

# 6mm and 14mm Slim Interface Relay

## RV8 Series 6mm Width



Electromechanical Screw Terminal



Solid State Spring Clamp Terminal



### SPECIFICATIONS

|                           |                          | Electromechanical Standard/<br>Hazardous Location C1D2  | Solid State  |
|---------------------------|--------------------------|---|--|
| Ratings                   |                          | Class I, Division 2, Groups A, B, C, D, T4A<br>Class I, Zone 2 AEx nA nC IIC T4<br>Class I, Zone 2 Ex nA nC IIC T4 X Gc<br>UL/c-UL Listed <b>CE</b> | UL/c-UL Listed, <b>CE</b>                          |
| Number of Poles           |                          | 1 Pole  | 1 Pole   |
| Contact Configuration     |                          | 1C (SPDT)   | 1A (SPST)  |
| Contact Material          |                          | AgNi (Au plating)   | MOSFET, Transistor or Triac                        |
| Degree of Protection      |                          | IP20  | IP20   |
| Dielectric Strength       | Between Contact and Coil | 4,000V AC for 1 minute  | 2,500V AC for 1 minute                             |
|                           | Between Pole             | 1,000V AC for 1 minute  | -  |
| Vibration Resistance      | Operating Extremes       | Frequency 10 to 55Hz,<br>Amplitude 0.5mm (NO contact),<br>0.2mm (NC contact)  | Frequency 10 to 55Hz,<br>Amplitude 1.0mm           |
|                           | Damage Limits            |   |  |
| Shock Resistance          | Operating Extremes       | NO: 49m/s <sup>2</sup><br>NC: 29.4m/s <sup>2</sup>  | 980m/s <sup>2</sup>                                |
|                           | Damage Limits            | 980m/s <sup>2</sup>   |  |
| Mechanical Life (no load) |                          | Over 10,000,000 operations<br>(operation frequency 18,000 operations per hour)  | -  |
| Operating Temperature     |                          | -40 to +70°C no freezing<br>(-40 to +55°C for AD110 and AD220 coil voltages)  | -20 to +60°C                                       |
| Operating Humidity        |                          | 5 to 85% (no condensation)  | 5 to 85% (no condensation)                         |
| Weight (approx.)          |                          | Screw Terminal: 30g,<br>Spring Clamp Terminal: 26g  | Screw Terminal: 30g,<br>Spring Clamp Terminal: 26g |

### PRODUCT DESCRIPTION

IDEC 6mm and 14mm interface relays provide a compact solution for general purpose relay requirements. Available in electromechanical and solid state models, the RV8 series Interface relays are ideal for PLC and electronic systems, industrial automation, panel builders, assembly machine applications and other applications that require a high switching capability in a compact space. The RV8 series interface relays can be used as interfaces between the controller and the actuator to switch small and medium size loads.

### KEY FEATURES

- Class I, Division 2 and Class I, Zone 2 Hazardous Location options (electromechanical relays only)
- Solid State relay versions available (6mm only)
- Only 70mm in height from DIN rail
- Gold-plated contacts (electrical mechanical relays only)
- Pre-assembled relay and DIN mount socket
- Universal screw terminals (flat and phillips) or spring clamp terminals
- Universal AC/DC socket with built-in surge suppression and green LED
- 6A-16A contact rating (electromechanical relays only)
- Lever for easy locking and removal of relay
- Operating temperature of -40°C ~ +70°C (-20°C ~ +60°C for SSR)
- RoHS compliant



(when using combination of RV relay and SV socket)

# 6mm and 14mm Slim Interface Relay

## RV8 Series 14mm Width



### PRODUCT DESCRIPTION

14mm interface relays are ideal for panels with limited room, these low-profile relays provide up to a 40% reduction in DIN rail space when compared with standard plug-in relays. RV8 relays are good for higher load switching applications, panels with high I/O content and commercial HVAC panels. UL listed when paired with a corresponding socket.



(when using combination of RV relay and SV socket)

### SPECIFICATIONS

| Number of Poles                         |   | 1 Pole   | 2 Pole   |
|---|---|--|--|
| Ratings                                 |   | Class I, Division 2, Groups A, B, C, D, T4<br>Class I, Zone 2 AEx nA nC IIC T4<br>Class I, Zone 2 Ex nA nC IIC T4 X Gc<br>UL/c-UL Listed <b>CE</b>                             |  |
| Contact Configuration                   |   | 1C (SPDT)  | 2C (DPDT)  |
| Contact Material                        |   | AgNi   | AgNi (Au-plated)   |
| Degree of Protection                    |   | IP20   | IP20   |
| Dielectric strength                     | Between contact and coil  | 5,000V AC for 1 minute   |  |
|   | Between contacts of the same pole   | 1,000V AC for 1 minute   |  |
|   | Between contact sets  | -  | 2,500V AC for 1 minute   |
| Vibration Resistance                    | Operating extremes  | Frequency 10 to 55Hz,<br>Amplitude 0.75mm (NO contact), 0.175mm (NC contact)   |  |
|   | Damage limits   | Frequency 10 to 55Hz,<br>Amplitude 0.75mm (NO contact), 0.1mm (NC contact)   |  |
| Shock Resistance                        | Operating extremes  | NO: 98m/s <sup>2</sup><br>NC: 24.5m/s <sup>2</sup>   |  |
|   | Damage limits   | 980m/s <sup>2</sup>  | 980m/s <sup>2</sup>  |
| Electrical Life - Screw terminal        |   | AC load:30,000 operations minimum<br>(250V AC, 16A resistive load, operation frequency 360 operation per hour)   | AC load:100,000 operations minimum<br>(250V AC, 8A resistive load, operation frequency 360 operation per hour)   |
| Electrical Life - Spring Clamp terminal |   | AC load:30,000 operations minimum<br>(250V AC, 12A resistive load, operation frequency 360 operation per hour)   | AC load:100,000 operations minimum<br>(250V AC, 6A resistive load, operation frequency 360 operation per hour)   |
| Mechanical Life (no load)               |   | Over 10,000,000 operations<br>(Operation frequency 18,000 operations per hour)   | Over 10,000,000 operations<br>(Operation frequency 18,000 operations per hour)   |
| Operating Temperature                   | RV8H-1L1-D6, D9, D12, D18, D24, AD12, AD18, AD24, AD48, AD60, AD110<br>:-40 to +70°C (Contact current 12A max, 6A per terminal) no freezing<br>:-40 to +55°C (Contact current 16A max, 8A per terminal) no freezing | RV8H-2L-D6, D9, D12, D18, D24, AD12, AD18, AD24, AD48, AD60, AD110<br>:-40 to +70°C (Contact current 6A max) no freezing<br>:-40 to +55°C (Contact current 8A max) no freezing | RV8H-2L-D6, D9, D12, D18, D24, AD12, AD18, AD24, AD48, AD60, AD110<br>:-40 to +70°C (Contact current 6A max) no freezing<br>:-40 to +55°C (Contact current 8A max) no freezing |
|   | RV8H-1L1- AD220<br>:-40 to +55°C (Contact current 16A max, 8A per terminal) no freezing   | RV8H-2L- AD220<br>:-40 to +55°C (Contact current 8A max) no freezing   | RV8H-2L- AD220<br>:-40 to +55°C (Contact current 8A max) no freezing   |
|   | RV8H-1S1-D6, D9, D12, D18, D24, AD12, AD18, AD24, AD48, AD60, AD110<br>:-40 to +70°C (Contact current 12A max, 6A per terminal) no freezing   | RV8H-2S-D6, D9, D12, D18, D24, AD12, AD18, AD24, AD48, AD60, AD110<br>:-40 to +70°C (Contact current 6A max) no freezing   | RV8H-2S-D6, D9, D12, D18, D24, AD12, AD18, AD24, AD48, AD60, AD110<br>:-40 to +70°C (Contact current 6A max) no freezing   |
|   | RV8H-1S1- AD220<br>:-40 to +55°C (Contact current 12A max, 6A per terminal) no freezing   | RV8H-2S- AD220<br>:-40 to +55°C (Contact current 6A max) no freezing   | RV8H-2S- AD220<br>:-40 to +55°C (Contact current 6A max) no freezing   |
| Operating Humidity                      |   | 5 to 85% (no condensation)   |  |
| Weight (approx.)                        |   | Screw Terminal: 52g<br>Spring Clamp Terminal: 49g  | Screw Terminal: 52g<br>Spring Clamp Terminal: 49g  |

