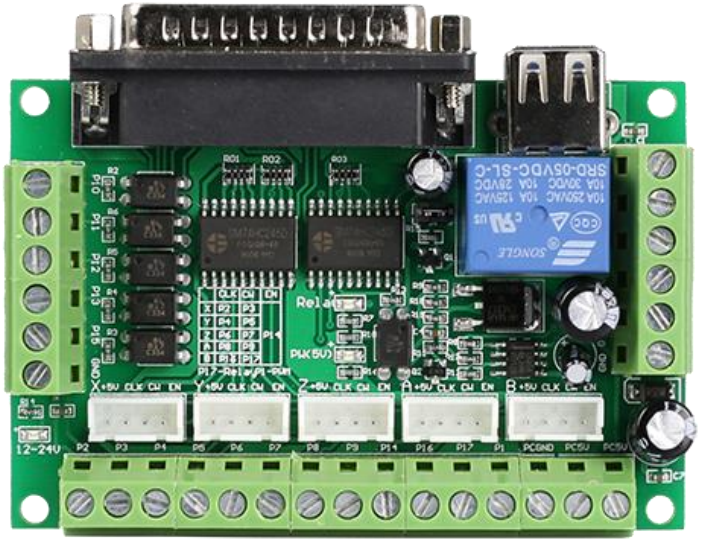
User Manual of 5Axis Breakout Board



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1 Introduction and Features

1.1 Introduction

The latest upgraded 5 axis breakout board is specially designed for the CNC single axis 2-phase stepper driver controller, such as M542, M542H, MA860H, 2M542, 2M982, DM542(A), DM860(A) etc. single axis stepper driver controller series. With this 5 axis breakout board, any 1-5 single axis stepper driver controllers can be directly controlled by the PC via the MACH3, EMC2, KCAM4, etc.

