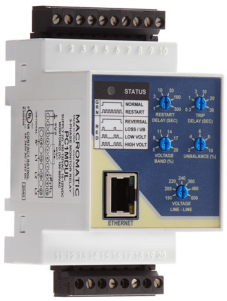
PHASE LOSS, PHASE REVERSAL, PHASE UNBALANCE, UNDERVOLTAGE & OVERVOLTAGE

PC SERIES WITH COMMUNICATION



- Provides real-time status and measurement data via Modbus TCP
- Protects against phase loss, phase reversal, phase unbalance, undervoltage and overvoltage
- Compact 60 mm wide enclosure for both DIN-rail or screw mounting with extendable clips
- Wide voltage ranges to cover more global applications
- True RMS voltage measurement with full wave monitoring increases accuracy
- Full fault indication on front face for easy troubleshooting
- Pluggable terminal blocks simplify initial wiring and replacement
- 5A SPDT output contacts

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PC Series Three-Phase Monitor Relays protect equipment from voltage faults and communicate via Modbus TCP. This industry-leading technology makes data available for continuous monitoring, real-time alerts and intelligent troubleshooting of voltage systems.

Real-time data improves decision making within modern control systems. This affordable IoT solution is advantageous in automation applications requiring protection of valuable three-phase equipment within a “smart” connected control system.

PC Series relays monitor three-phase system voltages to protect from damage due to phase loss, phase reversal, phase unbalance, undervoltage and overvoltage. These products detect single phasing, high, low and unbalanced voltages regardless of any regenerative voltages.

Utilizing an advanced microprocessor-based design allows true RMS voltage measurement with full wave monitoring. This provides a more accurate method to measure the voltages, regardless of load type or wave shape. True RMS voltage measurement ensures accurate sensing in most generator and other applications with non-sinusoidal wave forms, eliminating nuisance tripping.

A universal monitored voltage range of 190 to 600V AC covers more global applications.

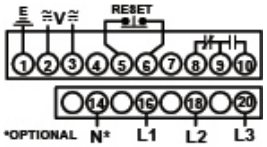
Dials allow adjustment of the undervoltage trip point, trip delay, restart delay, unbalance trip point, and selection of Line-to-Line system voltage.

A 60 mm wide enclosure meets IEC Standards and mounts on 35 mm DIN-rail or on a panel with two screws inserted through extended clips on the back of the enclosure.

Pluggable terminal blocks on both the input and output side allow for easy installation and replacement, without having to remove any wires.

Operation:

When the proper three-phase line voltage is applied to the unit and the phase sequence (rotation) is correct, the relay is energized after the Restart Delay is completed. Any one of five fault conditions will de-energize the relay after the trip delay. As standard, re-energization is automatic upon correction of the fault condition. Manual reset is enabled by installing a momentary N.C. switch connected to terminals 5 & 6. A bi-color status LED indicates normal condition and provides specific fault indication to simplify troubleshooting.

PROTECTS AGAINST	MONITORED VOLTAGE 50/60 HZ ±5%	CATALOG NUMBER	WIRING
Phase Loss, Phase Reversal, Phase Unbalance, Undervoltage, Overvoltage	190 – 600V AC ■	PC1MDUL	 DIAGRAM 824
■ Line-to-Line (Phase-to-Phase)			

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APPLICATION DATA

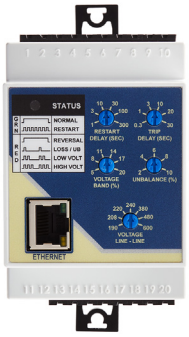
Voltage Requirements:

MONITORED RANGE (50/60Hz ±5%)	CONTROL VOLTAGE	MINIMUM MEASURED VOLTAGE	MAXIMUM MEASURED VOLTAGE	MAXIMUM WITHSTAND VOLTAGE	CATALOG NUMBER
190-600V AC	102-132V AC 10-132V DC	30V AC	660V AC	750V AC	PC1MDUL

Note: Maximum measured voltage is 660V AC. Overvoltage trip settings above this voltage are not recommended.

Three-Phase Line-Line Voltage:

The Voltage Line-Line dial on the PC1MDUL selects between the 7 line to line system voltage set points: 190, 208, 220, 240, 380, 480, 600.



PC Series with terminal blocks removed and mounting clips extended

Power Consumption: 3VA

Phase Loss:
Unit trips on loss of any Phase L1, L2 or L3, regardless of any regenerative voltages.

Phase Reversal (Out-of-Sequence):
Unit trips if sequence (rotation) of the three phases is anything other than L1-L2-L3. It will not work on L3-L2-L1.

