

MODEL 158 MODEL 158R

3-Phase Monitor

- DIN Rail Mount or Surface-mount for HVAC Applications
- Optional 5 Minute Short Cycle Time Delay
- Detect Phase Loss, Low Voltage, Phase Reversal
- 5 Year Unconditional Warranty

DESCRIPTION

The **Model 158** continuously monitors 3-phase power lines for abnormal conditions. When properly adjusted, the Model 158 monitor will detect phase loss on a loaded motor even when regenerated voltage is present.

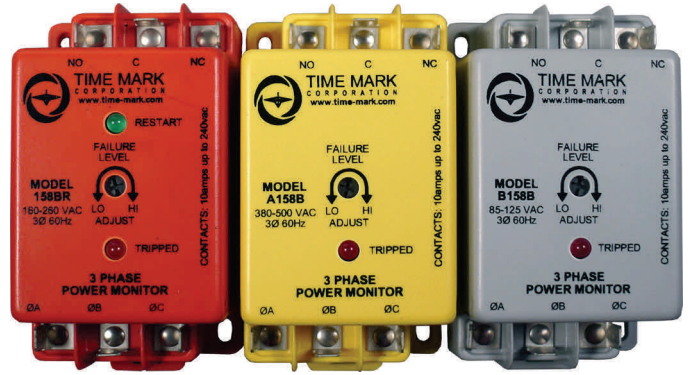
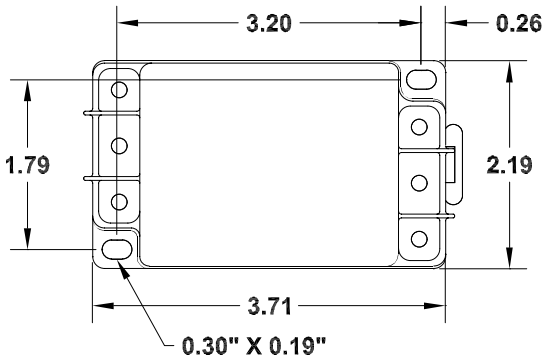
This device consists of a solid-state voltage and phase-angle sensing circuit, driving an electro-mechanical relay. When correct voltage and phase rotation are applied, the internal relay will energize. A fault condition will de-energize the relay. When the fault is corrected, the monitor will automatically reset.

The Model 158 does not require a neutral connection, and can be used with Wye or Delta systems. Four versions cover 120V, 208/240V, 480V (60Hz) and 380V (50Hz). Voltage ranges are sufficient to allow for proper adjustment to existing conditions. A front-mounted LED failure indicator is provided.

The "R" versions of the Model 158 Monitor have an additional LED indicator for RESTART, and a 5 minute short cycle timer, to delay restarting the motor.

The Model 158 can be DIN Rail or Surface Mounted.

DIMENSIONS

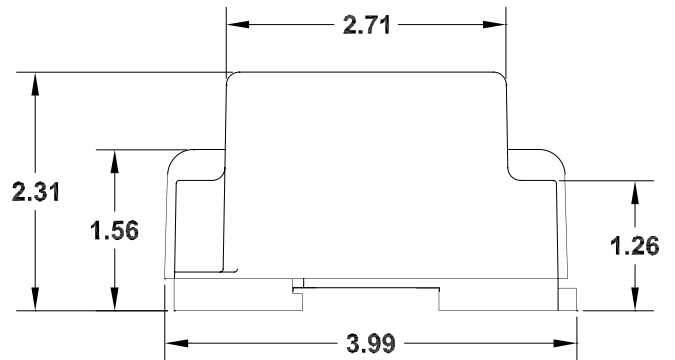


SPECIFICATIONS

| MODEL | B158B | 158B | A158B | EX158B |
|-------------------------------|---|------------|------------|------------|
| Input Voltage | 120VAC | 208/240VAC | 480VAC | 380VAC |
| Adjustment Range | 85-125VAC | 160-260VAC | 380-500VAC | 300-400VAC |
| Frequency | 60Hz | 60Hz | 60Hz | 50Hz |
| Power Consumption (per phase) | .25W | .5W | 1.5W | 1.25W |
| Transient Protection | 2500 VRMS of 10ms | | | |
| Repeat Accuracy | ± 0.1% of setpoint (fixed conditions) | | | |
| Response Time | 0.5 seconds | | | |
| Reset Time | Short cycle restart delay - 2 seconds "R" versions - 5 minutes | | | |
| Reset Type | Automatic | | | |
| Dead Band | 2% | | | |
| Output contacts | SPDT 10A at 240VAC resistive | | | |
| Expected Relay Life | Mech: 10 million operations Elec: 100,000 operations at rated load | | | |
| Operating Temp | -20° to +131° F | | | |
| Humidity Tolerance | 97% w/o condensation | | | |
| Enclosure Material | ABS plastic | | | |
| Mounting | DIN Rail or Surface Mount | | | |
| Weight | 5 oz. | | | |

