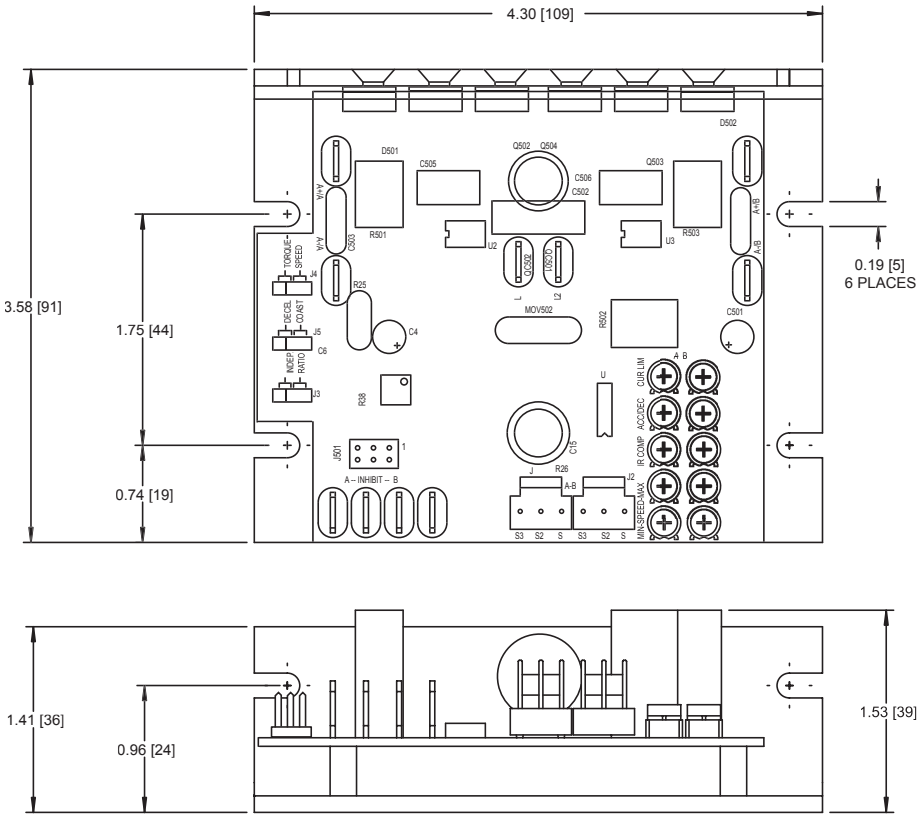
# M2

*Dual Motor Control SCR DC Drive*

## QUICK START GUIDE

## DIMENSIONS

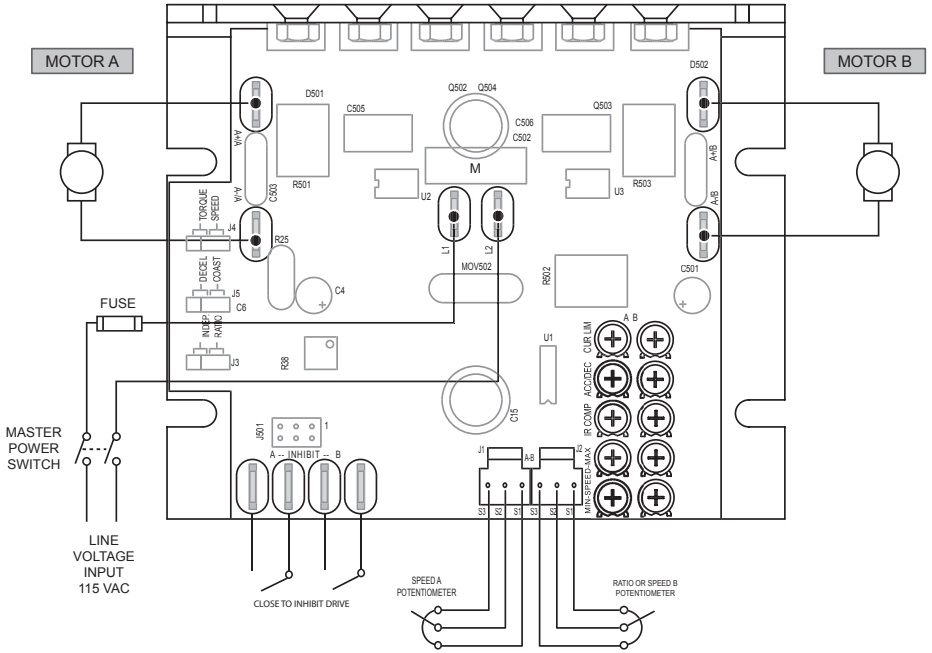



## SPECIFICATIONS

| | * Without Heatsink | With Heatsink |
|---|---|---|
| Input Voltage +/- 10%, 50/60 Hz | 115VAC | 115 VAC |
| Output Voltage (VDC) | 0 - 90 | 0 - 90 |
| Maximum Continuous Output for one motor (Amps) | 5 | 10 |
| Maximum Total output for combined motors (Amps) | 6.5 | 11.5 |
| Individual motor HP range | 1/15 - 1/2 | 1/15 - 1 |
| Maximum Total HP rating of both sides combined | 5/8 | 1 1/8 |
| Form Factor | 1.37 | 1.37 |

* Heatsink (part number 223-0159) is required if one side provides more than 5A or the total output of both sides is more than 6.5A.

## CONNECTIONS




### Motor Connections

M2 drives supply motor voltage from A+ and A- terminals. It is assumed that when A+ is positive with respect to A-, the motor will rotate clockwise (CW) while looking at the output of the shaft protruding from the front of the motor. If this is opposite of the desired rotation, reverse the wiring of the A+ and A- terminals.

### Power Input

Connect the AC power leads to terminals L1 and L2, or to a double-pole single-throw master power switch (recommended).

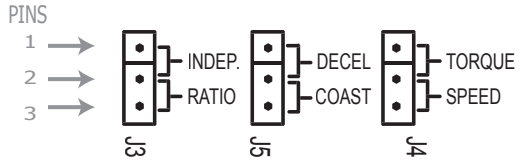
### Line Fuse

Wire an external line fuse between the stop switch (if installed) and the L1 terminal.

