

# 3 Phase Voltage Monitor PLR Series Motor Protector



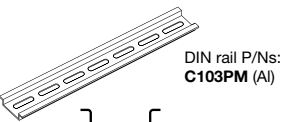
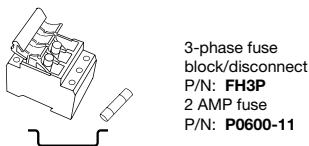
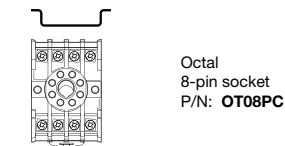
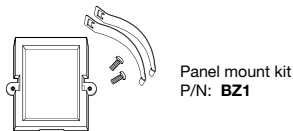
US Patent No. 6541954  
ANSI Device # 27/32



- Protects Against: Phase Loss (On Startup), Phase Reversal, Undervoltage
- Used Where Moderate Voltage Unbalance Protection is Not Required
- Direct Replacement for Most Popular 3 Phase Monitors
- 8 Pin Octal Base Connection
- SPDT Isolated 5 A Relay Contacts
- AMSE A17.1 rule 210.6
- NEMA MG1 14:30, 14:35
- IEEE C62.41-1991 Level B

Approvals:

### Accessories



See accessory pages for specifications.

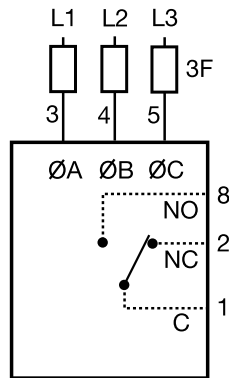
### Description

The PLR Series provides a cost effective means of preventing 3 phase motor startup during adverse voltage conditions. Proper A-B-C sequence must occur in order for the PLR's output contacts to energize. In addition, the relay will not energize when an undervoltage or phase loss condition is present. The PLR protects a motor against undervoltage operation. The adjustment knob sets the undervoltage trip point.

### Operation

The output relay is energized and the LED glows when all voltages are acceptable and the phase sequence is correct. Undervoltage must be sensed for a continuous dropout 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.

### Connection



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

F = Fuses  
ØA = Phase A = L1  
ØB = Phase B = L2  
ØC = Phase C = L3  
NO = Normally Open  
NC = Normally Closed

Relay contacts are isolated. Dashed lines are internal connections.

### Field Adjustment:

Turn the adjustment knob fully counterclockwise and apply three-phase power. The LED should be ON. Increase adjustment until the LED goes OFF. Decrease adjustment until LED glows again. If nuisance tripping occurs, decrease the adjustment slightly.

**NOTE:** When properly adjusted and operating in an average system, a voltage unbalance of 10% or more is required for phase loss detection. When a phase is lost while the motor is running, a voltage will be induced into the open phase nearly equal in magnitude to the normal phase-to-phase voltage. This condition is known as regeneration. When regenerated voltages are present, the voltage unbalance during single phasing may not exceed 10% for some motors. The PLR Series may not provide protection under this condition. For systems that require superior phase loss protection, select the PLMU Series.

### Available Models-

- PLR120A
- PLR240A
- PLR380A
- PLR480A

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### Ordering Table

Voltage	Part Number
95 ... 140 V AC	PLR120A
190 ... 270 V AC	PLR240A
340 ... 450 V AC	PLR380A
380 ... 500 V AC	PLR480A

# 3 Phase Voltage Monitor

## PLR Series

### Motor Protector

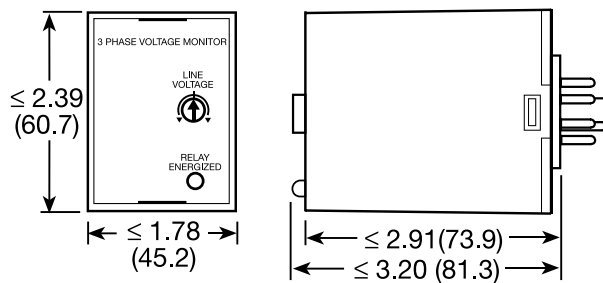
Voltage  
Monitors

#### Technical Data

<b>Line Voltage</b>		3 phase Delta or Wye with no connection to neutral		
Type		<b>Nominal Voltage</b>	<b>Undervoltage Dropout Adjustment Range</b>	<b>Line Voltage Max.</b>
		120 V AC	85 ... 130 V AC	143 V AC
		240 V AC	170 ... 240 V AC	270 V AC
		380 V AC	310 ... 410 V AC	480 V AC
		480 V AC	350 ... 480 V AC	530 V AC
Frequency		50 ... 60 Hz		
Phase Sequence		ABC		
<b>Response Times</b>				
Pull-in		≤ 400 ms		
Drop-out		≤ 100 ms		
Hysteresis	Pull-in/Drop-out	≅ 2%		
<b>Output</b>				
Type		Electromechanical relay, energized when all voltages are acceptable		
Form		Single pole double throw (SPDT)		
Rating		5 A resistive at 240 V AC: 1/4 Hp at 120 V AC		
Maximum Voltage		250 V AC		
<b>Protection</b>				
Surge		IEEE C62.41-1991 Level B		
Isolation Voltage	120 & 240 V AC 380 & 480 V AC	≥ 1500 V RMS input to output ≥ 2500 V RMS input to output		
<b>Mechanical</b>				
Mounting		Plug-in socket		
Termination		8 pin, octal plug		
<b>Environmental</b>				
Operating Temperature		0°C ... +55°C		
Storage Temperature		-40°C ... +85°C		
Weight		≅ 6 oz (170 g)		

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#### Mechanical View



Inches (Millimeters)