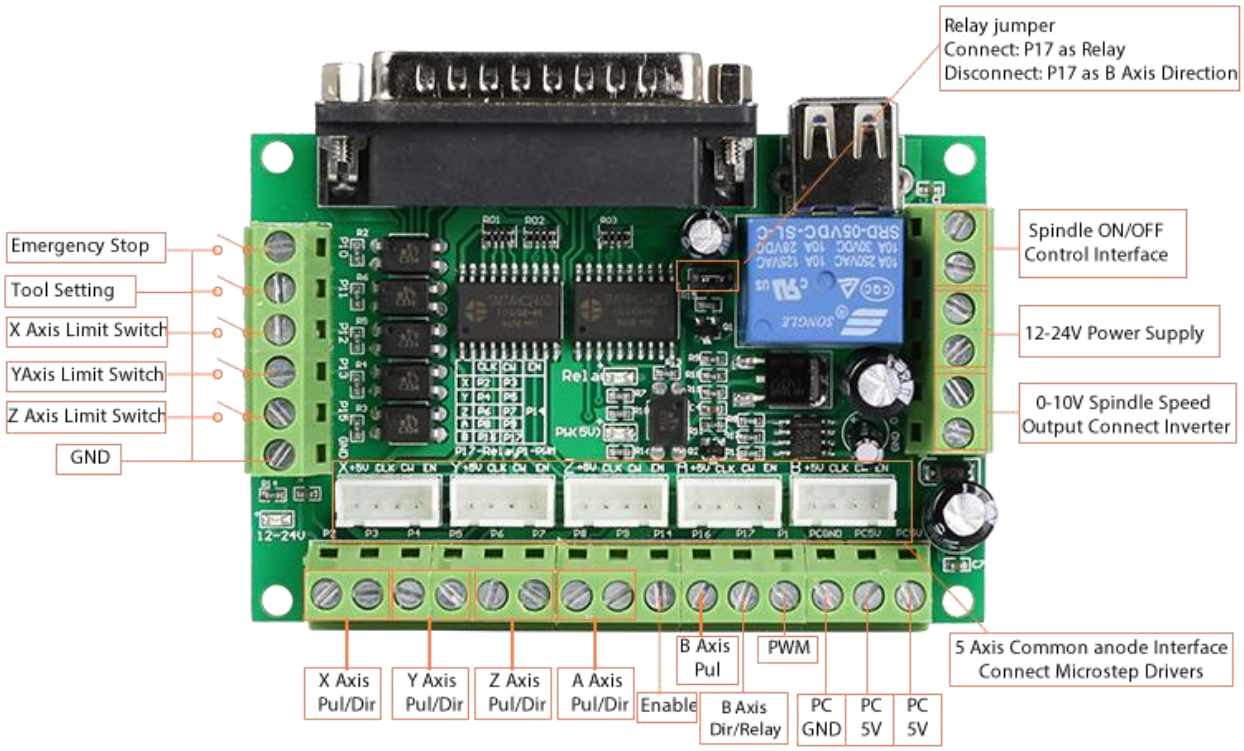
1.2 Features

- Maximum support 5-axis stepper motor driver controllers
- Compatible with MACH3, Linux CNC (EMC2) etc. parallel-control CNC software.
- USB power supply and peripherals powered phase are separated to protect computer security.
- All the signals are opto-isolated which can protect your computer security.
- 5-input interface to define the Limit, Emergence-Stop, Cutter alignment, etc.
- Wide input voltage range: 12-24V, and with anti-reverse function.
- One relay output control interface, accessed by the spindle motor or the air pump, water pump, etc.
- Output 0-10V analog voltage for inverter to control the spindle speed.

