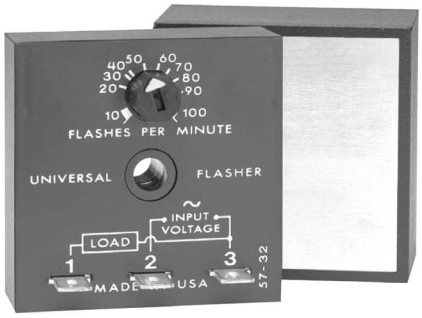


The FSU1000 incorporates an onboard adjustable flash rate of 10 to 100 FPM and a universal input voltage in one device. Its circuitry is encapsulated and is capable of controlling loads of up to 20A. The versatility of the FSU1000 makes it ideal for applications where various flash rates and operating voltages are required.

Operation

When input voltage is applied to terminal 2 and the load (lamp), the load energizes steadily. When input voltage is applied to terminal 3, the output flashes.
Optional Low Current Switch (S1)
This low current switch could be a limit switch or contact. While open, the operator sees the load (lamp) ON and operating. When the limit switch closes, the load (lamp) flashes to attract attention.

For more information see:
Appendix A, page 164 for Flasher (NC) function.
Appendix B, page 165, Figure 4 for dimensional drawing.
Appendix C, page 168, Figure 1 for connection diagram.

Features:

- All solid state – no moving parts or contacts
- Onboard adjustable flash rate
- Loads up to 20A
- High inrush up to 200A
- Universal voltage 24 to 240VAC

Approvals: CE cULus

Auxiliary Products:

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

Order Table:

Rating	Inrush Rating	Part Number
1A	10A	FSU1000
6A	60A	FSU1003
10A	100A	FSU1004
20A	200A	FSU1005

Available Models:

FSU1000
FSU1003
FSU1004

Specifications

Technical Data
Operation ..... ON/OFF recycling solid-state flasher (continuous duty)
Flash Rate ..... Adjustable 10 - 100 FPM
ON/OFF Ratio ..... ≅ 50%
Input
Range/Frequency ..... 24 to 240VAC/50/60Hz
Output
Load Type ..... Inductive, resistive, or incandescent
Maximum Load Rating ..... 1, 6, 10, or 20A steady state
Inrush ..... 10 times steady state current

Mechanical
Mounting* ..... Surface mount with one #10 (M5 x 0.8) screw
Dimensions ..... 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
Protection
Circuitry ..... Encapsulated
Environmental
Operating / Storage Temperature .. -20° to 60°C (240VAC +50°C) / -40° to 85°C
Weight ..... 1A units: ≅ 2.4 oz (68 g)
≥ 6A 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.

The FS100 Series (low amp) may be used to control inductive, incandescent or resistive loads. This series offers a 1A (fullwave) or a 2A (halfwave) steady state, 10A inrush solid-state output and may be ordered with an input voltage of 24 or 120VAC. The FS100 Series offers a factory fixed flash rate of 75 FPM or may be ordered with a fixed, custom flash rate ranging from 45 to 150 FPM. Ideal for OEM applications where cost is a factor.

Operation

Upon application of input voltage, the T2 OFF time begins. At the end of the OFF time, the T1 ON time begins and the load energizes. At the end of T1, T2 begins and the load de-energizes. This cycle repeats until input voltage is removed.
Reset: Removing input voltage resets the output and the sequence to T2.

For more information see:
Appendix A, page 164 for Flasher (OFF First) function.
Appendix B, page 165, Figure 12 for dimensional drawing.
Appendix C, page 168, Figure 2 for connection diagram.

Features:

- Fixed flash rate 75 FPM
- Custom flash rate 45 - 150 FPM
- 1 or 2A output
- 24 or 120VAC
- Small size: 1.5 x 0.94 in. (38 x 23.9 mm)

Approvals: CE cULus CSA

Available Models:

FS126
FS126-45
FS126-60
FS126RC
FS126RC-90
FS127
FS146
FS146RC

Order Table:

Input	Output Rating	Output Type	Load Type*	Part Number
120VAC	1A	AC, Fullwave	A	FS126
120VAC	1A	AC, Fullwave	B	FS126RC
120VAC	2A	AC, Halfwave	A	FS127
24VAC	1A	AC, Fullwave	A	FS146
24VAC	1A	AC, Fullwave	B	FS146RC
24VAC	2A	AC, Halfwave	A	FS147

*Load Type:
A-Incandescent & Resistive
B-Incandescent, Resistive & Inductive

Add the suffix "-##" to any part number to indicate the custom flash rate.