ADDITIONAL ORDERING INFO:

add an "R" to any 158 model number above, for the 5 minute time delay option



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MODEL 158 (R) 3-Phase Monitor

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

GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 158.
ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING.
THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

Installation Instructions

INSTALLATION

Mount the Model 158 3-Phase Monitor in a suitable enclosure.

Attach 1/4" terminal lugs to the input voltage wires, and then connect them to the terminals on the Model 158 marked $\emptyset A$, $\emptyset B$, and $\emptyset C$. Proper **clockwise** phase rotation should be confirmed, using a Time Mark Model 108A or 108B Phase Rotation Indicator or unit will show trip for Phase Reversal.

Attach 1/4" terminal lugs to the load control circuit wires, then connect them to the terminals marked **C** and **NO**.

Apply power. The **NO** contact will close when correct voltage is applied. **If a Model 158R is being installed, there will be a 5 minute delay before the contact transfers. The green RESTART light should be ON during this 5 minute period.**

ADJUSTMENT PROCEDURE

NOTE: While adjusting the trip level, you may wish to jumper the control circuit contacts to prevent the device from tripping the load on and off.

Slowly rotate the FAILURE LEVEL ADJUST pot clockwise, until the TRIPPED indicator LED just illuminates, and the contacts transfer.

Rotate the FAILURE LEVEL ADJUST pot counter-clockwise, until the TRIPPED indicator LED goes out, and the contacts re-energize. **On the "158R" version, the green RESTART light will be ON, and there will be a 5 minute delay period before the contacts re-energize.**

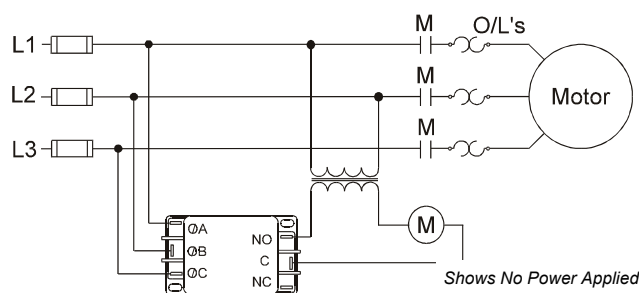
Should nuisance tripping occur, after completing these adjustments, turn the FAILURE LEVEL ADJUST pot slightly further counter-clockwise, as necessary. **Remove the jumper from the control circuit contact, if one was applied.**

TROUBLESHOOTING

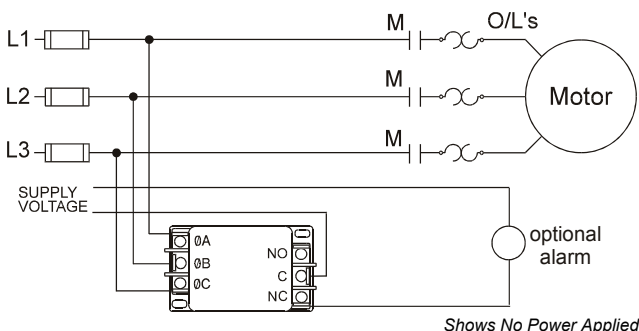
There are no user-serviceable parts in the Model 158 3-Phase Monitor. Should the unit fail to operate properly, check that correct voltage and clockwise phase rotation are being applied. Check all fuses and wiring connections. Should problems persist, contact your local Time Mark Distributor, or the factory at 800-862-2875 (Monday-Friday; 8 a.m. to 5 p.m. CST), for further assistance.

APPLICATION DIAGRAMS

Typical compressor application



Typical motor control application



WARRANTY

This product is warranted to be free from defects in materials and workmanship, and is covered by our exclusive **5-year Unconditional Warranty**. Should this device fail to operate for any reason, we will repair it for five years from the date of manufacture. For complete warranty details, see the *Terms and Conditions of Sales* page in the front section of the Time Mark catalog or contact Time Mark at 1-800-862-2875. .

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