

# INSTALLATION INSTRUCTIONS

Revision B1  
Rapid City, SD, USA, 04/2010

**Motorsaver®**  
ELECTRONIC MOTOR  
CONTROL & PROTECTION

## MODELS      201-100-SP 201-200-SP 201-200-SP-T-9



11-201-SP-B



[www.SymCom.com](http://www.SymCom.com)

...your electronic control & protection specialists

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## **DANGER!**



**HAZARDOUS VOLTAGES MAY BE PRESENT DURING INSTALLATION.**

**Electrical shock can cause death or serious injury.**

**Installation should be done by qualified personnel following all national, state and local electrical codes.**



**BE SURE POWER IS DISCONNECTED PRIOR TO INSTALLATION!  
FOLLOW NATIONAL, STATE AND LOCAL CODES.  
READ THESE INSTRUCTIONS ENTIRELY BEFORE INSTALLATION.**

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SymCom's MotorSaver<sup>®</sup> Models 201-XXX-SP and 201-200-SP-T-9 are voltage monitors designed to protect single-phase motors regardless of size. They can be used on 95-120VAC (201-100-SP) or 190-240VAC (201-200-SP and 201-200-SP-T-9) motors to prevent damage caused by low voltage. High voltage detection is included only on the 201-200-SP-T-9 model.

### **CONNECTIONS**

1. Locate a convenient location in or near the motor control panel. If the location is wet or dusty, the MotorSaver<sup>®</sup> should be mounted in a NEMA 4 or 12 enclosure.
2. Mount an 8-pin socket to the motor control back panel (SymCom P/N OT08-PC, sold separately, is required for UL rating).
3. Connect L1 and L2 (terminals 3 and 4 for Model 201-XXX-SP and terminals 6 and 7 for Model 201-200-SP-T-9) to the LINE SIDE of the motor starter as shown in Figures 1 and 2.
4. Connect the output relay to the circuitry to be controlled. For motor control, connect the normally open contact in series with the magnetic coil of the motor starter as shown in Figures 1 and 2. For alarm operation, connect the normally closed contact in series with the control circuit (terminals 1 and 2).
5. Plug the MotorSaver<sup>®</sup> into the socket.