Undervoltage:
Adjustable from 80-95% of the line voltage setting. Unit trips when the average of all three lines is less than the adjusted set point for a period longer than the adjustable trip delay. It will reset at +2% of the undervoltage trip setting.

Overvoltage:
Adjustable from 105-120% of the line voltage setting. Unit trips when the average of all three lines is greater than the adjusted set point for a period longer than the adjustable trip delay. It will reset at -2% of the overvoltage trip setting.

Phase Unbalance:
Adjustable from 2 - 10% unbalance. Unit trips when any one of the three lines deviates from the average of all three lines by more than the adjusted set point for a period longer than the adjustable trip delay. It will reset at 80% of the unbalance trip setting.

Response Times:
Restart Delay:
1 - 300 seconds adjustable
Trip Delay Due to Fault:
Phase Loss and Reversal, 100ms fixed
Undervoltage and Overvoltage, 0.3 - 30 seconds adjustable
Unbalance,
Normal, 0.3 - 30 seconds adjustable
Severe (Twice Knob Setting), 0.3 - 2 seconds
Startup (from application of control voltage): 1 second

Output Contacts:
SPDT 5 A @ 250V AC, General Purpose;
5 A @ 24V DC, Resistive;
1/4HP @ 120V AC (N.O.)
Minimum recommended: 12V DC @ 100 mA

Life:
Electrical
100,000 closures @ full load; 360 operations per hour max. frequency;
Mechanical:
30 million closures @ no load; 72,000 operations per hour max. frequency

Temperature:
Operating, -28° to 65°C (-18° to 149°F)
Storage, -40° to 85°C (-40° to 185°F)

Mounting:
Mounts on 35mm DIN-rail or panel-mounted with two #8 screws when DIN-rail clips are fully extended from under the enclosure.

Status LED:

LED STATUS		STATUS
GRN		NORMAL
		RESTART
RED		REVERSAL
		LOSS / UB
		LOW VOLT
		HIGH VOLT

Reset:
As standard the PC Series Relays are in the Automatic Reset mode. However, they can be set to Manual Reset mode by connecting a momentary N.C. switch across terminals 5 and 6. Upon application of control voltage, the PC Series will go into Manual Reset mode if it recognizes an N.C. switch across terminals 5 and 6. The N.C. switch must be opened and then closed (pressed and released) to reset the relay and resume normal operation after either a fault clears or after each power-up when the unit is in Manual Reset mode.

Termination:
Pluggable terminal blocks on both the input and output side. Cage-clamp screw terminals; Plus-minus screws accept flat head tools;
Recommended tightening torque of 7 in-lbs;
1 x 14-24 AWG solid or stranded wire;
2 x 16-18 AWG stranded wire

Weight: 0.35 lb (0.02 kg)

Approvals:

File # E109466

Modbus TCP:

Connector, RJ45
Connection speed, 10/100 Mb Full and Half Duplex
IP Addressing, static (default), dynamic (DHCP)

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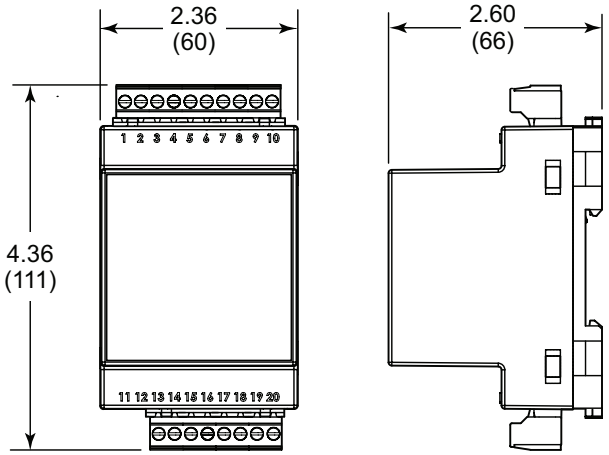
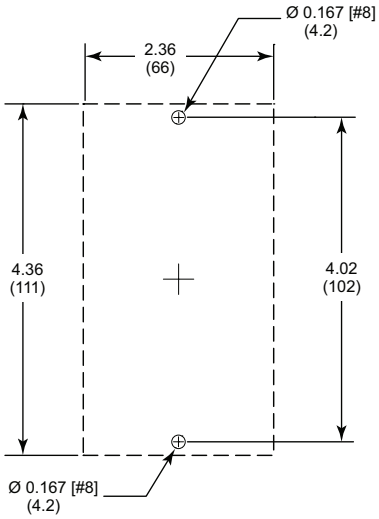
DIMENSIONS



All Dimensions in Inches (Millimeters)



Panel Mount Template