PHASE LOSS, PHASE REVERSAL & UNDERVOLTAGE

PAP Series

NEW!

- Protects against phase loss, phase reversal & undervoltage
- True RMS voltage measurement ensures accurate sensing across more applications
- Retains fault indication and continues monitoring all voltages even with a 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

with appropriate socket

PAP 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, phase reversal and undervoltage. These products detect single phasing and unbalanced voltages regardless of regenerative voltages.

The PAP Series incorporate 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. Any one of three fault conditions 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.

PAP SERIES

PROTECTS AGAINST	LINE-LINE VOLTAGE▲ 50/60 Hz	UNDER-VOLTAGE RANGE	CATALOG NUMBER	WIRING/ SOCKET
Phase Loss, Phase Reversal, & Undervoltage	208V	156-198V	PAP208	8 Pin Octal **70169-D**
	240V	180-230V	PAP240	
	400V	300-380V	PAP400 ●	
	480V	360-460V	PAP480 ●	
	575V	431-546V	PAP575 ●	

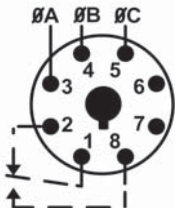


DIAGRAM 23

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

Sockets & Accessories available

PHASE LOSS, PHASE REVERSAL & UNDERVOLTAGE

PAP Series

Application Data

Voltage Requirements:

Catalog No.	Range (50/60Hz ±5%)	MIN VOLTAGE	MAX VOLTAGE
PAP208	156-198V	156V AC	550V AC
PAP240	180-230V	156V AC	550V AC
PAP400	330-380V	156V AC	550V AC
PAP480	360-460V	156V AC	550V AC
PAP575	431-546V AC	390V AC	660V AC

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.

Undervoltage:

Adjustable from 75-95% of the line voltage setting. Unit trips when the average of all three lines is less than the adjusted set point for a period longer than the adjustable trip delay. It will reset at +3% of the Undervoltage trip setting.

Response Times:

Restart: 1 second fixed
Drop-out Due to Fault:
Phase Loss and Reversal: 100ms fixed
Undervoltage: 4 seconds 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: -28º to 65ºC (-18º to 149ºF)
Storage: -40º to 85ºC (-40º to 185ºF)

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
	⎍⎍ ⎍⎍	UNDERVOLTAGE

Reset:

As standard, reset is automatic upon correction of fault.

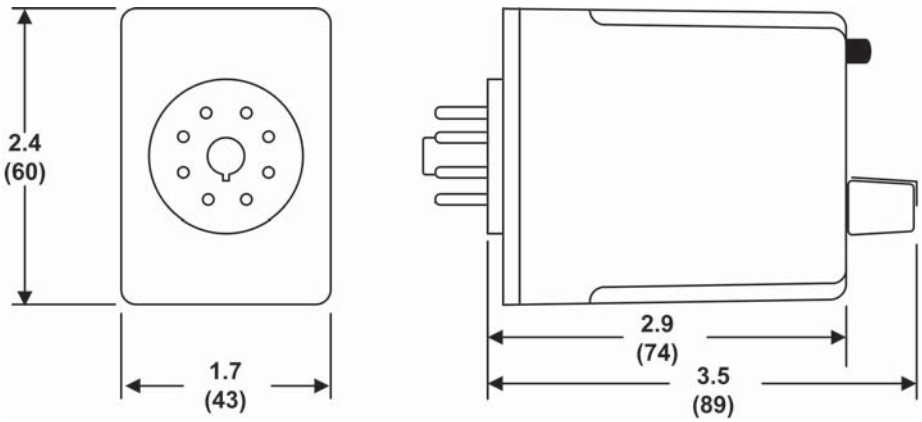
Approvals:

c US File #E109466

CE Low Voltage & EMC Directives EN60947-1, EN60947-5-1

c UL us with appropriate socket File #E109466

Dimensions



All Dimensions in Inches (Millimeters)