### Speed Potentiometer Connections

Speed adjustments are supplied by speed potentiometers connected to J1 and J2 (Factory supplied pot kit includes two sets of potentiometer hardware. Part number: 202-0112).

Rotation: CW = Clockwise CCW = Counterclockwise




**INDEPENDENT MODE (Jumper on pins 1 & 2 of J3)**
There are two sets of potentiometers independently used to adjust each motor operation. Each set consists of five on board trimmer potentiometers and one external potentiometer (commonly called SPEED POT). To calibrate one side (A or B), use the following procedure for speed mode:

1. Turn the SPEED POTENTIOMETER A (B) to full CCW. Use MIN SPEED A (B) trimmer potentiometer to adjust minimum speed for motor A (B).
2. Turn the SPEED POTENTIOMETER A (B) to full CW. Use MAX SPEED A (B) trimmer potentiometer to adjust maximum speed for motor A (B). Repeat steps 1 and 2 a few times due to a level of interaction between MIN SPEED and MAX SPEED pots.
3. Set the CUR LIM A (B) to full CCW. Turn the SPEED POTENTIOMETER A (B) to full CW. Stall the motor shaft and turn the CUR LIM A (B) CW until the desired current limit is reached.
4. Set the IR COMP A (B) to full CCW. Set the motor speed at approximately half of the rated speed. Load motor to its full load. Keep turning the IR COMP CW until the speed equals the no load speed.
5. Use ACC/DEC A (B) trimmer potentiometer to adjust acceleration (deceleration) ramp time.

