

# PHASE MONITOR RELAYS

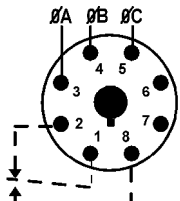
## PAP SERIES PHASE LOSS, PHASE REVERSAL & UNDERVOLTAGE PLUG-IN



- ◆ Protects against phase loss, phase reversal & undervoltage
- ◆ Undervoltage setting is adjustable from 75-95% of nominal
- ◆ LED indicates both normal and fault conditions
- ◆ Compact plug-in case utilizing industry-standard 8 pin octal socket
- ◆ 10A SPDT output contacts
- ◆ **cUL** **US** **UL** LISTED  
(with appropriate socket)

The PAP Series Phase Monitor Relays provide protection against phase loss, phase reversal & undervoltage in a compact plug-in design. These devices are designed to be compatible with most Wye or Delta systems with no connection to Neutral required. Phase Monitor Relays protect against single phasing regardless of any regenerative voltages.

The relay is energized and the LED on when all three phase are present in the correct sequence at a voltage level above the undervoltage setting. The undervoltage drop-out can be set at 75-95% of operating voltage. Any fault will instantaneously de-energize the relay and turn off the LED. Re-energization is automatic upon correction of the fault condition.

| PROTECTS AGAINST                                 | NOMINAL VOLTAGE▲<br>50/60 Hz | UNDER-VOLTAGE RANGE | PRODUCT NUMBER | WIRING/<br>SOCKET■   |
|--|------------------------------|---------------------|----------------|--|
| Phase Loss,<br>Phase Reversal,<br>& Undervoltage | 120V                         | 90-115V             | PAP120         | 8 Pin Octal<br><b>70169-D</b><br><br><b>DIAGRAM 23</b> |
|  | 208V                         | 156-198V            | PAP208         |  |
|  | 240V                         | 180-230V            | PAP240         |  |
|  | 400V                         | 300-380V            | PAP400 *       |  |
|  | 480V                         | 360-460V            | PAP480 *       |  |

▲ Phase-to-Phase (Line-to-Line).

\* Requires a 600V-rated socket when used on system voltages above 300V.

■ See Pages 80 & 81 for **Sockets & Accessories**.



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# PHASE MONITOR RELAYS

## PHASE LOSS, PHASE REVERSAL & UNDERVOLTAGE

### PAP SERIES PLUG-IN

#### APPLICATION DATA & DIMENSIONS

#### APPLICATION DATA

##### **Phase Loss:**

Unit trips on loss of any Phase A, B or C

##### **Phase Reversal:**

Unit trips if sequence of the three phases is anything other than A-B-C.

##### **Undervoltage:**

Adjustable over a range per product selection table. Unit trips when the average of all three lines is less than the adjusted set point.

##### **Output Contacts:**

10A Resistive SPDT @ 240V AC, 1/3HP @ 120/240V AC (N.O.), 1/6HP @ 120/240V AC (N.C.)

##### **Life:**

Full Load: 100,000 operations

##### **Response Times:**

Operate: 50ms

Release: 50ms

##### **Load (Burden):**

3VA

##### **Temperature:**

-28° to 65°C (-18° to 149°F)

##### **Transient Protection:**

10,000 volts for 20 microseconds

##### **Mounting:**

Uses an 8 pin octal socket. Requires a 600V-rated socket when used on system voltages greater than 300V (Macromatic Product Number 70169-D--see Page 80).

##### **Indicator LED:**

Red LED on when all conditions are normal, and off when a fault condition has occurred.

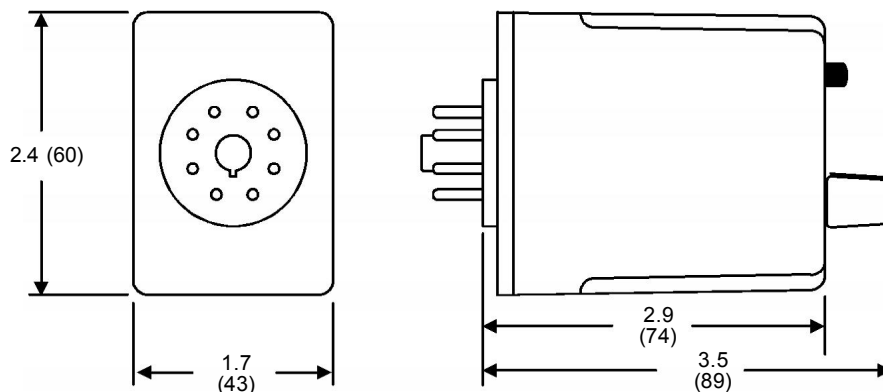
##### **Reset:**

Automatic upon correction of fault

##### **Approvals:**



#### DIMENSIONS



All Dimensions in  
Inches (Millimeters)