Phase Monitor Relays

Phase Monitor Relays

PMRRL Series

Phase monitor relays provide protection against premature equipment failure caused by voltage faults on 3-Phase systems. All Prosense phase monitor relays are designed to be compatible with typical Wye or Delta systems. Phase monitor relays protect against single phasing regardless of any regenerative voltages.

The PMRRL Series phase monitor relays provide protection against phase loss, phase reversal and undervoltage. These relays are designed to be compatible with typical Wye or Delta systems. In Wye systems, a connection to a neutral is not required. Phase monitor relays protect against single phasing regardless of any regenerative voltages.

The relay is energized and the LED is on when all three phases are present in the correct sequence at a voltage level above the undervoltage setting. The undervoltage drop-out can be set at 75 to 95% of operating voltage. Any fault will instantaneously de-energize the relay and turn off the LED. Re-energization is automatic upon correction of the fault condition.

Features

- Protects against phase loss, phase reversal and undervoltage
- Undervoltage setting is adjustable from 75-95% of nominal
- LED indicates both normal and fault conditions
- Compact plug-in case utilizing industry-standard 8-pin octal socket
- 10A SPDT output contacts

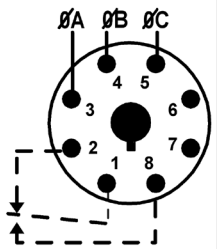
Agency Approvals

- cURus, File number E191059
- UL Listed, File number E191059
- CE , EN60947-1
- RoHS

(with appropriate socket 70169-D)

ProSense Series Phase Monitor Relays					
Part Number	**Description**	**Pcs/Pkg**	**Wt (lb)**	**Price**	**Use With**
PMRRL-1C-208A	Phase monitor relay, provides protection against phase reversal, phase loss and undervoltage; 10A SPDT output contacts, 8-pin octal base. Works with 208V 3-phase systems.	1	0.3	Retired	70169-D or 750-2C-SKT
70169-D	Relay socket, 10A at 600V, 8-pin octal configuration. Can be mounted on 35mm DIN rail or directly mounted to the panel.	1	0.1	Retired	-----
750-2C-SKT	Relay socket, 5A at 600V, 8-pin octal configuration. Can be mounted on 35mm DIN rail or directly mounted to the panel.	1	0.1	$4.50	-----

Wiring

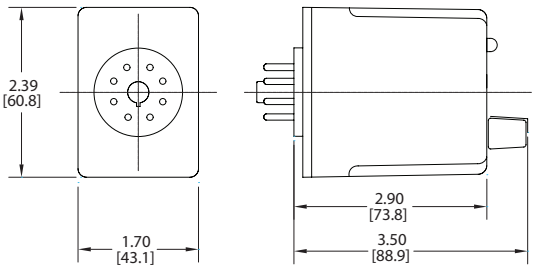


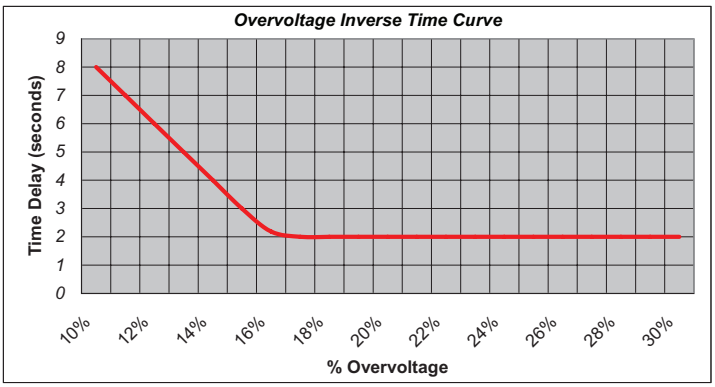
Technical Specifications	
Input Voltage Range*	**208VAC 50/60 Hz (+10/-25%)**
Undervoltage Rating	156-198V
Phase Loss	Unit trips on total loss of one or more of the three phases (A,B,C)
Phase Reversal	Unit trips if sequence of the three phases is anything other than A-B-C
Undervoltage	Unit trips when the average of all three line phases is less than the adjusted set point*
Overvoltage	N/A
Power Consumption	3VA
Temperature	-28° to 65°C [-18° to 149°F]
Mounting	8-pin octal socket requires a 600V rated socket when used on system voltages greater than 300V
Approvals	cURus, CE (PMRU series only), RoHS, (cULus when used with socket 70169-D)

