PHASE LOSS, PHASE REVERSAL, PHASE UNBALANCE, UNDervoltage & Overvoltage

PMPU-FA8 Series

The PMPU-FA8 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, phase unbalance, undervoltage and overvoltage faults as well as rapid cycling. These products detect single phasing and unbalanced voltages regardless of regenerative voltages.

The PMPU-FA8 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, the PMP Series 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.

The PMPU-FA8 is a true universal voltage product that works on any three-phase line-line voltage of 190-500V. The Voltage Line-Line knob on the PMPU-FA8 has two ranges: a 190-250V low voltage scale and a 380-500V high voltage scale. The unit auto senses the three-phase line-line voltage when applied and automatically selects the appropriate range.

Operation:
When the proper three-phase line voltage is applied to the unit and the phase sequence (rotation) is correct, the relay is energized after the Restart Delay is completed. Any one of five fault conditions will de-energize the relay after a delay. As standard, re-energization is automatic upon correction of the fault condition. Manual reset is available if an external momentary N.C. switch is connected to pins 6 and 7. A bi-color status LED indicates normal condition and also provides specific fault indication to simplify troubleshooting.

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Sockets & Accessories available
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PMPU-FA8 Series

Application Data

Voltage Requirements:

<table>
<thead>
<tr>
<th>RANGE (50/60Hz ±5%)</th>
<th>MIN VOLTAGE</th>
<th>MAX VOLTAGE</th>
<th>PRODUCT NUMBER</th>
</tr>
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<tbody>
<tr>
<td>190-500V AC (see below)</td>
<td>156V AC</td>
<td>550V AC</td>
<td>PMPU-FA8</td>
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</tbody>
</table>

Three-Phase Line-Line Voltage:
The Voltage Line-Line knob on the PMPU-FA8 has two ranges (left): a 190-250V low voltage scale and a 380-500V high voltage scale. The unit auto senses the 3-phase line-line voltage when applied and automatically selects the appropriate range.

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: Fixed at 90% 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 fixed 4 second trip delay. It will reset at +3% of the Undervoltage trip setting.

Overvoltage: Fixed at 110% of the line voltage setting. Unit trips when the average of all three lines is greater than the fixed set point for a period longer than the fixed 4 second trip delay. It will reset at 107% of the line voltage setting.

Phase Unbalance: Fixed at 6% unbalance. Unit trips when any one of the three lines deviates from the average of all three lines by more than the adjusted set point for a period longer than the fixed 4 second trip delay.

Response Times:
- Restart: 2 seconds fixed
- Drop-out Due to Fault: 300ms fixed
- Phase Loss and Reversal: 100ms fixed
- Undervoltage and Overvoltage: 4 seconds fixed
- Unbalance: Normal: 4 seconds fixed, Severe (>12%): 0.25 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: -28°C to 65°C (-18°F to 149°F), Storage: -40°C to 85°C (-40°F 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:

Reset: As standard, the PMPU-FA Series relays are in the Automatic Reset mode. However, they can be set in the Manual Reset mode by connecting an external N.C. switch across terminals 6 and 7.

Upon application of line voltage, the PMPU-FA8 Series will go into Manual Reset mode if it recognizes a closure across terminals 6 and 7. After a fault clears, the relay will not reset until the N.C. switch is opened.

Approvals:

Low Voltage & EMC Directives
- EN60947-1, EN60947-5-1
- File #E109466

Three-Phase Monitor Relays | Plug-In

Dimensions

All Dimensions in Inches (Millimeters)

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