## PART NUMBERS

### 6mm Electromechanical Relay

Screw Terminal



Spring Clamp Terminal



|       | Input Voltage | General Purpose | Hazardous Location (C1D2) | General Purpose | Hazardous Location (C1D2) |
|-------|---------------|-----------------|---------------------------|-----------------|---------------------------|
| DC    | 6V            | RV8H-L-D6       | RV8H-L-D6-C1D2            | RV8H-S-D6       | RV8H-S-D6-C1D2            |
|       | 9V            | RV8H-L-D9       | RV8H-L-D9-C1D2            | RV8H-S-D9       | RV8H-S-D9-C1D2            |
|       | 12V           | RV8H-L-D12      | RV8H-L-D12-C1D2           | RV8H-S-D12      | RV8H-S-D12-C1D2           |
|       | 18V           | RV8H-L-D18      | RV8H-L-D18-C1D2           | RV8H-S-D18      | RV8H-S-D18-C1D2           |
|       | 24V           | RV8H-L-D24      | RV8H-L-D24-C1D2           | RV8H-S-D24      | RV8H-S-D24-C1D2           |
| AC/DC | 12V           | RV8H-L-AD12     | RV8H-L-AD12-C1D2          | RV8H-S-AD12     | RV8H-S-AD12-C1D2          |
|       | 18V           | RV8H-L-AD18     | RV8H-L-AD18-C1D2          | RV8H-S-AD18     | RV8H-S-AD18-C1D2          |
|       | 24V           | RV8H-L-AD24     | RV8H-L-AD24-C1D2          | RV8H-S-AD24     | RV8H-S-AD24-C1D2          |
|       | 48V           | RV8H-L-AD48     | RV8H-L-AD48-C1D2          | RV8H-S-AD48     | RV8H-S-AD48-C1D2          |
|       | 60V           | RV8H-L-AD60     | RV8H-L-AD60-C1D2          | RV8H-S-AD60     | RV8H-S-AD60-C1D2          |
|       | 110V - 125V   | RV8H-L-AD110    | RV8H-L-AD110-C1D2         | RV8H-S-AD110    | RV8H-S-AD110-C1D2         |
|       | 220V - 240V   | RV8H-L-AD220    | RV8H-L-AD220-C1D2         | RV8H-S-AD220    | RV8H-S-AD220-C1D2         |

### 6mm Solid State Relay

Screw Terminal



Spring Clamp Terminal



|    | Input Voltage | Output Voltage         | Part Number       | Part Number       |
|----|---------------|------------------------|-------------------|-------------------|
| DC | 6V            | 24V DC, 3.5A           | RV8S-L-D24-D6     | RV8S-S-D24-D6     |
|    |               | 48V DC, 0.1A           | RV8S-L-D48-D6     | RV8S-S-D48-D6     |
|    |               | 240V AC, 2A zero cross | RV8S-L-A240Z-D6   | RV8S-S-A240Z-D6   |
|    |               | 240V AC, 2A random     | RV8S-L-A240-D6    | RV8S-S-A240-D6    |
|    | 24V           | 24V DC, 3.5A           | RV8S-L-D24-D24    | RV8S-S-D24-D24    |
|    |               | 48V DC, 0.1A           | RV8S-L-D48-D24    | RV8S-S-D48-D24    |
|    |               | 240V AC, 2A zero cross | RV8S-L-A240Z-D24  | RV8S-S-A240Z-D24  |
|    |               | 240V AC, 2A random     | RV8S-L-A240-D24   | RV8S-S-A240-D24   |
| AC | 120V          | 24V DC, 3.5A           | RV8S-L-D24-A120   | RV8S-S-D24-A120   |
|    |               | 48V DC, 0.1A           | RV8S-L-D48-A120   | RV8S-S-D48-A120   |
|    |               | 240V AC, 2A zero cross | RV8S-L-A240Z-A120 | RV8S-S-A240Z-A120 |
|    |               | 240V AC, 2A random     | RV8S-L-A240-A120  | RV8S-S-A240-A120  |
|    | 240V          | 24V DC, 3.5A           | RV8S-L-D24-A240   | RV8S-S-D24-A240   |
|    |               | 48V DC, 0.1A           | RV8S-L-D48-A240   | RV8S-S-D48-A240   |
|    |               | 240V AC, 2A zero cross | RV8S-L-A240Z-A240 | RV8S-S-A240Z-A240 |
|    |               | 240V AC, 2A random     | RV8S-L-A240-A240  | RV8S-S-A240-A240  |