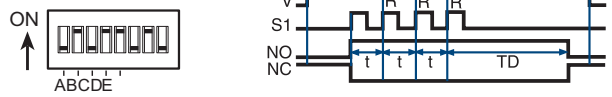
Specifications

Technical Data
Operation ..... OFF/ON solid-state flasher (continuous duty)
Flash Rate ..... Factory fixed at 75 FPM ±20%
Custom Flash Rates Available ..... From 45 - 150 FPM ±20%
ON/OFF Ratio ..... ≅ 50%
Input
Voltage ..... 24, 120VAC, ±15%
AC Line Frequency 50/60Hz
Output
Output ..... Fullwave AC or Halfwave rectified AC
Load Type ..... Incandescent, resistive, or inductive
(Choose RC suffix for inductive loads)
Maximum Load Rating ..... Fullwave: 1A steady state
Halfwave: 2A steady state
Inrush 10A
Mechanical
Mounting ..... Removable mounting bracket, use one #8 (M4 x 0.7) screw
Connection/Wires ..... 18 AWG (0.82mm^2) wires 6 in. (15.2cm)
Dimensions ..... 1.5 x 0.94 in. (38.1 x 23.9 mm)
Protection
Circuitry ..... Encapsulated
Environmental
Operating / Storage Temperature .. -20° to 60°C / -40° to 85°C
Humidity ..... 95% relative, non-condensing
Weight ..... ≅ 1.1 oz (31 g)

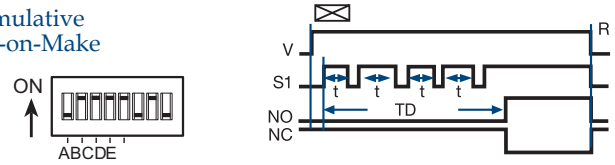
Appendix A - Timer/Flasher Functions

Single Functions

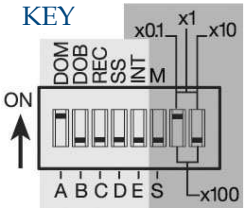
Retriggerable Single Shot



Accumulative Delay-on-Make



KEY



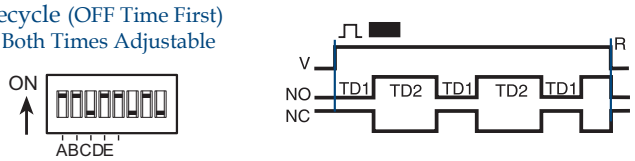
V=Voltage, R=Reset, S1=Initiate Switch, NO=Normally Open Contact, NC=Normally Closed Contact, TD,TD1,TD2=Complete Time Delay, t=Partial Time Delay, DOM=Delay-on-Make, DOB=Delay-on-Break, REC=Recycle, SS=Single Shot, INT=Interval, M=Minutes, S=Seconds, ≠ Undefined time

5 Switches for Function Selection
3 Switches for Time Delay Range

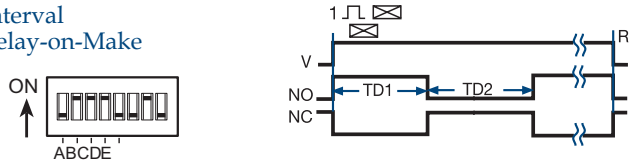
NOTE: The time delay range is the same for both functions when dual functions are selected.

