| V7R      | 59  | 68               | 87      |
| VGE      | 61  | 65               | –       |

● Emergency stop illuminated pushbuttons

| Type         | Without transformer |                  | With transformer * |                  |
|--------------|---------------------|------------------|--------------------|------------------|
|              | 1NC                 | 2NC<br>(1NO+1NC) | 1NC                | 2NC<br>(1NO+1NC) |
| AR22VSL, VDL | 48                  | 57               | 94                 | 103              |
| V0L          | 49                  | 58               | 95                 | 104              |
| VAL          | 50                  | 59               | 96                 | 105              |
| V2L          | 51                  | 60               | 97                 | 106              |
| VGF          | 66                  | 70               | –                  | –                |

Note: \* 230V and over : +17grams

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR22 and DR22

### Mass

#### ■ Mass, gram

##### ● Pilot lights

| Type               | Without transformer |            | With transformer |            | With resistor unit |
|--------------------|---------------------|------------|------------------|------------|--------------------|
|                    | Standard            | Short-body | Standard *       | Short-body |                    |
| DR22D0L, K0L       | 18                  | 23         | 70               | 68         | 32                 |
| E3L, E3P, F3M, F4M | 19                  | 24         | 71               | 69         | 33                 |
| F5M                | 20                  | 25         | 72               | 70         | 34                 |
| E3M                | 21                  | 26         | 73               | 71         | 35                 |
| E3N                | 23                  | 28         | 75               | 73         | 37                 |

Note: \* 230V and over : +17grams

##### ● Selector switches

| Type          | 1NO   | 2NO                | 2NO+2NC |
|---------------|-------|--------------------|---------|
|               | (1NC) | (2NC)<br>(1NO+1NC) |         |
| AR22PR        | 30    | 39                 | 58      |
| PCR           | –     | 39                 | 58      |
| WR            | 31    | 40                 | 59      |
| WCR           | –     | 40                 | 59      |
| RR, PY, WY    | 32    | 41                 | 60      |
| RCR, PCY, WCY | –     | 41                 | 60      |
| RY            | 33    | 42                 | 61      |
| RCY           | –     | 42                 | 61      |
| JR, JAR       | 56    | 65                 | 83      |
| JCR           | –     | 65                 | 83      |
| JY            | 57    | 66                 | 84      |
| JCY           | –     | 66                 | 84      |

##### ● Illuminated selector switches

| Type   | Without transformer |                    |         | With transformer * |                    |
|--------|---------------------|--------------------|---------|--------------------|--------------------|
|        | 1NO                 | 2NO                | 2NO+2NC | 1NO                | 2NO                |
|        | (1NC)               | (2NC)<br>(1NO+1NC) |         | (1NC)              | (2NC)<br>(1NO+1NC) |
| AR22PL | 42                  | 51                 | 70      | 88                 | 97                 |
| PP     | 43                  | 52                 | 71      | 89                 | 98                 |

Note: \* 230V and over : +17grams

##### ● Joy stick selector switches

###### • Screw terminal types

| Type         | 1NO x2 | (1NO+1NC) x2 | 1NO x4 | (1NO+1NC) x4 |
|--------------|--------|--------------|--------|--------------|
| AR22A2N, A7N | 89     | 99           | 116    | 136          |
| A0N, A5N     | 99     | 109          | 126    | 146          |
| A1N, A6N     | 112    | 122          | 139    | 159          |

###### • Solder/tab terminal types

| Type         | (1NO+1NC) x2 | (2NO+2NC) x2 | (1NO+1NC) x4 | (2NO+2NC) x4 |
|--------------|--------------|--------------|--------------|--------------|
| AR22A2H, A7H | 72           | 75           | 82           | 88           |
| A0H, A5H     | 82           | 85           | 92           | 98           |
| A1H, A6H     | 95           | 98           | 105          | 111          |

##### ● Buzzers

| Type   | Without transformer | With transformer | With resistor unit |
|--------|---------------------|------------------|--------------------|
| DR22B5 | 50                  | 105              | 52                 |
| B8     | 53                  | 108              | 55                 |
| B3     | 66                  | 121              | –                  |

■ Mass, gram

● Illuminated pushbuttons

| Type    | Without transformer |                           |         | With transformer * |                           |
|---------|---------------------|---------------------------|---------|--------------------|---------------------------|
|         | 1NO<br>(1NC)        | 2NO<br>(2NC)<br>(1NO+1NC) | 2NO+2NC | 1NO<br>(1NC)       | 2NO<br>(2NC)<br>(1NO+1NC) |
| AR30E0L | 49                  | 58                        | 77      | 95                 | 104                       |
| E5L     | 49                  | 58                        | –       | 95                 | 104                       |
| G4L     | 50                  | 59                        | 78      | 96                 | 105                       |
| G9L     | 50                  | 59                        | –       | 96                 | 105                       |
| V5L     | 56                  | 65                        | –       | 102                | 111                       |
| G2L     | 66                  | 75                        | 94      | 112                | 121                       |
| G7L     | 66                  | 75                        | –       | 112                | 121                       |
| G3L     | 72                  | 81                        | 100     | 118                | 127                       |
| G8L     | 72                  | 81                        | –       | 118                | 127                       |
| Q7L     | –                   | 159                       | –       | –                  | 205                       |

Note: \* 230V and over : +17grams

● Pushbuttons

| Type                         | 1NO<br>(1NC) | 2NO<br>(2NC)<br>(1NO+1NC) | 2NO+2NC |
|------------------------------|--------------|---------------------------|---------|
| AR30F0R, FAR, F5R, FBR       | 36           | 45                        | 64      |
| E0R, EAR, G0R, E5R, EBR, G5R | 37           | 46                        | 65      |
| M4R                          | 38           | 47                        | 66      |
| M0R, M5R                     | 40           | 49                        | 68      |
| V5R                          | 42           | 51                        | 70      |
| S1R, S2R, S3R, S6R           | –            | 53                        | 72      |
| FVR                          | 54           | 63                        | 82      |
| G1R, G6R                     | 59           | 68                        | 87      |
| N0R                          | 96           | 105                       | 124     |
| GPR                          | 116          | 125                       | 144     |
| GSR, B0R                     | 123          | 132                       | 151     |
| M3R, M8R                     | 126          | 135                       | 154     |
| B1R                          | 241          | 250                       | 269     |
| B3R                          | 279          | 288                       | 307     |
| B2R                          | 291          | 300                       | 319     |

● Emergency stop pushbuttons

| Type    | 1NC | 2NC<br>(1NO+1NC) | 2NO+2NC |
|---------|-----|------------------|---------|
| AR30V0R | 43  | 52               | 71      |
| Q2R     | 45  | 54               | –       |
| V2R     | 46  | 55               | 74      |
| V1R     | 60  | 69               | 88      |

● Emergency stop illuminated pushbuttons

| Type    | Without transformer |                  | With transformer * |                  |
|---------|---------------------|------------------|--------------------|------------------|
|         | 1NC                 | 2NC<br>(1NO+1NC) | 1NC                | 2NC<br>(1NO+1NC) |
| AR30V0L | 57                  | 66               | 103                | 112              |
| V2L     | 59                  | 68               | 105                | 114              |

Note: \* 230V and over : +17grams

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AR30 and DR30

### Mass

#### ■ Mass, gram

##### ● Pilot lights

• Without transformer type, With transformer type, With resistor unit type

| Type         | Without transformer<br>Standard | With transformer<br>Standard *1 | Short-body | With<br>resistor unit |
|--------------|---------------------------------|---------------------------------|------------|-----------------------|
| DR30D0L, K0L | 28                              | 80                              | 78         | 42                    |
| E3L          | 29                              | 81                              | 79         | 43                    |
| F4M *2       | 32 (30)                         | 84 (82)                         | –          | 46                    |
| F4N *2       | 34 (30)                         | 86 (82)                         | –          | 48                    |
| M4M *2       | 37 (32)                         | 88 (84)                         | –          | 50                    |
| D1L          | 94                              | 164                             | –          | 111                   |

Notes: \*1 230V and over : +17grams

\*2 ( ): Incandescent lamp

• With resistor type

| Type                     | 50V DC | 110V DC<br>220V DC |
|--------------------------|--------|--------------------|
| DR30D0L, K0L (LED)       | 103    | 103                |
| D0L, K0L (incandescent ) | 107    | 179                |

##### ● Selector switches

| Type       | 1NO<br>(1NC) | 2NO<br>(2NC)<br>(1NO+1NC) | 2NO+2NC  |
|------------|--------------|---------------------------|----------|
| AR30PR, WR | 41           | 50                        | 69       |
| PCR, WCR   | –            | 50                        | 69       |
| JR, JAR    | 67           | 76                        | 94       |
| JCR        | –            | 76                        | 94       |
| HR         | 125          | 135                       | 153(166) |

Note: ( ) : AR30HR-122

##### ● Illuminated selector switches

| Type   | Without transformer |                           |         | With transformer * |                           |
|--------|---------------------|---------------------------|---------|--------------------|---------------------------|
|        | 1NO<br>(1NC)        | 2NO<br>(2NC)<br>(1NO+1NC) | 2NO+2NC | 1NO<br>(1NC)       | 2NO<br>(2NC)<br>(1NO+1NC) |
| AR30PL | 52                  | 61                        | 80      | 98                 | 107                       |

Note: \* 230V and over : +17grams

##### ● Joy stick selector switches

• Screw terminal type

| Type         | 1NO x2 | (1NO+1NC) x2 | 1NO x4 | (1NO+1NC) x4 |
|--------------|--------|--------------|--------|--------------|
| AR30A2N, A7N | 100    | 110          | 127    | 147          |
| A0N, A5N     | 110    | 120          | 137    | 157          |
| A1N, A6N     | 124    | 134          | 151    | 171          |

• Solder/tab terminal type

| Type         | (1NO+1NC) x2 | (2NO+2NC) x2 | (1NO+1NC) x4 | (2NO+2NC) x4 |
|--------------|--------------|--------------|--------------|--------------|
| AR30A2H, A7H | 83           | 86           | 93           | 99           |
| A0H, A5H     | 93           | 96           | 103          | 109          |
| A1H, A6H     | 107          | 110          | 117          | 123          |

##### ● Buzzers

| Type       | Without transformer | With transformer | With resistor unit |
|------------|---------------------|------------------|--------------------|
| DR30B5, B6 | 47                  | 102              | 49 (Except B6)     |
| B8         | 48                  | 103              | 50                 |
| B0         | 86                  | –                | –                  |

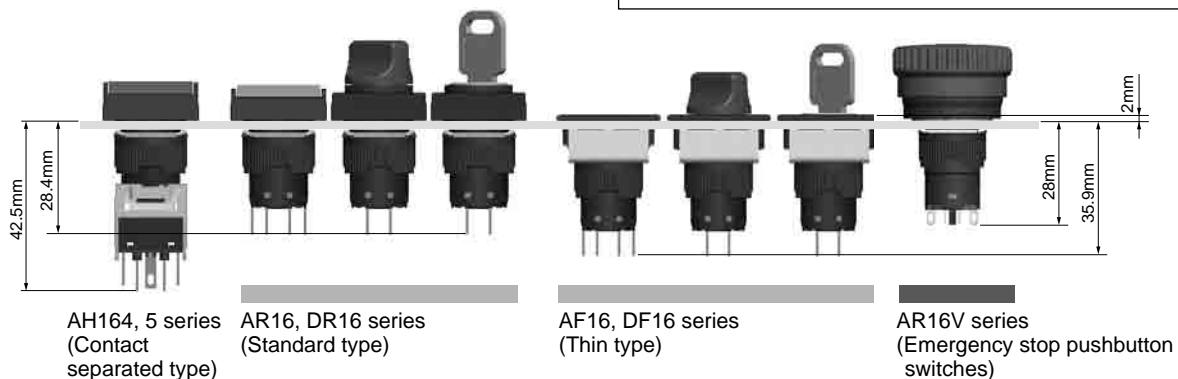
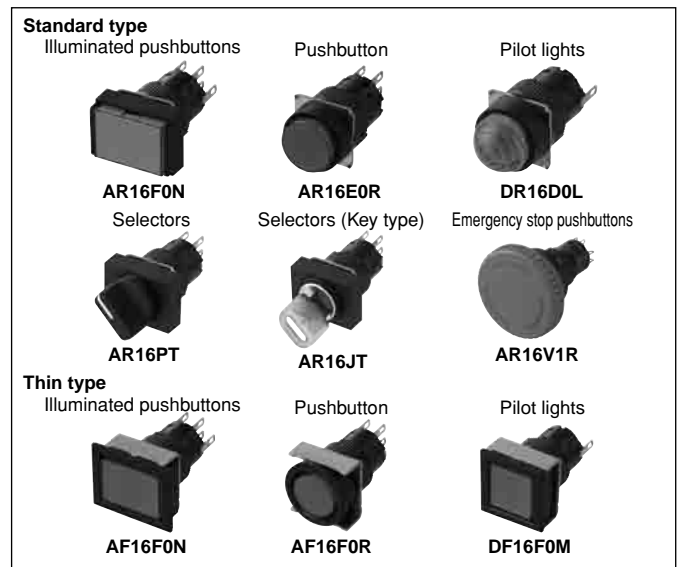
- An integrated structure with built-in contacts that can reduce control panel depth.
- A wide variety of sockets are available to simplify wiring.
- Thin type and Standard types available for your control panel design. Select an optimum one to match your control panel design.

## ■ Features

### Supporting smaller and thinner operator's panels

A structure that integrates operator and contacts to reduce panel-mounting depth. Terminals extending to the rear of the switch ensure easy wiring work.

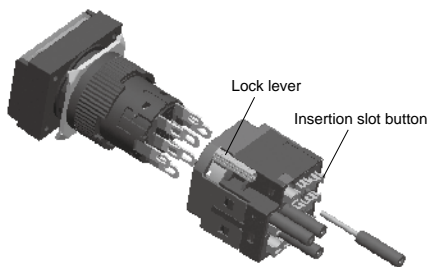
- Standard type : 28.4mm deep
- Thin type : 35.9mm deep
- Emergency stop : 28mm deep



### A wide variety of sockets reduce wiring work

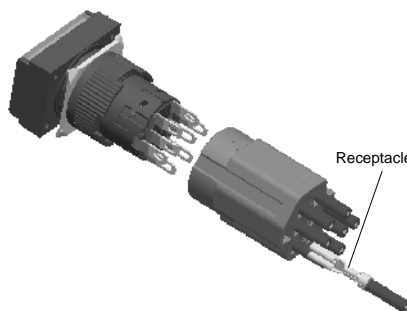
Switches combine with a variety of sockets to simplify wiring.

- Fast-connection socket



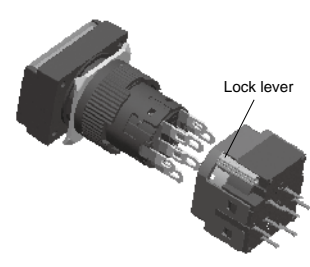
- Applicable as a fast-connection terminal switch by combining the socket with a switch.
- Easily wired by simply removing the wire sheath and inserting the wires while pressing the insertion slot button (no soldering required).
- Incorporates a branch terminal for easy branching.

- Connector socket



- Applicable as a connector by combining the socket with receptacles.
- The socket holds the receptacles, making it easy to connect the receptacle to the switch with a single operation.

- Socket for PC board



- Applicable as a switch for PC board by combining the socket with a switch.
- Pattern wiring reduces the number of wiring man-hour and helps prevent faulty wiring.

### Safety

- FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked. (See page 04/180)

### Degree of protection

The operator has IP65 protection for smooth operation without adverse effects from oil, water, or dusts.

### Approvals



For further information related to approved type, see page 04/130 to 04/135

Note : commanded switches shipped as aeticles to China must conform to the Product Quality Law. Check with your Fuji Electric representative.





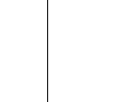


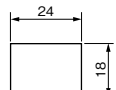
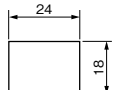
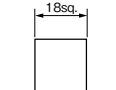
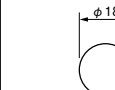
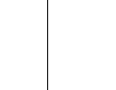


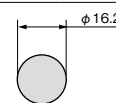






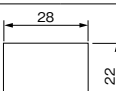

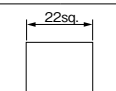
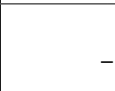
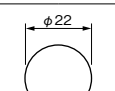

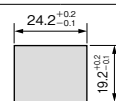

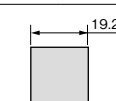

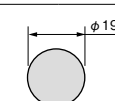



# Command Switches

## AR16, DR16 and AF16, DF16

### Quick reference guide

#### ■ Illuminated pushbutton switches

| Operator                        |                                | Flush rectangular  |   | Flush rectangular with guard  |   | Flush square  |   | Extended round  |   | Flush round   |   |                       |
|---------------------------------|--------------------------------|--|---|---|---|---|---|---|---|---|---|-----------------------|
| Operator action                 |                                | Momentary  | Alternate   | Momentary   | Alternate   | Momentary   | Alternate   | Momentary   | Alternate   | Momentary   | Alternate   |                       |
| Standard type                   | Type                           | AR16F0N  | AR16F5N   | AR16G0N   | AR16G5N   | AR16F0M   | AR16F5M   | AR16E0L   | AR16E5L   | —   | —   |                       |
|                                 |                                | Appearance   |    |  |    |  |    |  |  |    | —   | —                     |
|                                 | See page                       | 04/143   | 04/143  | 04/143  | 04/143  | 04/143  | 04/143  | 04/143  | 04/143  | —   | —   |                       |
|                                 | Bezel (mm)                     |   |    |  |  |  |    |  |  | —   | —   |                       |
|                                 | Panel cutting (mm)             |   |   |   |   |   |   |   |   |   |   |                       |
| Thin type                       | Type                           | AF16F0N  | AF16F5N   | —   | —   | AF16F0M   | AF16F5M   | —   | —   | AF16F0L   | AF16F5L   |                       |
|                                 | Appearance                     |    |   | —   | —   |   |   | —   | —   |   |   |                       |
|                                 | See page                       | 04/155   | 04/155  | —   | —   | 04/155  | 04/155  | —   | —   | 04/155  | 04/155  |                       |
|                                 | Bezel (mm)                     |   |  | —   | —   |  |  | —   | —   |  |  |                       |
|                                 | Panel cutting (mm)             |   |  | —   | —   |  |  | —   | —   |  |  |                       |
| Legend plate (mm)               |                                | 19.6×13.6  |   | 19.6×13.6   |   | 13.6sq.   |   | φ13.6   |   | φ13.6   |   |                       |
| Bezel color                     |                                | Black  |   |   |   |   |   |   |   |   |   |                       |
| Button color (transparent)      |                                | Green, Red, White <sup>*1</sup> , Yellow, Orange, Blue   |   |   |   |   |   |   |   |   |   |                       |
| LED lamp                        | Color                          | Green, Red, Orange, Yellow, Amber, Blue  |   |   |   |   |   |   |   |   |   |                       |
|                                 | Lamp voltage                   | 6V AC/DC, 12V AC/DC, 24V AC/DC   |   |   |   |   |   |   |   |   |   |                       |
| Contact arrangement             |                                | SPDT, 2PDT   |   |   |   |   |   |   |   |   |   |                       |
| Contact rating                  |                                | 120V AC 1A (AC-13), 24V DC 0.7A (DC-13, T <sub>0.95</sub> = 21ms)<br>240V AC 0.7A (AC-13), 125V DC 0.15A (DC-13, T <sub>0.95</sub> = 21ms) |   |   |   |   |   |   |   |   |   |                       |
| Mechanical durability           |                                | Momentary action: 1 million operations<br>Alternate action: 250,000 operations   |   |   |   |   |   |   |   |   |   |                       |
| Electrical durability           |                                | 100,000 operations (220V AC 0.7A)  |   |   |   |   |   |   |   |   |   |                       |
| Degree of protection (Operator) |                                | IP65   |   |   |   |   |   |   |   |   |   |                       |
| Type of terminal                |                                | Tab (#110) / solder dual-use terminal  |   |   |   |   |   |   |   |   |   |                       |
| Accessories                     | Protective cover <sup>*2</sup> | <input type="radio"/>  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |                       |
|                                 | Dust-proof cover               | <input type="radio"/>  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |                       |
|                                 | Terminal cover                 | <input type="radio"/>  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |                       |
|                                 | Socket                         | Quick connection   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/> |
|                                 |                                | Connector use  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/> |
|                                 |                                | PC board use   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/> |
| Panel plug                      |                                | <input type="radio"/>  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |                       |

Notes: <sup>\*1</sup> A combination of the translucent button and the white legend plate comes to white.





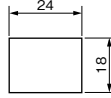
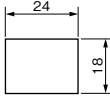
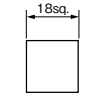
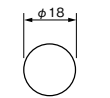
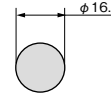



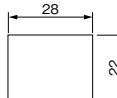
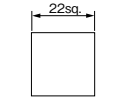
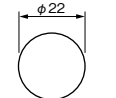
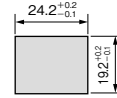
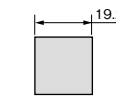
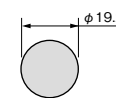
<sup>\*2</sup> The protective cover and button of the thin type are made of an integral structure.

<sup>\*3</sup> The protective cover of the thin type is available for momentary action only.

<sup>\*4</sup> Available for standard type only.

# Command Switches AR16, DR16 and AF16, DF16 Quick reference guide

## ■ Pushbutton switches

| Operator                        |                               | Flush rectangular  |                       | Flush rectangular with guard  |                       | Flush square   |                       | Extended round  |                       | Flush round   |                       |                       |
|---------------------------------|-------------------------------|--|-----------------------|---|-----------------------|--|-----------------------|---|-----------------------|---|-----------------------|-----------------------|
| Operator action                 |                               | Momentary  | Alternate             | Momentary   | Alternate             | Momentary  | Alternate             | Momentary   | Alternate             | Momentary   | Alternate             |                       |
| Standard type                   | Type                          | AR16F0T  | AR16F5T               | AR16G0T   | AR16G5T               | AR16F0S  | AR16F5S               | AR16E0R   | AR16E5R               | –   | –                     |                       |
| Standard type                   | Appearance                    |   |                       |  |                       |    |                       |  |                       | –   |                       |                       |
|                                 | See page                      | 04/145   |                       | 04/145  |                       | 04/145   |                       | 04/145  |                       | –   |                       |                       |
|                                 | Bezel (mm)                    |   |                       |  |                       |    |                       |  |                       | –   |                       |                       |
|                                 | Panel cutting (mm)            |   |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Thin type                       | Type                          | AF16F0T  | AF16F5T               | –   | –                     | AF16F0S  | AF16F5S               | –   | –                     | AF16F0R   | AF16F5R               |                       |
|                                 | Appearance                    |   |                       | –   |                       |  |                       | –   |                       |  |                       |                       |
|                                 | See page                      | 04/157   |                       |   |                       | 04/157   |                       |   |                       | 04/157  |                       |                       |
|                                 | Bezel (mm)                    |   |                       | –   |                       |  |                       | –   |                       |  |                       |                       |
|                                 | Panel cutting (mm)            |   |                       | –   |                       |  |                       | –   |                       |  |                       |                       |
| Legend plate (mm)               |                               | 19.6x13.6  |                       | 19.6x13.6   |                       | 13.6sq   |                       | φ13.6   |                       | φ13.6   |                       |                       |
| Button color (transparent)      |                               | Black  |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Button color                    |                               | Green, Red, Black <sup>1</sup> , White <sup>2</sup> , Yellow, Orange, Blue   |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Contact arrangement             |                               | SPDT, 2PDT   |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Contact rating                  |                               | 120V AC 1A (AC-13), 24V DC 0.7A (DC-13, T <sub>0.95</sub> = 21ms)<br>240V AC 0.7A (AC-13), 125V DC 0.15A (DC-13, T <sub>0.95</sub> = 21ms) |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Mechanical durability           |                               | Momentary action: 1 million operations<br>Alternate action: 250,000 operations   |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Electrical durability           |                               | 100,000 operations (220V AC 0.7A)  |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Degree of protection (Operator) |                               | IP65   |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Type of terminal                |                               | Tab (#110) / solder dual-use terminal  |                       |   |                       |  |                       |   |                       |   |                       |                       |
| Accessories                     | Protective cover <sup>3</sup> | <input type="radio"/>  | <input type="radio"/> | –   | –                     | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | –   | –                     |                       |
|                                 | Dust-proof cover              | <input type="radio"/>  | <input type="radio"/> | –   | –                     | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | –   | –                     |                       |
|                                 | Terminal cover                | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> |                       |
|                                 | Socket                        | Quick connection   | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/> |
|                                 |                               | Connector use  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/> |
|                                 |                               | PC board use   | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/> |
| Panel plug                      | <input type="radio"/>         | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/>   | <input type="radio"/> | <input type="radio"/>   |                       |                       |

Notes: <sup>1</sup> A combination of the translucent button and the black legend plate comes to black button.

<sup>2</sup> A combination of the translucent button and the white legend plate comes to white button.

<sup>3</sup> The protective cover and button of the thin type are made of an integral structure.

<sup>4</sup> The protective cover of the thin type is available for momentary action only.









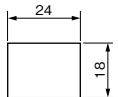



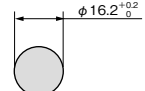






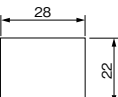


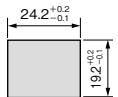


<sup>5</sup> Available for standard type only.

# Command Switches

## AR16, DR16 and AF16, DF16










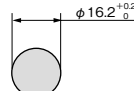






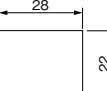


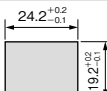
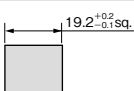
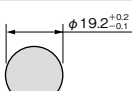
### Quick reference guide

#### ■ Pilot lights

| Lens shape                  |                | Flush rectangular   | Flush square  | Extended round  | Flush round   | Dome   |
|-----------------------------|----------------|---|---|---|---|--|
| Standard type               | Type           | <b>DR16F0N</b>  | <b>DR16F0M</b>  | <b>DR16E0L</b>  | —   | <b>DR16D0L</b>   |
|                             | Appearance     | <br>    | <br>    | <br> | —   | <br> |
|                             | See page       | 04/147  | 04/147  | 04/147  | —   | 04/147   |
|                             | Bezel (mm)     |    |    |    | —   |   |
| Panel cutting (mm)          |                |    |   |   |   |  |
| Thin type                   | Type           | <b>DF16F0N</b>  | <b>DF16F0M</b>  | —   | <b>DF16F0L</b>  | —  |
|                             | Appearance     | <br> | <br> | —   | <br> | —  |
|                             | See page       | 04/159  | 04/159  | —   | 04/159  | —  |
|                             | Bezel (mm)     |    |    | —   |    | —  |
| Panel cutting (mm)          |                |    |    | —   |    | —  |
| Legend plate (mm)           |                | 19.6×13.6   | 13.6sq  | φ13.6   | φ13.6   | —  |
| Bezel color                 |                | Black   |   |   |   |  |
| Button color (transparent)  |                | Green, Red, White <sup>*1</sup> , Yellow, Orange, Blue  |   |   |   |  |
| LED lamp                    | Color          | Green, Red, Orange, Yellow, Amber, Blue   |   |   |   |  |
|                             | Lamp voltage   | 6V AC/DC, 12V AC/DC, 24V AC/DC  |   |   |   |  |
| Degree of protection (Lens) |                | IP65  |   |   |   |  |
| Type of terminal            |                | Tab (#110) / solder dual-use terminal   |   |   |   |  |
| Accessories                 | Terminal cover | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>  |
|                             | Socket         | Quick connection  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>  |
|                             |                | Connector use   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>  |
|                             |                | PC board use  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>  |
|                             | Panel plug     | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>  |

Note: <sup>\*1</sup> A combination of the translucent lens and the white legend plate comes to white lens (except for dome type).

■ Selector switches (Knob type)













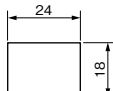


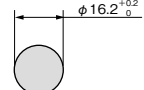












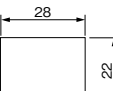


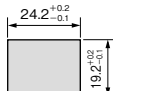
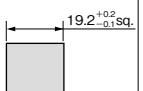
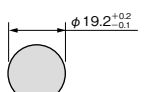
|                                 |                    |  |  |  |                       |
|---------------------------------|--------------------|--|--|--|-----------------------|
| Operator                        |                    | Knob with rectangular bezel  | Knob with square bezel   | Knob with round bezel  |                       |
| No. of position                 |                    | 2-position, 3-position   | 2-position, 3-position   | 2-position, 3-position   |                       |
| Operator action                 |                    | Maintained, Spring/manual return, Spring return  | Maintained, Spring/manual return, Spring return  | Maintained, Spring/manual return, Spring return  |                       |
| Standard type                   | Type               | <b>AR16PT</b>  | <b>AR16PS</b>  | <b>AR16PR</b>  |                       |
|                                 | Appearance         | <br>     | <br>     | <br>     |                       |
|                                 | See page           | 04/149   | 04/149   | 04/149   |                       |
|                                 | Bezel (mm)         |   |   |    |                       |
|                                 | Panel cutting (mm) |    |  |  |                       |
| Thin type                       | Type               | <b>AF16PT</b>  | <b>AF16PS</b>  | <b>AF16PR</b>  |                       |
|                                 | Appearance         | <br> | <br> | <br> |                       |
|                                 | See page           | 04/161   | 04/161   | 04/161   |                       |
|                                 | Bezel (mm)         |   |   |    |                       |
|                                 | Panel cutting (mm) |   |   |    |                       |
| Bezel color                     |                    | Black  |  |  |                       |
| Color of knob                   |                    | Black  |  |  |                       |
| Contact arrangement             |                    | SPDT, 2PDT   |  |  |                       |
| Contact rating                  |                    | 120V AC 1A (AC-13), 24V DC 0.7A (DC-13, T <sub>0.95</sub> = 21ms)<br>240V AC 0.7A (AC-13), 125V DC 0.15A (DC-13, T <sub>0.95</sub> = 21ms)                                 |  |  |                       |
| Mechanical durability           |                    | 250,000 operations   |  |  |                       |
| Electrical durability           |                    | 100,000 operations (220V AC 0.7A)  |  |  |                       |
| Degree of protection (Operator) |                    | IP65   |  |  |                       |
| Type of terminal                |                    | Tab (#110) / solder dual-use terminal  |  |  |                       |
| Accessories                     | Terminal cover     | <input type="radio"/>  | <input type="radio"/>  | <input type="radio"/>  |                       |
|                                 | Socket             | Quick connection   | <input type="radio"/>  | <input type="radio"/>  | <input type="radio"/> |
|                                 |                    | Connector use  | <input type="radio"/>  | <input type="radio"/>  | <input type="radio"/> |
|                                 |                    | PC board use   | <input type="radio"/>  | <input type="radio"/>  | <input type="radio"/> |
|                                 | Panel plug         | <input type="radio"/>  | <input type="radio"/>  | <input type="radio"/>  |                       |

# Command Switches









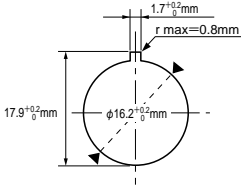
## AR16, DR16 and AF16, DF16

### Quick reference guide

#### ■ Selector switches (Key type)

|                                 |                    |   |   |   |                       |
|---------------------------------|--------------------|---|---|---|-----------------------|
| Operator                        |                    | Key with rectangular bezel  | Key with square bezel   | Key with round bezel  |                       |
| No. of position                 |                    | 2-position, 3-position  | 2-position, 3-position  | 2-position, 3-position  |                       |
| Operator action                 |                    | Maintained, Spring/manual return, Spring return   | Maintained, Spring/manual return, Spring return   | Maintained, Spring/manual return, Spring return   |                       |
| Standard type                   | Type               | <b>AR16JT</b>   | <b>AR16JS</b>   | <b>AR16JR</b>   |                       |
|                                 | Appearance         | <br>cUL US            | <br>cUL US            | <br>cUL US            |                       |
|                                 | See page           | 04/152  | 04/152  | 04/152  |                       |
|                                 | Bezel (mm)         |    |    |    |                       |
|                                 | Panel cutting (mm) |   |   |   |                       |
| Thin type                       | Type               | <b>AF16JT</b>   | <b>AF16JS</b>   | <b>AF16JR</b>   |                       |
|                                 | Appearance         | <br>cUL US    | <br>cUL US    | <br>cUL US    |                       |
|                                 | See page           | 04/164  | 04/164  | 04/164  |                       |
|                                 | Bezel (mm)         |    |    |    |                       |
|                                 | Panel cutting (mm) |    |    |   |                       |
| Bezel color                     |                    | Black   |   |   |                       |
| Key removable position          |                    | Left (A), Left/Right (B), Left/Center/Right (C), Right (D), Center (E), Center/Right (F), Left/Center (G)   |   |   |                       |
| No. of key types                |                    | 6 (A, B, C, D, E, F)  |   |   |                       |
| Contact arrangement             |                    | SPDT, 2PDT  |   |   |                       |
| Contact rating                  |                    | 120V AC 1A (AC-13), 24V DC 0.7A (DC-13, T <sub>0.95</sub> = 21ms)<br>240V AC 0.7A (AC-13), 125V DC 0.15A (DC-13, T <sub>0.95</sub> = 21ms)  |   |   |                       |
| Mechanical durability           |                    | 250,000 operations  |   |   |                       |
| Electrical durability           |                    | 100,000 operations (220V AC 0.7A)   |   |   |                       |
| Degree of protection (Operator) |                    | IP65  |   |   |                       |
| Type of terminal                |                    | Tab (#110) / solder dual-use terminal   |   |   |                       |
| Accessories                     | Terminal cover     | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |                       |
|                                 | Socket             | Quick connection  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/> |
|                                 |                    | Connector use   | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/> |
|                                 |                    | PC board use  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/> |
|                                 | Panel plug         | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |                       |

■ Emergency stop pushbutton switches

| Operator                        | Illuminated push-lock<br>(32mm dia)   | Illuminated push-lock<br>(40mm dia)   | Push-lock<br>(32mm dia)   | Push-lock<br>(40mm dia)   |
|---------------------------------|---|---|---|---|
| Operator action                 | Turn reset or pull-reset  |   | Turn reset or pull-reset  |   |
| Type                            | <b>AR16V0L</b>  | <b>AR16V1L</b>  | <b>AR16V0R</b>  | <b>AR16V1R</b>  |
| Appearance                      |          |  |  |  |
| See page                        | 04/182  | 04/182  | 04/182  | 04/182  |
| Button size (mm)                |          |  |  |  |
| Panel cutting (mm)              |         |   |   |   |
| Button color                    | Red   |   |   |   |
| LED lamp                        | Color   | Red   |   |   |
|                                 | Lamp voltage  | 6V AC/DC, 12V AC/DC, 24V AC/DC  |   |   |
| Contact arrangement             | 1NC, 1NO+1NC, 2NC, 1NO+2NC, 3NC, 1NO+3NC, 4NC   |   |   |   |
| Contact ratings                 | 120V AC 0.3A (AC-15), 24V DC 0.7A (DC-13),<br>240V AC 0.3A (AC-15), 125V DC 0.15A (DC-13) |   |   |   |
| Mechanical durability           | 100,000 operations  |   |   |   |
| Electrical durability           | 100,000 operations (AC-15, AC-13, AC-12, DC-13, DC-12)                                    |   |   |   |
| Degree of protection (Operator) | IP65  |   |   |   |
| Type of terminal                | Solder use terminal   |   |   |   |
| Accessories                     | Terminal cover  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |
|                                 | Name plate<br>(Emergency stop)  | <input type="radio"/>   | <input type="radio"/>   | <input type="radio"/>   |

# Command Switches

## AR16 and DR16, AF16 and DF16

### Ratings and Specifications

#### ■ Contact ratings

##### • UL/CSA

- AC ( $\text{COS}\phi = 0.35$ )

| Contact rating code | 120V           |                  | 240V           |                  |
|---------------------|----------------|------------------|----------------|------------------|
|                     | Making current | Breaking current | Making current | Breaking current |
| D300                | 3.6A           | 0.6A             | 1.8A           | 0.3A             |

##### • TÜV (EN60947-5-1), CCC (GB14048.5), JIS C 8201-5-1

| Type of switches  | Conventional free air thermal current I <sub>th</sub> | Rated operational current I <sub>e</sub> |                        |                        |                        |                        |
|---|---|--|------------------------|------------------------|------------------------|------------------------|
|   |   | Rated operational voltage U <sub>e</sub> | AC                     |                        | DC                     |                        |
|   |   |  | AC-13 (Inductive load) | AC-12 (Resistive load) | DC-13 (Inductive load) | DC-12 (Resistive load) |
| Illuminated pushbutton switch<br>Pushbutton switch<br>Selector switch | 5A  | 24V                                      | –                      | –                      | 0.7A <sup>*)</sup>     | 1A                     |
|   |   | 120V                                     | 1A                     | 1.5A                   | –                      | –                      |
|   |   | 125V                                     | –                      | –                      | 0.15A <sup>*)</sup>    | 0.2A                   |
|   |   | 240V                                     | 0.7A                   | 1A                     | –                      | –                      |

Note: \*) T<sub>0.95</sub>=21ms

#### ■ Specifications (indoor use)

| Item   |   | • Illuminated pushbutton switch, pushbutton switch  | • Selector switch  | • Pilot lights |
|--|---|---|--|----------------|
| Rated insulation voltage U <sub>i</sub>                |   | 250V AC/DC  |  |                |
| Durability   | Mechanical                              | Momentary action:<br>1 million operations<br>Alternate action:<br>250,000 operations                              | Maintained:<br>250,000 operations<br>Spring/manual return:<br>250,000 operations<br>Spring return:<br>250,000 operations | –              |
|  | Electrical                              | 100,000 operations (at 220V AC 0.7A)  |  | –              |
| Operating frequency                                    |   | 1200 operations/hour (On-load factor: 40%)  |  |                |
| Withstand voltage                                      | Between live section and grounding      | 2000V AC, 1 minute  |  |                |
|  | Between opposite polarity live sections | 2000V AC, 1 minute  |  |                |
| Insulation resistance                                  |   | 100MΩ or more (500V DC megger)  |  |                |
| Rated impulse withstand voltage U <sub>imp</sub>       |   | 2.5kV   |  |                |
| Conditional short-circuit current                      |   | 1000A   |  |                |
| Short-circuit protective device                        |   | gG 2A (IEC60269 Fuse)   |  |                |
| Pollution degree                                       |   | 3   |  |                |
| Vibration  |   | Resonance: frequency 10 to 55Hz, double amplitude 1.0mm<br>Constant: frequency 16.7Hz, double amplitude 3mm       |  |                |
| Shock  |   | Malfunction durability; 100m/s <sup>2</sup><br>Mechanical durability; 500m/s <sup>2</sup>                         |  |                |
| Operational ambient temperature                        |   | –10 to +55°C (no icing or no condensation)  |  |                |
| Storage temperature                                    |   | –40 to +70°C  |  |                |
| Relative humidity (inside control panel)               |   | 45 to 85%RH (–5 to +40°C) (no icing or no condensation)   |  |                |
| Degree of protection of operating (displaying) section |   | IP65 (dust-proof, water jet proof): IEC 60529   |  |                |
| Degree of protection of terminal section               |   | IP2X (Fast-connection socket: AR6S690, Connector socket: AR6S691-C or Terminal cover: AR2Y261, At the connection) |  |                |


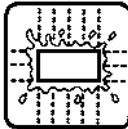

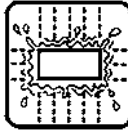
■ Specifications (Socket)

|  |   |                  |                     |
|--|---|------------------|---------------------|
| Item   | Fast-connection socket                                  | Connector socket | Socket for PC board |
| Rated insulation voltage Ui                            | 250V AC/DC  |                  | 60V AC/DC           |
| Conventional free air thermal current Ith              | 3A  | 5A               | 3A                  |
| Rated impulse withstand voltage Uimp                   | 2.5kV   |                  | 0.5kV               |
| Withstand voltage (Between live section and grounding) | 2000V AC, 1 minute                                      |                  | 1000V AC, 1 minute  |
| Insulation resistance                                  | 100MΩ or more (500V DC megger)                          |                  |                     |
| Operational ambient temperature                        | -10 to +55°C (no icing or no condensation)              |                  |                     |
| Storage temperature                                    | -40 to +70°C  |                  |                     |
| Relative humidity                                      | 45 to 85%RH (-5 to +40°C) (no icing or no condensation) |                  |                     |
| Pollution degree                                       | 3   |                  |                     |

■ Degree of protection

- The table below shows the degree of protection stipulated by IEC (International Electrotechnical Commission) standard (IEC 60529).

IP- 6 5

| Class | Degree of protection against human contact or penetration by a foreign object       |  | Degree of protection against ingress of water   |   |
|-------|---|--|---|---|
| 5     |  | <ul style="list-style-type: none"> <li>Normal operation secured even if the dust that can pass through screen of 75μm mesh invades.</li> </ul> | Protection against water jets<br>     | <ul style="list-style-type: none"> <li>Protected against water jet from all directions.</li> <li>Water projected by nozzle (6.3mm-inner dia.) from all directions at 29.4kPa for 3min at a distance of 3m.</li> </ul>         |
| 6     |  | <ul style="list-style-type: none"> <li>The dust which can pass through screen of 75μm mesh shall not invade.</li> </ul>                        | Protection against powerful water<br> | <ul style="list-style-type: none"> <li>Protected against powerful water jet from all directions.</li> <li>Water projected by nozzle (12.5mm-inner dia.) from all directions at 98kPa for 3min at a distance of 3m.</li> </ul> |

■ Contact reliability

FUJI has confirmed that the product can be used in 1mA circuit conditions at 5V AC or DC. The operable range, however, may vary depending on the operational ambient conditions and type of load.



# Command Switches AR16 and DR16, AF16 and DF16 Specifications

## ■ Lamp ratings and current consumption

### • Illuminated pushbutton switch, Pilot lights

| Applied method      | Lamp operational voltage | High-brightness LED lamp |                    |   |
|---------------------|--------------------------|--------------------------|--------------------|---|
|                     |                          | Type                     | Lamp rated voltage | Current consumption   |
| without transformer | 6V AC/DC                 | DR6L695-A□               | 6V AC/DC           | Green, Blue: 11mA AC, 7.5mA DC<br>Red, Amber: 9mA AC, 7.5mA DC<br>Orange: 10mA AC, 8.5mA DC<br>Yellow: 30mA AC, 26mA DC |
|                     | 12V AC/DC                | DR6L695-B□               | 12V AC/DC          | Green, Red, Amber, Blue: 7.5mA AC, 7.5mA DC<br>Orange: 9mA AC, 8.5mA DC<br>Yellow: 11mA AC, 8.5mA DC                    |
|                     | 24V AC/DC                | DR6L695-E□               | 24V AC/DC          | Green, Red, Amber, Blue: 7.5mA AC, 7.5mA DC<br>Orange, Yellow: 9mA AC, 8.5mA DC   |

Note: A box □ indicates the luminous color. For details, see the "Combination of Illuminated pushbutton / pilot light color and LED lamp luminous color".

## ■ Combination of Illuminated pushbutton / pilot light color and LED lamp luminous color

| Illuminated pushbutton / pilot light color<br>(lens color) |   | Luminous color of high-brightness<br>LED lamp |            |
|--|---|---|------------|
| Type   |   | Type  |            |
| Green  | G | Green   | DR6L695-■G |
| Red  | R | Red   | DR6L695-■R |
| White  | W | Orange  | DR6L695-■W |
| Yellow   | Y | Yellow  | DR6L695-■Y |
| Orange   | A | Amber   | DR6L695-■A |
| Blue   | S | Blue  | DR6L695-■S |

Note: <sup>1</sup> A box ■ indicates the lamp operational voltage. For details, see the "Lamp ratings and current consumption".

## ■ LED durability

| Type of lamp | Durability (reference) | Judgment criterion                                     |
|--------------|------------------------|--|
| LED lamp     | Approx. 30000h         | When the brightness is less than 50% of initial value. |

Note: The durability of LED lamp is a mean value in all colors.

## ■ Standard approved

|                  |   |
|------------------|---|
| UL508            | cUL File No.E44592  |
| CSA C22.2 No.14  |   |
| TÜV: EN60947-5-1 | Pushbutton, Illuminated pushbutton: R50116757<br>Selector: R50116759<br>Pilot lights: R50116762 |
| CCC: GB14048.5   | Switches (except pilot lights): 2003010305071068<br>Pilot lights: 2003010305071044              |

## ■ Standard models approved by international standards

The standard models of AR16 and DR16, AF16 and DF16 series of the  $\phi$ 16 Command Switches meet UL / CSA requirements, China Compulsory Certification (CCC) standards, and TÜV EN standards, thus ensuring easier direct or indirect export to North America and European countries with no safety standard concerns.

# Command Switches AR16 and DR16, AF16 and DF16 Type number nomenclature

## • Illuminated pushbutton switches

**AR16 F0N – C2 E3 G**

Product category \_\_\_\_\_

| Category      | Code        |
|---------------|-------------|
| Standard type | <b>AR16</b> |
| Thin type     | <b>AF16</b> |

Operator shape and action \_\_\_\_\_

| Operator shape               | Code          |            |            |            |
|------------------------------|---------------|------------|------------|------------|
|                              | Standard type |            | Thin type  |            |
|                              | Momentary     | Alternate  | Momentary  | Alternate  |
| Flush rectangular            | <b>F0N</b>    | <b>F5N</b> | <b>F0N</b> | <b>F5N</b> |
| Flush rectangular with guard | <b>G0N</b>    | <b>G5N</b> | –          | –          |
| Flush square                 | <b>F0M</b>    | <b>F5M</b> | <b>F0M</b> | <b>F5M</b> |
| Extended round               | <b>E0L</b>    | <b>E5L</b> | –          | –          |
| Flush round                  | –             | –          | <b>F0L</b> | <b>F5L</b> |

Contact arrangement and terminal \_\_\_\_\_

| Contact arrangement | Code      | Type of terminal         |
|---------------------|-----------|--------------------------|
| SPDT                | <b>C1</b> | Tab (#110) and           |
| 2PDT                | <b>C2</b> | solder dual-use terminal |

Color of button

| Color    | LED color | Code     |
|----------|-----------|----------|
| Green    | Green     | <b>G</b> |
| Red      | Red       | <b>R</b> |
| White *1 | Orange    | <b>W</b> |
| Yellow   | Yellow    | <b>Y</b> |
| Orange   | Amber     | <b>A</b> |
| Blue     | Blue      | <b>S</b> |

Lamp operational voltage and light source

| Applied method      | Voltage   | Code      |
|---------------------|-----------|-----------|
| Without transformer | 6V AC/DC  | <b>A3</b> |
|                     | 12V AC/DC | <b>B3</b> |
|                     | 24V AC/DC | <b>E3</b> |

Note: • The button is transparent in color.  
\*1: A combination of the transparent lens and the white legend plate comes to white.

04

## • Pushbutton switches

**AR16 F0T – C2 R**

Product category \_\_\_\_\_

| Category      | Code        |
|---------------|-------------|
| Standard type | <b>AR16</b> |
| Thin type     | <b>AF16</b> |

Operator shape and action \_\_\_\_\_

| Operator shape               | Code          |            |            |            |
|------------------------------|---------------|------------|------------|------------|
|                              | Standard type |            | Thin type  |            |
|                              | Momentary     | Alternate  | Momentary  | Alternate  |
| Flush rectangular            | <b>F0T</b>    | <b>F5T</b> | <b>F0T</b> | <b>F5T</b> |
| Flush rectangular with guard | <b>G0T</b>    | <b>G5T</b> | –          | –          |
| Flush square                 | <b>F0S</b>    | <b>F5S</b> | <b>F0S</b> | <b>F5S</b> |
| Extended round               | <b>E0R</b>    | <b>E5R</b> | –          | –          |
| Flush round                  | –             | –          | <b>F0R</b> | <b>F5R</b> |

Contact arrangement and terminal \_\_\_\_\_

| Contact arrangement | Code      | Type of terminal         |
|---------------------|-----------|--------------------------|
| SPDT                | <b>C1</b> | Tab (#110) and           |
| 2PDT                | <b>C2</b> | solder dual-use terminal |

Color of button

| Color    | Code     |
|----------|----------|
| Green    | <b>G</b> |
| Red      | <b>R</b> |
| Black *1 | <b>B</b> |
| White *2 | <b>W</b> |
| Yellow   | <b>Y</b> |
| Orange   | <b>A</b> |
| Blue     | <b>S</b> |

Notes: • The button is transparent in color.  
\*1: A combination of the transparent button and the black legend plate comes to black.  
\*2: A combination of the transparent button and the white legend plate comes to white.

Note: The manufacturing range varies depending on the model. For details, see "Types and dimensions" of this catalog.

# Command Switches

## AR16 and DR16, AF16 and DF16

### Type number nomenclature

#### • Pilot lights

**DR16 D0L – E3 W**

Product category

| Category      | Code        |
|---------------|-------------|
| Standard type | <b>DR16</b> |
| Thin type     | <b>DF16</b> |

Lens shape

| Lens shape        | Code          |            |
|-------------------|---------------|------------|
|                   | Standard type | Thin type  |
| Flush rectangular | <b>F0N</b>    | <b>F0N</b> |
| Flush square      | <b>F0M</b>    | <b>F0M</b> |
| Extended round    | <b>E0L</b>    | –          |
| Flush round       | –             | <b>F0L</b> |
| Dome              | <b>D0L</b>    | –          |

Color of lens

| Color    | LED color | Code     |
|----------|-----------|----------|
| Green    | Green     | <b>G</b> |
| Red      | Red       | <b>R</b> |
| White *1 | Orange    | <b>W</b> |
| Yellow   | Yellow    | <b>Y</b> |
| Orange   | Amber     | <b>A</b> |
| Blue     | Blue      | <b>S</b> |

Note: • The lens is transparent in color.  
 \*1: A combination of the transparent lens and the white legend plate comes to white (except for dome type).

Lamp operational voltage and light source

| Applied method      | Voltage   | Code      |
|---------------------|-----------|-----------|
| Without transformer | 6V AC/DC  | <b>A3</b> |
|                     | 12V AC/DC | <b>B3</b> |
|                     | 24V AC/DC | <b>E3</b> |

Note: The terminal used is a tab (#110) and solder dual-use terminal.

Note: The manufacturing range varies depending on the model. For details, see "Types and dimensions" of this catalog.

# Command Switches AR16 and DR16, AF16 and DF16 Type number nomenclature

## • Selector switches (Knob type)

**AR16 PT-2 C1 B**

Product category

|               |             |
|---------------|-------------|
| Category      | Code        |
| Standard type | <b>AR16</b> |
| Thin type     | <b>AF16</b> |

Operator shape

|                             |           |
|-----------------------------|-----------|
| Operator shape              | Code      |
| Knob with rectangular bezel | <b>PT</b> |
| Knob with square bezel      | <b>PS</b> |
| Knob with round bezel       | <b>PR</b> |

Color of knob

|       |          |
|-------|----------|
| Color | Code     |
| Black | <b>B</b> |

Contact arrangement and terminal

|                     |           |   |
|---------------------|-----------|---|
| Contact arrangement | Code      | Type of terminal                        |
| SPDT <sup>*1</sup>  | <b>C1</b> | Tab (#110) and solder dual-use terminal |
| 2PDT                | <b>C2</b> |   |

Note: <sup>\*1</sup> 2-position model only available


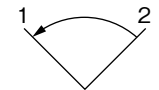
No. of positions and operator action

| No. of positions | Operator action                            | Code     |
|------------------|--|----------|
| 2-position (90°) | Maintained                                 | <b>2</b> |
|                  | Spring return (Right to left) ↶            | <b>0</b> |
| 3-position (45°) | Maintained                                 | <b>3</b> |
|                  | Spring/manual return (Left to center) ↷    | <b>6</b> |
|                  | Spring/manual return (Right to center) ↶   | <b>7</b> |
|                  | Spring return (Left or right to center) ↷↶ | <b>1</b> |

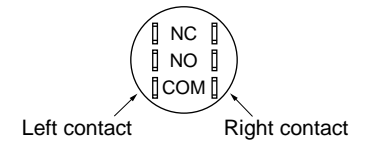
04

## • Key position and contact operation

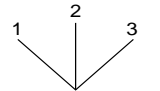
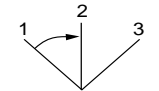
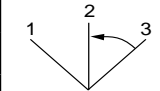
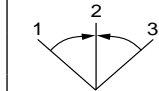
### 2-position

| Operator action (View form the front)   |  | Contact arrangement | Contact unit |     | Operator position <sup>*2</sup> |   |
|---|--|---------------------|--------------|-----|---------------------------------|---|
| 2   | 0  |                     | Left         | COM | 1                               | 2 |
| <br>Maintained/90° | <br>Spring return/90° | SPDT                | Left         | COM | NC                              | ● |
|   |  | NO                  | ●            |     |                                 |   |
|   |  | 2PDT                | Left         | COM | NC                              | ● |
|   |  |                     | NO           | ●   |                                 |   |
|   |  | Right               | COM          | NC  | ●                               |   |
|   |  |                     | NO           | ●   |                                 |   |

Terminal arrangement  
View from the terminal side (the back)



### 3-position

| Operator action (View form the front)  |  |  |   | Contact arrangement | Contact unit |     | Operator position <sup>*2</sup> |   |   |
|--|--|--|---|---------------------|--------------|-----|---------------------------------|---|---|
| 3  | 6  | 7  | 1   |                     | Left         | COM | 1                               | 2 | 3 |
| <br>Maintained/each 45° | <br>Spring/manual return/each 45° | <br>Spring/manual return/each 45° | <br>Spring return/each 45° | 2PDT                | Left         | COM | NC                              | ● |   |
|  |  |  |   |                     |              | NO  | ●                               |   |   |
| Right  | COM  | NC   | ●   |                     | ●            |     |                                 |   |   |
|  | NO   | ●  |   |                     |              |     |                                 |   |   |

Note: <sup>\*2</sup> ●, ■: means the contact closed (ON).

# Command Switches

## AR16 and DR16, AF16 and DF16

### Type number nomenclature

#### • Selector switches (Key type)

**AR16 JT-3 E C2 A**

Product category \_\_\_\_\_

|               |             |
|---------------|-------------|
| Category      | Code        |
| Standard type | <b>AR16</b> |
| Thin type     | <b>AF16</b> |

Operator shape \_\_\_\_\_

|                            |           |
|----------------------------|-----------|
| Operator shape             | Code      |
| Key with rectangular bezel | <b>JT</b> |
| Key with square bezel      | <b>JS</b> |
| Key with round bezel       | <b>JR</b> |

No. of positions and operator action \_\_\_\_\_

| No. of positions | Operator action                             | Code     |
|------------------|---|----------|
| 2-position (90°) | Maintained                                  | <b>2</b> |
|                  | Spring return (Right to left) ⤴             | <b>0</b> |
| 3-position (45°) | Maintained                                  | <b>3</b> |
|                  | Spring/manual return (Left to center) ⤴     | <b>6</b> |
|                  | Spring/manual return (Right to center) ⤵    | <b>7</b> |
|                  | Spring return (Left or right to center) ⤴/⤵ | <b>1</b> |

Types of key

|                   |          |          |          |          |          |          |
|-------------------|----------|----------|----------|----------|----------|----------|
| Type <sup>1</sup> | A        | B        | C        | D        | E        | F        |
| Code              | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> | <b>E</b> | <b>F</b> |

Note: <sup>1</sup> "A" is standard.

Contact arrangement and terminal

| Contact arrangement | Code      | Type of terminal                        |
|---------------------|-----------|---|
| SPDT <sup>2</sup>   | <b>C1</b> | Tab (#110) and solder dual-use terminal |
| 2PDT                | <b>C2</b> |   |

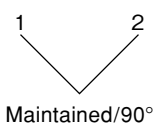
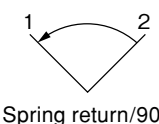
Note: <sup>2</sup> 2-position model only

Key removable position

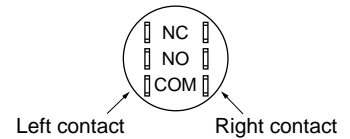
| Key removable position   | Applicable operator action |   |   |   |   |   | Code     |
|--------------------------|----------------------------|---|---|---|---|---|----------|
|                          | 2                          | 0 | 3 | 6 | 7 | 1 |          |
| Left ⤴                   | ○                          | ○ | ○ | — | ○ | — | <b>A</b> |
| Left and right ⊗         | ○                          | — | ○ | — | — | — | <b>B</b> |
| Left, center and right ⊗ | —                          | — | ○ | — | — | — | <b>C</b> |
| Right ⤵                  | ○                          | — | ○ | ○ | — | — | <b>D</b> |
| Center ⊕                 | —                          | — | ○ | ○ | ○ | ○ | <b>E</b> |
| Center and right ⊕       | —                          | — | ○ | ○ | — | — | <b>F</b> |
| Left and center ⊕        | —                          | — | ○ | — | ○ | — | <b>G</b> |

#### • Key position and contact operation

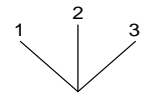
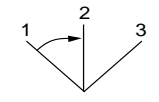
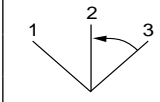
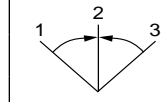
##### 2-position

| Operator action (View from the front)  |  | Contact arrangement | Contact unit |       | Operator position <sup>3</sup> |   |
|--|--|---------------------|--------------|-------|--------------------------------|---|
| 2  | 0  |                     | Left         | Right | 1                              | 2 |
| <br>Maintained/90° | <br>Spring return/90° | SPDT                | COM          | NC    | ●                              | ● |
|  |  | NO                  | ●            | ●     |                                |   |
|  |  | 2PDT                | COM          | NC    | ●                              | ● |
|  |  | NO                  | ●            | ●     |                                |   |

Terminal arrangement  
View from the terminal side (the back)



##### 3-position

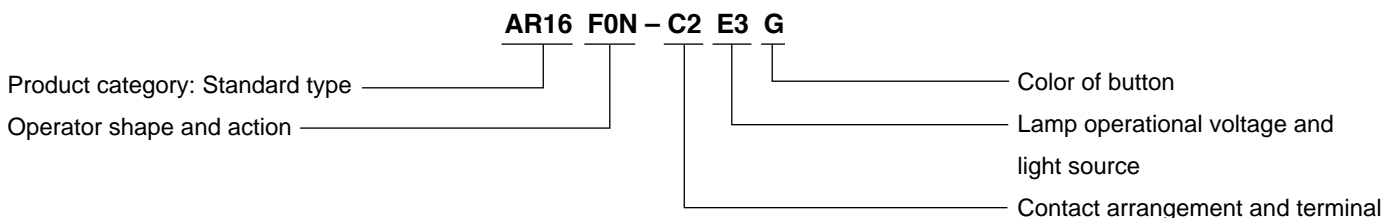
| Operator action (View from the front)   |  |  |   | Contact arrangement | Contact unit |       | Operator position <sup>3</sup> |   |   |
|---|--|--|---|---------------------|--------------|-------|--------------------------------|---|---|
| 3   | 6  | 7  | 1   |                     | Left         | Right | 1                              | 2 | 3 |
| <br>Maintained/each 45° | <br>Spring/manual return/each 45° | <br>Spring/manual return/each 45° | <br>Spring return/each 45° | 2PDT                | COM          | NC    | ●                              | ● | ● |
|   |  |  |   |                     |              | NO    | ●                              | ● | ● |

Note: <sup>3</sup> ●, ■: means the contact closed (ON).

**1. Standard type, AR16 and DR16**

**■ Illuminated pushbutton switches (LED illuminated)**

• **Type number system**



• **Type**

| Operator                     | Appearance (Standard type)  | Lamp operational voltage | Contact arrangement | Momentary action Type | Alternate action Type |
|------------------------------|---|--------------------------|---------------------|-----------------------|-----------------------|
| Flush rectangular            |   | 6V AC/DC                 | SPDT                | AR16F0N-C1A3□         | AR16F5N-C1A3□         |
|                              |   |                          | 2PDT                | AR16F0N-C2A3□         | AR16F5N-C2A3□         |
|                              |   | 12V AC/DC                | SPDT                | AR16F0N-C1B3□         | AR16F5N-C1B3□         |
|                              |   |                          | 2PDT                | AR16F0N-C2B3□         | AR16F5N-C2B3□         |
|                              |   | 24V AC/DC                | SPDT                | AR16F0N-C1E3□         | AR16F5N-C1E3□         |
|                              |   |                          | 2PDT                | AR16F0N-C2E3□         | AR16F5N-C2E3□         |
| Flush rectangular with guard |  | 6V AC/DC                 | SPDT                | AR16G0N-C1A3□         | AR16G5N-C1A3□         |
|                              |   |                          | 2PDT                | AR16G0N-C2A3□         | AR16G5N-C2A3□         |
|                              |   | 12V AC/DC                | SPDT                | AR16G0N-C1B3□         | AR16G5N-C1B3□         |
|                              |   |                          | 2PDT                | AR16G0N-C2B3□         | AR16G5N-C2B3□         |
|                              |   | 24V AC/DC                | SPDT                | AR16G0N-C1E3□         | AR16G5N-C1E3□         |
|                              |   |                          | 2PDT                | AR16G0N-C2E3□         | AR16G5N-C2E3□         |
| Flush square                 |  | 6V AC/DC                 | SPDT                | AR16F0M-C1A3□         | AR16F5M-C1A3□         |
|                              |   |                          | 2PDT                | AR16F0M-C2A3□         | AR16F5M-C2A3□         |
|                              |   | 12V AC/DC                | SPDT                | AR16F0M-C1B3□         | AR16F5M-C1B3□         |
|                              |   |                          | 2PDT                | AR16F0M-C2B3□         | AR16F5M-C2B3□         |
|                              |   | 24V AC/DC                | SPDT                | AR16F0M-C1E3□         | AR16F5M-C1E3□         |
|                              |   |                          | 2PDT                | AR16F0M-C2E3□         | AR16F5M-C2E3□         |
| Extended round               |  | 6V AC/DC                 | SPDT                | AR16E0L-C1A3□         | AR16E5L-C1A3□         |
|                              |   |                          | 2PDT                | AR16E0L-C2A3□         | AR16E5L-C2A3□         |
|                              |   | 12V AC/DC                | SPDT                | AR16E0L-C1B3□         | AR16E5L-C1B3□         |
|                              |   |                          | 2PDT                | AR16E0L-C2B3□         | AR16E5L-C2B3□         |
|                              |   | 24V AC/DC                | SPDT                | AR16E0L-C1E3□         | AR16E5L-C1E3□         |
|                              |   |                          | 2PDT                | AR16E0L-C2E3□         | AR16E5L-C2E3□         |

Note: • See page 04/144 for the outline dimensions.

• **Button color**

Replace the □ mark by the color code

|       |       |     |       |        |        |      |
|-------|-------|-----|-------|--------|--------|------|
| Color | Green | Red | White | Yellow | Orange | Blue |
| Code  | G     | R   | W *1  | Y      | A      | S    |

Note: \*1 A combination of the transparent button and the white legend plate comes to white.

# Command Switches

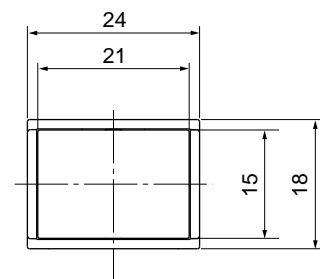
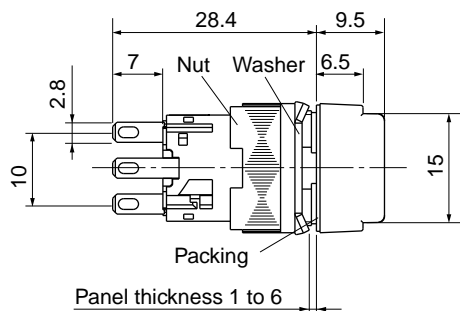
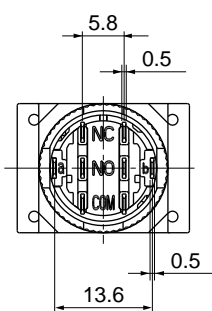
## AR16 and DR16

### Type numbers and dimensions

#### • Dimensions, mm

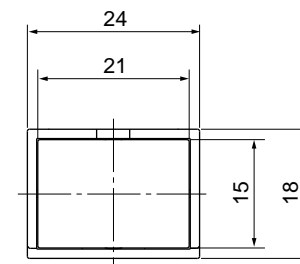
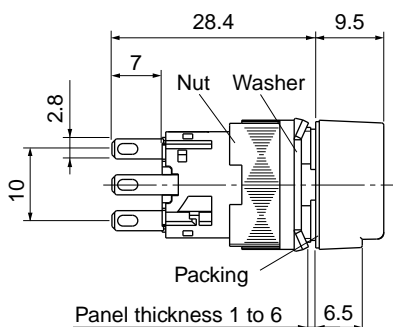
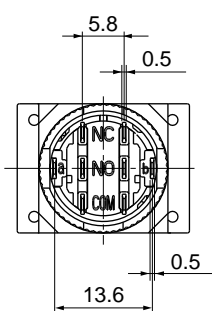
##### Flush rectangular

AR16F0N, F5N



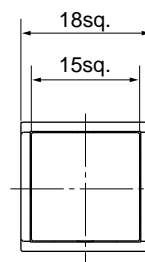
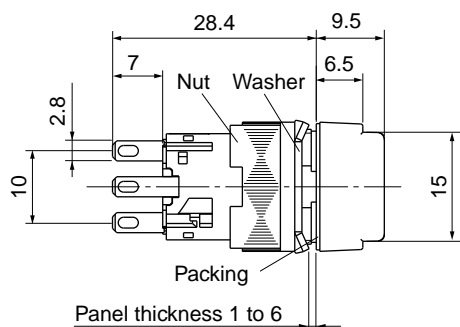
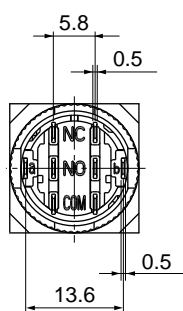
##### Flush rectangular with guard

AR16G0N, G5N



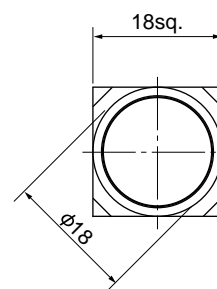
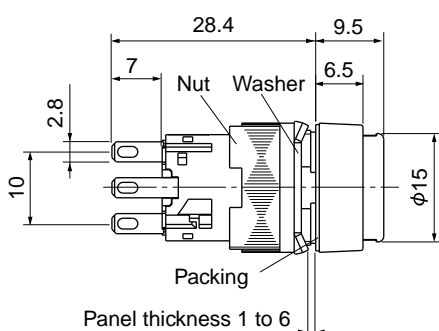
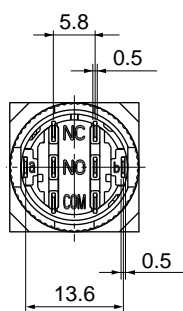
##### Flush square

AR16F0M, F5M



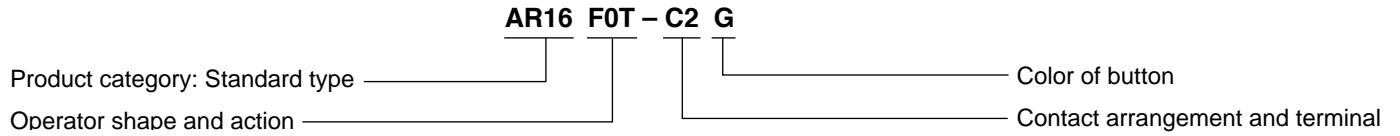
##### Extended round

AR16E0L, E5L



■ **Pushbutton switches**

• **Type number system**



• **Type**

| Operator                        | Appearance<br>(Standard type)  | Contact<br>arrangement | Momentary action<br>Type | Alternate action<br>Type |
|---------------------------------|--|------------------------|--------------------------|--------------------------|
| Flush rectangular               | <b>AR16F0T, F5T</b><br>   | SPDT                   | <b>AR16F0T-C1</b> □      | <b>AR16F5T-C1</b> □      |
|                                 |  | 2PDT                   | <b>AR16F0T-C2</b> □      | <b>AR16F5T-C2</b> □      |
| Flush rectangular<br>with guard | <b>AR16G0T, G5T</b><br> | SPDT                   | <b>AR16G0T-C1</b> □      | <b>AR16G5T-C1</b> □      |
|                                 |  | 2PDT                   | <b>AR16G0T-C2</b> □      | <b>AR16G5T-C2</b> □      |
| Flush square                    | <b>AR16F0S, F5S</b><br> | SPDT                   | <b>AR16F0S-C1</b> □      | <b>AR16F5S-C1</b> □      |
|                                 |  | 2PDT                   | <b>AR16F0S-C2</b> □      | <b>AR16F5S-C2</b> □      |
| Extended round                  | <b>AR16E0R, E5R</b><br> | SPDT                   | <b>AR16E0R-C1</b> □      | <b>AR16E5R-C1</b> □      |
|                                 |  | 2PDT                   | <b>AR16E0R-C2</b> □      | <b>AR16E5R-C2</b> □      |

Note: • See page 04/146 for the outline dimensions.

• **Button color**

Replace the □ mark by the color code

| Color | Green | Red | Black            | White            | Yellow | Orange | Blue |
|-------|-------|-----|------------------|------------------|--------|--------|------|
| Code  | G     | R   | B * <sup>1</sup> | W * <sup>2</sup> | Y      | A      | S    |

Notes: \*<sup>1</sup> A combination of the transparent button and the black legend plate comes to black.

\*<sup>2</sup> A combination of the transparent button and the white legend plate comes to white.



# Command Switches

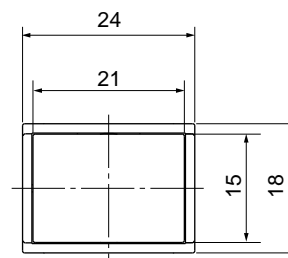
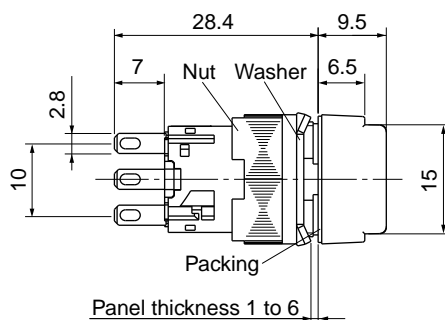
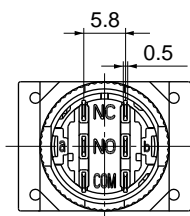
## AR16 and DR16

### Type numbers and dimensions

• Dimensions, mm

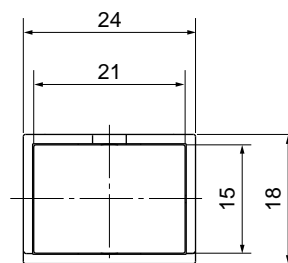
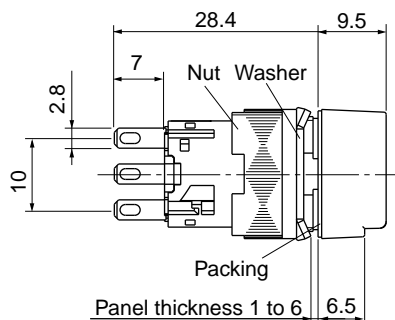
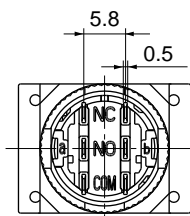
**Flush rectangular**

AR16F0T, F5T



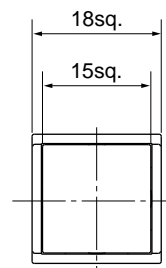
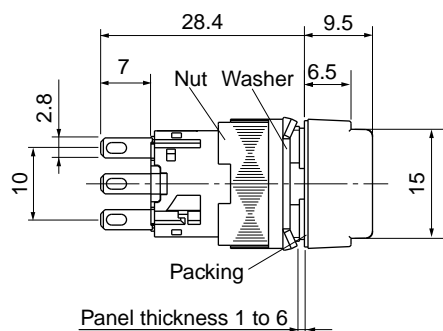
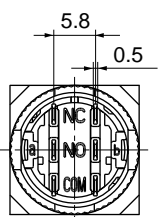
**Flush rectangular with guard**

AR16G0T, G5T



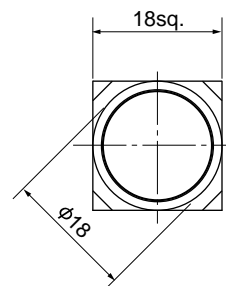
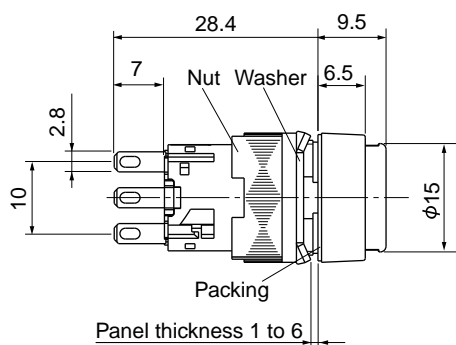
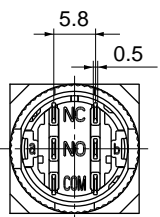
**Flush square**

AR16F0S, F5S



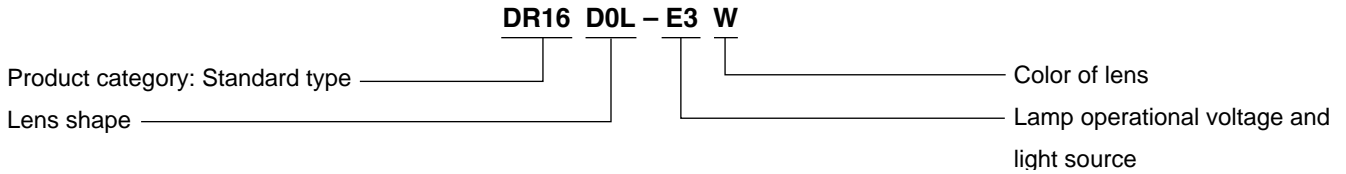
**Extended round**

AR16E0R, E5R



■ Pilot lights (LED illuminated)

• Type number system



• Type

| Lens              | Appearance (Standard type)  | LED lamp operational voltage | Type                |
|-------------------|---|------------------------------|---------------------|
| Flush rectangular |    | 6V AC/DC                     | <b>DR16F0N-A3</b> □ |
|                   |   | 12V AC/DC                    | <b>DR16F0N-B3</b> □ |
|                   |   | 24V AC/DC                    | <b>DR16F0N-E3</b> □ |
| Flush square      |  | 6V AC/DC                     | <b>DR16F0M-A3</b> □ |
|                   |   | 12V AC/DC                    | <b>DR16F0M-B3</b> □ |
|                   |   | 24V AC/DC                    | <b>DR16F0M-E3</b> □ |
| Extended round    |  | 6V AC/DC                     | <b>DR16E0L-A3</b> □ |
|                   |   | 12V AC/DC                    | <b>DR16E0L-B3</b> □ |
|                   |   | 24V AC/DC                    | <b>DR16E0L-E3</b> □ |
| Dome              |  | 6V AC/DC                     | <b>DR16D0L-A3</b> □ |
|                   |   | 12V AC/DC                    | <b>DR16D0L-B3</b> □ |
|                   |   | 24V AC/DC                    | <b>DR16D0L-E3</b> □ |

Note: • See page 04/148 for the outline dimensions.

• Lens color

Replace the □ mark by the color code

|       |       |     |       |        |        |      |
|-------|-------|-----|-------|--------|--------|------|
| Color | Green | Red | White | Yellow | Orange | Blue |
| Code  | G     | R   | W *1  | Y      | A      | S    |

Note: \*1 A combination of the transparent lens and the white legend plate comes to white (except for dome type).

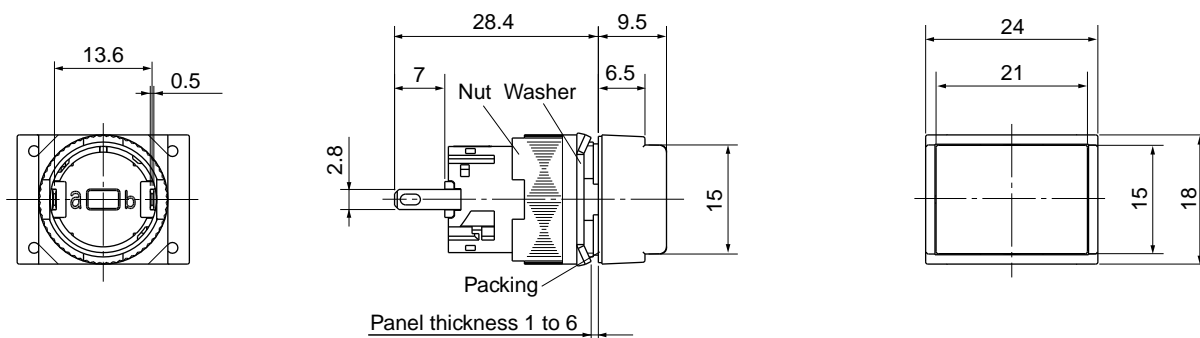
# Command Switches

## AR16 and DR16

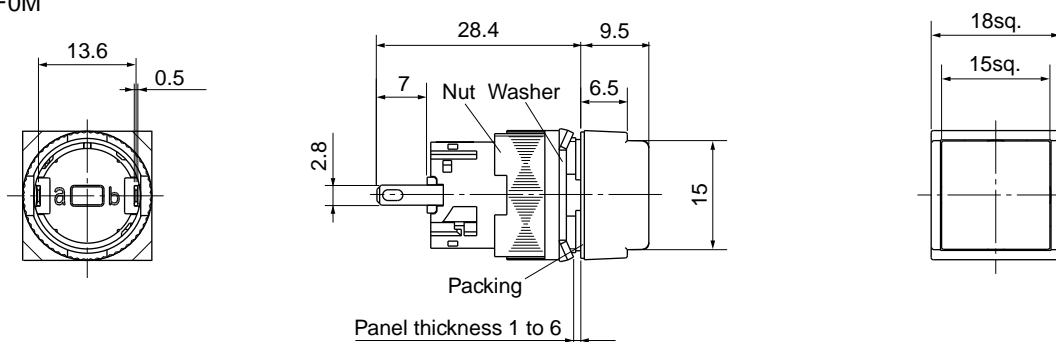
### Type numbers and dimensions

• Dimensions, mm

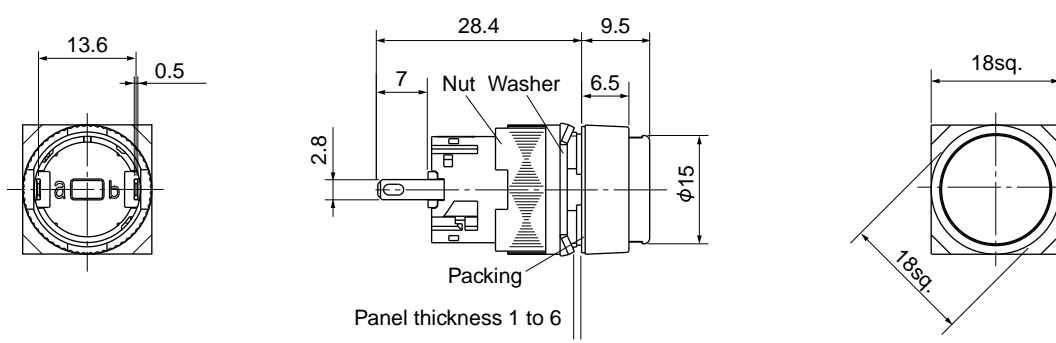
**Flush rectangular**  
DR16F0N



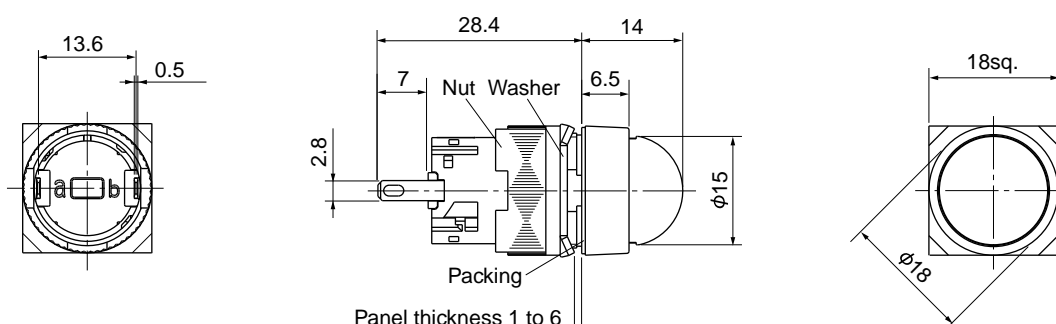
**Flush square**  
DR16F0M



**Extended round**  
DR16E0L

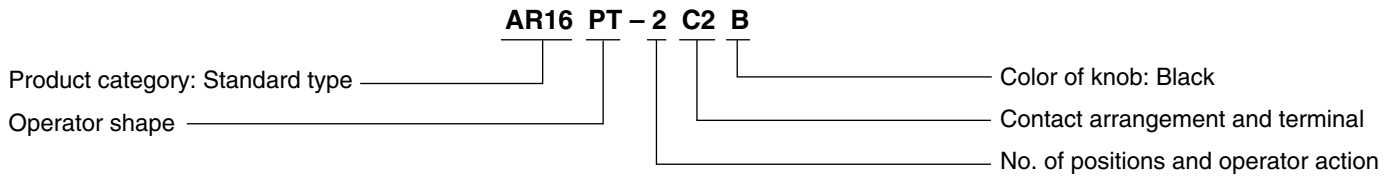


**Dome**  
DR16D0L



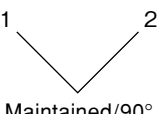
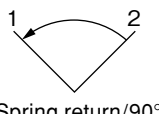



■ Selector switches (Knob type)

• Type number system

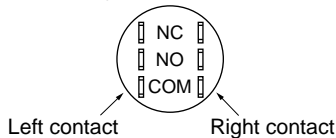


• Type

2-position

| Operator and appearance<br>(Standard type)   | No. of positions | Contact arrangement | Type  |   | Contact operation          |                                 |   |  |
|--|------------------|---------------------|---|---|----------------------------|---------------------------------|---|--|
|  |                  |                     | <br>Maintained/90° | <br>Spring return/90° | Contact unit <sup>*1</sup> | Operator position <sup>*2</sup> |   |  |
|  |                  |                     |   |   |                            | 1                               | 2 |  |
| Knob with rectangular bezel/ <b>AR16PT</b><br> | 2-position       | SPDT                | <b>AR16PT-2C1B</b>  | <b>AR16PT-0C1B</b>  | Left                       | COM ———— NC ●<br>———— NO ●      |   |  |
|  |                  |                     | <b>AR16PS-2C1B</b>  | <b>AR16PS-0C1B</b>  |                            |                                 |   |  |
|  |                  |                     | <b>AR16PR-2C1B</b>  | <b>AR16PR-0C1B</b>  |                            |                                 |   |  |
| Knob with square bezel/ <b>AR16PS</b><br>     | 2-position       | 2PDT                | <b>AR16PT-2C2B</b>  | <b>AR16PT-0C2B</b>  | Left                       | COM ———— NC ●<br>———— NO ●      |   |  |
|  |                  |                     | <b>AR16PS-2C2B</b>  | <b>AR16PS-0C2B</b>  |                            |                                 |   |  |
| Knob with round bezel/ <b>AR16PR</b><br>      | 2-position       | 2PDT                | <b>AR16PR-2C2B</b>  | <b>AR16PR-0C2B</b>  | Right                      | COM ———— NC ●<br>———— NO ●      |   |  |

Note: \*1 Terminal arrangement of contact (View from the terminal side (the back)).



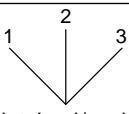
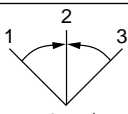



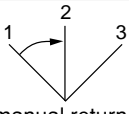
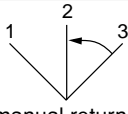
\*2 ●: Means the contact closed (ON).  
• See page 04/151 for the outline dimensions.

# Command Switches

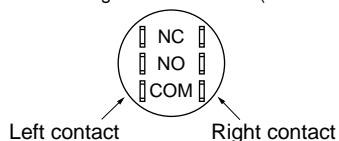
## AR16 and DR16

### Type numbers and dimensions

3-position

| Operator and appearance<br>(Standard type)  | No. of positions | Contact arrangement | Type   |  | Contact operation         |   |  |                           |                                |           |
|---|------------------|---------------------|--|--|---------------------------|---|--|---------------------------|--------------------------------|-----------|
|   |                  |                     | <br>Maintained/each 45° | <br>Spring return/each 45° | Contact unit <sup>1</sup> | Operator position <sup>2</sup>  |  |                           |                                |           |
|   |                  |                     |  |  |                           |   | 1   2   3  |                           |                                |           |
| Knob with rectangular bezel/ <b>AR16PT</b><br><br><br><br>Knob with square bezel/ <b>AR16PS</b><br><br><br><br>Knob with round bezel/ <b>AR16PR</b><br><br> | 3-position       | 2PDT                | <b>AR16PT-3C2B</b>   | <b>AR16PT-1C2B</b>   | Left                      | COM   | NC   | ●                         |                                |           |
|   |                  |                     | <b>AR16PS-3C2B</b>   | <b>AR16PS-1C2B</b>   |                           |   | NO   | ●                         |                                |           |
|   |                  |                     | <b>AR16PR-3C2B</b>   | <b>AR16PR-1C2B</b>   | Right                     | COM   | NC   | ●                         |                                |           |
|   |                  |                     |  |  |                           |   | NO   | ●                         |                                |           |
|   |                  |                     |  |  |                           |   |  | Contact unit <sup>1</sup> | Operator position <sup>2</sup> | 1   2   3 |
|   |                  |                     |  |  |                           | <br>Spring/manual return/each 45° | <br>Spring/manual return/each 45° | Left                      | COM                            | NC        |
|   |                  | <b>AR16PT-6C2B</b>  | <b>AR16PT-7C2B</b>   | NO   | ●                         |   |  |                           |                                |           |
|   |                  |                     | <b>AR16PS-6C2B</b>   | <b>AR16PS-7C2B</b>   | Right                     | COM   | NC   | ●                         |                                |           |
|   |                  | <b>AR16PR-6C2B</b>  | <b>AR16PR-7C2B</b>   | NO   |                           |   | ●  |                           |                                |           |

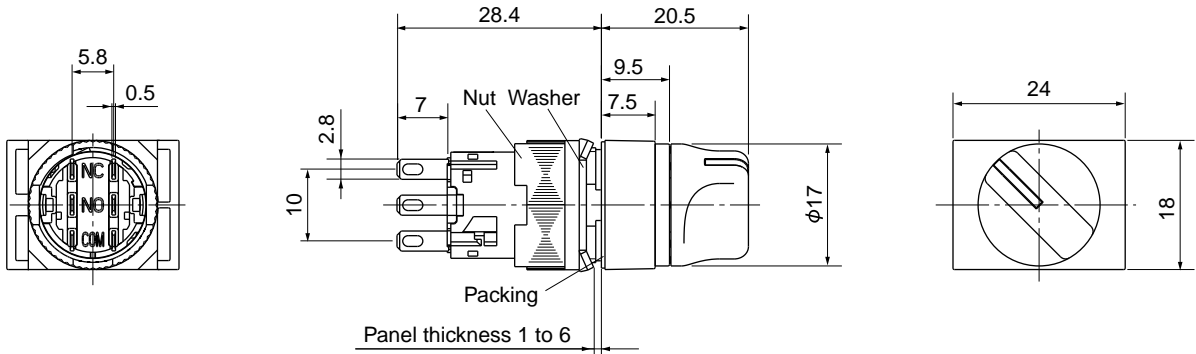
Notes: <sup>1</sup> Terminal arrangement of contact (View from the terminal side (the back)).



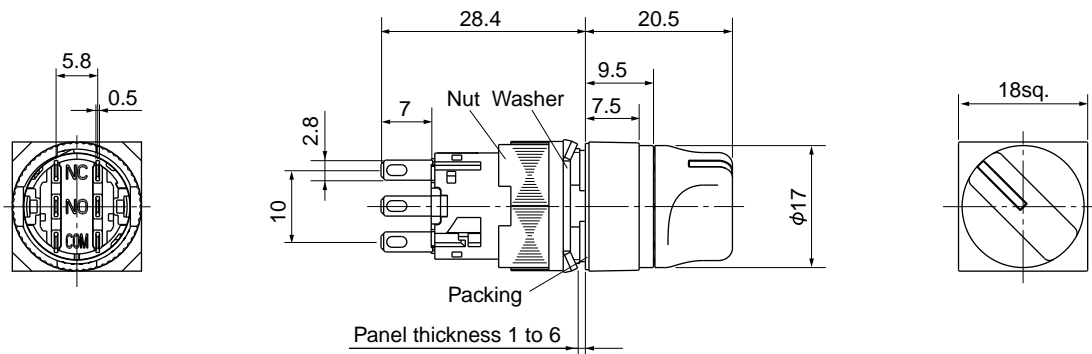
<sup>2</sup> ●, ■: means the contact closed (ON).  
 • See page 04/151 for the outline dimensions.

• Dimensions, mm

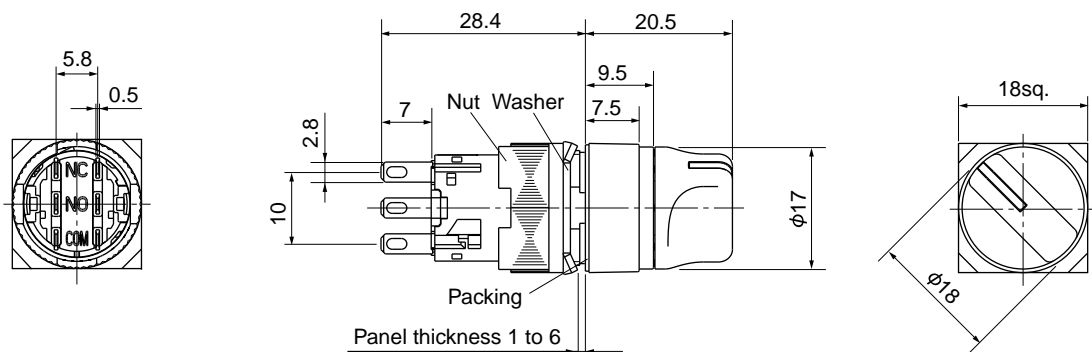
**Knob with rectangular bezel**  
 AR16PT



**Knob with square bezel**  
 AF16PS



**Knob with round bezel**  
 AF16PR



04

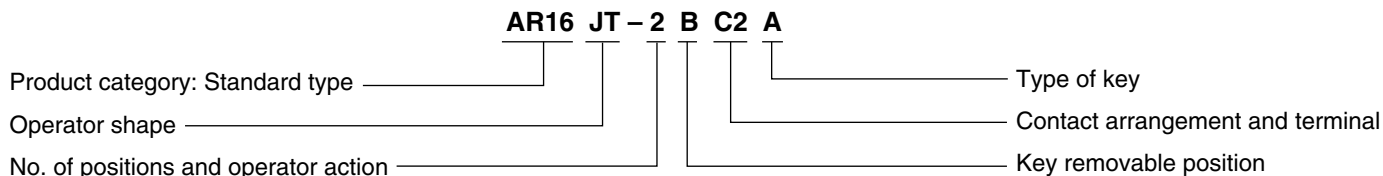
# Command Switches

## AR16 and DR16

### Type numbers and dimensions




#### ■ Selector switches (Key type)

##### • Type number system

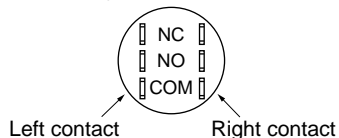


##### • Type

2-position

| Operator and appearance (Standard type)  | No. of positions | Contact arrangement | Type                     |                             | Contact operation          |                                 |      |   |
|--|------------------|---------------------|--------------------------|-----------------------------|----------------------------|---------------------------------|------|---|
|  |                  |                     | 1<br>2<br>Maintained/90° | 1<br>2<br>Spring return/90° | Contact unit <sup>*1</sup> |                                 |      |   |
|  |                  |                     |                          |                             |                            | Operator position <sup>*2</sup> |      |   |
|  |                  |                     |                          |                             |                            | 1                               | 2    |   |
| Key with rectangular bezel/<br><b>AR16JT</b><br> | 2-position       | SPDT                | <b>AR16JT-2■C1A</b>      | <b>AR16JT-0AC1A</b>         | Left                       | COM                             | NC ● |   |
|  |                  |                     | <b>AR16JS-2■C1A</b>      | <b>AR16JS-0AC1A</b>         |                            |                                 |      |   |
|  |                  |                     | <b>AR16JR-2■C1A</b>      | <b>AR16JR-0AC1A</b>         |                            |                                 |      | ● |
| Key with square bezel/<br><b>AR16JS</b><br>     | 2-position       | 2PDT                | <b>AR16JT-2■C2A</b>      | <b>AR16JT-0AC2A</b>         | Left                       | COM                             | NC ● |   |
|  |                  |                     | <b>AR16JS-2■C2A</b>      | <b>AR16JS-0AC2A</b>         |                            |                                 |      | ● |
| Key with round bezel/<br><b>AR16JR</b><br>      | 2-position       | 2PDT                | <b>AR16JR-2■C2A</b>      | <b>AR16JR-0AC2A</b>         | Right                      | COM                             | NC ● |   |
|  |                  |                     |                          |                             |                            |                                 |      | ● |

Notes: \*1 Terminal arrangement of contact (View from the terminal side (the back)).



\*2 ●: Means the contact closed (ON).  
 • See page 04/154 for the outline dimensions.

##### • Key removable position

Specify the key removal position in the square ■ mark.

| Key removable position | Applied operator action |   | Code     |
|------------------------|-------------------------|---|----------|
|                        | 2                       | 0 |          |
| Left ⊙                 | ○                       | ○ | <b>A</b> |
| Left•Right ⊗           | ○                       | — | <b>B</b> |
| Left ⊘                 | ○                       | — | <b>D</b> |

○: Available    —: Not available

##### • Type of key

| Type <sup>*1</sup> | A        | B        | C        | D        | E        | F        |
|--------------------|----------|----------|----------|----------|----------|----------|
| Code               | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> | <b>E</b> | <b>F</b> |

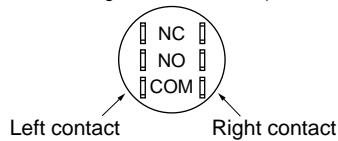
\*1 "A" is standard.

# Command Switches AR16 and DR16 Type numbers and dimensions

3-position

| Operator and appearance<br>(Standard type)  | No. of positions | Contact arrangement | Type   |  | Contact operation          |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|---|------------------|---------------------|--|--|----------------------------|---|-----|----|---|--|--|--|--|--|----|---|---|---|---|---|---|-----|----|---|--|--|--|--|--|----|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|---|---|---|---|---|---|---|
|   |                  |                     | <br>Maintained/each 45°  | <br>Spring return/each 45°   | Contact unit <sup>*1</sup> | Operator position <sup>*2</sup>   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   |                  |                     |  |  |                            | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>1</td> <td>2</td> <td>3</td> <td>1</td> <td>2</td> <td>3</td> </tr> </table>  |     |    |   |  |  |  |  |  | 1  | 2 | 3 | 1 | 2 | 3 | 1 | 2   | 3  |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   |                  |                     |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
| 1   | 2                | 3                   | 1  | 2  | 3                          | 1   | 2   | 3  |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
| Key with rectangular bezel/<br><b>AR16JT</b><br><br><br><br>Key with square bezel/<br><b>AR16JS</b><br><br><br><br>Key with round bezel/<br><b>AR16JR</b><br><br> | 3-position       | 2PDT                | <b>AR16JT-3■C2A</b><br><br><b>AR16JS-3■C2A</b><br><br><b>AR16JR-3■C2A</b>                                  | <b>AR16JT-1EC2A</b><br><br><b>AR16JS-1EC2A</b><br><br><b>AR16JR-1EC2A</b>                                  | Left<br>Right              | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 10%;">COM</td> <td style="width: 10%;">NC</td> <td style="width: 10%; text-align: center;">●</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>NO</td> <td style="text-align: center;">●</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td rowspan="2" style="width: 10%;">COM</td> <td style="width: 10%;">NC</td> <td style="width: 10%; text-align: center;">●</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>NO</td> <td style="text-align: center;">●</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | COM | NC | ● |  |  |  |  |  | NO | ● |   |   |   |   |   | COM | NC | ● |  |  |  |  |  | NO | ● |  |  |  |  |  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>1</td> <td>2</td> <td>3</td> <td>1</td> <td>2</td> <td>3</td> </tr> </table> |  |  |  |  |  |  |  |  | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
|   |                  |                     | COM  | NC   | ●                          |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
| NO  | ●                |                     |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
| COM   | NC               | ●                   |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   | NO               | ●                   |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   |                  |                     |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
| 1   | 2                | 3                   | 1  | 2  | 3                          | 1   | 2   | 3  |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   |                  |                     | Spring/manual return/each 45°<br><b>AR16JT-6■C2A</b><br><br><b>AR16JS-6■C2A</b><br><br><b>AR16JR-6■C2A</b> | Spring/manual return/each 45°<br><b>AR16JT-7■C2A</b><br><br><b>AR16JS-7■C2A</b><br><br><b>AR16JR-7■C2A</b> | Left<br>Right              | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 10%;">COM</td> <td style="width: 10%;">NC</td> <td style="width: 10%; text-align: center;">●</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>NO</td> <td style="text-align: center;">●</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td rowspan="2" style="width: 10%;">COM</td> <td style="width: 10%;">NC</td> <td style="width: 10%; text-align: center;">●</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>NO</td> <td style="text-align: center;">●</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | COM | NC | ● |  |  |  |  |  | NO | ● |   |   |   |   |   | COM | NC | ● |  |  |  |  |  | NO | ● |  |  |  |  |  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>1</td> <td>2</td> <td>3</td> <td>1</td> <td>2</td> <td>3</td> </tr> </table> |  |  |  |  |  |  |  |  | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| COM   | NC               | ●                   |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   | NO               | ●                   |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
| COM   | NC               | ●                   |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   | NO               | ●                   |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
|   |                  |                     |  |  |                            |   |     |    |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |
| 1   | 2                | 3                   | 1  | 2  | 3                          | 1   | 2   | 3  |   |  |  |  |  |  |    |   |   |   |   |   |   |     |    |   |  |  |  |  |  |    |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |   |   |   |   |   |   |   |   |

Notes: \*1 Terminal arrangement of contact (View from the terminal side (the back)).



\*2 ●, ■: Means the contact closed (ON).  
 • See page 04/154 for the outline dimensions.

### • Key removal position

Specify the key removal position in the square ■ mark.

| Key removable position | Applied operator action |   |   |   | Code |
|------------------------|-------------------------|---|---|---|------|
|                        | 3                       | 6 | 7 | 1 |      |
| Left (○)               | ○                       | - | ○ | - | A    |
| Left•Right (⊗)         | ○                       | - | - | - | B    |
| Left•Center•Right (⊗)  | ○                       | - | - | - | C    |
| Right (○)              | ○                       | ○ | - | - | D    |
| Center (⊕)             | ○                       | ○ | ○ | ○ | E    |
| Center•Right (⊕)       | ○                       | ○ | - | - | F    |
| Left•Center (⊕)        | ○                       | - | ○ | - | G    |

○: Available -: Not available

### • Type of key

| Type <sup>*1</sup> | A | B | C | D | E | F |
|--------------------|---|---|---|---|---|---|
| Code               | A | B | C | D | E | F |

\*1 "A" is standard.



# Command Switches

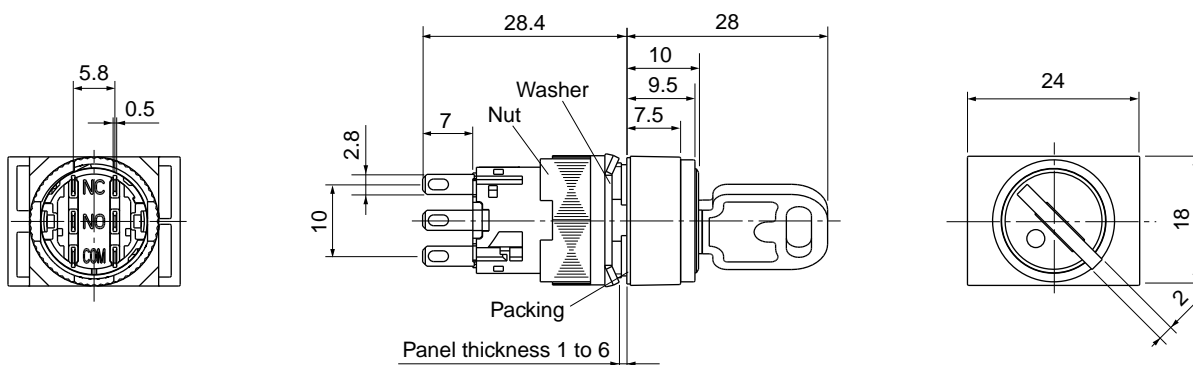
## AF16 and DF16

### Type numbers and dimensions

• Dimensions, mm

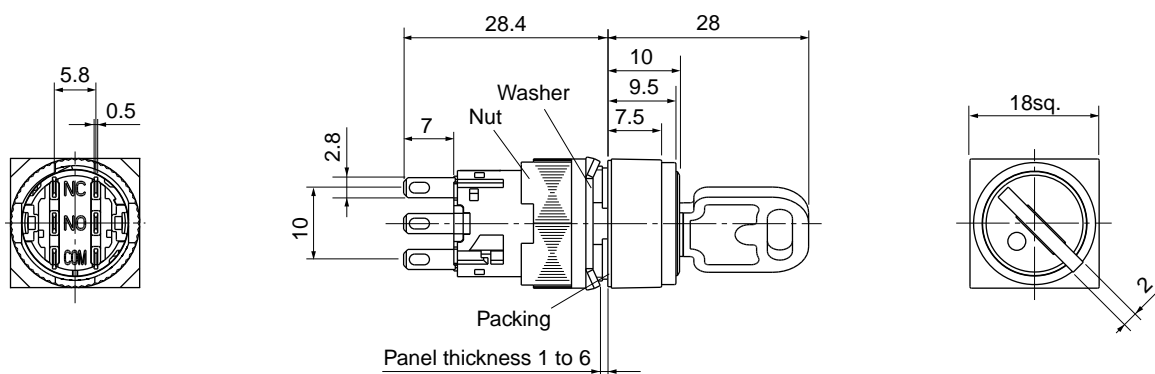
**Key with rectangular bezel**

AR16JT



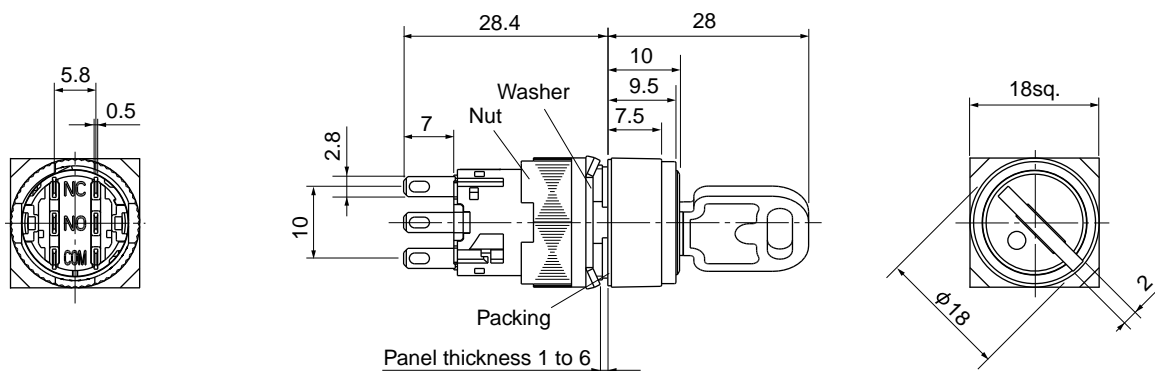
**Key with square bezel**

AR16JS



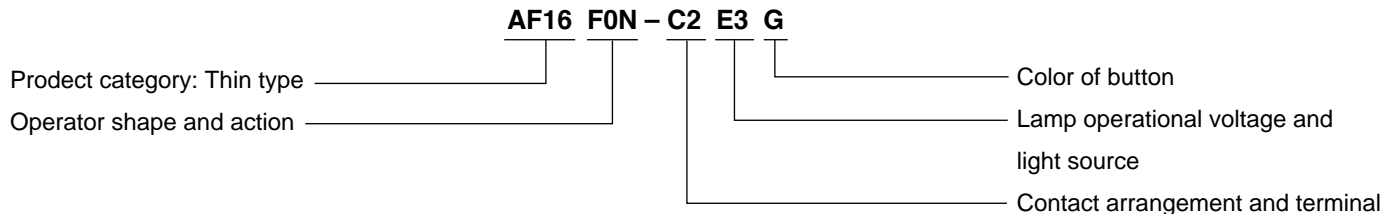
**Key with round bezel**

AR16JR






■ **Illuminated pushbutton switches (LED lamp)**

• **Type number system**



• **Type**

| Operator          | Appearance (Thin type)  | LED lamp operational voltage | Contact arrangement | Momentary action Type | Alternate action Type |
|-------------------|---|------------------------------|---------------------|-----------------------|-----------------------|
| Flush rectangular |   | 6V AC/DC                     | SPDT                | AF16F0N-C1A3□         | AF16F5N-C1A3□         |
|                   |   |                              | 2PDT                | AF16F0N-C2A3□         | AF16F5N-C2A3□         |
|                   |   | 12V AC/DC                    | SPDT                | AF16F0N-C1B3□         | AF16F5N-C1B3□         |
|                   |   |                              | 2PDT                | AF16F0N-C2B3□         | AF16F5N-C2B3□         |
|                   |   | 24V AC/DC                    | SPDT                | AF16F0N-C1E3□         | AF16F5N-C1E3□         |
|                   |   |                              | 2PDT                | AF16F0N-C2E3□         | AF16F5N-C2E3□         |
| Flush square      |  | 6V AC/DC                     | SPDT                | AF16F0M-C1A3□         | AF16F5M-C1A3□         |
|                   |   |                              | 2PDT                | AF16F0M-C2A3□         | AF16F5M-C2A3□         |
|                   |   | 12V AC/DC                    | SPDT                | AF16F0M-C1B3□         | AF16F5M-C1B3□         |
|                   |   |                              | 2PDT                | AF16F0M-C2B3□         | AF16F5M-C2B3□         |
|                   |   | 24V AC/DC                    | SPDT                | AF16F0M-C1E3□         | AF16F5M-C1E3□         |
|                   |   |                              | 2PDT                | AF16F0M-C2E3□         | AF16F5M-C2E3□         |
| Flush round       |  | 6V AC/DC                     | SPDT                | AF16F0L-C1A3□         | AF16F5L-C1A3□         |
|                   |   |                              | 2PDT                | AF16F0L-C2A3□         | AF16F5L-C2A3□         |
|                   |   | 12V AC/DC                    | SPDT                | AF16F0L-C1B3□         | AF16F5L-C1B3□         |
|                   |   |                              | 2PDT                | AF16F0L-C2B3□         | AF16F5L-C2B3□         |
|                   |   | 24V AC/DC                    | SPDT                | AF16F0L-C1E3□         | AF16F5L-C1E3□         |
|                   |   |                              | 2PDT                | AF16F0L-C2E3□         | AF16F5L-C2E3□         |

Note: • The panel cutting dimensions differ depending on the operator shape of thin type model. See page 04/167.  
 • For the dimensions, see page 04/156.

• **Button color**

Replace the □ mark by the color code.

| Color | Green | Red | White | Yellow | Orange | Blue |
|-------|-------|-----|-------|--------|--------|------|
| Code  | G     | R   | W *1  | Y      | A      | S    |

Note: \*1 A combination of the translucent button and the white legend plate comes to white lens.

# Command Switches

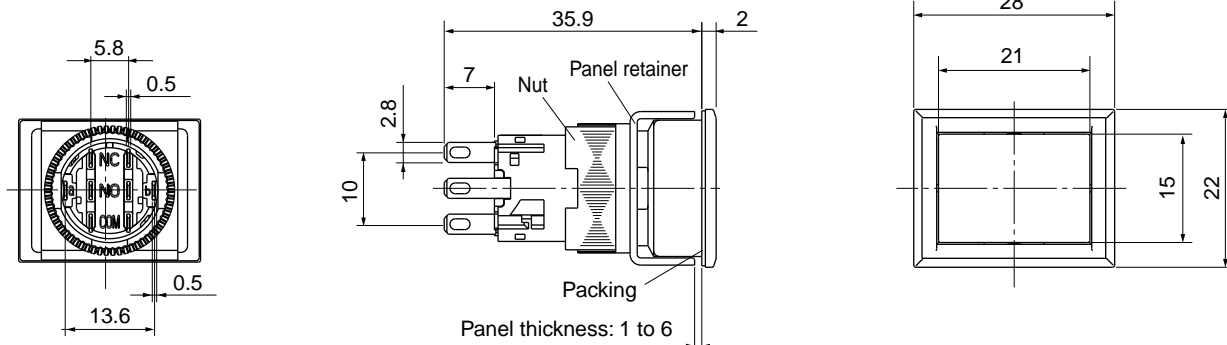
## AF16 and DF16

### Type numbers and dimensions

#### • Dimensions, mm

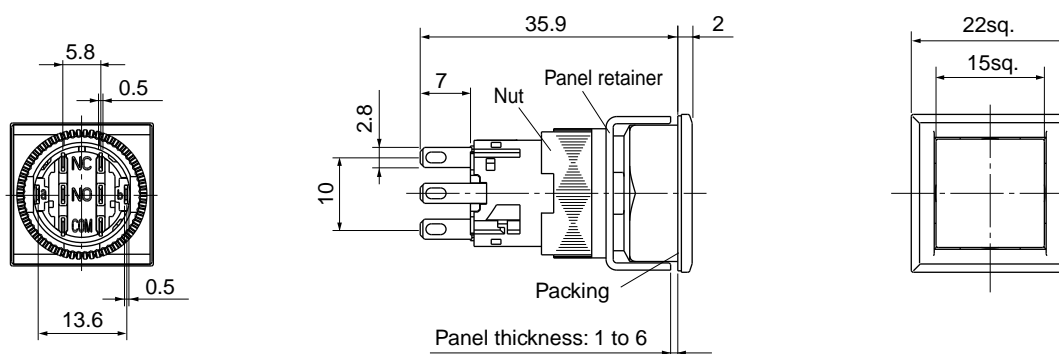
##### Flush rectangular

AF16F0N, F5N



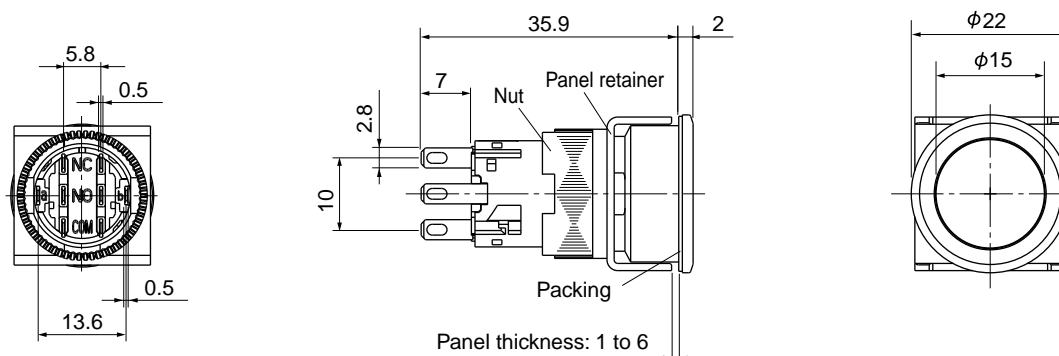
##### Flush square

AF16F0M, F5M



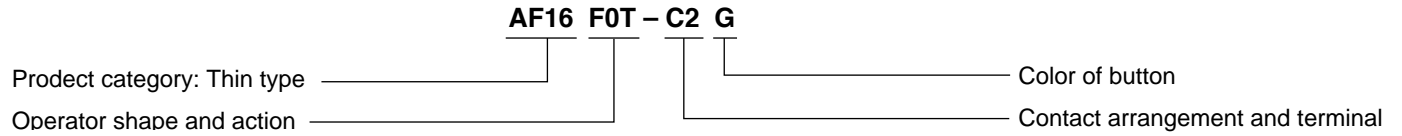
##### Flush round

AF16F0L, F5L






■ **Pushbutton switches**

• **Type number system**



• **Type**

| Operator          | Appearance<br>(Thin type)   | Contact<br>arrangement | Momentary action<br>Type | Alternate action<br>Type |
|-------------------|---|------------------------|--------------------------|--------------------------|
| Flush rectangular |    | SPDT                   | AF16F0T-C1□              | AF16F5T-C1□              |
|                   |   | 2PDT                   | AF16F0T-C2□              | AF16F5T-C2□              |
| Flush square      |   | SPDT                   | AF16F0S-C1□              | AF16F5S-C1□              |
|                   |   | 2PDT                   | AF16F0S-C2□              | AF16F5S-C2□              |
| Flush round       |  | SPDT                   | AF16F0R-C1□              | AF16F5R-C1□              |
|                   |   | 2PDT                   | AF16F0R-C2□              | AF16F5R-C2□              |

Note: • The panel cutting dimensions differ depending on the operator shape of thin type model. See page 04/167.  
 • For the dimensions, see page 04/158.

• **Button color**

Replace the □ mark by the color code.

| Color | Green | Black            | Red | White            | Yellow | Orange | Blue |
|-------|-------|------------------|-----|------------------|--------|--------|------|
| Code  | G     | B * <sup>1</sup> | R   | W * <sup>2</sup> | Y      | A      | S    |

Notes: \*<sup>1</sup> A combination of the translucent button and the black legend plate comes to black.  
 \*<sup>2</sup> A combination of the translucent button and the white legend plate comes to white.

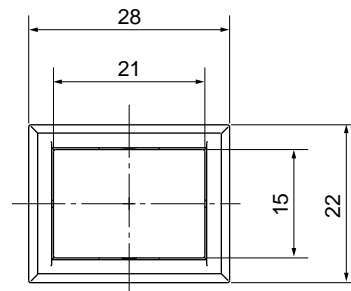
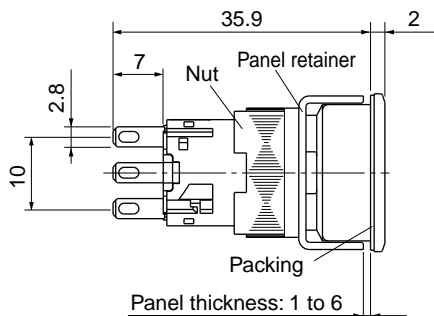
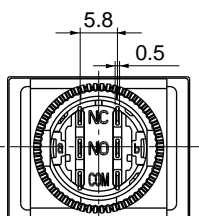
# Command Switches

## AF16 and DF16

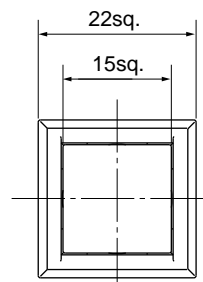
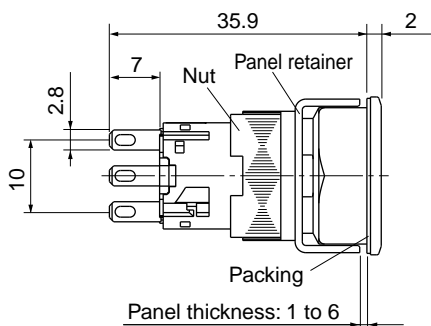
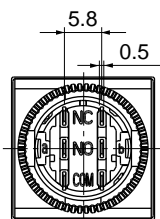
### Type numbers and dimensions

• Dimensions, mm

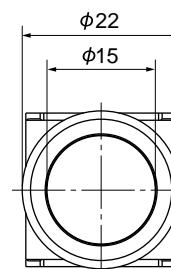
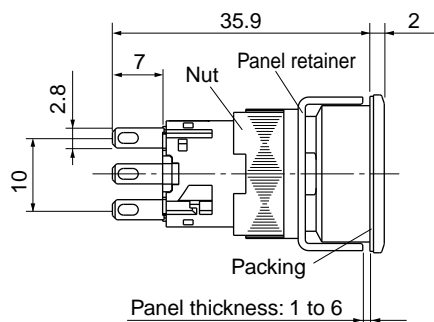
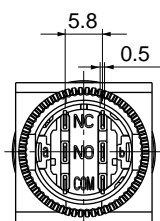
**Flush rectangular**  
AF16F0T, F5T



**Flush square**  
AF16F0S, F5S

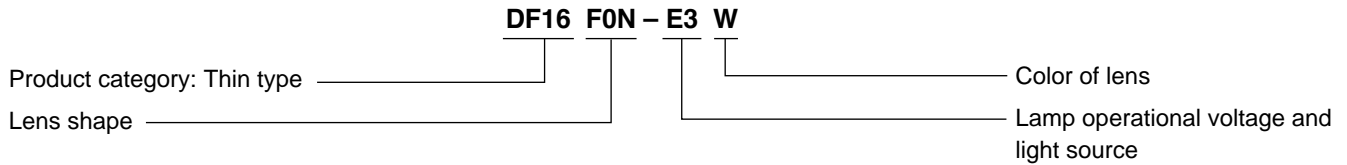


**Flush round**  
AF16F0R, F5R



■ Pilot lights (LED lamp)

• Type number system



• Type

| Lens              | Appearance (Thin type)  | LED lamp operational voltage | Type        |
|-------------------|---|------------------------------|-------------|
| Flush rectangular |    | 6V AC/DC                     | DF16F0N-A3□ |
|                   |   | 12V AC/DC                    | DF16F0N-B3□ |
|                   |   | 24V AC/DC                    | DF16F0N-E3□ |
| Flush square      |  | 6V AC/DC                     | DF16F0M-A3□ |
|                   |   | 12V AC/DC                    | DF16F0M-B3□ |
|                   |   | 24V AC/DC                    | DF16F0M-E3□ |
| Flush round       |  | 6V AC/DC                     | DF16F0L-A3□ |
|                   |   | 12V AC/DC                    | DF16F0L-B3□ |
|                   |   | 24V AC/DC                    | DF16F0L-E3□ |

Note: • The panel cutting dimensions differ depending on the lens shape of thin type model. See page 04/167.  
 • For the dimensions, see page 04/160.

• Lens color

Replace the □ mark by the color code

| Color | Green | Red | White | Yellow | Orange | Blue |
|-------|-------|-----|-------|--------|--------|------|
| Code  | G     | R   | W *1  | Y      | A      | S    |

Note: \*1 A combination of the transparent lens and the white legend plate comes to white.

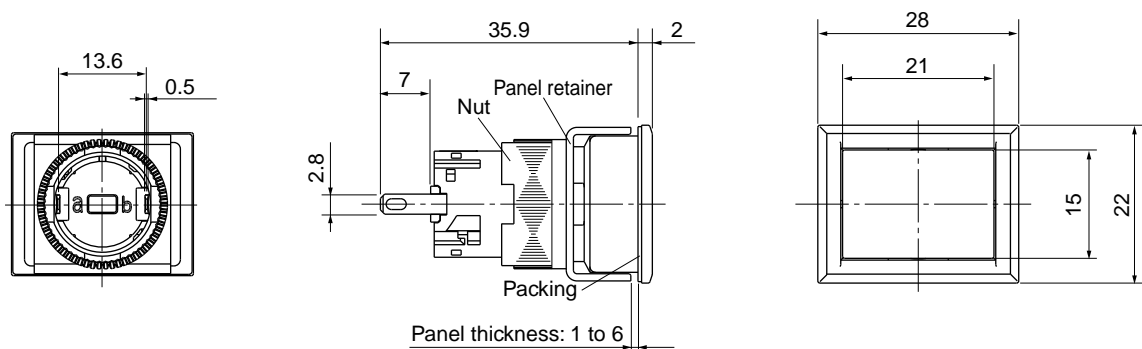
# Command Switches

## AF16 and DF16

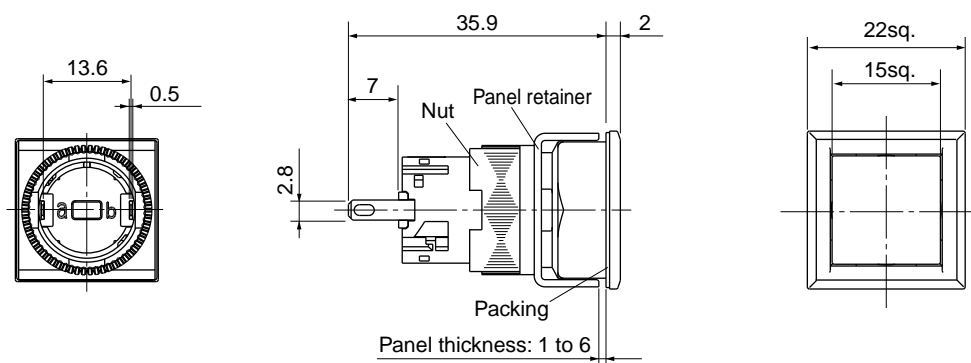
### Type numbers and dimensions

• Dimensions, mm

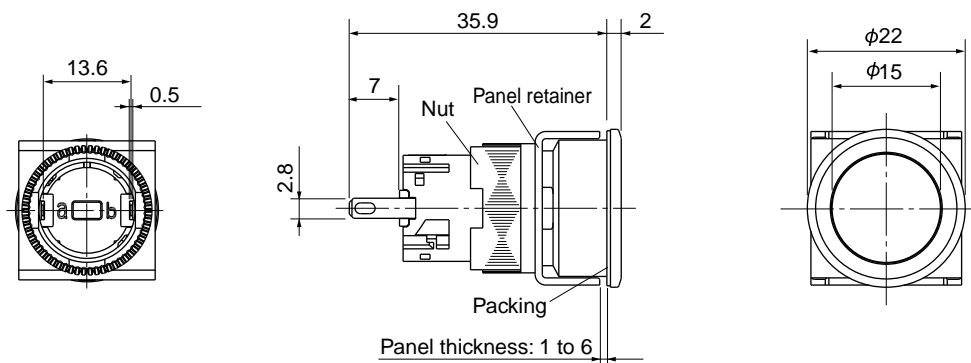
**Flush rectangular**  
DF16F0N



**Flush square**  
DF16F0M

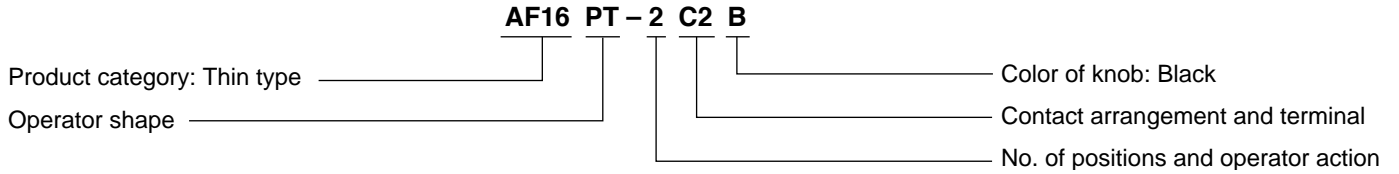


**Flush round**  
DF16F0L



■ **Selector switches (Knob type)**

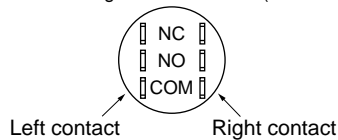
• **Type number system**



• **Type**  
 2-position

| Operator<br>(Thin type)                           | Contact<br>arrangement | Type               |                       | Contact operation          |                                    |
|---|------------------------|--------------------|-----------------------|----------------------------|------------------------------------|
|   |                        | <br>Maintained/90° | <br>Spring return/90° | Contact unit <sup>*1</sup> | Operator<br>position <sup>*2</sup> |
|   |                        |                    |                       |                            | 1   2                              |
| Knob with rectangular<br>bezel/ <b>AF16PT</b><br> | SPDT                   | <b>AF16PT-2C1B</b> | <b>AF16PT-0C1B</b>    | Left                       | COM — NC ●<br>— NO ●               |
|   |                        | <b>AF16PS-2C1B</b> | <b>AF16PS-0C1B</b>    |                            |                                    |
|   |                        | <b>AF16PR-2C1B</b> | <b>AF16PR-0C1B</b>    |                            |                                    |
| Knob with square<br>bezel/ <b>AF16PS</b><br>      | 2PDT                   | <b>AF16PT-2C2B</b> | <b>AF16PT-0C2B</b>    | Left                       | COM — NC ●<br>— NO ●               |
|   |                        | <b>AF16PS-2C2B</b> | <b>AF16PS-0C2B</b>    |                            |                                    |
| Knob with round<br>bezel/ <b>AF16PR</b><br>       |                        | <b>AF16PR-2C2B</b> | <b>AF16PR-0C2B</b>    | Right                      | COM — NC ●<br>— NO ●               |

Notes: \*<sup>1</sup> Terminal arrangement of contact (view from terminal side).



\*<sup>2</sup> ●: Contact closed.

- The panel cutting dimensions differ depending on the operator shape of thin type model. See page 04/167.
- For the dimensions, see page 04/163.

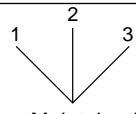
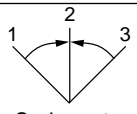







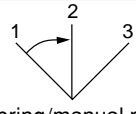
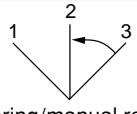






# Command Switches

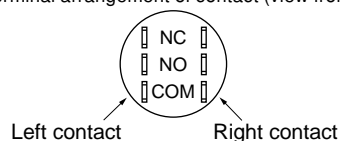
## AF16 and DF16

### Type numbers and dimensions

3-position

| Operator<br>(Thin type)  | Contact<br>arrangement | Type   |   | Contact operation   |  |   |  |   |   |
|--|------------------------|--|---|---|--|---|--|---|---|
|  |                        | <br>Maintained/each 45° | <br>Spring return/each 45° | Contact unit <sup>1</sup>   | Operator<br>position <sup>2</sup>  |   |  |   |   |
|  |                        |  |   |   | <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> </table>  | 1   | 2  | 3   |   |
| 1  | 2                      | 3  |   |   |  |   |  |   |   |
| Knob with flush<br>square/ <b>AF16PT</b><br><br><br><br>Knob with square<br>bezel/ <b>AF16PS</b><br><br><br><br>Knob with round<br>bezel/ <b>AF16PR</b><br><br> | 2PDT                   | <b>AF16PT-3C2B</b>   | <b>AF16PT-1C2B</b>  | Left  | COM <ul style="list-style-type: none"> <li>NC </li> <li>NO </li> </ul>     | <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> </table> | 1  | 2   | 3 |
|  |                        | 1  | 2   |   |  |   | 3  |   |   |
|  |                        | <b>AF16PS-3C2B</b>   | <b>AF16PS-1C2B</b>  | Right   | COM <ul style="list-style-type: none"> <li>NC </li> <li>NO </li> </ul>     |   |  |   |   |
|  |                        | <b>AF16PR-3C2B</b>   | <b>AF16PR-1C2B</b>  |   |  |   |  |   |   |
|  |                        |  |   | <br>Spring/manual return/each 45° | <br>Spring/manual return/each 45°  | Contact unit <sup>1</sup>   | Operator<br>position <sup>2</sup>  |   |   |
|  |                        |  |   | <b>AF16PT-6C2B</b>  | <b>AF16PT-7C2B</b>   | Left  | COM <ul style="list-style-type: none"> <li>NC </li> <li>NO </li> </ul> | <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> </table> | 1 |
| 1  | 2                      | 3  |   |   |  |   |  |   |   |
|  |                        | <b>AF16PS-6C2B</b>   | <b>AF16PS-7C2B</b>  | Right   | COM <ul style="list-style-type: none"> <li>NC </li> <li>NO </li> </ul> |   |  |   |   |
|  |                        | <b>AF16PR-6C2B</b>   | <b>AF16PR-7C2B</b>  |   |  |   |  |   |   |

Notes: \*1 Terminal arrangement of contact (view from terminal side).

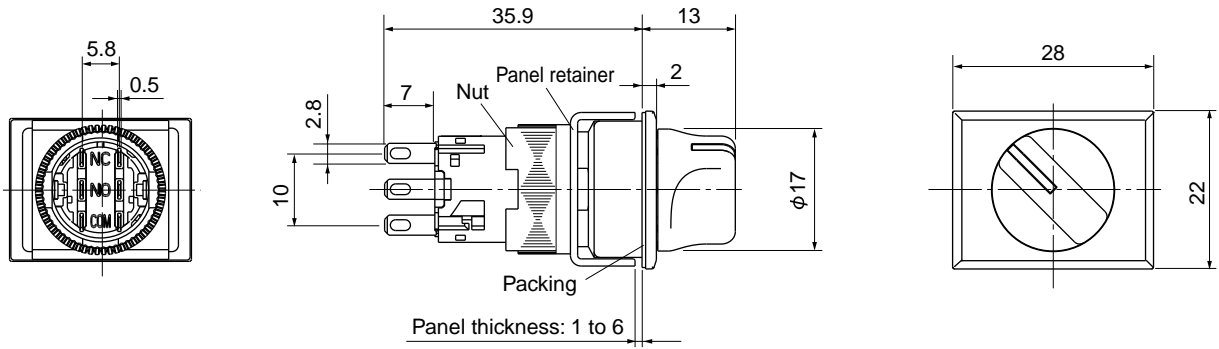


\*2 ●, : Contact closed.

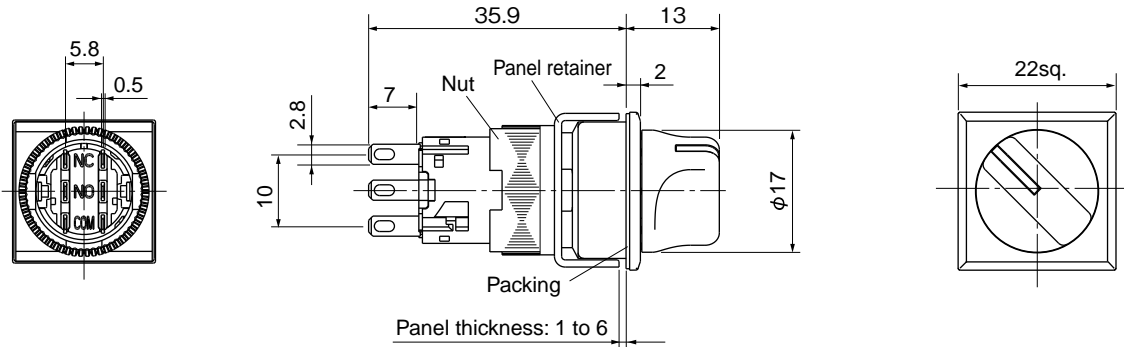
- The panel cutting dimensions differ depending on the operator shape of thin type model. See page 04/167.
- For the dimensions, see page 04/163.

• Dimensions, mm

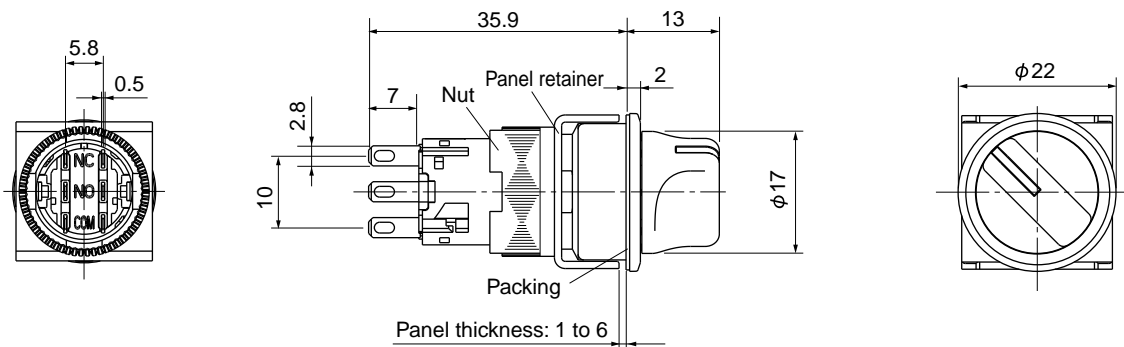
**Knob with rectangular bezel**  
 AF16PT



**Knob with square bezel**  
 AF16PS



**Knob**  
 AF16PR



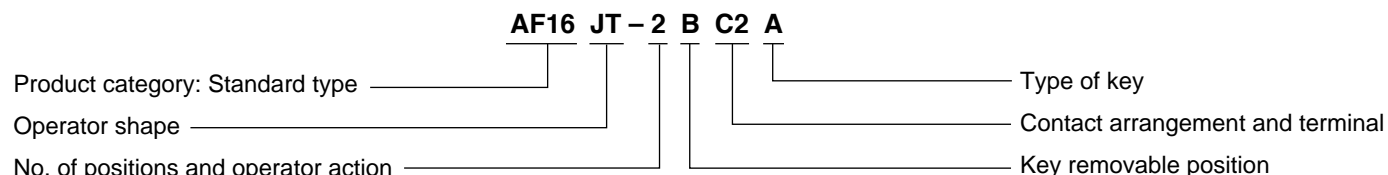
# Command Switches

## AF16 and DF16

### Type numbers and dimensions




#### ■ Selector switches (Key type)

##### • Type number system

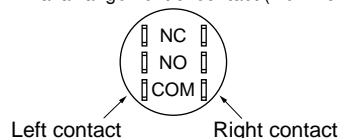


##### • Type

2-position

| Operator<br>(Thin type)  | Contact<br>arrangement | Type                     |                             | Contact operation          |                                    |        |
|--|------------------------|--------------------------|-----------------------------|----------------------------|------------------------------------|--------|
|  |                        | 1<br>2<br>Maintained/90° | 1<br>2<br>Spring return/90° | Contact unit <sup>*1</sup> |                                    |        |
|  |                        |                          |                             |                            | Operator<br>position <sup>*2</sup> |        |
|  |                        |                          |                             | 1                          | 2                                  |        |
| Key with rectangular<br>bezel/AF16JT<br> | SPDT                   | AF16JT-2■C1A             | AF16JT-0AC1A                | Left                       | COM<br>NC<br>NO                    | ●      |
|  |                        | AF16JS-2■C1A             | AF16JS-0AC1A                |                            |                                    | ●      |
|  |                        | AF16JR-2■C1A             | AF16JR-0AC1A                |                            |                                    | ●      |
| Key with square bezel/<br>AF16JS<br>    | 2PDT                   | AF16JT-2■C2A             | AF16JT-0AC2A                | Left                       | COM<br>NC<br>NO                    | ●      |
|  |                        | AF16JS-2■C2A             | AF16JS-0AC2A                |                            |                                    | ●      |
| Key with round bezel/<br>AF16JR<br>     |                        | AF16JR-2■C2A             | AF16JR-0AC2A                | Right                      | COM<br>NC<br>NO                    | ●<br>● |

Notes: \*1 Terminal arrangement of contact (view from terminal side).



\*2 ●: Contact closed.

• The panel cutting dimensions differ depending on the operator shape of thin type model. See page 04/167.

• For the dimensions, see page 04/166.

##### • Key removable position

Replace the ■ mark by the removable position code.

| Removable<br>position | Applied operator position |   | Code |
|-----------------------|---------------------------|---|------|
|                       | 2                         | 0 |      |
| Left ⊙                | ○                         | ○ | A    |
| Left•Right ⊗          | ○                         | — | B    |
| Left ⊚                | ○                         | — | C    |

○: Available    —: Not available




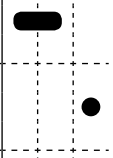
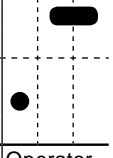
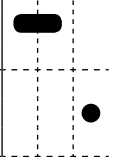
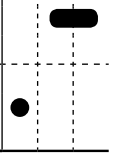
##### • Type of key

| Type <sup>*1</sup> | A | B | C | D | E | F |
|--------------------|---|---|---|---|---|---|
| Code               | A | B | C | D | E | F |

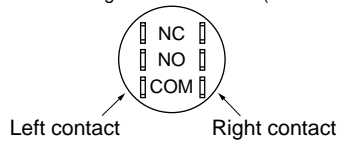
\*1 "A" is standard.

# Command Switches AF16 and DF16 Type numbers and dimensions

3-position

| Operator<br>(Thin type)  | Contact<br>arrangement | Type  |   | Contact operation                                       |  |
|--|------------------------|---|---|---|--|
|  |                        | <br>Maintained/each 45°   | <br>Spring return/each 45°  | Contact unit <sup>*1</sup>                              | Operator<br>position <sup>*2</sup>   |
|  |                        |   |   |   | 1   2   3  |
| Key with Flush square/<br><b>AF16JT</b><br><br>Key with square bezel/<br><b>AF16JS</b><br><br>Key with round bezel/<br><b>AF16JR</b><br> | 2PDT                   | <b>AF16JT-3■C2A</b><br><br><b>AF16JS-3■C2A</b><br><br><b>AF16JR-3■C2A</b> | <b>AF16JT-1EC2A</b><br><br><b>AF16JS-1EC2A</b><br><br><b>AF16JR-1EC2A</b> | Left<br>COM<br>NC<br>NO<br><br>Right<br>COM<br>NC<br>NO | <br><br>     |
|  |                        | <br>Spring/manual return/each 45°   | <br>Spring/manual return/each 45°   | Left<br>COM<br>NC<br>NO<br><br>Right<br>COM<br>NC<br>NO | <br><br> |

Notes: \*1 Terminal arrangement of contact (view from terminal side).