# 14 mm Electromechanical Relay

Screw Terminal



Spring Clamp Terminal



|               |             | Screw Terminal  |               |                           |                    | Spring Clamp Terminal |               |                           |                    |
|---------------|-------------|-----------------|---------------|---------------------------|--------------------|-----------------------|---------------|---------------------------|--------------------|
|               |             | General Purpose |               | Hazardous Location (C1D2) |                    | General Purpose       |               | Hazardous Location (C1D2) |                    |
| Input voltage |             | 1 Pole          | 2 Pole        | 1 Pole                    | 2 Pole             | 1 Pole                | 2 Pole        | 1 Pole                    | 2 Pole             |
| DC            | 6V          | RV8H-1L1-D6     | RV8H-2L-D6    | RV8H-1L1-D6-C1D2          | RV8H-2L-D6-C1D2    | RV8H-1S1-D6           | RV8H-2S-D6    | RV8H-1S1-D6-C1D2          | RV8H-2S-D6-C1D2    |
|               | 9V          | RV8H-1L1-D9     | RV8H-2L-D9    | RV8H-1L1-D9-C1D2          | RV8H-2L-D9-C1D2    | RV8H-1S1-D9           | RV8H-2S-D9    | RV8H-1S1-D9-C1D2          | RV8H-2S-D9-C1D2    |
|               | 12V         | RV8H-1L1-D12    | RV8H-2L-D12   | RV8H-1L1-D12-C1D2         | RV8H-2L-D12-C1D2   | RV8H-1S1-D12          | RV8H-2S-D12   | RV8H-1S1-D12-C1D2         | RV8H-2S-D12-C1D2   |
|               | 18V         | RV8H-1L1-D18    | RV8H-2L-D18   | RV8H-1L1-D18-C1D2         | RV8H-2L-D18-C1D2   | RV8H-1S1-D18          | RV8H-2S-D18   | RV8H-1S1-D18-C1D2         | RV8H-2S-D18-C1D2   |
|               | 24V         | RV8H-1L1-D24    | RV8H-2L-D24   | RV8H-1L1-D24-C1D2         | RV8H-2L-D24-C1D2   | RV8H-1S1-D24          | RV8H-2S-D24   | RV8H-1S1-D24-C1D2         | RV8H-2S-D24-C1D2   |
| AC/DC         | 12V         | RV8H-1L1-AD12   | RV8H-2L-AD12  | RV8H-1L1-AD12-C1D2        | RV8H-2L-AD12-C1D2  | RV8H-1S1-AD12         | RV8H-2S-AD12  | RV8H-1S1-AD12-C1D2        | RV8H-2S-AD12-C1D2  |
|               | 18V         | RV8H-1L1-AD18   | RV8H-2L-AD18  | RV8H-1L1-AD18-C1D2        | RV8H-2L-AD18-C1D2  | RV8H-1S1-AD18         | RV8H-2S-AD18  | RV8H-1S1-AD18-C1D2        | RV8H-2S-AD18-C1D2  |
|               | 24V         | RV8H-1L1-AD24   | RV8H-2L-AD24  | RV8H-1L1-AD24-C1D2        | RV8H-2L-AD24-C1D2  | RV8H-1S1-AD24         | RV8H-2S-AD24  | RV8H-1S1-AD24-C1D2        | RV8H-2S-AD24-C1D2  |
|               | 48V         | RV8H-1L1-AD48   | RV8H-2L-AD48  | RV8H-1L1-AD48-C1D2        | RV8H-2L-AD48-C1D2  | RV8H-1S1-AD48         | RV8H-2S-AD48  | RV8H-1S1-AD48-C1D2        | RV8H-2S-AD48-C1D2  |
|               | 60V         | RV8H-1L1-AD60   | RV8H-2L-AD60  | RV8H-1L1-AD60-C1D2        | RV8H-2L-AD60-C1D2  | RV8H-1S1-AD60         | RV8H-2S-AD60  | RV8H-1S1-AD60-C1D2        | RV8H-2S-AD60-C1D2  |
|               | 110V - 125V | RV8H-1L1-AD110  | RV8H-2L-AD110 | RV8H-1L1-AD110-C1D2       | RV8H-2L-AD110-C1D2 | RV8H-1S1-AD110        | RV8H-2S-AD110 | RV8H-1S1-AD110-C1D2       | RV8H-2S-AD110-C1D2 |
|               | 220V - 240V | RV8H-1L1-AD220  | RV8H-2L-AD220 | RV8H-1L1-AD220-C1D2       | RV8H-2L-AD220-C1D2 | RV8H-1S1-AD220        | RV8H-2S-AD220 | RV8H-1S1-AD220-C1D2       | RV8H-2S-AD220-C1D2 |

## RATINGS

### 6mm Electromechanical Coil Ratings

|       | Rated Voltage | Rated Current<br>±15% (mA) <sup>1</sup><br>(at 23°C) | Circuit AC<br>Resistance<br>±15% (Ω) <sup>1</sup><br>(at 23°C) | Circuit DC<br>Resistance<br>±15% (Ω) <sup>1</sup><br>(at 23°C) | Operating Characteristics   |                              |   | Power<br>Consumption (W) |
|-------|---------------|--|--|--|-----------------------------|------------------------------|---|--------------------------|
|       |               |  |  |  | Pickup Voltage<br>(at 23°C) | Dropout Voltage<br>(at 23°C) | Maximum<br>Allowable Voltage<br>(at 23°C) |                          |
| DC    | 6V            | 35   | -  | 170  | 90% max                     | 7% min                       | 110%                                      | 0.21                     |
|       | 9V            | 18.6   | -  | 485  |                             |                              |   | 0.2                      |
|       | 12V           | 14.6   | -  | 820  |                             |                              |   | 0.2                      |
|       | 18V           | 11.6   | -  | 1550   |                             |                              |   | 0.2                      |
|       | 24V           | 10.6   | -  | 2270   |                             |                              |   | 0.25                     |
| AC/DC | 12V           | 15.5   | 755  | 800  | 90% max                     | 7% min                       | 110%                                      | 0.2                      |
|       | 18V           | 13.3   | 1365   | 1345   |                             |                              |   | 0.25                     |
|       | 24V           | 13.7   | 1730   | 1790   |                             |                              |   | 0.33                     |
|       | 48V           | 4  | 11880  | 12230  |                             |                              |   | 0.2                      |
|       | 60V           | 3.4  | 17600  | 17910  |                             |                              |   | 0.2                      |
|       | 110V - 125V   | 3.4 - 3.9  | 31790 - 31890  | 32450 - 32900  |                             |                              |   | 0.5                      |
|       | 220V - 240V   | 3.3 - 3.6  | 65670 - 66070  | 65940 - 68570  |                             |                              |   | 0.85                     |

