

# 460-XXX-SP SERIES

## Single-phase voltage monitor



### Description

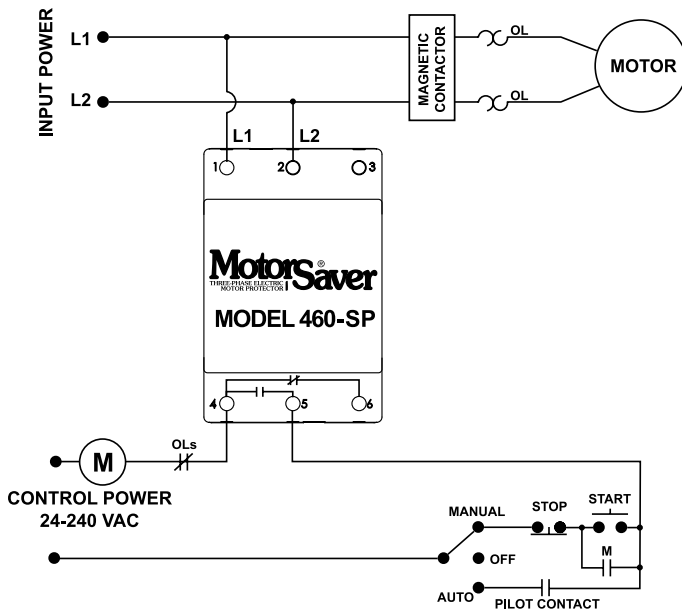
The 460-100-SP is used on 95–120 V ac, 50\*/60 Hz single-phase motors and the 460-200-SP is used on 190–240 V ac, 50\*/60 Hz single-phase motors to protect them from damaging high and low voltage conditions. An adjustment knob allows the user to set a 1–500 second restart delay. The variable restart 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 4 s</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



### Ordering Information

MODEL	LINE VOTAGE
460-100-SP	95–120 V ac
460-200-SP	190–240 V ac

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### Specifications

#### Input Characteristics

##### Line Voltage

<b>460-100-SP</b>	95–120 V ac
<b>460-200-SP</b>	190–240 V ac

##### Frequency

50\*/60 Hz

#### Functional Characteristics

##### Low Voltage (% of setpoint):

<b>Trip</b>	90 % ±1 %
<b>Reset</b>	93 % ±1 %

##### High Voltage (% of setpoint)

<b>Trip</b>	110 % ±1 %
<b>Reset</b>	107 % ±1 %

##### Trip Delay Time

**Low or High Voltage** 4 seconds fixed

##### Restart Delay Time

**After a Fault** 1–500 seconds adjustable

**After a Complete Power Loss** 1–500 seconds adjustable

#### Output Characteristics

##### Output Contact Rating (1 Form C)

**Pilot Duty** 480 VA @ 240 V ac, B300

**General Purpose** 10 A @ 240 V ac

#### General Characteristics

##### Ambient Temperature Range

**Operating** -40° to 70°C (-40° to 158°F)

**Storage** -40° to 80°C (-40° to 176°F)

**Maximum Input Power** 6 W

**Class of Protection** IP20, NEMA 1 (finger safe)

**Relative Humidity** 10–95%, non-condensing per IEC 68-2-3

**Terminal Torque** 4.5 in.-lbs.

**Wire Type** Stranded or solid 12–20 AWG, one per terminal

#### Standards Passed

**Electrostatic Discharge (ESD)** IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air

**Radio Frequency Immunity,**

**Radiated** 150 MHz, 10 V/m

**Fast Transient Burst** IEC 61000-4-4, Level 3, 3.5 kV input power and controls

#### Surge

##### IEC

IEC 61000-4-5, Level 3, 4 kV line-to-line;  
Level 4, 4 kV line-to-ground

#### ANSI/IEEE

C62.41 Surge and Ring Wave Compliance to a level of 6 kV line-to-line

#### Hi-potential Test

Meets UL 508 (2 x rated V +1000 V for 1 min)

#### Safety Marks

##### UL

UL 508 (File #E68520)

#### Enclosure

Polycarbonate

#### Dimensions

**H** 88.9 mm (3.5"); **W** 52.93 mm (2.084");

**D** 59.69 mm (2.35")

#### Weight

0.9 lb. (14.4 oz., 408.23 g)

#### Mounting Method

35 mm DIN rail or Surface Mount  
(#6 or #8 screws)

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