



**COMPONENT-MATERIAL  
ENGINEERING SPECIFICATION**

Part No.	800- 013-46	REV 00
Ref. Code	403	
U.O.M.	EA	
Engg. Ref.	CH/AP/UP	

**Part Description : 3PHASE VOLTAGE MONITOR 190 TO 480Vac; 50/60Hz**

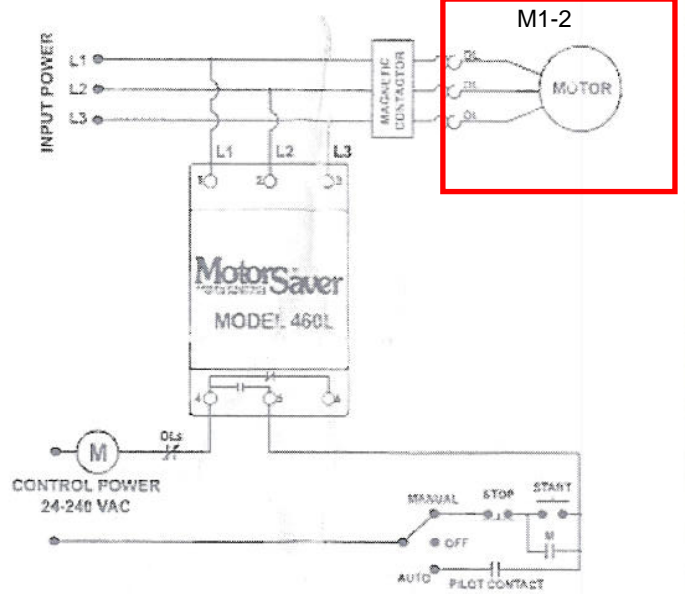
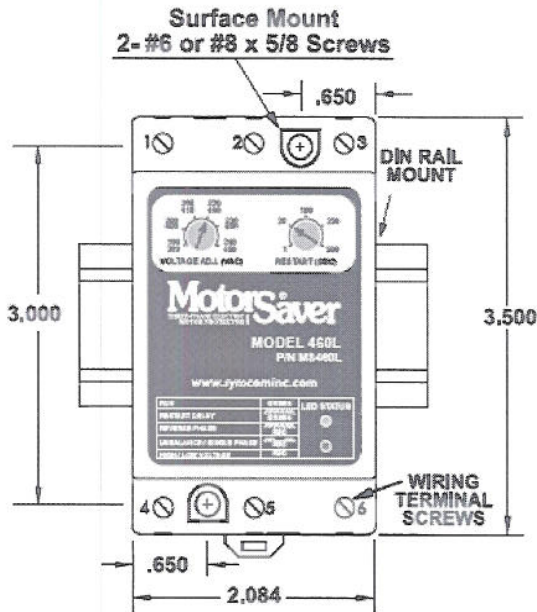
<b>VENDOR</b>	: SYMCOM INC.	M1-1
<b>MODEL</b>	: 460-L / (MS460L)	
<b>TYPE</b>	: ADJUSTABLE VOLTAGE AND RESTART; AUTO RESET	
<b>CONTACT OUTPUT RATING</b>	: SPDT; 10A AT 240VAC (PILOT DUTY 480VA @ 240Vac)	
<b>MONITORING PARAMETERS</b>	: UNDER VOLTAGE, OVER VOLTAGE, PHASE LOSS PHASE REVERSAL & PHASE UNBALANCE	
<b>LINE VOLTAGE RANGE</b>	: 190 TO 480Vac (ADJUSTABLE)	
<b>RESTART TIME</b>	: 1 TO 500 SECONDS (ADJUSTABLE)	
<b>TRIP DELAY TIME</b>	: UNDER/OVER/UNBALANCE VOLTAGE - 4 SECONDS : SINGLE/REVERSE PHASING - 1 SECOND	
<b>LOW/UNDER VOLTAGE</b>	: TRIP - 90% FROM THE SETPOINT : RESET - 93% FROM THE SETPOINT	
<b>HIGH/OVER VOLTAGE</b>	: TRIP - 110% FROM THE SETPOINT : RESET - 107% FROM THE SETPOINT	
<b>VOLTAGE UNBALANCE</b>	: TRIP - 6% : RESET - 4.5%	
<b>MOUNTING</b>	: RAIL MOUNTING	
<b>DIMENSION</b>	: LENGTH - 89 mm (+/- 1mm) : WIDTH - 53 mm (+/- 1mm) : DEPTH - 60 mm (+/- 1mm)	
<b>CERTIFICATION</b>	: UL / CE	
<b>OPERATING TEMP / HUMIDITY</b>	: -20 deg C TO +70 deg C / 95%	
<b>IP</b>	: IP20	



<b>ALL DIMENSIONS ARE IN mm (BRACKET DIMENSIONS ARE IN INCHES)</b>				<b>SHEET 1 of 2</b>		<b>SCALE : N.T.S</b>	
Tolerance: : Unless noted (±) : fraction 1/32" ; Decimal 0.031				WRITER	AL-ALI. HUSAIN		
				INITIATOR	JESSIE		
				ENG. CHECK	JESSIE		
				VERIFIED	M.KHAWALDEH		
				APPROVED	FAWAZ AL-BITAR		
				Issue Date	08-02-2010		
REV	Revision Details			Designer	Rev.Date	File Ref.	Ziicnas\Eng-Specs/80001346

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**Figure No. 1: Motor Control Wiring Diagram  
TROUBLESHOOTING**

**QUALIFIED**  
15 FEB 2010  
QA      DATE

SYMPTOM	LIGHT PATTERN	SOLUTION
No lights are on. The unit seems completely dead.	NA	Measure the three line-to-line voltages. If any of the voltages are below 150 VAC, the Model 460L 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.
Red light is blinking on initial installation power up.	RED	Turn off the three-phase power. Swap any two leads powering the Model 460L: 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.
Red light is blinking after the motor has been previously running.	RED	The incoming lines have been reverse phased. Swap any two incoming power lines to the magnetic contactor.
Red light is blinking in this pattern.	RED	Indicates voltage unbalance. Measure incoming line voltages and calculate % unbalance as shown below. If voltage unbalance does not exceed the 4.5% unbalance set on the front call SymCom at 1-800-843-8848.
Red light is on steady.	NA	Measure the three line-to-line voltages. Calculate the average of the three voltages. If the average is outside of $\pm 7\%$ of the nominal voltage as set by LINE VOLTAGE ADJUST, then the Model 460L is functioning properly. If the voltage is within the reset window, call SymCom @ 1-800-843-8848.
Green light blinks but motor does not start.	GREEN	The Model 460L is in restart delay.
Green light is on steady but motor does not start.	NA	Check control circuit for loose wires or malfunctioning switches.

<b>ALL DIMENSIONS ARE IN mm (BRACKET DIMENSIONS ARE IN INCHES)</b>		<b>SHEET 2 of 2</b>		<b>SCALE : N.T.S</b>	
Tolerance: : Unless noted ( $\pm$ ) : fraction 1/32" ; Decimal 0.031		WRITER	AL-ALI HUSAIN		
		INITIATOR	JESSIE		
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