5-axis CNC Breakout board User Manual

Thank you for choosing our products，to use this CNC products better and faster，Please read this manual:

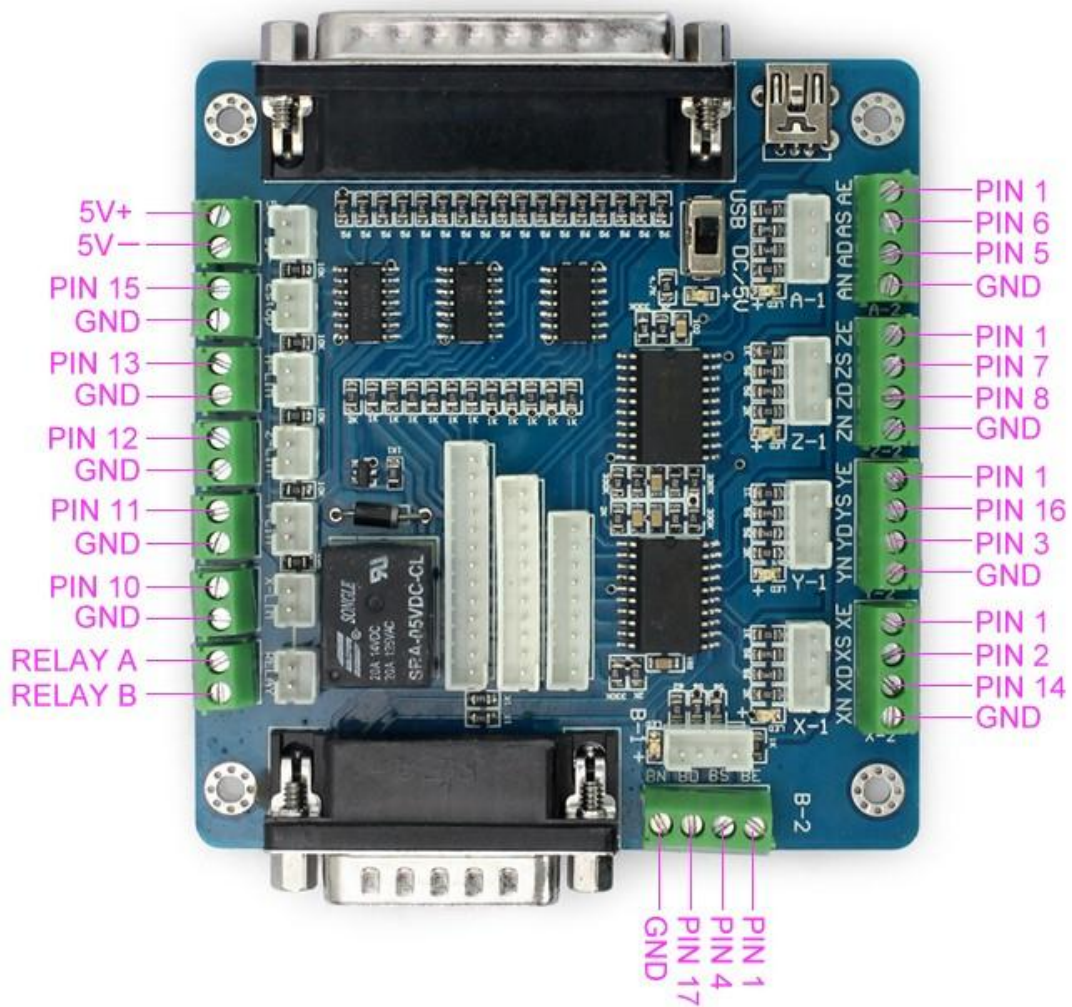## PART 1:

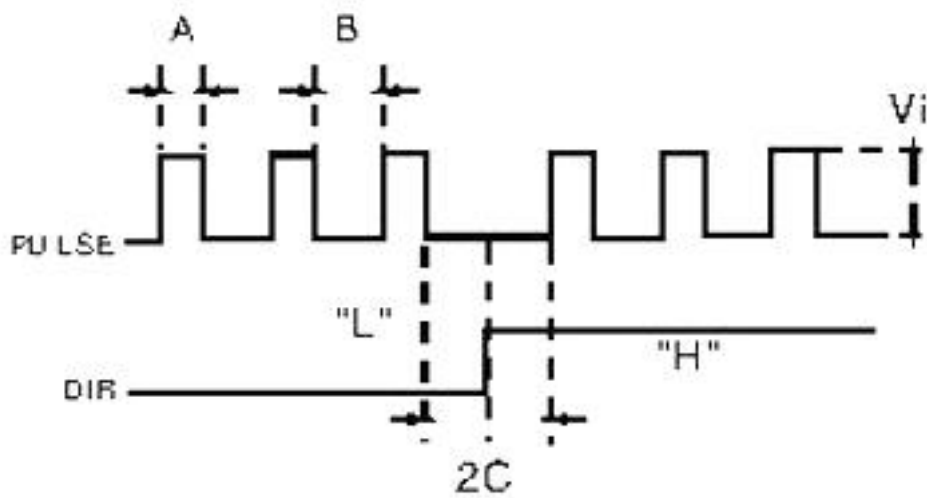| Features: |
|---|
| 1. Upgraded circuit, work more peacefully and steady than the version before. |
| 2. Maximum support 5-axis stepper motor driver controller. |
| 3. Two types of ways to get power, 5V DC power supply or USB port to directly get power from PC. |
| 4. Two-stage signal processing, smooth signal transmission, powerful anti-jamming. |
| 5. 5-input interface to define the emergency stop, limit, points in the knife, etc. |
| 6. Relay output control interface, accessed by the spindle motor or the air pump, water pump, etc. |
| 7. 5-axis work LED display, visually display the working condition of the stepper driver controller. |

