

INSTALLATION INSTRUCTIONS FOR SYMCOM'S MOTORSAVER MODEL 355

**BE SURE POWER IS DISCONNECTED PRIOR TO INSTALLATION!!
FOLLOW NATIONAL, STATE AND LOCAL CODES!**

CONNECTIONS

1. Mount the MotorSaver in a convenient location in or near the motor control panel. If the location is wet or dusty, then MotorSaver should be mounted in a NEMA 4 or 12 enclosure.
2. Connect the three lines of the motor's three-phase power to L1, L2 and L3 on MotorSaver's terminal strip (see Figure No. 1).
3. Connect the output relay to the circuitry to be controlled (see Figure No. 1).

(A) To control a motor: Connect the normally open contact in series with the magnetic coil of the motor starter as shown in Figure No. 1(A).

(B) To sound an alarm: Connect the normally closed contact in series with the alarm as shown in Figure No. 1(B).

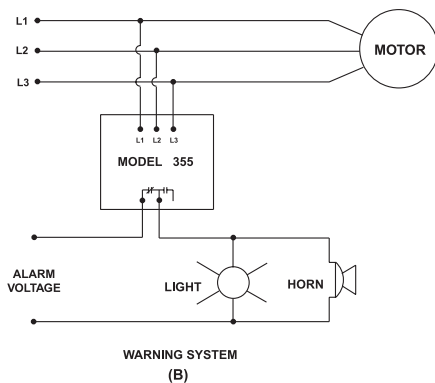
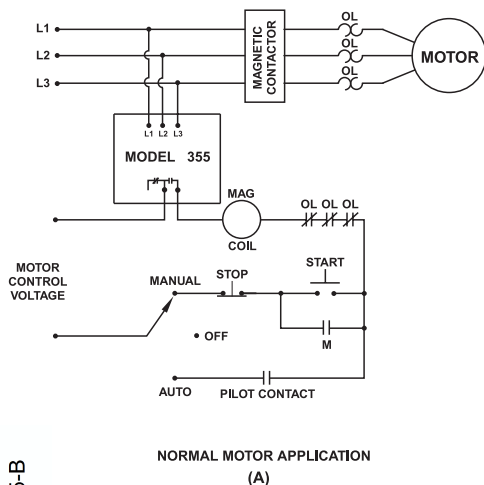
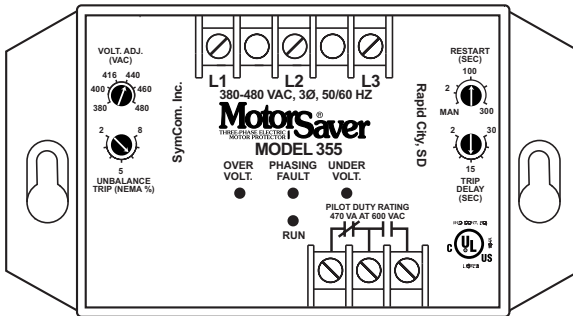


FIGURE NO. 1: TYPICAL WIRING DIAGRAMS



SETTINGS

1. **LINE VOLTAGE ADJUSTMENT:** Rotate the LINE VOLTAGE ADJUSTMENT to the nominal three-phase line voltage feeding the motor to be protected.
2. **RESTART delay:** Rotate the RESTART delay to the desired position. The restart delay is the time between MotorSaver seeing acceptable power and MotorSaver closing its output contacts. For compressor applications, the restart delay should be set for the approximate time it takes for the head pressure to bleed off of the compressor. For other applications, the restart delay is typically set at 2 seconds.
The manual position on the restart adjustment can be used as a manual reset after any fault condition, or loss of incoming power. To utilize this feature, rotate the restart adjustment to "2" and allow the run light to come on steady. Then rotate the restart adjustment back to the manual mode. If a power fault occurs after this sequence, the unit will remain off with the corresponding fault light on until the restart delay is removed from the manual position.



3. **UNBALANCE TRIP:** Rotate the UNBALANCE TRIP to the desired voltage unbalance trip level. The NEMA MG1 standard does not recommend operating a motor above a 1% voltage unbalance as determined by the following formula without derating the motor.

$$\% \text{ Voltage Unbalance} = [(\text{Maximum Deviation from the Average}) / \text{Average}] \times 100\%$$

The NEMA MG1 standard also recommends against operating a motor above a 5% voltage unbalance under any circumstances. Therefore, a 5% setting on "UB" is a good place to start but SymCom recommends consulting the motor manufacturer for specific tolerances.

4. **TRIP DELAY ADJUSTMENT:** Rotate the TRIP DELAY ADJUSTMENT to the desired setting. The adjustment does not affect the trip delay on a single-phasing fault. Typically, the TRIP DELAY ADJUSTMENT is set to 4 seconds. In areas where voltage fluctuations are frequent, the TRIP DELAY ADJUSTMENT may be set between 10 and 20 seconds.

