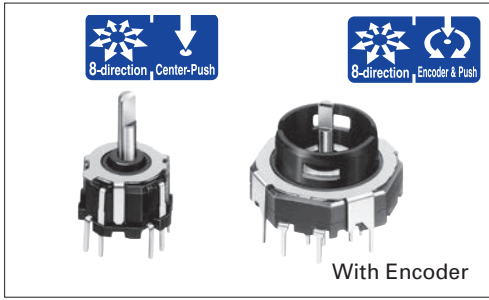


Single and dual shaft structured device contributes to simple operation and space saving.



Typical Specifications (Inner-shaft Stick Switch)

Items		Specifications
Rating (max.) (Resistive load)		10mA 5V DC
Contact resistance	8-direction	1 Ω max.
	Center-push	
Operating angle(8-direction)		A·B·C·D direction : 10° max. AB·BC·CD·DA direction : 12° max.
Travel (Center-push)		0.3 ± 0.2mm
Operating life	8-direction	Total with 8-direction 100,000cycles
	Center-push	100,000cycles

Multi Control Devices

Typical Specifications (Outer-shaft Stick Encoder)

Items		Specifications
Rating (max.) (Resistive load)		10mA 5V DC
Operating life		15,000cycles

Product Line

Shaft	Stick Switch (Inner-shaft)		Encoders (Outer-shaft)			Minimum order unit (pcs.)		Product No.	Drawing No.
	Maximum resolution	Operation force	Detent torque	Number of detent	Number of pulse	Japan	Export		
1	8	A·B·C·D direction : 30 ± 20mN·m AB·BC·CD·DA direction : 25 ± 20mN·m Center-push : 3 ± 1.5N	—			1,000	2,000	RKJXM1015001	1
2			12±8mN·m	15	15	800	1,600	RKJXM2E13001	2

Variable Resistor Type

Switch Type

Packing Specifications

Tray

Products No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
RKJXM10	1,000	2,000	290 × 405 × 200
RKJXM2E	800	1,600	380 × 545 × 205

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1		<p>Operating direction of lever.</p>	

Refer to P.429 for soldering conditions.

Multi Control Devices

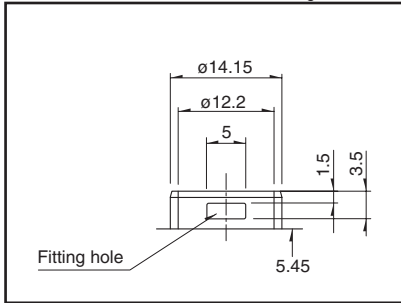
Dimensions

Unit:mm

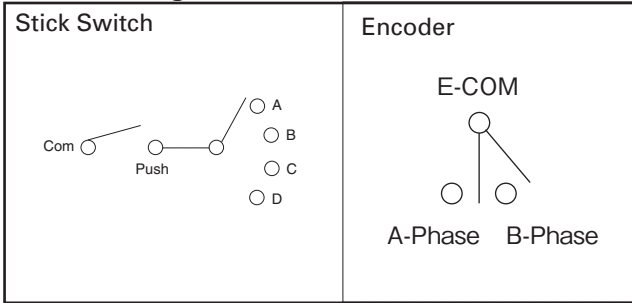
No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
2		<p>Operating direction of lever.</p>	

Variable Resistor Type  
Switch Type

Detailed Dimensions of Knob Fitting Unit:mm



Circuit Diagram

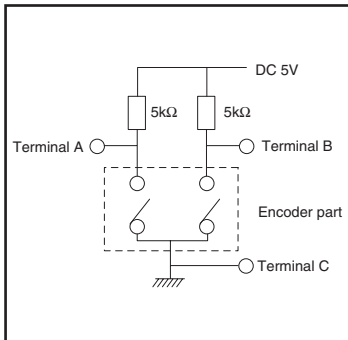


Output Relation Chart between Lever Position and ON Position.

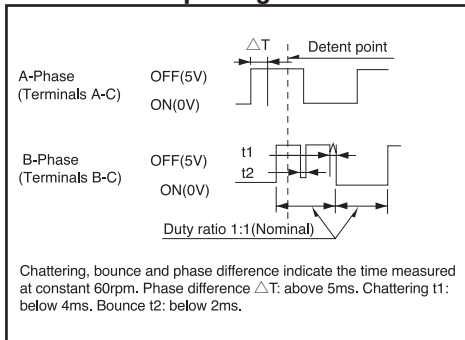
Terminal	Operation procedure								
	A	AB	B	BC	C	CD	D	DA	Center Push
Com-A	ON	ON						ON	
Com-B		ON	ON	ON					
Com-C				ON	ON	ON			
Com-D					ON	ON	ON	ON	
Com-Push	ON	ON	ON	ON	ON	ON	ON	ON	ON

Operating direction of lever.

