

Designed for industrial applications requiring rugged reliable operation. Provides an optically isolated, high capacity, solid-state output, with power switching capability up to 20A steady state, 200A inrush. Zero voltage switching SIR2 extends the life of an incandescent lamp up to 10 times. Random switching SIR1 is ideal for inductive loads. When fully insulated female terminals are used on the connection wires, the system meets the requirements for touch-proof connections.

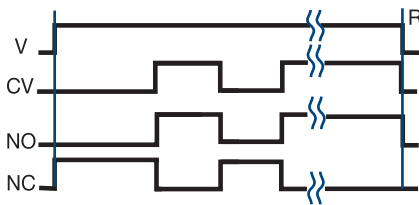
For more information see:  
Appendix B, page 165, Figure 4 for dimensional drawing.  
Appendix C, page 172, Figure 37 for connection diagram.

### Operation

The solid-state output is located between terminals 1 and 3, and is normally open or normally 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 is also reset if output voltage is removed.

### Function:



V = Voltage  
CV = Control Voltage  
R = Reset  
NC = Normally Closed Output  
NO = Normally Open Output

— = Undefined time

### Features:

- SIR1 - Random switching for inductive loads
- SIR2 - Zero voltage switching for resistive & incandescent loads
- Normally open or normally closed output
- 3 - 20A with up to 200A inrush
- Encapsulated circuitry
- Optically isolated output
- 0.25 in. (6.35 mm) terminals with single hole mounting

Approvals:

### Auxiliary Products:

- **Quick connect to screw adaptor:**  
P/N: P1015-18
- **Female quick connect:**  
P/N: P1015-13 (AWG 10/12)  
P/N: P1015-64 (AWG 14/16)  
P/N: P1015-14 (AWG 18/22)

### Available Models:

SIR1A10A6	SIR1B6B4
SIR1A6A2	SIR1C20B6
SIR1B10A4	SIR2A20A4
SIR1B10B4	SIR2B20A4
SIR1B20A4	SIR2B20B4

If desired part number is not listed, please call us to see if it is technically possible to build.

### Order Table:

**X Series**  
 -SIR1 - Random Switching  
 -SIR2 - Zero Voltage Switching

**X Control Voltage**  
 -A - 9 - 30VAC or DC  
 -B - 90 - 150VAC or DC  
 -C - 190 - 290VAC or DC

**X Rating**  
 -1 - 3A  
 -6 - 6A  
 -10 - 10A  
 -20 - 20A

### Solid-state Output Contact

**X Form**  
 -A - Normally Open  
 -B - Normally Closed

**X Voltage**  
 -2 - 24VAC  
 -4 - 120VAC  
 -6 - 230VAC

### Specifications

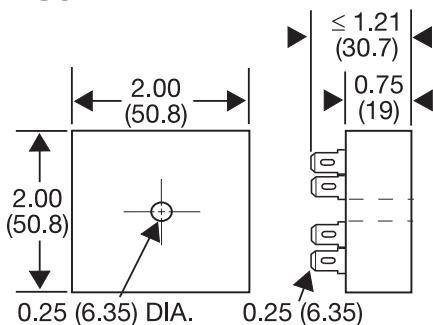
<b>Output</b>	Optical isolation, totally solid state		
Type	SPST, NO or NC		
Form	24, 120, or 230VAC		
Voltage	±20%		
Tolerance	Steady State    Inrush*    Output Device		
Ratings	3A	30A	Triac
	6A	60A	Triac
	10A	100A	Triac
	20A	200A	Triac
Minimum Load Current	≅ 50mA		
Voltage Drop	≅ 2.0V at rated current		
Leakage Current (Open State)	≅ 6mA		
<b>Input</b>	Optical isolation LED/photo transistor		
Type	9 to 290VAC/DC in 3 ranges		
Control Voltage	≅ 0.5W		
Power Consumption			

<b>Protection</b>	Encapsulated
Circuitry	≥ 2000V RMS terminals to mounting surface
Dielectric Breakdown	≥ 100 MΩ
Insulation Resistance	
<b>Mechanical</b>	
Mounting*	Surface mount with one #10 (M5 x 0.8) screw
Dimensions	2 x 2 x 1.51 in. (50.8 x 50.8 x 38.4 mm)
Termination	0.25 in. (6.35 mm) male quick connect terminals
<b>Environmental</b>	
Operating / Storage Temperature	-20° to 60°C / -40° 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 16ms.

