

3 Phase Voltage Monitor
PLM Series
Motor Protector



ANSI Device #47/27

- 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 8 A Relay Contacts



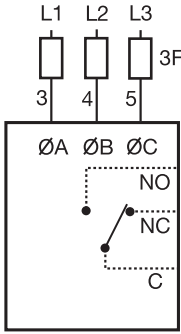
Description

The PLM Series continuously measures the voltage of each of the three phases. It separately senses Undervoltage, Voltage Unbalance (including Phase Loss), and Phase Reversal. Protection is assured during periods of large average voltage fluctuations, or when regenerated voltages are present. Both Delta and Wye systems can be monitored; no connection to neutral is required. 380 V AC and 480 V AC units are encapsulated.

Operation

The output relay is energized and the LED glows when all voltages are acceptable and the phase sequence is correct. Under and unbalanced voltages (including phase loss) must be sensed for a continuous trip delay period before the relay and the LED are de-energized. Re-energization is automatic upon correction of the fault condition. The output relay will not energize if a fault condition is sensed as power is applied. ASME A17.1 rule 210.6, NEMA MG1 14:30, 14:35, IEEE C62.41-1991 Level B

- Approvals:



2 Amp
Fast Acting
Fuses

F = Fuses
NO = Normally Open
NC = Normally Closed

Dashed lines are internal connections.

CAUTION: 2 amp max fast acting fuses must be installed externally in series with each input. (3) (Bussman KTK-2 or equivalent)

Ordering Table

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

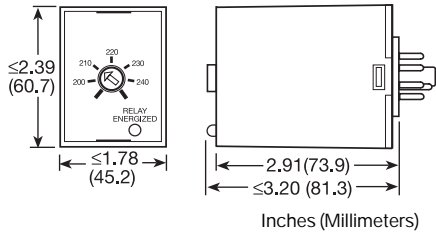
Example P/N: PLM6405

Technical Data

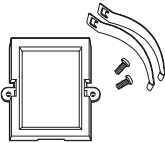
Line Voltage			3 phase Delta or Wye with no connection to neutral					
Type								
Operating Voltage:								
UL	CSA	Model	Adj. Line Voltage Range	Line Voltage Max.	Calibration Frequency			
•	•	240	200 ... 240 V AC	270 V AC	60 Hz			
•		380	360 ... 430 V AC	480 V AC	50 Hz			
•	•	480	400 ... 480 V AC	530 V AC	60 Hz			
Line Frequency			50 ... 60 Hz					
Phase Sequence			ABC					
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 (%):	Selected Unbalance	4	5	6	7	8
			Reset	3.6	4.5	5.4	6.3	7.2
Note: A 60 Hz unit used on 50 Hz will shift by -1. A 50 Hz unit used on 60 Hz will shift by +1. (Ex: 4% unbalance on 60 Hz would be 3% unbalance on 50 Hz.)								
Trip Delay:		Range	Factory fixed from 2 ... 20 s					
		Tolerance	+/-15%					
Phase Reversal								
Response Time -- Phase Reversal			≤ 100 ms					
Reset			Automatic					
Output								
Type			Electromechanical relay					
Form			Single pole double throw (SPDT)					
Rating			8 A resistive at 240 V AC					
Protection								
Surge			IEEE C62.41-1991 Level B					
Isolation Voltage			≥ 2500 V RMS input to output					
Circuitry			Encapsulated (380 & 480 V units only)					
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			240 & 380 V AC: -40°C ... +60°C 480 V AC: -40°C ... +50°C					
Storage Temperature			-40°C ... +85°C					
Weight		240 V AC	≅ 6.1 oz (173 g)					
		380 & 480 V AC	≅ 9.3 oz (264 g)					

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

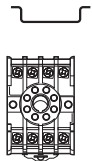
Field Adjustment: Set voltage adjustment knob at the desired operating line voltage. Apply power. If the relay fails to energize, check wiring of all 3 phases, voltage, and phase sequence. If phase sequence is incorrect, swap any two wires. No further adjustment should be required.



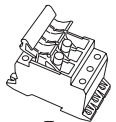
Accessories



Panel mount kit
P/N: BZ1



Octal
8-pin socket
P/N: OT08



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

DIN rail P/Ns:
C103PM (Al)
17322005 (Steel)



See accessory page at the end of this section.