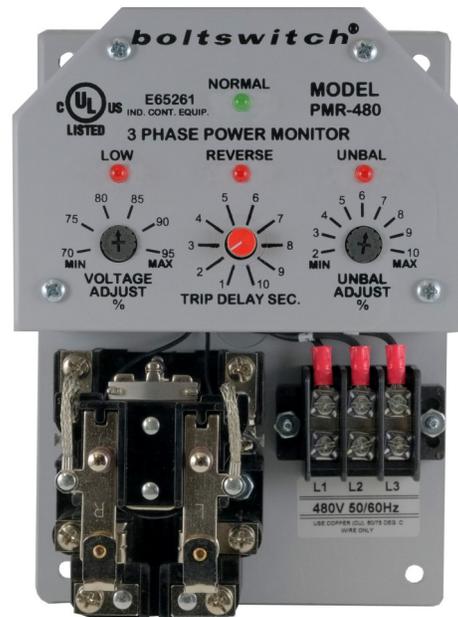


## PHASE FAILURE RELAYS



- Monitors for Phase Loss or Reversal, Low Voltage or Voltage Unbalance
- Automatic Reset
- Heavy Duty DPDT Output Contacts



### DESCRIPTION

The Models PMR and PM 3-Phase Monitors are designed to continuously monitor the voltages of a 3-phase power distribution system for abnormal conditions. The monitors feature solid-state voltage and phase angle sensing circuits which drive a DPDT electromechanical output relay. A neutral connection is **not** required with either the Model PMR or PM. This allows each model to be connected to any three phase WYE or DELTA configured power distribution system.

When the correct voltage and phase sequence is applied to a specified Model PMR, the output relay **will not energize**. An under voltage, phase reversal, phase unbalance or phase loss condition **will cause** the output relay to **energize**, even if regenerated voltage is present. Complete power loss **will not cause** Model PMR to trip.

When the correct voltage and phase sequence is applied to a specified Model PM, the output relay **will energize**. An under voltage, phase reversal, phase unbalance, phase loss or complete power loss condition **will cause** the output relay to **de-energize**.

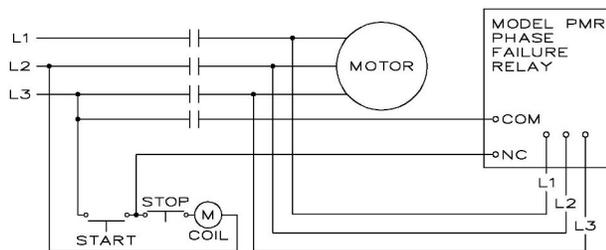
Each option on the Model PMR or PM is adjustable throughout its operating range. The adjustment pots and LED indicators for VOLTAGE ADJUST, UNBALANCE ADJUST and TIME DELAY are mounted on the front of the unit, for easy access.

Four versions of both the Model PMR and the Model PM cover voltage ranges from 208 to 600 VAC.

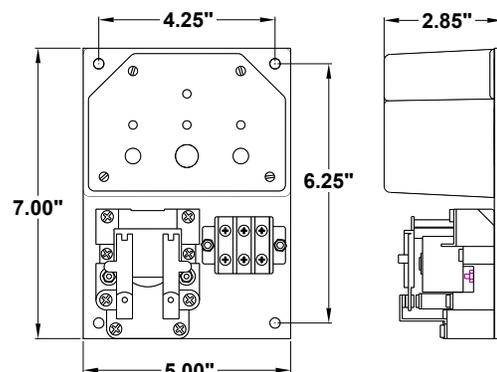
### SPECIFICATIONS

Model PMR-XXX Model PM-XXX	-208	-240	-480	-575
Nominal AC Voltage	208	240	480	575
Under Voltage Range	146-198V	168-229V	336-456V	420-570V
Frequency	50/60Hz			
Unbal. adj range	2 to 10% per NEMA specifications			
Trip Delay adj range	1 to 10 seconds (1 second increments)			
Power Consumption	4.5W per phase			
Repeat Accuracy	± 1% of full scale			
Reset Time	150 ms nominal			
Reset Type	Automatic			
Dead Band	2% of full scale			
Output Contacts	DPDT 40 amps at 28VDC/300VAC 50/60Hz 5 amps at 480/600VAC 50/60Hz			
Operating Temp	- 4° to +131° F			
Humidity Tolerance	0-97% without condensation			
Enclosure Material	ABS plastic			
Weight	2 lbs. 5 oz.			
Mounting	Surface			
Agency Approval	UL Listed to U.S. and Canadian safety standards			

### TYPICAL APPLICATION - Motor Protection



### DIMENSIONS



# MODEL PMR MODEL PM

# PHASE FAILURE RELAY

READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE.  
KEEP THIS DATA SHEET FOR FUTURE REFERENCE.

## Installation Instructions

### DANGER

- **HAZARD OF ELECTRIC SHOCK, BURN OR EXPLOSION**
- **POWER CONTROL & INSTRUMENT CIRCUITS MAY BE SUPPLIED BY REMOTE SOURCES**
- **THIS DEVICE SHOULD ONLY BE INSTALLED OR SERVICED BY QUALIFIED PERSONNEL**
- **TURN OFF ALL POWER SUPPLYING THIS DEVICE BEFORE WORKING ON MONITOR**
- **FAILURE TO DO SO WILL RESULT IN DEATH OR SEVERE PERSONAL INJURY**

### INSTALLATION

Mount the Model PMR or PM in a stable location, observing all precautions outlined in the statement above. Mounting hardware is not included.

Connect the control wiring to the terminals with the contact markings (refer to the diagram on the unit). Markings shown on the unit are in the power off condition. Apply power.

If the contacts transfer (NORMAL indicator-Off), check the LOW, REVERSE, and UNBALANCE indicators for a possible fault condition. If no indicators are lit, check that all three phases are present and of the correct voltage.

If all phases are correct and the LOW indicator is ON, rotate the VOLTAGE ADJUST until the light just goes out.

If the UNBAL indicator is ON, rotate the UNBAL ADJUST until the light just goes out.

**NOTE:** During adjustment you may find the UNBAL ADJUST and the TRIP DELAY adjustment has no effect. Check for phase loss.

If the REVERSE indicator is ON, remove power and reverse any two of the three input wires and re-apply power. The NORMAL indicator will light.

### ADJUSTMENT

*Note:* During adjustment, you may want to install a jumper across the control contacts or open circuit, depending on your control configuration, to prevent cycling the load on and off.

Rotate the VOLTAGE ADJUST to the desired percent of nominal voltage, or slowly clockwise, until the contacts transfer to the failed condition (LOW indicator-ON).

Slowly turn the adjustment counter-clockwise until the contacts reset to the normal condition (LOW indicator-OFF; NORMAL indicator-ON).

Remove the jumper from the control contacts, if installed.

This setting will be correct for most applications. If nuisance tripping occurs, turn the VOLTAGE ADJUST slightly counter-clockwise, or increase the trip delay time.

Any adjustments to the VOLTAGE ADJUST, to eliminate nuisance tripping, should be made in small increments, until the *true* nuisance trips are eliminated. Adjust the TRIP DELAY and UNBAL ADJUST as required by the system.

### TYPICAL APPLICATION - Shunt Trip

