



M1740008.OO Instruction Guide

Specifications

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	5 A, fast acting
Weight	0.68 lb
Dimensions	5.50 in. x 3.50 in. x 3.20 in.
Ambient Temperature Range	10°C – 40°C

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.

Mounting

Mount the drive vertically or horizontally using the two mounting keyholes on the back of the case (see Figure 1). The keyholes are 2.5 inches apart. For access to the keyholes from the inside of the case, remove the four 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.

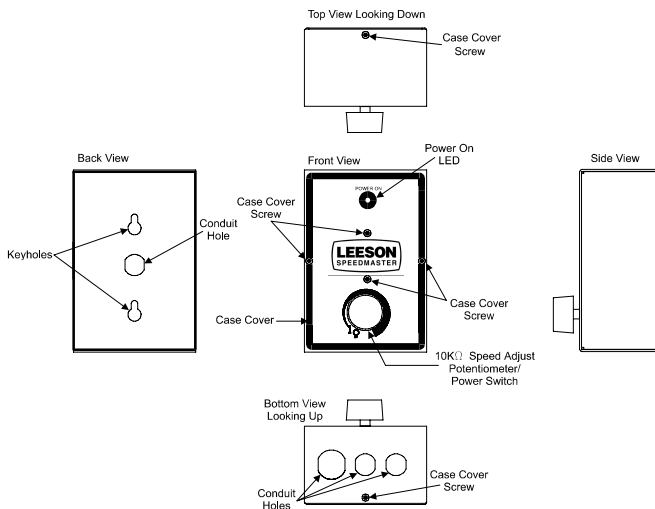


Figure 1. Case Layout

Wiring

The drive has three conduit holes on the bottom of the case and one conduit hole on the back of the case (Figure 1). 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 2 for AC line and motor connections. Be sure that all connections are made before operating the drive. Use insulated spade lugs when making connections.

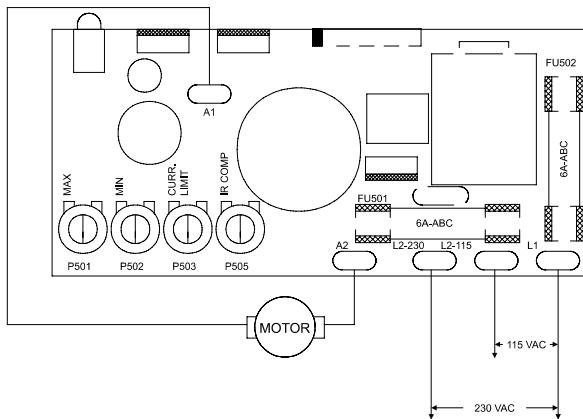


Figure 2. Drive Connections

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.

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 Figures 3 and 4 for typical IR COMP settings.

CURRENT LIMIT (CURR. LIMIT)

The CURR. LIMIT trimpot (P505) sets the drive's maximum armature current limit. See Figure 3 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. Set the speed adjust potentiometer to minimum speed and remove the lock from the motor shaft.

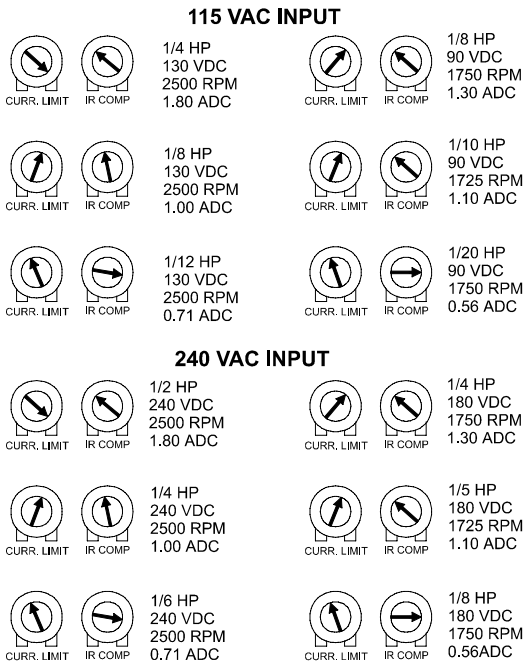


Figure 3. Typical CURR. LIMIT and IR COMP Settings

Notes

Notes

Notes

Limited Warranty

A. Warranty - Leeson Corporation (referred to as "the Corporation") warrants that its products will be free from defects in workmanship and material for one (1) year or 3,000 hours, whichever comes first, from date of shipment thereof. Within this warranty period, the Corporation will repair or replace such products that are: (1) returned to Leeson Corporation, 2100 Washington Street, Grafton, WI 53024-0241 U.S.A.; and, (2) determined by the Corporation to be defective.

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. The Corporation is not responsible for removal, installation, or any other incidental expenses incurred in shipping the product to and from the repair point.

B. Disclaimer - The provisions of Paragraph A are the Corporation's sole obligation and exclude all other warranties of merchantability for use, express or implied. The Corporation further disclaims any responsibility whatsoever to the customer or to any other person for injury to the 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 for breach of any of the Corporation's obligations, whether express or implied, and particularly of any other claim or breach of warranty contained in Paragraph A, or of any other warranties, express or implied, or claim of liability that might, despite Paragraph B, be decided against the Corporation by lawful authority, the Corporation shall under no circumstances be liable for any consequential damages, losses, or expense arising in connection with the use of, or inability to use, the Corporation's product for any purpose whatsoever.

An adjustment made under warranty does not void the warranty, nor does it imply an extension of the original one (1) year or 3,000 hour warranty period. Products serviced and/or parts replaced on a no-charge basis during the warranty period carry the unexpired portion of the original warranty only.

If for any reason any of the foregoing provisions shall be ineffective, the Corporation'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 price of such equipment.

Any action against the Corporation 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.



Leeson Electric Corporation
2100 Washington Street
Grafton, WI 53024-0241 U.S.A.
Phone: (414) 377-8810
Fax: (414) 377-3440

Document number 250-0255, revision 0
Printed in U.S.A. — 12/97
\$2.00 U.S.A. — \$3.00 Canada