** Fusing is not required by code but if fusing is used we recommend 2A MCL2 fuse between the phase monitor relay and the three phases.*

Dimensions

Inches [mm]





ProSense® Phase Monitor Relays

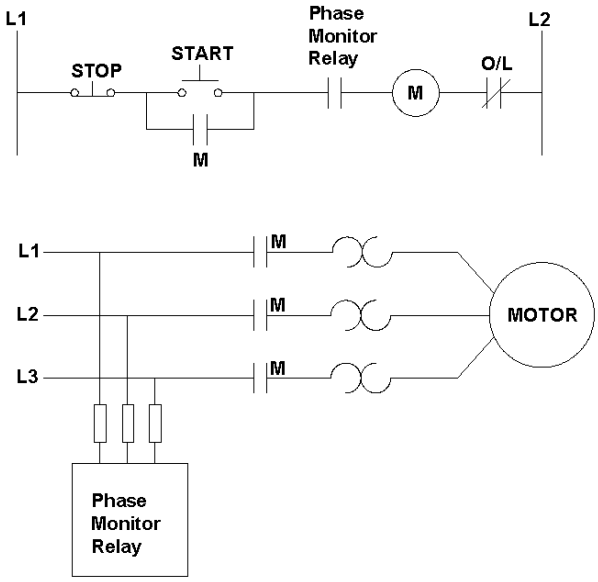
Protection

Depending on the unit selected, it will protect 3-phase equipment against:

- **Phase loss -** total loss of one or more of the three phases. Also known as "single phasing." Typically caused by a blown fuse, broken wire, or worn contacts. This condition would result in a motor drawing locked rotor current during start-up. In addition, a 3-phase motor will continue to run after losing a phase, resulting in possible motor burn-out.
- **Phase reversal -** reversing any two of the three phases will cause a 3-phase motor to run in the opposite direction. This may cause damage to driven machinery or injury to personnel. The condition usually occurs as a result of mistakes made during routine maintenance or when modifications are made to the circuit.
- **Phase unbalance -** unbalance of a 3-phase system occurs when single phase loads are connected such that one or two of the lines (phases) carry more or less of the load. This could cause motors to run at temperatures above published ratings.
- **Undervoltage -** when voltage in all three lines of a 3-phase system drop simultaneously.
- **Overvoltage -** when voltage in all three lines of a 3-phase system increase simultaneously.

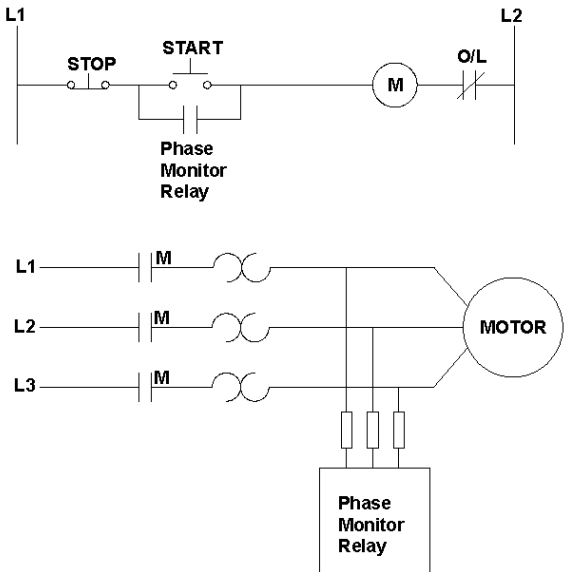
Typical Connections

Line Side Monitoring



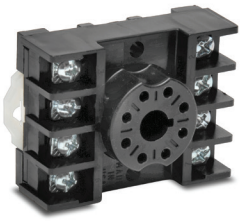
Line Side Monitoring
With the relay connected before the motor starter, the motor can be started in the reverse direction. However, the motor is unprotected against phase failures between the relay and the motor.

