

# ALTERNATING RELAYS

## SPDT & DPDT



- u For duplex loads
- u Can be used with one or two Control Switches
- u Control voltages of 12, 24, 120 & 240V AC
- u Compact plug-in design utilizing industry-standard 8 or 11 pin octal socket
- u 10A SPDT or DPDT Output Configuration
- u Optional low profile selector switch to lock in one sequence
- u 2 LED's indicate relay status



with appropriate socket

Alternating Relays are used in special applications where the optimization of load usage is required by equalizing the run time of two loads. This alternating action is initiated by a control switch, such as a float switch, manual switch, timing relay, pressure switch, or other isolated contact. Each time the initiating switch is opened, the output relay contacts will change state, thus alternating the two loads. Two LED indicators show the status of the output relay.

The Alternating Relays listed on this page can be used with one or two control switches & are available in either SPDT or DPDT output configurations (see "Typical Installations" on Page 53 for more information). For products with DPDT Cross-Wired output configurations to be used with one, two or three control switches, see Page 54.

Each version is available with an optional three position selector switch. This allows the unit to alternate the two loads as normal, or lock the relay to one load or the other. By locking the Alternating Relay to one load, the other load can be removed for service without rewiring the first load for continuous operation. The selector switch has a low profile to prevent any accidental changes in status.

OUTPUT CONTACTS	CONTROL VOLTAGE	PRODUCT NUMBER	WIRING/SOCKET <sup>n</sup>
<b>SPDT</b> w/o Selector Switch	12V AC 24V AC 120V AC 240V AC	ARP012A6 ARP024A6 ARP120A6 ARP240A6	<b>8 Pin Octal</b> <b>70169-D</b>  <b>DIAGRAM 17</b> LOAD A: PIN 2 LOAD B: PIN 8
<b>SPDT</b> w/ Selector Switch	12V AC 24V AC 120V AC 240V AC	ARP012A6R ARP024A6R ARP120A6R ARP240A6R	
<b>DPDT</b> w/o Selector Switch	12V AC 24V AC 120V AC 240V AC	ARP012A2 ARP024A2 ARP120A2 ARP240A2	<b>11 Pin Octal</b> <b>70170-D</b>  <b>DIAGRAM 18</b> LOAD A: PINS 3 OR 11 LOAD B: PINS 1 OR 9
<b>DPDT</b> w/ Selector Switch	12V AC 24V AC 120V AC 240V AC	ARP012A2R ARP024A2R ARP120A2R ARP240A2R	



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<sup>n</sup> See Page 58 for **Sockets & Accessories**.

# ALTERNATING RELAYS

## SPDT & DPDT

### Application Data & Dimensions

#### Application Data

**Voltage Tolerances:** +10%/-15% of control voltage at 50/60Hz.

**Load (Burden):** Less than 3VA

**Output Contacts:**

10A Resistive @ 240V AC/30V DC,  
1/2HP @ 120/240V AC (N.O.), 1/3HP @ 120/240VAC (N.C.)

**Life:**

Mechanical: 10,000,000 operations  
Full Load: 100,000 operations

**Temperature:** -28° to 65°C (-20° to 150°F)

**Transient Protection:** 10,000 volts for 20 microseconds

**Indicator LED's:** 2 LED's marked LOAD A and LOAD B

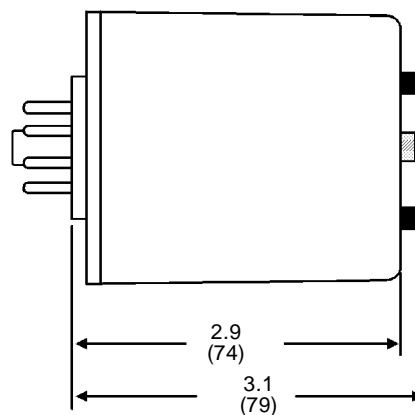
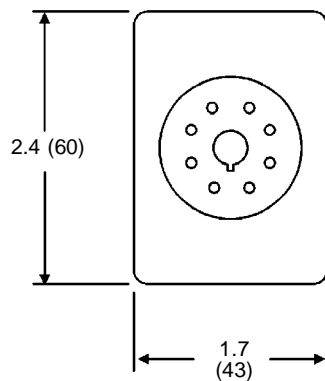
**Optional Selector Switch Settings:**

ALTERNATE  
LOCK LOAD A  
LOCK LOAD B

**Approvals:**



#### Dimensions



All Dimensions in Inches (Millimeters)

#### Typical Installations

In the off state (Figure A), the Control Switch is open, the Alternating Relay is in the LOAD A position, and both loads (M1 & M2) are off. When the Control Switch closes, it energizes the first load (M1). The red LED marked "LOAD A" glows. As long as the Control Switch remains closed, M1 remains energized. When the Control Switch opens, the first load (M1) is turned off and the Alternating Relay toggles to the LOAD B position. When the Control Switch closes again, it energizes the second load (M2). The red LED marked "LOAD B" glows. When the Control Switch opens, the second load (M2) is turned off, the Alternating Relay toggles back to the LOAD A position, and the process can be repeated again. On relays with DPDT contacts, two pilot lights can be used for remote indication of LOAD A or LOAD B status.