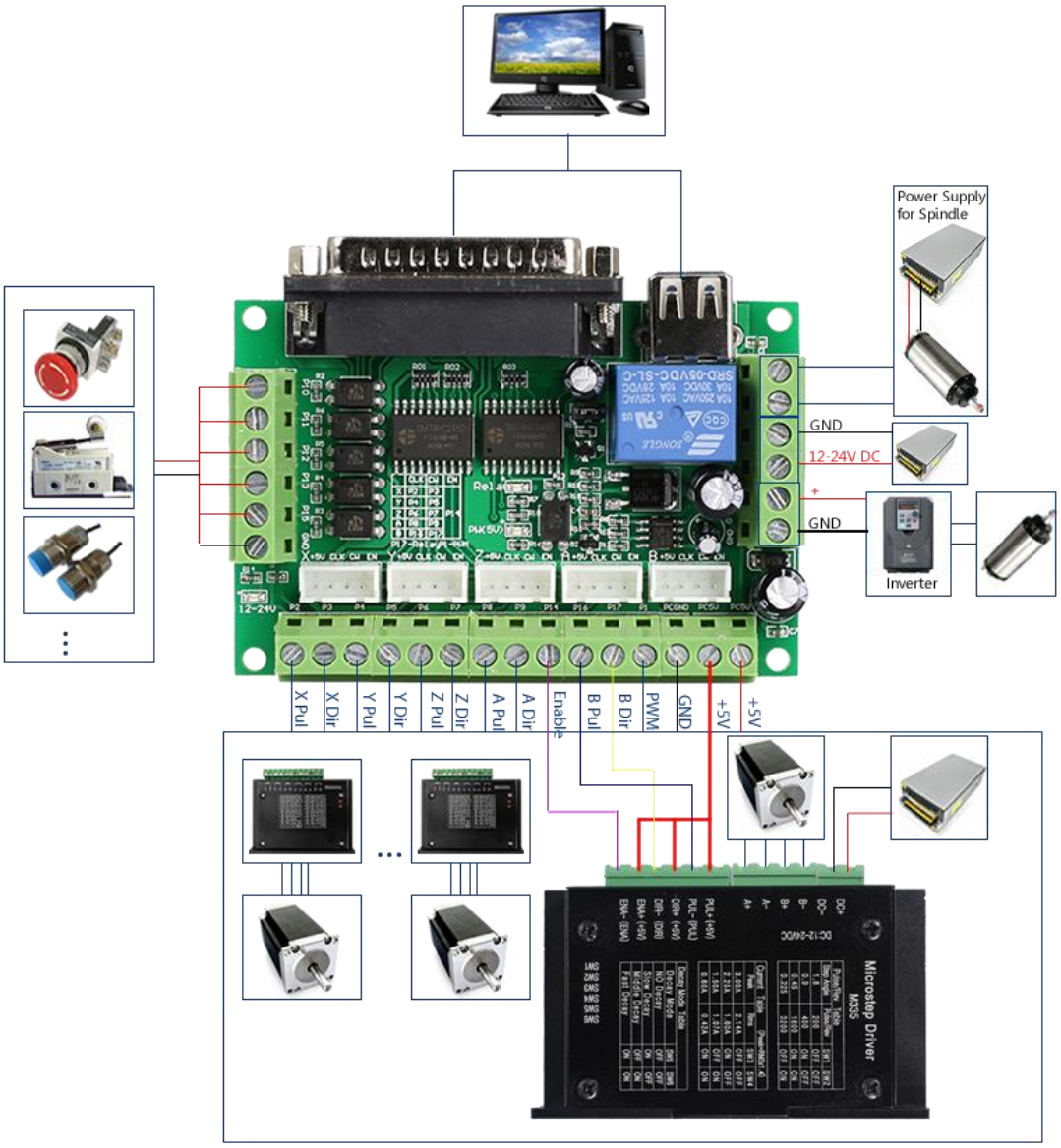
2 Specifications

Electrical properties(ambient temperature Tj = 25 ˚C)	
Input Power	USB port to directly get power from PC and 12-24V power supply(optional)
Compatible Stepper Motor Driver	Max 5 2-phase Microstep controllers
Driver type	Pulse and Direction signal control
Net/Total Weight	Approx 75g
Dimensions	90 * 70 * 20mm (L*W*H)

3 Interfaces



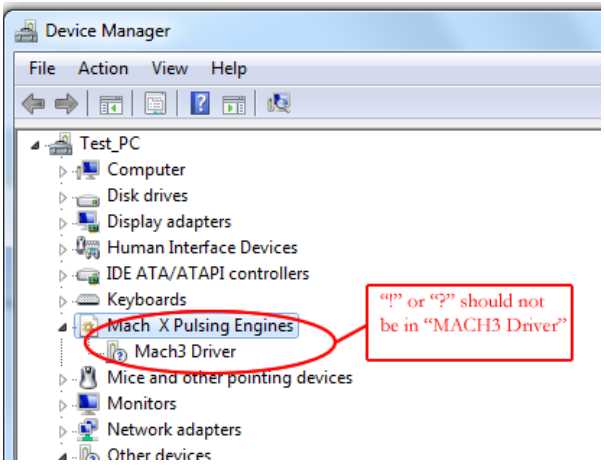
4 Wiring Diagram for Reference



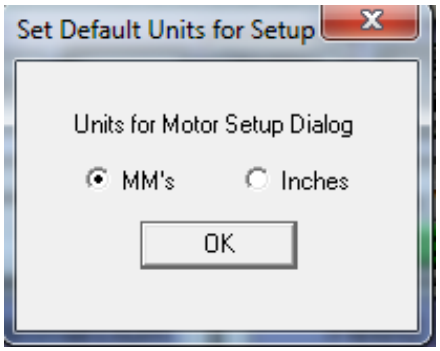
5 MACH3 Software Settings

Note: The settings on MACH3 below is in condition that breakout board and stepper drivers are connected in common anode.

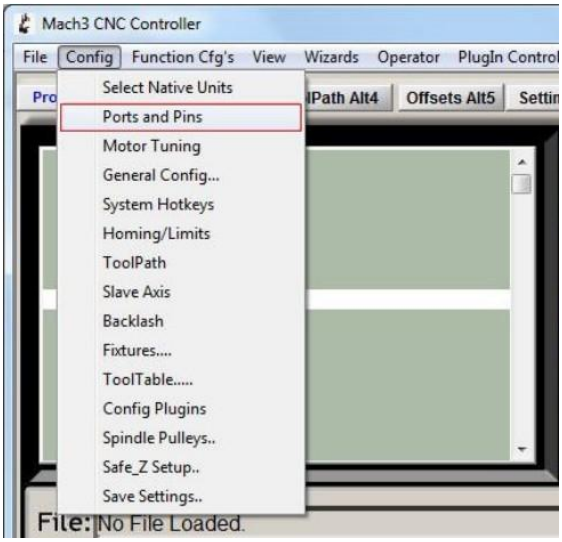
1. Check whether the MACH3 driver is installed correctly.