\*2 ●, ■: Contact closed.

- The panel cutting dimensions differ depending on the operator shape of thin type model. See page 04/167.
- For the dimensions, see page 04/166.

### • Key removable position

Replace the ■ mark by the removable position code.

| Removable<br>position   | Applied operator position |   |   |   | Code     |
|-------------------------|---------------------------|---|---|---|----------|
|                         | 3                         | 6 | 7 | 1 |          |
| Left ☹                  | ○                         | — | ○ | — | <b>A</b> |
| Left•Right ☒            | ○                         | — | — | — | <b>B</b> |
| Left•Center•<br>Right ☒ | ○                         | — | — | — | <b>C</b> |
| Right ☺                 | ○                         | ○ | — | — | <b>D</b> |
| Center ☺                | ○                         | ○ | ○ | ○ | <b>E</b> |
| Center•Right ☒          | ○                         | ○ | — | — | <b>F</b> |
| Left•Center ☒           | ○                         | — | ○ | — | <b>G</b> |

○: Available —: Not available

### • Type of key

| Type <sup>*1</sup> | A        | B        | C        | D        | E        | F        |
|--------------------|----------|----------|----------|----------|----------|----------|
| Code               | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> | <b>E</b> | <b>F</b> |

\*1 "A" is standard.

# Command Switches

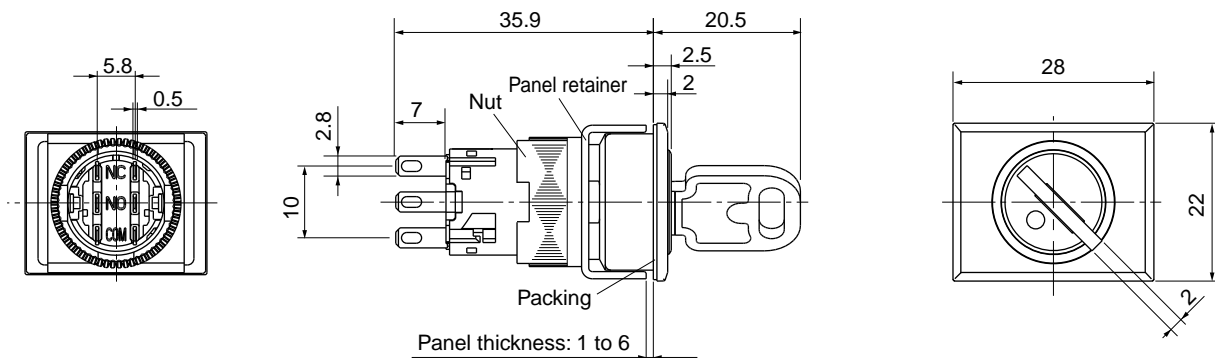
## AF16 and DF16

### Type numbers and dimensions

• Dimensions, mm

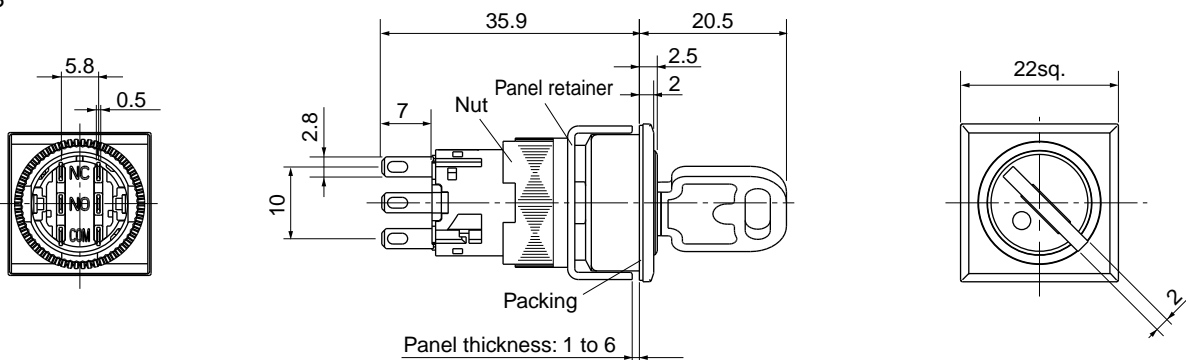
**Key with rectangular bezel**

AF16JT



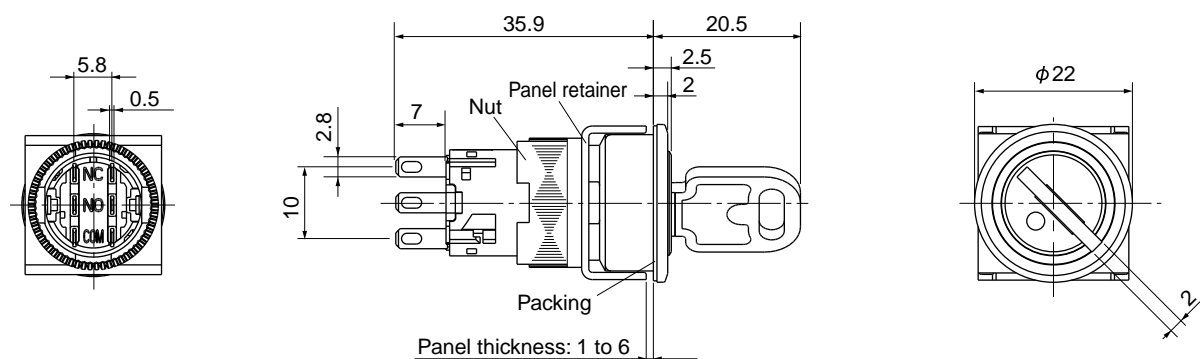
**Key with square bezel**

AF16JS



**Key with round bezel**

AF16JR



## Safety Precautions

Read the Operating Instructions carefully before mounting, wiring, operating, servicing, or inspecting the command switch. Make sure that the Operating Instructions is delivered to the final user of the command switch.

- The safety precautions are classified into two levels, Warning and Caution, with meanings described as follows:

**Warning** : If operation is incorrect, a dangerous situation may occur, resulting in death or serious injuries.

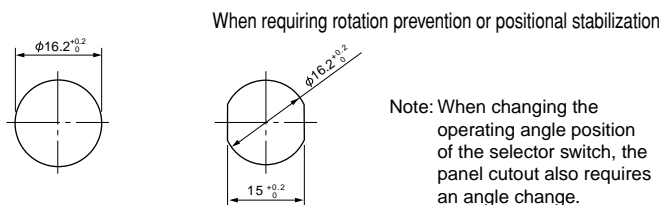
**Caution** : If operation is incorrect, a dangerous situation may occur, resulting in minor to medium injuries or physical damage to equipment.

An item described under CAUTION may result in a serious accident, depending on the situation.

|   |
|---|
| <b>Warning</b>  |
| <ul style="list-style-type: none"> <li>• Do not touch or approach any live part while power is supplied. An electric shock or burning may result.</li> <li>• Be sure to turn off the power before mounting, dismantling, wiring, or inspecting the product. An electric shock, burning from short-circuiting or equipment malfunction may result.</li> </ul>                |
| <b>Caution</b>  |
| <ul style="list-style-type: none"> <li>• Wire the product according to the wiring instructions in the Operating Instructions. Make sure that the size of the wires is suitable for the voltage and applied current. The wrong wiring may result in fire, accidents or malfunctions.</li> <li>• Treat the product as industrial waste when it is to be discarded.</li> </ul> |

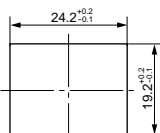
### ■ Panel cutout, mm

- **Standard type** (common)

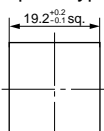


- **Thin type** (The panel cutout dimension varies depending on the operator or lens shape.)

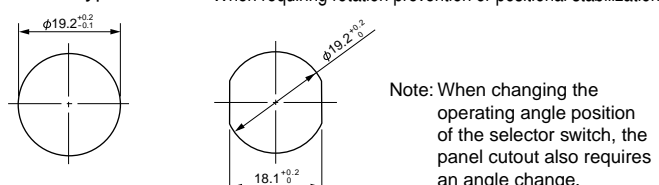
- **Rectangular type**



- **Square type**



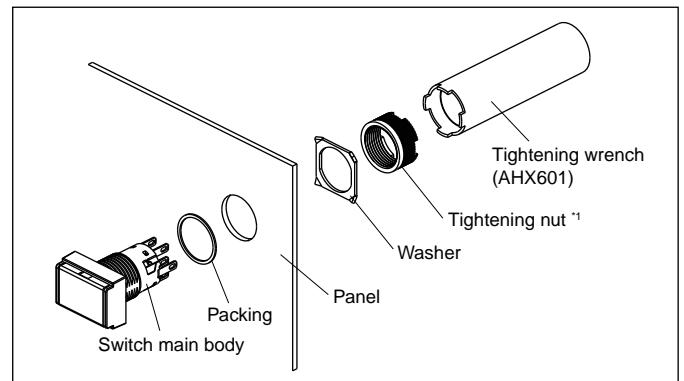
- **Round type**



### ■ Installation on panel

- As shown in the figure below, insert the switch main unit into the mounting hole from the front of the panel, attach the washer and tightening nut from the back of the panel, and securely tighten the nut with the wrench (AHX601).

Note: The proper tightening torque is 0.6 to 1.0 N•m.

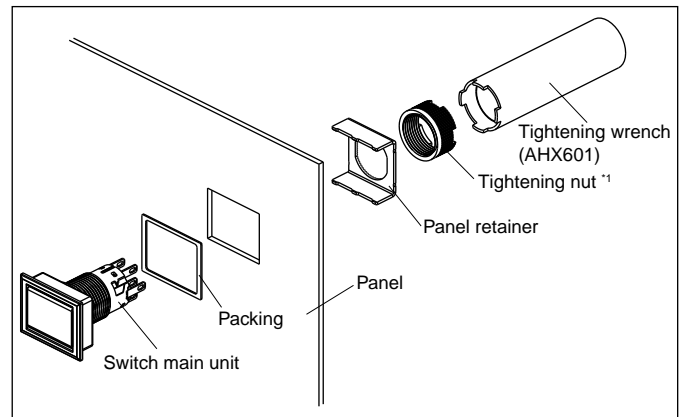


Note: \*1 Do not use pliers or other improper tools to tighten the nut, or tighten it excessively. Otherwise, the nut may be damaged or the switch may malfunction.

### • Thin type

- As shown in the figure below, insert the switch main unit into the mounting hole from the front of the panel, attach the panel retainer from the back of the panel, and securely tighten the nut with the wrench (AHX601).

Note: The proper tightening torque is 0.6 to 1.0 N•m.



Note: \*1 Do not use pliers or other improper tools to tighten the nut, or tighten it excessively. Otherwise, the nut may be damaged or the switch may malfunction.

### ■ Applicable panel thickness

Tables 1 and 2 show applicable panel thickness.

**Table 1 Standard type (AR16/DR16 series)**

| Mounting condition                | Applicable panel thickness, mm     |                 |
|-----------------------------------|------------------------------------|-----------------|
| Without accessories               | 1 to 6                             |                 |
| With accessories                  | Protective cover                   | 1 to 4          |
|                                   | Dust-tight cover                   | 1 to 4          |
|                                   | Various sockets                    | 1 to 3.2        |
|                                   | Terminal cover                     | 1 to 3.2        |
|                                   | Protective cover + various sockets | 1 to 1.6        |
|                                   | Protective cover + Terminal cover  | 1 to 1.6        |
|                                   | Dust-tight cover + various sockets | Cannot be used. |
| Dust-tight cover + Terminal cover | Cannot be used.                    |                 |

# Command Switches

## AR16, DR16 and AF16, DF16

### Panel cutout and mounting

**Table 2 Thin type (AF16/DF16 series)**

| Mounting condition  |                                    | Applicable panel thickness, mm |
|---------------------|------------------------------------|--------------------------------|
| Without accessories |                                    | 1 to 6                         |
| With accessories    | Protective cover                   | 1 to 4                         |
|                     | Various sockets                    | 1 to 3.2                       |
|                     | Terminal cover                     | 1 to 3.2                       |
|                     | Protective cover + various sockets | 1 to 3.2                       |
|                     | Protective cover + Terminal cover  | 1 to 3.2                       |

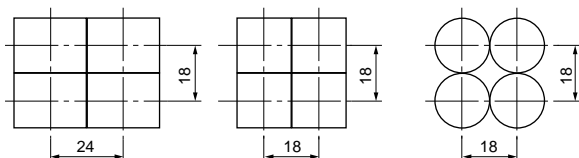
#### ■ High-density mounting

##### Minimum mounting space (pitch) without accessories, mm

###### • Standard type (AR16/DR16 series)

Illuminated pushbuttons, pushbuttons, selectors, and pilot lights

- ① Rectangular      ② Square      ③ Round, dome

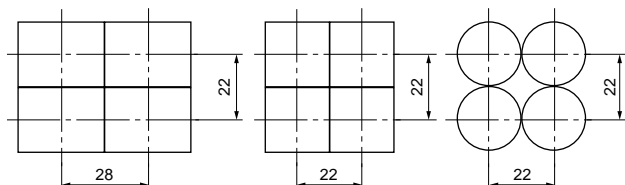


Note: Determine the mounting pitch by taking the operability and wiring work into consideration.

###### • Thin type (AF16/DF16 series)

Illuminated pushbuttons, pushbuttons, selectors, and pilot lights

- ① Rectangular      ② Square      ③ Round, dome

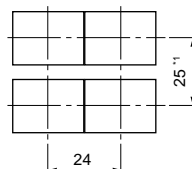


Note: Determine the mounting pitch by taking the operability and wiring work into consideration.

##### Minimum mounting space (pitch) with accessories, mm

- Protective cover AHX669 and AHX826

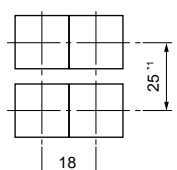
(Standard type)



① 43: with the cover fully opened

- Protective cover AHX671

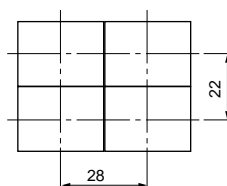
(Standard type)



① 43: with the cover fully opened

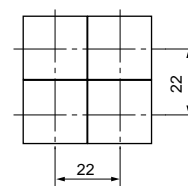
- Protective cover AF6D826

(Thin type)



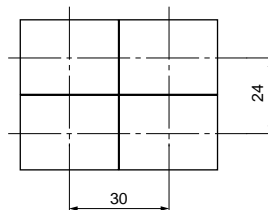
- Protective cover AF6D827

(Thin type)



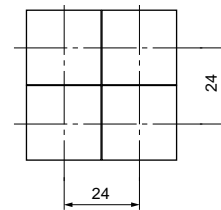
- Dust-tight cover AHX668

(Standard type)



- Dust-tight cover AHX822

(Standard type)




- Minimum mounting spaces (pitch) with sockets, such as Fast-Connection socket (AR6S690), connector socket (AR6S691) and PC board-use socket (AR6S692) are the same as those without accessories.


Note: Determine the mounting pitch by taking the operability and wiring workability into consideration.

**Safety Precautions**



Read the Operating Instructions carefully before mounting, wiring, operating, servicing, or inspecting the command switch. Make sure that the Operating Instructions is delivered to the final user of the command switch.

• The safety precautions are classified into two levels, Warning and Caution, with meanings described as follows:

 **Warning** : If operation is incorrect, a dangerous situation may occur, resulting in death or serious injuries.

 **Caution** : If operation is incorrect, a dangerous situation may occur, resulting in minor to medium injuries or physical damage to equipment.

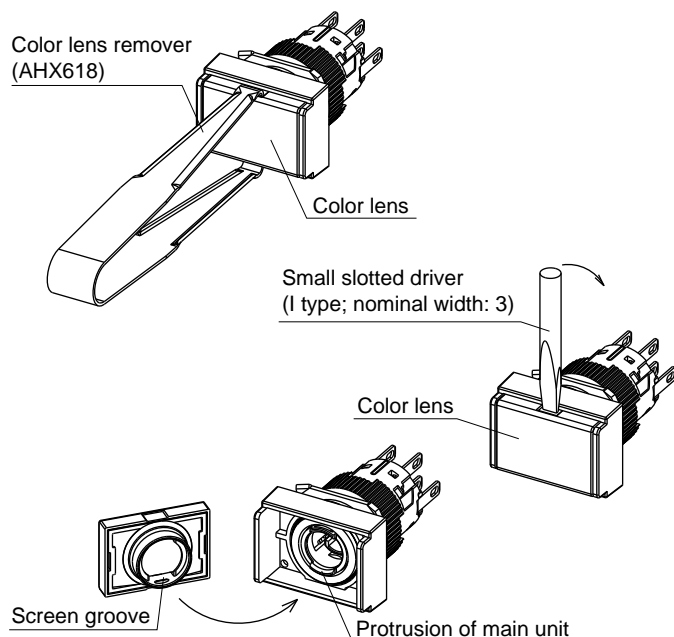
An item described under CAUTION may result in a serious accident, depending on the situation.

|  |
|--|
|  <b>Warning</b>   |
| <ul style="list-style-type: none"> <li>• Do not touch or approach any live part while power is supplied. An electric shock or burning may result.</li> <li>• Be sure to turn off the power before mounting, dismounting, wiring, or inspecting the product. An electric shock, burning from short-circuiting, or equipment malfunction may result.</li> </ul>                |
|  <b>Caution</b>   |
| <ul style="list-style-type: none"> <li>• Wire the product according to the wiring instructions in the Operating Instructions. Make sure that the size of the wires is suitable for the voltage and applied current. The wrong wiring may result in fire, accidents, or malfunctions.</li> <li>• Treat the product as industrial waste when it is to be discarded.</li> </ul> |

**Method of replacing color lens, legend plate, and screen**  
**Replacing color lens (screen)**

• Standard type (AR16/DR16 series)

To remove the color lens, fit the color lens remover (AHX618) to the grooves in the color lens and pull out the lens, or pry the lens lightly with a small slotted screwdriver.

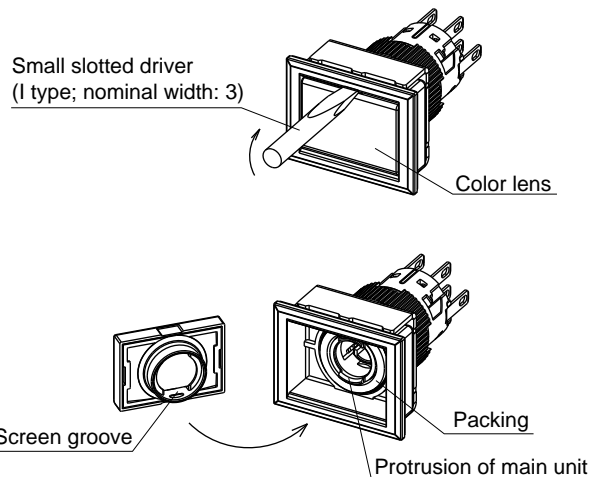


• Thin type (AF16/DF16 Series)

To remove the color lens, pry the lens lightly with a small slotted screwdriver.

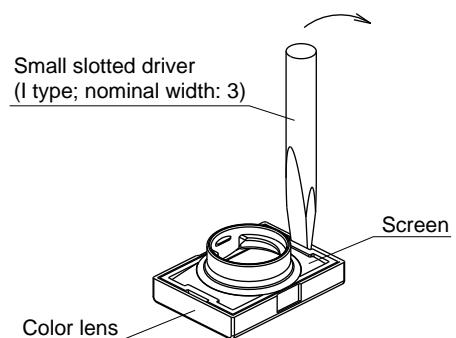
If one side of the color lens is separated from the screen, further insert the screwdriver and remove the color lens together with the screen. Do not pry the packing when doing this.

To fit the color lens, align the protrusion of switch main body with the groove of the screen, and press-fit them.



• Removing screen

Insert the tip of a small slotted screwdriver into the groove and press down the screwdriver in the direction of the arrow.



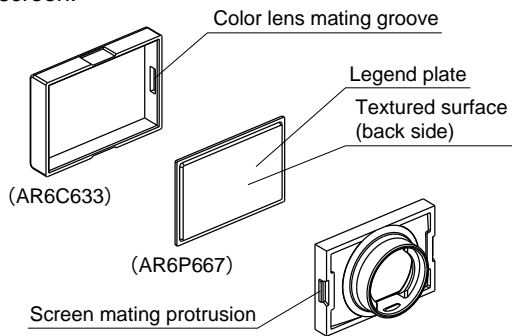


# Command Switches AR16, DR16 and AF16, DF16 Notes on use

## Fitting color lens to screen

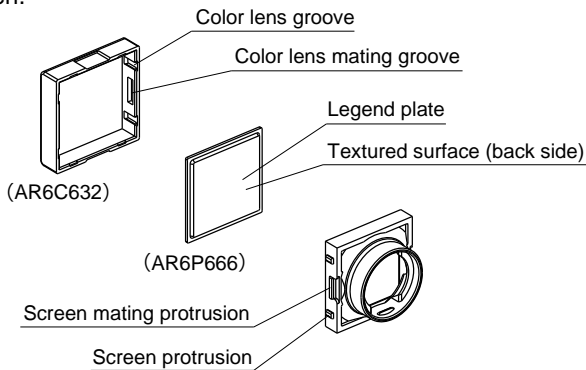
### • Rectangular type

Set the textured surface side of the legend plate with the screen side, then press-fit the color lens. When press-fitting, make sure that your fingers do not touch the reflective surface inside the screen.



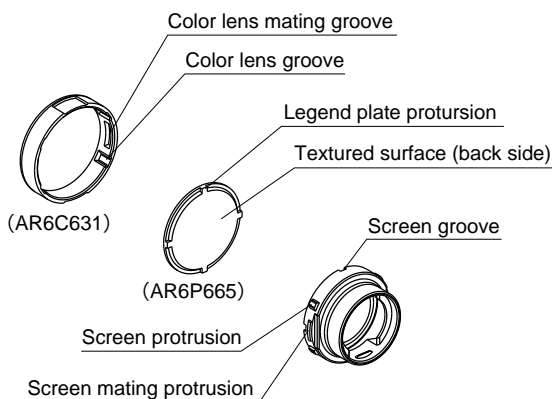
### • Square type

Set the textured surface side of the legend plate with the screen side, align the screen protrusion with the color lens groove, and press-fit together. When press-fitting, make sure that your fingers do not touch the reflective surface inside the screen.



### • Round type

Align the protrusion of the legend plate with the groove of the screen, also align the screen protrusion and color lens groove, and press-fit together. When press-fitting, make sure that your fingers do not touch the reflective surface inside the screen.



• For alternate action type of illuminated pushbutton switches and pushbutton switches, do not remove the color lenses (screens) in locked (depressed) state. The internal mechanisms may be damaged.

## ■ Engraving legend plate

Engrave the surface of the legend plate.

- Material: Acrylic resin
- Engraving depth: 0.5 mm max.
- Paint: Use a paint that has alcohol as its main ingredient, such as melamine paint, phthalic acid paint, or acrylic paint.

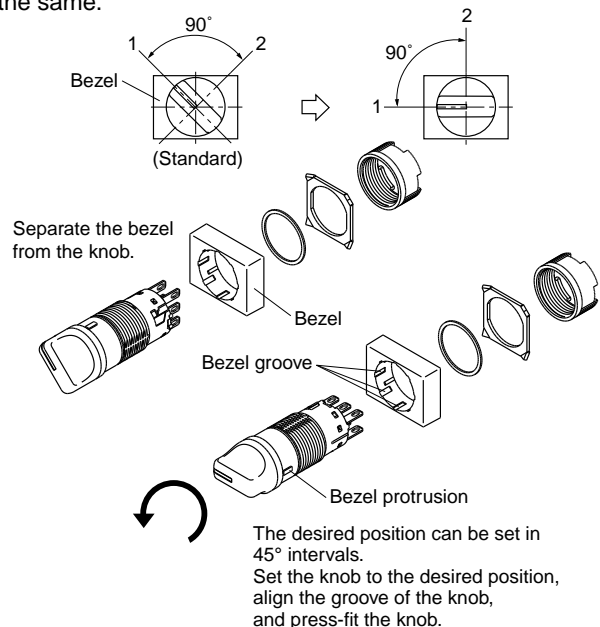
## • Legend plate size

| Shape       | Size, mm |
|-------------|----------|
| Rectangular |          |
| Square      |          |
| Round       |          |

Notes: <sup>1</sup> A legend sheet may be used, provided that the external dimensions do not exceed the corresponding outer size specified in the above table and that the thickness is 0.1 mm or below. (No legend sheets are provided with the product. Please prepare on customer side.)  
<sup>2</sup> Do not engrave any part other than the legend plate.

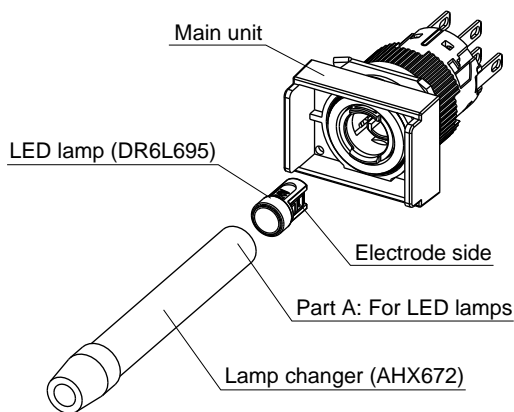
## ■ Changing the operating angle position of selector switch

The bezel is separated from the knob (key), which makes it easy to change the operating angle position in 45° increments (the AR16 series rectangular or square type only). The following figures show a knob type example. The key type is the same.



### Method of replacing lamp

- To remove the LED lamp, insert the lamp changer (AHX672) in the LED lamp and pull out the LED lamp.  
To mount the LED lamp, align the lamp terminal side of the main unit with the electrode side of the LED lamp, lightly hold the lamp by hand or with the head of the lamp changer (AHX672), and insert the lamp.  
The LED lamp has no polarity, so it can be powered by either AC or DC.



- Handling of LEDs**  
LED whose luminous color is green or blue is sensitive to static electricity. Be careful when handling the LED. Take thorough measures against static electricity and surges when handling the product. The following anti-electrostatic measure is recommended.  
Use a wristband or anti-electrostatic glove when replacing LED lamps.

### Wiring

- Wiring to tab terminal**  
Use 110 (2.8mm) series receptacles for tab terminals.
- Pay attention to the following points when soldering.**  
Type of solder: Use resin-core solder.  
Use a soldering iron with a maximum power consumption of 60W (350(C) within five seconds. Make sure that the terminal is free of tension during soldering. Also, do not deform the terminal.
- The melting point of lead-free solder is slightly high, which may make soldering difficult. Use a soldering iron that has a large soldering tip or high heat generation.
- Connectable wires**  
Two solid wires with a maximum diameter of 0.8 mm (solder)  
One stranded wire with a maximum area of 0.75 mm<sup>2</sup> (solder)  
Flat-type connection terminal (2.8□-1.25-5) 0.5 to 1.25mm<sup>2</sup>  
(2.8□-0.5-5) 0.2 to 0.5mm<sup>2</sup>
- Use of contact blocks**  
When using NO and NC contacts in the same contact block, avoid connection that involves opposite polarity or wiring from different types of power supply.
- For wiring to adjacent terminals, use the terminal cover (AR6Y261) to prevent short-circuit, or an insulation tube to assure isolation. For solder terminals, caution is required if thick wires, in particular, are connected or a large quantity of solder is used.**

### Terminal arrangement

| Model                                    | Circuit diagram (example) | Terminal arrangement (view from the terminal (back) side) |
|--|---------------------------|---|
| Illuminated pushbuttons (2PDT)           |                           |   |
| Pushbuttons and selector switches (2PDT) |                           |   |
| Pilot lights                             |                           |   |

Note: Only the left-side contact is applicable to the SPDT mechanism.

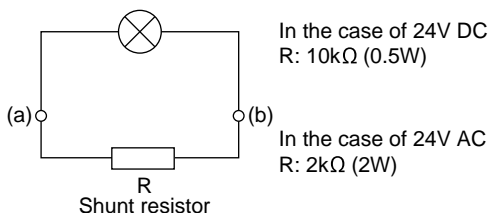
# Command Switches

## AR16, DR16 and AF16, DF16

### Notes on use

#### ■ LED Lamps

- LED lamp malfunctioning (incorrect lighting)  
The LED lamp incorporates a circuit to prevent malfunctioning. Compared with conventional models, this LED lamp is less likely to malfunction, but it incorporates no absolute countermeasures.  
A minute current (approximately 0.25 mA) turns on the LED lamp. A leakage current from the surge absorption circuit or noncontact circuit, or stray capacitance between cables, may also turn on the LED lamp.  
In this case, a countermeasure (e.g., attaching a resistor in parallel with the LED lamp) is required.
- Countermeasure against malfunctioning  
Malfunctioning can be prevented by connecting a shunt resistor (R) in parallel. The resistance in that case varies with the model and operating conditions.



- The permissible fluctuation range for the operating voltage of the 6V model is ±5% and that for the 12V or 24V model is ±10%. If the operating voltage is always 5% or 10% higher, select a resistor that will make the operating current the same as or lower than the rated current, and connect the resistor in series to the LED lamp.
- Calculation of external resistance  
Example: Connecting a 24V red LED to a 48V circuit  
External resistance [Ω] =  $\frac{\text{Circuit voltage [V]} - \text{Rated voltage [V]}}{\text{Rated current [A]}}$   
 $= \frac{48-24}{7.5 \times 10^{-3}} = 3200 \text{ [Ω]}$   
→ Therefore, use an external resistor of 3.3kΩ 1W.  
(Select a resistor with sufficient wattage.)
- Surges  
High-brightness LED products use elements that are sensitive to static electricity. Keep in mind that an unusual voltage, such as a surge voltage, may cause the product to malfunction.

#### ■ Selector Switches

##### • Knob type

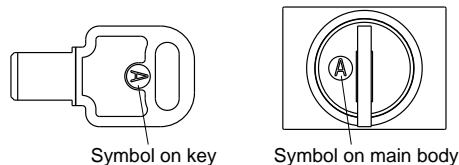
The knob can be operated by turning it lightly. Be careful to operate the knob with a torque not exceeding 1N•m.

##### • Key type

###### • Types of keys

Five types (B, C, D, E, and F) are available in addition to the standard type (type A).

Make sure that the symbol on the key coincides with the symbol on the switch.



- Fully insert the key into the switch and turn the key. Do not pull on the key while turning it.
- Operate the key with a torque not exceeding 0.1N•m.
- Do not forcibly insert or extract the key.
- Do not attempt to operate the switch with the key insufficiently inserted or insert the wrong key. Otherwise, a malfunction may result.

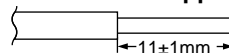
#### ■ Fast-connection socket

##### • Connectable wires

- Standed wire : 0.3 to 0.75 mm<sup>2</sup> (AWG22 to AWG18)
- Single wire : 0.5 to 1 mm dia.
- Recommended ferrule : Phoenix Contact, part number AI0, 34-8TQ  
Wire size : 0.34 mm<sup>2</sup> (22 AWG)  
Crimping tool : CRIMPFOX UD6-6  
Note : Use a crimping tool with a hexagonal or round cross section.

Sheath external diameter: 2.8 mm dia. Max.

##### • Wire sheath stripping length



Note : If ferrules are used, securely insert the wire sheath inside a resin shell. Cut the end of the wire the same length as the ferrule or cut it at a position approximately 0.5 mm longer.

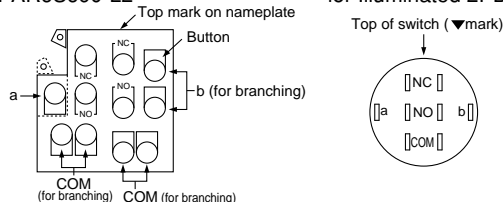
Check the length using the strip gauge on the surface of the socket displayed on the model nameplate. If standed wire is used, twist the wire so that there are no loose strands after stripping.

##### • Connection method

- (1) Insert the wire while pressing the button on the insertion slot with a small flat-head screwdriver (tip width of 2 mm max.). Release the button when the wire is all the way seated in the switch.
- (2) When disconnecting the wire, pull out the wire while pressing the button on the insertion slot with a small flat-head screwdriver. Cut the bare part of the wire if it was previously used, and then newly remove the sheath to reuse the wire.
- (3) Insert a single wire for each insertion slot.
- (4) Do not pull on the wires with excessive force (15 N or more) when you perform wiring. Make sure that not external force is exerted on the wires after wiring has been completed.  
The next time that a wire is inserted, the parts that support the wire may change shape and result in conduction failure.

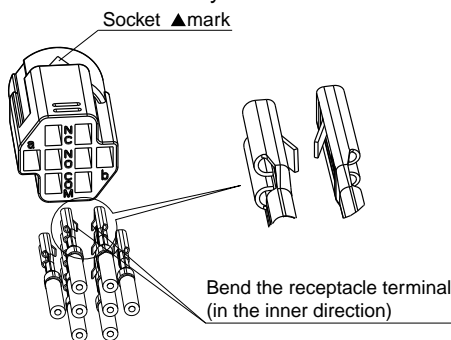
##### • Terminal arrangement (Rear-side View)

- (1) Socket Terminal Arrangement
- (2) Switch Terminal Arrangement for Illuminated 2PDT Contacts

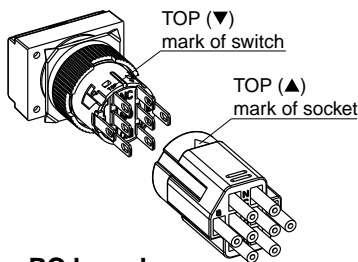


■ Connector sockets

- Connectable wires  
Stranded wire: 0.5 to 0.75 mm<sup>2</sup> (20AWG to 18AWG)
- Arrange for a receptacle terminal separately.  
Nichifu Co., Ltd.: CMC62895F
- Check the insertion position and insert the receptacle terminal into the socket after connecting the wires to the receptacle terminal. (The wires once connected cannot be disconnected.) Lightly pull the wires and check that the receptacle terminal is securely connected to the socket.

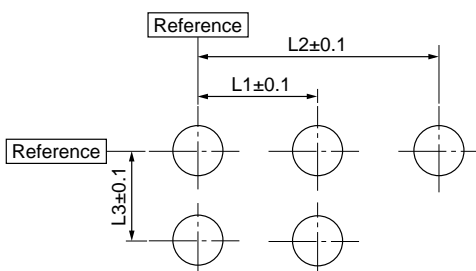


- Align the ▲ mark of the socket and the TOP (▼) mark of the switch, and put the socket and switch together.



■ Socket for PC board

- Minimum mounting space (pitch), mm

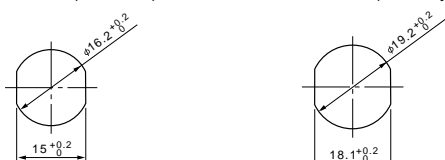


Obtain the mounting pitch based on a reference line to minimize the cumulative error.  
Make sure that the centering difference between the switch and the PCB socket does not exceed 0.25 mm.

- Apply the following panel cutout dimensions (in mm) to stabilize the operator position of the switch when combined with the socket.

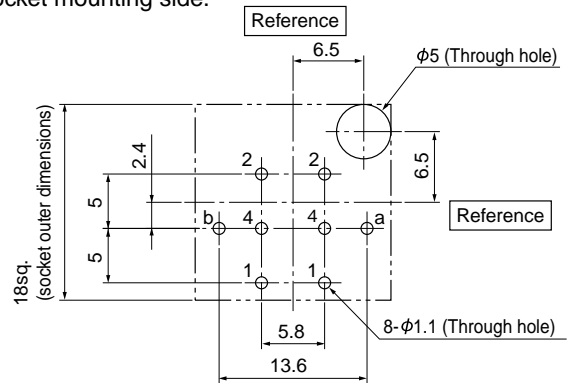
AR16/DR16 (common)

AF16/DF16 (round type)

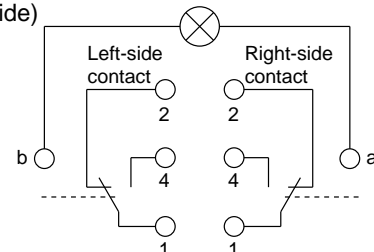


- Mount the switch to the panel. Make sure that the switch is free of any bends.

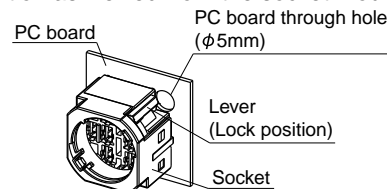
- PC board processing dimensions (in mm) as viewed from the socket mounting side.



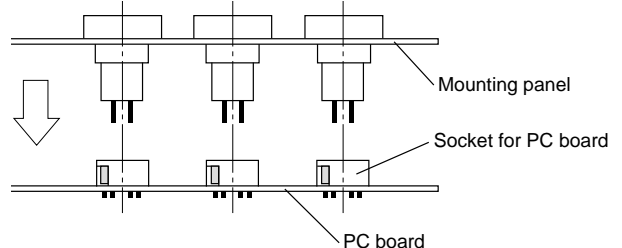
- The reference is the center of the socket (switch).
- Switch terminal arrangement (as viewed from the socket mounting side)



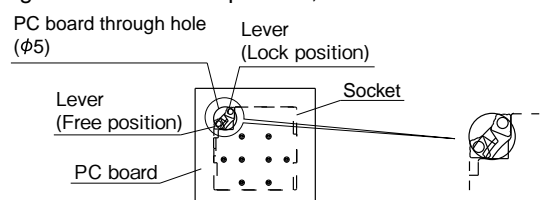
- Insert the socket so that the lever will be located in the 5mm-diameter through hole of the PC board. Set the lever to the lock position as viewed from the socket mounting side.



- Combine the switch-mounted panel with the socket on the PC board, and solder the socket terminal.



- Combine the PCB socket and the panel while making sure that the socket terminal does not fall off, and turn over the socket to do the soldering. Do not leave any space between the PC board and socket.
- After combining them, check that the lever as viewed from the soldering side is in the lock position, and solder the terminal.

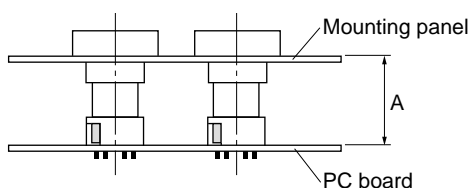


# Command Switches

## AR16, DR16 and AF16, DF16

### Notes on use

- Pay attention to the following points when soldering.
  - Type of solder: Use resin-core solder.
  - Finish soldering at 350°C within 5 seconds.
  - Do not wash the socket.
  - Solder the socket so that no flux adheres to it.
- The melting point of lead-free solder is slightly higher than lead solder, which may make soldering difficult. Use a soldering iron with a large tip or that provides a high heat generation.
- Using a spacer between the panel and the PC board  
Make sure that the distance shown in the figure below is maintained between the panel and the PC board. The spacer dimensions vary with the thickness of the mounting panel.



| Series    | A (mm)   |
|-----------|----------|
| AR16/DR16 | 30.2±0.2 |
| AF16/DF16 | 37.7±0.2 |

- Mounting and removing PC board sockets
  - Removing  
Push down the socket levers all the way viewed from the soldering side in the direction of the free position and remove the PC board sockets. After removal, the socket levers will return to the lock position automatically.
  - Mounting  
Check that the socket lever as viewed from the soldering side is in the lock position, lightly insert the terminal and socket so their position is aligned with the switch on the panel, press the socket-mounting portion of the PC board, and securely insert the entire socket until the socket lever snaps. (Check that the lever as viewed from the soldering side is in the lock position.)
- Use the switch within the following rated voltage range when the PCB socket is used.
  - Rated insulation voltage: 60V
  - Rated operational voltage: 24V
  - Conventional free air thermal current: 3A
- Use a 1.6-mm-thick double-sided through-hole printed circuit board made of copper-plated laminated epoxy resin on a woven glass fabric base.
- In case of standard type (AR16 and DR16 series), beware that the adopted models are not allowed to attach the protective cover to some models and that the adopted models cannot be mounted to some models afterward.

#### ■ Others

- Operation
  - Do not hit or flip the button, or the button may be damaged.
  - Be sure to operate the button by hand.
  - Do not pull the button if the switch is an alternate action type.
- High-density mounting of illuminated type
  - When continuously lighting pilot lights or pressing illuminated pushbuttons, keep in mind that the ambient temperature may exceed the rated value due to the heat radiated by the lamp.
  - Be sure to ventilate the lamp /switch if the mounting panel is not made of metal or if the mounting panel is an enclosed type.
- Usage locations
  - Be sure to use and store the product within the rated ambient temperature and humidity ranges.
  - Although the product resists ordinary cutting oils and coolant oils, do not use the unit in places where special oils may be sprayed onto the product.
  - If dusts or filings accumulate in the gap between the button and the frame, the switch may fail to operate normally. Take appropriate measures, such as using a dust-proof protective cover, if the switch is to be used in places that are subject to dusts or filings.
  - The AR16/DR16 series and AF16/DF16 series are for indoor use. Make sure that the product is not exposed to direct sunlight.
  - Do not use the product in the places that are subject to the adverse effects of ozone or corrosive gases.


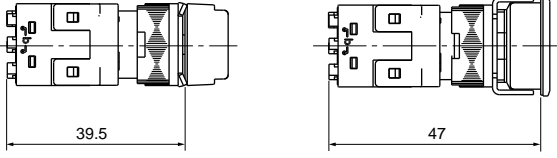
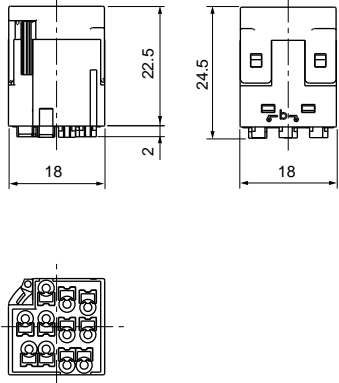

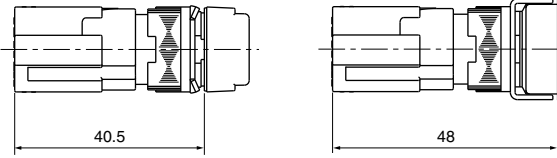
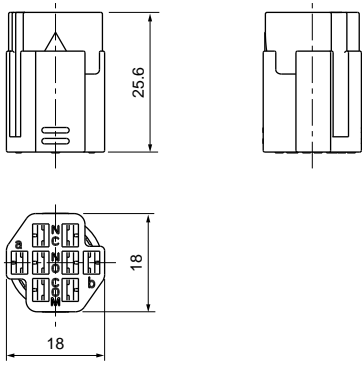

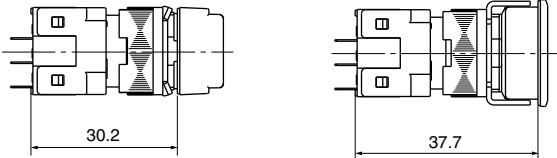
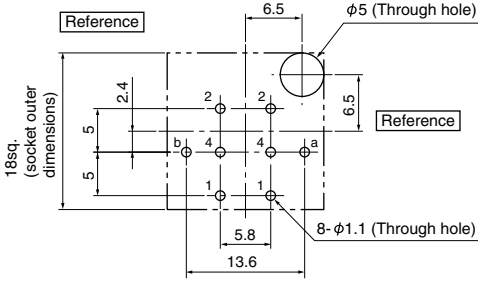
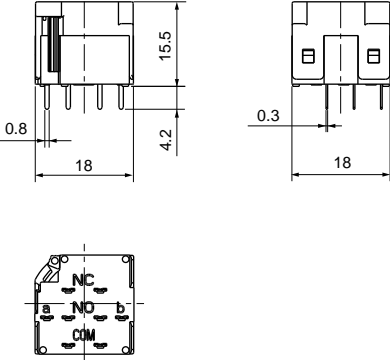
# Command Switches AR16, DR16 and AF16, DF16 Accessories

| Description   | Type  | Dimensions, mm         |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
|---|---|------------------------|-------------------|-------------------|--|--|--|--|--|--|-------------------|-------------------|-------------------|------|----------|----------|----------|----------|----------|----------|-------------------------|-------------------------|---|------|------|---|---|--|--|--------------------|--------------------|
| Protective cover<br>(for Standard type) <div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> </div>   | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Type</th> <th>Used with</th> </tr> <tr> <td><b>AHX669</b></td> <td>AR16F0N, F5N, F0T, F5T</td> </tr> <tr> <td><b>AHX826</b>*</td> <td></td> </tr> <tr> <td><b>AHX671</b></td> <td>AR16F0M, F5M, F0S, F5S<br/>AR16E0L, E5L, E0R, E5R</td> </tr> </table> <p>* This cover returns to the home position with spring action to prevent accidental operation (Packing is provided).<br/>Note: The cover cannot be used with the flush rectangular with guard type models.</p>  | Type                   | Used with         | <b>AHX669</b>     | AR16F0N, F5N, F0T, F5T   | <b>AHX826</b> *  |  | <b>AHX671</b>  | AR16F0M, F5M, F0S, F5S<br>AR16E0L, E5L, E0R, E5R | <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>AHX669</b><br/> </td> <td style="width: 50%; vertical-align: top;"> <b>AHX826</b><br/> </td> </tr> <tr> <td style="vertical-align: top;"> <b>AHX671</b><br/> </td> <td></td> </tr> </table> | <b>AHX669</b><br> | <b>AHX826</b><br> | <b>AHX671</b><br> |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
|   | Type  | Used with              |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
|   | <b>AHX669</b>   | AR16F0N, F5N, F0T, F5T |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
|   | <b>AHX826</b> *   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AHX671</b>   | AR16F0M, F5M, F0S, F5S<br>AR16E0L, E5L, E0R, E5R  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AHX669</b><br>   | <b>AHX826</b><br>   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AHX671</b><br>   |   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Type</th> <th>Used with</th> </tr> <tr> <td><b>AF6D826</b>-□</td> <td>AF16F0N, F0T</td> </tr> <tr> <td><b>AF6D827</b>-□</td> <td>AF16F0M, F0S</td> </tr> </table> <p>This cover prevents accidental operation.<br/>Note: • The protective cover and the button are made of an integral structure.<br/>• Enter the color code in the square box .</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th style="width: 10%;">Color</th> <th style="width: 10%;">Green</th> <th style="width: 10%;">Red</th> <th style="width: 10%;">Transparent*</th> <th style="width: 10%;">Yellow</th> <th style="width: 10%;">Orange</th> <th style="width: 10%;">Blue</th> </tr> <tr> <td>Code</td> <td><b>G</b></td> <td><b>R</b></td> <td><b>C</b></td> <td><b>Y</b></td> <td><b>A</b></td> <td><b>S</b></td> </tr> <tr> <td>Color code of main unit</td> <td>G</td> <td>R</td> <td>W, B</td> <td>Y</td> <td>A</td> <td>S</td> </tr> </table> <p>* When the color code of the main unit is W, a combination of the transparent lens and the white legend plate comes to white. When it is B, a combination of the transparent lens and the black legend plate comes to black.</p> <ul style="list-style-type: none"> <li>This cover returns to the home position with spring action.</li> <li>Not applicable to alternate models.</li> <li>Dimensions when connected with a push-button switch (unit: mm)</li> </ul> | Type  | Used with              | <b>AF6D826</b> -□ | AF16F0N, F0T      | <b>AF6D827</b> -□  | AF16F0M, F0S   | Color  | Green  | Red  | Transparent*   | Yellow            | Orange            | Blue              | Code | <b>G</b> | <b>R</b> | <b>C</b> | <b>Y</b> | <b>A</b> | <b>S</b> | Color code of main unit | G                       | R | W, B | Y    | A | S | <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>AF6D826</b><br/> </td> <td style="width: 50%; vertical-align: top;"> <b>AF6D827</b><br/> </td> </tr> </table> | <b>AF6D826</b><br>   | <b>AF6D827</b><br> |                    |
| Type  | Used with   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AF6D826</b> -□   | AF16F0N, F0T  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AF6D827</b> -□   | AF16F0M, F0S  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Color   | Green   | Red                    | Transparent*      | Yellow            | Orange   | Blue   |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Code  | <b>G</b>  | <b>R</b>               | <b>C</b>          | <b>Y</b>          | <b>A</b>   | <b>S</b>   |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Color code of main unit   | G   | R                      | W, B              | Y                 | A  | S  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AF6D826</b><br>  | <b>AF6D827</b><br>  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Protective cover<br>(for Thin type) <div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> </div>   | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Type</th> <th>Used with</th> </tr> <tr> <td><b>AF6D826</b>-□</td> <td>AF16F0N, F0T</td> </tr> <tr> <td><b>AF6D827</b>-□</td> <td>AF16F0M, F0S</td> </tr> </table> <p>This cover prevents accidental operation.<br/>Note: • The protective cover and the button are made of an integral structure.<br/>• Enter the color code in the square box .</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th style="width: 10%;">Color</th> <th style="width: 10%;">Green</th> <th style="width: 10%;">Red</th> <th style="width: 10%;">Transparent*</th> <th style="width: 10%;">Yellow</th> <th style="width: 10%;">Orange</th> <th style="width: 10%;">Blue</th> </tr> <tr> <td>Code</td> <td><b>G</b></td> <td><b>R</b></td> <td><b>C</b></td> <td><b>Y</b></td> <td><b>A</b></td> <td><b>S</b></td> </tr> <tr> <td>Color code of main unit</td> <td>G</td> <td>R</td> <td>W, B</td> <td>Y</td> <td>A</td> <td>S</td> </tr> </table> <p>* When the color code of the main unit is W, a combination of the transparent lens and the white legend plate comes to white. When it is B, a combination of the transparent lens and the black legend plate comes to black.</p> <ul style="list-style-type: none"> <li>This cover returns to the home position with spring action.</li> <li>Not applicable to alternate models.</li> <li>Dimensions when connected with a push-button switch (unit: mm)</li> </ul> | Type                   | Used with         | <b>AF6D826</b> -□ | AF16F0N, F0T   | <b>AF6D827</b> -□  | AF16F0M, F0S                                     | Color  | Green  | Red  | Transparent*      | Yellow            | Orange            | Blue | Code     | <b>G</b> | <b>R</b> | <b>C</b> | <b>Y</b> | <b>A</b> | <b>S</b>                | Color code of main unit | G | R    | W, B | Y | A | S  | <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>AF6D826</b><br/> </td> <td style="width: 50%; vertical-align: top;"> <b>AF6D827</b><br/> </td> </tr> </table> | <b>AF6D826</b><br> | <b>AF6D827</b><br> |
| Type  | Used with   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AF6D826</b> -□   | AF16F0N, F0T  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AF6D827</b> -□   | AF16F0M, F0S  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Color   | Green   | Red                    | Transparent*      | Yellow            | Orange   | Blue   |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Code  | <b>G</b>  | <b>R</b>               | <b>C</b>          | <b>Y</b>          | <b>A</b>   | <b>S</b>   |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Color code of main unit   | G   | R                      | W, B              | Y                 | A  | S  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AF6D826</b><br>  | <b>AF6D827</b><br>  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Dust-proof cover<br>(for Standard type) <div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> </div>   | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Type</th> <th>Used with</th> </tr> <tr> <td><b>AHX668</b></td> <td>AR16F0N, F5N, F0T, F5T</td> </tr> <tr> <td><b>AHX822</b></td> <td>AR16F0M, F5M, F0S, F5S<br/>AR16E0L, E5L, E0R, E5R</td> </tr> </table> <p>This cover seals the operator section to prevent powder or dust from invading inside the switch (Packing is provided).</p>  | Type                   | Used with         | <b>AHX668</b>     | AR16F0N, F5N, F0T, F5T   | <b>AHX822</b>  | AR16F0M, F5M, F0S, F5S<br>AR16E0L, E5L, E0R, E5R | <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>AHX668</b><br/> </td> <td style="width: 50%; vertical-align: top;"> <b>AHX822</b><br/> </td> </tr> </table> | <b>AHX668</b><br>                                | <b>AHX822</b><br>  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Type  | Used with   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AHX668</b>   | AR16F0N, F5N, F0T, F5T  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AHX822</b>   | AR16F0M, F5M, F0S, F5S<br>AR16E0L, E5L, E0R, E5R  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AHX668</b><br>   | <b>AHX822</b><br>   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Terminal cover <div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> </div>  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Type</th> <th>Used with</th> </tr> <tr> <td><b>AR6Y261</b></td> <td>Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light</td> </tr> </table> <p>Protective cover for insulation between terminals and live parts.<br/>Note: • Dimensions when connected with a switch (pilot light) (unit: mm)</p> <p>Standard type      Thin type</p> <ul style="list-style-type: none"> <li>Wiring work should be made first, and attach the cover to the switch (pilot light).</li> <li>Use cables of sheath outer diameter of φ2.8mm or less.</li> </ul>  | Type                   | Used with         | <b>AR6Y261</b>    | Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light | <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> </td> <td style="width: 50%; vertical-align: top;"> </td> </tr> </table> |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| Type  | Used with   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
| <b>AR6Y261</b>  | Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light  |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |
|   |   |                        |                   |                   |  |  |  |  |  |  |                   |                   |                   |      |          |          |          |          |          |          |                         |                         |   |      |      |   |   |  |  |                    |                    |


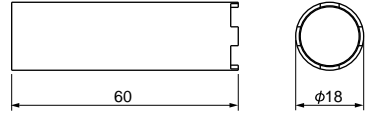

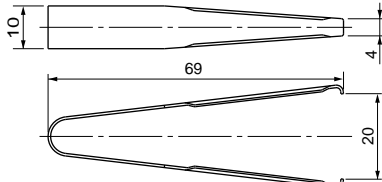

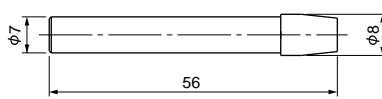

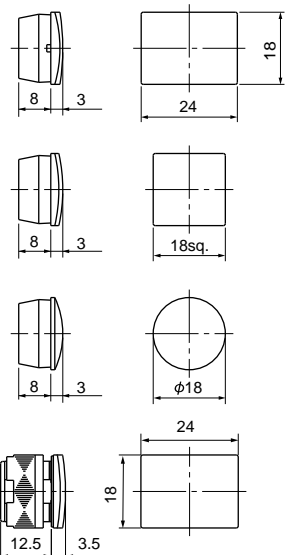

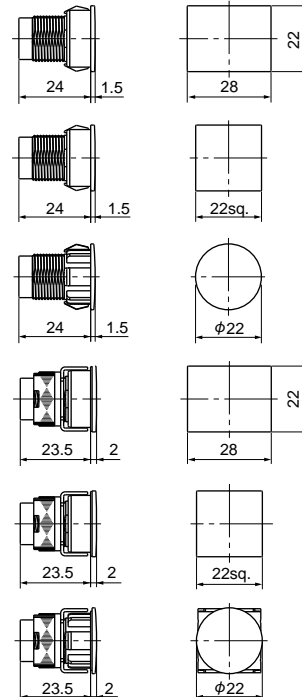
# Command Switches

## AR16, DR16 and AF16, DF16

### Accessories

| Description  | Type  | Dimensions, mm |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
|--|---|----------------|-----------|-------------------|--|---|--------------------------------------|-------------------|-------------|-------------------|---|-------------------|---|---|
| Fast-connection socket<br><br>KKD08-093 | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR6S690-L1</b></td> <td>Illuminated pushbutton switch : SPDT</td> </tr> <tr> <td><b>AR6S690-L2</b></td> <td>Illuminated pushbutton switch : 2PDT</td> </tr> <tr> <td><b>AR6S690-LX</b></td> <td>Pilot light</td> </tr> <tr> <td><b>AR6S690-R1</b></td> <td>Pushbutton switch, selector switch : SPDT</td> </tr> <tr> <td><b>AR6S690-R2</b></td> <td>Pushbutton switch, selector switch : 2PDT</td> </tr> </tbody> </table> <p>By combining with a switch, they can be used as a Fast-connection type switch.</p> <p>Note: • Dimensions when connected with a switch (pilot light)<br/>(unit:mm)</p> <p>Standard type <span style="margin-left: 100px;">Thin type</span></p>  | Type           | Used with | <b>AR6S690-L1</b> | Illuminated pushbutton switch : SPDT   | <b>AR6S690-L2</b>   | Illuminated pushbutton switch : 2PDT | <b>AR6S690-LX</b> | Pilot light | <b>AR6S690-R1</b> | Pushbutton switch, selector switch : SPDT | <b>AR6S690-R2</b> | Pushbutton switch, selector switch : 2PDT |  |
| Type   | Used with   |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| <b>AR6S690-L1</b>  | Illuminated pushbutton switch : SPDT  |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| <b>AR6S690-L2</b>  | Illuminated pushbutton switch : 2PDT  |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| <b>AR6S690-LX</b>  | Pilot light   |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| <b>AR6S690-R1</b>  | Pushbutton switch, selector switch : SPDT   |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| <b>AR6S690-R2</b>  | Pushbutton switch, selector switch : 2PDT   |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| Connector socket<br><br>KKD07-255     | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR6S691-C</b></td> <td>Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light</td> </tr> </tbody> </table> <p>By combining with receptacle terminals, this can be used as a connector.</p> <p>Note: • The receptacle terminal is not supplied.<br/>Please prepare the receptacle terminal Model No. CMC62895-F made by NICHIFU Co.,Ltd. on your side.</p> <p>• Dimensions when connected with a switch (pilot light)<br/>(unit: mm)</p> <p>Standard type <span style="margin-left: 100px;">Thin type</span></p>    | Type           | Used with | <b>AR6S691-C</b>  | Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light |   |                                      |                   |             |                   |   |                   |   |   |
| Type   | Used with   |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| <b>AR6S691-C</b>   | Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light  |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| Socket for PC board<br><br>KKD08-096  | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR6S692</b></td> <td>Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light</td> </tr> </tbody> </table> <p>By combining with a switch, they can be used as a switch for PC board, connection type switch.</p> <p>Note: • Dimensions when connected with a switch (pilot light)<br/>(unit: mm)</p> <p>Standard type <span style="margin-left: 100px;">Thin type</span></p>  <p>• PC board processing drawing (View from component side)<br/>(unit: mm)</p>    | Type           | Used with | <b>AR6S692</b>    | Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light |  |                                      |                   |             |                   |   |                   |   |   |
| Type   | Used with   |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |
| <b>AR6S692</b>   | Illuminated pushbutton switch, pushbutton switch, selector switch, pilot light  |                |           |                   |  |   |                                      |                   |             |                   |   |                   |   |   |

# Command Switches AR16, DR16 and AF16, DF16 Accessories


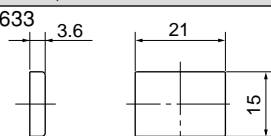
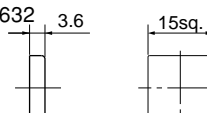
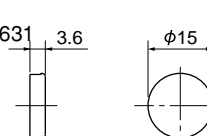
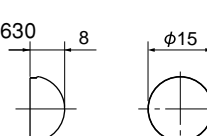

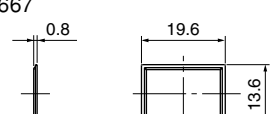
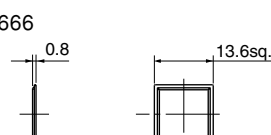
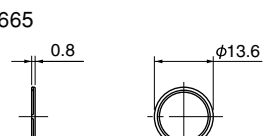

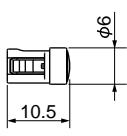

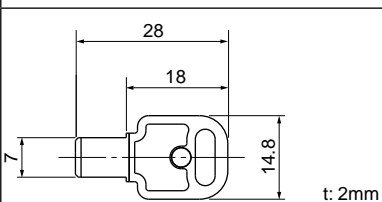
| Description  | Type  | Used with   | Dimensions, mm  |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
|--|---|---|---|------------------|--|------------------|---|------------------|--|-------------------------------|--|-------------------------------|---|-------------------------------|--|--|---|--|--|
| <b>Wrench</b><br><br>KKD07-257  | <b>AHX601</b>   | AR16 and DR16 series<br>AF16 and DF16 series                  |  |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>Remover (for Standard type)</b><br><br>KKD07-258   | <b>AHX618</b>   | Illuminated pushbutton switch, pushbutton switch, pilot light |  |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>Lamp remover</b><br>Part A → <br>KKD07-259   | <b>AHX672</b>   | Illuminated pushbutton switch, pilot light                    |  |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>Panel plug (for Standard type)</b><br><br>KKD07-260<br>KKD07-261<br>KKD07-262<br>KKD07-267                        | <table border="1"> <tr> <th>Type</th> <th>Used with</th> </tr> <tr> <td><b>AXH645-□</b></td> <td>Rectangular type<br/>Degree of protection: IP40</td> </tr> <tr> <td><b>AXH644-□</b></td> <td>Square type<br/>Degree of protection: IP40</td> </tr> <tr> <td><b>AXH622-□</b></td> <td>Round type<br/>Degree of protection: IP40</td> </tr> <tr> <td><b>AXH850-B<sup>*1</sup></b></td> <td>Rectangular type<br/>Degree of protection: IP65</td> </tr> </table><br><table border="1"> <tr> <th>Type</th> <th>Black</th> <th>Gray</th> </tr> <tr> <td>Code</td> <td><b>B</b></td> <td><b>GY</b></td> </tr> </table>  | Type  | Used with   | <b>AXH645-□</b>  | Rectangular type<br>Degree of protection: IP40 | <b>AXH644-□</b>  | Square type<br>Degree of protection: IP40 | <b>AXH622-□</b>  | Round type<br>Degree of protection: IP40 | <b>AXH850-B<sup>*1</sup></b>  | Rectangular type<br>Degree of protection: IP65 | Type                          | Black                                     | Gray                          | Code                                     | <b>B</b>   | <b>GY</b>   | AHX645<br>AHX644<br>AHX622<br>AHX850-B |  |
| Type   | Used with   |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AXH645-□</b>  | Rectangular type<br>Degree of protection: IP40  |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AXH644-□</b>  | Square type<br>Degree of protection: IP40   |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AXH622-□</b>  | Round type<br>Degree of protection: IP40  |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AXH850-B<sup>*1</sup></b>   | Rectangular type<br>Degree of protection: IP65  |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| Type   | Black   | Gray  |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| Code   | <b>B</b>  | <b>GY</b>   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>Panel plug (for Thin type)</b><br><br>KKD07-264<br>KKD07-266<br>KKD07-265<br>KKD07-263<br>KKD07-268<br>KKD07-269 | <table border="1"> <tr> <th>Type</th> <th>Used with</th> </tr> <tr> <td><b>AF6Y645-B</b></td> <td>Rectangular type<br/>Degree of protection: IP40</td> </tr> <tr> <td><b>AF6Y644-B</b></td> <td>Square type<br/>Degree of protection: IP40</td> </tr> <tr> <td><b>AF6Y622-B</b></td> <td>Round type<br/>Degree of protection: IP40</td> </tr> <tr> <td><b>AF6Y850-B<sup>*1</sup></b></td> <td>Rectangular type<br/>Degree of protection: IP65</td> </tr> <tr> <td><b>AF6Y851-B<sup>*1</sup></b></td> <td>Square type<br/>Degree of protection: IP65</td> </tr> <tr> <td><b>AF6Y852-B<sup>*1</sup></b></td> <td>Round type<br/>Degree of protection: IP65</td> </tr> </table><br>*1 Packing, panel retainer, and nut are provided.<br>Note: • The color is black only. | Type  | Used with   | <b>AF6Y645-B</b> | Rectangular type<br>Degree of protection: IP40 | <b>AF6Y644-B</b> | Square type<br>Degree of protection: IP40 | <b>AF6Y622-B</b> | Round type<br>Degree of protection: IP40 | <b>AF6Y850-B<sup>*1</sup></b> | Rectangular type<br>Degree of protection: IP65 | <b>AF6Y851-B<sup>*1</sup></b> | Square type<br>Degree of protection: IP65 | <b>AF6Y852-B<sup>*1</sup></b> | Round type<br>Degree of protection: IP65 | AF6Y645-B<br>AF6Y644-B<br>AF6Y622-B<br>AF6Y850-B<br>AF6Y851-B<br>AF6Y852-B |  |  |  |
| Type   | Used with   |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AF6Y645-B</b>   | Rectangular type<br>Degree of protection: IP40  |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AF6Y644-B</b>   | Square type<br>Degree of protection: IP40   |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AF6Y622-B</b>   | Round type<br>Degree of protection: IP40  |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AF6Y850-B<sup>*1</sup></b>  | Rectangular type<br>Degree of protection: IP65  |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AF6Y851-B<sup>*1</sup></b>  | Square type<br>Degree of protection: IP65   |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |
| <b>AF6Y852-B<sup>*1</sup></b>  | Round type<br>Degree of protection: IP65  |   |   |                  |  |                  |   |                  |  |                               |  |                               |   |                               |  |  |   |  |  |



# Command Switches

## AR16, DR16 and AF16, DF16

### Accessories

| Description   | Type  | Dimensions, mm  |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|---|---|---|---|--------------------|---|--------------------|--|--------------------|--|-------------------|---------|-------|--|----------|--------------|-------------------------|------------------|----------|---|----------|----------|----------|----------|-------------------------|----------|-------------------------|---|---|------|---|---|---|--|
| Color lens and button<br> | <table border="1"> <tr> <th>Type</th> <th>Used with</th> </tr> <tr> <td><b>AR6C633</b>-□</td> <td>AR16F0N, F5N, F0T, F5T, G0N, G5N, G0T, G5T<br/>DR16F0N<br/>AF16F0N, F5N, F0T, F5T, Type DF16F0N</td> </tr> <tr> <td><b>AR6C632</b>-□</td> <td>AR16F0M, F5M, F0S, F5S, Type DR16F0M<br/>AF16F0M, F5M, F0S, F5S, Type DF16F0M</td> </tr> <tr> <td><b>AR6C631</b>-□</td> <td>AR16E0L, E5L, E0R, E5R, Type DR16E0L<br/>AF16F0L, F5L, F0R, F5R, Type DF16F0L</td> </tr> <tr> <td><b>DR6C630</b>-□</td> <td>DR16D0L</td> </tr> </table> <p>Note: Enter the color code in the square box □.</p> <table border="1"> <tr> <th>Color</th> <th>Green</th> <th>Red</th> <th>Transparent*</th> <th>Yellow</th> <th>Orange</th> <th>Blue</th> </tr> <tr> <th>Code</th> <td><b>G</b></td> <td><b>R</b></td> <td><b>C</b></td> <td><b>Y</b></td> <td><b>A</b></td> <td><b>S</b></td> </tr> <tr> <th>Color code of main unit</th> <td>G</td> <td>R</td> <td>W, B</td> <td>Y</td> <td>A</td> <td>S</td> </tr> </table> <p>* When the color code of the main unit is W, a combination of the transparent lens and the white legend plate comes to white (except for dome type).<br/>When it is B, a combination of the transparent lens and the black legend plate comes to black (except for pilot light).<br/>When the dome type (DR16D0L)'s color code of the main unit is W, the lens code is W.</p> | Type  | Used with                                     | <b>AR6C633</b> -□  | AR16F0N, F5N, F0T, F5T, G0N, G5N, G0T, G5T<br>DR16F0N<br>AF16F0N, F5N, F0T, F5T, Type DF16F0N               | <b>AR6C632</b> -□  | AR16F0M, F5M, F0S, F5S, Type DR16F0M<br>AF16F0M, F5M, F0S, F5S, Type DF16F0M                 | <b>AR6C631</b> -□  | AR16E0L, E5L, E0R, E5R, Type DR16E0L<br>AF16F0L, F5L, F0R, F5R, Type DF16F0L                 | <b>DR6C630</b> -□ | DR16D0L | Color | Green  | Red      | Transparent* | Yellow                  | Orange           | Blue     | Code  | <b>G</b> | <b>R</b> | <b>C</b> | <b>Y</b> | <b>A</b>                | <b>S</b> | Color code of main unit | G | R | W, B | Y | A   | S | AR6C633<br><br>AR6C632<br><br>AR6C631<br><br>DR6C630<br> |
|   | Type  | Used with   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | <b>AR6C633</b> -□   | AR16F0N, F5N, F0T, F5T, G0N, G5N, G0T, G5T<br>DR16F0N<br>AF16F0N, F5N, F0T, F5T, Type DF16F0N               |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | <b>AR6C632</b> -□   | AR16F0M, F5M, F0S, F5S, Type DR16F0M<br>AF16F0M, F5M, F0S, F5S, Type DF16F0M                                |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| <b>AR6C631</b> -□   | AR16E0L, E5L, E0R, E5R, Type DR16E0L<br>AF16F0L, F5L, F0R, F5R, Type DF16F0L  |   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| <b>DR6C630</b> -□   | DR16D0L   |   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Color   | Green   | Red   | Transparent*                                  | Yellow             | Orange  | Blue               |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Code  | <b>G</b>  | <b>R</b>  | <b>C</b>                                      | <b>Y</b>           | <b>A</b>  | <b>S</b>           |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Color code of main unit   | G   | R   | W, B  | Y                  | A   | S                  |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Legend plate<br>        | <table border="1"> <tr> <th>Type</th> <th>Used with</th> </tr> <tr> <td><b>AR6P667</b>-□</td> <td>AR16F0N, F5N, F0T, F5T, G0N, G5N, G0T, G5T<br/>DR16F0N<br/>AF16F0N, F5N, F0T, F5T, Type DF16F0N</td> </tr> <tr> <td><b>AR6P666</b>-□</td> <td>AR16F0M, F5M, F0S, F5S, Type DR16F0M<br/>AF16F0M, F5M, F0S, F5S, Type DF16F0M</td> </tr> <tr> <td><b>AR6P665</b>-□</td> <td>AR16E0L, E5L, E0R, E5R, Type DR16E0L<br/>AF16F0L, F5L, F0R, F5R, Type DF16F0L</td> </tr> </table> <p>Note: Enter the color code in the square box □.</p> <table border="1"> <tr> <th>Type</th> <th>White</th> <th>Black</th> </tr> <tr> <th>Code</th> <td><b>W</b></td> <td><b>B</b></td> </tr> <tr> <th>Color code of main unit</th> <td>G, R, W, Y, A, S</td> <td>B</td> </tr> </table> <p>* When the color code of the main unit is W, a combination of the transparent lens and the white legend plate comes to white.<br/>When it is B, a combination of the transparent lens and the black legend plate comes to black (except for pilot light).</p>  | Type  | Used with                                     | <b>AR6P667</b> -□  | AR16F0N, F5N, F0T, F5T, G0N, G5N, G0T, G5T<br>DR16F0N<br>AF16F0N, F5N, F0T, F5T, Type DF16F0N               | <b>AR6P666</b> -□  | AR16F0M, F5M, F0S, F5S, Type DR16F0M<br>AF16F0M, F5M, F0S, F5S, Type DF16F0M                 | <b>AR6P665</b> -□  | AR16E0L, E5L, E0R, E5R, Type DR16E0L<br>AF16F0L, F5L, F0R, F5R, Type DF16F0L                 | Type              | White   | Black | Code   | <b>W</b> | <b>B</b>     | Color code of main unit | G, R, W, Y, A, S | B        | AR6P667<br><br>AR6P666<br><br>AR6P665<br> |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | Type  | Used with   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | <b>AR6P667</b> -□   | AR16F0N, F5N, F0T, F5T, G0N, G5N, G0T, G5T<br>DR16F0N<br>AF16F0N, F5N, F0T, F5T, Type DF16F0N               |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | <b>AR6P666</b> -□   | AR16F0M, F5M, F0S, F5S, Type DR16F0M<br>AF16F0M, F5M, F0S, F5S, Type DF16F0M                                |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| <b>AR6P665</b> -□   | AR16E0L, E5L, E0R, E5R, Type DR16E0L<br>AF16F0L, F5L, F0R, F5R, Type DF16F0L  |   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Type  | White   | Black   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Code  | <b>W</b>  | <b>B</b>  |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Color code of main unit   | G, R, W, Y, A, S  | B   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| LED lamp<br>            | <table border="1"> <tr> <th>Type</th> <th>Lamp operational voltage, current consumption</th> </tr> <tr> <td><b>DR6L695-A</b>□</td> <td>6V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br/>Orange: AC8.5mA, DC8.5mA, Yellow: 17mA AC, 17mA DC</td> </tr> <tr> <td><b>DR6L695-B</b>□</td> <td>12V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br/>Orange, Yellow: 8.5mA AC, 8.5mA DC</td> </tr> <tr> <td><b>DR6L695-E</b>□</td> <td>24V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br/>Orange, Yellow: 8.5mA AC, 8.5mA DC</td> </tr> </table> <p>Note: Enter the color code in the square box □.</p> <table border="1"> <tr> <th>Color</th> <th>Green</th> <th>Red</th> <th>Orange</th> <th>Yellow</th> <th>Amber</th> <th>Blue</th> </tr> <tr> <th>Code</th> <td><b>G</b></td> <td><b>R</b></td> <td><b>W</b></td> <td><b>Y</b></td> <td><b>A</b></td> <td><b>S</b></td> </tr> <tr> <th>Color code of main unit</th> <td>G</td> <td>R</td> <td>W</td> <td>Y</td> <td>A</td> <td>S</td> </tr> </table>  | Type  | Lamp operational voltage, current consumption | <b>DR6L695-A</b> □ | 6V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br>Orange: AC8.5mA, DC8.5mA, Yellow: 17mA AC, 17mA DC | <b>DR6L695-B</b> □ | 12V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br>Orange, Yellow: 8.5mA AC, 8.5mA DC | <b>DR6L695-E</b> □ | 24V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br>Orange, Yellow: 8.5mA AC, 8.5mA DC | Color             | Green   | Red   | Orange   | Yellow   | Amber        | Blue                    | Code             | <b>G</b> | <b>R</b>  | <b>W</b> | <b>Y</b> | <b>A</b> | <b>S</b> | Color code of main unit | G        | R                       | W | Y | A    | S |  |   |  |
|   | Type  | Lamp operational voltage, current consumption   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | <b>DR6L695-A</b> □  | 6V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br>Orange: AC8.5mA, DC8.5mA, Yellow: 17mA AC, 17mA DC |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | <b>DR6L695-B</b> □  | 12V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br>Orange, Yellow: 8.5mA AC, 8.5mA DC                |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| <b>DR6L695-E</b> □  | 24V AC/DC, Green, Red, Amber, blue: 7.5mA AC, 7.5mA DC<br>Orange, Yellow: 8.5mA AC, 8.5mA DC  |   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Color   | Green   | Red   | Orange  | Yellow             | Amber   | Blue               |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Code  | <b>G</b>  | <b>R</b>  | <b>W</b>                                      | <b>Y</b>           | <b>A</b>  | <b>S</b>           |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Color code of main unit   | G   | R   | W   | Y                  | A   | S                  |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Key<br>                 | <table border="1"> <tr> <th>Type</th> <th>Used with</th> </tr> <tr> <td><b>AR6C662</b>-□</td> <td>AR16JT, JS, JR<br/>AF16JT, JS, JR</td> </tr> </table> <p>Note: * Enter the color code in the square box □.</p> <table border="1"> <tr> <th>Code (Key type)</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> </tr> </table> <p>* Two pieces per set on delivery.<br/>* Both sides of the key is same.</p>  | Type  | Used with                                     | <b>AR6C662</b> -□  | AR16JT, JS, JR<br>AF16JT, JS, JR  | Code (Key type)    | A  | B                  | C  | D                 | E       | F     |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
|   | Type  | Used with   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| <b>AR6C662</b> -□   | AR16JT, JS, JR<br>AF16JT, JS, JR  |   |   |                    |   |                    |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |
| Code (Key type)   | A   | B   | C   | D                  | E   | F                  |  |                    |  |                   |         |       |  |          |              |                         |                  |          |   |          |          |          |          |                         |          |                         |   |   |      |   |   |   |  |

• **Standard type <AR16, DR16 series>**

1. Illuminated push button switches (g)

| Type    | Without transformer |      |
|---------|---------------------|------|
|         | SPDT                | 2PDT |
| AR16F0N | 9.3                 | 9.9  |
| AR16F5N | 9.3                 | 9.9  |
| AR16G0N | 9.4                 | 10   |
| AR16G5N | 9.4                 | 10   |
| AR16F0M | 8.7                 | 9.3  |
| AR16F5M | 8.7                 | 9.3  |
| AR16E0L | 8.1                 | 8.7  |
| AR16E5L | 8.1                 | 8.7  |

2. Pushbutton switches (g)

| Type    | SPDT | 2PDT |
|---------|------|------|
| AR16F0T | 8.5  | 9.1  |
| AR16F5T | 8.5  | 9.1  |
| AR16G0T | 8.7  | 9.3  |
| AR16G5T | 8.7  | 9.3  |
| AR16F0S | 8    | 8.6  |
| AR16F5S | 8    | 8.6  |
| AR16E0R | 7.4  | 8    |
| AR16E5R | 7.4  | 8    |

3. Pilot lights (g)

| Type    | Without transformer |
|---------|---------------------|
| DR16F0N | 8.7                 |
| DR16F0M | 8.1                 |
| DR16E0L | 7.5                 |
| DR16D0L | 7.5                 |

4. Selector switches (knob type) (g)

| Type   | SPDT | 2PDT |
|--------|------|------|
| AR16PT | 9.6  | 10.2 |
| AR16PS | 8.6  | 9.2  |
| AR16PR | 8.3  | 8.9  |

5. Selector switches (key type) (g)

| Type   | SPDT | 2PDT |
|--------|------|------|
| AR16JT | 23.2 | 23.8 |
| AR16JS | 22.3 | 22.9 |
| AR16JR | 21.9 | 22.5 |

Note: The value when two keys are attached.

• **Thin type <AF16, DF16 series>**

1. Illuminated push button switches (g)

| Type    | Without transformer |      |
|---------|---------------------|------|
|         | SPDT                | 2PDT |
| AF16F0N | 13.5                | 14.1 |
| AF16F5N | 13.5                | 14.1 |
| AF16F0M | 12.8                | 13.4 |
| AF16F5M | 12.8                | 13.4 |
| AF16F0L | 12                  | 12.6 |
| AF16F5L | 12                  | 12.6 |

2. Pushbutton switches (g)

| Type    | SPDT | 2PDT |
|---------|------|------|
| AF16F0T | 12.7 | 13.3 |
| AF16F5T | 12.7 | 13.3 |
| AF16F0S | 12   | 12.6 |
| AF16F5S | 12   | 12.6 |
| AF16F0R | 11.3 | 11.9 |
| AF16F5R | 11.3 | 11.9 |

3. Pilot lights (g)

| Type    | Without transformer |
|---------|---------------------|
| DF16F0N | 12.8                |
| DF16F0M | 12.1                |
| DF16F0L | 11.4                |

4. Selector switches (knob type) (g)

| Type   | SPDT | 2PDT |
|--------|------|------|
| AF16PT | 14.2 | 14.8 |
| AF16PS | 13.7 | 14.3 |
| AF16PR | 13.1 | 13.7 |

5. Selector switches (key type) (g)

| Type   | SPDT | 2PDT |
|--------|------|------|
| AF16JT | 27.8 | 28.4 |
| AF16JS | 27.3 | 27.9 |
| AF16JR | 26.8 | 27.4 |

Note: The value when two keys are attached.

# Command Switches

## AR16, DR16 and AF16, DF16

### Rating and specifications/AR16V

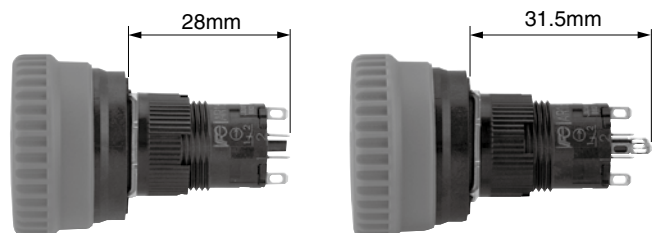
#### Integrated Contacts Structure Emergency stop pushbutton switches AR16V

##### ■ Features

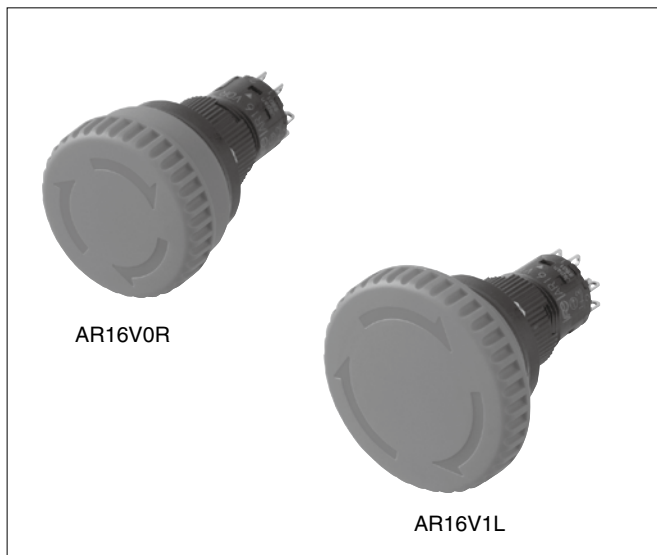
- Up to four sets of contacts in a one-piece structure with a panel depth dimension of 28 mm (non-illuminated type).


Non illuminated type

Illuminated type



- Both pull or turn reset methods are supported.
- Two button diameters are available: 32 mm (AR16V0) and 40 mm (AR16V1).
- Safety trigger-action mechanism that prevents the contacts from operating until the switch is locked, even if people or objects accidentally come into contact with the switch.
- Direct opening mechanism for NC contacts to ensure that the contacts can be opened even in the unlikely event that they become fused. (→)
- IP65 protection for operating section.



- RoHS compliance (EU Directive 2002/95/EC) is a standard feature.
- Compliance with UL/CSA standards, China Compulsory Certification (CCC) standards, and TÜV (EN standards).
- CE marking. 

##### ■ Specifications (indoor use)

|  |  |   |
|--|--|---|
| Item   | AR16V  |   |
| Rated insulation voltage $U_i$                         | 250V AC/DC   |   |
| Durability   | Mechanical   | 100,000 operations  |
|  | Electrical   | 100,000 operations (AC-15, AC-13, AC-12, DC-13, DC-12)                              |
| Operating frequency                                    | 1200 operations / hour (On-load factor : 40%)          |   |
| Withstand voltage                                      | Between live section and grounding                     | 2000V AC, 1 minute  |
|  | Between opposite polarity live sections                | 2000V AC, 1 minute  |
| Insulation resistance                                  | 100M $\Omega$ or more (500V DC megger)                 |   |
| Rated impulse withstand voltage $U_{imp}$              | 2.5kV  |   |
| Conditional short-circuit current                      | 1000A  |   |
| Short-circuit protective device                        | gG 6A (IEC60269 Fuse)                                  |   |
| Pollution degree                                       | 3  |   |
| Vibration  | Operating extremes                                     | : frequency 10 to 500 Hz, double amplitude 0.7mm<br>acceleration 50m/s <sup>2</sup> |
|  | Damage limits  | : frequency 10 to 500 Hz, double amplitude 0.7mm<br>acceleration 50m/s <sup>2</sup> |
| Shock  | Malfunction durability                                 | : 100m/s <sup>2</sup>   |
|  | Mechanical durability                                  | : 500m/s <sup>2</sup>   |
| Operational ambient temperature                        | -10 to +55°C (no icing or no condensation)             |   |
| Storage temperature                                    | -40 to +70°C   |   |
| Relative humidity (inside control panel)               | 45 to 85%RH (-5 to 40°C) (no icing or no condensation) |   |
| Degree of protection of operating (displaying) section | IP65 (dust-ploof, water jet proof): IEC 60529          |   |
| Degree of protection of control section                | IP2X (Terminal cover : AR6Y262, At the connection)     |   |
| Terminal style   | Solder terminal  |   |
| Connectable wire                                       | 0.75mm <sup>2</sup> maximum (18AWG maximum)            |   |

■ **Contact ratings**

• TÜV (EN60947-5-1), JIS C 8201-5-1 (1999)

| Conventional free air thermal current I <sub>th</sub> | Rated operational current                |                        |                        |                        |                        |                        |
|---|--|------------------------|------------------------|------------------------|------------------------|------------------------|
|   | Rated operational voltage U <sub>e</sub> | AC                     |                        |                        | DC                     |                        |
|   |  | AC-12 (Resistive load) | AC-13 (Inductive load) | AC-15 (Inductive load) | DC-12 (Resistive load) | DC-13 (Inductive load) |
| 5A  | 24V                                      | —                      | —                      | —                      | 1.0A                   | 0.7A                   |
|   | 120V                                     | 1.5A                   | 1.0A                   | 0.3A                   | —                      | —                      |
|   | 125V                                     | —                      | —                      | —                      | 0.2A                   | 0.15A                  |
|   | 240V                                     | 1.0A                   | 0.7A                   | 0.3A                   | —                      | —                      |

• **UL/CSA**

• AC (COSφ=0.35)

| Contact rating code | 120V           |                  | 240V           |                  |
|---------------------|----------------|------------------|----------------|------------------|
|                     | Making current | Braeking current | Making current | Braeking current |
| C300                | 15A            | 1.5A             | 7.5A           | 0.75A            |

• DC (T<sub>0.95</sub>=6P)

| Contact rating code | Making current · Braeking current |       |
|---------------------|-----------------------------------|-------|
|                     | 125V                              | 250V  |
| R300                | 0.22A                             | 0.11A |

■ **Contact reliability**

- FUJI has confirmed that the product can be used in 1mA circuit conditions at 5V AC or DC. The operable range, however, may vary depending on the operational ambient conditions and type of load.

■ **Operating characteristic**

|                                    |                                     |
|------------------------------------|-------------------------------------|
| Operation                          | Push-lock, turn-reset or pull-reset |
| Ave. required operating force      | 25N                                 |
| Operating travel                   | Approx. 5.4mm                       |
| Operation angle                    | Approx. 45°                         |
| Required return force (pull-reset) | 20N                                 |
| Required return force (turn-reset) | 0.3N · m                            |

■ **Mass**

(g)

| Type    | 1NC  | 2NC(1NO+1NC) | 4NC(2NO+2NC) |
|---------|------|--------------|--------------|
| AR16V0R | 19.0 | 19.4         | 20.0         |
| AR16V1R | 21.1 | 21.5         | 22.1         |
| AR16V0L | 19.7 | 20.1         | 20.7         |
| AR16V1L | 21.8 | 22.2         | 22.8         |

■ **Standards approved**

|                                |                     |
|--------------------------------|---------------------|
| UL508                          | cUL File No. E44592 |
| CSA C22.2 No.14                |                     |
| TÜV : EN60947-5-1, EN60947-5-5 | R50136611           |

■ **Lamp rating and current consumption**

| Applied method      | Type of lamp | Luminous color | Lamp rated voltage | Current consumption |
|---------------------|--------------|----------------|--------------------|---------------------|
| Without transformer | LED lamp     | Red            | 6V AC/DC           | 9mA AC, 7.5mA DC    |
|                     |              |                | 12V AC/DC          | 7.5mA AC, 7.5mA DC  |
|                     |              |                | 24V AC/DC          | 7.5mA AC, 7.5mA DC  |



# Command Switches

## AR16, DR16 and AF16, DF16



### Type numbers/AR16V

#### ■ Type

- Emergency stop pushbutton switches

| Operator  | Contact   | Type        |
|---|---|-------------|
| Unibody push-lock, pull or turn-reset (32mm dia.)<br><br>(KKD08-090) | 1NC   | AR16V0R-01R |
|   | 1NO+1NC   | AR16V0R-11R |
|   | 2NC   | AR16V0R-02R |
|   | 1NO+2NC   | AR16V0R-12R |
|   | 3NC   | AR16V0R-03R |
|   | 1NO+3NC   | AR16V0R-13R |
|   | 4NC   | AR16V0R-04R |
|   | Unibody push-lock, pull or turn-reset (40mm dia.)<br><br>(KKD08-092) | 1NC         |
| 1NO+1NC   |   | AR16V1R-11R |
| 2NC   |   | AR16V1R-02R |
| 1NO+2NC   |   | AR16V1R-12R |
| 3NC   |   | AR16V1R-03R |
| 1NO+3NC   |   | AR16V1R-13R |
| 4NC   |   | AR16V1R-04R |

- Emergency stop illuminated pushbutton switches

| Operator  | Contact   | LED Lamp Type |
|---|---|---------------|
| Unibody push-lock, pull or turn-reset (32mm dia.)<br><br>(KKD08-087) | 1NC   | AR16V0L-01■R  |
|   | 1NO+1NC   | AR16V0L-11■R  |
|   | 2NC   | AR16V0L-02■R  |
|   | 1NO+2NC   | AR16V0L-12■R  |
|   | 3NC   | AR16V0L-03■R  |
|   | 1NO+3NC   | AR16V0L-13■R  |
|   | 4NC   | AR16V0L-04■R  |
|   | Unibody push-lock, pull or turn-reset (40mm dia.)<br><br>(KKD08-091) | 1NC           |
| 1NO+1NC   |   | AR16V1L-11■R  |
| 2NC   |   | AR16V1L-02■R  |
| 1NO+2NC   |   | AR16V1L-12■R  |
| 3NC   |   | AR16V1L-03■R  |
| 1NO+3NC   |   | AR16V1L-13■R  |
| 4NC   |   | AR16V1L-04■R  |

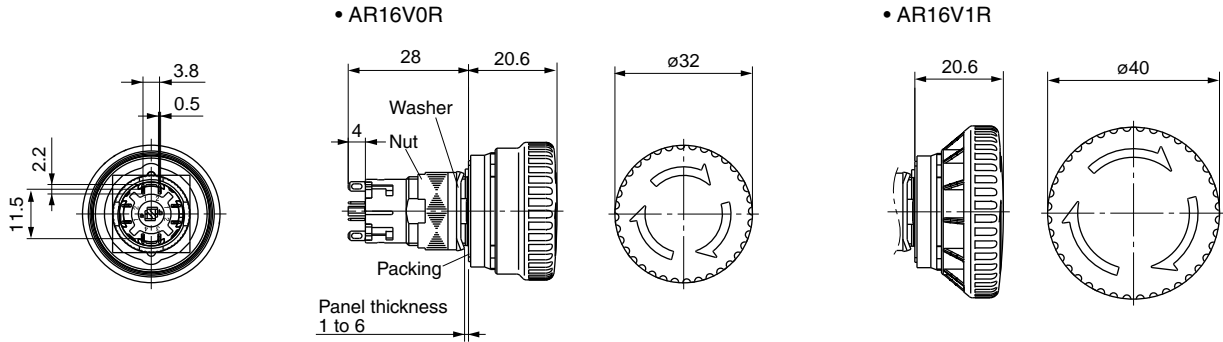
- Voltage Replace the ■mark by the lamp voltage code

| Lamp voltage | Code |
|--------------|------|
| 6V AC/DC     | A3   |
| 12V AC/DC    | B3   |
| 24V AC/DC    | E3   |

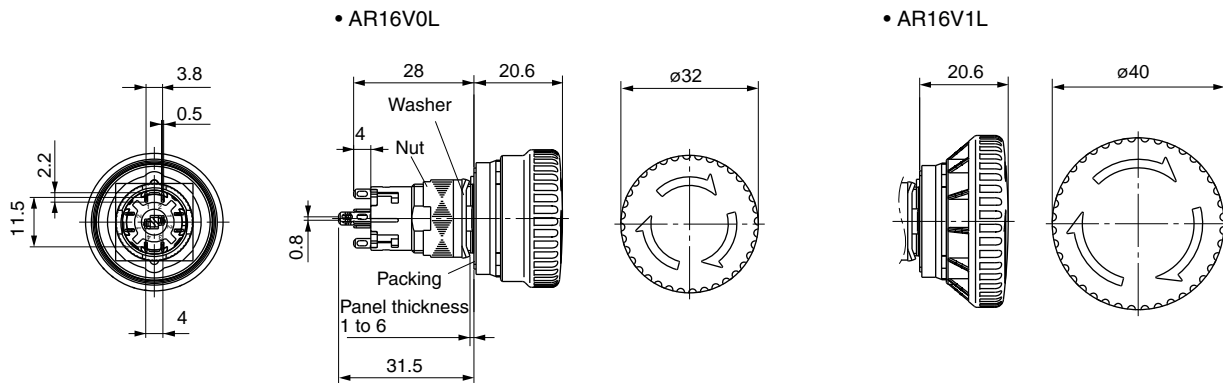
# Command Switches AR16, DR16 and AF16, DF16 Dimensions and Accessories/AR16V

## ■ Dimensions, mm

- Emergency stop pushbutton switches



- Emergency stop illuminated pushbutton switches



## ■ Accessories

| Description                                  | Type  | Dimensions, mm |              |               |       |    |   |                |    |     |                           |
|--|---|----------------|--------------|---------------|-------|----|---|----------------|----|-----|---------------------------|
| <p>(KKD07-257)</p>                           | <p><b>AHX601 (AH9A601)</b><br/>When installing a command switch on a panel, this tool is useful for tightening the switch firmly and efficiently.</p>   |                |              |               |       |    |   |                |    |     |                           |
|  | <p><b>AR6Y262</b><br/>Protective cover for insulation between terminals and live parts.<br/>Note : Dimensions when connected with a switch (unit : mm)</p> <p>• Wiring work should be made first , and attach the cover to the switch.</p>  |                |              |               |       |    |   |                |    |     |                           |
| <p>Legend plate for AR16V emergency stop</p> | <p><b>AR6P719-*,1,2</b></p> <table border="1"> <thead> <tr> <th>Legend</th> <th>code (*1, 2)</th> <th>Letter height</th> </tr> </thead> <tbody> <tr> <td>Black</td> <td>00</td> <td>—</td> </tr> <tr> <td>EMERGENCY STOP</td> <td>5A</td> <td>7mm</td> </tr> </tbody> </table> <p>• Plate color : Yellow<br/>• Letter color : Black</p> | Legend         | code (*1, 2) | Letter height | Black | 00 | — | EMERGENCY STOP | 5A | 7mm | <p>Thickness : 0.35mm</p> |
| Legend                                       | code (*1, 2)  | Letter height  |              |               |       |    |   |                |    |     |                           |
| Black  | 00  | —              |              |               |       |    |   |                |    |     |                           |
| EMERGENCY STOP                               | 5A  | 7mm            |              |               |       |    |   |                |    |     |                           |

# Command Switches AR16, DR16 and AF16, DF16 Notes on use/AR16V

## ■ Notes on use

### Safety Precautions

Read the Operating Instructions carefully before mounting, wiring, operating, servicing, or inspecting the command switch. Make sure that the Operating Instructions is delivered to the final user of the command switch.

• The safety precautions are classified into two levels, "**WARNING**" and "**CAUTION**", with meanings described follows.

**WARNING**: Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

**CAUTION**: Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and/or damage to the equipment.

An item described under "**CAUTION**" may result in a serious accident, depending on the situation.

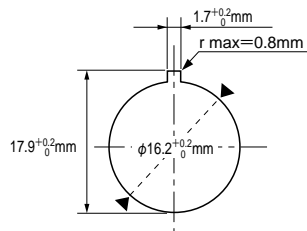
### WARNING

- Do not touch or approach any live part while power is supplied. An electric shock or burning may result.
- Be sure to turn off the power before mounting, dismantling, wiring, or inspecting, the product.  
An electric shock, burning from short-circuiting, or equipment malfunction may result.

### CAUTION

- Wire the product according to the wiring instructions in the Operating Instructions. Make sure that the size of the wires is suitable for the voltage and applied current.  
The wrong wiring may result in fire, accidents, or malfunctions.
- Treat the product as industrial waste when it is to be discarded.

## ■ Panel cutout (mm)

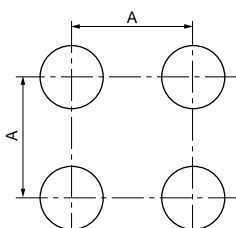


## ■ Applicable panel thickness

The applicable panel thickness is 1 to 6 mm. When the terminal cover (AR6Y262) is used, however, the applicable panel thickness will be 1 to 3.2 mm.

## ■ High-density mounting

The following minimum mounting pitch applies to high-density mounting.



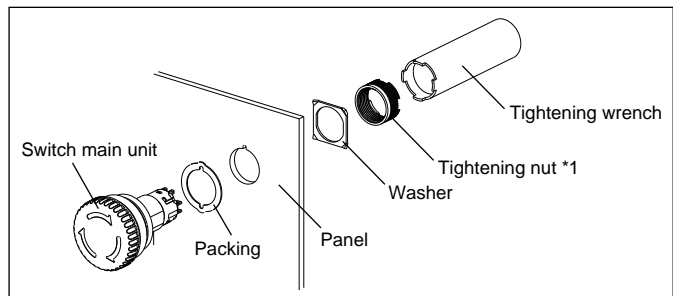
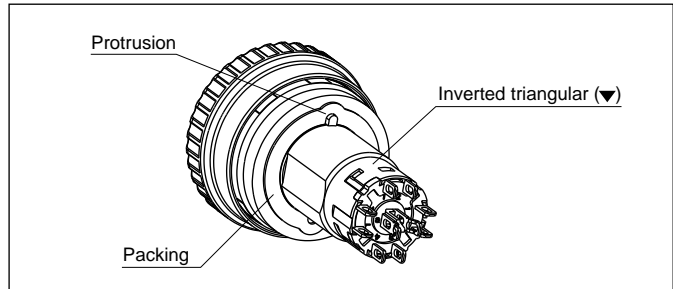
| Type         | Dimension A |
|--------------|-------------|
| AR16V0□      | 41mm min.   |
| AR16V1       | 45mm min.   |
| With AR6P719 | 65mm min.   |

Note : Determine the mounting pitch by taking the operability and wiring workability into consideration.

## • Installation on panel

As shown in the figure below, insert the switch main unit into the panel cutout from the front of the panel with the top of the switch main unit (marked with an inverted triangular) facing upward. Then, use a tightening wrench (AHX601) and secure the unit with a washer and tightening nut from the rear of the panel.

Note : The proper tightening torque is 0.6 to 1.0 N · m.



\*1 : Do not use pliers or other improper tools tighten the nut, and do not tighten it excessively, or the nut may be damaged or switch may malfunction.

## ■ Wiring

- The wiring to this switch must be soldered. Keep the following items in mind when soldering.
  - Type of solder : Use resin-core solder.
  - Use a soldering iron with a maximum power consumption of 60W (350°C) within five seconds. Make sure that the terminal is free of tension during soldering. Also, do not deform the terminal.
- Lead-free solder has a high melting point, but the specific melting point depends on the type of lead-free solder. This may cause difficulty in soldering. Be careful not to overheat the solder if a soldering iron with a large soldering tip or a large heating capacity is used. Keep in mind that overheating the solder may result in product malfunctioning.
- Connectable wires
  - One Solid wires with a maximum diameter of 1.0mm
  - One stranded wire with a maximum area of 0.75 mm<sup>2</sup>
- For wiring to adjacent terminals, use the terminal cover (AR6Y262) to prevent short-circuit, or an insulation tube to assure isolation. Care is necessary when two wires are connected together or a large quantity of solder is applied. In addition, keep in mind that overheating the tube may result in product malfunctioning if a heat-shrinking tube is used.

• Terminal arrangement

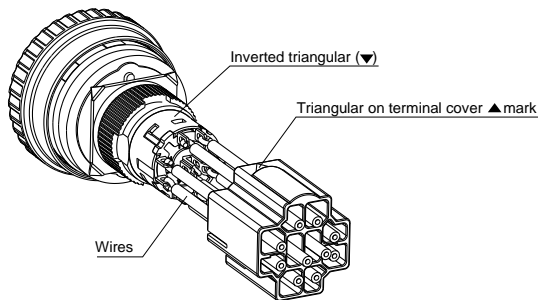
| Model  | Circuit diagram (example) | Terminal arrangement<br>(view from the terminal (back) side)   |
|--|---------------------------|--|
| Emergency stop pushbutton switches             |                           | <p>Top (marked with inverted triangular)</p> <p>Terminals 1-2 : b (NC) contact terminals<br/>Terminals 3-4 : a (NO) contact terminals<br/>Terminals a-b : Lamp terminals</p> |
| Emergency stop illuminated pushbutton switches |                           | <p>Terminals 1-2 : b (NC) contact terminals<br/>Terminals 3-4 : a (NO) contact terminals<br/>Terminals a-b : Lamp terminals</p>  |

Note : If NO contacts are used in the contact configuration, they will be on the top of the unit (marked with the inverted triangular) and on the opposite side, regardless of the number of contacts.

■ Terminal cover (AR6Y262)

• Combination

The terminal cover must be attached in the correct direction. Make sure that the triangular on the terminal cover is aligned with the inverted triangular on the top of the unit. Also, when wiring the switch, check the alignment of these triangles and insert the wires correctly through the corresponding holes in the terminal cover.



■ Nameplate (AR6P719)

• Precautions

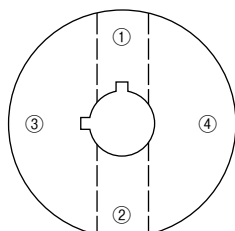
The nameplate must be attached. Attach the nameplate to an appropriate part, such as the panel, after removing the paper from the back of the nameplate.

Before attaching the nameplate, clean the surface to which the nameplate will be attached with alcohol.

The nameplate may come off if the surface is dirty or oily.

• Attachment Procedure (Example)

Remove portions ① and ② from the center of the nameplate, align the nameplate with the panel cutout, and lightly press on the front surface of the nameplate to attach it to the panel. Then remove portions ③ and ④, and press on the entire front surface of the nameplate to complete attaching it to the panel.



■ Others

Operation

- Do not hit or flip the button, or the button may be damaged. Be sure to operate the button by hand.
- To unlock the switch, turn the button approximately 45° clockwise (in the direction of the arrow) or pull out the button. Do not operate or handle the button with excessive force.
- Do not lock the emergency stop pushbutton switch during normal use. Push and lock the switch only in an emergency.

Storage and Usage Locations

- Be sure to use and store the product within the rated ambient temperature and humidity ranges.
- Although the product resists ordinary cutting oils and coolant oils, do not use the unit in places where special oils may be sprayed onto the product.
- If dusts or filings accumulate in the gap between the button and the frame, the switch may fail to operate normally.
- This switch are for indoor use. Make sure that the product is not exposed to direct sunlight.
- Do not use the product in the places that are subject to the adverse effects of ozone or corrosive gases.



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AH164, AH165 and AH165-2

### General information

#### ■ Features

##### Design basis

The 16mm dia. series of compact size pushbuttons are 'finger-size', and consequently take up little panel space. AH165-2 series operators are about twice as large as the AH164 and AH165 series operators for easier operation. With many types of operator available, the most suitable switch can be identified by color, shape and legend, and have a smooth, quality "snap-action". In spite of their small size they have a highly reliable mechanism, and are eminently suited for solid state and other electronic circuits. AH164, AH165 and AH165-2 series contact block holders can easily be removed manually. Moreover, the contact block can be easily attached or detached without using any special tools, thus facilitating addition or replacement of contact.

##### Selector switches

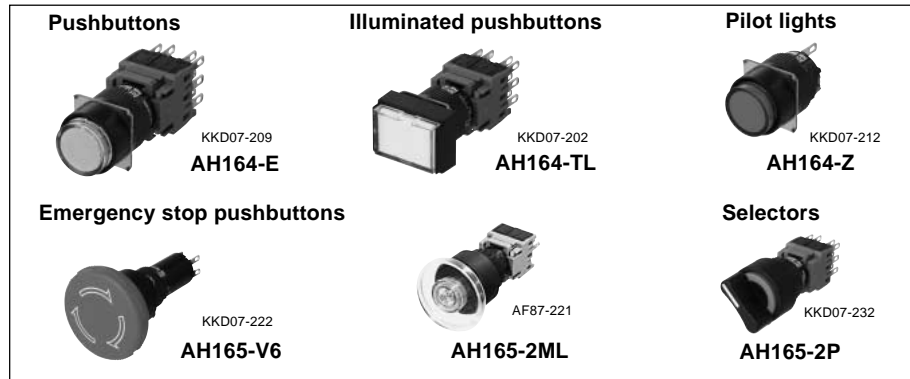
Selector switches can also be supplied in either knob-handle operated or key operated types.

##### Strong construction

The operator and contact blocks are molded from an excellent thermal resistance resin and can withstand the heat at the time of soldering. Since these pushbuttons are manufactured to industrial standards they can withstand vibration or shock thus eliminating lamp failure due to such causes as loose bases. With regard to the degree of protection, standard types which met the requirements of IP40 of IEC 60529, and oil tight types which meet the requirements of IP65 of the said, are available. This permits the application to various fields, from machine tools to OA (Office Automation) facilities.

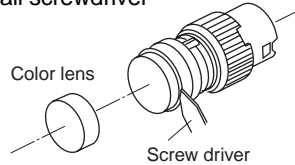
##### Quality feel tough

Both the operator and contact block are precisely engineered. There is no fear of the switch malfunction even after long use and it continues to operate smoothly for its service life of about 1,000,000 operations.



##### Easy color change

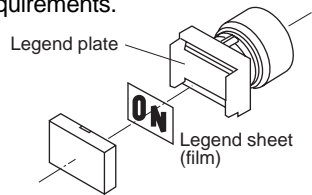
Color lenses fit over the inner button. The lens can easily be removed using a small screwdriver



Note: The luminous color of LEDs and neon illumination types varies with the body color of the product.

##### Visible inscription

Button legends are printed on legend sheet, which is stuck to the legend plate on the inner button. The lettering is back lit by the switch lamp and the inscription is highly visible through the color lens. Contact FUJI for your lettering requirements.

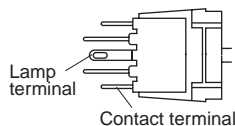


##### Excellent switch reliability

The switch uses a snap-action mechanism. The pushbuttons are available with either momentary or alternative actions. The snap-action switch has a double break movement which operates independently of the speed of switching. The contacts are made from gold-flashed silver. High contact reliability of 1mA at 5V AC/DC is assured. Contact blocks are available in 1NO+1NC to 3NO+3NC arrangement.

##### Large terminals

Solder/tab terminal is provided as standard. Wire-wrap terminal is available on request.



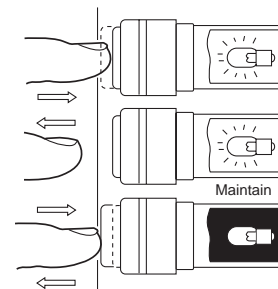
##### Safety

FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.

- Provided with a trigger action mechanism conforming to EN418.
- Provided with direct opening action (approved by TÜV) conforming to EN60947-5-1 and EN60947-5-5.

##### Alternate action

In the case of alternate action when the button is depressed the contacts are maintained and remain so even if the finger is removed. The button will not return to its free position. In order to remove the lock, the button must be given a second pressure before the button will return to its free position. This makes it most suitable as the switch for a power source.



##### Pushbutton with finger guards

Finger guards are provided for square or rectangular type pushbuttons (SF, TF, SL and TL types) in order to prevent operational error of adjacent buttons.











##### Approvals



For further information related to approved type, see page 04/187 to 04/190.


**AH164 (standard) / AH165 (oil-tight)**

■ **Illuminated pushbutton switches**

| Operator   | Type   | Operator  | Type   | Operator  | Type   |
|--|--|---|--|---|--|
| Extended round head<br><br><i>See page 04/195</i><br>               | <b>AH164-L, L5</b><br><b>AH165-L, L5</b><br><br>KKD07-205         | Flush square head<br><br><i>See page 04/195</i><br>            | <b>AH164-SL, SL5</b><br><b>AH165-SL, SL5</b><br><br>KKD07-204      | Flush rectangular head<br><br><i>See page 04/195</i><br> | <b>AH164-TL, TL5</b><br><b>AH165-TL, TL5</b><br><br>KKD07-202 |
| Flush rectangular head with guard<br><br><i>See page 04/196</i><br> | <b>AH164-TGL, TGL5</b><br><b>AH165-TGL, TGL5</b><br><br>KKD07-203 | Flush square head with guard<br><br><i>See page 04/196</i><br> | <b>AH164-SGL, SGL5</b><br><b>AH165-SGL, SGL5</b><br><br>KKD05-075b |   |  |

Note: Spot LED and red/green LED types: Not approved standard

■ **Pushbutton switches**

| Operator  | Type  | Operator   | Type  | Operator  | Type  |
|---|---|--|---|---|---|
| Extended round head<br><br><i>See page 04/199</i><br>  | <b>AH164-E, E5</b><br><b>AH165-E, E5</b><br><br>KKD07-209      | Mushroom head<br><br><i>See page 04/199</i><br>                     | <b>AH164-M, M5</b><br><b>AH165-M, M5</b><br><br>KKD07-210         | Flush square head<br><br><i>See page 04/199</i><br>  | <b>AH164-SF, SF5</b><br><b>AH165-SF, SF5</b><br><br>KKD07-208      |
| Flush rectangular head<br><br><i>See page 04/199</i><br>                                     | <b>AH164-TF, TF5</b><br><b>AH165-TF, TF5</b><br><br>KKD07-206  | Flush rectangular head with guard<br><br><i>See page 04/199</i><br> | <b>AH164-TGF, TGF5</b><br><b>AH165-TGF, TGF5</b><br><br>KKD05-176 | Flush square head with guard<br><br><i>See page 04/199</i><br>                               | <b>AH164-SGF, SGF5</b><br><b>AH165-SGF, SGF5</b><br><br>KKD05-075b |
| Convex square head<br><br><i>See page 04/199</i><br>   | <b>AH164-SM, SM5</b><br><b>AH165-SM, SM5</b><br><br>KKD05-081b | Convex rectangular head<br><br><i>See page 04/199</i><br>           | <b>AH164-TM, TM5</b><br><b>AH165-TM, TM5</b><br><br>KKD05-082b    | Push-lock, turn-reset (32mm dia.)<br>⊖ (Direct opening action)<br><i>See page 04/200</i><br> | <b>AH165-VR</b><br><br>AF91-584                                    |
| Push-lock, turn-reset (40mm dia.)<br>⊖ (Direct opening action)<br><i>See page 04/200</i><br> | <b>AH165-V1R</b><br><br>AF91-583                               |  |   |   |   |

■ **Emergency stop pushbutton switches** ⊖ (Direct opening action), conform to EN418

| Operator   | Type   | Operator   | Type  |
|--|--|--|---|
| Push-lock, turn-reset (32mm dia.)<br><br><i>See page 04/200</i><br> | <b>AH165-V5R</b><br><br>KKD07-221 | Push-lock, turn-reset (40mm dia.)<br><br><i>See page 04/200</i><br> | <b>AH165-V6R</b><br><br>KKD07-222 |













Note: (CCC): *See page 04/292*

# Pushbuttons/Selectors/Pilot Lights/Buzzers









## AH164, AH165 and AH165-2

### Quick reference guide







#### ■ Selector switches

| Operator  | Type  | Operator   | Type   | Operator  | Type  |
|---|---|--|--|---|---|
| Knob with rectangular bezel<br><br><i>See page 04/201</i><br>   | <b>AH164-P</b><br><b>AH165-P</b><br><br>KKD07-213    | Knob with square bezel<br><br><i>See page 04/201</i><br>                                  | <b>AH164-SP</b><br><b>AH165-SP</b><br><br>KKD07-215 | Key with rectangular bezel<br><br><i>See page 04/201</i><br>       | <b>AH164-J</b><br><b>AH165-J</b><br><br>KKD09-001L |
| Key with square bezel<br><br><i>See page 04/201, 04/204</i><br> | <b>AH164-SJ</b><br><b>AH165-SJ</b><br><br>KKD09-001R | Key with rectangular bezel<br>⊖ (Direct opening action)<br><br><i>See page 04/202</i><br> | <b>AH165-JM</b><br><br>KKD09-006                    | Key<br>⊖ (Direct opening action)<br><br><i>See page 04/202</i><br> | <b>AH165-RJM</b><br><br>KKD09-007                  |

#### ■ Pilot lights

| Lens   | Type   | Lens  | Type  | Lens   | Type   |
|--|--|---|---|--|--|
| Extended round<br><br><i>See page 04/206</i><br> | <b>AH164-Z</b><br><b>AH165-Z</b><br><br>KKD07-212 | Flush square<br><br><i>See page 04/206</i><br> | <b>AH164-ZS</b><br><b>AH165-ZS</b><br><br>KKD05-094b | Flush rectangular<br><br><i>See page 04/206</i><br> | <b>AH164-ZT</b><br><b>AH165-ZT</b><br><br>KKD07-211 |
| Dome<br><br><i>See page 04/206</i><br>           | <b>AH165-ZM</b><br><br>AF87-45                    |   |   |  |  |

#### ■ Buzzers

| Sound   | Type  | Sound                                    | Type   | Sound   | Type  |
|---|---|--|--|---|---|
| Standard<br><br><i>See page 04/208</i>  | <b>AH164-TX</b><br><br>AF87-317  | Loud sound<br><br><i>See page 04/208</i> | <b>AH164-TX1</b><br><br>AF87-44 | Loud sound with volume control<br><br><i>See page 04/208</i><br> | <b>AH164-TX2B</b><br><br>KKD07-223 |
| Standard sound with volume control (IP54)<br><br><i>See page 04/208</i><br> | <b>AH165-X</b><br><br>KKD05-096b |  |  |   |   |

Note: (CCC): *See page 04/292*

**AH165-2 (oil-tight)**

■ **Illuminated pushbutton switches**

| Operator   | Type  | Operator   | Type  | Operator   | Type   |
|--|---|--|---|--|--|
| Flush round head<br><br><i>See page 04/213</i><br>                | <b>AH165-2FL, 2FL5</b><br><br><br><small>AF87-211</small>    | Extended round head<br><br><i>See page 04/213</i><br>     | <b>AH165-2EL, 2EL5</b><br><br><br><small>AF87-210</small>   | Mushroom head<br><br><i>See page 04/213</i><br>                             | <b>AH165-2ML</b><br><br><br><small>AF87-221</small>         |
| Mushroom head with square bezel<br><br><i>See page 04/213</i><br> | <b>AH165-2YML</b><br><br><br><small>AF87-220</small>         | Flush square head<br><br><i>See page 04/214</i><br>       | <b>AH165-2SFL, 2SFL5</b><br><br><br><small>AF87-201</small> | Extended square head<br><br><i>See page 04/214</i><br>                      | <b>AH165-2SEL, 2SEL5</b><br><br><br><small>AF87-200</small> |
| Concave square head<br><br><i>See page 04/214</i><br>           | <b>AH165-2SCL, 2SCL5</b><br><br><br><small>AF87-199</small> | Push-lock, turn-reset<br><br><i>See page 04/215</i><br> | <b>AH165-2VL</b><br><br><br><small>AF87-219</small>        | Push-lock, turn-reset with square bezel<br><br><i>See page 04/215</i><br> | <b>AH165-2YVL</b><br><br><br><small>AF87-218</small>       |

Note: : *See page 04/292*

■ **Pushbutton switches**













| Operator   | Type   | Operator   | Type  | Operator  | Type   |
|--|--|--|---|---|--|
| Flush round head<br><br><i>See page 04/216</i><br>                | <b>AH165-2F, 2F5</b><br><br><br><small>AF87-211</small>   | Extended round head<br><br><i>See page 04/216</i><br>                     | <b>AH165-2E, 2E5</b><br><br><br><small>AF87-210</small>   | Mushroom head<br><br><i>See page 04/216</i><br>                        | <b>AH165-2M</b><br><br><br><small>AF87-215</small>          |
| Mushroom head with square bezel<br><br><i>See page 04/216</i><br> | <b>AH165-2YM</b><br><br><br><small>AF87-214</small>       | Flush square head<br><br><i>See page 04/216</i><br>                       | <b>AH165-2SF, 2SF5</b><br><br><br><small>AF87-201</small> | Concave square head<br><br><i>See page 04/216</i><br>                  | <b>AH165-2SCE, 2SCE5</b><br><br><br><small>AF87-199</small> |
| Extended square head<br><br><i>See page 04/216</i><br>            | <b>AH165-2SE, 2SE5</b><br><br><br><small>AF87-200</small> | With selector ring<br><br><i>See page 04/217</i><br>                      | <b>AH165-2S2</b><br><br><br><small>AF87-207</small>       | With selector ring with square bezel<br><br><i>See page 04/217</i><br> | <b>AH165-2YS2</b><br><br><br><small>AF87-206</small>        |
| Push-lock, turn-reset<br><br><i>See page 04/217</i><br>           | <b>AH165-2V</b><br><br><br><small>AF87-217</small>        | Push-lock, turn-reset with square bezel<br><br><i>See page 04/217</i><br> | <b>AH165-2YV</b><br><br><br><small>AF87-216</small>       |   |  |

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AH164, AH165 and AH165-2

### Quick reference guide









#### ■ Selector switches

| Operator   | Type  | Operator  | Type   | Operator   | Type   |
|--|---|---|--|--|--|
| Knob   | <b>AH165-2P</b><br><br>KKD07-232   | Knob with square bezel  | <b>AH165-2YP</b><br><br>KKD07-234 | Key  | <b>AH165-2J</b><br><br>KKD09-003L |
| <i>See page 04/218</i><br> |   | <i>See page 04/218</i><br> |  | <i>See page 04/218</i><br> |  |
| Key with square bezel  | <b>AH165-2YJ</b><br><br>KKD09-003R | Lever   | <b>AH165-2H</b><br><br>AF87-209   | Lever with square bezel  | <b>AH165-2SH</b><br><br>AF87-203  |
| <i>See page 04/218</i><br> |   | <i>See page 04/219</i><br> |  | <i>See page 04/219</i><br> |  |

#### ■ Illuminated selector switches

| Operator   | Type  |
|--|---|
| Knob   | <b>AH165-2PL</b><br><br>KKD07-240 |
| <i>See page 04/221</i><br> |   |

#### ■ Pilot lights

| Lens   | Type   | Lens  | Type  | Lens   | Type  |
|--|--|---|---|--|---|
| Flush round  | <b>AH165-2Z</b><br><br>AF87-213   | Extended round  | <b>AH165-2ZE</b><br><br>AF87-212 | Flush square   | <b>AH165-2SZ</b><br><br>AF87-205 |
| <i>See page 04/222</i><br> |  | <i>See page 04/222</i><br> |   | <i>See page 04/222</i><br> |   |
| Extended square  | <b>AH165-2SZE</b><br><br>AF87-204 |   |   |  |   |
| <i>See page 04/222</i><br> |  |   |   |  |   |

Note: : See page 04/292

# Pushbuttons/Selectors/Pilot Lights/Buzzers AH164 and AH165 Type number nomenclature

## ■ Type number nomenclature

### Pushbuttons, illuminated pushbuttons and pilot lights

**AH165 - L R 11 E 3 - W**  
① ② ③ ④ ⑤ ⑥ ⑦

#### ① Product category

AH164: Standard (IP40)

AH165: Oil-tight (IP65)

#### ② Operator or lens

• Operator for illuminated pushbutton

SL: Flush square head

SL5: Flush square head (Alternate)

TL: Flush rectangular head

TL5: Flush rectangular head (Alternate)

L: Extended round head

L5: Extended round head (Alternate)

TGL: Flush rectangular head with guard

TGL5: Flush rectangular head with guard (Alternate)

SGL: Flush square head with guard

SGL5: Flush square head with guard (Alternate)

• Operator for pushbuttons

SF: Flush square head

SF5: Flush square head (Alternate)

TF: Flush rectangular head

TF5: Flush rectangular head (Alternate)

E: Extended round head

E5: Extended round head (Alternate)

TGF: Flush rectangular head with guard

TGF5: Flush rectangular head with guard (Alternate)

SGF: Flush square head with guard

SGF5: Flush square head with guard (Alternate)

M: Mushroom head

M5: Mushroom head (Alternate)

SM: Convex square head

SM5: Convex square head (Alternate)

TM: Convex rectangular head

TM5: Convex rectangular head (Alternate)

V: Push-lock, turn-reset (32mm dia.)<sup>\*1 \*2</sup>

V1: Push-lock, turn-reset (40mm dia.)<sup>\*1 \*2</sup>

• Operator for emergency stop pushbuttons

V5: Push-lock, turn-reset (32mm dia.)<sup>\*2</sup>

V6: Push-lock, turn-reset (40mm dia.)<sup>\*2</sup>

• Lens for pilot lights

Z: Extended round

ZS: Flush square

ZT: Flush rectangular

ZM: Dome

Note: <sup>\*1</sup> Product with no trigger action mechanism

<sup>\*2</sup> AH165 type only, direct opening action

#### ③ Color of button or lens

| Code | color     | Button | LED        | Incandescent | Neon       |
|------|-----------|--------|------------|--------------|------------|
| G    | Green     | ○      | ○          | ○            | ○          |
| R    | Red       | ○      | ○          | ○            | ○ (Orange) |
| B    | Black*    | ○      | —          | —            | —          |
| Y    | Yellow    | ○      | ○          | ○            | ○ (Orange) |
| W    | White     | ○      | ○ (Orange) | ○            | ○ (Orange) |
| S    | Blue      | ○      | ○          | ○            | ○ (Green)  |
| O    | Orange    | ○      | ○ (Amber)  | ○            | ○          |
| RG   | Red/Green | —      | ○          | —            | —          |

Notes: • ( ): indicates luminous color

• AH165-V, V1, V5, V6: Red only

\* Not available for illuminated types

#### ④ Contact arrangement

01: 1NC<sup>\*1</sup>

22: 2NO+2NC

02: 2NC<sup>\*1</sup>

33: 3NO+3NC<sup>\*2</sup>

11: 1NO+1NC

Notes: <sup>\*1</sup> Available for AH165-V, V1, V5, V6

<sup>\*2</sup> Not available for with transformer types

#### ⑤ Lamp voltage

| Code | LED                          | Incandescent <sup>*2</sup> | Neon <sup>*2</sup> |
|------|------------------------------|----------------------------|--------------------|
| AA   | 5V DC <sup>*2</sup>          | —                          | —                  |
| A    | 6V DC <sup>*2</sup>          | 5V AC/DC                   | —                  |
| B    | 12V DC                       | 12V AC/DC                  | —                  |
| E    | 24V DC                       | 24V AC/DC                  | —                  |
| H    | 100-110V AC <sup>*1 *2</sup> | 100-110V AC <sup>*1</sup>  | 110V AC            |
| K    | —                            | —                          | 120V AC            |
| M    | 200-220V AC <sup>*1 *2</sup> | 200-220V AC <sup>*1</sup>  | 220V AC            |
| P    | —                            | —                          | 240V AC            |

Notes: <sup>\*1</sup> With transformer (LED: 24V, Incandescent: 28V)

<sup>\*2</sup> Not available AH165-ZM

• ZM type: LED lamp only (12, 24V DC)

#### ⑥ Type of lamp

Blank: Incandescent

1: Neon

2: Spot LED, LED (ZM types)

3: Flat LED

#### ⑦ Terminal

Blank: Solder/tab

W: Wire-wrap

S: Soder (AH165-V, V1, V5, V6 types only)

Note: ZM types: wire-wrap terminal only (Code is blank)



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AH164 and AH165

### Type number nomenclature

#### ■ Type number nomenclature

##### Selector switches

**AH165** - J 2 B 11 A - W

① ② ③ ④ ⑤ ⑥ ⑦

##### ① Product category

AH164: Standard (IP40)

AH165: Oil-tight (IP65)

##### ② Operator

• 2-position, 3-position (operating angle 90°)

SP: Knob with square bezel

P: Knob with rectangular bezel

SJ: Key with square bezel

J: Key with rectangular bezel

JM: Key with rectangular bezel (Direct opening action) \*

RJM: Key (Direct opening action) \*

Note: \* AH165 types (2-position) only

• 3-position (operating angle 45°)

SPK: Knob with square bezel

PK: Knob with rectangular bezel

SJK: Key with square bezel

JK: Key with rectangular bezel

##### ③ Operation

2: 2-position, maintained

0: 2-position, spring return\*

3: 3-position, maintained

6: 3-position, spring/manual return (Left to center)

7: 3-position, spring/manual return (Right to center)

1: 3-position, spring return

Note: \* Except for JM and RJM types

##### ④ Color of knob or key removable position

• Color of knob

B: Black

• Key removable position

| Code | 2-position |   | 3-position<br>(operating angle 90°) |   |   |   | 3-position<br>(operating angle 45°) |   |   |   |
|------|------------|---|-------------------------------------|---|---|---|-------------------------------------|---|---|---|
|      | 2          | 0 | 1                                   | 3 | 6 | 7 | 1                                   | 3 | 6 | 7 |
| A    | ⊗          | ⊗ | —                                   | ⊖ | — | ⊖ | —                                   | ⊗ | — | ⊗ |
| B    | ⊗          | — | —                                   | ⊖ | — | — | —                                   | ⊗ | — | — |
| C    | —          | — | —                                   | ⊕ | — | — | —                                   | ⊗ | — | — |
| D    | ⊗          | — | —                                   | ⊖ | — | — | —                                   | ⊗ | — | — |
| E    | —          | — | Ⓜ                                   | — | — | — | Ⓜ                                   | — | — | — |
| F    | —          | — | —                                   | — | — | — | —                                   | ⊗ | — | — |
| G    | —          | — | —                                   | — | — | — | —                                   | ⊗ | — | ⊗ |

##### ⑤ Contact arrangement

11: 1NO+1NC

22: 2NO+2NC

33: 3NO+3NC\*

Note: \* Except for JM and RJM types.

##### ⑥ Key type No.

A (standard), B, C, D, E, F

##### ⑦ Terminal

Blank: Solder/tab

W: Wire-warp

Note: JM, RJM types: Solder/tab terminal only

##### Buzzers

**AH164** - T X B E

① ② ③ ④

##### ① Product category

AH164: Standard (IP00)

AH165: Splash-proof (IP54)

##### ② Sound

TX: Standard (AH164)

TX1: Loud sound (AH164)

TX2: Loud sound with volume control (AH164)

X: Standard sound with volume control (AH165)

##### ③ Color of head

B: Black

##### ④ Operating voltage

AAC: 6V AC\*2

ADC: 6V DC\*2

A: 6V AC/DC\*1

E: 12 to 24V AC/DC

F: 35 to 48V AC/DC

Notes: \*1 Except for TX and TX1 types

\*2 Except for TX2 and X types

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AH164 and AH165

### Ratings and specifications

#### ■ Standards approved

|                                 |  |
|---------------------------------|--|
| UL508                           | File No. E44592  |
| CSA C22.2 No.14                 | File No. LR20479 (except for AH165-ZM)<br>File No. LR84365 (for AH165-ZM)  |
| TÜV: EN60947-5-1                | Pushbutton (except for AH165-V, V1),<br>Illuminated pushbutton: R9250087<br><br>Pushbutton (for AH165-V, V1): J9551059<br>Selector (except for AH165-JM, RJM): R9250088<br>Selector (for AH165-JM, RJM): J9551059<br>Pilot lights: R9250089<br>Buzzer: J9950092 (for AH164-TX2, AH165-X) |
| TÜV: EN60947-5-1<br>EN60947-5-5 | Emergency stop pushbutton: R9950093  |

#### ■ Specifications (Indoor use)

- Pushbutton switches, illuminated pushbutton switches selector switches, pilot lights

| Item  | AH164   | AH165           |
|---|---|-----------------|
| Rated insulation voltage                          | 250V AC/DC  |                 |
| Ambient temperature (no condensation or no icing) | -20 to +70°C *1   | -10 to +70°C *2 |
| Humidity  | 45 to 85%RH (at -5 to +40°C), no condensation or no icing   |                 |
| Durability (operations)                           | Mechanical Pushbutton switch<br>Momentary action: 1 million<br>Alternate action: 250,000<br>Push-lock, turn-reset: 100,000<br>Selector switch: 250,000 *3 |                 |
|   | Electrical 100,000 (220V AC 0.7A)   |                 |
| Dielectric strength                               | 2000V AC, 1 minute<br>(Between lamp and contact terminals:<br>1500V AC, 1 minute)   |                 |
| Conditional short-circuit current                 | 1000A   |                 |
| Short-circuit protective device                   | Fuse 1A *4  |                 |
| Pollution degree                                  | 3   |                 |
| Vibration   | Resonance: 10 to 55Hz, double amplitude 0.1mm *5<br>Constant: 16.7Hz, double amplitude 3mm  |                 |
| Shock   | Malfunction durability: 100m/s <sup>2</sup> *6<br>Mechanical durability: 500m/s <sup>2</sup>  |                 |
| Operating frequency                               | 1200 operation/hour (on-load factor: 40%)   |                 |
| Insulation resistance                             | 100MΩ or more (500V DC megger)  |                 |
| Degree of protection                              | IP40  | IP65            |

Notes: \*1 For illuminated pushbutton switch and pilot light: -20 to +55°C

\*2 For illuminated pushbutton switch and pilot light: -10 to +55°C

\*3 Key insertion/removal durability for selector switch key types: 10,000

\*4 AH165-V, V1, JM, RJM, V5, V6 types: Fuse 5A

\*5 Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/s<sup>2</sup>), according to the test condition of EN60947-5-5 (1998)

\*6 Emergency stop type: 150m/s<sup>2</sup>

#### ● Buzzers

| Item                     | AH164-TX  | AH164-TX1   |
|--------------------------|---|---|
| Rated insulation voltage | 60V AC/DC   |   |
| Operating voltage        | 6V AC, 6V DC, 12 to 24V AC/DC<br>35 to 48V AC/DC                    |   |
| Sound level              | 80dB (0.1m)<br>60dB(1m)   | 90dB (0.1m)<br>70dB(1m)   |
| Durability               | 1000h   |   |
| Frequency                | 2 ±0.5kHz   | 2.4 to 3.3kHz   |
| Intermittent cycle       | Approx. 170 cycle/minute  |   |
| Current consumption      | 7mA(24, 48V DC)<br>15mA(6V DC)<br>20mA (6, 24V AC)<br>30mA (48V AC) | 15mA (24, 48V DC)<br>25mA (6V DC)<br>30mA (24V AC)<br>40mA (48V AC)<br>50mA (6V AC) |
| Dielectric strength      | 1000V AC, 1 minute  |   |
| Insulation resistance    | 100MΩ or more (500V DC megger)                                      |   |
| Ambient temperature      | -20 to +60°C (no condensation or no icing)                          |   |
| Humidity                 | 45 to 85%RH (at -5 to +40°C)  |   |
| Operator protection      | IP00  |   |

| Item                     | AH164-TX2   | AH165-X                                  |
|--------------------------|---|--|
| Rated insulation voltage | 60V AC/DC   |  |
| Operating voltage        | 6V AC/DC, 12 to 24V AC/DC<br>35 to 48V AC/DC              |  |
| Sound level              | 70dB to 90dB (0.1m)<br>50dB to 70dB (1m)                  | 60dB to 80dB (0.1m)<br>40dB to 60dB (1m) |
| Durability               | 1000h   |  |
| Frequency                | 2 ±0.5kHz   | 2.4 to 3.3kHz                            |
| Intermittent cycle       | Approx. 170 cycle/minute                                  |  |
| Current consumption      | 30mA (6V DC)<br>20mA (24, 48V DC)<br>40mA (6, 24, 48V AC) |  |
| Dielectric strength      | 1000V AC, 1 minute  |  |
| Insulation resistance    | 100MΩ or more (500V DC megger)                            |  |
| Ambient temperature      | -20 to +60°C (no condensation or no icing)                |  |
| Humidity                 | 45 to 85%RH (at -5 to +40°C)                              |  |
| Degree of protection     | IP00  | IP54                                     |



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AH164 and AH165

### Ratings and specifications

#### ■ Contact ratings

##### ● UL/CSA standards

| Rated thermal current | Rated operational voltage | Maximum current |                   |
|-----------------------|---------------------------|-----------------|-------------------|
|                       |                           | AC (Res. load)  | DC (Res. load)    |
| 5A                    | 24V<br>125V<br>250V       | –<br>–<br>5.0A  | 1.0A<br>0.2A<br>– |

##### ● EN standards (TÜV approved)

| Rated thermal current | Rated operational voltage                        | Rated operational current |                        |                        |                         |                        |
|-----------------------|--|---------------------------|------------------------|------------------------|-------------------------|------------------------|
|                       |  | AC 15 (Ind. load)         | AC 13 (Ind. load)      | AC 12 (Res. load)      | DC 13 (Ind. load)       | DC 12 (Res. load)      |
| 5A                    | 24V<br>100 to 120V<br>100 to 125V<br>200 to 240V | –<br>0.3A<br>–<br>0.3A    | –<br>1.0A<br>–<br>0.7A | –<br>1.5A<br>–<br>1.0A | 0.7A<br>–<br>0.15A<br>– | 1.0A<br>–<br>0.2A<br>– |

#### ■ Lamp ratings

| Rated operational voltage | Consumption        |                    |         |
|---------------------------|--------------------|--------------------|---------|
|                           | LED DC             | Incandescent AC/DC | Neon AC |
| 5V                        | 7mA (Yellow: 28mA) | 0.45W (6V)         | –       |
| 6V                        | 7mA (Yellow: 28mA) | –                  | –       |
| 12V                       | 7mA                | 0.55W (14V)        | –       |
| 24V                       | 7mA                | 0.55W (28V)        | –       |
| 110V                      | –                  | –                  | 0.19VA  |
| 120V                      | –                  | –                  | 0.21VA  |
| 220V                      | –                  | –                  | 0.38VA  |
| 240V                      | –                  | –                  | 0.42VA  |

Notes: • With transformer (LED): 2.6VA/110, 220V




• With transformer (Incandescent): 2VA/110, 220V

• For the incandescent lamps, the values in parentheses indicate the rated voltage of the lamps.

#### ■ Contact reliability

FUJI has confirmed that the unit can be used in 1mA circuit conditions at 5V AC or DC. The operable range may vary depending on the ambient conditions and type of load.

## ■ Illuminated pushbutton switches/without transformer



| Operator   | Lamp         | Voltage   | Contact                       | Momentary action |                        | Alternate action |                        |
|--|--------------|-----------|-------------------------------|------------------|------------------------|------------------|------------------------|
|  |              |           |                               | AH164 type       | AH165 (Oil-tight) type | AH164 type       | AH165 (Oil-tight) type |
| <br>KKD07-205   | Flat LED     | 24V DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-L□11E3     | AH165-L□11E3           | AH164-L5□11E3    | AH165-L5□11E3          |
|  |              |           |                               | AH164-L□22E3     | AH165-L□22E3           | AH164-L5□22E3    | AH165-L5□22E3          |
|  |              |           |                               | AH164-L□33E3     | AH165-L□33E3           | AH164-L5□33E3    | AH165-L5□33E3          |
|  | Spot LED     | 24V DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-L□11E2     | AH165-L□11E2           | AH164-L5□11E2    | AH165-L5□11E2          |
|  |              |           |                               | AH164-L□22E2     | AH165-L□22E2           | AH164-L5□22E2    | AH165-L5□22E2          |
|  |              |           |                               | AH164-L□33E2     | AH165-L□33E2           | AH164-L5□33E2    | AH165-L5□33E2          |
|  | Incandescent | 24V AC/DC | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-L□11E      | AH165-L□11E            | AH164-L5□11E     | AH165-L5□11E           |
|  |              |           |                               | AH164-L□22E      | AH165-L□22E            | AH164-L5□22E     | AH165-L5□22E           |
|  | Neon         | 110V AC   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-L□11H1     | AH165-L□11H1           | AH164-L5□11H1    | AH165-L5□11H1          |
|  |              |           |                               | AH164-L□22H1     | AH165-L□22H1           | AH164-L5□22H1    | AH165-L5□22H1          |
|  |              | 220V AC   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-L□11M1     | AH165-L□11M1           | AH164-L5□11M1    | AH165-L5□11M1          |
|  |              |           |                               | AH164-L□22M1     | AH165-L□22M1           | AH164-L5□22M1    | AH165-L5□22M1          |
| <br>KKD07-204 | Flat LED     | 24V DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SL□11E3    | AH165-SL□11E3          | AH164-SL5□11E3   | AH165-SL5□11E3         |
|  |              |           |                               | AH164-SL□22E3    | AH165-SL□22E3          | AH164-SL5□22E3   | AH165-SL5□22E3         |
|  |              |           |                               | AH164-SL□33E3    | AH165-SL□33E3          | AH164-SL5□33E3   | AH165-SL5□33E3         |
|  | Spot LED     | 24V DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SL□11E2    | AH165-SL□11E2          | AH164-SL5□11E2   | AH165-SL5□11E2         |
|  |              |           |                               | AH164-SL□22E2    | AH165-SL□22E2          | AH164-SL5□22E2   | AH165-SL5□22E2         |
|  |              |           |                               | AH164-SL□33E2    | AH165-SL□33E2          | AH164-SL5□33E2   | AH165-SL5□33E2         |
|  | Incandescent | 24V AC/DC | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SL□11E     | AH165-SL□11E           | AH164-SL5□11E    | AH165-SL5□11E          |
|  |              |           |                               | AH164-SL□22E     | AH165-SL□22E           | AH164-SL5□22E    | AH165-SL5□22E          |
|  | Neon         | 110V AC   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SL□11H1    | AH165-SL□11H1          | AH164-SL5□11H1   | AH165-SL5□11H1         |
|  |              |           |                               | AH164-SL□22H1    | AH165-SL□22H1          | AH164-SL5□22H1   | AH165-SL5□22H1         |
|  |              | 220V AC   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SL□11M1    | AH165-SL□11M1          | AH164-SL5□11M1   | AH165-SL5□11M1         |
|  |              |           |                               | AH164-SL□22M1    | AH165-SL□22M1          | AH164-SL5□22M1   | AH165-SL5□22M1         |
| <br>KKD07-202 | Flat LED     | 24V DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TL□11E3    | AH165-TL□11E3          | AH164-TL5□11E3   | AH165-TL5□11E3         |
|  |              |           |                               | AH164-TL□22E3    | AH165-TL□22E3          | AH164-TL5□22E3   | AH165-TL5□22E3         |
|  |              |           |                               | AH164-TL□33E3    | AH165-TL□33E3          | AH164-TL5□33E3   | AH165-TL5□33E3         |
|  | Spot LED     | 24V DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TL□11E2    | AH165-TL□11E2          | AH164-TL5□11E2   | AH165-TL5□11E2         |
|  |              |           |                               | AH164-TL□22E2    | AH165-TL□22E2          | AH164-TL5□22E2   | AH165-TL5□22E2         |
|  |              |           |                               | AH164-TL□33E2    | AH165-TL□33E2          | AH164-TL5□33E2   | AH165-TL5□33E2         |
|  | Incandescent | 24V AC/DC | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TL□11E     | AH165-TL□11E           | AH164-TL5□11E    | AH165-TL5□11E          |
|  |              |           |                               | AH164-TL□22E     | AH165-TL□22E           | AH164-TL5□22E    | AH165-TL5□22E          |
|  | Neon         | 110V AC   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TL□11H1    | AH165-TL□11H1          | AH164-TL5□11H1   | AH165-TL5□11H1         |
|  |              |           |                               | AH164-TL□22H1    | AH165-TL□22H1          | AH164-TL5□22H1   | AH165-TL5□22H1         |
|  |              | 220V AC   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TL□11M1    | AH165-TL□11M1          | AH164-TL5□11M1   | AH165-TL5□11M1         |
|  |              |           |                               | AH164-TL□22M1    | AH165-TL□22M1          | AH164-TL5□22M1   | AH165-TL5□22M1         |

Note: Replace the □ mark by the button color code, see page 04/196.