Note 1 ±10% for 6V, 9V and 12V

### 6mm Electromechanical Contact Ratings

|                             |                |                       |
|-----------------------------|----------------|-----------------------|
| Allowable Contact Power     | Resistive Load | 1500VA, 180W DC       |
| Rated Load                  | Resistive Load | 250V AC 6A, 30V DC 6A |
| Allowable Switching Current |                | 6A                    |
| Allowable Switching Voltage |                | 400V AC, 125V DC      |
| Allowable Switching Power   |                | 1500VA, 180W DC       |
| Minimum Applicable Load     |                | 6V DC/10mA            |

### 6mm Solid State Input Ratings

| Type               | Control Voltage<br>Range | Output / Input Voltage | Pickup Voltage | Dropout Voltage | Input Current     | Maximum<br>Operation Time | Maximum Release Time |
|--------------------|--------------------------|------------------------|----------------|-----------------|-------------------|---------------------------|----------------------|
|                    | 4.5-12V DC               | 24V DC / 6V DC         | 4.5V DC        | 1.5V DC         | 10mA±10%(±6VDC)   | 120µs                     | 200µs                |
|                    | 19.6-30V DC              | 24V DC / 24V DC        | 19.6V DC       | 5V DC           | 9mA±10%(±24VDC)   | 350µs                     | 200µs                |
|                    | 96-132V AC               | 24V DC / 120V AC       | 96V AC         | 12V AC          | 10mA±10%(±120VAC) | 11ms                      | 14ms                 |
|                    | 192-264V AC              | 24V DC / 240V AC       | 192V AC        | 24V AC          | 10mA±10%(±240VAC) | 11ms                      | 14ms                 |
|                    | 4.5-12V DC               | 48V DC / 6V DC         | 4.5V DC        | 1.5V DC         | 6mA±10%(±6VDC)    | 40µs                      | 300µs                |
|                    | 19.6-30V DC              | 48V DC / 24V DC        | 19.6V DC       | 5V DC           | 7mA±10%(±24VDC)   | 40µs                      | 300µs                |
|                    | 96-132V AC               | 48V DC / 120V AC       | 96V AC         | 12V AC          | 10mA±10%(±120VAC) | 8ms                       | 14ms                 |
|                    | 192-264V AC              | 48V DC / 240V AC       | 192V AC        | 24V AC          | 10mA±10%(±240VAC) | 8ms                       | 14ms                 |
| Zero<br>Crossing   | 4.5-12V DC               | 240V AC / 6V DC        | 4.5V DC        | 2V DC           | 15mA±10%(±6VDC)   | 10ms                      | 10ms                 |
|                    | 19.6-30V DC              | 240V AC / 24V DC       | 19.6V DC       | 5V DC           | 7mA±10%(±24VDC)   | 10ms                      | 10ms                 |
|                    | 96-132V AC               | 240V AC / 120V AC      | 96V AC         | 12V AC          | 10mA±10%(±120VAC) | 16ms                      | 20ms                 |
|                    | 192-264V AC              | 240V AC / 240V AC      | 192V AC        | 24V AC          | 10mA±10%(±240VAC) | 16ms                      | 20ms                 |
| Random<br>Crossing | 4.5-12V DC               | 240V AC / 6V DC        | 4.5V DC        | 2V DC           | 15mA±10%(±6VDC)   | 300µs                     | 10ms                 |
|                    | 19.6-30V DC              | 240V AC / 24V DC       | 19.6V DC       | 5V DC           | 7mA±10%(±24VDC)   | 300µs                     | 10ms                 |
|                    | 96-132V AC               | 240V AC / 120V AC      | 96V AC         | 12V AC          | 10mA±10%(±120VAC) | 8ms                       | 20ms                 |
|                    | 192-264V AC              | 240V AC / 240V AC      | 192V AC        | 24V AC          | 10mA±10%(±240VAC) | 8ms                       | 20ms                 |

## 6mm Solid State Output Ratings

|                                     |               |                  |                      |
|-------------------------------------|---------------|------------------|----------------------|
| Typical Input Voltage               | 24V DC        | 48V DC           | 240V AC              |
| Output Device                       | MOSFET        | Photo-transistor | Triac                |
| Operating Voltage Range             | 0-24V DC      | 0-48V DC         | 24-280V AC (47-63Hz) |
| Maximum Load Current                | 3.5A          | 100mA            | 2A                   |
| Minimum Load Current                | 1mA           | 1mA              | 70mA                 |
| Maximum Blocking Voltage            | 30V DC        | 60V DC           | 600V AC              |
| Maximum Surge Current               | 9A (10ms)     | 300mA (10ms)     | 120A pk (16.6ms)     |
| Maximum I <sup>2</sup> t for Fusing | –             | –                | 60A <sup>2</sup> sec |
| Typical On-State Leakage Current    | 0.4V          | 1V               | 1.1V (peak)          |
| Maximum Off-State Leakage Current   | 0.001mA       | 0.001mA          | 4mA                  |
| Switching Configuration             | Normally Open | Normally Open    | Normally Open        |