**RATIO MODE (Jumper on pins 2 & 3 of J3)**
In RATIO MODE, SPEED POT A is used to adjust the speed of both motors, while SPEED POT B sets the ratio between speeds. Turning the SPEED POT B CW will increase speed of motor B thus increasing the ratio speed B/speed A. MIN SPEED B and MAX SPEED B are now used to adjust minimum and maximum ratio.

**INHIBIT**
Short inhibit terminals A(B) to bring motor A (B) to a stop. Inhibit A (B) is independant of inhibit B (A).

**J501**
J501 is used by the factory to program the M2 drive. Do NOT add any jumpers to J501.

**TORQUE MODE (Jumper on pins 1 & 2 of J4 and pins 1 & 2 on J3)**
TORQUE MODE regulates motor current (torque). In TORQUE MODE, the external potentiometer A (B) sets the torque reference for Motor A (B) and the CUR LIM trimmer potentiometer A (B) sets the speed limit for Motor A (B). The MIN SPEED A (B) and MAX SPEED A (B) are used to adjust the minimum and maximum torque available.

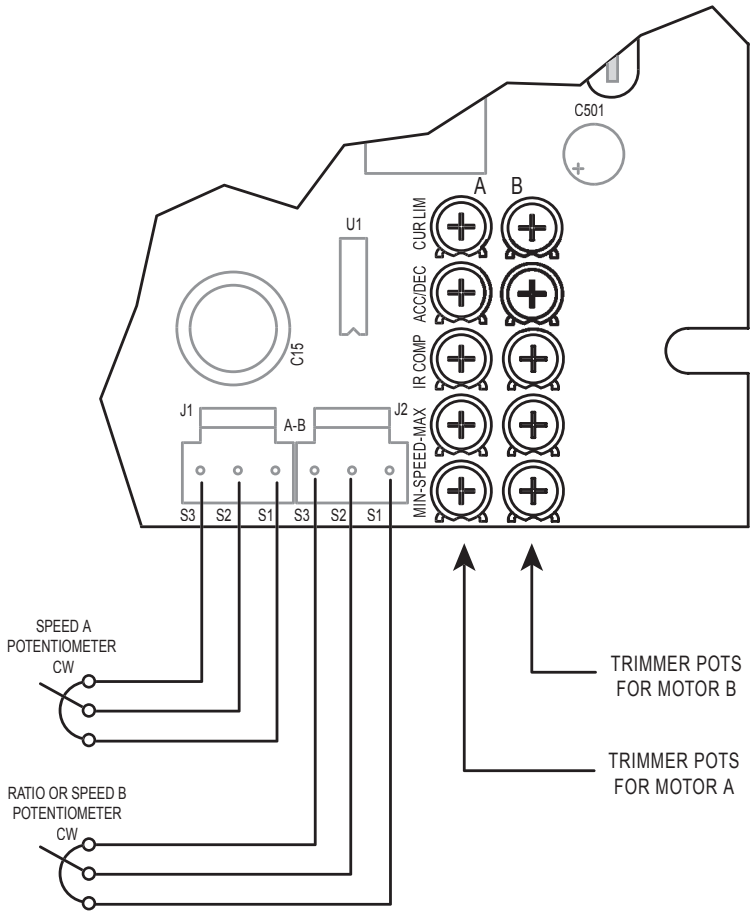
**STOPPING: DECEL vs. COAST (J5)**
There are two methods of stopping: DECEL and COAST.

**DECEL** - Placing a jumper on pins 1 and 2 of J5 and closing the inhibit terminals will cause the motor to decelerate at a rate set by ACC/DEC pot.

**COAST** - Placing a jumper on pins 2 and 3 of J5 and closing the inhibit terminals will stop the application of voltage to the motor, causing the motor to coast to a stop. This option is also set for both motors simultaneously.

* NOTE: Deceleration time is a function of load inertia and friction. High inertia loads will decelerate slower than high frictional loads.

## M2 POTENTIOMETER CONNECTIONS

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