Dual Functions

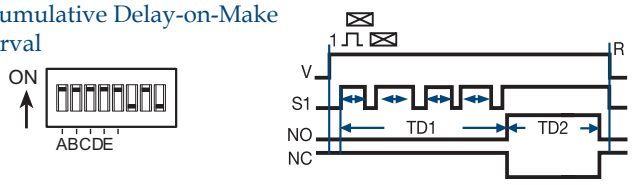
* Recycle (OFF Time First) Both Times Adjustable



* Interval Delay-on-Make



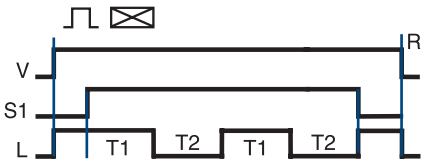
Accumulative Delay-on-Make Interval



* 9 Functions included in the 8 pin DPDT models

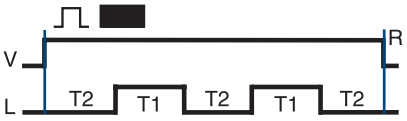
Flasher Function Diagrams

Flasher (NC)



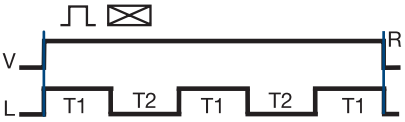
V = Voltage S1 = Initiate Switch L = Load
R = Reset T1 = ON Time T2 = OFF Time
T1 ≅ T2

Flasher (OFF First)



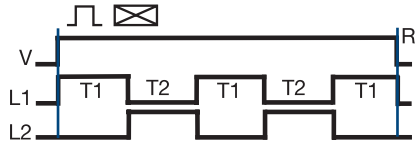
V = Voltage R = Reset L = Load
T1 = ON Time T2 = OFF Time
T1 ≅ T2

Flasher (ON First)



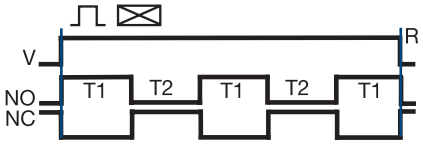
V = Voltage R = Reset L = Load
T1 = ON Time T2 = OFF Time T1 ≅ T2
ON time plus OFF time equals one complete flash.

Flasher (Alternating)



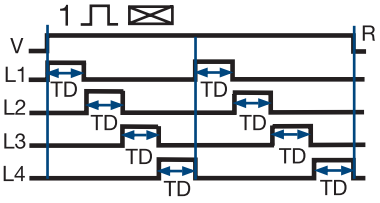
V = Voltage L1 = Load 1 L2 = Load 2
R = Reset T1 = ON Time T2 = OFF Time
T1 ≅ T2

Flasher (ON First-DPDT)



V = Voltage R = Reset
T1 = ON Time T2 = OFF Time
NO = Normally Open NC = Normally Closed

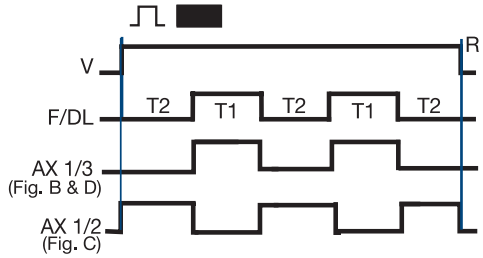
Flasher (Chasing)



SC4 shown; SC3, L4 is eliminated and L1 TD begins as soon as L3 TD is completed.

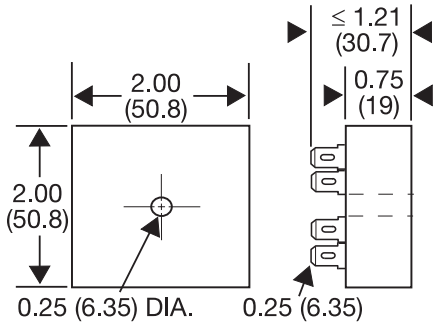
V = Voltage R = Reset L (1...4) = Lamps
TD = Time Delay (all are equal)

Flashers & Aux. Modules



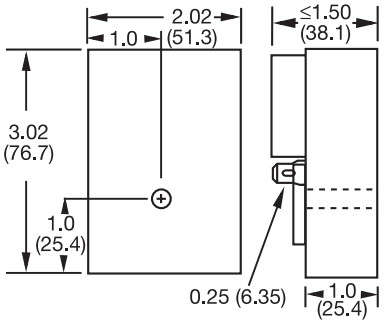
V = Voltage L = Load T1 = ON Time
T2 = OFF Time R = Reset
T1 ≅ T2