To eliminate any bounce condition of the Control Switch, the addition of a second switch (OFF) along with two auxiliary contacts is recommended as shown in Figure B.

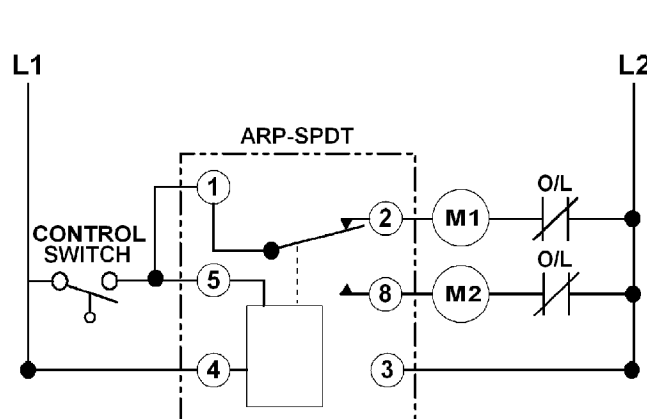


Figure A

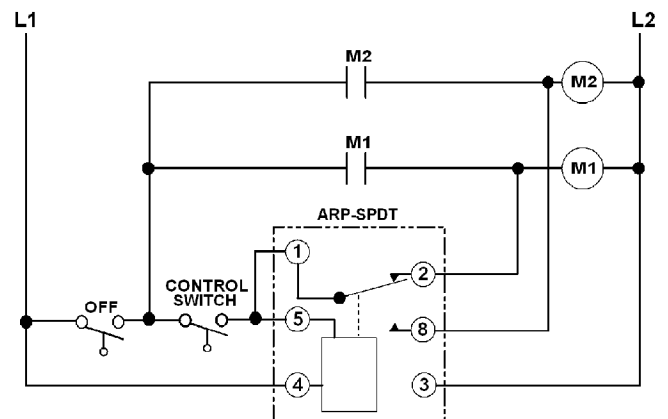


Figure B

# ALTERNATING RELAYS

## DPDT Cross-Wired



- u For duplex loads
- u Can be used with two or three Control Switches
- u Control voltages of 12, 24, 120 & 240V AC
- u Compact plug-in design utilizing industry-standard 8 pin octal socket
- u 10A DPDT Cross-Wired Output Configuration when additional capacity is required
- u Optional low profile selector switch to lock in one sequence
- u 2 LED's indicate relay status



with appropriate socket

Alternating Relays are used in special applications where the optimization of load usage is required by equalizing the run time of two loads. They are also used where additional capacity is required in case of excess load requirements. This alternating action is initiated by a control switch, such as a float switch, manual switch, timing relay, pressure switch, or other isolated contact. Each time the initiating switch is opened, the output relay contacts will change state, thus alternating the two loads. Two LED indicators show the status of the output relay.

The Alternating Relays listed on this page are available in DPDT Cross-Wired output configurations, and can be used with one, two or three control switches. See "Typical Installations" on Page 55 for more information. For products with SPDT or DPDT output configurations, see Page 52.

Each version is available with an optional three position selector switch. This allows the unit to alternate the two loads as normal, or lock the relay to one load or the other. By locking the Alternating Relay to one load, the other load can be removed for service without rewiring the first load for continuous operation. The selector switch has a low profile to prevent any accidental changes in status.

OUTPUT CONTACTS	CONTROL VOLTAGE	PRODUCT NUMBER	WIRING/SOCKET <sup>n</sup>
<b>DPDT CROSS-WIRED</b> w/o Selector Switch	12V AC 24V AC 120V AC 240V AC	ARP012A3 ARP024A3 ARP120A3 ARP240A3	<p>DIAGRAM 19</p>
<b>DPDT CROSS-WIRED</b> w/ Selector Switch	12V AC 24V AC 120V AC 240V AC	ARP012A3R ARP024A3R ARP120A3R ARP240A3R	

<sup>n</sup> See Page 58 for **Sockets & Accessories**.