04

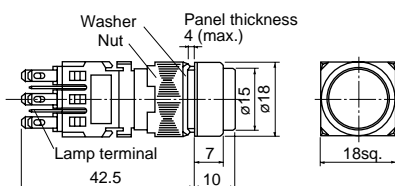
# Illuminated Pushbuttons

## AH164 and AH165

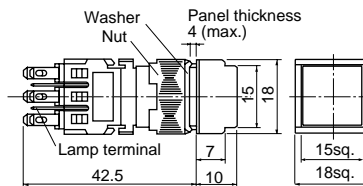
| Operator  | Lamp           | Voltage                       | Contact                       | Momentary action |                        | Alternate action |                        |
|---|----------------|-------------------------------|-------------------------------|------------------|------------------------|------------------|------------------------|
|   |                |                               |                               | AH164 type       | AH165 (oil-tight) type | AH164 type       | AH165 (oil-tight) type |
| Flush rectangular head with guard<br><br><br>KKD07-203 | Flat LED       | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TGL□11E3   | AH165-TGL□11E3         | AH164-TGL5□11E3  | AH165-TGL5□11E3        |
|   |                |                               |                               | AH164-TGL□22E3   | AH165-TGL□22E3         | AH164-TGL5□22E3  | AH165-TGL5□22E3        |
|   | AH164-TGL□33E3 | AH165-TGL□33E3                | AH164-TGL5□33E3               | AH165-TGL5□33E3  |                        |                  |                        |
|   | Incandescent   | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TGL□11E    | AH165-TGL□11E          | AH164-TGL5□11E   | AH165-TGL5□11E         |
|   |                |                               |                               | AH164-TGL□22E    | AH165-TGL□22E          | AH164-TGL5□22E   | AH165-TGL5□22E         |
|   | AH164-TGL□33E  | AH165-TGL□33E                 | AH164-TGL5□33E                | AH165-TGL5□33E   |                        |                  |                        |
| Neon  | 110V AC        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TGL□11H1                | AH165-TGL□11H1   | AH164-TGL5□11H1        | AH165-TGL5□11H1  |                        |
|   |                |                               | AH164-TGL□22H1                | AH165-TGL□22H1   | AH164-TGL5□22H1        | AH165-TGL5□22H1  |                        |
| AH164-TGL□33H1  | AH165-TGL□33H1 | AH164-TGL5□33H1               | AH165-TGL5□33H1               |                  |                        |                  |                        |
|   | 220V AC        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-TGL□11M1                | AH165-TGL□11M1   | AH164-TGL5□11M1        | AH165-TGL5□11M1  |                        |
| AH164-TGL□22M1  | AH165-TGL□22M1 | AH164-TGL5□22M1               | AH165-TGL5□22M1               |                  |                        |                  |                        |
| AH164-TGL□33M1  | AH165-TGL□33M1 | AH164-TGL5□33M1               | AH165-TGL5□33M1               |                  |                        |                  |                        |
| Flush square head with guard<br><br><br>KKD05-075b    | Flat LED       | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SGL□11E3   | AH165-SGL□11E3         | AH164-SGL5□11E3  | AH165-SGL5□11E3        |
|   |                |                               |                               | AH164-SGL□22E3   | AH165-SGL□22E3         | AH164-SGL5□22E3  | AH165-SGL5□22E3        |
|   | AH164-SGL□33E3 | AH165-SGL□33E3                | AH164-SGL5□33E3               | AH165-SGL5□33E3  |                        |                  |                        |
|   | Incandescent   | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SGL□11E    | AH165-SGL□11E          | AH164-SGL5□11E   | AH165-SGL5□11E         |
|   |                |                               |                               | AH164-SGL□22E    | AH165-SGL□22E          | AH164-SGL5□22E   | AH165-SGL5□22E         |
|   | AH164-SGL□33E  | AH165-SGL□33E                 | AH164-SGL5□33E                | AH165-SGL5□33E   |                        |                  |                        |
| Neon  | 110V AC        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SGL□11H1                | AH165-SGL□11H1   | AH164-SGL5□11H1        | AH165-SGL5□11H1  |                        |
|   |                |                               | AH164-SGL□22H1                | AH165-SGL□22H1   | AH164-SGL5□22H1        | AH165-SGL5□22H1  |                        |
| AH164-SGL□33H1  | AH165-SGL□33H1 | AH164-SGL5□33H1               | AH165-SGL5□33H1               |                  |                        |                  |                        |
|   | 220V AC        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SGL□11M1                | AH165-SGL□11M1   | AH164-SGL5□11M1        | AH165-SGL5□11M1  |                        |
| AH164-SGL□22M1  | AH165-SGL□22M1 | AH164-SGL5□22M1               | AH165-SGL5□22M1               |                  |                        |                  |                        |
| AH164-SGL□33M1  | AH165-SGL□33M1 | AH164-SGL5□33M1               | AH165-SGL5□33M1               |                  |                        |                  |                        |

### ■ Dimensions, mm

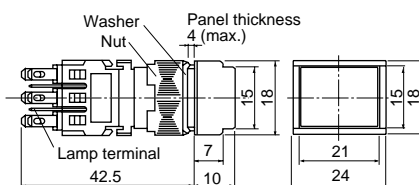
L, L5



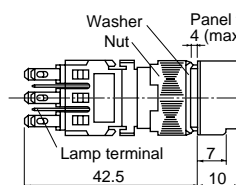
SL, SL5



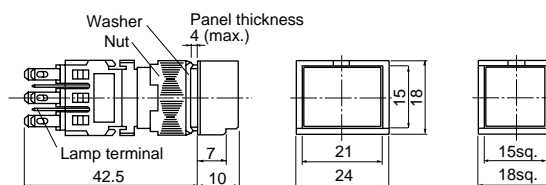
TL, TL5



TGL, TGL5



SGL, SGL5



### ● Button color

| Color | Green | Red | White | Yellow | Blue | Orange |
|-------|-------|-----|-------|--------|------|--------|
| Code  | G     | R   | W     | Y      | S    | O      |




- The color lens is made of a tinted transparent material.
- A white illuminated pushbutton is fitted with a transparent color lens. (Except the neon lamp)
- With wire-wrap pin terminals have a depth of 47mm.

### ● Lamp voltage

Voltages other than above are available

| Code | LED    | Incandescent | Neon    |
|------|--------|--------------|---------|
| AA   | 5V DC  | —            | —       |
| A    | 6V DC  | 5V AC/DC     | —       |
| B    | 12V DC | 12V AC/DC    | —       |
| K    | —      | —            | 120V AC |
| P    | —      | —            | 240V AC |

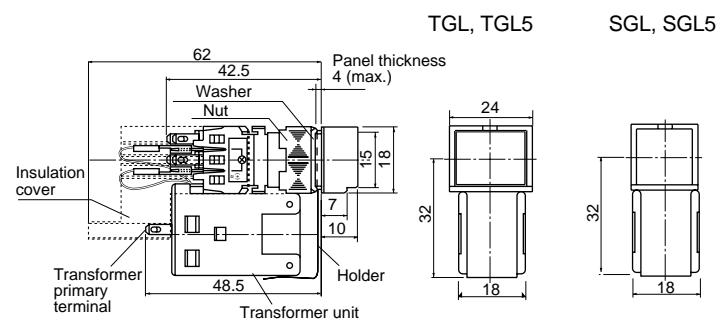
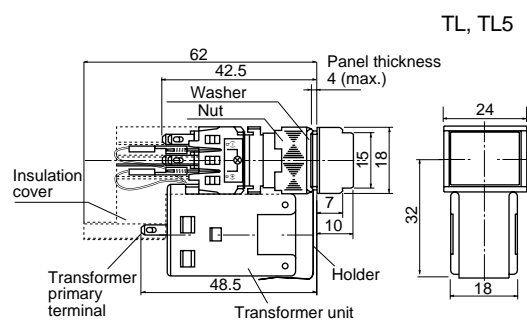
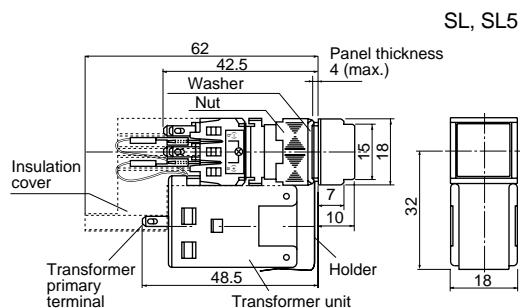
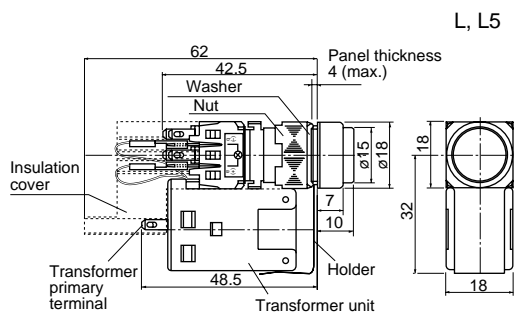
■ Illuminated pushbutton switches/with transformer

| Operator   | Lamp         | Voltage  | Contact | Momentary action |                        | Alternate action |                        |
|--|--------------|--|---------|------------------|------------------------|------------------|------------------------|
|  |              |  |         | AH164 type       | AH165 (oil-tight) type | AH164 type       | AH165 (oil-tight) type |
| Extended round head<br><br>AF90-945                 | Flat LED     | ■ Voltage code<br><br>H:<br>100-110V AC<br>M:<br>200-220V AC | 1NO+1NC | AH164-L□11■3     | AH165-L□11■3           | AH164-L5□11■3    | AH165-L5□11■3          |
|  |              |  | 2NO+2NC | AH164-L□22■3     | AH165-L□22■3           | AH164-L5□22■3    | AH165-L5□22■3          |
|  | Incandescent |  | 1NO+1NC | AH164-L□11■      | AH165-L□11■            | AH164-L5□11■     | AH165-L5□11■           |
|  |              |  | 2NO+2NC | AH164-L□22■      | AH165-L□22■            | AH164-L5□22■     | AH165-L5□22■           |
| Flush square head<br><br>AF90-946                   | Flat LED     | ■ Voltage code<br><br>H:<br>100-110V AC<br>M:<br>200-220V AC | 1NO+1NC | AH164-SL□11■3    | AH165-SL□11■3          | AH164-SL5□11■3   | AH165-SL5□11■3         |
|  |              |  | 2NO+2NC | AH164-SL□22■3    | AH165-SL□22■3          | AH164-SL5□22■3   | AH165-SL5□22■3         |
|  | Incandescent |  | 1NO+1NC | AH164-SL□11■     | AH165-SL□11■           | AH164-SL5□11■    | AH165-SL5□11■          |
|  |              |  | 2NO+2NC | AH164-SL□22■     | AH165-SL□22■           | AH164-SL5□22■    | AH165-SL5□22■          |
| Flush rectangular head<br><br>AF90-947             | Flat LED     | ■ Voltage code<br><br>H:<br>100-110V AC<br>M:<br>200-220V AC | 1NO+1NC | AH164-TL□11■3    | AH165-TL□11■3          | AH164-TL5□11■3   | AH165-TL5□11■3         |
|  |              |  | 2NO+2NC | AH164-TL□22■3    | AH165-TL□22■3          | AH164-TL5□22■3   | AH165-TL5□22■3         |
|  | Incandescent |  | 1NO+1NC | AH164-TL□11■     | AH165-TL□11■           | AH164-TL5□11■    | AH165-TL5□11■          |
|  |              |  | 2NO+2NC | AH164-TL□22■     | AH165-TL□22■           | AH164-TL5□22■    | AH165-TL5□22■          |
| Flush rectangular head with guard<br><br>AF90-941 | Flat LED     | ■ Voltage code<br><br>H:<br>100-110V AC<br>M:<br>200-220V AC | 1NO+1NC | AH164-TGL□11■3   | AH165-TGL□11■3         | AH164-TGL5□11■3  | AH165-TGL5□11■3        |
|  |              |  | 2NO+2NC | AH164-TGL□22■3   | AH165-TGL□22■3         | AH164-TGL5□22■3  | AH165-TGL5□22■3        |
|  | Incandescent |  | 1NO+1NC | AH164-TGL□11■    | AH165-TGL□11■          | AH164-TGL5□11■   | AH165-TGL5□11■         |
|  |              |  | 2NO+2NC | AH164-TGL□22■    | AH165-TGL□22■          | AH164-TGL5□22■   | AH165-TGL5□22■         |
| Flush square head with guard<br><br>AF90-948      | Flat LED     | ■ Voltage code<br><br>H:<br>100-110V AC<br>M:<br>200-220V AC | 1NO+1NC | AH164-SGL□11■3   | AH165-SGL□11■3         | AH164-SGL5□11■3  | AH165-SGL5□11■3        |
|  |              |  | 2NO+2NC | AH164-SGL□22■3   | AH165-SGL□22■3         | AH164-SGL5□22■3  | AH165-SGL5□22■3        |
|  | Incandescent |  | 1NO+1NC | AH164-SGL□11■    | AH165-SGL□11■          | AH164-SGL5□11■   | AH165-SGL5□11■         |
|  |              |  | 2NO+2NC | AH164-SGL□22■    | AH165-SGL□22■          | AH164-SGL5□22■   | AH165-SGL5□22■         |

Note: Replace the □ mark by the button color code, see page 04/198.

# Illuminated Pushbuttons AH164 and AH165

## ■ Dimensions, mm


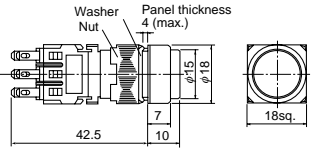

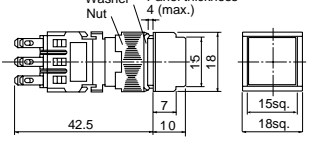

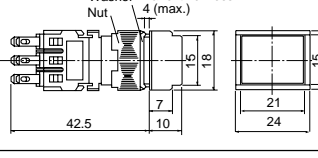

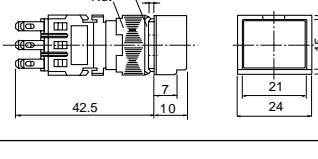

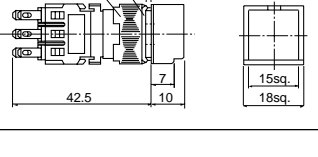

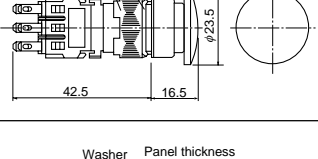

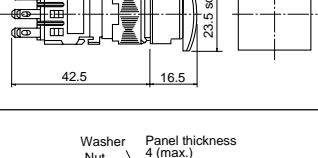

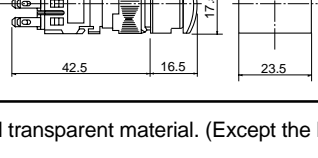


## ● Button color

|       |       |     |       |        |      |        |
|-------|-------|-----|-------|--------|------|--------|
| Color | Green | Red | White | Yellow | Blue | Orange |
| Code  | G     | R   | W     | Y      | S    | O      |

- The color lens is made of a tinted transparent material.

## ■ Pushbutton switches

| Operator   | Contact | Momentary action |                        | Alternate action |                        | Dimensions, mm  |
|--|---------|------------------|------------------------|------------------|------------------------|---|
|  |         | AH164 type       | AH165 (oil-tight) type | AH164 type       | AH165 (oil-tight) type |   |
| Extended round head<br> KKD07-209                 | 1NO+1NC | AH164-E□11       | AH165-E□11             | AH164-E5□11      | AH165-E5□11            |    |
|  | 2NO+2NC | AH164-E□22       | AH165-E□22             | AH164-E5□22      | AH165-E5□22            |   |
|  | 3NO+3NC | AH164-E□33       | AH165-E□33             | AH164-E5□33      | AH165-E5□33            |   |
| Flush square head<br> KKD07-208                   | 1NO+1NC | AH164-SF□11      | AH165-SF□11            | AH164-SF5□11     | AH165-SF5□11           |    |
|  | 2NO+2NC | AH164-SF□22      | AH165-SF□22            | AH164-SF5□22     | AH165-SF5□22           |   |
|  | 3NO+3NC | AH164-SF□33      | AH165-SF□33            | AH164-SF5□33     | AH165-SF5□33           |   |
| Flush rectangular head<br> KKD07-206             | 1NO+1NC | AH164-TF□11      | AH165-TF□11            | AH164-TF5□11     | AH165-TF5□11           |   |
|  | 2NO+2NC | AH164-TF□22      | AH165-TF□22            | AH164-TF5□22     | AH165-TF5□22           |   |
|  | 3NO+3NC | AH164-TF□33      | AH165-TF□33            | AH164-TF5□33     | AH165-TF5□33           |   |
| Flush rectangular head with guard<br> KKD05-176 | 1NO+1NC | AH164-TGF□11     | AH165-TGF□11           | AH164-TGF5□11    | AH165-TGF5□11          |  |
|  | 2NO+2NC | AH164-TGF□22     | AH165-TGF□22           | AH164-TGF5□22    | AH165-TGF5□22          |   |
|  | 3NO+3NC | AH164-TGF□33     | AH165-TGF□33           | AH164-TGF5□33    | AH165-TGF5□33          |   |
| Flush square head with guard<br> KKD05-075b     | 1NO+1NC | AH164-SGF□11     | AH165-SGF□11           | AH164-SGF5□11    | AH165-SGF5□11          |  |
|  | 2NO+2NC | AH164-SGF□22     | AH165-SGF□22           | AH164-SGF5□22    | AH165-SGF5□22          |   |
|  | 3NO+3NC | AH164-SGF□33     | AH165-SGF□33           | AH164-SGF5□33    | AH165-SGF5□33          |   |
| Mushroom head<br> KKD07-210                     | 1NO+1NC | AH164-M□11       | AH165-M□11             | AH164-M5□11      | AH165-M5□11            |  |
|  | 2NO+2NC | AH164-M□22       | AH165-M□22             | AH164-M5□22      | AH165-M5□22            |   |
|  | 3NO+3NC | AH164-M□33       | AH165-M□33             | AH164-M5□33      | AH165-M5□33            |   |
| Convex square head<br> KKD05-081b               | 1NO+1NC | AH164-SM□11      | AH165-SM□11            | AH164-SM5□11     | AH165-SM5□11           |  |
|  | 2NO+2NC | AH164-SM□22      | AH165-SM□22            | AH164-SM5□22     | AH165-SM5□22           |   |
|  | 3NO+3NC | AH164-SM□33      | AH165-SM□33            | AH164-SM5□33     | AH165-SM5□33           |   |
| Convex rectangular head<br> KKD05-082b          | 1NO+1NC | AH164-TM□11      | AH165-TM□11            | AH164-TM5□11     | AH165-TM5□11           |  |
|  | 2NO+2NC | AH164-TM□22      | AH165-TM□22            | AH164-TM5□22     | AH165-TM5□22           |   |
|  | 3NO+3NC | AH164-TM□33      | AH165-TM□33            | AH164-TM5□33     | AH165-TM5□33           |   |

### ● Button color

Replace the □ mark by the following color code


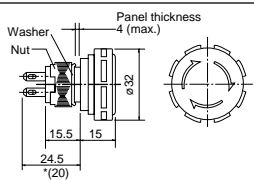

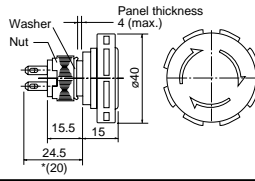
| Color | Green | Red | Black | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|-------|------|--------|--------|
| Code  | G     | R   | B     | W     | S    | Y      | O      |

- The color lens is made of a tinted transparent material. (Except the M, SM, TM types)
- A white pushbutton is fitted with a transparent color lens. (Except the M, SM, TM types) A black pushbutton consists of a transparent color lens and an attached black legend plate. (Except M, SM, TM types)
- With wire-wrap pin terminals have a depth of 47mm.

# Pushbuttons AH165

## ■ Pushbutton switches

⊖ (Direct opening action)


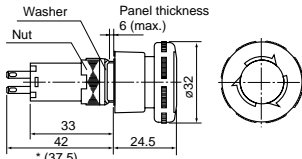

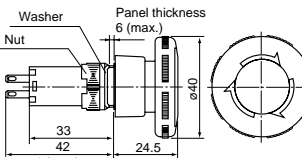
| Operator   | Button color | Contact | Terminal             | AH165 (oil-tight) type                       | Dimensions, mm  |
|--|--------------|---------|----------------------|--|---|
| Push-lock, turn-reset<br>(32mm dia.)<br><br><br><small>AF91-584</small> | Red          | 1NC     | Solder/Tab<br>Solder | <b>AH165-VR01</b><br><b>(AH165-VR01-S)</b>   |  |
|  |              | 2NC     |                      | <b>AH165-VR02</b><br><b>(AH165-VR02-S)</b>   |   |
| Push-lock, turn-reset<br>(40mm dia.)<br><br><br><small>AF91-583</small> | Red          | 1NC     | Solder/Tab<br>Solder | <b>AH165-V1R01</b><br><b>(AH165-V1R01-S)</b> |  |
|  |              | 2NC     |                      | <b>AH165-V1R02</b><br><b>(AH165-V1R02-S)</b> |   |

Notes: \* ( ) For switch with solder terminal.

- Contact arrangements indicated in the table can be supplied.
- Product with no trigger action mechanism.

## ■ Emergency stop pushbutton switches


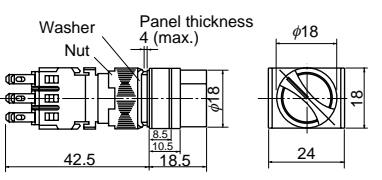

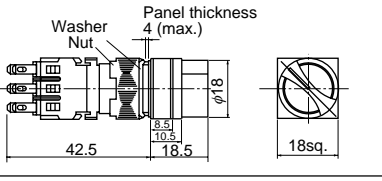

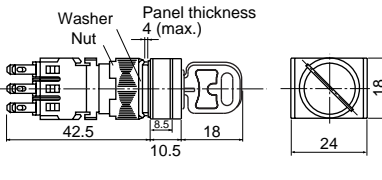

⊖ (Direct opening action), conform to EN418

| Operator  | Button color | Contact | Terminal             | AH165 (oil-tight) type                       | Dimensions, mm  |
|---|--------------|---------|----------------------|--|---|
| Push-lock, turn-reset<br>(32mm dia.)<br><br><br><small>KKD07-221</small> | Red          | 1NC     | Solder/Tab<br>Solder | <b>AH165-V5R01</b><br><b>(AH165-V5R01-S)</b> |  |
|   |              | 2NC     |                      | <b>AH165-V5R02</b><br><b>(AH165-V5R02-S)</b> |   |
| Push-lock, turn-reset<br>(40mm dia.)<br><br><br><small>KKD07-222</small> | Red          | 1NC     | Solder/Tab<br>Solder | <b>AH165-V6R01</b><br><b>(AH165-V6R01-S)</b> |  |
|   |              | 2NC     |                      | <b>AH165-V6R02</b><br><b>(AH165-V6R02-S)</b> |   |

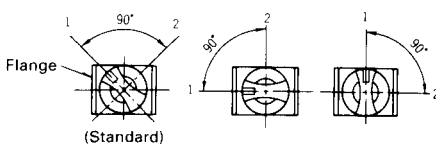
Notes: \* ( ) For switch with solder terminal.

- Contact arrangements indicated in the table can be supplied.

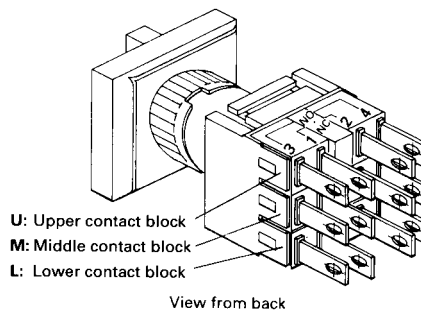
## ■ Selector switches/2-position (90-degree)

| Operator   | Operation  | Key removable position   | Contact                       | AH164 type                                      | AH165 (oil-tight) type                          | Dimensions, mm  |  |   |
|--|--|--|-------------------------------|---|---|---|--|---|
| Knob with rectangular bezel<br><br>KKD07-213  | Maintained   | —  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-P2B11<br>AH164-P2B22<br>AH164-P2B33       | AH165-P2B11<br>AH165-P2B22<br>AH165-P2B33       |  |  |   |
|  | Spring return  | —  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-P0B11<br>AH164-P0B22<br>AH164-P0B33       | AH165-P0B11<br>AH165-P0B22<br>AH165-P0B33       |   |  |   |
|  | Knob with square bezel<br><br>KKD07-215 | Maintained   | —                             | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                   | AH164-SP2B11<br>AH164-SP2B22<br>AH164-SP2B33    |   | AH165-SP2B11<br>AH165-SP2B22<br>AH165-SP2B33   |  |
| Spring return  |  | —  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SP0B11<br>AH164-SP0B22<br>AH164-SP0B33    | AH165-SP0B11<br>AH165-SP0B22<br>AH165-SP0B33    |   |  |   |
| Key with rectangular bezel<br><br>KKD09-001L |  | Maintained   | A                             | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                   | AH164-J2A11A<br>AH164-J2A22A<br>AH164-J2A33A    | AH165-J2A11A<br>AH165-J2A22A<br>AH165-J2A33A  |  |   |
|  | B  |  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-J2B11A<br>AH164-J2B22A<br>AH164-J2B33A    | AH165-J2B11A<br>AH165-J2B22A<br>AH165-J2B33A    |   |  |   |
|  | D  |  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-J2D11A<br>AH164-J2D22A<br>AH164-J2D33A    | AH165-J2D11A<br>AH165-J2D22A<br>AH165-J2D33A    |   |  |   |
|  | Spring return  | A  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-J0A11A<br>AH164-J0A22A<br>AH164-J0A33A    | AH165-J0A11A<br>AH165-J0A22A<br>AH165-J0A33A    |   |  |   |
|  |  | Key with square bezel<br><br>KKD09-001R | Maintained                    | A   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                   | AH164-SJ2A11A<br>AH164-SJ2A22A<br>AH164-SJ2A33A                                     |  | AH165-SJ2A11A<br>AH165-SJ2A22A<br>AH165-SJ2A33A                                     |
|  |  |  |                               | B   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                   | AH164-SJ2B11A<br>AH164-SJ2B22A<br>AH164-SJ2B33A                                     |  | AH165-SJ2B11A<br>AH165-SJ2B22A<br>AH165-SJ2B33A                                     |
| D  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC  |  |                               | AH164-SJ2D11A<br>AH164-SJ2D22A<br>AH164-SJ2D33A | AH165-SJ2D11A<br>AH165-SJ2D22A<br>AH165-SJ2D33A |   |  |   |
| Spring return  | A  |  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH164-SJ0A11A<br>AH164-SJ0A22A<br>AH164-SJ0A33A | AH165-SJ0A11A<br>AH165-SJ0A22A<br>AH165-SJ0A33A |   |  |   |

- The operating angle range can be changed as shown below by setting the attached flange shifted by 45° in combination with the contact block.  
In this case, the minimum mounting pitch is 26mm because the contact block is shifted by 45° from the flange.



### • Contact block position



### • Contact arrangement and operator position: 2-position selector switch

| Contact arrangement | 1NO+1NC | 2NO+2NC                   | 3NO+3NC  |
|---------------------|---------|---------------------------|--|
| Operator position   | Left    | M<br>1 0 1 0 2<br>3 0 0 4 | U<br>1 0 1 0 2<br>3 0 0 4<br>L<br>1 0 1 0 2<br>3 0 0 4 |
|                     | Right   | M<br>1 0 1 0 2<br>3 0 0 4 | U<br>1 0 1 0 2<br>3 0 0 4<br>L<br>1 0 1 0 2<br>3 0 0 4 |

### 3-position selector switch

| Contact arrangement | 2NO+2NC | 3NO+3NC   |
|---------------------|---------|---|
| Operator position   | Left    | U L<br>1 0 1 0 2 1 0 1 0 2<br>3 0 0 4 3 0 0 4                     |
|                     | Center  | U M L<br>1 0 1 0 2 1 0 1 0 2 1 0 1 0 2<br>3 0 0 4 3 0 0 4 3 0 0 4 |
|                     | Right   | U L<br>1 0 1 0 2 1 0 1 0 2<br>3 0 0 4 3 0 0 4                     |




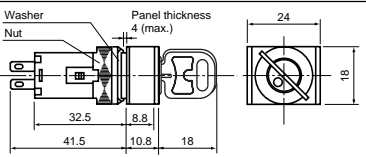



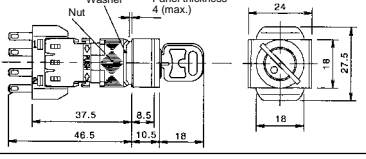





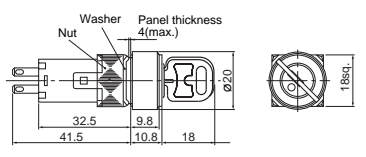



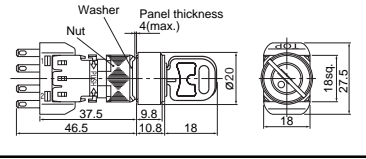


- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- With wire-wrap pin terminals have a depth of 47mm.



# Selector Switches AH165

## ■ Selector switches/2-position (90-degree)

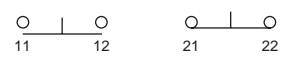
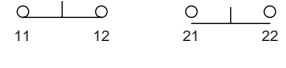
⊕ (Direct opening action)

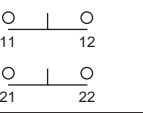
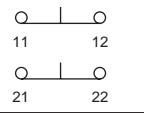
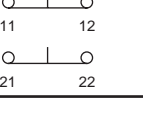
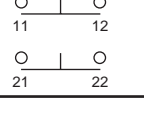
| Operator   | Operation  | Key removable position  | Contact | AH165 (oil-tight) type | Dimensions, mm  |   |
|--|------------|---|---------|------------------------|---|---|
| Key with rectangular bezel<br> KKD09-005L<br> KKD09-005R | Maintained | A    | 1NO+1NC | AH165-JM2A11A          |  |   |
|  |            | B    |         | AH165-JM2B11A          |   |   |
|  |            | D    |         | AH165-JM2D11A          |   |   |
|  |            | A    | 2NO+2NC | AH165-JM2A22A          |   |    |
|  |            | B    |         | AH165-JM2B22A          |   |   |
|  |            | D    |         | AH165-JM2D22A          |   |   |
| Key with round bezel<br> KKD09-005L<br> KKD09-007R    | Maintained | A    | 1NO+1NC | AH165-RJM2A11A         |  |   |
|  |            | B    |         | AH165-RJM2B11A         |   |   |
|  |            | D   |         | AH165-RJM2D11A         |   |   |
|  |            | A  | 2NO+2NC | AH165-RJM2A22A         |   |  |
|  |            | B  |         | AH165-RJM2B22A         |   |   |
|  |            | D  |         | AH165-RJM2D22A         |   |   |

• There are 6 available key types; A, B, C, D, E and F. Standard key code is A.

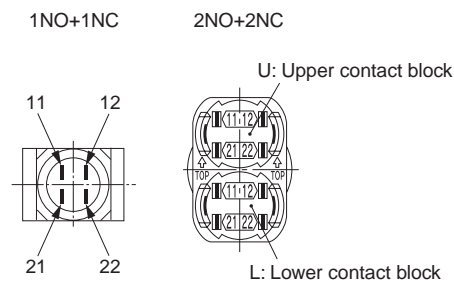
### • Contact arrangement and operator positions:

2-position selector switch


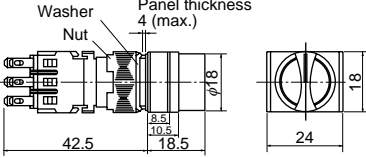

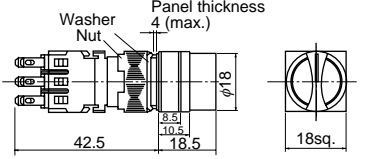

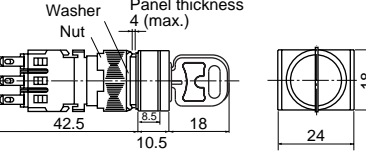

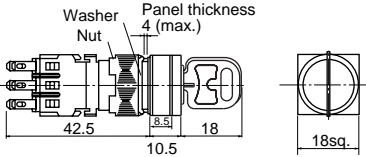
| Contact arrangement | 1NO+1NC |   |
|---------------------|---------|---|
| Operator position   | Left    |  |
|                     | Right   |  |

| Contact arrangement | 2NO+2NC |       |   |   |   |
|---------------------|---------|-------|---|---|---|
| Operator position   | Left    | U     |  | L   |  |
|                     |         | Right |  |  |   |

### • Terminal number



## ■ Selector switches/3-position (90-degree)


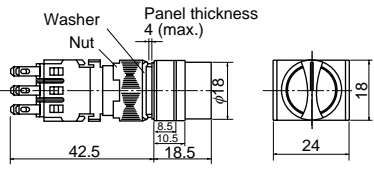

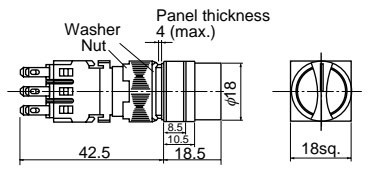

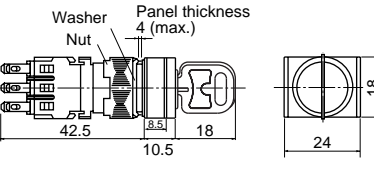

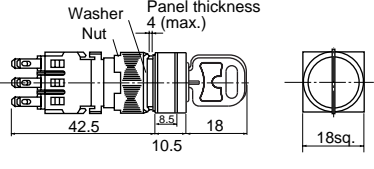
| Operator  | Operation  | Key removable position | Contact            | AH164 type                     | AH165 (oil-tight) type         | Dimensions, mm  |                                |   |
|---|--|------------------------|--------------------|--------------------------------|--------------------------------|---|--------------------------------|---|
| Knob with rectangular bezel<br><br>KKD07-214   | Maintained   | —                      | 2NO+2NC<br>3NO+3NC | AH164-P3B22<br>AH164-P3B33     | AH165-P3B22<br>AH165-P3B33     |    |                                |   |
|   | Spring/<br>manual return   | —                      | 2NO+2NC<br>3NO+3NC | AH164-P6B22<br>AH164-P6B33     | AH165-P6B22<br>AH165-P6B33     |   |                                |   |
|   | Spring/<br>manual return   | —                      | 2NO+2NC<br>3NO+3NC | AH164-P7B22<br>AH164-P7B33     | AH165-P7B22<br>AH165-P7B33     |   |                                |   |
|   | Spring return  | —                      | 2NO+2NC<br>3NO+3NC | AH164-P1B22<br>AH164-P1B33     | AH165-P1B22<br>AH165-P1B33     |   |                                |   |
| Knob with square bezel<br><br>KKD07-216        | Maintained   | —                      | 2NO+2NC<br>3NO+3NC | AH164-SP3B22<br>AH164-SP3B33   | AH165-SP3B22<br>AH165-SP3B33   |    |                                |   |
|   | Spring/<br>manual return   | —                      | 2NO+2NC<br>3NO+3NC | AH164-SP6B22<br>AH164-SP6B33   | AH165-SP6B22<br>AH165-SP6B33   |   |                                |   |
|   | Spring/<br>manual return   | —                      | 2NO+2NC<br>3NO+3NC | AH164-SP7B22<br>AH164-SP7B33   | AH165-SP7B22<br>AH165-SP7B33   |   |                                |   |
|   | Spring return  | —                      | 2NO+2NC<br>3NO+3NC | AH164-SP1B22<br>AH164-SP1B33   | AH165-SP1B22<br>AH165-SP1B33   |   |                                |   |
| Key with rectangular bezel<br><br>KKD09-002L | Maintained*  | ⊖ A                    | 2NO+2NC<br>3NO+3NC | AH164-J3A22A<br>AH164-J3A33A   | AH165-J3A22A<br>AH165-J3A33A   |  |                                |   |
|   |  | Ⓢ E                    | 2NO+2NC<br>3NO+3NC | AH164-J3E22A<br>AH164-J3E33A   | AH165-J3E22A<br>AH165-J3E33A   |   |                                |   |
|   |  | ⊖ D                    | 2NO+2NC<br>3NO+3NC | AH164-J3D22A<br>AH164-J3D33A   | AH165-J3D22A<br>AH165-J3D33A   |   |                                |   |
|   |  | ⊕ C                    | 2NO+2NC<br>3NO+3NC | AH164-J3C22A<br>AH164-J3C33A   | AH165-J3C22A<br>AH165-J3C33A   |   |                                |   |
|   | Spring/<br>manual return   | Ⓢ E                    | 2NO+2NC<br>3NO+3NC | AH164-J6E22A<br>AH164-J6E33A   | AH165-J6E22A<br>AH165-J6E33A   |   |                                |   |
|   |  | ⊖ D                    | 2NO+2NC<br>3NO+3NC | AH164-J6D22A<br>AH164-J6D33A   | AH165-J6D22A<br>AH165-J6D33A   |   |                                |   |
|   | Spring/<br>manual return   | ⊖ A                    | 2NO+2NC<br>3NO+3NC | AH164-J7A22A<br>AH164-J7A33A   | AH165-J7A22A<br>AH165-J7A33A   |   |                                |   |
|   |  | Ⓢ E                    | 2NO+2NC<br>3NO+3NC | AH164-J7E22A<br>AH164-J7E33A   | AH165-J7E22A<br>AH165-J7E33A   |   |                                |   |
|   | Spring return  | Ⓢ E                    | 2NO+2NC<br>3NO+3NC | AH164-J1E22A<br>AH164-J1E33A   | AH165-J1E22A<br>AH165-J1E33A   |   |                                |   |
|   | Key with square bezel<br><br>KKD09-002R | Maintained*            | ⊖ A                | 2NO+2NC<br>3NO+3NC             | AH164-SJ3A22A<br>AH164-SJ3A33A |   | AH165-SJ3A22A<br>AH165-SJ3A33A |  |
|   |  |                        | Ⓢ E                | 2NO+2NC<br>3NO+3NC             | AH164-SJ3E22A<br>AH164-SJ3E33A |   | AH165-SJ3E22A<br>AH165-SJ3E33A |   |
|   |  |                        | ⊖ D                | 2NO+2NC<br>3NO+3NC             | AH164-SJ3D22A<br>AH164-SJ3D33A |   | AH165-SJ3D22A<br>AH165-SJ3D33A |   |
| ⊕ C   |  |                        | 2NO+2NC<br>3NO+3NC | AH164-SJ3C22A<br>AH164-SJ3C33A | AH165-SJ3C22A<br>AH165-SJ3C33A |   |                                |   |
| Spring/<br>manual return  |  | Ⓢ E                    | 2NO+2NC<br>3NO+3NC | AH164-SJ6E22A<br>AH164-SJ6E33A | AH165-SJ6E22A<br>AH165-SJ6E33A |   |                                |   |
|   |  | ⊖ D                    | 2NO+2NC<br>3NO+3NC | AH164-SJ6D22A<br>AH164-SJ6D33A | AH165-SJ6D22A<br>AH165-SJ6D33A |   |                                |   |
| Spring/<br>manual return  |  | ⊖ A                    | 2NO+2NC<br>3NO+3NC | AH164-SJ7A22A<br>AH164-SJ7A33A | AH165-SJ7A22A<br>AH165-SJ7A33A |   |                                |   |
|   |  | Ⓢ E                    | 2NO+2NC<br>3NO+3NC | AH164-SJ7E22A<br>AH164-SJ7E33A | AH165-SJ7E22A<br>AH165-SJ7E33A |   |                                |   |
| Spring return   |  | Ⓢ E                    | 2NO+2NC<br>3NO+3NC | AH164-SJ1E22A<br>AH164-SJ1E33A | AH165-SJ1E22A<br>AH165-SJ1E33A |   |                                |   |

- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- Contact arrangement and operator position: *See page 04/201.*
- Spring return, spring/manual return (spring return):  
Operation angle 70-degree

- \* Available key removable position: Code B ⊖
- With wire-wrap pin terminals have a depth of 47mm.

# Selector Switches AH164 and AH165

## ■ Selector switches/3-position (45-degree)

| Operator  | Operation  | Key removable position | Contact            | AH164 type                       | AH165 (oil-tight) type           | Dimensions, mm  |                                  |   |
|---|--|------------------------|--------------------|----------------------------------|----------------------------------|---|----------------------------------|---|
| Knob with rectangular bezel<br><br>KKD07-214   | Maintained   | —                      | 2NO+2NC<br>3NO+3NC | AH164-PK3B22<br>AH164-PK3B33     | AH165-PK3B22<br>AH165-PK3B33     |    |                                  |   |
|   | Spring/ manual return  | ①                      | 2NO+2NC<br>3NO+3NC | AH164-PK6B22<br>AH164-PK6B33     | AH165-PK6B22<br>AH165-PK6B33     |   |                                  |   |
|   | Spring/ manual return  | ①                      | 2NO+2NC<br>3NO+3NC | AH164-PK7B22<br>AH164-PK7B33     | AH165-PK7B22<br>AH165-PK7B33     |   |                                  |   |
|   | Spring return  | ①                      | 2NO+2NC<br>3NO+3NC | AH164-PK1B22<br>AH164-PK1B33     | AH165-PK1B22<br>AH165-PK1B33     |   |                                  |   |
| Knob with square bezel<br><br>KKD07-216        | Maintained   | —                      | 2NO+2NC<br>3NO+3NC | AH164-SPK3B22<br>AH164-SPK3B33   | AH165-SPK3B22<br>AH165-SPK3B33   |    |                                  |   |
|   | Spring/ manual return  | ①                      | 2NO+2NC<br>3NO+3NC | AH164-SPK6B22<br>AH164-SPK6B33   | AH165-SPK6B22<br>AH165-SPK6B33   |   |                                  |   |
|   | Spring/ manual return  | ①                      | 2NO+2NC<br>3NO+3NC | AH164-SPK7B22<br>AH164-SPK7B33   | AH165-SPK7B22<br>AH165-SPK7B33   |   |                                  |   |
|   | Spring return  | ①                      | 2NO+2NC<br>3NO+3NC | AH164-SPK1B22<br>AH164-SPK1B33   | AH165-SPK1B22<br>AH165-SPK1B33   |   |                                  |   |
| Key with rectangular bezel<br><br>KKD09-002L | Maintained   | ⊖ A                    | 2NO+2NC<br>3NO+3NC | AH164-JK3A22A<br>AH164-JK3A33A   | AH165-JK3A22A<br>AH165-JK3A33A   |  |                                  |   |
|   |  | ⓪ E                    | 2NO+2NC<br>3NO+3NC | AH164-JK3E22A<br>AH164-JK3E33A   | AH165-JK3E22A<br>AH165-JK3E33A   |   |                                  |   |
|   |  | ⊘ D                    | 2NO+2NC<br>3NO+3NC | AH164-JK3D22A<br>AH164-JK3D33A   | AH165-JK3D22A<br>AH165-JK3D33A   |   |                                  |   |
|   |  | ⊗ C                    | 2NO+2NC<br>3NO+3NC | AH164-JK3C22A<br>AH164-JK3C33A   | AH165-JK3C22A<br>AH165-JK3C33A   |   |                                  |   |
|   | Spring/ manual return  | ① E                    | 2NO+2NC<br>3NO+3NC | AH164-JK6E22A<br>AH164-JK6E33A   | AH165-JK6E22A<br>AH165-JK6E33A   |   |                                  |   |
|   |  | ⊘ D                    | 2NO+2NC<br>3NO+3NC | AH164-JK6D22A<br>AH164-JK6D33A   | AH165-JK6D22A<br>AH165-JK6D33A   |   |                                  |   |
|   | Spring/ manual return  | ⊖ A                    | 2NO+2NC<br>3NO+3NC | AH164-JK7A22A<br>AH164-JK7A33A   | AH165-JK7A22A<br>AH165-JK7A33A   |   |                                  |   |
|   |  | ① E                    | 2NO+2NC<br>3NO+3NC | AH164-JK7E22A<br>AH164-JK7E33A   | AH165-JK7E22A<br>AH165-JK7E33A   |   |                                  |   |
|   | Spring return  | ① E                    | 2NO+2NC<br>3NO+3NC | AH164-JK1E22A<br>AH164-JK1E33A   | AH165-JK1E22A<br>AH165-JK1E33A   |   |                                  |   |
|   | Key with square bezel<br><br>KKD09-002R | Maintained             | ⊖ A                | 2NO+2NC<br>3NO+3NC               | AH164-SJK3A22A<br>AH164-SJK3A33A |   | AH165-SJK3A22A<br>AH165-SJK3A33A |  |
|   |  |                        | ⓪ E                | 2NO+2NC<br>3NO+3NC               | AH164-SJK3E22A<br>AH164-SJK3E33A |   | AH165-SJK3E22A<br>AH165-SJK3E33A |   |
|   |  |                        | ⊘ D                | 2NO+2NC<br>3NO+3NC               | AH164-SJK3D22A<br>AH164-SJK3D33A |   | AH165-SJK3D22A<br>AH165-SJK3D33A |   |
| ⊗ C   |  |                        | 2NO+2NC<br>3NO+3NC | AH164-SJK3C22A<br>AH164-SJK3C33A | AH165-SJK3C22A<br>AH165-SJK3C33A |   |                                  |   |
| Spring/ manual return   |  | ① E                    | 2NO+2NC<br>3NO+3NC | AH164-SJK6E22A<br>AH164-SJK6E33A | AH165-SJK6E22A<br>AH165-SJK6E33A |   |                                  |   |
|   |  | ⊘ D                    | 2NO+2NC<br>3NO+3NC | AH164-SJK6D22A<br>AH164-SJK6D33A | AH165-SJK6D22A<br>AH165-SJK6D33A |   |                                  |   |
| Spring/ manual return   |  | ⊖ A                    | 2NO+2NC<br>3NO+3NC | AH164-SJK7A22A<br>AH164-SJK7A33A | AH165-SJK7A22A<br>AH165-SJK7A33A |   |                                  |   |
|   |  | ① E                    | 2NO+2NC<br>3NO+3NC | AH164-SJK7E22A<br>AH164-SJK7E33A | AH165-SJK7E22A<br>AH165-SJK7E33A |   |                                  |   |
| Spring return   |  | ① E                    | 2NO+2NC<br>3NO+3NC | AH164-SJK1E22A<br>AH164-SJK1E33A | AH165-SJK1E22A<br>AH165-SJK1E33A |   |                                  |   |

- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- Contact arrangement and operator position: See page 04/205.

• Key removable positions (JK, SJK)

|                   |   |   |   |   |   |   |   |
|-------------------|---|---|---|---|---|---|---|
| Remvable position |   |   |   |   |   |   |   |
| Code              | A | B | C | D | E | F | G |

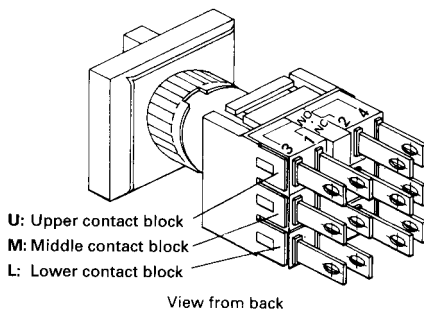
  

| Operation code | Key removable position |
|----------------|------------------------|
| 3              | A, B, C, D, E, F, G    |
| 6              | D, E, F                |
| 7              | A, E, G                |
| 1              | E                      |

• Key code No.

There are 6 available key types; A, B, C, D, E and F.  
Standard key code is A.

• Contact block position


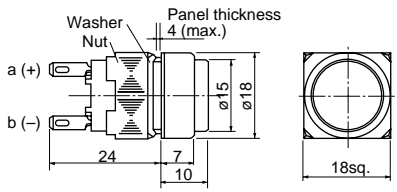

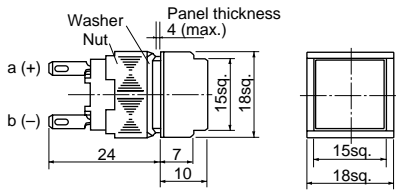

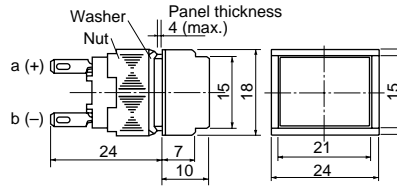

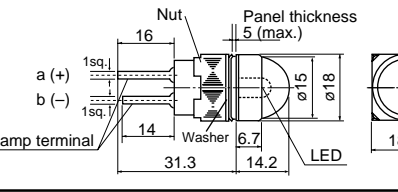


• Contact arrangement and operator position:  
3-position selector switch

| Contact arrange-ment |             | 2NO+2NC                                   | 3NO+3NC   |
|----------------------|-------------|---|---|
| Operator position    | Left<br>⊖   | U L<br>1 1 2 2 1 1 2 2<br>3 0 0 4 3 0 0 4 | U M L<br>1 1 1 2 2 1 0 1 0 2 1 0 2<br>3 0 0 4 3 0 0 4 3 0 0 4 |
|                      | Center<br>⓪ | 1 1 1 2 2 1 1 2 2<br>3 0 0 4 3 0 0 4      | 1 1 1 2 2 1 1 2 2<br>3 0 0 4 3 0 0 4 3 0 0 4                  |
|                      | Right<br>⊕  | 1 0 1 0 2 1 0 1 0 2<br>3 0 0 4 3 0 0 4    | 1 0 1 0 2 1 0 1 0 2<br>3 0 0 4 3 0 0 4 3 0 0 4                |

# Pilot Lights AH164 and AH165

## ■ Pilot lights/without transformer

| Lens   | Lamp         | Voltage            | AH164 type                 | AH165 (oil-tight) type     | Dimensions, mm  |
|--|--------------|--------------------|----------------------------|----------------------------|---|
| <br>SK-1139   | Flat LED     | 24V DC             | AH164-Z□E3                 | AH165-Z□E3                 |    |
|  | Spot LED     | 24V DC             | AH164-Z□E2                 | AH165-Z□E2                 |   |
|  | Incandescent | 24V AC/DC          | AH164-Z□E                  | AH165-Z□E                  |   |
|  | Neon         | 110V AC<br>220V AC | AH164-Z□H1<br>AH164-Z□M1   | AH165-Z□H1<br>AH165-Z□M1   |   |
| <br>SK-1138   | Flat LED     | 24V DC             | AH164-ZS□E3                | AH165-ZS□E3                |    |
|  | Spot LED     | 24V DC             | AH164-ZS□E2                | AH165-ZS□E2                |   |
|  | Incandescent | 24V AC/DC          | AH164-ZS□E                 | AH165-ZS□E                 |   |
|  | Neon         | 110V AC<br>220V AC | AH164-ZS□H1<br>AH164-ZS□M1 | AH165-ZS□H1<br>AH165-ZS□M1 |   |
| <br>SK-1137   | Flat LED     | 24V DC             | AH164-ZT□E3                | AH165-ZT□E3                |   |
|  | Spot LED     | 24V DC             | AH164-ZT□E2                | AH165-ZT□E2                |   |
|  | Incandescent | 24V AC/DC          | AH164-ZT□E                 | AH165-ZT□E                 |   |
|  | Neon         | 110V AC<br>220V AC | AH164-ZT□H1<br>AH164-ZT□M1 | AH165-ZT□H1<br>AH165-ZT□M1 |   |
| <br>AF87-45 | LED          | 12V DC<br>24V DC   | -<br>-                     | AH165-ZM□B2<br>AH165-ZM□E2 |  |

### ● Lens color

Replace the □ mark by the following lens color code

| Color | Green | Red | White | Yellow | Blue | Orange |
|-------|-------|-----|-------|--------|------|--------|
| Code  | G     | R   | W     | Y      | S    | O      |

- The color lens is made of a tinted transparent material.
- A white pilot lights is fitted with a transparent color lens. (Except the neon lamp and dome).
- With wire-wrap pin terminals have a depth of 29mm. (Except for ZM type)


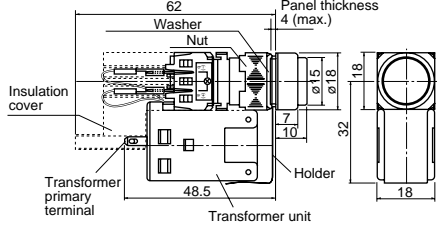

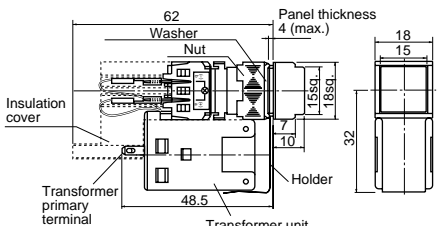

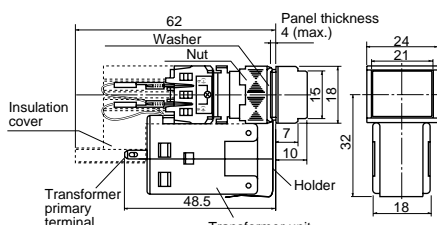
### ● Lamp voltage

Voltages other than above are available

| Code | LED    | Incandescent | Neon    |
|------|--------|--------------|---------|
| AA   | 5V DC  | -            | -       |
| A    | 6V DC  | 5V AC/DC     | -       |
| B    | 12V DC | 12V AC/DC    | -       |
| K    | -      | -            | 120V AC |
| P    | -      | -            | 240V AC |

Note: Except for ZM types and red/green LED types

## ■ Pilot lights/with transformer

| Lens   | Lamp         | Voltage   | AH164 type         | AH165 (oil-tight) type | Dimensions, mm  |
|--|--------------|---|--------------------|------------------------|---|
| Extended square<br><br>AF90-944     | Flat LED     | ■ Voltage<br>H:<br>100-110V<br>AC<br>M:<br>200-220V<br>AC | <b>AH164-Z□■3</b>  | <b>AH165-Z□■3</b>      |    |
|  | Incandescent |   | <b>AH164-Z□■</b>   | <b>AH165-Z□■</b>       |   |
| Flush square<br><br>AF90-943        | Flat LED     | ■ Voltage<br>H:<br>100-110V<br>AC<br>M:<br>200-220V<br>AC | <b>AH164-ZS□■3</b> | <b>AH165-ZS□■3</b>     |    |
|  | Incandescent |   | <b>AH164-ZS□■</b>  | <b>AH165-ZS□■</b>      |   |
| Flush rectangular<br><br>AF90-942 | Flat LED     | ■ Voltage<br>H:<br>100-110V<br>AC<br>M:<br>200-220V<br>AC | <b>AH164-ZT□■3</b> | <b>AH165-ZT□■3</b>     |  |
|  | Incandescent |   | <b>AH164-ZT□■</b>  | <b>AH165-ZT□■</b>      |   |

### ● Lens color

Replace the □ mark by the following lens color code

| Color | Green | Red | White | Yellow | Blue | Orange |
|-------|-------|-----|-------|--------|------|--------|
| Code  | G     | R   | W     | Y      | S    | O      |


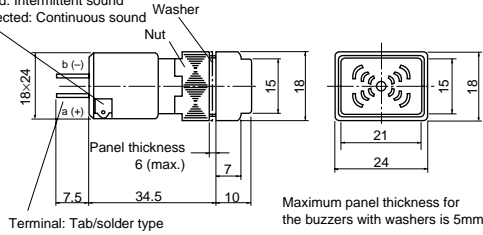

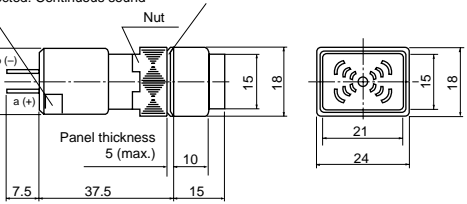

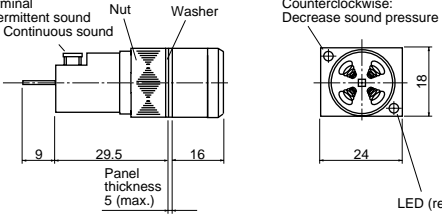

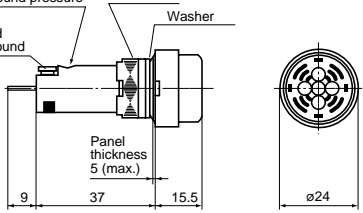
- The color lens is made of a tinted transparent material.
- A white pilot lights is fitted with a transparent color lens.

04

# Buzzers

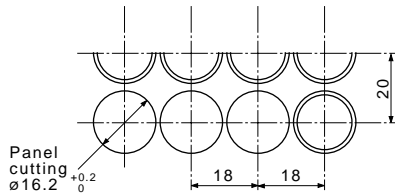
## AH164 and AH165

### ■ Buzzers

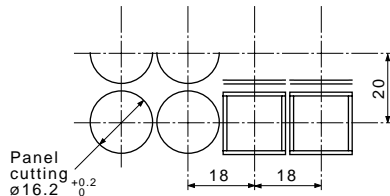
| Sound   | Operating voltage  | Type   | Dimensions, mm  |
|---|--|--|---|
| <b>Standard</b><br><br><br>AF87-317                                      | 6V AC<br><br>6V DC<br><br>12 to 24V AC/DC<br><br>35 to 48V AC/DC | <b>AH164-TXBAAC</b><br><br><b>AH164-TXBADC</b><br><br><b>AH164-TXBE</b><br><br><b>AH164-TXBF</b>     | Short-circuit terminal<br>Connected: Intermittent sound<br>Not connected: Continuous sound<br><br>Washer<br>Nut<br>Panel thickness 6 (max.)<br>Terminal: Tab/solder type<br>Maximum panel thickness for the buzzers with washers is 5mm                 |
| <b>Loud sound</b><br><br><br>AF87-44                                     | 6V AC<br><br>6V DC<br><br>12 to 24V AC/DC<br><br>35 to 48V AC/DC | <b>AH164-TX1BAAC</b><br><br><b>AH164-TX1BADC</b><br><br><b>AH164-TX1BE</b><br><br><b>AH164-TX1BF</b> | Short-circuit terminal<br>Connected: Intermittent sound<br>Not connected: Continuous sound<br><br>Washer<br>Nut<br>Panel thickness 5 (max.)   |
| <b>Loud sound with volume control</b><br><br><br>KKD07-223             | 6V AC/DC<br><br>12 to 24V AC/DC<br><br>35 to 48V AC/DC           | <b>AH164-TX2BA</b><br><br><b>AH164-TX2BE</b><br><br><b>AH164-TX2BF</b>                               | Short-circuit terminal<br>Connected: Intermittent sound<br>Not connected: Continuous sound<br><br>Washer<br>Nut<br>Panel thickness 5 (max.)<br>Volume<br>Clockwise: Increase sound pressure<br>Counterclockwise: Decrease sound pressure<br>LED (red) |
| <b>Standard sound with volume control (IP54)</b><br><br><br>KKD05-096b | 6V AC/DC<br><br>12 to 24V AC/DC<br><br>35 to 48V AC/DC           | <b>AH165-XBA</b><br><br><b>AH165-XBE</b><br><br><b>AH165-XBF</b>                                     | Volume<br>Clockwise: Increase sound pressure<br>Counterclockwise: Decrease sound pressure<br>Short-circuit terminal<br>Connected: Intermittent sound<br>Not connected: Continuous sound<br><br>Washer<br>Nut<br>Panel thickness 5 (max.)             |

■ **Mounting space, mm**  
 • **Pushbuttons and pilot lights**

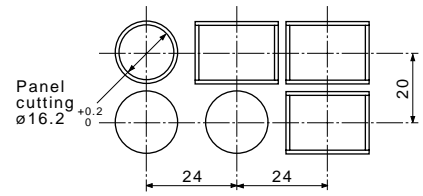
**Extended round head or lens**



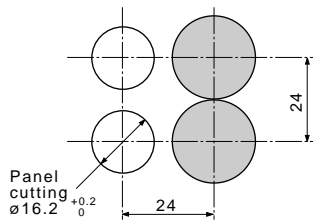
**Flush square head or lens**



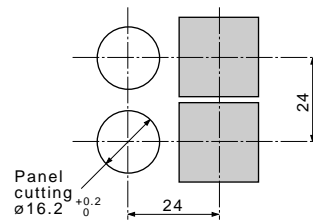
**Flush rectangular head or lens**



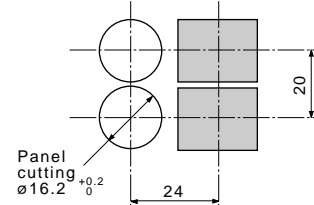
**Mushroom head**



**Convex square head**

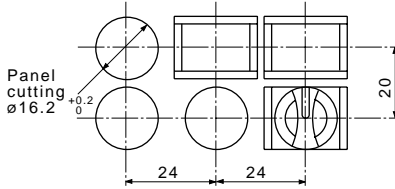


**Convex rectangular head**

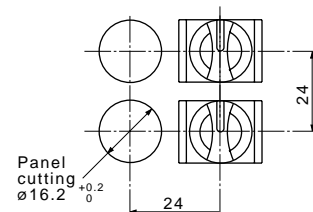


• **Selector switches**

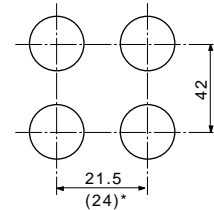
• **When mounting the selector switches near the pilot light**



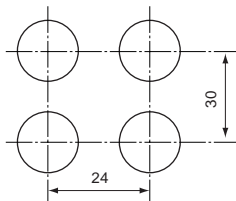
• **When mounting the selector switches near each other**



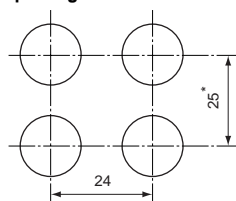
• **With transformer**



• **When mounting the JM or RJM selector switches near each other (2NO+2NC only)**

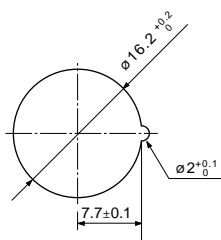


• **When mounting the JM or RJM selector switches near the other selector switch, pushbutton switch and pilot lights**

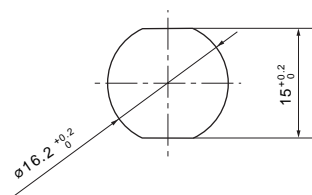


Note: \* ( ) For switch with flush rectangular head

• **AH165-V, V1, V5, V6**



• **AH165-JM, RJM**



■ **Terminal number**

• **AH164, 165**

| Type   | Wiring             | Terminal position            |
|--|--------------------|------------------------------|
| Illuminated pushbuttons  | a (+)<br>b (-)<br> | Type number display side<br> |
| Pushbuttons<br>Selector switches<br>(except for JM, RJM types) |                    |                              |
| Pilot lights<br>(without transformer)                          | a (+)<br>b (-)<br> | Type number display side<br> |



# Pushbuttons/Selectors/Pilot Lights

## AH165-2

### Type number nomenclature

#### ■ Type number nomenclature

#### Pushbuttons, illuminated pushbuttons and pilot lights

AH165-2 FL R 11 E 3 - W  
 ① ② ③ ④ ⑤ ⑥ ⑦

##### ① Product category

AH165-2: Oil-tight (Large operator)

##### ② Operator or lens

• Operator for illuminated pushbutton

FL: Flush round head  
 FL5: Flush round head (Alternate)  
 SFL: Flush square head  
 SFL5: Flush square head (Alternate)  
 EL: Extended round head  
 EL5: Extended round head (Alternate)  
 SEL: Extended square head  
 SEL5: Extended square head (Alternate)  
 SCL: Concave square head  
 SCL5: Concave square head (Alternate)  
 ML: Mushroom head  
 YML: Mushroom head with square bezel  
 VL: Push-lock, turn-reset  
 YVL: Push-lock, turn-reset with square bezel

• Operator for pushbuttons

F: Flush round head  
 F5: Flush round head (Alternate)  
 SF: Flush square head  
 SF5: Flush square head (Alternate)  
 E: Extended round head  
 E5: Extended round head (Alternate)  
 SE: Extended square head  
 SE5: Extended square head (Alternate)  
 SCE: Concave square head  
 SCE5: Concave square head (Alternate)  
 M: Mushroom head  
 YM: Mushroom head with square bezel  
 V: Push-lock, turn-reset  
 YV: Push-lock, turn-reset with square bezel  
 S2: With selector ring  
 YS2: With selector ring with square bezel

• Lens for pilot lights

Z: Flush round  
 SZ: Flush square  
 ZE: Extended round  
 SEZ: Extended square

##### ③ Color of button or lens

| Code | Color  | Button | LED        | Incandescent | Neon       |
|------|--------|--------|------------|--------------|------------|
| G    | Green  | ○      | ○          | ○            | ○          |
| R    | Red    | ○      | ○          | ○            | ○ (Orange) |
| B    | Black* | ○      | —          | —            | —          |
| Y    | Yellow | ○      | ○          | ○            | ○ (Orange) |
| W    | White  | ○      | ○ (Orange) | ○            | ○ (Orange) |
| S    | Blue   | ○      | ○          | ○            | ○ (Green)  |
| O    | Orange | ○      | ○ (Amber)  | ○            | ○          |

Notes: • ( ): indicates luminous color

\* Not available for illuminated types

##### ④ Contact arrangement (except pilot lights)

11: 1NO+1NC  
 22: 2NO+2NC  
 33: 3NO+3NC

##### ⑤ Lamp voltage

| Code | LED    | Incandescent | Neon    |
|------|--------|--------------|---------|
| AA   | 5V DC  | —            | —       |
| A    | 6V DC  | 5V AC/DC     | —       |
| B    | 12V DC | 12V AC/DC    | —       |
| E    | 24V DC | 24V AC/DC    | —       |
| H    | —      | —            | 110V AC |
| K    | —      | —            | 120V AC |
| M    | —      | —            | 220V AC |
| P    | —      | —            | 240V AC |

##### ⑥ Type of lamp

Blank: Incandescent

1: Neon

3: Flat LED

##### ⑦ Terminal

Blank: Solder/tab

W: Wire-wrap

■ **Type number nomenclature**

**Selector switches**

**AH165-2** J 2 B 11 A - W  
 ① ② ③ ④ ⑤ ⑥ ⑦

① **Product category**  
 AH165-2: Oil-tight (Large operator)

② **Operator**  
 • Knob and key type  
 2-position (operating angle 90°)  
 P: Knob  
 YP: Knob with square bezel  
 J: Key  
 YJ: Key with square bezel

3-position (operating angle 45°)  
 P: Knob  
 YP: Knob with square bezel  
 J: Key  
 YJ: Key with square bezel

• Lever type  
 2-position (operating angle 45°)  
 H: Lever  
 SH: Lever with square bezel  
 Note: The operation angle is 45° on the upper and lower side.

③ **Operation**  
 2: 2-position, maintained  
 0: 2-position, spring return\*  
 3: 3-position, maintained  
 6: 3-position, spring/manual return (Left to center)  
 7: 3-position, spring/manual return (Right to center)  
 1: 3-position, spring return  
 Note: \* Except for H and SH types

④ **Color of knob, lever or key removable position**

• Color of knob or lever  
 B: Black

• Key removable position

| Code | 2-position |   | 3-position |   |   |   |
|------|------------|---|------------|---|---|---|
|      | 2          | 0 | 1          | 3 | 6 | 7 |
| A    | ⊙          | ⊙ | —          | ⊙ | — | ⊙ |
| B    | ⊗          | — | —          | ⊗ | — | — |
| C    | —          | — | —          | ⊗ | — | — |
| D    | ⊙          | — | —          | ⊙ | — | — |
| E    | —          | — | ①          |   |   |   |
| F    | —          | — | —          | ⊙ | — | — |
| G    | —          | — | —          | ⊙ | — | ⊙ |

⑤ **Contact arrangement**

11: 1NO+1NC\*  
 22: 2NO+2NC  
 33: 3NO+3NC  
 Note: \* Except for 3-position

⑥ **Key type No.**

A (standard), B, C, D, E, F

⑦ **Terminal**

Blank: Solder/tab  
 W: Wire-wrap

**Illuminated selector switches**

**AH165-2** PL 2 G 11 E 3  
 ① ② ③ ④ ⑤ ⑥ ⑦

① **Product category**  
 AH165-2: Oil-tight (Large operator)

② **Operator**  
 • 2-position (operating angle 90°)  
 PL: Knob

• 3-position (operating angle 45°)  
 PL: Knob

③ **Operation**

2: 2-position, maintained  
 3: 3-position, maintained

④ **Color of knob**

| Code | Color  | LED        | Incandescent | Neon       |
|------|--------|------------|--------------|------------|
| G    | Green  | ○          | ○            | ○          |
| R    | Red    | ○          | ○            | ○ (Orange) |
| Y    | Yellow | ○          | ○            | ○ (Orange) |
| W    | White  | ○ (Orange) | ○            | ○ (Orange) |
| S    | Blue   | ○          | ○            | ○ (Green)  |
| O    | Orange | ○ (Amber)  | ○            | ○          |

Notes: • ( ) : indicates luminous color  
 • The part other than the arrow of the knob is black.

⑤ **Contact arrangement**

11: 1NO+1NC\*  
 22: 2NO+2NC  
 Note: \* Except for 3-position

⑥ **Lamp voltage**

| Code | LED    | Incandescent | Neon    |
|------|--------|--------------|---------|
| AA   | 5V DC  | —            | —       |
| A    | 6V DC  | 5V AC/DC     | —       |
| B    | 12V DC | 12V AC/DC    | —       |
| E    | 24V DC | 24V AC/DC    | —       |
| H    | —      | —            | 110V AC |
| K    | —      | —            | 120V AC |
| M    | —      | —            | 220V AC |
| P    | —      | —            | 240V AC |

⑦ **Type of lamp**

Blank: Incandescent  
 1: Neon  
 3: Flat LED  
 Note: Terminal with solder/tab only

# Pushbuttons/Selectors/Pilot Lights

## AH165-2

### Ratings and specifications

#### ■ Standards approved

|                  |   |
|------------------|---|
| UL508            | File No. E44592   |
| CSA C22.2 No.14  | File No. LR20479 (except for AH165-2Z, 2ZE, 2SZ, 2SZE)<br>File No. LR84365 (for AH165-2Z, 2ZE, 2SZ, 2SZE)   |
| TÜV: EN60947-5-1 | Pushbutton, illuminated pushbutton: R9250087<br>Selector (except for AH165-2H, SH), illuminated selector: R9250088<br>Selector (for AH165-2H, SH): R9250087<br>Pilot lights: R9250089 |

#### ■ Specifications (Indoor use)

|  |   |   |
|--|---|---|
| Item   | AH165-2   |   |
| Rated insulation voltage                             | 250V AC/DC  |   |
| Ambient temperature<br>(no condensation or no icing) | -10 to +70°C *1   |   |
| Humidity   | 45 to 85%RH (at -5 to +40°C), no condensation or no icing                                 |   |
| Durability<br>(operations)                           | Mechanical  | Pushbutton and illuminated pushbutton switch<br>Momentary action: 1 million<br>Alternate action: 250,000<br>Push-lock, turn-reset: 100,000<br>With selector ring: 250,000 |
|  | Electrical  | Selector and illuminated selector switch: 250,000*2<br>100,000 (220V AC 0.7A)   |
| Dielectric strength                                  | 2000V AC, 1 minute<br>(Between lamp and contact terminals: 1500V AC, 1 minute)            |   |
| Conditional short-circuit current                    | 1000A   |   |
| Short-circuit protective device                      | Fuse 1A   |   |
| Pollution degree                                     | 3   |   |
| Vibration  | Resonance: 10 to 55Hz, double amplitude 0.1mm<br>Constant: 16.7Hz, double amplitude 3mm   |   |
| Shock  | Malfunction durability: 100m/s <sup>2</sup><br>Mechanical durability: 500m/s <sup>2</sup> |   |
| Operating frequency                                  | 1200 operation/hour (on-load factor: 40%)   |   |
| Insulation resistance                                | 100MΩ or more (500V DC megger)  |   |
| Operator protection                                  | IP65  |   |

Notes: \*1 For illuminated pushbutton, illuminated selector switch and pilot light: -10 to +55°C

\*2 Key insertion/removal durability for selector switch key types: 10,000

#### ■ Contact ratings

See page 04/194

#### ■ Lamp ratings


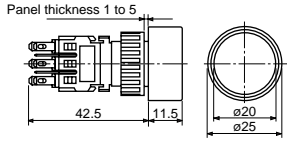

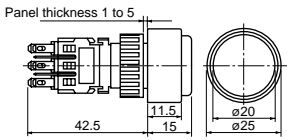

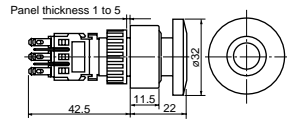

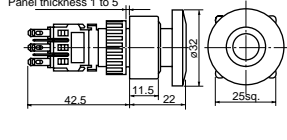
| Rated operational voltage | Consumption        |                    |         |
|---------------------------|--------------------|--------------------|---------|
|                           | LED DC             | Incandescent AC/DC | Neon AC |
| 5V                        | 7mA (Yellow: 28mA) | 0.45W (6V)         | —       |
| 6V                        | 7mA (Yellow: 28mA) | —                  | —       |
| 12V                       | 7mA                | 0.55W (14V)        | —       |
| 24V                       | 7mA                | 0.55W (28V)        | —       |
| 110V                      | —                  | —                  | 0.19VA  |
| 120V                      | —                  | —                  | 0.21VA  |
| 220V                      | —                  | —                  | 0.38VA  |
| 240V                      | —                  | —                  | 0.42VA  |

Notes: For the incandescent lamps, the values in parentheses indicate the rated voltage of the lamps.

#### ■ Contact reliability

FUJI has confirmed that the unit can be used in 1mA circuit conditions at 5V AC or DC. The operable range may vary depending on the ambient conditions and type of load.

■ Illuminated pushbutton switches


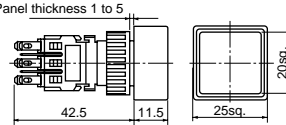

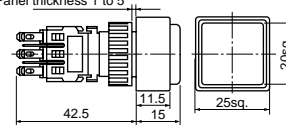

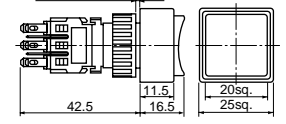
| Operator  | Lamp  | Voltage      | Contact                       | Momentary action                                      | Alternate action                                      | Dimensions, mm  |   |   |
|---|---|--------------|-------------------------------|---|---|---|---|---|
|   |   |              |                               | Type  | Type  |   |   |   |
| <br>AF87-211   | Flat LED  | 24V DC       | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2FL□11E3<br>AH165-2FL□22E3<br>AH165-2FL□33E3    | AH165-2FL5□11E3<br>AH165-2FL5□22E3<br>AH165-2FL5□33E3 |  |   |   |
|   | Incandescent  | 24V AC/DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2FL□11E<br>AH165-2FL□22E<br>AH165-2FL□33E       | AH165-2FL5□11E<br>AH165-2FL5□22E<br>AH165-2FL5□33E    |   |   |   |
|   | Neon  | 110V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2FL□11H1<br>AH165-2FL□22H1<br>AH165-2FL□33H1    | AH165-2FL5□11H1<br>AH165-2FL5□22H1<br>AH165-2FL5□33H1 |   |   |   |
|   |   | 220V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2FL□11M1<br>AH165-2FL□22M1<br>AH165-2FL□33M1    | AH165-2FL5□11M1<br>AH165-2FL5□22M1<br>AH165-2FL5□33M1 |   |   |   |
|   | <br>AF87-210  | Flat LED     | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2EL□11E3<br>AH165-2EL□22E3<br>AH165-2EL□33E3    |   | AH165-2EL5□11E3<br>AH165-2EL5□22E3<br>AH165-2EL5□33E3                                 |    |
|   |   | Incandescent | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2EL□11E<br>AH165-2EL□22E<br>AH165-2EL□33E       |   | AH165-2EL5□11E<br>AH165-2EL5□22E<br>AH165-2EL5□33E                                    |   |
| Neon  |   | 110V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2EL□11H1<br>AH165-2EL□22H1<br>AH165-2EL□33H1    | AH165-2EL5□11H1<br>AH165-2EL5□22H1<br>AH165-2EL5□33H1 |   |   |   |
|   |   | 220V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2EL□11M1<br>AH165-2EL□22M1<br>AH165-2EL□33M1    | AH165-2EL5□11M1<br>AH165-2EL5□22M1<br>AH165-2EL5□33M1 |   |   |   |
| <br>AF87-221 |   | Flat LED     | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2ML□11E3<br>AH165-2ML□22E3<br>AH165-2ML□33E3    | —<br>—<br>—   |  |   |
|   |   | Incandescent | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2ML□11E<br>AH165-2ML□22E<br>AH165-2ML□33E       | —<br>—<br>—   |   |   |
|   | Neon  | 110V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2ML□11H1<br>AH165-2ML□22H1<br>AH165-2ML□33H1    | —<br>—<br>—   |   |   |   |
|   |   | 220V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2ML□11M1<br>AH165-2ML□22M1<br>AH165-2ML□33M1    | —<br>—<br>—   |   |   |   |
|   | <br>AF87-220 | Flat LED     | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2YML□11E3<br>AH165-2YML□22E3<br>AH165-2YML□33E3 | —<br>—<br>—   |   |  |
|   |   | Incandescent | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2YML□11E<br>AH165-2YML□22E<br>AH165-2YML□33E    | —<br>—<br>—   |   |   |
| Neon  |   | 110V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2YML□11H1<br>AH165-2YML□22H1<br>AH165-2YML□33H1 | —<br>—<br>—   |   |   |   |
|   |   | 220V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2YML□11M1<br>AH165-2YML□22M1<br>AH165-2YML□33M1 | —<br>—<br>—   |   |   |   |

Note: Replace the □ mark by the following color code, see page 04/215.

# Illuminated Pushbutton Switches


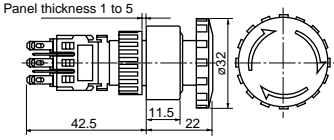

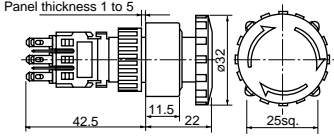
## AH165-2

### ■ Illuminated pushbutton switches

| Operator  | Lamp   | Voltage      | Contact                       | Momentary action                                      | Alternate action   | Dimensions, mm  |   |   |
|---|--|--------------|-------------------------------|---|--|---|---|---|
|   |  |              |                               | Type  | Type   |   |   |   |
|  <p>AF87-201</p>   | Flat LED   | 24V DC       | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SFL□11E3<br>AH165-2SFL□22E3<br>AH165-2SFL□33E3 | AH165-2SFL5□11E3<br>AH165-2SFL5□22E3<br>AH165-2SFL5□33E3 |  |   |   |
|   | Incandescent   | 24V AC/DC    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SFL□11E<br>AH165-2SFL□22E<br>AH165-2SFL□33E    | AH165-2SFL5□11E<br>AH165-2SFL5□22E<br>AH165-2SFL5□33E    |   |   |   |
|   | Neon   | 110V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SFL□11H1<br>AH165-2SFL□22H1<br>AH165-2SFL□33H1 | AH165-2SFL5□11H1<br>AH165-2SFL5□22H1<br>AH165-2SFL5□33H1 |   |   |   |
|   |  | 220V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SFL□11M1<br>AH165-2SFL□22M1<br>AH165-2SFL□33M1 | AH165-2SFL5□11M1<br>AH165-2SFL5□22M1<br>AH165-2SFL5□33M1 |   |   |   |
|   |  <p>AF87-200</p> | Flat LED     | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2SEL□11E3<br>AH165-2SEL□22E3<br>AH165-2SEL□33E3    |   | AH165-2SEL5□11E3<br>AH165-2SEL5□22E3<br>AH165-2SEL5□33E3                              |  |
|   |  | Incandescent | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2SEL□11E<br>AH165-2SEL□22E<br>AH165-2SEL□33E       |   | AH165-2SEL5□11E<br>AH165-2SEL5□22E<br>AH165-2SEL5□33E                                 |   |
| Neon  |  | 110V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SEL□11H1<br>AH165-2SEL□22H1<br>AH165-2SEL□33H1 | AH165-2SEL5□11H1<br>AH165-2SEL5□22H1<br>AH165-2SEL5□33H1 |   |   |   |
|   |  | 220V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SEL□11M1<br>AH165-2SEL□22M1<br>AH165-2SEL□33M1 | AH165-2SEL5□11M1<br>AH165-2SEL5□22M1<br>AH165-2SEL5□33M1 |   |   |   |
|  <p>AF87-199</p> |  | Flat LED     | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2SCL□11E3<br>AH165-2SCL□22E3<br>AH165-2SCL□33E3    | AH165-2SCL5□11E3<br>AH165-2SCL5□22E3<br>AH165-2SCL5□33E3                            |  |   |
|   |  | Incandescent | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC                         | AH165-2SCL□11E<br>AH165-2SCL□22E<br>AH165-2SCL□33E       | AH165-2SCL5□11E<br>AH165-2SCL5□22E<br>AH165-2SCL5□33E                               |   |   |
|   | Neon   | 110V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SCL□11H1<br>AH165-2SCL□22H1<br>AH165-2SCL□33H1 | AH165-2SCL5□11H1<br>AH165-2SCL5□22H1<br>AH165-2SCL5□33H1 |   |   |   |
|   |  | 220V AC      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SCL□11M1<br>AH165-2SCL□22M1<br>AH165-2SCL□33M1 | AH165-2SCL5□11M1<br>AH165-2SCL5□22M1<br>AH165-2SCL5□33M1 |   |   |   |

Note: Replace the □ mark by the following color code, see page 04/215.

■ **Illuminated pushbutton switches**

| Operator  | Lamp   | Voltage  | Contact                       | Type   | Dimensions, mm  |  |   |
|---|--|--|-------------------------------|--|---|--|---|
| <br>AF87-219 | Push-lock, turn-reset<br>Flat LED  | 24V DC   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2VL□11E3</b><br><b>AH165-2VL□22E3</b><br><b>AH165-2VL□33E3</b>    |  |  |   |
|   | Incandescent   | 24V AC/DC  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2VL□11E</b><br><b>AH165-2VL□22E</b><br><b>AH165-2VL□33E</b>       |   |  |   |
|   | Neon   | 110V AC  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2VL□11H1</b><br><b>AH165-2VL□22H1</b><br><b>AH165-2VL□33H1</b>    |   |  |   |
|   |  | 220V AC  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2VL□11M1</b><br><b>AH165-2VL□22M1</b><br><b>AH165-2VL□33M1</b>    |   |  |   |
|   | <br>AF87-218 | Push-lock, turn-reset<br>with square bezel<br>Flat LED | 24V DC                        | 1NO+1NC<br>2NO+2NC<br>3NO+3NC  |   | <b>AH165-2YVL□11E3</b><br><b>AH165-2YVL□22E3</b><br><b>AH165-2YVL□33E3</b> |  |
|   |  | Incandescent   | 24V AC/DC                     | 1NO+1NC<br>2NO+2NC<br>3NO+3NC  |   | <b>AH165-2YVL□11E</b><br><b>AH165-2YVL□22E</b><br><b>AH165-2YVL□33E</b>    |   |
| Neon  |  | 110V AC  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YVL□11H1</b><br><b>AH165-2YVL□22H1</b><br><b>AH165-2YVL□33H1</b> |   |  |   |
|   |  | 220V AC  | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YVL□11M1</b><br><b>AH165-2YVL□22M1</b><br><b>AH165-2YVL□33M1</b> |   |  |   |

04

• **Button color**

Replace the □ mark by the following button color code

| Color | Green | Red | White | Yellow | Blue | Orange |
|-------|-------|-----|-------|--------|------|--------|
| Code  | G     | R   | W     | Y      | S    | O      |

• With wire-wrap pin terminals have a depth of 47mm.

- A white illuminated pushbutton is fitted with a transparent color lens.
- The color lens is made of a tinted transparent material.

• **Lamp voltage**


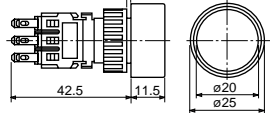

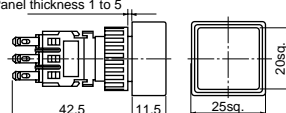

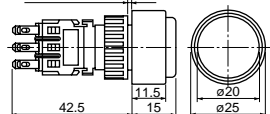

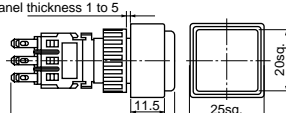

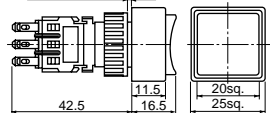

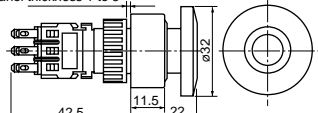

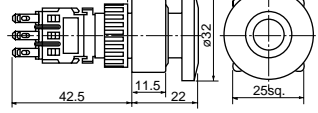
Voltages other than above are available

| Code | LED    | Incandescent | Neon    |
|------|--------|--------------|---------|
| AA   | 5V DC  | —            | —       |
| A    | 6V DC  | 5V AC/DC     | —       |
| B    | 12V DC | 12V AC/DC    | —       |
| K    | —      | —            | 120V AC |
| P    | —      | —            | 240V AC |

# Pushbutton Switches

## AH165-2


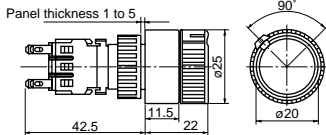

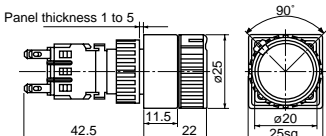

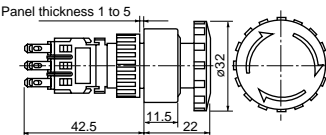

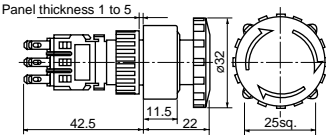
### ■ Pushbutton switches

| Operator  | Contact | Momentary action | Alternate action | Dimensions, mm  |
|---|---------|------------------|------------------|---|
|   |         | Type             | Type             |   |
|  <p>AF87-211</p>   | 1NO+1NC | AH165-2F□11      | AH165-2F5□11     | Panel thickness 1 to 5<br>   |
|   | 2NO+2NC | AH165-2F□22      | AH165-2F5□22     |   |
|   | 3NO+3NC | AH165-2F□33      | AH165-2F5□33     |   |
|  <p>AF87-201</p>   | 1NO+1NC | AH165-2SF□11     | AH165-2SF5□11    | Panel thickness 1 to 5<br>   |
|   | 2NO+2NC | AH165-2SF□22     | AH165-2SF5□22    |   |
|   | 3NO+3NC | AH165-2SF□33     | AH165-2SF5□33    |   |
|  <p>AF87-210</p>   | 1NO+1NC | AH165-2E□11      | AH165-2E5□11     | Panel thickness 1 to 5<br>   |
|   | 2NO+2NC | AH165-2E□22      | AH165-2E5□22     |   |
|   | 3NO+3NC | AH165-2E□33      | AH165-2E5□33     |   |
|  <p>AF87-200</p> | 1NO+1NC | AH165-2SE□11     | AH165-2SE5□11    | Panel thickness 1 to 5<br> |
|   | 2NO+2NC | AH165-2SE□22     | AH165-2SE5□22    |   |
|   | 3NO+3NC | AH165-2SE□33     | AH165-2SE5□33    |   |
|  <p>AF87-199</p> | 1NO+1NC | AH165-2SCE□11    | AH165-2SCE5□11   | Panel thickness 1 to 5<br> |
|   | 2NO+2NC | AH165-2SCE□22    | AH165-2SCE5□22   |   |
|   | 3NO+3NC | AH165-2SCE□33    | AH165-2SCE5□33   |   |
|  <p>AF87-215</p> | 1NO+1NC | AH165-2M□11      | —                | Panel thickness 1 to 5<br> |
|   | 2NO+2NC | AH165-2M□22      | —                |   |
|   | 3NO+3NC | AH165-2M□33      | —                |   |
|  <p>AF87-214</p> | 1NO+1NC | AH165-2YM□11     | —                | Panel thickness 1 to 5<br> |
|   | 2NO+2NC | AH165-2YM□22     | —                |   |
|   | 3NO+3NC | AH165-2YM□33     | —                |   |

Note: Replace the □ mark by the following color code, see page 04/217.



■ Pushbutton switches

| Operator  | Contact                       | Type  | Dimensions, mm  |
|---|-------------------------------|---|---|
|  <p>AF87-207</p>   | 2NO+2NC                       | <b>AH165-2S2□22</b>   |    |
|  <p>AF87-206</p>   | 2NO+2NC                       | <b>AH165-2YS2□22</b>  |    |
|  <p>AF87-210</p>   | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2V□11</b><br><b>AH165-2V□22</b><br><b>AH165-2V□33</b>    |    |
|  <p>AF87-200</p> | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YV□11</b><br><b>AH165-2YV□22</b><br><b>AH165-2YV□33</b> |  |



• Button color

Replace the □ mark by the following button color code

| Color | Green | Red | Black | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|-------|------|--------|--------|
| Code  | G     | R   | B     | W     | S    | Y      | O      |

• Contact arrangement and operator position

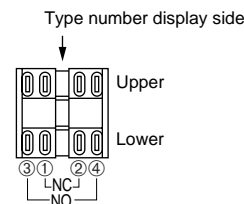
AH165-2S, 2YS

| Button    | Ring | Left  | Right   |
|-----------|------|---|---|
|           |      |  |  |
| Free      |      | <p>U L</p> <p>1O — 02 1O — 02</p> <p>3O — 04 3O — 04</p>                            | <p>U L</p> <p>1O — 02 1O — 02</p> <p>3O — 04 3O — 04</p>                            |
| Depressed |      | <p>1O — 02 1O — 02</p> <p>3O — 04 3O — 04</p>                                       | <p>1O — 02 1O — 02</p> <p>3O — 04 3O — 04</p>                                       |

U: Upper contact block  
L: Lower contact block

- The color lens is made of a tinted transparent material. (Except for M, YM, V, YV, types)
- A white pushbutton is fitted with a transparent color lens. A black pushbutton consists of a transparent color lens and an attached black legend plate. (Except for M, YM, V, YV, types)
- With wire-wrap pin terminals have a depth of 47mm.


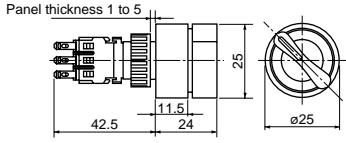

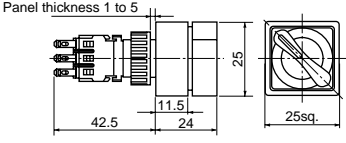

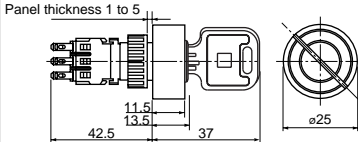

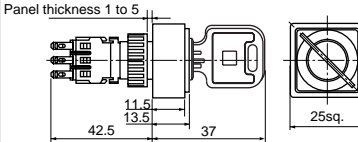
• Terminal number and contact block position





# Selector Switches AH165-2

## ■ Selector switches/2-position (90-degree)

| Operator  | Operation     | Key removable position | Contact                       | Type  | Dimensions, mm  |
|---|---------------|------------------------|-------------------------------|---|---|
| <br>KKD07-232    | Maintained    | —                      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2P2B11</b><br><b>AH165-2P2B22</b><br><b>AH165-2P2B33</b>       |    |
|   | Spring return | —                      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2P0B11</b><br><b>AH165-2P0B22</b><br><b>AH165-2P0B33</b>       |   |
| <br>KKD07-234    | Maintained    | —                      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YP2B11</b><br><b>AH165-2YP2B22</b><br><b>AH165-2YP2B33</b>    |    |
|   | Spring return | —                      | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YP0B11</b><br><b>AH165-2YP0B22</b><br><b>AH165-2YP0B33</b>    |   |
| <br>KKD09-003L  | Maintained    | ⊖ A                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2J2A11A</b><br><b>AH165-2J2A22A</b><br><b>AH165-2J2A33A</b>    |   |
|   |               | ⊗ B                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2J2B11A</b><br><b>AH165-2J2B22A</b><br><b>AH165-2J2B33A</b>    |   |
|   |               | ⊘ D                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2J2D11A</b><br><b>AH165-2J2D22A</b><br><b>AH165-2J2D33A</b>    |   |
|   | Spring return | ⊖ A                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2J0A11A</b><br><b>AH165-2J0A22A</b><br><b>AH165-2J0A33A</b>    |   |
|   |               | ⊗ B                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ2B11A</b><br><b>AH165-2YJ2B22A</b><br><b>AH165-2YJ2B33A</b> |   |
|   |               | ⊘ D                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ2D11A</b><br><b>AH165-2YJ2D22A</b><br><b>AH165-2YJ2D33A</b> |   |
| <br>KKD09-003R | Maintained    | ⊖ A                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ2A11A</b><br><b>AH165-2YJ2A22A</b><br><b>AH165-2YJ2A33A</b> |  |
|   |               | ⊗ B                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ2B11A</b><br><b>AH165-2YJ2B22A</b><br><b>AH165-2YJ2B33A</b> |   |
|   |               | ⊘ D                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ2D11A</b><br><b>AH165-2YJ2D22A</b><br><b>AH165-2YJ2D33A</b> |   |
|   | Spring return | ⊖ A                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ0A11A</b><br><b>AH165-2YJ0A22A</b><br><b>AH165-2YJ0A33A</b> |   |
|   |               | ⊗ B                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ0B11A</b><br><b>AH165-2YJ0B22A</b><br><b>AH165-2YJ0B33A</b> |   |
|   |               | ⊘ D                    | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | <b>AH165-2YJ0D11A</b><br><b>AH165-2YJ0D22A</b><br><b>AH165-2YJ0D33A</b> |   |

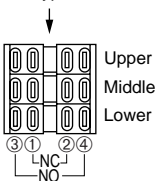
• The key can be removed only at the following positions:

A: ⊖      B: ⊗      D: ⊘

- For spring-return selector switches, the key can be removed at position A.
- There are 6 available key types; A, B, C, D, E and F. Standard key code is A.
- With wire-wrap pin terminals have a depth of 47mm.

### • Terminal number and contact block position

Type number display side



Contact arrangement (terminal No.: common)

- 1NO+1NC: Middle
- 2NO+2NC: Upper, lower
- 3NO+3NC: Upper, middle, lower


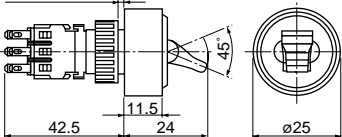

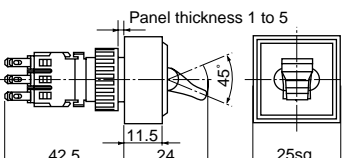
### • Contact arrangement and operator positions:

2-position

| Contact arrangement | 1NO+1NC | 2NO+2NC                     | 3NO+3NC  |   |
|---------------------|---------|-----------------------------|--|---|
| Operator position   | Left    | M<br>1O ——— 02<br>3O ——— 04 | U<br>1O ——— 02<br>3O ——— 04<br>L<br>1O ——— 02<br>3O ——— 04 | U<br>1O ——— 02<br>3O ——— 04<br>M<br>1O ——— 02<br>3O ——— 04<br>L<br>1O ——— 02<br>3O ——— 04 |
|                     | Right   | M<br>1O ——— 02<br>3O ——— 04 | U<br>1O ——— 02<br>3O ——— 04<br>L<br>1O ——— 02<br>3O ——— 04 | U<br>1O ——— 02<br>3O ——— 04<br>M<br>1O ——— 02<br>3O ——— 04<br>L<br>1O ——— 02<br>3O ——— 04 |

U: Upper contact block  
M: Middle contact block  
L: Lower contact block

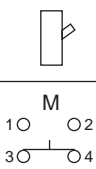
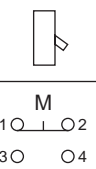
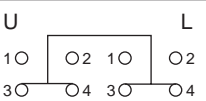
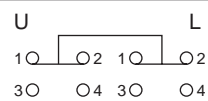
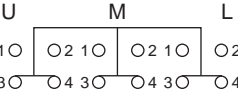
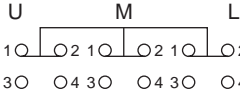
## ■ Selector switches/2-position

| Operator  | Lever color | Operation  | Contact                       | Type  | Dimensions, mm  |
|---|-------------|------------|-------------------------------|---|---|
| <br>AF87-209 | Black       | Maintained | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2H2B11<br>AH165-2H2B22<br>AH165-2H2B33    | Panel thickness 1 to 5<br> |
| <br>AF87-203 | Black       | Maintained | 1NO+1NC<br>2NO+2NC<br>3NO+3NC | AH165-2SH2B11<br>AH165-2SH2B22<br>AH165-2SH2B33 | Panel thickness 1 to 5<br> |

04

### • Contact arrangement and operator position

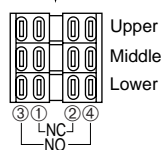
AH165-2H, 2SH

| Contact block | Lever   |   |
|---------------|---|---|
|               | Up  | Down  |
| 1NO+1NC       |   |   |
| 2NO+2NC       |  |  |
| 3NO+3NC       |  |  |

U: Upper contact block  
M: Middle contact block  
L: Lower contact block

### • Terminal number and contact block position

Type number display side


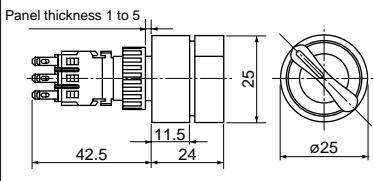

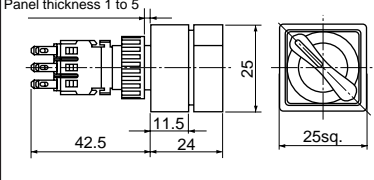

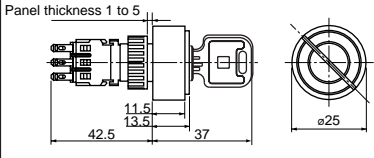

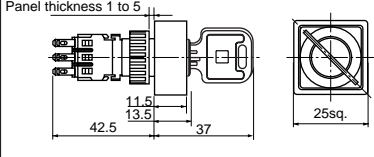


Contact arrangement (terminal No.: common)  
 1NO+1NC: Middle  
 2NO+2NC: Upper, lower  
 3NO+3NC: Upper, middle, lower

- With wire-wrap pin terminals have a depth of 47mm.

# Selector Switches AH165-2

## ■ Selector switches/3-position (45-degree)

| Operator   | Operation   | Key removable position | Contact            | Type                             | Dimensions, mm  |                                  |   |
|--|---|------------------------|--------------------|----------------------------------|---|----------------------------------|---|
| <br>KKD07-233   | Maintained  | —                      | 2NO+2NC<br>3NO+3NC | AH165-2P3B22<br>AH165-2P3B33     |    |                                  |   |
|  | Spring/<br>manual return  | ⌚                      | 2NO+2NC<br>3NO+3NC | AH165-2P6B22<br>AH165-2P6B33     |   |                                  |   |
|  | Spring/<br>manual return  | ⌚                      | 2NO+2NC<br>3NO+3NC | AH165-2P7B22<br>AH165-2P7B33     |   |                                  |   |
|  | Spring return   | ⌚                      | 2NO+2NC<br>3NO+3NC | AH165-2P1B22<br>AH165-2P1B33     |   |                                  |   |
|  |   |                        |                    |                                  |   |                                  |   |
| <br>KKD07-235   | Maintained  | —                      | 2NO+2NC<br>3NO+3NC | AH165-2YP3B22<br>AH165-2YP3B33   |    |                                  |   |
|  | Spring/<br>manual return  | ⌚                      | 2NO+2NC<br>3NO+3NC | AH165-2YP6B22<br>AH165-2YP6B33   |   |                                  |   |
|  | Spring/<br>manual return  | ⌚                      | 2NO+2NC<br>3NO+3NC | AH165-2YP7B22<br>AH165-2YP7B33   |   |                                  |   |
|  | Spring return   | ⌚                      | 2NO+2NC<br>3NO+3NC | AH165-2YP1B22<br>AH165-2YP1B33   |   |                                  |   |
|  |   |                        |                    |                                  |   |                                  |   |
| <br>KKD09-003R | Maintained  | ⌚ A                    | 2NO+2NC<br>3NO+3NC | AH165-2J3A22A<br>AH165-2J3A33A   |  |                                  |   |
|  |   | ⌚ E                    | 2NO+2NC<br>3NO+3NC | AH165-2J3E22A<br>AH165-2J3E33A   |   |                                  |   |
|  |   | ⌚ D                    | 2NO+2NC<br>3NO+3NC | AH165-2J3D22A<br>AH165-2J3D33A   |   |                                  |   |
|  |   | ⌚ C                    | 2NO+2NC<br>3NO+3NC | AH165-2J3C22A<br>AH165-2J3C33A   |   |                                  |   |
|  | Spring/<br>manual return  | ⌚ E                    | 2NO+2NC<br>3NO+3NC | AH165-2J6E22A<br>AH165-2J6E33A   |   |                                  |   |
|  |   | ⌚ D                    | 2NO+2NC<br>3NO+3NC | AH165-2J6D22A<br>AH165-2J6D33A   |   |                                  |   |
|  | Spring/<br>manual return  | ⌚ A                    | 2NO+2NC<br>3NO+3NC | AH165-2J7A22A<br>AH165-2J7A33A   |   |                                  |   |
|  |   | ⌚ E                    | 2NO+2NC<br>3NO+3NC | AH165-2J7E22A<br>AH165-2J7E33A   |   |                                  |   |
|  | Spring return   | ⌚ E                    | 2NO+2NC<br>3NO+3NC | AH165-2J1E22A<br>AH165-2J1E33A   |   |                                  |   |
|  | <br>KKD09-003L | Maintained             | ⌚ A                | 2NO+2NC<br>3NO+3NC               |   | AH165-2YJ3A22A<br>AH165-2YJ3A33A |  |
|  |   |                        | ⌚ E                | 2NO+2NC<br>3NO+3NC               |   | AH165-2YJ3E22A<br>AH165-2YJ3E33A |   |
|  |   |                        | ⌚ D                | 2NO+2NC<br>3NO+3NC               |   | AH165-2YJ3D22A<br>AH165-2YJ3D33A |   |
| ⌚ C  |   |                        | 2NO+2NC<br>3NO+3NC | AH165-2YJ3C22A<br>AH165-2YJ3C33A |   |                                  |   |
| Spring/<br>manual return   |   | ⌚ E                    | 2NO+2NC<br>3NO+3NC | AH165-2YJ6E22A<br>AH165-2YJ6E33A |   |                                  |   |
|  |   | ⌚ D                    | 2NO+2NC<br>3NO+3NC | AH165-2YJ6D22A<br>AH165-2YJ6D33A |   |                                  |   |
| Spring/<br>manual return   |   | ⌚ A                    | 2NO+2NC<br>3NO+3NC | AH165-2YJ7A22A<br>AH165-2YJ7A33A |   |                                  |   |
|  |   | ⌚ E                    | 2NO+2NC<br>3NO+3NC | AH165-2YJ7E22A<br>AH165-2YJ7E33A |   |                                  |   |
| Spring return  |   | ⌚ E                    | 2NO+2NC<br>3NO+3NC | AH165-2YJ1E22A<br>AH165-2YJ1E33A |   |                                  |   |

• The Key can be removed at the following positions:

A: ⌚ B: ⊗ C: ⊛ D: ⌚ E: ⌚ F: ⌚ G: ⊛

For spring-return selector switches, the key can be removed only at position E. For manual/spring-return selector switches, the key can be removed at positions D, E and F for type J6, and position A, E and G for type J7.

• There are 6 available key types; A, B, C, D, E and F.

Standard key code is A.

• With wire-wrap pin terminals have a depth of 47mm.

• Contact arrangement and operator positions:


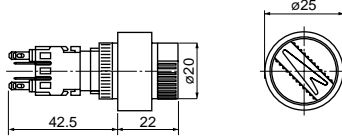
| Contact arrangement |        | 2NO+2NC  | 3NO+3NC   |
|---------------------|--------|--|---|
| Operator position   | Left   | $1 \text{ O } \overset{\text{U}}{\text{O}} \text{ 2 } 1 \text{ O } \overset{\text{L}}{\text{O}} \text{ 2}$<br>$3 \text{ O } \text{ 4 } 3 \text{ O } \text{ 4}$ | $1 \text{ O } \overset{\text{U}}{\text{O}} \text{ 2 } 1 \text{ O } \overset{\text{M}}{\text{O}} \text{ 2 } 1 \text{ O } \overset{\text{L}}{\text{O}} \text{ 2}$<br>$3 \text{ O } \text{ 4 } 3 \text{ O } \text{ 4 } 3 \text{ O } \text{ 4}$ |
|                     | Center | $1 \text{ O } \text{ 1 } \text{ O } \text{ 2 } 1 \text{ O } \text{ 1 } \text{ O } \text{ 2}$<br>$3 \text{ O } \text{ 4 } 3 \text{ O } \text{ 4}$               | $1 \text{ O } \text{ 1 } \text{ O } \text{ 2 } 1 \text{ O } \text{ 1 } \text{ O } \text{ 2 } 1 \text{ O } \text{ 1 } \text{ O } \text{ 2}$<br>$3 \text{ O } \text{ 4 } 3 \text{ O } \text{ 4 } 3 \text{ O } \text{ 4}$                      |
|                     | Right  | $1 \text{ O } \text{ 2 } 1 \text{ O } \text{ 1 } \text{ O } \text{ 2}$<br>$3 \text{ O } \text{ 1 } \text{ O } \text{ 4 } 3 \text{ O } \text{ 4}$               | $1 \text{ O } \text{ 2 } 1 \text{ O } \text{ 2 } 1 \text{ O } \text{ 1 } \text{ O } \text{ 2}$<br>$3 \text{ O } \text{ 1 } \text{ O } \text{ 4 } 3 \text{ O } \text{ 1 } \text{ O } \text{ 4 } 3 \text{ O } \text{ 4}$                      |

U: Upper contact block M: Middle contact block L: Lower contact block

• Contact block positions: See page 04/219

Fuji Electric FA Components & Systems Co., Ltd./D & C Catalog  
Information subject to change without notice

■ Illuminated selector switches

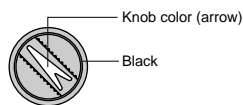
| Operator   | Operation  | Lamp voltage              | No. of positions | Contact            | Type                               | Dimensions, mm  |
|--|------------|---------------------------|------------------|--------------------|------------------------------------|---|
| <br>KKD07-240 | Maintained | Flat LED 24V DC           | 2                | 1NO+1NC<br>2NO+2NC | AH165-2PL2□11E3<br>AH165-2PL2□22E3 |  |
|  |            |                           | 3                | 2NO+2NC            | AH165-2PL3□22E3                    |   |
|  |            |                           | 2                | 1NO+1NC<br>2NO+2NC | AH165-2PL2□11E<br>AH165-2PL2□22E   |   |
|  |            | Incandescent<br>24V AC/DC | 3                | 2NO+2NC            | AH165-2PL3□22E                     |   |
|  |            |                           | 2                | 1NO+1NC<br>2NO+2NC | AH165-2PL2□11H1<br>AH165-2PL2□22H1 |   |
|  |            | Neon<br>110V AC           | 3                | 2NO+2NC            | AH165-2PL3□22H1                    |   |
|  |            |                           | 2                | 1NO+2NC<br>2NO+2NC | AH165-2PL2□11M1<br>AH165-2PL2□22M1 |   |
|  |            | Neon<br>220V AC           | 3                | 2NO+2NC            | AH165-2PL3□22M1                    |   |

04

• Knob color (arrow)

Replace the □ mark by the following color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | O      |



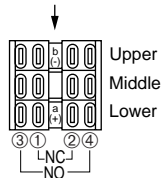
• Lamp voltage

Voltages other than above are available

| Code | LED    | Incandescent | Neon    |
|------|--------|--------------|---------|
| AA   | 5V DC  | —            | —       |
| A    | 6V DC  | 5V AC/DC     | —       |
| B    | 12V DC | 12V AC/DC    | —       |
| K    | —      | —            | 120V AC |
| P    | —      | —            | 240V AC |

• Terminal number and contact block position

Type number display side



Contact arrangement (terminal No.: common)  
1NO+1NC: Middle  
2NO+2NC: Upper, lower

• Contact arrangement and operator positions:

2-position

| Contact arrangement | 1NO+1NC   | 2NO+2NC  |
|---------------------|-----------|--|
| Operator position   | Left (⊖)  | M $\begin{matrix} 1 \text{ O } \text{---} \text{ O } 2 \\ 3 \text{ O } \quad \text{O } 4 \end{matrix}$<br>U $\begin{matrix} 1 \text{ O } \text{---} \text{ O } 2 \\ 3 \text{ O } \quad \text{O } 4 \end{matrix}$<br>L $\begin{matrix} 1 \text{ O } \text{---} \text{ O } 2 \\ 3 \text{ O } \quad \text{O } 4 \end{matrix}$ |
|                     | Right (⊕) | M $\begin{matrix} 1 \text{ O } \quad \text{O } 2 \\ 3 \text{ O } \text{---} \text{ O } 4 \end{matrix}$<br>U $\begin{matrix} 1 \text{ O } \quad \text{O } 2 \\ 3 \text{ O } \text{---} \text{ O } 4 \end{matrix}$<br>L $\begin{matrix} 1 \text{ O } \quad \text{O } 2 \\ 3 \text{ O } \text{---} \text{ O } 4 \end{matrix}$ |


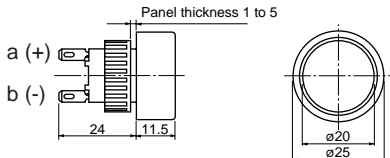

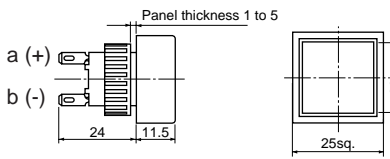

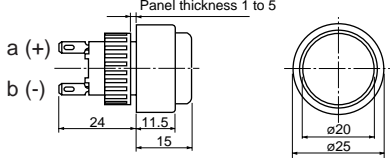

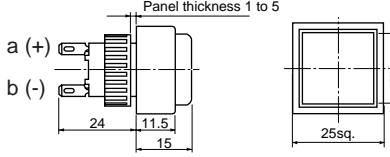
3-position

| Contact arrangement | 2NO+2NC  |  |
|---------------------|--|--|
| Operator position   | Left (⊖)   | U $\begin{matrix} 1 \text{ O } \text{---} \text{ O } 2 \\ 3 \text{ O } \quad \text{O } 4 \end{matrix}$<br>L $\begin{matrix} 1 \text{ O } \quad \text{O } 2 \\ 3 \text{ O } \text{---} \text{ O } 4 \end{matrix}$ |
|                     | Center (⊕)   | U $\begin{matrix} 1 \text{ O } \text{---} \text{ O } 2 \\ 3 \text{ O } \quad \text{O } 4 \end{matrix}$<br>L $\begin{matrix} 1 \text{ O } \text{---} \text{ O } 2 \\ 3 \text{ O } \quad \text{O } 4 \end{matrix}$ |
| Right (⊕)           | U $\begin{matrix} 1 \text{ O } \quad \text{O } 2 \\ 3 \text{ O } \text{---} \text{ O } 4 \end{matrix}$<br>L $\begin{matrix} 1 \text{ O } \quad \text{O } 2 \\ 3 \text{ O } \text{---} \text{ O } 4 \end{matrix}$ |  |

U: Upper contact block  
M: Middle contact block  
L: Lower contact block

# Pilot Lights AH165-2

## ■ Pilot lights

| Lens  | Lamp         | Voltage   | Type          | Dimensions, mm  |
|---|--------------|-----------|---------------|---|
| <br>AF87-213   | Flat LED     | 24V DC    | AH165-2Z□E3   |   |
|   | Incandescent | 24V AC/DC | AH165-2Z□E    |   |
|   | Neon         | 110V AC   | AH165-2Z□H1   |   |
|   |              | 220V AC   | AH165-2Z□M1   |   |
| <br>AF87-205   | Flat LED     | 24V DC    | AH165-2SZ□E3  |   |
|   | Incandescent | 24V AC/DC | AH165-2SZ□E   |   |
|   | Neon         | 110V AC   | AH165-2SZ□H1  |   |
|   |              | 220V AC   | AH165-2SZ□M1  |   |
| <br>AF87-212   | Flat LED     | 24V DC    | AH165-2ZE□E3  |   |
|   | Incandescent | 24V AC/DC | AH165-2ZE□E   |   |
|   | Neon         | 110V AC   | AH165-2ZE□H1  |   |
|   |              | 220V AC   | AH165-2ZE□M1  |   |
| <br>AF87-204 | Flat LED     | 24V DC    | AH165-2SZE□E3 |  |
|   | Incandescent | 24V AC/DC | AH165-2SZE□E  |   |
|   | Neon         | 110V AC   | AH165-2SZE□H1 |   |
|   |              | 220V AC   | AH165-2SZE□M1 |   |

### • Lens color

Replace the □ mark by the following lens color code

| Color | Green | Red | White | Yellow | Blue | Orange |
|-------|-------|-----|-------|--------|------|--------|
| Code  | G     | R   | W     | Y      | S    | O      |

### • Lamp voltage

Voltage other than above is available

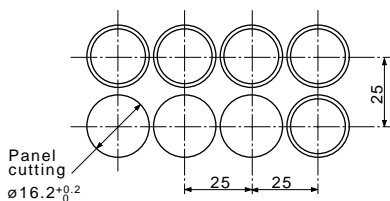
| Code | LED    | Incandescent | Neon    |
|------|--------|--------------|---------|
| AA   | 5V DC  | —            | —       |
| A    | 6V DC  | 5V AC/DC     | —       |
| B    | 12V DC | 12V AC/DC    | —       |
| K    | —      | —            | 120V AC |
| P    | —      | —            | 240V AC |

- The color lens is made of a tinted transparent material.
- A white lens is fitted with a transparent color lens.
- With wire-wrap pin terminals have a depth of 29mm.

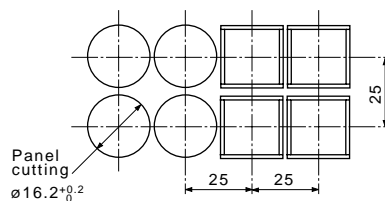
■ **Mounting space, mm**

- Illuminated pushbuttons, pushbuttons, selector switches, illuminated selector switches and pilot lights

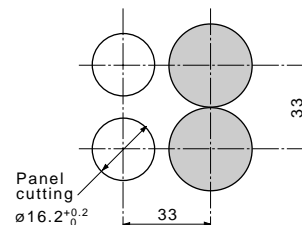
**Round head**



**Square head**



**Mushroom head  
 Push-lock, turn-reset**



■ **Terminal number**

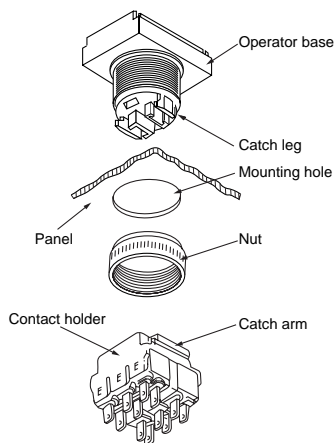
| Type   | Wiring   | Terminal position               |
|--|--|---------------------------------|
| Illuminated pushbuttons, Illuminated selector switches | <p>a (+)      b (-)</p> <p>① ——— ②<br/>                 ③ ○      ○ ④</p> | <p>Type number display side</p> |
| Pushbuttons<br>Selector switches                       | <p>① ——— ②<br/>                 ③ ○      ○ ④</p>                         |                                 |
| Pilot lights<br>(without transformer)                  | <p>a (+)      b (-)</p>  | <p>Type number display side</p> |

# Pushbuttons/Selectors/Pilot Lights/Buzzers AH164, AH165 and AH165-2 Notes on use

## Notes on use

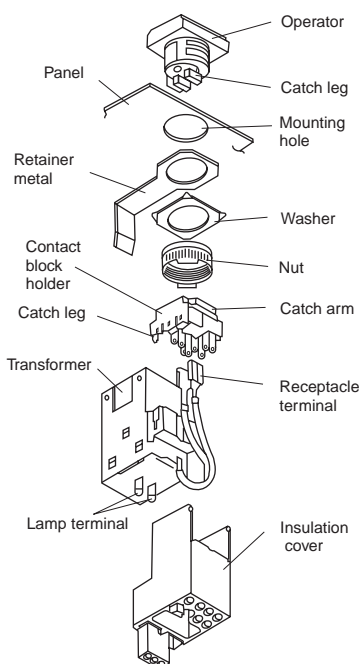
### ■ Installation on panel

- For installation, use dedicated wrench AHX601. The appropriate tightening torque is 0.6 to 1N·cm.
- The installation sequence is as follows:  
Pass the operator base through the hole in the panel and secure it by tightening the bezel. Properly position the catch arms and the catch legs of the operator base and push the contact holder onto the operator base. To remove the contact holder, pull it while pressing the catch arms inward.



### ■ Mounting steps of switch with transformer

- ① Pass the switch operator through the panel hole and secure with a nut by way of the retainer metal from the front of the panel.
- ② Align the position of the catch arm of the contact block holder with that of the catch leg of the switch operator. Engage these two catches by pushing them together.
- ③ Insert and secure the transformer unit while assembling the contact block holder with the retainer metal.
- ④ Connect the receptacle terminal with lead wires extending from the transformer to the lamp terminal of the contact block holder. (Be care on the polarity of the LED. Red: +, Black: -)
- ⑤ Push in and secure the standard accessory insulation cover by aligning its position with each terminal. To replace the transformer, remove the transformer by widening the catch leg of the contact block holder. Pay attention not to excessively widen the catch leg. Mounting steps are the same as the above steps ③, ④, and ⑤.



### ■ Installing the protection cover / dust-tight cover, guard-ring

- Be careful that the panel thickness does not exceed the following:
- Panel thickness
  - Protection cover: 2.6mm max.
  - Dust-tight cover: 2.0mm max.
  - Guard ring: 2.5mm max.

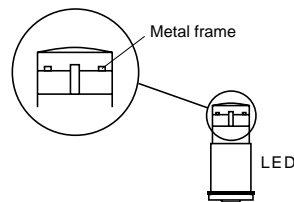
### ■ Operating voltage and rated voltage of incandescent lamps

| Rated voltage  | Operating voltage |
|----------------|-------------------|
| 6V             | 4 to 5V           |
| 14V            | 10 to 12V         |
| 28V (Standard) | 20 to 24V         |

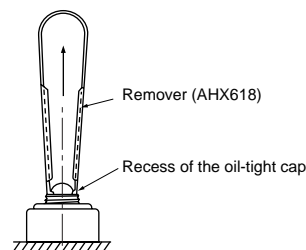
Incandescent lamps should be operated at the operating voltages if a lamp service life of 5,000 to 10,000 hours are needed. The ambient temperature must not exceed 30°C if the lamp is used at the rated voltage continuously.

### ■ Method of replacing lamp

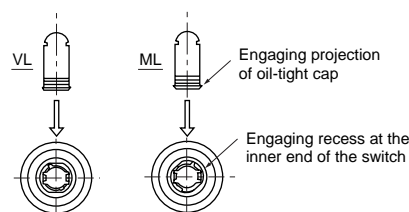
- Incandescent lamps/LED lamps/neon lamps  
Remove the color lens and inner button with a remover AHX618. Then draw out the lamp with a lamp changer AHX672. When installing lamps, do it manually and in the reverse order of removing.
- Products with blue and green LEDs  
The LED devices on products with high-brightness (blue and green) LEDs are very sensitive to static electricity. When replacing LED lamps do not allow static electricity to come into direct contact with the metal frame on the upper side of the LED lamp. The LED device may be damaged if this part is subjected to static electricity. When installing or removing an LED lamp, it is recommended that you use the lamp changer (AHX672).



- To replace the lamp of a AH165-2 illuminated pushbutton switch (ML, VL), remove the button and draw out the oil-tight cap.



- Then, replace the lamp using a lamp changer (AHX672) and push the oil-tight cap into its original position with its engaging projection properly adjusted (see the figure below).

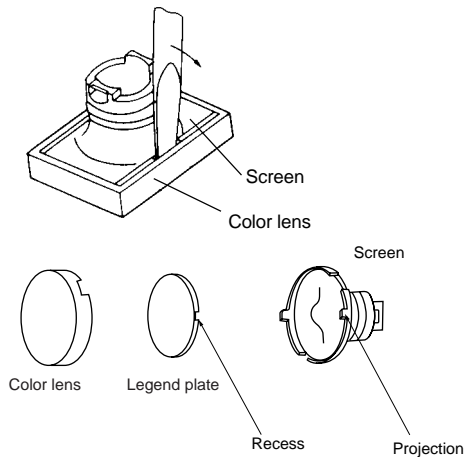


Note: Lamp of AH165-ZM type can not be replaced.

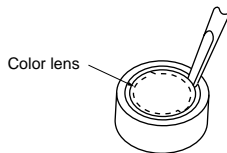


■ **Method of replacing color lens**

- To remove the color lens, insert a small screwdriver into the color lens and twist in direction of the arrow.



- For an AH165-2, use a small standard screwdriver or a similar tool with a flat end. If one side of the color lens is removed from the screen, insert the screwdriver or a similar tool deeper and remove the color lens together with the screen.



■ **Replacing pushbuttons**

In the case of alternative action type pushbutton switches and illuminated pushbutton switches, be sure not to replace the pushbuttons in their locked state. This could result in internal damage to the mechanism.

■ **Description sheet**

The Fuji description sheet is 25µm thick. If preparing custom description sheets, make sure that the thickness is 0.1mm or less.

■ **Contact block**

To replace a contact block, use removing tool AGX012. If excessive force is applied when attempting to open the support legs for the contact block holder, deformation or damage may occur.

■ **Handling precautions**

- Do not apply torque in excess of 1.0 N•m to operate the selectors switch (Type "P"). Required operating force of switches is less than 0.1 N•m.
- Do not tap on a pushbutton to turn it ON or OFF, such handling may damage it. Be sure to operate the pushbutton by hand.

■ **Key type selector switch**

- Five key types (Type B to Type F) are available besides Type A, which is the standard key type.



Symbol on the key



Symbol on the main unit

Be sure to use a key with a symbol which is matched with the symbol on the main unit.

- Fully insert the key into the main unit before turning the key.
- The key turning force should not exceed 0.1 N•m.
- Do not pull out or insert the key forcibly.

■ **Wiring connections**

- Use a soldering iron with a wattage of not more than 30W and a tip length of more than 20mm.

Use a rosin-core solder

With a 30W iron complete soldering within 5 seconds, or 10 seconds with a 20W iron. Do not apply external force to the terminals. Do not deform the terminals.

Because lead-free solder's melting point is slightly high, soldering work may be difficult. Use a soldering iron whose tip is rather large or whose calorie is rather high.

- Wires that can be connected
  - Two solid wires with a maximum diameter of 0.8mm (solder)
  - One stranded wire with a maximum area of 0.75mm<sup>2</sup> (solder)
- Flat connection terminal
  - (2.8□-1.25-5) 0.5 to 1.25mm<sup>2</sup>
  - (2.8□-0.5-5) 0.2 to 0.5mm<sup>2</sup>
- Using contact blocks
  - When using NO and NC contacts in the same contact block, avoid connection that involves opposite polarity or wiring from different types of power supply.
- For wiring to adjacent terminals, use insulated tubing to prevent short-circuit and to assure isolation. For solder terminals, be careful when connecting thick wires. Do not use too much solder.
- Wiring to wire-wrap pin terminals
  - Select the appropriate wire sizes and tools from the table below.

| Wire size     | Bit   | Sleeve | Number of effective wraps |
|---------------|-------|--------|---------------------------|
| 0.4mm dia.    | 3-A   | 1-B    | About 8                   |
| 0.5mm dia.    | 1-A   | 1-B    | About 6                   |
| (0.65mm dia.) | (2-A) | (2-B)  | (About 6)                 |

Use ordinary wrapping for connection.

Wires of 0.65mm dia. must not be used on adjacent terminals. However, 0.65mm dia. wire can be mixed with 0.4 and 0.5mm dia. wires.

- Wiring to tab terminals
  - Use receptacles, No. 110.

■ **Installing lamps in close order**

When continuously lighting pilot lights or pressing illuminated pushbuttons installed in close order, care must be taken that the ambient temperature does not exceed the rated value.



# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AH164, AH165 and AH165-2

### Notes on use

#### ■ LEDs

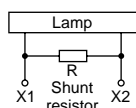
##### • LED Lamp Malfunctioning

The LED lamp is lit by a very small level of current (approximately 0.01mA). Therefore, the it may be erroneously lit by a current leaking from the surge absorption circuit or semiconductor circuit or due to stray capacitance between cables. In that case, provide a countermeasure (e.g., connect a resistor in parallel with the LED lamp).

##### • Countermeasure for Malfunctioning

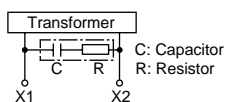
Shunt Resistor R or CR elements connected in parallel Lamp malfunctions can be prevented by connecting a shunt resistor (R) or CR elements (a capacitor and resistor) in parallel with the LED lamp terminal. The resistance and CR values vary depending on the model and the operating conditions.

Example 1



- 24V DC  
R: 10kΩ (1W)

Example 2



- 110V AC  
C: 0.33μF (250V AC)  
R: 120Ω (0.25W)
- 220V AC  
C: 0.33μF (250V AC)  
R: 120Ω (0.25W)

##### • Incoming surge

Be careful that since high luminance LED products use an element sensitive to static electricity, they may not be lit by an abnormal voltage like surge.

#### ■ Using a flat LED in 48V DC circuit

When a flat LED lamps having a rated voltage of 24V DC is used with 48V DC circuit, connect an external resistor of 3,500Ω (1W).

#### ■ Preventing the neon lamp from incorrectly turning ON

The neon lamp may incorrectly turn ON due to current leakage or voltage induction. In such a case, connect a shunt resistor in parallel with the lamp.

Example) 110V AC: 100k (0.25W)  
220V AC: 50k (2W)

If an external surge of 3kV or more may occur, connect a surge absorption element in parallel with the lamp.

#### ■ Operation

Do not use a hitting or bouncing action to operate the button, or the switch may break. Always operate the switch by hand.

#### ■ Storage and operation site

- Use the unit within the rated operating ambient temperature and humidity ranges.
- Do not use the enclosed type in places where oil or water is sprayed or where dust accumulates. In places such as these, use the oil-tight type or provide a dust cover.
- The oil-tight type is evaluated with standard cutting oil and cooling oil applied. The oil-tight type cannot be used with some special oils.

#### ■ Buzzer

##### • Noise







If the application circuit is likely to generate excessively strong noise, connect a surge absorber (e.g., FUJI'S ENC390D, provided that the switch is a 24V type) in parallel with the buzzer.




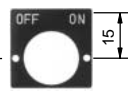
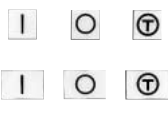
##### • Place of Use

The buzzer does not have a drip-proof construction. Do not use the buzzer in places where oil or water is sprayed or where dust accumulates. If the buzzer is a splash-proof type, it will resist sprays of water.

- Do not use the buzzer in places that are subject to an excessive amount of corrosive gas.
- Be careful that the buzzer is likely to sound erroneously due to leakage current or the like.