POWER-UP

Turn on the power to the motor. The green RUN LIGHT will blink during the RESTART delay. After the RESTART delay, MotorSaver will energize its output contacts and the green RUN LIGHT will light. If the contacts do not energize and the RUN LIGHT does not light, then see the Trouble-Shooting section.

**CONGRATULATIONS!!! YOU HAVE JUST INSTALLED
THE FINEST MOTOR PROTECTION AVAILABLE!
HAVE QUESTIONS? CALL 1-800-843-8848**

TROUBLESHOOTING

SYMPTOM	SOLUTION
RUN LIGHT does not blink on initial power-up and all three fault lights are on.	Check RESTART DELAY adjustment. If the RESTART DELAY is set to "MAN", the Model 355 is in manual restart mode. Turn the RESTART DELAY to "2" for several seconds until the output contacts close.
No LEDs are lit. The unit seems completely dead.	Measure the three line-to-line voltages. If any of the voltages are below 150 VAC, the Model 355 does not have enough power to operate its internal electronics. This may occur on a single-phased system. If the voltages are correct, call SymCom @ 1-800-843-8848.
PHASING FAULT light is blinking on initial installation power up.	Turn off the three-phase power. Swap any two leads powering the Model 355: L1, L2 or L3. You have a 50-50 chance of connecting L1, L2 and L3 up correctly the first time. Turn on the three-phase power.
PHASING FAULT light is blinking after the motor has been previously running.	The incoming lines have been reverse phased. Swap any two incoming power lines to the magnetic contactor.
The PHASING FAULT light is on and the unit will not reset even though the RESTART DELAY is not in the "MAN" position.	Measure incoming lines for correct voltages. If the voltages exceed the NEMA unbalance setting, then an unbalance/single phase condition has occurred. If the voltage unbalance is within the reset window, call SymCom @ 1-800-843-8848.
The UNDER VOLT or OVER VOLT light is on.	Measure the three line-to-line voltages. Calculate the average of the three voltages. If the average is outside of -7% of the nominal voltage as set by LINE VOLTAGE ADJUST, then the Model 355 is functioning properly. If the voltage is within the reset window, call SymCom @ 1-800-843-8848

INDICATOR LIGHTS

LED INDICATOR	CONDITION
UNDER VOLTAGE On	Voltage less than 93% of nominal voltage as set on the LINE VOLTAGE ADJUST.
OVER VOLTAGE On	Voltage greater than 107% of nominal voltage as set on the LINE VOLTAGE ADJUST.
PHASING FAULT On	Voltage unbalance is greater than the setting of UNBALANCE TRIP or a single-phasing fault has occurred.
PHASING FAULT Blinking	Incoming power is reverse-phased.
UNDER VOLTAGE, OVER VOLTAGE and PHASING FAULT LIGHTS On	Unit has been powered up in the manual restart position.
RUN LIGHT On	Output contact is energized.
RUN LIGHT Blinking	RESTART DELAY is timing out.

SPECIFICATIONS	MODEL 355
3-Phase Line Voltage (specify voltage range)	190 - 240, 380 - 480 or 475-600 VAC
Frequency	50* - 60 Hz
Operating Points	
Low Voltage (% of set point)	
Trip	90% $\pm$ 1%
Reset	93% $\pm$ 1%
High Voltage (% of set point)	
Trip	110% $\pm$ 1%
Reset	107% $\pm$ 1%
Voltage Unbalance (NEMA)	
Trip	2% - 8% Adjustable
Reset	Trip Setting minus 1%
Trip Delay Time	
Low Voltage, High Voltage and Unbalance Faults	2-30 Seconds Adjustable
Single Phasing Faults (>25% UB)	2 Seconds Fixed
Restart Delay Time	
After a Fault	2-300 Seconds Adjustable
After a Complete Power Loss	2-300 Seconds Adjustable
Output Contact Rating (Pilot Duty) SPDT	470VA @ 600VAC (400 or 600V Range)
(DPDT Relay only available with 470AV @ 600 VAC)	15 Amps Gen. Purpose or 480VA @ 240VAC (200V Range)
Internal Transient Protection	IEC 1000-4-5;1995 to a level of $\pm$ 6 kV
Repeat Accuracy	
Fixed Conditions	$\pm$ 0.1%
Power Consumption	6 Watts (Max.)
Weight	1 lb.
*50 Hz units will increase all delay times by 20%	

SymCom Warrants its microcontroller based products against defects in material or workmanship for a period of five (5) years from the date of manufacture. All other products manufactured by SymCom shall be warranted against defects in material and workmanship for a period of two (2) years from the date of manufacture. For complete information on warranty, liability, terms, returns, and cancellations, please refer to the SymCom Terms and Conditions of Sale document.