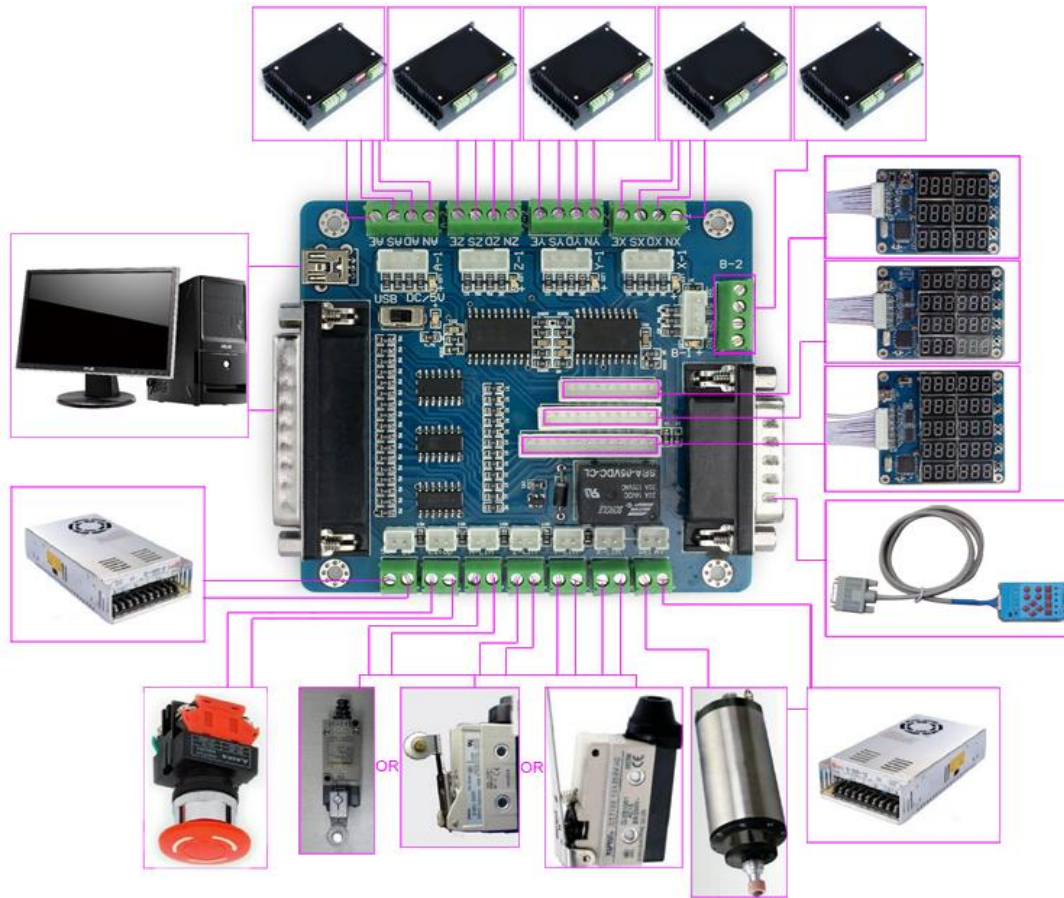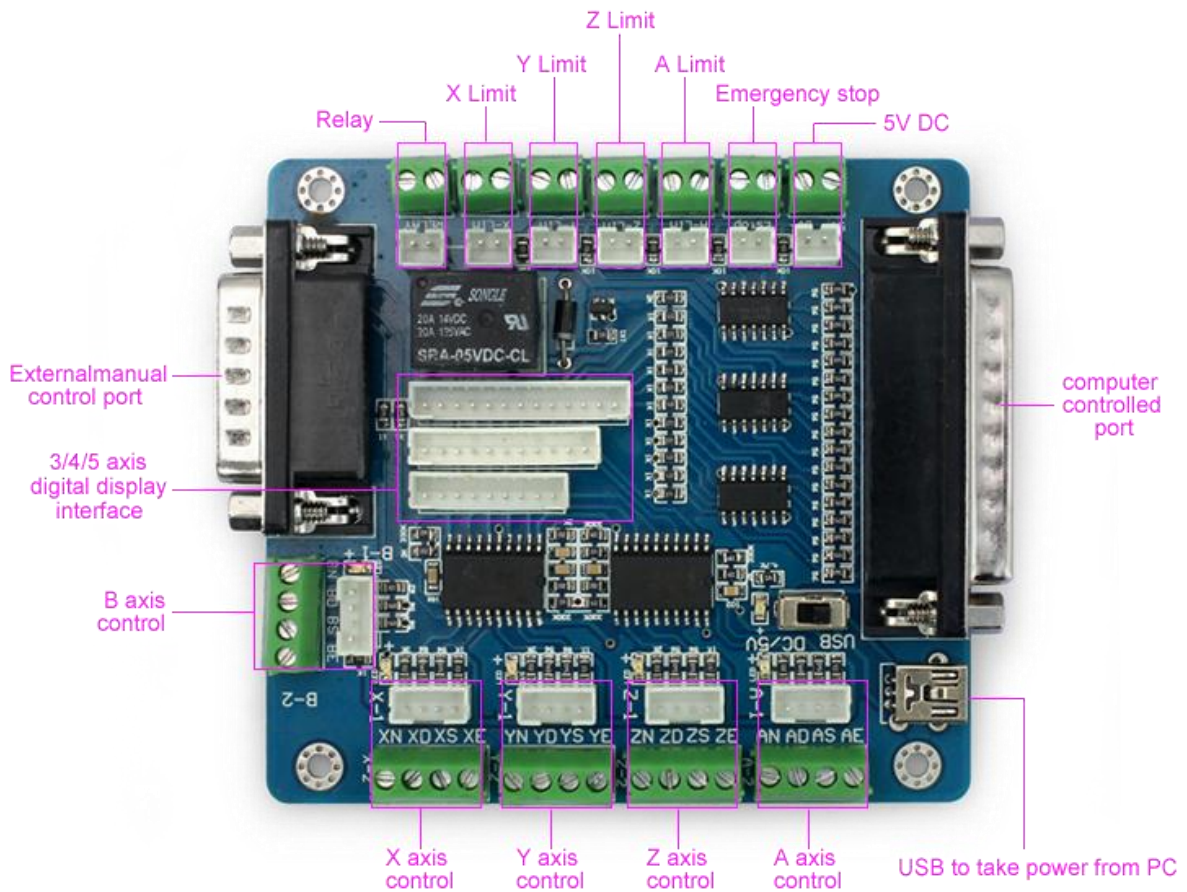| Electrical performance (ambient temperature Tj = 25 ℃):	
Input Power	5V DC power supply or USB port to directly get power from PC
Compatible Stepper Motor Driver	Max 5 single axis stepper motor driver controller
Drive type	Pulse + Direction + Enable Signal Control
Net/Total Weight	About 80g/300g
Dimensions	90 * 82 * 15mm (L*W*H)