## 14mm Electromechanical Coil Ratings

| Rated Voltage |             | Rated Current<br>±15% (mA) <sup>1</sup><br>(at 23°C) |         |         | Circuit AC Resistance<br>±15% (Ω) <sup>1</sup><br>(at 23°C) |         |         | Operating Characteristics<br>(Against Rated Voltage) |                                 |  |  | Operation<br>and<br>release<br>time | Power Consumption (W) |           |           |
|---------------|-------------|--|---------|---------|---|---------|---------|--|---------------------------------|--|--|-------------------------------------|-----------------------|-----------|-----------|
|               |             | DC   | AC 50Hz | AC 60Hz | DC  | AC 50Hz | AC 60Hz | Pickup<br>Voltage<br>(at 23°C)                       | Dropout<br>Voltage<br>(at 23°C) | Maximum<br>Allowable<br>Voltage<br>(at 23°C) | Maximum<br>Allowable<br>Voltage <sup>2</sup> |                                     | DC                    | AC (50Hz) | AC (60Hz) |
| DC            | 6V          | 75.0   |         |         | 80  |         |         | 80% max  | 7% min                          | 120%   | 110% <sup>2</sup>                            | 15ms max                            | 0.45                  | -         | -         |
|               | 9V          | 44.0   |         |         | 205   |         |         |  |                                 |  |  |                                     | 0.40                  | -         | -         |
|               | 12V         | 32.0   |         |         | 375   |         |         |  |                                 |  |  |                                     | 0.38                  | -         | -         |
|               | 18V         | 24.0   |         |         | 750   |         |         |  |                                 |  |  |                                     | 0.43                  | -         | -         |
|               | 24V         | 20.0   |         |         | 1200  |         |         |  |                                 |  |  |                                     | 0.48                  | -         | -         |
| AC/DC         | 12V         | 32.0   | 29.0    | 29.0    | 375   | 414     | 414     | 80% max  | 7% min                          | 110% <sup>2</sup>                            | 15ms max                                     | 0.38                                | 0.35                  | 0.35      |           |
|               | 18V         | 24.0   | 24.0    | 24.0    | 750   | 750     | 750     |  |                                 |  |  | 0.43                                | 0.43                  | 0.43      |           |
|               | 24V         | 20.0   | 21.0    | 21.0    | 1200  | 1143    | 1143    |  |                                 |  |  | 0.48                                | 0.50                  | 0.50      |           |
|               | 48V         | 7.6  | 9.0     | 9.0     | 6316  | 5333    | 5333    |  |                                 |  |  | 0.36                                | 0.43                  | 0.43      |           |
|               | 60V         | 7.6  | 9.0     | 9.0     | 7895  | 6667    | 6667    |  |                                 |  |  | 0.46                                | 0.54                  | 0.54      |           |
|               | 110V - 125V | 4.4-5.1  | 5.3-5.8 | 5.3-5.8 | 24510   | 21552   | 21552   |  |                                 |  |  | 0.64                                | 0.73                  | 0.73      |           |
| 220V - 240V   | 4-4.6       | 4.5-5.2  | 4.8-5.5 | 52174   | 46154   | 43636   | 1.10    | 1.25   | 1.32                            |  |  |                                     |                       |           |           |

Note 1: Input voltages lower than 24V: ±10%

Note 2: At rated operating temperature

## 14mm Contact Ratings

|                             |   | Screw Terminal   | Spring Clamp Terminal   |
|-----------------------------|---|--|---|
| Allowable contact power     | Resistive load                            | 1 Pole 4,000VA<br>2 Pole 2,000VA   | 1 Pole 3,000VA<br>2 Pole 1,500VA  |
|                             | Inductive load                            | B300 (pilot duty)  | B300 (pilot duty)   |
| Rated Load                  | Resistive load                            | 1 Pole 250V AC, 16A (8A per terminal) at 55°C, 12A (6A per terminal) at 70°C<br>2 Pole 250V AC, 8A at 55°C, 6A at 70°C | 1 Pole 250V AC, 12A (6A per terminal) at 70°C<br>2 Pole 250V AC, 6A at 70°C |
|                             | Inductive load                            | B300 (pilot duty)  | B300 (pilot duty)   |
| Allowable Switching Current |   | 1 Pole 16A (8A per terminal) at 55°C, 12A (6A per terminal) at 70°C<br>2 Pole 8A at 55°C, 6A at 70°C                   | 1 Pole 12A (6A per terminal) at 70°C<br>2 Pole 6A at 70°C                   |
| Allowable Switching Power   |   | 1 Pole 4,000VA<br>2 Pole 2,000VA   | 1 Pole 3,000VA<br>2 Pole 1,500VA  |
|                             | Minimum Applicable Load (reference value) | 1 Pole 6VDC 100mA<br>2 Pole 5VDC 10mA  | 1 Pole 6VDC 100mA<br>2 Pole 5VDC 10mA                                       |

# ACCESSORIES

## Jumper, Spacer, and Screwdriver

|  | Color | Part Number |
|--|-------|-------------|
| <b>6mm</b>   |       |             |
| <p>Jumper for 6mm Relay<br/>(20 combs) <sup>1, 2, 6</sup></p>  | Black | SV9Z-J20B   |
|  | Gray  | SV9Z-J20W   |
|  | Blue  | SV9Z-J20S   |
| <b>14mm</b>  |       |             |
| <p>Jumper for 14mm Relay<br/>(32 combs, with 2 combs per relay,<br/>or 16 discrete relays.) <sup>3, 4, 6</sup></p> | Black | SV9Z-J232B  |
|  | Gray  | SV9Z-J232W  |
|  | Blue  | SV9Z-J232S  |

### Spacer (circuit separator) <sup>5, 6</sup>

|  |           |
|--|-----------|
|  | SV9Z-SA2W |
|--|-----------|

### Screwdriver

|  |          |
|--|----------|
|  | BC1S-SD0 |
|--|----------|

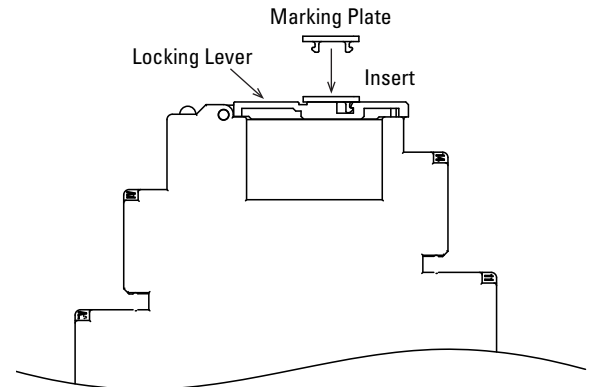
- Jumper combs come with 20 points for 6mm relays. If shorter lengths are needed, simply cut off the excess points.
- Ensure that the total current to the jumper does not exceed the overall rated current (Rated current: 6A).
- Jumper combs come with 16 pairs of combs for 14mm relays. If shorter lengths are needed, simply cut off the excess points.
- Ensure that the total current to the jumper does not exceed the overall rated current (Rated current: 6A for spring-clamp terminals and 8A for screw type terminations).
- Width of spacer: 2mm
- When using a cut jumper, please use a spacer on the cut side. For additional information see instruction sheet.