FIGURE 1



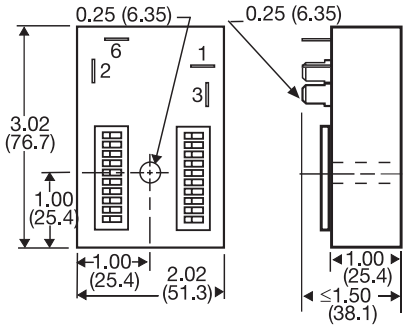
CT; ESD5; ESDR; FS100; FS200; FS300; KRD3; KRD9; KRDB; KRDI; KRDM; KRDR; KRDS; KRPD; KRPS; KSD1; KSD2; KSD3; KSD4; KSDB; KSDR; KSDS; KSDU; KSPD; KSPS; KSPU; KVM; T2D; TA; TAC1; TAC4; TDU; TDUB; TDUI; TDUS; TL; TMV8000; TS1; TS2; TS4; TS6; TSB; TSD1; TSD2; TSD3; TSD4; TSD6; TSD7; TSDB; TSDR; TSDS; TSS; TSU2000

FIGURE 2



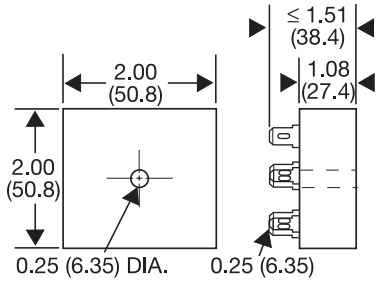
HLV; HRD3; HRD9; HRDB; HRDI; HRDM; HRDR; HRDS; HRID; HRIS; HRIU; HRPD; HRPS; HRPU; HRV; RS

FIGURE 3



HSPZ

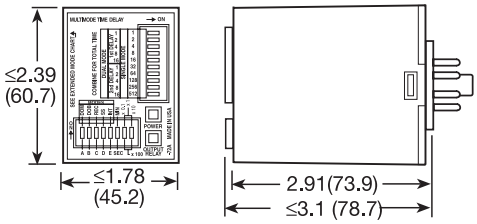
FIGURE 4



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

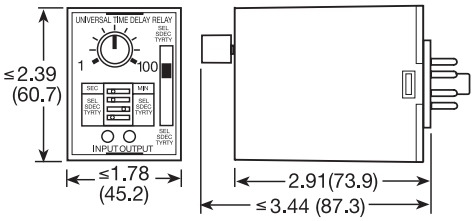
*If unit is rated @ 1A, see Figure 1

FIGURE 5



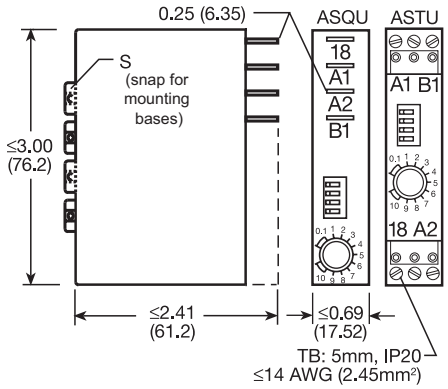
TRDU

FIGURE 6



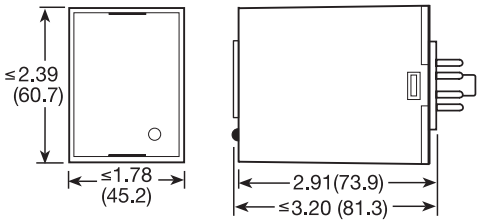
TRU

FIGURE 7



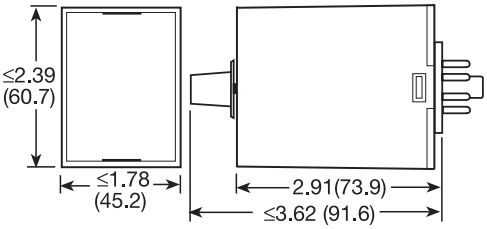
ASQU; ASTU; DSQU; DSTU

FIGURE 8



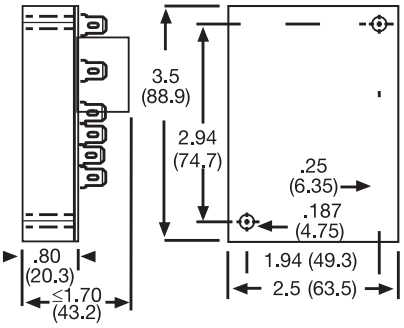
PLM; PLR; TDB; TDBH; TDBL; TDI; TDIH; TDIL; TDM; TDMB; TDMH; TDML; TDR; TDS; TDSH; TDSL