Interface definition:

5V+
5V−
PIN 15
GND
PIN 13
GND
PIN 12
GND
PIN 11
GND
PIN 10
GND
RELAY A
RELAY B

PIN 1
PIN 6
PIN 5
GND

PIN 1
PIN 7
PIN 8
GND

PIN 1
PIN 16
PIN 3
GND

PIN 1
PIN 2
PIN 14
GND

GND
PIN 17
PIN 4
PIN 1

Waveform and timing:

Pulse + Direction Mode

ECG--SAVEBASE

Power output interface function:

Interface, detailed drawing marked:

Relay — X Limit — Y Limit — Z Limit — A Limit — Emergency stop — 5V DC

Externalmanual control port

3/4/5 axis digital display interface

B axis control

X axis control — Y axis control — Z axis control — A axis control — USB to take power from PC

computer controlled port

In the test machine, note the following before using:

1. Note that using the 5V power supply
2. Determine the stepper driver works (Model0)
3. Determine the drive wiring step

Part 2: The Definition Of Each Pin

1 Defined as parallel control：

PIN9	PIN1	PIN2	PIN14	PIN16	PIN3	PIN7	PIN8	PIN6	PIN5	PIN4	PIN17
Spindle motor	Enable	X Pulse	X Dir	Y Pulse	Y Dir	Z Pulse	Z Dir	A Pulse	A Dir	B Pulse	B Dir

2. Hand control is defined as follows 1 ~ PIN15computer-15P interfaces and benchmarks within the Digital ID)

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
B Pulse	B Dir	A Dir	Z Pulse	Y Pulse	X Pulse	X Dir	Enable	5V/V DD	5V/G ND	A Pulse	Z Dir	Y Dir	Enable	Enable

3. The limit is defined as 1 to 5

X -Limit	Y- Limit	Z- Limit	A- Limit	Emergency
PLT-P10	PLT-P11	PLT-P12	PLT-P13	PLT-P15

Notes: A. 5V 1A power supply, please take more than switching power supplies, power input received indicated on the map interface.

B. Spindle motor control is controlled via the parallel port PIN1. Spindle motor voltage must comply with the supply voltage range.