## Marking Plate Part Numbers

|                               | 6mm | 14mm | Part Number       | Engraving |
|-------------------------------|-----|------|-------------------|-----------|
| <p>Horizontal Orientation</p> |     |      | SV9Z-PW10         | blank     |
|                               |     |      | SV9Z-PW10-⓪1-10   | 1-10      |
|                               |     |      | SV9Z-PW10-⓪11-20  | 11-20     |
|                               |     |      | SV9Z-PW10-⓪21-30  | 21-30     |
|                               |     |      | SV9Z-PW10-⓪31-40  | 31-40     |
|                               |     |      | SV9Z-PW10-⓪41-50  | 41-50     |
|                               |     |      | SV9Z-PW10-⓪51-60  | 51-60     |
|                               |     |      | SV9Z-PW10-⓪61-70  | 61-70     |
|                               |     |      | SV9Z-PW10-⓪71-80  | 71-80     |
|                               |     |      | SV9Z-PW10-⓪81-90  | 81-90     |
| <p>Vertical Orientation</p>   |     |      | SV9Z-PW10-⓪91-100 | 91-100    |
|                               |     |      | SV9Z-PW10-⓪A-J    | A-J       |
|                               |     |      | SV9Z-PW10-⓪K-T    | K-T       |
|                               |     |      | SV9Z-PW10-⓪U-Z    | U-Z       |
|                               |     |      | SV9Z-PW10-⓪GROUND | ⚡         |
|                               |     |      | SV9Z-PW10-⓪AC     | ⚡         |

- In place of ⓪ insert orientation code: V=Vertical, H=Horizontal
- Each unit has 10 pieces (marking plates).

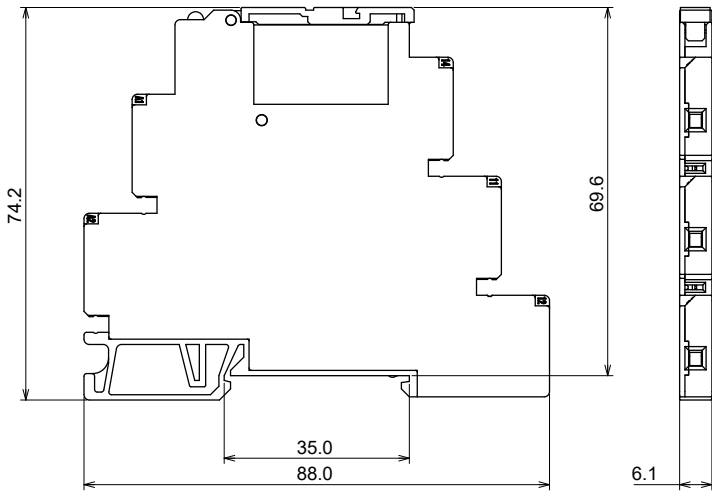
## Marking Plate Placement



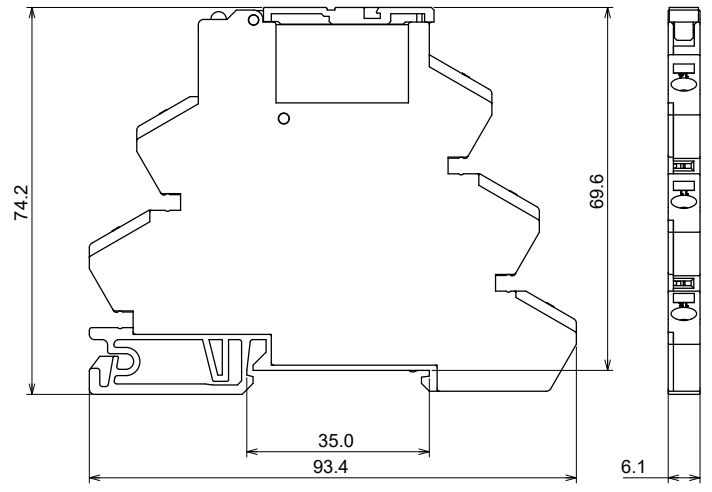
## DIMENSIONS (MM)

### 6mm Electromechanical and Solid State Relay

#### 6mm Screw Terminal

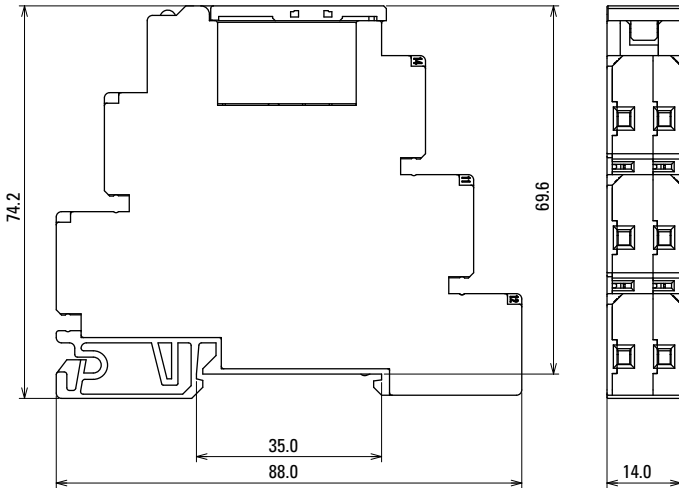


#### 6mm Spring Clamp Terminal

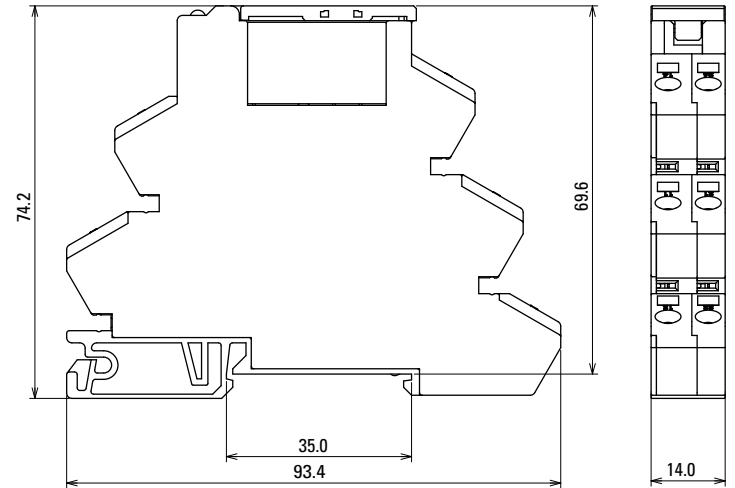


### 14mm Electromechanical Relay

#### 14mm Screw Terminal



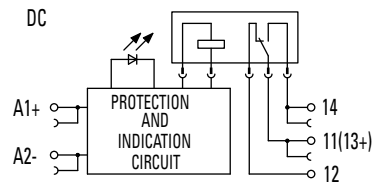
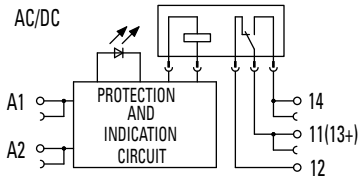
#### 14mm Spring Clamp Terminal