■ Accessories for AH164 and AH165


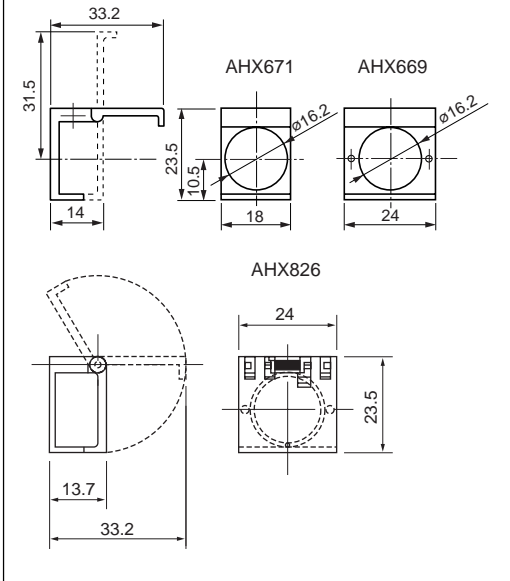



| Description   | Type             |                        |
|---|------------------|------------------------|
| Color chips (Round)   | Color            | Type                   |
|  <p>L, L5, E<br/>E5, Z</p>                                 | Green            | <b>AHX631-G</b>        |
|   | Red              | <b>AHX631-R</b>        |
|   | White (For Neon) | <b>AHX631-W</b>        |
|   | Blue             | <b>AHX631-S</b>        |
|   | Yellow           | <b>AHX631-Y</b>        |
|   | Orange           | <b>AHX631-O</b>        |
|   | Clear            | <b>AHX631-C</b>        |
| SF-682  | For LED, Neon    | Green <b>AHX653-G</b>  |
| Color chips (Square)  | Color            | Type                   |
|  <p>SL, SL5, SGL,<br/>SGL5, SF, SF5,<br/>SGF, SGF5, ZS</p> | Green            | <b>AHX632-G</b>        |
|   | Red              | <b>AHX632-R</b>        |
|   | White (For Neon) | <b>AHX632-W</b>        |
|   | Blue             | <b>AHX632-S</b>        |
|   | Yellow           | <b>AHX632-Y</b>        |
|   | Orange           | <b>AHX632-O</b>        |
|   | Clear            | <b>AHX632-C</b>        |
| SF-681  | For LED, Neon    | Green <b>AHX653-SG</b> |
| Color chips (Rectangular)   | Color            | Type                   |
|  <p>TL, TL5, TGL<br/>TGL5, TF, TF5<br/>TGF, TGF5, ZT</p> | Green            | <b>AHX633-G</b>        |
|   | Red              | <b>AHX633-R</b>        |
|   | White (For Neon) | <b>AHX633-W</b>        |
|   | Blue             | <b>AHX633-S</b>        |
|   | Yellow           | <b>AHX633-Y</b>        |
|   | Orange           | <b>AHX633-O</b>        |
|   | Clear            | <b>AHX633-C</b>        |
| SF-680  | For LED, Neon    | Green <b>AHX653-TG</b> |
| Mushroom head button  | Color            | Type                   |
|  <p>M, M5</p>  | Green            | <b>AHX682-G</b>        |
|   | Red              | <b>AHX682-R</b>        |
|   | White            | <b>AHX682-W</b>        |
|   | Blue             | <b>AHX682-S</b>        |
|   | Yellow           | <b>AHX682-Y</b>        |
|   | Orange           | <b>AHX682-O</b>        |
|   | Black            | <b>AHX682-B</b>        |
| SI-40   |                  |                        |
| Convex square head button   | Color            | Type                   |
|  <p>SM, SM5</p>  | Green            | <b>AHX683-G</b>        |
|   | Red              | <b>AHX683-R</b>        |
|   | White            | <b>AHX683-W</b>        |
|   | Blue             | <b>AHX683-S</b>        |
|   | Yellow           | <b>AHX683-Y</b>        |
|   | Orange           | <b>AHX683-O</b>        |
|   | Black            | <b>AHX683-B</b>        |
| SI-43   |                  |                        |
| Convex rectangular head button  | Color            | Type                   |
|  <p>TM, TM5</p>  | Green            | <b>AHX684-G</b>        |
|   | Red              | <b>AHX684-R</b>        |
|   | White            | <b>AHX684-W</b>        |
|   | Blue             | <b>AHX684-S</b>        |
|   | Yellow           | <b>AHX684-Y</b>        |
|   | Orange           | <b>AHX684-O</b>        |
|   | Black            | <b>AHX684-B</b>        |
| SI-44   |                  |                        |

| Description  | Type   |  |   |                   |
|--|--|--|---|-------------------|
| Legend sheet   | Round  | Type: <b>AHX615-□</b><br>Legend: ON, OFF, UP, DOWN   |   |                   |
|    | Square   | Type: <b>AHX616-□</b><br>Legend: ON, OFF, UP, DOWN<br>START, STOP, OPEN<br>CLOSE, AUTO, MAN,<br>RESET, POWER, REV,<br>FWD, HIGH, LOW |   |                   |
|  | Rectangular  | Type: <b>AHX617-□</b><br>Legend: ON, OFF, UP, DOWN<br>START, STOP, AUTO,<br>MAN, FOWARD, REVERSE                                     |   |                   |
|  | When ordering, specify desired legend in the □ at the end of ordering code, Transparent blank sheets are also available. |  |   |                   |
|  | Use black oil ink.   |  |   |                   |
|  | SH-165   |  |   |                   |
|  | Legend plate (Acrylic resin)   | Type   | Color Dimensions, mm  |                   |
|  |                                       | Round  | <b>AHX665</b> White<br><b>AHX665-C</b> Transparent<br><b>AHX665-B</b> Black | ø12.2 x 0.9       |
|  |  | Square   | <b>AHX666</b> White<br><b>AHX666-C</b> Transparent<br><b>AHX666-B</b> Black | 12.2sq. x 0.9     |
|  |  | Rectangular  | <b>AHX667</b> White<br><b>AHX667-C</b> Transparent<br><b>AHX667-B</b> Black | 12.2 x 18.2 x 0.9 |
|  | SH-164   |  |   |                   |
| Legend plate for spot LED (Acrylic resin)  | Type   | Dimensions, mm   |   |                   |
|  | Round  | <b>AHX650</b> ø12.2 x 0.9  |   |                   |
|  | Square   | <b>AHX651</b> 12.2sq. x 0.9  |   |                   |
|  | Rectangular  | <b>AHX652</b> 12.2 x 18.2 x 0.9  |   |                   |
| SP-113   |  |  |   |                   |
| Legend plate for selector switch (2-position)  | Type: <b>AHX664</b><br>Legend: ON-OFF<br>Legend: Blank   | Dimensions, mm: 24sq. x 0.5  |   |                   |
|  |  |  |   |                   |
|  | SH-226A  |  |   |                   |
| Legend plate for symbol mark   | Mark   | Type   |   |                   |
|  | Square ○   | <b>AHX666-E</b>  |   |                   |
|  | Rectangular  | <b>AHX667-E</b>  |   |                   |
|  | Square I   | <b>AHX666-H</b>  |   |                   |
|  | Rectangular  | <b>AHX667-H</b>  |   |                   |
|  | Square ⊕   | <b>AHX666-T</b>  |   |                   |
|  | Rectangular  | <b>AHX667-T</b>  |   |                   |
| AF87-74  |  |  |   |                   |

# Pushbuttons/Selectors/Pilot Lights/Buzzers


## AH164 and AH165

### Accessories

| Description  | Type   |                       |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
|--|--|-----------------------|--|---------|-------|----------------|-----------------|-----------------|-----------------------|------------------|-----------------|--|----------------|-----------------|--------------|----------------|-----------------|--|
| <p>Protection cover</p>  <p>KKD07-246</p> <p>KKD07-248</p> <p>KKD07-247</p> | <p>For round and square head button<br/>Type: <b>AHX671</b></p> <p>For rectangular head button<br/>Type: <b>AHX669</b><br/><b>AHX826</b></p> <p>This cover protect against accidental operation.<br/>Note: Not used for illuminated pushbuttons with guard.<br/>Applicable panel thickness is 2.6mm max.</p> <p>Dimensions, mm</p>   |                       |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| <p>Dust-tight cover</p>  <p>AF91-123, SI-41</p>                            | <p>For round and square head button<br/>Type: <b>AHX822</b><br/>Dimensions, mm: 24sq. x 14.2</p> <p>For rectangular head button<br/>Type: <b>AHX668</b><br/>Dimensions, mm: 24 x 30 x 14.2</p> <p>For mushroom head button<br/>Type: <b>AHX649</b><br/>Dimensions, mm: <math>\varnothing 30</math> x 18</p> <p>These covers protect against dust.<br/>Note: Applicable panel thickness is 2.0mm max.</p>   |                       |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| <p>Guard ring</p>  <p>SI-42</p>  | <table border="1"> <thead> <tr> <th>Type</th> <th>Color</th> <th>Dimensions, mm</th> </tr> </thead> <tbody> <tr> <td><b>AHX676-B</b></td> <td>Black</td> <td><math>\varnothing 21</math> x 12</td> </tr> <tr> <td><b>AHX676-GY</b></td> <td>Gray</td> <td></td> </tr> </tbody> </table> <p>This guard ring is used in combination with an extended round head pushbutton (L or E).<br/>Note: Applicable panel thickness is 2.5mm max. Please place an order for a packing (AHX685) separately when you intend to use for AH165 series.</p> |                       |  | Type    | Color | Dimensions, mm | <b>AHX676-B</b> | Black           | $\varnothing 21$ x 12 | <b>AHX676-GY</b> | Gray            |  |                |                 |              |                |                 |  |
| Type   | Color  | Dimensions, mm        |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| <b>AHX676-B</b>  | Black  | $\varnothing 21$ x 12 |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| <b>AHX676-GY</b>   | Gray   |                       |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| <p>Transformer</p>  <p>AF90-949</p>  | <table border="1"> <thead> <tr> <th>Voltage</th> <th>Type</th> <th>Lamp</th> </tr> </thead> <tbody> <tr> <td>100 to 110V AC</td> <td><b>AHX805-H</b></td> <td>LED</td> </tr> <tr> <td>200 to 220V AC</td> <td><b>AHX805-M</b></td> <td></td> </tr> <tr> <td>100 to 110V AC</td> <td><b>AHX806-H</b></td> <td>Incandescent</td> </tr> <tr> <td>200 to 220V AC</td> <td><b>AHX806-M</b></td> <td></td> </tr> </tbody> </table>   |                       |  | Voltage | Type  | Lamp           | 100 to 110V AC  | <b>AHX805-H</b> | LED                   | 200 to 220V AC   | <b>AHX805-M</b> |  | 100 to 110V AC | <b>AHX806-H</b> | Incandescent | 200 to 220V AC | <b>AHX806-M</b> |  |
| Voltage  | Type   | Lamp                  |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| 100 to 110V AC   | <b>AHX805-H</b>  | LED                   |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| 200 to 220V AC   | <b>AHX805-M</b>  |                       |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| 100 to 110V AC   | <b>AHX806-H</b>  | Incandescent          |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |
| 200 to 220V AC   | <b>AHX806-M</b>  |                       |  |         |       |                |                 |                 |                       |                  |                 |  |                |                 |              |                |                 |  |



# Pushbuttons/Selectors/Pilot Lights/Buzzers AH165-2 Accessories

## ■ Accessories for AH165-2

| Description   | Type  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|---|---|-------|------|-------|------------------|-----|------------------|--------|------------------|------|------------------|--------|------------------|-------|------------------|
| Color lens (Round)<br><br> | For flush head<br>(Used with 2F, 2F5, 2FL, 2FL5, 2Z)  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | <table border="0"> <tr><td>Color</td><td>Type</td></tr> <tr><td>Green</td><td><b>AHX2604-G</b></td></tr> <tr><td>Red</td><td><b>AHX2604-R</b></td></tr> <tr><td>Yellow</td><td><b>AHX2604-Y</b></td></tr> <tr><td>Blue</td><td><b>AHX2604-S</b></td></tr> <tr><td>Orange</td><td><b>AHX2604-O</b></td></tr> <tr><td>Clear</td><td><b>AHX2604-C</b></td></tr> </table> | Color | Type | Green | <b>AHX2604-G</b> | Red | <b>AHX2604-R</b> | Yellow | <b>AHX2604-Y</b> | Blue | <b>AHX2604-S</b> | Orange | <b>AHX2604-O</b> | Clear | <b>AHX2604-C</b> |
| Color   | Type  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Green   | <b>AHX2604-G</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Red   | <b>AHX2604-R</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Yellow  | <b>AHX2604-Y</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Blue  | <b>AHX2604-S</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Orange  | <b>AHX2604-O</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Clear   | <b>AHX2604-C</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | For extended head<br>(Used with 2E, 2E5, 2EL, 2EL5, 2ZE)  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | <table border="0"> <tr><td>Color</td><td>Type</td></tr> <tr><td>Green</td><td><b>AHX2605-G</b></td></tr> <tr><td>Red</td><td><b>AHX2605-R</b></td></tr> <tr><td>Yellow</td><td><b>AHX2605-Y</b></td></tr> <tr><td>Blue</td><td><b>AHX2605-S</b></td></tr> <tr><td>Orange</td><td><b>AHX2605-O</b></td></tr> <tr><td>Clear</td><td><b>AHX2605-C</b></td></tr> </table> | Color | Type | Green | <b>AHX2605-G</b> | Red | <b>AHX2605-R</b> | Yellow | <b>AHX2605-Y</b> | Blue | <b>AHX2605-S</b> | Orange | <b>AHX2605-O</b> | Clear | <b>AHX2605-C</b> |
| Color   | Type  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Green   | <b>AHX2605-G</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Red   | <b>AHX2605-R</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Yellow  | <b>AHX2605-Y</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Blue  | <b>AHX2605-S</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Orange  | <b>AHX2605-O</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Clear   | <b>AHX2605-C</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Color lens (Square)   | For flush head<br>(Used with 2SF, 2SF5, 2SFL, 2SFL5, 2SZ)   |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | <table border="0"> <tr><td>Color</td><td>Type</td></tr> <tr><td>Green</td><td><b>AHX2606-G</b></td></tr> <tr><td>Red</td><td><b>AHX2606-R</b></td></tr> <tr><td>Yellow</td><td><b>AHX2606-Y</b></td></tr> <tr><td>Blue</td><td><b>AHX2606-S</b></td></tr> <tr><td>Orange</td><td><b>AHX2606-O</b></td></tr> <tr><td>Clear</td><td><b>AHX2606-C</b></td></tr> </table> | Color | Type | Green | <b>AHX2606-G</b> | Red | <b>AHX2606-R</b> | Yellow | <b>AHX2606-Y</b> | Blue | <b>AHX2606-S</b> | Orange | <b>AHX2606-O</b> | Clear | <b>AHX2606-C</b> |
| Color   | Type  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Green   | <b>AHX2606-G</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Red   | <b>AHX2606-R</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Yellow  | <b>AHX2606-Y</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Blue  | <b>AHX2606-S</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Orange  | <b>AHX2606-O</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Clear   | <b>AHX2606-C</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | For extended head<br>(Used with 2SE, 2SE5, 2SEL, 2SEL5, 2SZE)   |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | <table border="0"> <tr><td>Color</td><td>Type</td></tr> <tr><td>Green</td><td><b>AHX2607-G</b></td></tr> <tr><td>Red</td><td><b>AHX2607-R</b></td></tr> <tr><td>Yellow</td><td><b>AHX2607-Y</b></td></tr> <tr><td>Blue</td><td><b>AHX2607-S</b></td></tr> <tr><td>Orange</td><td><b>AHX2607-O</b></td></tr> <tr><td>Clear</td><td><b>AHX2607-C</b></td></tr> </table> | Color | Type | Green | <b>AHX2607-G</b> | Red | <b>AHX2607-R</b> | Yellow | <b>AHX2607-Y</b> | Blue | <b>AHX2607-S</b> | Orange | <b>AHX2607-O</b> | Clear | <b>AHX2607-C</b> |
| Color   | Type  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Green   | <b>AHX2607-G</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Red   | <b>AHX2607-R</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Yellow  | <b>AHX2607-Y</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Blue  | <b>AHX2607-S</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Orange  | <b>AHX2607-O</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Clear   | <b>AHX2607-C</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | For concave head<br>(Used with 2SCE, 2SCE5, 2SCL, 2SCL5)  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
|   | <table border="0"> <tr><td>Color</td><td>Type</td></tr> <tr><td>Green</td><td><b>AHX2608-G</b></td></tr> <tr><td>Red</td><td><b>AHX2608-R</b></td></tr> <tr><td>Yellow</td><td><b>AHX2608-Y</b></td></tr> <tr><td>Blue</td><td><b>AHX2608-S</b></td></tr> <tr><td>Orange</td><td><b>AHX2608-O</b></td></tr> <tr><td>Clear</td><td><b>AHX2608-C</b></td></tr> </table> | Color | Type | Green | <b>AHX2608-G</b> | Red | <b>AHX2608-R</b> | Yellow | <b>AHX2608-Y</b> | Blue | <b>AHX2608-S</b> | Orange | <b>AHX2608-O</b> | Clear | <b>AHX2608-C</b> |
| Color   | Type  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Green   | <b>AHX2608-G</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Red   | <b>AHX2608-R</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Yellow  | <b>AHX2608-Y</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Blue  | <b>AHX2608-S</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Orange  | <b>AHX2608-O</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |
| Clear   | <b>AHX2608-C</b>  |       |      |       |                  |     |                  |        |                  |      |                  |        |                  |       |                  |

AF87-631

AF87-632

| Description  | Type   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|--|--|--|------|-----------|------------------|------------------|--|-------|------------------|--------------|------------------|------------------|------------------|--------|------------------|-------|------------------|
| Legend plate<br><br>           | For flush head   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | <table border="0"> <tr><td>Color</td><td>Type</td><td>Used with</td></tr> <tr><td>White</td><td><b>AHX2609-W</b></td><td>Incandescent lamp, LED lamp, Pushbutton *1</td></tr> <tr><td>Clear</td><td><b>AHX2609-C</b></td><td>Neon lamp *2</td></tr> <tr><td>Black</td><td><b>AHX2609-B</b></td><td>Pushbutton *3</td></tr> </table>  | Color                                      | Type | Used with | White            | <b>AHX2609-W</b> | Incandescent lamp, LED lamp, Pushbutton *1 | Clear | <b>AHX2609-C</b> | Neon lamp *2 | Black            | <b>AHX2609-B</b> | Pushbutton *3    |        |                  |       |                  |
| Color  | Type   | Used with                                  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| White  | <b>AHX2609-W</b>   | Incandescent lamp, LED lamp, Pushbutton *1 |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Clear  | <b>AHX2609-C</b>   | Neon lamp *2                               |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Black  | <b>AHX2609-B</b>   | Pushbutton *3                              |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | Dimensions, mm: $\phi 18 \times 0.9$   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | For extended head  |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | <table border="0"> <tr><td>Color</td><td>Type</td><td>Used with</td></tr> <tr><td>White</td><td><b>AHX2610-W</b></td><td>Incandescent lamp, LED lamp, Pushbutton *1</td></tr> <tr><td>Clear</td><td><b>AHX2610-C</b></td><td>Neon lamp *2</td></tr> <tr><td>Black</td><td><b>AHX2610-B</b></td><td>Pushbutton *3</td></tr> </table>  | Color                                      | Type | Used with | White            | <b>AHX2610-W</b> | Incandescent lamp, LED lamp, Pushbutton *1 | Clear | <b>AHX2610-C</b> | Neon lamp *2 | Black            | <b>AHX2610-B</b> | Pushbutton *3    |        |                  |       |                  |
| Color  | Type   | Used with                                  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| White  | <b>AHX2610-W</b>   | Incandescent lamp, LED lamp, Pushbutton *1 |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Clear  | <b>AHX2610-C</b>   | Neon lamp *2                               |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Black  | <b>AHX2610-B</b>   | Pushbutton *3                              |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | Dimensions, mm: $\phi 18 \times 4.4$   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | For flush square   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | <table border="0"> <tr><td>Color</td><td>Type</td><td>Used with</td></tr> <tr><td>White</td><td><b>AHX2611-W</b></td><td>Incandescent lamp, LED lamp, Pushbutton *1</td></tr> <tr><td>Clear</td><td><b>AHX2611-C</b></td><td>Neon lamp *2</td></tr> <tr><td>Black</td><td><b>AHX2611-B</b></td><td>Pushbutton *3</td></tr> </table>  | Color                                      | Type | Used with | White            | <b>AHX2611-W</b> | Incandescent lamp, LED lamp, Pushbutton *1 | Clear | <b>AHX2611-C</b> | Neon lamp *2 | Black            | <b>AHX2611-B</b> | Pushbutton *3    |        |                  |       |                  |
| Color  | Type   | Used with                                  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| White  | <b>AHX2611-W</b>   | Incandescent lamp, LED lamp, Pushbutton *1 |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Clear  | <b>AHX2611-C</b>   | Neon lamp *2                               |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Black  | <b>AHX2611-B</b>   | Pushbutton *3                              |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | Dimensions, mm: 17sq. x 0.9  |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | For extended square, concave square  |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | <table border="0"> <tr><td>Color</td><td>Type</td><td>Used with</td></tr> <tr><td>White</td><td><b>AHX2612-W</b></td><td>Incandescent lamp, LED lamp, Pushbutton *1</td></tr> <tr><td>Clear</td><td><b>AHX2612-C</b></td><td>Neon lamp *2</td></tr> <tr><td>Black</td><td><b>AHX2612-B</b></td><td>Pushbutton *3</td></tr> </table>  | Color                                      | Type | Used with | White            | <b>AHX2612-W</b> | Incandescent lamp, LED lamp, Pushbutton *1 | Clear | <b>AHX2612-C</b> | Neon lamp *2 | Black            | <b>AHX2612-B</b> | Pushbutton *3    |        |                  |       |                  |
| Color  | Type   | Used with                                  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| White  | <b>AHX2612-W</b>   | Incandescent lamp, LED lamp, Pushbutton *1 |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Clear  | <b>AHX2612-C</b>   | Neon lamp *2                               |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Black  | <b>AHX2612-B</b>   | Pushbutton *3                              |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | Dimensions, mm: 17sq. x 4.4  |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | *1 Illuminated pushbutton switches and pilot lights with incandescent lamps or LED lamps, Pushbutton switches (excluding).   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | *2 Illuminated pushbutton switches and pilot lights with neon lamps.   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | *3 Pushbutton switches (black)   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | *4 Engraved range: 17mm dia.   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Mushroom head button<br><br> | For illuminated pushbuttons<br>(Used with 2ML, 2YML)   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | <table border="0"> <tr><td>Color</td><td>Type</td></tr> <tr><td>Green</td><td><b>AHX2614-G</b></td></tr> <tr><td>Red</td><td><b>AHX2614-R</b></td></tr> <tr><td>White</td><td><b>AHX2614-W</b></td></tr> <tr><td>Yellow</td><td><b>AHX2614-Y</b></td></tr> <tr><td>Blue</td><td><b>AHX2614-S</b></td></tr> <tr><td>Orange</td><td><b>AHX2614-O</b></td></tr> </table>  | Color                                      | Type | Green     | <b>AHX2614-G</b> | Red              | <b>AHX2614-R</b>                           | White | <b>AHX2614-W</b> | Yellow       | <b>AHX2614-Y</b> | Blue             | <b>AHX2614-S</b> | Orange | <b>AHX2614-O</b> |       |                  |
| Color  | Type   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Green  | <b>AHX2614-G</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Red  | <b>AHX2614-R</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| White  | <b>AHX2614-W</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Yellow   | <b>AHX2614-Y</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Blue   | <b>AHX2614-S</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Orange   | <b>AHX2614-O</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | For non-illuminated pushbuttons<br>(Used with 2M, 2YM)   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
|  | <table border="0"> <tr><td>Color</td><td>Type</td></tr> <tr><td>Green</td><td><b>AHX2613-G</b></td></tr> <tr><td>Red</td><td><b>AHX2613-R</b></td></tr> <tr><td>White</td><td><b>AHX2613-W</b></td></tr> <tr><td>Yellow</td><td><b>AHX2613-Y</b></td></tr> <tr><td>Blue</td><td><b>AHX2613-S</b></td></tr> <tr><td>Orange</td><td><b>AHX2613-O</b></td></tr> <tr><td>Black</td><td><b>AHX2613-B</b></td></tr> </table> | Color                                      | Type | Green     | <b>AHX2613-G</b> | Red              | <b>AHX2613-R</b>                           | White | <b>AHX2613-W</b> | Yellow       | <b>AHX2613-Y</b> | Blue             | <b>AHX2613-S</b> | Orange | <b>AHX2613-O</b> | Black | <b>AHX2613-B</b> |
| Color  | Type   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Green  | <b>AHX2613-G</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Red  | <b>AHX2613-R</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| White  | <b>AHX2613-W</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Yellow   | <b>AHX2613-Y</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Blue   | <b>AHX2613-S</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Orange   | <b>AHX2613-O</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |
| Black  | <b>AHX2613-B</b>   |  |      |           |                  |                  |  |       |                  |              |                  |                  |                  |        |                  |       |                  |

AF87-631  
AF87-630




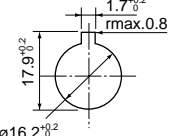
AF87-633

04










# Pushbuttons/Selectors/Pilot Lights/Buzzers


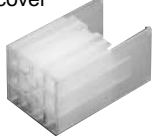



## AH165-2

### Accessories

| Description   | Type  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
|---|---|-------|------|-------|------------------|-----|------------------|-------|------------------|--------|------------------|-------|------|-------|------------------|-----|------------------|--------|------------------|-------|------------------|
| <p>Push-lock, turn-reset button</p>  <p>AF87-634</p> | <p>For illuminated pushbuttons<br/>(Used with 2VL, 2YVL)</p> <table border="0"> <tr> <td>Color</td> <td>Type</td> </tr> <tr> <td>Green</td> <td><b>AHX2616-G</b></td> </tr> <tr> <td>Red</td> <td><b>AHX2616-R</b></td> </tr> <tr> <td>White</td> <td><b>AHX2616-W</b></td> </tr> <tr> <td>Yellow</td> <td><b>AHX2616-Y</b></td> </tr> </table> <p>For pushbuttons<br/>(Used with 2V, 2YV)</p> <table border="0"> <tr> <td>Color</td> <td>Type</td> </tr> <tr> <td>Green</td> <td><b>AHX2615-G</b></td> </tr> <tr> <td>Red</td> <td><b>AHX2615-R</b></td> </tr> <tr> <td>Yellow</td> <td><b>AHX2615-Y</b></td> </tr> <tr> <td>Black</td> <td><b>AHX2615-B</b></td> </tr> </table> | Color | Type | Green | <b>AHX2616-G</b> | Red | <b>AHX2616-R</b> | White | <b>AHX2616-W</b> | Yellow | <b>AHX2616-Y</b> | Color | Type | Green | <b>AHX2615-G</b> | Red | <b>AHX2615-R</b> | Yellow | <b>AHX2615-Y</b> | Black | <b>AHX2615-B</b> |
| Color   | Type  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Green   | <b>AHX2616-G</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Red   | <b>AHX2616-R</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| White   | <b>AHX2616-W</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Yellow  | <b>AHX2616-Y</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Color   | Type  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Green   | <b>AHX2615-G</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Red   | <b>AHX2615-R</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Yellow  | <b>AHX2615-Y</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| Black   | <b>AHX2615-B</b>  |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| <p>Dust-tight cover</p>  <p>AF87-636</p>            | <p>For flush round<br/>(Used with 2F, 2FL, 2F5, 2FL5)<br/>Type: <b>AHX2603-2</b></p> <p>For flush square<br/>(Used with 2SF, 2SFL, 2SF5, 2SFL5)<br/>Type: <b>AHX2603-2S</b></p> <p>These covers protect against dust.</p>   |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |
| <p>Key washer</p>  <p>AF87-635</p>                 | <p>Type: <b>AHX2601</b></p> <p>Mounting hole, mm</p>   |       |      |       |                  |     |                  |       |                  |        |                  |       |      |       |                  |     |                  |        |                  |       |                  |

■ Accessories for AH164, AH165 and AH165-2

|  |   |  |  |
|--|---|--|--|
| Description  | Type  |  |  |
| Incandescent lamp<br><br>KKD06-333  | Voltage   | Type   |  |
|  | 6V, 0.6W<br>14V, 0.7W<br>28V, 0.7W  | <b>AHX641</b><br><b>AHX642</b><br><b>AHX643</b>  |  |
| LED lamp<br><br>KKD06-206   | Voltage   | Type   |  |
|  | 5V DC<br>6V DC<br>12V DC<br>24V DC  | <b>AHX695-5</b> □<br><b>AHX695-6</b> □<br><b>AHX695-12</b> □<br><b>AHX695-24</b> □   |  |
| Neon lamp<br><br>KKD06-306  | Voltage   | Type   | Luminous color   |
|  | 110V AC<br>120V AC<br>220V AC<br>240V AC  | <b>AHX655-H</b><br><b>AHX654-H</b><br><b>AHX655-K</b><br><b>AHX654-K</b><br><b>AHX655-M</b><br><b>AHX654-M</b><br><b>AHX655-P</b><br><b>AHX654-P</b> | Green<br>Orange<br>Green<br>Orange<br>Green<br>Orange<br>Green<br>Orange |
| Panel plug<br><br>KKD07-262<br><br>KKD07-261<br><br>KKD07-260 | Round<br>Square<br>Rectangular  | Color  | Type   |
|  | Black<br>Gray<br>Black<br>Gray<br>Black<br>Gray<br>Black  | <b>AHX622-B</b><br><b>AHX622-GY</b><br><b>AHX644-B</b><br><b>AHX644-GY</b><br><b>AHX645-B</b><br><b>AHX645-GY</b><br><b>AHX850-B</b>                 | IP40<br>IP40<br>IP40<br>IP40<br>IP40<br>IP40<br>IP65                     |
| Lamp changer<br><br>KKD07-259   | Type: <b>AHX672</b><br>If the switch is fitted with a lamp, use this tool to remove the lamp. The tool is unnecessary when installing a lamp. |  |  |
| Remover<br><br>KKD07-258  | Type: <b>AHX618</b><br>This tool is used for replacing the color chips or screens.  |  |  |
| Contact holder remover<br><br>SP-522  | Type: <b>AHX699</b><br>This tool is used to remove a contact holder when switches are densely installed.                                      |  |  |

|   |   |                                  |
|---|---|----------------------------------|
| Description   | Type  |                                  |
| Wrench<br><br>KKD07-257                   | Type: <b>AHX601</b><br>When installing a command switch on a panel, this tool is useful for tightening the switch firmly and efficiently.   |                                  |
|   | Type: <b>AHX2602</b><br>This cover is used with AH164 and AH165 and AH165-2 (except pilot lights). Pass the wires through the cover, then mount the cover in position.  |                                  |
| Terminal cover<br><br>AF87-637            | Type: <b>AHX2602</b><br>This cover is used with AH164 and AH165 and AH165-2 (except pilot lights). Pass the wires through the cover, then mount the cover in position.  |                                  |
| Contact block<br><br>KKD06-305, KKD06-304 | Terminal  | Type                             |
|   | Solder/Tab<br>Wire-wrap   | <b>AGX001</b><br><b>AGX001-W</b> |
| Dummy unit<br><br>SK-1141               | Type: <b>AGX002</b><br>A dummy unit is used to fill the space where no contact blocks are installed. For example, two dummy units are used if 1NO+1NC contact block is installed, and one dummy unit is used if 2NO+2NC contact blocks are installed. |                                  |
|   | Type: <b>AGX012</b><br>This tool is used for replacing the contact blocks or dummy units.   |                                  |
| Remover<br><br>SM-334                   | Type: <b>AGX012</b><br>This tool is used for replacing the contact blocks or dummy units.   |                                  |

# Pushbuttons/Selectors/Pilot Lights/Buzzers

## AH164, AH165 and AH165-2

### Accessories

| Description     | Type                                |   |             |
|-----------------|-------------------------------------|---|-------------|
| Sockets         | Terminal                            | Type  | Used with   |
|                 | Solder/Tab<br>Wire-wrap<br>PC board | <b>AHX697-S</b><br><b>AHX697-W</b><br><b>AHX697-P</b> | Pushbuttons |
| Sockets for LED | Terminal                            | Type  |             |
|                 | Solder/Tab<br>Wire-wrap             | <b>AHX697-SH3</b><br><b>AHX697-WH3</b>                |             |

SM-1097

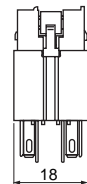
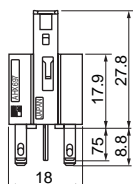
Contact arrangement is 2NO+2NC only.  
Except for AH165-2PL types

SM-1098

- Contact arrangement is 2NO+2NC only.
- These sockets are used only when LED lamps rated for 24V DC are used under 110V AC/DC.
- Except for AH164, 165 and 165-2 series pilot lights or AH165-2PL type.
- When side-by-side mounting and continuous lighting, note that a socket has higher temperature over the ambient temperature.

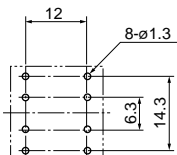
#### Dimensions, mm

##### Solder/Tab

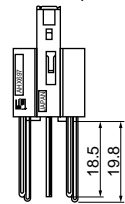


##### PC board mounting

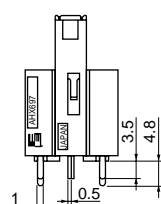
###### Pushbuttons



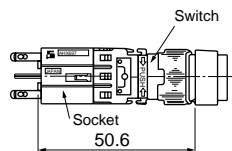
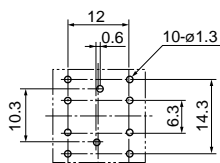
##### Wire-wrap



##### PC board



##### Illuminated pushbuttons



For wiring to wire-wrap pin terminals, select appropriate wire sizes and tool from the table below.

| Wire size                   | Bit          | Sleeve       | Number of effective wraps |
|-----------------------------|--------------|--------------|---------------------------|
| 0.4mm dia.                  | 3-A          | 1-B          | About 8                   |
| 0.5mm dia.<br>(0.65mm dia.) | 1-A<br>(2-A) | 1-B<br>(2-B) | About 6<br>(About 6)      |

Use ordinary wrapping for connection. Wires of 0.65mm dia. must not be used on adjacent terminals. However, 0.65mm dia. wire can be mixed with 0.4mm and 0.5mm dia. wires.

■ Mass, gram  
**AH164 series**

| Type                             | 1NO<br>+<br>1NC | 2NO<br>+<br>2NC | 3NO<br>+<br>3NC |
|----------------------------------|-----------------|-----------------|-----------------|
| AH164-L,L5 (Without transformer) | 12.5            | 13.5            | 14.5            |
| L,L5 (With transformer)          | 53.5            | 54.5            | -               |
| SL,SL5 (Without transformer)     | 13.1            | 14.1            | 15.1            |
| SL,SL5 (With transformer)        | 54.1            | 55.1            | -               |
| TL,TL5 (Without transformer)     | 13.9            | 14.9            | 15.9            |
| TL,TL5 (With transformer)        | 54.9            | 55.9            | -               |
| TGL,TGL5 (Without transformer)   | 13.9            | 14.9            | 15.9            |
| TGL,TGL5 (With transformer)      | 54.9            | 55.9            | -               |
| SGL,SGL5 (Without transformer)   | 13.1            | 14.1            | 15.1            |
| SGL,SGL5 (With transformer)      | 54.1            | 55.1            | -               |
| AH164-E,E5                       | 10.5            | 11.5            | 12.5            |
| M,M5                             | 12.5            | 13.5            | 14.5            |
| SF,SF5                           | 11.1            | 12.1            | 13.1            |
| TF,TF5                           | 11.9            | 12.9            | 13.9            |
| TGF,TGF5                         | 11.9            | 12.9            | 13.9            |
| SGF,SGF5                         | 11.1            | 12.1            | 13.1            |
| SM,SM5                           | 13.4            | 14.4            | 15.4            |
| TM,TM5                           | 13.1            | 14.1            | 15.1            |
| AH164-P2,P0                      | 16.1            | 17.1            | 18.1            |
| P3,P6,P7,P1                      | -               | 17.1            | 18.1            |
| PK3,PK6,PK7,PK1                  | -               | 17.1            | 18.1            |
| SP2,SP0                          | 15.8            | 16.8            | 17.8            |
| SP3,SP6,SP7,SP1                  | -               | 16.8            | 17.8            |
| SPK3,SPK6,SPK7,SPK1              | -               | 16.8            | 17.8            |
| J2,J0                            | 30.6            | 31.6            | 32.6            |
| J3,J6,J7,J1                      | -               | 31.6            | 32.6            |
| JK3,JK6,JK7,JK1                  | -               | 31.9            | 32.9            |
| SJ2,SJ0                          | 30.3            | 31.3            | 32.3            |
| SJ3,SJ6,SJ7,SJ1                  | -               | 31.3            | 32.3            |
| SJK3,SJK6,SJK7,SJK1              | -               | 31.6            | 32.6            |
| AH164-Z (Without transformer)    | 6.9             |                 |                 |
| Z (With transformer)             | 50.9            |                 |                 |
| ZS (Without transformer)         | 7.5             |                 |                 |
| ZS (With transformer)            | 51.5            |                 |                 |
| ZT (Without transformer)         | 8.2             |                 |                 |
| ZT (With transformer)            | 52.2            |                 |                 |
| AH164-TX                         | 16              |                 |                 |
| TX1                              | 17.5            |                 |                 |
| TX2B                             | 13              |                 |                 |

**AH165 series**

| Type                             | 1NO<br>+<br>1NC | 2NO<br>+<br>2NC | 3NO<br>+<br>3NC |
|----------------------------------|-----------------|-----------------|-----------------|
| AH165-L,L5 (Without transformer) | 12.5            | 13.5            | 14.5            |
| L,L5 (With transformer)          | 53.5            | 54.5            | -               |
| SL,SL5 (Without transformer)     | 13.1            | 14.1            | 15.1            |
| SL,SL5 (With transformer)        | 54.1            | 55.1            | -               |
| TL,TL5 (Without transformer)     | 13.9            | 14.9            | 15.9            |
| TL,TL5 (With transformer)        | 54.9            | 55.9            | -               |
| TGL,TGL5 (Without transformer)   | 13.9            | 14.9            | 15.9            |
| TGL,TGL5 (With transformer)      | 54.9            | 55.9            | -               |
| SGL,SGL5 (Without transformer)   | 13.1            | 14.1            | 15.1            |
| SGL,SGL5 (With transformer)      | 54.1            | 55.1            | -               |
| AH165-E,E5                       | 10.5            | 11.5            | 12.5            |
| M,M5                             | 12.5            | 13.5            | 14.5            |
| SF,SF5                           | 11.1            | 12.1            | 13.1            |
| TF,TF5                           | 11.9            | 12.9            | 13.9            |
| TGF,TGF5                         | 11.9            | 12.9            | 13.9            |
| SGF,SGF5                         | 11.1            | 12.1            | 13.1            |
| SM,SM5                           | 13.4            | 14.4            | 15.4            |
| TM,TM5                           | 13.1            | 14.1            | 15.1            |
| VR                               | 13.4 *          | 14 *            | -               |
| V1R                              | 14.4 *          | 15 *            | -               |
| AH165-V5R                        | 18.1 *          | 18.7 *          | -               |
| V6R                              | 18.9 *          | 19.5 *          | -               |
| AH165-P2,P0                      | 16.7            | 17.7            | 18.7            |
| P3,P6,P7,P1                      | -               | 17.7            | 18.7            |
| PK3,PK6,PK7,PK1                  | -               | 17.7            | 18.7            |
| SP2,SP0                          | 16.1            | 17.1            | 18.1            |
| SP3,SP6,SP7,SP1                  | -               | 17.1            | 18.1            |
| SPK3,SPK6,SPK7,SPK1              | -               | 17.1            | 18.1            |
| J2,J0                            | 31.2            | 32.2            | 33.2            |
| J3,J6,J7,J1                      | -               | 32.2            | 33.2            |
| JK3,JK6,JK7,JK1                  | -               | 32.5            | 33.5            |
| SJ2,SJ0                          | 30.6            | 31.6            | 32.6            |
| SJ3,SJ6,SJ7,SJ1                  | -               | 31.6            | 32.6            |
| SJK3,SJK6,SJK7,SJK1              | -               | 31.9            | 32.9            |
| AH165-JM2                        | 30              | 33.9            | -               |
| RJM2                             | 29.6            | 34              | -               |
| AH165-Z (Without transformer)    | 6.9             |                 |                 |
| Z (With transformer)             | 50.9            |                 |                 |
| ZS (Without transformer)         | 7.5             |                 |                 |
| ZS (With transformer)            | 51.5            |                 |                 |
| ZT (Without transformer)         | 8.2             |                 |                 |
| ZT (With transformer)            | 52.2            |                 |                 |
| ZM (Without transformer)         | 5.4             |                 |                 |
| AH165-X                          | 13.7            |                 |                 |

Note: \*1 For 1NC  
\*2 For 2NC



Pushbuttons/Selectors/Pilot Lights/Buzzers  
**AH164, AH165 and AH165-2**  
**Mass**

■ Mass, gram  
**AH165-2 series**

| Type             | 1NO<br>+<br>1NC | 2NO<br>+<br>2NC | 3NO<br>+<br>3NC |
|------------------|-----------------|-----------------|-----------------|
| AH165-2FL,FL5    | 15.3            | 16.3            | 17.3            |
| 2EL,EL5          | 15.8            | 16.8            | 17.8            |
| 2ML              | 18.7            | 19.7            | 20.7            |
| 2YML             | 20.2            | 21.2            | 22.2            |
| 2SFL,SFL5        | 16.6            | 17.6            | 18.6            |
| 2SEL,SEL5        | 17.4            | 18.4            | 19.4            |
| 2SCL,SCL5        | 17.6            | 18.6            | 19.6            |
| 2VL              | 20.7            | 21.7            | 22.7            |
| 2YVL             | 21.4            | 22.4            | 23.4            |
| AH165-2F,F5      | 13.4            | 14.4            | 15.4            |
| 2E,E5            | 13.9            | 14.9            | 15.9            |
| 2M               | 17.8            | 18.8            | 19.8            |
| 2YM              | 18.2            | 19.2            | 20.2            |
| 2SF,SF5          | 14.6            | 15.6            | 16.6            |
| 2SE,SE5          | 15.4            | 16.4            | 17.4            |
| 2SCE,SCE5        | 15.6            | 16.6            | 17.6            |
| 2S2              | -               | 19              | -               |
| 2YS2             | -               | 20.6            | -               |
| 2V               | 18              | 19              | 20              |
| 2YV              | 19.4            | 20.4            | 21.4            |
| AH165-2P2,P0     | 16.6            | 17.6            | 18.6            |
| 2P3,P6,P7,P1     | -               | 17.6            | 18.6            |
| 2YP2,YP0         | 18.3            | 19.3            | 20.3            |
| 2YP3,YP6,YP7,YP1 | -               | 19.3            | 20.3            |
| 2J2,J0           | 40.9            | 41.9            | 42.9            |
| 2J3,J6,J7,J1     | -               | 41.9            | 42.9            |
| 2YJ2             | 42.6            | 43.6            | 44.6            |
| 2YJ3,YJ6,YJ7,YJ1 | -               | 43.6            | 44.6            |
| 2H               | 14.3            | 15.3            | 16.3            |
| 2SH              | 16.1            | 17.1            | 18.1            |
| AH165-2PL2       | 17.4            | 18.4            | -               |
| 2PL3             | -               | 18.4            | -               |
| AH165-2Z         | 9.7             |                 |                 |
| 2ZE              | 10.2            |                 |                 |
| 2SZ              | 11              |                 |                 |
| 2SZE             | 11.6            |                 |                 |

## Multi display lights F series

### ■ Description

Provide a bright, colorful display surface.  
More user-friendly with easy wiring and windows in a wide variety of sizes.

### ■ Features

#### Lightweight (LED display, 100V or 200V AC)

Only one-third the weight of FUJI conventional models.

#### Wide window size selection

A wide selection, including half-size windows.  
AP30F: 30 x 30mm, 30 x 60mm, 15 x 30mm  
AP40F: 40 x 40mm, 40 x 80mm, 20 x 40mm

#### Easy color and voltage changes

LEDs (with voltage-dividing resistors or voltage-dividing capacitors and resistors) are easily replaced from the panel surface.

#### Save energy

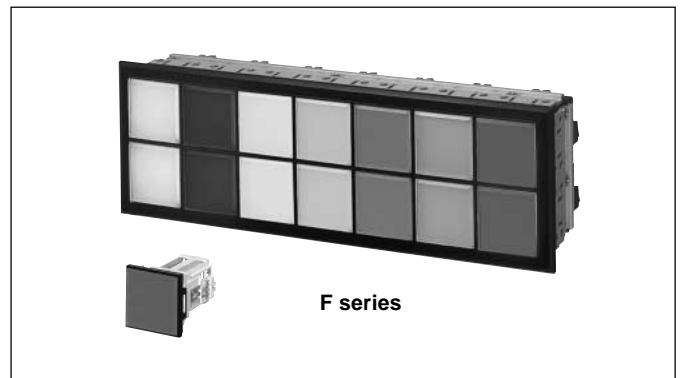
A sharp reduction in power consumption.

#### High brightness for more vivid colors

LEDs with two to eight times the brightness of those on FUJI conventional models. Newly added blue and pure white LEDs improve visibility.

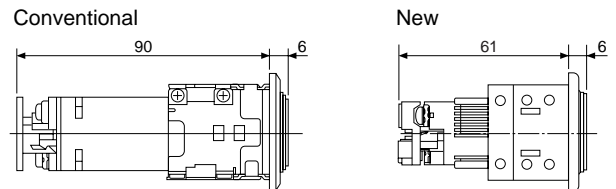
#### Charged-section cover

A cover for the charged section is provided as a standard accessory.



#### Reduced depth (AP30 series, 100V or 200V AC)

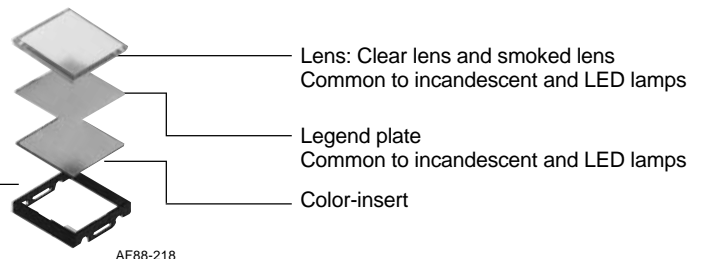
Two-thirds the depth of FUJI conventional models. And, the AP30F and AF40F feature the same depth.



### ■ Configuration of AP30F/AP40F

Lens case

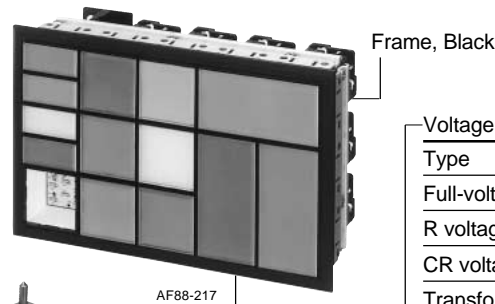
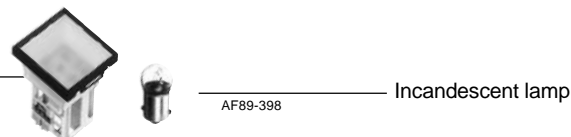
| Lens case | AP30F | AP40F |
|-----------|-------|-------|
| Standard  | ○     | ○     |
| Inclined  | —     | ○     |



LED unit

Combination of LED luminous colors and color-inserts

| LED luminous color | Color-insert | Illumination |
|--------------------|--------------|--------------|
| Red                | Red          | Red          |
| Green              | Green        | Green        |
| Yellow             | Yellow       | Yellow       |
| Amber              | Orange       | Orange       |
| Orange             | Clear        | White        |
| Red/green          | Clear        | Red/green    |
| Blue               | Blue         | Blue         |
| Pure-white         | White        | Pure-white   |



Bracket  
(Standard accessories)

Voltage units

| Type                    | LED | Incandescent |
|-------------------------|-----|--------------|
| Full-voltage type       | ○   | ○            |
| R voltage dividing      | ○   | —            |
| CR voltage dividing     | ○   | —            |
| Transformer unit        | ○   | ○            |
| Resistor unit           | —   | ○            |
| Flicker unit            | ○   | —            |
| Voltage stabilizer unit | ○   | —            |

○ : Available  
— : Not available

# Multi Display Lights

## AP30F and AP40F

### Type number nomenclature

#### ■ Type number nomenclature

**AP30F- 04 05 □ E3-S 4 -SR (20) Z1**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

#### ① Basic type

AP30F: 30 × 30, 30 × 60, 60 × 30, 15 × 30mm (Window size)

AP40F: 40 × 40, 40 × 80, 80 × 40, 20 × 40mm

#### ② Number of windows (=Row × Column)

|       | Row  | Column   |             |
|-------|--|--|-------------|
|       |  |  |             |
| AP30F | 01,02,03,04,05,06,07,08,09,10<br>11,12,13,14,15,16,17,18,19,20 | 01,02,03,04,05,06,07,08,09,10<br>11,12,13,14,15,16,17,18,19,20 | Max.<br>400 |
| AP40F | 01,02,03,04,05,06,07   | 01,02,03,04,05,06,07,08,09,10,<br>11,12,13,14,15               | Max.<br>105 |

- Convert one rectangular window to two square windows.
- The number of windows is limited to 80 when transformer units are mounted.

#### ③ Check terminal

C: with

Blank: without

#### ④ Voltage unit and input voltage

##### AP30F series

|                   | Incandescent  | LED unit  |
|-------------------|---|---|
| Full-voltage type | A: 5.5V AC/DC C: 15.5V AC/DC<br>D: 20V AC/DC E: 24V AC/DC   | A3: 6V DC B3: 12V AC/DC<br>C3: 15V AC/DC E3: 24V AC/DC<br>ES: 24V AC/DC * F3: 48V AC/DC<br>H3: 100-110V AC/DC L3: 115-127V AC/DC<br>M3: 200-220V AC |
| Transformer unit  | H: 100-110V AC L: 115-127V AC<br>M: 200-220V AC Q: 230-254V AC<br>S: 350-380V AC T: 400-440V AC<br>V: 480V AC | Q3: 230-254V AC S3: 350-380V AC<br>T3: 400-440V AC V3: 480V AC  |
| Resistor unit     | H6: 110V DC L6: 125V DC<br>(Electric bulb 48V 1W)   | —   |
| Mixed type        | X: Combination of the above three   | X3: Combination of the above three types plus flicker and voltage stabilizer unit   |

\* Short body type

##### AP40F series

|                   | Incandescent  | LED unit  |
|-------------------|---|---|
| Full-voltage type | C: 15.5V AC/DC D: 20V AC/DC<br>E: 24V AC/DC   | A3: 6V DC B3: 12V AC/DC<br>C3: 15V AC/DC E3: 24V AC/DC<br>ES: 24V AC/DC * F3: 48V AC/DC<br>H3: 100-110V AC/DC L3: 115-127V AC/DC<br>M3: 200-220V AC |
| Transformer unit  | H: 100-110V AC L: 115-127V AC<br>M: 200-220V AC Q: 230-254V AC<br>S: 350-380V AC T: 400-440V AC<br>V: 480V AC | Q3: 230-254V AC S3: 350-380V AC<br>T3: 400-440V AC V3: 480V AC  |
| Resistor unit     | H6: 110V DC L6: 127V DC<br>(Electric bulb 48V 2W)   | —   |
| Mixed type        | X: Combination of the above three   | X3: Combination of the above three types plus flicker and voltage stabilizer unit   |

\* Short body type

Notes:

The combination of LED units and voltage units is limited as follows:

| Code | Voltage unit                         | LED unit              |
|------|--------------------------------------|-----------------------|
| E3FA | Flicker unit                         | 24V (short body type) |
| E3FD |                                      |                       |
| E3C  | Voltage stabilizer unit 27-35V AC/DC | 24V (short body type) |

- Two-color illumination face is only available for 24V AC/DC type.
- The flicker unit is available in square design only (S-type).

#### ⑤ Shape of illuminated face

##### AP30F series

S: Square (30 × 30)

T: Rectangular, horizontally long (30 × 60)

V: Rectangular, vertically long (60 × 30)

H: Half-size (15 × 30) × 2

X: Mixture of S, T, and V

##### AP40F series

S: Square (40 × 40)

T: Rectangular, horizontally long (40 × 80)

V: Rectangular, vertically long (80 × 40)

H: Half-size (20 × 40) × 2

X: Mixture of S, T, and V

#### ⑥ Illumination method

Blank: Single color, entire surface illumination

4: 2-color, entire surface illumination (for 24V AC/DC LEDs only)

2: 2-way rectangular-split illumination

#### ⑦ Illuminated color

| Using clear lens | Color plate (White) | Using smoked lens |
|------------------|---------------------|-------------------|
| R: Red           | CR: Red             | SR: Red           |
| G: Green         | CG: Green           | SG: Green         |
| Y: Yellow        | CY: Yellow          | SY: Yellow        |
| O: Orange        | CO: Orange          | SO: Orange        |
| W: White         | CS: Blue            | SW: White         |
| S: Blue          | RG: Red/green       | SS: Blue          |
| P: Pure-white*   |                     |                   |

- Specify the number of windows in ( ).

- If two or more colors are specified using LED unit, the illuminated color ⑦ here should be blank.

\* Not available for incandescent lamp

#### ⑧ UL, CSA Approved (Option)

#### Using window layout sheet

Use the copies of the window layout sheet (See page 04/255) and specify for each of the window when ordering the following types.

- Types with letters on legend plate
- Types with symbol X for ④ voltage unit and input voltage
- Types with symbol X for ⑤ shape of illuminated face
- When two or more illuminated colors are specified for LED unit in ⑦.

#### ■ Ordering information

Specify the following:

1. Type number

# Multi Display Lights AP30F and AP40F Specifications and performance

## ■ Specifications

| Type                                      |                              | AP30F  |  | AP40F  |  |
|---|------------------------------|--|--|--|--|
| Light source                              |                              | Incandescent   | LED  | Incandescent                                     | LED  |
| Size of illuminated face                  |                              |  |  |  |  |
| Illuminated color (types of color-insert) | Red                          | ●  | ●  | ●  | ●  |
|   | Green                        | ●  | ●  | ●  | ●  |
|   | Yellow                       | ●  | ●  | ●  | ●  |
|   | Orange                       | ●  | ●  | ●  | ●  |
|   | White                        | ●  | ●  | ●  | ●  |
|   | Blue                         | ●  | ●  | ●  | ●  |
|   | Pure-white                   | —  | ●  | —  | ●  |
| Input voltage                             | Full voltage                 | 5.5, 15.5, 20<br>24V AC/DC                                     | 6V DC<br>12, 15, 24, 48, 110, 127V AC/DC 220V AC | 15.5, 20<br>24V AC/DC                            | 6V DC<br>12, 15, 24, 48, 110, 127V AC/DC 220V AC |
|   | With transformer unit        | 110, 127, 220, 254,<br>380, 440, 480V AC 50/60Hz               | 254, 380, 440, 480V AC 50/60Hz                   | 110, 127, 220, 254,<br>380, 440, 480V AC 50/60Hz | 254, 380, 440, 480V AC 50/60Hz                   |
|   | With resistor unit           | 110V DC<br>125V DC   | —  | 110V DC<br>125V DC                               | —  |
|   | With flicker unit            | —  | 24V DC<br>24V AC                                 | —  | 24V DC<br>24V AC                                 |
|   | With voltage stabilizer unit | —  | 27 to 35V AC/DC                                  | —  | 27 to 35V AC/DC                                  |
|   | Mixture                      | Combination of the above input voltages for different windows. |  |  |  |
| Terminal                                  |                              | M3.5 screw with washer (self-lifting)                          |  |  |  |
| No. of windows                            | 1 to 400 *1                  |  | 1 to 105 *1                                      |  |  |
|   | 1 to 80 *2                   |  | 1 to 80 *2                                       |  |  |
| Panel thickness                           |                              | 1 to 6mm   |  |  |  |

●: Available      —: Not available

\*1 : Without transformer unit

\*2 : With transformer unit

## ■ Performance

|   |  |
|---|--|
| Rated insulation voltage                      | 250V AC/DC:<br>Full voltage type, with resistor unit, with voltage stabilizer unit, R/CR dividing, with flicker unit, with transformer unit (AP30F incandescent 100 to 200V)<br><br>600V AC/DC:<br>With transformer unit (AP30F 230 to 480V)               |
| Dielectric strength (between unit and ground) | 2000V AC 1-minute:<br>Full voltage type, with resistor unit, with voltage stabilizer unit, R/CR dividing, with flicker unit, with transformer unit (AP30F incandescent 100 to 200V)<br><br>2500V AC 1-minute:<br>With transformer unit (AP30F 230 to 480V) |
| Operating ambient temperature                 | −20°C to 40°C  |
| Humidity                                      | 45 to 85%RH  |
| Insulation resistance                         | 100MΩ or more (500V DC megger)   |

# Multi Display Lights

## AP30F and AP40F

### Specifications and performance

#### ■ Power consumption

| Light source             | Operating voltage                                    |   | AP30F square                 | AP40F square                 |              |              | AP30F, AP40F half size |
|--------------------------|--|---|------------------------------|------------------------------|--------------|--------------|------------------------|
|                          |  |   | R, G, Y, O, W, S, P          | R, Y, O, W                   | G, S         | P            | R, G, Y, O, W, S, P    |
| LED                      | Full voltage   | 6V DC   | 0.26W                        | 0.33W                        | 0.40W        | 0.53W        | –                      |
|                          |  | 12V AC/DC   | 0.53W 0.56VA                 | 0.66W 0.70VA                 | 0.79W 0.82VA | 1.06W 1.30VA | 0.14W 0.16VA           |
|                          |  | 15V AC/DC   | 0.66W 0.69VA                 | 0.83W 0.87VA                 | 0.99W 1.02VA | 1.32W 1.62VA | 0.17W 0.18VA           |
|                          |  | 24V AC/DC   | 0.26W 0.34VA                 | 0.53W 0.58VA                 | 0.53W 0.58VA | 0.53W 0.65VA | 0.26W 0.29VA           |
|                          |  | 48V AC/DC   | 0.53W 0.67VA                 | 0.53W 0.67VA                 |              |              | –                      |
|                          | R voltage dividing type                              | 100-110V AC/DC<br>115-127V AC/DC  | 1.21W 1.54VA<br>1.40W 1.78VA | 1.21W 1.54VA<br>1.40W 1.78VA |              |              |                        |
| CR voltage dividing type | 200-220V AC  | 3.3VA   | 3.3VA                        |                              |              |              |                        |
| With transformer unit    | 230-254V AC<br>350-380V AC<br>400-440V AC<br>480V AC | 2.4VA   | 2.4VA                        |                              |              |              |                        |
| With flicker unit        | 24V AC<br>24V DC                                     | 1.0VA<br>0.48W  | 1.0VA<br>0.48W               |                              |              |              |                        |
| Incandescent             | Full voltage   | 5.5V AC/DC  | 1.0W                         | –                            |              |              |                        |
|                          |  | 15.5V AC/DC   | 1.0W                         | 2.0W                         |              |              |                        |
|                          |  | 20V AC/DC<br>24V AC/DC  |                              |                              |              |              |                        |
|                          | With transformer unit                                | 100-110V AC<br>115-127V AC<br>200-220V AC<br>230-254V AC<br>350-380V AC<br>400-440V AC<br>480V AC | 3.0VA                        | 3.0VA                        |              |              |                        |
| With resistor unit       | 110V DC  | 2.0W  | 3.0W                         |                              |              |              |                        |

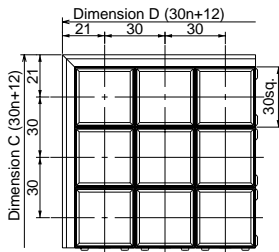
Notes: • Maximum power consumption per one square window, except for half-size window.  
 • Maximum power consumption for rectangular type is twice value indicated in the table.

## AP30F

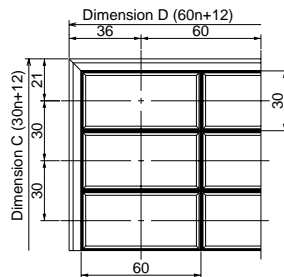
### ■ Dimensions, mm

#### Front view

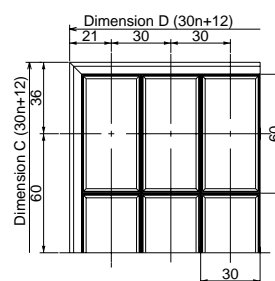
##### ● S-type



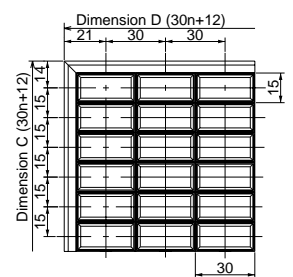
##### ● T-type



##### ● V-type

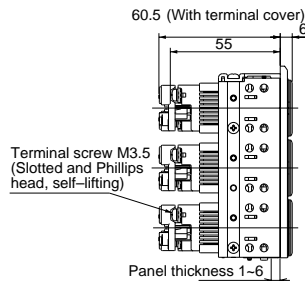
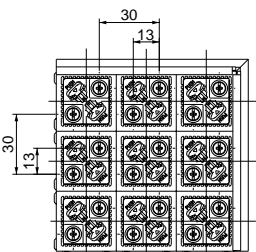


##### ● H-type

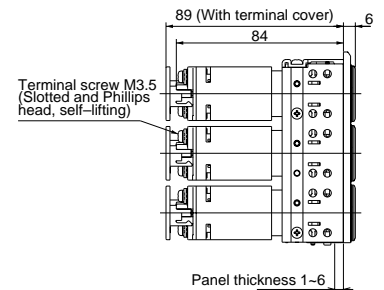
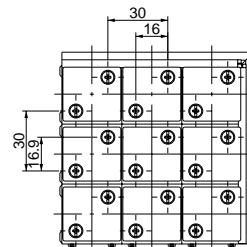


#### Back view

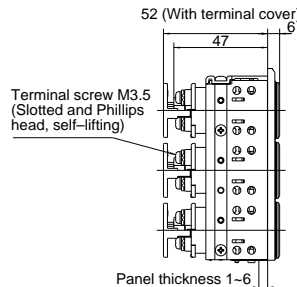
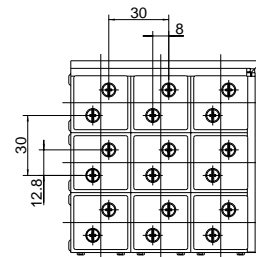
##### ● Full-voltage type (LED)



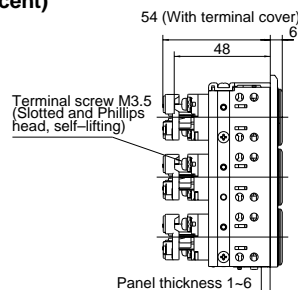
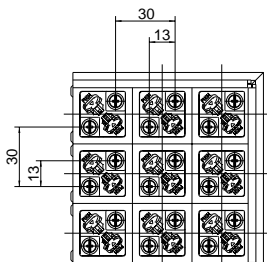
##### ● With transformer unit (230V to 480V LED and incandescent) With resistor unit, with flicker unit, with voltage stabilizer unit



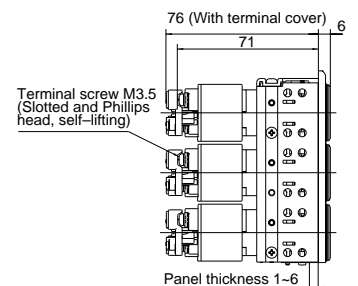
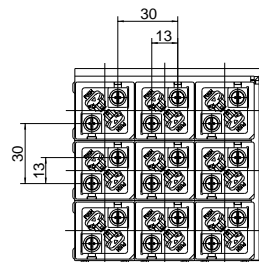
##### ● Full-voltage type (LED, short body type)



##### ● Full-voltage type (Incandescent)



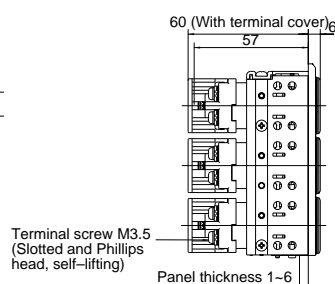
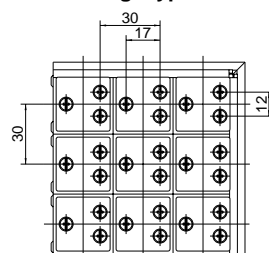
##### ● With transformer (Incandescent, 100V to 220V)



#### Half size (Illuminated face)

##### With check terminal

##### ● Full-voltage type



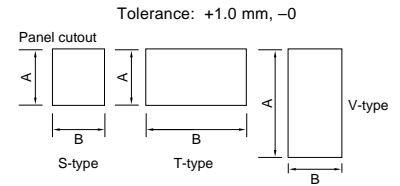
# Multi Display Lights

## AP30F

### Dimensions

#### AP30F

##### ■ Panel cutout and overall dimensions



##### ● S, H-type

| Number of windows |   | 1  | 2  | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  |
|-------------------|---|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Panel cutout      | A | 35 | 65 | 95  | 125 | 155 | 185 | 215 | 245 | 275 | 305 | 336 | 366 | 396 | 426 | 456 | 486 | 516 | 546 | 576 | 606 |
|                   | B | 35 | 65 | 95  | 125 | 155 | 185 | 215 | 245 | 275 | 305 | 335 | 365 | 395 | 425 | 455 | 485 | 515 | 545 | 575 | 605 |
| Overall           | C | 42 | 72 | 102 | 132 | 162 | 192 | 222 | 252 | 282 | 312 | 342 | 372 | 402 | 432 | 462 | 492 | 522 | 552 | 582 | 612 |
|                   | D | 42 | 72 | 102 | 132 | 162 | 192 | 222 | 252 | 282 | 312 | 342 | 372 | 402 | 432 | 462 | 492 | 522 | 552 | 582 | 612 |

##### ● T-type

| Number of windows |    | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  |
|-------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Panel cutout      | A  | 35 | 65  | 95  | 125 | 155 | 366 | 426 | 486 | 546 | 606 | 336 | 366 | 396 | 426 | 456 | 486 | 516 | 546 | 576 | 606 |
|                   | B* | 65 | 125 | 185 | 145 | 305 | 365 | 425 | 485 | 545 | 605 | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   |
| Overall           | C  | 42 | 72  | 102 | 132 | 162 | 192 | 222 | 252 | 282 | 312 | 342 | 372 | 402 | 432 | 462 | 492 | 522 | 552 | 582 | 612 |
|                   | D* | 72 | 132 | 192 | 252 | 312 | 372 | 432 | 492 | 552 | 612 | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   |

##### ● V-type

| Number of windows |    | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  |
|-------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Panel cutout      | A* | 65 | 125 | 185 | 245 | 305 | 366 | 426 | 486 | 546 | 606 | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   |
|                   | B  | 35 | 65  | 95  | 125 | 155 | 185 | 215 | 245 | 275 | 305 | 335 | 365 | 395 | 425 | 455 | 485 | 515 | 545 | 575 | 605 |
| Overall           | C* | 72 | 132 | 192 | 252 | 312 | 372 | 432 | 492 | 552 | 612 | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   |
|                   | D  | 42 | 72  | 102 | 132 | 166 | 192 | 222 | 252 | 282 | 312 | 342 | 372 | 402 | 432 | 462 | 492 | 522 | 552 | 582 | 612 |

Note: \* Indicates dimensions for rectangular windows.

##### ■ Total numbers of windows

|                         | T type<br>S.V type |    | Number of windows (Column) |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-------------------------|--------------------|----|----------------------------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                         |                    |    | 1                          | 2  | 3  | 4  | 5   | 6   | 7   | 8   | 9   | 10  | -   | -   | -   | -   | -   | -   | -   | -   | -   |     |
| V type                  | S.T type           |    | 1                          | 2  | 3  | 4  | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  |
| Number of windows (Row) | 1                  | 1  | 1                          | 2  | 3  | 4  | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  |
|                         | 2                  | 2  | 2                          | 4  | 6  | 8  | 10  | 12  | 14  | 16  | 18  | 20  | 22  | 24  | 26  | 28  | 30  | 32  | 34  | 36  | 38  | 40  |
|                         | 3                  | 3  | 3                          | 6  | 9  | 12 | 15  | 18  | 21  | 24  | 27  | 30  | 33  | 36  | 39  | 42  | 45  | 48  | 51  | 54  | 57  | 60  |
|                         | 4                  | 4  | 4                          | 8  | 12 | 16 | 20  | 24  | 28  | 32  | 36  | 40  | 44  | 48  | 52  | 56  | 60  | 64  | 68  | 72  | 76  | 80  |
|                         | 5                  | 5  | 5                          | 10 | 15 | 20 | 25  | 30  | 35  | 40  | 45  | 50  | 55  | 60  | 65  | 70  | 75  | 80  | 85  | 90  | 95  | 100 |
|                         | 6                  | 6  | 6                          | 12 | 18 | 24 | 30  | 36  | 42  | 48  | 54  | 60  | 66  | 72  | 78  | 84  | 90  | 96  | 102 | 108 | 114 | 120 |
|                         | 7                  | 7  | 7                          | 14 | 21 | 28 | 35  | 42  | 49  | 56  | 63  | 70  | 77  | 84  | 91  | 98  | 105 | 112 | 119 | 126 | 133 | 140 |
|                         | 8                  | 8  | 8                          | 16 | 24 | 32 | 40  | 48  | 56  | 64  | 72  | 80  | 88  | 96  | 104 | 112 | 120 | 128 | 136 | 144 | 152 | 160 |
|                         | 9                  | 9  | 9                          | 18 | 27 | 36 | 45  | 54  | 63  | 72  | 81  | 90  | 99  | 108 | 117 | 126 | 135 | 144 | 153 | 162 | 171 | 180 |
|                         | 10                 | 10 | 10                         | 20 | 30 | 40 | 50  | 60  | 70  | 80  | 90  | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 |
|                         | 11                 | -  | 11                         | 22 | 33 | 44 | 55  | 66  | 77  | 88  | 99  | 110 | 121 | 132 | 143 | 154 | 165 | 176 | 187 | 198 | 209 | 220 |
|                         | 12                 | -  | 12                         | 24 | 36 | 48 | 60  | 72  | 84  | 96  | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 | 204 | 216 | 228 | 240 |
|                         | 13                 | -  | 13                         | 26 | 39 | 52 | 65  | 78  | 91  | 104 | 117 | 130 | 143 | 156 | 169 | 182 | 195 | 208 | 221 | 234 | 247 | 260 |
|                         | 14                 | -  | 14                         | 28 | 42 | 56 | 70  | 84  | 98  | 112 | 126 | 140 | 154 | 168 | 182 | 196 | 210 | 224 | 238 | 252 | 266 | 280 |
|                         | 15                 | -  | 15                         | 30 | 45 | 60 | 75  | 90  | 105 | 120 | 135 | 150 | 165 | 180 | 195 | 210 | 225 | 240 | 255 | 270 | 285 | 300 |
|                         | 16                 | -  | 16                         | 32 | 48 | 64 | 80  | 96  | 112 | 128 | 144 | 160 | 176 | 192 | 208 | 224 | 240 | 256 | 272 | 288 | 304 | 320 |
|                         | 17                 | -  | 17                         | 34 | 51 | 68 | 85  | 102 | 119 | 136 | 153 | 170 | 187 | 204 | 221 | 238 | 255 | 272 | 289 | 306 | 323 | 340 |
|                         | 18                 | -  | 18                         | 36 | 54 | 72 | 90  | 108 | 126 | 144 | 162 | 180 | 198 | 216 | 234 | 252 | 270 | 288 | 306 | 324 | 342 | 360 |
|                         | 19                 | -  | 19                         | 38 | 57 | 76 | 95  | 114 | 133 | 152 | 171 | 190 | 209 | 228 | 247 | 266 | 285 | 304 | 323 | 342 | 361 | 380 |
|                         | 20                 | -  | 20                         | 40 | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 |

Note: For H type, count two windows as one S type window.

Examples: 1. S-type Row: 6 Column: 14 Total: 84  
 2. T-type Row: 8 Column: 8 Total: 64  
 3. V-type Row: 5 Column: 18 Total: 90

H type (Half size)

S type (Square type)

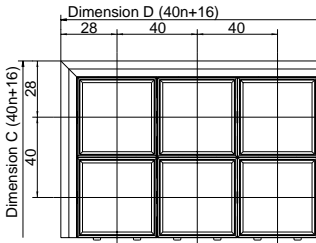


## AP40F

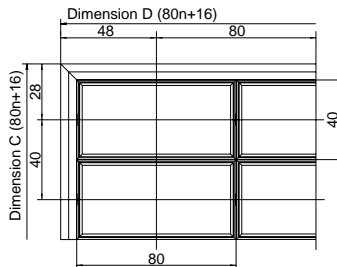
### ■ Dimensions, mm

#### Front view

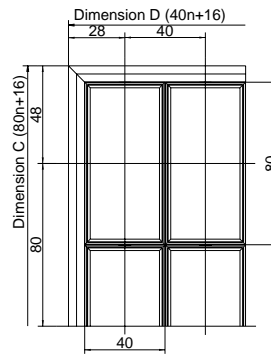
#### ● S-type



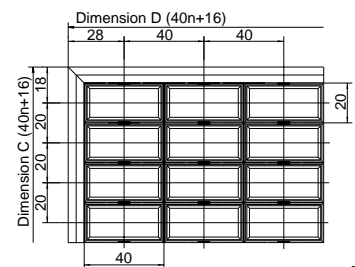
#### ● T-type



#### ● V-type

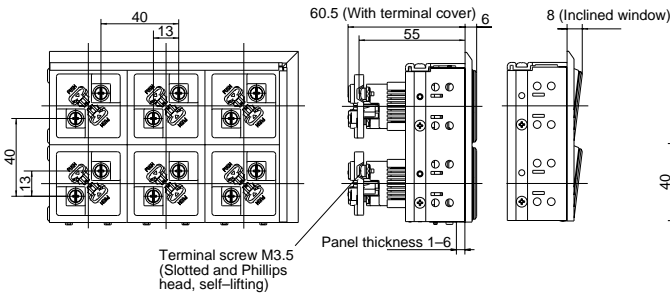


#### ● H-type

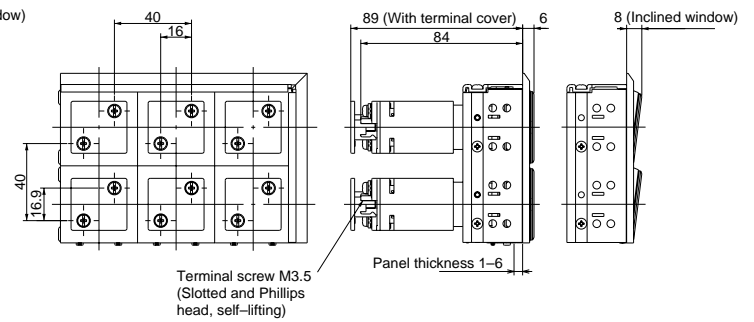


#### Back view

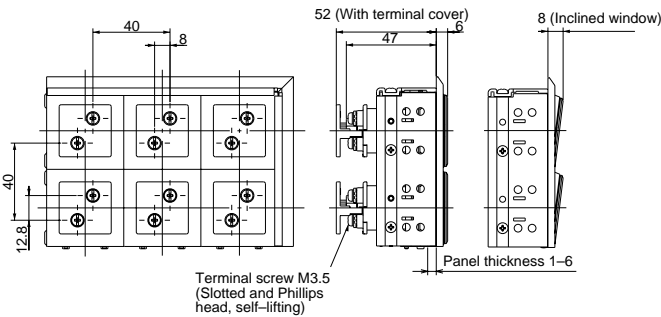
#### ● Full-voltage type (LED)



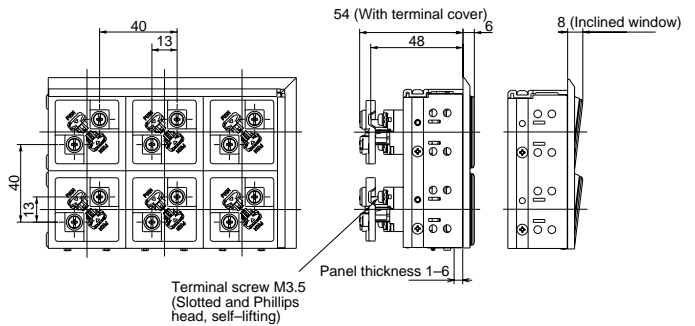
#### ● With transformer unit, with resistor unit, with flicker unit, with voltage stabilizer unit



#### ● Full-voltage type (LED, short body type)



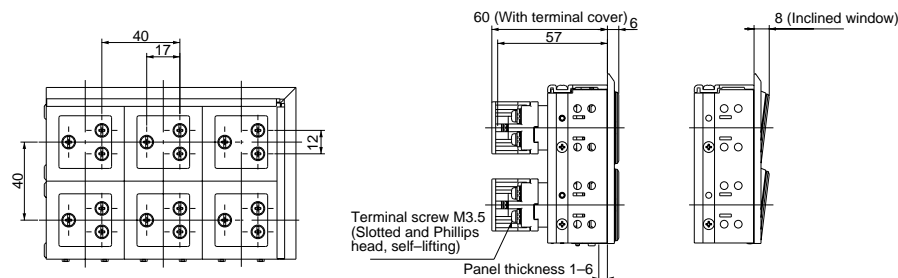
#### ● Full-voltage type (Incandescent)



#### Half size (Illuminated face)

#### With check terminal

#### ● Full-voltage type





# Multi Display Lights

## AP40F

### Dimensions

#### AP40F

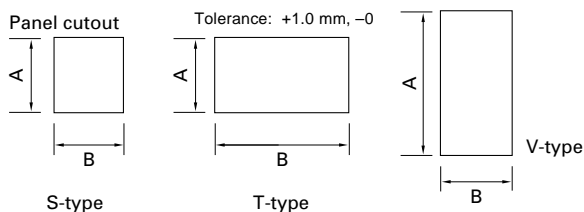
##### ■ Panel cutout and overall dimensions

###### ● S, H-type

| Number of windows |   | 1  | 2  | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  |
|-------------------|---|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Panel cutout      | A | 45 | 85 | 125 | 165 | 205 | 245 | 285 | –   | –   | –   | –   | –   | –   | –   | –   |
|                   | B | 45 | 85 | 125 | 165 | 205 | 245 | 285 | 325 | 365 | 405 | 445 | 485 | 525 | 565 | 605 |
| Overall           | C | 56 | 96 | 136 | 176 | 216 | 256 | 296 | –   | –   | –   | –   | –   | –   | –   | –   |
|                   | D | 56 | 96 | 136 | 176 | 216 | 256 | 296 | 336 | 376 | 416 | 456 | 496 | 536 | 576 | 616 |

###### ● T-type

| Number of windows |    | 1  | 2   | 3   | 4   | 5   | 6   | 7   |
|-------------------|----|----|-----|-----|-----|-----|-----|-----|
| Panel cutout      | A  | 45 | 85  | 125 | 165 | 205 | 245 | 285 |
|                   | B* | 85 | 165 | 245 | 325 | 405 | 485 | 565 |
| Overall           | C  | 56 | 96  | 136 | 176 | 216 | 256 | 296 |
|                   | D* | 96 | 176 | 256 | 336 | 416 | 496 | 576 |



###### ● V-type

| Number of windows |    | 1  | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  |
|-------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Panel cutout      | A* | 85 | 165 | 245 | –   | –   | –   | –   | –   | –   | –   | –   | –   | –   | –   | –   |
|                   | B  | 45 | 85  | 125 | 165 | 205 | 245 | 285 | 325 | 365 | 405 | 445 | 485 | 525 | 565 | 605 |
| Overall           | C* | 96 | 176 | 256 | –   | –   | –   | –   | –   | –   | –   | –   | –   | –   | –   | –   |
|                   | D  | 56 | 96  | 136 | 176 | 216 | 256 | 296 | 336 | 376 | 416 | 456 | 496 | 536 | 576 | 616 |

Note: \* Indicates dimensions for rectangular windows.

##### ■ Total numbers of windows

|                         |   | S, V type |   | Number of windows (Column) |    |    |    |    |    |    |    |    |    |    |    |    |     |    |  |  |
|-------------------------|---|-----------|---|----------------------------|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|--|--|
|                         |   | T type    |   | 1                          | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14  | 15 |  |  |
| S, T type               |   |           |   | 1                          | 2  | 3  | 4  | 5  | 6  | 7  | –  |    |    |    |    |    |     |    |  |  |
| Number of windows (Row) | 1 | 1         | 1 | 2                          | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15  |    |  |  |
|                         | 2 | 2         | 2 | 4                          | 6  | 8  | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30  |    |  |  |
|                         | 3 | 3         | 3 | 6                          | 9  | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45  |    |  |  |
|                         | 4 |           | 4 | 8                          | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60  |    |  |  |
|                         | 5 |           | 5 | 10                         | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75  |    |  |  |
|                         | 6 |           | 6 | 12                         | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | 90  |    |  |  |
|                         | 7 |           | 7 | 14                         | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 | 77 | 84 | 91 | 98 | 105 |    |  |  |

Note: For H Type, count two-windows as one S-type window.

H type (Half size)

S type (Square type)



■ Installation

**Mounting panel**

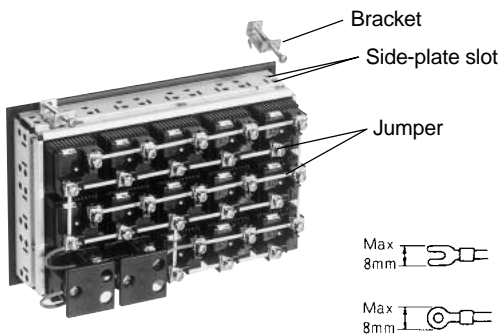
- Panel thickness: 1 to 6mm
- The panel thickness must be able to support the weight of the products and wiring cables. Take particular care in deciding the panel thickness when the products are heavy.

**Panel cutout**

Cut the mounting panel according to the numbers of rows and columns of windows. (See the dimensions on page 04/240 and 242.)

**How to install**

- Insert the product into the panel cutout from the front of the mounting panel. Make sure the product top and bottom are correctly oriented. The product nameplate is stuck to the top of the product.
- Fix the brackets into the side-plate slots at the back of the panel, as shown in the figure below, and clamp the product with the bracket screws. (Tightening torque : 0.4 to 0.6N•m)



■ Wiring

**Terminal size**

The M3.5 terminal screw is suitable for both phillips and slotted screwdrivers. The terminal washers are the self-lifting type. Use crimp terminals. (Tightening torque : 0.8 to 1.0N•m). Double crimp terminals can be connected.

**Staggered terminals**

Because the terminals are staggered, jumper connection is simple. Jumpers are supplied with products as standard. Rated current of jumper : 3A

■ Mass (g)

Mass of multi display light = Voltage unit × (rows × columns) + Side plate × (rows + columns)

**AP30F**

| Description  |              |  | Mass (g) |
|--------------|--------------|--|----------|
| Voltage unit | Incandescent | Full-voltage type  | 29       |
|              |              | With transformer (short)                                       | 79       |
|              |              | With transformer   | 107      |
|              |              | With resistor unit   | 52       |
|              | LED          | Full-voltage type  | 29       |
|              |              | With transformer   | 109      |
|              |              | Short body type  | 33       |
|              |              | With R/CR voltage dividing type                                | 32       |
|              |              | 2-color all surface illumination with check terminal half size | 38       |
|              |              | With flicker unit  | 54       |
|              |              | With voltage stabilizer unit                                   | 54       |
|              |              | Side plate   | 27       |

The number of brackets required depends on the type as follows

**Full-voltage type and transformer type with 1 to 20 lamps**

| Column | AP30F | 01~02 | 03~08 | 09~15 | 16~20 |
|--------|-------|-------|-------|-------|-------|
| Row    | AP40F | 01~02 | 03~06 | 07~11 | 12~15 |
| AP30F  | AP40F |       |       |       |       |
| 01~02  | 01~02 |       |       |       |       |
| 03~06  | 03~04 |       |       |       |       |
| 07~10  | 05~07 |       |       |       |       |
| 11~15  | -     |       |       |       |       |
| 16~20  | -     |       |       |       |       |

**Transformer type with 21 to 50 lamps**

| Rows or columns   | 1~2 | 3~4 | 5 | 6~8 | 9 | 10~12 | 13 | 14~16 | 17 | 18~20 |
|-------------------|-----|-----|---|-----|---|-------|----|-------|----|-------|
| Brackets required | 1   | 2   | 3 | 4   | 5 | 6     | 7  | 8     | 9  | 10    |

The transformer type with over 20 lamps is very heavy and extra brackets are required. Fit brackets at equal intervals.

**Transformer type with 51 to 80 lamps**

Fit brackets in all slots.

**AP40F**

| Description  |  |                    | Mass (g)          |     |
|--------------|--|--------------------|-------------------|-----|
| Voltage unit | Incandescent   | Full-voltage type  | 32                |     |
|              |  | With transformer   | 110               |     |
|              |  | With resistor unit | 64                |     |
|              |  | LED                | Full-voltage type | 38  |
|              |  |                    | With transformer  | 121 |
|              |  |                    | Short body type   | 33  |
|              | With R/CR voltage dividing type                                |                    | 32                |     |
|              | 2-color all surface illumination with check terminal half size |                    | 38                |     |
|              | With flicker unit  |                    | 67                |     |
|              | With voltage stabilizer unit                                   | 67                 |                   |     |
|              | Side plate   | 28                 |                   |     |

# Multi Display Lights AP30F and AP40F Notes on use

## ■ Replacing parts

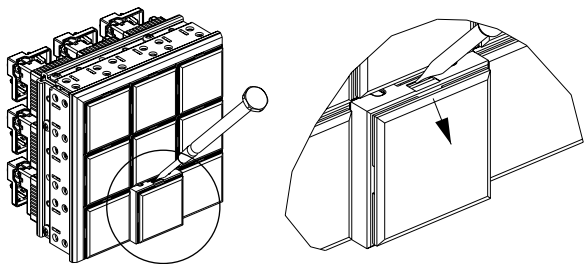
### Detaching lens case

To remove a lamp, place the tip of a flat-blade screwdriver in the groove at the edge of the lens case and press it in the direction of the arrow. The tip of the screwdriver should be 4.5mm or less wide and 0.6mm or less thick.

To remove both the LED unit and lens case, place the tip of flat-blade screwdriver in one of the indents on the edges of the lens case and press it in the direction of the arrow.

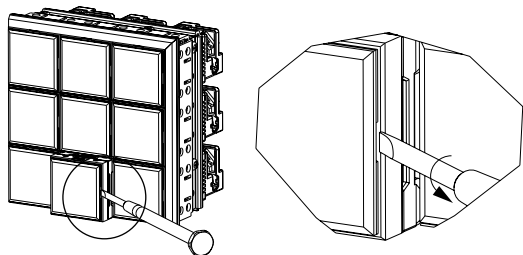
When installing an LED unit, press it into the frame so that the LED unit side with the arrow faces the top side of the frame (i.e., the side with the unit type nameplate). The LED unit must be in the correct orientation when installing it.

After installing the lens case and lens, use your finger to press the lens part firmly until it stops in place. To prevent defective lighting or other problems caused by static electricity, do not press directly on the LED chip surface with your finger.



### ■ Replacing color inserts and legend plates

To replace a color insert and legend plate, insert a flat-blade screwdriver and press it to remove the lens.



Using the specially-designed suction cup removal tool DN7Y020, replace a color insert and legend plate by applying the suction cup as shown in the diagram below.



Do not touch the chip when the color insert is removed from the LED unit and the LED chip is exposed. Defective lighting or other problems may be caused by static electricity. Install a color insert and legend plate by inserting their rough surfaces so that they face the lamp.

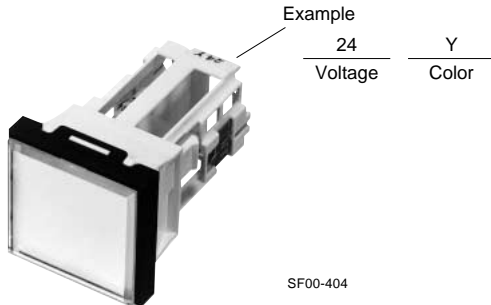
### Replacing incandescent lamps

Insert and remove lamps using the hollow end of the lamp changer type AHX029.



## ■ LED unit color display

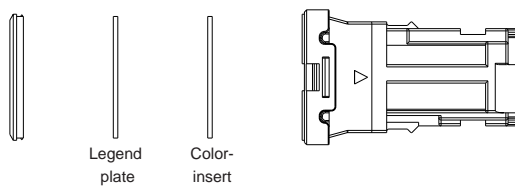
The operating voltage and lamp color are printed on the LED unit lamp using codes.



| Rated voltage code \ Color code | Color code |       |       |       |       |       |       |     |
|---------------------------------|------------|-------|-------|-------|-------|-------|-------|-----|
|                                 | R          | A     | W     | Y     | G     | S     | P     | F   |
| M                               | 220R       | 220A  | 220W  | 220Y  | 220G  | 220S  | 220P  |     |
| L                               | 127R       | 127A  | 127W  | 127Y  | 127G  | 127S  | 127P  |     |
| H                               | 110R       | 110A  | 110W  | 110Y  | 110G  | 110S  | 110P  |     |
| F                               | 48R        | 48A   | 48W   | 48Y   | 48G   | 48S   | 48P   |     |
| E                               | 24R        | 24A   | 24W   | 24Y   | 24G   | 24S   | 24P   | 24F |
| C                               | 15R        | 15A   | 15W   | 15Y   | 15G   | 15S   | 15P   |     |
| B                               | 12R        | 12A   | 12W   | 12Y   | 12G   | 12S   | 12P   |     |
| 6                               | 6R         | 6A    | 6W    | 6Y    | 6G    | 6S    | 6P    |     |
| E<br>(With check terminal)      | 24-RC      | 24-AC | 24-WC | 24-YC | 24-GC | 24-SC | 24-PC |     |

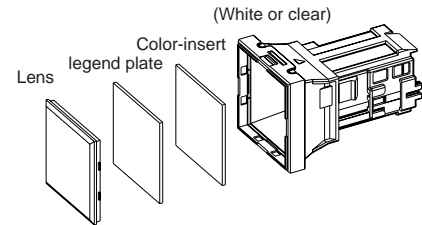
## ■ Installing color inserts and legend plate

Inserting a color insert and legend plate

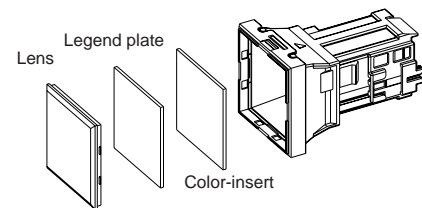


- For a color display when the lamp is OFF, insert first a color insert and then an opaque white legend plate into the lens case.
- For an opaque white display when the lamp is OFF, insert first a transparent color insert and then an opaque white legend plate into the lens case (only with LEDs).
- For smoked lenses, insert first a color insert and then an opaque white legend plate into the lens case.
- The legend plate and color inserts can be engraved.
- Do not touch the chip when the color insert is removed from the LED unit and the LED chip is exposed. Defective lighting or other problems may be caused by static electricity.

## Opaque white display with the lamp off

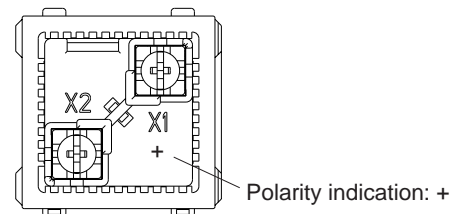


## Color display with the lamp off



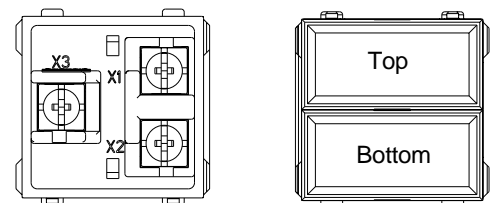
## ■ LED polarity

The terminals of all 6V DC voltage products and DC flicker units have polarity, so care is needed when installing them. X1 is the positive terminal.



## ■ Connecting color lamps and half-size lamp windows

| Terminals | Light color from two-color lamp | Half-size lamp window |
|-----------|---------------------------------|-----------------------|
| X1 to X3  | Green                           | Top                   |
| X1 to X2  | Red                             | Bottom                |



# Multi Display Lights AP30F and AP40F Notes on use

## Assembling lens and lens case

Assemble the lens with lens case by mating lens projections with lens case indents.

## ■ Other precautions

### 1. Transformer units

- A maximum of 80 windows can function for a unit with transformers when the windows are square.
- Transformers are designed for a load of one incandescent lamp and one LED unit. It is not possible to connect additional loads.

### 2. Operating voltage and the rated voltage of incandescent lamp

- Incandescent lamps can be used within the lamp's rated voltage. If you need 5,000 to 10,000 hours of service life for incandescent lamp (at AC circuit), use the lamp within the standard operating voltage. Using incandescent lamps in DC circuit greatly reduces the lamp service life due to notching phenomenon. Use LED units in DC circuit instead.

| Lamp rated voltage<br>(V AC) | Standard operating voltage<br>(V AC) |
|------------------------------|--------------------------------------|
| 6.3                          | 4 to 5.5                             |
| 18                           | 12 to 15                             |
| 24                           | 16 to 20                             |
| 30                           | 20 to 24                             |

### 3. Flicker units

- When two or more flicker units are used in a Multi Display Light, they may not illuminate simultaneously because of variations in flicker unit circuits.
- Flicker units can be used only with square Multi Display Lights. They cannot be used with rectangular lights.

### 4. Continuous lighting

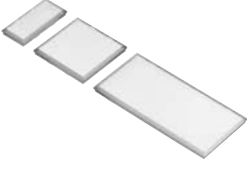
- For continuous light, the duty cycle should be 50% or less. If densely packed LEDs are lit continuously with a high duty cycle, LED life will be reduced.
- With 2-color lighting on the entire surface, do not use continuous lighting when lighting 2 colors simultaneously.

### 5. Store and operate these units within the temperature and humidity specifications on *page 04/237*.

### 6. Do not use these units at outdoor.

### 7. Do not use these units in places where dust or cuttings will accumulate. The lights may not turn ON if dust or cuttings penetrate into the units.

■ Accessory

| Description   | Type and dimensions, mm |        |                   |                   |                   |             |
|---|-------------------------|--------|-------------------|-------------------|-------------------|-------------|
| Lens<br><br> | Used with               |        | Type              |                   |                   |             |
|   |                         |        | Square(S)         | Rectangular(T,V)  | Half size(H)      |             |
|   | AP30F                   | Clear  | <b>DN7C001-SC</b> | <b>DN7C001-TC</b> | <b>DN7C001-HC</b> |             |
|   |                         | Smoked | <b>DN7C001-SS</b> | <b>DN7C001-TS</b> | <b>DN7C001-HS</b> |             |
|   | AP40F                   | Clear  | <b>DN8C001-SC</b> | <b>DN8C001-TC</b> | <b>DN8C001-HC</b> |             |
|   |                         | Smoked | <b>DN8C001-SS</b> | <b>DN8C001-TS</b> | <b>DN8C001-HS</b> |             |
|   | DN7C001-S □             |        | DN7C001-T □       |                   | DN8C001-S □       | DN8C001-T □ |
|   |                         |        |                   |                   |                   |             |
|   | DN7C001-H □             |        | DN8C001-H □       |                   |                   |             |
|   |                         |        |                   |                   |                   |             |
| AF00-379  |                         |        |                   |                   |                   |             |

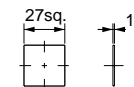
| Used with | Code     |              | Color                | Type               |                    |                         |                  |
|-----------|----------|--------------|----------------------|--------------------|--------------------|-------------------------|------------------|
|           | LED      | Incandescent |                      | Square (S)         | Rectangular (T, V) | 2-way split rectangular | Half size (H)    |
| AP30F     | R        | R            | Red                  | <b>APCX016-SR</b>  | <b>APCX016-TR</b>  | <b>APCX058-R</b>        | <b>DN7P002-R</b> |
|           | O        | O            | Orange               | <b>APCX016-SO</b>  | <b>APCX016-TO</b>  | <b>APCX058-O</b>        | <b>DN7P002-A</b> |
|           | P        | W            | White                | <b>APCX012-LW</b>  | <b>APCX014-LW</b>  | <b>APCX058-W</b>        | <b>DN7P002-W</b> |
|           | G        | —            | Green (LED)          | <b>APCX016-SLG</b> | <b>APCX016-TLG</b> | <b>APCX058-LG</b>       | <b>DN7P002-G</b> |
|           | —        | G            | Green (incandescent) | <b>DN7P004-G</b>   | <b>DN7P005-G</b>   | <b>DN7P006-G</b>        | —                |
|           | Y        | Y            | Yellow               | <b>APCX016-SLY</b> | <b>APCX016-TLY</b> | <b>APCX058-LY</b>       | <b>DN7P002-Y</b> |
|           | S        | S            | Blue                 | <b>APCX016-SS</b>  | <b>APCX016-TS</b>  | <b>APCX058-S</b>        | <b>DN7P002-S</b> |
|           | W, RG, C | —            | Clear                | <b>APCX012-C</b>   | <b>APCX014-C</b>   | <b>APCX058-C</b>        | —                |
|           | W, C     | —            | Clear                | —                  | —                  | —                       | <b>DN7P002-C</b> |
|           | AP40F    | R            | R                    | Red                | <b>DN8P004-R</b>   | <b>DN8P005-R</b>        | <b>DN8P006-R</b> |
| O         |          | O            | Orange               | <b>DN8P004-A</b>   | <b>DN8P005-A</b>   | <b>DN8P006-A</b>        | <b>DN8P002-A</b> |
| W, RG, C  |          | W            | White                | <b>APCX013-LW</b>  | <b>APCX015-LW</b>  | <b>APCX059-W</b>        | <b>DN8P002-W</b> |
| G         |          | —            | Green (LED)          | <b>APCX077-SG</b>  | <b>APCX077-TG</b>  | <b>APCX079-G</b>        | <b>DN8P002-G</b> |
| —         |          | G            | Green (incandescent) | <b>DN8P004-G</b>   | <b>DN8P005-G</b>   | <b>DN8P006-G</b>        | —                |
| Y         |          | Y            | Yellow               | <b>DN8P004-Y</b>   | <b>DN8P005-Y</b>   | <b>DN8P006-Y</b>        | <b>DN8P002-Y</b> |
| S         |          | S            | Blue                 | <b>APCX017-SS</b>  | <b>APCX017-TS</b>  | <b>APCX059-S</b>        | <b>DN8P002-S</b> |
| P         |          | —            | White (LED)          | <b>APCX077-SW</b>  | <b>APCX077-TW</b>  | <b>APCX079-W</b>        | —                |
| P         |          | —            | White                | —                  | —                  | —                       | <b>DN8P002-W</b> |
| W, C      |          | —            | Clear                | —                  | —                  | —                       | <b>DN8P002-C</b> |



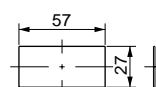
Legend plate

| Used with | Type       |                    |                    |                   |
|-----------|------------|--------------------|--------------------|-------------------|
|           | Square (S) | Rectangular (T, V) | Half size (H)      |                   |
| AP30F     | Clear      | <b>APCX012-LW</b>  | <b>APCX014-LW</b>  | <b>DN7P002-W</b>  |
|           | Smoked     | <b>APCX012-LWS</b> | <b>APCX014-LWS</b> | <b>DN7P002-WS</b> |
| AP40F     | Clear      | <b>APCX013-LW</b>  | <b>APCX015-LW</b>  | <b>DN8P002-W</b>  |
|           | Smoked     | <b>APCX013-LWS</b> | <b>APCX015-LWS</b> | <b>DN8P002-WS</b> |

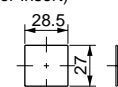
AP30F Square



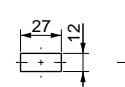
AP30F Rectangular



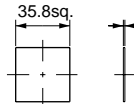
AP30F Split rectangular (Color-insert)



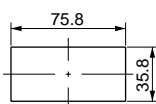
AP30F Half size



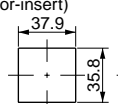
AP30F Square



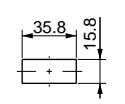
AP30F Rectangular



AP30F Split rectangular (Color-insert)


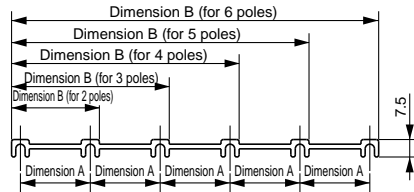



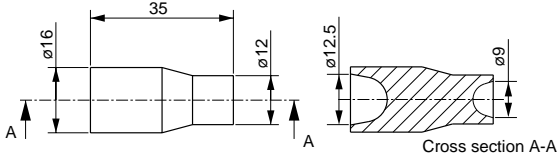

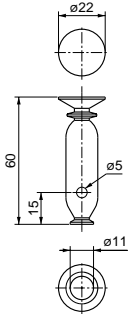


AP30F Half size




AF00-379

# Multi Display Lights AP30F and AP40F Accessories

|   |   |                      |                   |                                  |                                |                   |
|---|---|----------------------|-------------------|----------------------------------|--------------------------------|-------------------|
| Description   | Type and dimensions, mm   |                      |                   |                                  |                                |                   |
| Jumper<br><br><br><br>AF00-379   | Used with   | Type                 |                   |                                  |                                |                   |
|   |   | 2 poles              | 3 poles           | 4 poles                          | 5 poles                        | 6 poles           |
|   | AP30F   | <b>APCX029</b>       | <b>DN7Y001-03</b> | <b>DN7Y001-04</b>                | <b>DN7Y001-05</b>              | <b>DN7Y001-06</b> |
|   | AP40F   | <b>APCX030</b>       | <b>DN8Y001-03</b> | <b>DN8Y001-04</b>                | <b>DN8Y001-05</b>              | <b>DN8Y001-06</b> |
| Jumper dimensions   |   |                      |                   |                                  |                                |                   |
| Used with   | Dimension A   | Dimension B          |                   |                                  |                                |                   |
|   |   | 2 poles              | 3 poles           | 4 poles                          | 5 poles                        | 6 poles           |
| AP30F series  | 30  | 37.6                 | 67.6              | 97.6                             | 127.6                          | 157.6             |
| AP40F series  | 40  | 47.6                 | 87.6              | 127.6                            | 167.6                          | 207.6             |
|   |   |                      |                   |                                  |                                |                   |
| Incandescent lamp<br><br><br><br>AF00-383  | Used with   | Socket type          | Voltage/capacity  | Type                             | Remarks                        |                   |
|   | AP30F   | BA9s/13 bayonet type | 6.3V 1W           | <b>AHX135</b>                    | Lamp with built-in transformer |                   |
|   |   |                      | 18V 1W            | <b>AHX279</b>                    | -                              |                   |
|   |   |                      | 24V 1W            | <b>AHX144</b>                    | -                              |                   |
|   | 30V 1W  |                      | <b>AHX129</b>     | -                                |                                |                   |
|   | 48V 1W  |                      | <b>AHX407</b>     | Lamp with built-in resistor unit |                                |                   |
| AP40F   |   | 18V 2W               | <b>AHX141</b>     | Lamp with built-in transformer   |                                |                   |
|   |   | 24V 2W               | <b>AHX142</b>     | -                                |                                |                   |
|   |   | 30V 2W               | <b>AHX143</b>     | -                                |                                |                   |
|   |   | 48V 2W               | <b>DN7H001</b>    | Lamp with built-in resistor unit |                                |                   |
| <div style="display: flex; justify-content: space-around;"> <div>For AP30F (except 48V 1W)</div> <div>For AP40F, AP30F (48V 1W)</div> </div>  |   |                      |                   |                                  |                                |                   |
| Lamp changer<br><br><br><br>T-1990   | Used with   | Type                 |                   |                                  |                                |                   |
|   | AP30F, AP40F<br>For incandescent lamp   | <b>AHX029</b>        |                   |                                  |                                |                   |
|   |   |                      |                   |                                  |                                |                   |
| Color-insert and legend plate changer<br><br><br><br>AF00-380   | Type  | <b>DN7Y020</b>       |                   |                                  |                                |                   |
|   |  |                      |                   |                                  |                                |                   |

# Multi Display Lights AP30F and AP40F Accessories

04

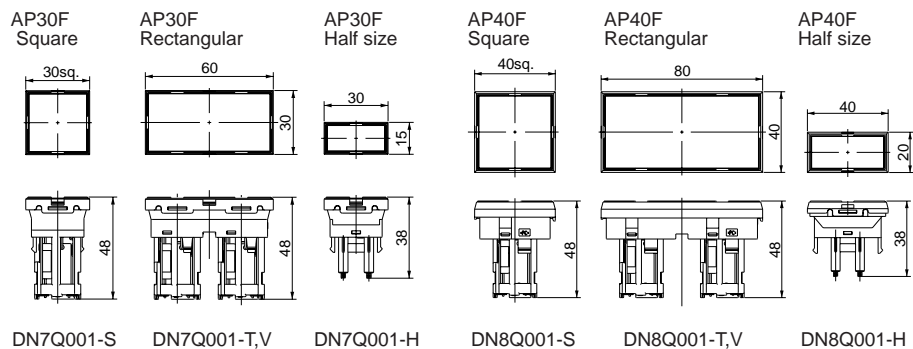
| Description   | Type and dimensions, mm                           |  |  |   |   |   |              |              |              |              |
|---|---|--|--|---|---|---|--------------|--------------|--------------|--------------|
| LED unit  | Used with   | Emitted color  | Color-insert specification                                   | Type  |   |   |              |              |              |              |
|   |   |  |  | Square(S)   | Horizontal rectangular (T)                | Vertical rectangular (V)                      | Half size(H) |              |              |              |
| <br>AF00-374 | AP30F<br>Single color<br>All surface illumination | Red<br>Orange<br>White<br>Green<br>Yellow                    | Color-insert<br>(color when light turned OFF)                | DN7Q001-S1□R                                      | DN7Q001-T1□R                              | DN7Q001-V1□R                                  | DN7Q001-H1□R |              |              |              |
|   |   |  |  | DN7Q001-S1□A                                      | DN7Q001-T1□A                              | DN7Q001-V1□A                                  | DN7Q001-H1□A |              |              |              |
|   |   |  |  | DN7Q001-S1□W                                      | DN7Q001-T1□W                              | DN7Q001-V1□W                                  | DN7Q001-H1□W |              |              |              |
|   |   |  |  | DN7Q001-S1□G                                      | DN7Q001-T1□G                              | DN7Q001-V1□G                                  | DN7Q001-H1□G |              |              |              |
|   |   |  |  | DN7Q001-S1□Y                                      | DN7Q001-T1□Y                              | DN7Q001-V1□Y                                  | DN7Q001-H1□Y |              |              |              |
|   |   |  |  | DN7Q001-S1□S                                      | DN7Q001-T1□S                              | DN7Q001-V1□S                                  | DN7Q001-H1□S |              |              |              |
|   | Full voltage                                      | Blue<br>Pure-white   | Color (transparent)<br>-insert (white when light turned OFF) | DN7Q001-S1□P                                      | DN7Q001-T1□P                              | DN7Q001-V1□P                                  | DN7Q001-H1□P |              |              |              |
|   |   |  |  | DN7Q001-S3□R                                      | DN7Q001-T3□R                              | DN7Q001-V3□R                                  | DN7Q001-H3□R |              |              |              |
|   |   |  |  | DN7Q001-S3□A                                      | DN7Q001-T3□A                              | DN7Q001-V3□A                                  | DN7Q001-H3□A |              |              |              |
|   |   |  |  | DN7Q001-S3□G                                      | DN7Q001-T3□G                              | DN7Q001-V3□G                                  | DN7Q001-H3□G |              |              |              |
|   |   |  |  | DN7Q001-S3□Y                                      | DN7Q001-T3□Y                              | DN7Q001-V3□Y                                  | DN7Q001-H3□Y |              |              |              |
|   |   |  |  | DN7Q001-S3□S                                      | DN7Q001-T3□S                              | DN7Q001-V3□S                                  | DN7Q001-H3□S |              |              |              |
|   |   |  |  | AP40F<br>Single color<br>All surface illumination | Red<br>Orange<br>White<br>Green<br>Yellow | Color-insert<br>(color when light turned OFF) | DN8Q001-S1□R | DN8Q001-T1□R | DN8Q001-V1□R | DN8Q001-H1□R |
|   |   |  |  |   |   |   | DN8Q001-S1□A | DN8Q001-T1□A | DN8Q001-V1□A | DN8Q001-H1□A |
| DN8Q001-S1□W  | DN8Q001-T1□W                                      | DN8Q001-V1□W   | DN8Q001-H1□W   |   |   |   |              |              |              |              |
| DN8Q001-S1□G  | DN8Q001-T1□G                                      | DN8Q001-V1□G   | DN8Q001-H1□G   |   |   |   |              |              |              |              |
| DN8Q001-S1□Y  | DN8Q001-T1□Y                                      | DN8Q001-V1□Y   | DN8Q001-H1□Y   |   |   |   |              |              |              |              |
| DN8Q001-S1□S  | DN8Q001-T1□S                                      | DN8Q001-V1□S   | DN8Q001-H1□S   |   |   |   |              |              |              |              |
| Full voltage  | Blue<br>Pure-white                                | Color (transparent)<br>-insert (white when light turned OFF) | DN8Q001-S1□P   |   |   |   | DN8Q001-T1□P | DN8Q001-V1□P | DN8Q001-H1□P |              |
|   |   |  | DN8Q001-S3□R   |   |   |   | DN8Q001-T3□R | DN8Q001-V3□R | DN8Q001-H3□R |              |
|   |   |  | DN8Q001-S3□A   | DN8Q001-T3□A                                      | DN8Q001-V3□A                              | DN8Q001-H3□A                                  |              |              |              |              |
|   |   |  | DN8Q001-S3□G   | DN8Q001-T3□G                                      | DN8Q001-V3□G                              | DN8Q001-H3□G                                  |              |              |              |              |
|   |   |  | DN8Q001-S3□Y   | DN8Q001-T3□Y                                      | DN8Q001-V3□Y                              | DN8Q001-H3□Y                                  |              |              |              |              |
|   |   |  | DN8Q001-S3□S   | DN8Q001-T3□S                                      | DN8Q001-V3□S                              | DN8Q001-H3□S                                  |              |              |              |              |

Notes: The LED unit is provided with a lens case and a color-insert.

Replace the □ in the type number with one of the following voltage code.

| Voltage    | Code | Square, horizontal/<br>vertical rectangular | Half size |
|------------|------|---|-----------|
| 6V DC      | 6    | ○   | —         |
| 12V AC/DC  | B    | ○   | ○         |
| 15V AC/DC  | C    | ○   | ○         |
| 24V AC/DC  | E    | ○   | ○         |
| 48V AC/DC  | F    | ○   | —         |
| 110V AC/DC | H    | ○   | —         |
| 127V AC/DC | L    | ○   | —         |
| 220V AC    | M    | ○   | —         |

○: Available —:Not available



DN7Q001-S DN7Q001-T,V DN7Q001-H DN8Q001-S DN8Q001-T,V DN8Q001-H



# Multi Display Lights AP30F and AP40F Accessories

| Description                 | Type and dimensions, mm |   |  |   |                            |  |              |
|-----------------------------|-------------------------|---|--|---|----------------------------|--|--------------|
| LED unit                    | Used with               | Emitted color   | Color-insert specification                 | Type  |                            |  |              |
|                             |                         |   |  | Square(S)   | Horizontal rectangular (T) | Vertical rectangular (V)                   |              |
|                             |                         |   |  | AP30F LED transformer units                               | Red                        | Color-insert (color when light turned OFF) | DN7Q004-S1ER |
| LED short body type         | Orange                  | DN7Q004-S1EA  | DN7Q004-T1EA                               | DN7Q004-V1EA  |                            |  |              |
|                             | White                   | DN7Q004-S1EW  | DN7Q004-T1EW                               | DN7Q004-V1EW  |                            |  |              |
|                             | Green                   | DN7Q004-S1EG  | DN7Q004-T1EG                               | DN7Q004-V1EG  |                            |  |              |
|                             | Yellow                  | DN7Q004-S1EY  | DN7Q004-T1EY                               | DN7Q004-V1EY  |                            |  |              |
|                             | Blue                    | DN7Q004-S1ES  | DN7Q004-T1ES                               | DN7Q004-V1ES  |                            |  |              |
|                             | Pure-white              | DN7Q004-S1EP  | DN7Q004-T1EP                               | DN7Q004-V1EP  |                            |  |              |
| LED transformer units       | Red                     | Color (transparent) -insert (white when light turned OFF) | DN7Q004-S3ER                               | DN7Q004-T3ER  | DN7Q004-V3ER               |  |              |
|                             | Orange                  |   | DN7Q004-S3EA                               | DN7Q004-T3EA  | DN7Q004-V3EA               |  |              |
|                             | Green                   |   | DN7Q004-S3EG                               | DN7Q004-T3EG  | DN7Q004-V3EG               |  |              |
|                             | Yellow                  |   | DN7Q004-S3EY                               | DN7Q004-T3EY  | DN7Q004-V3EY               |  |              |
|                             | Blue                    |   | DN7Q004-S3ES                               | DN7Q004-T3ES  | DN7Q004-V3ES               |  |              |
|                             | Pure-white              |   | DN7Q004-S3EP                               | DN7Q004-T3EP  | DN7Q004-V3EP               |  |              |
| AP40F LED transformer units | Red                     |   | Color-insert (color when light turned OFF) | DN8Q004-S1ER  | DN8Q004-T1ER               | DN8Q004-V1ER                               |              |
|                             | Orange                  |   |  | DN8Q004-S1EA  | DN8Q004-T1EA               | DN8Q004-V1EA                               |              |
|                             | White                   |   |  | DN8Q004-S1EW  | DN8Q004-T1EW               | DN8Q004-V1EW                               |              |
|                             | Green                   |   |  | DN8Q004-S1EG  | DN8Q004-T1EG               | DN8Q004-V1EG                               |              |
|                             | LED short body type     |   |  | Yellow  | DN8Q004-S1EY               | DN8Q004-T1EY                               | DN8Q004-V1EY |
|                             |                         |   |  | Blue  | DN8Q004-S1ES               | DN8Q004-T1ES                               | DN8Q004-V1ES |
|                             |                         | Pure-white  |  | DN8Q004-S1EP  | DN8Q004-T1EP               | DN8Q004-V1EP                               |              |
|                             |                         | Red   |  | Color (transparent) -insert (white when light turned OFF) | DN8Q004-S3ER               | DN8Q004-T3ER                               | DN8Q004-V3ER |
|                             |                         | Orange  |  |   | DN8Q004-S3EA               | DN8Q004-T3EA                               | DN8Q004-V3EA |
|                             |                         | Green   |  |   | DN8Q004-S3EG               | DN8Q004-T3EG                               | DN8Q004-V3EG |
|                             | Yellow                  | DN8Q004-S3EY  |  |   | DN8Q004-T3EY               | DN8Q004-V3EY                               |              |
|                             | Blue                    | DN8Q004-S3ES  |  |   | DN8Q004-T3ES               | DN8Q004-V3ES                               |              |
| Pure-white                  | DN8Q004-S3EP            | DN8Q004-T3EP  | DN8Q004-V3EP                               |   |                            |  |              |

Note: The LED unit is provided with a lens case and a color-insert.

| Used with                | Horizontal rectangular  | Vertical rectangular    | Remarks                                    |
|--------------------------|-------------------------|-------------------------|--|
| AP30F                    | DN7Q001-T $\square$ ■AB | DN7Q001-V $\square$ ■AB | Full-voltage type (R/CR voltage dividing)* |
| 2-way split illumination | DN7Q004-T $\square$ EAB | DN7Q004-V $\square$ EAB | Short body type for transformer unit       |
| AP40F                    | DN8Q001-T $\square$ ■AB | DN8Q001-V $\square$ ■AB | Full-voltage type (R/CR voltage dividing)* |
| 2-way split illumination | DN8Q004-T $\square$ EAB | DN7Q008-V $\square$ EAB | Short body type for transformer unit       |

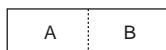
$\square$ : Color-insert specification codes: Colored = 2, Transparent or white: 4

■: Specify the voltage codes. See page 04/249.

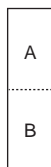
●: Specifying colors for 2-way split illumination.

\* For dimensions, See page 04/249.

Horizontal rectangular (T)  
2-way split illumination



Vertical rectangular (V)  
2-way split illumination



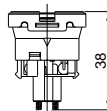
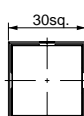
Specify the colors by replacing "A" and "B" with the corresponding symbols.

Red: R, Green: G, Orange: A, White: W, Yellow: Y, Blue: S, Pure white: P

Example

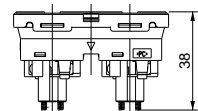
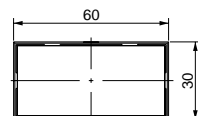
DN7Q001-T2ERG: AP30F horizontal rectangular type with 2-way split illumination with red on the left and green on the right.

AP30F Square



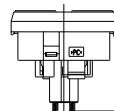
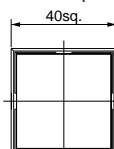
DN7Q004-S

AP30F Rectangular



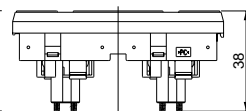
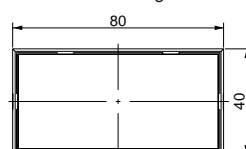
DN7Q004-T,V

AP40F Square



DN8Q004-S



AP40F Rectangular



DN8Q004-T,V

# Multi Display Lights AP30F and AP40F Accessories

04

| Description  | Type and dimensions, mm                  |   |  |              |                            |                          |              |
|--|--|---|--|--------------|----------------------------|--------------------------|--------------|
| LED unit   | Used with                                | Emitted color   | Color-insert specification                               | Type         |                            |                          |              |
|  |  |   |  | Square(S)    | Horizontal rectangular (T) | Vertical rectangular (V) | Half size(H) |
|  AF00-376<br><br> AF00-375<br><br>All surface illumination with a check terminal (full voltage only 24V type) | AP30F<br>Single color                    | Red<br>Orange<br>White<br>Green<br>Yellow<br>Blue<br>Pure-white   | Color-insert (color when light turned OFF)               | DN7Q003-S1ER | DN7Q003-T1ER               | DN7Q003-V1ER             | -            |
|  |  |   |  | DN7Q003-S1EA | DN7Q003-T1EA               | DN7Q003-V1EA             | -            |
|  |  |   |  | DN7Q003-S1EW | DN7Q003-T1EW               | DN7Q003-V1EW             | -            |
|  |  |   |  | DN7Q003-S1EG | DN7Q003-T1EG               | DN7Q003-V1EG             | -            |
|  |  |   |  | DN7Q003-S1EY | DN7Q003-T1EY               | DN7Q003-V1EY             | -            |
|  |  |   |  | DN7Q003-S1ES | DN7Q003-T1ES               | DN7Q003-V1ES             | -            |
|  | AP40F<br>Single color                    | Red<br>Orange<br>White<br>Green<br>Yellow<br>Blue<br>Pure-white<br>Red<br>Orange<br>Green<br>Yellow<br>Blue | Color (transparent)-insert (white when light turned OFF) | DN7Q003-S3ER | DN7Q003-T3ER               | DN7Q003-V3ER             | -            |
|  |  |   |  | DN7Q003-S3EA | DN7Q003-T3EA               | DN7Q003-V3EA             | -            |
|  |  |   |  | DN7Q003-S3EG | DN7Q003-T3EG               | DN7Q003-V3EG             | -            |
|  |  |   |  | DN7Q003-S3EY | DN7Q003-T3EY               | DN7Q003-V3EY             | -            |
|  |  |   |  | DN7Q003-S3ES | DN7Q003-T3ES               | DN7Q003-V3ES             | -            |
|  |  |   |  | DN8Q003-S1ER | DN8Q003-T1ER               | DN8Q003-V1ER             | -            |
|  |  |   | DN8Q003-S1EA   | DN8Q003-T1EA | DN8Q003-V1EA               | -                        |              |
|  |  |   | DN8Q004-S1EW   | DN8Q003-T1EW | DN8Q003-V1EW               | -                        |              |
|  |  |   | DN8Q003-S1EG   | DN8Q003-T1EG | DN8Q003-V1EG               | -                        |              |
|  |  |   | DN8Q003-S1EY   | DN8Q003-T1EY | DN8Q003-V1EY               | -                        |              |
|  |  |   | DN8Q003-S1ES   | DN8Q003-T1ES | DN8Q003-V1ES               | -                        |              |
|  |  |   | DN8Q003-S1EP   | DN8Q003-T1EP | DN8Q003-V1EP               | -                        |              |
| AP40F<br>Single color  | Red<br>Orange<br>Green<br>Yellow<br>Blue | Color (transparent)-insert (white when light turned OFF)  | DN8Q003-S3ER   | DN8Q003-T3ER | DN8Q003-V3ER               | -                        |              |
|  |  |   | DN8Q003-S3EA   | DN8Q003-T3EA | DN8Q003-V3EA               | -                        |              |
|  |  |   | DN8Q003-S3EG   | DN8Q003-T3EG | DN8Q003-V3EG               | -                        |              |
|  |  |   | DN8Q003-S3EY   | DN8Q003-T3EY | DN8Q003-V3EY               | -                        |              |
|  |  |   | DN8Q003-S3ES   | DN8Q003-T3ES | DN8Q003-V3ES               | -                        |              |
|  |  |   | DN8Q003-S3ES   | DN8Q003-T3ES | DN8Q003-V3ES               | -                        |              |

Note: The LED unit is provided with a lens case and a color-insert.

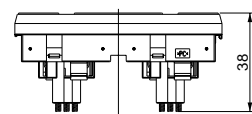
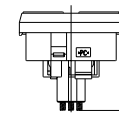
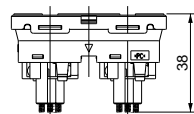
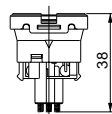
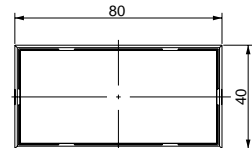
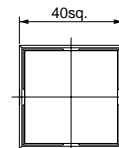
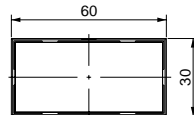
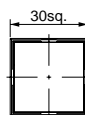
| Used with                     | Emitted color | Type         |                            |                          |
|-------------------------------|---------------|--------------|----------------------------|--------------------------|
|                               |               | Square(S)    | Horizontal rectangular (T) | Vertical rectangular (V) |
| AP30F<br>2-color illumination | Red and green | DN7Q002-S3EF | DN7Q002-T3EF               | DN7Q003-V3EF             |
| AP40F<br>2-color illumination | Red and green | DN8Q002-S3EF | DN8Q002-T3EF               | DN8Q003-V3EF             |

AP30F Square

AP30F Rectangular

AP40F Square

AP40F Rectangular




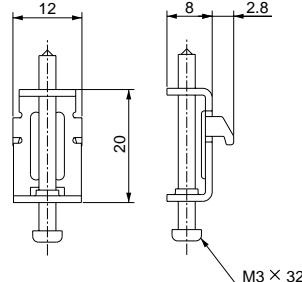

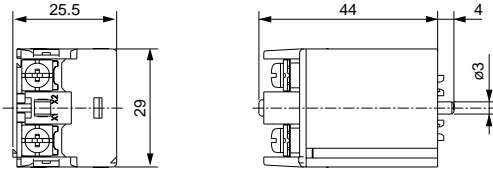

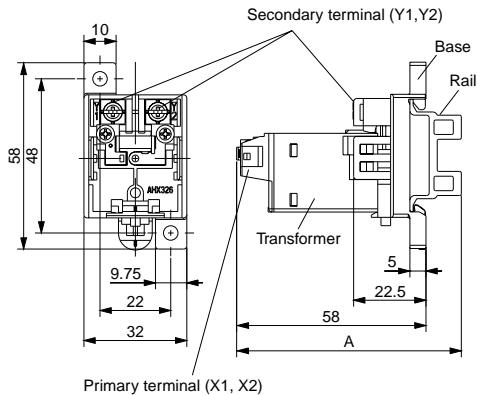
DN7Q002-S  
DN7Q003-S

DN7Q002-T,V  
DN7Q003-T,V

DN8Q002-S  
DN8Q003-S

DN8Q002-T,V  
DN8Q003-T,V

# Multi Display Lights AP30F and AP40F Accessories

|  |   |             |   |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
|--|---|-------------|---|-------------|-------------|--|----------------------|-------------|-------------|-----|------|---|---|---|---|---|---|---|--|--|--|--|--|
| Description  | Type and dimensions, mm                                 |             |   |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| Mounting bracket<br><br><br>AF00-384  | Type <b>APX111</b>                                      |             |   |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| Transformer unit<br><br><br>SF-1111  | Type <b>AX511-□</b><br><b>AX503-□</b><br><b>AX544-□</b> |             | Note: Replace the □ mark in the type number with the voltage code.<br><br>  |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| <table border="1"> <tr> <td>Voltage</td> <td>100 to 110V</td> <td>115 to 127V</td> <td>200 to 220V</td> <td>230 to 254V</td> <td>350 to 380V</td> <td>400 to 440V</td> <td>480</td> </tr> <tr> <td>Code</td> <td>H</td> <td>L</td> <td>M</td> <td>Q</td> <td>S</td> <td>T</td> <td>V</td> </tr> </table> |   |             | Voltage   | 100 to 110V | 115 to 127V | 200 to 220V  | 230 to 254V          | 350 to 380V | 400 to 440V | 480 | Code | H | L | M | Q | S | T | V |  |  |  |  |  |
| Voltage  | 100 to 110V   | 115 to 127V | 200 to 220V   | 230 to 254V | 350 to 380V | 400 to 440V  | 480                  |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| Code   | H   | L           | M   | Q           | S           | T  | V                    |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| Base unit for separate mounting transformer<br><br><br>AF89-824  | Type <b>AHX326</b>                                      |             | Remarks<br><ul style="list-style-type: none"> <li>If the power supply voltage is 100V AC or over (or more than 220V for R or CR voltage-dividing types) and the panel has limited depth or there are weight limitations, a full-voltage type can be used with a separate mounted transformer, as shown in the following table below.</li> <li>A base unit is required when combining with a transformer unit. Mounting is possible using screws or rail.</li> </ul> |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| <table border="1"> <tr> <td>Rail type</td> <td>A (mm)</td> </tr> <tr> <td>TH35-15AL</td> <td>69</td> </tr> <tr> <td>TH35-7.5, AH35-7.5AL</td> <td>61.5</td> </tr> </table>   |   |             | Rail type   | A (mm)      | TH35-15AL   | 69   | TH35-7.5, AH35-7.5AL | 61.5        |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| Rail type  | A (mm)  |             |   |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| TH35-15AL  | 69  |             |   |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |
| TH35-7.5, AH35-7.5AL   | 61.5  |             |   |             |             |  |                      |             |             |     |      |   |   |   |   |   |   |   |  |  |  |  |  |

## ■ Separate mounted transformer application table

| Used with | LED specification            |                              |                              |                            | Incandescent specification |                           |                              |                            |
|-----------|------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|---------------------------|------------------------------|----------------------------|
|           | Applicable light type        | Built-in unit                | Transformer unit             | Separate base              | Applicable light type      | Built-in light bulb       | Transformer unit             | Separate base              |
| AP30F     | AP30F-◇◆E3-●<br>AP30F-◇◆ES-● | DN7Q001-□□□□<br>DN7Q004-□□□□ | AHX544-□ ×<br>No. of windows | AHX326 ×<br>No. of windows | AP30F-◇◆A-●                | AHX135<br>(6.3 V 1W bulb) | AHX511-□ ×<br>No. of windows | AHX326 ×<br>No. of windows |
| AP40F     | AP40F-◇◆E3-●<br>AP40F-◇◆ES-● | DN8Q001-□□□□<br>DN8Q004-□□□□ |                              |                            | AP40F-◇◆C-●                | AHX141<br>(18 V 2W bulb)  | AHX503-□ ×<br>No. of windows |                            |

- Notes: 1. Replace ◇◆ mark by the number of basic windows. ◇◆ = vertical x horizontal  
 2. Replace ● mark by the code indicating the shape of illuminated face (S, T, or V, do not specify H).  
 3. The following depths are available. AP30F-◇◆E3: 60.5mm AP30F-◇◆ES: 52mm AP30F-◇◆A: 54mm  
 AP40F-◇◆E3: 60.5mm AP40F-◇◆ES: 52mm AP40F-◇◆C: 54mm  
 4. Refer to pages 04/249 and 04/250 for built-in unit types with LED specifications.



# Multi Display Lights AP30F and AP40F Window layout sheet

## ■ Window layout ordering sheet

When ordering Multi Display Lights, fill in the necessary items in this ordering sheet on Page 04/255. (It is also recommended that you make copies of the sheet for future use.)

## Cases in which you should order with the ordering sheet

- When ordering a mixture of LED luminous colors
- When ordering a mixture of window sizes in the illumination face
- When ordering a mixture of two-color illumination faces
- When ordering a mixture of input voltages
- When requesting embossed characters

## Filling in the ordering sheet

1. Use lines to designate the borders of the illumination face.
2. Write the color code (G, R, W, Y, O, S) for each window into the bottom row of the window. For T and V types, write the code in only one place.
3. If you are requesting embossed characters, write the characters into the table.
4. For windows requiring more than 7 (vertical) or 15 (horizontal) spaces, continue writing on a separate ordering sheet.
5. Write in two places for a two-split illumination type.
6. When using a flicker unit or a voltage stabilizer unit, write the unit code into the bottom row of the window.

## Specification example

|                 |    | Horizontally(Column)  |                  |           |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------------|----|---|------------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|
|                 |    | 01  | 02               | 03        | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
| Vertically(Row) | 01 | RUN<br>R  |                  | STOP<br>G |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 02 | FWD<br>W  | REV<br>W<br>E3FD | R         | Y  |    |    |    |    |    |    |    |    |    |    |    |
|                 | 03 | MONIT-1   |                  | MONIT-2   |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 04 | ↑<br>Designate the borders of the illumination face with lines. |                  |           |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 05 |   |                  |           |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 06 |   |                  |           |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 07 |   |                  |           |    |    |    |    |    |    |    |    |    |    |    |    |

Example of flicker unit voltage.

■ Window layout ordering sheet

|                 |    | Horizontally(Column) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------------|----|----------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|                 |    | 01                   | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
| Vertically(Row) | 01 |                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 02 |                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 03 |                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 04 |                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 05 |                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 06 |                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                 | 07 |                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

04

# Rotary Switches AC09, 16 and 32

## Digital code output type

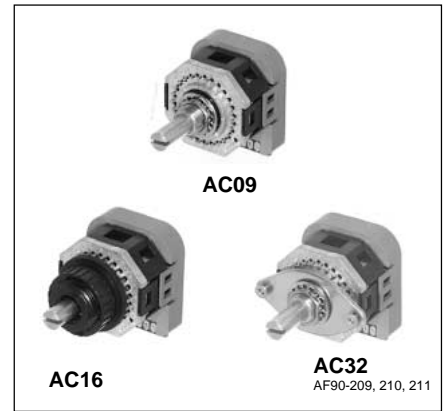
### Description

FUJI AC series rotary switches offer a wide choice of output codes. They feature sliding Au-flashed contacts for high contact reliability. Inhibitor and parity check circuits guard against switch malfunctions caused by error signals. With only seven connections to make, these switches are an economical solution to multiposition switching needs.

### Features

- Au-flashed contacts for high contact reliability.

- The protection of operator section meets the IP65 (IEC), so these switches can be used in oil-splash environments, such as on machine tool control panels. (Except for AC32)
- A wide choice of output codes fits a broad range of applications. Available step angles are 15, 30, and 360°/26 (13.85°). Real binary code, complementary binary code, and real gray code are available.
- Switches are available with connectors or with lock rings for easy handling.
- Stopper screw positions are user selectable.



### Ratings

| Volts  | Operational current (A)<br>(resistive load) |
|--------|---|
| 50V AC | 0.05  |
| 5V AC  | 0.5   |
| 25V DC | 0.05  |
| 5V DC  | 0.25  |

### Performance

|   |                              |  |
|---|------------------------------|--|
| Rated insulation voltage                |                              | 50V  |
| Operating temperature                   |                              | -20 to +70°C   |
| Humidity                                |                              | 45 to 85%RH (non condensation)                         |
| Service life                            | Mechanical                   | 50,000 operations                                      |
|   | Electrical                   | 50,000 operations                                      |
| Dielectric strength                     | Between terminals            | 250V AC, 1 minute                                      |
|   | Between terminals and ground | 1500V AC, 1 minute                                     |
| Insulation resistance                   | Between terminals            | 500MΩ or more  |
|   | Between terminals and ground | 5,000MΩ or more  |
| Degree of protection (operator section) |                              | AC09, AC16 : IP65 (IEC60529)<br>AC32 : IP40 (IEC60529) |

### Type number nomenclature

AC 09 – C Z 0 / 25 L1 E A01 / 0007

#### Basic type

#### Mounting

- 09: M9 nut
- 16: M16 adapter
- 32: Adapter (32mm mounting pitch)

#### Type of code

- R: Real binary code
- C: Complementary binary code
- G: Real gray code

#### Angle of step

| Angle               | Setting position |
|---------------------|------------------|
| X: 30°              | 0 to 11          |
| W: 360°/13 (27.69°) | 0 to 12          |
| Y: 15°              | 0 to 23          |
| Z: 360°/26 (13.85°) | 0 to 25          |

#### Start position

| Available step angle      |
|---------------------------|
| 0 to 11: 30°              |
| 0 to 12: 360°/13 (27.69°) |
| 0 to 23: 15°              |
| 0 to 25: 360°/26 (13.85°) |

#### End position

| Available step angle      |
|---------------------------|
| 0 to 11: 30°              |
| 0 to 12: 360°/13 (27.69°) |
| 0 to 23: 15°              |
| 0 to 25: 360°/26 (13.85°) |

#### With or without lock ring

- Blank: Without lock ring
- 0007: With lock ring
- 0009: With adhesive lock ring

#### With or without connector

- Blank: 8-terminal, without connector
- A01: 8-terminal, with right-angle connector
- A02: 8-terminal, with straight connector
- B00: 7-terminal, without connector
- B01: 7-terminal, with right-angle connector
- B02: 7-terminal, with straight connector

#### With or without stopper screw

- Blank: With stopper screw
- E: Without stopper screw

#### Length of shaft (mm)

|     | AC09 | AC16 | AC32 |
|-----|------|------|------|
| L1: | 16   | —    | 14.5 |
| L2: | 18   | —    | 16.5 |
| L3: | 20   | —    | 18.5 |
| L4: | 22   | 19.5 | 20.5 |

Note: When shorter action than the maximum range of switch action is used, stopper screws are used. However, stopper screws are not used if the maximum action range is used when either 15° (symbol Y) or 360°/26 (symbol Z) is specified.

• M9 nut mounting

| Angle of step    | Connector                  | Lock ring  | Type*1 *2 *3  |   |   |
|------------------|----------------------------|--|---|---|---|
|                  |                            |  | Real binary code  | Complementary binary code                                       | Real gray code  |
| 30°              | Without connector          | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RX□□( )■<br>AC09-RX□□( )■/0007<br>AC09-RX□□( )■/0009       | AC09-CX□□( )■<br>AC09-CX□□( )■/0007<br>AC09-CX□□( )■/0009       | AC09-GX□□( )■<br>AC09-GX□□( )■/0007<br>AC09-GX□□( )■/0009       |
|                  | With right angle connector | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RX□□( )■01<br>AC09-RX□□( )■01/0007<br>AC09-RX□□( )■01/0009 | AC09-CX□□( )■01<br>AC09-CX□□( )■01/0007<br>AC09-CX□□( )■01/0009 | AC09-GX□□( )■01<br>AC09-GX□□( )■01/0007<br>AC09-GX□□( )■01/0009 |
|                  | With straight connector    | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RX□□( )■02<br>AC09-RX□□( )■02/0007<br>AC09-RX□□( )■02/0009 | AC09-CX□□( )■02<br>AC09-CX□□( )■02/0007<br>AC09-CX□□( )■02/0009 | AC09-GX□□( )■02<br>AC09-GX□□( )■02/0007<br>AC09-GX□□( )■02/0009 |
| 360°/13 (27.69°) | Without connector          | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RW□□( )■<br>AC09-RW□□( )■/0007<br>AC09-RW□□( )■/0009       | AC09-CW□□( )■<br>AC09-CW□□( )■/0007<br>AC09-CW□□( )■/0009       |   |
|                  | With right angle connector | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RW□□( )■01<br>AC09-RW□□( )■01/0007<br>AC09-RW□□( )■01/0009 | AC09-CW□□( )■01<br>AC09-CW□□( )■01/0007<br>AC09-CW□□( )■01/0009 |   |
|                  | With straight connector    | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RW□□( )■02<br>AC09-RW□□( )■02/0007<br>AC09-RW□□( )■02/0009 | AC09-CW□□( )■02<br>AC09-CW□□( )■02/0007<br>AC09-CW□□( )■02/0009 |   |
| 15°              | Without connector          | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RY□□( )■<br>AC09-RY□□( )■/0007<br>AC09-RY□□( )■/0009       | AC09-CY□□( )■<br>AC09-CY□□( )■/0007<br>AC09-CY□□( )■/0009       | AC09-GY□□( )■<br>AC09-GY□□( )■/0007<br>AC09-GY□□( )■/0009       |
|                  | With right angle connector | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RY□□( )■01<br>AC09-RY□□( )■01/0007<br>AC09-RY□□( )■01/0009 | AC09-CY□□( )■01<br>AC09-CY□□( )■01/0007<br>AC09-CY□□( )■01/0009 | AC09-GY□□( )■01<br>AC09-GY□□( )■01/0007<br>AC09-GY□□( )■01/0009 |
|                  | With straight connector    | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RY□□( )■02<br>AC09-RY□□( )■02/0007<br>AC09-RY□□( )■02/0009 | AC09-CY□□( )■02<br>AC09-CY□□( )■02/0007<br>AC09-CY□□( )■02/0009 | AC09-GY□□( )■02<br>AC09-GY□□( )■02/0007<br>AC09-GY□□( )■02/0009 |
| 360°/26 (13.85°) | Without connector          | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RZ□□( )■<br>AC09-RZ□□( )■/0007<br>AC09-RZ□□( )■/0009       | AC09-CZ□□( )■<br>AC09-CZ□□( )■/0007<br>AC09-CZ□□( )■/0009       | AC09-GZ□□( )■<br>AC09-GZ□□( )■/0007<br>AC09-GZ□□( )■/0009       |
|                  | With right angle connector | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RZ□□( )■01<br>AC09-RZ□□( )■01/0007<br>AC09-RZ□□( )■01/0009 | AC09-CZ□□( )■01<br>AC09-CZ□□( )■01/0007<br>AC09-CZ□□( )■01/0009 | AC09-GZ□□( )■01<br>AC09-GZ□□( )■01/0007<br>AC09-GZ□□( )■01/0009 |
|                  | With straight connector    | Without lock ring<br>With lock ring<br>With adhesive lock ring | AC09-RZ□□( )■02<br>AC09-RZ□□( )■02/0007<br>AC09-RZ□□( )■02/0009 | AC09-CZ□□( )■02<br>AC09-CZ□□( )■02/0007<br>AC09-CZ□□( )■02/0009 | AC09-GZ□□( )■02<br>AC09-GZ□□( )■02/0007<br>AC09-GZ□□( )■02/0009 |

Notes:

\*1 Replace the □□ marks by the Start and End positions

| Step angle              | 30°     | 360°/13 | 15°     | 360°/26 |
|-------------------------|---------|---------|---------|---------|
| Start and End positions | 0 to 11 | 0 to 12 | 0 to 23 | 0 to 25 |

\*2 Replace the ( ) mark by the shaft length code  
L1: 16mm L2: 18mm L3: 20mm L4: 22mm

\*3 Replace the ■ mark by the connector

- Blank: 8-terminal, without connector
- A01: 8-terminal, with right angle connector
- A02: 8-terminal, with straight connector
- B00: 7-terminal, without connector
- B01: 7-terminal, with right angle connector
- B02: 7-terminal, with straight connector



# Rotary Switches AC09, 16 and 32

## • M16 adapter mounting

| Angle of step       | Connector  | Type*1 *2  |  |  |
|---------------------|--|--|--|--|
|                     |  | Real binary code                                 | Complementary binary code                        | Real gray code                                   |
| 30°                 | Without connector<br>With right angle connector<br>With straight connector | AC16-RX□□L4■<br>AC16-RX□□L4■01<br>AC16-RX□□L4■02 | AC16-CX□□L4■<br>AC16-CX□□L4■01<br>AC16-CX□□L4■02 | AC16-GX□□L4■<br>AC16-GX□□L4■01<br>AC16-GX□□L4■02 |
| 360°/13<br>(27.69°) | Without connector<br>With right angle connector<br>With straight connector | AC16-RW□□L4■<br>AC16-RW□□L4■01<br>AC16-RW□□L4■02 | AC16-CW□□L4■<br>AC16-CW□□L4■01<br>AC16-CW□□L4■02 |  |
| 15°                 | Without connector<br>With right angle connector<br>With straight connector | AC16-RY□□L4■<br>AC16-RY□□L4■01<br>AC16-RY□□L4■02 | AC16-CY□□L4■<br>AC16-CY□□L4■01<br>AC16-CY□□L4■02 | AC16-GY□□L4■<br>AC16-GY□□L4■01<br>AC16-GY□□L4■02 |
| 360°/26<br>(13.85°) | Without connector<br>With right angle connector<br>With straight connector | AC16-RZ□□L4■<br>AC16-RZ□□L4■01<br>AC16-RZ□□L4■02 | AC16-CZ□□L4■<br>AC16-CZ□□L4■01<br>AC16-CZ□□L4■02 | AC16-GZ□□L4■<br>AC16-GZ□□L4■01<br>AC16-GZ□□L4■02 |

Notes:

\*1 Replace the □□ marks by the Start and End positions

| Step angle              | 30°     | 360°/13 | 15°     | 360°/26 |
|-------------------------|---------|---------|---------|---------|
| Start and End positions | 0 to 11 | 0 to 12 | 0 to 23 | 0 to 25 |

\*2 Replace the ■ mark by the connector

Blank: 8-terminal, without connector  
A01: 8-terminal, with right angle connector  
A02: 8-terminal, with straight connector  
B00: 7-terminal, without connector  
B01: 7-terminal, with right angle connector  
B02: 7-terminal, with straight connector

## • Adaptor mounting (32mm mounting pitch)

| Angle of step       | Connector  | Type*1 *2 *3  |   |   |
|---------------------|--|---|---|---|
|                     |  | Real binary code                                    | Complementary binary code                           | Real gray code                                      |
| 30°                 | Without connector<br>With right angle connector<br>With straight connector | AC32-RX□□( )■<br>AC32-RX□□( )■01<br>AC32-RX□□( )■02 | AC32-CX□□( )■<br>AC32-CX□□( )■01<br>AC32-CX□□( )■02 | AC32-GX□□( )■<br>AC32-GX□□( )■01<br>AC32-GX□□( )■02 |
| 360°/13<br>(27.69°) | Without connector<br>With right angle connector<br>With straight connector | AC32-RW□□( )■<br>AC32-RW□□( )■01<br>AC32-RW□□( )■02 | AC32-CW□□( )■<br>AC32-CW□□( )■01<br>AC32-CW□□( )■02 |   |
| 15°                 | Without connector<br>With right angle connector<br>With straight connector | AC32-RY□□( )■<br>AC32-RY□□( )■01<br>AC32-RY□□( )■02 | AC32-CY□□( )■<br>AC32-CY□□( )■01<br>AC32-CY□□( )■02 | AC32-GY□□( )■<br>AC32-GY□□( )■01<br>AC32-GY□□( )■02 |
| 360°/26<br>(13.85°) | Without connector<br>With right angle connector<br>With straight connector | AC32-RZ□□( )■<br>AC32-RZ□□( )■01<br>AC32-RZ□□( )■02 | AC32-CZ□□( )■<br>AC32-CZ□□( )■01<br>AC32-CZ□□( )■02 | AC32-GZ□□( )■<br>AC32-GZ□□( )■01<br>AC32-GZ□□( )■02 |

Notes:

\*1 Replace the □□ marks by the Start and End positions

| Step angle              | 30°     | 360°/13 | 15°     | 360°/26 |
|-------------------------|---------|---------|---------|---------|
| Start and End positions | 0 to 11 | 0 to 12 | 0 to 23 | 0 to 25 |

\*2 Replace the ( ) mark by the shaft length

L1: 14.5mm L2: 16.5mm L3: 18.5mm L4: 20.5mm

\*3 Replace the ■ mark by the connector

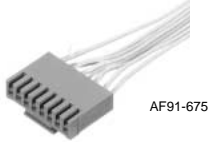
Blank: 8-terminal, without connector  
A01: 8-terminal, with right angle connector  
A02: 8-terminal, with straight connector  
B00: 7-terminal, without connector  
B01: 7-terminal, with right angle connector  
B02: 7-terminal, with straight connector



# Rotary Switches AC 09, 16 and 32

## Accessories

### Lead wire with connector (8-terminal)

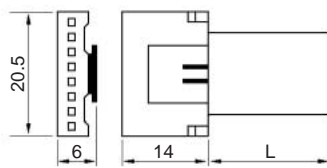


| Length of lead wire (m) | Type       | Mass (g) |
|-------------------------|------------|----------|
| 0.5                     | ACX011-805 | 11       |
| 1.0 (Standard)          | ACX011-810 | 19       |
| 2.0                     | ACX011-820 | 33       |

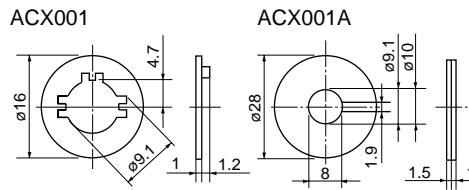
### Lock ring



|                      | Type    | Mass (g) |
|----------------------|---------|----------|
| Lock ring (inserted) | ACX001  | 2        |
| Lock ring (sealed)   | ACX001A | 5        |

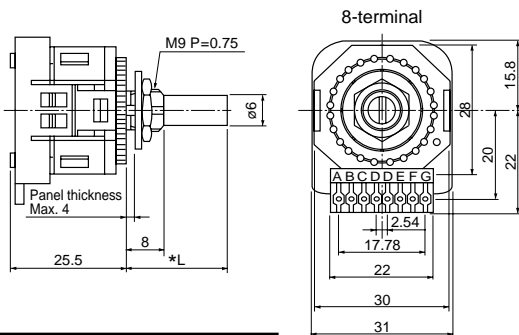


L: 0.5, 1.0, 2.0m



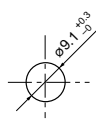
## Dimensions, mm

### AC09

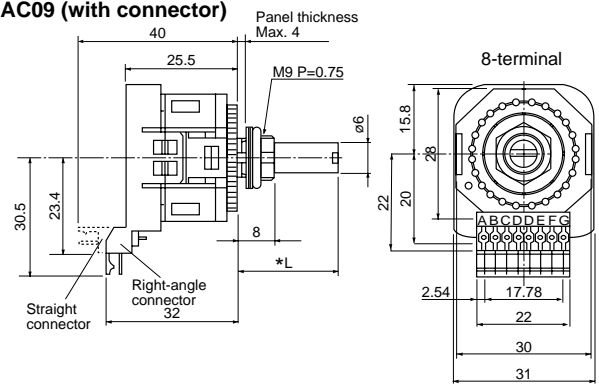


| Shaft length *    | L1 | L2 | L3 | L4 |
|-------------------|----|----|----|----|
|                   | 16 | 18 | 20 | 22 |
| Mass (g)          |    |    |    |    |
| Without connector | 41 | 42 | 43 | 44 |
| With connector    | 42 | 43 | 44 | 45 |

### Panel cutting



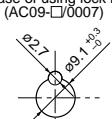
### AC09 (with connector)



### Panel cutting

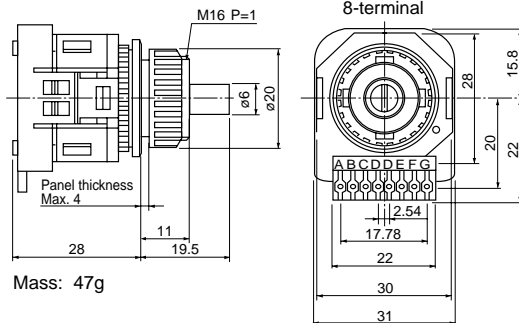


In case of using lock ring (AC09-□/0007)



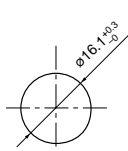
Panel thickness 1.2 to 3.2

### AC16

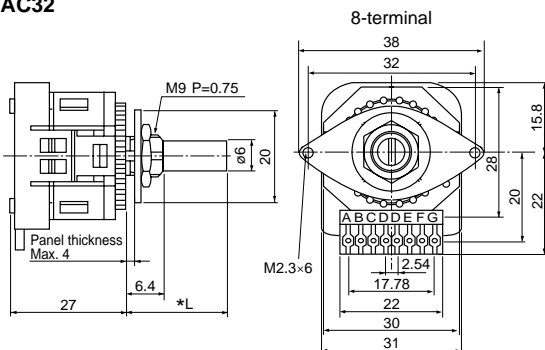


Mass: 47g

### Panel cutting

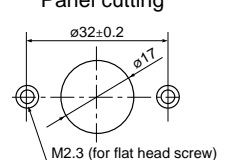


### AC32

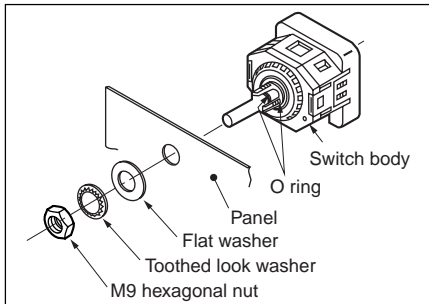


| Shaft length * | L1   | L2   | L3   | L4   |
|----------------|------|------|------|------|
|                | 14.5 | 16.5 | 18.5 | 20.5 |
| Mass (g)       | 47   | 48   | 49   | 50   |

### Panel cutting



■ Installation

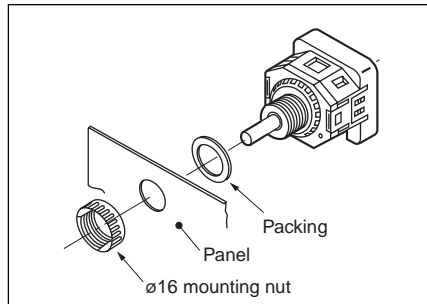


**AC09**

Pass the switch body through the hole from the back of the panel, and secure it by tightening the hexagonal nut with a flat washer and a toothed lock washer.

