

460 SERIES

3-Phase Voltage Monitor





Wiring Diagram

TYPICAL WIRING DIAGRAM FOR MODEL 460 WITH MOTOR CONTROL



Description

The 460 is a 3-phase voltage monitor that protects 190-480VAC or 475-600V, 50/60Hz motors regardless of size. The product provides a user selectable nominal voltage setpoint and the voltage monitor automatically senses line voltage.

This unique microcontroller-based voltage and phase-sensing device constantly monitors the 3-phase voltages to detect harmful power line conditions such as low, high, and unbalanced voltage, loss of any phase, and phase reversal. When a harmful condition is detected, the MotorSaver® output relay is deactivated after a specified trip delay. The output relay reactivates after power line conditions return to an acceptable level for a specified amount of time (restart delay). The trip and restart delays prevent nuisance tripping due to rapidly fluctuating power line conditions.

All 460 models feature adjustable 1-30 second trip delay, 1-500 second restart delay, 2-8% voltage unbalance trip point, and one form C contact except where noted below.

Features & Benefits

FEATURES	BENEFITS
Auto-sensing wide voltage range	Automatically senses system voltage between 190 - 480VAC or 475-600VAC. Saves set-up time
Adjustable trip & restart delay settings	Prevent nuisance tripping due to rapidly fluctuating power line conditions
Microcontroller based circuitry	Improved accuracy and higher reliability
Advanced LED diagnostics	Quick visual indicator for cause of trip and relay status
Adjustable voltage unbalance trip setting	Provides reliable protection when regenerative voltage is present

Ordering Information

MODEL	VOLTAGE	DESCRIPTION
460	190-480VAC	Automatically senses line voltage, adjustable 1-30 second trip delay, 1-500 second restart delay, and 2-8% voltage unbalance trip point
460-L	190-480VAC	Fixed 4 second trip delay and 1 second for single-phase faults, and fixed 6% voltage unbalance trip point
460-14	190-480VAC	Equipped with 2 sets of contacts: Form A (NO) and Form B (NC). Used for applications requiring 2 different voltages such as 5VDC for a PLC input and 115VAC for an alarm
460-575	475-600VAC	Commonly used in Eastern Canada and on generator units that generate 600 VAC power
460-575-14	475-600VAC	Commonly used in Eastern Canada and on generator units that generate 600 VAC power. Equipped with 2 sets of contacts: Form A and Form B
460-15	190-480VAC	Equipped with 2 sets of Form A (NO) contacts. Used on applications where two different units are to be controlled at once such as a unit that has separate contacts for a compressor and a fan
460-MR	190-480VAC	Equipped with a 2-prong connection for a normally open push button mounted outside the panel. Used in applications requiring an external manual reset button
460-VBM	190-480VAC	Fixed 6% voltage unbalance trip point. User adjustable low and high voltage trip points
460-400HZ	190-480VAC	For use with 400Hz power supply
460-0EM	190-480VAC	Bulk package of 460, 20 units
460L-0EM	190-480VAC	Bulk package of 460-L, 20 units

460 SERIES



Specifications

Frequency Low Voltage (% of setpoint) Trip Reset High Voltage (% of setpoint) Trip Reset Voltage Unbalance (NEMA) Trip Reset

460L

Trip Delay Time Low, High and **Unbalanced Voltage** 460L **Single-Phase Faults** (>15% UB) **Restart Delay Time** After a Fault After a Complete Power Loss **Output Contact Rating** Form C **Pilot Duty General Purpose** Form A & Form B **Pilot Duty** General Purpose

50/60Hz 90% ±1%

93% ±1% 110% ±1% 107% ±1%

> 2-8% adjustable Trip setting minus 1% (5-8%) Trip setting minus 0.5% (2-4%) 6% UB fixed (4.5% reset)

1-30 seconds adjustable 4 seconds fixed

1 second fixed

1-500 seconds adjustable 1-500 seconds adjustable

480VA @ 240VAC, B300 10A @ 240VAC

360VA @ 240VAC, B300 8A @ 240VAC

Ambient Temperature Range

Surae

ANSI/IEEE

Hi-potential Test

Safety Marks

Enclosure

Weight

Dimensions

Mounting Method

460-MR (manual reset)

IEC

UL

CE

Operating -20° to 70°C (-4° to 158°F) Storage -40° to 80°C (-40° to 176°F) Maximum Input Power 6 W **Class of Protection Relative Humidity Terminal Torque** Wire Type **Standards Passed** Electrostatic Discharge (ESD) IEC 61000-4-2, Level 3, 6kV contact, 8kV air **RFI**. Radiated **Fast Transient Burst**

IP20, NEMA 1 (finger safe) 10-95%, non-condensing per IEC 68-2-3 4.5 in.-lbs. Stranded or solid 12-20 AWG, one per terminal

150 MHz. 10V/m IEC 61000-4-4, Level 3, 3.5kV input power and controls

IEC 61000-4-5. Level 3. 4kV line-to-line: Level 4, 4kV line-to-ground C62.41 Surge and Ring Wave Compliance to a level of 6kV line-to-line Meets UL508 (2 x rated V +1000V for 1 minute)

UL508 (File #E68520) IEC 60947-6-2 Polycarbonate **H** 88.9 mm (3.5"); **W** 52.9 mm (2.08"); **D** 59.69 mm (2.35") 0.7 lb. (11.2 oz., 317.51 g) 35 mm DIN rail or Surface Mount (#6 or #8 screws) External NO pushbutton required.

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/product-disclaimer.