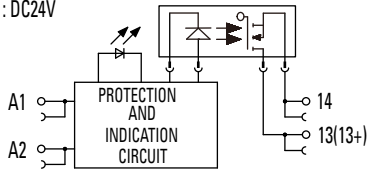
# INTERNAL CONNECTIONS

## 6mm Electromechanical Relay

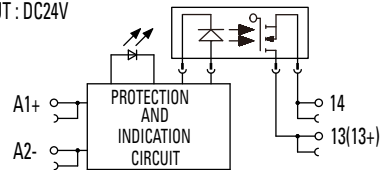


## 6mm Solid State Relay

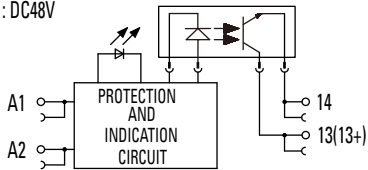
INPUT : AC120V,AC240V  
OUTPUT : DC24V



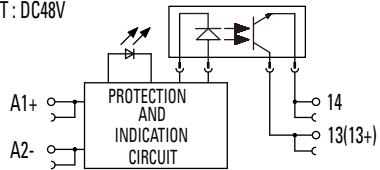
INPUT : DC6V,DC24V  
OUTPUT : DC24V



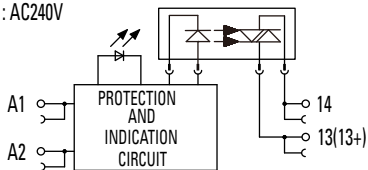
INPUT : AC120V,AC240V  
OUTPUT : DC48V



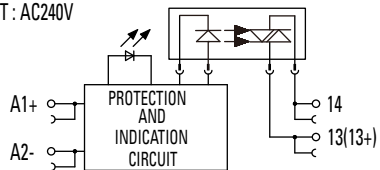
INPUT : DC6V,DC24V  
OUTPUT : DC48V



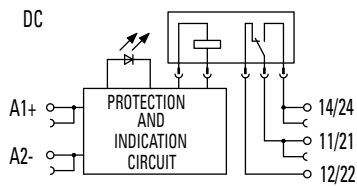
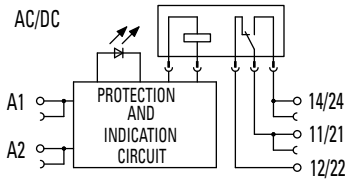
INPUT : AC120V,AC240V  
OUTPUT : AC240V



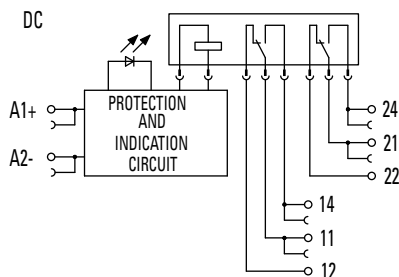
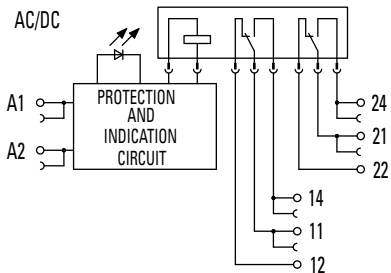
INPUT : DC6V,DC24V  
OUTPUT : AC240V



## 14mm Electromechanical Relay 1 Pole

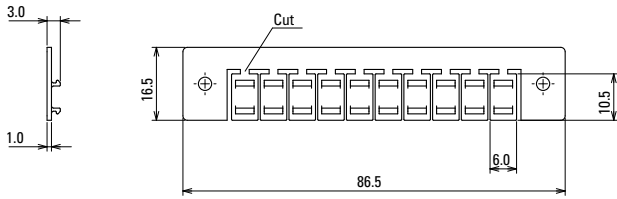


## 14mm Electromechanical Relay 2 Pole



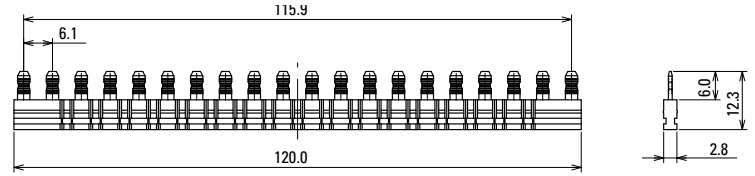
## ACCESSORIES DIMENSIONS

**SV9Z-PW10\* Marking Plate**



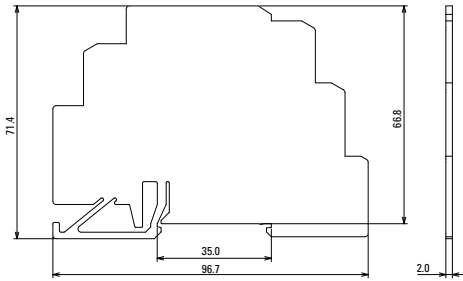
\*Available blank or pre-marked.

**SV9Z-J20\* Jumper for 6mm Relay**

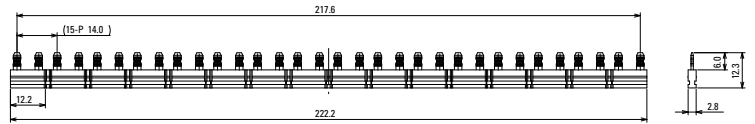


\*Available in Black, Gray and Blue

**SV9Z-SA2W Spacer for 6 and 14mm Relay**



**SV9Z-J232\* Jumper for 14mm Relay**

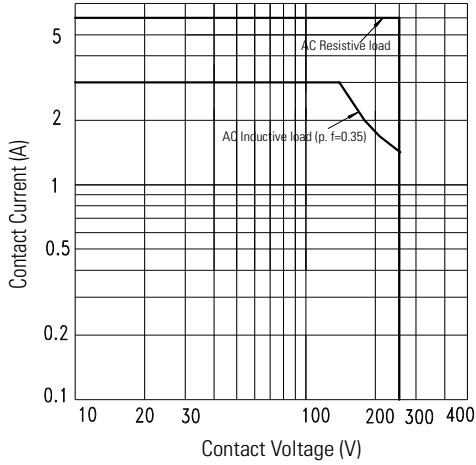


\* Available in black, gray and blue.