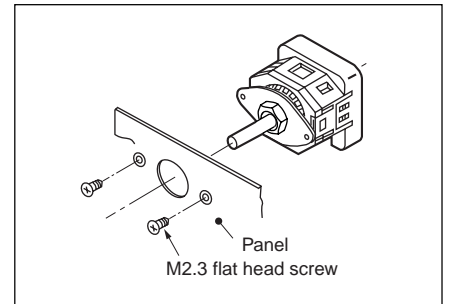
The recommended tightening torque for the hexagonal nut is 1.5 to 2N·m.

Insert the lock ring (ACX001) between the panel and the flat washer, and the adhesive lock ring (ACX001A) between the switch body and the panel.



**AC16**

Pass the switch body with a bezel through the hole from the back of the panel, and secure it with a  $\phi 16$  mounting nut. The recommended tightening torque for the nut is 0.6 to 1N·m.



**AC32**

Pass the switch body through the hole from the back of the panel, and secure it with two flat screws from the face of the panel. The recommended tightening torque for the flat head screws is 0.3 to 0.5N·m.

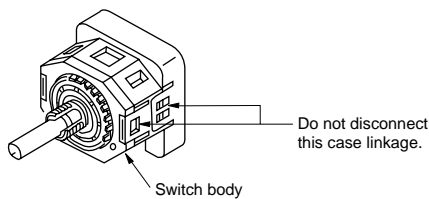
■ Notes on use

1. Connecting wires

Note the following points when soldering:

- The power of the soldering iron must not be over 30W.
- Use solder with resin flux core.
- Complete soldering within 5 seconds if using a 30W soldering iron, or within 10 seconds if using a 20W soldering iron.

2. Note on the case linkage

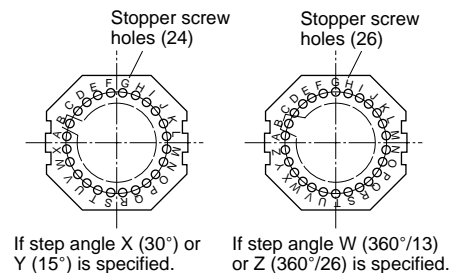


3. Number of stopper screws shipped

- AC09 and AC32
  - Step angle: 30° (symbol X)  
Positions 0/11 (0 to 11): one screw. User-selectable start and stop positions: two screws (one for start position, one for end position).
  - Step angle: 15° (symbol Y)  
Positions 0/22 (0 to 22): one screw. User-selectable start and stop positions: two screws (one for start position, one for end position).
  - Step angle: 360°/26 (symbol Z)  
Positions 0/24 (0 to 24): one screw. User-selectable start and stop positions: two screws (one for start position, one for end position).
- AC16  
Customers can specify the stopper screw positions. The switch is then shipped with stopper screws already in the specified positions.

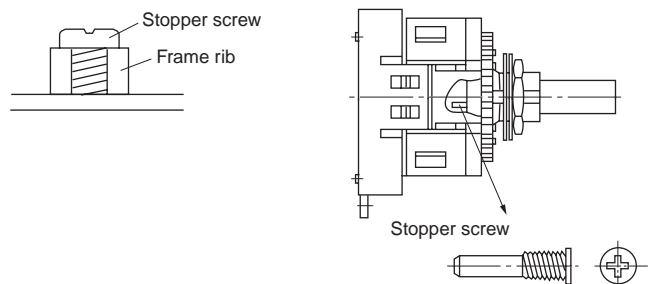
4. Stopper screw positions

Insert stopper screws into the switch body holes marked with letters, as shown in the insertion example on the right. These tables below show that the start position stopper screw is inserted in the hole on the left of the position setting and the end positions stopper screw is inserted in the hole on the right.



5. Installing a stopper screw

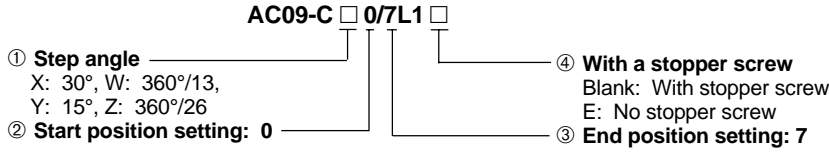
The maximum tightening torque for a stopper screw is 0.1N·m. Screw the stopper screw into position until it hits the body frame rib. Do not overtighten the screw.



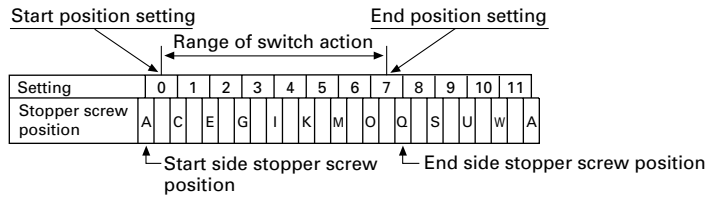
# Rotary Switches

## AC 09, 16 and 32

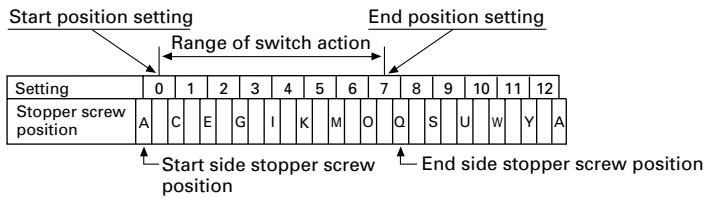
### Insertion example 1



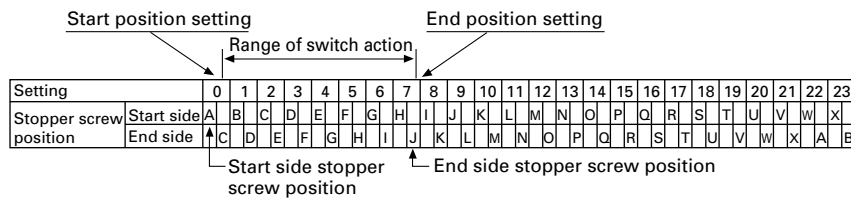
- If symbol ① (step angle) is X-----type AC09-CX0/7L1:  
Insert the start side stopper screw in hole A and the end side screw in hole Q.



- If symbol ① (step angle) is W-----type AC09-CW0/7L1:  
Insert the start side stopper screw in hole A and the end side screw in hole Q.

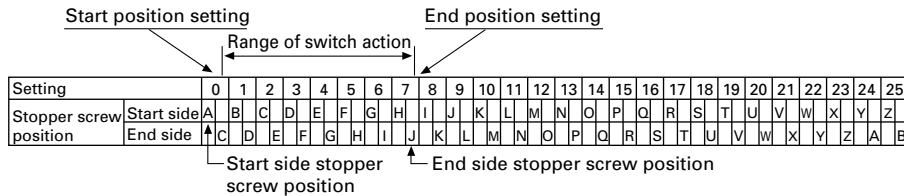


- If symbol ① (step angle) is Y-----type AC09-CY0/7L1:  
Insert the start side stopper screw in hole A and the end side screw in hole J.



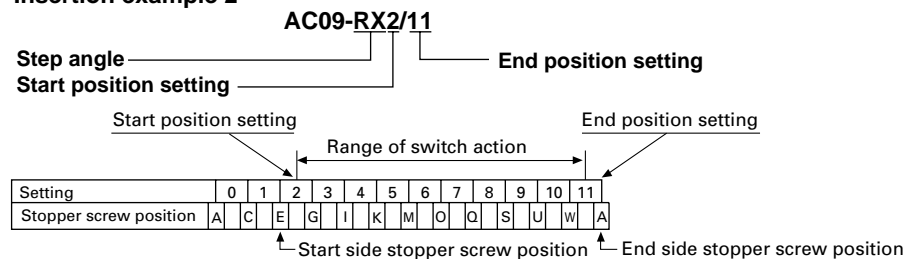
Notes: 1. If the range of action is designated as 0/22 (0 to 22), insert a stopper screw into hole A only.  
2. If the range of action is designated as 0/23 (0 to 23), no stopper screws are inserted (symbol ④ is E).

- If symbol ① (step angle) is Z-----type AC09-CZ0/7L1:  
Insert the start side stopper screw in hole A and the end side screw in hole J.



Notes: 1. If the range of action is designated as 0/24 (0 to 24), insert a stopper screw in hole A only.  
2. If the range of action is designated as 0/25 (0 to 25), no stopper screws are inserted (symbol ④ is E).

### Insertion example 2



### Cam-type control selector switches

#### ■ Description

FUJI cam-type control switches are recommended for use on switchboards, control panels and switchgear because of their reliability in service. The main type is RC310 with operational current ratings of 10A.

Simplified and economical circuits can be designed around the RC310, since it can handle loads of up to 10A at 220VAC without the need of contactors. Typical examples of complex circuits based on the attractive features of these economical cam-type selector switches are given on pages 04/265 to 04/268.

FUJI is prepared to manufacture other versions to suit your particular applications, and switches with up to 12 selector positions can be made to order. RC310 switches are normally supplied with H-type handles. Alternative handle shapes available include the pistol-grip P-type, cane-handle shaped S-type and rosette shaped R-type.

Switches with a 2-12 position maintained type, 3-position center spring-return type and center spring-return type with locking device are also available.

#### ■ Ordering information




Specify the following (See page 04/264):

1. Type number
2. Mounting method
3. Operation
4. Selector position and notch angles
5. No. of contact blocks
6. Contact arrangement
7. Handle
8. Handle colors

#### Example

Cam switch,  
rated current 10A ..... RC310-1  
Flush mounting ..... x  
Maintained operation ..... M  
Contact arrangement ..... 3201  
(3-position, 2 contact blocks,  
H type handle ..... H  
Black color handle..... B  
Type number ..... RC310x-1M3201HB

Note: "C" in the type No. nomenclature must be filled with numbers appearing in the table of "The Contact Arrangement". (page 04/265)  
When requiring special arrangements not appearing in the list clearly specify the arrangement required.  
Note that "C" in the type nomenclature must not be removed in this case.  
RC310x-1MCHB

| Type    | Flush mounting x-type   | Semi-flush mounting  | Enclosed g-type   |
|---------|---|--|---|
| RC310-1 |  SG-740<br><b>RC310x-1</b> |  SG-743<br><b>RC310-1</b> |  AF-191<br><b>RC310g-1</b> |

#### ■ Ratings

| Type    | Rated thermal current (A) | Breaking capacity (A) Voltage (V) | AC        | DC        | DC        |
|---------|---------------------------|-----------------------------------|-----------|-----------|-----------|
|         |                           |                                   | Inductive | Resistive | Inductive |
| RC310-1 | 10                        | 24                                | 10        | 10        | 5         |
|         |                           | 110                               | 7.5       | 3         | 1.3       |
|         |                           | 220                               | 7.5       | 0.8       | 0.45      |
|         |                           | 440                               | 2.5       | 0.4       | 0.2       |
|         |                           | 550                               | 2         | 0.3       | 0.15      |

#### ■ Technical data

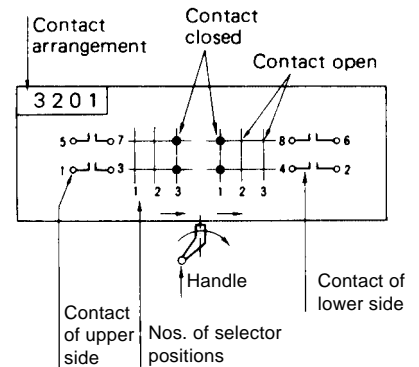
Insulation resistance: Over 100MΩ at 500VDC  
Dielectric strength: 2,500VAC. 1 minute  
Ambient temperature: -5° to +60°C  
Operating cycle: 600 cycles/hour

#### ■ Life expectancy (operations)

| Type    | Mechanical | Electrical                                     |
|---------|------------|--|
| RC310-1 | 5 million  | 250,000 at 220VAC 7.5A<br>500,000 at 220VAC 3A |

■ Contact arrangement: See page 04/265.

■ Contact arrangement (typical)  
(Viewed from the direction of the handle)



# Cam Type RC310 Control selector switches

## ■ Type number nomenclature



### RC310 series

RC310 □ - 1 □ □ □ □

Mounting  
Blank: Semi-flush mounting  
x: Flush mounting  
g: With enclosure  
Operation  
Contact arrangement  
See page 04/265  
Handle  
Handle color
















● Handle color B: Black

## ● Operation

| Model | Description   |
|-------|---|
| M     | Maintained  |
| A     | Center spring return                                     |
| L     | Center spring return with locking device (Pull to turn)  |

## ● Selector position and notch angle

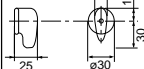
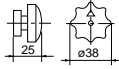
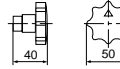
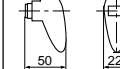
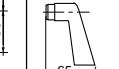
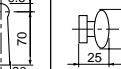
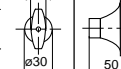
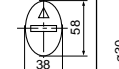
● Available

| Operation | Notch angle            | Position  |
|-----------|------------------------|---|
| M         | 90°<br>2 position      |    |
|           | 90° *<br>3, 4 position |     |
|           | 45° *<br>3-8 position  |       |
|           | 30°<br>9-12 position   |       |
| A         | 45°                    |    |
| L         | 45°                    |  (With locking device)   |

Note: \* 3 or 4-position type notch angle is normally 45 degrees. Specify when ordering other than this.

● Available

## ● Handle

| Type    | Standard  | Versions  |   |   |   |  |   |   |
|---------|---|---|---|---|---|--|---|---|
|         | H type  | R type  | W type  | S type  | P type  | K type   | D type  | G type  |
| RC310-1 |  |  |  |  |  |  |  |  |

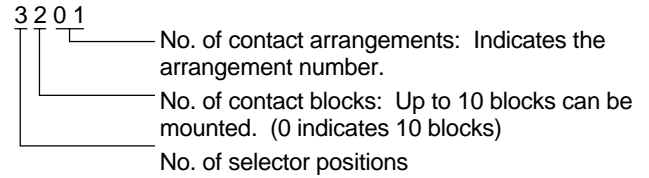
## ● Ratings

| Type    | Rated thermal current (A) | Voltage (VAC) | Number of contact blocks | Selector position and notch angle | Flush mounting (x-type) Type | Semi-flush mounting Type | Enclosed (g-type) Type |
|---------|---------------------------|---------------|--------------------------|-----------------------------------|------------------------------|--------------------------|------------------------|
| RC310-1 | 10                        | 550           | 1                        | <i>See the table above.</i>       | RC310x-1□■                   | RC310-1□■                | RC310g-1□■             |
|         |                           |               |                          |                                   | RC310x-1□■                   | RC310-1□■                | RC310g-1□■             |
|         |                           |               |                          |                                   | RC310x-1□■                   | RC310-1□■                | RC310g-1□■             |
|         |                           |               |                          |                                   | RC310x-1□■                   | RC310-1□■                | RC310g-1□■             |
|         |                           |               |                          |                                   | RC310x-1□■                   | RC310-1□■                | RC310g-1□■             |
|         |                           |               | 6                        |                                   | RC310x-1□■                   | RC310-1□■                | —                      |
|         |                           |               | 7                        |                                   | RC310x-1□■                   | RC310-1□■                | —                      |
|         |                           |               | 8                        |                                   | RC310x-1□■                   | RC310-1□■                | —                      |
|         |                           |               | 9                        |                                   | RC310x-1□■                   | RC310-1□■                | —                      |
|         |                           |               | 10                       |                                   | RC310x-1□■                   | RC310-1□■                | —                      |

Note: □: Type of operation ■: Contact arrangement – See page 04/265.

■ Contact arrangement

The following diagrams show the cam-type selector switch contact arrangement. These are only typical examples and other versions can be manufactured to meet your special requirements. Contact FUJI for details. The figures appearing on the right side indicate the contact arrangement. This information must be given when ordering.



2-position 1-contact block

|          |          |  |  |
|----------|----------|--|--|
| 2101<br> | 2102<br> | 2103<br>   | 2104<br>   |
| 2105<br> | 2106<br> | 2107 Over rap contact (early make, late break)<br> | 2108 Over rap contact (early make, late break)<br> |

2-position 2-contact block

|          |          |          |          |
|----------|----------|----------|----------|
| 2201<br> | 2202<br> | 2203<br> | 2204<br> |
| 2205<br> | 2206<br> | 2207<br> | 2208<br> |

2-position 3-contact block

|          |          |          |          |
|----------|----------|----------|----------|
| 2301<br> | 2302<br> | 2303<br> | 2304<br> |
| 2305<br> | 2306<br> | 2307<br> | 2308<br> |

2-position 4-contact block

|          |          |          |          |
|----------|----------|----------|----------|
| 2401<br> | 2402<br> | 2403<br> | 2404<br> |
| 2405<br> | 2406<br> | 2407<br> | 2408<br> |



# Cam Type RC310 Control selector switches

## ■ Contact arrangement 3-position 1-contact block

|          |          |          |                            |
|----------|----------|----------|----------------------------|
| 3101<br> | 3102<br> | 3103<br> | 3104<br>                   |
| 3105<br> | 3106<br> | 3107<br> | 3108 Notch angle : 90°<br> |
| 3109<br> | 3110<br> | 3111<br> | 3112<br>                   |

## 3-position 2-contact block

|          |          |          |          |
|----------|----------|----------|----------|
| 3201<br> | 3202<br> | 3203<br> | 3204<br> |
| 3205<br> | 3206<br> | 3207<br> | 3208<br> |
| 3209<br> | 3210<br> | 3211<br> | 3212<br> |

## 3-position 3-contact block

|          |          |          |          |
|----------|----------|----------|----------|
| 3301<br> | 3302<br> | 3303<br> | 3304<br> |
| 3305<br> | 3306<br> | 3307<br> | 3308<br> |
| 3309<br> | 3310<br> | 3311<br> | 3312<br> |

■ Contact arrangement  
4-position 2-contact block

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| <p>4201</p> | <p>4202</p> | <p>4203</p> | <p>4204</p> |
| <p>4205</p> | <p>4206</p> | <p>4207</p> | <p>4208</p> |
| <p>4209</p> | <p>4210</p> | <p>4211</p> | <p>4212</p> |

04

4-position 3-contact block

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| <p>4301</p> | <p>4302</p> | <p>4303</p> | <p>4304</p> |
| <p>4305</p> | <p>4306</p> | <p>4307</p> | <p>4308</p> |
| <p>4309</p> | <p>4310</p> | <p>4311</p> | <p>4312</p> |

4-position 4-contact block

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| <p>4401</p> | <p>4402</p> | <p>4403</p> | <p>4404</p> |
| <p>4405</p> | <p>4406</p> | <p>4407</p> | <p>4408</p> |
| <p>4409</p> | <p>4410</p> | <p>4411</p> | <p>4412</p> |

# Cam Type RC310 Control selector switches

## ■ Contact arrangement 5-position 2-contact block

|             |             |             |
|-------------|-------------|-------------|
| <p>5201</p> | <p>5202</p> | <p>5203</p> |
| <p>5204</p> | <p>5205</p> | <p>5206</p> |
| <p>5207</p> | <p>5208</p> | <p>5209</p> |

## 5-position 3-contact block

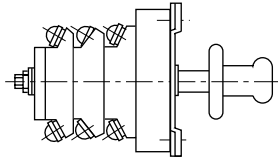
|             |             |             |
|-------------|-------------|-------------|
| <p>5301</p> | <p>5302</p> | <p>5303</p> |
| <p>5304</p> | <p>5305</p> | <p>5306</p> |
| <p>5307</p> | <p>5308</p> | <p>5309</p> |

## 5-position 4-contact block

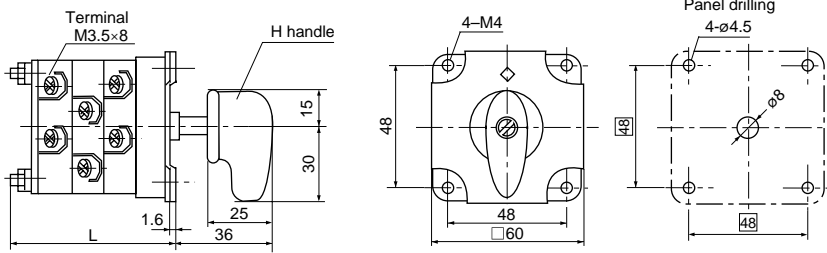
|             |             |             |
|-------------|-------------|-------------|
| <p>5401</p> | <p>5402</p> | <p>5403</p> |
| <p>5404</p> | <p>5405</p> | <p>5406</p> |
| <p>5407</p> | <p>5408</p> | <p>5409</p> |

■ Dimensions, mm

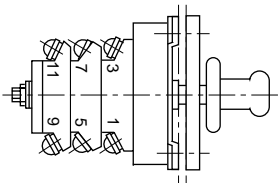
**Flush mounting**  
 RC310x-1



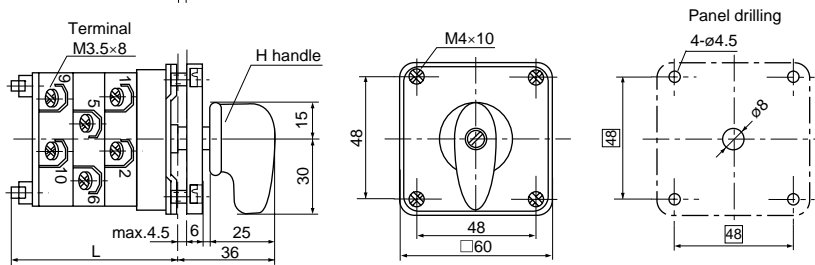
| No. of contact blocks | 1    | 2    | 3    | 4    | 5    | 6    | 7     | 8     | 9     | 10    |
|-----------------------|------|------|------|------|------|------|-------|-------|-------|-------|
| L                     | 39.5 | 51.5 | 63.5 | 75.5 | 87.5 | 99.5 | 111.5 | 123.5 | 135.5 | 147.5 |



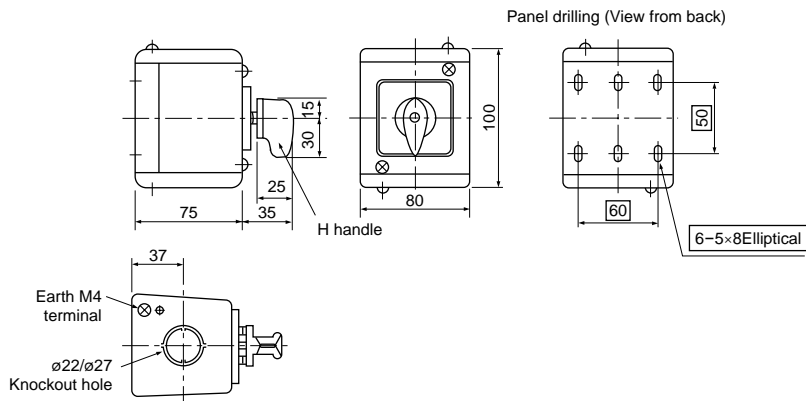
**Semi-flush mounting**  
 RC310-1



| No. of contact blocks | 1    | 2    | 3    | 4    | 5    | 6    | 7     | 8     | 9     | 10    |
|-----------------------|------|------|------|------|------|------|-------|-------|-------|-------|
| L                     | 39.5 | 51.5 | 63.5 | 75.5 | 87.5 | 99.5 | 111.5 | 123.5 | 135.5 | 147.5 |



**Enclosed (Up to 3-contact block)**  
 RC310g-1

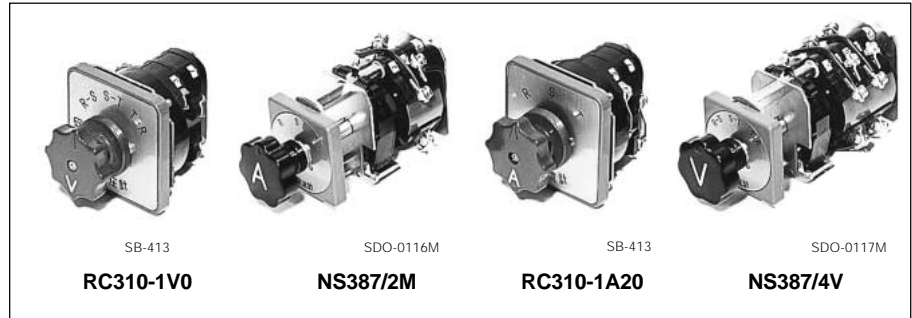


# Panel Switches NS387 and RC310 Instrument switches

## Voltmeter/Ammeter Changeover Switches

### Description

These switches are used with voltmeters or ammeters in secondary PT or CT circuits. Normally, 3-phase line voltage or phase current is measured with 3 meters provided, which requires considerable switchboard or console space. Space can be saved by using NS387 and RC310 instrument switches, since the phase current or line voltage can be read with a single meter and either VS or AS (Voltmeter or Ammeter switch). FUJI AS's are precisely and ruggedly constructed, and open circuits do not occur at the time of switch-over, so eliminating the possibility of abnormal voltage trouble. NS387 is a



blade-type switch and RC310 is a cam-type. Both are compact in size and use highly dependable silver contacts. FUJI can also supply DC voltmeter type switches in addition to these for AC use.

### Ordering information

Specify the following:  
1. Type number

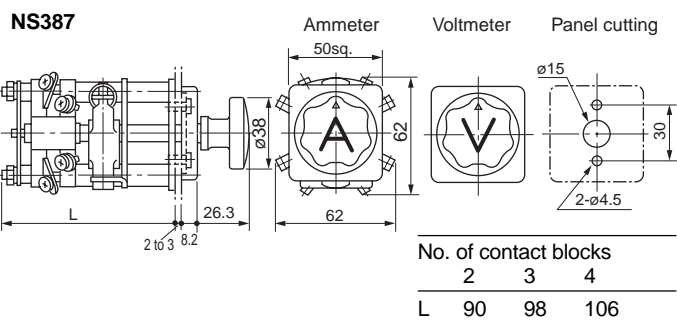
| Series | Application  | Type              | Ordering code | No. of contact block | Legend plate *          | Handle angle | With or without Off position | Mass (kg) |
|--------|--------------|-------------------|---------------|----------------------|-------------------------|--------------|------------------------------|-----------|
| NS387  | AC Voltmeter | <b>NS387/4V</b>   | AC38V4N       | 4                    | R · S · S-T · T-R       | 2 x 45°      | Without                      | 0.5       |
|        | AC Voltmeter | <b>NS387/4V0</b>  | AC38V4F       | 4                    | OFF · R · S · S-T · T-R | 3 x 45°      | With                         | 0.5       |
|        | DC Voltmeter | <b>NS387/2V</b>   | AC38V2N       | 2                    | I · OFF · II            | 2 x 45°      | With                         | 0.43      |
|        | AC Ammeter   | <b>NS387/2M</b>   | AC38A2N       | 2                    | R · S · T               | 2 x 45°      | Without                      | 0.43      |
|        | AC Ammeter   | <b>NS387/2M0</b>  | AC38A2F       | 3                    | OFF · R · S · T         | 3 x 45°      | With                         | 0.47      |
|        | AC Ammeter   | <b>NS387/3M</b>   | AC38A3N       | 3                    | R · S · T               | 2 x 45°      | Without                      | 0.47      |
|        | AC Ammeter   | <b>NS387/4M</b>   | AC38A43F      | 4                    | OFF · R · S · T         | 3 x 45°      | With                         | 0.5       |
| RC310  | AC Voltmeter | <b>RC310-1V</b>   | AK2R1-V32     | 2                    | R · S · S-T · T-R       | 2 x 45°      | Without                      | 0.22      |
|        | AC Voltmeter | <b>RC310-1V0</b>  | AK2R1-V42     | 2                    | OFF · R · S · S-T · T-R | 3 x 45°      | With                         | 0.22      |
|        | AC Ammeter   | <b>RC310-1A2</b>  | AK2R1-A32     | 2                    | R · S · T               | 2 x 45°      | Without                      | 0.22      |
|        | AC Ammeter   | <b>RC310-1A20</b> | AK2R1-A42     | 2                    | OFF · R · S · T         | 3 x 45°      | With                         | 0.22      |
|        | AC Ammeter   | <b>RC310-1A3</b>  | AK2R1-A33     | 3                    | R · S · T               | 2 x 45°      | Without                      | 0.25      |
|        | AC Ammeter   | <b>RC310-1A30</b> | AK2R1-A43     | 3                    | OFF · R · S · T         | 3 x 45°      | With                         | 0.25      |

Note: \* For standard type legend plate. Other types can be manufactured by request.

### Ratings

| Series | Rated thermal current (A) | Making and breaking capacity AC (inductive) |          |           | DC (inductive) |          |           |
|--------|---------------------------|---|----------|-----------|----------------|----------|-----------|
|        |                           | Voltage (V)                                 | Make (A) | Break (A) | Voltage (V)    | Make (A) | Break (A) |
| NS387  | 15                        | 110   | 30       | 3         | 24             | 60       | 60        |
|        |                           | 220   | 30       | 3         | 110            | 15       | 15        |
|        |                           | 440   | 20       | 2         | 220            | 5        | 5         |
|        |                           | 550   | 20       | 2         | 440            | 2.5      | 2.5       |
| RC310  | 10                        | 110   | 37.5     | 7.5       | 24             | 37.5     | 7.5       |
|        |                           | 220   | 37.5     | 7.5       | 110            | 37.5     | 1.3       |
|        |                           | 440   | 37.5     | 2.5       | 220            | 37.5     | 0.45      |
|        |                           | 550   | 37.5     | 1.5       | 440            | 37.5     | 0.15      |

### Dimensions, mm

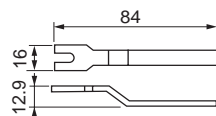


### Handle color (standard)

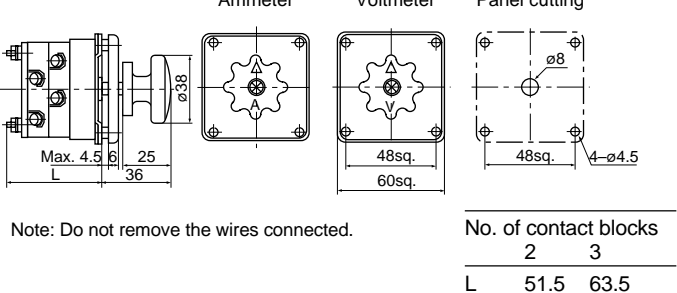
NS387: Black  
RC310: Black

### Special spanner (for NS387)

Use this spanner for installation or replacement.



### RC310



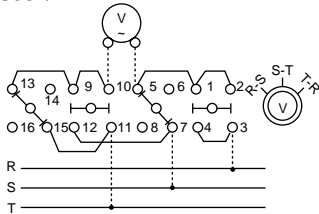
Note: Do not remove the wires connected.

■ **Wiring diagrams**

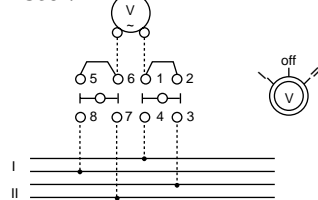
**Voltmeter changeover switches**

• **NS387 series**

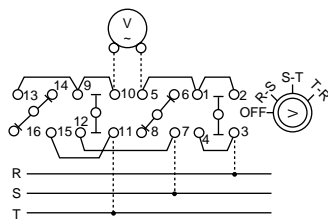
NS387/4V



NS387/2V

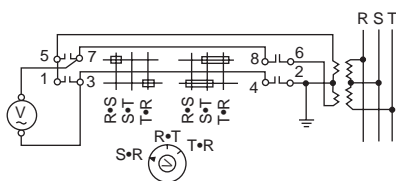


NS387/4V0

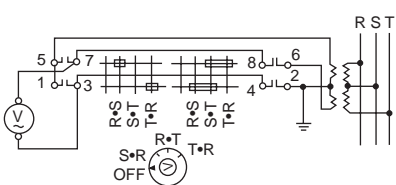


• **RC310 series**

RC310-1V



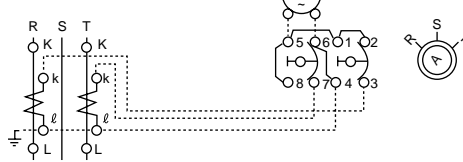
RC310-1V0



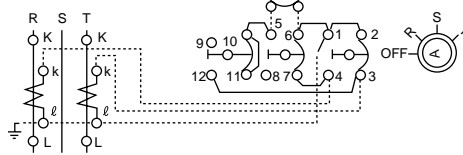
**Ammeter changeover switches**

• **NS387 series**

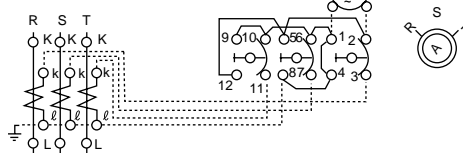
NS387/2M



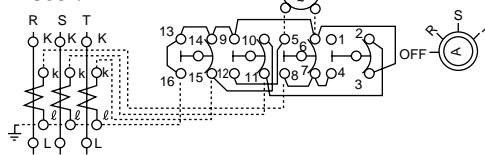
NS387/2M0



NS387/3M

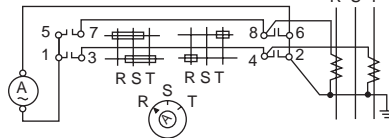


NS387/4M

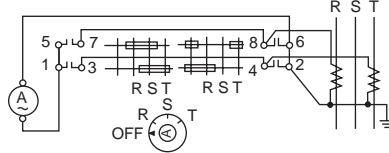


• **RC310 series**

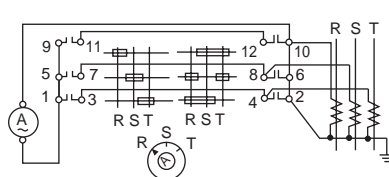
RC310-1A2



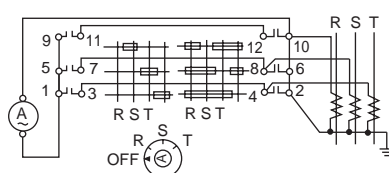
RC310-1A20



RC310-1A3



RC310-1A30



# Panel Switches

## NS387

### Control switches

#### Panel switches for industrial control switchboards

##### ■ Description

NS387 control switches are used on control panels or consoles to operate H.V. circuit breakers or disconnecting switches. These switches are small in size, dependable and take up little switchboard space. Since they have a large current capacity they can be applied to many types of control circuits.

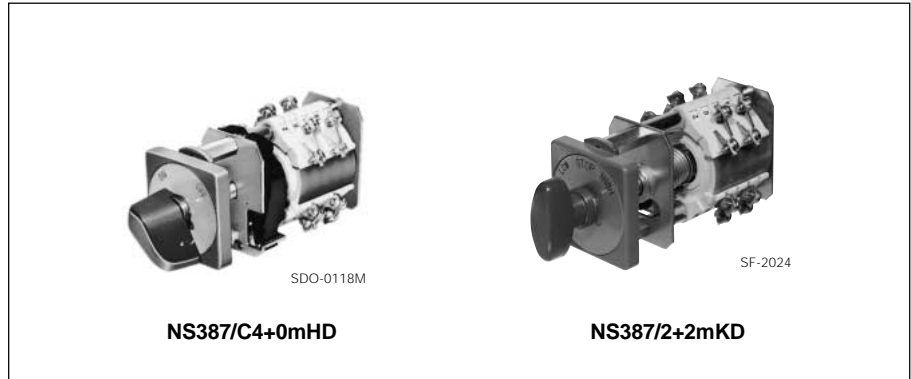
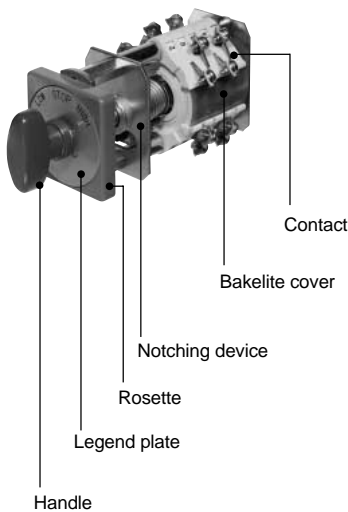
The movable blade has both an excellent contact performance and a long service life. Switches can be supplied in center spring return for momentary action and maintained versions, with 2, 3 and 4 positions. They can be fitted with H, K or R-type standard FUJI handles. The H-type is used as an ON-OFF switch to control circuit breakers or as a disconnecting switch. The K-type is mainly for regulation use and the R-type is used for controlling the power source. In addition to the standard handles key-controlled handles are also available.

Please refer to page 04/273 of this catalog for typical contact arrangements of these panel switches. We are in a position to supply many other types of switches to meet your particular application needs.

##### ■ Technical data

Insulation resistance: Over 25MΩ at 500V DC  
Dielectric strength: 2200V AC rms, 1 minute  
Durability

Mechanical: 300,000 operations  
Electrical: 100,000 operations at 220V AC 5A  
Allowable ambient temperature: -5° to +40°C



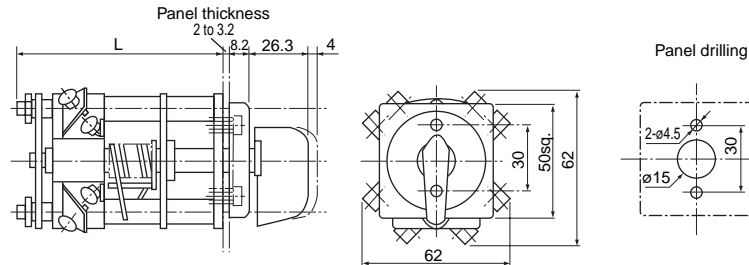
##### ■ Ratings

| Contacts          | Rated thermal current (A) | Making and breaking capacity |      |      |      | AC (inductive) [VA] * |      |      |       |
|-------------------|---------------------------|------------------------------|------|------|------|-----------------------|------|------|-------|
|                   |                           | DC (inductive) [W]           |      |      |      | 110V 220V 440V 550V   |      |      |       |
|                   |                           | 24V                          | 110V | 220V | 440V | 110V                  | 220V | 440V | 550V  |
| Standard contact  | 15                        | 1440                         | 1650 | 1100 | 1100 | 3300                  | 6600 | 8800 | 11000 |
| Residual contact  | 15                        | 1440                         | 1650 | 550  | 220  | -                     | -    | -    | -     |
| Non-break contact | 15                        | 720                          | 825  | 550  | 132  | -                     | -    | -    | -     |

Note: \* When the operated equipment is AC electromagnet, breaking capacity is the above-mentioned 10% or less the capacity of the stationary state to which the electromagnet is energized.

##### ■ Dimensions, mm

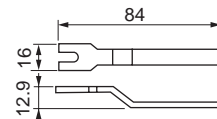
With H, I, R, K, KP, KQ, KX, KY type handle



| Type      | No. of contact blocks |      |      |     |      |      |
|-----------|-----------------------|------|------|-----|------|------|
|           | 1                     | 2    | 3    | 4   | 5    | 6    |
| NS387/    | 82                    | 90   | 98   | 106 | 114  | 123  |
| NS387S/   | 82                    | 90   | 98   | 106 | 114  | 123  |
| NS387/C   | 82                    | 90   | 98   | 106 | 114  | 139  |
| NS387/A   | 82                    | 90   | 98   | 106 | 114  | 123  |
| NS387/D   | 82                    | 90   | 98   | 106 | 114  | 123  |
| Mass (kg) | 0.4                   | 0.43 | 0.47 | 0.5 | 0.54 | 0.57 |

##### ■ Special spanner

Use this spanner for installation or replacement



##### ■ Ordering information

Specify the following (See page 04/273)

1. Type number
2. Letters or symbols to be printed on legend plate
3. Color of rosette (if you require other color but black standard color)
4. Color of handle
5. Options if required

■ Type number nomenclature

NS387 / Basic type

**Construction**  
 Blank: Open type  
 C: With transparent cover

**Operation**  
 C: Maintained, 2-position  
 A: Maintained, 3-position  
 Blank: Spring return, 3-position

**Handle locking device**  
 See page 04/274

**Color of handle and rosette**  
 B: Black  
 D: Dark green  
 Note: The standard: Black (B).

**Type of handle**  
 See page 04/274

**With or without of micro switch**  
 Blank: Without  
 S1: With a micro switch  
 S2: With two micro switch  
 Note: Specify the type of handle locking device when ordering a model equipped with a micro switch.

Note: Specify the embossed characters when ordering a model equipped with a legend plate.

■ Contact arrangement

| Contact arrangement | Code         | Contact position  | Contact (varies depending on operation) |   |   | No. of combinations (varies depending on operation) |                          |                          |
|---------------------|--------------|---|---|---|---|---|--------------------------|--------------------------|
|                     |              |   | Blank                                   | C | A | C   | A                        | Blank                    |
| ①                   | 0-10         | Contacts at right angles to the operating handle (in parallel to the operating handle only in the case of the 4-position changeover type)   |   |   |   | ①+③+④<br>≤ 6-block                                  | ①+②+③<br>+④<br>≤ 6-block | ①+②+③<br>+④<br>≤ 6-block |
| ②                   | Blank, 1-10  | The above contacts ① shifted clockwise by 45°   |   | - |   | ③+④<br>≤ 4-block                                    | ③+④<br>≤ 6-block         | ③+④<br>≤ 4-block         |
| ③                   | 0m-6m        | Non-interrupting contacts at right angles to the operating handle (in parallel to the operating handle only in the case of the 4-position changeover type)<br>Code "m" is added after the number of blocks. |   |   |   |   |                          |                          |
| ④                   | Blank, 1m-6m | The above contacts ③ shifted clockwise by 45°<br>Code "m" is added after the number of blocks.  |   |   |   |   |                          |                          |

Notes: • In each of the above contact forms, the symbol □ refers to the position of the operating handle.  
 • If no contacts are required, leave ② and ④ blank and enter "0" for ① and ③.

• Operation

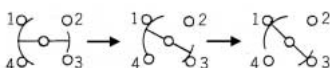
| Operation              | No. of positions | Handle position | Operation angle | Code  |
|------------------------|------------------|-----------------|-----------------|-------|
| Maintained             | 2                |                 | 90°             | C     |
|                        | 3                |                 | 45°             | A     |
|                        | 4                |                 |                 | D     |
| Spring return          | (3)              |                 |                 | Blank |
| Spring / manual return | (3)              |                 |                 | F     |
|                        | (3)              |                 |                 | E     |

• Contact

Standard contact



Non-break contact



For clockwise rotation, terminals 1, 3, and 4 are conductive before the continuity of terminals 1 and 4 is interrupted. After that, only terminals 1 and 3 are conductive.



# Panel Switches

## NS387

### Control switches

#### ■ Operating handle

##### • Combination of rosette and handle

| Rosette   | Handle    | Type of handle (refer to 2. Shape of handle, table below)                                     |
|-----------|-----------|---|
| For NS387 | For NS387 | Without micro switch:<br>H, I, K<br>KP1 – KP10<br>KQ1 – KQ10<br>KX1 – KX10<br>KY1 – KY10<br>R |
|           |           | Key removable position<br>  |
|           | For RC310 | Without micro switch:<br>P, S, D, W   |
|           |           | With micro switch:<br>H, P, S, K, D, R, W   |

Notes: • With micro switch equipped, NS387 panel switch are provided with NS387-use rosette as standard, and with the handle for RC310-1 cam switch.  
 • The large handle (P, S, D, or W) for the RC310-1 is not compatible with any other handle.

##### • Shape of handle

|           |                   |                   |                   |                   |                    |                    |                    |                    |
|-----------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| For NS387 | <b>H type</b><br> | <b>I type</b><br> | <b>K type</b><br> | <b>R type</b><br> | <b>KP type</b><br> | <b>KQ type</b><br> | <b>KX type</b><br> | <b>KY type</b><br> |
| For RC310 | <b>H type</b><br> | <b>R type</b><br> | <b>W type</b><br> | <b>S type</b><br> | <b>P type</b><br>  | <b>K type</b><br>  | <b>D type</b><br>  |                    |

##### • Types of handle locking

| Code  | Center spring return type  | Maintained type  |
|-------|--|--|
| Blank | In the case of the NS387, the handle can be turned after being pulled, and the handle then returns to the center position automatically when it is released. If the handle needs to be turned without being pulled, order a model with "no handle lock".<br>The RC310 handle can be turned without being locked.   | The handle can be turned without being locked.   |
| L1    | With a handle for the RC310.<br>The handle can be turned after being pulled, and the handle then returns to the center position automatically when it is released.   | The handle can be turned after being pulled, and the handle stops at each notch when it is released.   |
| L2    | The handle can be turned without being pulled, and will return to the center position automatically when it is released. The micro switch is activated while the handle is pulled in the center position, and the switch is reset when the handle is released. The handle, however, does not turn left or right when it is pulled.                                 | The handle can be turned after being pulled, and when it is released in any notch position, the handle will stop at that notch position. Moreover, when the handle is pulled in any notch position, the micro switch will be activated, and both the micro switch and handle will be reset when the handle is released. However, the handle cannot be switched to any other notch while it is in the pulled condition. |
| L3    | The handle can be turned without being pulled, and will return to the center position automatically when it is released. When the handle is pulled in the left position, the lock mechanism will activate and no other notch can be selected. In that case, the handle will automatically return to the center position when it is pressed in the shaft direction. | –  |
| L4    | The handle can be turned after being pulled. When it is released, the handle will automatically return to the center position in the pulled condition. The handle will return when it is pressed in the shaft direction.   | –  |
| L5    | The handle can be turned without being pulled, and will return to the center position automatically when it is released. The micro switch will be activated when the handle is pulled in the center position, and the handle will return when the handle is pressed in the shaft direction.  | –  |

Note: If a micro switch is equipped, it will be activated when the handle is pulled.

■ Assembled typical switches

| Operation             | Type(example)                  | Contact arrangement | Description   |
|-----------------------|--------------------------------|---------------------|---|
| Center spring return  | <b>NS387/2 + 0mHD</b>          |                     | <ul style="list-style-type: none"> <li>The handle can be turned after being pulled, and will return to the center position automatically when it is released.</li> </ul>  |
|                       | <b>NS387/2 + 2 + 0mHB</b>      |                     | <ul style="list-style-type: none"> <li>The handle can be turned after being pulled, and will return to the center position automatically when it is released.</li> </ul>  |
|                       | <b>NS387/1 + 1mHB</b>          |                     | <ul style="list-style-type: none"> <li>The handle can be turned after being pulled, and will return to the center position automatically when it is released.</li> </ul>  |
|                       | <b>NS387/2 + 0mS1B</b>         |                     | <ul style="list-style-type: none"> <li>RC310-1 handle, equipped with a rosette.</li> <li>Add L1 for the pull-and-turn type.</li> </ul>  |
|                       | <b>NS387/1 + 0mS1HDL2</b>      |                     | <ul style="list-style-type: none"> <li>Provided with a micro switch, RC310-1 handle, and a rosette for the NS387.</li> <li>The handle can be turned without being pulled, and will return to the center position automatically when it is released. The micro switch will be activated while the handle is pulled in the center position.</li> </ul>  |
|                       | <b>NS387/5 + 0mSBL3</b>        |                     | <ul style="list-style-type: none"> <li>RC310-1 handle, equipped with the NS387 rosette.</li> <li>When the handle is pulled in the left position, it will be locked, and the handle will automatically return to the center position when it is pressed in the shaft direction.</li> </ul>   |
|                       | <b>NS387/1 + 0mS1H1BL4</b>     |                     | <ul style="list-style-type: none"> <li>Equipped with a micro switch, RC310-1 handle, and a rosette for the NS387.</li> <li>The handle can be turned after being pulled, and will return to the center position automatically when it is released, but the handle remains in the pulled condition. The handle will be reset when it is pressed.</li> <li>The micro switch will be activated while the handle is pulled.</li> </ul> |
| Maintained 2-position | <b>NS387/C3 + 1mKB</b>         |                     | —   |
|                       | <b>NS387/C6 + 0mW1D</b>        |                     | <ul style="list-style-type: none"> <li>RC310-1 cam switch handle, equipped with a rosette.</li> </ul>   |
| Maintained 3-position | <b>NS387/A6 + 0mRB</b>         |                     | —   |
|                       | <b>NS387/A2 + 0mH1B</b>        |                     | <ul style="list-style-type: none"> <li>RC310-1 cam switch handle, equipped with a rosette.</li> </ul>   |
|                       | <b>NS387/A3 + 3 + 0mS1KDL2</b> |                     | <ul style="list-style-type: none"> <li>RC310-1 cam switch handle, equipped with the NS387 rosette.</li> <li>The handle can be turned left or right without being pulled. The micro switch will be activated while the handle is pulled.</li> </ul>  |

For other than above, contact FUJI.

# Terminal Blocks

## General Information

### ■ Description

FUJI can supply a variety of terminal blocks for switchboard or switchgear use. FUJI terminal blocks and end barriers are strongly constructed from a phenol resin and have adequate creepage distance and excellent insulation characteristics. Good connections are assured by convenient screw terminals and solderless box lugs. All terminal blocks are designed to carry their rated amperage without danger of overheating. FUJI terminal blocks are available in a variety of types, some of which are illustrated on this page.

**AYBN type** is simple to assemble and is designed to speed up installation. It is available in up to 12 poles and 600 Amps versions.

**AYBS type** terminal blocks are made from the highest quality phenol resin and resists tracking. Current ratings are available up to 115 Amps and 12 poles. The customer is required to assemble the channel-mounted type himself. The modular construction allows the number of blocks in a channel to be increased or decreased very easily.

In addition we can also supply the **LT4D type** which is provided with an isolating switch, and **SKT type** power terminal blocks, which are used in motor circuits, power source and similar circuits. Testing terminals type **LT5** for CT, VT secondary circuits are also available.



SB-232



SB-277

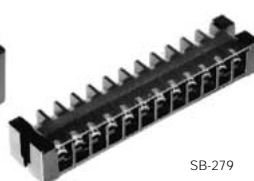
### Type AYBN

General purpose terminal blocks  
600 Volts 15 to 600 Amps

■ **Further information:** See page 04/277.



SB-279



SB-279

### Type AYBS

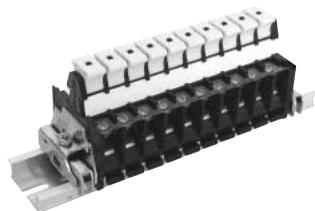
High quality terminal blocks  
600 Volts 49 to 115 Amps

■ **Further information:** See page 04/279.

### Type LT4D

Rail mounted terminal blocks with isolating switch  
660 Volts 20 Amps

■ **Further information:** See page 04/280.



AF01-220

### Type SKT

Terminal block with pressure solderless box lug type connector on one side and screw type connector on the other.

600 Volts 50 to 200 Amps

■ **Further information:** See page 04/281.



### Type LT5

Testing terminal and link for VT and CT circuit  
250 Volts AC/DC 30 Amps

■ **Further information:** See page 04/288.

### ■ Wire gauge and square

The following table shows the relationship between B.W.G., A.W.G. wire gauge and mm<sup>2</sup> cross-sections. In this catalog wire sizes are quoted in mm<sup>2</sup>. Please use this table for reference.

| Gauge  |        | Square          | Gauge  |        | Square          |
|--------|--------|-----------------|--------|--------|-----------------|
| B.W.G. | A.W.G. | mm <sup>2</sup> | B.W.G. | A.W.G. | mm <sup>2</sup> |
|        | 4/0    | 107.2           | 12     | 9      | 6.6             |
| 4/0    |        | 104.2           |        | 10     | 6.0             |
| 3/0    |        | 91.6            | 13     | 10     | 5.3             |
|        | 3/0    | 85.2            |        | 11     | 4.6             |
| 2/0    |        | 73.2            |        | 14     | 4.2             |
|        | 2/0    | 67.5            | 14     | 12     | 3.5             |
| 0      |        | 58.6            |        | 13     | 3.3             |
|        | 0      | 53.5            | 15     | 13     | 2.63            |
| 1      |        | 45.6            |        | 16     | 2.14            |
|        | 1      | 42.4            |        | 14     | 2.08            |
| 2      |        | 40.9            | 17     | 15     | 1.71            |
| 3      |        | 34.0            |        | 16     | 1.65            |
|        | 2      | 33.6            | 18     | 16     | 1.32            |
| 4      |        | 28.7            |        | 17     | 1.22            |
|        | 3      | 26.7            | 19     | 17     | 1.03            |
| 5      |        | 24.5            |        | 18     | 0.89            |
|        | 4      | 21.2            |        | 19     | 0.81            |
| 6      |        | 20.9            | 20     | 19     | 0.66            |
|        | 5      | 16.8            |        | 20     | 0.62            |
| 7      |        | 16.4            | 21     | 20     | 0.52            |
|        | 6      | 13.8            |        | 21     | 0.41            |
| 8      |        | 13.3            | 22     | 21     | 0.40            |
|        | 7      | 11.1            |        | 22     | 0.32            |
| 9      |        | 10.5            | 23     | 22     | 0.32            |
|        | 8      | 9.1             |        | 23     | 0.26            |
| 10     |        | 8.3             | 24     | 23     | 0.25            |
|        | 9      | 7.3             |        | 24     | 0.20            |
| 11     |        |                 |        |        |                 |

B.W.G. Birmingham Wire Gauge  
A.W.G. American Wire Gauge

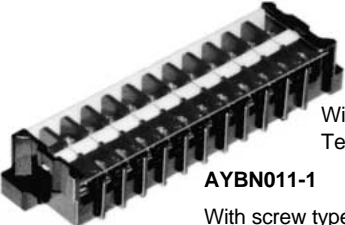



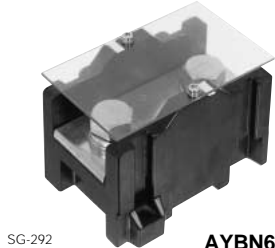


### Type LT2E

Rail mounted type terminal blocks  
600 volts 22 to 600 Amps

■ **Further information:** See page 04/283.

General purpose terminal blocks 600 Volts

| Typical illustration and description  | Amps | No. of poles  | With spring washer                                       |  | With turtle-shaped washer                                |  |
|---|------|---------------|--|--|--|--|
|   |      |               | Type   | Ordering code                          | Type   | Ordering code                          |
|  <p>Wire size: Max. 2mm<sup>2</sup><br/>Terminal screw: M3.5</p> <p><b>AYBN011-1</b></p> <p>With screw type connectors, marking strip and cover</p> <p>SB-277</p>  | 15   | 3<br>4<br>6   | <b>AYBN013-5</b><br><b>AYBN014-5</b><br><b>AYBN016-5</b> | LT1N-0203B<br>LT1N-0204B<br>LT1N-0206B | <b>AYBN013-1</b><br><b>AYBN014-1</b><br><b>AYBN016-1</b> | LT1N-0203A<br>LT1N-0204A<br>LT1N-0206A |
|   |      | 8<br>10<br>12 | <b>AYBN018-5</b><br><b>AYBN010-5</b><br><b>AYBN011-5</b> | LT1N-0208B<br>LT1N-0210B<br>LT1N-0212B | <b>AYBN018-1</b><br><b>AYBN010-1</b><br><b>AYBN011-1</b> | LT1N-0208A<br>LT1N-0210A<br>LT1N-0212A |
|  <p>Wire size: Max. 5.5mm<sup>2</sup><br/>Terminal screw: M4</p> <p><b>AYBN026-1</b></p> <p>With screw type connectors, marking strip and cover</p> <p>SB-277</p>  | 25   | 3<br>4<br>6   | <b>AYBN023-5</b><br><b>AYBN024-5</b><br><b>AYBN026-5</b> | LT1N-0503B<br>LT1N-0504B<br>LT1N-0506B | <b>AYBN023-1</b><br><b>AYBN024-1</b><br><b>AYBN026-1</b> | LT1N-0503A<br>LT1N-0504A<br>LT1N-0506A |
|   |      | 8<br>10<br>12 | <b>AYBN028-5</b><br><b>AYBN020-5</b><br><b>AYBN021-5</b> | LT1N-0508B<br>LT1N-0510B<br>LT1N-0512B | <b>AYBN028-1</b><br><b>AYBN020-1</b><br><b>AYBN021-1</b> | LT1N-0508A<br>LT1N-0510A<br>LT1N-0512A |
|  <p>Wire size: Max. 14mm<sup>2</sup><br/>Terminal screw: M5</p> <p>Wire size: Max. 22mm<sup>2</sup><br/>Terminal screw: M6</p> <p><b>AYBN043-1</b></p> <p>With screw type connectors, marking strip and cover</p> <p>SB-232</p>  | 40   | 3<br>4        | <b>AYBN043-5</b><br><b>AYBN044-5</b>                     | LT1N-1403B<br>LT1N-1404B               | <b>AYBN043-1</b><br><b>AYBN044-1</b>                     | LT1N-1403A<br>LT1N-1404A               |
|   | 60   | 3<br>4        | <b>AYBN063-5</b><br><b>AYBN064-5</b>                     | LT1N-2203B<br>LT1N-2204B               | <b>AYBN063-1</b><br><b>AYBN064-1</b>                     | LT1N-2203A<br>LT1N-2204A               |
|  <p>Wire size: Max. 60mm<sup>2</sup><br/>Terminal screw: M8</p> <p>Wire size: Max. 100mm<sup>2</sup><br/>Terminal screw: M10</p> <p>Wire size: Max. 200mm<sup>2</sup><br/>Terminal screw: M12</p> <p><b>AYBN204-5</b></p> <p>With screw type connectors, marking strip and cover</p> <p>SB-277</p> | 150  | 3<br>4        | –  | –                                      | <b>AYBN103-5</b> *1<br><b>AYBN104-5</b> *1               | LT1N-6003B<br>LT1N-6004B               |
|   | 200  | 3<br>4        | –  | –                                      | <b>AYBN203-5</b> *2<br><b>AYBN204-5</b> *2               | LT1N-1X03B<br>LT1N-1X04B               |
|   | 400  | 3<br>4        | –  | –                                      | <b>AYBN403-5</b> *2<br><b>AYBN404-5</b> *2               | LT1N-2X03B<br>LT1N-2X04B               |
|  <p>Wire size: Max. 325mm<sup>2</sup><br/>Terminal screw: M16</p> <p><b>AYBN601-5</b></p> <p>SG-292</p>  | 600  | 1             | –  | –                                      | <b>AYBN601-5</b> *2                                      | LT1N-3X01B                             |

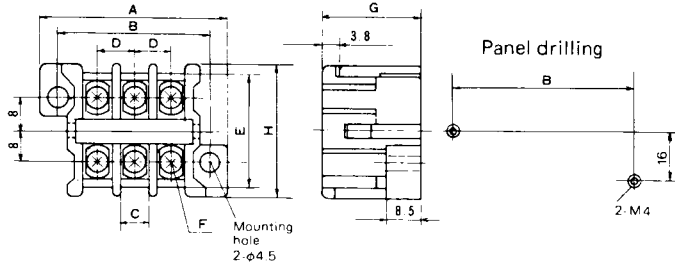
Notes: \*1 Cross recessed pan head screw type.  
\*2 Hexagonal bolt

# Terminal Blocks

## Type AYBN

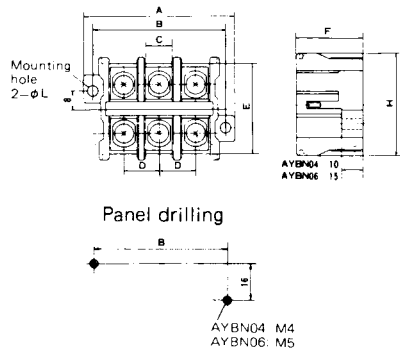
### ■ Dimensions, mm

#### 15A, 25A Terminal blocks



| Type          | No. of poles | A    | B    | C   | D    | E  | F    | G    | H  | Mass (g) |
|---------------|--------------|------|------|-----|------|----|------|------|----|----------|
| AYBN013-1, -5 | 3            | 45   | 37   | 6.9 | 9    | 28 | M3.5 | 23.8 | 32 | 20       |
| AYBN014-1, -5 | 4            | 54   | 46   | 6.9 | 9    | 28 | M3.5 | 23.8 | 32 | 30       |
| AYBN016-1, -5 | 6            | 72   | 64   | 6.9 | 9    | 28 | M3.5 | 23.8 | 32 | 40       |
| AYBN018-1, -5 | 8            | 90   | 82   | 6.9 | 9    | 28 | M3.5 | 23.8 | 32 | 50       |
| AYBN010-1, -5 | 10           | 108  | 100  | 6.9 | 9    | 28 | M3.5 | 23.8 | 32 | 60       |
| AYBN011-1, -5 | 12           | 126  | 118  | 6.9 | 9    | 28 | M3.5 | 23.8 | 32 | 75       |
| AYBN023-1, -5 | 3            | 52.5 | 44.5 | 9.9 | 11.5 | 30 | M4   | 26.8 | 36 | 35       |
| AYBN024-1, -5 | 4            | 64   | 56   | 9.9 | 11.5 | 30 | M4   | 26.8 | 36 | 40       |
| AYBN026-1, -5 | 6            | 87   | 79   | 9.9 | 11.5 | 30 | M4   | 26.8 | 36 | 60       |
| AYBN028-1, -5 | 8            | 110  | 102  | 9.9 | 11.5 | 30 | M4   | 26.8 | 36 | 80       |
| AYBN020-1, -5 | 10           | 133  | 125  | 9.9 | 11.5 | 30 | M4   | 26.8 | 36 | 95       |
| AYBN021-1, -5 | 12           | 156  | 148  | 9.9 | 11.5 | 30 | M4   | 26.8 | 36 | 115      |

#### 40A, 60A Terminal blocks



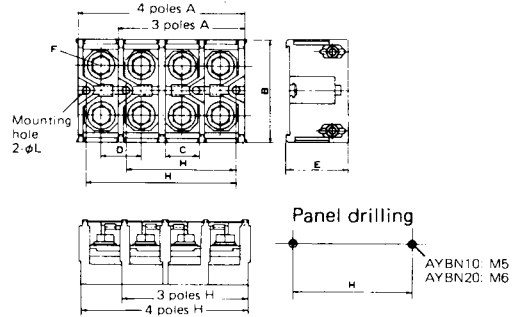
| Type          | No. of poles | A   | B   | C    | D  | E  | F    | H  | L    | Mass (g) |
|---------------|--------------|-----|-----|------|----|----|------|----|------|----------|
| AYBN043-1, -5 | 3            | 67  | 59  | 12.4 | 16 | 40 | 31.8 | 45 | φ4.5 | 80       |
| AYBN044-1, -5 | 4            | 83  | 75  | 12.4 | 16 | 40 | 31.8 | 45 | φ4.5 | 110      |
| AYBN063-1, -5 | 3            | 90  | 78  | 16.9 | 20 | 52 | 39   | 60 | φ6   | 160      |
| AYBN064-1, -5 | 4            | 113 | 101 | 16.9 | 20 | 52 | 39   | 60 | φ6   | 210      |

### ■ Ordering information

Specify the following:

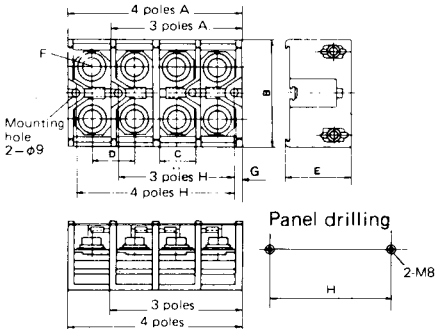
1. Ordering code or type number

#### 150A, 200A Terminal blocks



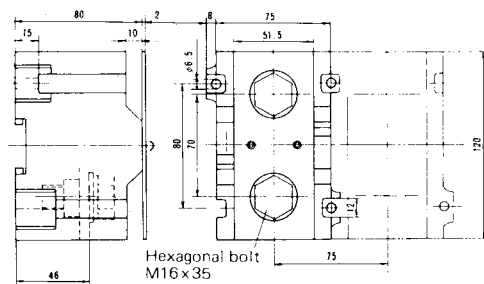
| Type      | No. of poles | A   | B  | C    | D  | E  | F   | H   | L  | Mass (g) |
|-----------|--------------|-----|----|------|----|----|-----|-----|----|----------|
| AYBN103-5 | 3            | 85  | 79 | 23   | 27 | 51 | M8  | 72  | φ6 | 390      |
| AYBN104-5 | 4            | 112 | 79 | 23   | 27 | 51 | M8  | 99  | φ6 | 510      |
| AYBN203-5 | 3            | 110 | 90 | 29.7 | 35 | 63 | M10 | 96  | φ7 | 740      |
| AYBN204-5 | 4            | 145 | 90 | 29.7 | 35 | 63 | M10 | 131 | φ7 | 970      |

#### 400A Terminal blocks



| Type      | No. of poles | A   | B   | C  | D  | E  | F   | G   | H   | Mass (g) |
|-----------|--------------|-----|-----|----|----|----|-----|-----|-----|----------|
| AYBN403-5 | 3            | 175 | 120 | 45 | 55 | 82 | M12 | 9.5 | 156 | 1670     |
| AYBN404-5 | 4            | 230 | 120 | 45 | 55 | 82 | M12 | 9.5 | 211 | 2170     |

#### 600A Terminal blocks



Mass: 1040g




### ■ Technical data

Insulation resistance: Over 100MΩ at 500V DC

Dielectric strength: 2500V AC rms. 1 minute

Ambient temperature: -20° to +40°C

High quality terminal blocks 600 Volts

| Typical illustration and description   | Volts | Amps | No. of poles | With spring washer Type                                  | Ordering code                          | With turtle-shaped washer Type                           | Ordering code                          |
|--|-------|------|--------------|--|--|--|--|
|  <p>Wire size: Max. 5.5mm<sup>2</sup><br/>Terminal screw: M4</p> <p>SB-244</p> <p><b>AYBS021-1</b></p>  | 600   | 49   | 6<br>12      | <b>AYBS026-5</b><br><b>AYBS021-5</b>                     | LT1S-0506B<br>LT1S-0512B               | <b>AYBS026-1</b><br><b>AYBS021-1</b>                     | LT1S-0506A<br>LT1S-0512A               |
|  <p>Wire size: Max. 14mm<sup>2</sup><br/>Terminal screw: M5</p> <p>SB-241</p> <p><b>AYBS044-1</b></p>   | 600   | 88   | 3<br>4<br>12 | <b>AYBS043-5</b><br><b>AYBS044-5</b><br><b>AYBS041-5</b> | LT1S-1403B<br>LT1S-1404B<br>LT1S-1412B | <b>AYBS043-1</b><br><b>AYBS044-1</b><br><b>AYBS041-1</b> | LT1S-1403A<br>LT1S-1404A<br>LT1S-1412A |
|  <p>Wire size: Max. 22mm<sup>2</sup><br/>Terminal screw: M6</p> <p>SB-239</p> <p><b>AYBS064-1</b></p> | 600   | 115  | 3<br>4       | <b>AYBS063-5</b><br><b>AYBS064-5</b>                     | LT1S-2203B<br>LT1S-2204B               | <b>AYBS063-1</b><br><b>AYBS064-1</b>                     | LT1S-2203A<br>LT1S-2204A               |

04

■ Ordering information

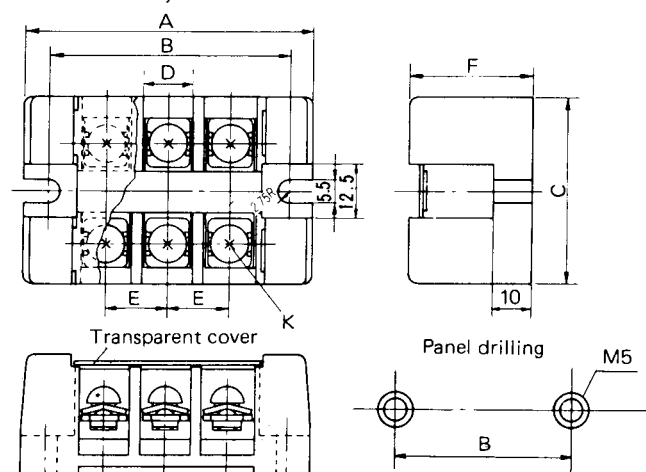
Specify the following:

1. Ordering code or type number

■ Technical data

Insulation resistance: Over 100MΩ at 500V DC  
Dielectric strength: 2500V AC rms 1 minute  
Ambient temperature: -20° to +40°C  
-20° to +60°C (at 70% ratings)

■ Dimensions, mm



| Type          | No. of poles | A   | B    | C  | D    | E    | F    | K  | Mass (g)  |
|---------------|--------------|-----|------|----|------|------|------|----|-----------|
| AYBS026-1, -5 | 6            | 101 | 91   | 40 | 10   | 13   | 28   | M4 | 120(110)* |
| AYBS021-1, -5 | 12           | 179 | 169  | 40 | 10   | 13   | 28   | M4 | 220       |
| AYBS043-1, -5 | 3            | 72  | 60.5 | 46 | 12.5 | 15.5 | 32   | M5 | 110       |
| AYBS044-1, -5 | 4            | 88  | 76   | 46 | 12.5 | 15.5 | 32   | M5 | 130       |
| AYBS041-1, -5 | 12           | 212 | 200  | 46 | 12.5 | 15.5 | 32   | M5 | 300       |
| AYBS063-1, -5 | 3            | 89  | 77   | 60 | 17   | 21   | 35.5 | M6 | 190       |
| AYBS064-1, -5 | 4            | 110 | 98   | 60 | 17   | 21   | 35.5 | M6 | 240       |

\* For AYBS026-5 type

# Terminal Blocks

## Type LT4D

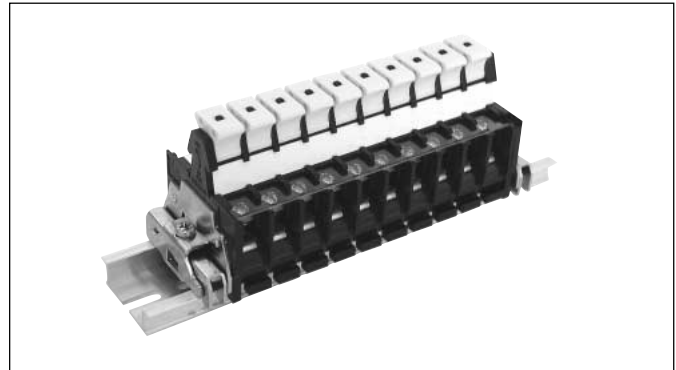
### Channel mounted type terminal blocks with isolating switch

660 Volts 20 Amps  
 Wire size: Maximum 5.5mm<sup>2</sup>  
 Terminal screw: M4

These blocks are provided with isolating switches. When opening the control circuit tentatively for testing or inspection purposes please operate the switch knob. If the leads of an ammeter are connected to both ends of the terminal block and then open the switch the ammeter will then be connected in series and this will allow measurement.

#### Warning

Do not use this switch for secondary CT circuits. Incorrect operation could be dangerous.



| Illustration | Description                                  | Type             | Minimum quantity per order |
|--------------|--|------------------|----------------------------|
|              | Terminal block section with isolating switch | <b>LT4D-020Y</b> | 100 pcs                    |
|              | End barrier                                  | <b>LT9D-E1</b>   | 50 pcs                     |
|              | End clamp kit                                | <b>LT9E-T2</b>   | 50 pcs                     |
|              | Mounting rail                                | <b>LT9E-R1</b>   | 1 pcs (1m)                 |
|              | Marking strip sheet                          | <b>LT9D-M1</b>   | 1 sheets (900mm)           |

#### Ordering information

Specify the following:

- Type number
- Quantity: *Specify in minimum quantity or multiples of minimum quantity per order.*  
 Examples: *minimum quantity per order: 20 pcs. To order, 20 pcs, 40 pcs, 60 pcs, ..., 100 pcs, etc. Should be specified.*

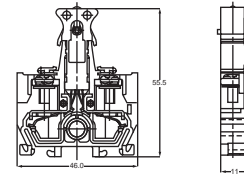
#### Technical data

Insulation resistance: Over 100MΩ at 500V DC  
 Dielectric strength: 2500V AC rms. 1 minute  
 Ambient temperature: -20° to +60°C

#### Dimensions, mm

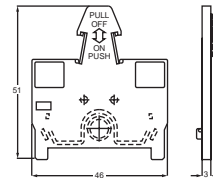
##### Terminal block section LT4D

mass: 50g



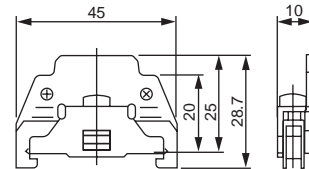
##### End barrier LT9D-E1

mass: 5g



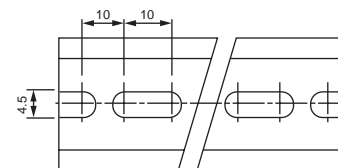
##### End clamp kit LT9E-T2

mass: 12g



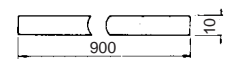
##### Mounting rail LT9E-R1

mass: 200g



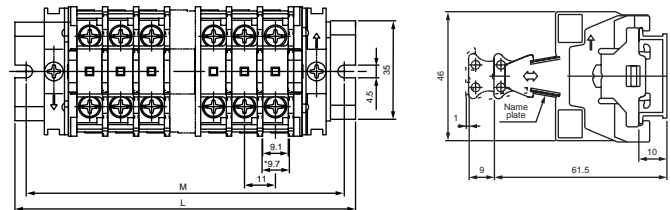
##### Marking strip sheet LT9D-M1

mass: 2g



thickness :0.5mm

##### Assembled LT4D-020Y-□□



M: Mounting hole pitch  
 L: Full length

| No. of poles | M   | L   | No. of poles | M   | L    |
|--------------|-----|-----|--------------|-----|------|
| 8            | 132 | 140 | 22           | 292 | 300  |
| 10           | 152 | 172 | 24           | 312 | 320  |
| 12           | 172 | 180 | 30           | 372 | 380  |
|              |     |     | 40           | 492 | 500  |
| 14           | 192 | 200 | 50           | 592 | 600  |
| 16           | 232 | 240 | 85           | 992 | 1000 |
| 18           | 252 | 260 |              |     |      |
|              | 272 | 280 |              |     |      |

Note: 1 to 85 poles can also be assembled except those listed above.

### With transparent cover power terminal blocks

600 Volts 50 to 200 Amps  
Wire size: 2 to 100 mm<sup>2</sup>

- Transparent terminal cover allows the wiring configuration to be checked externally.
- Slotted hexagon head bolts that can be tightened with screwdrivers or box wrenches are used for the terminals.
- The line side and load side are provided with hinged terminal covers to ensure safety and allow easier maintenance and inspections.
- cUL approved, file No. E45457  
SKT14A-3C to SKT100A-3C only.



### ■ Types and ratings

#### • Terminal blocks

| Pole                   | Rated insulation voltage (V AC) | Rated continuous current (A) | Wire size (mm <sup>2</sup> ) | Type               | Mass (g) |
|------------------------|---------------------------------|------------------------------|------------------------------|--------------------|----------|
| 3                      | 600                             | 50                           | 2 to 14                      | <b>SKT14A-3C</b>   | 300      |
|                        |                                 | 100                          | 2 to 38                      | <b>SKT38A-3C</b>   | 310      |
|                        |                                 | 150                          | 14 to 60                     | <b>SKT60A-3C</b>   | 450      |
|                        |                                 | 200                          | 30 to 100                    | <b>SKT100A-3C</b>  | 730      |
| 3 + 1 (Earth terminal) | 600                             | 50                           | 2 to 14                      | <b>SKT14A-3CG</b>  | 440      |
|                        |                                 | 100                          | 2 to 38                      | <b>SKT38A-3CG</b>  | 450      |
|                        |                                 | 150                          | 14 to 60                     | <b>SKT60A-3CG</b>  | 690      |
|                        |                                 | 200                          | 30 to 100                    | <b>SKT100A-3CG</b> | 1120     |

#### • Connectors

| Rated voltage (V AC) | Rated continuous current (A) | Wire size (mm <sup>2</sup> ) | Type            | Mass (g) |
|----------------------|------------------------------|------------------------------|-----------------|----------|
| 600                  | 50                           | 2 to 14                      | <b>SKT14-S</b>  | 52       |
|                      | 100                          | 2 to 38                      | <b>SKT38-S</b>  | 55       |
|                      | 150                          | 14 to 60                     | <b>SKT60-S</b>  | 80       |
|                      | 200                          | 30 to 100                    | <b>SKT100-S</b> | 135      |

### ■ Specifications

|                       |                                  |
|-----------------------|----------------------------------|
| Insulation resistance | 100MΩ or more (500V DC megger)   |
| Withstand voltage     | 2500V AC 1minute                 |
| Ambient temperature   | -20 to +55°C                     |
| Humidity              | 85%RH or less                    |
| Flammability          | UL94V-2 (Cover), UL94V-0 (Frame) |
| Temperature rise      | 45K or less (JIS C 2811)         |

### ■ Ordering information

Specify the following:

1. Type number

### ■ Tightening torque

| Type               | Recommended tightening torque (N•m) |           | Cable pull-out (UL486A) min. force (N) |            |
|--------------------|-------------------------------------|-----------|--|------------|
|                    | Line side                           | Load side | Min. cable                             | Max. cable |
| <b>SKT14A-3C</b>   | 5.1–6.5                             | 11.5–15.5 | 222                                    | 400        |
| <b>SKT14A-3CG</b>  | (M6)                                | (M8)      | (14AWG)                                | (8AWG)     |
| <b>SKT38A-3C</b>   | 5.1–6.5                             | 11.5–15.5 | 222                                    | 445        |
| <b>SKT38A-3CG</b>  | (M6)                                | (M8)      | (14AWG)                                | (6AWG)     |
| <b>SKT60A-3C</b>   | 11.5–15.5                           | 11.5–15.5 | 311                                    | 623        |
| <b>SKT60A-3CG</b>  | (M8)                                | (M8)      | (12AWG)                                | (4AWG)     |
| <b>SKT100A-3C</b>  | 23–31                               | 23–31     | 311                                    | 801        |
| <b>SKT100A-3CG</b> | (M10)                               | (M10)     | (12AWG)                                | (2AWG)     |



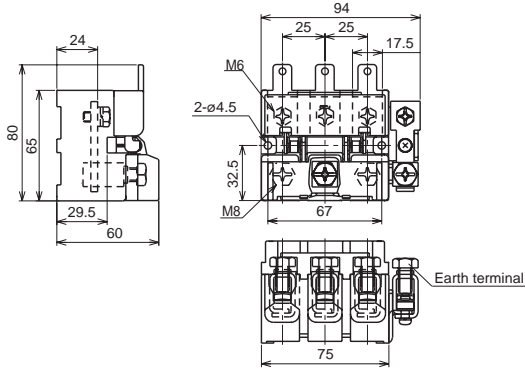
# Terminal Blocks Type SKT

## ■ Dimensions, mm

### • Terminal block

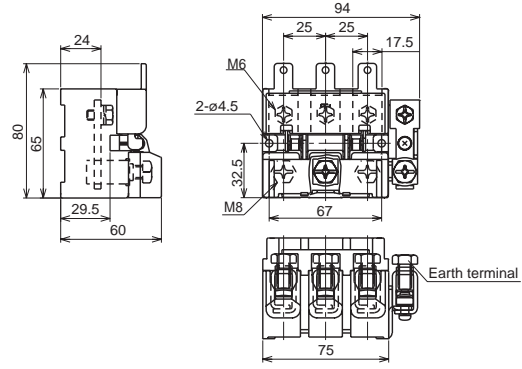
SKT14A-3C (Without earth terminal)

SKT14A-3CG (With earth terminal)



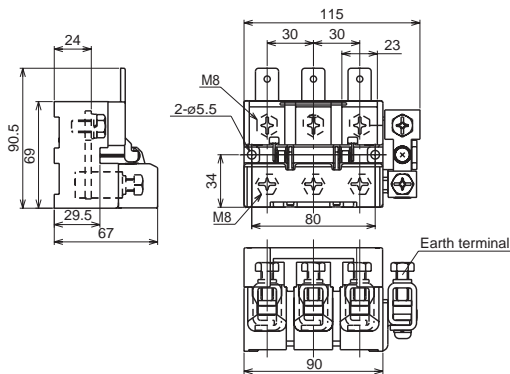
SKT38A-3C (Without earth terminal)

SKT38A-3CG (With earth terminal)



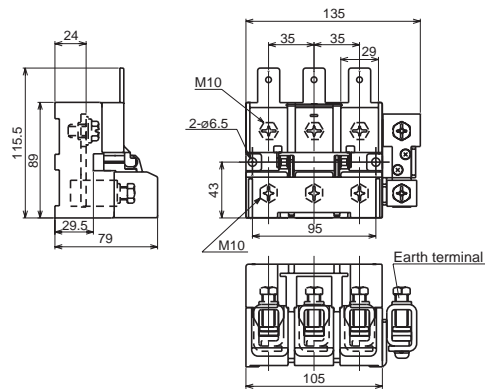
SKT60A-3C (Without earth terminal)

SKT60A-3CG (With earth terminal)



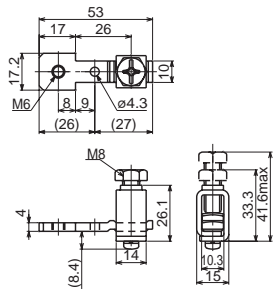
SKT100A-3C (Without earth terminal)

SKT100A-3CG (With earth terminal)

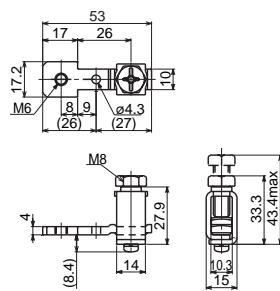


### • Connector

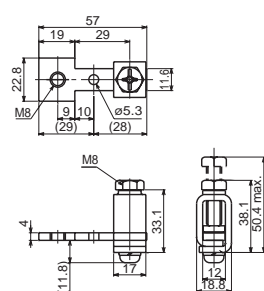
SKT14-S



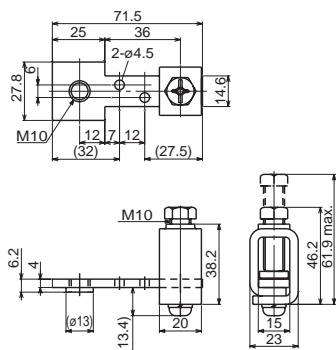
SKT38-S



SKT60-S

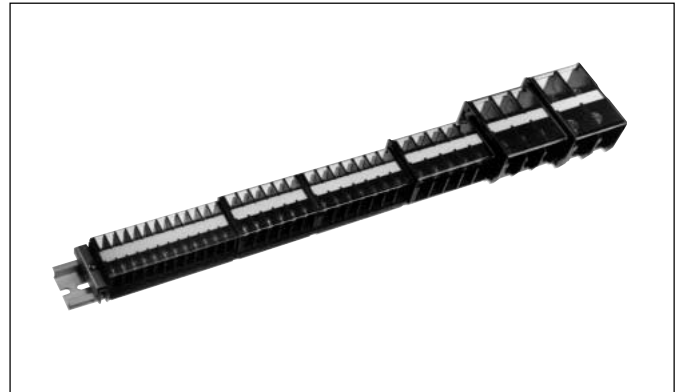


SKT100-S



■ Features

- Any number of poles can be assembled on a 35mm DIN rail.
- A lineup of 10 models supporting screw sizes from M3.5 to M16 and a maximum current of 600A is available.
- Our standard models are approved by UL, CSA, and TÜV.
- The molded material conforms to the UL standard for self-extinguishing materials (UL94V-0).
- Mounting is performed by simply pressing the block down onto the rail (except for models LT2E-200 to 600).



■ Specifications

| Rated thermal current (A) | Terminal screw | Applicable wire size and maximum current   | Terminal block  | End barrier | Cover                                       | Legend plate                   | End clamp | Rail               |
|---------------------------|----------------|--|-----------------|-------------|---|--------------------------------|-----------|--------------------|
| 22                        | M3.5           | 1.25mm <sup>2</sup> -16A<br>2mm <sup>2</sup> -22A                                | <b>LT2E-020</b> | LT9E-E1     | LT9E-C1                                     | LT9E-M1                        | LT9E-T1   | LT9E-R1<br>LT9E-R2 |
| 30                        | M4             | 1.25mm <sup>2</sup> -16A<br>2mm <sup>2</sup> -22A<br>3.5mm <sup>2</sup> -30A     | <b>LT2E-030</b> | LT9E-E2     | LT9E -C2                                    |                                |           |                    |
| 40                        | M4             | 3.5mm <sup>2</sup> -30A<br>5.5mm <sup>2</sup> -40A                               | <b>LT2E-040</b> | LT9E-E3     |   |                                |           |                    |
| 75                        | M5             | 5.5mm <sup>2</sup> -40A<br>8mm <sup>2</sup> -50A<br>14mm <sup>2</sup> -75A       | <b>LT2E-080</b> | LT9E-E4     | LT9E-C3                                     |                                |           |                    |
| 95                        | M6             | 8mm <sup>2</sup> -50A<br>14mm <sup>2</sup> -75A<br>22mm <sup>2</sup> -95A        | <b>LT2E-090</b> | LT9E-E5     | LT9E-C4                                     |                                |           |                    |
| 160                       | M8             | 22mm <sup>2</sup> -95A<br>38mm <sup>2</sup> -130A<br>60mm <sup>2</sup> -160A     | <b>LT2E-150</b> | LT9E-E6     | LT9E-C5                                     |                                |           |                    |
| 200                       | M10            | 38mm <sup>2</sup> -130A<br>60mm <sup>2</sup> -160A<br>100mm <sup>2</sup> -200A   | <b>LT2E-200</b> | LT9E-E7     | LT9E-C6<br>(Standard provided)<br>LT9E-C7   | LT9E-M3<br>(Standard provided) | LT9E-T2   |                    |
| 300                       | M10            | 60mm <sup>2</sup> -160A<br>100mm <sup>2</sup> -240A<br>150mm <sup>2</sup> -300A  | <b>LT2E-300</b> | LT9E-E7     | LT9E-C8<br>(Standard provided)<br>LT9E-C9   |                                |           |                    |
| 400                       | M12            | 100mm <sup>2</sup> -240A<br>150mm <sup>2</sup> -310A<br>200mm <sup>2</sup> -400A | <b>LT2E-400</b> | LT9E-E7     | LT9E-C10<br>(Standard provided)<br>LT9E-C11 |                                |           |                    |
| 600                       | M16            | 150mm <sup>2</sup> -310A<br>200mm <sup>2</sup> -400A<br>325mm <sup>2</sup> -600A | <b>LT2E-600</b> | LT9E-E7     | LT9E-C12<br>(Standard provided)<br>LT9E-C13 |                                |           |                    |

# Terminal Blocks Type LT2E

## ■ Performance

|                              |  |
|------------------------------|--|
| Rated insulation voltage     | 600V   |
| Ambient operating conditions | Temperature -25 to 60°C<br>(with no icing or condensation)<br>Relative humidity 45% to 85%                           |
| Temperature rise             | Temperature rise in conducting metal is less than 35K.   |
| Insulation resistance        | 200MΩ between charged parts, and between charged parts and the metal mounting plate<br>(Measured at 500V DC megger.) |
| Dielectric strength          | 2,500V AC (1 min)  |
| Applicable standards         | Conforms to JIS C 2811   |

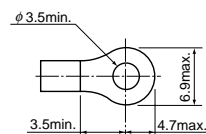
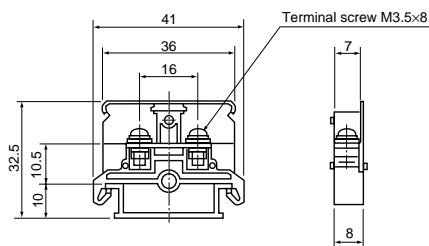
## ■ Material

|                  |  |
|------------------|--|
| Main body        | PPE (modified polyphenylene ether resin) (black) UL94V-0 |
| Conductive plate | C2680R (Ni-plated)                                       |
| Terminal screws  | SWRM (Zn-plated)   |
| Side panel       | PPE (modified polyphenylene ether resin) (black) UL94V-0 |
| Cover            | PC (translucent polycarbonate resin) UL94V-0             |
| Legend plate     | PVC (white)  |

## ■ Dimensions, mm

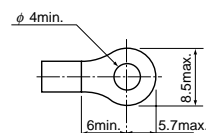
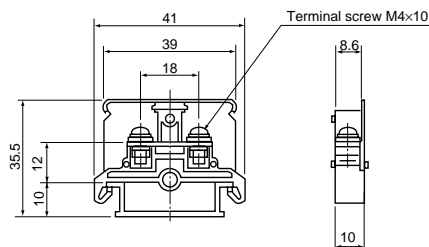
### ● Terminal blocks

LT2E-020



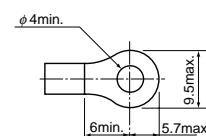
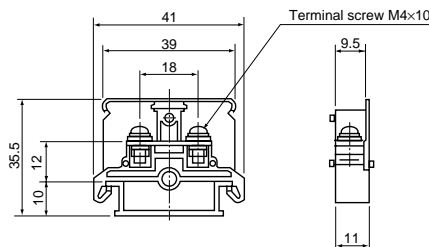
Applicable crimp terminal

LT2E-030



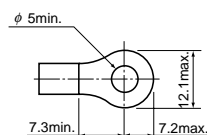
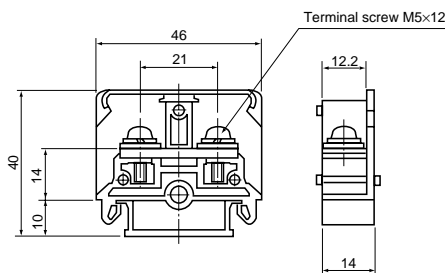
Applicable crimp terminal

LT2E-040



Applicable crimp terminal

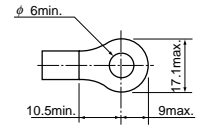
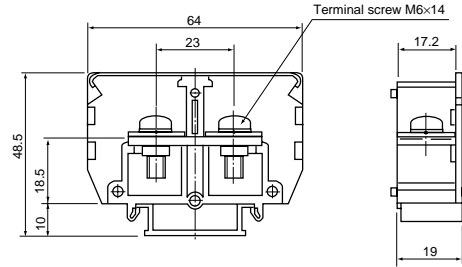
LT2E-080



Applicable crimp terminal

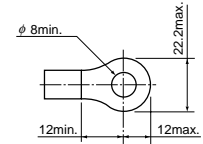
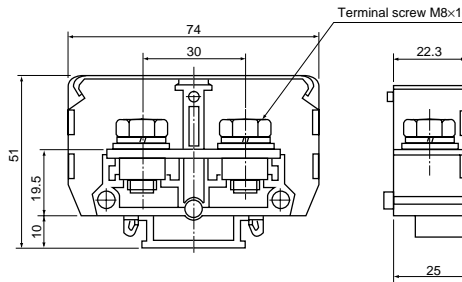
● Terminal blocks

LT2E-090



Applicable crimp terminal

LT2E-150

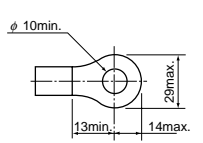
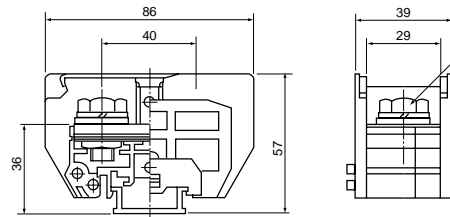


Applicable crimp terminal

LT2E-200



(Cover, supplied with a legend plate)

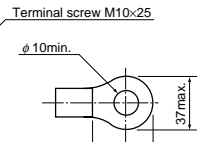
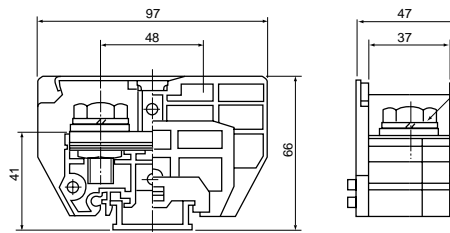


Applicable crimp terminal

LT2E-300



(Cover, supplied with a legend plate)

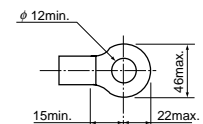
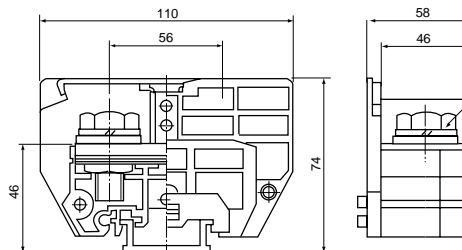


Applicable crimp terminal

LT2E-400



(Cover, supplied with a legend plate)

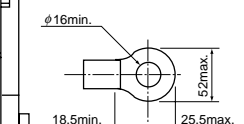
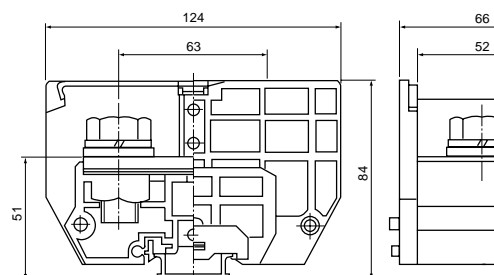


Applicable crimp terminal

LT2E-600



(Cover, supplied with a legend plate)

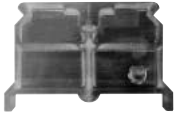


Applicable crimp terminal

# Terminal Blocks Type LT2E

## ● End barriers

LT9E-E1



Sold in units of 100.

LT9E-E2



Sold in units of 100.

LT9E-E3



Sold in units of 100.

LT9E-E4



Sold in units of 50.

LT9E-E5



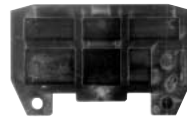
Sold in units of 20.

LT9E-E6



Sold in units of 10.

LT9E-E7



Sold in units of 1.

## ● Covers

LT9E-C1



Length: 1m  
Sold in units of 20.

LT9E-C2



Length: 1m  
Sold in units of 20.

LT9E-C3



Length: 1m  
Sold in units of 20.

LT9E-C4



Length: 1m  
Sold in units of 20.

LT9E-C5



Length: 1m  
Sold in units of 20.

LT9E-C6

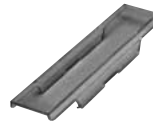
Standard cover  
(Standard provided)



Sold in units of 1.

LT9E-C7

Special cover



Sold in units of 1.

LT9E-C8

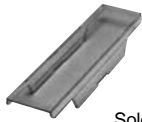
Standard cover  
(Standard provided)



Sold in units of 1.

LT9E-C9

Special cover



Sold in units of 1.

LT9E-C10

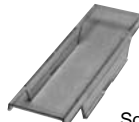
Standard cover  
(Standard provided)



Sold in units of 1.

LT9E-C11

Special cover



Sold in units of 1.

LT9E-C12

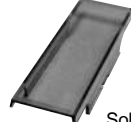
Standard cover  
(Standard provided)



Sold in units of 1.

LT9E-C13

Special cover

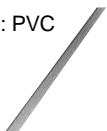


Sold in units of 1.

## ● Legend plates

LT9E-M1

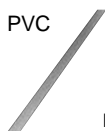
Material: PVC



Dimensions  
(0.5t×10W×1200L)  
Sold in units of 50

LT9E-M3

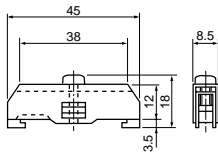
Material: PVC



Dimensions  
(0.5t×12W×900L)  
Sold in units of 50

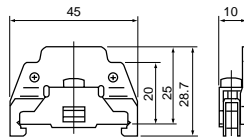
● End clamps

LT9E-T1



Sold in units of 100.

LT9E-T2



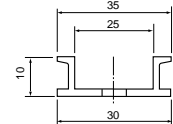
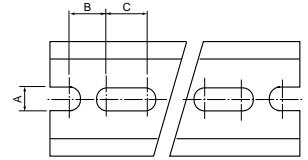
Sold in units of 50.

● Mounting rails

LT9E-R1  
LT9E-R2



Material: aluminum A6063



| Type    | A   | B  | C  | Length | Sold in units |
|---------|-----|----|----|--------|---------------|
| LT9E-R1 | 4.5 | 10 | 10 | 1000mm | 100           |
| LT9E-R2 |     |    |    | 2000mm | 50            |

04

■ Application to products satisfying international standards

Dielectric strength: 2,200V AC for 1 min.  
Operating temperature range: -25 to 60°C

| Type     | Standard         | Rated insulation voltage (V) | Rated continuous current (A) | Applicable wire size for stranded wires (AWG) | International standards                     |
|----------|------------------|------------------------------|------------------------------|---|---|
| LT2E-020 | UL E45457        | 600                          | 20                           | 20-14   | UL approved<br>CSA approved<br>TÜV approved |
|          | CSA 109308-M-001 |                              | 20                           | 20-14   |   |
|          | TÜV R9551146     |                              | 22                           | 20-14   |   |
| LT2E-030 | UL E45457        | 600                          | 30                           | 18-12   |   |
|          | CSA 109308-M-001 |                              | 30                           | 18-12   |   |
|          | TÜV R9551147     |                              | 30                           | 18-12   |   |
| LT2E-040 | UL E45457        | 600                          | 40                           | 18-10   |   |
|          | CSA 109308-M-001 |                              | 40                           | 18-10   |   |
|          | TÜV R9551148     |                              | 40                           | 18-10   |   |
| LT2E-080 | UL E45457        | 600                          | 75                           | 10-6  |   |
|          | CSA 109308-M-001 |                              | 75                           | 10-6  |   |
|          | TÜV J9551159     |                              | 75                           | 12-6  |   |
| LT2E-090 | UL E45457        | 600                          | 95                           | 8-4   |   |
|          | CSA 109308-M-001 |                              | 95                           | 8-4   |   |
|          | TÜV J9551160     |                              | 95                           | 10-4  |   |
| LT2E-150 | UL E45457        | 600                          | 150                          | 4-2/0   |   |
|          | CSA 109308-M-001 |                              | 150                          | 4-2/0   |   |
|          | TÜV J9551161     |                              | 160                          | 6-2/0   |   |
| LT2E-200 | UL E45457        | 600                          | 200                          | 2-4/0   |   |
|          | CSA 109308-M-001 |                              | 200                          | 2-4/0   |   |
|          | TÜV J9551162     |                              | 660                          | 2-250   |   |
| LT2E-300 | UL E45457        | 600                          | 300                          | 2/0-300                                       |   |
|          | CSA 109308-M-001 |                              | 300                          | 2/0-300                                       |   |
|          | TÜV J9551163     |                              | 660                          | 1/0-300                                       |   |
| LT2E-400 | UL E45457        | 600                          | 400                          | 4/0-350                                       |   |
|          | CSA 109308-M-001 |                              | 400                          | 4/0-350                                       |   |
|          | TÜV J9551164     |                              | 660                          | 3/0-500                                       |   |
| LT2E-600 | UL E45457        | 600                          | 550                          | 300-600                                       |   |
|          | CSA 109308-M-001 |                              | 550                          | 300-600                                       |   |
|          | TÜV J9551165     |                              | 660                          | 250-600                                       |   |

Note: The values in the above table are for when standard wires and crimp terminals are used for connection. Use the terminal block together with the crimp terminals and wires approved for the desired standard.

# Testing Terminals Type LT5

## Testing terminals for VT, CT circuit – For panel mounting

250 Volts AC or DC, 30 Amps  
Wire size: Maximum 8mm<sup>2</sup>

These terminals are used in VT and CT secondary circuits.  
These are used to test protective relays or meters or for carrying out calibration.

### ■ Ordering information

Specify the following:

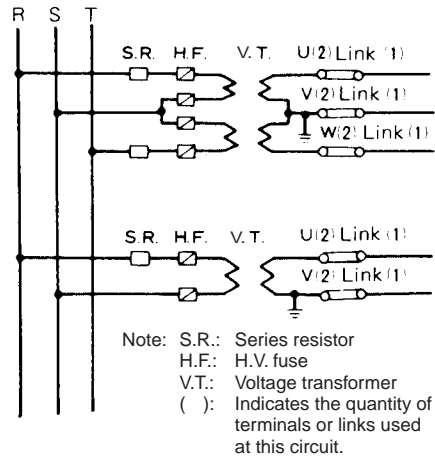
1. Ordering code or type number
2. Quantity: One pack (10 pcs) is minimum.

### ■ Technical data

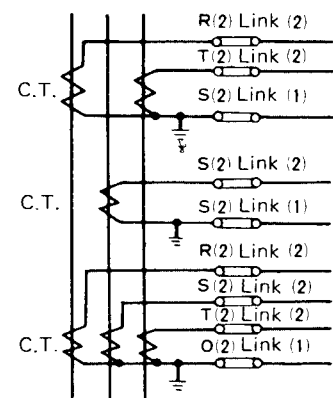
Insulation resistance: Over 100MΩ at 500V DC  
Dielectric strength: 2000V AC rms. 1 minute  
Ambient temperature: -25° to +50°C

### ■ Applications

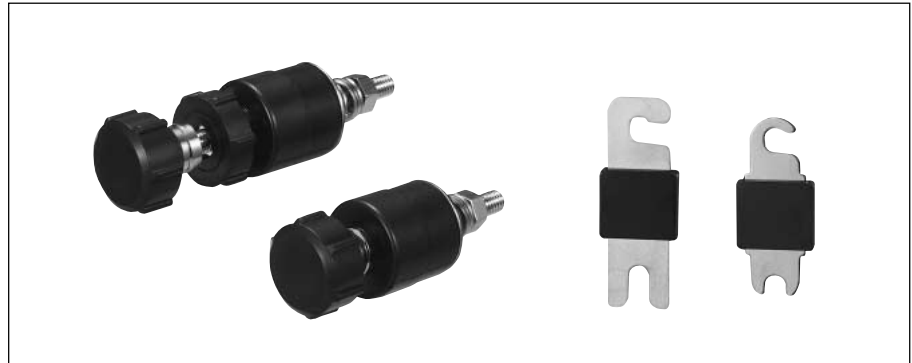
#### VT circuit







#### CT circuit



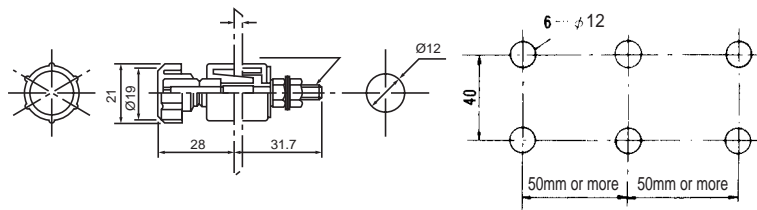
Note: C.T.: Current transformer  
( ): Indicates the quantity of terminals or links used at this circuit.



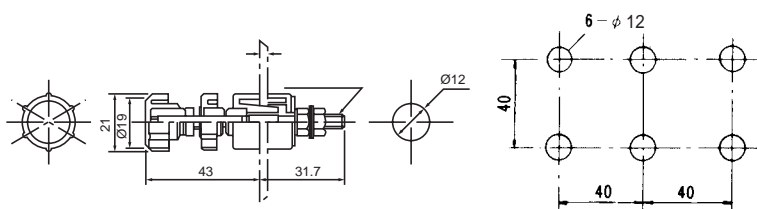
| Illustration  | Description              | Etched letters (Standard) | Type  |
|---|--------------------------|---------------------------|---|
|   | VT circuit<br>Black      | U<br>V<br>W<br>O<br>-     | <b>LT5S-B2</b><br><b>LT5S-B3</b><br><b>LT5S-B4</b><br><b>LT5S-B1</b><br><b>LT5S-B</b> |
|  | CT circuit<br>Black      | R<br>S<br>T<br>O<br>-     | <b>LT5D-B5</b><br><b>LT5D-B6</b><br><b>LT5D-B7</b><br><b>LT5D-B1</b><br><b>LT5D-B</b> |
|  | Link, black              |                           | <b>LT95S-B1</b>   |
|  | Link, black (small type) |                           | <b>LT95S-B2</b>   |

### ■ Dimensions, mm

**LT5S – for VT circuits** Mass: 30g



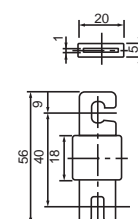
**LT5D – for CT circuits** Mass: 50g



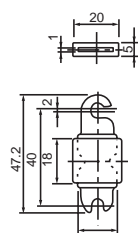
**LT95S – Link**

Mass: 10g

**LT95S – B1**



**LT95S – B2**



■ CCC approved

● AR22/DR22 and AD30/DR30 series

Pushbutton switches

| Bezel  | Operator  | Type             |  |                  |  |
|--|---|------------------|--|------------------|--|
|  |   | AR22             |  | AR30             |  |
|  |   | Momentary action | Alternate action<br>(Turn-reset for V5R) | Momentary action | Alternate action<br>(Turn-reset for V5R) |
| Round bezel  | Flush round head                                    | AR22F0R          | AR22F5R                                  | AR30F0R          | AR30F5R                                  |
|  | Extended round head                                 | AR22E0R          | AR22E5R                                  | AR30E0R          | AR30E5R                                  |
|  | Flush round head (symbol mark type)                 | AR22FAR          | AR22FBR                                  | AR30FAR          | AR30FBR                                  |
|  | Extended round head (symbol mark type)              | AR22EAR          | AR22EBR                                  | AR30EAR          | AR30EBR                                  |
|  | Extended with half guard                            | AR22G0R          | AR22G5R                                  | AR30G0R          | AR30G5R                                  |
|  | Extended with full guard (24mm dia.)                | AR22G3R          | AR22G8R                                  | AR30G1R          | AR30G6R                                  |
|  | Flush with full guard (24mm dia.)                   | AR22G2R          | –  | –                | –  |
|  | Mushroom head with full guard (40mm dia.)           | AR22M3R          | –  | AR30M3R          | AR30M8R                                  |
|  | Mushroom head with full guard (35mm dia. metal nut) | –                | –  | AR30GSR          | –  |
|  | Mushroom head (29mm dia.)                           | AR22M4R          | AR22M9R                                  | AR30M4R          | –  |
|  | Mushroom head (40mm dia.)                           | AR22M0R          | AR22M5R                                  | AR30M0R          | AR30M5R                                  |
|  | Giant head  | –                | –  | AR30B0R          | –  |
|  | Giant head with guard                               | –                | –  | AR30B1R          | –  |
|  | Giant head with full guard                          | –                | –  | AR30B2R          | –  |
|  | Giant head with full guard                          | –                | –  | AR30B3R          | –  |
| Push-lock, turn-reset (40mm dia, with white arrow) | –   | AR22V5R          | –  | AR30V5R          |  |
| Square bezel                                       | Flush square head                                   | AR22F0S          | AR22F5S                                  | –                | –  |
|  | Extended square head                                | AR22E0S          | AR22E5S                                  | –                | –  |
|  | Flush round head                                    | AR22F0Y          | AR22F5Y                                  | –                | –  |
|  | Extended round head                                 | AR22E0Y          | AR22E5Y                                  | –                | –  |
|  | Mushroom head                                       | AR22M4Y          | –  | –                | –  |
| Certificate No.                                    |   | 2003010305063372 |  | 2003010305063384 |  |

Note: Certified contact of AR22 type: Momentary action: within 6 contacts  
Alternate action : within 4 contacts  
Certified contact of AR30 type: Momentary action: within 8 contacts  
Alternate action : within 4 contacts

Ring selection type pushbutton switches

| Bezel           | Operator           | Type             |                  |
|-----------------|--------------------|------------------|------------------|
|                 |                    | AR22             | AR30             |
| Round bezel     | With selector ring | AR22S1R          | AR30S1R          |
|                 |                    | AR22S2R          | AR30S2R          |
|                 |                    | AR22S3R          | AR30S3R          |
|                 |                    | AR22S6R          | AR30S6R          |
| Certificate No. |                    | 2003010305063372 | 2003010305063384 |

Note: Certified contact: 2NO+2NC (S2R: 2NO is also certified)

Emergency stop pushbutton switches

| Bezel           | Operator                                      | Type  |                |                                  |                |
|-----------------|---|---|----------------|----------------------------------|----------------|
|                 |   | AR22  |                | AR30                             |                |
|                 |   | With white arrow<br>(soft-touch)  | No white arrow | With white arrow<br>(soft-touch) | No white arrow |
| Round bezel     | Push-lock, turn-reset (29mm dia.)             | AR22VSR   | AR22V4R        | –                                | –              |
|                 | Push-lock, turn-reset (40mm dia.)             | AR22V0R   | AR22V2R        | AR30V0R                          | AR30V2R        |
|                 | Push-lock, turn-reset (65mm dia.)             | –   | –              | AR30V1R                          | –              |
|                 | Key-release push-lock, turn-reset (40mm dia.) | –   | AR22V7R        | –                                | –              |
|                 | Push-lock, pull-reset (35mm dia.)             | –   | AR22Q2R        | –                                | AR30Q2R        |
|                 | Unibody push-lock, turn-reset (40mm dia.)     | AR22VGE   | –              | –                                | –              |
| Certificate No. |   | 2003010305063372 (except for AR22VGE)<br>2005010305156646 (for AR22VGE) |                | 2003010305063384                 |                |

Notes: • Certified contact: 1NC, 1NO+1NC, 2NC, 3NC, 2NO+2NC, 4NC (except for Q2R, VGE type)  
• Certified contact of Q2R, VGE type: 1NC, 1NO+1NC and 2NC only  
• Certified button color: red (R) only



**Illuminated pushbutton switches**

| Bezel           | Operator   | Type  |  |           |           |
|-----------------|--|---|--|-----------|-----------|
|                 |  | AR22  |  | AR30      |           |
|                 |  | Momentary   | Alternate  | Momentary | Alternate |
| Round bezel     | Flush round head   | AR22F0L   | AR22F5L  | –         | –         |
|                 | Extended round head  | AR22E0L   | AR22E5L  | AR30E0L   | AR30E5L   |
|                 | Mushroom head (29mm dia.)  | AR22M4L   | AR22M9L  | –         | –         |
|                 | Mushroom head (40mm dia.)  | AR22M0L   | AR22M5L  | –         | –         |
|                 | Extended with transparent full guard (24mm dia.)   | AR22G4L   | AR22G9L  | AR30G4L   | AR30G9L   |
|                 | Extended with full guard (24mm dia. with openings)   | AR22G2L   | AR22G7L  | AR30G2L   | AR30G7L   |
|                 | Extended with full guard (24mm dia.)   | AR22G1L   | AR22G6L  | AR30G3L   | AR30G8L   |
|                 | Push-lock, turn-reset (40mm dia. with white arrow)   | –   | –  | –         | AR30V5L   |
| Square bezel    | Flush square head  | AR22F0M   | AR22F5M  | –         | –         |
|                 | Extended square head   | AR22E0M   | AR22E5M  | –         | –         |
|                 | Flush round head   | AR22F0P   | AR22F5P  | –         | –         |
|                 | Extended round head  | AR22E0P   | AR22E5P  | –         | –         |
|                 | Mushroom head  | AR22M4P   | –  | –         | –         |
| Certificate No. | 2003010305063372   |   | 2003010305063384   |           |           |
| Specifications  | <ul style="list-style-type: none"> <li>· Contact</li> <li style="padding-left: 20px;">Without transformer</li> <li style="padding-left: 40px;">Momentary action: within 5 contacts</li> <li style="padding-left: 40px;">Alternate action: within 3 contacts</li> <li style="padding-left: 20px;">With transformer</li> <li style="padding-left: 40px;">Momentary action: within 3 contacts</li> <li style="padding-left: 40px;">Alternate action: within 2 contacts</li> </ul> |   | <ul style="list-style-type: none"> <li>· Contact</li> <li style="padding-left: 20px;">Without transformer</li> <li style="padding-left: 40px;">Momentary action: within 6 contacts</li> <li style="padding-left: 40px;">Alternate action: within 3 contacts</li> <li style="padding-left: 20px;">With transformer</li> <li style="padding-left: 40px;">Momentary action: within 4 contacts</li> <li style="padding-left: 40px;">Alternate action: within 2 contacts</li> </ul> |           |           |
|                 |  | <ul style="list-style-type: none"> <li>· Color of button</li> <li style="padding-left: 20px;">Green, red, white, yellow, orange, blue</li> <li>· Light source</li> <li style="padding-left: 20px;">LED lamp, incandescent lamp</li> <li>· Operating voltage of lamp</li> <li style="padding-left: 20px;">Without transformer</li> <li style="padding-left: 40px;">LED: 6V AC, 6V DC, 12V AC/DC</li> <li style="padding-left: 40px;">Incandescent lamp: 5.5V AC/DC, 20V AC/DC</li> <li style="padding-left: 40px;">LED, incandescent lamp: 15V AC/DC, 24V AC/DC</li> <li style="padding-left: 20px;">With transformer</li> <li style="padding-left: 40px;">LED, incandescent lamp: 100-110V AC, 115-127V AC, 200-220V AC, 230-254V AC, 350-380V AC, 400-440V AC, 480V AC, 500-550V AC</li> </ul> |  |           |           |

**Emergency stop illuminated pushbutton switches**

| Bezel           | Operator  | Type                          |                  |                               |                |
|-----------------|---|-------------------------------|------------------|-------------------------------|----------------|
|                 |   | AR22                          |                  | AR30                          |                |
|                 |   | With white arrow (soft-touch) | No white arrow   | With white arrow (soft-touch) | No white arrow |
| Round bezel     | Push-lock, turn-reset (29mm dia.)                           | AR22VSL                       | –                | –                             | –              |
|                 | Push-lock, turn-reset (40mm dia.)                           | AR22V0L                       | AR22V2L          | AR30V0L                       | AR30V2L        |
|                 | Push-lock, turn-reset (40mm dia. transparent in all colors) | AR22VDL                       | AR22VAL          | –                             | –              |
|                 | Unibody push-lock, turn-reset (40mm dia.)                   | AR22VGF                       | –                | –                             | –              |
| Certificate No. | 2003010305063372 (except for AR22VGF)                       |                               | 2003010305063384 |                               |                |
|                 | 2005010305156646 (for AR22VGF)                              |                               |                  |                               |                |

- Notes:
- Certified contact without transformer: 1NC, 1NO+1NC, 2NC, 3NC (except for VGF type)
  - Certified contact with transformer: 1NC, 1NO+1NC, 2NC (except for VGF type)
  - Certified contact of VGF type: 1NC, 1NO+1NC and 2NC only,
  - Certified lamp voltage of VGF type: LED lamp: 24V AC/DC, neon lamp: 110, 120, 220, 240V AC
  - Certified button color: red (R) only

### Selector switches

| Bezel           | Operator              | Type             |              |                  |              |
|-----------------|-----------------------|------------------|--------------|------------------|--------------|
|                 |                       | AR22             |              | AR30             |              |
|                 |                       | Standard type    | Control type | Standard type    | Control type |
| Round bezel     | Knob                  | AR22PR           | AR22PCR      | AR30PR           | AR30PCR      |
|                 | Lever                 | AR22WR           | AR22WCR      | AR30WR           | AR30WCR      |
|                 | Cylindrical knob      | AR22RR           | AR22RCR      | –                | –            |
|                 | Key                   | AR22JR           | AR22JCR      | AR30JR           | AR30JCR      |
|                 | Key (long durability) | AR22JAR          | –            | AR30JAR          | –            |
| Square bezel    | Knob                  | AR22PY           | AR22PCY      | –                | –            |
|                 | Lever                 | AR22WY           | AR22WCY      | –                | –            |
|                 | Cylindrical knob      | AR22RY           | AR22RCY      | –                | –            |
|                 | Key                   | AR22JY           | AR22JCY      | –                | –            |
| Certificate No. |                       | 2003010305063372 |              | 2003010305063384 |              |

Note: Certified contact of AR22 type: Maintained: within 6 contacts  
Control type, spring return and spring / manual return: within 4 contacts  
Certified contact of AR30 type: Momentary action: within 8 contacts  
Control type, spring return and spring / manual return: within 4 contacts

### Illuminated selector switches

| Bezel           | Operator | Type             |                  |
|-----------------|----------|------------------|------------------|
|                 |          | AR22             | AR30             |
|                 |          | Standard type    | Standard type    |
| Round bezel     | Knob     | AR22PL           | AR30PL           |
| Square bezel    | Knob     | AR22PP           | –                |
| Certificate No. |          | 2003010305063372 | 2003010305063384 |

Notes: • Certified contact of AR22 type :  
Without transformer  
Maintained : within 4 contacts  
Spring return and spring / manual return: within 3 contacts  
With transformer  
Maintained : within 3 contacts  
Spring return and spring / manual return: within 2 contacts

• Certified contact of AR30 type :  
Without transformer  
Maintained : within 6 contacts  
Spring return and spring / manual return: within 3 contacts  
With transformer  
Maintained : within 4 contacts  
Spring return and spring / manual return: within 2 contacts

### Pilot lights

| Bezel           | Lens                                       | Type             |                  |
|-----------------|--|------------------|------------------|
|                 |  | DR22             | DR30             |
| Round bezel     | Dome                                       | DR22D0L          | DR30D0L          |
|                 | Extended round                             | DR22E3L          | DR30E3L          |
|                 | Faceted                                    | DR22K0L          | DR30K0L          |
| Square bezel    | Flush square                               | DR22F3M          | –                |
|                 | Flush square (Transparent lens)            | DR22F4M          | DR30F4M          |
|                 | Flush square (12mm high frame)             | DR22F5M          | –                |
|                 | Extended square                            | DR22E3M          | –                |
|                 | Flush rectangular                          | DR22E3N          | –                |
|                 | Flush rectangular (Transparent lens)       | –                | DR30F4N          |
|                 | Flush square large type (Transparent lens) | –                | DR30M4M          |
|                 | Extended round                             | DR22E3P          | –                |
| Certificate No. |  | 2003010305063383 | 2003010305063487 |

Notes: • Certified lamp: both LED and incandescent lamp  
• Certified transformer type: standard and short-body  
• Except for with resistor/resistor unit

### Item with degree of protection IP2X (IP20)

| Type     | Certificate No.  |
|----------|------------------|
| AR22 □ZB | 2003010305063372 |
| AR30 □ZB | 2003010305063384 |
| DR22 □ZB | 2003010305063383 |
| DR30 □ZB | 2003010305063487 |

Notes: • Certified for all types listed on the table in page 04/289 to 04/291 except for unibody push-lock, turn-reset (40mm dia.) types of emergency stop illuminated pushbutton switches and short-body transformer of pilot light.  
• The terminal section of standard emergency stop illuminated pushbutton switches has degree of protection, IP2X.

● AH164, 165, 165-2 series

Pushbutton switches

| Operator                          | Type             |                  |                  |   |                  |   |
|-----------------------------------|------------------|------------------|------------------|---|------------------|---|
|                                   | AH164            |                  | AH165            |   | AH165-2          |   |
|                                   | Momentary action | Alternate action | Momentary action | Alternate action<br>(Turn-reset<br>for V, V1) | Momentary action | Alternate action<br>(Turn-reset<br>for 2V, 2YV) |
| Flush round head                  | –                | –                | –                | –   | AH165-2F         | AH165-2F5                                       |
| Extended round head               | AH164-E          | AH164-E5         | AH165-E          | AH165-E5                                      | AH165-2E         | AH165-2E5                                       |
| Extended square head              | –                | –                | –                | –   | AH165-2SE        | AH165-2SE5                                      |
| Extended square concave head      | –                | –                | –                | –   | AH165-2SCE       | AH165-2SCE5                                     |
| Flush square head                 | AH164-SF         | AH164-SF5        | AH165-SF         | AH165-SF5                                     | AH165-2SF        | AH165-2SF5                                      |
| Flush rectangular head            | AH164-TF         | AH164-TF5        | AH165-TF         | AH165-TF5                                     | –                | –   |
| Flush square head with guard      | AH164-SGF        | AH164-SGF5       | AH165-SGF        | AH165-SGF5                                    | –                | –   |
| Flush rectangular head with guard | AH164-TGF        | AH164-TGF5       | AH165-TGF        | AH165-TGF5                                    | –                | –   |
| Mushroom head (round bezel)       | –                | –                | –                | –   | AH165-2M         | –   |
| Mushroom head (square bezel)      | –                | –                | –                | –   | AH165-2YM        | –   |
| Mushroom head                     | AH164-M          | AH164-M5         | AH165-M          | AH165-M5                                      | –                | –   |
| Convex square head                | AH164-SM         | AH164-SM5        | AH165-SM         | AH165-SM5                                     | –                | –   |
| Convex rectangular head           | AH164-TM         | AH164-TM5        | AH165-TM         | AH165-TM5                                     | –                | –   |
| Push-locked (round bezel)         | –                | –                | –                | AH165-V                                       | –                | AH165-2V  |
| Push-locked large type            | –                | –                | –                | AH165-V1                                      | –                | –   |
| Push-locked (square bezel)        | –                | –                | –                | –   | –                | AH165-2YV                                       |
| Certificate No.                   | 2003010305071068 |                  |                  |   |                  |   |

- Notes:
- Certified contact: 1NO+1NC, 2NO+2NC, 3NO+3NC. AH165-V and -V1: 1NC and 2NC only.
  - Certified button color: all in manufactured range of corresponding type. AH165-V and -V1: red (R) only.
  - Certified terminal shape: for soldering and tab, and for wrapping. AH165-V and -V1: soldering and tab only.

Ring selection type pushbutton switches

| Operator                          | Type             |
|-----------------------------------|------------------|
|                                   | AH165-2          |
| With selector ring (round bezel)  | AH165-2S2        |
| With selector ring (square bezel) | AH165-2YS2       |
| Certificate No.                   | 2003010305071068 |

Note: Certified contact: 2NO+2NC

Emergency stop pushbutton switches

| Operator                    | Type             |
|-----------------------------|------------------|
|                             | AH165            |
| Push-lock, turn-reset (ø32) | AH165-V5         |
| Push-lock, turn-reset (ø40) | AH165-V6         |
| Certificate No.             | 2003010305071068 |

- Notes:
- Certified contact: 1NC and 2NC only
  - Certified button color: red (R) only
  - Certified terminal shape: soldering and tab only

### Illuminated pushbutton switches

| Operator                          | Type             |                  |                  |                  |                  |  |
|-----------------------------------|------------------|------------------|------------------|------------------|------------------|--|
|                                   | AH164            |                  | AH165            |                  | AH165-2          |  |
|                                   | Momentary action | Alternate action | Momentary action | Alternate action | Momentary action | Alternate action<br>(Turn-reset for 2VL, 2YVL) |
| Flush round head                  | –                | –                | –                | –                | AH165-2FL        | AH165-2FL5                                     |
| Extended round head               | AH164-L          | AH164-L5         | AH165-L          | AH165-L5         | AH165-2EL        | AH165-2EL5                                     |
| Extended square head              | –                | –                | –                | –                | AH165-2SEL       | AH165-2SEL5                                    |
| Concave square head               | –                | –                | –                | –                | AH165-2SCL       | AH165-2SCL5                                    |
| Flush square head                 | AH164-SL         | AH164-SL5        | AH165-SL         | AH165-SL5        | AH165-2SFL       | AH165-2SFL5                                    |
| Flush rectangular head            | AH164-TL         | AH164-TL5        | AH165-TL         | AH165-TL5        | –                | –  |
| Flush square head with guard      | AH164-SGL        | AH164-SGL5       | AH165-SGL        | AH165-SGL5       | –                | –  |
| Flush rectangular head with guard | AH164-TGL        | AH164-TGL5       | AH165-TGL        | AH165-TGL5       | –                | –  |
| Mushroom head (round bezel)       | –                | –                | –                | –                | AH165-2ML        | –  |
| Mushroom head (square bezel)      | –                | –                | –                | –                | AH165-2YML       | –  |
| Push-locked (round bezel)         | –                | –                | –                | –                | –                | AH165-2VL                                      |
| Push-locked (square bezel)        | –                | –                | –                | –                | –                | AH165-2YVL                                     |
| Certificate No.                   | 2003010305071068 |                  |                  |                  |                  |  |

Notes: • Certified contact: 1NO+1NC, 2NO+2NC, 3NO+3NC  
 • Certified terminal shape: for soldering and tab, and for wrapping.  
 • Certified lamp: LED, incandescent lamp and neon

• Certified operating lamp voltage: 6, 12 and 24V DC (LED)/ 5, 12, 15 and 24V AC/DC (incandescent lamp) / 110, 120, 220 and 240V AC (neon) /110, 220V AC (LED and incandescent lamps with transformer)  
 • The spot LED type have not been approved.

### Selector switches (Standard)

| Operator                                 | Type             |          |           |
|--|------------------|----------|-----------|
|  | AH164            | AH165    | AH165-2   |
| Knob (round bezel)                       | –                | –        | AH165-2P  |
| Knob (rectangular bezel)                 | AH164-P          | AH165-P  | –         |
| Knob (square bezel)                      | AH164-SP         | AH165-SP | AH165-2YP |
| Key (round bezel)                        | –                | –        | AH165-2J  |
| Key (rectangular bezel)                  | AH164-J          | AH165-J  | –         |
| Key (square bezel)                       | AH164-SJ         | AH165-SJ | AH165-2YJ |
| Key, 45-degree notch (rectangular bezel) | AH164-JK         | AH165-JK | –         |
| Certificate No.                          | 2003010305071068 |          |           |

Notes: • Certified contact: 1NO+1NC, 2NO+2NC, 3NO+3NC  
 • Certified terminal shape: for soldering and tab, and for wrapping

### Selector switches (Direct opening action)

| Operator                | Type             |
|-------------------------|------------------|
| Key (rectangular bezel) | AH165-JM2        |
| Key (round bezel)       | AH165-RJM2       |
| Certificate No.         | 2003010305071068 |

Notes: • Certified contact: 1NO+1NC, 2NO+2NC  
 • Certified position quantity: 2-position only.  
 Certified returning method: maintained only.

### Illuminated selector switches

| Operator           | Type             |
|--------------------|------------------|
| knob (round bezel) | AH165-2PL        |
| Certificate No.    | 2003010305071068 |

Notes: • Certified contact: 1NO+1NC, 2NO+2NC  
 • Certified operating lamp voltage: 6, 12 and 24V DC (LED)/ 5, 12, 15 and 24V AC/DC (incandescent lamp)

### Pilot lights

| Lens              | Type             |          |            |
|-------------------|------------------|----------|------------|
|                   | AH164            | AH165    | AH165-2    |
| Flush round       | –                | –        | AH165-2Z   |
| Extended round    | AH164-Z          | AH165-Z  | AH165-2ZE  |
| Extended square   | –                | –        | AH165-2SZE |
| Flush square      | AH164-ZS         | AH165-ZS | AH165-2SZ  |
| Flush rectangular | AH164-ZT         | AH165-ZT | –          |
| Certificate No.   | 2003010305071044 |          |            |

Notes: • Certified lamp: LED, incandescent lamp and neon  
 • Certified operating lamp voltage: 6, 12 and 24V DC (LED)/ 5, 12, 15 and 24V AC/DC (incandescent lamp)/ 110, 120, 220 and 240V AC (neon) /110, 220V AC (LED and incandescent lamps with transformer)  
 • The spot LED type have not been approved.

# Illuminated Switches/Pilot Lights

## AG22 and AG23

### General information

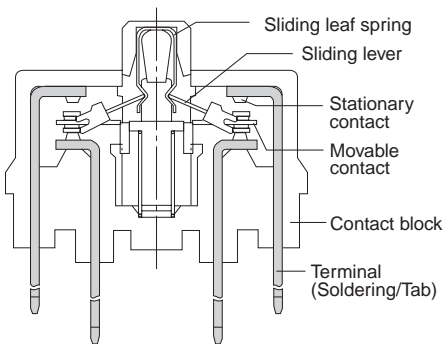
#### ■ Description

AG series Command Switches are designed to be installed in a square or rectangular hole. AG23 series are 25 x 32mm rectangular type while AG22 series are 25mm regular square type. Either of them comprises illuminated pushbutton switch and pilot light. The illuminated pushbutton switches are available either in momentary action or alternative action. Moreover, their light sources are also available in either incandescent lamp or LED lamp. These AG series Command Switches are highly suitable for use with instrumentation panels or control panels. Their contacts use Au-flashed Ag contacts and adopt a sliding mechanism, thus ensuring a high contact reliability. The color inserts for indicators are available up to 4-way split types. Each indicator is provided with 5-color inserts and the color you desire can be easily replace.

#### ■ Features

##### ● Excellent contact reliability

These switches combine Au-flashed Ag contact and sliding mechanism features so as to ensure a high contact reliability even when used with low-voltage, small current circuits of 5V 1mA range. Therefore, they allow direct input to IC's. Moreover, their contacts are a double-break type, thus permitting their application to 240V AC circuits.

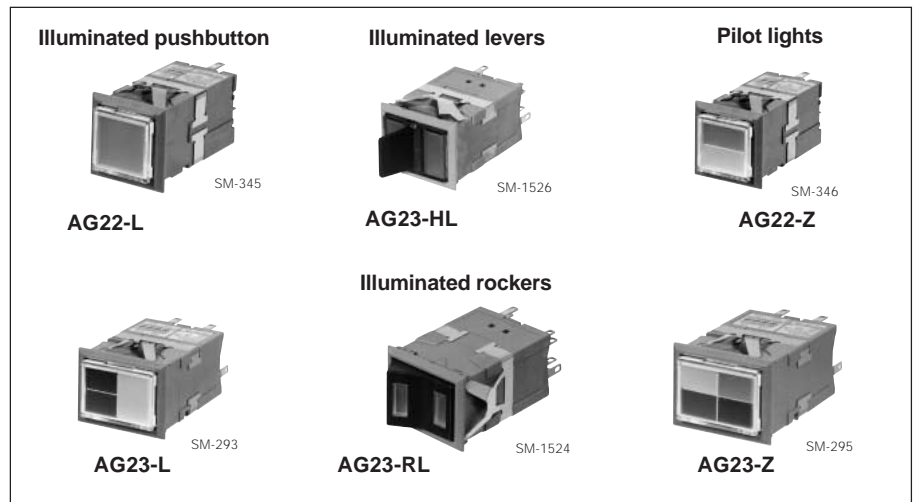


##### ● Terminals are both use of soldering and tab terminal types

They are subjected to "solder plated" so as to permit accurate soldering.

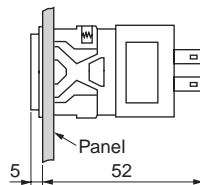
##### ● Contact can be added or replaced

The contact block comprises 1NO and 1NC. In AG23 series the contact arrangement is available up to 4NO+4NC and in AG22 series up to 2NO+2NC.



#### ● Small in depth and compactly built

Both AG22 and AG23 series Command Switches are as small as 52mm in depth and their buttons are extruded only 5mm from the panel surface.



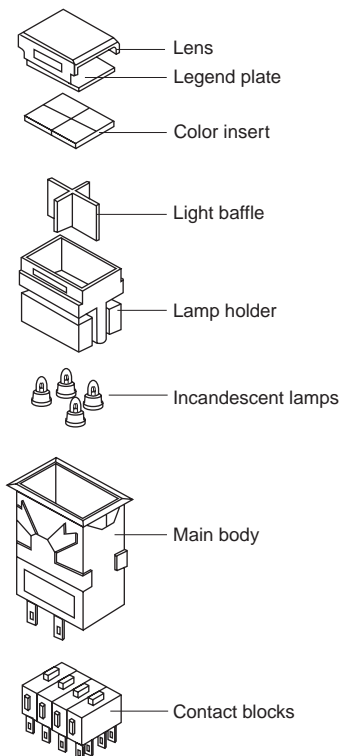
#### ● The color inserts are available in max. 4-way split

The 4-color inserts can be positioned in any of the four quarters of the total display area. 6 combinations are available.

In these switches with incandescent lamp, their lens colors can be replaced with one from the "colored plate kit" which is provided for illuminated pushbutton switches or pilot lights.

#### ■ Construction

AG23 (Incandescent lamp)



#### ■ Approvals



For further information related to approved type, see page 04CD/1/2 to 04CD/1/3.