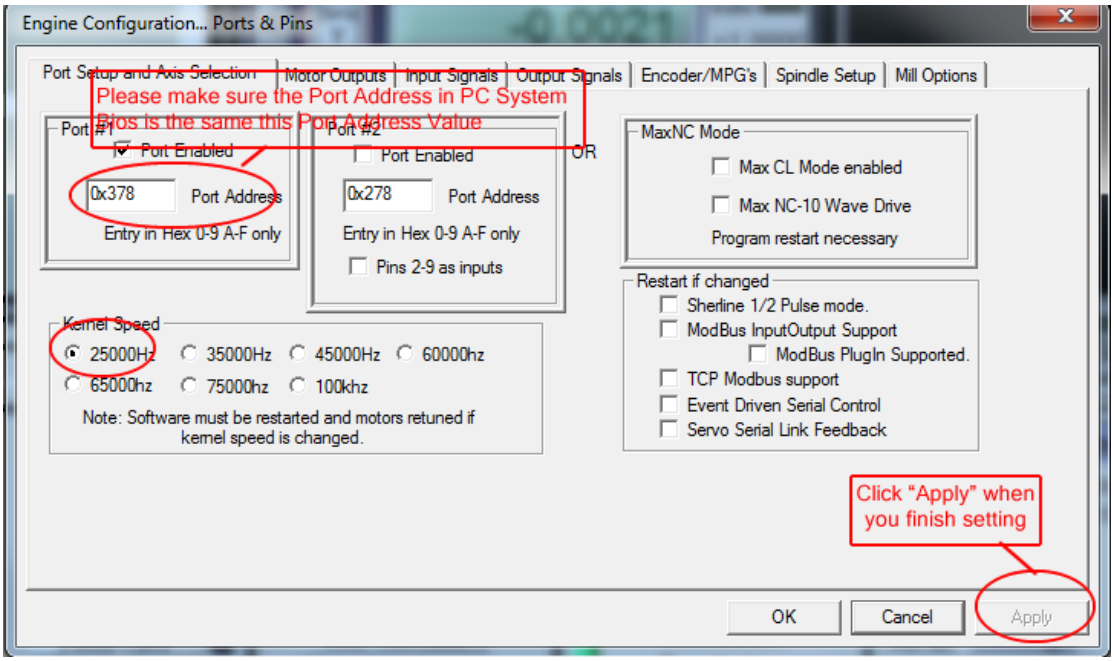
2. Setup Units: Choose "MM's" in **Config->Set Default Units for Setup**