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# ALTERNATING RELAYS

## DPDT Cross-Wired Application Data & Dimensions

### Application Data

**Voltage Tolerances:** +10%/-15% of control voltage at 50/60Hz.

**Load (Burden):** Less than 3VA

**Output Contacts:**

10A Resistive @ 240V AC/30V DC,  
1/2HP @ 120/240V AC (N.O.), 1/3HP @ 120/240VAC (N.C.)

**Life:**

Mechanical: 10,000,000 operations  
Full Load: 100,000 operations

**Temperature:** -28° to 65°C (-20° to 150°F)

**Transient Protection:** 10,000 volts for 20 microseconds

**Indicator LED's:** 2 LED's marked LOAD A and LOAD B

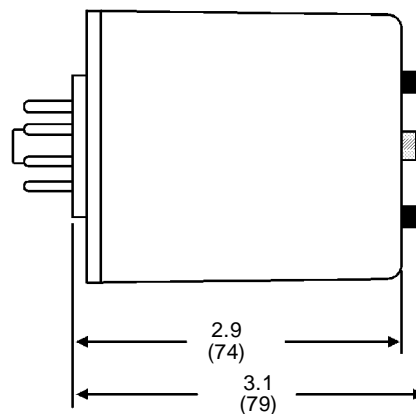
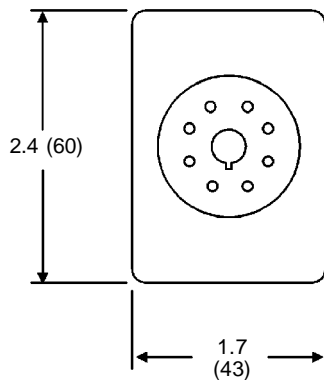
**Optional Selector Switch Settings:**

ALTERNATE  
LOCK LOAD A  
LOCK LOAD B

**Approvals:**



### Dimensions



All Dimensions in Inches (Millimeters)

### Typical Installations

In the off state, both the LEAD Control Switch and the LAG Control Switch are open, the Alternating Relay is in the LOAD A position, and both loads are off. When the LEAD Control Switch closes, it energizes the first load (M1). The red LED marked "LOAD A" glows. As long as the LEAD Control Switch remains closed, M1 remains energized. If the LAG Control Switch closes, it energizes the second load (M2). When the LAG Control Switch opens, the second load (M2) is turned off. When the LEAD Control Switch opens, the first load (M1) is turned off and the Alternating Relay toggles to the LOAD B position. When the LEAD Control Switch closes, it turns on the second load (M2). The red LED marked "LOAD B" glows. If the LAG Control Switch closes, it will energize the first load (M1). When the LAG Control Switch opens, the first load (M1) is turned off. When the LEAD Control Switch opens, the second load (M2) is turned off, the Alternating Relay toggles back to the LOAD A position, and the process can be repeated again.

To eliminate any bounce condition of the Control Switch, the addition of a second switch (OFF) along with two auxiliary contacts is recommended as shown in Figure B.

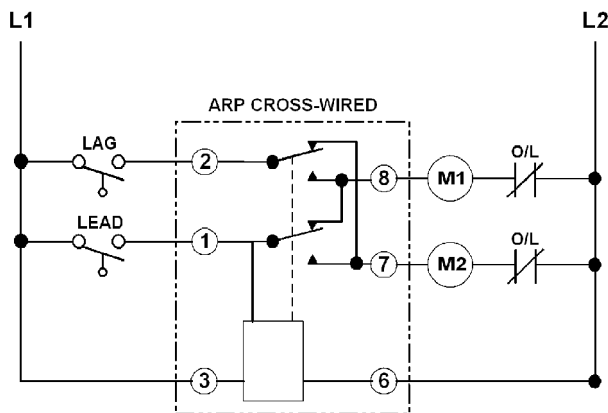


Figure A

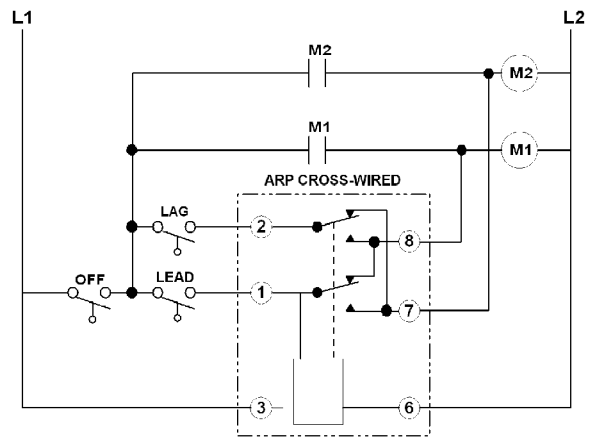


Figure B