# Illuminated Switches/Pilot Lights

## AG22 and AG23







### Quick reference guide

#### AG22 series

##### ■ Illuminated pushbutton switches Incandescent lamp

|   |   |
|---|---|
| Indicator split <span style="float: right;">See page 04CD/1/8</span>  |   |
| A: <input type="checkbox"/>   | B: <input type="checkbox"/>   |
| <b>AG22-LAX</b><br><br><br><br>SP-1099 | <b>AG22-LBX</b><br><br><br><br>SP-1120 |







##### LED lamp: Indicators

|  |  |
|--|--|
| Indicator split <span style="float: right;">See page 04CD/1/9</span>   |  |
| A: <input type="checkbox"/>  | B: <input type="checkbox"/>  |
| <b>AG22-LA □ 3</b><br><br><br><br>SP-1101 | <b>AG22-LB □ 3</b><br><br><br><br>SP-1121 |







##### LED lamp: Contact unit

|   |   |
|---|---|
| <b>AG22-L □</b>   | See page 04CD/1/9   |
|  | <br><br>SP-1100 |

#### ■ Pilot lights Incandescent lamp

|  |   |
|--|---|
| Indicator split <span style="float: right;">See page 04CD/1/8</span>   |   |
| A: <input type="checkbox"/>  | B: <input type="checkbox"/>   |
| <b>AG22-ZAX</b><br><br><br><br>SP-1099 | <b>AG22-ZBX</b><br><br><br><br>SP-1120 |

##### LED lamp: Indicators



















|   |  |
|---|--|
| Indicator split <span style="float: right;">See page 04CD/1/9</span>  |  |
| A: <input type="checkbox"/>   | B: <input type="checkbox"/>  |
| <b>AG22-ZA □ 3</b><br><br><br><br>SP-1101 | <b>AG22-ZB □ 3</b><br><br><br><br>SP-1121 |

##### LED lamp: Contact socket



















|   |   |
|---|---|
| <b>AG22-Z6</b>  | See page 04CD/1/9   |
|  | <br><br>SP-1100 |

#### AG23 series




##### ■ Illuminated pushbutton switches Incandescent lamp

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| Indicator split <span style="float: right;">See page 04CD/1/8</span>   |   |   |   |   |   |
| A: <input type="checkbox"/>  | B: <input type="checkbox"/>   | C: <input type="checkbox"/>   | D: <input type="checkbox"/>   | E: <input type="checkbox"/>   | F: <input type="checkbox"/>   |
| <b>AG23-LAX</b><br><br><br><br>SP-1102 | <b>AG23-LBX</b><br><br><br><br>SP-1105 | <b>AG23-LCX</b><br><br><br><br>SP-1116 | <b>AG23-LDX</b><br><br><br><br>SP-1114 | <b>AG23-LEX</b><br><br><br><br>SP-1112 | <b>AG23-LFX</b><br><br><br><br>SP-1118 |

##### LED lamp: Indicators







|   |  |  |  |  |  |
|---|--|--|--|--|--|
| Indicator split <span style="float: right;">See page 04CD/1/9</span>  |  |  |  |  |  |
| A: <input type="checkbox"/>   | B: <input type="checkbox"/>  | C: <input type="checkbox"/>  | D: <input type="checkbox"/>  | E: <input type="checkbox"/>  | F: <input type="checkbox"/>  |
| <b>AG23-LA □ 3</b><br><br><br><br>SP-1122 | <b>AG23-LB □ 3</b><br><br><br><br>SP-1104 | <b>AG23-LC □ 3</b><br><br><br><br>SP-1117 | <b>AG23-LD □ 3</b><br><br><br><br>SP-1115 | <b>AG23-LE □ 3</b><br><br><br><br>SP-1113 | <b>AG23-LF □ 3</b><br><br><br><br>SP-1119 |

##### LED lamp: Contact unit







|   |   |
|---|---|
| <b>AG23-L □</b>   | See page 04CD/1/9   |
|  | <br><br>SP-1103 |

# Illuminated Switches/Pilot Lights AG22 and AG23 Quick reference guide

## ■ Pilot lights Incandescent lamp

|   |   |   |  |   |   |                          |
|---|---|---|--|---|---|--------------------------|
| Indicator split   |   |   |  |   |   | <i>See page 04CD/1/8</i> |
| A: <input type="checkbox"/>   | B: <input type="checkbox"/>   | C: <input type="checkbox"/>   | D: <input type="checkbox"/>  | E: <input type="checkbox"/>   | F: <input type="checkbox"/>   |                          |
| <b>AG23-ZAX</b><br><br>SP-1102 | <b>AG23-ZBX</b><br><br>SP-1105 | <b>AG23-ZCX</b><br><br>SP-1116 | <b>AG23-ZDX</b><br><br>SP-1114 | <b>AG23-ZEX</b><br><br>SP-1112 | <b>AG23-ZFX</b><br><br>SP-1118 |                          |



## LED lamp: Indicators

|   |   |   |  |   |   |                          |
|---|---|---|--|---|---|--------------------------|
| Indicator split   |   |   |  |   |   | <i>See page 04CD/1/9</i> |
| A: <input type="checkbox"/>   | B: <input type="checkbox"/>   | C: <input type="checkbox"/>   | D: <input type="checkbox"/>  | E: <input type="checkbox"/>   | F: <input type="checkbox"/>   |                          |
| <b>AG23-ZA□ 3</b><br><br>SP-1112 | <b>AG23-ZB□ 3</b><br><br>SP-1104 | <b>AG23-ZC□ 3</b><br><br>SP-1117 | <b>AG23-ZD□ 3</b><br><br>SP-1115 | <b>AG23-ZE□ 3</b><br><br>SP-1113 | <b>AG23-ZF□ 3</b><br><br>SP-1119 |                          |



## LED lamp: Socket

|  |                          |
|--|--------------------------|
| <b>AG23-Z6</b>   | <i>See page 04CD/1/9</i> |
| <br>SP-1103 |                          |

## ■ Illuminated lever switches

|   |   |                           |
|---|---|---------------------------|
| 2-position  | 3-position  | <i>See page 04CD/1/10</i> |
| Maintained,<br>Spring return  | Spring/manual<br>return   |                           |
| <b>AG23-HL□</b><br><br>SP-1108 | <b>AG23-HL□</b><br><br>SP-1108 |                           |

## ■ Illuminated rocker switches

|  |   |                           |
|--|---|---------------------------|
| 2-position   | 3-position  | <i>See page 04CD/1/11</i> |
| Maintained,<br>Spring return   | Spring/manual<br>return   |                           |
| <b>AG23-RL□</b><br><br>SP-1107 | <b>AG23-RL□</b><br><br>SP-1107 |                           |



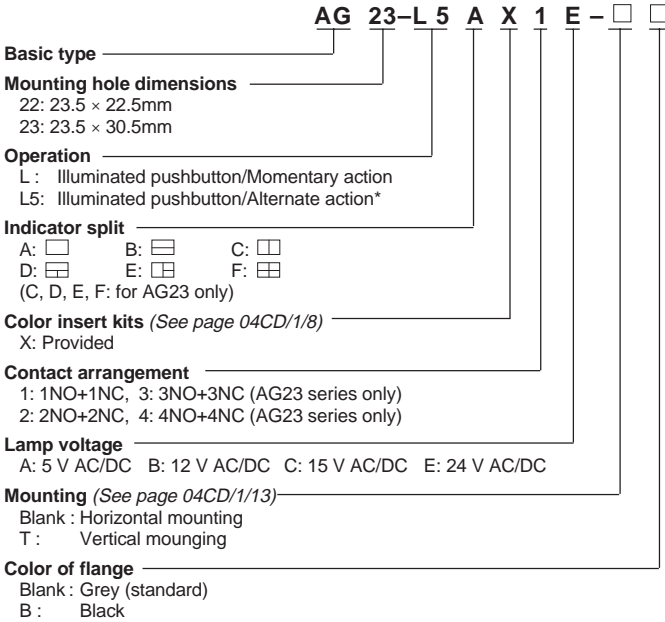
# Illuminated Switches/Pilot Lights

## AG22 and AG23

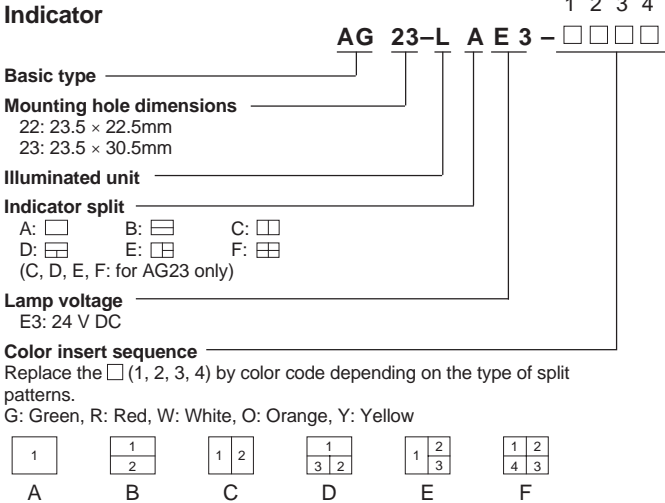
### Type number nomenclature

#### ■ Type number nomenclature

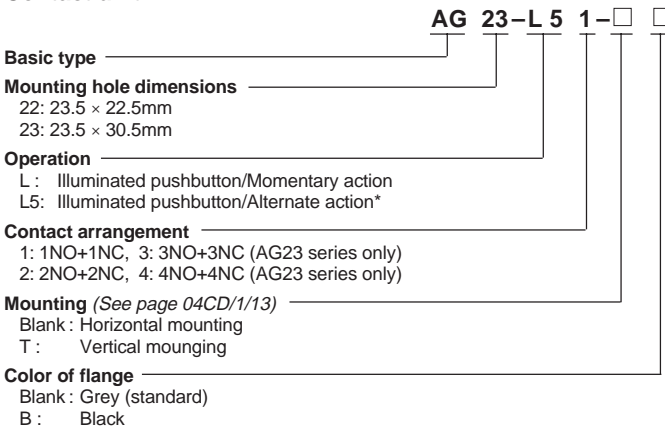
#### ● Illuminated pushbutton switch (Incandescent lamp)



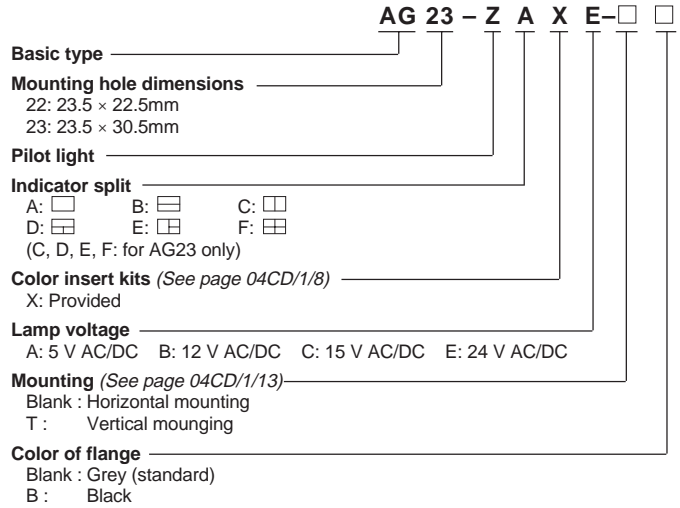
#### ● Illuminated pushbutton switch (LED lamp)



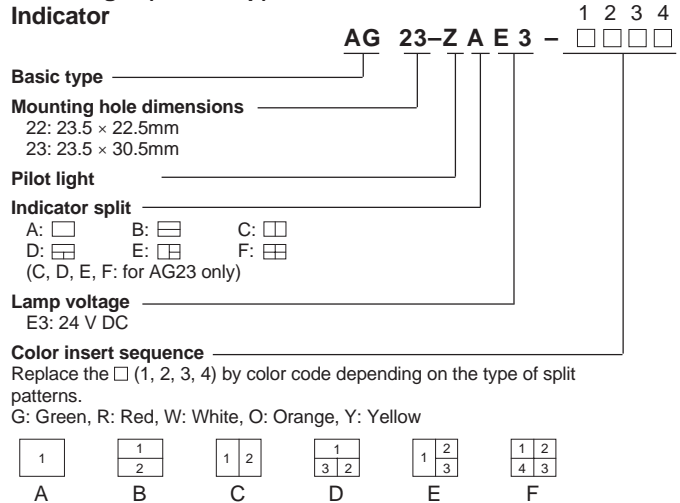
#### Contact unit



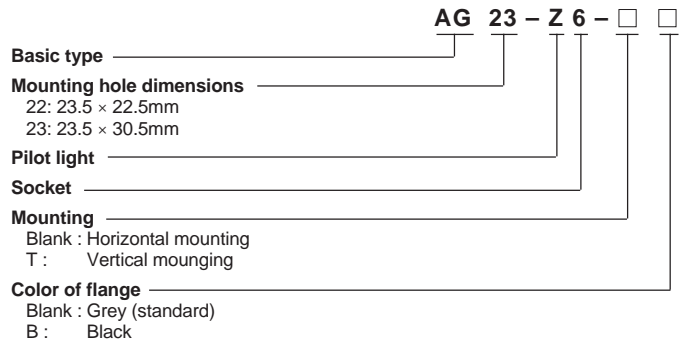
#### ● Pilot light (Incandescent lamp)



#### ● Pilot light (LED lamp)



#### Socket



Notes: \* When the button is depressed the contacts are maintained and remain so even if the finger is removed. The button will not return to its free position. In order to remove the lock, the button must be given a second pressure before the button will return to its free position.

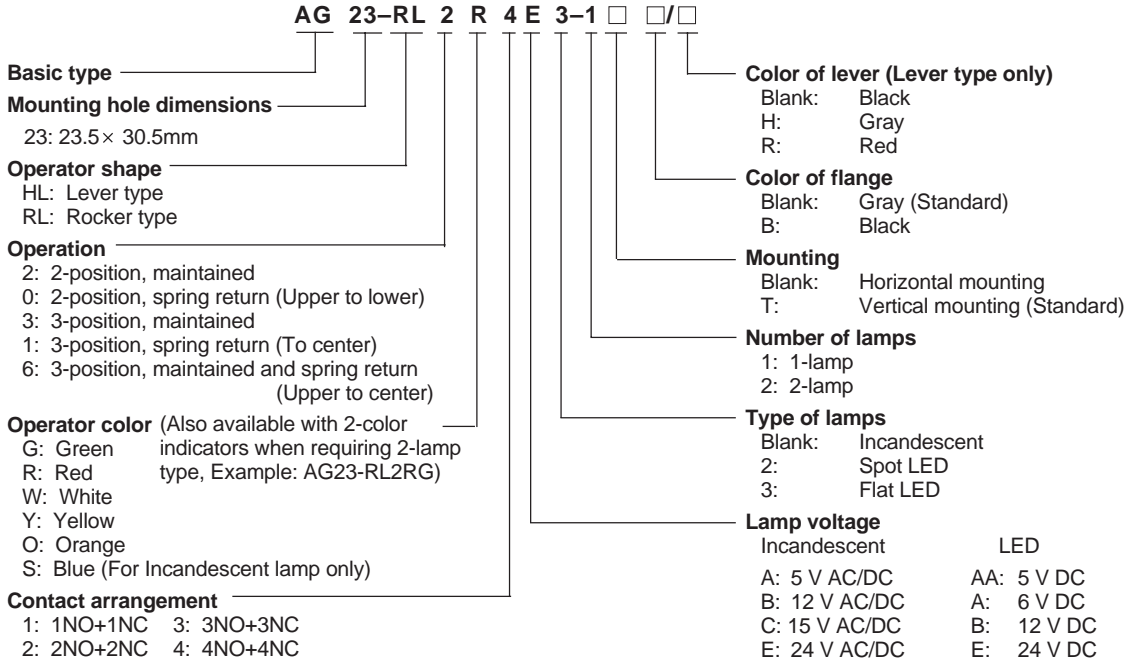


# Illuminated Switches/Pilot Lights

## AG22 and AG23

### Type number nomenclature

● Illuminated lever switch and illuminated rocker switch



# Illuminated Switches/Pilot Lights

## AG22 and AG23

### Ratings and specifications

#### ■ Standards approved

|                 |                  |
|-----------------|------------------|
| UL508           | File No. E44592  |
| CSA C22.2 No.14 | File No. LR20479 |

#### ■ Specifications (Indoor use)

|  |   |   |  |
|--|---|---|--|
| Item   | Illuminated pushbutton switch   | Illuminated lever switch<br>Illuminated rocker switch   | Pilot light                                |
| Rated insulation voltage                             | 250V AC/DC  |   |  |
| Ambient temperature<br>(no condensation or no icing) | -5 to +40°C   |   |  |
| Humidity   | 45 to 85%RH (at -5 to +40°C), no condensation or no icing                                 |   |  |
| Durability (operations)                              | Mechanical  | 1NO+1NC, 2NO+2NC<br>Momentary action: 1 million<br>Alternate action: 250,000<br>3NO+3NC*, 4NO+4NC*: 100,000 | 100,000                                    |
|  | Electrical  | 100,000 (220V AC 0.7A)  |  |
| Dielectric strength                                  | 2000V AC, 1 minute<br>(Between lamp and contact terminals: 1500V AC, 1 minute)            |   |  |
| Pollution degree                                     | 3   |   |  |
| Vibration  | Resonance: 10 to 55Hz, double amplitude 0.1mm<br>Constant: 16.7Hz, double amplitude 3mm   |   |  |
| Shock  | Malfunction durability: 100m/s <sup>2</sup><br>Mechanical durability: 500m/s <sup>2</sup> |   | Mechanical durability: 500m/s <sup>2</sup> |
| Insulation resistance                                | 100MΩ or more (500V DC megger)  |   |  |
| Degree of protection                                 | IP40  |   |  |

Notes: \* AG23 type only.

#### ■ Contact ratings

##### ● UL/CSA standards

| Rated thermal current | Rated operational voltage | Maximum current |                |
|-----------------------|---------------------------|-----------------|----------------|
|                       |                           | AC (Res. load)  | DC (Res. load) |
| 5A                    | 24V                       | -               | 1.0A           |
|                       | 125V                      | -               | 0.2A           |
|                       | 250V                      | 5.0A            | -              |

##### ● NECA C 4521 standards

| Rated thermal current | Rated operational voltage | Rated operational current |                   |                   |                    |                   |
|-----------------------|---------------------------|---------------------------|-------------------|-------------------|--------------------|-------------------|
|                       |                           | AC 15 (Ind. load)         | AC 13 (Ind. load) | AC 12 (Res. load) | DC 13* (Ind. load) | DC 12 (Res. load) |
| 5A                    | 24V                       | -                         | -                 | -                 | 0.7A               | 1.0A              |
|                       | 110V                      | 0.3A                      | 1.0A              | 1.5A              | -                  | -                 |
|                       | 220V                      | 0.3A                      | 0.7A              | 1.0A              | 0.15A              | 0.2A              |

Notes: \* T<sub>0.95</sub> = 21ms

#### ■ Contact reliability

FUJI has confirmed that the unit can be used in 1mA circuit conditions at 5V AC or DC. The operable range may vary depending on the ambient conditions and type of load.

Illuminated Switches/Pilot Lights  
**AG22 and AG23**  
**Ratings and specifications**

■ **Power consumption**

● AG22, 23











| Operating Voltage (V) | LED Lamp [w/split]                         |         |         |         |                             |        | Incandescent lamp [W/1-lamp] |
|-----------------------|--|---------|---------|---------|-----------------------------|--------|------------------------------|
|                       | Illuminated pushbutton switch, pilot light |         |         |         | Lever switch, rocker switch |        |                              |
|                       | 0-split                                    | 2-split | 3-split | 4-split | 1-lamp                      | 2-lamp |                              |
| 5                     | —  | —       | —       | —       | 0.04*1                      | 0.04*1 | 0.45                         |
| 6                     | —  | —       | —       | —       | 0.05*2                      | 0.05*2 | —                            |
| 12                    | —  | —       | —       | —       | 0.09                        | 0.09   | 0.55                         |
| 24                    | 0.36                                       | 0.36    | 0.36    | 0.36    | 0.17                        | 0.17   | 0.55                         |

\*1 Yellow: 0.14w/split

\*2 Yellow: 0.17w/split

# Illuminated pushbutton Switches/Pilot Lights AG22 and AG23

## ■ Illuminated pushbutton switches (Incandescent lamp) Momentary action

| Description  | Color insert split  | 1NO+1NC<br>*1 *2 *3 | 2NO+2NC<br>*1 *2 *3 |
|--|---|---------------------|---------------------|
|  |   | Type                | Type                |
|  SM-346<br><b>AG22-L</b> | A  | AG22-LAX1■(-)□      | AG22-LAX2■(-)□      |
|  | B  | AG22-LBX1■(-)□      | AG22-LBX2■(-)□      |
|  SM-293<br><b>AG23-L</b> | A  | AG23-LAX1■(-)□      | AG23-LAX2■(-)□      |
|  | B  | AG23-LBX1■(-)□      | AG23-LBX2■(-)□      |
|  | C  | AG23-LCX1■(-)□      | AG23-LCX2■(-)□      |
|  | D  | AG23-LDX1■(-)□      | AG23-LDX2■(-)□      |
|  | E  | AG23-LEX1■(-)□      | AG23-LEX2■(-)□      |
|  | F  | AG23-LFX1■(-)□      | AG23-LFX2■(-)□      |

Notes:

\*1

Replace the ■ mark by the lamp voltage code

A: 5V AC/DC  
B: 12V AC/DC  
C: 15V AC/DC  
E: 24V AC/DC

\*2

Replace the ( ) mark by the mounting angle code

Blank: Horizontal mounting  
T: Vertical mounting











\*3

Replace the □ mark by the flange color code

Blank: Gray (Standard)  
B: Black







For AG23 type illuminated pushbutton switch, 3NO+3NC and 4NO+4NC are also available.

## Alternate action











| Description   | Color insert split  | 1NO+1NC<br>*1 *2 *3 | 2NO+2NC<br>*1 *2 *3 |
|---|---|---------------------|---------------------|
|   |   | Type                | Type                |
|  SM-345<br><b>AG22-L5</b>  | A    | AG22-L5AX1■(-)□     | AG22-L5AX2■(-)□     |
|   | B    | AG22-L5BX1■(-)□     | AG22-L5BX2■(-)□     |
|  SM-295<br><b>AG23-L5</b> | A   | AG23-L5AX1■(-)□     | AG23-L5AX2■(-)□     |
|   | B  | AG23-L5BX1■(-)□     | AG23-L5BX2■(-)□     |
|   | C  | AG23-L5CX1■(-)□     | AG23-L5CX2■(-)□     |
|   | D  | AG23-L5DX1■(-)□     | AG23-L5DX2■(-)□     |
|   | E  | AG23-L5EX1■(-)□     | AG23-L5EX2■(-)□     |
|   | F  | AG23-L5FX1■(-)□     | AG23-L5FX2■(-)□     |

## ■ Color insert kits

Illuminated pushbutton switches and pilot lights with an incandescent lamp comprise the following number of green, red, white, orange and blue inserts, legend plates and light baffle plates.

| Color insert split  | Color insert |      |         | Light baffle |         |   | Legend plate |   |   |
|---|--------------|------|---------|--------------|---------|---|--------------|---|---|
|   | Full         | Half | Quarter | Half         | Quarter |   |              |   |   |
| A  | 5            | -    | -       | -            | -       | - | -            | 1 |   |
| B  | -            | 5    | -       | 1            | -       | - | -            | 1 |   |
| C  | -            | -    | 5       | -            | 1       | - | -            | 1 |   |
| D  | -            | 5    | -       | 5            | 1       | - | 1            | 1 |   |
| E  | -            | -    | 5       | 5            | -       | 1 | 1            | - | 1 |
| F  | -            | -    | -       | 10           | 1       | - | -            | 2 | 1 |

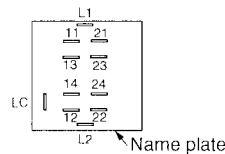
## ■ Pilot lights (Incandescent lamp)

| Description  | Color insert split  | 1NO+1NC<br>*1 *2 *3 |
|--|---|---------------------|
|  |   | Type                |
|  SM-346<br><b>AG22-Z</b> | A  | AG22-ZAX■(-)□       |
|  | B  | AG22-ZBX■(-)□       |
|  SM-294<br><b>AG23-Z</b> | A  | AG23-ZAX■(-)□       |
|  | B  | AG23-ZBX■(-)□       |
|  | C  | AG23-ZCX■(-)□       |
|  | D  | AG23-ZDX■(-)□       |
|  | E  | AG23-ZEX■(-)□       |
|  | F  | AG23-ZFX■(-)□       |

## ■ Wiring diagrams

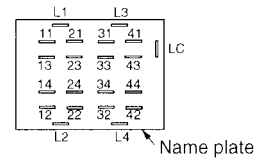
### AG22 (2NO+2NC)

#### • Terminal arrangement



### AG23 (4NO+4NC)

#### • Terminal arrangement

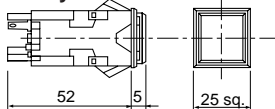


View from terminal side

## ■ Dimensions, mm

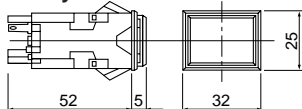
### AG22

#### • Body



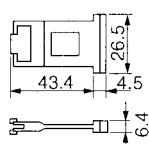
### AG23

#### • Body

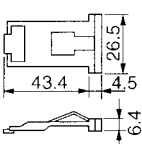


#### • Barrier

Center barrier  
AGX008-C

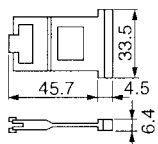


End barrier  
AGX008-E

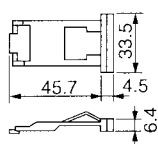


#### • Barrier

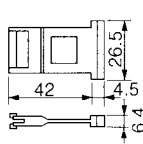
Long center barrier  
AGX003-LC



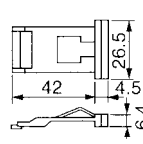
Long end barrier  
AGX003-LE



Short center barrier  
AGX003-SC













Short end barrier  
AGX003-SE





## ■ Illuminated pushbutton switches (LED lamp)

### ● Indicators











| Description  | Color insert split  | Type*1 *2             |
|--|---|-----------------------|
| <br><b>AG22-L</b> | A  | <b>AG22-LA</b> ■-△    |
|  | B  | <b>AG22-LB</b> ■-△△   |
| <br><b>AG23-L</b> | A  | <b>AG23-LA</b> ■-△    |
|  | B  | <b>AG23-LB</b> ■-△△   |
|  | C  | <b>AG23-LC</b> ■-△△   |
|  | D  | <b>AG23-LD</b> ■-△△△  |
|  | E  | <b>AG23-LE</b> ■-△△△  |
|  | F  | <b>AG23-LF</b> ■-△△△△ |

### ● Contact unit

| Description  | Contact | Momentary action Type*3*4                     | Alternate action Type*3*4                      |
|--|---------|---|--|
| <br><b>AG22-L</b>   | 1NO+1NC | <b>AG22-L1</b> - ( ) <input type="checkbox"/> | <b>AG22-L51</b> - ( ) <input type="checkbox"/> |
|  | 2NO+2NC | <b>AG22-L2</b> - ( ) <input type="checkbox"/> | <b>AG22-L52</b> - ( ) <input type="checkbox"/> |
| <br><b>AG23-L</b> | 1NO+1NC | <b>AG23-L1</b> - ( ) <input type="checkbox"/> | <b>AG23-L51</b> - ( ) <input type="checkbox"/> |
|  | 2NO+2NC | <b>AG23-L2</b> - ( ) <input type="checkbox"/> | <b>AG23-L52</b> - ( ) <input type="checkbox"/> |
|  | 3NO+3NC | <b>AG23-L3</b> - ( ) <input type="checkbox"/> | <b>AG23-L53</b> - ( ) <input type="checkbox"/> |
|  | 4NO+4NC | <b>AG23-L4</b> - ( ) <input type="checkbox"/> | <b>AG23-L54</b> - ( ) <input type="checkbox"/> |

## ■ Pilot lights (LED lamp)

### ● Indicators

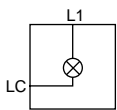
| Description  | Color insert split  | Type*1 *2             |
|--|---|-----------------------|
| <br><b>AG22-Z</b> | A  | <b>AG22-ZA</b> ■-△    |
|  | B  | <b>AG22-ZB</b> ■-△△   |
| <br><b>AG23-Z</b> | A  | <b>AG23-ZA</b> ■-△    |
|  | B  | <b>AG23-ZB</b> ■-△△   |
|  | C  | <b>AG23-ZC</b> ■-△△   |
|  | D  | <b>AG23-ZD</b> ■-△△△  |
|  | E  | <b>AG23-ZE</b> ■-△△△  |
|  | F  | <b>AG23-ZF</b> ■-△△△△ |

## ■ Wiring diagrams (Lamp circuit)

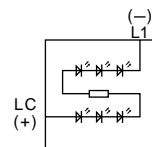
### AG22

#### ● Incandescent lamp

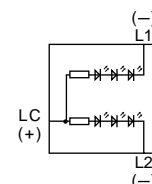
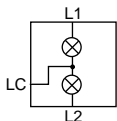
Full face



#### ● LED lamp



2-way

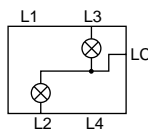


View from terminal side

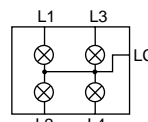
### AG23

#### ● Incandescent lamp

Full face

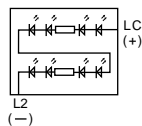


2, 3, 4 - way split

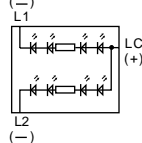


#### ● LED lamp (24V)

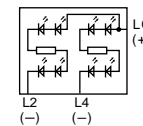
Full face



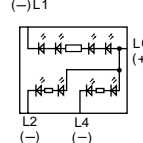
2-way Horizontal split



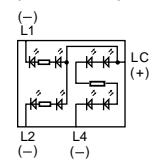
2 - way Vertical split



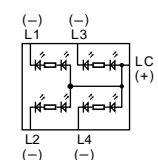
3 - way split (Half at top)



3 - way split (Half at left)



4 - way split



### Notes:

- \*1 Replace the ■ mark by the lamp voltage code.  
E3: 24V DC
- \*2 Replace the △ mark by color code depending on the type of split patterns.  
G: Green, R: Red, W: White, O: Orange, Y: Yellow  
(For color insert sequence, see page 04CD/1/4)
- \*3 Replace the ( ) mark by the mounting code.  
Blank: Horizontal mounting  
T: Vertical mounting
- \*4 Replace the □ mark by the flange color code.  
Blank: Gray, B: Blank

## ■ Ordering information

### Example

#### ● Indicator

|                                |                                    |
|--------------------------------|------------------------------------|
| AG23 series                    | AG23                               |
| Illuminated pushbutton         | L                                  |
| 4-way split color insert       | F                                  |
| LED lamp 24V DC (Anode common) | E3                                 |
| Color sequence                 | 1: Green 2: Red 3: White 4: Orange |
|                                | GRWO                               |



Type number AG23-LFE3-GRWO

#### ● Contact unit

|                       |       |
|-----------------------|-------|
| Momentary action      | L     |
| Contact block 2NO+2NC | 2     |
| Horizontal mounting   | Blank |
| Color of flange Gray  | Blank |

Type number AG23-L2


#### ● Sockets

| Description  | Type code*3*4                                 |
|--|---|
| <br><b>AG22-Z6</b> | <b>AG22-Z6</b> - ( ) <input type="checkbox"/> |
| <br><b>AG23-Z6</b> | <b>AG23-Z6</b> - ( ) <input type="checkbox"/> |



# Illuminated lever Switches

## AG23

### ■ Illuminated lever switches/Incandescent lamps

| Description  | Contact block | No. of lamp         | Operation           | 2-position Type*    | 3-position Type*    |
|--|---------------|---------------------|---------------------|---------------------|---------------------|
| Incandescent lamp<br><br>SP-1108 | 1NO+1NC       | 1                   | Maintained          | AG23-HL2Δ1■-1( )□/▲ | —                   |
|  |               | 2                   |                     | AG23-HL2Δ1■-2( )□/▲ | —                   |
|  | 2NO+2NC       | 1                   |                     | AG23-HL2Δ2■-1( )□/▲ | AG23-HL3Δ2■-1( )□/▲ |
|  |               | 2                   |                     | AG23-HL2Δ2■-2( )□/▲ | AG23-HL3Δ2■-2( )□/▲ |
|  | 3NO+3NC       | 1                   |                     | AG23-HL2Δ3■-1( )□/▲ | AG23-HL3Δ3■-1( )□/▲ |
|  |               | 2                   |                     | AG23-HL2Δ3■-2( )□/▲ | AG23-HL3Δ3■-2( )□/▲ |
| Spring return  | 1NO+1NC       | 1                   | AG23-HL0Δ1■-1( )□/▲ | —                   |                     |
|  |               | 2                   | AG23-HL0Δ1■-2( )□/▲ | —                   |                     |
|  | 2NO+2NC       | 1                   | AG23-HL0Δ2■-1( )□/▲ | AG23-HL1Δ2■-1( )□/▲ |                     |
|  |               | 2                   | AG23-HL0Δ2■-2( )□/▲ | AG23-HL1Δ2■-2( )□/▲ |                     |
|  | 3NO+3NC       | 1                   | AG23-HL0Δ3■-1( )□/▲ | AG23-HL1Δ3■-1( )□/▲ |                     |
|  |               | 2                   | AG23-HL0Δ3■-2( )□/▲ | AG23-HL1Δ3■-2( )□/▲ |                     |
| Spring/manual return   | 2NO+2NC       | 1                   | —                   | AG23-HL6Δ2■-1( )□/▲ |                     |
|  | 2             | —                   | AG23-HL6Δ2■-2( )□/▲ |                     |                     |
| 3NO+3NC  | 1             | —                   | AG23-HL6Δ3■-1( )□/▲ |                     |                     |
| 2  | —             | AG23-HL6Δ3■-2( )□/▲ |                     |                     |                     |

### ■ Illuminated lever switches/LED lamps

| Description   | Contact block | No. of lamp          | Operation            | 2-position Type*     | 3-position Type*     |                      |
|---|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Spot LED<br><br>KK04-047A | 1NO+1NC       | 1                    | Maintained           | AG23-HL2Δ1■2-1( )□/▲ | —                    |                      |
|   |               | 2                    |                      | AG23-HL2Δ1■2-2( )□/▲ | —                    |                      |
|   |               | 2NO+2NC              |                      | 1                    | AG23-HL2Δ2■2-1( )□/▲ | AG23-HL3Δ2■2-1( )□/▲ |
|   | 2             | AG23-HL2Δ2■2-2( )□/▲ |                      | AG23-HL3Δ2■2-2( )□/▲ |                      |                      |
|   | 3NO+3NC       | 1                    |                      | AG23-HL2Δ3■2-1( )□/▲ | AG23-HL3Δ3■2-1( )□/▲ |                      |
|   |               | 2                    |                      | AG23-HL2Δ3■2-2( )□/▲ | AG23-HL3Δ3■2-2( )□/▲ |                      |
|   |               | 1NO+1NC              |                      | 1                    | AG23-HL0Δ1■2-1( )□/▲ | —                    |
|   | Spring return | 2NO+2NC              |                      | 2                    | AG23-HL0Δ1■2-2( )□/▲ | —                    |
|   |               |                      |                      | 1                    | AG23-HL0Δ2■2-1( )□/▲ | AG23-HL1Δ2■2-1( )□/▲ |
| 2   |               | AG23-HL0Δ2■2-2( )□/▲ | AG23-HL1Δ2■2-2( )□/▲ |                      |                      |                      |
| 3NO+3NC   | 1             | AG23-HL0Δ3■2-1( )□/▲ | AG23-HL1Δ3■2-1( )□/▲ |                      |                      |                      |
|   | 2             | AG23-HL0Δ3■2-2( )□/▲ | AG23-HL1Δ3■2-2( )□/▲ |                      |                      |                      |
|   | 2NO+2NC       | 1                    | —                    | AG23-HL6Δ2■2-1( )□/▲ |                      |                      |
| Spring/manual return  | 2             | —                    | AG23-HL6Δ2■2-2( )□/▲ |                      |                      |                      |
|   | 3NO+3NC       | 1                    | —                    | AG23-HL6Δ3■2-1( )□/▲ |                      |                      |
| 2   | —             | AG23-HL6Δ3■2-2( )□/▲ |                      |                      |                      |                      |
| Flat LED<br><br>SP-1108   | 1NO+1NC       | 1                    | Maintained           | AG23-HL2Δ1■3-1( )□/▲ | —                    |                      |
|   |               | 2                    |                      | AG23-HL2Δ1■3-2( )□/▲ | —                    |                      |
|   |               | 2NO+2NC              |                      | 1                    | AG23-HL2Δ2■3-1( )□/▲ | AG23-HL3Δ2■3-1( )□/▲ |
|   | 2             | AG23-HL2Δ2■3-2( )□/▲ |                      | AG23-HL3Δ2■3-2( )□/▲ |                      |                      |
|   | 3NO+3NC       | 1                    |                      | AG23-HL2Δ3■3-1( )□/▲ | AG23-HL3Δ3■3-1( )□/▲ |                      |
|   |               | 2                    |                      | AG23-HL2Δ3■3-2( )□/▲ | AG23-HL3Δ3■3-2( )□/▲ |                      |
|   |               | 1NO+1NC              |                      | 1                    | AG23-HL0Δ1■3-1( )□/▲ | —                    |
|   | Spring return | 2NO+2NC              |                      | 2                    | AG23-HL0Δ1■3-2( )□/▲ | —                    |
|   |               |                      |                      | 1                    | AG23-HL0Δ2■3-1( )□/▲ | AG23-HL1Δ2■3-1( )□/▲ |
| 2   |               | AG23-HL0Δ2■3-2( )□/▲ | AG23-HL1Δ2■3-2( )□/▲ |                      |                      |                      |
| 3NO+3NC   | 1             | AG23-HL0Δ3■3-1( )□/▲ | AG23-HL1Δ3■3-1( )□/▲ |                      |                      |                      |
|   | 2             | AG23-HL0Δ3■3-2( )□/▲ | AG23-HL1Δ3■3-2( )□/▲ |                      |                      |                      |
|   | 2NO+2NC       | 1                    | —                    | AG23-HL6Δ2■3-1( )□/▲ |                      |                      |
| Spring/manual return  | 2             | —                    | AG23-HL6Δ2■3-2( )□/▲ |                      |                      |                      |
|   | 3NO+3NC       | 1                    | —                    | AG23-HL6Δ3■3-1( )□/▲ |                      |                      |
| 2   | —             | AG23-HL6Δ3■3-2( )□/▲ |                      |                      |                      |                      |


\* • Replace the Δ mark by the lamp color codes.  
G: Green R: Red W: White Y: Yellow O: Orange  
S: Blue (Incandescent Lamp only)

• Replace the ■ mark by the lamp voltage codes  
Incandescent A: 5V AC/DC B: 12V AC/DC C: 15V AC/DC E: 24V AC/DC  
LED AA: 5V DC A: 6V DC B: 12V DC E: 24V DC



• Replace the ( ) mark by the mounting angle code.  
Blank: Horizontal mounting  
T: Vertical mounting

• Replace the □ mark by the flange color codes.  
Blank: Gray (Standard) B: Black  
• Replace the ▲ mark by the lever color codes.  
Blank: Black (Standard) H: Gray R: Red

■ Illuminated rocker switches/Incandescent lamps

| Description  | Contact block | No. of lamp | Operation                | 2-position Type*                       | 3-position Type*                       |
|--|---------------|-------------|--------------------------|--|--|
| <br>SP-1107 | 1NO+1NC       | 1<br>2      | Maintained               | AG23-RL2△1■-1( )□<br>AG23-RL2△1■-2( )□ | —<br>—                                 |
|  | 2NO+2NC       | 1<br>2      |                          | AG23-RL2△2■-1( )□<br>AG23-RL2△2■-2( )□ | AG23-RL3△2■-1( )□<br>AG23-RL3△2■-2( )□ |
|  | 3NO+3NC       | 1<br>2      |                          | AG23-RL2△3■-1( )□<br>AG23-RL2△3■-2( )□ | AG23-RL3△3■-1( )□<br>AG23-RL3△3■-2( )□ |
|  | 1NO+1NC       | 1<br>2      | Spring return            | AG23-RL0△1■-1( )□<br>AG23-RL0△1■-2( )□ | —<br>—                                 |
|  | 2NO+2NC       | 1<br>2      |                          | AG23-RL0△2■-1( )□<br>AG23-RL0△2■-2( )□ | AG23-RL1△2■-1( )□<br>AG23-RL1△2■-2( )□ |
|  | 3NO+3NC       | 1<br>2      |                          | AG23-RL0△3■-1( )□<br>AG23-RL0△3■-2( )□ | AG23-RL1△3■-1( )□<br>AG23-RL1△3■-2( )□ |
|  | 2NO+2NC       | 1<br>2      | Spring/<br>manual return | —                                      | AG23-RL6△2■-1( )□<br>AG23-RL6△2■-2( )□ |
|  | 3NO+3NC       | 1<br>2      |                          | —                                      | AG23-RL6△3■-1( )□<br>AG23-RL6△3■-2( )□ |

■ Illuminated rocker switches/LED lamps

| Description  | Contact block  | No. of lamp | Operation                                | 2-position Type*                         | 3-position Type*                         |
|--|--|-------------|--|--|--|
| <br>KK04-048A | 1NO+1NC  | 1<br>2      | Maintained                               | AG23-RL2△1■2-1( )□<br>AG23-RL2△1■2-2( )□ | —<br>—                                   |
|  | 2NO+2NC  | 1<br>2      |  | AG23-RL2△2■2-1( )□<br>AG23-RL2△2■2-2( )□ | AG23-RL3△2■2-1( )□<br>AG23-RL3△2■2-2( )□ |
|  | 3NO+3NC  | 1<br>2      |  | AG23-RL2△3■2-1( )□<br>AG23-RL2△3■2-2( )□ | AG23-RL3△3■2-1( )□<br>AG23-RL3△3■2-2( )□ |
|  | 1NO+1NC  | 1<br>2      | Spring return                            | AG23-RL0△1■2-1( )□<br>AG23-RL0△1■2-2( )□ | —<br>—                                   |
|  | 2NO+2NC  | 1<br>2      |  | AG23-RL0△2■2-1( )□<br>AG23-RL0△2■2-2( )□ | AG23-RL1△2■2-1( )□<br>AG23-RL1△2■2-2( )□ |
|  | 3NO+3NC  | 1<br>2      |  | AG23-RL0△3■2-1( )□<br>AG23-RL0△3■2-2( )□ | AG23-RL1△3■2-1( )□<br>AG23-RL1△3■2-2( )□ |
|  | 2NO+2NC  | 1<br>2      | Spring/<br>manual return                 | —  | AG23-RL6△2■2-1( )□<br>AG23-RL6△2■2-2( )□ |
|  | 3NO+3NC  | 1<br>2      |  | —  | AG23-RL6△3■2-1( )□<br>AG23-RL6△3■2-2( )□ |
|  | <br>SP-1107 | 1NO+1NC     | 1<br>2                                   | Maintained                               | AG23-RL2△1■3-1( )□<br>AG23-RL2△1■3-2( )□ |
| 2NO+2NC  |  | 1<br>2      | AG23-RL2△2■3-1( )□<br>AG23-RL2△2■3-2( )□ |  | AG23-RL3△2■3-1( )□<br>AG23-RL3△2■3-2( )□ |
| 3NO+3NC  |  | 1<br>2      | AG23-RL2△3■3-1( )□<br>AG23-RL2△3■3-2( )□ |  | AG23-RL3△3■3-1( )□<br>AG23-RL3△3■3-2( )□ |
| 1NO+1NC  |  | 1<br>2      | Spring return                            | AG23-RL0△1■3-1( )□<br>AG23-RL0△1■3-2( )□ | —<br>—                                   |
| 2NO+2NC  |  | 1<br>2      |  | AG23-RL0△2■3-1( )□<br>AG23-RL0△2■3-2( )□ | AG23-RL1△2■3-1( )□<br>AG23-RL1△2■3-2( )□ |
| 3NO+3NC  |  | 1<br>2      |  | AG23-RL0△3■3-1( )□<br>AG23-RL0△3■3-2( )□ | AG23-RL1△3■3-1( )□<br>AG23-RL1△3■3-2( )□ |
| 2NO+2NC  |  | 1<br>2      | Spring/<br>manual return                 | —  | AG23-RL6△2■3-1( )□<br>AG23-RL6△2■3-2( )□ |
| 3NO+3NC  |  | 1<br>2      |  | —  | AG23-RL6△3■3-1( )□<br>AG23-RL6△3■3-2( )□ |

\* Replace the △ mark by the lamp color codes  
G: Green R: Red W: White Y: Yellow O: Orange  
S: Blue (Incandescent Lamp only)

• Replace the ■ mark by the lamp voltage codes  
Incandescent A: 5V AC/DC B: 12V AC/DC C: 15V AC/DC E: 24V AC/DC  
LED AA: 5V DC A: 6V DC B: 12V DC E: 24V DC

• Replace the ( ) mark by the mounting angle code  
Blank: Horizontal mounting  
T: Vertical mounting

• Replace the □ mark by the flange color codes  
Blank: Gray (Standard) B: Black

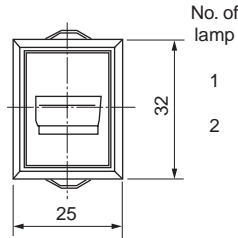
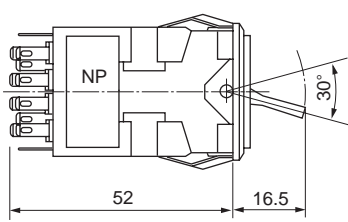
# Illuminated lever Switches/Illuminated rocker Switches

## AG23

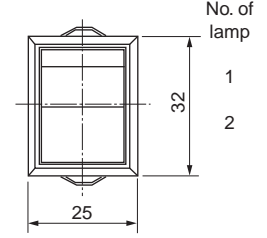
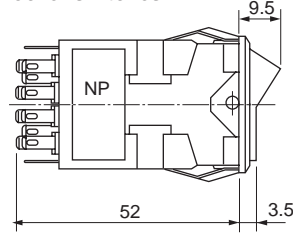
### Dimensions

#### ■ Dimensions, mm

##### Lever switches

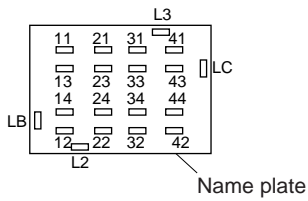


##### Rocker switches



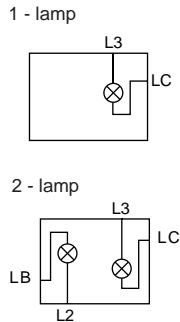
#### ■ Wiring diagrams (AG23 4NO+4NC)

##### ● Terminal arrangement

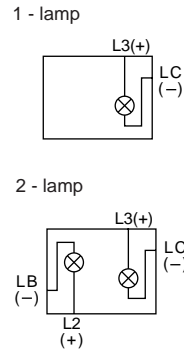


#### ■ Wiring diagrams (Lamp circuit)

##### ● Incandescent lamp



##### ● LED lamp



#### ■ Contact arrangement

| Operator position | 1NO+1NC | 2NO+2NC | 3NO+3NC | 4NO+4NC |
|-------------------|---------|---------|---------|---------|
| 2-position        |         |         |         |         |
|                   |         |         |         |         |
|                   |         |         |         |         |
|                   |         |         |         |         |
| 3-position        |         |         |         |         |
|                   |         |         |         |         |
|                   |         |         |         |         |
|                   |         |         |         |         |

Note: The operator position shown is where the nameplate-stuck-surface is positioned toward you.



**Notes on use**

■ **Mounting the Switches (Pilot lights)**

Mounting the switches by inserting them into place in the front of the mounting panel.  
 The switches will be held in position by the mounting springs.

■ **Panel cutting**

● **AG 22**

| Description      |                                  | Mounting design | Panel cutting | Remarks  |
|------------------|----------------------------------|-----------------|---------------|--|
| Flange mounting  | Individual mounting (Horizontal) |                 |               | Panel cutting space between rows of units<br>  |
|                  | Manifold mounting (Horizontal)   |                 |               |  |
| Barrier mounting | Individual mounting (Horizontal) |                 |               | Panel cutting space between rows of units<br>Dotted line indicates the position of each mounting barrier<br> |
|                  | Manifold mounting (Horizontal)   |                 |               |  |

Notes • n: Number of mounted unit Max 10 Panel thickness: 1 to 5 mm (with dust covers: 1 to 4 mm)  
 • For vertical mounting, contact FUJI  
 • The dimensions in parentheses are for tandem mounting of switches with dust covers.

● **AG 23**

| Description      |                                  | Mounting design | Panel cutting | Remarks  |
|------------------|----------------------------------|-----------------|---------------|--|
| Flange mounting  | Individual mounting (Horizontal) |                 |               | Panel cutting space between rows of units<br>  |
|                  | Manifold mounting (Horizontal)   |                 |               |  |
|                  | Individual mounting (Vertical)   |                 |               |  |
|                  | Manifold mounting (Vertical)     |                 |               |  |
| Barrier mounting | Individual mounting (Horizontal) |                 |               | Panel cutting space between rows of units<br>Dotted line indicates the position of each mounting barrier<br> |
|                  | Manifold mounting (Horizontal)   |                 |               |  |
|                  | Individual mounting (Vertical)   |                 |               |  |
|                  | Manifold mounting (Vertical)     |                 |               |  |

Notes • n: Number of mounted unit Max10 Panel thickness: 1 to 5 mm (with dust covers: 1 to 4 mm)  
 • The dimensions in parentheses are for tandem mounting of switches with dust covers.

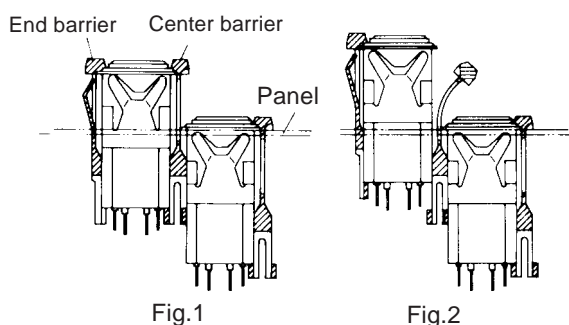
# Illuminated Switches/Pilot Lights

## AG22 and AG23

### Notes on use

#### ■ Installing or removing switches

- To install switches in the standard mounting or barrier-isolated single-unit mounting method, insert the switches one at a time from the front of the panel.
- Installing the main bodies of the switches  
If the mounting panel is vertical, install the switches with their nameplates positioned at the bottom. If the mounting panel is horizontal, install the switches with their nameplates positioned on this side.
- If the mounting panel is thin (1 to 2 mm thick), make panel cutouts smaller.



- When the barrier-isolated tandem-mounting method is employed, you can sequentially install switches one by one. For the final one, place a part of the center barrier in the mounting hole beforehand, and then insert the switch into the mounting hole so that the end barrier is in close contact with the main body of the switch (procedure: Fig.2 to Fig.1)
- To remove a switch which has been installed in the standard mounting or barrier-isolated single-unit mounting method, push out the switch by pushing it from the back of the panel while holding the panel by pushing it inward.
- To remove switches which have been installed in the barrier-isolated tandem-mounting method, proceed as follows: disengage the rear of the barrier on both sides of the switch to be removed so that the barriers are attached to the switch and, push the switch outward from the back of the panel while holding the front of the mounting panel firm, and take out the switch by opening the barriers by bending them to both sides on the front side of the panel (procedure: Fig.1 to Fig.2)

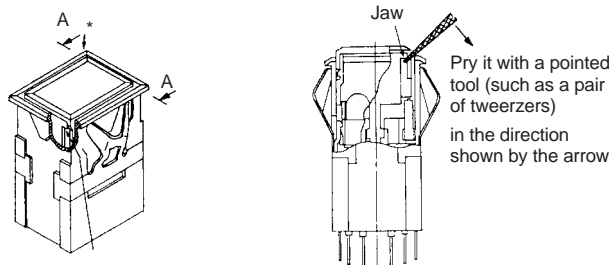
#### ■ Operating voltage and rated voltage of incandescent lamps

| Rated voltage  | Operating voltage |
|----------------|-------------------|
| 6V             | 4 to 5V           |
| 14V            | 10 to 12V         |
| 18V            | 12 to 15V         |
| 28V (Standard) | 20 to 24V         |

Incandescent lamps should be operated at the operating voltages if a lamp service life of 5,000 to 10,000 hours are needed. The ambient temperature must not exceed 30°C if the lamp is used at the rated voltage continuously.

#### ■ Removing the lighting unit...AG23 (Oblong)

To remove the lighting unit, refer to the illustrations given in the below. (Especially when removing the unit installed on a panel)



Remarks\*The unit has two jaws at lower left as indicated with the asterisks

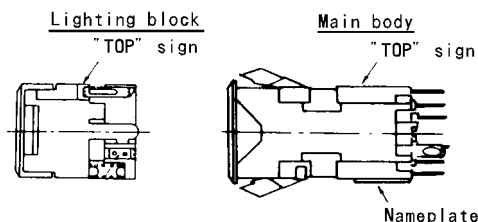
Cross section A-A (main components only)

#### ■ Lamp replacement (For illuminated pushbutton and pilot lights)

To replace a lamp, pull out the entire lighting unit and replace the lamp from the back of the lamp holder. Install the lighting unit so that it conforms with the contact end inside the switch main-body. The inserting force must not be greater than 60N.

#### ■ Installing the lighting section

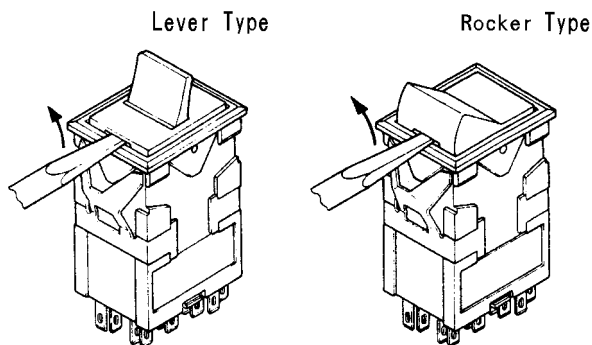
Install the lighting unit aligning the "TOP" display on the lighting unit and switch main-body as shown in the below.



Do not push the internal mechanism of the switch main body while the lamp unit has been removed. Deformation of contact piece for the lamp may result in poor lighting or malfunction.

#### ■ Replacing the lamp (Lever type or rocker type)

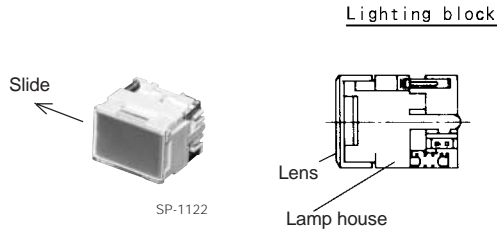
To remove the lamp, remove the lens by using a screwdriver or other pointed tool (see the illustrations in the below) and then pull out the lamp by using a lamp remover (Type AHX672). To install the lamp, insert it with your fingers and then put back the lens.



# Illuminated Switches/Pilot Lights AG22 and AG23 Notes on use

## Removeing or installing the lens

To remove the lens, slide it horizontally. To install the lens, align it with the lamp house and insert it from the top.



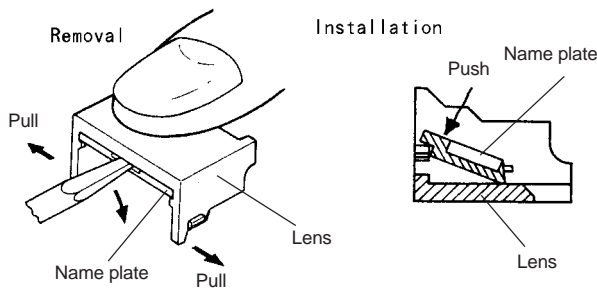
## Installing the color plate and nameplate

Install the color plate and Nameplate in the lens section with their grained surfaces directed inward.

## Removeing or installing the nameplate (Lever type)

To remove the nameplate from the lens, press the studs of the lens against a flat plane so that the lens is widened slightly, and insert a screwdriver or other pointed tool into the groove of the nameplate. (See the illustration in the below.)

To install the nameplate into the cover, put the end of the nameplate in the cover and then press the nameplate into the cover by pinching them with your fingers. (See the illustration in the below.)



## Contact block

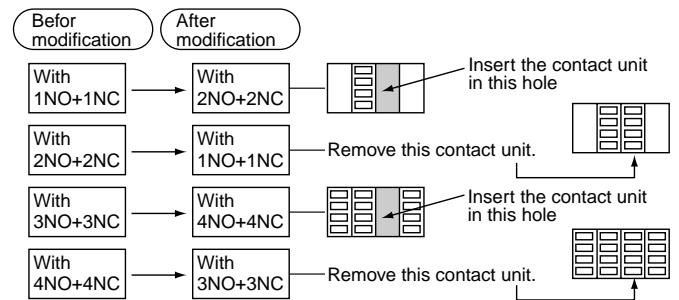
To replace a contact block, use removing tool AGX012. If excessive force is applied when attempting to open the support legs for the contact block holder, deformation or damage may occur.

## Contacts configuration modifications

Note that there are certain restrictions on contact configuration modifications.

No modifications other than those below are available. Although it is not impossible to modify a switch with 3a3b or 4a4b into that with 2a2b, do not attempt this modification because the layout of the contacts of the former differs from that of the latter.

Caution: never remove any of the contact units or dummy units which are located at both ends. If you do, the main units of the switches may be damaged, may become unable to be installed, or other troubles may result.



## Wiring connections

- Use a soldering iron with a wattage of not more than 30W and a tip length of more than 20mm. Use a rosin-core solder. With a 30W iron complete soldering within 5 seconds, or 10 seconds with a 20W iron. Do not apply external force to the terminals. Do not deform the terminals. Because lead-free solder's melting point is slightly high, soldering work may be difficult. Use a soldering iron whose tip is rather large or whose calorie is rather high.
- Wires that can be connected
  - Two solid wires with a maximum diameter of 0.8mm (solder)
  - One stranded wire with a maximum area of 0.75mm<sup>2</sup> (solder)
- Using contact blocks
  - When using NO and NC contacts in the same contact block, avoid connection that involves opposite polarity or wiring from different types of power supply.
- For wiring to adjacent terminals, use insulated tubing to prevent short-circuit and to assure isolation. For solder terminals, be careful when connecting thick wires. Do not use too much solder.

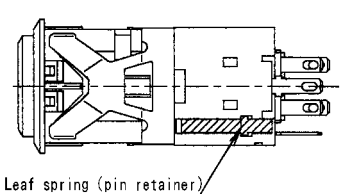
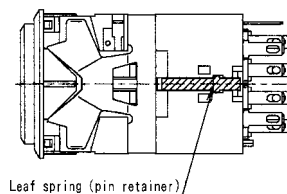
## Installing lamps in close order

When continuously lighting pilot lights or pressing illuminated pushbuttons installed in close order, care must be taken that the ambient temperature does not exceed the rated value.

## Alternate types

AG23-L5

AG22-L5



Do not open/close the switch with its leaf spring held pressed. If you do, the alternate mechanism can be damaged.

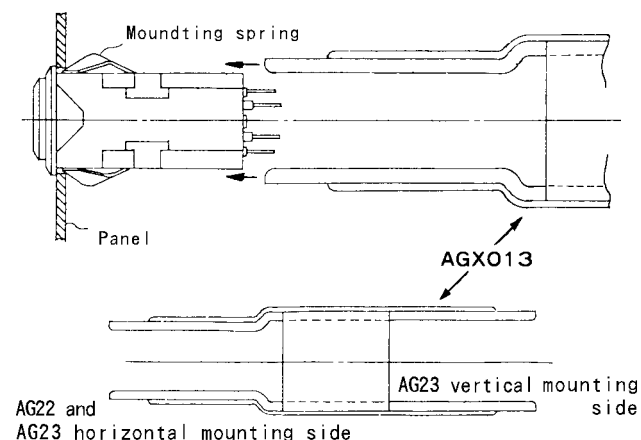
# Illuminated Switches/Pilot Lights

## AG22 and AG23

### Notes on use

#### ■ Dismounting the switch (Main body)

- ① To remove the main body of a rectangular command switch installed on a panel, bend the mounting springs and push them outside of the main body. If it is densely packed with other devices, use the removing tool (Type AGX013) for ease of removal.
- ② For how to use the removing tool, see the illustration in the below. Insert the tool from back of the switch (main-body) and then push out the switch.



#### ■ Operation

Do not use a hitting or bouncing action to operate the button, or the switch may break. Always operate the switch by hand.




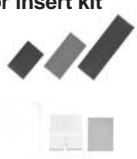

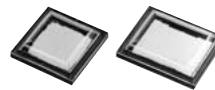
#### ■ Storage and operating environment


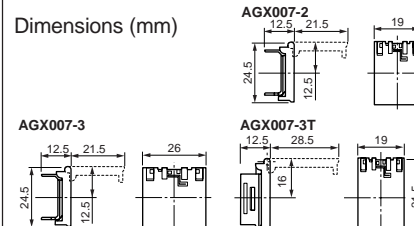



Observe the operating ambient temperature and humidity specifications indicated in the catalog or other related material. Do not use the switches in a location where they are exposed to being splashed with oil or water. The location must not be dusty.

- If it is inevitable that the installed switches will be exposed to dust or metallic particles caused by factory installation work or other tasks, cover the switches with suitable sheets to protect them.
- If using the switches in a dusty atmosphere cannot be avoided protect the switches with dust covers.

# Illuminated Switches/Pilot Lights AG22 and AG23 Accessories

## ■ Accessories


| Description   | Type   |                   |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|---|--|-------------------|-----------|-----------------|---------------|-----------------|------------------|--------|-------------|------------------|---------------|--------|------------------|-------------|-----------|------------------|--|-------------|------------------|----------|-------------|------------------|-------------|-------|-------------------|----------|------|-------------------|----------|-------------|-------------------|----------|------|-------------------|--------------|-------|-------------------|----------|------|-------------------|-----------|-------|-------------------|----------|------|-------------------|
| <b>Barrier</b><br><br><small>SM-337</small><br><br><small>SM-313</small>                | <table border="1"> <thead> <tr> <th></th> <th>Color</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>For AG22</td> <td></td> <td></td> </tr> <tr> <td>Center</td> <td>Black</td> <td><b>AGX008-CB</b></td> </tr> <tr> <td>-barrier</td> <td>Gray</td> <td><b>AGX008-CH</b></td> </tr> <tr> <td>End-barrier</td> <td>Black</td> <td><b>AGX008-EB</b></td> </tr> <tr> <td></td> <td>Gray</td> <td><b>AGX008-EH</b></td> </tr> <tr> <td>For AG23</td> <td></td> <td></td> </tr> <tr> <td>Long center</td> <td>Black</td> <td><b>AGX003-LCB</b></td> </tr> <tr> <td>-barrier</td> <td>Gray</td> <td><b>AGX003-LCH</b></td> </tr> <tr> <td>Long end</td> <td>Black</td> <td><b>AGX003-LEB</b></td> </tr> <tr> <td>-barrier</td> <td>Gray</td> <td><b>AGX003-LEH</b></td> </tr> <tr> <td>Short center</td> <td>Black</td> <td><b>AGX003-SCB</b></td> </tr> <tr> <td>-barrier</td> <td>Gray</td> <td><b>AGX003-SCH</b></td> </tr> <tr> <td>Short end</td> <td>Black</td> <td><b>AGX003-SEB</b></td> </tr> <tr> <td>-barrier</td> <td>Gray</td> <td><b>AGX003-SEH</b></td> </tr> </tbody> </table> |                   | Color     | Type            | For AG22      |                 |                  | Center | Black       | <b>AGX008-CB</b> | -barrier      | Gray   | <b>AGX008-CH</b> | End-barrier | Black     | <b>AGX008-EB</b> |  | Gray        | <b>AGX008-EH</b> | For AG23 |             |                  | Long center | Black | <b>AGX003-LCB</b> | -barrier | Gray | <b>AGX003-LCH</b> | Long end | Black       | <b>AGX003-LEB</b> | -barrier | Gray | <b>AGX003-LEH</b> | Short center | Black | <b>AGX003-SCB</b> | -barrier | Gray | <b>AGX003-SCH</b> | Short end | Black | <b>AGX003-SEB</b> | -barrier | Gray | <b>AGX003-SEH</b> |
|   | Color  | Type              |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG22  |  |                   |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| Center  | Black  | <b>AGX008-CB</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| -barrier  | Gray   | <b>AGX008-CH</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| End-barrier   | Black  | <b>AGX008-EB</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | Gray   | <b>AGX008-EH</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG23  |  |                   |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| Long center   | Black  | <b>AGX003-LCB</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| -barrier  | Gray   | <b>AGX003-LCH</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| Long end  | Black  | <b>AGX003-LEB</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| -barrier  | Gray   | <b>AGX003-LEH</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| Short center  | Black  | <b>AGX003-SCB</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| -barrier  | Gray   | <b>AGX003-SCH</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| Short end   | Black  | <b>AGX003-SEB</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| -barrier  | Gray   | <b>AGX003-SEH</b> |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| <b>Bezel</b><br><br><small>SM-354</small>  | <table border="1"> <thead> <tr> <th></th> <th>Color</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>For AG22</td> <td>Black</td> <td><b>AGX010-2B</b></td> </tr> <tr> <td></td> <td>Gray</td> <td><b>AGX010-2H</b></td> </tr> <tr> <td>For AG23</td> <td>Black</td> <td><b>AGX010-3B</b></td> </tr> <tr> <td></td> <td>Gray</td> <td><b>AGX010-3H</b></td> </tr> </tbody> </table>  |                   | Color     | Type            | For AG22      | Black           | <b>AGX010-2B</b> |        | Gray        | <b>AGX010-2H</b> | For AG23      | Black  | <b>AGX010-3B</b> |             | Gray      | <b>AGX010-3H</b> |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | Color  | Type              |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG22  | Black  | <b>AGX010-2B</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | Gray   | <b>AGX010-2H</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG23  | Black  | <b>AGX010-3B</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | Gray   | <b>AGX010-3H</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| <b>Color insert kit</b><br><br><p>This kit contains green, red, white, orange and blue color-inserts, legend plates and light baffle plates.<br/>See page 04CD/1/8</p> | <table border="1"> <thead> <tr> <th></th> <th>Split</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>For AG22-L, Z</td> <td>Full face</td> <td><b>AGX019-2A</b></td> </tr> <tr> <td></td> <td>2-way split</td> <td><b>AGX019-2B</b></td> </tr> <tr> <td>For AG23-L, Z</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Full face</td> <td><b>AGX019-3A</b></td> </tr> <tr> <td></td> <td>2-way split</td> <td><b>AGX019-3B</b></td> </tr> <tr> <td></td> <td>3-way split</td> <td><b>AGX019-3C</b></td> </tr> <tr> <td></td> <td></td> <td><b>AGX019-3D</b></td> </tr> <tr> <td></td> <td></td> <td><b>AGX019-3E</b></td> </tr> <tr> <td></td> <td>4-way split</td> <td><b>AGX019-3F</b></td> </tr> <tr> <td></td> <td></td> <td><b>AGX019-3G</b></td> </tr> </tbody> </table>  |                   | Split     | Type            | For AG22-L, Z | Full face       | <b>AGX019-2A</b> |        | 2-way split | <b>AGX019-2B</b> | For AG23-L, Z |        |                  |             | Full face | <b>AGX019-3A</b> |  | 2-way split | <b>AGX019-3B</b> |          | 3-way split | <b>AGX019-3C</b> |             |       | <b>AGX019-3D</b>  |          |      | <b>AGX019-3E</b>  |          | 4-way split | <b>AGX019-3F</b>  |          |      | <b>AGX019-3G</b>  |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | Split  | Type              |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG22-L, Z   | Full face  | <b>AGX019-2A</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | 2-way split  | <b>AGX019-2B</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG23-L, Z   |  |                   |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | Full face  | <b>AGX019-3A</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | 2-way split  | <b>AGX019-3B</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | 3-way split  | <b>AGX019-3C</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   |  | <b>AGX019-3D</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   |  | <b>AGX019-3E</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | 4-way split  | <b>AGX019-3F</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   |  | <b>AGX019-3G</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| <b>Legend plate</b><br><br><small>SM-355</small>   | <table border="1"> <thead> <tr> <th></th> <th>Color</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>For AG22-L, Z</td> <td>Clear*</td> <td><b>AGX009-2C</b></td> </tr> <tr> <td></td> <td>White</td> <td><b>AGX009-2W</b></td> </tr> <tr> <td>For AG23-L, Z</td> <td>Clear*</td> <td><b>AGX009-3C</b></td> </tr> <tr> <td></td> <td>White</td> <td><b>AGX009-3W</b></td> </tr> </tbody> </table> <p>*:Standard<br/>Dimension (mm)<br/> <ul style="list-style-type: none"> <li>• 15sq.×1 (AGX009-2)</li> <li>• 15×23×1 (AGX009-3)</li> </ul> </p>  |                   | Color     | Type            | For AG22-L, Z | Clear*          | <b>AGX009-2C</b> |        | White       | <b>AGX009-2W</b> | For AG23-L, Z | Clear* | <b>AGX009-3C</b> |             | White     | <b>AGX009-3W</b> |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | Color  | Type              |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG22-L, Z   | Clear*   | <b>AGX009-2C</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | White  | <b>AGX009-2W</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| For AG23-L, Z   | Clear*   | <b>AGX009-3C</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
|   | White  | <b>AGX009-3W</b>  |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| <b>Dust-tight cover</b><br><br><small>SM-1528</small>  | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AGX011-3</b></td> <td>AG23-L</td> </tr> <tr> <td><b>AGX011-2</b></td> <td>AG22-L</td> </tr> </tbody> </table>  | Type              | Used with | <b>AGX011-3</b> | AG23-L        | <b>AGX011-2</b> | AG22-L           |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| Type  | Used with  |                   |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| <b>AGX011-3</b>   | AG23-L   |                   |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |
| <b>AGX011-2</b>   | AG22-L   |                   |           |                 |               |                 |                  |        |             |                  |               |        |                  |             |           |                  |  |             |                  |          |             |                  |             |       |                   |          |      |                   |          |             |                   |          |      |                   |              |       |                   |          |      |                   |           |       |                   |          |      |                   |

| Description  | Type   |                  |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
|--|--|------------------|-------|------------|-----------------|------------|------------------|--|------------------|------------------|----------|-------|------------------|--|------|------------------|
| <b>Protection cover</b><br><br><small>SM-375</small>   | <table border="1"> <thead> <tr> <th></th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>For AG22-L</td> <td><b>AGX007-2</b></td> </tr> <tr> <td>For AG23-L</td> <td><b>AGX007-3</b></td> </tr> <tr> <td></td> <td><b>AGX007-3T</b></td> </tr> </tbody> </table> <p>(vertical mounting)<br/>The cover protects against accidental operation.<br/>The cover lid is returned home with a spring force.</p> <p>Dimensions (mm)</p>  |                  | Type  | For AG22-L | <b>AGX007-2</b> | For AG23-L | <b>AGX007-3</b>  |  | <b>AGX007-3T</b> |                  |          |       |                  |  |      |                  |
|  | Type   |                  |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
| For AG22-L   | <b>AGX007-2</b>  |                  |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
| For AG23-L   | <b>AGX007-3</b>  |                  |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
|  | <b>AGX007-3T</b>   |                  |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
| <b>Panel plug</b><br><br><small>SM-338</small>        | <table border="1"> <thead> <tr> <th></th> <th>Color</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>For AG22</td> <td>Black</td> <td><b>AGX006-2B</b></td> </tr> <tr> <td></td> <td>Gray</td> <td><b>AGX006-2H</b></td> </tr> <tr> <td>For AG23</td> <td>Black</td> <td><b>AGX006-3B</b></td> </tr> <tr> <td></td> <td>Gray</td> <td><b>AGX006-3H</b></td> </tr> </tbody> </table>  |                  | Color | Type       | For AG22        | Black      | <b>AGX006-2B</b> |  | Gray             | <b>AGX006-2H</b> | For AG23 | Black | <b>AGX006-3B</b> |  | Gray | <b>AGX006-3H</b> |
|  | Color  | Type             |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
| For AG22   | Black  | <b>AGX006-2B</b> |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
|  | Gray   | <b>AGX006-2H</b> |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
| For AG23   | Black  | <b>AGX006-3B</b> |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
|  | Gray   | <b>AGX006-3H</b> |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
| <b>Contact block</b><br><br><small>KKD06-305</small> | <p><b>AGX001</b></p> <p>Soldering/Tab use</p>  |                  |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |
| <b>Dummy unit</b><br>                                | <p><b>AGX002</b></p> <p>The dummy unit installs in the part which does not use the contact unit.</p>   |                  |       |            |                 |            |                  |  |                  |                  |          |       |                  |  |      |                  |


# Illuminated Switches/Pilot Lights


## AG22 and AG23


### Accessories


| Description  | Type                         |                 |        |               |
|--|------------------------------|-----------------|--------|---------------|
| <b>Lens</b><br>For AG23-HL<br><br><br><br>SP-124 | Type                         |                 | Color  | Split         |
|  | Incandescent, Flat LED       | Spot LED        |        |               |
|  | <b>AGX034-R</b>              | <b>AGX038-R</b> | Red    | Two-way split |
|  | <b>AGX034-G</b>              | <b>AGX038-G</b> | Green  |               |
|  | <b>AGX034-W</b>              | <b>AGX038-W</b> | White  |               |
|  | <b>AGX034-Y</b>              | <b>AGX038-Y</b> | Yellow |               |
|  | <b>AGX034-S<sup>*1</sup></b> | —               | Blue   |               |
|  | <b>AGX034-O</b>              | <b>AGX038-O</b> | Orange |               |
| <b>AGX034-B<sup>*2</sup></b>   | —                            | Black           |        |               |
| <sup>*1</sup> Used with the incandescent lamp only<br><sup>*2</sup> Used with non illuminated side of spot LED(1-lamp types)     |                              |                 |        |               |


| Description   | Type                         |                 |        |           |
|---|------------------------------|-----------------|--------|-----------|
| <b>Lens</b><br>For AG23-RL<br><br><br><br><br><br>SP-123 | Type                         |                 | Color  | Split     |
|   | Incandescent, Flat LED       | Spot LED        |        |           |
|   | <b>AGX032-R</b>              | —               | Red    | Full face |
|   | <b>AGX032-G</b>              | —               | Green  |           |
|   | <b>AGX032-W</b>              | —               | White  |           |
|   | <b>AGX032-Y</b>              | —               | Yellow |           |
|   | <b>AGX032-S<sup>*1</sup></b> | —               | Blue   |           |
|   | <b>AGX032-O</b>              | —               | Orange |           |
|   | <b>AGX033-R</b>              | <b>AGX037-R</b> | Red    | Two-split |
|   | <b>AGX033-G</b>              | <b>AGX037-G</b> | Green  |           |
|   | <b>AGX033-W</b>              | <b>AGX037-W</b> | White  |           |
|   | <b>AGX033-Y</b>              | <b>AGX037-Y</b> | Yellow |           |
|   | <b>AGX033-S<sup>*1</sup></b> | —               | Blue   |           |
|   | <b>AGX033-O</b>              | <b>AGX037-O</b> | Orange |           |
|   | <b>AGX033-B<sup>*2</sup></b> | —               | Black  |           |
| <sup>*1</sup> Used with the incandescent lamp only<br><sup>*2</sup> Used with non illuminated side of spot LED(1-lamp types)  |                              |                 |        |           |


| Description   | Type  |
|---|---|
| <b>Legend plate</b><br>For AG23-HL<br><br><br><br>SP-115 | <b>AGX036-W</b><br><br>Dimension (mm)<br>8.5×16.5×2 |


| Description   | Type  |
|---|---|
| <b>Legend plate</b><br>For AG23-RL<br><br><br><br>SP-116 | <b>AGX035-W</b><br><br>Dimension (mm)<br>9.5×16×8.5 |

| Description   | Type   |
|---|--|
| <b>Remover</b><br><br><br><br>SM-334, 335 | For contact unit<br><b>AGX012</b><br>For body<br><b>AGX013</b> |

| Description  | Type   |
|--|--|
| <b>Remover</b><br><br><br><br>SP-1142 | <b>AGX039</b><br><br>This tool is used to remove the indicator of illuminated pushbutton or pilot light. |

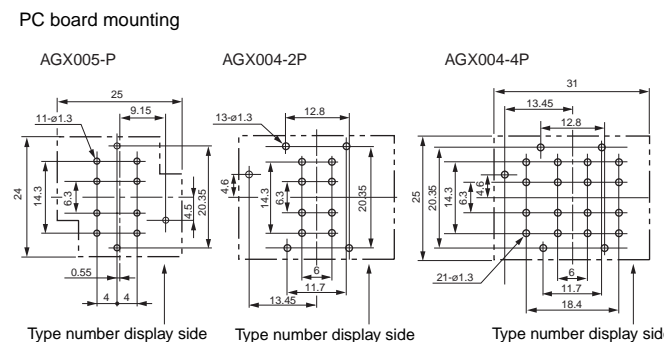
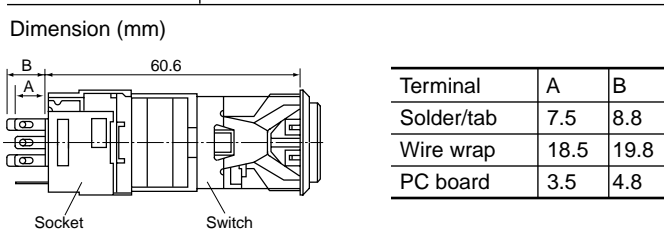
| Description   | Type  |
|---|---|
| <b>Lamp changer</b><br>For AG23-HL, RL<br><br><br><br>AF02-117 | <b>Type: AHX672</b><br><br>If the switch is fitted with a lamp, use this tool to remove the lamp. The tool is unnecessary when installing a lamp. |

| Description  | Voltage   | Type          |
|--|-----------|---------------|
| <b>Incandescent lamp</b><br><br><br><br>KKD06-333 | 6V, 0.6W  | <b>AHX641</b> |
|  | 14V, 0.7W | <b>AHX642</b> |
|  | 18V, 0.7W | <b>AHX612</b> |
|  | 28V, 0.7W | <b>AHX643</b> |

| Socket<br>AGX005   | Terminal        | Type             | Contact arrangement | Used with |
|--|-----------------|------------------|---------------------|-----------|
|  | Solder/tab      | <b>AGX005-S</b>  | 1a1b                | AG22      |
| Wire wrap  | <b>AGX005-W</b> | 2a2b             |                     |           |
| PC board   | <b>AGX005-P</b> |                  |                     |           |
| <br><br>AF02-129 | Solder/tab      | <b>AGX004-2S</b> | 1a1b                | AG23      |
|  | Wire wrap       | <b>AGX004-2W</b> | 2a2b                |           |
|  | PC board        | <b>AGX004-2P</b> |                     |           |
|  | Solder/tab      | <b>AGX004-4S</b> | 3a3b                |           |
|  | Wire wrap       | <b>AGX004-4W</b> | 4a4b                |           |
|  | PC board        | <b>AGX004-4P</b> |                     |           |

| Wire size     | Bit   | Sleeve | Number of effective wraps |
|---------------|-------|--------|---------------------------|
| 0.4mm dia.    | 3-A   | 1-B    | About 8                   |
| 0.5mm dia.    | 1-A   | 2-B    | About 6                   |
| (0.65mm dia.) | (2-A) | (2-B)  | (About 6)                 |

Use ordinary wrapping for connection. Wires of 0.65mm dia. must not be used on adjacent terminals. However, 0.65mm dia. wire can be mixed with 0.4mm and 0.5mm dia. wires.





Illuminated Switches/Pilot Lights  
**AG22 and AG23**  
**Mass**

■ Mass, gram

| Lamp type         | Illuminated pushbuttons | 1NO      | 2NO      | 3NO      | 4NO      | Pilot lights |             | Illuminated rocker and lever switches |      | 1NO      | 2NO      | 3NO      | 4NO      |
|-------------------|-------------------------|----------|----------|----------|----------|--------------|-------------|---------------------------------------|------|----------|----------|----------|----------|
|                   |                         | +<br>1NC | +<br>2NC | +<br>3NC | +<br>4NC |              |             |                                       |      | +<br>1NC | +<br>2NC | +<br>3NC | +<br>4NC |
| Incandescent lamp | AG22-LA, L5A            | 21.5     | 22.5     | –        | –        | AG22-ZA      | 18.5        | AG23-RL-1                             | 26   | 27       | 28       | 29       |          |
|                   | B, L5B                  | 22.5     | 23.5     | –        | –        | B            | 19.3        | AG23-RL-2                             | 28   | 29       | 30       | 31       |          |
|                   | AG23-LA, L5A            | 27       | 28       | 29       | 30       | AG23-ZA      | 23.5        | AG23-HL-1                             | 26   | 27       | 28       | 29       |          |
|                   | B, L5B                  | 29.2     | 30.2     | 31.2     | 32.2     | B            | 25.7        | AG23-HL-2                             | 28   | 29       | 30       | 31       |          |
|                   | C, L5C                  | 29.2     | 30.2     | 31.2     | 32.2     | C            | 25.7        |                                       |      |          |          |          |          |
|                   | D, L5D                  | 29.4     | 30.4     | 31.4     | 32.4     | D            | 25.9        |                                       |      |          |          |          |          |
|                   | E, L5E                  | 29.4     | 30.4     | 31.4     | 32.4     | E            | 25.9        |                                       |      |          |          |          |          |
| F, L5F            | 29.5                    | 30.5     | 31.5     | 32.5     | F        | 26           |             |                                       |      |          |          |          |          |
| LED lamp          | *1AG22-LA, L5A          | 21.8     | 22.8     | –        | –        | *2AG22-ZA    | 19          | AG23-RL-2-1                           | 25   | 26       | 27       | 28       |          |
|                   | B, L5B                  | 22.2     | 23.2     | –        | –        | B            | 19          | AG23-RL-2-2                           | 27.5 | 28.5     | 29.5     | 30.5     |          |
|                   | *2AG23-LA, L5A          | 27.5     | 28.5     | 29.5     | 30.5     | *2AG23-ZA    | 24          | AG23-RL-3-1                           | 25.5 | 27.2     | 27.5     | 28.5     |          |
|                   | B, L5B                  | 28       | 29       | 30       | 31       | B            | 24.5        | AG23-RL-3-2                           | 28   | 29       | 30       | 31       |          |
|                   | C, L5C                  | 28       | 29       | 30       | 31       | C            | 24.5        | AG23-HL-2-1                           | 25   | 26       | 27       | 28       |          |
|                   | D, L5D                  | 28.2     | 29.2     | 30.2     | 31.2     | D            | 24.7        | AG23-HL-2-2                           | 27.5 | 28.5     | 29.5     | 30.5     |          |
|                   | E, L5E                  | 28.2     | 29.2     | 30.2     | 31.2     | E            | 24.7        | AG23-HL-3-1                           | 25.5 | 26.5     | 27.5     | 28.5     |          |
| F, L5F            | 28.3                    | 29.3     | 30.3     | 31.3     | F        | 24.8         | AG23-HL-3-2 | 28                                    | 29   | 30       | 31       |          |          |

L5: Alternate action

\*1 Combined indicators and contact unit. \*2 Combined indicators and sockets.

# Pushbuttons/Selectors/Pilot Lights AM22 and DM22 General information

The full range of the contact blocks and transformer units suitable for the AR22 and DR22 series may also be fitted to the AM22 and DM22 series.

## ■ Features

### Quick-replacement contact blocks and transformer units

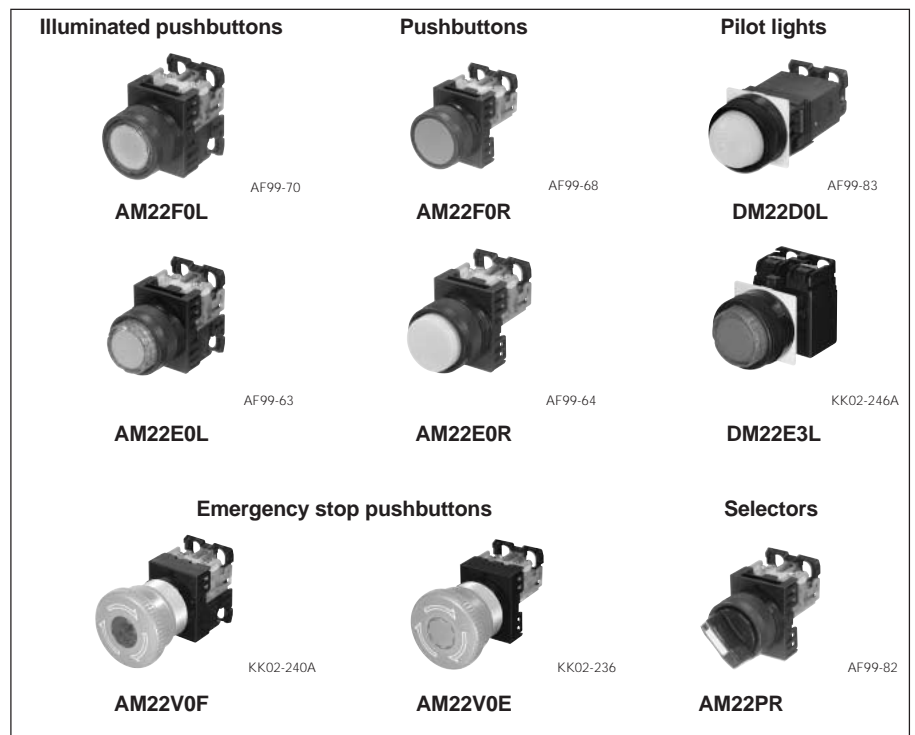
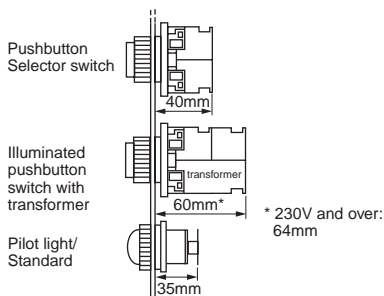
The snap-on construction makes replacement and addition of contact blocks and transformer units very simple and straightforward.

### Oil-and dust-proof operator module construction

The protection level of the AM22/DM22 operator modules conforms to IEC Standard IP65. The special seals protect the operator modules and switch mechanisms against oil, dust, and grime, thus ensuring high performance in dusty and moist environments.

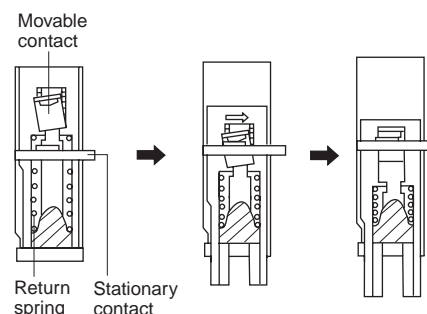
### Miniaturization

- Pushbutton and selector switches with 1NO+1NC: 40mm deep
- Pilot lights: 35mm deep
- The transformer now occupies far less space.



### Self-cleaning contacts

All the contacts are double break type and feature self-cleaning action. Every time the switch is operated, the contact surfaces are wiped with a sliding movement, thus ensuring high contact reliability even at low voltage and small current levels (5V, 5mA).



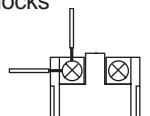
### Metal nut

Safer model with metal nut is also available



### Wiring

- Wiring from two directions is possible.
- Wiring in both vertical and lateral directions facilitates wiring in narrow spaces.
- Color coding of contact blocks makes wiring easy.  
1NO: Blue, 1NC: Red  
Lamp terminal and transformer unit: Black



### Safety

- A terminal cover is provided, assuring safety and security.
- FUJI's original Trigger Action mechanism is used in the emergency stop pushbuttons. They are suitable for emergency stop and safety. This mechanism prevents the contacts from moving until the button is pushed and locked.

### Protection

- Excellent oil-tight construction (IP65) of the operator.
- Closure of the contact block has been improved.

### ■ Approvals



For further information related to approved type, see page 04CD/2/2 to 04CD/2/3.















# Pushbuttons/Selectors/Pilot Lights




## AM22 and DM22

### Quick reference guide







#### ■ Illuminated pushbutton switches


| Operator  | Type  | Operator   | Type  | Operator  | Type  |
|---|---|--|---|---|---|
| Flush round head<br><br><i>See page 04CD/2/13, 04CD/2/29</i><br>    | <b>AM22F0L, F5L</b><br><br>AF99-70 | Mushroom head (40mm dia.)<br><br><i>See page 04CD/2/13, 04CD/2/29</i><br> | <b>AM22M0L, M5L</b><br><br>AF99-59 | Extended with transparent full guard<br><br><i>See page 04CD/2/14, 04CD/2/29</i><br>     | <b>AM22G4L, G9L</b><br><br>AF99-66 |
| Extended round head<br><br><i>See page 04CD/2/13, 04CD/2/29</i><br> | <b>AM22E0L, E5L</b><br><br>AF99-63 | Mushroom head (29mm dia.)<br><br><i>See page 04CD/2/13, 04CD/2/29</i><br> | <b>AM22M4L, M9L</b><br><br>AF99-61 | Extended with full guard (With openings)<br><br><i>See page 04CD/2/14, 04CD/2/29</i><br> | <b>AM22G2L, G7L</b><br><br>AF99-69 |

#### ■ Pushbutton switches

| Operator  | Type  | Operator   | Type  | Operator   | Type  |
|---|---|--|---|--|---|
| Flush round head<br><br><i>See page 04CD/2/15, 04CD/2/30</i><br>    | <b>AM22F0R, F5R</b><br><br>AF99-68 | Mushroom head (40mm dia.)<br><br><i>See page 04CD/2/15, 04CD/2/30</i><br> | <b>AM22M0R, M5R</b><br><br>AF99-58 | Extended with full guard (24mm dia.)<br><br><i>See page 04CD/2/15, 04CD/2/30</i><br>      | <b>AM22G3R, G8R</b><br><br>AF99-65 |
| Extended round head<br><br><i>See page 04CD/2/15, 04CD/2/30</i><br> | <b>AM22E0R, E5R</b><br><br>AF99-64 | Mushroom head (29mm dia.)<br><br><i>See page 04CD/2/15, 04CD/2/30</i><br> | <b>AM22M4R</b><br><br>AF99-67      | Mushroom head with full guard (40mm dia.)<br><br><i>See page 04CD/2/15, 04CD/2/30</i><br> | <b>AM22M3R, M8R</b><br><br>AF99-89 |

#### ■ Emergency stop pushbutton switches (conform to EN418)

| Operator   | Type   | Operator  | Type   | Operator   | Type   |
|--|--|---|--|--|--|
| Push-lock, turn-reset (40mm dia. with white arrow)<br><br><i>See page 04CD/2/16, 04CD/2/31</i><br> | <b>AM22V0E</b><br><br>KK02-236A | Push-lock, turn-reset (29mm dia. with white arrow)<br><br><i>See page 04CD/2/16, 04CD/2/31</i><br> | <b>AM22V5E</b><br><br>KK02-237A | Push-lock, turn-reset (40mm dia. with mechanical indicator)<br><br><i>See page 04CD/2/16, 04CD/2/31</i><br> | <b>AW22VME</b><br><br>KKD07-091 |





Note  : See page 04CD/2/50

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22





### Quick reference guide

#### ■ Emergency stop illuminated pushbutton switches (conform to EN418)



| Operator   | Type   | Operator  | Type  | Operator  | Type   |
|--|--|---|---|---|--|
| Push-lock, turn-reset<br>(40mm dia. with white arrow)                              | <b>AM22V0F</b>   | Push-lock, turn-reset<br>(29mm dia. with white arrow) | <b>AM22VSF</b>  | Push-lock, turn-reset<br>(40mm dia. transparent in all colors with white arrow) | <b>AM22VDF</b>   |
| <i>See page 04CD/2/17, 04CD/2/32</i>   | <br>KK02-339A | <i>See page 04CD/2/17, 04CD/2/32</i>                  | <br>KK02-241A | <i>See page 04CD/2/17, 04CD/2/32</i>  | <br>KK02-243A |
|  |  |   |   |   |  |

Note: Provided with the  (Direct opening action)


#### ■ Selector switches

| Operator  | Type   | Operator                             | Type   | Operator                             | Type   |
|---|--|--------------------------------------|--|--------------------------------------|--|
| Knob  | <b>AM22PR, PCR</b>   | Lever                                | <b>AM22WR, WCR</b>   | Key                                  | <b>AM22JR, JCR</b>   |
| <i>See page 04CD/2/18, 04CD/2/33</i>  | <br>AF99-82 | <i>See page 04CD/2/18, 04CD/2/33</i> | <br>AF99-76 | <i>See page 04CD/2/18, 04CD/2/33</i> | <br>KKD09-014 |
|  |  |                                      |  |                                      |  |

#### ■ Illuminated selector

| Operator  | Type   |
|---|--|
| Knob  | <b>AM22PL</b>  |
| <i>See page 04CD/2/25, 04CD/2/34</i>  | <br>AF99-79 |
|  |  |

#### ■ Pilot lights

| Operator   | Type   | Operator                             | Type  | Operator                             | Type   |
|--|--|--------------------------------------|---|--------------------------------------|--|
| Dome   | <b>DM22D0L</b>   | Extended round                       | <b>DM22E3L</b>  | Faceted                              | <b>DM22K0L</b>   |
| <i>See page 04CD/2/27, 04CD/2/34</i>   | <br>AF99-88 | <i>See page 04CD/2/27, 04CD/2/35</i> | <br>AF99-85 | <i>See page 04CD/2/27, 04CD/2/35</i> | <br>AF99-87 |
|  |  |                                      |   |                                      |  |

Notes: With resistor unit type: Not approved standard

 : *See page 04CD/2/50*

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Type number nomenclature

#### Illuminated pushbuttons

#### AM22 E0L – 10 E3 R □

① ② ③ ④ ⑤ ⑥

##### ① Product category

AM22: 22mm-dia. illuminated pushbutton  
22mm-dia. emergency stop illuminated pushbutton

##### ② Operator

- Illuminated pushbutton
- F0L: Flush round head
- F5L: Flush round head (Alternate)
- E0L: Extended round head
- E5L: Extended round head (Alternate)
- M0L: Mushroom head (40mm dia.)
- M5L: Mushroom head (40mm dia. alternate)
- M4L: Mushroom head (29mm dia.)
- M9L: Mushroom head (29mm dia. alternate)
- G4L: Extended with transparent full guard
- G9L: Extended with transparent full guard (Alternate)
- G2L: Extended with full guard (With openings)
- G7L: Extended with full guard (With openings, alternate)
- Emergency stop illuminated pushbutton
- V0F: Push-lock, turn-reset (40mm dia. with white arrow)
- V5F: Push-lock, turn-reset (29mm dia. with white arrow)
- VDF: Push-lock, turn-reset (40mm dia. transparent in all colors with white arrow)

##### ③ Contact arrangement

|             |             |
|-------------|-------------|
| 10: 1NO     | 30: 3NO     |
| 01: 1NC     | 03: 3NC     |
| 11: 1NO+1NC | 33: 3NO+3NC |
| 20: 2NO     | 40: 4NO     |
| 02: 2NC     | 04: 4NC     |
| 22: 2NO+2NC | 50: 5NO     |
|             | 05: 5NC     |

##### ④ Lamp voltage

- Incandescent lamp \*1
- 54: 5.5V AC/DC, without transformer
- C4: 15V AC/DC, without transformer
- D4: 20V AC/DC, without transformer
- E4: 24V AC/DC, without transformer
- H4: 100-110V AC, with transformer
- L4: 115-127V AC, with transformer
- M4: 200-220V AC, with transformer
- Q4: 230-254V AC, with transformer
- S4: 350-380V AC, with transformer
- T4: 400-440V AC, with transformer
- V4: 480V AC, with transformer
- W4: 500-550V AC, with transformer
- LED lamp
- A3: 6V AC, without transformer
- 63: 6V DC, without transformer \*1
- B3: 12V AC/DC, without transformer \*1
- C3: 15V AC/DC, without transformer \*1
- E3: 24V AC/DC, without transformer
- H3: 100-110V AC, with transformer
- L3: 115-127V AC, with transformer
- M3: 200-220V AC, with transformer
- Q3: 230-254V AC, with transformer
- S3: 350-380V AC, with transformer
- T3: 400-440V AC, with transformer
- V3: 480V AC, with transformer
- W3: 500-550V AC, with transformer

##### ⑤ Color of lens

|           |           |
|-----------|-----------|
| G: Green  | Y: Yellow |
| R: Red *2 | A: Orange |
| W: White  | S: Blue   |

##### ⑥ Special product

Z9: Resisting water-soluble cutting oils and heat  
Z8: With a contact protection cover  
Z4: Resisting sulfuration gas  
ZB: Meeting IP2X finger-protection standards  
ZM: Metal nut

Notes: \*1 Except for emergency stop illuminated pushbutton.

\*2 Button color of emergency stop illuminated switches are Red only.

• The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

## Pushbuttons

### AM22 E0R – 10 R □

① ② ③ ④ ⑤

#### ① Product category

AM22: 22mm-dia. pushbutton

#### ② Operator

- Pushbutton switch
- F0R: Flush round head  
F5R: Flush round head (Alternate)  
E0R: Extended round head  
E5R: Extended round head (Alternate)  
M0R: Mushroom head (40mm dia.)  
M5R: Mushroom head (40mm dia. alternate)  
M4R: Mushroom head (29mm dia.)  
G3R: Extended with full guard (24mm dia.)  
G8R: Extended with full guard (24mm dia. alternate)  
M3R: Mushroom head with full guard (40mm dia.)  
M8R: Mushroom head with full guard (40mm dia. alternate)
- Emergency stop pushbutton switch
- V0E: Push-lock, turn-reset (40mm dia. with white arrow)  
V5E: Push-lock, turn-reset (29mm dia. with white arrow)  
VME: Push-lock, turn-reset (40mm dia. with mechanical indicator)

#### ③ Contact arrangement

|             |             |
|-------------|-------------|
| 10: 1NO     | 30: 3NO     |
| 01: 1NC     | 03: 3NC     |
| 11: 1NO+1NC | 33: 3NO+3NC |
| 20: 2NO     | 40: 4NO     |
| 02: 2NC     | 04: 4NC     |
| 22: 2NO+2NC | 44: 4NO+4NC |
|             | 50: 5NO     |
|             | 05: 5NC     |

#### ④ Color of button

|                                    |           |
|------------------------------------|-----------|
| G: Green                           | Y: Yellow |
| R: Red*                            | A: Orange |
| B: Black                           | S: Blue   |
| W: White                           |           |
| T: Green, Red, Black (For AM22F0R) |           |

#### ⑤ Special product

Z9: Resisting water-soluble cutting oils and heat  
Z8: With a contact protection cover  
Z4: Resisting sulfuration gas  
ZB: Meeting IP2X finger-protection standards  
ZM: Metal nut

Notes: \* Button color of emergency stop switches are Red only.

- The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Type number nomenclature

#### Selector and illuminated selector switches

**AM22 PL – 2** □ **10 E3 G** □ □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

#### ① Product category

AM22: 22mm dia. selector switch and illuminated selector switch

#### ② Operator

- Selector switch

PR: Knob

PCR: Knob operated control type

WR: Lever

WCR: Lever operated control type

JR: Key

JCR: Key operated control type

- Illuminated selector switch

PL: Knob

#### ③ Operation

2: 2-position, maintained

0: 2-position, spring return

3: 3-position, maintained

6: 3-position, spring/manual return (Left to center)

7: 3-position, spring/manual return (Right to center)

1: 3-position, spring return

4: 4-position, maintained (For AM22PCR, WCR)

5: 5-position, maintained (For AM22PCR, WCR)

#### ④ Key removable position

A: Left

B: Left and right

C: Left, right and center

D: Right

E: Center

F: Right and center

G: Left and center

#### ⑤ Contact arrangement

10: 1NO 30: 3NO

01: 1NC 03: 3NC

11: 1NO+1NC 33: 3NO+3NC

20: 2NO 40: 4NO

02: 2NC 04: 4NC

22: 2NO+2NC 44: 4NO+4NC

50: 5NO

05: 5NC

Note: Control type: See page 04CD/2/22 to 04CD/2/24

#### ⑥ Lamp voltage

- Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

- LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

#### ⑦ Color of knob

B: Black (Not available for illuminated selector switch)

G: Green

R: Red

W: White (Not available for selector switch)

Y: Yellow (Not available for selector switch)

A: Orange (Not available for selector switch)

S: Blue (Not available for selector switch)

#### ⑧ Key type No.

A, B, C, D, E or F

("A" is standard)

#### ⑨ Special product

Z9: Resisting water-soluble cutting oils and heat

Z8: With a contact protection cover

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

ZM: Metal nut

Notes: •The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

## Pilot lights

### **DM22 D0L – E3 W □**

① ② ③ ④ ⑤

#### ① Product category

DM22: 22mm dia. pilot light

#### ② Lens

D0L: Dome

E3L: Extended round

K0L: Faceted

#### ③ Lamp voltage

##### • Incandescent lamp

54: 5.5V AC/DC, without transformer

C4: 15V AC/DC, without transformer

D4: 20V AC/DC, without transformer

E4: 24V AC/DC, without transformer

H4: 100-110V AC, with transformer

L4: 115-127V AC, with transformer

M4: 200-220V AC, with transformer

Q4: 230-254V AC, with transformer

S4: 350-380V AC, with transformer

T4: 400-440V AC, with transformer

V4: 480V AC, with transformer

W4: 500-550V AC, with transformer

##### • LED lamp

A3: 6V AC, without transformer

63: 6V DC, without transformer

B3: 12V AC/DC, without transformer

C3: 15V AC/DC, without transformer

E3: 24V AC/DC, without transformer

H3: 100-110V AC, with transformer

L3: 115-127V AC, with transformer

M3: 200-220V AC, with transformer

Q3: 230-254V AC, with transformer

S3: 350-380V AC, with transformer

T3: 400-440V AC, with transformer

V3: 480V AC, with transformer

W3: 500-550V AC, with transformer

H7: 110V DC, with resistor unit

H8: 100-110V AC/DC, short-body with transformer

L8: 115-127V AC/DC, short-body with transformer

M8: 200-220V AC/DC, short-body with transformer

H9: 100-110V AC, short-body with transformer

L9: 115-127V AC, short-body with transformer

M9: 200-220V AC, short-body with transformer

#### ④ Color of lens

G: Green

Y: Yellow

R: Red

A: Orange

W: White

S: Blue

#### ⑤ Special product

Z9: Resisting water-soluble cutting oils and heat

Z4: Resisting sulfuration gas

ZB: Meeting IP2X finger-protection standards

ZM: Metal nut

Notes: • The manufacturing range varies depending on the model. For details, refer to the contents of this catalog.

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Ratings and specifications

#### ■ Standards approved

|                  |  |
|------------------|--|
| UL508            | File No. E44592  |
| CSA C22.2 No.14  | File No. LR20479   |
| TÜV: EN60947-5-1 | Pushbutton, Illuminated pushbutton: R9551062<br>Selector, Illuminated selector: R9551060<br>Pilot lights: R9551061 |
| TÜV: EN60947-5-1 | Emergency stop pushbutton  |
| EN60947-5-5      | Emergency stop illuminated pushbutton<br>: R50028146   |

#### ■ Specifications (Indoor use)

| Description  | Pushbutton switch<br>Illuminated pushbutton switch<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch<br>Selector switch<br>Illuminated selector switch | Pilot light                                   |
|--|--|---|
| Rated insulation voltage                             | 600V AC/DC *1  |   |
| Mechanical durability                                | See page 04CD/2/9  |   |
| Electrical durability                                | 500,000 operations at 220V AC 6A<br>1 million operations at 220V AC 3A   |   |
| Operating frequency                                  | 1200 operations/hour (On-load factor: 40%)   |   |
| Dielectric strength                                  | 2500V AC, 1 minute *2  |   |
| Insulation resistance                                | 100MΩ or more (500V DC megger)   |   |
| Rated impulse dielectric strength                    | 6kV  |   |
| Conditional short-circuit current                    | 1000A  | —   |
| Short-circuit protective device                      | Fuse 15A   | —   |
| Pollution degree                                     | 3  |   |
| Vibration  | Resonance: 10 to 55Hz, double amplitude 0.1mm *3<br>Constant: 16.7Hz, double amplitude 3mm   |   |
| Shock  | Malfunction durability: 100m/s <sup>2</sup> *4<br>Mechanical durability: 500m/s <sup>2</sup>   | Mechanical durability:<br>500m/s <sup>2</sup> |
| Ambient temperature<br>(No condensation or no icing) | -10 to +70°C, *5<br>(Illuminated type: -10 to +50°C *6)  | -10 to +50°C                                  |
| Storage temperature                                  | -40 to +80°C   |   |
| Humidity   | 45 to 85% RH (within -5 to +40°C)  |   |
| Degree of protection                                 | IP65   |   |

Notes: \*1 Illuminated type without transformer: 250V AC/DC

\*2 Illuminated type without transformer: 2000V AC, 1 minute

\*3 Emergency stop type: 10 to 500Hz, double amplitude 0.7mm (acceleration 50m/s<sup>2</sup>), according to the test condition of EN60947-5-5 (1997)

\*4 Emergency stop type: 150m/s<sup>2</sup>

\*5 AM22V0E, VSE type: -20 to +60°C

\*6 AM22V0F, VDF, VSF type: -20 to +50°C

Pushbuttons/Selectors/Pilot Lights  
**AM22 and DM22**  
**Ratings and specifications**

● **Mechanical durability**

| Description                           |   | Operations |
|---------------------------------------|---|------------|
| Pushbutton switch                     | Momentary action                                  | 5 million  |
| Illuminated pushbutton switch         | Alternate action                                  | 1 million  |
| Emergency stop pushbutton switch      |   | 300,000    |
| Emergency stop illuminated pushbutton |   |            |
| Selector switch                       | Maintained 1, 2, 3, 4-contact                     | 1 million  |
|                                       | Maintained 5, 6, 7, 8-contact                     | 500,000    |
|                                       | Control type, spring return, spring/manual return | 200,000    |
| Illuminated selector switch           | Maintained  |            |
|                                       | Without transformer 1, 2, 3-contact               | 1 million  |
|                                       | 4-contact   | 500,000    |
|                                       | With transformer 1, 2-contact                     | 1 million  |
|                                       | 3-contact   | 500,000    |
|                                       | Spring return, spring/manual return               | 200,000    |

Notes: Key insertion/removal durability for selector switch key types  
 • Key type 10,000



# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Ratings and specifications

■ **Contact ratings**  
 ● **UL/CSA standards**  
**AC (COS  $\phi$ =0.35)**

| Contact rated code | 120V           |                  | 240V           |                  | 480V           |                  | 600V           |                  |
|--------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|
|                    | Making current | Breaking current | Making current | Breaking current | Making current | Breaking current | Making current | Breaking current |
| A600               | 60A            | 6.0A             | 30A            | 3.0A             | 15A            | 1.5A             | 12A            | 1.2A             |

**DC**  $T_{0.95}$  = 6P (Max. 300ms)

| Description  | Contact rated code | Making current · Breaking current |       |           |
|--|--------------------|-----------------------------------|-------|-----------|
|  |                    | 125V                              | 250V  | 301V–600V |
| Illuminated pushbutton switch<br>Pushbutton<br>(Except the overlap contact types)  | P600               | 1.1A                              | 0.55A | 0.2A      |
| Overlap contact types of products shown above<br>Pushbutton<br>Selector switch (2-position only, except the overlap contact types)<br>Illuminated selector switch<br>(2-position only, except the overlap contact types)<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch | Q600               | 0.55A                             | 0.27A | 0.1A      |
| Selector switch (2-pos./overlap contact type, 3-, 4-, 5-pos. type)<br>Illuminated selector switch (2-pos./overlap contact type, 3-pos. type)   | R300               | 0.22A                             | 0.11A | –         |

● **EN standard/TÜV approved**

| Description  | Rated operational current |                           |                           |                           |
|--|---------------------------|---------------------------|---------------------------|---------------------------|
|  | Rated thermal current     | Rated operational voltage | AC15 (Ind. load)          | DC13 (Ind. load)          |
|  |                           |                           | Rated operational current | Rated operational current |
| Illuminated pushbutton switch<br>Pushbutton<br>Selector switch (2-position)<br>Illuminated selector switch (2-position)  | 10A                       | 24V                       | 6.0A                      | 4.0A                      |
|  |                           | 120V                      | 6.0A                      | –                         |
|  |                           | 125V                      | –                         | 1.3A                      |
|  |                           | 240V                      | 6.0A                      | –                         |
|  |                           | 250V                      | –                         | 0.45A                     |
|  |                           | 480V                      | 2.5A                      | –                         |
| Selector switch (3, 4, 5-position)<br>Illuminated selector switch (3-position)<br>Emergency stop pushbutton switch<br>Emergency stop illuminated pushbutton switch | 10A                       | 24V                       | 6.0A                      | 2.0A                      |
|  |                           | 120V                      | 6.0A                      | –                         |
|  |                           | 125V                      | –                         | 0.65A                     |
|  |                           | 240V                      | 6.0A                      | –                         |
|  |                           | 250V                      | –                         | 0.23A                     |
|  |                           | 480V                      | 2.5A                      | –                         |
|  |                           | 600V                      | 2.0A                      | –                         |

Lamp rated voltage UL/CSA Standards, TÜV approved

|                                    | LED lamp                                     | Incandescent lamp |
|------------------------------------|--|-------------------|
| Full-voltage (without transformer) | Max. 24V AC/DC                               | Max. 30V AC/DC    |
| With transformer                   | Max. 550V AC (Short-body type: Max. 220V AC) |                   |

# Pushbuttons/Selectors/Pilot Lights AM22 and DM22 Ratings and specifications

## ■ Operating characteristic (1NO+1NC)

| Description                   | Pushbutton<br>Illuminated pushbutton | Emergency stop pushbutton<br>Emergency stop illuminated pushbutton<br>Push-lock type | Selector *   |                                 |  |
|-------------------------------|--------------------------------------|--|--|---------------------------------|--|
|                               |                                      |  | Illuminated selector   |                                 |  |
| Ave. required operating force | 9N                                   | 22N  | Maintained<br>0.15N•m  | Spring/manual return<br>0.13N•m | Spring return<br>0.1N•m                                  |
| Operating travel              | Approx. 6mm                          | Approx. 9mm<br><br>( Operation angle: Approx. 60°)                                   | 2-position:<br>Approx. 90°<br>3-position:<br>Approx. 45°<br>4-position:<br>Approx. 40°<br>5-position:<br>Approx. 30° | 3-position:<br>Approx. 45°      | 2-position:<br>Approx. 60°<br>3-position:<br>Approx. 45° |
| Required return force         | –                                    | 0.25N•m  | 0.15N•m  | 0.13N•m                         | –  |

Note: \* 4-position, 5-position : 2NO+2NC

## ■ Lamp ratings

### ● Illuminated pushbuttons, illuminated selectors, pilot lights

| Transformer                                     | Lamp voltage | LED (lamp base: BA9S/13) |                  |   | Incandescent (lamp base: BA9S/13) |               |             |
|---|--------------|--------------------------|------------------|---|-----------------------------------|---------------|-------------|
|   |              | Type                     | Rated voltage    | Consumption   | Type                              | Rated voltage | Consumption |
| Without transformer                             | 5.5V AC/DC   | –                        | –                | –   | AHX135                            | 6.3V AC/DC    | 0.9W        |
|   | 6V AC        | APX510-6□                | 6V AC            | Green, red, orange, amber, blue: 7mA AC<br>Yellow: 50mA AC                    | –                                 | –             | –           |
|   | 6V DC        | APX510-D6□               | 6V DC            | Green, red, orange, amber, blue: 11mA DC<br>Yellow: 33mA DC                   | –                                 | –             | –           |
|   | 12V AC/DC    | APX510-12□               | 12V AC/DC        | Green, red, orange, amber, blue: 14mA AC, 11mA DC<br>Yellow: 28mA AC, 22mA DC | –                                 | –             | –           |
|   | 15V AC/DC    | APX510-15□               | 15V AC/DC        | Green, red, orange, amber, blue: 13mA AC, 11mA DC<br>Yellow: 26mA AC, 22mA DC | AHX279                            | 18V AC/DC     | 0.8W        |
| 20V AC/DC<br>24V AC/DC                          | –            | –                        | –                | AHX144  | 24V AC/DC                         | 0.9W          |             |
|   | APX510-24□   | 24V AC/DC                | 12mA AC, 11mA DC | AHX129  | 30V AC/DC                         | 0.8W          |             |
| With transformer<br>(Standard type:<br>AR9T511) | 110V AC      | APX510-6□                | 6V AC            | 1.5VA   | AHX135                            | 6.3V AC/DC    | 2VA         |
|   | 127V AC      |                          |                  |   |                                   |               | 2VA         |
|   | 220V AC      |                          |                  |   |                                   |               | 2VA         |
|   | 254V AC      | APX510-6□                | 6V AC            | 2.5VA   | AHX135                            | 6.3V AC/DC    | 2.5VA       |
|   | 380V AC      |                          |                  |   |                                   |               | 2.5VA       |
| 440V AC   |              |                          |                  |   |                                   | 2.5VA         |             |
| 480V AC   |              |                          |                  |   |                                   | 2.5VA         |             |
| 550V AC   |              |                          |                  |   |                                   | 2.5VA         |             |
| With resistor unit<br>(AR9T519-H)               | 110V DC      | APX510-24□               | 24V AC/DC        | 1.2W  | –                                 | –             | –           |

- Notes: • Short body pilot lights: 110V AC, 127V AC, 220V AC only  
 • Replace the □ mark by the lamp luminous color code, see page 04CD/2/12  
 • Except AM22V0F, VDF, VSF type

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Ratings and specifications

#### • Emergency stop illuminated pushbutton switches

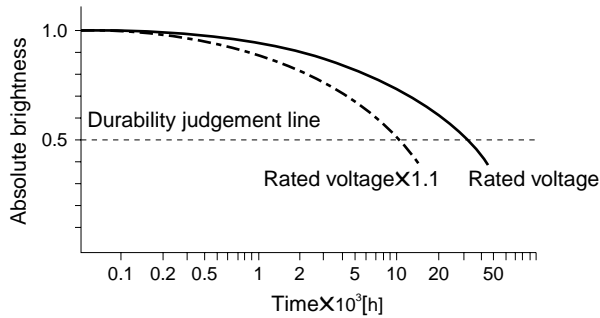
| Transformer                         | Lamp voltage | LED         |               |                  |
|-------------------------------------|--------------|-------------|---------------|------------------|
|                                     |              | Type        | Rated voltage | Consumption      |
| Without transformer                 | 6V AC        | AR9L001-6R  | 6V AC         | 9mA AC           |
|                                     | 24V AC/DC    | AR9L001-24R | 24V AC/DC     | 15mA AC, 14mA DC |
| With transformer<br>(Type: AM9T511) | 110V AC      | AR9L001-6R  | 6V AC         | 1.5VA            |
|                                     | 127V AC      |             |               |                  |
|                                     | 220V AC      |             |               |                  |
|                                     | 254V AC      |             |               | 3.0VA            |
|                                     | 380V AC      |             |               |                  |
|                                     | 440V AC      |             |               |                  |
| 480V AC                             |              |             |               |                  |
| 550V AC                             |              |             |               |                  |

#### ■ Lamp durability

| Lamp         | Durability (reference) | Judgement criterion                               |
|--------------|------------------------|---|
| LED          | Approx. 30000h         | When brightness is less than 50% of initial value |
| Incandescent | Approx. 5000h (AC)     | When the bulb burns out                           |

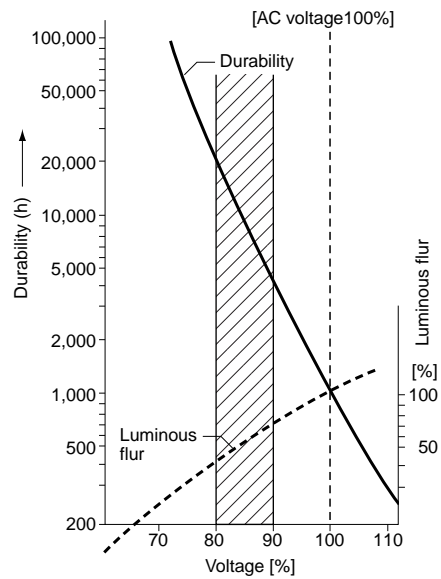
Note: • The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.  
• The durability of LED lamp is a mean value in all colors.

#### Estimated durability for LED lamps



Notes: • Durability at Ta=25°C  
• Durability is affected by temperature, humidity, and voltage fluctuation.

#### Incandescent lamp voltage characteristics







#### ■ Combination of lens color and LED lamp luminous color

| Button Color | Code | LED lamp       |            |
|--------------|------|----------------|------------|
|              |      | Luminous color | Type       |
| Green        | G    | Green          | APX510-■G  |
| Red          | R    | Red            | APX510-■R  |
| White        | W    | Orange         | APX510-■O  |
| Yellow       | Y    | Yellow         | APX510-■Y  |
| Orange       | A    | Amber          | APX510-■A  |
| Blue         | S    | Blue           | APX510-■S  |
| Red          | R    | Red            | AR9L001-■R |

(AM22V0F, VDF, VSF)

Note: Replace the ■ mark by Lamp voltage. See page 04CD/2/11

■ Illuminated pushbutton switches



| Operator   | Transformer | Contact  | LED lamp<br>Momentary action<br>Type   | Alternate action<br>Type  | Incandescent lamp<br>Momentary action<br>Type  | Alternate action<br>Type  |
|--|-------------|--|--|---|--|---|
| Flush round head<br><br><br>AF99-70               | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22F0L-10■3□<br>AM22F0L-01■3□<br>AM22F0L-11■3□<br>AM22F0L-20■3□<br>AM22F0L-02■3□<br>AM22F0L-22■3□ | AM22F5L-10 ■3□<br>AM22F5L-01 ■3□<br>AM22F5L-11 ■3□<br>AM22F5L-20 ■3□<br>AM22F5L-02 ■3□<br>— | AM22F0L-10 ■4□<br>AM22F0L-01 ■4□<br>AM22F0L-11 ■4□<br>AM22F0L-20 ■4□<br>AM22F0L-02 ■4□<br>AM22F0L-22 ■4□ | AM22F5L-10 ■4□<br>AM22F5L-01 ■4□<br>AM22F5L-11 ■4□<br>AM22F5L-20 ■4□<br>AM22F5L-02 ■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC            | AM22F0L-10■3□<br>AM22F0L-01■3□<br>AM22F0L-11■3□<br>AM22F0L-20■3□<br>AM22F0L-02■3□                  | AM22F5L-10 ■3□<br>AM22F5L-01 ■3□<br>AM22F5L-11 ■3□<br>AM22F5L-20 ■3□<br>AM22F5L-02 ■3□      | AM22F0L-10 ■4□<br>AM22F0L-01 ■4□<br>AM22F0L-11 ■4□<br>AM22F0L-20 ■4□<br>AM22F0L-02 ■4□                   | AM22F5L-10 ■4□<br>AM22F5L-01 ■4□<br>AM22F5L-11 ■4□<br>AM22F5L-20 ■4□<br>AM22F5L-02 ■4□      |
| Extended round head<br><br><br>AF99-63           | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22E0L-10■3□<br>AM22E0L-01■3□<br>AM22E0L-11■3□<br>AM22E0L-20■3□<br>AM22E0L-02■3□<br>AM22E0L-22■3□ | AM22E5L-10 ■3□<br>AM22E5L-01 ■3□<br>AM22E5L-11 ■3□<br>AM22E5L-20 ■3□<br>AM22E5L-02 ■3□<br>— | AM22E0L-10 ■4□<br>AM22E0L-01 ■4□<br>AM22E0L-11 ■4□<br>AM22E0L-20 ■4□<br>AM22E0L-02 ■4□<br>AM22E0L-22 ■4□ | AM22E5L-10 ■4□<br>AM22E5L-01 ■4□<br>AM22E5L-11 ■4□<br>AM22E5L-20 ■4□<br>AM22E5L-02 ■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC            | AM22E0L-10■3□<br>AM22E0L-01■3□<br>AM22E0L-11■3□<br>AM22E0L-20■3□<br>AM22E0L-02■3□                  | AM22E5L-10 ■3□<br>AM22E5L-01 ■3□<br>AM22E5L-11 ■3□<br>AM22E5L-20 ■3□<br>AM22E5L-02 ■3□      | AM22E0L-10 ■4□<br>AM22E0L-01 ■4□<br>AM22E0L-11 ■4□<br>AM22E0L-20 ■4□<br>AM22E0L-02 ■4□                   | AM22E5L-10 ■4□<br>AM22E5L-01 ■4□<br>AM22E5L-11 ■4□<br>AM22E5L-20 ■4□<br>AM22E5L-02 ■4□      |
| Mushroom head<br>(40mm dia.)<br><br><br>AF99-59 | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22M0L-10■3□<br>AM22M0L-01■3□<br>AM22M0L-11■3□<br>AM22M0L-20■3□<br>AM22M0L-02■3□<br>AM22M0L-22■3□ | AM22M5L-10 ■3□<br>AM22M5L-01 ■3□<br>AM22M5L-11 ■3□<br>AM22M5L-20 ■3□<br>AM22M5L-02 ■3□<br>— | AM22M0L-10 ■4□<br>AM22M0L-01 ■4□<br>AM22M0L-11 ■4□<br>AM22M0L-20 ■4□<br>AM22M0L-02 ■4□<br>AM22M0L-22 ■4□ | AM22M5L-10 ■4□<br>AM22M5L-01 ■4□<br>AM22M5L-11 ■4□<br>AM22M5L-20 ■4□<br>AM22M5L-02 ■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC            | AM22M0L-10■3□<br>AM22M0L-01■3□<br>AM22M0L-11■3□<br>AM22M0L-20■3□<br>AM22M0L-02■3□                  | AM22M5L-10 ■3□<br>AM22M5L-01 ■3□<br>AM22M5L-11 ■3□<br>AM22M5L-20 ■3□<br>AM22M5L-02 ■3□      | AM22M0L-10 ■4□<br>AM22M0L-01 ■4□<br>AM22M0L-11 ■4□<br>AM22M0L-20 ■4□<br>AM22M0L-02 ■4□                   | AM22M5L-10 ■4□<br>AM22M5L-01 ■4□<br>AM22M5L-11 ■4□<br>AM22M5L-20 ■4□<br>AM22M5L-02 ■4□      |
| Mushroom head<br>(29mm dia.)<br><br><br>AF99-61 | Without     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NC+2NC | AM22M4L-10■3□<br>AM22M4L-01■3□<br>AM22M4L-11■3□<br>AM22M4L-20■3□<br>AM22M4L-02■3□<br>AM22M4L-22■3□ | AM22M9L-10 ■3□<br>AM22M9L-01 ■3□<br>AM22M9L-11 ■3□<br>AM22M9L-20 ■3□<br>AM22M9L-02 ■3□<br>— | AM22M4L-10 ■4□<br>AM22M4L-01 ■4□<br>AM22M4L-11 ■4□<br>AM22M4L-20 ■4□<br>AM22M4L-02 ■4□<br>AM22M4L-22 ■4□ | AM22M9L-10 ■4□<br>AM22M9L-01 ■4□<br>AM22M9L-11 ■4□<br>AM22M9L-20 ■4□<br>AM22M9L-02 ■4□<br>— |
|  | With        | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC            | AM22M4L-10■3□<br>AM22M4L-01■3□<br>AM22M4L-11■3□<br>AM22M4L-20■3□<br>AM22M4L-02■3□                  | AM22M9L-10 ■3□<br>AM22M9L-01 ■3□<br>AM22M9L-11 ■3□<br>AM22M9L-20 ■3□<br>AM22M9L-02 ■3□      | AM22M4L-10 ■4□<br>AM22M4L-01 ■4□<br>AM22M4L-11 ■4□<br>AM22M4L-20 ■4□<br>AM22M4L-02 ■4□                   | AM22M9L-10 ■4□<br>AM22M9L-01 ■4□<br>AM22M9L-11 ■4□<br>AM22M9L-20 ■4□<br>AM22M9L-02 ■4□      |

Note: ■ □ See page 04CD/2/14

# Illuminated Pushbuttons

## AM22

### ■ Illuminated pushbutton switches

| Operator   | Trans-<br>former | Contact | LED lamp                 |                          | Incandescent lamp        |                          |
|--|------------------|---------|--------------------------|--------------------------|--------------------------|--------------------------|
|  |                  |         | Momentary action<br>Type | Alternate action<br>Type | Momentary action<br>Type | Alternate action<br>Type |
| Extended with transparent<br>full guard (24mm dia.)<br><br><br>AF99-66    | Without          | 1NO     | AM22G4L-10■□             | AM22G9L-10■□             | AM22G4L-10■□             | AM22G9L-10■□             |
|  |                  | 1NC     | AM22G4L-01■□             | AM22G9L-01■□             | AM22G4L-01■□             | AM22G9L-01■□             |
|  |                  | 1NO+1NC | AM22G4L-11■□             | AM22G9L-11■□             | AM22G4L-11■□             | AM22G9L-11■□             |
|  |                  | 2NO     | AM22G4L-20■□             | AM22G9L-20■□             | AM22G4L-20■□             | AM22G9L-20■□             |
|  |                  | 2NC     | AM22G4L-02■□             | AM22G9L-02■□             | AM22G4L-02■□             | AM22G9L-02■□             |
|  |                  | 2NO+2NC | AM22G4L-22■□             | —                        | AM22G4L-22■□             | —                        |
|  | With             | 1NO     | AM22G4L-10■□             | AM22G9L-10■□             | AM22G4L-10■□             | AM22G9L-10■□             |
|  |                  | 1NC     | AM22G4L-01■□             | AM22G9L-01■□             | AM22G4L-01■□             | AM22G9L-01■□             |
|  |                  | 1NO+1NC | AM22G4L-11■□             | AM22G9L-11■□             | AM22G4L-11■□             | AM22G9L-11■□             |
|  |                  | 2NO     | AM22G4L-20■□             | AM22G9L-20■□             | AM22G4L-20■□             | AM22G9L-20■□             |
|  |                  | 2NC     | AM22G4L-02■□             | AM22G9L-02■□             | AM22G4L-02■□             | AM22G9L-02■□             |
|  |                  | 2NO+2NC | AM22G4L-22■□             | —                        | AM22G4L-22■□             | —                        |
| Extended with full guard<br>(24mm dia. with openings)<br><br><br>AF99-69 | Without          | 1NO     | AM22G2L-10■□             | AM22G7L-10■□             | AM22G2L-10■□             | AM22G7L-10■□             |
|  |                  | 1NC     | AM22G2L-01■□             | AM22G7L-01■□             | AM22G2L-01■□             | AM22G7L-01■□             |
|  |                  | 1NO+1NC | AM22G2L-11■□             | AM22G7L-11■□             | AM22G2L-11■□             | AM22G7L-11■□             |
|  |                  | 2NO     | AM22G2L-20■□             | AM22G7L-20■□             | AM22G2L-20■□             | AM22G7L-20■□             |
|  |                  | 2NC     | AM22G2L-02■□             | AM22G7L-02■□             | AM22G2L-02■□             | AM22G7L-02■□             |
|  |                  | 2NO+2NC | AM22G2L-22■□             | —                        | AM22G2L-22■□             | —                        |
|  | With             | 1NO     | AM22G2L-10■□             | AM22G7L-10■□             | AM22G2L-10■□             | AM22G7L-10■□             |
|  |                  | 1NC     | AM22G2L-01■□             | AM22G7L-01■□             | AM22G2L-01■□             | AM22G7L-01■□             |
|  |                  | 1NO+1NC | AM22G2L-11■□             | AM22G7L-11■□             | AM22G2L-11■□             | AM22G7L-11■□             |
|  |                  | 2NO     | AM22G2L-20■□             | AM22G7L-20■□             | AM22G2L-20■□             | AM22G7L-20■□             |
|  |                  | 2NC     | AM22G2L-02■□             | AM22G7L-02■□             | AM22G2L-02■□             | AM22G7L-02■□             |
|  |                  | 2NO+2NC | AM22G2L-22■□             | —                        | AM22G2L-22■□             | —                        |

#### ● Lens color

Replace the □ mark by the lens color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

#### ● Contact arrangements

Contact arrangements other than above are available

| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO |
|---------------------|-----|-----|---------|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  |

| Contact arrangement | 3NC | 2NO+2NC | 4NO | 4NC | 5NO | 5NC | 3NO+3NC |
|---------------------|-----|---------|-----|-----|-----|-----|---------|
| Code                | 03  | 22      | 40  | 04  | 50  | 05  | 33      |

Available numbers of contact blocks




| Operation        | Without transformer | With transformer |
|------------------|---------------------|------------------|
| Momentary action | 6-contact block     | 4-contact block  |
| Alternate action | 3-contact block     | 2-contact block  |




#### ● Voltage

Replace the ■ mark by the lamp voltage code

| Transformer         |             | Code |              |
|---------------------|-------------|------|--------------|
|                     |             | LED  | Incandescent |
| Without transformer | 6V DC       | 6    | —            |
|                     | 6V AC       | A    | —            |
|                     | 5.5V AC/DC  | —    | 5            |
|                     | 12V AC/DC   | B    | —            |
|                     | 15V AC/DC   | C    | C            |
|                     | 20V AC/DC   | —    | D            |
| With transformer    | 24V AC/DC   | E    | E            |
|                     | 100-110V AC | H    | H            |
|                     | 115-127V AC | L    | L            |
|                     | 200-220V AC | M    | M            |
|                     | 230-254V AC | Q    | Q            |
|                     | 350-380V AC | S    | S            |
|                     | 400-440V AC | T    | T            |
|                     | 480V AC     | V    | V            |
|                     | 500-550V AC | W    | W            |
|                     |             |      |              |

■ Pushbutton switches

| Operator  | Contact  | Momentary action Type  | Alternate action Type  |
|---|--|--|--|
| Flush round head<br> AF99-68           | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22F0R-10</b> □<br><b>AM22F0R-01</b> □<br><b>AM22F0R-11</b> □<br><b>AM22F0R-20</b> □<br><b>AM22F0R-02</b> □<br><b>AM22F0R-22</b> □ | <b>AM22F5R-10</b> □<br><b>AM22F5R-01</b> □<br><b>AM22F5R-11</b> □<br><b>AM22F5R-20</b> □<br><b>AM22F5R-02</b> □<br><b>AM22F5R-22</b> □ |
| Extended round head<br> AF99-64        | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22E0R-10</b> □<br><b>AM22E0R-01</b> □<br><b>AM22E0R-11</b> □<br><b>AM22E0R-20</b> □<br><b>AM22E0R-02</b> □<br><b>AM22E0R-22</b> □ | <b>AM22E5R-10</b> □<br><b>AM22E5R-01</b> □<br><b>AM22E5R-11</b> □<br><b>AM22E5R-20</b> □<br><b>AM22E5R-02</b> □<br><b>AM22E5R-22</b> □ |
| Mushroom head (40mm dia.)<br> AF99-58 | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22M0R-10</b> □<br><b>AM22M0R-01</b> □<br><b>AM22M0R-11</b> □<br><b>AM22M0R-20</b> □<br><b>AM22M0R-02</b> □<br><b>AM22M0R-22</b> □ | <b>AM22M5R-10</b> □<br><b>AM22M5R-01</b> □<br><b>AM22M5R-11</b> □<br><b>AM22M5R-20</b> □<br><b>AM22M5R-02</b> □<br><b>AM22M5R-22</b> □ |

| Operator   | Contact  | Momentary action Type  | Alternate action Type  |
|--|--|--|--|
| Mushroom head (29mm dia.)<br> AF99-67                  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22M4R-10</b> □<br><b>AM22M4R-01</b> □<br><b>AM22M4R-11</b> □<br><b>AM22M4R-20</b> □<br><b>AM22M4R-02</b> □<br><b>AM22M4R-22</b> □ | —<br>—<br>—<br>—<br>—<br>—   |
| Extended with full guard (24mm dia.)<br> AF99-65       | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22G3R-10</b> □<br><b>AM22G3R-01</b> □<br><b>AM22G3R-11</b> □<br><b>AM22G3R-20</b> □<br><b>AM22G3R-02</b> □<br><b>AM22G3R-22</b> □ | <b>AM22G8R-10</b> □<br><b>AM22G8R-01</b> □<br><b>AM22G8R-11</b> □<br><b>AM22G8R-20</b> □<br><b>AM22G8R-02</b> □<br><b>AM22G8R-22</b> □ |
| Mushroom head with full guard (40mm dia.)<br> AF99-89 | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22M3R-10</b> □<br><b>AM22M3R-01</b> □<br><b>AM22M3R-11</b> □<br><b>AM22M3R-20</b> □<br><b>AM22M3R-02</b> □<br><b>AM22M3R-22</b> □ | <b>AM22M8R-10</b> □<br><b>AM22M8R-01</b> □<br><b>AM22M8R-11</b> □<br><b>AM22M8R-20</b> □<br><b>AM22M8R-02</b> □<br><b>AM22M8R-22</b> □ |

● Button color

Replace the □ mark by the button color code

| Color | Green | Red | White | Blue | Yellow | Orange | Black |
|-------|-------|-----|-------|------|--------|--------|-------|
| Code  | G     | R   | W     | S    | Y      | A      | B     |

● Available numbers of contact blocks

| Momentary action | Alternate action |
|------------------|------------------|
| 8-contact block  | 4-contact block  |

● Contact arrangements

Contact arrangements other than above are available

| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO | 3NC |
|---------------------|-----|-----|---------|-----|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  | 03  |




| Contact arrangement | 2NO+2NC | 4NO | 4NC | 5NO | 5NC | 3NO+3NC | 4NO+4NC |
|---------------------|---------|-----|-----|-----|-----|---------|---------|
| Code                | 22      | 40  | 04  | 50  | 05  | 33      | 44      |

# Emergency stop pushbuttons

## AM22

### ■ Emergency stop pushbutton switches

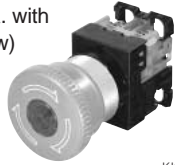


☞ (Direct opening action), conform to EN418

| Operator  | Contact  | T y p e  |
|---|--|--|
| Push-lock, turn-reset<br>(40mm dia. with<br>white arrow) <br><small>KK02-236A</small>              | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AM22V0E-01R</b><br><b>AM22V0E-11R</b><br><b>AM22V0E-02R</b><br><b>AM22V0E-03R</b><br><b>AM22V0E-22R</b><br><b>AM22V0E-04R</b> |
| Push-lock, turn-reset<br>(29mm dia. with<br>white arrow) <br><small>KK02-237A</small>              | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AM22VSE-01R</b><br><b>AM22VSE-11R</b><br><b>AM22VSE-02R</b><br><b>AM22VSE-03R</b><br><b>AM22VSE-22R</b><br><b>AM22VSE-04R</b> |
| Push-lock, turn-reset<br>(40mm dia. with<br>mechanical<br>indicator) <br><small>KKD07-091</small> | 1NC<br>1NO+1NC<br>2NC<br>3NC<br>2NO+2NC<br>4NC | <b>AM22VME-01R</b><br><b>AM22VME-11R</b><br><b>AM22VME-02R</b><br><b>AM22VME-03R</b><br><b>AM22VME-22R</b><br><b>AM22VME-04R</b> |

- Notes:
- Button color: Red only
  - Used with AR9B290-S for NO contact.
  - Contact arrangements indicated in the table can be supplied.

■ Emergency stop illuminated pushbutton switches

☞ (Direct opening action), conform to EN418

| Operator   | Transformer | Contact                      | LED lamp Type  |
|--|-------------|------------------------------|--|
| Push-lock, turn-reset<br>(40mm dia. with white arrow)<br><br>KK02-240A                            | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC | AM22V0F-01■ 3R<br>AM22V0F-11■ 3R<br>AM22V0F-02■ 3R<br>AM22V0F-03■ 3R |
|  | With        | 1NC<br>1NO+1NC<br>2NC        | AM22V0F-01■ 3R<br>AM22V0F-11■ 3R<br>AM22V0F-02■ 3R                   |
| Push-lock, turn-reset<br>(29mm dia. with white arrow)<br><br>KK02-241A                            | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC | AM22VSF-01■ 3R<br>AM22VSF-11■ 3R<br>AM22VSF-02■ 3R<br>AM22VSF-03■ 3R |
|  | With        | 1NC<br>1NO+1NC<br>2NC        | AM22VSF-01■ 3R<br>AM22VSF-11■ 3R<br>AM22VSF-02■ 3R                   |
| Push-lock, turn-reset<br>(40mm dia. transparent in all colors with white arrow)<br><br>KK02-243A | Without     | 1NC<br>1NO+1NC<br>2NC<br>3NC | AM22VDF-01■ 3R<br>AM22VDF-11■ 3R<br>AM22VDF-02■ 3R<br>AM22VDF-03■ 3R |
|  | With        | 1NC<br>1NO+1NC<br>2NC        | AM22VDF-01■ 3R<br>AM22VDF-11■ 3R<br>AM22VDF-02■ 3R                   |

- Notes:
- Button color: Red only
  - Contact arrangements indicated in the table can be supplied.
  - Used with AR9B290-S for NO contact.