FIGURE 9



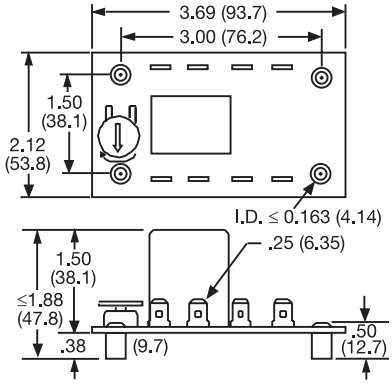
FS500; PRLB; PRLM; PRLS; TRB; TRM; TRS

FIGURE 10



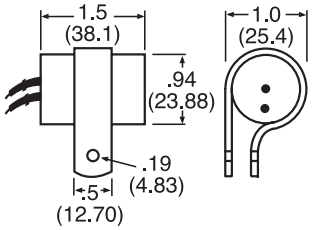
ERD3; ERDI; ERDM

FIGURE 11



ORB; ORM; ORS

FIGURE 12

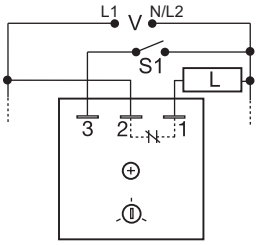


FS100; FS400

inches (millimeters)

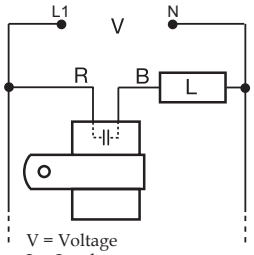
Appendix C - Connection Diagrams

FIGURE 1 - FSU1000 Series



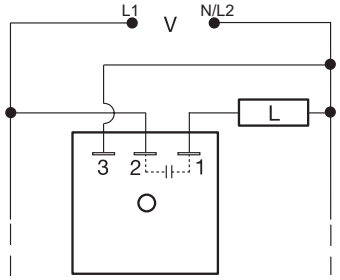
S1 = Optional low current switch
V = Voltage
L = Load

FIGURE 2 - FS100 Series



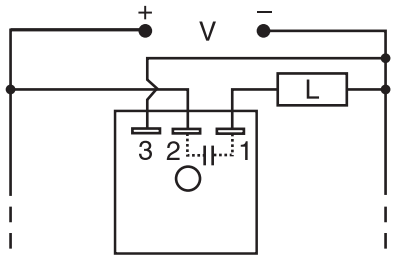
V = Voltage
L = Load
R = Red Wire
B = Black Wire

FIGURE 3 - FS100 Series



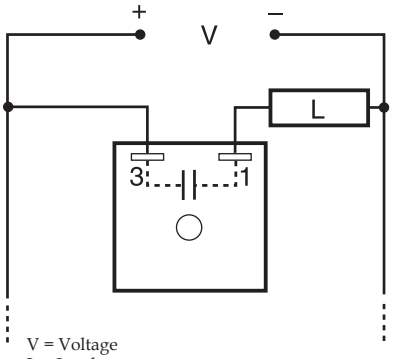
V = Voltage
L = Load

FIGURE 4 - FS200 Series



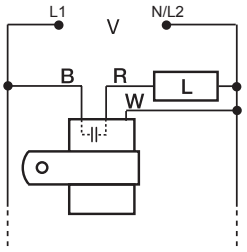
V = Voltage
L = Load

FIGURE 5 - FS300 Series



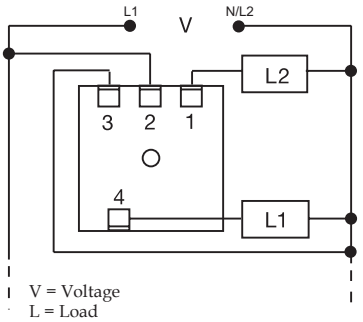
V = Voltage
L = Load
Note: Load may be in positive side.

