



1740008.00

Instruction Guide

S P E C I F I C A T I O N S

Line Voltage	.115/240 VAC \pm 10% single phase, 50/60 Hz
Horsepower Range @ 115 VAC	.1/20 - 1/8 HP
Horsepower Range @ 240 VAC	.1/10 - 1/4 HP
Armature Voltage Range	.0 - 240 VDC
Maximum Armature Current (continuous)	.3 ADC
Acceleration Time (no load)	.1 second
Deceleration Time (no load)	.1 second
Speed Regulation (% of base speed)	.1%
Line Fuse	.5A, fast-acting
Weight	.068 lb
Dimensions	.5.50 in. x 3.50 in. x 3.20 in.
Ambient Temperature Range	.10°C - 40°C

LIMITED WARRANTY

A. Warranty - LEESON Electric warrants that its products will be free from defects in material and workmanship for a period of one (1) year from the date of shipment thereof. Within the warranty period, LEESON will repair or replace such products that are returned to LEESON or to the nearest Branch Office, with shipping charges prepaid. At our option, all return shipments are F.O.B. LEESON or its Branch Office. This warranty shall not apply to any product that has been subject to misuse, negligence, or accident; or misapplied; or repaired by unauthorized persons; or improperly installed. LEESON is not responsible for removal, installation, or any other incidental expenses incurred in shipping the product to or from the repair point.


B. Disclaimer - The provisions of Paragraph A are LEESON's sole obligation and exclude all other warranties of MERCHANTABILITY or use, express or implied. LEESON further disclaims any responsibility whatsoever to the customer or any other persons for injury to person or damage or loss of property of value caused by any product that has been subject to misuse, negligence, or accident, or misapplied or modified by unauthorized persons or improperly installed.

C. Limitations of Liability - In the event of any claim or breach of any of LEESON's obligations, whether expressed or implied, and particularly of any claim of a breach of warranty claimed in Paragraph A, or of any other warranties, express, or implied, or claim of liability that might, despite Paragraph B, be decided against us by any lawful authority, LEESON shall under no circumstances be liable for any consequential damages, losses, or expense arising in connection with the use of, or inability to use, LEESON's product for any purpose whatsoever. An adjustment made to the warranty does not void the warranty, nor does it imply an extension of the original one (1) year warranty period. Product serviced and/or parts replaced by a no-charge basis during the warranty period carry the unexpired portion of the original warranty only.

If for any reason any of the forgoing provisions shall be ineffective, LEESON's liability for damages arising out of its manufacture or sale of equipment, or use thereof, whether such liability is based on warranty, contract, negligence, strict liability in tort, or otherwise, shall not in any event exceed the full purchase of such equipment.

Any action against LEESON based upon any liability or obligation arising hereunder or under any law applicable to the sale of equipment or the use thereof must be commenced within one year after the cause of such action arises.

Safety Warnings

This symbol  denotes an important safety message. Please read these sections carefully before performing any of the instructions contained in this manual.

- Have a qualified electrical maintenance technician install, adjust and service this equipment. Follow the National Electrical Code and all other applicable electrical and safety codes, including the provisions of the Occupational Safety and Health Act (OSHA), when installing equipment.
- Reduce the chance of an electrical fire, shock, or explosion by proper grounding, over-current protection, thermal protection and enclosure. Follow sound maintenance procedures.
- **It is possible for a drive to run at full speed as a result of a component failure.** In order to stop the drive in an emergency, please ensure that a master switch has been installed in the AC line.
- **This drive is not isolated from earth ground.** Circuit potentials are at 115 to 240 VAC above earth ground. Avoid direct contact with the printed circuit board or with circuit elements to prevent the risk of serious injury or fatality. Use a non-metallic screwdriver for adjusting the calibration trimpots.