● Voltage

Replace the ■ mark by the lamp voltage code




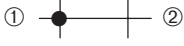

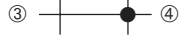

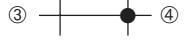




| Transformer |                    | Code LED |
|-------------|--------------------|----------|
| Without     | 6V AC<br>24V AC/DC | A<br>E   |

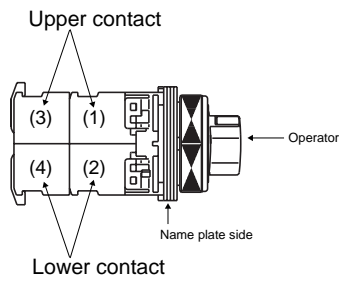
| Transformer |  | Code LED                             |
|-------------|--|--------------------------------------|
| With        | 100–110V AC<br>115–127V AC<br>200–220V AC<br>230–254V AC<br>350–380V AC<br>400–440V AC<br>480V AC<br>500–550V AC | H<br>L<br>M<br>Q<br>S<br>T<br>V<br>W |



# Selector Switches AM22

## ■ Selector switches 2-position


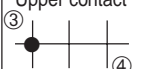










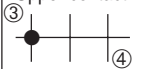


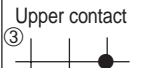



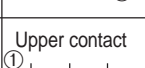


| Operator   | Operation   | Knob color or key removable position  | Contact  | Type<br>Switch with round bezel  | Contact operation (Example) |  |       |
|--|---|---|--|--|-----------------------------|--|-------|
|  |   |   |  |  | Contact arrangement         | Operator position  |       |
|  |   |   |  |  |                             | Left   | Right |
| <br>AF99-82     | Maintained<br>each 90°  | B: Black (Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22PR-210B<br>AM22PR-201B<br>AM22PR-211B<br>AM22PR-020B<br>AM22PR-202B<br>AM22PR-222B                   | 1NO (1)                     | Upper contact<br>   |       |
|  | Spring return<br><br>60°   |   | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22PR-010B<br>AM22PR-001B<br>AM22PR-011B<br>AM22PR-020B<br>AM22PR-002B<br>AM22PR-022B                   | 1NC (1)                     | Upper contact<br>   |       |
| <br>AF99-76    | Maintained<br>each 90°  |   | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22WR-210B<br>AM22WR-201B<br>AM22WR-211B<br>AM22WR-220B<br>AM22WR-202B<br>AM22WR-222B                   | 1NO+1NC<br>(1)              | Upper contact<br>   |       |
|  | Spring return<br><br>60° |   | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22WR-010B<br>AM22WR-001B<br>AM22WR-011B<br>AM22WR-020B<br>AM22WR-002B<br>AM22WR-022B                   | 2NO+2NC<br>(1)              | Upper contact<br> |       |
| <br>KKD09-014 | Maintained<br>each 90°  | ■: Key removable position<br>( ): Key type<br><br><i>See page 04CD/2/20</i>           | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22JR-2■10( )<br>AM22JR-2■01( )<br>AM22JR-2■11( )<br>AM22JR-2■20( )<br>AM22JR-2■02( )<br>AM22JR-2■22( ) | (3)                         | Upper contact<br> |       |
|  | Spring return<br><br>60° |   | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22JR-0A10( )<br>AM22JR-0A01( )<br>AM22JR-0A11( )<br>AM22JR-0A20( )<br>AM22JR-0A02( )<br>AM22JR-0A22( ) | (4)                         | Lower contact<br> |       |



Notes: • (1) to (4): Contact block mounting position  
 • ① – ②, ③ – ④: Contact block terminal No.  
 • Contact arrangements: See page 04CD/2/20

● Contact closed


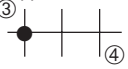


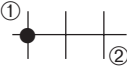






## 3-position

| Operator   | Operation  | Knob color  | Contact                          | Type<br>Switch with<br>round bezel  | Contact operation (Example)   |  |  |  |
|--|--|---|----------------------------------|---|---|--|--|--|
|  |  |   |                                  |   | Contact<br>arrange-<br>ment   | Operation position   |  |  |
|  |  |   |                                  |   |   | L  | C  | R  |
| <br>AF99-82   | Maintained<br>each 45°   | Color code:<br>B: Black<br>(Standard)<br>Color other than<br>above are<br>available<br>(G: Green )<br>(R: Red ) | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22PR-311B</b><br><b>AM22PR-320B</b><br><b>AM22PR-302B</b><br><b>AM22PR-322B</b>  | 1NO+1NC<br>(1) (2)  | Upper contact<br>   | Lower contact<br>   |  |
|  | Spring/manual<br>return<br><br>each 45°   |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC |   |   | <b>AM22PR-611B</b><br><b>AM22PR-620B</b><br><b>AM22PR-602B</b><br><b>AM22PR-622B</b>                   | 1NO+1NC<br>(1) (2)   | Upper contact<br>   |
|  | Spring/manual<br>return<br><br>each 45°   |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22PR-711B</b><br><b>AM22PR-720B</b><br><b>AM22PR-702B</b><br><b>AM22PR-722B</b>  | 1NO+1NC<br>(1) (2)  |  |  | Upper contact<br> |
|  | Spring return<br><br>each 45°            |   | 2NO+2NC                          |   |   | <b>AM22PR-122B</b>   | 2NO+2NC<br>(1) (2)   | Upper contact<br>   |
|  |  |   | (3) (4)                          |   |   |  |  |  |
| <br>AF99-76 | Maintained<br>each 45°   |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22WR-311B</b><br><b>AM22WR-320B</b><br><b>AM22WR-302B</b><br><b>AM22WR-322B</b>  | 1NO+1NC<br>(1) (2)  | Upper contact<br> | Lower contact<br> |  |
|  | Spring/manual<br>return<br><br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC |   |   | <b>AM22WR-611B</b><br><b>AM22WR-620B</b><br><b>AM22WR-602B</b><br><b>AM22WR-622B</b>                   | 1NO+1NC<br>(1) (2)   | Upper contact<br> |
|  | Spring/manual<br>return<br><br>each 45° |   | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AM22WR-711B</b><br><b>AM22WR-720B</b><br><b>AM22WR-702B</b><br><b>AM22WR-722B</b>  | 1NO+1NC<br>(1) (2)  |  |  | Upper contact<br> |
|  | Spring return<br><br>each 45°           |   | 2NO+2NC                          |   |   | <b>AM22WR-122B</b>   | 2NO+2NC<br>(1) (2)   | Upper contact<br> |
|  |  |   | (3) (4)                          |  |  |  |  |  |

Note: • Contact arrangements: See page 04CD/2/20

● Contact closed

# Selector Switches AM22

| Operator   | Operation                             | Key removable position                     | Contact                          | Type<br>Switch with<br>round bezel                                   | Contact operation (Example)       |  |
|--|---------------------------------------|--|----------------------------------|--|-----------------------------------|--|
|  |                                       |  |                                  |  | Contact arrangement               | Operator position<br>L C R<br>⊖ ⊙ ⊗  |
| <br>KKD09-014 | Maintained<br>each 45°                | ■: Key removable position<br>( ): Key type | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22JR-3■11( )<br>AM22JR-3■20( )<br>AM22JR-3■02( )<br>AM22JR-3■22( ) | 1NO+1NC<br>(1) (2)                | Upper contact<br><br>Lower contact<br>   |
|  | Spring/manual return<br>⊙<br>each 45° |  | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22JR-6■11( )<br>AM22JR-6■20( )<br>AM22JR-6■02( )<br>AM22JR-6■22( ) | 1NO+1NC<br>(1) (2)                | Upper contact<br><br>Lower contact<br>   |
|  | Spring/manual return<br>⊙<br>each 45° |  | 1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AM22JR-7■11( )<br>AM22JR-7■20( )<br>AM22JR-7■02( )<br>AM22JR-7■22( ) | 1NO+1NC<br>(1) (2)                | Upper contact<br><br>Lower contact<br>   |
|  | Spring return<br>⊙<br>each 45°        |  | 2NO+2NC                          | AM22JR-1E22( )   | 2NO+2NC<br>(1) (2)<br><br>(3) (4) | Upper contact<br><br>Lower contact<br><br><br><br> |

Notes: • Operator position L: Left, C: Center, R: Right  
 • (1) to (4): Contact block mounting position  
 • ① - ②, ③ - ④: Contact block terminal No.

● Contact closed

### • Contact arrangements

Contact arrangements other than above are available








| Contact arrangement | 1NO | 1NC | 1NO+1NC | 2NO | 2NC | 3NO | 3NC |
|---------------------|-----|-----|---------|-----|-----|-----|-----|
| Code                | 10  | 01  | 11      | 20  | 02  | 30  | 03  |

| Contact arrangement | 2NO+2NC | 4NO | 4NC | 5NO | 5NC | 3NO+3NC | 4NO+4NC |
|---------------------|---------|-----|-----|-----|-----|---------|---------|
| Code                | 22      | 40  | 04  | 50  | 05  | 33      | 44      |

### • Available numbers of contact blocks

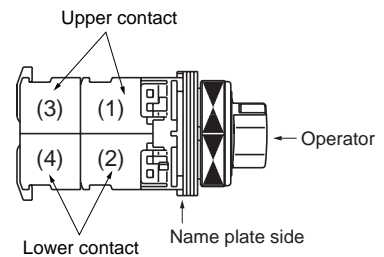
| Maintained      | Spring return<br>Spring/manual return |
|-----------------|---------------------------------------|
| 8-contact block | 4-contact block                       |

### • Key removable positions

| Code               | A   | B   | C   | D   | E   | F   | G   |
|--------------------|---|---|---|---|---|---|---|
| Removable position |  |  |  |  |  |  |  |
| AM22JR-2           | ●   | ●   | -   | ●   | -   | -   | -   |
| AM22JR-0           | ●   | -   | -   | -   | -   | -   | -   |
| AM22JR-3           | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
| AM22JR-6           | -   | -   | -   | ●   | ●   | ●   | -   |
| AM22JR-7           | ●   | -   | -   | -   | ●   | -   | ●   |
| AM22JR-1           | -   | -   | -   | -   | ●   | -   | -   |

●: Available    -: Not available

### • Position of contact block



### • Key code No.













Replace the ( ) mark with one of the following key code.

A, B, C, D, E and F








Standard key code is A.

■ Selector switches (control type)

3-position

| Operator   | Operation   | Knob color or key removable position   | Contact arrangement  | Type<br>Switch with round bezel |
|--|---|--|--|---------------------------------|
| Knob<br><br><br><small>KK02-248A</small>  | Maintained each 45°   | Color code:<br>B: Black (Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | Replace the ■ mark by the contact arrangement code (shown on next page). | <b>AM22PCR-3■B</b>              |
|  | Spring/manual return  each 45°   |  |  | <b>AM22PCR-6■B</b>              |
|  | Spring/manual return  each 45°   |  |  | <b>AM22PCR-7■B</b>              |
|  | Spring return  each 45°          |  |  | <b>AM22PCR-1■B</b>              |
| Lever<br><br><br><small>KK02-249A</small> | Maintained each 45°   |  | Replace the ■ mark by the contact arrangement code (shown on next page). | <b>AM22WCR-3■B</b>              |
|  | Spring/manual return  each 45°   |  |  | <b>AM22WCR-6■B</b>              |
|  | Spring/manual return  each 45°   |  |  | <b>AM22WCR-7■B</b>              |
|  | Spring return  each 45°        |  |  | <b>AM22WCR-1■B</b>              |
| Key<br><br><br><small>KKD09-013</small> | Maintained each 45°   | Replace the □ mark by the key removable position code:<br>A, B, C, D, E, F or G                      | Replace the ■ mark by the contact arrangement code (shown on next page). | <b>AM22JCR-3□■( )</b>           |
|  | Spring/manual return  each 45° |  |  | <b>AM22JCR-6□■( )</b>           |
|  | Spring/manual return  each 45° |  |  | <b>AM22JCR-7□■( )</b>           |
|  | Spring return  each 45°        |  |  | <b>AM22JCR-1E■( )</b>           |

● Key removable positions

| Code               | A   | B   | C   | D   | E   | F   | G   |
|--------------------|---|---|---|---|---|---|---|
| Removable position |  |  |  |  |  |  |  |
| AM22JCR-3          | ●   | ●   | ●   | ●   | ●   | ●   | ●   |
| AM22JCR-6          | -   | -   | -   | ●   | ●   | ●   | -   |
| AM22JCR-7          | ●   | -   | -   | -   | ●   | -   | ●   |
| AM22JCR-1          | -   | -   | -   | -   | ●   | -   | -   |

●: Available    -: Not available

● Key code No.

Replace the ( ) mark with one of the following key code.  
 A, B, C, D, E and F  
 Standard key code is A.

# Selector Switches AM22

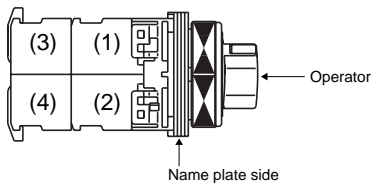
## • Contact arrangement code (Typical example)

| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |        |       |
|---------------------|---------------------------|-------------------|------|-------------------|--------|-------|
|                     |                           | Contact block     |      | Operator position |        |       |
|                     |                           | Mounting position | Type | Left              | Center | Right |
| 2NC                 | 01F                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        |       |
|                     |                           | -                 | -    | -                 | -      | -     |
|                     |                           | -                 | -    | -                 | -      | -     |
| 2NO+2NC             | 014                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 4NC                 | 01J                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        |       |
|                     |                           | (3)               | NC   |                   |        |       |
|                     |                           | (4)               | NC   |                   |        |       |
| 2NO+2NC             | 024                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        | ●     |
| 2NO+2NC             | 03C*<br>(Maintained only) | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        | ●     |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 044*                      | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 054                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   |                   |        | ●     |

Notes: ●: Contact closed Blank: Contact open

\* These may be some overlap in the contact when switching between notches.

## • Position of contact block



| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |        |       |
|---------------------|---------------------------|-------------------|------|-------------------|--------|-------|
|                     |                           | Contact block     |      | Operator position |        |       |
|                     |                           | Mounting position | Type | Left              | Center | Right |
| 2NO+2NC             | 064                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        | ●     |
| 1NO+1NC             | 07F                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NO   |                   |        | ●     |
|                     |                           | -                 | -    | -                 | -      | -     |
|                     |                           | -                 | -    | -                 | -      | -     |
| 2NO+2NC             | 07C*<br>(Maintained only) | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   |        | ●     |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 084                       | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 094*                      | (1)               | NC   |                   |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 2NO+2NC             | 104                       | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        | ●     |
| 2NO+2NC             | 11C*<br>(Maintained only) | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   |        | ●     |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        | ●     |

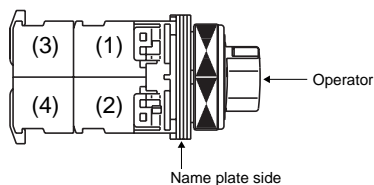
● Contact arrangement code (Typical example)

| Contact arrangement | Contact arrangement code  | Contact operation |      |                   |        |       |
|---------------------|---------------------------|-------------------|------|-------------------|--------|-------|
|                     |                           | Contact block     |      | Operator position |        |       |
|                     |                           | Mounting position | Type | Left              | Center | Right |
| 2NO+2NC             | 124*                      | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 134*                      | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        | ●     |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 3NO+1NC             | 14D*<br>(Maintained only) | (1)               | NO   | ●                 |        |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 3NO+1NC             | 15A*                      | (1)               | NO   |                   |        | ●     |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 164                       | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   | ●                 |        |       |
| 2NO+2NC             | 174*                      | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   | ●                 |        |       |
|                     |                           | (4)               | NO   |                   |        | ●     |
| 2NO+2NC             | 184                       | (1)               | NC   |                   | ●      |       |
|                     |                           | (2)               | NC   |                   | ●      |       |
|                     |                           | (3)               | NO   |                   |        | ●     |
|                     |                           | (4)               | NO   |                   |        | ●     |

Notes: ●: Contact closed Blank: Contact open

\* These may be some overlap in the contact when switching between notches.



● Position of contact block



| Contact arrangement | Contact arrangement code | Contact operation |      |                   |        |       |
|---------------------|--------------------------|-------------------|------|-------------------|--------|-------|
|                     |                          | Contact block     |      | Operator position |        |       |
|                     |                          | Mounting position | Type | Left              | Center | Right |
| 2NO+2NC             | 194                      | (1)               | NC   |                   | ●      |       |
|                     |                          | (2)               | NC   | ●                 |        |       |
|                     |                          | (3)               | NO   | ●                 |        |       |
|                     |                          | (4)               | NO   |                   |        | ●     |
| 4NO                 | 20B                      | (1)               | NO   |                   |        | ●     |
|                     |                          | (2)               | NO   | ●                 |        |       |
|                     |                          | (3)               | NO   |                   |        | ●     |
|                     |                          | (4)               | NO   | ●                 |        |       |

# Selector Switches AM22

## 4, 5-position

| Operator   | Contact<br>(The following contact is only available.) | Operation             | Knob color   | Contact arrangement  | Type<br>Switch with round bezel |
|--|---|-----------------------|--|--|---------------------------------|
| Knob<br><br><small>KK02-248A</small>  | 2NO+2NC   | 4-position maintained | Color code:<br>B: Black (Standard)<br>Color other than above are available<br>(G: Green)<br>(R: Red) | Replace the ■ mark by the contact arrangement code (shown below) | <b>AM22PCR-4■B</b>              |
|  |   | 5-position maintained |  |  | <b>AM22PCR-5■B</b>              |
| Lever<br><br><small>KK02-249A</small> | 2NO+2NC   | 4-position maintained |  |  | <b>AM22WCR-4■B</b>              |
|  |   | 5-position maintained |  |  | <b>AM22WCR-5■B</b>              |

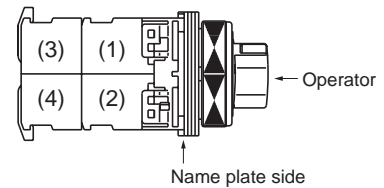
### ● Contact arrangement code

| Position   | Contact arrangement | Contact arrangement code | Contact operation |      | Operator position |
|------------|---------------------|--------------------------|-------------------|------|-------------------|
|            |                     |                          | Contact block     |      |                   |
|            |                     |                          | Mounting position | Type |                   |
| 4-position | 2NO+2NC             | 41C* (Main-tained only)  | (1)               | NC   | ●                 |
|            |                     |                          | (2)               | NC   | ●                 |
|            |                     |                          | (3)               | NO   | ●                 |
|            |                     |                          | (4)               | NO   | ●                 |
| 5-position | 2NO+2NC             | 51C* (Main-tained only)  | (1)               | NC   | ●                 |
|            |                     |                          | (2)               | NC   | ●                 |
|            |                     |                          | (3)               | NO   | ●                 |
|            |                     |                          | (4)               | NO   | ●                 |

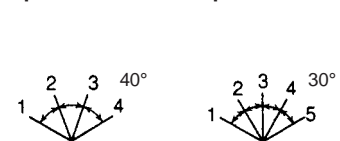
Notes: ●: Contact closed

\* There may be some overlap in the contact when switching between notches.



### ● Position of contact block





### Operator position



■ Illuminated selector switches  
2-position

| Operator   | Operation   | Contact                                 | LED lamp    |   | Incandescent lamp |   |
|--|---|---|-------------|---|-------------------|---|
|  |   |   | Transformer | Type  | Transformer       | Type  |
| Knob<br><br><br><br>AF99-79 | Maintained  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | Without     | AM22PL-210■3□<br>AM22PL-201■3□<br>AM22PL-211■3□<br>AM22PL-020■3□<br>AM22PL-222■3□ | Without           | AM22PL-210■4□<br>AM22PL-201■4□<br>AM22PL-211■4□<br>AM22PL-020■4□<br>AM22PL-222■4□ |
|  |   |   | With        | AM22PL-210■3□<br>AM22PL-201■3□<br>AM22PL-211■3□<br>AM22PL-220■3□                  | With              | AM22PL-210■4□<br>AM22PL-201■4□<br>AM22PL-211■4□<br>AM22PL-220■4□                  |
|  | Spring return<br><br><br><br>60° | 1NO<br>1NC<br>1NO+1NC<br>2NO            | Without     | AM22PL-010■3□<br>AM22PL-001■3□<br>AM22PL-011■3□<br>AM22PL-020■3□                  | Without           | AM22PL-010■4□<br>AM22PL-001■4□<br>AM22PL-011■4□<br>AM22PL-020■4□                  |
|  |   |   | With        | AM22PL-010■3□<br>AM22PL-001■3□<br>AM22PL-011■3□<br>AM22PL-020■3□                  | With              | AM22PL-010■4□<br>AM22PL-001■4□<br>AM22PL-011■4□<br>AM22PL-020■4□                  |

3-position

| Operator   | Operation   | Contact            | LED lamp    |                                | Incandescent lamp |                                |
|--|---|--------------------|-------------|--------------------------------|-------------------|--------------------------------|
|  |   |                    | Transformer | Type                           | Transformer       | Type                           |
| Knob<br><br><br><br>AF99-79 | Maintained  | 1NO+1NC<br>2NO+2NC | Without     | AM22PL-311■3□<br>AM22PL-322■3□ | Without           | AM22PL-311■4□<br>AM22PL-322■4□ |
|  |   |                    | With        | AM22PL-311■3□                  | With              | AM22PL-311■4□                  |
|  | Spring/manual return<br><br><br><br>each 45° | 1NO+1NC<br>1NO+1NC | Without     | AM22PL-611■3□<br>AM22PL-611■3□ | Without           | AM22PL-611■4□<br>AM22PL-611■4□ |
|  |   |                    | With        | AM22PL-711■3□<br>AM22PL-711■3□ | With              | AM22PL-711■4□<br>AM22PL-711■4□ |

Note: □, ■ See page 04CD/2/26



# Illuminated Selector Switches AM22

- Replace the ■ mark by the following lamp voltage code

| Transformer | Voltage     | Code |              |
|-------------|-------------|------|--------------|
|             |             | LED  | Incandescent |
| Without     | 5V AC/DC    | —    | 5            |
|             | 6V DC       | 6    | —            |
|             | 6V AC       | A    | —            |
|             | 12V AC/DC   | B    | —            |
|             | 15V AC/DC   | C    | C            |
|             | 20V AC/DC   | —    | D            |
|             | 24V AC/DC   | E    | E            |
| With        | 100-110V AC | H    | H            |
|             | 115-127V AC | L    | L            |
|             | 200-220V AC | M    | M            |
|             | 230-254V AC | Q    | Q            |
|             | 350-380V AC | S    | S            |
|             | 400-440V AC | T    | T            |
|             | 480V AC     | V    | V            |
|             | 500-550V AC | W    | W            |

- Contact arrangement and operator position

## 2-position

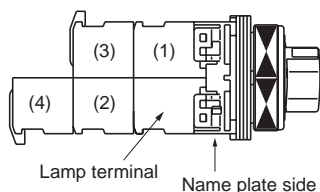
| Transformer  | Contact arrangement | Contact block     |      | Operator position |       |
|--------------|---------------------|-------------------|------|-------------------|-------|
|              |                     | Mounting position | Type | Left              | Right |
| With/without | 1NO                 | (1)               | NO   | —                 | ●     |
| With/without | 1NC                 | (1)               | NC   | ●                 | —     |
| Without      | 1NO+1NC             | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NC   | ●                 | —     |
| With         | 1NO+1NC             | (1)               | NC   | ●                 | —     |
|              |                     | (2)               | NO   | —                 | ●     |
| With/without | 2NO                 | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NO   | —                 | ●     |
| Without      | 2NO+2NC<br>*1       | (1)               | NO   | —                 | ●     |
|              |                     | (2)               | NC   | ●                 | —     |
|              |                     | (3)               | NO   | —                 | ●     |
|              |                     | (4)               | NC   | ●                 | —     |
| With         | 2NO+2NC<br>*1       | (1)               | NC   | ●                 | —     |
|              |                     | (2)               | NC   | ●                 | —     |
|              |                     | (3)               | NO   | —                 | ●     |
|              |                     | (4)               | NO   | —                 | ●     |

Notes: \*1: AM22PL-2

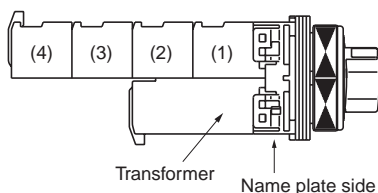
●: Contact closed, —: Contact open

- Position of contact block

Without transformer



With transformer



- Replace the □ mark by the following knob color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

- Up to 4-contact of contact arrangement can be made.  
Available numbers of contacts are as follow.

| No. of position | Operation            | Without transformer | With transformer |
|-----------------|----------------------|---------------------|------------------|
| 2-position      | Maintained           | 6-contact           | 4-contact        |
|                 | Spring return        | 3-contact           | 2-contact        |
| 3-position      | Maintained           | 6-contact           | 4-contact        |
|                 | Spring/manual return | 3-contact           | 2-contact        |

## 3-position




| Transformer   | Contact arrangement | Contact block     |      | Operator position |        |       |
|---------------|---------------------|-------------------|------|-------------------|--------|-------|
|               |                     | Mounting position | Type | Left              | Center | Right |
| Without       | 1NO+1NC<br>*1       | (1)               | NO   | ●                 | —      | —     |
|               |                     | (2)               | NC   | —                 | —      | ●     |
|               | 1NO+1NC<br>*2       | (1)               | NO   | —                 | —      | ●     |
|               |                     | (2)               | NC   | ●                 | —      | —     |
|               | 2NO+2NC<br>*3       | (1)               | NO   | ●                 | —      | —     |
|               |                     | (2)               | NC   | —                 | —      | ●     |
| With          | 1NO+1NC<br>*1       | (1)               | NC   | —                 | —      | ●     |
|               |                     | (2)               | NO   | ●                 | —      | —     |
|               | 1NO+1NC<br>*2       | (1)               | NC   | ●                 | —      | —     |
|               |                     | (2)               | NO   | —                 | —      | ●     |
| 2NO+2NC<br>*3 | (1)                 | NC                | —    | —                 | ●      |       |
|               | (2)                 | NC                | —    | —                 | ●      |       |
|               |                     | (3)               | NO   | ●                 | —      | —     |
|               |                     | (4)               | NO   | ●                 | —      | —     |

Notes: \*1: AM22PL-3, 6 \*3: AM22PL-3




\*2: AM22PL-7

●: Contact closed, —: Contact open

■ Pilot lights/standard

| Lens   | Transformer | LED lamp                                 |  | Incandescent lamp                         |  |
|--|-------------|--|--|---|--|
|  |             | Lamp voltage                             | Type   | Lamp voltage                              | Type   |
| <br>AF99-88 | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DM22D0L-A3 <input type="checkbox"/><br>DM22D0L-63 <input type="checkbox"/><br>DM22D0L-B3 <input type="checkbox"/><br>DM22D0L-E3 <input type="checkbox"/> | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DM22D0L-54 <input type="checkbox"/><br>—<br>DM22D0L-C4 <input type="checkbox"/><br>DM22D0L-E4 <input type="checkbox"/> |
|  | With        | 100–110V AC<br>200–220V AC               | DM22D0L-H3 <input type="checkbox"/><br>DM22D0L-M3 <input type="checkbox"/>   | 100–110V AC<br>200–220V AC                | DM22D0L-H4 <input type="checkbox"/><br>DM22D0L-M4 <input type="checkbox"/>   |
| <br>AF99-85 | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DM22E3L-A3 <input type="checkbox"/><br>DM22E3L-63 <input type="checkbox"/><br>DM22E3L-B3 <input type="checkbox"/><br>DM22E3L-E3 <input type="checkbox"/> | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DM22E3L-54 <input type="checkbox"/><br>—<br>DM22E3L-C4 <input type="checkbox"/><br>DM22E3L-E4 <input type="checkbox"/> |
|  | With        | 100–110V AC<br>200–220V AC               | DM22E3L-H3 <input type="checkbox"/><br>DM22E3L-M3 <input type="checkbox"/>   | 100–110V AC<br>200–220V AC                | DM22E3L-H4 <input type="checkbox"/><br>DM22E3L-M4 <input type="checkbox"/>   |
| <br>AF99-87 | Without     | 6V AC<br>6V DC<br>12V AC/DC<br>24V AC/DC | DM22K0L-A3 <input type="checkbox"/><br>DM22K0L-63 <input type="checkbox"/><br>DM22K0L-B3 <input type="checkbox"/><br>DM22K0L-E3 <input type="checkbox"/> | 5.5V AC/DC<br>—<br>15V AC/DC<br>24V AC/DC | DM22K0L-54 <input type="checkbox"/><br>—<br>DM22K0L-C4 <input type="checkbox"/><br>DM22K0L-E4 <input type="checkbox"/> |
|  | With        | 100–110V AC<br>200–220V AC               | DM22K0L-H3 <input type="checkbox"/><br>DM22K0L-M3 <input type="checkbox"/>   | 100–110V AC<br>200–220V AC                | DM22K0L-H4 <input type="checkbox"/><br>DM22K0L-M4 <input type="checkbox"/>   |

■ Pilot lights/short-body with transformer

| Lens   | LED lamp                   |  | Incandescent lamp          |  |
|--|----------------------------|--|----------------------------|--|
|  | Lamp voltage               | Type   | Lamp voltage               | Type   |
| <br>KK02-245A | 100–110V AC<br>200–220V AC | DM22D0L-H9 <input type="checkbox"/><br>DM22D0L-M9 <input type="checkbox"/> | 100–110V AC<br>200–220V AC | DM22D0L-H8 <input type="checkbox"/><br>DM22D0L-M8 <input type="checkbox"/> |
| <br>KK02-246A | 100–110V AC<br>200–220V AC | DM22E3L-H9 <input type="checkbox"/><br>DM22E3L-M9 <input type="checkbox"/> | 100–110V AC<br>200–220V AC | DM22E3L-H8 <input type="checkbox"/><br>DM22E3L-M8 <input type="checkbox"/> |
| <br>KK02-247A | 100–110V AC<br>200–220V AC | DM22K0L-H9 <input type="checkbox"/><br>DM22K0L-M9 <input type="checkbox"/> | 100–110V AC<br>200–220V AC | DM22K0L-H8 <input type="checkbox"/><br>DM22K0L-M8 <input type="checkbox"/> |

Note:  See page 04CD/2/28

# Pilot Lights DM22

## • Lens color

Replace the □ mark by the following lens color code

| Color | Green | Red | White | Blue | Yellow | Orange |
|-------|-------|-----|-------|------|--------|--------|
| Code  | G     | R   | W     | S    | Y      | A      |

## • Lamp voltage

Available lamp voltage are as follow.

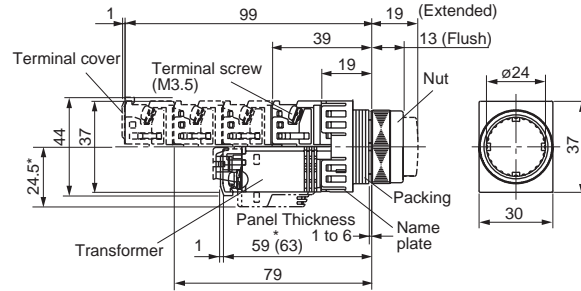
| Description         | Voltage     | Code                 |              | Short-body type |              |
|---------------------|-------------|----------------------|--------------|-----------------|--------------|
|                     |             | Standard type<br>LED | Incandescent | LED             | Incandescent |
| Without transformer | 5.5V AC/DC  | –                    | 54           | –               | –            |
|                     | 6V AC       | A3                   | –            | –               | –            |
|                     | 6V DC       | 63                   | –            | –               | –            |
|                     | 12V AC/DC   | B3                   | –            | –               | –            |
|                     | 15V AC/DC   | C3                   | C4           | –               | –            |
|                     | 20V AC/DC   | –                    | D4           | –               | –            |
|                     | 24V AC/DC   | E3                   | E4           | –               | –            |
| With transformer    | 100-110V AC | H3                   | H4           | H9              | H8           |
|                     | 115-127V AC | L3                   | L4           | L9              | L8           |
|                     | 200-220V AC | M3                   | M4           | M9              | M8           |
|                     | 230-254V AC | Q3                   | Q4           | –               | –            |
|                     | 350-380V AC | S3                   | S4           | –               | –            |
|                     | 400-440V AC | T3                   | T4           | –               | –            |
|                     | 480V AC     | V3                   | V4           | –               | –            |
|                     | 500-550V AC | W3                   | W4           | –               | –            |
| With resistor unit  | 110V DC     | H7                   | –            | –               | –            |

# Pushbuttons/Selectors/Pilot Lights AM22 and DM22 Dimensions

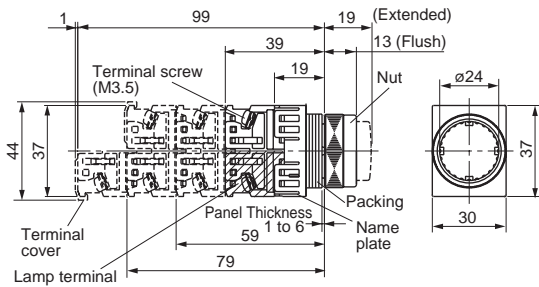
- Dimensions, mm
- Illuminated pushbutton switches

## Flush/Extended

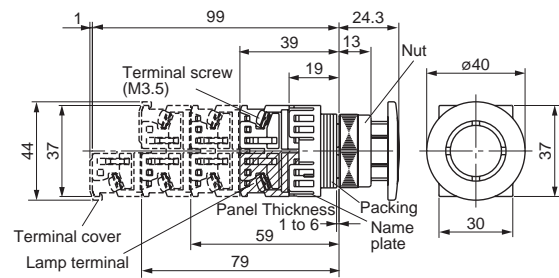
AM22F0L, F5L, E0L, E5L  
With transformer



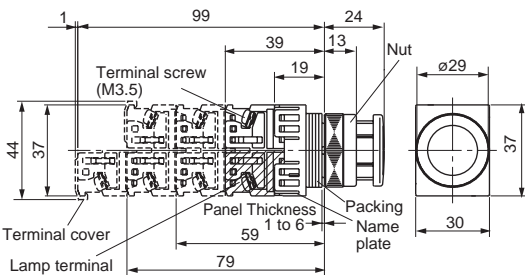
Without transformer



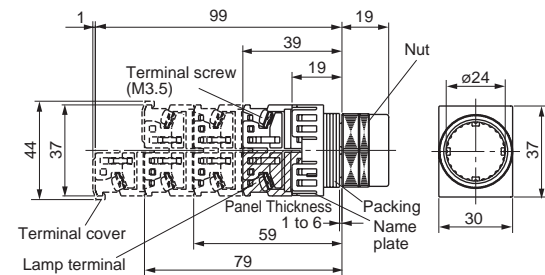
## Mushroom (40mm dia.) AM22M0L, M5L



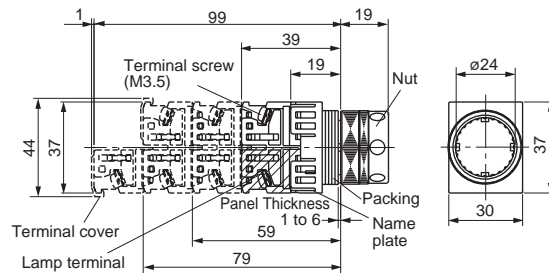
## Mushroom (29mm dia.) AM22M4L, M9L



## Extended with transparent full guard AM22G4L, G9L



## Extended with full guard (with openings) AM22G2L, G7L



Note: \* Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights

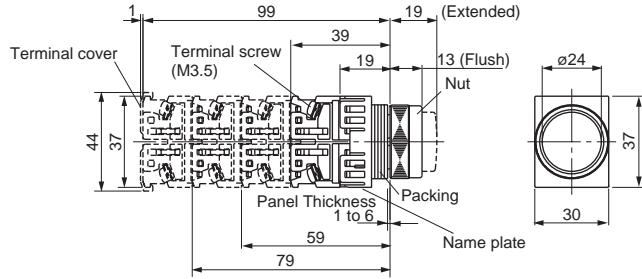
## AM22 and DM22

### Dimensions

- Dimensions, mm
- Pushbutton switches

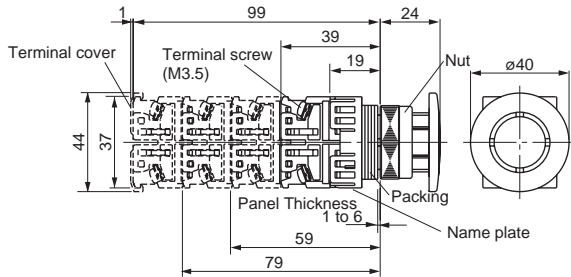
#### Flush/Extended

AM22F0R, F5R  
AM22E0R, E5R



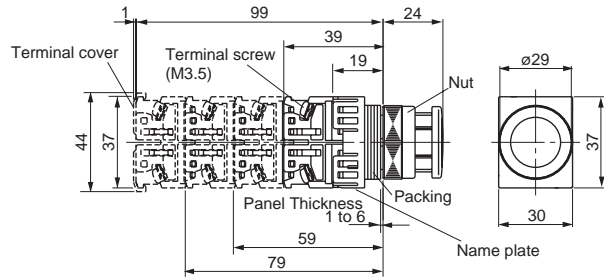
#### Mushroom (40mm dia.)

AM22M0R, M5R



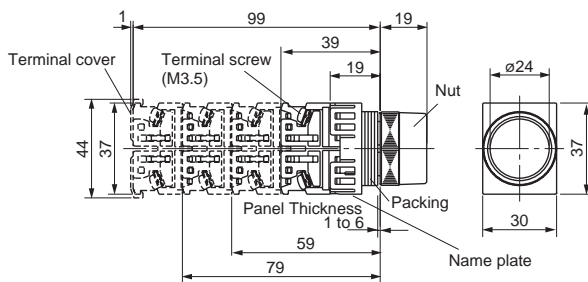
#### Mushroom (29mm dia.)

AM22M4R



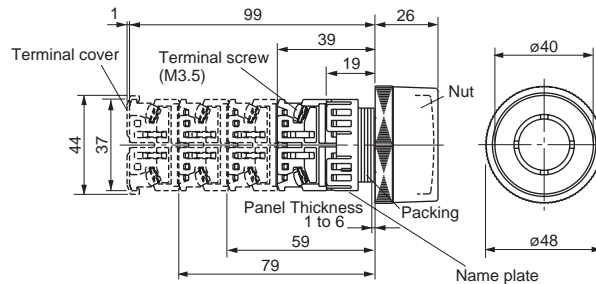
#### Extended with full guard (24mm dia.)

AM22G3R, G8R



#### Mushroom with full guard (40mm dia.)

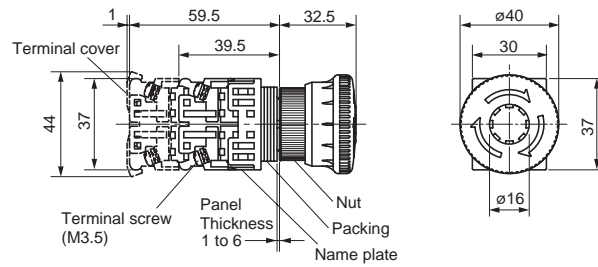
AM22M3R, M8R



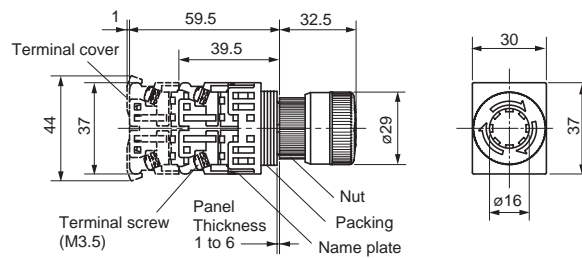
■ Dimensions, mm

● Emergency stop pushbutton switches

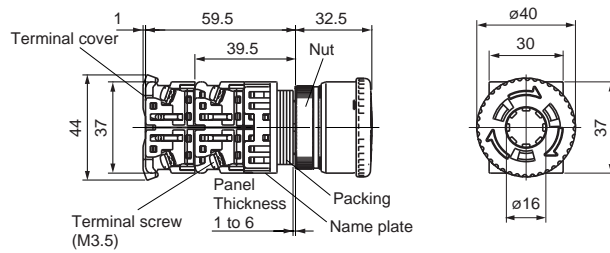
**Push-lock, turn-reset (40mm dia. with white arrow)**  
 AM22V0E



**Push-lock, turn-reset (29mm dia. with white arrow)**  
 AM22VSE



**Push-lock, turn-reset (40mm dia. with mechanical indicator)**  
 AM22VME



# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Dimensions

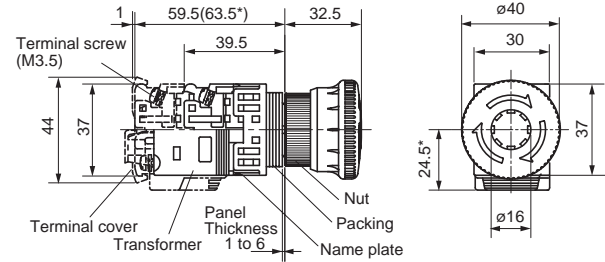
#### ■ Dimensions, mm

#### ● Emergency stop illuminated pushbutton switches

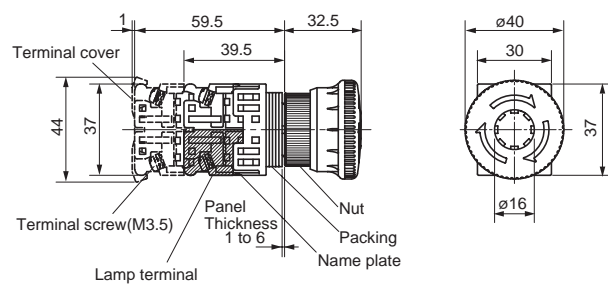
#### Push-lock, turn-reset (40mm dia. with white arrow)

AM22V0F

With transformer



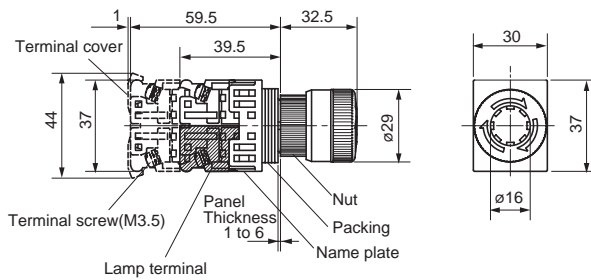
Without transformer



#### Push-lock, turn-reset (29mm dia. with white arrow)

AM22VSF

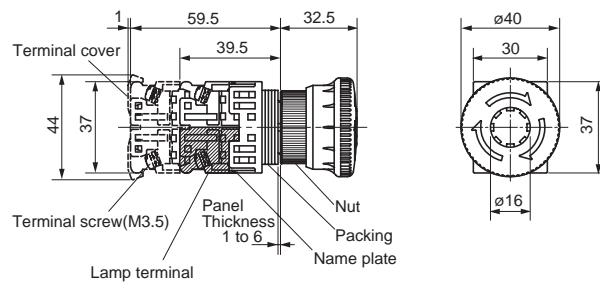
Without transformer



#### Push-lock, turn-reset (40mm dia. transparent in all colors with white arrow)

AM22VDF

Without transformer

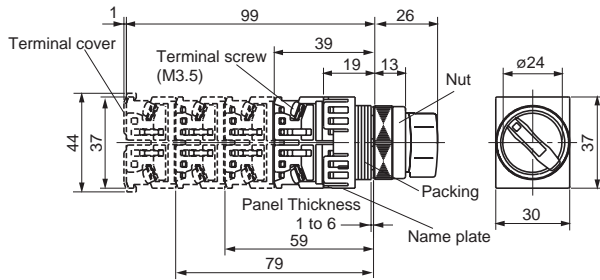


Note: \* Except for the types 110V AC, 127V AC and 220V AC.

■ Dimensions, mm  
 ● Selector switches

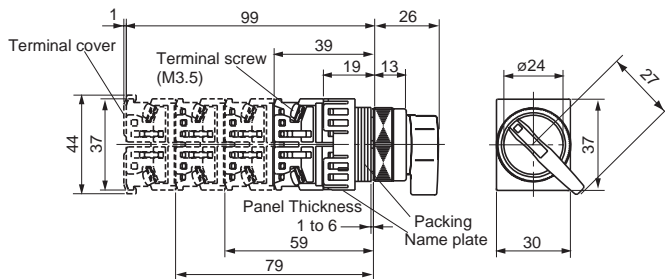
**Knob**

AM22PR, PCR



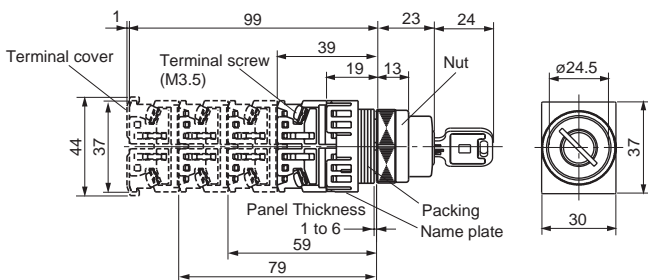
**Lever**

AM22WR, WCR



**Key**

AM22JR, JCR





# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

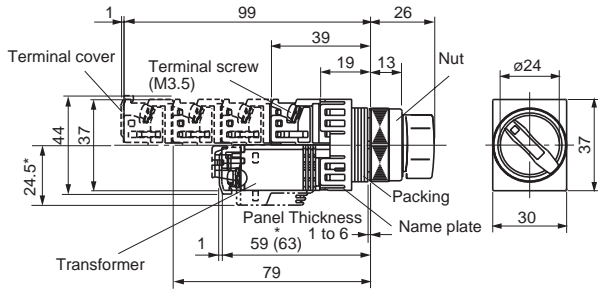
### Dimensions

#### ■ Dimensions, mm

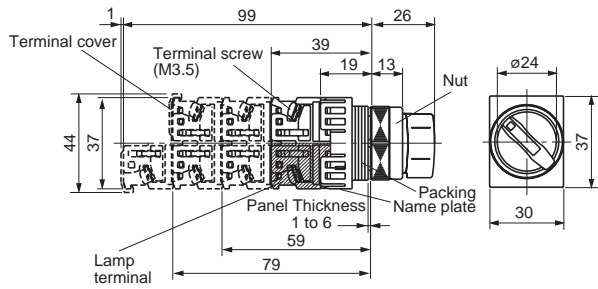
#### ● Illuminated selector switches

##### Knob AM22PL

With transformer



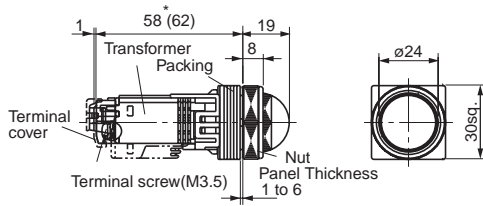
Without transformer



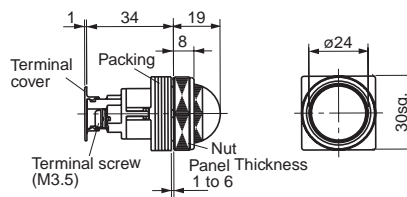
#### ● Pilot lights

##### Dome DM22D0L

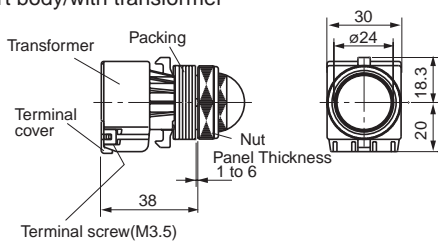
With transformer, with resistor unit



Without transformer



Short body/with transformer

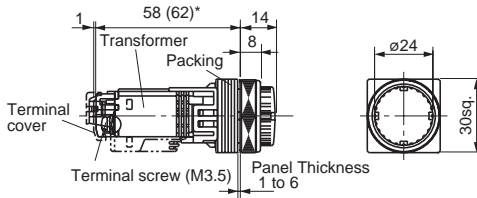


Note: \* Except for the types 110V AC, 127V AC and 220V AC.

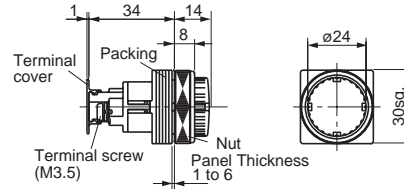
■ Dimensions, mm  
 ● Pilot lights

**Extended DM22E3L**

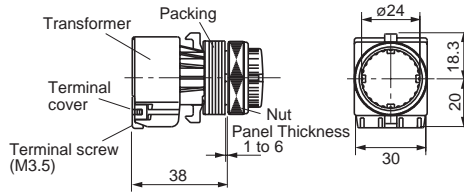
With transformer, with resistor unit



Without transformer

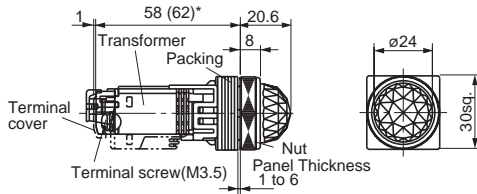


Short body/with transformer

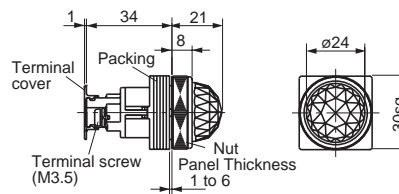


**Faceted DM22K0L**

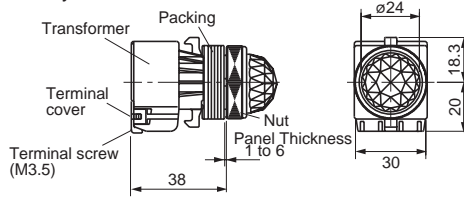
With transformer, with resistor unit



Without transformer



Short body/with transformer



Note: \* Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights

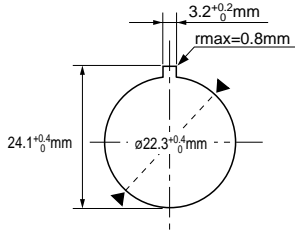
## AM22 and DM22

### Notes on use

#### Notes on use

##### ■ Panel cutout hole

Fig. 1 Panel cutout hole dimensions, mm



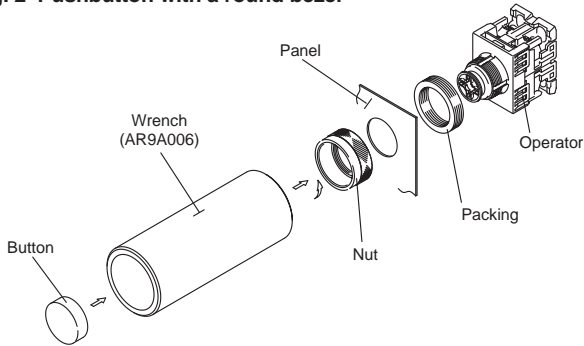
Note : If key-washer or legend plate are not used, 3.2mm-wide location holes shown in Fig. 1 need not be cutout.

##### ■ Mounting operator to panel

##### 1. Pushbutton with a round bezel (ordinary mounting)

Insert the operator into the cutout hole from the back of the panel, and tighten the nut with the AR9A006 wrench from the front of the panel to secure the operator as shown in Fig.2.

Fig. 2 Pushbutton with a round bezel



AF95-465

Note : Recommended tightening torque is from 1.0 to 1.5N·m.

##### 2. Mounting Procedure for the M3R and M8R

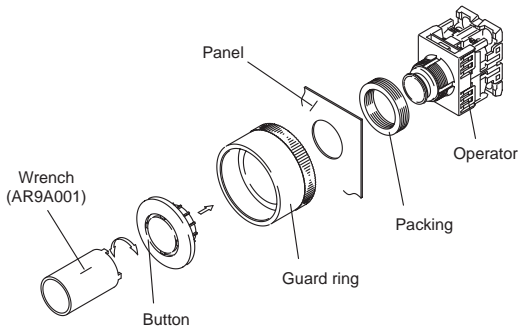
- Insert the operator through the cutout hole from behind the panel and secure it by the guard ring from the front of the panel.

Note: The correct tightening torque is 1.0 to 1.5 N·m.

- Use the wrench (AR9A001) to mount the button.

Note: The correct tightening torque is 0.5 to 1.0 N·m.

Fig. 3



##### ■ Method for changing the button, lens, and nameplate

##### ● AM22F0R, F5R, E0R, E5R, G3R, G8R

- To remove the button, insert a small flat-tip screwdriver in the groove around the periphery of the button, and gently pry it off working the screwdriver around the entire periphery.
- To attach the button, align the I-shaped protrusion on the back side of the button with the cross-shaped groove on the plunger and push the button in.

Fig. 4a

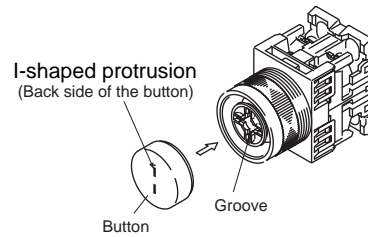
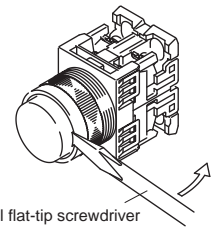
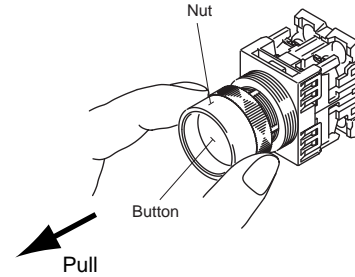


Fig. 4b



- In case of G3R, G8R: Loosen and pull the nut, and the button will come off.

Fig. 5



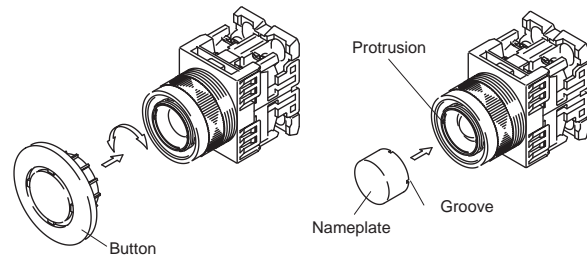
##### ● AM22M0R, M5R, M4R, M0L, M4L, M5L, M9L

- The button is threaded. Attach it and remove it by hand. When attaching the button, make sure that it is screwed in completely.

Note: The correct tightening torque is 0.5 to 1.0 N·m.

- For illuminated pushbutton switches, insert the groove of the nameplate onto the protrusion on the plunger and push in the nameplate.

Fig. 6

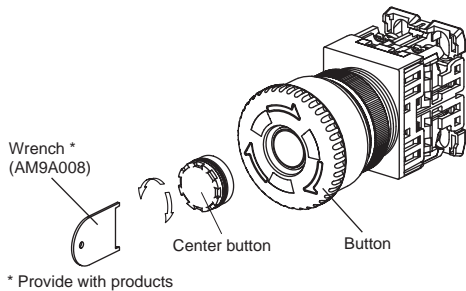


● **AM22V0E, VSE, VME, V0F, VDF, VSF**

As shown in Fig.7, engage the tips of the AM9A008 wrench into the indentations around the pushbutton center button, and turn the wrench to loosen and remove the pushbutton center button, then remove the pushbutton.

Note: The correct tightening torque is 0.5 to 1.0N•m.

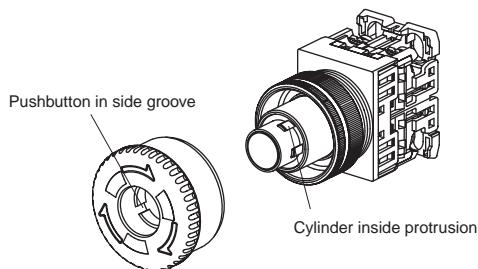
Fig. 7



Insert the operator into the cutout hole from the back of the panel, and as shown in Fig.8, insert the pushbutton into the operator cylinder while aligning the grooves inside the pushbutton with the protrusions on the operator.

Note: The correct tightening torque is 0.5 to 1.0N•m.

Fig. 8 Setting pushbutton to operator cylinder



● **AM22F0L, F5L, E0L, E5L, G4L, G9L, G2L, DM22E3L**

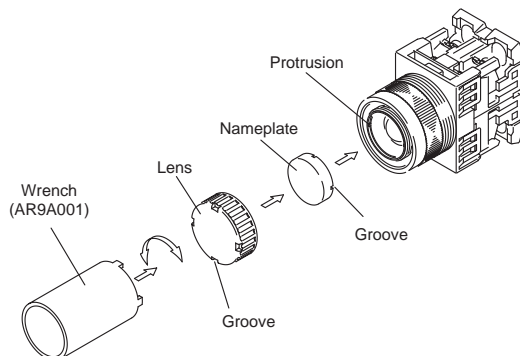
Engage the protrusions on the front end of the wrench (AR9A001) with the groove on the lens and screw on the lens.

Note: The correct tightening torque is 0.5 to 1.0 N•m.

● **Attaching the nameplate**

Insert the groove of the nameplate onto the protrusion on the plunger.

Fig. 9

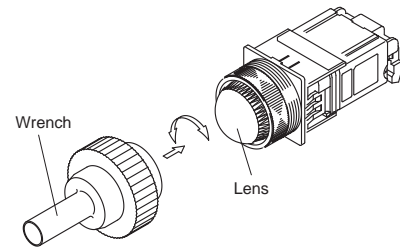


● **DM22D0L, K0L**

Push the end of the wrench (AHX702) onto the lens and turn the wrench to attach or remove the lens.

Note: The correct tightening torque is 0.5 to 1.0 N•m.

Fig. 10



● **AM22PR, PCR, WR, WCR**

- (1) As shown in the following figure, insert the tip of a small flathead screwdriver into the selector tip groove. Rotate the screwdriver in the direction indicated by the arrow until the selector tip rises, and draw out the knob.
- (2) Attach the operator in the same manner as described in step 1.
- (3) Insert the knob, with the selector tip in the floated state, into the original position of the rotation tube, and push the selector tip into place.

Fig. 11a

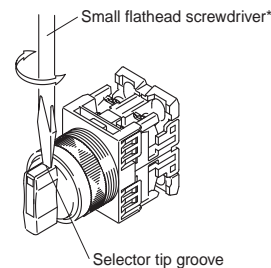
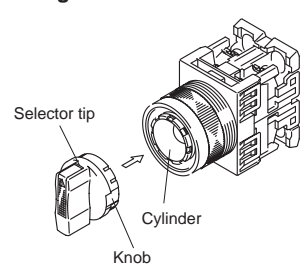


Fig. 11b



● **AM22PL**

To remove an illuminated switch, insert a small flathead screwdriver or the like into the groove around the periphery of the knob and pry it off.

Fig. 12a

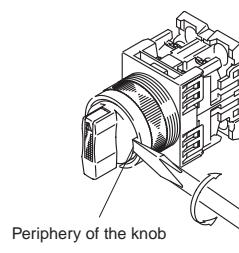
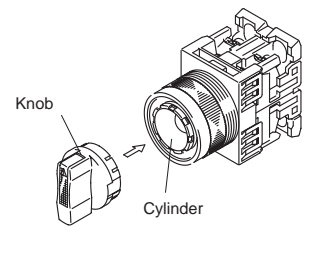


Fig. 12b



\*Use a small flathead screwdriver with a head that is about 4 mm wide.

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

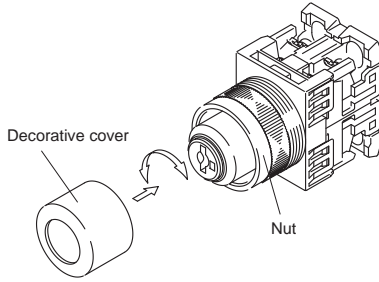
### Notes on use

#### ● AM22JR, JCR

- For key type switches, the decorative cover and nut are threaded. Removing the decorative cover enables the nut to be removed. Make sure to tighten the decorative cover so that there is no play.

Note: The correct tightening torque is 0.3 to 0.5 N•m.

Fig. 13



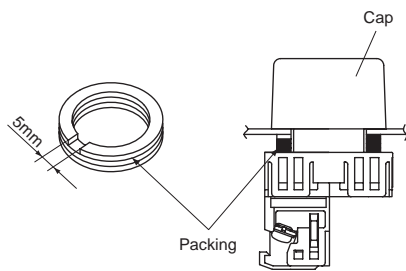
#### ■ Water-proof and dust-proof cap

Applicable type: Water-proof cap AHX797  
Dust-proof cap AM9D797

When attached to the panel in combination with a water-proof or dust-proof cap, the water-proof cap or dust-proof cap may sink downward and prevent the depressed button from returning to its original position.

As shown in the following figure, cut an approximately 5-mm air outlet in the portion of the ring packing touching the panel surface. Also, reduce the number of packing rings by one below the standard number. The clamp ring tightening torque is 1 to 1.5 N•m.

Fig. 14



#### Degree of protection

The water-proof cap or dust-proof cap seals the panel surface to provide IP65 protection.

- AM9D797 : Air outlet groove packing provided.

#### ■ Using accessory ring-packings

Use the required number of ring-packings (1.3mm-thick, 5 pieces, resin mold).

Table below is a guideline for using the packings.

If a locking nut or legend plate is used, the thickness must be counted as an additional panel thickness.

#### Panel thickness vs. number of packings (reference data)

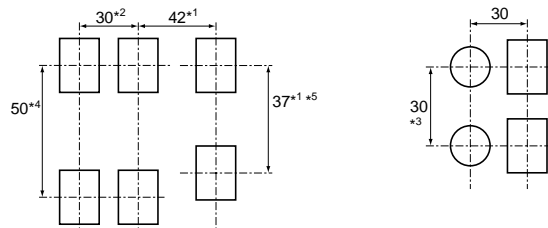
| Effective panel thickness including lock-ring and legend plate thicknesses | Number of packings |
|--|--------------------|
| 1.0mm to less than 1.6mm   |                    |
| 1.6mm to less than 2.8mm   |                    |
| 2.8mm to less than 3.8mm   |                    |
| 3.8mm to less than 4.8mm   |                    |
| 4.8mm to less than 6.0mm   |                    |

#### ■ Minimum mounting space, mm

The minimum mounting spaces required for AM22•DM22 command switches are given below. (Fig. 15)

Fig. 15

- Illuminated pushbutton and pushbutton
- Emergency stop illuminated pushbutton and emergency stop pushbutton
- Illuminated and non-illuminated selectors
- Pilot light



Notes: \*1 • AM22M0L, M5L, M0R, M5R, V0E, V0F, VDF: 42  
• AM22M3R, M8R: 49  
• AM22WR, WCR: 40

\*2 When mounting contact blocks at 30mm pitch, use it circuit of 380V or less.



\*3 Short body with transformer types: 50mm.






\*4 This dimension applies when transformer units or contact blocks face each other.

\*5 This dimension applies when transformer unit or contact block is mounted on only one side.

Other items are the same as for the AR22 and DR22 series, see page 04/53 to 04/57

■ Accessories


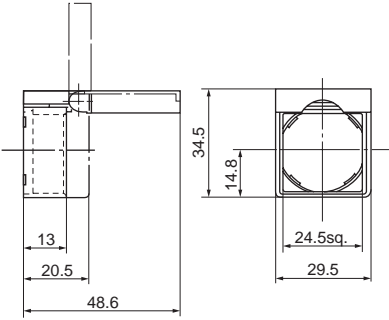
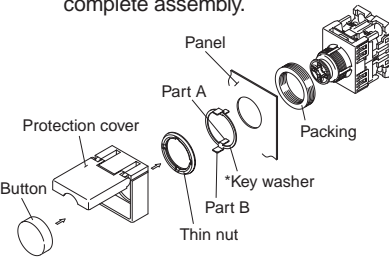

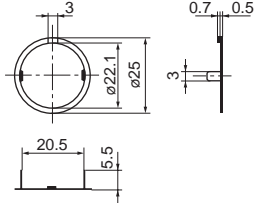

| Discription   | Type  |
|---|---|
| <p>Wrench</p>  <p>KK02-261</p>   | <p><b>AR9A004</b><br/> Dimensions, mm: 30 x 100 x 6.5</p>  <p>Section "B"<br/> Use this section to tighten or remove the lens.<br/> Applicable type:<br/> AM22M3R, M8R, F0L, F5L, E0L, E5L, G4L,<br/> G9L, G2L, G7L, DM22E3L</p> <p>Remarks<br/> Section "A" : (For AR22 nut tightening)</p> <p>Section "C" : (For AR22V□□, AR30V□□<br/> center button tightening)</p> |
| <p>Wrench</p>  <p>KKD07-096</p>   | <p><b>AM9A008</b><br/> Dimensions, mm: 16 x 23 x 0.8</p> <p>Application:<br/> AM22V□□ center button</p>   |
| <p>Wrench</p>  <p>KK02-098A</p>  | <p><b>AR9A001</b><br/> Dimensions, mm: <math>\varnothing 22 \times 35</math></p> <p>Application:<br/> AM22M3R, M8R, F0L, F5L, E0L, E5L, G4L,<br/> G9L, G2L, G7L, DM22E3L lens tightening</p>  |
| <p>Wrench for <math>\varnothing 22, \varnothing 30</math></p>  <p>For <math>\varnothing 30</math><br/> For <math>\varnothing 22</math></p> <p>AF96-241</p> | <p><b>AR9A006</b><br/> Dimensions, mm: <math>\varnothing 40 \times 100</math></p> <p>Application:<br/> AM22, DM22 nut tightening</p>  |
| <p>Wrench</p>  <p>SI-303</p>   | <p><b>AHX701</b><br/> Dimensions, mm: <math>\varnothing 25 \times 72.5</math></p> <p>Application:<br/> To mount on Protection cover (AM9D762),<br/> use this wrench to tighten the nut.</p>   |


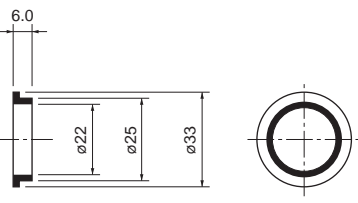

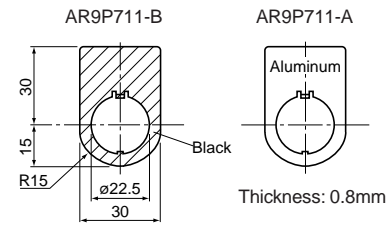

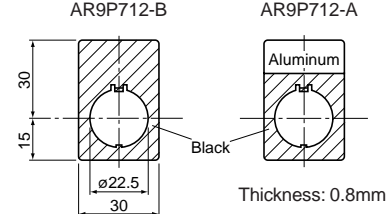
| Discription   | Type  |
|---|---|
| <p>Special tool</p>  <p>AHX321</p>  <p>SG-873<br/> DR9A321-T</p> <p>AF95-21</p> | <p><b>AHX321</b><br/> Dimensions, mm: 42 x 130 x 6.5<br/> For all types except pilot lights</p> <p><b>DR9A321-T</b><br/> Dimensions, mm: 57 x 130 x 30<br/> For pilot lights</p> <ul style="list-style-type: none"> <li>• This tool is used to remove contact blocks and transformer units.</li> <li>• The AHX321 can remove round color lens of switches.</li> </ul> |
| <p>Wrench/Lamp changer</p>  <p>SI-1030</p>  | <p><b>AHX702</b><br/> Dimensions, mm: <math>\varnothing 36 \times 55</math></p> <p>Use this wrench to tighten or remove the lens and lamp.</p> <p>Used with:<br/> Lens of DM22D0L, K0L Incandescent lamp of pilot lights and illuminated pushbuttons</p>  |
| <p>Lamp changer</p>  <p>For BA9S/13 lamp<br/> (For E12/15 lamp)</p> <p>AF95-22</p>  | <p><b>AHX790</b><br/> Dimensions, mm: <math>\varnothing 14 \times 55</math></p> <ul style="list-style-type: none"> <li>• Use this rubber wrench for mounting or removing LED lamps from pilot lights and illuminated pushbutton switches.</li> </ul>  |
| <p>Lamp changer (for AM22 V□F type)</p>  <p>KK02-261</p>  | <p><b>AM9A009</b><br/> Dimensions, mm: <math>\varnothing 8 \times 50</math></p> <ul style="list-style-type: none"> <li>• Application<br/> AM22V0F, VSF, VDF</li> </ul>  |

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22


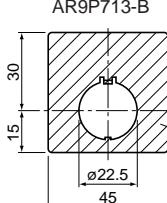
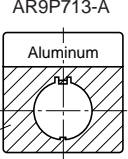
### Accessories

|  |  |
|--|--|
| <p>Discription</p> <p>Protection cover</p>  <p>SP183</p> | <p>Type</p> <p><b>AM9D762</b></p> <p>This cover protects against accidental operation.</p> <p>Used with:<br/>AM22F□R, E□R<br/>AM22F□L, E□L</p> <p>Dimensions, mm:</p>  <p>Notes : Assemble in the following order.</p> <ol style="list-style-type: none"> <li>1. Remove the tightening ring.</li> <li>2. Set protrusion A of the retaining washer in the groove of the operator.</li> <li>3. Use the wrench (AHX701) to tighten the thin nut.</li> <li>4. Align protrusion B of the retaining washer with the groove of the protective cover, and press the protective cover onto the thin nut.</li> <li>5. Mount the button and lens to complete assembly.</li> </ol>  <p>*Provided</p> |
| <p>Key washer</p>  <p>SP-214</p>                        | <p>Type</p> <p><b>AHX715</b></p> <p>Use this metal washer when securing an operator.</p> <p>Dimension, mm:</p>    |
| <p>Operator base cover</p>  <p>AF95-26</p>              | <p>Type</p> <p><b>AR9Y002</b></p> <p>Attach this cover to the operator base of a pushbutton switch with only one contact block (1NO or 1NC) to protect against dust.</p>   |



| <p>Discription</p> <p>Adapter</p>  <p>SK-596</p> | <p>Type</p> <p><b>AHX718</b></p> <p>Use this adapter to mount a 22-mm-diameter command switch to a 25-mm-diameter cutout hole. Note that a 25-mm-diameter packing (AHX283, resin) must be purchased separately and used with the adapter.</p> <p>Dimensions, mm:</p>  <p>Panel cutout: <math>\phi 25.5^{+0.5}_0</math> mm</p>  |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|---|---|--------|------|--|--|---|---|-------|---|---|----|---|---|-----|---|---|-------|---|---|------|---|---|--------|---|---|
| <p>Legend plate</p>  <p>SI-1033</p>            | <p>Type</p> <p><b>AR9P711-①②③</b></p> <p>① Color<br/>B: Black<br/>A: Aluminum</p> <p>This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)</p> <table border="1"> <thead> <tr> <th>Legend</th> <th colspan="2">Code</th> </tr> <tr> <th></th> <th>②</th> <th>③</th> </tr> </thead> <tbody> <tr> <td>Blank</td> <td>0</td> <td>0</td> </tr> <tr> <td>ON</td> <td>0</td> <td>A</td> </tr> <tr> <td>OFF</td> <td>0</td> <td>B</td> </tr> <tr> <td>START</td> <td>0</td> <td>C</td> </tr> <tr> <td>STOP</td> <td>0</td> <td>D</td> </tr> <tr> <td>OFF-ON</td> <td>2</td> <td>A</td> </tr> </tbody> </table> <p>Dimensions, mm:</p>  <p>Thickness: 0.8mm</p>        | Legend | Code |  |  | ② | ③ | Blank | 0 | 0 | ON | 0 | A | OFF | 0 | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 | A |
| Legend  | Code  |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|   | ②   | ③      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| Blank   | 0   | 0      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| ON  | 0   | A      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| OFF   | 0   | B      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| START   | 0   | C      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| STOP  | 0   | D      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| OFF-ON  | 2   | A      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| <p>Legend plate</p>  <p>SI-1032</p>            | <p>Type</p> <p><b>AR9P712-①②③</b></p> <p>① Color<br/>B: Black<br/>A: Partially black</p> <p>This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)</p> <table border="1"> <thead> <tr> <th>Legend</th> <th colspan="2">Code</th> </tr> <tr> <th></th> <th>②</th> <th>③</th> </tr> </thead> <tbody> <tr> <td>Blank</td> <td>0</td> <td>0</td> </tr> <tr> <td>ON</td> <td>0</td> <td>A</td> </tr> <tr> <td>OFF</td> <td>0</td> <td>B</td> </tr> <tr> <td>START</td> <td>0</td> <td>C</td> </tr> <tr> <td>STOP</td> <td>0</td> <td>D</td> </tr> <tr> <td>OFF-ON</td> <td>2</td> <td>A</td> </tr> </tbody> </table> <p>Dimensions, mm:</p>  <p>Thickness: 0.8mm</p> | Legend | Code |  |  | ② | ③ | Blank | 0 | 0 | ON | 0 | A | OFF | 0 | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 | A |
| Legend  | Code  |        |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|   | ②   | ③      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| Blank   | 0   | 0      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| ON  | 0   | A      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| OFF   | 0   | B      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| START   | 0   | C      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| STOP  | 0   | D      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| OFF-ON  | 2   | A      |      |  |  |   |   |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |




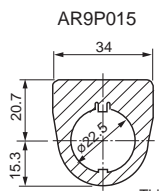
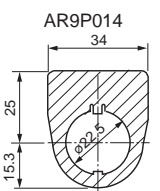
# Pushbuttons/Selectors/Pilot Lights AM22 and DM22 Accessories

| Discription   | Type  |           |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
|---|---|-----------|-----------|-----------|-------|---|---|----|---|---|-----|---|---|-------|---|---|------|---|---|--------|---|
| Legend plate<br><br> | <b>AR9P713-①②③</b> This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)<br>① Color<br>B: Black<br>A: Partially black   |           |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
|   | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Legend</th> <th style="width: 15%;">Code<br/>②</th> <th style="width: 15%;">Code<br/>③</th> </tr> </thead> <tbody> <tr><td>Blank</td><td>0</td><td>0</td></tr> <tr><td>ON</td><td>0</td><td>A</td></tr> <tr><td>OFF</td><td>0</td><td>B</td></tr> <tr><td>START</td><td>0</td><td>C</td></tr> <tr><td>STOP</td><td>0</td><td>D</td></tr> <tr><td>OFF-ON</td><td>2</td><td>A</td></tr> </tbody> </table> <p>Dimensions, mm:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>AR9P713-B</p> </div> <div style="text-align: center;">  <p>AR9P713-A</p> </div> </div> <p style="text-align: center;">Thickness: 0.8mm</p> | Legend    | Code<br>② | Code<br>③ | Blank | 0 | 0 | ON | 0 | A | OFF | 0 | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 |
| Legend  | Code<br>②   | Code<br>③ |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| Blank   | 0   | 0         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| ON  | 0   | A         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| OFF   | 0   | B         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| START   | 0   | C         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| STOP  | 0   | D         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| OFF-ON  | 2   | A         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |


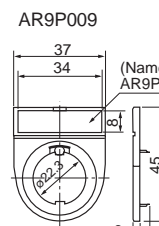
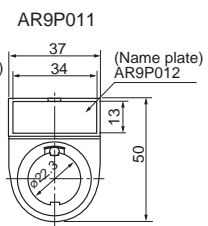
.AF95-114

| Discription  | Type   |           |                  |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |
|--|--|-----------|------------------|-----------|------------------|-------|---|---|---|-----------|---|---|-----|------|---|---|------|-----------|---|---|------|-----|--|--|
| Legend plate for emergency stop<br><br> | <b>AR9P719-①②</b> This aluminum legend plate is for a 22.3mm dia. panel cutout hole. (Packing provided)<br>Plate color: Yellow<br>Letter color: Black  |           |                  |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |
|  | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Legend</th> <th style="width: 10%;">Code<br/>①</th> <th style="width: 10%;">Code<br/>②</th> <th style="width: 10%;">Letter<br/>height</th> </tr> </thead> <tbody> <tr><td>Blank</td><td>0</td><td>0</td><td>—</td></tr> <tr><td>EMERGENCY</td><td>5</td><td>A</td><td>7mm</td></tr> <tr><td>STOP</td><td>5</td><td>B</td><td>13mm</td></tr> <tr><td>EMERGENCY</td><td>5</td><td>C</td><td>13mm</td></tr> <tr><td>OFF</td><td></td><td></td><td></td></tr> </tbody> </table> <p>Dimensions, mm:</p> <div style="text-align: center;">  <p>AR9P719</p> </div> <p style="text-align: center;">Thickness: 0.8mm</p> <p style="font-size: small;">Note: Engraving for making letters is not available.</p> | Legend    | Code<br>①        | Code<br>② | Letter<br>height | Blank | 0 | 0 | — | EMERGENCY | 5 | A | 7mm | STOP | 5 | B | 13mm | EMERGENCY | 5 | C | 13mm | OFF |  |  |
| Legend   | Code<br>①  | Code<br>② | Letter<br>height |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |
| Blank  | 0  | 0         | —                |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |
| EMERGENCY  | 5  | A         | 7mm              |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |
| STOP   | 5  | B         | 13mm             |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |
| EMERGENCY  | 5  | C         | 13mm             |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |
| OFF  |  |           |                  |           |                  |       |   |   |   |           |   |   |     |      |   |   |      |           |   |   |      |     |  |  |

KK02-265A

| Discription   | Type   |           |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
|---|--|-----------|-----------|-----------|-------|---|---|----|---|---|-----|---|---|-------|---|---|------|---|---|--------|---|
| Legend plate<br>(width: 34mm)<br><br> | <b>AR9P015-B①②</b> : Hight 36mm<br><b>AR9P014-B①②</b> : Hight 40.3mm<br><br>Color: black   |           |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
|   | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Legend</th> <th style="width: 15%;">code<br/>①</th> <th style="width: 15%;">code<br/>②</th> </tr> </thead> <tbody> <tr><td>Blank</td><td>0</td><td>0</td></tr> <tr><td>ON</td><td>0</td><td>A</td></tr> <tr><td>OFF</td><td>0</td><td>B</td></tr> <tr><td>START</td><td>0</td><td>C</td></tr> <tr><td>STOP</td><td>0</td><td>D</td></tr> <tr><td>OFF-ON</td><td>2</td><td>A</td></tr> </tbody> </table> <p>Optimal for use in combination with a 3-position selector switch.<br/>Legend plates are available in two types: short, 36 mm; and long, 40.3mm.</p> <p>Dimensions, mm:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>AR9P015</p> </div> <div style="text-align: center;">  <p>AR9P014</p> </div> </div> <p style="text-align: center;">Thickness: 0.6mm</p> | Legend    | code<br>① | code<br>② | Blank | 0 | 0 | ON | 0 | A | OFF | 0 | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 |
| Legend  | code<br>①  | code<br>② |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| Blank   | 0  | 0         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| ON  | 0  | A         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| OFF   | 0  | B         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| START   | 0  | C         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| STOP  | 0  | D         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |
| OFF-ON  | 2  | A         |           |           |       |   |   |    |   |   |     |   |   |       |   |   |      |   |   |        |   |

.AF96-190

| Discription  | Type  |            |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|--|---|------------|-----------|-----------|----|---|---|-----|---|---|-------|---|---|------|---|---|--------|---|---|
| Legend plate with name plate<br><br> | Legend plate <b>AR9P009-B</b><br>Name plate <b>AR9P010-B ①②</b> (34 × 8mm)  |            |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|  | Legend plate <b>AR9P011-B</b><br>Name plate <b>AR9P012-B ①②</b> (34 × 13mm)   |            |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|  | Legend plate <b>AR9P007-B</b><br>Name plate <b>AR9P008-B ①②</b> (27 × 16mm)   |            |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|  | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Name plate</th> <th style="width: 15%;">Code<br/>①</th> <th style="width: 15%;">Code<br/>②</th> </tr> </thead> <tbody> <tr><td>ON</td><td>0</td><td>A</td></tr> <tr><td>OFF</td><td>0</td><td>B</td></tr> <tr><td>START</td><td>0</td><td>C</td></tr> <tr><td>STOP</td><td>0</td><td>D</td></tr> <tr><td>OFF-ON</td><td>2</td><td>A</td></tr> </tbody> </table> <p>Dimensions, mm:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>AR9P009</p> </div> <div style="text-align: center;">  <p>AR9P011</p> </div> </div> <p style="text-align: center;">Thickness: 0.8mm</p> | Name plate | Code<br>① | Code<br>② | ON | 0 | A | OFF | 0 | B | START | 0 | C | STOP | 0 | D | OFF-ON | 2 | A |
| Name plate   | Code<br>①   | Code<br>②  |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| ON   | 0   | A          |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| OFF  | 0   | B          |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| START  | 0   | C          |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| STOP   | 0   | D          |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
| OFF-ON   | 2   | A          |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |
|  | Legend plate <b>AR9P007</b><br>Name plate <b>AR9P008</b>  |            |           |           |    |   |   |     |   |   |       |   |   |      |   |   |        |   |   |


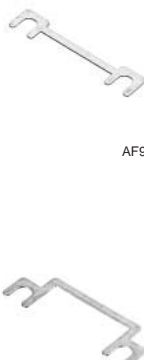
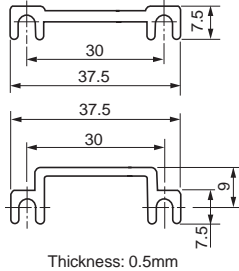

.AF96-190







# Pushbuttons/Selectors/Pilot Lights







## AM22 and DM22


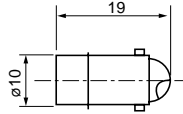

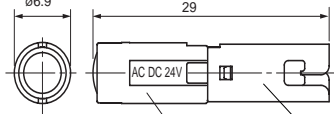

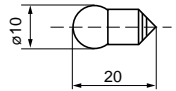
### Accessories

| Discription   | Type  |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
|---|---|------|-----------|--------------------|--------------|--------------------|---|-------------------|--------------|-------------------|--------------|-------------------|---------|-------------------|---------|-------|-------|-----|-------|--------|------|---|---|---|---|-------|--------|------|-------|------|---|---|---|
| Panel plug<br><br>SI-1027   | Round:<br><b>AHX725-B</b> Black<br><b>AHX725-H</b> Gray<br><br>Square:<br><b>AHX726-B</b> Black<br><b>AHX726-H</b> Gray<br><br>Dimensions, mm: $\varnothing 29.5 \times 17$ (AHX725)<br>29.5 sq. x 17 (AHX726)<br>Use this plug to cover up unused panel cutout holes.<br>For oil proof usage, use together with packing (AR9Y730) and a nut (AR9R744).   |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| Jumper<br><br>AF95-153<br><br>AF95-27   | <b>APCX029</b> (For pilot light without transformer)<br><b>DR9Y001</b> (For pilot light with transformer)<br><br>Use this jumper to connect terminals allocated in a 30mm pitch.<br>Rated current is 3A<br><br>Dimensions, mm<br><br><br>Thickness: 0.5mm   |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| Lens for illuminated pushbutton switch and pilot lights<br><br>KK02-266A<br>KK02-267A<br>KK02-268A<br>KK02-269A<br>KK02-270A | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9C011</b>-□*</td> <td>AM22F0L, F5L</td> </tr> <tr> <td><b>AM9C012</b>-□*</td> <td>AM22E0L, E5L, G4L, G9L, G2L, G7L, DM22E3L</td> </tr> <tr> <td><b>AM9C015</b>-□</td> <td>AM22M4L, M9L</td> </tr> <tr> <td><b>AM9C016</b>-□</td> <td>AM22M0L, M5L</td> </tr> <tr> <td><b>DM9C011</b>-□</td> <td>DM22D0L</td> </tr> <tr> <td><b>DM9C012</b>-□</td> <td>DM22K0L</td> </tr> </tbody> </table><br>Replace the □ mark by the lens color code<br><table border="1"> <thead> <tr> <th>Color</th> <th>Green</th> <th>Red</th> <th>Clear</th> <th>Yellow</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>G</td> <td>R</td> <td>C</td> <td>Y</td> </tr> </tbody> </table><br><table border="1"> <thead> <tr> <th>Color</th> <th>Orange</th> <th>Blue</th> <th>White</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>A</td> <td>S</td> <td>W</td> </tr> </tbody> </table><br>Notes: * When the code is "W" (white), use a lens of clear color. | Type | Used with | <b>AR9C011</b> -□* | AM22F0L, F5L | <b>AM9C012</b> -□* | AM22E0L, E5L, G4L, G9L, G2L, G7L, DM22E3L | <b>AM9C015</b> -□ | AM22M4L, M9L | <b>AM9C016</b> -□ | AM22M0L, M5L | <b>DM9C011</b> -□ | DM22D0L | <b>DM9C012</b> -□ | DM22K0L | Color | Green | Red | Clear | Yellow | Code | G | R | C | Y | Color | Orange | Blue | White | Code | A | S | W |
| Type  | Used with   |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| <b>AR9C011</b> -□*  | AM22F0L, F5L  |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| <b>AM9C012</b> -□*  | AM22E0L, E5L, G4L, G9L, G2L, G7L, DM22E3L   |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| <b>AM9C015</b> -□   | AM22M4L, M9L  |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| <b>AM9C016</b> -□   | AM22M0L, M5L  |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| <b>DM9C011</b> -□   | DM22D0L   |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| <b>DM9C012</b> -□   | DM22K0L   |      |           |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| Color   | Green   | Red  | Clear     | Yellow             |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| Code  | G   | R    | C         | Y                  |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| Color   | Orange  | Blue | White     |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |
| Code  | A   | S    | W         |                    |              |                    |   |                   |              |                   |              |                   |         |                   |         |       |       |     |       |        |      |   |   |   |   |       |        |      |       |      |   |   |   |

| Discription  | Type   |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
|--|--|--------|-----------|-------------------|--------------|-------------------|------------------------|-------------------|---------|-------------------|------------------------|-------|-------|-----|-------|-------|------|---|---|---|---|-------|--------|--------|------|------|---|---|---|
| Lens for pushbutton switch<br><br>KK02-266A<br>KK02-268A<br>KK02-269A                        | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AM9C001</b>-□</td> <td>AM22F0R, F5R</td> </tr> <tr> <td><b>AM9C003</b>-□</td> <td>AM22E0R, E5R, G3R, G8R</td> </tr> <tr> <td><b>AM9C006</b>-□</td> <td>AM22M4R</td> </tr> <tr> <td><b>AM9C007</b>-□</td> <td>AM22M0R, M3R, M5R, M8R</td> </tr> </tbody> </table><br>Replace the □ mark by the lens color code<br><table border="1"> <thead> <tr> <th>Color</th> <th>Green</th> <th>Red</th> <th>Black</th> <th>White</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>G</td> <td>R</td> <td>B</td> <td>W</td> </tr> </tbody> </table><br><table border="1"> <thead> <tr> <th>Color</th> <th>Yellow</th> <th>Orange</th> <th>Blue</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>Y</td> <td>A</td> <td>B</td> </tr> </tbody> </table> | Type   | Used with | <b>AM9C001</b> -□ | AM22F0R, F5R | <b>AM9C003</b> -□ | AM22E0R, E5R, G3R, G8R | <b>AM9C006</b> -□ | AM22M4R | <b>AM9C007</b> -□ | AM22M0R, M3R, M5R, M8R | Color | Green | Red | Black | White | Code | G | R | B | W | Color | Yellow | Orange | Blue | Code | Y | A | B |
| Type   | Used with  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C001</b> -□  | AM22F0R, F5R   |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C003</b> -□  | AM22E0R, E5R, G3R, G8R   |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C006</b> -□  | AM22M4R  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C007</b> -□  | AM22M0R, M3R, M5R, M8R   |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Color  | Green  | Red    | Black     | White             |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Code   | G  | R      | B         | W                 |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Color  | Yellow   | Orange | Blue      |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Code   | Y  | A      | B         |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Center button (for AM22V□□ type)<br><br>KK02-267A<br>KK02-267A                              | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AM9C034-R</b></td> <td>AM22V0E, VSE</td> </tr> <tr> <td><b>AM9C035-R</b></td> <td>AM22V0F, VSF, VDF</td> </tr> </tbody> </table><br>Center button color: Red only  | Type   | Used with | <b>AM9C034-R</b>  | AM22V0E, VSE | <b>AM9C035-R</b>  | AM22V0F, VSF, VDF      |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Type   | Used with  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C034-R</b>   | AM22V0E, VSE   |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C035-R</b>   | AM22V0F, VSF, VDF  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Push-lock, turn-reset button (for AM22V□□ type)<br><br>KK02-271A<br>KK02-270A<br>KK02-272A | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AM9C036-R</b></td> <td>AM22V0E, V0F</td> </tr> <tr> <td><b>AM9C037-R</b></td> <td>AM22VSE, VSF</td> </tr> <tr> <td><b>AM9C040-R</b></td> <td>AM22VDF</td> </tr> </tbody> </table><br>Button color: Red only  | Type   | Used with | <b>AM9C036-R</b>  | AM22V0E, V0F | <b>AM9C037-R</b>  | AM22VSE, VSF           | <b>AM9C040-R</b>  | AM22VDF |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Type   | Used with  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C036-R</b>   | AM22V0E, V0F   |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C037-R</b>   | AM22VSE, VSF   |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AM9C040-R</b>   | AM22VDF  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Knob<br><br>AF95-43   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9M006</b>-□</td> <td>AM22PR, PCR</td> </tr> </tbody> </table><br>Replace the □ mark by the knob color code<br><table border="1"> <thead> <tr> <th>Color</th> <th>Black</th> <th>Green</th> <th>Red</th> </tr> </thead> <tbody> <tr> <td>Code</td> <td>B</td> <td>G</td> <td>R</td> </tr> </tbody> </table>   | Type   | Used with | <b>AR9M006</b> -□ | AM22PR, PCR  | Color             | Black                  | Green             | Red     | Code              | B                      | G     | R     |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Type   | Used with  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| <b>AR9M006</b> -□  | AM22PR, PCR  |        |           |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Color  | Black  | Green  | Red       |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |
| Code   | B  | G      | R         |                   |              |                   |                        |                   |         |                   |                        |       |       |     |       |       |      |   |   |   |   |       |        |        |      |      |   |   |   |

# Pushbuttons/Selectors/Pilot Lights AM22 and DM22 Accessories





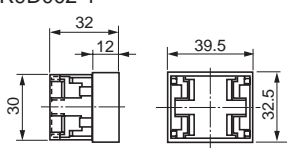
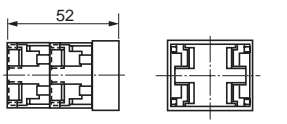
|   |  |
|---|--|
| Discription   | Type   |
| Lever<br><br><br><br>AF95-42   | Type                      Used with  |
|   | <b>AR9M007</b> -□ AM22WR, WCR  |
|   | Replace the □ mark by the lever color code   |
|   | Color   Black   Green   Red<br>Code   B        G        R  |
| Knob<br>(for illuminated selector switch)<br><br><br><br>AF94-465                          | Type                      Used with  |
|   | <b>AR9M005</b> -□ AM22PL   |
|   | Replace the □ mark by the knob color code  |
|   | Color   Green   Red    White<br>Code   G        R        W<br>Color   Yellow   Orange   Blue<br>Code   Y        A        S |
| Key<br><br><br><br>KKD09-012  | Type                      Used with  |
|   | <b>AR9C022</b> -□ AM22JR, JCR  |
| Replace the □ mark by the key type code.<br>Code: A, B, C, D, E or F, 6 types.  |  |
| Legend plate<br><br><br><br>AF94-459   | Type                      Used with  |
|   | <b>AR9P001-W</b> AM22F0L, F5L  |
| This part is made of acrylic resin.<br>Use paint or thinner compatible with resin.  |  |
| Dimensions, mm: ø17.8 x 0.9   |  |
| Legend plate<br><br><br><br>KK02-273A  | Type                      Used with  |
|   | <b>AR9P002-W</b> AM22E0L, E5L, G4L, G9L, G2L, G7L  |
| This part is made of acrylic resin.<br>Use paint or thinner compatible with resin.  |  |
| Dimensions, mm: ø17.8 x 4.5   |  |
| Legend plate<br><br><br><br>KK02-273A  | Type                      Used with  |
|   | <b>AM9P024-W</b> AM22M0L, M5L, M4L, M9L  |
| <ul style="list-style-type: none"> <li>This part is made of acrylic resin.<br/>Use paint or thinner compatible with resin.</li> <li>Dimensions, mm: ø17.8 x 10.2</li> </ul> |  |




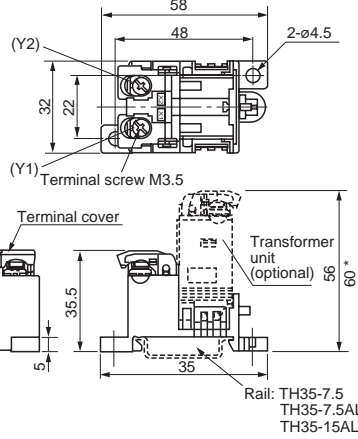

|   |  |                      |
|---|--|----------------------|
| Discription   | Type   |                      |
| LED lamp<br><br><br><br>KKD06-208                                   | Type                      Lamp voltage                                 |                      |
|   | <b>APX510-6</b> □        6V AC   |                      |
|   | <b>APX510-D6</b> □       6V DC   |                      |
|   | <b>APX510-12</b> □       12V AC/DC                                     |                      |
|   | <b>APX510-15</b> □       15V AC/DC                                     |                      |
|   | <b>APX510-24</b> □       24V AC/DC                                     |                      |
|   | Replace the □ mark by the luminous color code                          |                      |
|   | Luminous color   | Yellow   Red   Green |
|   | Code   | Y        R        G  |
|   | Lens color   | Y        R        G  |
| Luminous color  | Amber   Orange   Blue  |                      |
| Code  | A        O        S  |                      |
| Lens color  | A        W        S  |                      |
| Dimensions, mm:   |  |                      |
|   |  |                      |
| Lamp base: BA9s/13  |  |                      |
| LED lamp<br>(for AM22V0F, VSF, VDF type)<br><br><br><br>KK02-273A | Type                      Lamp voltage                                 |                      |
|   | <b>AR9L001-6R</b> 6V AC<br><b>AR9L001-24R</b> 24V AC/DC                |                      |
| Luminous color: Red only  |  |                      |
| Dimensions, mm:   |  |                      |
|    |  |                      |
| Holder (24V: gray) (6V: white)      Lamp base   |  |                      |
| Incandescent lamp<br><br><br><br>KKD06-307                        | Type                      Lamp voltage      Rated voltage, consumption |                      |
|   | <b>AHX135</b> 5.5V AC/DC      6.3V AC/DC, 1W                           |                      |
|   | <b>AHX279</b> 15V AC/DC      18V AC/DC, 1W                             |                      |
|   | <b>AHX144</b> 20V AC/DC      24V AC/DC, 1W                             |                      |
|   | <b>AHX129</b> 24V AC/DC      30V AC/DC, 1W                             |                      |
|   | Dimensions, mm:  |                      |
|    |  |                      |
| Lamp base: BA9s/13  |  |                      |

# Pushbuttons/Selectors/Pilot Lights










## AM22 and DM22


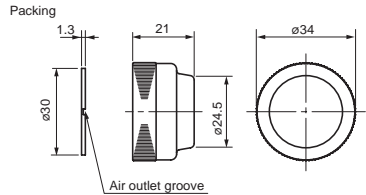





### Accessories

| Discription  | Type   |      |            |                  |                     |                  |                     |
|--|--|------|------------|------------------|---------------------|------------------|---------------------|
| Contact block (1NO)<br><br>AF94-455         | <b>AR9B290</b> Standard<br><b>AR9B290-S</b> Overlap<br><br>Color: Blue<br>Dimensions, mm: 19.3 x 29 x 27<br><br>Note: Terminal cover is not supplied with this.  |      |            |                  |                     |                  |                     |
| Contact block (1NC)<br><br>AF94-455         | <b>AR9B291</b> Standard<br><b>AR9B291-S</b> Overlap<br><br>Color: Red<br>Dimensions, mm: 19.3 x 29 x 27<br><br>Note: Terminal cover is not supplied with this.   |      |            |                  |                     |                  |                     |
| Lamp terminal<br><br>AF94-456               | <b>AR9B292</b><br><br>Color: Black<br>Dimensions, mm: 19.3 x 29 x 27<br><br>Note: Terminal cover is not supplied with this.  |      |            |                  |                     |                  |                     |
| Contact protection cover<br><br>KK02-118A | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with*</th> </tr> </thead> <tbody> <tr> <td><b>AR9D002-1</b></td> <td>AM22, 1step contact</td> </tr> <tr> <td><b>AR9D002-2</b></td> <td>AM22, 2step contact</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>The contact is covered with a silicon rubber cover to keep out foreign matter such as dust, etc.</li> <li>* See page 04CD/2/46(AM22□Z8 types)</li> </ul> Dimensions, mm:<br><br> | Type | Used with* | <b>AR9D002-1</b> | AM22, 1step contact | <b>AR9D002-2</b> | AM22, 2step contact |
| Type   | Used with*   |      |            |                  |                     |                  |                     |
| <b>AR9D002-1</b>   | AM22, 1step contact  |      |            |                  |                     |                  |                     |
| <b>AR9D002-2</b>   | AM22, 2step contact  |      |            |                  |                     |                  |                     |

| Discription   | Type   |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
|---|--|-------------------|-----------------|-----------|------------------|-------------|---------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|---------|------------------|-------------|-------------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|---------|------------------|-------------|
| Transformer unit<br><br>AF94-457<br><br><br>AF95-33 | <table border="1"> <thead> <tr> <th>Type</th> <th>Primary voltage</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>AR9T511-H</b></td> <td>100-110V AC</td> <td rowspan="7">Standard type</td> </tr> <tr> <td><b>AR9T511-L</b></td> <td>115-127V AC</td> </tr> <tr> <td><b>AR9T511-M</b></td> <td>200-220V AC</td> </tr> <tr> <td><b>AR9T511-Q</b></td> <td>230-254V AC</td> </tr> <tr> <td><b>AR9T511-S</b></td> <td>350-380V AC</td> </tr> <tr> <td><b>AR9T511-T</b></td> <td>400-440V AC</td> </tr> <tr> <td><b>AR9T511-V</b></td> <td>480V AC</td> </tr> <tr> <td><b>AR9T511-W</b></td> <td>500-550V AC</td> <td rowspan="7">AM22V0F, VDF, VSF</td> </tr> <tr> <td><b>AM9T511-H</b></td> <td>100-110V AC</td> </tr> <tr> <td><b>AM9T511-L</b></td> <td>115-127V AC</td> </tr> <tr> <td><b>AM9T511-M</b></td> <td>200-220V AC</td> </tr> <tr> <td><b>AM9T511-Q</b></td> <td>230-254V AC</td> </tr> <tr> <td><b>AM9T511-S</b></td> <td>350-380V AC</td> </tr> <tr> <td><b>AM9T511-T</b></td> <td>400-440V AC</td> </tr> <tr> <td><b>AM9T511-V</b></td> <td>480V AC</td> </tr> <tr> <td><b>AM9T511-W</b></td> <td>500-550V AC</td> </tr> </tbody> </table> Dimensions, mm:<br>Up to 220 V 22.4 x 30 x 45<br>Over 220 V 25.3 x 29 x 48<br><br>Note: With terminal cover | Type              | Primary voltage | Used with | <b>AR9T511-H</b> | 100-110V AC | Standard type | <b>AR9T511-L</b> | 115-127V AC | <b>AR9T511-M</b> | 200-220V AC | <b>AR9T511-Q</b> | 230-254V AC | <b>AR9T511-S</b> | 350-380V AC | <b>AR9T511-T</b> | 400-440V AC | <b>AR9T511-V</b> | 480V AC | <b>AR9T511-W</b> | 500-550V AC | AM22V0F, VDF, VSF | <b>AM9T511-H</b> | 100-110V AC | <b>AM9T511-L</b> | 115-127V AC | <b>AM9T511-M</b> | 200-220V AC | <b>AM9T511-Q</b> | 230-254V AC | <b>AM9T511-S</b> | 350-380V AC | <b>AM9T511-T</b> | 400-440V AC | <b>AM9T511-V</b> | 480V AC | <b>AM9T511-W</b> | 500-550V AC |
| Type  | Primary voltage  | Used with         |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-H</b>  | 100-110V AC  | Standard type     |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-L</b>  | 115-127V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-M</b>  | 200-220V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-Q</b>  | 230-254V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-S</b>  | 350-380V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-T</b>  | 400-440V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-V</b>  | 480V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AR9T511-W</b>  | 500-550V AC  | AM22V0F, VDF, VSF |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-H</b>  | 100-110V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-L</b>  | 115-127V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-M</b>  | 200-220V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-Q</b>  | 230-254V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-S</b>  | 350-380V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-T</b>  | 400-440V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-V</b>  | 480V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| <b>AM9T511-W</b>  | 500-550V AC  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| Base unit for transformer separate mounting<br><br>KK02-118A   | <b>AR9T003</b><br><br>Use this base in combination with a transformer unit. This base unit can be mounted using screws or rails.<br><br>Dimensions, mm<br><br>* Except for the types 110V AC, 127V AC and 220V AC.  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |
| Resistor<br>Voltage stabilizer<br>Device for LED lamp flickering<br><br>AF95-33  | Resistor: <b>AR9T519-H</b> (110V DC)<br>Fit this resistor when using LED of 24V DC rating with 110V DC power.<br><br>Voltage stabilizer: <b>AR9T001-E</b><br>This unit allows an LED lamp of 24V DC rating to be used in a circuit with voltage from 27V to 35V (AC or DC).<br><br>Flickering device:<br>6V AC: <b>AR9T002-A</b><br>6V DC: <b>AR9T002-6</b><br>12 to 24V AC: <b>AR9T002-G</b> *<br>12 to 24V DC: <b>AR9T002-E</b> *<br><br>* Used in combination with 12V, 15V, or 24V rated LED lamp.<br><br>Note: With terminal cover  |                   |                 |           |                  |             |               |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |                   |                  |             |                  |             |                  |             |                  |             |                  |             |                  |             |                  |         |                  |             |

# Pushbuttons/Selectors/Pilot Lights AM22 and DM22 Accessories

| Discription   | Type  |
|---|---|
| <b>Nut</b><br><br><br><small>KK02-274A</small><br><br><br><small>KK02-275A</small><br><br><br><small>KK02-276A</small>   | <b>Type</b> <b>Used with</b><br><b>AM9R744</b> *1 AM22F0R, F5R, E0R, E5R, M0R, M5R, M4R, F0L, F5L, E0L, E5L, M0L, M5L, M4L, M9L, PR, PCR, WR, WCR, JR, JCR, PL<br><b>DM9R744</b> *1 DM22D0L, E3L, K0L<br><b>AM9R057</b> *3 AM22V0E, V0F, VDF<br><b>AM9R057</b> *2 AM22F0R, F5R, E0R, E5R, M4R, F0L, F5L, E0L, E5L, M4L, M9L, PR, PCR, WR, WCR, JR, JCR, PL<br><b>AM9R058</b> *3 AM22VSE, VSF<br><b>DM9R057</b> *2 DM22D0L, E3L, K0L |
|   | *1 Resin types are black (standard)<br>*2 Aluminum types are silver<br>*3 Aluminum types are silver (standard)  |
|   | <b>Type</b> <b>Used with</b><br><b>AM9R003</b> *1 AM22G4L, G9L<br><b>AM9R054</b> *2 AM22G3R, G8R<br><b>AM9R056</b> *2 AM22G2L, G7L<br><b>AM9R223</b> *2 AM22M3R, M8R  |
|   | *1 Resin types are transparent<br>*2 Resin types are black  |
| <b>Guard-ring</b><br><br><br><b>AM9R003</b><br><br><br><b>AM9R054</b><br><small>KK02-277A</small><br><br><br><b>AM9R056</b><br><small>KK02-274A</small><br><br><br><b>AM9R223</b><br><small>KK02-278A</small> |   |
| <b>Nut</b><br><br><br><small>AF94-462</small>  | <b>AR9R744</b><br><br>For AHX725*, 726*<br><br>* When use the panel plug as IP65, then use with packing(AR9Y730)  |
| <b>Water-tight cap</b><br><br><br><small>SK-594</small>  | <b>AHX797</b><br><br>This rubber cap protects the operator and switch mechanism against dust and water. Use this cap in a dusty or moist environment. The only color available is transparent.<br><br><b>Used with:</b><br>AM22E0R, E5R, E0L, E5L<br><br><b>Dimensions, mm:</b> $\phi 36 \times 22.5$   |

| Discription  | Type   |                      |           |                |                |   |                 |                |                                       |                      |
|--|--|----------------------|-----------|----------------|----------------|---|-----------------|----------------|---------------------------------------|----------------------|
| <b>Dust-proof cap</b><br><br><br><small>KK02-279A</small>   | <b>AM9D797</b> -□<br><br>Replace the □ mark by the cap color code<br><table border="1"> <tr> <th>Color</th> <td>Green</td> <td>Red</td> <td>Black</td> </tr> <tr> <th>Code</th> <td>G</td> <td>R</td> <td>B</td> </tr> </table><br><br><b>Dimensions, mm:</b><br>   | Color                | Green     | Red            | Black          | Code  | G               | R              | B                                     |                      |
| Color  | Green  | Red                  | Black     |                |                |   |                 |                |                                       |                      |
| Code   | G  | R                    | B         |                |                |   |                 |                |                                       |                      |
| <b>Packing</b><br><br><br><b>AHX730</b> <small>SI-299</small><br><br><br><b>AHX283</b> <small>AF94-462</small><br><br><br><b>AR9Y730</b> <small>SF-1113</small> | <b>AHX730:</b><br>For all AM22 and DM22 (Resin)<br>Note: 5 pieces of packing per delivery<br><br><b>AHX283:</b><br>For AHX728 (Resin)<br>Note: 4 pieces of packing per delivery<br><br><b>AR9Y730:</b><br>For AHX725*, 726* (Rubber)<br>* When use the panel plug as IP65, then use with nut (AR9R744)   |                      |           |                |                |   |                 |                |                                       |                      |
| <b>Terminal cover</b><br><br><br><small>AF94-466</small>   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> <th>Dimensions, mm</th> </tr> </thead> <tbody> <tr> <td><b>AR9Y305</b></td> <td>Contact unit<br/>Lamp terminal<br/>Transformer unit *</td> <td>18.4 x 29 x 8.4</td> </tr> <tr> <td><b>DR9Y320</b></td> <td>Pilot lights<br/>(without transformer)</td> <td><math>\phi 22 \times 5.8</math></td> </tr> </tbody> </table><br>* Rated up to 220V.<br><br>The terminal cover is provided as standard with the applicable types listed above. (Except for contact block alone and lamp terminal alone) | Type                 | Used with | Dimensions, mm | <b>AR9Y305</b> | Contact unit<br>Lamp terminal<br>Transformer unit *                     | 18.4 x 29 x 8.4 | <b>DR9Y320</b> | Pilot lights<br>(without transformer) | $\phi 22 \times 5.8$ |
| Type   | Used with  | Dimensions, mm       |           |                |                |   |                 |                |                                       |                      |
| <b>AR9Y305</b>   | Contact unit<br>Lamp terminal<br>Transformer unit *  | 18.4 x 29 x 8.4      |           |                |                |   |                 |                |                                       |                      |
| <b>DR9Y320</b>   | Pilot lights<br>(without transformer)  | $\phi 22 \times 5.8$ |           |                |                |   |                 |                |                                       |                      |
| <b>Terminal cover</b><br><br><br><small>SG-5</small>   | <table border="1"> <thead> <tr> <th>Type</th> <th>Used with</th> <th>Dimensions, mm</th> </tr> </thead> <tbody> <tr> <td><b>AHX376</b></td> <td>With transformer *<br/>With short-body transformer<br/>With resistor unit</td> <td>13 x 29 x 6.5</td> </tr> </tbody> </table><br>* Use types that exceed the standard 220V rating for products with standard type transformer.<br><br>The terminal cover is provided as standard with the applicable types listed above.   | Type                 | Used with | Dimensions, mm | <b>AHX376</b>  | With transformer *<br>With short-body transformer<br>With resistor unit | 13 x 29 x 6.5   |                |                                       |                      |
| Type   | Used with  | Dimensions, mm       |           |                |                |   |                 |                |                                       |                      |
| <b>AHX376</b>  | With transformer *<br>With short-body transformer<br>With resistor unit  | 13 x 29 x 6.5        |           |                |                |   |                 |                |                                       |                      |

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Special products

#### Products equipped with contact protection cover

##### ■ Features

A silicon rubber cover is provided for the contact block to keep out foreign matter such as dust, etc.  
Other ratings and specifications are the same as those of the standard type.

##### ■ Type

**AM22 □ Z8**

Specify "Z8" at the end of the type number of the standard type.

##### ■ Dimensions

The only thing different from the standard product is the addition of a 1-mm thick silicon rubber cover around the contact block.

##### ■ Applicable types

| Type   | Contact arrangement                      | Remarks                          |
|--|--|----------------------------------|
| <ul style="list-style-type: none"> <li>• Pushbuttons</li> <li>• Emergency stop pushbuttons</li> <li>• Selectors</li> </ul> | 1NO+1NC,<br>2NO*1, 2NC                   | For use with a<br>1-step contact |
|  | 1NO+3NC, 2NO+2NC,<br>3NO+1NC, 4NO*1, 4NC | For use with a<br>2-step contact |
| <ul style="list-style-type: none"> <li>• Illuminated pushbuttons<br/>(without transformer)</li> </ul>                      | 1NO*2, 1NC                               | For use with a<br>1-step contact |
| <ul style="list-style-type: none"> <li>• Emergency stop illuminated<br/>pushbuttons (without transformer)</li> </ul>       | 1NO+2NC, 2NO+1NC,<br>3NO*2, 3NC          | For use with a<br>2-step contact |
| <ul style="list-style-type: none"> <li>• Illuminated selectors<br/>(without transformer)</li> </ul>                        |  |                                  |

Notes: \*1 Except for emergency stop pushbutton switch

\*2 Except for emergency stop illuminated pushbutton switch

#### Resisting water-soluble cutting oils and heat

##### ■ Features

Safer operation in environments exposed to water-miscible cutting fluids, machining oils, lubricating oils, cleaning oils and high humidity (up to 95%) is made possible by using materials that protect against rust and corrosion of components.  
Other ratings and specifications are the same as those of the standard type.

##### ■ Type

**AM22 □ Z9, DM22 □ Z9**

Specify "Z9" at the end of the type number of the standard type.

##### ■ Dimensions

Same as those of the standard type

##### ■ Applicable types

• AM22, DM22 series

AM22 (Except for emergency stop pushbutton switch and emergency stop illuminated pushbutton switch)  
DM22 (Except for pilot lights with resistor unit)

### Meeting IP2X finger protection standards

#### ■ Features

Conforms to EN standard EN60204-1 (protecting against electric shock). The terminal has IEC60529 degree of protection; IP2X finger protection secured (a mock human finger used in testing did not come into contact with charged parts). The contact block and lamp terminal can be easily mounted or removed with the terminal cover mounted.

#### ■ Type

**AM22** □ ZB, **DM22** □ ZB

Specify "ZB" at the end of the type number of the standard type.

#### ■ Accessories

- Contact block (plus terminal cover)  
 NO contact: AR9B290-□ D  
 NC contact: AR9B291-□ D
- Transformer unit (plus terminal cover)  
 AR9T511-□ D

#### ■ Ratings and specifications

- Protection degree: IP2X
- Terminal screw: M3.5  
 Wiring can be done with a solid wire or fork shaped crimp terminal.

Note: Ring-type crimp terminals cannot be used.

- Other ratings and specifications are the same as those of the standard type.

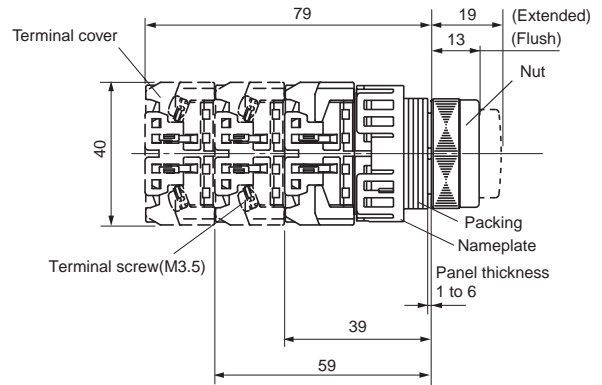
#### ■ Applicable types

AM22

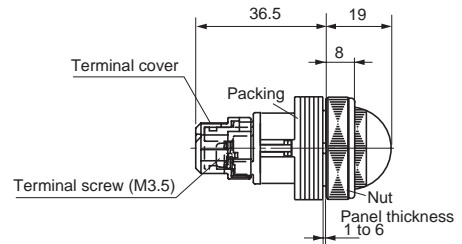
DM22: Without transformer, with transformer (except for short-body types)

### ■ Dimensions, mm

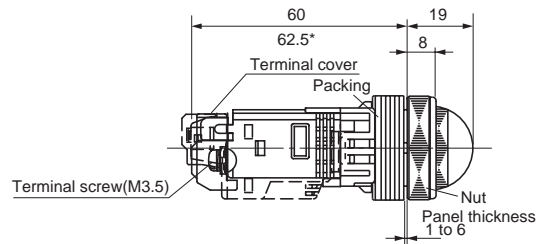
AM22/Pushbutton switches



DM22/Without transformer



DM22/With transformer



Note : \* Except for the types 110V AC, 127V AC and 220V AC.

# Pushbuttons/Selectors/Pilot Lights

## AM22 and DM22

### Special products

#### Metal nut (aluminum) types

##### ■ Features

The nut is an aluminum ring.  
Other ratings and specifications are the same as those of the standard model.

##### ■ Type

AM22 □ ZM

DM22 □ ZM

Specify "ZM" at the end of the type number of the standard type.

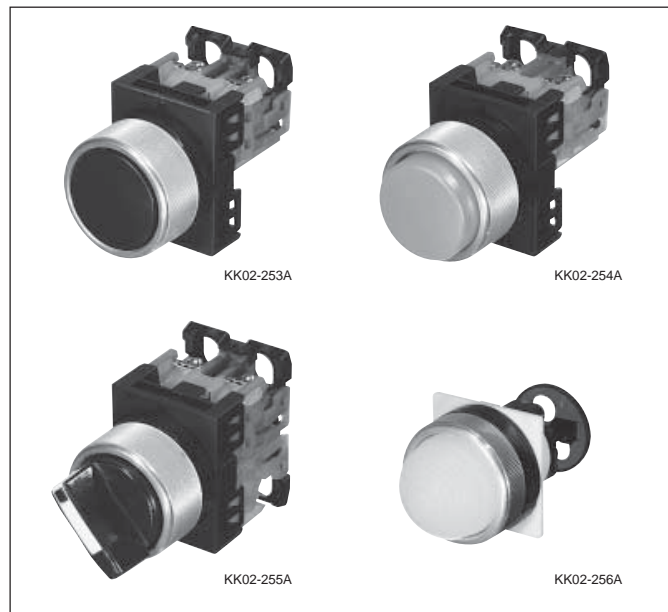
##### ■ Dimensions, mm

Same as those of the standard types.

##### ■ Applicable types

AM22 (except for G4L, G9L, M3R, M8R, V□E\*, V□F\* types)  
DM22 with round bezel

Note: \* Standard type is a metallic ring (chrome plated).



#### Resisting sulfuration gas

##### ■ Features

These products can be used in environments having a concentration of hydrogen sulfide gas of 0.5 ppm or less. The metallic parts have been subjected to an anti-corrosion treatment (see note). The contacts of the AM series are gold plated.

Note: The body is made of resin and cannot be used with gases that affect resins (plastics).

##### ■ Type

AM22 □ Z4, DM22 □ Z4

Specify "Z4" at the end of the type number of the standard type.

##### ■ Notes on use

- This product is resistant to light corrosive gas exposure.
- Other measures, such as covering the entire switch with a box, and the degree of protection of the panel should be taken into consideration.

##### ■ Ratings and specifications

Hydrogen sulfide gas concentration of 0.5 ppm max.

Ambient storage temperature: 8 to 37°C

Humidity: 62 to 81%

Other ratings and specifications are the same as those of the standard type.

##### ■ Dimensions, mm

Same as those of the standard types.

##### ■ Applicable types

AM22

DM22 (except for pilot lights with resistor unit)

(except for emergency stop pushbutton switch and emergency stop illuminated pushbutton switch)



■ Mass, gram

• Pushbutton switches

| Type     | 1-contact | 2-contact | 4-contact |
|----------|-----------|-----------|-----------|
| F0R      | 28        | 38        | 57        |
| F5R      |           |           |           |
| E0R      | 29        | 39        | 58        |
| E5R      |           |           |           |
| G3R, M4R | 31        | 41        | 60        |
| G8R      |           |           |           |
| M0R      | 33        | 43        | 62        |
| M5R      |           |           |           |
| M3R      | 49        | 59        | 78        |
| M8R      |           |           |           |

• Illuminated pushbutton switches

| Type          | Without transformer |           |           | With transformer* |           |
|---------------|---------------------|-----------|-----------|-------------------|-----------|
|               | 1-contact           | 2-contact | 4-contact | 1-contact         | 2-contact |
| F0L           | 42                  | 51        | 70        | 88                | 97        |
| F5L           | 42                  | 51        | –         | 88                | 97        |
| E0L           | 43                  | 53        | 72        | 89                | 99        |
| E5L           | 43                  | 53        | –         | 89                | 99        |
| M4L, G4L, G2L | 44                  | 54        | 73        | 90                | 100       |
| M9L, G9L, G7L | 44                  | 54        | –         | 90                | 100       |
| M0L           | 45                  | 55        | 74        | 91                | 101       |
| M5L           | 45                  | 55        | –         | 91                | 101       |

• Emergency stop pushbutton switches

| Type | 1-contact | 2-contact | 4-contact |
|------|-----------|-----------|-----------|
| VSE  | 42        | 52        | 71        |
| V0E  | 51        | 61        | 80        |
| VME  | 53        | 63        | 82        |

• Emergency stop illuminated pushbutton switches

| Type | Without transformer |           | With transformer* |           |
|------|---------------------|-----------|-------------------|-----------|
|      | 1-contact           | 2-contact | 1-contact         | 2-contact |
| VSF  | 53                  | 62        | 99                | 108       |
| VDF  | 60                  | 69        | 106               | 115       |
| V0F  | 62                  | 71        | 108               | 117       |

• Pilot lights

| Type     | Without transformer | With transformer |            | With resistor unit |
|----------|---------------------|------------------|------------|--------------------|
|          | Standard            | Standard*        | Short body |                    |
| D0L      | 22                  | 74               | 72         | 36                 |
| E3L, K0L | 23                  | 75               | 73         | 37                 |

• Selector switches

| Type | 1-contact | 2-contact | 4-contact |
|------|-----------|-----------|-----------|
| PR   | 33        | 43        | 62        |
| PCR  | –         | 43        | 62        |
| WR   | 34        | 44        | 63        |
| WCR  | –         | 44        | 63        |
| JR   | 58        | 68        | 87        |
| JCR  | –         | 68        | 87        |

• Illuminated selector switches

| Type | Without transformer |           |           | With transformer* |           |
|------|---------------------|-----------|-----------|-------------------|-----------|
|      | 1-contact           | 2-contact | 4-contact | 1-contact         | 2-contact |
| PL   | 44                  | 54        | 73        | 90                | 100       |

Note: \*230V and over : +17grams



■ CCC approved

● AM22/DM22 series

Pushbutton switches

| Bezel           | Operator                                  | Type             |  |
|-----------------|---|------------------|--|
|                 |   | AM22             |  |
|                 |   | Momentary action | Alternate action<br>(Turn-reset for V5R) |
| Round bezel     | Flush round head                          | AM22F0R          | AM22F5R                                  |
|                 | Extended round head                       | AM22E0R          | AM22E5R                                  |
|                 | Extended with full guard (24mm dia.)      | AM22G3R          | AM22G8R                                  |
|                 | Mushroom head with full guard (40mm dia.) | AM22M3R          | AM22M8R                                  |
|                 | Mushroom head (29mm dia.)                 | AM22M4R          | –  |
|                 | Mushroom head (40mm dia.)                 | AM22M0R          | AM22M5R                                  |
| Certificate No. |   | 2003010305063372 |  |

Notes: • Certified contact: Momentary action: within 8 contacts  
Alternate action: within 4 contacts

Emergency stop pushbutton switches

| Bezel           | Operator                          | Type             |  |
|-----------------|-----------------------------------|------------------|--|
|                 |                                   | AM22             |  |
| Round bezel     | Push-lock, turn-reset (29mm dia.) | AM22VSE          |  |
|                 | Push-lock, turn reset (40mm dia.) | AM22V0E          |  |
|                 | Push-lock, turn-reset (40mm dia.) | AM22VME          |  |
| Certificate No. |                                   | 2003010305063372 |  |

Notes: • Certified contact: 1NC, 1NO+1NC, 2NC, 3NC, 2NO+2NC, 4NC  
• Certified button color: red (R) only

Illuminated pushbutton switches

| Bezel           | Operator   | Type             |           |
|-----------------|--|------------------|-----------|
|                 |  | AM22             |           |
|                 |  | Momentary        | Alternate |
| Round bezel     | Flush round head                                   | AM22F0L          | AM22F5L   |
|                 | Extended round head                                | AM22E0L          | AM22E5L   |
|                 | Mushroom head (29mm dia.)                          | AM22M4L          | AM22M9L   |
|                 | Mushroom head (40mm dia.)                          | AM22M0L          | AM22M5L   |
|                 | Extended with transparent full guard (24mm dia.)   | AM22G4L          | AM22G9L   |
|                 | Extended with full guard (24mm dia. with openings) | AM22G2L          | AM22G7L   |
| Certificate No. |  | 2003010305063372 |           |

|                |   |
|----------------|---|
| Specifications | <ul style="list-style-type: none"> <li>· Contact               <ul style="list-style-type: none"> <li>Without transformer                   <ul style="list-style-type: none"> <li>Momentary action: within 6 contacts</li> <li>Alternate action: within 3 contacts</li> </ul> </li> <li>With transformer                   <ul style="list-style-type: none"> <li>Momentary action: within 4 contacts</li> <li>Alternate action: within 2 contacts</li> </ul> </li> </ul> </li> <li>· Color of button               <ul style="list-style-type: none"> <li>Green, red, white, yellow, orange, blue</li> </ul> </li> <li>· Light source               <ul style="list-style-type: none"> <li>LED lamp, incandescent lamp</li> </ul> </li> <li>· Operating voltage of lamp               <ul style="list-style-type: none"> <li>Without transformer                   <ul style="list-style-type: none"> <li>LED: 6V AC, 6V DC, 12V AC/DC</li> <li>Incandescent lamp: 5.5V AC/DC, 20V AC/DC</li> <li>LED, incandescent lamp: 15V AC/DC, 24V AC/DC</li> </ul> </li> <li>With transformer                   <ul style="list-style-type: none"> <li>LED, incandescent lamp: 100-110V AC, 115-127V AC, 200-220V AC, 230-254V AC, 350-380V AC, 400-440V AC, 480V AC, 500-550V AC</li> </ul> </li> </ul> </li> </ul> |
|----------------|---|

### Emergency stop illuminated pushbutton switches

|                 |   |                  |  |
|-----------------|---|------------------|--|
| Bezel           | Operator  | Type             |  |
|                 |   | AM22             |  |
| Round bezel     | Push-lock, turn-reset (29mm dia.)                           | AM22VSF          |  |
|                 | Push-lock, turn reset (40mm dia.)                           | AM22V0F          |  |
|                 | Push-lock, turn-reset (40mm dia. transparent in all colors) | AM22VDF          |  |
| Certificate No. |   | 2003010305063372 |  |

- Notes:
- Certified contact without transformer: 1NC, 1NO+1NC, 2NC, 3NC
  - Certified contact with transformer: 1NC, 1NO+1NC, 2NC
  - Certified light source: LED lamp only
  - Certified operating lamp voltage: Without transformer: 6A AC, 24V AC/DC  
With transformer: 100-110V AC, 115-127V AC, 200-220V AC, 230-254V AC, 350-380V AC, 400-440V AC, 480V AC, 500-550V AC
  - Certified button color: red (R) only

### Selector switches

|                 |          |                  |              |
|-----------------|----------|------------------|--------------|
| Bezel           | Operator | Type             |              |
|                 |          | AM22             |              |
|                 |          | Standard type    | Control type |
| Round bezel     | Knob     | AM22PR           | AM22PCR      |
|                 | Lever    | AM22WR           | AM22WCR      |
|                 | Key      | AM22JR           | AM22JCR      |
| Certificate No. |          | 2003010305063372 |              |

- Note:
- Certified contact:  
Maintained: within 8 contacts  
Control type, spring return and spring/manual return: within 4 contacts

### Illuminated selector switches

|                 |          |                  |
|-----------------|----------|------------------|
| Bezel           | Operator | Type             |
|                 |          | AM22             |
|                 |          | Standard type    |
| Round bezel     | Knob     | AM22PL           |
| Certificate No. |          | 2003010305063372 |

- Notes:
- Certified contact: Without transformer  
Maintained: within 6 contacts  
Spring return and spring/manual return: within 3 contacts
  - With transformer  
Maintained: within 4 contacts  
Spring return and spring/manual return: within 2 contacts
  - Certified lamp: both LED and incandescent lamp

### Pilot lights

|                 |                |                  |
|-----------------|----------------|------------------|
| Bezel           | Lens           | Type             |
|                 |                | DM22             |
| Round bezel     | Dome           | DM22D0L          |
|                 | Extended round | DM22E3L          |
|                 | Faceted        | DM22K0L          |
| Certificate No. |                | 2003010305063383 |

- Notes:
- Certified lamp: both LED and incandescent lamp
  - Certified transformer type: standard and short-body
  - Except for with resistor unit

### Item with degree of protection IP2X (IP20)

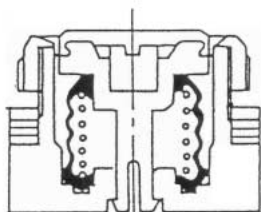
|          |                  |
|----------|------------------|
| Type     | Certificate No.  |
| AM22□ ZB | 2003010305063372 |
| DM22□ ZB | 2003010305063383 |

- Note: Certified for all types listed in the above items except for short-body transformer of pilot light.

**Features**

■ **Oil and dust-proof construction**

Protection complies with IEC Standard IP65. Special seals keep out oil, water, dust, and chips. This gives FUJI switches superior performance where dampness and dirt are likely to cause trouble. FUJI recommended where reliability is important.



■ **A wide variety of operators**

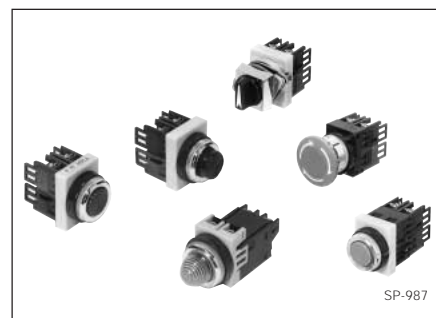
Pushbuttons, illuminated pushbuttons, 2- or 3-position selector switches, and key-operated selector switches, etc. Choose the one you need.

■ **Contact blocks available up to 4NO+4NC**

The AH25 series controls from one to eight control blocks in combination. Each contact block contains a set of 1NO or 1NC contacts.

■ **Terminal covers**

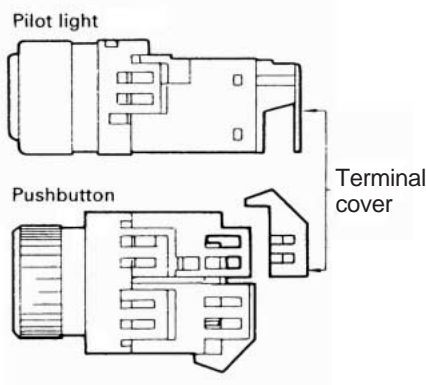
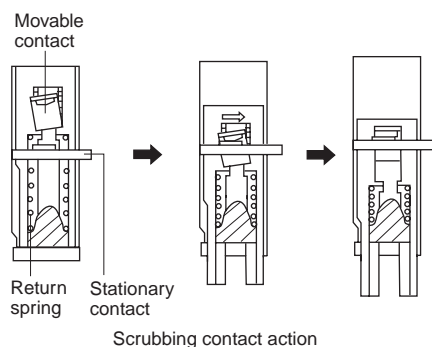
Terminal covers make mounting safe. These covers can be used to indicate device numbers.



SP-987

■ **Slide-action self-cleaning contacts**

All contacts are double-break and self-cleaning. With each operation, the contact surfaces are wiped by sliding that ensures positive engagement and excellent conductivity even in very low level circuits (5V, 5mA) and in corrosive environments.



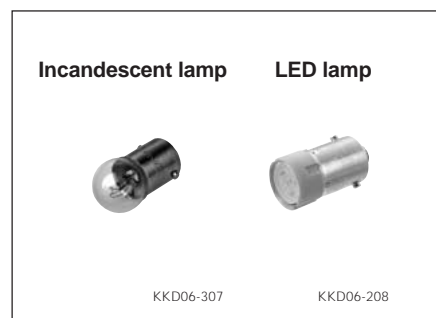
■ **Easily replaced color tips**

Only a screwdriver is needed to replace the buttons. A wide variety of colors available to suit to your needs.



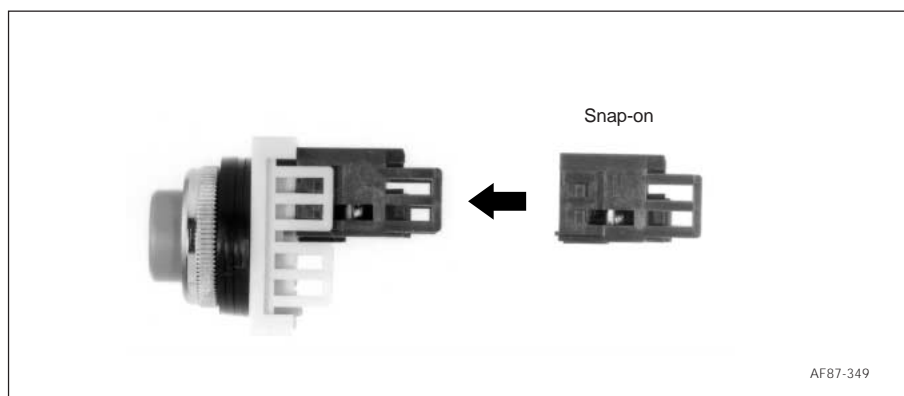
■ **Bright, long-life lamp**

LED lamps that have a longer service life than standard incandescent lamps are available. FUJI LED lamps are bright and can be used with both AC and DC, much the same way as incandescent lamps.





■ **Snap-on contact blocks and transformer**

The contact blocks are easily snapped on, without using screws. Light transformers can also be mounted without tools.




■ **Approvals**

UL listed   
 CSA certified 


For further information related to approved type, see page 04CD/3/2 to 04CD/3/4

#### ■ Pushbutton switches

| Type  | Description   | Type   | Description   |
|---|---|--|---|
| <b>AH25-F</b><br>Flush round head<br><br>AF87-312<br>                              | The button surface is flush with the locking nut. Momentary type.<br><br><i>See page 04CD/3/10</i>                                      | <b>AH25-M</b><br>Mushroom head<br><br>SG-185<br>                                | Mushroom head button. Momentary type.<br><br><i>See page 04CD/3/10</i>  |
| <b>AH25-F5</b><br>Flush round head /Alternate action<br><br>SG-166<br>             | The button surface is flush with the locking nut. Push-ON/push-OFF type.<br><br><i>See page 04CD/3/10</i>                               | <b>AH25-M5</b><br>Mushroom head /Alternate action<br><br>SG-183<br>             | Mushroom head button. Push-ON/push-OFF type.<br><br><i>See page 04CD/3/10</i>   |
| <b>AH25-E</b><br>Extended round head<br><br>AF87-314<br>                        | The button surface projects 7mm from the locking nut. Momentary type.<br><br><i>See page 04CD/3/10</i>                                  | <b>AH25-V</b><br>Push-lock, turn-reset<br><br>AF89-414<br>                   | Locked when the button is pushed. To reset turn the button to the right.<br><br><i>See page 04CD/3/11</i>                                     |
| <b>AH25-E5</b><br>Extended round head /Alternate action<br><br>SG-175<br>      | The button surface projects 7mm from the locking nut. Push-ON/push-OFF type.<br><br><i>See page 04CD/3/10</i>                           | <b>AH25-U</b><br>Wobble stick<br><br>SG-202<br>                             | The contact works when the lever is moved in any direction. Spring return action.<br><br><i>See page 04CD/3/11</i>                            |
| <b>AH25-G</b><br>Extended with half guard<br><br>SG-171<br>                    | The upper half of the button has a guard ring to help prevent operating errors. Momentary type.<br><br><i>See page 04CD/3/10</i>        | <b>AH25-SF</b><br>Flush square head<br><br>SG-208<br>                       | The button surface is flush with the guard. Momentary type. Operator protection conforms to IP40.<br><br><i>See page 04CD/3/11</i>            |
| <b>AH25-G5</b><br>Extended with half guard /Alternate action<br><br>SG-172<br> | The upper half of the button has a guard ring to help prevent operating errors. Push-ON/push-OFF type.<br><br><i>See page 04CD/3/10</i> | <b>AH25-SF5</b><br>Flush square head /Alternate action<br><br>SG-210<br>    | The button surface is flush with the guard. Push-ON/push-OFF type. Operator protection conforms to IP40.<br><br><i>See page 04CD/3/11</i>     |
| <b>AH25-G1</b><br>Extended with full guard<br><br>AF87-179<br>                 | The button has a guard ring to help prevent operating errors. Momentary type.<br><br><i>See page 04CD/3/10</i>                          | <b>AH25-SE</b><br>Extended square head<br><br>SG-206<br>                     | The button surface projects 7mm from the guard. Momentary type. Operator protection conforms to IP40.<br><br><i>See page 04CD/3/11</i>        |
| <b>AH25-G6</b><br>Extended with full guard /Alternate action<br><br>SG-176<br> | The button has a guard ring to help prevent operating errors. Push-ON/push-OFF type.<br><br><i>See page 04CD/3/10</i>                   | <b>AH25-SE5</b><br>Extended square head /Alternate action<br><br>SG-207<br> | The button surface projects 7mm from the guard. Push-ON/push-OFF type. Operator protection conforms to IP40.<br><br><i>See page 04CD/3/11</i> |

| Type   | Description   |
|--|---|
| <b>AH25-S1, S2, S3, S4, S5, S6</b><br>Pushbutton with selector ring (2-position)<br><br>SI-55 | Turning the ring to the left or right changes over the contact.<br>See page 04CD/3/13 |

■ Mechanically interlocked pushbutton switches

| Type  | Description   |
|---|---|
| <b>AH25-□/□</b><br>Mechanically interlocked<br><br>AF89-610 | Two buttons are interlocked by a lever. When one is ON, the other is OFF.<br>See page 04CD/3/14 |

■ Illuminated pushbutton switches













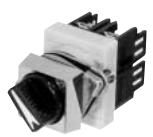

| Type  | Description  | Type   | Description  |
|---|--|--|--|
| <b>AH25-L</b><br>Extended round head<br><br>SG-150   | The surface of the illuminated button projects about 15mm from the locking nut. Momentary type.<br>See page 04CD/3/15  | <b>AH25-L4</b><br>Extend with transparent full guard<br><br>AF89-605       | The illuminated button has a guard ring to help prevent operating errors. Momentary action.<br>See page 04CD/3/15                            |
| <b>AH25-L5</b><br>Extended round head /Alternate action<br><br>SG-152                        | The surface of the illuminated button projects about 15mm from the locking nut.<br>See page 04CD/3/15                  | <b>AH25-VL</b><br>Push-lock, turn-reset<br><br>AF89-413                  | Locked when the illuminated button is pushed. To reset, turn the button to the right.<br>See page 04CD/3/16                                  |
| <b>AH25-L2</b><br>Extended with full guard (With openings)<br><br>AF90-267                   | The illuminated button has a guard ring to help prevent operating errors. Momentary type.<br>See page 04CD/3/15        | <b>AH25-SL</b><br>Extended square head<br><br>SG-144                     | The illuminated button projects about 8mm from the guard. Momentary type. Operator protection conforms to IP40.<br>See page 04CD/3/16        |
| <b>AH25-L6</b><br>Extended with full guard (With openings) /Alternate action<br><br>AF90-277 | The illuminated button has a guard ring to help prevent operating errors. Push-ON/push-OFF type.<br>See page 04CD/3/15 | <b>AH25-SL5</b><br>Extended square head / Alternate action<br><br>SG-149 | The illuminated button projects about 8mm from the guard. Push-ON/push-OFF type. Operator protection conforms to IP40.<br>See page 04CD/3/16 |
| <b>AH25-L3</b><br>Extended with full guard<br><br>AF89-604                                   | The illuminated button has a guard ring to help prevent operating errors. Momentary action.<br>See page 04CD/3/15      | <b>AH25-SL1</b><br>Flush square head<br><br>SG-139                       | The illuminated button has a built-in legend plate. Momentary type. Operator protection conforms to IP40.<br>See page 04CD/3/16              |
| <b>AH25-L7</b><br>Extended with full guard /Alternate action<br><br>AF90-265                 | The illuminated button has a guard ring to help prevent operating errors. Push-ON/push-OFF type.<br>See page 04CD/3/15 | <b>AH25-SL6</b><br>Flush square head/ Alternate action<br><br>SG-146     | The illuminated button has a built-in legend plate. Push-ON/push-OFF type. Operator protection conforms to IP40.<br>See page 04CD/3/16       |

# Pushbuttons/Selectors/Pilot Lights











## AH25

### Quick reference guide

#### ■ Selector switches

| Type   | Description  | Type   | Description  |
|--|--|--|--|
| <b>AH25-P</b><br>Knob<br><br> SG-188                          | This switch works when the knob is turned.<br>Operating positions : 2 or 3<br>Operating : Maintained, spring return, and spring/manual return.<br><br><i>See page 04CD/3/18</i>  | <b>AH25-SJ</b><br>Key with square bezel<br><br> SG-226   | This switch works with a key inserted.<br>Operator protection conforms to IP40.<br>Operating positions : 2 or 3<br>Operating : Maintained.<br><br><i>See page 04CD/3/18</i>    |
| <b>AH25-PC</b><br>Knob operated control type<br><br> AF89-596 | 21 types of operation are available using a cam for performing complex controls.<br><br><i>See page 04CD/3/22</i>  | <b>AH25-PW</b><br>Lever<br><br> SP-1007                  | The lever extends out 13mm from the knob.<br>Operating positions : 2 or 3<br>Operating : Maintained, spring return, and spring/manual return.<br><br><i>See page 04CD/3/18</i> |
| <b>AH25-J</b><br>Key<br><br> SG-233                         | This switch works when the key is inserted.<br>Operating positions : 2 or 3<br>Operating : Maintained, spring return, and spring/manual return.<br><br><i>See page 04CD/3/18</i> | <b>AH25-PL</b><br>Illuminated knob<br><br> AF89-622 | Illuminated switch with a lamp built into the knob.<br>Operating positions : 2 or 3<br>Operating : Maintained.<br><br><i>See page 04CD/3/23</i>                                |
| <b>AH25-SP</b><br>Knob with square bezel<br><br> SG-196   | This switch works when the knob is turned.<br>Operator protection conforms to IP40.<br>Operating positions : 2 or 3<br>Operating : Maintained.<br><br><i>See page 04CD/3/18</i>  | —  | —  |

#### ■ Pilot lights

| Type   | Description  | Type   | Description  |
|--|--|--|--|
| <b>AH25-ZM*</b><br>Dome<br><br> SF-1095           | This pilot light uses a round transparent colored lens.<br><br><i>See page 04CD/3/25</i>                       | <b>AH25-ZN</b><br>Flush square with legend plate<br><br> SF-1092          | This pilot light has a built-in square legend plate on which characters and symbols can be marked.<br>Operator protection conforms to IP40.<br><br><i>See page 04CD/3/25</i> |
| <b>AH25-ZK*</b><br>Faceted<br><br> SF-1094        | This pilot light uses a faceted transparent colored lens.<br><br><i>See page 04CD/3/25</i>                     | <b>AH25-ZM□8, □9</b><br>Dome (Short-body with transformer)<br><br> SH-971 | This pilot light has a short-body transformer.<br><br><i>See page 04CD/3/25</i>  |
| <b>AH25-ZS</b><br>Extended square<br><br> SF-1093 | This pilot light uses a square lens.<br>Operator protection conforms to IP40.<br><br><i>See page 04CD/3/25</i> | —  | —  |

Note: \* With resistor unit types: Not approved standard



■ **Type number nomenclature**  
**Pushbuttons**

**AH25 - E R 11**

① ② ③ ④

① **Product category**

AH25: 25mm-dia. pushbutton

② **Operator**

F: Flush round head  
 F5: Flush round head(Alternate action)  
 E: Extended round head  
 E5: Extended round head(Alternate action)  
 G: Extended with half guard  
 G5: Extended with half guard (Alternate action)  
 G1: Extended with full guard  
 G6: Extended with full guard (Alternate action)  
 M: Mushroom head  
 M5: Mushroom head (Alternate action)  
 V: Push-lock, turn-reset  
 U: Wobble stick  
 SF: Flush square head  
 SF5: Flush square head (Alternate action)  
 SE: Extended square head  
 SE5: Extended square head (Alternate action)  
 S1-S6: Pushbutton with selector ring (2-position)

③ **Color of button**

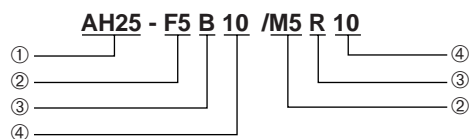
G: Green                    D: Dark green  
 R: Red                      Y: Yellow  
 W: White                  B: Black\*  
 S: Sky-blue              O: Orange

\*AH25-U type: ball color Black only.

