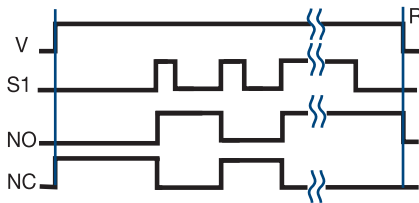


The NLF1 and NLF2 Series provide a flip-flop latching function. Each time the control switch is closed, the solid-state output changes state and latches. The NLF Series has no isolation between the control switch and the solid-state output, which lowers cost and reduces the number of connections required. For use where the control switch is the same voltage source as the load. Zero voltage switching NLF2 extends the life of an incandescent lamp by up to 10 times. Random switching NLF1 is ideal for inductive loads. When accessory 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 39 for connection diagram.

Function:



V = Voltage
S1 = Initiate Switch
R = Reset
NO = Normally Open Output
NC = Normally Closed Output
— = Undefined time

Operation

The solid-state output is located between terminals 1 and 2, and can be ordered as either normally open or normally closed, when voltage is applied. When S1 is closed, the solid-state output between terminals 1 and 2 closes (or opens). If S1 is opened and reclosed, the solid-state output will open (or close).

Reset: Open and reclose S1. Reset is also accomplished by removing and reapplying input voltage.

Features:

- Totally solid-state latching relay - encapsulated
- Non-isolated to reduce cost
- 1 - 20A with 200A inrush
- 24, 120, or 230VAC input voltages
- NLF1 - Random switching for inductive loads
- NLF2 - Zero voltage switching for lamp & resistive loads

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:

NLF126A
NLF141A
NLF1620A

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

Order Table:

X Series	X Input	X Output Rating	X Output Form
-NLF1 - Random Switching -NLF2 - Zero Voltage Switching	-2 - 24VAC -4 - 120VAC -6 - 230VAC	-1 - 1A -6 - 6A -10 - 10A -20 - 20A	-A - Normally Open -B - Normally Closed

Specifications

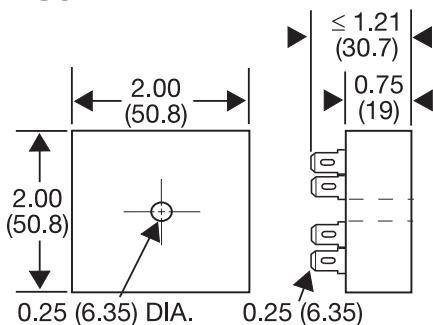
Output	
Type	Non-isolated solid state
Form	SPST, NO or NC
Ratings	Steady State Inrush* Output Device
	1A 10A SCR & Bridge Rectifier
	6A 60A Triac
	10A 100A Triac
	20A 200A Triac
Minimum Load Current	50mA
Voltage Drop (at Rated Current)	≅ 2.0V - 6, 10, & 20A units; ≅ 2.5V - 1A units
Leakage Current (Open State)	≅ 5mA
Input	
Type	Non-isolated, switch contact (customer supplied)
Voltage	24, 120, or 230VAC ±20%
Power Consumption	≅ 0.5W
Operations Per Second	≅ 5

Protection	
Circuitry	Encapsulated
Dielectric Breakdown	≥ 2000V RMS terminals to mounting surface
Insulation Resistance	≥ 100MΩ
Mechanical	
Mounting*	Surface mount with one #10 (M5 x 0.8) screw
Dimensions	6, 10, 20A units 2 x 2 x 1.51 in. (50.8 x 50.8 x 38.4 mm)
	1A units 2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm)
Termination	0.25 in. (6.35 mm) male quick connect terminals
Environmental	
Operating / Storage Temperature	-20° to 60°C / -40° to 85°C
Humidity	95% relative, non-condensing
Weight	1A units: ≅ 2.4 oz (68 g); 6, 10, 20A units: ≅ 3.9 oz (111 g)