Dimensions

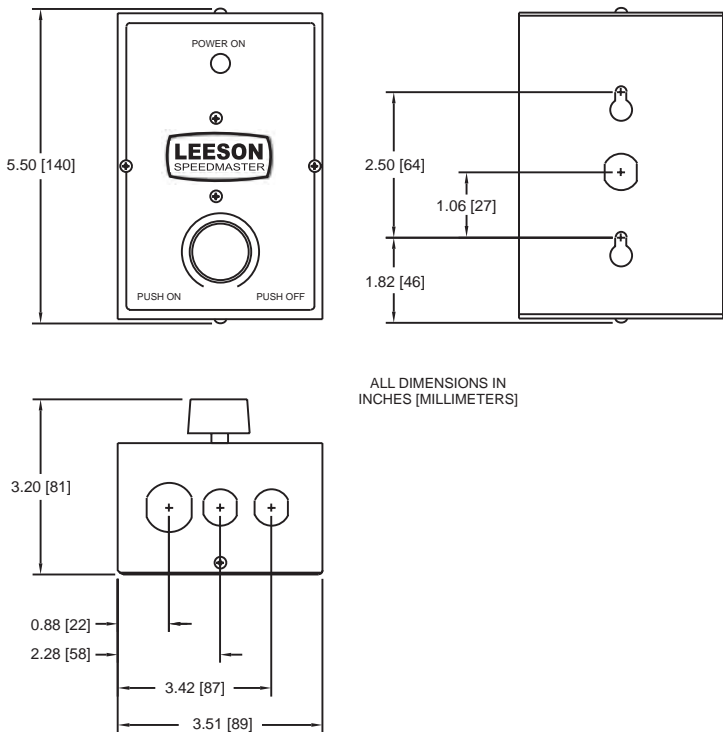


Figure 1. Case Layout

Mounting

Mount the drives vertically or horizontally using the two mounting keyholes on the back of the case (see Figure 2 on page 4). The keyholes are 2.5 inches apart. For access to the keyholes from the inside of the case, remove the six case cover screws, lift the case cover straight out, and remove the fishpaper from inside the back cover. Leave the case cover removed to wire the AC line and motor to the drive.

NOTE: After mounting, return the fishpaper to the inside back cover, as it provides necessary electrical isolation.

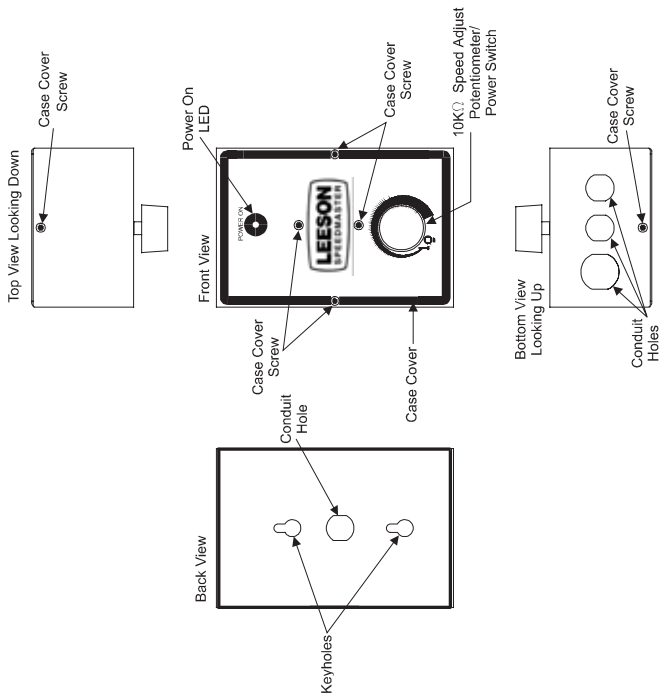


Figure 2. Case Layout

Wiring

The drive has three conduit holes on the bottom of the case and one conduit hole on the back of the case (Figure 2). Connect external wiring through any of these conduit holes. Avoid using the same conduit hole for the AC power wires and the motor wires.

See Figure 3 (page 6) for AC line and motor connections. Be sure that all connections are made before operating the drive. Use insulated spade lugs when making connections.

Operation

1. To apply power, turn the speed adjust knob CW until the switch makes an audible “click”. The POWER ON LED lights when power is applied.
2. Rotate the speed adjust potentiometer knob clockwise until the desired speed is reached.
3. To remove power, rotate the speed adjust knob full CCW until the switch makes an audible “click”. The POWER ON LED shuts off when power is removed.

