# MM220 PCB Rev 1.1 Release Notes
Release Notes for PCB Version 1.1
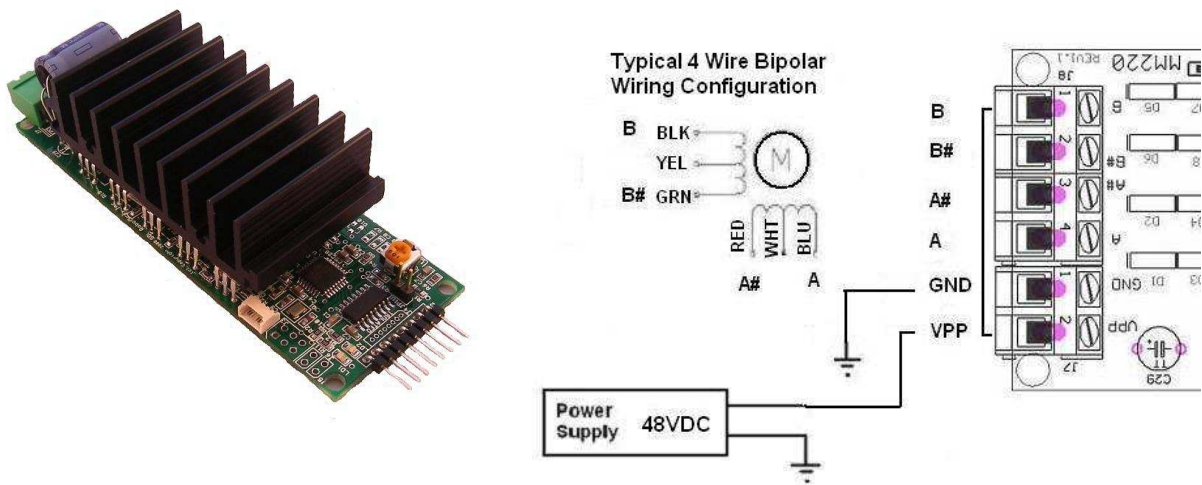Motor Control Software Version 1.00

## Overview
Thank you for purchasing the MM220 6A Bipolar Microstepping Driver  PCB Revision 1.1. The MM220 is a sophisticated bipolar stepper motor controller with onboard processor, optical isolation of all inputs and up to 48VDC motor drive voltage.  The MM220 is capable of full, half, quarter and 1/16 microstepping.  A potentiometer sets nominal operating current.

**CAUTION:     BEFORE POWERING THE MM220 YOU SHOULD INSTALL A FUSE ETWEEN THE POSITIVE MOTOR POWER TERMINAL AND THE MM220. DEPENDING ON HOW YOU ADJUST THE CURRENT POTENTIOMETER IT IS POSSIBLE TO DELIVER MORE CURRENT TO THE STEPPERS THAN THEY ARE DESIGNED TO HANDLE.**

## Wiring the Motor
The stepper motor is connected to the MM220 in a bipolar configuration.  Stepper motors have four, six or eight wires.  Eight wire motors can be wired in a parallel or serial phase configuration.  Parallel configurations develop more torque and require a higher drive current.  The picture below shows the wiring configuration for SOC Robotics SM2006 and SM3006 motors.



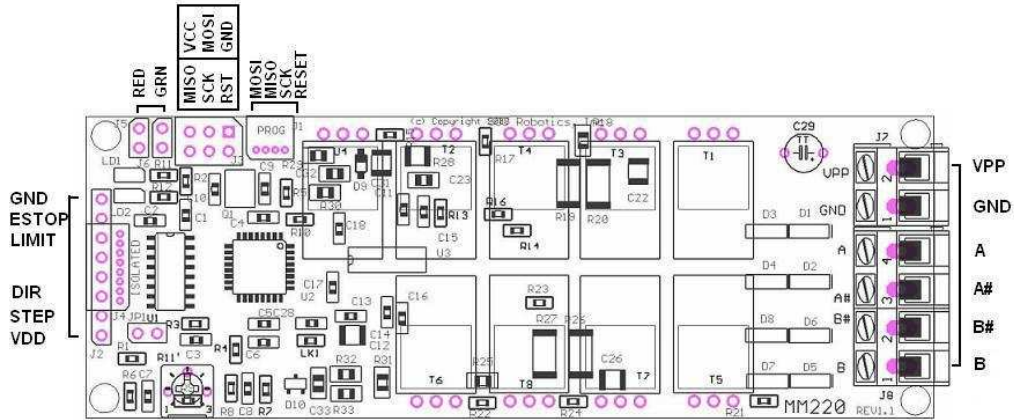MM220 Motor Connection for SM2006/SM3006

The motor and power connectors are removable two and four pin screw top connectors.

## Hardware Setup
The MM220 is preconfigured at the factory to half step.  The driver must be reprogrammed to run full, quarter or 1/16th step.  Consult the factory for programming instructions.  Note that the MM220 was shipped with a short four wire programming cable.
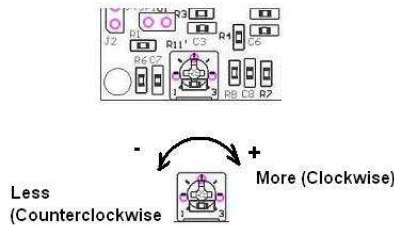
The picture below shows the connector pin assignments for the MM220.

**MM220 Connector Pin Assignment**



The MM220 drive current is set by a 10K ohm potentiometer . The potentiometer is factory set to deliver 2Amps. Turning the potentiometer clockwise increases current while turning the pot counterclockwise decreases current.

**MM220 Current Potentiometer**



If you intend to operate the board at high motor amperage (>3A) heat sinks and/or forced air cooling will be necessary.

## Motor Controller Software Updates
We plan to release Rev 1.1 Motor Driver Software in late April. Version 1.1 is a major upgrade with a complete G Code like command structure that allows the MM220 to accept position commands directly bypassing the step and direction inputs.

## Limited Warranty
The MM220 is warranted against defects in materials and workmanship for a period of 90 days from the date of purchase from SOC Robotics or from an authorized dealer. The MM220 is sensitive to static discharge – please make sure you are grounded when handling the board.

## Questions or Concerns
If you have any questions or concerns you can email us at support@soc-robotics.com or call (604) 628-7227.