Part 3: The Use Of Mach3

Figure 1

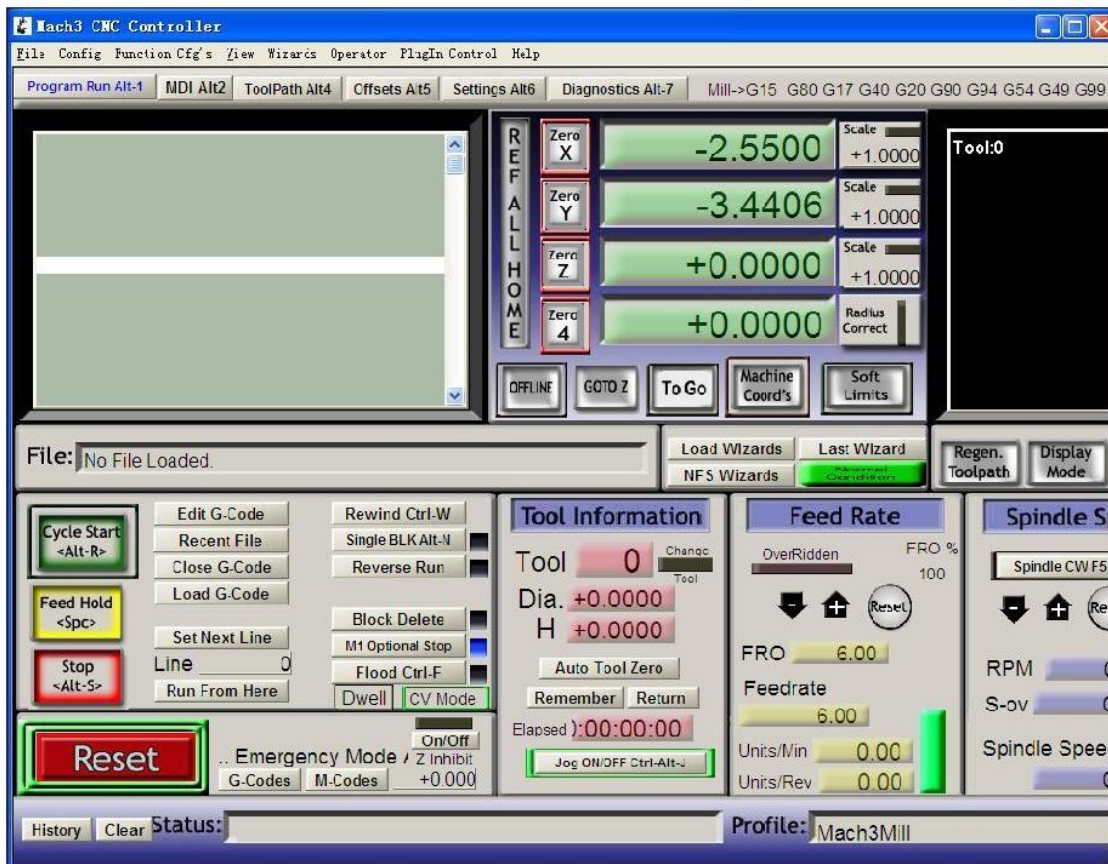Figure 1: open the MACH3 software, then select OK now mach3MILL.

