**Description**

The solid-state SIR series relays are designed for industrial applications requiring rugged, reliable operation. These relays provide an optically-isolated, high-capacity, solid-state output with power switching capability up to 20 A steady state, 200 A inrush. The SIR2 zero voltage switching is intended for resistive and incandescent loads and can extend the life of an incandescent lamp up to 10 times. The SIR1 random switching is intended for inductive loads. When fully insulated female terminals are used on the connection wires, the system meets the requirements for touch-proof connections.

**Operation**

The solid-state output is located between terminals 1 and 3 and is normally open or closed without control voltage applied to terminals 4 and 5. When control voltage is applied to terminals 4 and 5, the solid-state output opens or closes, respectively.

**Reset**

Removing control voltage resets the output. The unit can also be reset if the output voltage is removed.

**Features & Benefits**

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entirely solid-state and encapsulated</td>
<td>No moving parts to arc and wear out over time</td>
</tr>
<tr>
<td></td>
<td>Protects against shock, vibration, and humidity</td>
</tr>
<tr>
<td>Up to 20 A, 200 A inrush output rating</td>
<td>Provides direct control of heavy inductive, incandescent, or resistive loads</td>
</tr>
<tr>
<td>Switching output is optically isolated from the control input</td>
<td>Provides the ability to interface between 2 different electrical circuits</td>
</tr>
<tr>
<td>SIR1 models – random switching</td>
<td>Ideal for inductive loads</td>
</tr>
<tr>
<td>SIR2 models – zero voltage switching</td>
<td>Ideal for resistive and incandescent loads</td>
</tr>
<tr>
<td>Metalized mounting surface</td>
<td>Facilitates heat transfer in high-current applications</td>
</tr>
</tbody>
</table>

**Applications**

- Inductive, resistive, and incandescent loads
- Industrial systems requiring rugged, reliable operation
Specifications

Output
Type          Optical isolation, totally solid state
Form          SPST, NO or NC
Voltage        24, 120, or 230 V ac
Tolerance      ±20%
Ratings

<table>
<thead>
<tr>
<th>Type</th>
<th>Steady State</th>
<th>Inrush*</th>
<th>Output Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 A</td>
<td>30 A</td>
<td>Triac</td>
<td></td>
</tr>
<tr>
<td>6 A</td>
<td>60 A</td>
<td>Triac</td>
<td></td>
</tr>
<tr>
<td>10 A</td>
<td>100 A</td>
<td>Triac</td>
<td></td>
</tr>
<tr>
<td>20 A</td>
<td>200 A</td>
<td>Triac</td>
<td></td>
</tr>
</tbody>
</table>

Minimum Load Current = 50 mA
Voltage Drop       = 2.0 V at rated current
Leakage Current (Open State) = 6 mA

Input
Type          Optical isolation
Control Voltage 9 to 290 V ac/dc in 3 ranges
Power Consumption ≤ 0.5W

Protection
Circuitry      Encapsulated
Dielectric Breakdown ≥ 2000 V RMS terminals to mounting surface
Insulation Resistance ≥ 100 MΩ

Mechanical
Mounting*     Surface mount with one #10 (M5 x 0.8) screw
Dimensions   H 50.8 mm (2.0”); W 50.8 mm (2.0”); D 38.4 mm (1.51”)
Termination  0.25 in. (6.35 mm) male quick connect terminals

Environmental
Operating/Storage Temperature -40 °C to 60 °C / -55 °C to 85 °C
Humidity      95% relative, non-condensing
Weight         = 3.9 oz (111 g)

*Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90 °C. Inrush: Non-repetitive for 16 ms.

Certification & Compliance

UL Recognized File E57310 UL508
CSA File LR057415

Accessories

P1015-13 (AWG 10/12), P1015-64 (AWG 14/16), P1015-14 (AWG 18/22) Female Quick Connect
These 0.25 in. (6.35 mm) female terminals are constructed with an insulator barrel to provide strain relief.

P1015-18 Quick Connect to Screw Adapter
Screw adapter terminal designed for use with all modules with 0.25 in. (6.35 mm) male quick connect terminals.
**Ordering Information**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SWITCHING</th>
<th>CONTROL VOLTAGE</th>
<th>RATING</th>
<th>OUTPUT FORM</th>
<th>OUTPUT VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIR1B6B4</td>
<td>Random</td>
<td>90 to 150 V ac or dc</td>
<td>6 A</td>
<td>Normally closed</td>
<td>120 V ac</td>
</tr>
<tr>
<td>SIR2A20A4</td>
<td>Zero voltage</td>
<td>9 to 30 V ac or dc</td>
<td>20 A</td>
<td>Normally open</td>
<td>120 V ac</td>
</tr>
<tr>
<td>SIR2B20A4</td>
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**Dimensions Inches (mm)**

![Dimensions Diagram]

**Wiring Diagram**

V = Voltage  
CV = Control Voltage  
L = Load

Load may be connected to terminal 3 or 1.

Note: Normally open output is shown. Normally closed output is also available.

**Function Diagram**

V = Voltage  
CV = Control Voltage  
NO = Normally Open Contact  
NC = Normally Closed Contact  
R = Reset  
= Undefined Time