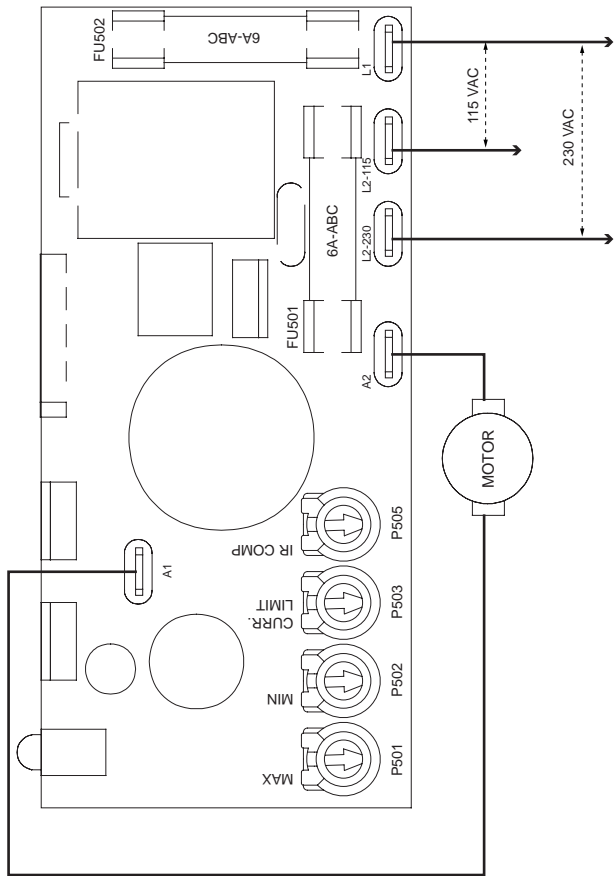


Figure 3. Drive Connections

Calibration

Each drive is factory calibrated to its maximum horsepower rating. Readjust the calibration trimpot setting to accommodate lower horsepower motors.

All adjustments increase with clockwise (CW) rotation and decrease with counterclockwise (CCW) rotation. Use a non-metallic screwdriver for calibration. Each trimpot is identified on the printed circuit board.

Maximum Speed (MAX)

The MAX trimpot (P501) sets the maximum speed. Turn the speed adjust knob full CW before calibrating the MAX trimpot. Adjust the MAX trimpot until the desired maximum motor speed is reached.

Minimum Speed (MIN)

The MIN trimpot (P502) sets the minimum speed. Turn the speed adjust knob full CCW (but do not turn off) before calibrating the MIN trimpot. Adjust the MIN trimpot until the motor rotates at the desired minimum speed.

Regulation (IR COMP)

The IR COMP (P503) trimpot sets the voltage gain needed to maintain the set speed of a motor under load. If the motor does not maintain set speed as the load changes, gradually rotate the IR COMP trimpot CW. If the motor oscillates (overcompensation), the IR COMP trimpot may be set too high. Turn the IR COMP trimpot CCW to stabilize the motor. See Figure 4 (page 9) for typical IR COMP settings.

Current Limit (CURR. LIMIT)

The CURR. LIMIT trimpot (P505) sets the drive's maximum armature current limit. See Figure 4 for typical CURR. LIMIT settings, or calibrate as follows:

1. With the AC line voltage disconnected from the drive, connect a DC ammeter in series with the armature.
2. Set the CURR. LIMIT trimpot to minimum (full CCW).
3. Lock the motor armature. Be sure that the motor is firmly mounted.
4. Connect AC line voltage to the drive.
5. Turn the power on, and set the speed adjust potentiometer to maximum speed (full CW).
6. Adjust the CURR. LIMIT trimpot CW slowly until the armature current is 120% of motor rated current.
7. Disconnect AC power from the drive.
8. Set the speed adjust potentiometer to minimum speed and remove the lock from the motor shaft.

115 VAC INPUT



CURREN. LIMIT



IR COMP

1/4 HP
130 VDC
2500 RPM
1.80 ADC



CURREN. LIMIT



IR COMP

1/8 HP
90 VDC
1750 RPM
1.30 ADC



CURREN. LIMIT



IR COMP

1/8 HP
130 VDC
2500 RPM
1.00 ADC



CURREN. LIMIT



IR COMP

1/10 HP
90 VDC
1725 RPM
1.10 ADC



CURREN. LIMIT



IR COMP

1/12 HP
130 VDC
2500 RPM
0.71 ADC



CURREN. LIMIT



IR COMP

1/20 HP
90 VDC
1750 RPM
0.56 ADC

240 VAC INPUT



CURREN. LIMIT



IR COMP

1/2 HP
240 VDC
2500 RPM
1.80 ADC



CURREN. LIMIT



IR COMP

1/4 HP
180 VDC
1750 RPM
0.56 ADC



CURREN. LIMIT



IR COMP

1/4 HP
240 VDC
2500 RPM
1.00 ADC



CURREN. LIMIT



IR COMP

1/5 HP
180 VDC
1725 RPM
1.10 ADC



CURREN. LIMIT



IR COMP

1/6 HP
240 VDC
2500 RPM
0.71 ADC



CURREN. LIMIT



IR COMP

1/8 HP
180 VDC
1750 RPM
0.56 ADC

Figure 4. Typical CURREN. LIMIT & IR COMP Settings

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