3 Phase Voltage Monitor
PLM Series
Motor Protector

US Pat #6541954
ANSI Device # 47/27

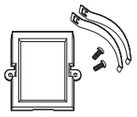
TEN YEAR 10 WARRANTY

- Protects Against: Phase Loss, Phase Reversal, Undervoltage, & Unbalanced Voltages
- 8 Pin Plug-in Base
- Adjustable Low Voltage Trip Point
- Factory Fixed Unbalance and Trip Delay
- Line Voltages 200...480 V AC, in 3 Ranges
- SPDT Isolated 10 A Relay Contacts
- ASME A17.1 rule 210.6
- NEMA MG1 14:30, 14:35
- IEEE C62.41-1991 Level B

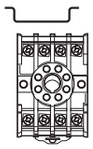
Approvals:

7

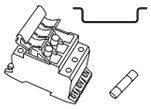
Accessories



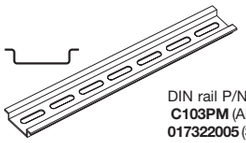
Panel mount kit
P/N: **BZ1**



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:
C103PM (Al)
017322005 (Steel)

See accessory pages for specifications.

Description

The PLM Series continuously measures the voltage of each of the three phases. The PLM Series uses a new microcontroller circuit design that senses Undervoltage, Voltage Unbalance, Phase Loss, and Phase Reversal. Protection is assured when regenerated voltages are present. Both Delta and Wye systems can be monitored; no connection to neutral is required.

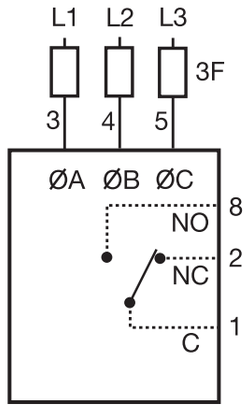
Operation

The output relay is energized and the LED glows green when all voltages are acceptable and the phase sequence is correct. Under and unbalanced voltages must be sensed for a continuous trip delay period before the relay de-energizes. Reset is automatic upon correction of the fault condition. The output relay will not energize if a fault condition is sensed as power is applied. The LED flashes red during the trip delay, then glows red when the output de-energizes. The LED flashes green/red if phase reversal is sensed.

Field Adjustment:

Set voltage adjustment knob at the desired operating line voltage for the equipment. This adjustment automatically sets the undervoltage trip point. Apply power. If the PLM fails to energize, (LED glows red) check wiring of all 3 phases, voltage, and phase sequence. If phase sequence is incorrect, the LED flashes green/red. To correct this, swap any two line voltage connections at the mounting socket. No further adjustment should be required.

Connection



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

Relay contacts are isolated.
Dashed lines are internal connections.

F = Fuses NO = Normally Open
NC = Normally Closed

Ordering Table

PLM	X	X	X
Series	**Line Voltage** 6 - 240 V AC 8 - 380 V AC 9 - 480 V AC	**Voltage Unbalance (Fixed)** Specify: 4, 5, 6, 7, or 8%	**Trip Delay (Fixed)** Specify from 2 ... 20 s in 1 s increments (Insert 0 before 1 ... 9)

Example P/N: PLM6405, PLM9410

PLM02B01 02.10.05

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Technical Data

Line Voltage		
Type		3 phase Delta or Wye with no connection to neutral
Operating Voltage:		**Model** / **Adj. Line Voltage Range** / **Line Voltage Max.**
		240 / 200 ... 240 V AC / 270 V AC
		380 / 360 ... 430 V AC / 480 V AC
		480 / 400 ... 480 V AC / 530 V AC
Line Frequency		50 ... 100 Hz
Phase Sequence		ABC
Power Consumption		≅ 2W for 240 V units ≅ 3W for 380 ... 480 V units
Low Voltage and Voltage Unbalance		
Type		Voltage detection with delayed trip & automatic reset
Low Voltage:	Trip Voltage	88 ... 92% of adjusted line voltage
	Reset Voltage	Plus 3% of trip voltage
Voltage Unbalance:	Trip Unbalance	Factory fixed from 4 ... 8%
	Reset on Balance	-0.7% unbalance typical
Trip Delay:	Range	Factory fixed from 2 ... 20 s
	Tolerance	+/-15%
Phase Reversal and Phase Loss		
Response Time --	Phase Reversal	≤ 200 ms
	Phase Loss	≤ 200 ms
Phase Loss		≥ 35% unbalance
Reset		Automatic
Output		
Type		Electromechanical relay
Form		Isolated single pole double throw (SPDT)
Rating		10 A resistive at 240 V AC, 277 V AC Max. 1/2 Hp at 240 V AC; 1/4 Hp at 120 V AC
Life		Mechanical -- 1 x 10^7; Electrical --1 x 10^5
Protection		
Surge		IEEE C62.41-1991 Level B
Isolation Voltage		≥ 2500 V RMS input to output
Mechanical		
Mounting*		8 pin plug-in socket rated 600 V AC
Package		3.2 x 2.39 x 1.78 in. (81.3 x 60.7 x 45.2 mm)
Environmental		
Operating Temperature		-40°C ... +60°C
Storage Temperature		-40°C ... +85°C
Weight		≅ 4.4 oz (125 g)

*CAUTION: Select an octal socket rated for 600 V AC operation.

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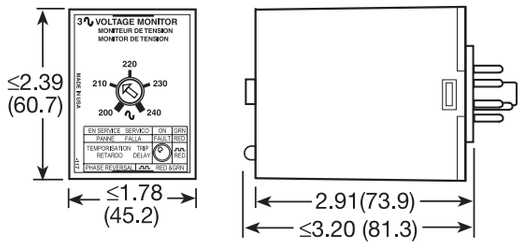
Mechanical View



Inches (Millimeters)

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