Load Side Monitoring



Load Side Monitoring
With the relay connected directly to the motor, the total feed lines are monitored. This connection should not be used with reversing motors.

ProSense® 8-pin Octal Socket



70169-D

750-2C-SKT

Features

- 600V (Plug-in 3-phase monitor relays require a 600V-rated socket when used with system voltages greater than 300V)
- Mounts on 35mm DINrail
- Screw pressure wire clamp termination

Agency Approvals

- cURus, File number E191059, E225080, E169693
- CE
- RoHS

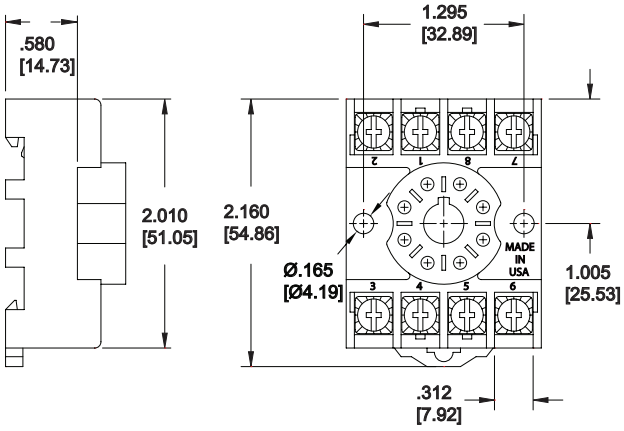
Octal Sockets for Motor Monitor Relays				
Part Number	*Description*	*Pcs/Pkg*	*Wt [lb]*	*Price*
750-2C-SKT	Relay socket, works with all phase monitor relays, 5A at 600V rated, 8-pin octal configuration. Can be mounted on 35mm DIN rail or directly mounted to the panel.	1	0.1	$4.50

Technical Specifications						
Part Number	*Voltage*	*Current*	*Screw Size*	*Screw Wire Size (Capacity)*	*Screw Wire Torque*	*Screw Chassis Mounting Torque*
70169-D	600V	10A	6-32	1 or 2 #12-#22 AWB	6-7 lb·in (12 lb·in max)	7 lb·in
750-2C-SKT	600V	5A	M3.5	(1) #12/ (2) #14 AWG	9 lb·in	7 lb·in

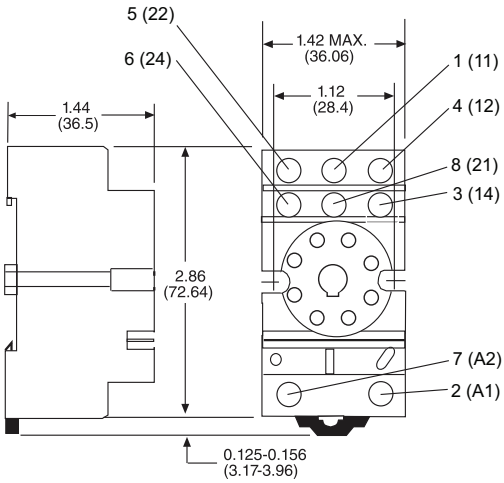
To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Dimensions

70169-D



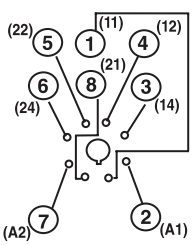
750-2C-SKT



Socket Pinouts

70169-D

750-2C-SKT



All dimensions in inches (millimeters)