④ **Contact arrangement**

10: 1NO                    30: 3NO  
 01: 1NC                   03: 3NC  
 11: 1NO+1NC            33: 3NO+3NC  
 20: 2NO                   40: 4NO  
 02: 2NC                   04: 4NC  
 22: 2NO+2NC            44: 4NO+4NC

**Mechanically interlocked pushbutton switches**



① **Product category**

AH25: 25mm-dia. interlocked pushbutton

② **Combination of operator and operation mode**

• Latched/Latched  
 F5/F5: Flush (Push-locked)/Flush (Push-locked)  
 F5/E5: Flush (Push-locked)/Extended (Push-locked)  
 M5/M5: Mushroom (Push-locked)/Mushroom (Push-locked)  
 • Latched/Unlatched  
 F5/F: Flush (Push-locked)/Flush (Momentary)  
 E5/E: Extended (Push-locked)/Extended (Momentary)  
 M5/M: Mushroom (Push-locked)/Mushroom (Momentary)

③ **Button color**

G: Green  
 R: Red  
 B: Black  
 D: Dark green  
 Y: Yellow  
 W: White  
 S: Sky-blue  
 O: Orange

④ **Contact arrangement**

10: 1NO  
 01: 1NC  
 11: 1NO+1NC  
 20: 2NO  
 02: 2NC

**Illuminated pushbuttons**

**AH25 - L5 G 11 H 3**

① ② ③ ④ ⑤ ⑥

① **Product category**

AH25: 25mm-dia. illuminated pushbutton

② **Operator**

L: Extended round head  
 L5: Extended round head (Alternate action)  
 L2: Extended with full guard (With openings)  
 L6: Extended with full guard (With openings alternate action)  
 L3: Extended with full guard  
 L7: Extended with full guard (Alternate action)  
 L4: Extended with transparent full guard  
 VL: Push-lock, turn-reset  
 SL: Extended square head  
 SL5: Extended square head (Alternate action)  
 SL1: Flush square head  
 SL6: Flush square head (Alternate action)

③ **Color of lens**

G: Green                    S: Sky-blue\*  
 R: Red                      Y: Yellow  
 W: White                  O: Orange

\* For LED lamp: Not available

④ **Contact arrangement**

10: 1NO                    30: 3NO  
 01: 1NC                   03: 3NC  
 11: 1NO+1NC            33: 3NO+3NC  
 20: 2NO                   40: 4NO  
 02: 2NC                   04: 4NC  
 22: 2NO+2NC            44: 4NO+4NC

⑤ **Lamp voltage**

• Without transformer:

|       | Incandescent | LED       |
|-------|--------------|-----------|
| Blank | 5.5V         | -         |
| A     | -            | 6V AC     |
| AD    | -            | 6V DC     |
| B     | -            | 12V AC/DC |
| C     | 15V AC/DC    | 15V AC/DC |
| D     | 20V AC/DC    | -         |
| E     | 24V AC/DC    | 24V AC/DC |

• With transformer:

|   | Incandescent | LED         |
|---|--------------|-------------|
| H | 100-110V AC  | 100-110V AC |
| L | 115-127V AC  | 115-127V AC |
| M | 200-220V AC  | 200-220V AC |
| Q | 230-254V AC  | 230-254V AC |
| S | 350-380V AC  | 350-380V AC |
| T | 400-440V AC  | 400-440V AC |
| V | 480V AC      | 480V AC     |
| W | 500-550V AC  | 500-550V AC |

⑥ **Type of lamp**

Blank: Incandescent lamp  
 3: LED lamp

Note: • The manufacturing varies depending on the model. For details, refer to the contents of this catalog

# Pushbuttons/Selectors/Pilot Lights

## AH25

### Type number nomenclature

#### Selector and illuminated selector switches

**AH25 - PL 3 □ G 22 E 3 □**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

#### ① Product category

AH25: 25mm-dia. selector and illuminated selector switch

#### ② Operator

P: Knob  
 PC: Knob operated control type  
 J: Key  
 SP: Knob with square bezel  
 SJ: Key with square bezel  
 PW: Lever  
 PL: Illuminated knob

#### ③ Operating

2: 2-position, maintained  
 0: 2-position, spring return (Right to left)  
 3: 3-position, maintained  
 6: 3-position, spring/manual return (Left to center)  
 7: 3-position, spring/manual return (Right to center)  
 1: 3-position, center spring return  
 Blank: 3-position, maintained (Control type only)

#### ④ Key removable position

A: Left  
 B: Left and right  
 C: Left, center and right  
 D: Right  
 E: Center  
 F: Center and right  
 G: Center and left

#### ⑤ Color of knob

B: Black \*<sup>1</sup> G: Green  
 R: Red Y: Yellow\*<sup>3</sup>  
 W: White\*<sup>3</sup> O: Orange\*<sup>3</sup>  
 S: Sky-blue\*<sup>2,3</sup>

\*<sup>1</sup> Except for illuminated type  
 \*<sup>2</sup> For LED lamp: Not available  
 \*<sup>3</sup> Illuminated type only

#### ⑥ Contact arrangement

10: 1NO 30: 3NO  
 01: 1NC 03: 3NC  
 11: 1NO+1NC 33: 3NO+3NC  
 20: 2NO 40: 4NO  
 02: 2NC 04: 4NC  
 22: 2NO+2NC 44: 4NO+4NC

Note: Control type: See page 04CD/3/22

#### ⑦ Lamp voltage

• Without transformer:

|       | Incandescent | LED       |
|-------|--------------|-----------|
| Blank | 5.5V AC/DC   | -         |
| A     | -            | 6V AC     |
| AD    | -            | 6V DC     |
| B     | -            | 12V AC/DC |
| C     | 15V AC/DC    | 15V AC/DC |
| D     | 20V AC/DC    | -         |
| E     | 24V AC/DC    | 24V AC/DC |

• With transformer:

|   | Incandescent | LED         |
|---|--------------|-------------|
| H | 100-110V AC  | 100-110V AC |
| L | 115-127V AC  | 115-127V AC |
| M | 200-220V AC  | 200-220V AC |
| Q | 230-254V AC  | 230-254V AC |
| S | 350-380V AC  | 350-380V AC |
| T | 400-440V AC  | 400-440V AC |
| V | 480V AC      | 480V AC     |
| W | 500-550V AC  | 500-550V AC |

#### ⑧ Type of lamp

Blank: Incandescent lamp  
 3: LED lamp

#### ⑨ Key code No.

A, B, C, D, E or F

#### Pilot lights

**AH25 - ZM W Q 3**

① ② ③ ④ ⑤

#### ① Product category

AH25: 25mm-dia. pilot light

#### ② Lens

ZM: Dome  
 ZK: Faceted  
 ZS: Extended square\*  
 ZN: Flush square with legend plate\*

\* Incandescent lamp only

#### ③ Color of lens

G: Green S: Sky-blue\*  
 R: Red Y: Yellow  
 W: White O: Orange

\* For LED lamp: Not available

#### ④ Lamp voltage

• Without transformer:

|       | Incandescent | LED       |
|-------|--------------|-----------|
| Blank | 5.5V AC/DC   | -         |
| A     | -            | 6V AC     |
| AD    | -            | 6V DC     |
| B     | -            | 12V AC/DC |
| C     | 15V AC/DC    | 15V AC/DC |
| D     | 20V AC/DC    | -         |
| E     | 24V AC/DC    | 24V AC/DC |

• With transformer:

|   | Incandescent | LED         |
|---|--------------|-------------|
| H | -            | 110V DC*    |
| H | 100-110V AC  | 100-110V AC |
| L | 115-127V AC  | 115-127V AC |
| M | 200-220V AC  | 200-220V AC |
| Q | 230-254V AC  | 230-254V AC |
| S | 350-380V AC  | 350-380V AC |
| T | 400-440V AC  | 400-440V AC |
| V | 480V AC      | 480V AC     |
| W | 500-550V AC  | 500-550V AC |

\* With resistor unit only

#### ⑤ Type of lamp

Blank: Incandescent lamp  
 8: Incandescent lamp/Short-body with transformer  
 3: LED lamp  
 7: LED lamp/With resistor unit  
 9: LED lamp/Short-body with transformer

Note: • The manufacturing varies depending on the model. For details, refer to the contents of this catalog



■ **Standards approved**

|                 |                  |
|-----------------|------------------|
| UL508           | File No. E44592  |
| CSA C22.2 No.14 | File No. LR20479 |

■ **Specifications (Indoor use)**

|  |  |  |
|--|--|--|
| Description  | Pushbutton switch<br>Illuminated pushbutton switch<br>Mechanically interlocked pushbutton switch<br>Selector switch<br>Illuminated selector switch | Pilot light                                |
| Rated insulation voltage                             | 600V AC/DC *1  |  |
| Mechanical durability                                | <i>See the table below</i>   | –  |
| Electrical durability                                | 500,000 operations at 220V AC 6A<br>1 million operations at 220V AC 3A   | –  |
| Operating frequency                                  | 1800 operations/hour (On-load factor: 40%)   | –  |
| Dielectric strength                                  | 2500V AC, 1 minute *2  |  |
| Insulation resistance                                | 100MΩ or more (500V DC megger)   |  |
| Pollution degree                                     | 3  |  |
| Vibration  | Resonance: 10 to 55Hz, double amplitude 0.1mm<br>Constant: 16.7Hz, double amplitude 3mm  |  |
| Shock  | Malfunction durability: 100m/s <sup>2</sup><br>Mechanical durability: 500m/s <sup>2</sup>  | Mechanical durability: 500m/s <sup>2</sup> |
| Ambient temperature<br>(No condensation or no icing) | -20 to +70°C<br>(Illuminated type: -20 to +50°C)   | -20 to +50°C                               |
| Storage temperature                                  | -40 to +80°C   |  |
| Humidity   | 45 to 85% RH (within -5 to +40°C)  |  |
| Degree of protection                                 | IP65*3   |  |

Notes: \*1 Illuminated type without transformer: 250V AC/DC  
\*2 Illuminated type without transformer: 1500V AC, 1 minute  
\*3 Square type : IP40

● **Mechanical durability**

| Description                                |   | Operations |
|--|---|------------|
| Pushbutton switch                          | Momentary action                                | 5 million  |
| Illuminated pushbutton switch              | Alternate action                                | 1 million  |
|  | With selector ring                              | 200,000    |
|  | Push-lock, turn-reset                           | 100,000    |
|  |   |            |
| Mechanically interlocked pushbutton switch | Latched/Latched, Latched/Unlatched              | 100,000    |
| Selector switch                            | Maintained, spring return, spring/manual return | 1 million  |
|  | Control type                                    | 200,000    |
| Illuminated selector switch                | Maintained, spring return, spring/manual return | 1 million  |

Note: Key insertion/removal durability for selector switch key types

- Key type 10,000

# Pushbuttons/Selectors/Pilot Lights

## AH25

### Ratings and Specifications

#### ■ Contact ratings

##### • UL/CSA standards

| Voltage [V] | Application |     | Continuous current [A] | AC(COS $\phi$ =0.35 or less) |           |
|-------------|-------------|-----|------------------------|------------------------------|-----------|
|             | UL          | CSA |                        | Make [A]                     | Break [A] |
| 110-120     | ●           |     | 10                     | 60                           | 6.0       |
| 120         |             | ●   |                        |                              |           |
| 220-240     | ●           |     |                        | 30                           | 3.0       |
| 240         |             | ●   |                        |                              |           |
| 440-480     | ●           |     |                        | 15                           | 1.5       |
| 480         |             | ●   |                        |                              |           |
| 550-600     | ●           |     |                        | 12                           | 1.2       |
| 600         |             | ●   |                        |                              |           |

| Voltage [V] | Application |     | DC                          |
|-------------|-------------|-----|-----------------------------|
|             | UL          | CSA | Make and break currents [A] |
| 115-125     | ●           |     | 1.1                         |
| 115         |             | ●   |                             |
| 230-250     | ●           |     | 0.55                        |

Note: AH25-J3, -J5, -P3, -P1, -S1, -S3, -S4, -S5 types cannot be used in DC circuit.

##### • NECA standards

| Description                           | Rated thermal current (A) | AC          |                                    | DC          |                         |            |
|---------------------------------------|---------------------------|-------------|------------------------------------|-------------|-------------------------|------------|
|                                       |                           | Voltage (V) | Operational current (A) AC15(Ind.) | Voltage (V) | Operational current (A) |            |
|                                       |                           |             |                                    |             | DC13(Ind.)              | DC12(Res.) |
| Pushbutton switch                     | 10                        | 24          | 6                                  | 24          | 6                       | 6          |
| Illuminated pushbutton switch         |                           | 110         | 6                                  | 110         | 1.3                     | 2.5        |
| Selector switch (2-position)          |                           | 220         | 6                                  | 220         | 0.45                    | 1          |
|                                       |                           | 440         | 2.5                                | —           | —                       | —          |
|                                       |                           | 550         | 2                                  | —           | —                       | —          |
| Selector switch (3-position)          | 10                        | 24          | 3                                  | 24          | 3                       | 3          |
| Pushbutton switch with selector ring  |                           | 110         | 3                                  | 110         | 0.65                    | 1.3        |
| Pushbutton switch with selector lever |                           | 220         | 3                                  | 220         | 0.23                    | 0.5        |
|                                       |                           | 440         | 1.3                                | —           | —                       | —          |
|                                       |                           | 550         | 1                                  | —           | —                       | —          |

#### ■ Contact reliability

The AH25 command switches can be used in low level circuit of 5V AC/DC, 5mA. The operating environment and the types of load, however, may affect the operating range.

■ **Lamp ratings**

● **Illuminated pushbuttons, illuminated selectors, pilot lights**

| Transformer         | Lamp voltage           | LED (lamp base: BA9S/13)     |                |   | Incandescent (lamp base: BA9S/13) |                        |              |
|---------------------|------------------------|------------------------------|----------------|---|-----------------------------------|------------------------|--------------|
|                     |                        | Type                         | Rated voltage  | Consumption   | Type                              | Rated voltage          | Consumption  |
| Without transformer | 5.5V AC/DC             | — —                          | —              | —   | AHX135                            | 6.3V AC/DC             | 0.9W         |
|                     | 6V AC                  | APX508-6□ APX510-6□          | 6V AC          | Green, red, orange, amber: 7mA AC<br>Yellow: 50mA AC                    | —                                 | —                      | —            |
|                     | 6V DC                  | APX508-D6□ APX510-D6□        | 6V DC          | Green, red, orange, amber: 11mA DC<br>Yellow: 33mA DC                   | —                                 | —                      | —            |
|                     | 12V AC/DC              | APX508-12□ APX510-12□        | 12V AC/DC      | Green, red, orange, amber: 14mA AC, 11mA DC<br>Yellow: 28mA AC, 22mA DC | —                                 | —                      | —            |
|                     | 15V AC/DC              | APX508-15□ APX510-15□        | 15V AC/DC      | Green, red, orange, amber: 13mA AC, 11mA DC<br>Yellow: 26mA AC, 22mA DC | AHX279                            | 18V AC/DC              | 0.8W         |
|                     | 20V AC/DC<br>24V AC/DC | — —<br>APX508-24□ APX510-24□ | —<br>24V AC/DC | —<br>12mA AC, 11mA DC   | AHX144<br>AHX129                  | 24V AC/DC<br>30V AC/DC | 0.9W<br>0.8W |
| With transformer    | 110V AC                | APX508-6□ APX510-6□          | 6V AC          | 1.5VA   | AHX135                            | 6.3V AC/DC             | 2VA          |
|                     | 127V AC                |                              |                |   |                                   |                        | 2VA          |
|                     | 220V AC                |                              |                |   |                                   |                        | 2VA          |
|                     | 254V AC                | APX508-6□ APX510-6□          | 6V AC          | 2.5VA   | AHX135                            | 6.3V AC/DC             | 2.5VA        |
|                     | 380V AC                |                              |                |   |                                   |                        | 2.5VA        |
|                     | 440V AC                |                              |                |   |                                   |                        | 2.5VA        |
|                     | 480V AC                |                              |                |   |                                   |                        | 2.5VA        |
| 550V AC             |                        |                              |                |   |                                   | 2.5VA                  |              |
| With resistor unit  | 110V DC                | APX508-24□ APX510-24□        | 24V AC/DC      | 1.2W  | —                                 | —                      | —            |

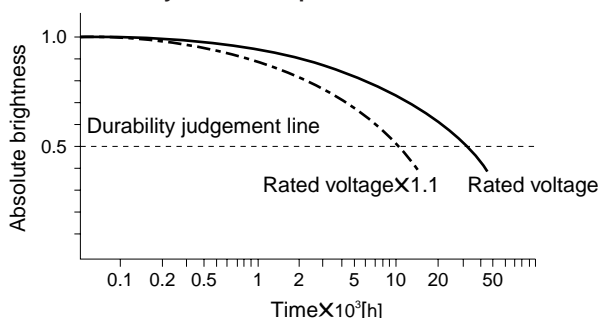
Note: Replace the □ mark by the lamp luminous color code.

■ **Lamp durability**

| Lamp         | Durability (reference) | Judgement criterion                               |
|--------------|------------------------|---|
| LED          | Approx. 30000h         | When brightness is less than 50% of initial value |
| Incandescent | Approx. 5000h (AC)     | When the bulb burns out                           |

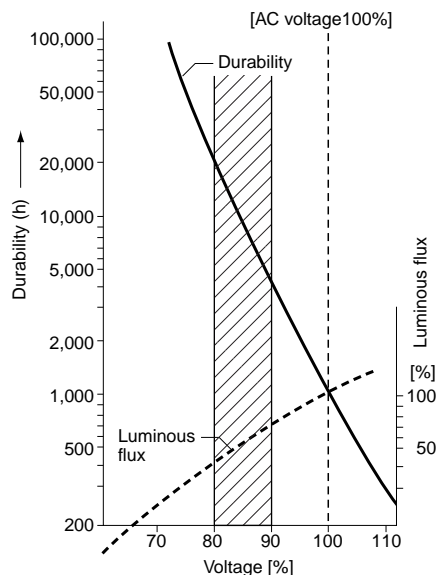
Note: • The operating voltage for incandescent lamps is set at 80 to 90% of the lamp's rated voltage.  
 • The durability of LED lamp is a mean value in all colors.

■ **Estimated durability for LED lamps**



Notes: • Durability at Ta=25°C  
 • Durability is affected by temperature, humidity, and voltage fluctuation.

■ **Incandescent lamp voltage characteristics**


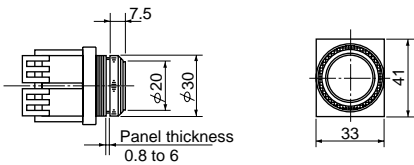

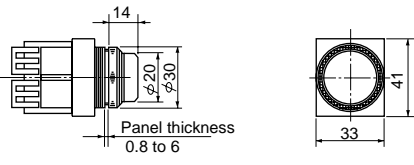

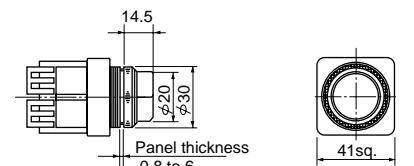

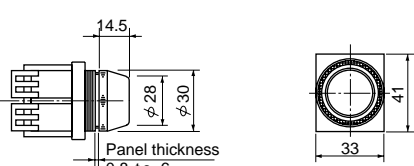

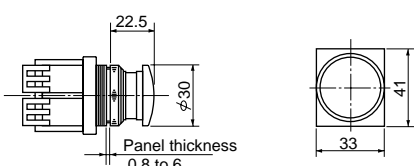


■ **Combination of lens color and LED luminous color**


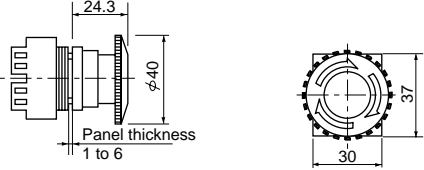

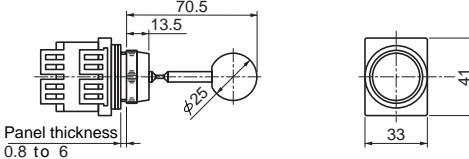
| Lens color<br>(lens or color plate) |      | LED lamp<br>(high-brightness) |           |           |
|-------------------------------------|------|-------------------------------|-----------|-----------|
| Color                               | Code | Luminous color                | Type      | Type *1   |
| Green                               | G    | Green                         | APX510-■G | APX508-■G |
| Red                                 | R    | Red                           | APX510-■R | APX508-■R |
| White                               | W    | Orange                        | APX510-■O | APX510-■O |
| Yellow                              | Y    | Yellow                        | APX510-■Y | APX508-■Y |
| Orange                              | A    | Amber                         | APX510-■A | APX508-■A |

Notes: \*1 For pilot lights  
 • Replace the ■ mark by the lamp voltage code


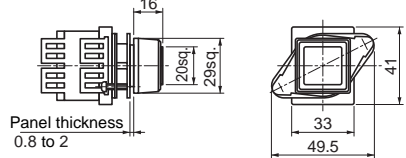

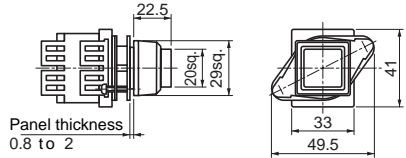
# Pushbuttons AH25

| Operator  | Contact  | Momentary action Type  | Alternate action Type  | Operator dimensions,mm  |
|---|--|--|--|---|
| Flush round head<br><br>AF87-312         | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-F</b> □ 10<br><b>AH25-F</b> □ 01<br><b>AH25-F</b> □ 11<br><b>AH25-F</b> □ 20<br><b>AH25-F</b> □ 02<br><b>AH25-F</b> □ 22       | <b>AH25-F5</b> □ 10<br><b>AH25-F5</b> □ 01<br><b>AH25-F5</b> □ 11<br><b>AH25-F5</b> □ 20<br><b>AH25-F5</b> □ 02<br><b>AH25-F5</b> □ 22 |    |
| Extended round head<br><br>AF87-314      | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-E</b> □ 10<br><b>AH25-E</b> □ 01<br><b>AH25-E</b> □ 11<br><b>AH25-E</b> □ 20<br><b>AH25-E</b> □ 02<br><b>AH25-E</b> □ 22       | <b>AH25-E5</b> □ 10<br><b>AH25-E5</b> □ 01<br><b>AH25-E5</b> □ 11<br><b>AH25-E5</b> □ 20<br><b>AH25-E5</b> □ 02<br><b>AH25-E5</b> □ 22 |    |
| Extended with half guard<br><br>SG-171  | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-G</b> □ 10<br><b>AH25-G</b> □ 01<br><b>AH25-G</b> □ 11<br><b>AH25-G</b> □ 20<br><b>AH25-G</b> □ 02<br><b>AH25-G</b> □ 22       | <b>AH25-G5</b> □ 10<br><b>AH25-G5</b> □ 01<br><b>AH25-G5</b> □ 11<br><b>AH25-G5</b> □ 20<br><b>AH25-G5</b> □ 02<br><b>AH25-G5</b> □ 22 |   |
| Extended with full guard<br><br>SG-179 | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-G1</b> □ 10<br><b>AH25-G1</b> □ 01<br><b>AH25-G1</b> □ 11<br><b>AH25-G1</b> □ 20<br><b>AH25-G1</b> □ 02<br><b>AH25-G1</b> □ 22 | <b>AH25-G6</b> □ 10<br><b>AH25-G6</b> □ 01<br><b>AH25-G6</b> □ 11<br><b>AH25-G6</b> □ 20<br><b>AH25-G6</b> □ 02<br><b>AH25-G6</b> □ 22 |  |
| Mushroom head<br><br>SG-185            | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-M</b> □ 10<br><b>AH25-M</b> □ 01<br><b>AH25-M</b> □ 11<br><b>AH25-M</b> □ 20<br><b>AH25-M</b> □ 02<br><b>AH25-M</b> □ 22       | <b>AH25-M5</b> □ 10<br><b>AH25-M5</b> □ 01<br><b>AH25-M5</b> □ 11<br><b>AH25-M5</b> □ 20<br><b>AH25-M5</b> □ 02<br><b>AH25-M5</b> □ 22 |  |

Notes: • □ See page 04CD/3/11  
 • Contact block dimensions: See page 04CD/3/12

| Operator  | Contact  | Momentary action Type  | Operator dimensions,mm   |
|---|--|--|--|
| Push-lock, turn-reset<br><br><small>AF89-414</small> | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-V □10</b><br><b>AH25-V □01</b><br><b>AH25-V □11</b><br><b>AH25-V □20</b><br><b>AH25-V □02</b><br><b>AH25-V □22</b> |  |
| Wobble stick<br><br><small>SG-202</small>            | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-UB10</b><br><b>AH25-UB01</b><br><b>AH25-UB11</b><br><b>AH25-UB20</b><br><b>AH25-UB02</b><br><b>AH25-UB22</b>       |  |

Notes: • AH25-U type: ball color Black only.  
 \*1 Alternate action type.

| Operator   | Contact  | Momentary action Type  | Alternate action Type  | Operator dimensions,mm  |
|--|--|--|--|---|
| Flush square head<br><br><small>SG-208</small>    | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-SF □10</b><br><b>AH25-SF □01</b><br><b>AH25-SF □11</b><br><b>AH25-SF □20</b><br><b>AH25-SF □02</b><br><b>AH25-SF □22</b> | <b>AH25-SF5 □10</b><br><b>AH25-SF5 □01</b><br><b>AH25-SF5 □11</b><br><b>AH25-SF5 □20</b><br><b>AH25-SF5 □02</b><br><b>AH25-SF5 □22</b> |  |
| Extended square head<br><br><small>SG-206</small> | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | <b>AH25-SE □10</b><br><b>AH25-SE □01</b><br><b>AH25-SE □11</b><br><b>AH25-SE □20</b><br><b>AH25-SE □02</b><br><b>AH25-SE □22</b> | <b>AH25-SE5 □10</b><br><b>AH25-SE5 □01</b><br><b>AH25-SE5 □11</b><br><b>AH25-SE5 □20</b><br><b>AH25-SE5 □02</b><br><b>AH25-SE5 □22</b> |  |

### • Button color

Replace the □ mark by the following button color code

| Button color | Green | Red | Black | Yellow | White |
|--------------|-------|-----|-------|--------|-------|
| Code         | G     | R   | B     | Y      | W     |

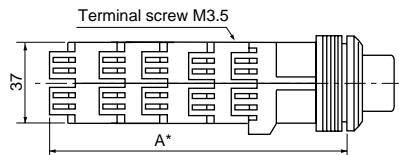
| Button color | Dark green | Sky-blue | Orange |
|--------------|------------|----------|--------|
| Code         | D          | S        | O      |

Note: AH25-V type: Red, yellow, black only.

- Up to 8-contact block of the contact arrangement can be made.  
 For alternate action type, up to 4-contact block of the contact arrangement can be made. (Except for AH25-V type)
- AH25-V type: Up to 4-contacts can be made.
- Contact block dimensions: See page 04CD/3/12

# Pushbuttons AH25

## • Contact block dimensions, mm






- Up to 8-contact block of the contact arrangement can be made. For alternate action type, up to 4-contact block of the contact arrangement can be made.

## AH25

| Contact block |                | 1NO, 1NC,            | 3NO, 3NC,            | 3NO+3NC | 4NO+4NC |
|---------------|----------------|----------------------|----------------------|---------|---------|
|               |                | 2NO, 2NC,<br>1NO+1NC | 4NO, 4NC,<br>2NO+2NC |         |         |
| A<br>*        | Operator       |                      |                      |         |         |
|               | F,E,M,G,G1     | 45                   | 67                   | 89      | 111     |
|               | F5,E5,M5,G5,G6 | 67                   | 89                   | –       | –       |
|               | V              | 48.5                 | 70.5                 | –       | –       |
|               | U              | 43.5                 | 65.5                 | 87.5    | 109.5   |
|               | SF,SE          | 46.5                 | 68.5                 | 90.5    | 112.5   |
| SF5,SE5       | 68.5           | 90.5                 | –                    | –       |         |

\* When attaching the terminal cover, the dimension of externals increase 1.5mm.

| Operator   | Type         | Contact operation |      |   |           |   |           |
|--|--------------|-------------------|------|---|-----------|---|-----------|
|  |              | Contact block     |      | Left  |           | Right  |           |
|  |              | Mounting position | Type | Free  | Depressed | Free  | Depressed |
| Pushbutton with selector ring<br>2-position<br>2NO+2NC<br><br><br>SI-55 | AH25-S1 □ 22 | (1)               | NC   | —   | —         | ●   | —         |
|  |              | (2)               | NC   | —   | —         | ●   | —         |
|  |              | (3)               | NO   | —   | ●         | —   | ●         |
|  |              | (4)               | NO   | —   | ●         | —   | ●         |
|  | AH25-S2 □ 22 | (1)               | NC   | ●   | —         | ██████████  |           |
|  |              | (2)               | NC   | ██████████  |           | ●   | —         |
|  |              | (3)               | NO   | —   | ●         | —   | —         |
|  |              | (4)               | NO   | —   | —         | —   | ●         |
|  | AH25-S3 □ 22 | (1)               | NC   | —   | —         | ██████████  |           |
|  |              | (2)               | NC   | ██████████  |           | —   | —         |
|  |              | (3)               | NO   | —   | ●         | —   | —         |
|  |              | (4)               | NO   | —   | —         | —   | ●         |
|  | AH25-S4 □ 22 | (1)               | NC   | —   | —         | ██████████  |           |
|  |              | (2)               | NC   | —   | —         | ●   | —         |
|  |              | (3)               | NO   | —   | ●         | —   | —         |
|  |              | (4)               | NO   | —   | ●         | —   | ●         |
|  | AH25-S5 □ 22 | (1)               | NC   | ●   | —         | —   | —         |
|  |              | (2)               | NC   | ●   | —         | —   | —         |
|  |              | (3)               | NO   | —   | ●         | —   | ●         |
|  |              | (4)               | NO   | —   | ●         | —   | ●         |
|  | AH25-S6 □ 22 | (1)               | NC   | ●   | —         | —   | Locked    |
|  |              | (2)               | NC   | ●   | —         | —   |           |
|  |              | (3)               | NO   | —   | ●         | ●   |           |
|  |              | (4)               | NO   | —   | ●         | ●   |           |

Note: (1) to (4) contact block mounting position

● Contact closed  
— Contact open

• Button color

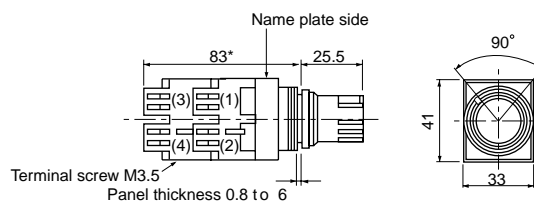
Replace the □ mark by the following button color code

| Button color | Green | Red | Black | Yellow | White |
|--------------|-------|-----|-------|--------|-------|
| Code         | G     | R   | B     | Y      | W     |

| Button color | Dark green | Sky-blue | Orange |
|--------------|------------|----------|--------|
| Code         | D          | S        | O      |

- The contact arrangement is 2NO+2NC only.
- The terminals are on the upper and lower positions.
- To turn selector ring of the S3 type right/left, the contacts in the upper and lower contact blocks overlap.



• Dimensions, mm



\* When attaching the terminal cover, the dimension of externals increase 1.5mm.

# Pushbuttons AH25

## ■ Mechanically interlocked pushbutton switches

| Exterior view   | Operator          | Contact block              | Cat. No.   |
|---|-------------------|----------------------------|--|
|  <p>AF89-610</p> | Flush/Flush       | 1NO/1NO<br>1NO+1NC/1NO+1NC | <b>AH25-F5 □10/F5 □10</b><br><b>AH25-F5 □11/F5 □11</b> |
|   | Flush/Extended    | 1NO/1NO<br>1NO+1NC/1NO+1NC | <b>AH25-F5 □10/E5 □10</b><br><b>AH25-F5 □11/E5 □11</b> |
|   | Flush/Mushroom    | 1NO/1NO<br>1NO+1NC/1NO+1NC | <b>AH25-F5 □10/M5 □10</b><br><b>AH25-F5 □11/M5 □11</b> |
|   | Latched/Unlatched | Flush/Flush                | 1NO/1NO<br>1NO+1NC/1NO+1NC                             |
|  <p>AF89-615</p> | Flush/Extended    | 1NO/1NO<br>1NO+1NC/1NO+1NC | <b>AH25-F5 □10/E □10</b><br><b>AH25-F5 □11/E □11</b>   |
|   | Flush/Mushroom    | 1NO/1NO<br>1NO+1NC/1NO+1NC | <b>AH25-F5 □10/M □10</b><br><b>AH25-F5 □11/M □11</b>   |

### • Button color

Replace the □ mark by the following button color code

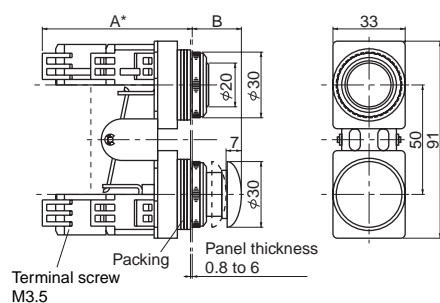
| Button color | Green | Red | Black | Yellow | White |
|--------------|-------|-----|-------|--------|-------|
| Code         | G     | R   | B     | Y      | W     |

| Button color | Dark green | Sky-blue | Orange |
|--------------|------------|----------|--------|
| Code         | D          | S        | O      |

• Up to 2-contacts can be made.

### • Dimensions, mm

AH25-□/□


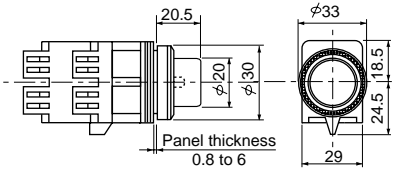

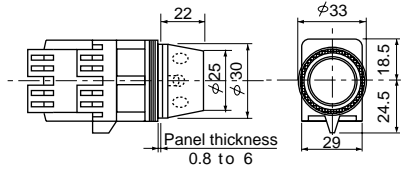




| Contact arrangement | 1NO, 1NC | 1NO+1NC<br>2NO, 2NC |
|---------------------|----------|---------------------|
| A*                  | 46.5     | 68.5                |

\* When attaching the terminal cover, the deimension of externals increase 1.5mm.

| Button | F, F5 | E, E5 | M, M5 |
|--------|-------|-------|-------|
| B      | 7.5   | 14    | 22.5  |



| Operator   | Contact  | Momentary action Type  | Alternate action Type  | Operator dimensions, mm   |
|--|--|--|--|---|
| Extended round head<br><br>SG-150                     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AH25-L□10■<br>AH25-L□01■<br>AH25-L□11■<br>AH25-L□20■<br>AH25-L□02■<br>AH25-L□22■       | AH25-L5□10<br>AH25-L5□01<br>AH25-L5□11<br>AH25-L5□20<br>AH25-L5□02<br>AH25-L5□22 |  |
| Extended with full guard (With openings)<br><br>0-267 | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AH25-L2□10■<br>AH25-L2□01■<br>AH25-L2□11■<br>AH25-L2□20■<br>AH25-L2□02■<br>AH25-L2□22■ | AH25-L6□10<br>AH25-L6□01<br>AH25-L6□11<br>AH25-L6□20<br>AH25-L6□02<br>AH25-L6□22 |  |
| Extended with full guard<br><br>AF89-604             | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AH25-L3□10■<br>AH25-L3□01■<br>AH25-L3□11■<br>AH25-L3□20■<br>AH25-L3□02■<br>AH25-L3□22■ | AH25-L7□10<br>AH25-L7□01<br>AH25-L7□11<br>AH25-L7□20<br>AH25-L7□02<br>AH25-L7□22 |   |
| Extended with transparent full guard<br><br>605     | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NC<br>2NO+2NC | AH25-L4□10■<br>AH25-L4□01■<br>AH25-L4□11■<br>AH25-L4□20■<br>AH25-L4□02■<br>AH25-L4□22■ | -<br>-<br>-<br>-<br>-<br>-   |   |

**• Lens color**

Replace the □ mark by the following lens color code

| Button color | Green | Red | Yellow | White | Sky-blue | Orange |
|--------------|-------|-----|--------|-------|----------|--------|
| Code         | G     | R   | Y      | W     | S        | O      |

For illuminated pushbutton with LED lamp, sky-blue is not available.  
 Lens are transparent colored plastic.

• Contact block dimensions: See page 04/19.

• Up to 8-contact block of contact arrangement can be made.  
 For switches with transformers or alternate action switches, up to 4-contact block can be made.


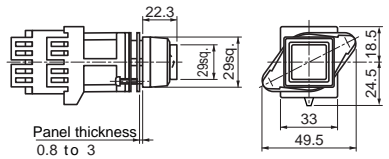

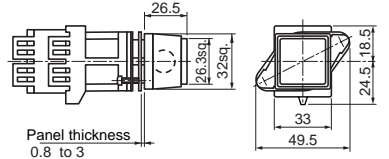
**• Voltage**

Replace the ■ mark by the lamp voltage code


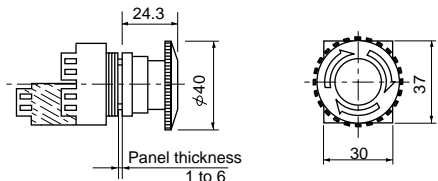
| Transformer         |             | Code |              |
|---------------------|-------------|------|--------------|
|                     |             | LED  | Incandescent |
| Without transformer | 6V DC       | AD3  | —            |
|                     | 6V AC       | A3   | —            |
|                     | 5.5V AC/DC  | —    | Blank        |
|                     | 12V AC/DC   | B3   | —            |
|                     | 15V AC/DC   | C3   | C            |
|                     | 20V AC/DC   | —    | D            |
| With transformer    | 24V AC/DC   | E3   | E            |
|                     | 100-110V AC | H3   | H            |
|                     | 115-127V AC | L3   | L            |
|                     | 200-220V AC | M3   | M            |
|                     | 230-254V AC | Q3   | Q            |
|                     | 350-380V AC | S3   | S            |
| 400-440V AC         | T3          | T    |              |
| 480V AC             | V3          | V    |              |
| 500-550V AC         | W3          | W    |              |

# Illuminated Pushbuttons

## AH25

| Operator  | Contact | Momentary action Type | Alternate action Type | Operator dimensions, mm  |
|---|---------|-----------------------|-----------------------|--|
| Extended square head<br><br>SG-144 | 1NO     | AH25-SL□10■           | AH25-SL5□10■          | <br>Panel thickness<br>0.8 to 3 |
|   | 1NC     | AH25-SL□01■           | AH25-SL5□01■          |  |
|   | 1NO+1NC | AH25-SL□11■           | AH25-SL5□11■          |  |
|   | 2NO     | AH25-SL□20■           | AH25-SL5□20■          |  |
|   | 2NC     | AH25-SL□02■           | AH25-SL5□02■          |  |
|   | 2NO+2NC | AH25-SL□22■           | AH25-SL5□22■          |  |
|   |         |                       |                       |  |
| Flush square head<br><br>SG-139    | 1NO     | AH25-SL1□10■          | AH25-SL6□10■          | <br>Panel thickness<br>0.8 to 3 |
|   | 1NC     | AH25-SL1□01■          | AH25-SL6□01■          |  |
|   | 1NO+1NC | AH25-SL1□11■          | AH25-SL6□11■          |  |
|   | 2NO     | AH25-SL1□20■          | AH25-SL6□20■          |  |
|   | 2NC     | AH25-SL1□02■          | AH25-SL6□02■          |  |
|   | 2NO+2NC | AH25-SL1□22■          | AH25-SL6□22■          |  |
|   |         |                       |                       |  |

Notes: For SL,SL1,SL5 and SL6,switches with incandescent lamp only.

| Operator   | Contact | Type        | Operator dimensions,mm  |
|--|---------|-------------|---|
| Push-lock, turn-reset<br><br>AF89-413 | 1NO     | AH25-VL□10■ | <br>Panel thickness<br>1 to 6 |
|  | 1NC     | AH25-VL□01■ |   |
|  | 1NO+1NC | AH25-VL□11■ |   |
|  | 2NO     | AH25-VL□20■ |   |
|  | 2NC     | AH25-VL□02■ |   |
|  | 2NO+2NC | AH25-VL□22■ |   |

### • Lens color

Replace the □ mark by the following lens color code

| Button color | Green | Red | Yellow | White | Sky-blue | Orange |
|--------------|-------|-----|--------|-------|----------|--------|
| Code         | G     | R   | Y      | W     | S        | O      |

AH25-VL type : Red, yellow only

For illuminated pushbutton with LED lamp,sky-blue is not available.

Lens are transparent colored plastic.

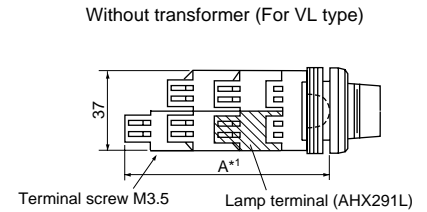
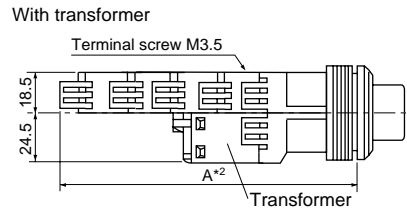
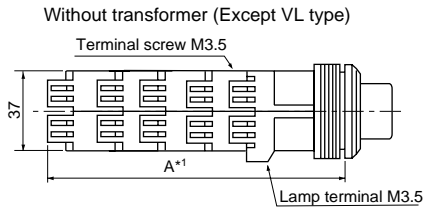
- Contact block dimensions: See page 04CD/3/19.
- Up to 8-contact block of contact arrangement can be made. For switches with transformers or alternate action switches,up to 4-contact block can be made. (Except AH25-VL type)
- AH25-VL type without transformer: Up to 4-contacts  
AH25-VL type with transformer: Up to 2-contacts

### • Voltage

Replace the ■ mark by the lamp voltage code

| Transformer         |             | Code |              |
|---------------------|-------------|------|--------------|
|                     |             | LED  | Incandescent |
| Without transformer | 6V DC       | AD3  | —            |
|                     | 6V AC       | A3   | —            |
|                     | 5.5V AC/DC  | —    | Blank        |
|                     | 12V AC/DC   | B3   | —            |
|                     | 15V AC/DC   | C3   | C            |
|                     | 20V AC/DC   | —    | D            |
|                     | 24V AC/DC   | E3   | E            |
| With transformer    | 100-110V AC | H3   | H            |
|                     | 115-127V AC | L3   | L            |
|                     | 200-220V AC | M3   | M            |
|                     | 230-254V AC | Q3   | Q            |
|                     | 350-380V AC | S3   | S            |
|                     | 400-440V AC | T3   | T            |
|                     | 480V AC     | V3   | V            |
|                     | 500-550V AC | W3   | W            |

### • Contact block dimensions, mm



#### Without transformer

| Contact block \ Operator |          | 1NO, 1NC |      | 2NO, 2NC, 1NO+1NC |      | 3NO, 3NC |  | 4NO, 4NC, 2NO+2NC |  | 3NO+3NC |  | 4NO+4NC |  |
|--------------------------|----------|----------|------|-------------------|------|----------|--|-------------------|--|---------|--|---------|--|
|                          |          |          |      |                   |      |          |  |                   |  |         |  |         |  |
| A                        | L        | 64.5     |      |                   |      | 86.5     |  |                   |  | 108.5   |  | 130.5   |  |
|                          | *1 L5    | 86.5     |      |                   |      | 108.5    |  |                   |  | -       |  | -       |  |
|                          | L2,L3,L4 | 63.5     |      |                   |      | 85.5     |  |                   |  | 107.5   |  | 129.5   |  |
|                          | L6,L7    | 85.5     |      |                   |      | 107.5    |  |                   |  | -       |  | -       |  |
|                          | VL       | 48.5     | 70.5 | 70.5              | 92.5 | -        |  | -                 |  |         |  |         |  |
|                          | SL,SL1   | 66       |      |                   |      | 88       |  |                   |  | 110     |  | 132     |  |
|                          | SL5,SL6  | 88       |      |                   |      | 110      |  |                   |  | -       |  | -       |  |

#### With transformer

| Contact block \ Operator |          | 1NO, 1NC |       | 2NO, 2NC 1NO+1NC |       | 3NO, 3NC |  | 4NO, 4NC 2NO+2NC |  |
|--------------------------|----------|----------|-------|------------------|-------|----------|--|------------------|--|
|                          |          |          |       |                  |       |          |  |                  |  |
| A                        | L        | 81       | 86.5  | 108.5            | 130.5 |          |  |                  |  |
|                          | *2 L5    | 103      | 108.5 | 130.5            | 152.5 |          |  |                  |  |
|                          | L2,L3,L4 | 80       | 85.5  | 107.5            | 129.5 |          |  |                  |  |
|                          | L6,L7    | 102      | 107.5 | 129.5            | 151.5 |          |  |                  |  |
|                          | VL       | 62       | 70.5  | -                | -     |          |  |                  |  |
|                          | SL,SL1   | 83       | 88    | 110              | 132   |          |  |                  |  |
|                          | SL5,SL6  | 105      | 110   | 132              | 154   |          |  |                  |  |

Notes: • Up to 8-contact block of contact arrangement can be made.

For switches with transformers or alternate action switches, up to 4-contact block of contact arrangement can be made. (Except AH25-VL)


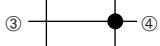
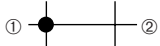



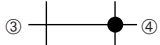
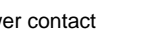
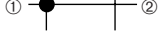




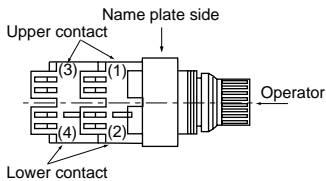

- Type AH25-VL without transformer: 4 contact Max.
- with transformer: 2 contact Max.

\*1 When attaching the terminal cover, the dimension of externals increase 1.5mm.

\*2 When attaching the terminal cover, the dimension of externals increase 1.5mm. (Except for 1NO and 1NC)

# Selector Switches AH25

## • 2-position

| Operator   | Operation     | Contact                                 | Type   | Contact operation (Example) |  |  |
|--|---------------|---|--|-----------------------------|--|--|
|  |               |   |  | Contact arrangement         | Operator position  |  |
|  |               |   |  |                             | Left   | Right  |
| <br>SG-188    | Maintained    | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | AH25-P2 □ 10<br>AH25-P2 □ 01<br>AH25-P2 □ 11<br>AH25-P2 □ 20<br>AH25-P2 □ 22                     | 1NO (1)                     | Upper contact<br>   |  |
|  | each 90°      |   |  | 1NC (1)                     | Upper contact<br>   |  |
|  | Spring return | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | AH25-P0 □ 10<br>AH25-P0 □ 01<br>AH25-P0 □ 11<br>AH25-P0 □ 20<br>AH25-P0 □ 22                     |                             | 1NO+1NC (1)  | Upper contact<br>   |
|  | 90°           |   |  |                             |  | Lower contact<br> |
| <br>SP-1007 | Maintained    | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | AH25-PW2 □ 10<br>AH25-PW2 □ 01<br>AH25-PW2 □ 11<br>AH25-PW2 □ 20<br>AH25-PW2 □ 22                | (2)                         | Upper contact<br> |  |
|  | each 90°      |   |  |                             |  |  |
|  | Spring return | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | AH25-PW0 □ 10<br>AH25-PW0 □ 01<br>AH25-PW0 □ 11<br>AH25-PW0 □ 20<br>AH25-PW0 □ 22                |                             | (1)  | Upper contact<br> |
|  | 90°           |   |  |                             | (3)  | Lower contact<br> |
| <br>SG-196  | Maintained    | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | AH25-SP2 □ 10<br>AH25-SP2 □ 01<br>AH25-SP2 □ 11<br>AH25-SP2 □ 20<br>AH25-SP2 □ 22                | (2)                         | Upper contact<br> |  |
|  | each 90°      |   |  |                             | (4)  | Lower contact<br> |
| <br>SG-233  | Maintained    | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | AH25-J2 ■ 10( )<br>AH25-J2 ■ 01( )<br>AH25-J2 ■ 11( )<br>AH25-J2 ■ 20( )<br>AH25-J2 ■ 22( )      |                             |                   |  |
|  | each 90°      |   |  |                             |  |  |
| <br>SG-226  | Maintained    | 1NO<br>1NC<br>1NO+1NC<br>2NO<br>2NO+2NC | AH25-SJ2 ■ 10( )<br>AH25-SJ2 ■ 01( )<br>AH25-SJ2 ■ 11( )<br>AH25-SJ2 ■ 20( )<br>AH25-SJ2 ■ 22( ) |                             |  |  |
|  | each 90°      |   |  |                             |  |  |

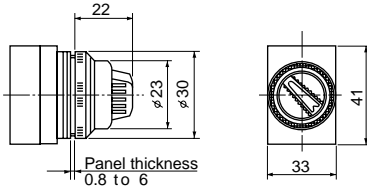
Notes: • (1) to (4): Contact block mounting position

• ①-②, ③-④: Contact block terminal No.

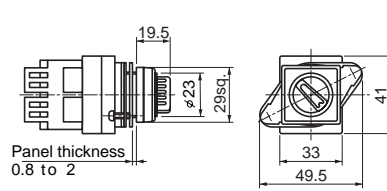
• □, ■, ( ) and contact arrangements: See page 04CD/3/19

## • Operator dimensions, mm

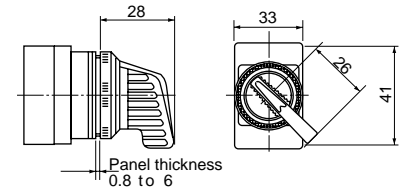
AH25-P



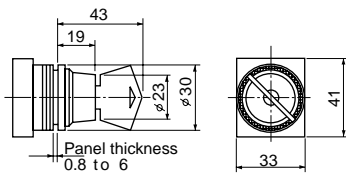
AH25-SP



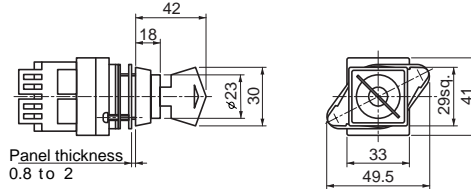
AH25-PW



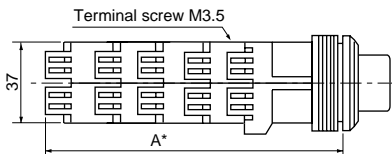
AH25-J



AH25-SJ



## • Contact block dimensions, mm



|   |      | Contact block                     |                                   |         |         |       |
|---|------|-----------------------------------|-----------------------------------|---------|---------|-------|
|   |      | 1NO, 1NC,<br>2NO, 2NC,<br>1NO+1NC | 3NO, 3NC,<br>4NO, 4NC,<br>2NO+2NC | 3NO+3NC | 4NO+4NC |       |
| A | AH25 | P0, P2, PW0, PW2                  | 53.5                              | 75.5    | 97.5    | 119.5 |
|   |      | SP2                               | 55.5                              | 77.5    | 99.5    | 121.5 |
|   |      | SJ2                               | 52.5                              | 74.5    | 96.5    | 118.5 |
|   |      | J0, J2                            | 51.5                              | 73.5    | 95.5    | 117.5 |

Notes: \* When attaching the terminal cover, the dimension of externals increase 1.5mm.

• Up to 8-contact block of the contact arrangement can be made.

## • Knob color

Replace the □ mark by the following knob color code

| Knob color | Green | Red | Black |
|------------|-------|-----|-------|
| Code       | G     | R   | B     |

The standard knob color is black.

## • Key code No.

Replace the ■ with the key code No. A, B, C, D, E or F.  
Standard key code is A.

## • Key removable positions





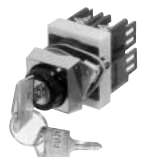
Replace the ( ) mark by the following code No.

| Code               | A | D | B |
|--------------------|---|---|---|
| Removable position |   |   |   |
| J2                 | ● | ● | ● |
| J0                 | ● | — | — |
| SJ2                | ● | ● | ● |

● : Available    — : Not available

# Selector Switches AH25

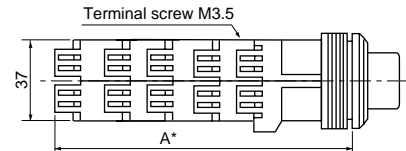
## • 3-position

| Operator  | Operation                          | Contact            | AH25 Type  |
|---|------------------------------------|--------------------|--|
| <br>SG-193     | Maintained<br>each 45°             | 1NO+1NC<br>2NO+2NC | <b>AH25-P3</b> □ 11<br><b>AH25-P3</b> □ 22         |
|   | Spring/manual return<br>⌚ each 45° | 1NO+1NC<br>2NO+2NC | <b>AH25-P5</b> □ 11<br><b>AH25-P5</b> □ 22         |
|   | Spring/manual return<br>⌚ each 45° | 1NO+1NC<br>2NO+2NC | <b>AH25-P6</b> □ 11<br><b>AH25-P6</b> □ 22         |
|   | Spring return<br>⌚ each 60°        | 2NO+2NC            | <b>AH25-P1</b> □ 22                                |
| <br>AF89-602  | Maintained<br>each 45°             | 1NO+1NC<br>2NO+2NC | <b>AH25-PW3</b> □ 11<br><b>AH25-PW3</b> □ 22       |
|   | Spring/manual return<br>⌚ each 45° | 1NO+1NC<br>2NO+2NC | <b>AH25-PW5</b> □ 11<br><b>AH25-PW5</b> □ 22       |
|   | Spring/manual return<br>⌚ each 45° | 1NO+1NC<br>2NO+2NC | <b>AH25-PW6</b> □ 11<br><b>AH25-PW6</b> □ 22       |
|   | Spring return<br>⌚ each 60°        | 2NO+2NC            | <b>AH25-PW1</b> □ 22                               |
| <br>AF88-599 | Maintained<br>each 45°             | 1NO+1NC<br>2NO+2NC | <b>AH25-SP3</b> □ 11<br><b>AH25-SP3</b> □ 22       |
| <br>SG-364   | Maintained<br>each 45°             | 1NO+1NC<br>2NO+2NC | <b>AH25-J3</b> ■ 11( )<br><b>AH25-J3</b> ■ 22( )   |
|   | Spring/manual return<br>⌚ each 45° | 1NO+1NC<br>2NO+2NC | <b>AH25-J5</b> ■ 11( )<br><b>AH25-J5</b> ■ 22( )   |
|   | Spring/manual return<br>⌚ each 45° | 1NO+1NC<br>2NO+2NC | <b>AH25-J6</b> ■ 11( )<br><b>AH25-J6</b> ■ 22( )   |
| <br>AF89-609 | Maintained<br>each 45°             | 1NO+1NC<br>2NC+2NC | <b>AH25-SJ3</b> ■ 11( )<br><b>AH25-SJ3</b> ■ 22( ) |

Notes: • □, ■, ( ) and contact arrangements: See page 04CD/3/21  
• Operator dimensions: See page 04CD/3/19

• Contact block dimensions, mm

|   |      | Operator                  | Contact block                   |                                 |         |         |
|---|------|---------------------------|---------------------------------|---------------------------------|---------|---------|
|   |      |                           | 1NO, 1NC<br>2NO, 2NC<br>1NO+1NC | 3NO, 3NC<br>4NO, 4NC<br>2NO+2NC | 3NO+3NC | 4NO+4NC |
| A | AH25 | P3, P5, P6, PW3, PW5, PW6 | 53.5                            | 75.5                            | 97.5    | 119.5   |
|   |      | SP3                       | 55.5                            | 77.5                            | 99.5    | 121.5   |
|   |      | SJ3                       | 52.5                            | 74.5                            | 96.5    | 118.5   |
|   |      | J3, J5, J6                | 51.5                            | 73.5                            | 95.5    | 117.5   |
|   |      | P1, PW1                   | -                               | 75.5                            | -       | -       |
|   |      | J1                        | -                               | 73.5                            | -       | -       |



Notes : \* When attaching the terminal cover, the dimension of externals increase 1.5mm.  
 • Up to 8-contact block of the contact arrangement can be made.  
 For spring return switches, up to 4-contact block can be made.

• Key removable positions

Replace the ( ) mark by the following code No.

| Code               | A | B | C | D | E | F | G |
|--------------------|---|---|---|---|---|---|---|
| Removable position |   |   |   |   |   |   |   |
| J3, SJ3            | ● | ● | ● | ● | ● | ● | ● |
| J5                 | - | - | - | ● | ● | ● | - |
| J6                 | ● | - | - | - | ● | - | ● |

●: Available    -: Not available

• Contact operation (Example)

3-position

| Type                               | Contact arrangement           | Operator position |   |   |   |   |   |
|------------------------------------|-------------------------------|-------------------|---|---|---|---|---|
|                                    |                               | L                 | C | R | L | C | R |
| P3, PW3, SP3, J3, SJ3, P5, PW5, J5 | 1NO+1NC<br>(1) (2)            |                   |   |   |   |   |   |
| P6, PW6, J6                        | 1NO+1NC<br>(1) (2)            |                   |   |   |   |   |   |
| P1, PW1                            | 2NO+2NC<br>(1) (2)<br>(3) (4) |                   |   |   |   |   |   |

● Contact closed

Note: ①-②,③-④ : Contact block terminal No.  
 • Up to 8-contact block of the contact arrangement can be made.  
 For P1, PW1 types, up to 4-contact block can be made.

• Key code No.

Replace the ■ with the key code No. A, B, C, D, E or F.  
 Standard key code is A.

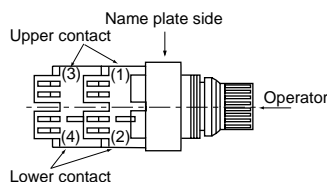
• Knob color

Replace the □ mark by the following knob color code

| Knob color | Green | Red | Black |
|------------|-------|-----|-------|
| Code       | G     | R   | B     |

The standard knob color is black.


• Position of contact block



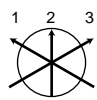
# Selector Switches AH25

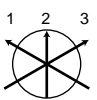
## ■ Selector switches (control type)

### 3-position

| Operator  | Operation              | Knob color or key removable position  | Contact arrangement (2NO+2NC only)   | Type      |
|---|------------------------|---|--|-----------|
| <br>AF89-596 | Maintained<br>each 60° | Color code:<br>B: Black<br>(Standard)<br>Color other than<br>above are<br>available<br>(G: Green)<br>(R: Red) | Replace the ■<br>mark by type<br>arrangement code<br>(shown on under table). | AH25-PCB■ |
|   |                        |   |  | AH25-PCR■ |
|   |                        |   |  | AH25-PCG■ |

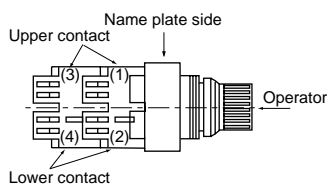
### Contact operation (2NO+2NC)

| Code | Operation  | Contact operation |               |
|------|--|-------------------|---------------|
|      |  | Upper contact     | Lower contact |
| 012  | <br>each 60° |                   |               |
| 032  |  |                   |               |
| 052  |  |                   |               |
| 072  |  |                   |               |
| 092  |  |                   |               |
| 112  |  |                   |               |
| 132  |  |                   |               |
| 152  |  |                   |               |
| 172  |  |                   |               |
| 192  |  |                   |               |
| 212  |  |                   |               |

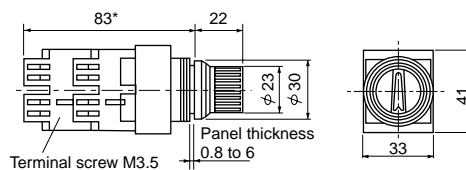
| Code | Operation   | Contact operation |               |
|------|---|-------------------|---------------|
|      |   | Upper contact     | Lower contact |
| 022  | <br>each 60° |                   |               |
| 042  |   |                   |               |
| 062  |   |                   |               |
| 082  |   |                   |               |
| 102  |   |                   |               |
| 122  |   |                   |               |
| 142  |   |                   |               |
| 162  |   |                   |               |
| 182  |   |                   |               |
| 202  |   |                   |               |

● Contact closed

Notes : ● (1) to (4) : Contact block mounting position  
●①-②,③-④ : Contact block terminal No.




### • Dimensions, mm



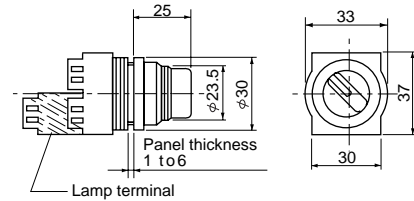
\* When attaching the terminal cover, the dimension of externals increase 1.5mm.




### • 2-position

| Operator  | Operation              | Contact | Type                   |
|---|------------------------|---------|------------------------|
| <br>AF89-622 | Maintained<br>each 90° | 1NO+1NC | <b>AH25-PL2</b> □ 11 ■ |
|   |                        | 2NO+2NC | <b>AH25-PL2</b> □ 22 ■ |
|   | Spring return<br>90°   | 1NO+1NC | <b>AH25-PL0</b> □ 11 ■ |
|   |                        | 2NO+2NC | <b>AH25-PL0</b> □ 22 ■ |

### • Operator dimensions, mm



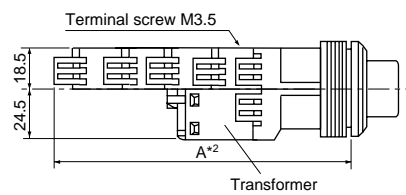
### • 3-position

| Operator   | Operation                            | Contact | Type                   |
|--|--------------------------------------|---------|------------------------|
| <br>AF89-415 | Maintained<br>each 45°               | 1NO+1NC | <b>AH25-PL3</b> □ 11 ■ |
|  |                                      | 2NO+2NC | <b>AH25-PL3</b> □ 22 ■ |
|  | Manual/<br>spring return<br>each 45° | 1NO+1NC | <b>AH25-PL6</b> □ 11 ■ |
|  |                                      | 2NO+2NC | <b>AH25-PL6</b> □ 22 ■ |
|  | Manual/<br>spring return<br>each 45° | 1NO+1NC | <b>AH25-PL7</b> □ 11 ■ |
|  |                                      | 2NO+2NC | <b>AH25-PL7</b> □ 22 ■ |

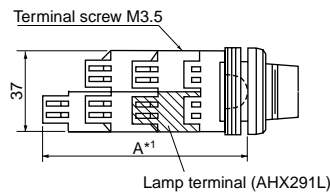
Notes: • □, ■ and contact arrangements: See page 04CD/3/24  
• 3-position, spring return type is not available.

### • Contact block dimensions, mm

Switch: with transformer



Switch: without transformer



| Operator |                     | Contact block | 1NO, 1NC | 1NO+1NC<br>2NO, 2NC | 3NO, 3NC | 2NO+2NC<br>4NO, 4NC | 3NO+3NC |
|----------|---------------------|---------------|----------|---------------------|----------|---------------------|---------|
|          |                     |               | A        | A*1                 | A*2      | A*1                 | A*2     |
| AH25     | Without transformer |               | 48.5     | 70.5                | 70.5     | 92.5                | 114.5   |
|          | With transformer    | -PL           | 62       | 70.5                | 92.5     | 114.5               | —       |

Notes: • \*1 When attaching the terminal cover, the dimension of external increase 1.5mm.  
• \*2 When attaching the terminal cover, the dimension of external increase 1.5mm. (Except for 1NO and 1NC)

# Illuminated Selector Switches AH25

- Replace the □ mark by the following lamp voltage code

| Transformer | Voltage     | Code |              |
|-------------|-------------|------|--------------|
|             |             | LED  | Incandescent |
| Without     | 5.5V AC/DC  | –    | Blank        |
|             | 6V DC       | AD3  | –            |
|             | 6V AC       | A3   | –            |
|             | 12V AC/DC   | B3   | –            |
|             | 15V AC/DC   | C3   | C            |
|             | 20V AC/DC   | –    | D            |
| 24V AC/DC   | E3          | E    |              |
| With        | 100-110V AC | H3   | H            |
|             | 115-127V AC | L3   | L            |
|             | 200-220V AC | M3   | M            |
|             | 230-254V AC | Q3   | Q            |
|             | 350-380V AC | S3   | S            |
|             | 400-440V AC | T3   | T            |
|             | 480V AC     | V3   | V            |
|             | 500-550V AC | W3   | W            |

- Contact arrangement and operator position

## 2-position

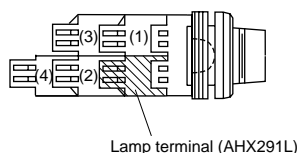
| Transformer  | Contact arrangement | Contact block     |      | Operator position |       |
|--------------|---------------------|-------------------|------|-------------------|-------|
|              |                     | Mounting position | Type | Left              | Right |
| With/without | 1NO                 | (1)               | NO   | –                 | ●     |
| With/without | 1NC                 | (1)               | NC   | ●                 | –     |
| Without      | 1NO+1NC             | (1)               | NO   | –                 | ●     |
|              |                     | (2)               | NC   | ●                 | –     |
| With         | 1NO+1NC             | (1)               | NC   | ●                 | –     |
|              |                     | (2)               | NO   | –                 | ●     |
| With/without | 2NO                 | (1)               | NO   | –                 | ●     |
|              |                     | (2)               | NO   | –                 | ●     |
| Without      | 2NO+2NC<br>*1       | (1)               | NO   | –                 | ●     |
|              |                     | (2)               | NC   | ●                 | –     |
|              |                     | (3)               | NO   | –                 | ●     |
|              |                     | (4)               | NC   | ●                 | –     |
| With         | 2NO+2NC<br>*1       | (1)               | NC   | ●                 | –     |
|              |                     | (2)               | NC   | ●                 | –     |
|              |                     | (3)               | NO   | –                 | ●     |
|              |                     | (4)               | NO   | –                 | ●     |

Notes: \*1: AH25-PL2

● : Contact closed, – : Contact open

- Position of contact block

Without transformer



- Replace the □ mark by the following knob color code

| Color | Green | Red | White | Sky-blue | Yellow | Orange |
|-------|-------|-----|-------|----------|--------|--------|
| Code  | G     | R   | W     | S        | Y      | O      |

For illuminated selector switch with LED lamp, sky-blue is not available.

- Up to 4-contact of contact arrangement can be made.  
Available numbers of contacts are as follow.

| No. of position | Operation            | Without transformer | With transformer |
|-----------------|----------------------|---------------------|------------------|
| 2-position      | Maintained           | 6-contact           | 4-contact        |
|                 | Spring return        | 4-contact           | 4-contact        |
| 3-position      | Maintained           | 6-contact           | 4-contact        |
|                 | Spring/manual return | 6-contact           | 4-contact        |

## 3-position

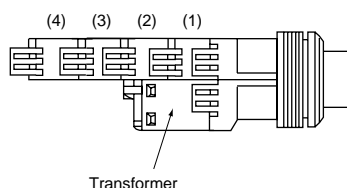
| Transformer | Contact arrangement | Contact block     |      | Operator position |        |       |
|-------------|---------------------|-------------------|------|-------------------|--------|-------|
|             |                     | Mounting position | Type | Left              | Center | Right |
| Without     | 1NO+1NC<br>*1       | (1)               | NO   | ●                 | –      | –     |
|             |                     | (2)               | NC   | –                 | –      | ●     |
|             | 1NO+1NC<br>*2       | (1)               | NO   | –                 | –      | ●     |
|             |                     | (2)               | NC   | ●                 | –      | –     |
|             | 2NO+2NC<br>*3       | (1)               | NO   | ●                 | –      | –     |
|             |                     | (2)               | NC   | –                 | –      | ●     |
| (3)         |                     | NO                | ●    | –                 | –      |       |
| (4)         |                     | NC                | –    | –                 | ●      |       |
| With        | 1NO+1NC<br>*1       | (1)               | NC   | –                 | –      | ●     |
|             |                     | (2)               | NO   | ●                 | –      | –     |
|             | 1NO+1NC<br>*2       | (1)               | NC   | ●                 | –      | –     |
|             |                     | (2)               | NO   | –                 | –      | ●     |
|             | 2NO+2NC<br>*3       | (1)               | NC   | –                 | –      | ●     |
|             |                     | (2)               | NC   | –                 | –      | ●     |
|             |                     | (3)               | NO   | ●                 | –      | –     |
|             |                     | (4)               | NO   | ●                 | –      | –     |

Notes: \*1: AH25-PL3, PL6 \*3: AH25-PL3

\*2: AH25-PL7

● : Contact closed, – : Contact open

With transformer



● Incandescent lamp

| Lens   | Lamp voltage        |         | Type         |
|--|---------------------|---------|--------------|
| Dome<br> SF-1095                              | Without transformer | 15V DC  | AH25-ZM □    |
|  |                     | 24V DC  | AH25-ZM □ E  |
|  | With transformer    | 110V AC | AH25-ZM □ H  |
|  |                     | 220V AC | AH25-ZM □ M  |
| Faceted<br> SF-1094                           | Without transformer | 15V DC  | AH25-ZK □    |
|  |                     | 24V DC  | AH25-ZK □ E  |
|  | With transformer    | 110V AC | AH25-ZK □ H  |
|  |                     | 220V AC | AH25-ZK □ M  |
| Extended square<br> SF-1093                   | Without transformer | 15V DC  | AH25-ZS □    |
|  |                     | 24V DC  | AH25-ZS □ E  |
|  | With transformer    | 110V AC | AH25-ZS □ H  |
|  |                     | 220V AC | AH25-ZS □ M  |
| Flush square, with legend plate<br> SF-1092  | Without transformer | 15V DC  | AH25-ZN □    |
|  |                     | 24V DC  | AH25-ZN □ E  |
|  | With transformer    | 110V AC | AH25-ZN □ H  |
|  |                     | 220V AC | AH25-ZN □ M  |
| Dome/short-body with transformer<br> SH-971 |                     | 110V AC | AH25-ZM □ H8 |
|  |                     | 220V AC | AH25-ZM □ M8 |




● Lens color

Replace the □ mark by the following lens color code

| Button color | Green | Red | Yellow | White | Sky-blue | Orange |
|--------------|-------|-----|--------|-------|----------|--------|
| Code         | G     | R   | Y      | W     | S        | O      |

Pilot light with LED lamp, sky-blue is not available.

● LED lamp

| Lens  | Lamp voltage        |         | Type         |
|---|---------------------|---------|--------------|
| Dome<br> SF-1095                            | Without transformer | 12V DC  | AH25-ZM □ B3 |
|   |                     | 24V DC  | AH25-ZM □ E3 |
|   | With transformer    | 110V AC | AH25-ZM □ H3 |
|   |                     | 220V AC | AH25-ZM □ M3 |
| Faceted<br> SF-1094                         | Without transformer | 12V DC  | AH25-ZK □ B3 |
|   |                     | 24V DC  | AH25-ZK □ E3 |
|   | With transformer    | 110V AC | AH25-ZK □ H3 |
|   |                     | 220V AC | AH25-ZK □ M3 |
| Dome/short-body with transformer<br> SH-971 |                     | 110V AC | AH25-ZM □ H9 |
|   |                     | 220V AC | AH25-ZM □ M9 |

● Voltage

Available lamp voltage are as follow.

| Description         | Voltage     | Code          |              |
|---------------------|-------------|---------------|--------------|
|                     |             | Standard type |              |
|                     |             | LED           | Incandescent |
| Without transformer | 5.5V AC/DC  | –             | Blank        |
|                     | 6V AC       | A3            | –            |
|                     | 6V DC       | AD3           | –            |
|                     | 12V AC/DC   | B3            | –            |
|                     | 15V AC/DC   | C3            | C            |
|                     | 20V AC/DC   | –             | D            |
|                     | 24V AC/DC   | E3            | E            |
| With transformer    | 100-110V AC | H3            | H            |
|                     | 115-127V AC | L3            | L            |
|                     | 200-220V AC | M3            | M            |
|                     | 230-254V AC | Q3            | Q            |
|                     | 350-380V AC | S3            | S            |
|                     | 400-440V AC | T3            | T            |
|                     | 480V AC     | V3            | V            |
|                     | 500-550V AC | W3            | W            |
| With resistor unit  | 110V DC     | H7            | –            |

# Pilot Lights AH25

## ■ Dimensions, mm

| Type      | Without transformer | With transformer |  |
|-----------|---------------------|------------------|--|
| AH25-ZM   |                     |                  |  |
| AH25-ZM□8 |                     |                  |  |
| AH25-ZK   |                     |                  |  |
| AH25-ZS   |                     |                  |  |
| AH25-ZN   |                     |                  |  |

Note: \*1 Same as the resistor unit type.

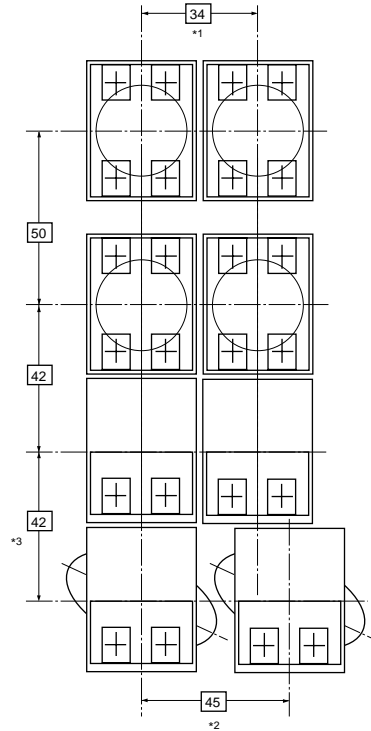
\*2 When attaching the terminal cover, the dimension of externals increase 1.0mm.

**Notes on use**

■ **Mounting space, mm**

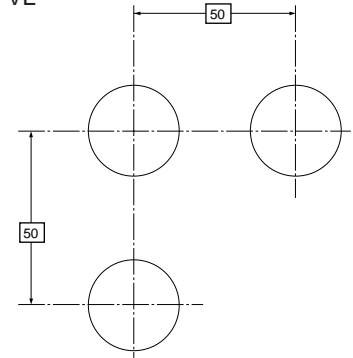
• **Switch**

F, F5, E, E5, G, G5, G1, G6, M, M5, U, S1~S6, SF, SF5, SE, SE5, L, L5, L3, L2, L4, SL, SL5, SL1, SL6, P, PW, SP, J, SJ, PC, PL



• **Push-lock type**

V, VL



\*1 G, G5 type: 42

\*2 This dimension applies SF, SF5, SE, SE5, SL, SL5, SL1, SL6, SP, SJ types.

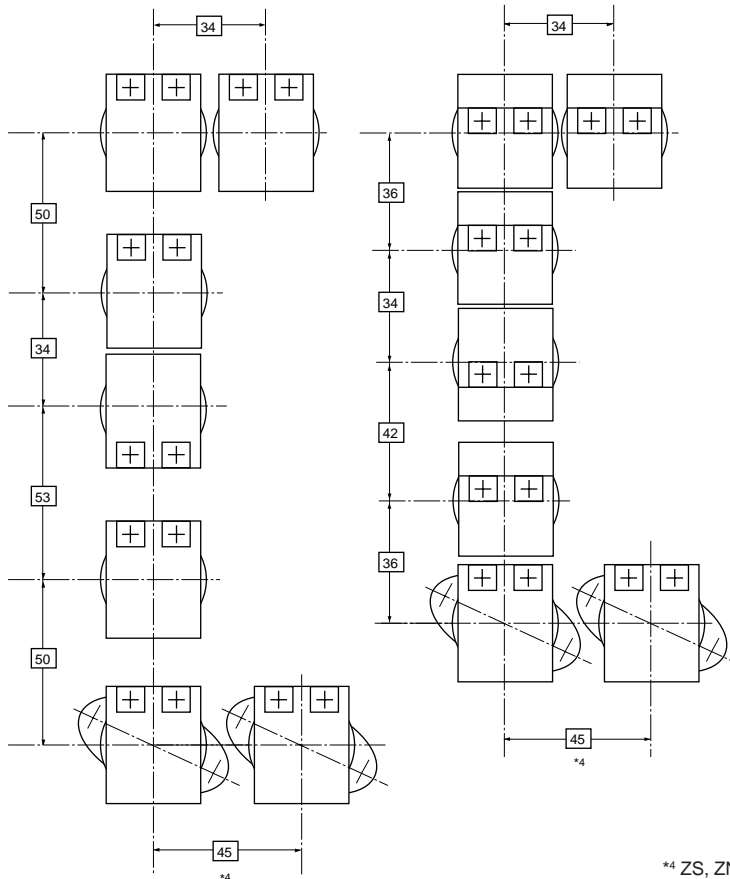
\*3 L, SL type: 44 (not meet with the live section.)

• **Pilot light**

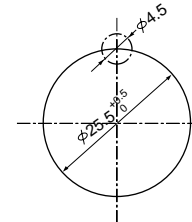
ZM, ZK, ZS, ZN

Without transformer

With transformer



■ **Panel cutout hole**



Note: If key-washer or legend plate are not used, 4.5mm dia. location holes shown and the same pilot light type ZS, ZN need not cutout.

\*4 ZS, ZN type: In case of horizontal mounting

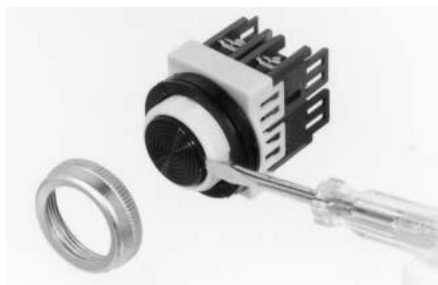
# Pushbuttons/Selectors/Pilot Lights

## AH25

### Notes on use

#### ■ Replace buttons

(1) To replace AH25 type F, E and G buttons with a different color, insert a flat-blade screwdriver into the groove on the button. To install them, align the button projection and the recess on the inner button and press them together firmly.



(2) To replace the color tip of AH25 type G (with half guard), do not make the trip groove face the guard.



(3) For AH25-M, V, VL, remove the button and mount the switch to the panel.

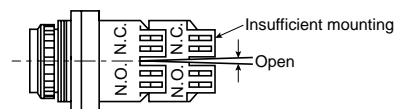
a) Tighten the button completely. The button stroke is adjusted only when it is completely tightened. If tightening is insufficient, stroke increases and destroys the contact.

b) Determine the panel thickness and number of adjustment packings with the table.

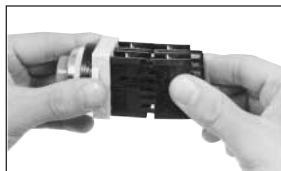
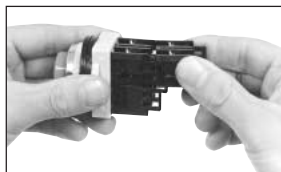
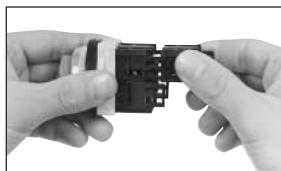
Do not adjust the button stroke with a liner under the button.

#### ■ Replace the contact block

(1) AH25 contacts can be increased with snap-fitting contact block. To add a contact block, push the additional contact block straight in until it clicks. When adding more than two contact blocks, join the slots on both sides and make sure that the contact blocks facing each other are not open. After addition or replacement, operate the switches a few times to check that they work correctly.



(2) To remove a contact block, use a screwdriver to slightly open the mounting leg, and remove the contact block from the side of the opening leg. When two contact blocks are mounted release one a little, and then the other, and remove both at the same time. The same thing goes for transformers joined to contact blocks. Be careful not to force the mounting leg. Using a special tool (AHX321), the units can be removed more easily.



#### ■ Exchange of transformer

(1) A transformer can be easily snap-fitted to an AH25 pilot light. When a transformer is added to a pilot light without a transformer, attach a cover to the terminal of the pilot light to avoid wiring errors.

(2) The capacity of the transformer is set for the lamp. No other load can be applied.

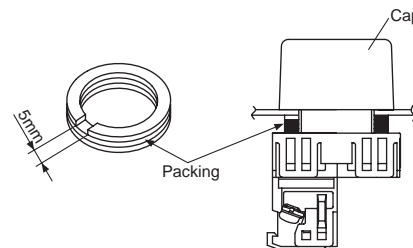


#### ■ Water-proof and dust-proof cap

Applicable type:

Water-proof cap AHX106, 155  
Dust-proof cap AHX025, 026, 027  
AHX046, 047, 048  
AHX105, 112, 114

When attached to the panel in combination with a water-proof or dust-proof cap, the water-proof cap or dust-proof cap may sink downward and prevent the depressed button from returning to its original position. As shown in the following figure, cut an approximately 5-mm air outlet in the portion of the ring packing touching the panel surface. Also, reduce the number of packing rings by one below the standard number. The clamp ring tightening torque is 1.5 to 2.5 N•m.



#### Degree of protection

The water-proof cap or dust-proof cap seals the panel surface to provide IP65 protection.

#### ■ Adjustment packing

Four 1.6mm packings (molded as one) are included. Based on the thickness of the mounting panel, adjust the number as shown in the table. To mount to a panels thinner than 1.6mm, one 1.6mm packing is needed (Purchased separately).

Mounting panel thickness and number of packings (reference)

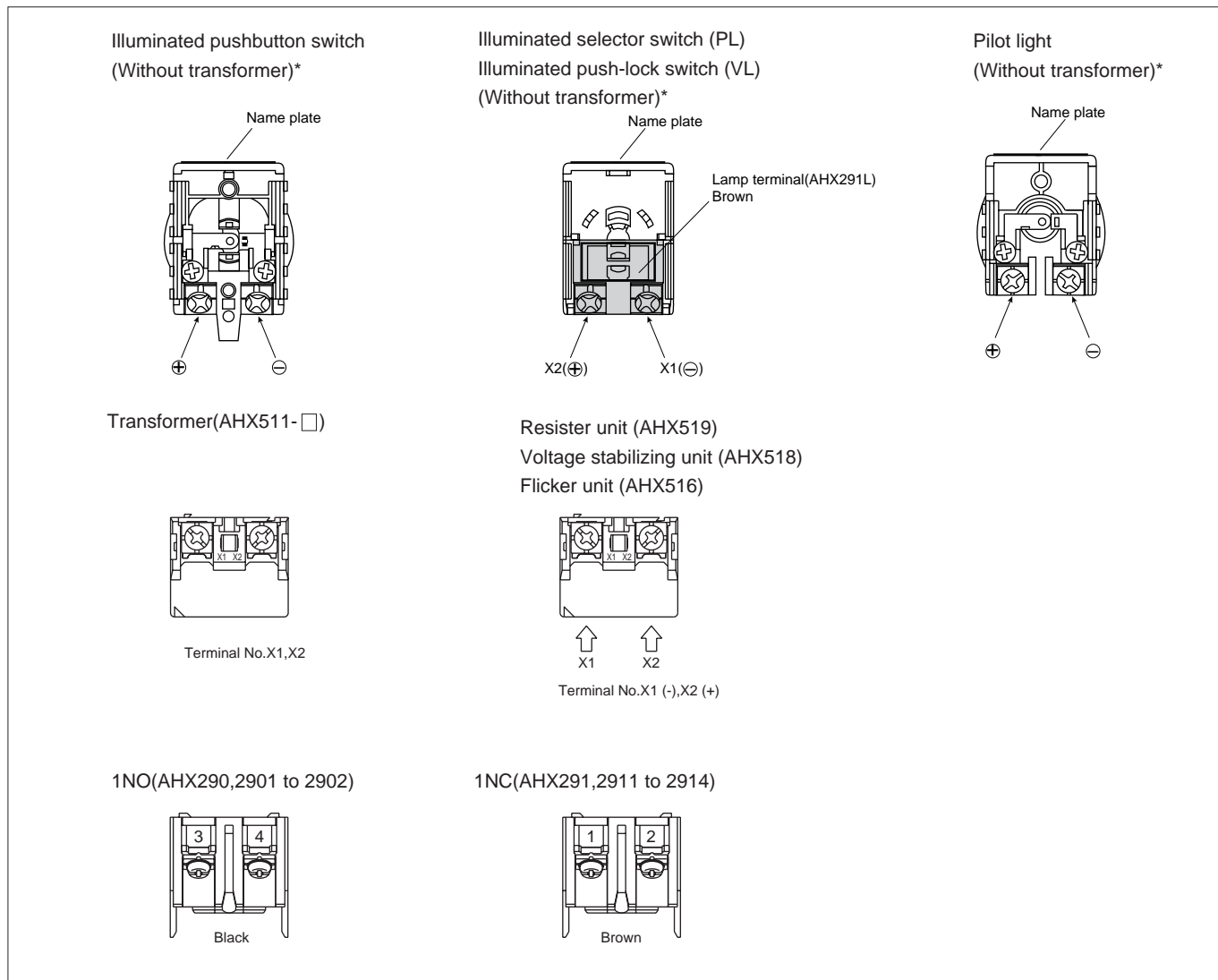
| Mounting panel thickness (mm) | Number of packings |
|-------------------------------|--------------------|
| 0.8 to 2.0                    | 5                  |
| 2.0 to 3.2                    | 4                  |
| 3.2 to 4.5                    | 3                  |
| 4.5 to 6.0                    | 2                  |

Notes:

- When using a key washer or legend plate, decrement one from the numbers in the above table.
- When more than four packings are needed, these are bought separately.

■ **Terminal layout**

Notes: \* The positive and negative terminals are used for 6V DC applications.



Other items are the same as for the AR22 and DR22 series,  
 see page 04/53 to 04/57.






# Pushbuttons/Selectors/Pilot Lights

## AH25

### Accessories




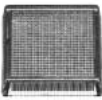


#### ■ Accessories


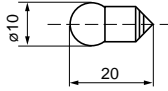

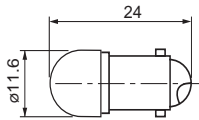
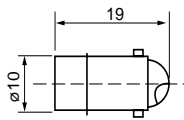
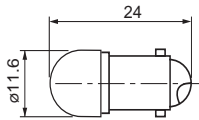
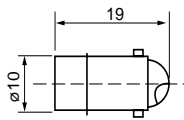
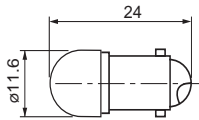
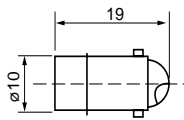

| Description  | Type   |
|--|--|
|  <p>T-1995</p>  | <b>AHX001</b>  |
|  <p>T-1993</p>  | <b>AHX003</b><br>Color: Silver (metal)<br>Dimensions, mm <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Panel plug</p> <p>Packing Nut</p> <p>φ31</p> <p>φ35</p> <p>M5</p> <p>3</p> <p>1</p> <p>20</p> </div> </div> |
|  <p>SC993</p>  <p>SC992</p>                   | F type Red <b>AHX046</b> Dimensions, mm<br>Green <b>AHX047</b> φ34×17.3<br>Black <b>AHX048</b>   |
|  | E type Red <b>AHX025</b> Dimensions, mm<br>Green <b>AHX026</b> φ34×17.3<br>Black <b>AHX027</b>   |
|  | M type Red <b>AHX105-R</b> Dimensions,<br>Green <b>AHX105-G</b> mm<br>Black <b>AHX105-B</b> φ45×25<br>Yellow <b>AHX105-Y</b><br>White <b>AHX105-W</b>  |
|  <p>SC-993</p>  | F type Red <b>AHX112-R</b> Dimensions,<br>Green <b>AHX112-G</b> mm<br>Black <b>AHX112-B</b> φ34×17.3   |
|  | E type Red <b>AHX114-R</b> Dimensions,<br>Green <b>AHX114-G</b> mm<br>Black <b>AHX114-B</b> φ34×17.3   |
|  <p>Y-1559</p>  | E type <b>AHX106</b> Dimensions, mm φ31×18<br>L type <b>AHX155</b> Dimensions, mm φ31×25.5<br>Note:<br>The only color available is transparent.  |
|  <p>AHX029 Y-1990</p>  <p>AHX790 AF95-22</p> | <b>AHX029</b> For Incandescen lamp<br><b>AHX790</b> For LED lamp   |

| Description   | Type  |              |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
|---|---|--------------|--------|--------|-------------------|------|-------|--------|-------|--------------|------------|--------|-------|------|---|---|---|--------------|----------|-------------------|-------|--------|-------|-------|------|---|---|
|  <p>Y-1541</p>  <p>Y-1542</p> | Standard F, F5, S1-S6 type <b>AHX061-</b> □<br>E, E5, G, G5, G1, <b>AHX062-</b> □<br>G6 type<br><br>Engraving F, F5, S1-S6 type <b>AHX063-</b> □<br>E, E5, G, G5, <b>AHX064-</b> □<br>G1, G6 type<br><br>Replace the □ mark by the following color code. <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Button color</td> <td>Green</td> <td>Red</td> <td>Black</td> </tr> <tr> <td>Code</td> <td>G</td> <td>R</td> <td>B</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Button color</td> <td>Dark green</td> <td>Yellow</td> <td>White</td> </tr> <tr> <td>Code</td> <td>D</td> <td>Y</td> <td>W</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Button color</td> <td>Sky-blue</td> <td>Orange</td> </tr> <tr> <td>Code</td> <td>S</td> <td>O</td> </tr> </table> | Button color | Green  | Red    | Black             | Code | G     | R      | B     | Button color | Dark green | Yellow | White | Code | D | Y | W | Button color | Sky-blue | Orange            | Code  | S      | O     |       |      |   |   |
| Button color  | Green   | Red          | Black  |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | G   | R            | B      |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Button color  | Dark green  | Yellow       | White  |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | D   | Y            | W      |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Button color  | Sky-blue  | Orange       |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | S   | O            |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
|  <p>SC-1094</p>  | M, M5 type <b>AHX065-</b> □<br>Replace the □ mark by the following color code. <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Button color</td> <td>Green</td> <td>Red</td> <td>Black</td> </tr> <tr> <td>Code</td> <td>G</td> <td>R</td> <td>B</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Button color</td> <td>Dark green</td> <td>Yellow</td> <td>White</td> </tr> <tr> <td>Code</td> <td>D</td> <td>Y</td> <td>W</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Button color</td> <td>Sky-blue</td> <td>Orange</td> </tr> <tr> <td>Code</td> <td>S</td> <td>O</td> </tr> </table>   | Button color | Green  | Red    | Black             | Code | G     | R      | B     | Button color | Dark green | Yellow | White | Code | D | Y | W | Button color | Sky-blue | Orange            | Code  | S      | O     |       |      |   |   |
| Button color  | Green   | Red          | Black  |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | G   | R            | B      |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Button color  | Dark green  | Yellow       | White  |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | D   | Y            | W      |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Button color  | Sky-blue  | Orange       |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | S   | O            |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
|  <p>SC-1012</p>  | Type Used with<br><b>AHX066-</b> □ F, F5 type<br><b>AHX067-</b> □ E, E5 type<br><br>Note: Replace the □ mark by the following color code. <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Symbol mark</td> <td>○</td> <td> </td> </tr> <tr> <td>Symbol mark color</td> <td>Red</td> <td>Green</td> </tr> <tr> <td>Button</td> <td>White</td> <td>Black</td> <td>White</td> <td>Black</td> </tr> <tr> <td>Code</td> <td>E</td> <td>F</td> <td>H</td> <td>J</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Symbol mark</td> <td>⊕</td> </tr> <tr> <td>Symbol mark color</td> <td>Green</td> </tr> <tr> <td>Button</td> <td>White</td> <td>Black</td> </tr> <tr> <td>Code</td> <td>T</td> <td>U</td> </tr> </table>   | Symbol mark  | ○      |        | Symbol mark color | Red  | Green | Button | White | Black        | White      | Black  | Code  | E    | F | H | J | Symbol mark  | ⊕        | Symbol mark color | Green | Button | White | Black | Code | T | U |
| Symbol mark   | ○   |              |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Symbol mark color   | Red   | Green        |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Button  | White   | Black        | White  | Black  |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | E   | F            | H      | J      |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Symbol mark   | ⊕   |              |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Symbol mark color   | Green   |              |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Button  | White   | Black        |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | T   | U            |        |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
|  <p>AF87-522</p>   | V type <b>AHX769-</b> □<br>VL type <b>AHX755-</b> □<br><br>Replace the □ mark by the following color code. <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Button color</td> <td>Red</td> <td>Black*</td> <td>Yellow</td> </tr> <tr> <td>Code</td> <td>R</td> <td>B</td> <td>Y</td> </tr> </table> <p>* Except VL type.</p>  | Button color | Red    | Black* | Yellow            | Code | R     | B      | Y     |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Button color  | Red   | Black*       | Yellow |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |
| Code  | R   | B            | Y      |        |                   |      |       |        |       |              |            |        |       |      |   |   |   |              |          |                   |       |        |       |       |      |   |   |



# Pushbuttons/Selectors/Pilot Lights AH25 Accessories








| Description  | Type   |            |       |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
|--|--|------------|-------|----------|-------|----------|------|---|---|---|---|------------|--------|--------|-------|------|---|---|---|
| Illuminated pushbutton<br><br>AF88-613                              | L, L5, L2, L6, L3, L7, L4 type<br>Green <b>AHX068-G, LG*</b><br>Red <b>AHX068-R, LR*</b><br>Clear <b>AHX068-C</b><br>Orange <b>AHX068-O</b><br>Yellow <b>AHX068-Y</b><br>Sky-blue <b>AHX068-S</b><br>White <b>AHX068-W, LW*</b><br>*For LED lamp only  |            |       |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Pilot light round lens<br><br>SC-1001                               | ZM type<br>Green <b>AHX123-G, LG*</b><br>Red <b>AHX123-R, LR*</b><br>Clear <b>AHX123-C</b><br>Orange <b>AHX123-O</b><br>Yellow <b>AHX123-Y</b><br>Sky-blue <b>AHX123-S</b><br>White <b>AHX123-W, LW*</b><br>*For LED lamp only   |            |       |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Pilot light faceted lens<br><br>SC-1002                            | ZK type<br>Green <b>AHX124-G, LG*</b><br>Red <b>AHX124-R, LR*</b><br>Clear <b>AHX124-C</b><br>Orange <b>AHX124-O</b><br>Yellow <b>AHX124-Y</b><br>Sky-blue <b>AHX124-S</b><br>White <b>AHX124-W, LW*</b><br>*For LED lamp only   |            |       |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Pilot light square lens<br><br>SC-1009                            | ZS type<br>Green <b>AHX125-G</b><br>Red <b>AHX125-R</b><br>Clear <b>AHX125-C</b><br>Orange <b>AHX125-O</b><br>Yellow <b>AHX125-Y</b><br>Sky-blue <b>AHX125-S</b><br>White <b>AHX125-W</b>  |            |       |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Pilot light and illuminated pushbutton square lens<br><br>SC-1011 | ZN, SL1, SL6 type <b>AHX126-□</b><br>Replace the □ mark by the following color code.<br><table border="1" style="width: 100%; text-align: center;"> <tr> <td>Lens color</td> <td>Green</td> <td>Red</td> <td>Clear</td> <td>Sky-blue</td> </tr> <tr> <td>Code</td> <td>G</td> <td>R</td> <td>C</td> <td>S</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Lens color</td> <td>Orange</td> <td>Yellow</td> <td>White</td> </tr> <tr> <td>Code</td> <td>O</td> <td>Y</td> <td>W</td> </tr> </table> | Lens color | Green | Red      | Clear | Sky-blue | Code | G | R | C | S | Lens color | Orange | Yellow | White | Code | O | Y | W |
| Lens color   | Green  | Red        | Clear | Sky-blue |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Code   | G  | R          | C     | S        |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Lens color   | Orange   | Yellow     | White |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Code   | O  | Y          | W     |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |
| Legend plate<br><br>SF-1114                                       | ZN, SL1, SL6 type <b>AHX241-W</b><br>Dimensions, mm 21.7sq.×2  |            |       |          |       |          |      |   |   |   |   |            |        |        |       |      |   |   |   |


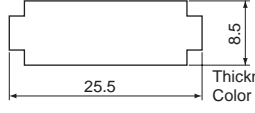




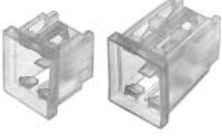
| Description  | Type   |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
|--|--|----------------------------|---------------|----------------------------|-------------------|------------|----------------|--------------------|-----------|---------------|--------------------|-----------|---------------|--------------------|-----------|---------------|--------------------|-----------|--|-------------------|-------|--------------------------|--------------------|-------|-------------|--------------------|-----------|-----------|--------------------|-----------|--|--------------------|-----------|--|----------------|--------|-----|-------|------|---|---|---|------------|---|---|---|----------------|-------|--------|------|------|---|---|---|------------|---|---|---|---|---|
| Incandescent lamp<br><br>KKD06-307 | <table border="1"> <thead> <tr> <th>Type</th> <th>Lamp voltage</th> <th>Rated voltage, consumption</th> </tr> </thead> <tbody> <tr> <td><b>AHX135</b></td> <td>5.5V AC/DC</td> <td>6.3V AC/DC, 1W</td> </tr> <tr> <td><b>AHX279</b></td> <td>15V AC/DC</td> <td>18V AC/DC, 1W</td> </tr> <tr> <td><b>AHX144</b></td> <td>20V AC/DC</td> <td>24V AC/DC, 1W</td> </tr> <tr> <td><b>AHX129</b></td> <td>24V AC/DC</td> <td>30V AC/DC, 1W</td> </tr> </tbody> </table> <p>Dimensions, mm:</p>  <p>Lamp base: BA9s/13</p>  | Type                       | Lamp voltage  | Rated voltage, consumption | <b>AHX135</b>     | 5.5V AC/DC | 6.3V AC/DC, 1W | <b>AHX279</b>      | 15V AC/DC | 18V AC/DC, 1W | <b>AHX144</b>      | 20V AC/DC | 24V AC/DC, 1W | <b>AHX129</b>      | 24V AC/DC | 30V AC/DC, 1W |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Type   | Lamp voltage   | Rated voltage, consumption |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>AHX135</b>  | 5.5V AC/DC   | 6.3V AC/DC, 1W             |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>AHX279</b>  | 15V AC/DC  | 18V AC/DC, 1W              |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>AHX144</b>  | 20V AC/DC  | 24V AC/DC, 1W              |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>AHX129</b>  | 24V AC/DC  | 30V AC/DC, 1W              |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| LED lamp<br>                     | <table border="1"> <thead> <tr> <th>Type</th> <th>Lamp voltage</th> <th>Used with</th> </tr> </thead> <tbody> <tr> <td><b>APX508-6</b> □</td> <td>6V AC</td> <td>Pilot Lights*</td> </tr> <tr> <td><b>APX508-D6</b> □</td> <td>6V DC</td> <td></td> </tr> <tr> <td><b>APX508-12</b> □</td> <td>12V AC/DC</td> <td></td> </tr> <tr> <td><b>APX508-15</b> □</td> <td>15V AC/DC</td> <td></td> </tr> <tr> <td><b>APX508-24</b> □</td> <td>24V AC/DC</td> <td></td> </tr> <tr> <td><b>APX510-6</b> □</td> <td>6V AC</td> <td>Illuminated pushbuttons,</td> </tr> <tr> <td><b>APX510-D6</b> □</td> <td>6V DC</td> <td>Illuminated</td> </tr> <tr> <td><b>APX510-12</b> □</td> <td>12V AC/DC</td> <td>selectors</td> </tr> <tr> <td><b>APX510-15</b> □</td> <td>15V AC/DC</td> <td></td> </tr> <tr> <td><b>APX510-24</b> □</td> <td>24V AC/DC</td> <td></td> </tr> </tbody> </table> <p>* When the pilot lights code is "W" (white), use an LED lamp (APX510-■O)</p> <p>Replace the □ mark by the luminous color code</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Luminous color</td> <td>Yellow</td> <td>Red</td> <td>Green</td> </tr> <tr> <td>Code</td> <td>Y</td> <td>R</td> <td>G</td> </tr> <tr> <td>Lens color</td> <td>Y</td> <td>R</td> <td>G</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Luminous color</td> <td>Amber</td> <td>Orange</td> <td>Blue</td> </tr> <tr> <td>Code</td> <td>A</td> <td>O</td> <td>S</td> </tr> <tr> <td>Lens color</td> <td>O</td> <td>W</td> <td>S</td> </tr> </table> <p>Dimensions, mm:</p> <table style="width: 100%;"> <tr> <td style="text-align: center;"> <br/>           APX508         </td> <td style="text-align: center;"> <br/>           APX510         </td> </tr> </table> <p>Lamp base: BA9s/13</p> | Type                       | Lamp voltage  | Used with                  | <b>APX508-6</b> □ | 6V AC      | Pilot Lights*  | <b>APX508-D6</b> □ | 6V DC     |               | <b>APX508-12</b> □ | 12V AC/DC |               | <b>APX508-15</b> □ | 15V AC/DC |               | <b>APX508-24</b> □ | 24V AC/DC |  | <b>APX510-6</b> □ | 6V AC | Illuminated pushbuttons, | <b>APX510-D6</b> □ | 6V DC | Illuminated | <b>APX510-12</b> □ | 12V AC/DC | selectors | <b>APX510-15</b> □ | 15V AC/DC |  | <b>APX510-24</b> □ | 24V AC/DC |  | Luminous color | Yellow | Red | Green | Code | Y | R | G | Lens color | Y | R | G | Luminous color | Amber | Orange | Blue | Code | A | O | S | Lens color | O | W | S | <br>APX508 | <br>APX510 |
| Type   | Lamp voltage   | Used with                  |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX508-6</b> □  | 6V AC  | Pilot Lights*              |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX508-D6</b> □   | 6V DC  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX508-12</b> □   | 12V AC/DC  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX508-15</b> □   | 15V AC/DC  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX508-24</b> □   | 24V AC/DC  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX510-6</b> □  | 6V AC  | Illuminated pushbuttons,   |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX510-D6</b> □   | 6V DC  | Illuminated                |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX510-12</b> □   | 12V AC/DC  | selectors                  |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX510-15</b> □   | 15V AC/DC  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <b>APX510-24</b> □   | 24V AC/DC  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Luminous color   | Yellow   | Red                        | Green         |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Code   | Y  | R                          | G             |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Lens color   | Y  | R                          | G             |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Luminous color   | Amber  | Orange                     | Blue          |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Code   | A  | O                          | S             |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Lens color   | O  | W                          | S             |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| <br>APX508                      | <br>APX510  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| Contact block<br><br>SG-370      | <table border="1"> <tbody> <tr> <td>1NO</td> <td><b>AHX290</b></td> </tr> <tr> <td>1NC</td> <td><b>AHX291</b></td> </tr> </tbody> </table> <p>Note: Some models use dedicated contact blocks, so this may not be used. Contact FUJI.</p>   | 1NO                        | <b>AHX290</b> | 1NC                        | <b>AHX291</b>     |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| 1NO  | <b>AHX290</b>  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |
| 1NC  | <b>AHX291</b>  |                            |               |                            |                   |            |                |                    |           |               |                    |           |               |                    |           |               |                    |           |  |                   |       |                          |                    |       |             |                    |           |           |                    |           |  |                    |           |  |                |        |     |       |      |   |   |   |            |   |   |   |                |       |        |      |      |   |   |   |            |   |   |   |   |   |





# Pushbuttons/Selectors/Pilot Lights

## AH25

### Accessories

| Description   | Type   | Used with   |              |
|---|--|---|--------------|
| <br>SG-370               | <b>AHX291L</b>   | VL, PL  |              |
|   | Lamp terminal: for without transformer   |   |              |
| <br>SI-8                 | 100 to 110V AC   | <b>AHX511-H</b>   |              |
|   | 115 to 127V AC   | <b>AHX511-L</b>   |              |
|   | 200 to 220V AC   | <b>AHX511-M</b>   |              |
|   | 230 to 254V AC   | <b>AHX511-Q</b>   |              |
|   | 350 to 380V AC   | <b>AHX511-S</b>   |              |
|   | 400 to 440V AC   | <b>AHX511-T</b>   |              |
|   | 480V AC  | <b>AHX511-V</b>   |              |
| 500 to 550V AC  | <b>AHX511-W</b>  |   |              |
| <br>SH-183              | 100 to 110V AC   | <b>AHX513-H</b>   |              |
|   | 115 to 127V AC   | <b>AHX513-L</b>   |              |
|   | 200 to 220V AC   | <b>AHX513-M</b>   |              |
|   | 230 to 254V AC   | <b>AHX513-Q</b>   |              |
|   | 350 to 380V AC   | <b>AHX513-S</b>   |              |
|   | 400 to 440V AC   | <b>AHX513-T</b>   |              |
|   | 480V AC  | <b>AHX513-V</b>   |              |
| 500 to 550V AC  | <b>AHX513-W</b>  |   |              |
| <br>AF89-824           | <b>AHX326</b>  | Combining the base unit with a standard transformer makes a separate mounting type transformer. It can be mounted to the panel with screw or rails. |              |
|   | * Not approved<br>Secondary side terminal cover need to order.                     |   |              |
| <br>AHX305<br>SG-842   | <b>AHX305</b>  | Contact block, lamp terminal unit   | 23.5×27.5×16 |
|   | <b>AHX426</b>  | Pilot lights (without transformer)  | 27.5×31×8    |
|   | <b>AHX376</b>  | Transformer   | 13×29×6.5    |
|   | <b>AHX426</b>  | Short-body transformer  |              |
| <br>AHX426<br>AF92-339 |  | Resistor unit   |              |
|   | <b>AHX376</b>  |   |              |
| <br>AHX376<br>SG-5     | The terminal cover is provided as standard with the applicable types listed above. |   |              |

| Description  | Type   | Used with   |
|--|--|---|
| <br>SG-842    | <b>AHX306</b>  | Illuminated type  |
|  | For pilot lights and AH326 (base unit)   |   |
| Dimensions, mm   |  |   |
|             |  |   |
| Thickness: 0.5mm<br>Color : Black  |  |   |
| <br>SC-1016   | <b>AHX083</b>  |   |
|  | Packing  |   |
| <br>SF-1113   | Rubber   | <b>AHX151</b>   |
|  | Resin (Standard)   | <b>AHX283</b>   |
| Use rubber packing for mounting on plastic panels or panels painted with natural dry paint.    |  |   |
| <br>SC-1148 | For F, E, L, L5 type   | Red <b>AHX094</b><br>Black <b>AHX095</b><br>White <b>AHX096</b><br>Dark green <b>AHX097</b><br>* Chrome-plate <b>AHX098</b> |
|  | For ZM, ZK type  | Chrome-plate <b>AHX098-1</b>  |
|  | For P, J, M, S1-S6, G, G5  | Red <b>AHX099</b><br>Black <b>AHX100</b><br>White <b>AHX101</b><br>Dark green <b>AHX102</b><br>* Chrome-plate <b>AHX103</b> |
|  | Note: Chrome-plated products marked with asterisk (*) are made of metal.                                   |   |
|  | For F, E   | <b>AHX050</b>   |
|  | For M, P   | <b>AHX051</b>   |
|  | Note: The locking nut is made of aluminum  |   |
|  | For G1, G6 type  | <b>AHX055</b>   |
|  | For L2, L6 type  | <b>AHX058</b>   |
|  | For L3, L7 type  | <b>AHX059</b>   |
| For L4 type  | <b>AHX060</b>  |   |
| <br>SH-154  | <b>AHX323</b>  | In combination with this cap, the knob operated selector switch can be used as a dust-proof type.                           |
|  | <br>SG-1050    SG-1051 | Used with   |
| AH25   |  | (1NO+1NC)   |
| F, E, G1, M, U   |  | <b>AHX316</b>   |
| S1-S6, SF, SE, P, PW, J, PC  |  | (2NO+2NC)   |
| SJ, SP   |  |   |

| Description   | Type   |                   |                 |    |        |     |  |       |  |      |  |
|---|--|-------------------|-----------------|----|--------|-----|--|-------|--|------|--|
| Locking attachment<br>for E type<br><br>AF89-613 | <b>AHX053</b><br>Locks the button as it is pressed, easily<br>attached and removed with the nut.   |                   |                 |    |        |     |  |       |  |      |  |
| Special tool<br><br>SG-873                       | <b>AHX321</b><br>This is a special tool for removing contact<br>blocks and transformers.<br>It can also remove round color lens.   |                   |                 |    |        |     |  |       |  |      |  |
| Legend plate<br>(Standard)<br><br>Y-1545         | <b>AHX351( )</b><br><table border="1"> <thead> <tr> <th>Pushbutton switch</th> <th>Selector switch</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>OFF-ON</td> </tr> <tr> <td>OFF</td> <td></td> </tr> <tr> <td>START</td> <td></td> </tr> <tr> <td>STOP</td> <td></td> </tr> </tbody> </table> <p>Note: Put in the ( ) ordering word as shown in the upper table<br/>           Example: In case of STOP<br/>           AHX351(STOP)</p> | Pushbutton switch | Selector switch | ON | OFF-ON | OFF |  | START |  | STOP |  |
| Pushbutton switch   | Selector switch  |                   |                 |    |        |     |  |       |  |      |  |
| ON  | OFF-ON   |                   |                 |    |        |     |  |       |  |      |  |
| OFF   |  |                   |                 |    |        |     |  |       |  |      |  |
| START   |  |                   |                 |    |        |     |  |       |  |      |  |
| STOP  |  |                   |                 |    |        |     |  |       |  |      |  |
| Legend plate<br>(Unprinted)<br><br>AF-87-49    | Unprinted aluminum <b>AHX351-A</b><br>Unprinted aluminum, short size <b>AHX351-AS</b><br>Black <b>AHX351-B</b><br>Black, short size <b>AHX351-BS</b>   |                   |                 |    |        |     |  |       |  |      |  |

# Pushbuttons/Selectors/Pilot Lights

## AH25

### Mass

#### ■ Mass, gram

AH25 series

| Type            | 1NO<br>(1NC) | 2NO<br>(2NC)<br>(1NO+1NC) | 2NC<br>+<br>2NO | 3NC<br>+<br>3NO | 4NC<br>+<br>4NO |
|-----------------|--------------|---------------------------|-----------------|-----------------|-----------------|
| <b>AH25- F</b>  | 42           | 56                        | 80              | 104             | 128             |
| <b>E</b>        | 44           | 58                        | 82              | 106             | 130             |
| <b>M</b>        | 48           | 62                        | 86              | 110             | 134             |
| <b>G</b>        | 51           | 65                        | 89              | 113             | 137             |
| <b>G1</b>       | 53           | 67                        | 91              | 115             | 139             |
| <b>SF</b>       | 80           | 94                        | 118             | 142             | 166             |
| <b>SE</b>       | 82           | 96                        | 120             | 144             | 168             |
| <b>U</b>        | 80           | 94                        | 118             | 142             | 166             |
| <b>S1-S6</b>    | -            | -                         | 133             | -               | -               |
| <b>V</b>        | 55           | 69                        | 93              | -               | -               |
| <b>AH25- F5</b> | 59           | 73                        | 97              | -               | -               |
| <b>E5</b>       | 61           | 75                        | 99              | -               | -               |
| <b>M5</b>       | 65           | 79                        | 103             | -               | -               |
| <b>G5</b>       | 68           | 82                        | 106             | -               | -               |
| <b>G6</b>       | 70           | 84                        | 108             | -               | -               |
| <b>SF5</b>      | 97           | 111                       | 135             | -               | -               |
| <b>SE5</b>      | 99           | 113                       | 137             | -               | -               |
| <b>AH25- L</b>  | 61           | 75                        | 99              | 123             | 147             |
| <b>L • T</b>    | 131          | 143                       | 167             | -               | -               |
| <b>L2</b>       | 74           | 88                        | 112             | 136             | 160             |
| <b>L2 • T</b>   | 144          | 156                       | 180             | -               | -               |
| <b>L3</b>       | 78           | 92                        | 116             | 140             | 164             |
| <b>L3 • T</b>   | 148          | 160                       | 184             | -               | -               |
| <b>L4</b>       | 57           | 71                        | 95              | 119             | 143             |
| <b>L4 • T</b>   | 127          | 139                       | 163             | -               | -               |
| <b>SL</b>       | 99           | 113                       | 137             | 161             | 185             |
| <b>SL • T</b>   | 169          | 181                       | 205             | -               | -               |
| <b>SL1</b>      | 80           | 94                        | 118             | 142             | 166             |
| <b>SL1 • T</b>  | 150          | 162                       | 186             | -               | -               |
| <b>VL</b>       | 72           | 84                        | 108             | -               | -               |
| <b>VL • T</b>   | 129          | 141                       | -               | -               | -               |
| <b>AH25- L5</b> | 81           | 95                        | 119             | -               | -               |
| <b>L5 • T</b>   | 151          | 163                       | 187             | -               | -               |
| <b>L6</b>       | 94           | 108                       | 132             | -               | -               |
| <b>L6 • T</b>   | 164          | 176                       | 200             | -               | -               |
| <b>L7</b>       | 98           | 112                       | 136             | -               | -               |
| <b>L7 • T</b>   | 168          | 180                       | 204             | -               | -               |
| <b>SL5</b>      | 116          | 130                       | 154             | -               | -               |
| <b>SL5 • T</b>  | 186          | 198                       | 222             | -               | -               |
| <b>SL6</b>      | 97           | 111                       | 135             | -               | -               |
| <b>SL6 • T</b>  | 167          | 179                       | 203             | -               | -               |

| Type                     | 1NO<br>(1NC) | 2NO<br>(2NC)<br>(1NO+1NC) | 2NC<br>+<br>2NO | 3NC<br>+<br>3NO | 4NC<br>+<br>4NO |
|--------------------------|--------------|---------------------------|-----------------|-----------------|-----------------|
| <b>AH25- P2, P0</b>      | 62           | 76                        | 100             | 124             | 148             |
| <b>P3, P5, P6</b>        | -            | 76                        | 100             | 124             | 148             |
| <b>P1</b>                | -            | 128                       | 152             | -               | -               |
| <b>PW2, PW0</b>          | 67           | 81                        | 105             | 129             | 153             |
| <b>PW3, PW5, PW6</b>     | -            | 81                        | 105             | 129             | 153             |
| <b>PW1</b>               | -            | 133                       | 157             | -               | -               |
| <b>SP2</b>               | 89           | 103                       | 127             | 151             | 175             |
| <b>SP3</b>               | -            | 103                       | 127             | 151             | 175             |
| <b>PC</b>                | -            | -                         | 108             | -               | -               |
| <b>J2, J0</b>            | 88           | 102                       | 126             | 150             | 174             |
| <b>J3, J5, J6</b>        | -            | 102                       | 126             | 150             | 174             |
| <b>SJ2</b>               | 115          | 129                       | 153             | 177             | 201             |
| <b>SJ3</b>               | -            | 129                       | 153             | 177             | 201             |
| <b>AH25- PL2, PL0</b>    | 71           | 83                        | 107             | 131             | -               |
| <b>PL2, PL0 • T</b>      | 128          | 140                       | 164             | -               | -               |
| <b>PL3, PL6, PL7</b>     | -            | 83                        | 107             | 131             | -               |
| <b>PL3, PL6, PL7 • T</b> | -            | 140                       | 164             | -               | -               |

|                 |     |
|-----------------|-----|
| <b>AH25- ZM</b> | 29  |
| <b>ZM • T</b>   | 99  |
| <b>ZM□8, □9</b> | 101 |
| <b>ZK</b>       | 29  |
| <b>ZK • T</b>   | 99  |
| <b>ZS</b>       | 62  |
| <b>ZS • T</b>   | 132 |
| <b>ZN</b>       | 62  |
| <b>ZN • T</b>   | 132 |

Note • T: With transformer

| Type               | 1NO(1NC)/1NO(1NC) | 2NO(2NC)/2NO(2NC)<br>1NO+1NC/1NO+1NC |
|--------------------|-------------------|--------------------------------------|
| <b>AH25- F5/F5</b> | 151               | 175                                  |
| <b>F5/E5</b>       | 153               | 177                                  |
| <b>F5/M5</b>       | 157               | 181                                  |

■ **Description**

- **Enclosed type**  
Enclosed type steel boxes finished respectively with one to five holes. Rounded, smooth design. Selectable from the 22mm, 25mm, and 30mm dia. series command switches according to the application.
- **Dust protected type, protected against water jets**  
Made of lightweight, strong aluminum die-casting. Rounded, smooth design. Series of models finished respectively with one to four holes. (Note: Only 22 dia. series models incorporate four holes.)



■ **Type number nomenclature**

**AHX 9 0 1 A**  
①      ② ③ ④

① **Product category**  
AHX: Type

② **Size of mounting hole**  
2: 22mm dia. series  
1: 25mm dia. series  
0: 30mm dia. series  
9: without hole

③ **Number of mounting hole**

- **Enclosed type**
  - 1: 1 hole\*1
  - 2: 2 holes
  - 3: 3 holes
  - 4: 4 holes
  - 5: 5 holes
- **Dust protected type, protected against water jets**
  - 1: 1 hole\*2
  - 2: 2 holes
  - 3: 3 holes
  - 4: 4 hole\*3
  - 9: 1 hole\*1

Notes: \*1 Dedicated box with one hole  
\*2 Same as the box for two holes in external dimension  
\*3 Only 22mm dia. series can be manufactured

④ **Degree of protection**

- A: Enclosed type
- W: Dust protected type, protected against water jets

| Degree of Protection                              | Type                         |         |
|---|------------------------------|---------|
| Enclosed-type                                     | AHX9□1A                      |         |
|   | AHX9□2A                      |         |
|   | AHX9□3A                      |         |
|   | AHX9□4A                      |         |
|   | AHX9□5A                      |         |
| Dust protected type, protected against water jets | Dedicated box with one hole. | AHX929W |
|   |                              | AHX919W |
|   |                              | AHX909W |
|   |                              | AHX9□1W |
|   |                              | AHX9□2W |
|   |                              | AHX9□3W |
|   |                              | AHX924W |

Replace the □ mark the Size of mounting hole code

# Command boxes

## AHX9

### ■ Specifications

|  |  |  |
|--|--|--|
| Description  | Enclosed type  | Dust protected type, protected against water jets                                |
| Degree of Protection                                 | IP40(IEC 60529)  | IP65(IEC 60529)  |
| Material   | Steel  | Aluminum die cast  |
| Ambient temperature<br>(No condensation or no icing) | -25 to +50°C   |  |
| Humidity   | 45 to 85% RH(with in -5 to +40°C)  |  |
| Applicable type *1                                   | 22, 25, 30mm dia.Command switch series<br>AK22, RC310-F Cam type<br>selector switch<br>30mm dia. short-body type meter                                     | See the description in the below:<br>Mountable switches and degree of protection |
| Depth  | 73mm   | 84mm   |
| Laed hole  | Knockout hole (22mm dia. top side , 27mm dia. bottom side)   |  |
| Options  | Mounting bracket: A mounting<br>bracket is available, with which<br>the command box can be<br>mounted vertical or at an angle<br>of 15 (see page 04CD/4/4) |  |
|  | Command boxes incorporating switches are available   |  |

Note: \*1 Check the effective depth of the box when selecting mountable switches.

### ■ Mountable switches and degree of protection (Dust protected type, protected against water jets)

The degree of protection of the command box is IP65, which, however, changes according to the device to which the command box is mounted. Check the depth of the command box when selecting the device. Consult your Fuji Electric FA representative when using the command box outdoors (e.g., plating factory yards, seashores, and places exposed to special cutting oil).

Conforms to IEC standard IP65 (Dust protected type, protected against water jets)

#### ●25mm dia. 30mm dia. series pushbuttons.\*

Note: \*Except for conform to IEC standard IP40 (Enclosed type)

Pushbutton switches, illuminated pushbutton switches, selector switches, pilot lights, and joy stick selector switches.

#### ●22mm dia. series pushbuttons.

Pushbutton switches, illuminated pushbutton switches, selector switches, pilot lights, and joy stick selector switches.

#### ●Cam switch

AK22 series (22mm dia.), RC310F series (30mm dia.).

Conforms to IEC standard IP40 (Enclosed type)

#### ●25mm dia. series pushbuttons.

Sqare head pushbutton switch, illuminated sqare head pushbutton switch, sqare head selector switches, sqare head pilot lights, sqare head pilot lights with legend plate.

#### ●30mm dia. series pushbuttons.

Illuminated pushbutton switches(push-pull type), pilot lights with dome with dimmer control.

**Note on use**

■ **Precautions for panel (wall) mounting (Dust protected type, protected against water jets)**

• Do not insert M4 screws into the waterproof bushings that are press-fit into the four mounting holes of the casing and hit the screws with a hammer, or otherwise the screws will break through the waterproof bushings (see fig. 1).

• Insert the screws into the panel mounting holes and secure the screws with nuts (see fig. 2). The waterproof performance of the casing remains unchanged when the screws are inserted into the bushings.

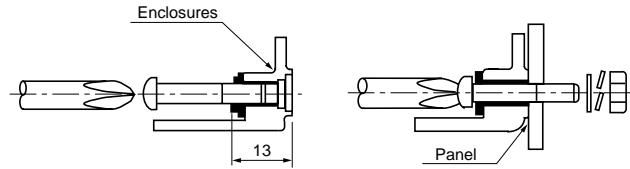
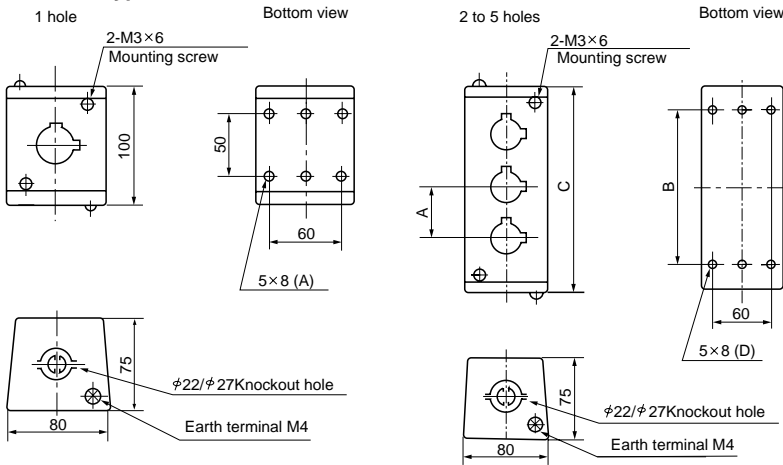


Fig.1

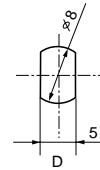
Fig.2

■ **Dimensions, mm:**

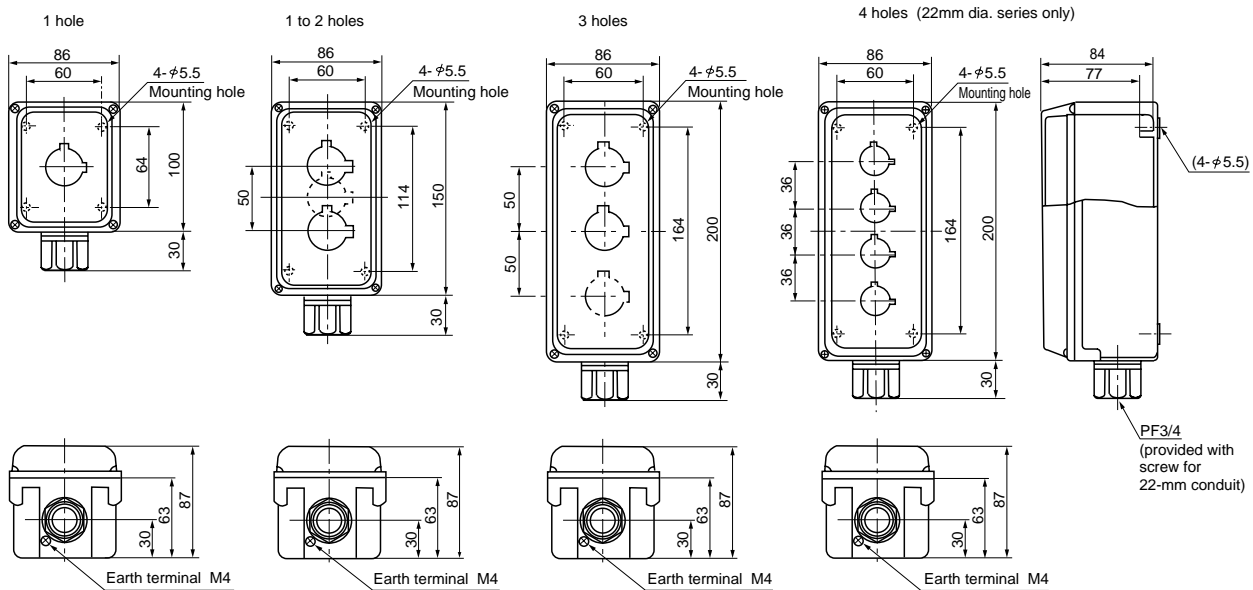
● **Enclosed type**



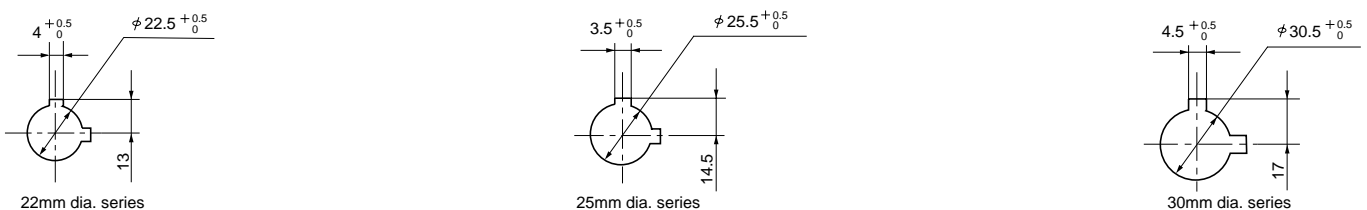
| Number of holes | Dimension : mm |     |     |
|-----------------|----------------|-----|-----|
|                 | A              | B   | C   |
| 2               | 50             | 100 | 150 |
| 3               | 50             | 150 | 200 |
| 4               | 50             | 200 | 250 |
| 5               | 50             | 250 | 300 |



● **Dust protected type, protected against water jets**



● **Panel drilling (Enclosed type, Dust protected type, protected against water jets)**



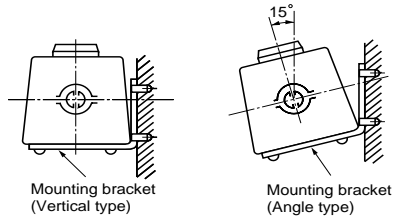
# Command boxes

## AHX9

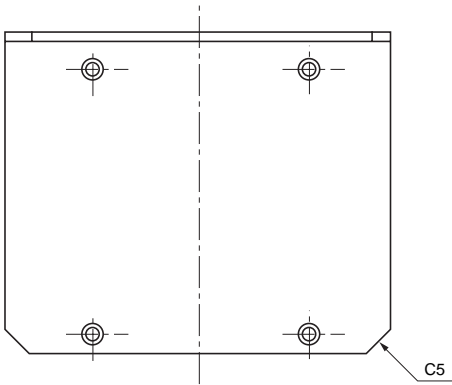
### ■ Accessories (for Enclosed type)

#### ● Mounting bracket

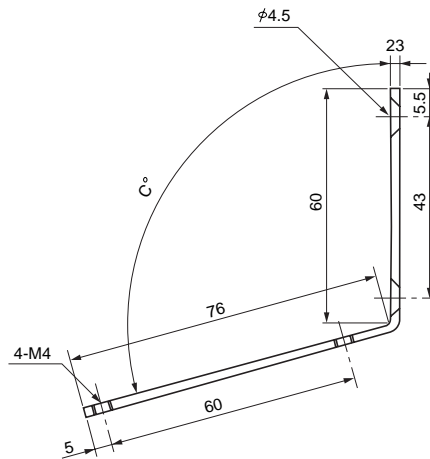
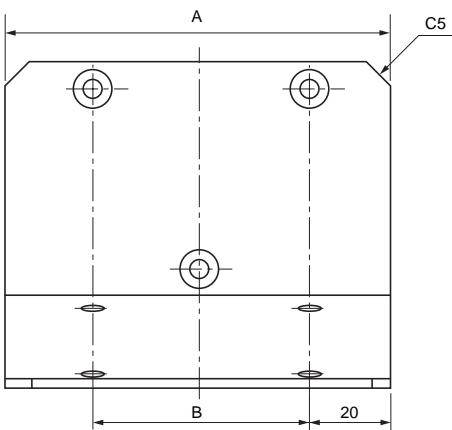
| Number of holes | Mounting method | Type         |
|-----------------|-----------------|--------------|
| 1               | Vertical type   | <b>AJ91S</b> |
|                 | Angle type      | <b>AJ91K</b> |
| 2               | Vertical type   | <b>AJ92S</b> |
|                 | Angle type      | <b>AJ92K</b> |
| 3               | Vertical type   | <b>AJ93S</b> |
|                 | Angle type      | <b>AJ93K</b> |
| 4               | Vertical type   | <b>AJ94S</b> |
|                 | Angle type      | <b>AJ94K</b> |
| 5               | Vertical type   | <b>AJ95S</b> |
|                 | Angle type      | <b>AJ95K</b> |



Dimensions, mm:



| Type         | Dimension:mm |     |     |
|--------------|--------------|-----|-----|
|              | A            | B   | C°  |
| <b>AJ91S</b> | 90           | 50  | 90  |
| <b>AJ91K</b> | 90           | 50  | 105 |
| <b>AJ92S</b> | 140          | 100 | 90  |
| <b>AJ92K</b> | 140          | 100 | 105 |
| <b>AJ93S</b> | 190          | 150 | 90  |
| <b>AJ93K</b> | 190          | 150 | 105 |
| <b>AJ94S</b> | 240          | 200 | 90  |
| <b>AJ94K</b> | 240          | 200 | 105 |
| <b>AJ95S</b> | 290          | 250 | 90  |
| <b>AJ95K</b> | 290          | 250 | 105 |





■ Mass, gram

| Type    | Mass | Type    | Mass | Type    | Mass |
|---------|------|---------|------|---------|------|
| AHX901A | 300  | AHX923A | 520  | AHX924W | 610  |
| AHX902A | 410  | AHX924A | 660  | AHX992W | 490  |
| AHX903A | 500  | AHX925A | 780  | AHX993W | 620  |
| AHX904A | 650  | AHX901W | 480  | AHX909W | 390  |
| AHX905A | 770  | AHX902W | 480  | AHX919W | 390  |
| AHX911A | 300  | AHX903W | 600  | AHX929W | 390  |
| AHX912A | 410  | AHX911W | 490  | AHX999W | 400  |
| AHX913A | 510  | AHX912W | 490  | AHX991A | 310  |
| AHX914A | 660  | AHX913W | 590  | AHX992A | 420  |
| AHX915A | 770  | AHX921W | 490  | AHX993A | 520  |
| AHX921A | 300  | AHX922W | 490  | AHX994A | 670  |
| AHX922A | 410  | AHX923W | 610  | AHX995A | 790  |

### Catalog Disclaimer

The information contained in this catalog does not constitute an express or implied warranty of quality, any warranty of merchantability or fitness for a particular purpose is hereby disclaimed.

Since the user's product information, specific use application, and conditions of use are all outside of Fuji Electric FA Components & Systems' control, **it shall be the responsibility of the user to determine the suitability of any of the products mentioned for the user's application.**

### One Year Limited Warranty

The products identified in this catalog shall be sold pursuant to the terms and conditions identified in the "Conditions of Sale" issued by Fuji Electric FA with each order confirmation.

Except to the extent otherwise provided for in the Conditions of Sale issued by Fuji Electric FA, Fuji Electric FA warrants that the Fuji Electric FA products identified in this catalog shall be free from significant defects in materials and workmanship provided the product has not been: 1) repaired or altered by others than Fuji Electric FA; 2) subjected to negligence, accident, misuse, or damage by circumstances beyond Fuji Electric FA's control; 3) improperly operated, maintained or stored; or 4) used in other than normal use or service. This warranty shall apply only to defects appearing within one (1) year from the date of shipment by Fuji Electric FA, and in such case, only if such defects are reported to Fuji Electric FA within thirty (30) days of discovery by purchaser. Such notice should be submitted in writing to Fuji Electric FA at 5-7, Nihonbashi Odemma-cho, Chuo-ku, Tokyo, Japan. The sole and exclusive remedy with respect to the above warranty whether such claim is based on warranty, contract, negligence, strict liability or any other theory, is limited to the repair or replacement of such product or, at Fuji Electric FA's option reimbursement by Fuji Electric FA of the purchase price paid to Fuji Electric FA for the particular product. **Fuji Electric FA does not make any other representations or warranties, whether oral or in writing, expressed or implied, including but not limited to any warranty regarding merchantability or fitness for a particular purpose.** Except as provided in the Conditions of Sale, no agent or representative of Fuji Electric FA is authorized to modify the terms of this warranty in writing or orally.

In no event shall Fuji Electric FA be liable for special, indirect or consequential damages, including but not limited to, loss of use of the product, other equipment, plant and power system which is installed with the product, loss of profits or revenues, cost of capital, or claims against the purchaser or user of the product by its customers resulting from the use of information, recommendations and descriptions contained herein. The purchaser agrees to pass on to its customers and users, in writing at the time inquiries and orders are received by buyer, Fuji Electric FA's warranty as set forth above.

### Caution "Safety precautions"

- Operate (keep) in the environment specified in the operating instructions and manual. High temperature, high humidity, condensation, dust, corrosive gases, oil, organic solvents, excessive vibration or shock might cause electric shock, fire, erratic operation or failure.
- Follow the regulations of industrial wastes when the product is to be discarded.
- The products covered in this catalog have not been designed or manufactured for use in equipment or systems which, in the event of failure, can lead to loss of human life.
- If you intend to use the products covered in this catalog for special applications, such as for nuclear energy control, aerospace, medical, or transportation, please consult our Fuji Electric FA agent.
- Be sure to provide protective measures when using the product covered in these catalogs in equipment which, in the event of failure, may lead to loss of human life or other grave results.
- Follow the directions of the operating instructions when mounting the product.

## D&C CATALOG DIGEST INDEX

Individual  
catalog No.

LOW VOLTAGE PRODUCTS Up to 600 Volts

**01** Magnetic Contactors and Starters  
Thermal Overload Relays, Solid-state Contactors

**02** Manual Motor Starters and Contactors  
Combination Starters

**03** Industrial Relays, Industrial Control Relays  
Annunciator Relay Unit, Time Delay Relays

**04** Pushbuttons, Selector Switches, Pilot Lights  
Rotary Switches, Cam Type Selector Switches  
Panel Switches, Terminal Blocks, Testing Terminals

**05** Limit Switches, Proximity Switches  
Photoelectric Switches

**06** Molded Case Circuit Breakers  
Air Circuit Breakers

**07** Earth Leakage Circuit Breakers  
Earth Leakage Protective Relays

**08** Circuit Protectors  
Low Voltage Current-Limiting Fuses

**09** Measuring Instruments, Arresters, Transducers  
Power Factor Controllers  
Power Monitoring Equipment (F-MPC)

**10** AC Power Regulators  
Noise Suppression Filters  
Control Power Transformers

HIGH VOLTAGE PRODUCTS Up to 36kV

**11** Disconnecting Switches, Power Fuses  
Air Load Break Switches  
Instrument Transformers — VT, CT

**12** Vacuum Circuit Breakers, Vacuum Magnetic Contactors  
Protective Relays

# INDIVIDUAL CATALOG 04

from D&C CATALOG 20th Edition

**Fuji Electric FA Components & Systems Co., Ltd.**

5-7, Nihonbashi Odemma-cho, Chuo-ku, Tokyo, 103-0011, Japan

URL: <http://www.fujielectric.co.jp/fcs/eng>

Information in this catalog is subject to change without notice.

2010-09 PDF FOLS DEC2004