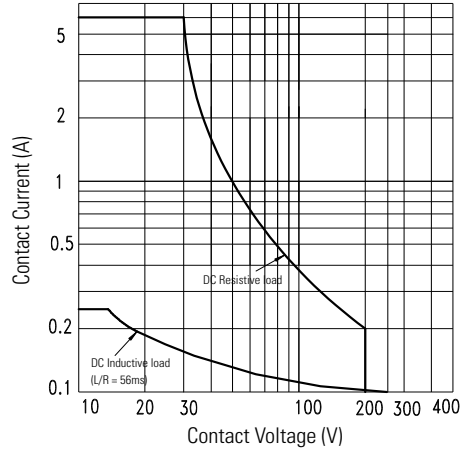
# CHARACTERISTICS

## 6mm Electromechanical Relay

### Maximum Switching Power AC

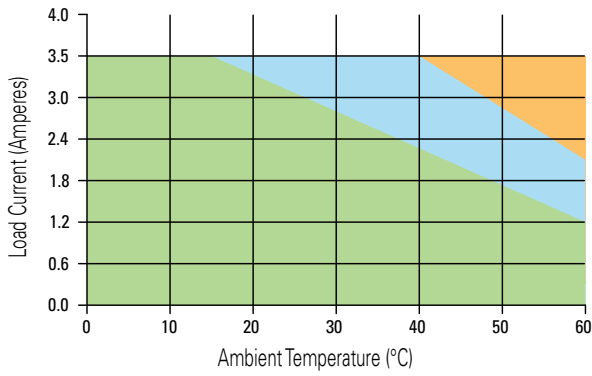


### Maximum Switching Power DC

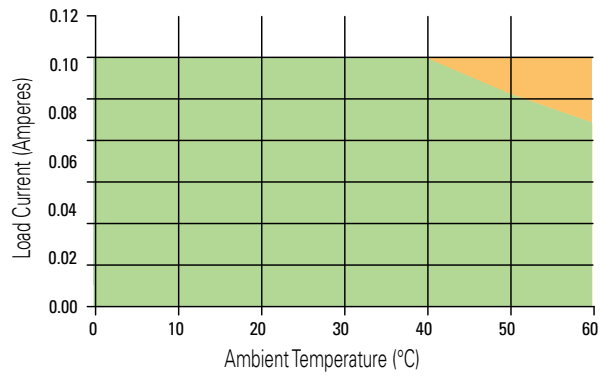


## 6mm Solid State Continuous Load Current vs. Ambient Temperature Curves

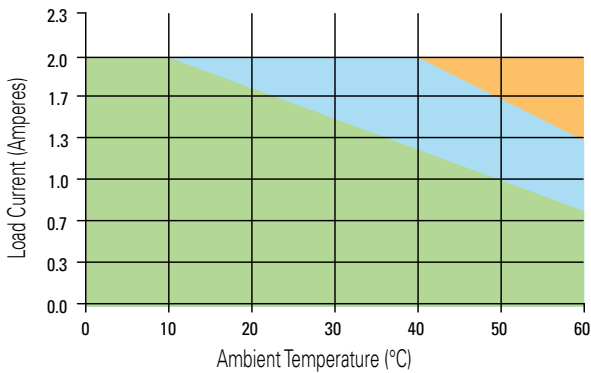
### 24V DC



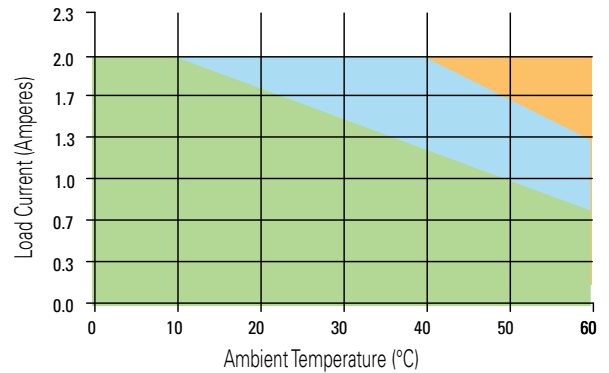
### 48V DC



### 240V AC Zero Cross



### 240V AC Random Cross

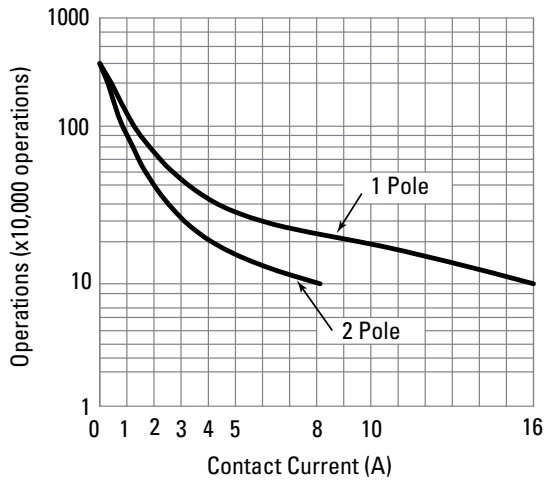


## Legend

- No spacing required between units.
- Spacing of 6.2mm minimum required between units
- Not Recommended

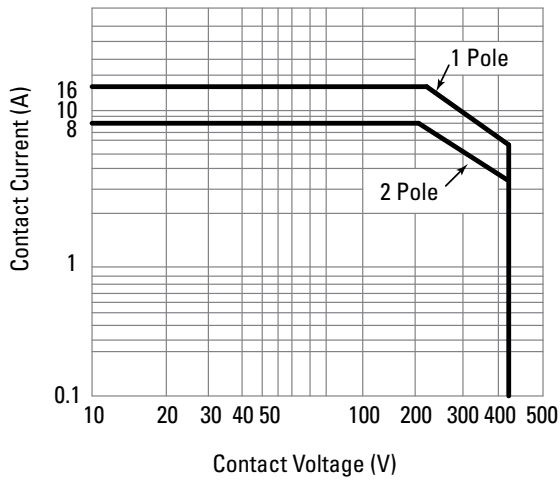
## 14mm Electromechanical Relays

### 14 mm Electrical Life Curve AC Load

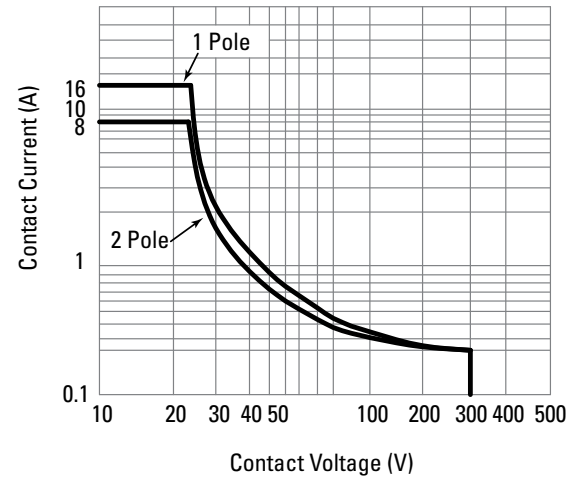


### 14mm Contact Ratings

#### AC



#### DC



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