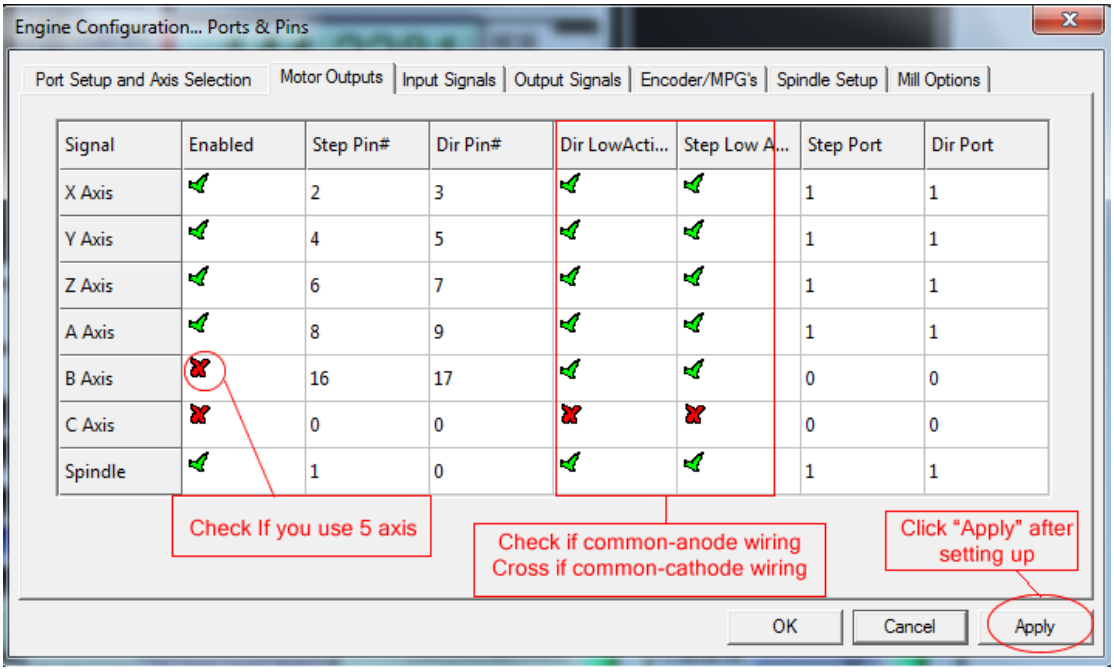
3. Click **"Config"->"Ports and Pins"** on Main Interface.



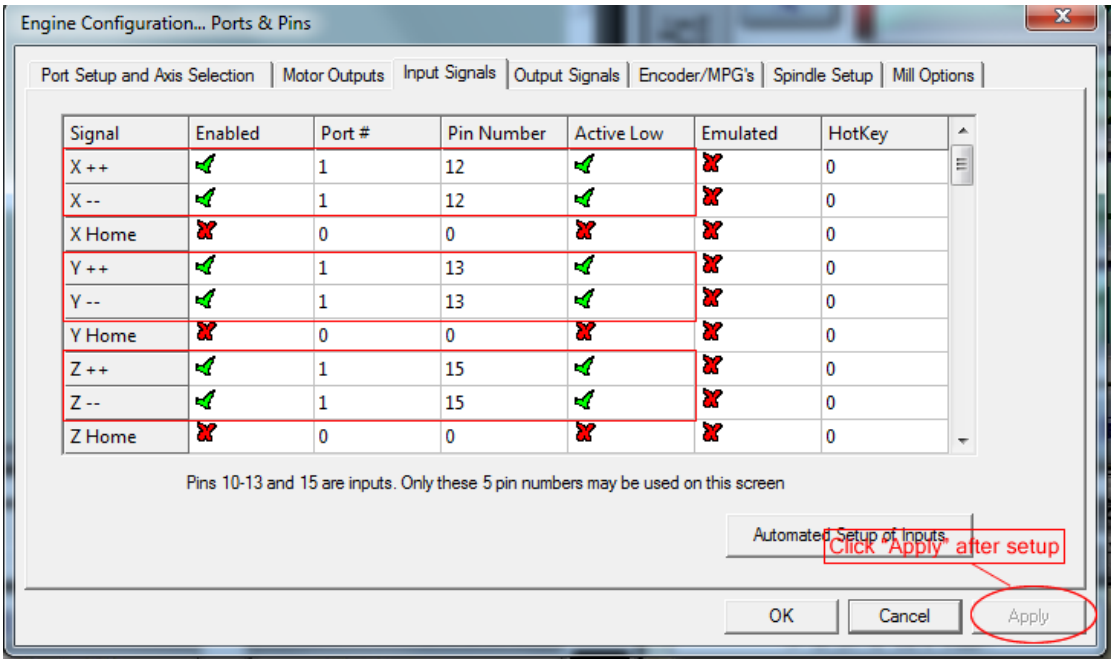
4. Enter in "**Port Setup and Axis Selection**" to set "**Port#1**" and "**Kernel Speed**" shown as below.

