

ChinaCNCzone

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## 6040 3axis Steel Structure 2200W CNC Machine -MACH3 USB version



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## Part 1 Assembling

Tools and spare parts needed during assembly:



### Packing list

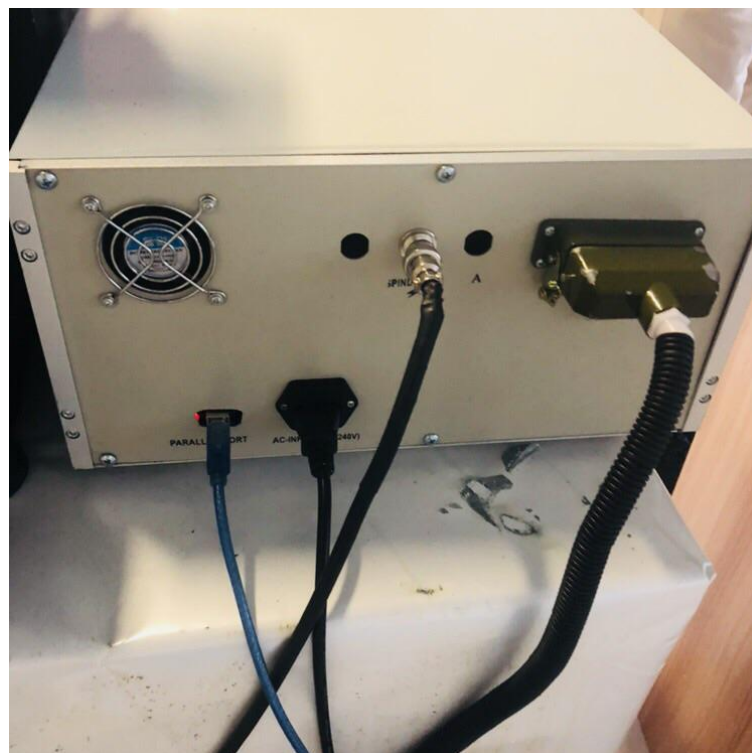
- 1 water pump\* 2
- 2 water pump fixed feet \* 8
- 3 Water pump inlet \* 2
- 4 clamp tool \* 6
- 5 Power Cable \* 1
- 6 USB connect cable \* 1
- 7 Spanner \* 2
- 8 water sink outlet pipe \* 1
- 9 Engraving bits \* 5
  - 4F\*6\*6\*19\*63mm White steel bit \* 1
  - 4F\*6\*6\*15\*50mm Tungsten steel milling bit \* 1
  - 3.175\*20°\*0.1 \* 1
  - 3.175\*20°\*0.2 \* 1
  - 3.175\*20°\*0.3 \* 1
- 10 Water box\*2



1. Open the wooden box you received as below:



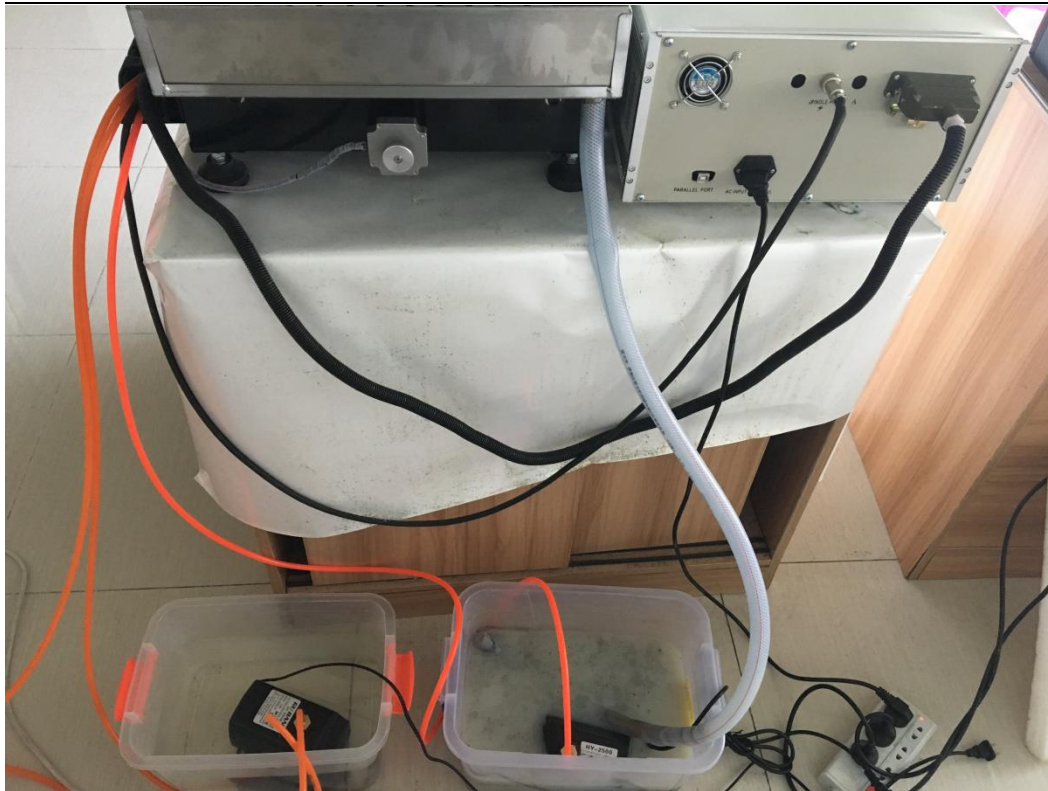
2. Controller box connection. Connect all lines from machine to controller box one by one; USB cable another side connect to computer.