*Units rated ≥ 6A 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

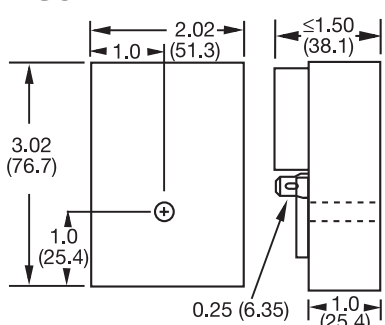
FIGURE 1



0.25 (6.35) DIA. 0.25 (6.35)

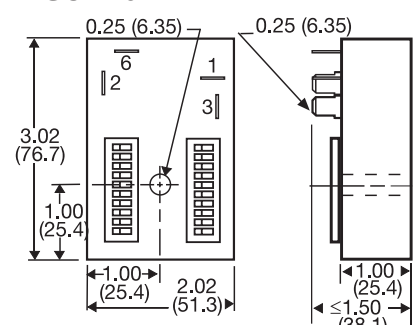
CT; ESD5; ESDR; FS100; FS200; FS300; KR3; KR9; KRDB; KRDI; KRDM; KRDR; KRDS; KRPD; KRPS; KSD1; KSD2; KSD3; KSD4; KSDB; KSDR; KSDS; KSDU; KSPD; KSPS; KSPU; KVM; T2D; TA; TAC1; TAC4; TDU; TDUB; TDUI; TDUS; TL; TMV8000; TS1; TS2; TS4; TS6; TSB; TSD1; TSD2; TSD3; TSD4; TSD6; TSD7; TSDB; TSDR; TSDS; TSS;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

FIGURE 2



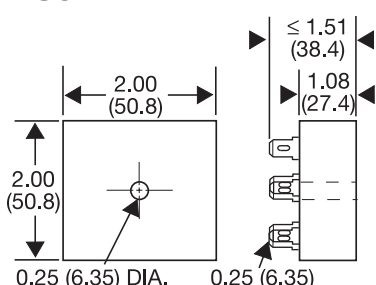
HLV; HRD3; HRD9; HRDB; HRDI; HRDM; HRDR; HRDS; HRID; HRIS; HRIU; HRPD; HRPS; HRPV; HRV; RS

FIGURE 3



HSPZ

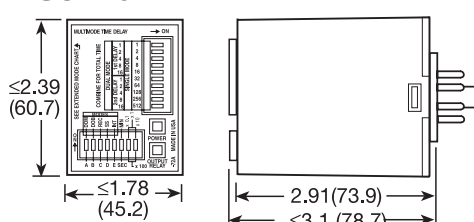
FIGURE 4



0.25 (6.35) DIA. 0.25 (6.35)

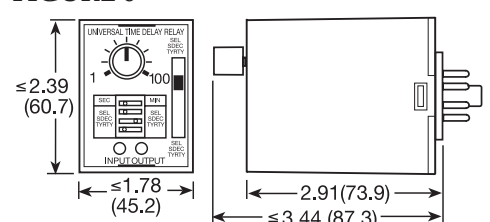
FA; FS; FSU1000*; NHPD; NHPS; NHPV; NLF1*; NLF2*; PHS*; PTHF*; SIR1; SIR2; SLR1*; SLR2*; TH1; TH2; THC; THD1; THD2; THD3; THD4; THD7; THDB; THDM; THDS; THS

FIGURE 5



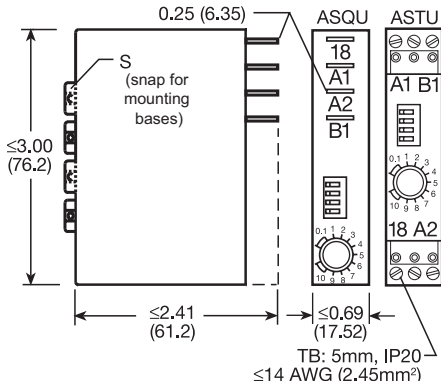
TRDU

FIGURE 6



TRU

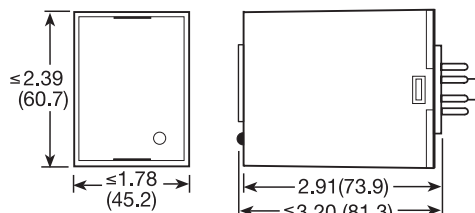
FIGURE 7



ASQU; ASTU; DSQU; DSTU

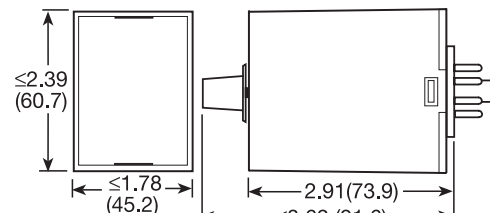
TB: 5mm, IP20
≤14 AWG (2.45mm²)

