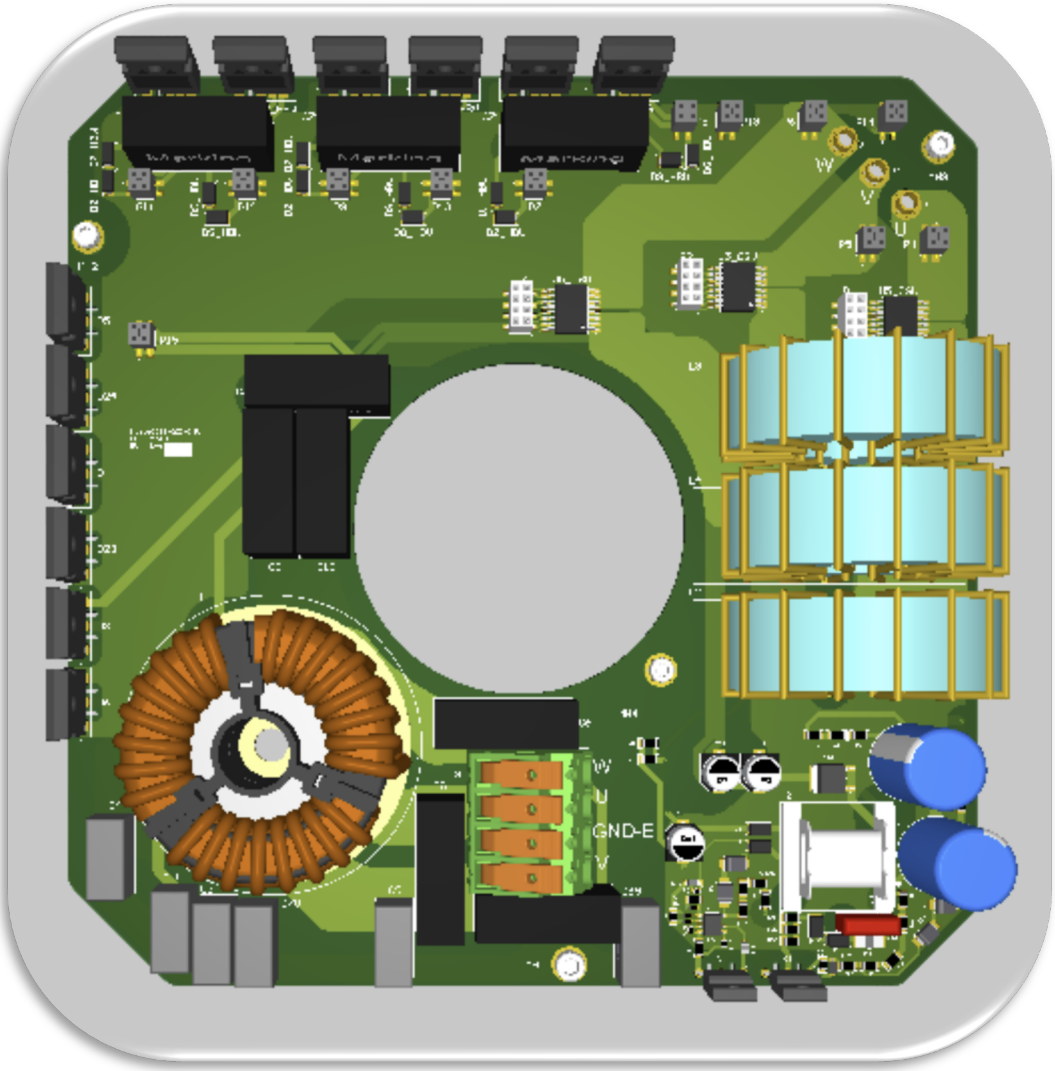
5HP Shelfstock Motor Operating Guide

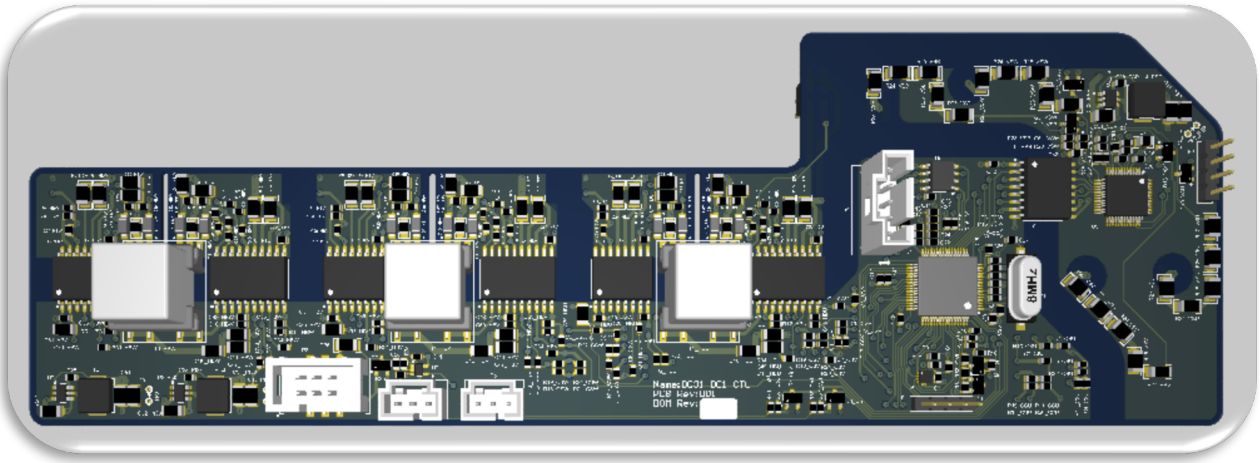
Please read all instructions completely before proceeding to ensure all steps are understood. Please contact us with any questions at: techsupport@pcbstator.com

Overview

This drive is composed of 2 separate PCBs. The following board has the power components, current sensors, input offline converter, rectifier stage, and output inductors:



The second board has two MCUs (Motor Control MCU and Sensing MCU), gate drivers, low voltage power supplies, connectors and headers for programming, thermal sensing, input voltage control and LED outputs:

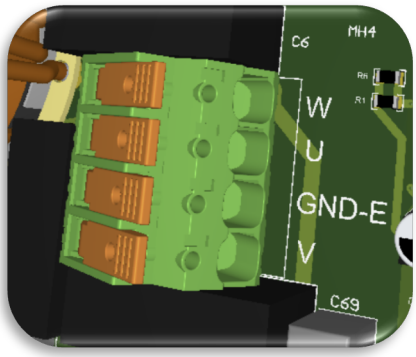


In order to run this ECM 5 HP motor you will need one of the following input voltages along with a 0-10VDC adjustable power supply.

- 120VAC single phase.
- 230VAC three phase.
- 480VAC three phase.
- 360VDC input capable.

Setup Connections

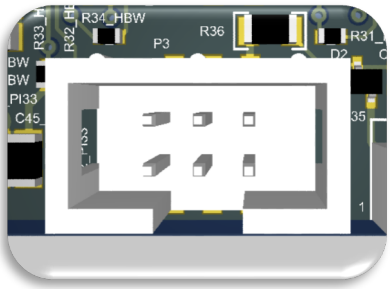
1. Input voltage connector. This connector has 4 contacts.
    1. Line U, V and W. This is to connect 3 phase input voltage, up to 480 VAC. If DC input is desired, connect DC+ to any of the inputs U, V and W, and DC- to any input, U, V and W. For example, DC+ can be connected to Line U, and DC- can be connected to Line V, while Line W is left unconnected.
