

# 460-XXX-SP SERIES

## Single-Phase Voltage Monitor



### Description

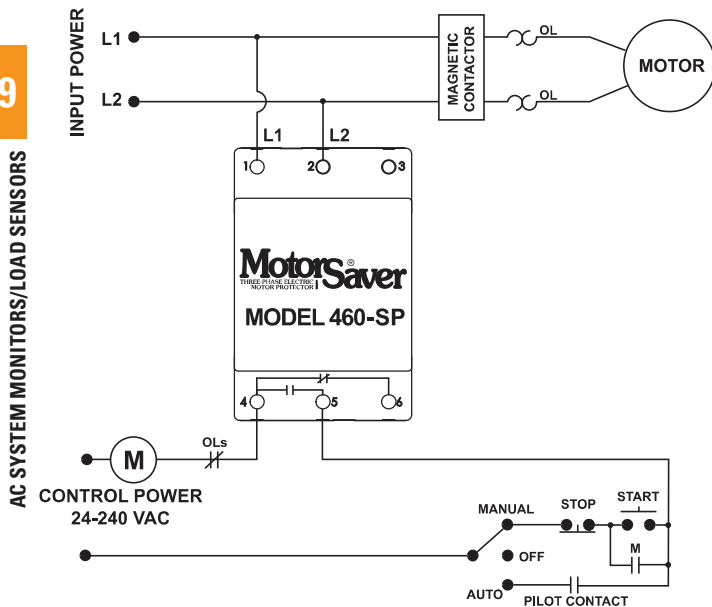
The 460-100-SP is used on 95-120VAC, 50\*/60Hz single-phase motors and the 460-200-SP is used on 190-240VAC, 50\*/60Hz single-phase motors to protect them from damaging high and low voltage conditions. An adjustment knob allows the user to set a 1-500 second restart delay. The variable restart delay is also a power-up delay and can be utilized to stagger-start motors on the same system.

A unique microcontroller-based, voltage-sensing circuit constantly monitors the voltage to detect harmful power line conditions. When a harmful condition is detected, the MotorSaver's output relay is deactivated after a specified trip delay. The output relay reactivates after power line conditions return to an acceptable level and a specified amount of time has elapsed (restart delay). The trip delay prevents nuisance tripping due to rapidly fluctuating power line conditions.

### Features & Benefits

FEATURES	BENEFITS
<b>Proprietary microcontroller based circuitry</b>	Constant monitoring of voltage to detect harmful power line conditions, even before a motor starts
<b>Fixed trip delay 4s</b>	Prevents nuisance tripping due to rapidly fluctuating power line conditions
<b>Adjustable restart delay (1-500s)</b>	Allows staggered start up of multiple motors on the same system to prevent a low voltage condition
<b>Advanced LED indication</b>	Provides diagnostics which can be used for troubleshooting and to determine relay status
<b>DIN rail or surface mountable</b>	Allows flexibility for panel assembly

### Wiring Diagram



For dimensional drawing see: Appendix, page 510, Figure 10.

### Ordering Information

MODEL	LINE VOLTAGE
460-100-SP	95-120VAC
460-200-SP	190-240VAC

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### Specifications

#### Input Characteristics

<b>Line Voltage</b>	95-120VAC
<b>460-100-SP</b>	190-240VAC
<b>460-200-SP</b>	50*/60Hz
<b>Frequency</b>	50*/60Hz

#### Functional Characteristics

<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>Trip Delay Time</b>	
<b>Low or High Voltage</b>	4 seconds 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

#### Output Characteristics

<b>Output Contact Rating (1 Form C)</b>	
<b>Pilot Duty</b>	480VA @ 240VAC, B300
<b>General Purpose</b>	10A @ 240VAC

#### General Characteristics

<b>Ambient Temperature Range</b>	
<b>Operating</b>	-40° to 70°C (-40° 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

#### Standards Passed

<b>Electrostatic Discharge (ESD)</b>	IEC 61000-4-2, Level 3, 6kV contact, 8kV air
<b>Radio Frequency Immunity, Radiated</b>	150 MHz, 10V/m
<b>Fast Transient Burst</b>	IEC 61000-4-4, Level 3, 3.5 kV input power and controls
<b>Surge 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 min)
<b>Safety Marks</b>	
<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> 52.93 mm (2.084"); <b>D</b> 59.69 mm (2.35")
<b>Weight</b>	0.9 lb. (14.4 oz., 408.23 g)
<b>Mounting Method</b>	35mm DIN rail or Surface Mount (#6 or #8 screws)

\*Note: 50 Hz will increase all delay timers by 20%