

3 Phase Voltage Monitor

PLMU Series

Universal Plug-in Monitor



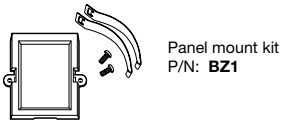
ANSI Device #27/47/59



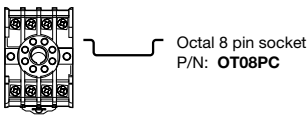
- Protects Against: Phase Loss, Phase Reversal, Overvoltage, Undervoltage, & Unbalanced Voltages
- Octal Plug-in with SPDT Isolated 10 A Contacts
- Operates from 200 ... 480 V AC
- LED Indicator Glows Green when Voltages are Acceptable, Red for Faults
- Simple 3-Wire Connection for Delta or Wye Systems
- ASME A17.1 rule 210.6
- NEMA MG1 14:30, 14:35
- IEEE C62.41-1991 Level B

Approvals:

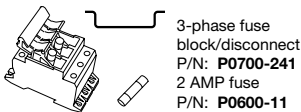
Accessories



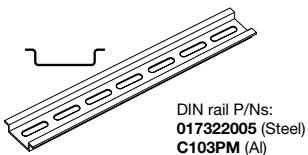
Panel mount kit
P/N: **BZ1**



Octal 8 pin socket
P/N: **OT08PC**



3-phase fuse block/disconnect
P/N: **P0700-241**
2 AMP fuse
P/N: **P0600-11**



DIN rail P/Ns:
017322005 (Steel)
C103PM (Al)

See accessory pages for specifications.

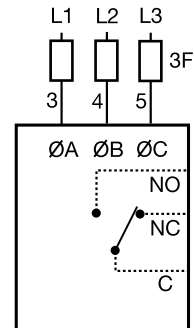
Description

The PLMU Series continuously measures the voltage of each of the three phases to provide protection for three phase motors and sensitive loads. Its microcontroller senses under and over voltage, voltage unbalance, phase loss, and phase reversal. Protection is provided even when regenerated voltages are present. Universal voltage operation and standard base connection allows the PLMU to replace hundreds of competitive part numbers.

Operation

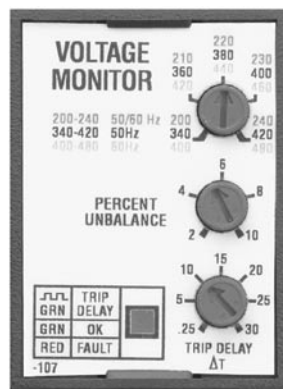
Upon application of power, a 0.6 s random start delay begins and the PLMU measures the voltage levels and line frequency and selects the voltage range. The output relay is energized and the LED glows green when all voltages are acceptable and the phase sequence is correct. LED flashes green during trip delay, glows red when output de-energizes. Undervoltage, overvoltage, and voltage unbalance must be sensed for continuous trip delay before the relay de-energizes. Re-energization is automatic upon fault correction. The output relay will not energize if a fault condition is sensed as three phase input voltage is applied. Line voltage is selected with the knob, setting the over and under voltage trip points. Voltage range is automatically selected by the microcontroller.

Connection



2 Amp Fast Acting Fuses Recommended For Safety (Not Required)

F = Fuses
 $\emptyset A$ = Phase A = L1
 $\emptyset B$ = Phase B = L2
 $\emptyset C$ = Phase C = L3
 NO = Normally Open
 NC = Normally Closed



Faceplate View

Relay contacts are isolated. Dashed lines are internal connections.

Ordering Table

| <u>Voltage Unbalance</u> | <u>Trip Delay</u> | <u>Part Number</u> |
|--------------------------|--------------------------|--------------------|
| Adjustable 2 ... 10% | Adjustable 0.25 ... 30 s | PLMU11 |

Available with Fixed Unbalance and Trip Delay

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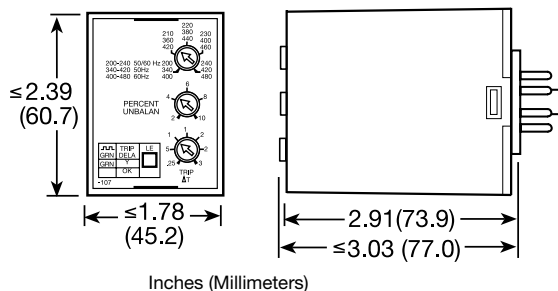
Voltage
Monitors

Technical Data

| | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----|-----|-----|-----|-----|-----|-----|----|---|----|-------|-----|-----|-----|-----|-----|-----|-----|-----|---|
| Line Voltage Type Line Voltage Adjustable Voltage Ranges (Automatic Range Selection) Maximum Voltage Phase Sequence Overvoltage, Undervoltage, & Voltage Unbalance Type Overvoltage & Undervoltage Undervoltage Trip Point Reset Voltage Overvoltage Trip Point Reset Voltage Voltage Unbalance Trip Point Reset on Balance (%): Selected Unbalance Reset | Three phase Delta or Wye with no connection to neutral 200 ... 480 V AC +/-15%; 50 ... 60 Hz +/-2 Hz 200 ... 240 V AC, 50 ... 60 Hz 340 ... 420 V AC, 50 Hz 400 ... 480 V AC, 60 Hz 552 V AC ABC Voltage detection with delayed trip & automatic reset 88 ... 92% of adjusted line voltage +2% of trip voltage 109 ... 113% of adjusted line voltage -2% of trip voltage Adjustable from 2 ... 10% or fixed 4 ... 10% <table border="1"> <tr> <td></td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> <tr> <td>Reset</td> <td>1.5</td> <td>2.5</td> <td>3.5</td> <td>4.5</td> <td>5.4</td> <td>6.3</td> <td>7.2</td> <td>8.1</td> <td>9</td> </tr> </table> | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Reset | 1.5 | 2.5 | 3.5 | 4.5 | 5.4 | 6.3 | 7.2 | 8.1 | 9 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | |
| Reset | 1.5 | 2.5 | 3.5 | 4.5 | 5.4 | 6.3 | 7.2 | 8.1 | 9 | | | | | | | | | | | | |
| Trip Delay Range Severe Unbalance - 2X Selected Unbalance Random Start Delay Phase Reversal & Phase Loss Trip Time Phase Loss Set Point Reset Type | Adj. from 0.25 ... 30 s or fixed 2 ... 30 s +/-15% 0.25 ... 2 s; disabled when the trip delay is less than 2 s \cong 0.6 s \leq 150 ms \geq 15% unbalance Automatic | | | | | | | | | | | | | | | | | | | | |
| Output Type Rating Life | Energized when voltages are acceptable 10 A resistive @ 240 V AC; 1/4 hp @ 125 V AC; 1/3 hp @ 250 V AC; max. voltage 277 V AC Mechanical -- 1×10^6 ; Electrical -- 1×10^5 | | | | | | | | | | | | | | | | | | | | |
| Protection Surge Isolation Voltage | IEEE C62.41-1991 Level B \geq 2500 V RMS input to output | | | | | | | | | | | | | | | | | | | | |
| Mechanical Mounting* Termination Package | Plug-in socket rated 600 V AC 8 Pin octal plug 3.03 x 2.39 x 1.78 in. (77.0 x 60.7 x 45.2 mm) | | | | | | | | | | | | | | | | | | | | |
| Environmental Operating Temperature Storage Temperature Weight | -40°C ... +60°C -40°C ... +85°C \cong 8.6 oz (244 g) | | | | | | | | | | | | | | | | | | | | |

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Mechanical View



PLMU2B01 06.08.04