Figure 2

MACH3 open the interface shown in Figure 2, the action of commonly used button above, here we configure the MACH software.
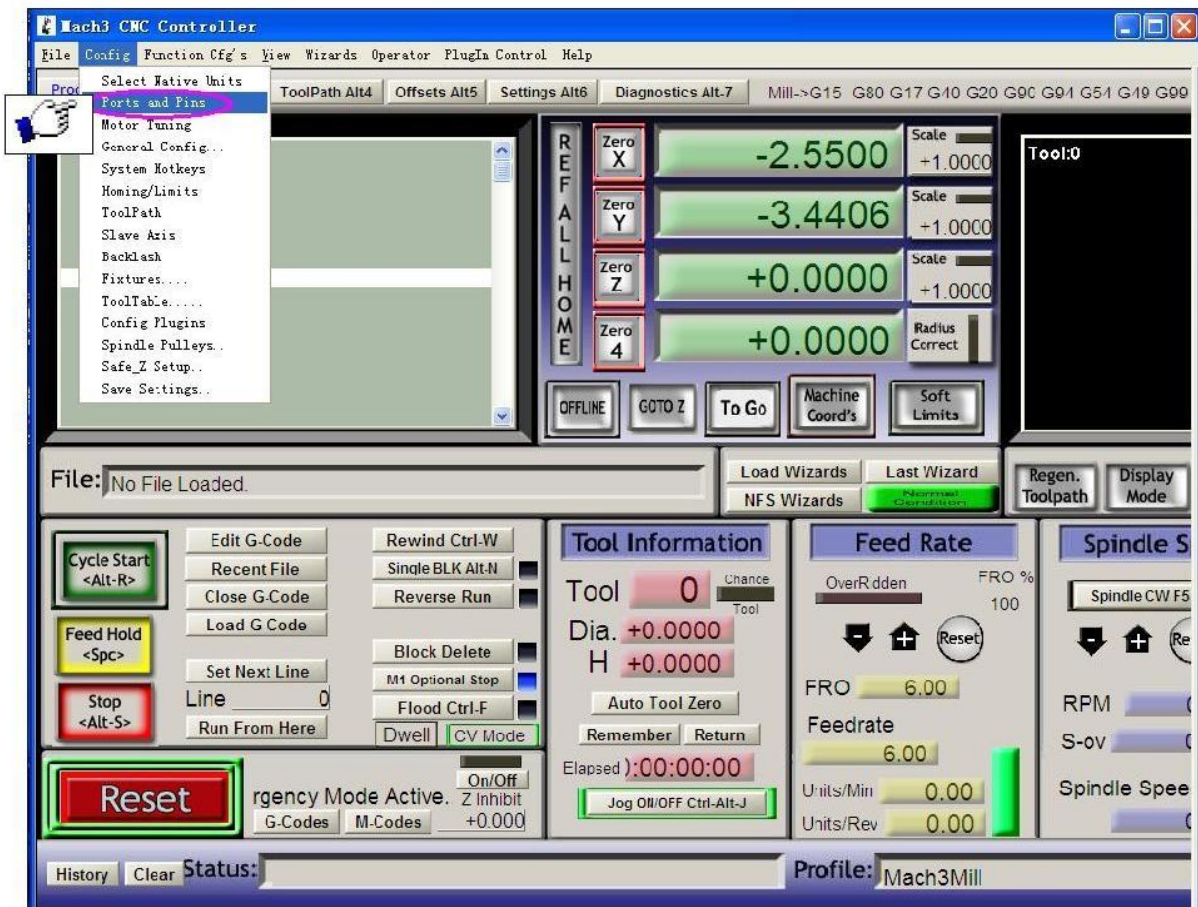
ECG--SAVEBASE

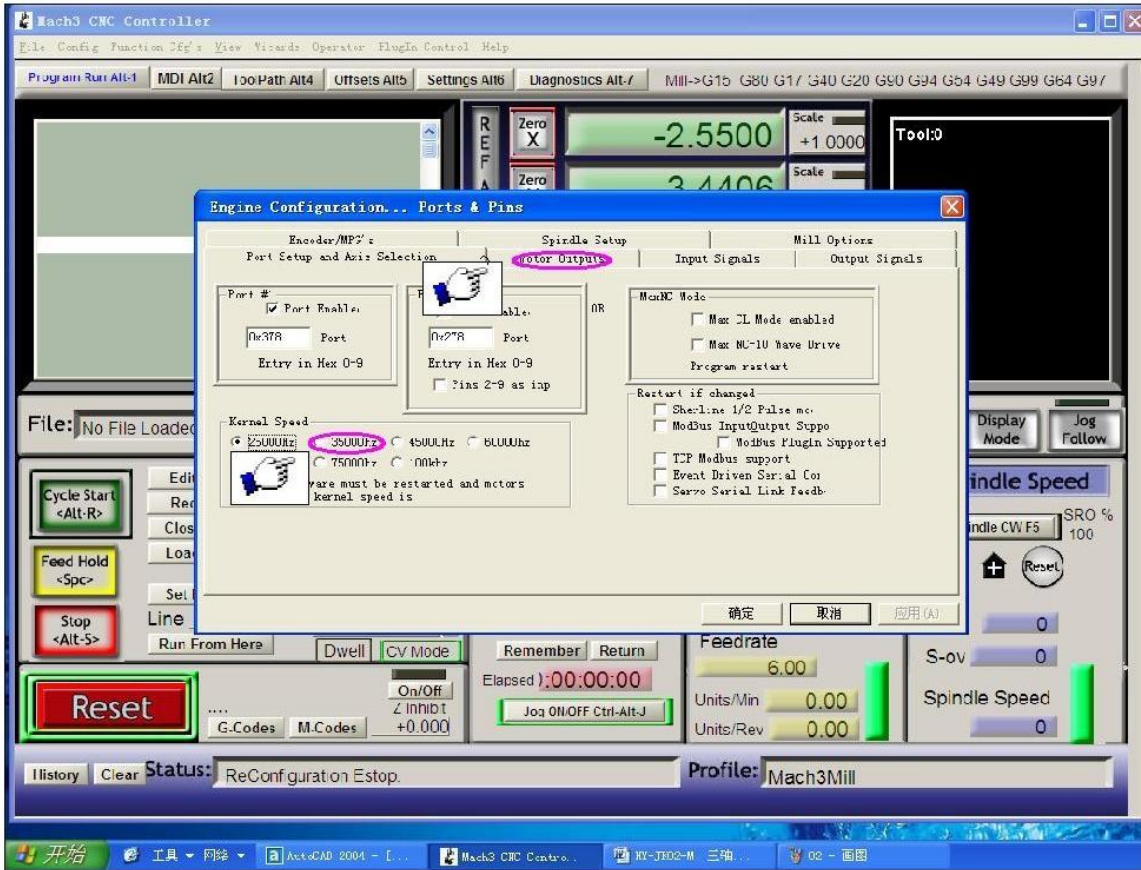Figure 3
Figure 3: Click the "Config" menu "PORT & PIN" menu.