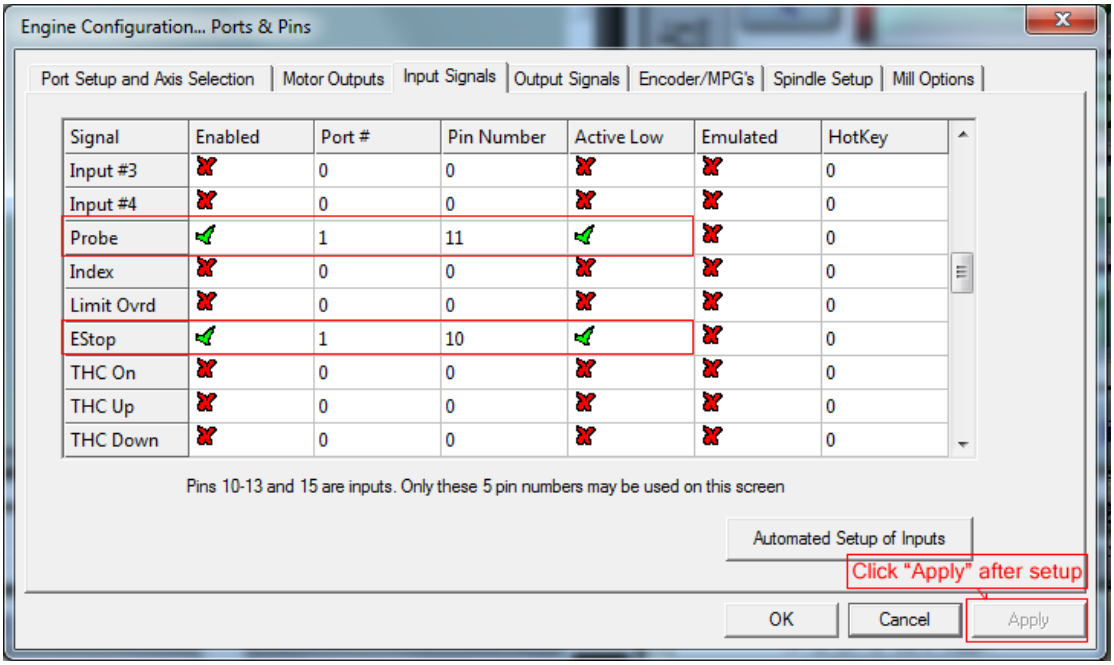


5. Click "**Motor Outputs**" to set it shown as below.

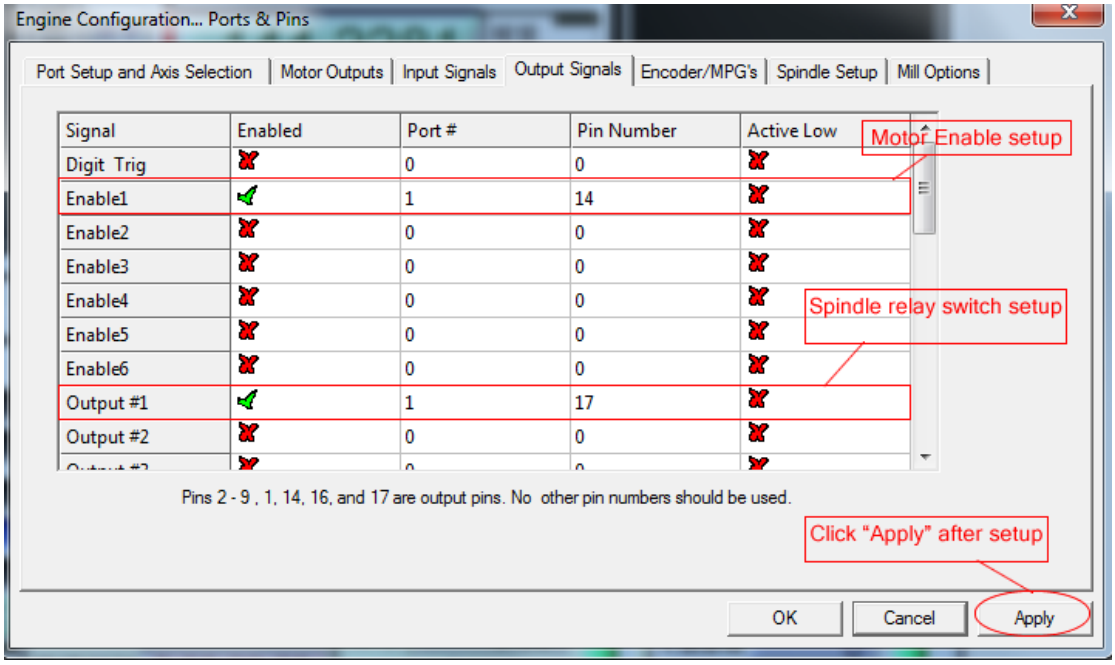


6. Click "**Iutput Signals**" to set it shown as below.

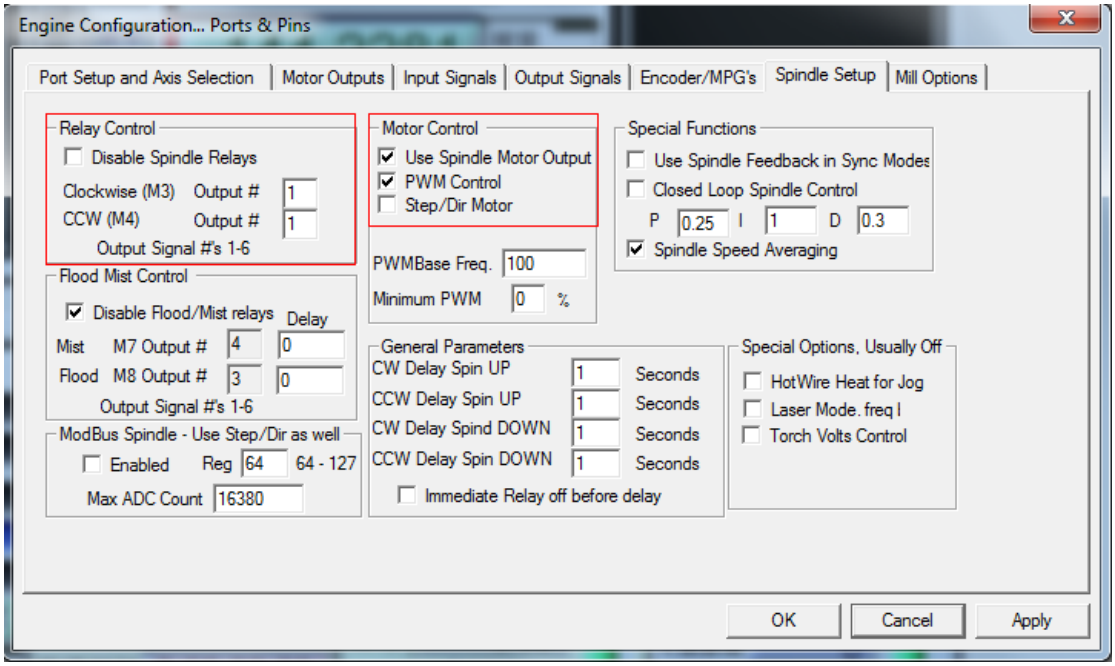