FIGURE 6 - FS400 Series



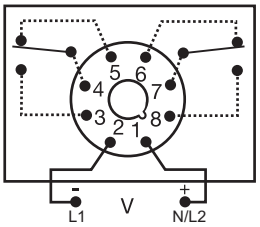
V = Voltage
L = Load
R = Red Wire
B = Black Wire
W= White Wire

FIGURE 7 - AF Series



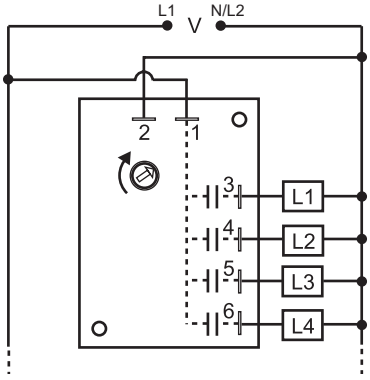
V = Voltage
L = Load

FIGURE 8 - FS500 Series



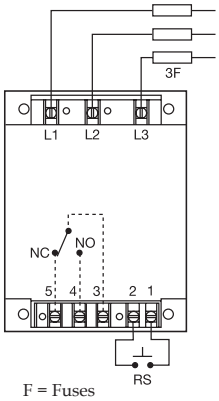
V = Voltage

FIGURE 9 - SC3/SC4 Series



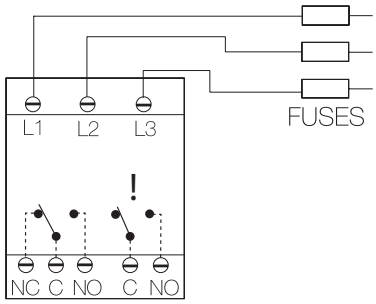
SC4 shown;
for SC3, terminal 6 & load L4 are eliminated.

FIGURE 10 - WVM Series



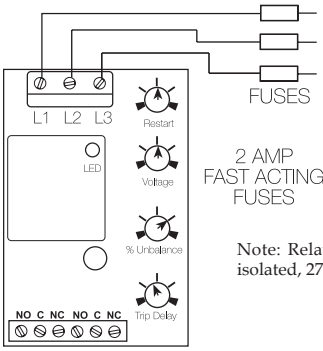
F = Fuses
NO = Normally Open
NC = Normally Closed
RS = Optional Remote Reset Switch
Relay contacts are isolated.
CAUTION:
2 amp max fast acting fuses must be installed externally in series with each input. (3)

FIGURE 11 - DLMU Series



L1, L2, L3 = Line Voltage Input
NO = Normally Open Contact
NC = Normally Closed Contact
C = Common, Transfer Contact
CAUTION: 2 amp max. fast acting fuses are recommended to protect the equipment's wiring. They are not required to protect the DLMU.
! = Select alarm contact connection as N.O. or N.C. when ordering; N.O. Shown.

FIGURE 12 - HLMU Series

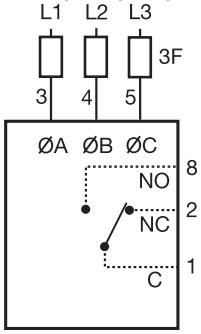


2 AMP
FAST ACTING
FUSES

Note: Relay contacts are isolated, 277VAC max.

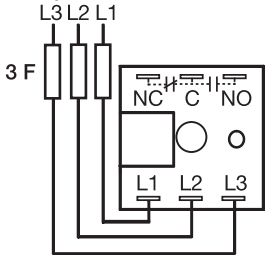
L1, L2, L3 = Line Voltage Input
NO = Normally Open Contact
NC = Normally Closed Contact
C = Common, Transfer Contact
CAUTION: 2 amp max. fast acting fuses are recommended to protect the equipment's wiring. They are not required to protect the HLMU.

FIGURE 13 - PLMU/PLM/PLR/PLS Series



F = Fuses
ØA = Phase A = L1
ØB = Phase B = L2
ØC = Phase C = L3
NO = Normally Open
NC = Normally Closed
2A fast acting fuses recommended for safety (not required)
Relay contacts are isolated.

FIGURE 14 - TVM/TVW Series



L1 = Phase A
L2 = Phase B
L3 = Phase C
NO = Normally Open
NC = Normally Closed
C = Common, Transfer Contact
Relay contacts are isolated.
F = 2A Fast acting fuses are recommended, but not required

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