

# 3.9

## Control Relays and Timers

### Alternating Relays

#### ALTERNATING RELAY

TAGS: AR4315

### Product Selection

#### D85 Series—Alternating Relays <sup>①</sup>

3

Output Contacts	Control Voltage	Socket	Catalog Number
SPDT	12 Vac	8-pin	<b>D851NR</b>
SPDT	24 Vac	8-pin	<b>D851NT</b>
SPDT	120 Vac	8-pin	<b>D851NA</b>
SPDT	240 Vac	8-pin	<b>D851NB</b>
SPDT w/selector switch	12 Vac	8-pin	<b>D851LR</b>
SPDT w/selector switch	24 Vac	8-pin	<b>D851LT</b>
SPDT w/selector switch	120 Vac	8-pin	<b>D851LA</b>
SPDT w/selector switch	240 Vac	8-pin	<b>D851LB</b>
DPDT	12 Vac	11-pin	<b>D852NR</b>
DPDT	24 Vac	11-pin	<b>D852NT</b>
DPDT	120 Vac	11-pin	<b>D852NA</b>
DPDT	240 Vac	11-pin	<b>D852NB</b>
DPDT w/selector switch	12 Vac	11-pin	<b>D852LR</b>
DPDT w/selector switch	24 Vac	11-pin	<b>D852LT</b>
DPDT w/selector switch	120 Vac	11-pin	<b>D852LA</b>
DPDT w/selector switch	240 Vac	11-pin	<b>D852LB</b>
DPDT cross-wired	12 Vac	8-pin	<b>D852XNR</b>
DPDT cross-wired	24 Vac	8-pin	<b>D852XNT</b>
DPDT cross-wired	120 Vac	8-pin	<b>D852XNA</b>
DPDT cross-wired	240 Vac	8-pin	<b>D852XNB</b>
DPDT cross-wired w/selector switch	12 Vac	8-pin	<b>D852XLR</b>
DPDT cross-wired w/selector switch	24 Vac	8-pin	<b>D852XLT</b>
DPDT cross-wired w/selector switch	120 Vac	8-pin	<b>D852XLA</b>
DPDT cross-wired w/selector switch	240 Vac	8-pin	<b>D852XLB</b>

### Accessories

#### D85 Series—Alternating Relays

Description	Standard Pack	Catalog Number
8-pin socket	10	<b>D3PA2</b>
11-pin socket	10	<b>D3PA3-A2</b>
Hold-down spring	10	<b>D65CHDS</b>

#### Note

<sup>①</sup> Contact Eaton for relays for 3-switch applications (Lead-Lag-Stop).

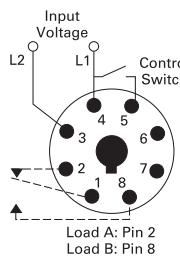
## Technical Data and Specifications

### D85 Series—Alternating Relays

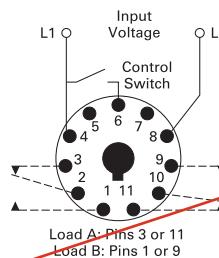
Description	Specification
Voltage tolerance	+10%/-15% of control voltage at 50/60 Hz
Load (burden)	Less than 3 VA
Output contacts	10 A resistive at 240 Vac / 30 Vdc, 1/2 hp at 120/240 Vac (NO), 1/3 hp at 120/240 Vac (NC)
Mechanical life	10,000,000 operations
Electrical life	100,000 operations
Temperature	-20 °F to +150 °F (-28 ° to 65 °C)
Transient protection	10,000 volts for 20 microseconds
Indicator LEDs	2 LEDs marked LOAD A and LOAD B
Optional selector switch settings	ALTERNATE, LOCK LOAD A, LOCK LOAD B

## Wiring Diagrams

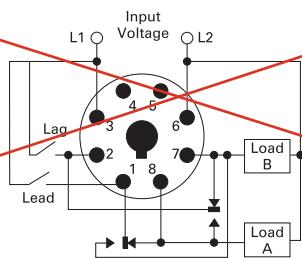
### D851 Series Relays, SPDT



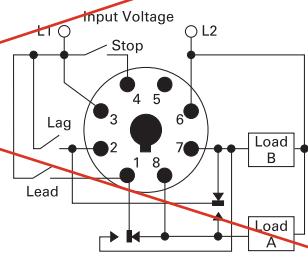
### D852 Series Relays, DPDT



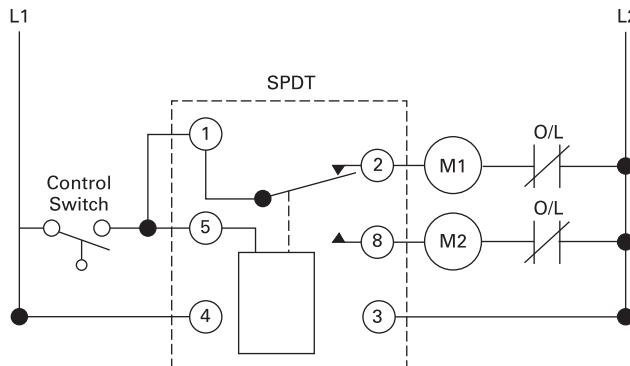
### D852X Series Relays, DPDT Cross-Wired



### D853 Series Relays, Three-Switch Applications



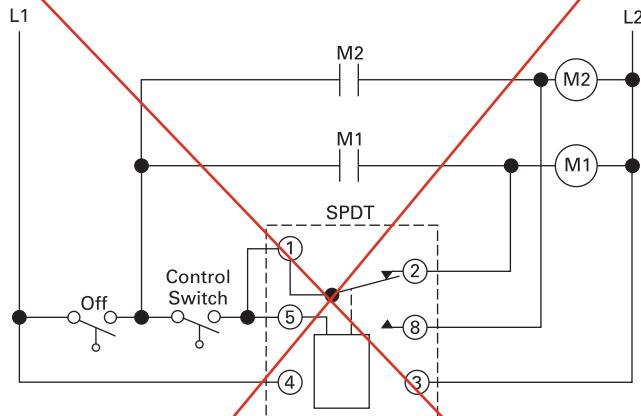
### Typical Installations for SPDT and DPDT Alternating Relays, Standard Installation



In the OFF state (standard installation), the control switch is open, the alternating relay is in the LOAD A position, and both loads (M1 and 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.

### Typical Installations for SPDT and DPDT Alternating Relays, Anti-Bounce Installation



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 the Anti-Bounce Installation.

## Dimensions

Approximate Dimensions in Inches (mm)

### D85 Series—Alternating Relays

