

## Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage!





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### Precautions and Warnings

To prevent injury and property damage, follow these instructions. Failure to adhere to installation/operation procedures and all applicable codes may result in hazards as indicated by warning codes outlined below:

<b>DANGER</b>	
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.	
<b>WARNING</b>	
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.	
<b>CAUTION</b>	
Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.	
	This is the safety alert symbol. Read and follow instructions carefully to avoid a dangerous situation.
	This symbol alerts the user to the presence of "dangerous voltage: inside the product that might cause harm or electrical shock.

## Safety Instructions

<b>DANGER</b>	
Equipment starts automatically. Lockout/tagout before servicing.	
<b>CAUTION</b>	
As with all electrical products, read manual thoroughly. Only qualified, expert personnel should perform maintenance and installation. Contact the nearest authorized service facility for examination, repair, or adjustment. Do not disassemble or repair unit unless described in this manual; death or injury to electrical shock or fire hazard may result. Specifications and manual data subject to change. Consult factory for additional information.	
<b>DANGER</b>	
 	<b>HAZARDOUS VOLTAGE</b>
<ul style="list-style-type: none"> <li>• Disconnect and lock out all power before installing or servicing equipment.</li> <li>• This equipment may require locking out multiple power sources prior to service.</li> <li>• Install and wire in accordance with all applicable local and national electrical and construction codes.</li> </ul>	
<b>WARNING</b>	
<b>FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DEATH OR SERIOUS INJURY.</b>	

## Installation

### WARNING

- Do not locate starter in an environment subject to flammable gases, dusts or materials. Contact arcing can induce explosion or fire.
- Install starter in UL Type 1 (NEMA-1) appropriate locations only. Safe mounting requires a dry, protected environment.
- Do not allow any metal shavings or debris from installation to enter enclosure.

### Mounting

Mount the starter on a minimum 14 cu-in single gang junction box. To access mounting holes, slide upper and lower covers to the open position. (See Figure 1)

Using provided mounting screws (6-32 x 7/8-inch), attach starter housing to junction box (once appropriate wiring has been completed).

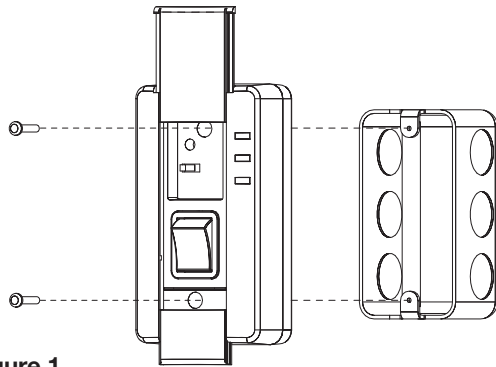


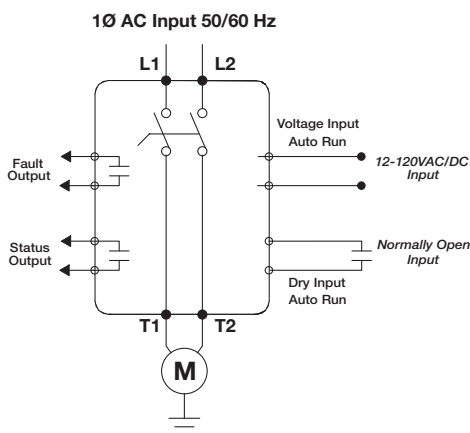
Figure 1

### Main Power Wiring

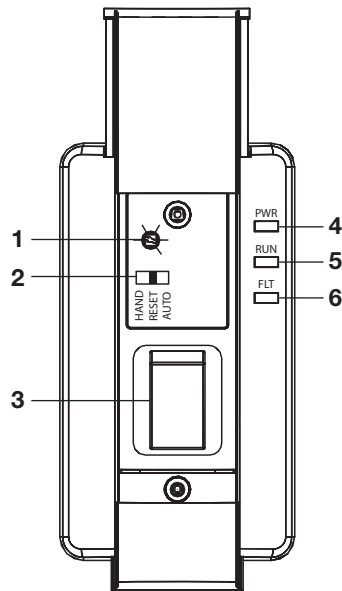
Wire main power input and output to the appropriate 12AWG wire leads utilizing properly sized wire nuts. Use only copper conductors rated at least 60°C. Maintain proper clearances and verify that no possibility of an electrical short exists between the power conductors or enclosure. Ensure that wires are not under stress and all insulation is intact.

### Low Voltage Wiring

Automation system control wiring should be run in a separate conduit. The control terminals accept 26~14AWG wire torqued to 3.5 in-lb.



## Operation



1. Overload Adjustment
2. Operation Mode Selector
3. Main Power / Disconnect
4. PWR Power Status LED
5. RUN Run Status LED
6. FLT Fault / Overload LED

### Overload Adjustment

Confirm nameplate Full Load Amperage (FLA) to ensure proper overload protection. Using a flathead screwdriver, turn the adjustment dial to the desired amperage setting. The starter is not rated to protect loads exceeding 16 amps.

### Operation Modes

**RESET:** To reset the starter to normal operation following a Fault condition, slide the 3-position switch to RESET and hold for a minimum of 5 seconds (after 180 second cool down period has elapsed). Once starter has been reset, return switch to the desired mode.