Encoder Test Circuit













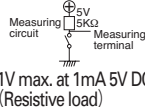


Encoder Output Signal



# Multi Control Devices

## List of Varieties

Type		Switch type							
Series		RKJXT1F	RKJXM	RKJXL	RKJXS	SKRV	SKRH		
Photo									
Dimensions (typical value) (mm)	W	17	11 / 19.5	13	11.7	6.45	7.35 / 7.45		
	D					6.4	7.5		
	H	10.5	6.6 / 5.45	6.4	2.3	4	5		
Number of operating shafts		Single-shaft	Single-shaft / Dual-shaft	Single-shaft					
Shaft material		Metal	The inner shaft: Metal The outer shaft: Resin	Metal	Resin				
Directional resolution		4-direction	8-direction			4-direction			
Directional operating feeling (tactile feeling)		With		Without	With				
Lever return mechanism		With							
Center-push switch		With							
Encoder		With	Without / With	Without					
Operating temperature range		-40°C to +85°C		-30°C to +70°C	-20°C to +70°C		-40°C to +85°C		
Operating life	Directional operation	total with 4-direction 50,000 cycles	total with 8-direction 100,000 cycles		500,000 cycles for each direction	200,000 cycles for each direction	200,000 cycles for each direction	1,000,000 cycles for each direction	
	Center-push	50,000 cycles	100,000 cycles		500,000 cycles				
	Encoder	15,000 cycles		—	—	—	—		
Automotive use		●	●	●	—	—	—		
Life cycle (availability)									
Rating (max.) (Resistive load)		10mA 5V DC				50mA 12V DC			
Electrical performance	Output voltage	—	—	—	 1V max. at 1mA 5V DC (Resistive load)	—	—		
	Encoder resolution	15pulses / 360°		—	—	—	—		
	Insulation resistance	100MΩ min. 250V DC			50MΩ min. 50V DC	100MΩ min. 100V DC			
	Voltage proof	300V AC for 1min. or 360V AC for 2s			50V AC for 1min. or 60V AC for 2s	100V AC for 1min.			
Mechanical performance	Directional operating force	40±25mN·m	Direction A, B, C, D 30±20mN·m	10±7mN·m	0.8±0.5N	1.2±0.6N	1.23±0.69N	1.2±0.69N	
		Direction AB, BC, CD, DA 25±20mN·m							
	Push operating force	5±2N	3±1.5N	4.5±1N	2.5±1.5N	2.4±0.69N	2.35±0.69N		
	Encoder detent torque	15±8mN·m	12±8mN·m	—	—	—	—		
	Terminal strength	5N for 1min.	—	—	—	—	—		
Actuator strength	Push / pull directions	100N (Push / Pull)	100N (Push), 50N (Pull)		30N (Push), 10N (Pull)	—	—		
	Operating direction	0.4N·m	0.3N·m	100N	20N	29.4N			
Environmental performance	Cold	-40±2°C for 500h			-40±2°C for 96h	-30±2°C for 96h	-40±2°C for 96h		
	Dry heat	85±2°C for 500h			85±2°C for 96h	80±2°C for 96h	90±2°C for 96h		
	Damp heat	60±2°C, 90 to 95%RH for 500h			60±2°C, 90 to 95%RH for 96h				
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- Switch Type Multi Control Devices Cautions . . . . . 430

**Note** ● indicates applicability to all products in the series.

## Switch Type Multi Control Devices / Soldering Conditions

Multi Control Devices

### Reference for Hand Soldering

Series	Tip temperature	Soldering time	No. of solders
RKJXT1F, RKJXM, RKJXL, SLLB, SLLB5, SRBE, SKRV, SKRH	350±5°C	3s max.	1 time
RKJXS	350±10°C	3 <sup>+1</sup> <sub>-0</sub> s	2 time max.

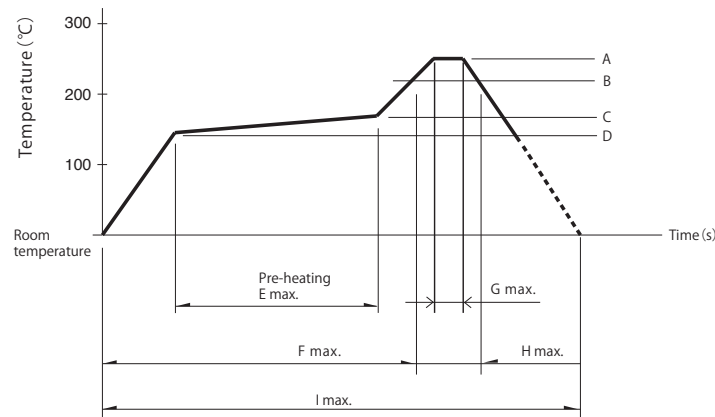
### Reference for Dip Soldering

Series	Preheating		Dip soldering		No. of solders
	Soldering surface temperature	Heating time	Soldering temperature	Soldering time	
RKJXT1F, RKJXM	100°C max.	2 min. max.	260±5°C	5±1s	2 time max.
RKJXL	120°C max.	70s max.	260°C max.	6s max.	2 time max.

### Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2 φ CA (K) or CC (T) at solder joints (copper foil surface).  
A heat resistive tape should be used to fix thermocouple.

#### 3. Temperature profile



Variable Resistor Type

Switch Type

Series	A	B	C	D	E	F	G	H	I	No. of reflows
RKJXS	260°C	230°C	150°C	150°C	2 min.	—	10s	40s	4 min.	1 time
SLLB5	250°C	230°C	150°C	150°C	—	2 min.	—	30s	—	1 time
SKRV, SKRH, SLLB, SRBE	260°C	230°C	180°C	150°C	2 min.	—	—	40s	—	1 time

### Notes

1. The above temperature shall be measured on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the material, size thickness of PC boards and others. The above-stated conditions shall also apply to switch surface temperatures.
2. Soldering conditions differ depending on reflow soldering machines. Prior verification of soldering condition is highly recommended.