# Appendix B - Dimensional Drawings

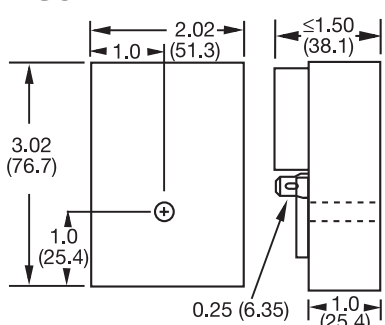
**FIGURE 1**



0.25 (6.35) DIA. 0.25 (6.35)

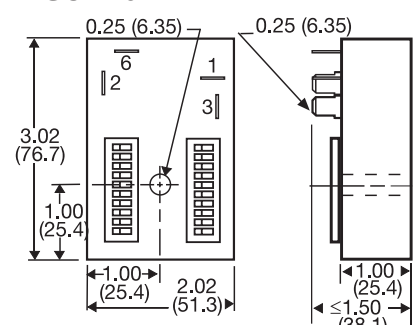
CT; ESD5; ESDR; FS100; FS200; FS300; KR3; KR9;  
KRDB; KRDI; KRDM; KRDR; KRDS; KRPD; KRPS;  
KSD1; KSD2; KSD3; KSD4; KSDB; KSDR; KSDS;  
KSDU; KSPD; KSPS; KSPU; KVM; T2D; TA; TAC1;  
TAC4; TDU; TDUB; TDUI; TDUS; TL; TMV8000;  
TS1; TS2; TS4; TS6; TSB; TSD1; TSD2; TSD3; TSD4;  
TSD6; TSD7; TSDB; TSDR; TSDS; TSS; TSU2000

**FIGURE 2**



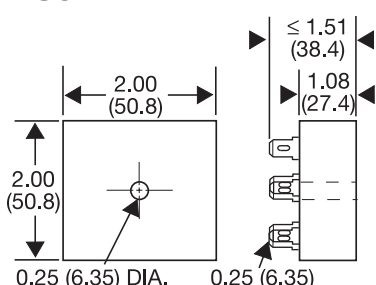
HLV; HRD3; HRD9; HRDB; HRDI;  
HRDM; HRDR; HRDS; HRID; HRIS;  
HRIU; HRPD; HRPS; HRPV; HRV; RS

**FIGURE 3**



HSPZ

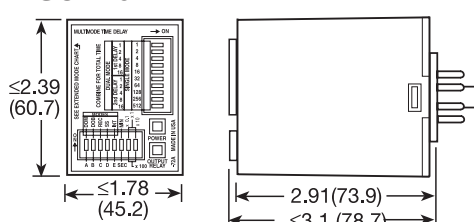
**FIGURE 4**



FA; FS; FSU1000\*; NHPD; NHPS; NHPV;  
NLF1\*; NLF2\*; PHS\*; PTHF\*; SIR1; SIR2;  
SLR1\*; SLR2\*; TH1; TH2; THC; THD1;  
THD2; THD3; THD4; THD7; THDB; THDM;  
THDS; THS

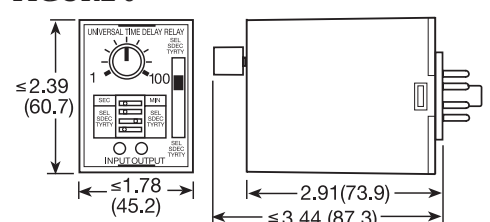
\*If unit is rated @ 1A, see Figure 1

**FIGURE 5**



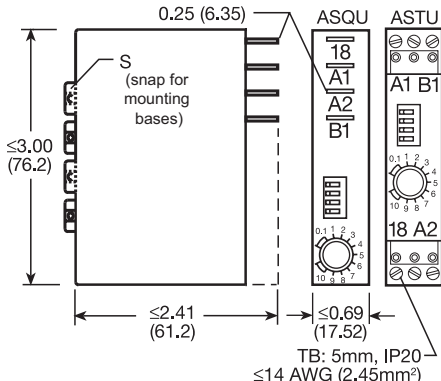
TRDU

**FIGURE 6**



TRU

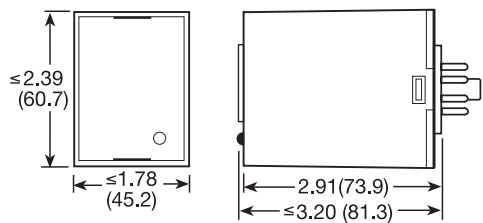
**FIGURE 7**



ASQU; ASTU; DSQU; DSTU

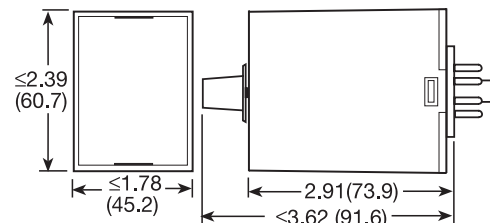
TB: 5mm, IP20  
≤14 AWG (2.45mm<sup>2</sup>)

