

# PHASE LOSS & REVERSAL

## PLP SERIES



THREE-PHASE MONITOR RELAYS | PLUG-IN



- ◆ Protects against phase loss & phase reversal
- ◆ Universal voltage range of 190-500V—greater range that covers more global applications
- ◆ True RMS voltage measurement ensures accurate sensing across more applications
- ◆ Retains fault indication & continues to monitor voltages even with lost phase
- ◆ Full fault indication on top of unit for easy troubleshooting
- ◆ Compact plug-in case utilizing industry-standard 8 pin octal socket
- ◆ 10A SPDT output contacts



**PLP Series Three-Phase Monitor Relays** continuously monitor all voltages of a three-phase system. They are used to protect motors and equipment from expensive damage due to phase loss and phase reversal. One version will work on any three-phase system from 190-500V—no adjustment or special set up is required. These products detect single phasing regardless of regenerative voltages.

The PLP Series incorporates a microprocessor-based design capable of advanced signal processing including *True RMS voltage measurement*. Innovative analog-to-digital sensing circuitry allows for true full-wave monitoring of all three phases, delivering the highest level of protection possible.

True RMS voltage measurement ensures accurate sensing in most generator and other applications with non-sinusoidal wave forms, eliminating nuisance tripping. Full wave monitoring provides a more accurate method to measure the voltages, regardless of load type or wave shape, resulting in improved protection across more applications.

Unlike similar three-phase monitor relays, these products will *continue to function even with a lost phase*. They are the only line-powered units in their class to retain fault indication and continuous monitoring of all voltages during a phase loss, increasing the ease of troubleshooting and the level of protection.

### Operation:

When the proper three-phase line voltage is applied to the unit and the phase sequence (rotation) is correct, the relay is energized. A phase loss or phase reversal condition will de-energize the relay after a delay. Re-energization is automatic upon correction of the fault condition. A bi-color status LED indicates normal condition and also provides specific fault indication to simplify troubleshooting.

### PLP SERIES

PROTECTS AGAINST	LINE-LINE VOLTAGE▲ (50/60 Hz)	CATALOG NUMBER	WIRING/SOCKET
Phase Reversal & Phase Loss	190-500V	PLPU ●	8 Pin Octal 70169-D ØA ØB ØC  DIAGRAM 23

- ▲ Phase-to-Phase (Line-to-Line).
- Requires a 600V-rated socket when used on system voltages above 300V.

Sockets & Accessories available



Better. By Design.

**800.238.7474**  
**WWW.MACROMATIC.COM**  
**SALES@MACROMATIC.COM**

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### APPLICATION DATA

**Three-Phase Line-Line Voltage Range:**

190-500V, 50/60Hz  $\pm$ 5%

**Minimum Voltage:** 156V

**Maximum Voltage:** 550V

**Power Consumption:** Less than 40VA.

**Phase Loss:**

Unit trips on loss of any Phase A, B or C, regardless of any regenerative voltages.

**Phase Reversal (Out-of-Sequence):**

Unit trips if sequence (rotation) of the three phases is anything other than A-B-C. It will not work on C-B-A.

**Response Times:**

Restart: 1 second fixed

Drop-out Due to Fault:

Phase Loss and Reversal: 100ms fixed

**Output Contacts:** 10 A @ 277V AC / 7A @ 30V DC;  
1HP @ 250V AC, 1/2HP @ 125V AC,  
C300 Pilot Duty

**Life:** Mechanical: 10,000,000 operations; Full Load: 100,000 operations

**Temperature:** Operating: -28° to 65°C (-18° to 149°F)  
Storage: -40° to 85°C (-40° to 185°F)

**Mounting:** Uses an 8 pin octal socket. Requires a 600V-rated socket when used on system voltages greater than 300V such as Macromatic Catalog Number 70169-D.

**Status LED:**

	LED STATUS	STATUS
GREEN		NORMAL/RELAY ON
		RESTART DELAY
RED		REVERSAL
		LOSS

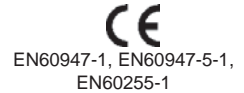
**Reset:**

As standard, reset is automatic upon correction of fault.

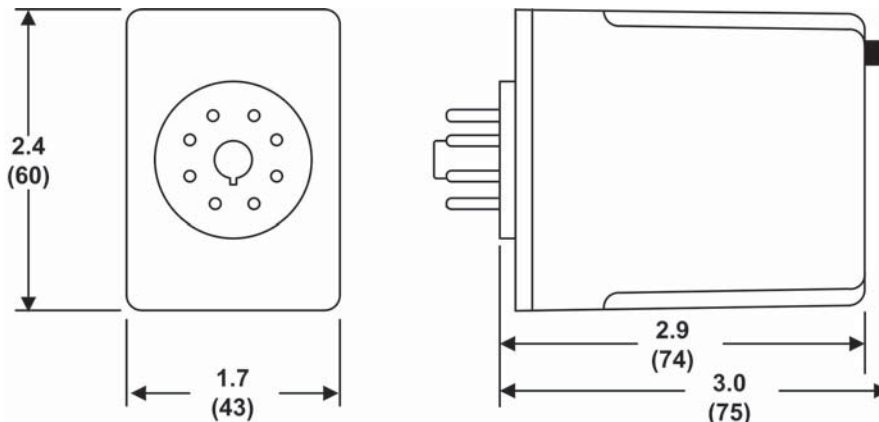
**Approvals:**



w/ appropriate socket  
File #E109466



### DIMENSIONS



All Dimensions in Inches (Millimeters)