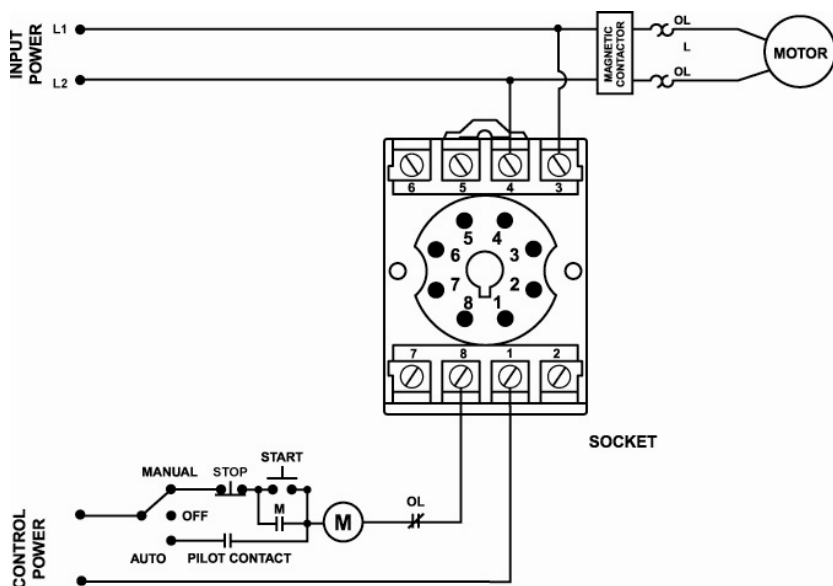


Figure 1: Typical Wiring Diagram for 201-100-SP, 201-200-SP

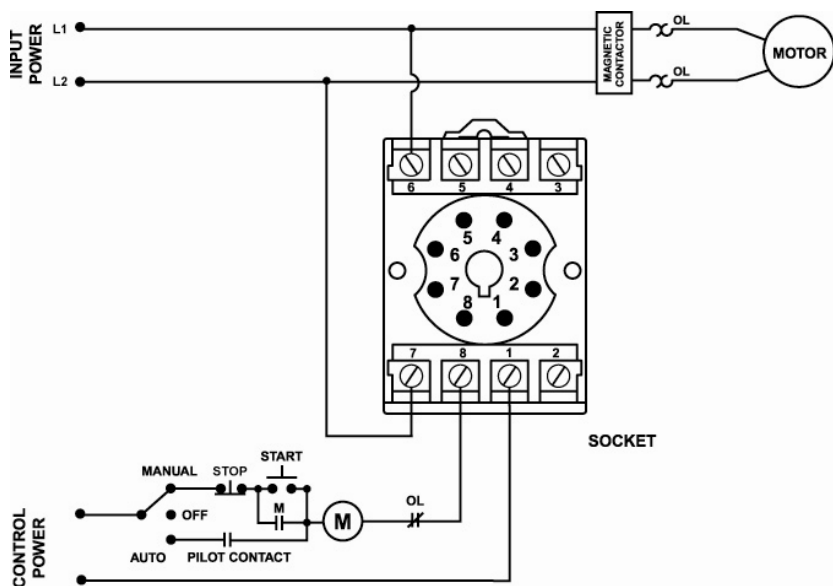


Figure 2: Typical Wiring Diagram for 201-200-SP-T-9

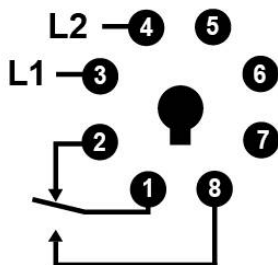


Figure 3: Pin-Out for 201-100-SP  
and 201-200-SP

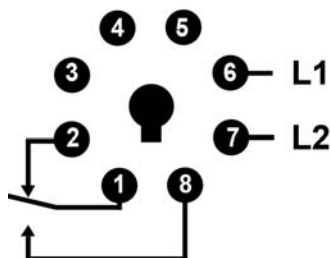


Figure 4: Pin-Out for 201-200-SP-T-9

## SETTINGS

Rotate the LINE VOLTAGE ADJUSTMENT knob to the nominal line voltage feeding the motor to be protected.

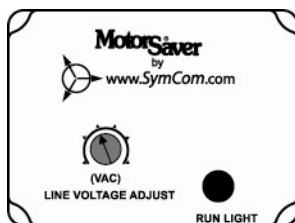


Figure 5: Adjustable Settings

## OPERATION

After applying power to the MotorSaver®, the green RUN light will blink during the restart delay. After the restart delay time has expired, the MotorSaver® will energize its output contacts (open the normally closed and close the normally open contacts) and the RUN light will turn solid green.

If the contacts do not energize and the RUN light does not turn solid green, see the TROUBLESHOOTING section.

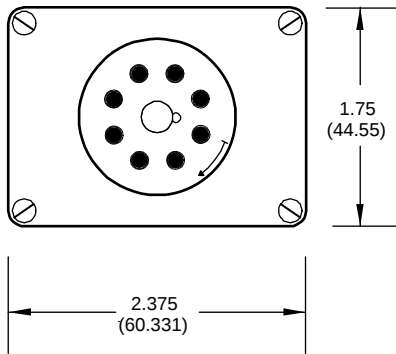
| INDICATOR LIGHT                                                                              | STATUS                             |
|----------------------------------------------------------------------------------------------|------------------------------------|
| GREEN                                                                                        | RUN                                |
| <br>GREEN | RESTART DELAY                      |
| RED                                                                                          | LOW VOLTAGE                        |
| <br>RED   | HIGH VOLTAGE (201-200-SP-T-9 ONLY) |