FIGURE 8



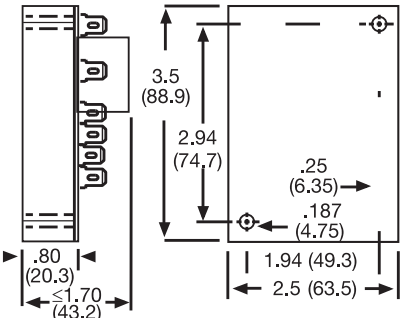
PLM; PLR; TDB; TDBH; TDBL; TDI; TDIH; TDIL; TDM; TDMB; TDMH; TDML; TDR; TDS; TDSH; TDSL

FIGURE 9



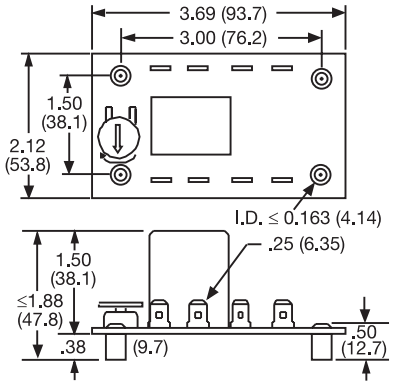
FS500; PRLB; PRM; PRLS; TRB; TRM; TRS

FIGURE 10



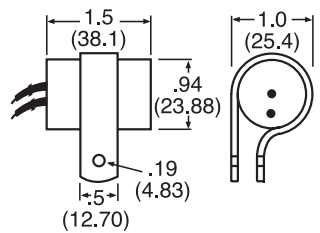
ERD3; ERDI; ERDM

FIGURE 11



ORB; ORM; ORS

FIGURE 12

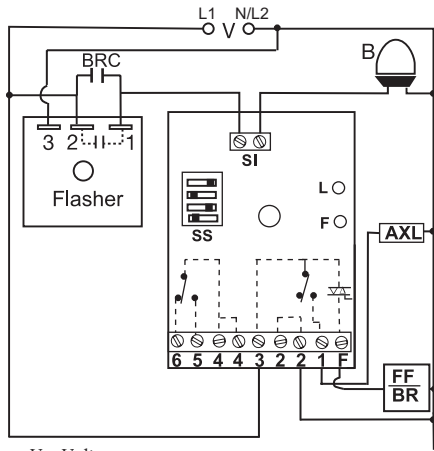


FS100; FS400

inches (millimeters)