Figure 4

Figure4: Place on lap 1 setting can set the fundamental frequency, the parameters of the motor rotation speed. After 2 laps to set the place selected, the configuration pin definitions, as shown in Figure 5.
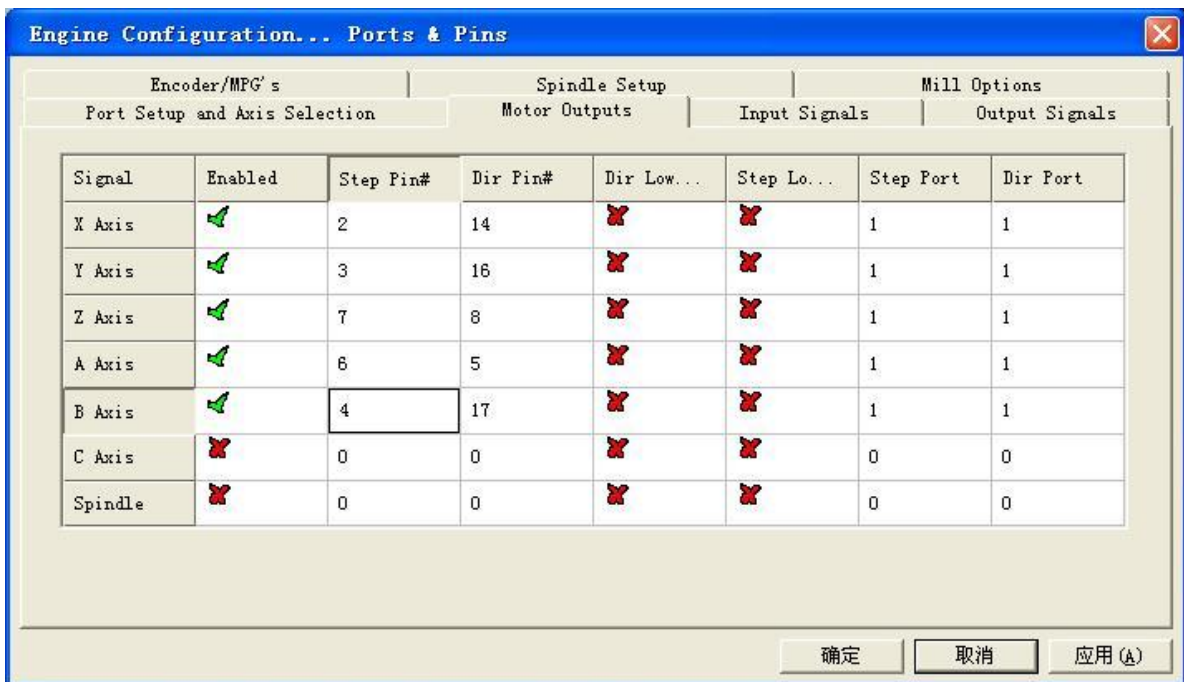
Figure 5