**MANUAL (HAND MODE):** In Manual or HAND mode, the MS-1P will function as a motor disconnect or “manual motor starter.” Select the ON (I) position on the main power switch to engage motor.

**AUTOMATIC (AUTO MODE):** When utilizing the starter in the AUTO mode, a signal sent via the terminal inputs (located on rear of unit) determine motor operation (ON or OFF).

### LED Status Indicators

**POWER (PWR):** Illuminates when voltage is applied to the input terminals and main power switch is in the ON (I) position.

**RUN:** Under a RUN condition, the RUN LED will remain illuminated if the MS-1P senses current providing status. The LED will flash when the unit does not sense current.

**FAULT (FLT) - Overload Trip:** The MS-1P indicates a fault condition by flashing the red FAULT LED which will remain constant in the event of a fault trip. The LED will also flash if a RESET attempt is made during the 180 second overload cool down period.

## Lockout Options

To lockout, slide the lower cover upward to reveal concealed locking grasp. Insert a standard padlock to prevent unauthorized access or tampering. If multiple padlocks are required, an optional padlocking attachment can be utilized (not included). See Figures 2A and 2B

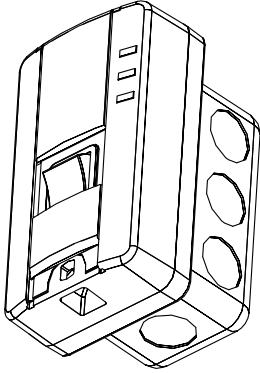


Figure 2A

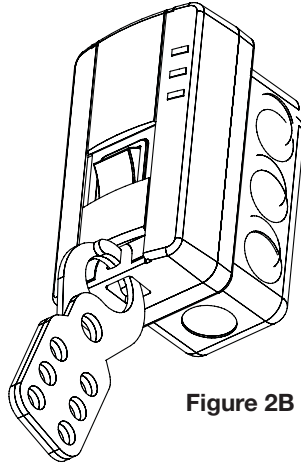
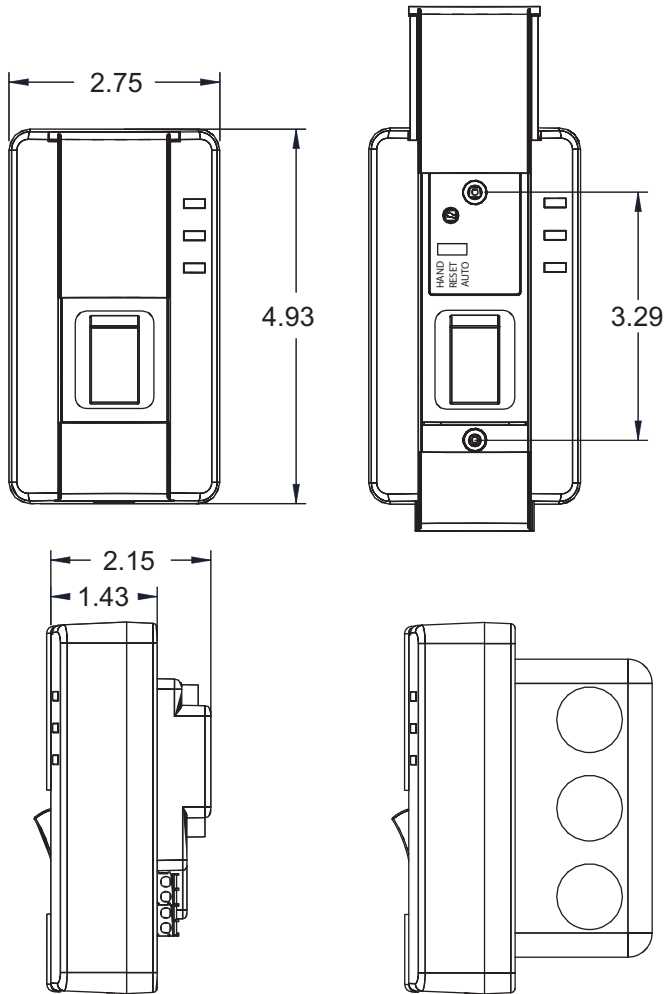


Figure 2B

## Product Ratings

	MS-1P
<b>Horsepower</b>	1 Horsepower 115 or 230 VAC
<b>Short Circuit Protection</b>	Suitable for use on a circuit capable of delivering not more than $I_k$ RMS Symmetrical Amperes, 240 volts maximum when protected by Class J or Class RK fuses (30 amp max) or magnetic circuit breaker (40 amp max)
<b>Interrupt Current</b>	$I_k \leq 5kA$ RMS Symmetrical
<b>Max Current</b>	16A
<b>Overload</b>	$I^2t$ Class 10
<b>Reset</b>	Manual

## Dimensions



All dimensions in inches

## Our Commitment

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*As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.*

Specific Greenheck product warranties are located on [greenheck.com](http://greenheck.com) within the product area tabs and in the Library under Warranties.

Greenheck Motor Starter catalogs provide additional information describing the equipment and specification data.

AMCA Publication 410-96, Safety Practices for Users and Installers of Industrial and Commercial Fans, provides additional safety information. This publication can be obtained from AMCA International, Inc. at [www.amca.org](http://www.amca.org).