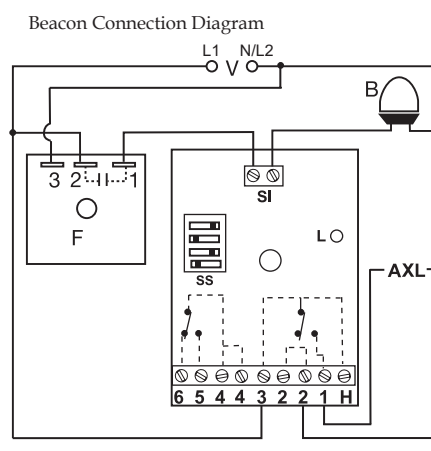
Appendix C - Connection Diagrams

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

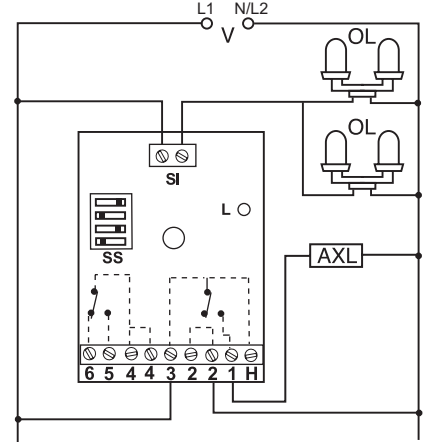
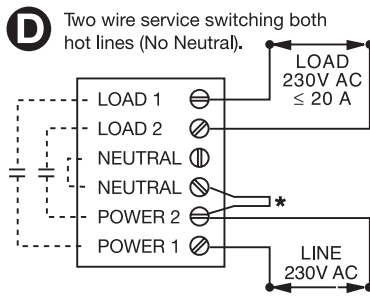
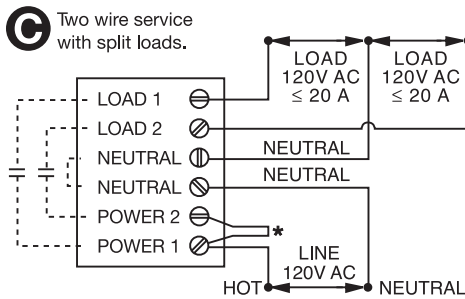
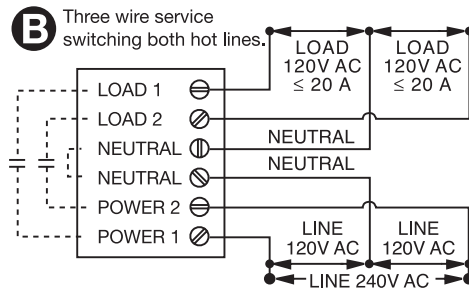
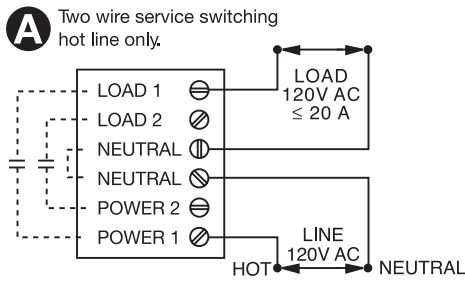
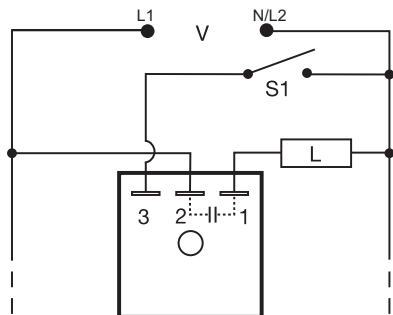


FIGURE 36 - PCR Series



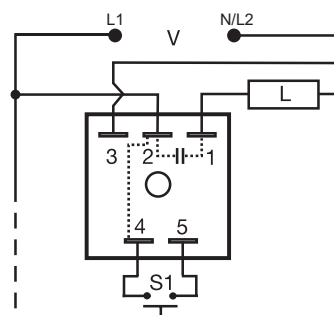
* Customer Supplied Jumper - - - - Internal Connection

FIGURE 38 - SLR Series



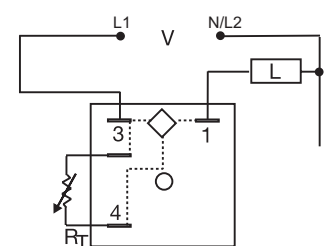
L = Load
 S1 = Initiate Switch
 Note: Normally open output is shown. Normally closed output is also available.

FIGURE 39 - NLF1/NLF2 Series



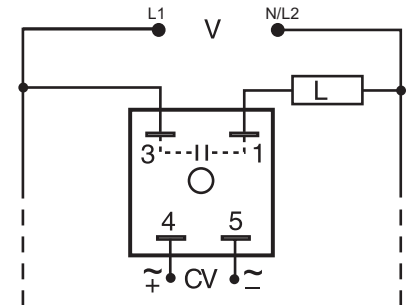
L = Load
 S1 = Control Switch
 Internal connections between terminals 2 & 4.

FIGURE 40 - PHS Series



Triac Output Device
 V = Voltage
 L = Load
 R_T = External Adjustment

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.