According to the definition of the board parallel port, follow the map on the circle to indicate the definition of modification of the software settings.
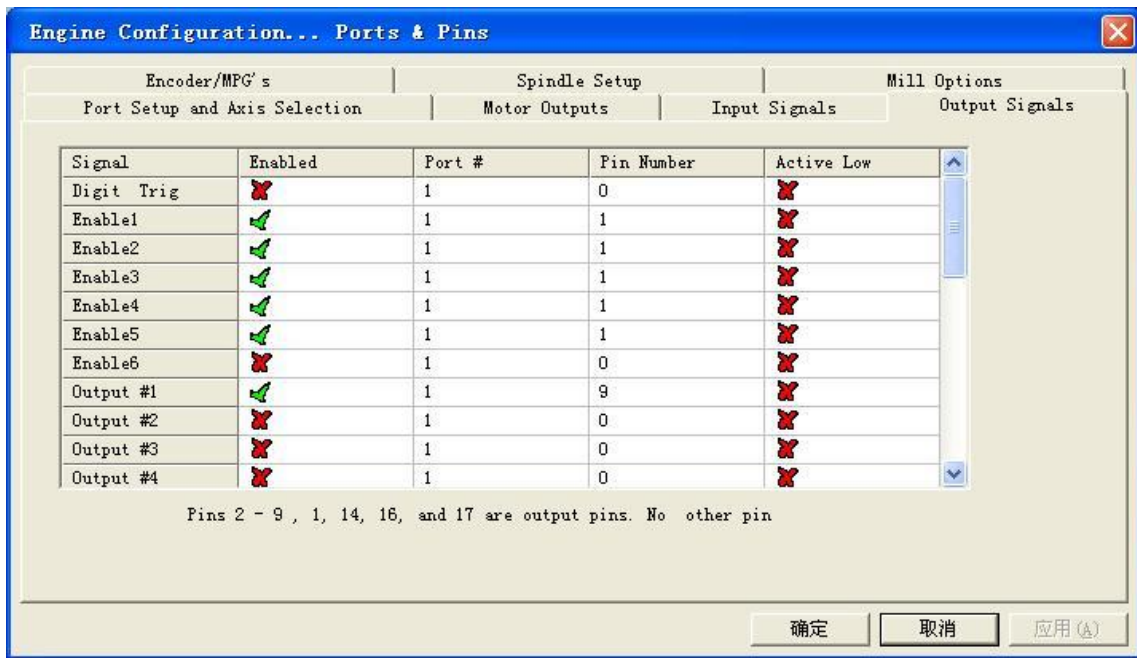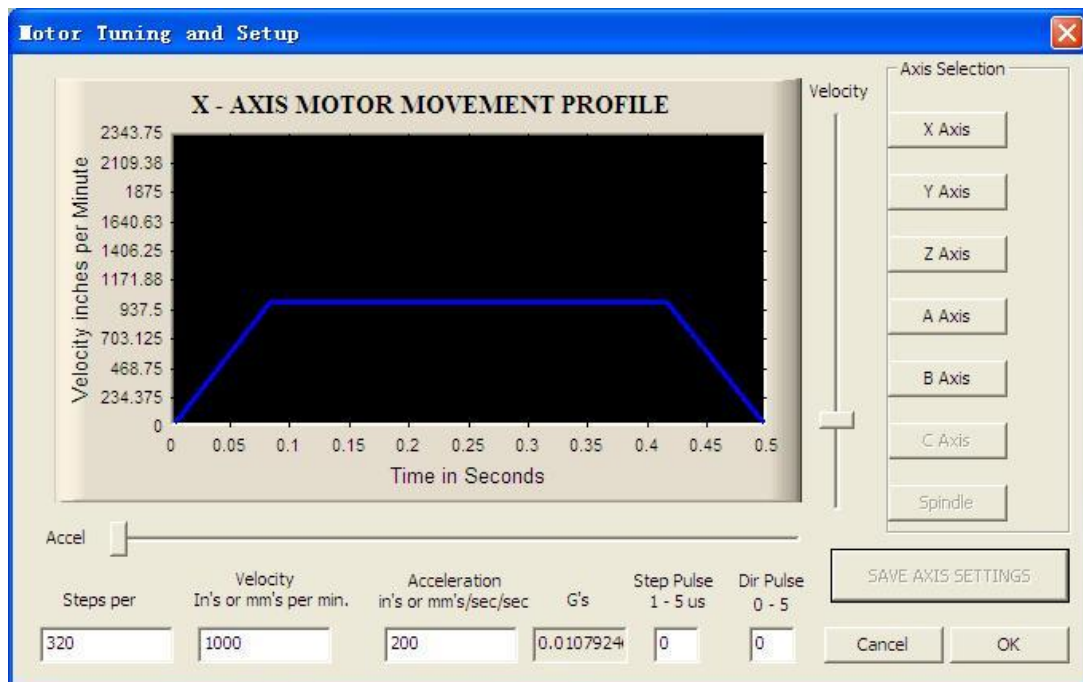
Figure 6

Then select the output signals in part, as shown in Figure 6, according to insiders of the settings, set the corresponding entry.