Table 1: Diagnostic Indicator Lights

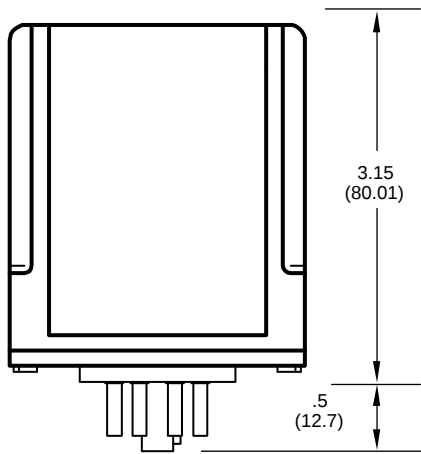
## **TROUBLESHOOTING**

| <b>SYMPTOM</b>                                                       | <b>LIGHT<br/>PATTERN</b>                                                                          | <b>SOLUTION</b>                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No lights are on -<br>the unit seems<br>completely dead              | <b>N/A</b>                                                                                        | Verify input power is connected to terminals as shown in Figures 1 and 2. If the voltage is below the specified operating voltage, the MotorSaver <sup>®</sup> does not have enough power to operate its internal electronics. If the voltage is correct, call SymCom at (800) 843-8848 or (605) 348-5580. |
| Red light is blinking<br>in this pattern<br>(201-200-SP-T-9<br>ONLY) | <br><b>RED</b>   | The voltage is high. If the voltage is 7% above the line voltage adjustment setting, the MotorSaver <sup>®</sup> is functioning properly. If the voltage is within 7%, call SymCom at (800) 843-8848 or (605) 348-5580.                                                                                    |
| Red light is on<br>steady                                            | <b>RED</b>                                                                                        | The voltage is low. If the voltage is 7% below the line voltage adjustment setting, the MotorSaver <sup>®</sup> is functioning properly. If the voltage is within 7%, call SymCom at (800) 843-8848 or (605) 348-5580.                                                                                     |
| Green light blinks<br>and motor is not<br>running                    | <br><b>GREEN</b> | The MotorSaver <sup>®</sup> is timing through the restart delay and will energize its contacts when finished                                                                                                                                                                                               |
| Green light is on<br>steady, but motor<br>does not start             | <b>GREEN</b>                                                                                      | The MotorSaver <sup>®</sup> is in run mode. Ensure other control devices are allowing the motor to start. Check control circuit for loose wires or malfunctioning switches.                                                                                                                                |

**DIMENSIONS**



**BOTTOM**



**SIDE**

**NOTE:** Use of the OT08-PC or RB08-PC octal socket, manufactured by Custom Connector Corp., is required for the MotorSaver to qualify as a UL Listed device. The OT08-PC is 35mm DIN rail compatible.

## **MOTORSaver® 201-XXX-SP SPECIFICATIONS**

| <b>Functional Characteristics</b>          |                                                                       |
|--------------------------------------------|-----------------------------------------------------------------------|
| Low Voltage                                |                                                                       |
| Trip                                       | 90% of setting                                                        |
| Reset                                      | 93% of setting                                                        |
| High Voltage (201-200-SP-T-9 ONLY)         |                                                                       |
| Trip                                       | 110% of setting                                                       |
| Reset                                      | 107% of setting                                                       |
| Trip Delay                                 |                                                                       |
| High/Low Voltage                           | 4 seconds                                                             |
| Restart Delay                              | 2 seconds                                                             |
| <b>Input Characteristics</b>               |                                                                       |
| Line Supply Voltage                        |                                                                       |
| 201-100-SP                                 | 95-120VAC                                                             |
| 201-200-SP                                 | 190-240VAC                                                            |
| 201-200-SP-T-9                             | 190-240VAC                                                            |
| Frequency                                  | 50/60Hz                                                               |
| <b>Output Characteristics</b>              |                                                                       |
| Output Contact Rating                      |                                                                       |
| Pilot Duty                                 | 480VA @ 240VAC                                                        |
| General Purpose                            | 10A @ 240VAC                                                          |
| <b>General Characteristics</b>             |                                                                       |
| Environmental                              |                                                                       |
| Ambient Operating Temperature <sup>1</sup> | -40° to 70°C (-40° to 158°F)                                          |
| Relative Humidity                          | 10-95%, non-condensing per IEC 68-2-3                                 |
| Maximum Input Power                        | 5 W                                                                   |
| Standards Passed                           |                                                                       |
| Electrostatic Discharge (ESD)              | IEC 61000-4-2, Level 3, 6kV contact, 8kV air                          |
| Radio Frequency Immunity, Radiated         | 150 MHz, 10V/m                                                        |
| Fast Transient Burst                       | IEC 61000-4-4, Level 4, 4kV input power and controls                  |
| Surge Immunity                             |                                                                       |
| IEC                                        | IEC 61000-4-5, Level 4, 4kV line-to-line; Level 4, 4kV line-to-ground |
| ANSI/IEEE                                  | C62.41 Surge and Ring Wave Compliance to a level of 6kV line-to-line  |
| Hi-Potential Test                          | Meets UL508<br>(2 x rated V +1000 V for 1 minute)                     |
| Safety Marks                               |                                                                       |
| UL listed (OT08 octal socket required)     | UL508 (File #E68520)                                                  |
| CE                                         | IEC 60947-6-2                                                         |
| Dimensions                                 | 1.750" H x 2.375" W x 4.125" D (with socket)                          |
| Weight                                     | 9 oz.                                                                 |
| Enclosure                                  | Polycarbonate                                                         |
| Mounting Method                            | Plugs into OT08 Socket                                                |
| Wire Gauge                                 | 12-22 AWG Solid or Stranded                                           |
| Terminal Torque for P/N OT08 Socket        | 12 in. - lb                                                           |

<sup>1</sup> The ambient air temperature is the air temperature directly surrounding the product.

For warranty information, please see **Terms and Conditions** at  
*[www.symcom.com](http://www.symcom.com)*

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