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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



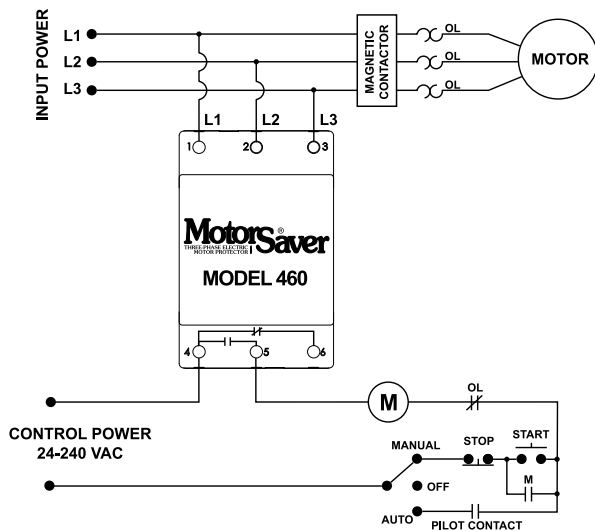
## 460 SERIES

### 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<sup>®</sup> 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
<b>Auto-sensing wide voltage range</b>	Automatically senses system voltage between 190 - 480VAC or 475-600VAC. Saves set-up time
<b>Adjustable trip &amp; restart delay settings</b>	Prevent nuisance tripping due to rapidly fluctuating power line conditions
<b>Microcontroller based circuitry</b>	Improved accuracy and higher reliability
<b>Advanced LED diagnostics</b>	Quick visual indicator for cause of trip and relay status
<b>Adjustable voltage unbalance trip setting</b>	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-OEM	190-480VAC	Bulk package of 460, 20 units
460L-OEM	190-480VAC	Bulk package of 460-L, 20 units



## 460 SERIES

### Specifications

<b>Frequency</b>	50/60Hz
<b>Low Voltage (% of setpoint)</b>	
<b>Trip</b>	90% ±1%
<b>Reset</b>	93% ±1%
<b>High Voltage (% of setpoint)</b>	
<b>Trip</b>	110% ±1%
<b>Reset</b>	107% ±1%
<b>Voltage Unbalance (NEMA)</b>	
<b>Trip</b>	2-8% adjustable
<b>Reset</b>	Trip setting minus 1% (5-8%) Trip setting minus 0.5% (2-4%)
<b>460L</b>	6% UB fixed (4.5% reset)
<b>Trip Delay Time</b>	
<b>Low, High and Unbalanced Voltage</b>	1-30 seconds adjustable
<b>460L</b>	4 seconds fixed
<b>Single-Phase Faults (&gt;25% UB)</b>	1 second fixed
<b>Restart Delay Time</b>	
<b>After a Fault</b>	1-500 seconds adjustable
<b>After a Complete Power Loss</b>	1-500 seconds adjustable
<b>Output Contact Rating</b>	
<b>Form C</b>	
<b>Pilot Duty</b>	480VA @ 240VAC, B300
<b>General Purpose</b>	10A @ 240VAC
<b>Form A &amp; Form B</b>	
<b>Pilot Duty</b>	360VA @ 240VAC, B300
<b>General Purpose</b>	8A @ 240VAC

### Ambient Temperature Range

<b>Operating</b>	-20° to 70°C (-4° to 158°F)
<b>Storage</b>	-40° to 80°C (-40° to 176°F)
<b>Maximum Input Power</b>	6 W
<b>Class of Protection</b>	IP20, NEMA 1 (finger safe)
<b>Relative Humidity</b>	10-95%, non-condensing per IEC 68-2-3
<b>Terminal Torque</b>	4.5 in.-lbs.
<b>Wire Type</b>	Stranded or solid 12-20 AWG, one per terminal
<b>Standards Passed</b>	
<b>Electrostatic Discharge (ESD)</b>	IEC 61000-4-2, Level 3, 6kV contact, 8kV air
<b>RFI, Radiated</b>	150 MHz, 10V/m
<b>Fast Transient Burst</b>	IEC 61000-4-4, Level 3, 3.5kV input power and controls

### Surge

<b>IEC</b>	IEC 61000-4-5, Level 3, 4kV line-to-line; Level 4, 4kV line-to-ground
<b>ANSI/IEEE</b>	C62.41 Surge and Ring Wave Compliance to a level of 6kV line-to-line
<b>Hi-potential Test</b>	Meets UL508 (2 x rated V +1000V for 1 minute)

### Safety Marks

<b>UL</b>	UL508 (File #E68520)
<b>CE</b>	IEC 60947-6-2
<b>Enclosure</b>	Polycarbonate
<b>Dimensions</b>	<b>H</b> 88.9 mm (3.5"); <b>W</b> 52.9 mm (2.08"); <b>D</b> 59.69 mm (2.35")
<b>Weight</b>	0.7 lb. (11.2 oz., 317.51 g)
<b>Mounting Method</b>	35 mm DIN rail or Surface Mount (#6 or #8 screws)
<b>460-MR (manual reset)</b>	External NO pushbutton required.