Motor reference set parameters, MACH3 software manual calculation in detail and description.
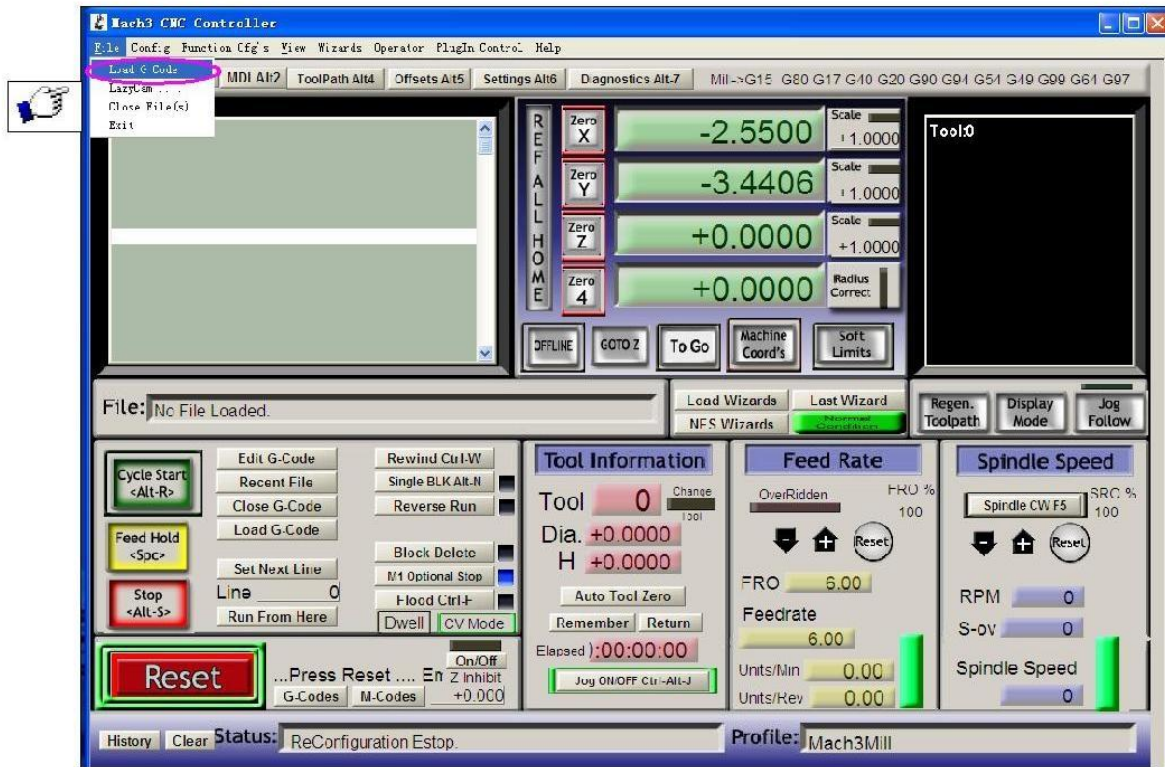
Figure 7

Figure 8

Finish all settings, you can click the "Load G Code" menu and run the G code needed, as shown in Figure 7 and Figure 8.
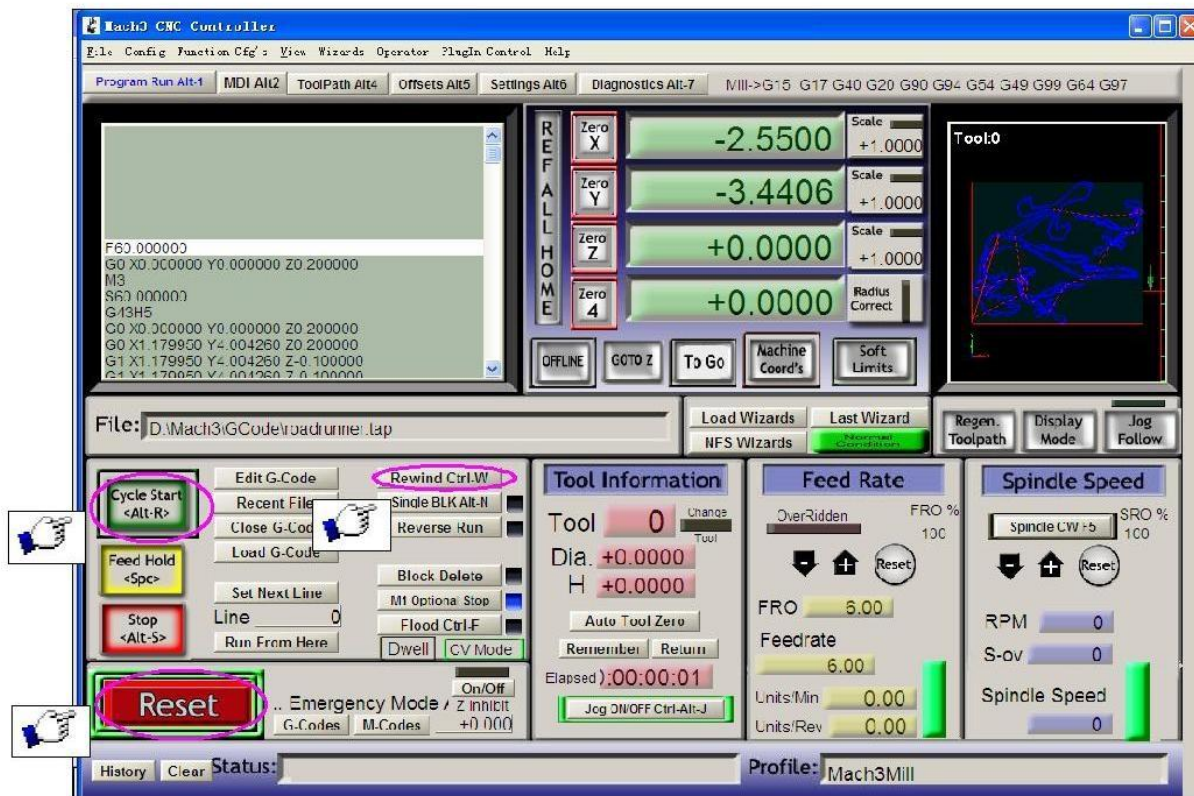
Figure 9

Having loaded the G code, "RESET" can be seen flashing red, you can use mouse click the "RESET" make it stop flashing, then you can press the ring 2 position "CYCLESTART" run.

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