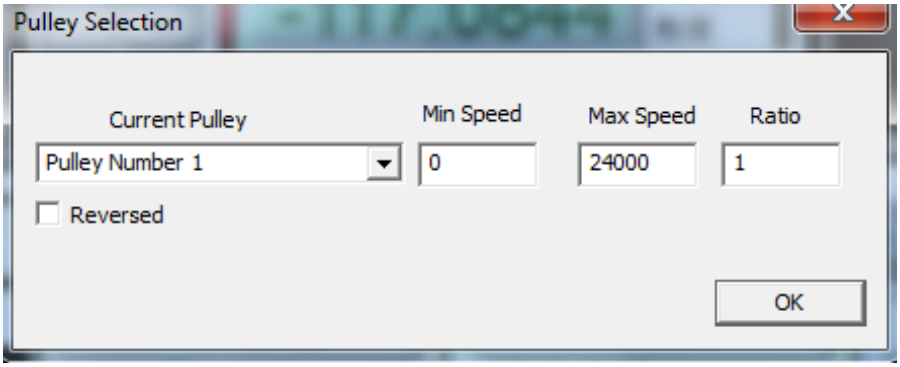
7. Click "**Output Signals**" to set it shown as below.



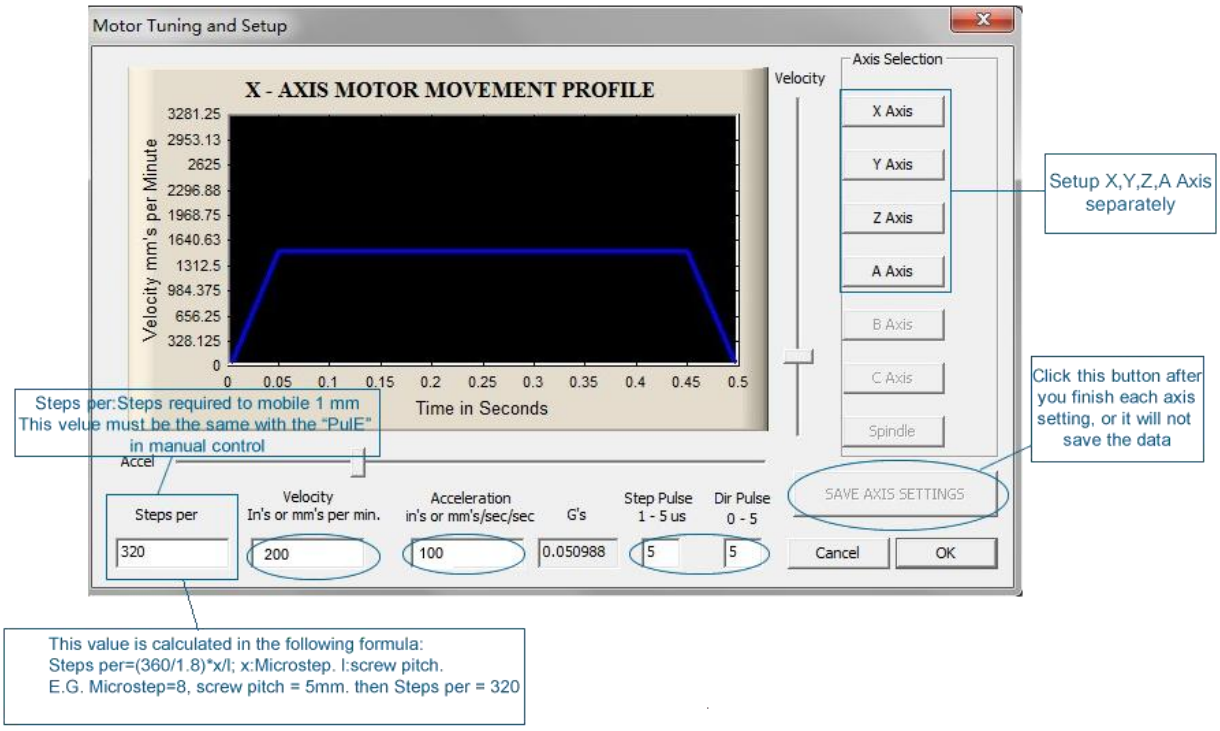
8. Click "**Spindle Setup**" to set it shown as below.



If you use PWM to control the spindle speed, you have to click "**Pulley Selection**" to set it shown as below.



9. Motor debugging. Click **Config->Motor Turning and Setup**



10. Click "**System HotKeys Setup**". Set X, Y, Z axis hotkey shown as below. Then you can manual control the corresponding axis motor turning via hotkeys.