**FIGURE 8**



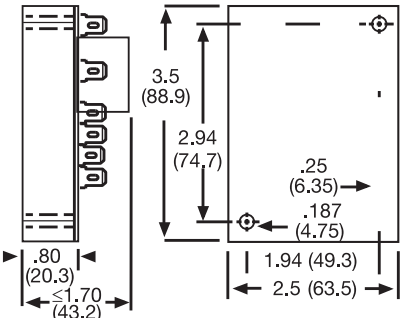
PLM; PLR; TDB; TDBH; TDBL; TDI; TDIH;  
TDIL; TDM; TDMB; TDMH; TDML; TDR;  
TDS; TDSH; TDSL

**FIGURE 9**



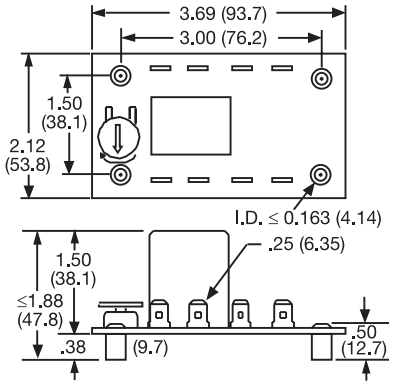
FS500; PRLB; PRM; PRLS; TRB; TRM; TRS

**FIGURE 10**



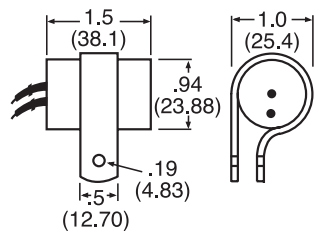
ERD3; ERDI; ERDM

**FIGURE 11**



ORB; ORM; ORS

**FIGURE 12**

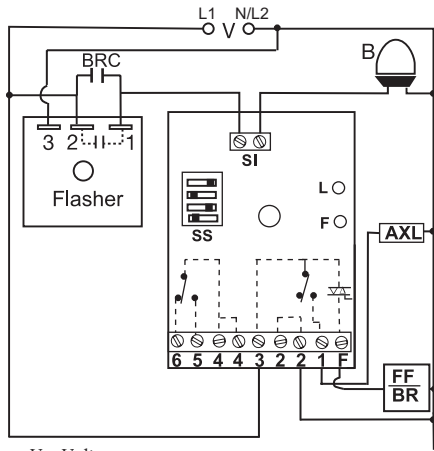


FS100; FS400

inches (millimeters)

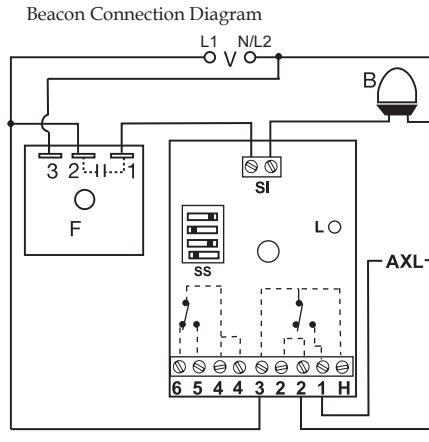
# Appendix C - Connection Diagrams

FIGURE 34 - FB9L



V = Voltage  
 B = LED Beacon  
 SS = Selector Switch  
 SI = Sensor Input  
 L = Indicator  
 F = Flasher Failure LED  
 AXL = Auxiliary Load/Alarm  
 FF = Flasher Failure/Bypass Relay  
 BR = Bypass Relay Contacts

FIGURE 35 - SCR9L



V = Voltage  
 B = Beacon Lamps  
 SS = Selector Switch  
 L = LED Indicator  
 F = Flasher  
 AXL = Auxiliary Load/Alarm  
 OL = Obstruction Lamps  
 SI = Sensor Input  
 H = "3" Spare AC Hot Connection (2A max.)