    2. GND-E. Connect earth ground to this pin.

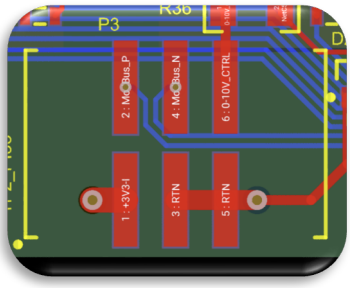


2. Motor Connector:

1. U, V and W pins are used to connect the three motor phases. This is already connected upon installation of controller into motor housing.

3. Control Connector.



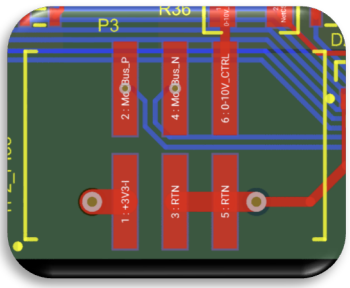


This connector, P3, is used to provide the speed reference for commanding the speed of the motor. Pin 6 is used as the control input, from 0 to 10V. If needed, 3.3V and Ground signals are available on pins 1, 3 and 5.

4. Connect the 0-10VDC adjustable power supply with the V+ connected to pin 6 and V- or Ground to pin 3 or 5.

Motor Operation

1. Make sure the motor is mounted to an appropriate test stand and it is safe to have the shaft spin.
2. Enable the Input voltage.
3. Turn on 0-10VDC power supply.
4. Slowly increase the voltage provided on P3, pin 6. Motor will begin to go through startup process once voltage reaches ~1.3V. The startup process will take ~15-20 seconds to begin.



5. Increase voltage to increase motor speed as needed. Motor maximum speed is 1800 RPM.
6. Once done testing decrease voltage to 0 and wait for motor to stop spinning. Turn off power supply and input voltage.