Obstruction Lamp Connection Diagram

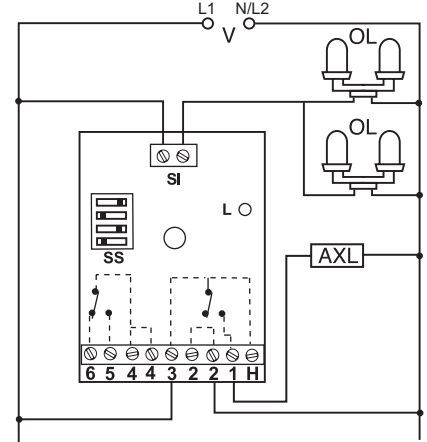
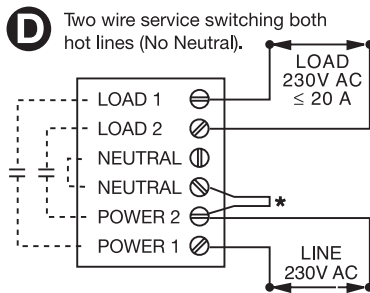
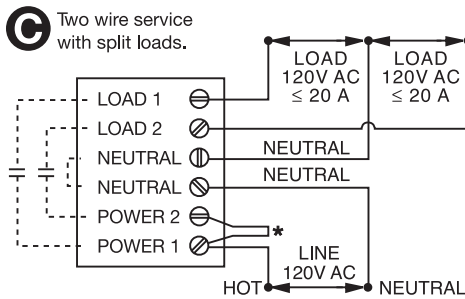
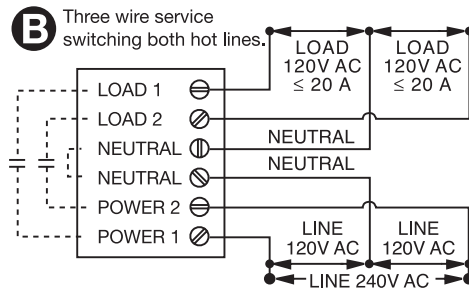
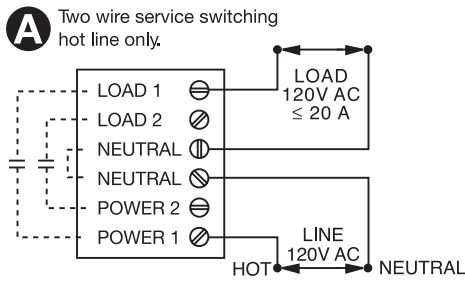
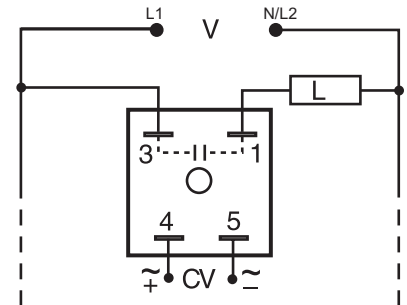


FIGURE 36 - PCR Series



\* Customer Supplied Jumper    - - - - Internal Connection

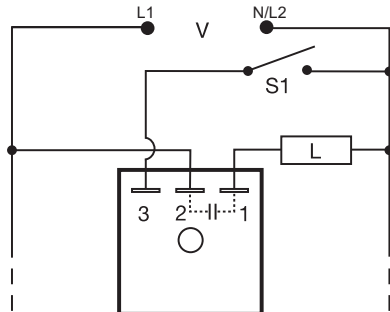
FIGURE 37 - SIR1/SIR2 Series



V = Voltage  
 CV = Control Voltage  
 R = Reset  
 NC = Normally Closed Output  
 NO = Normally Open Output  
 — = Undefined time

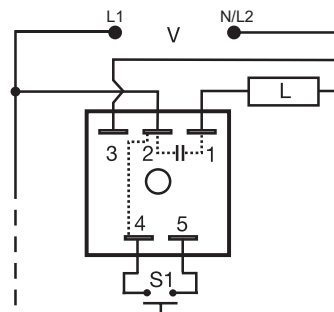
Load may be connected to terminal 3 or 1.  
 Note: Normally open output is shown. Normally closed output is also available.

FIGURE 38 - SLR Series



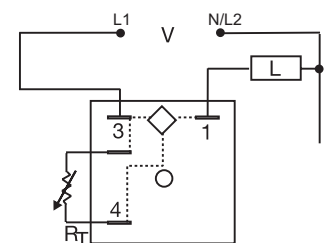
L = Load  
 S1 = Initiate Switch  
 Note: Normally open output is shown. Normally closed output is also available.

FIGURE 39 - NLF1/NLF2 Series



L = Load  
 S1 = Control Switch  
 Internal connections between terminals 2 & 4.

FIGURE 40 - PHS Series



Triac Output Device  
 V = Voltage  
 L = Load  
 R<sub>r</sub> = External Adjustment