3. Last step ,Water pump connection. Connect pipes between water pump and spindle. One pump for spindle, another for bits cooling.





## Part 2 Mach3 installation and setting

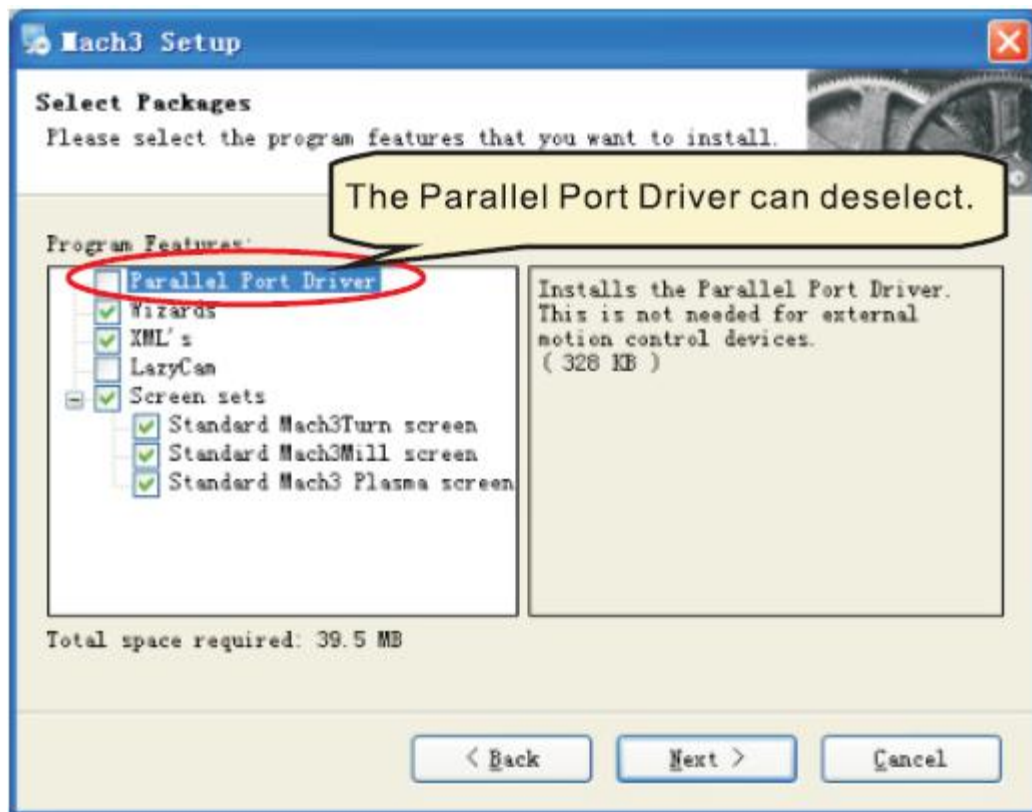
### 1 Download MACH3

Download MACH3 from our official website

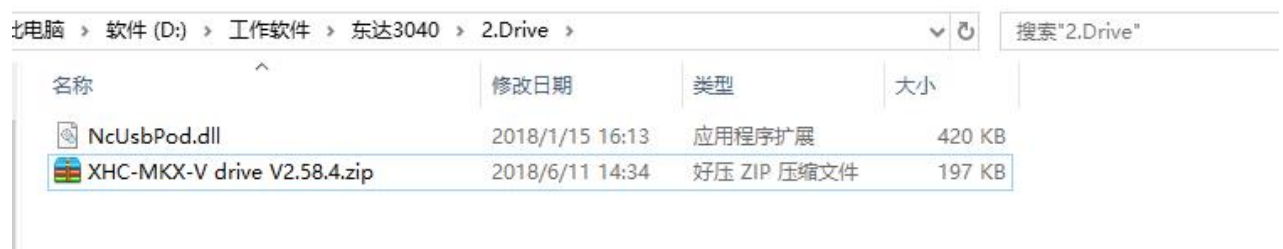
[www.china-cncrouter.com](http://www.china-cncrouter.com) or you can directly install MACH3 from CD,  
or get from the seller.

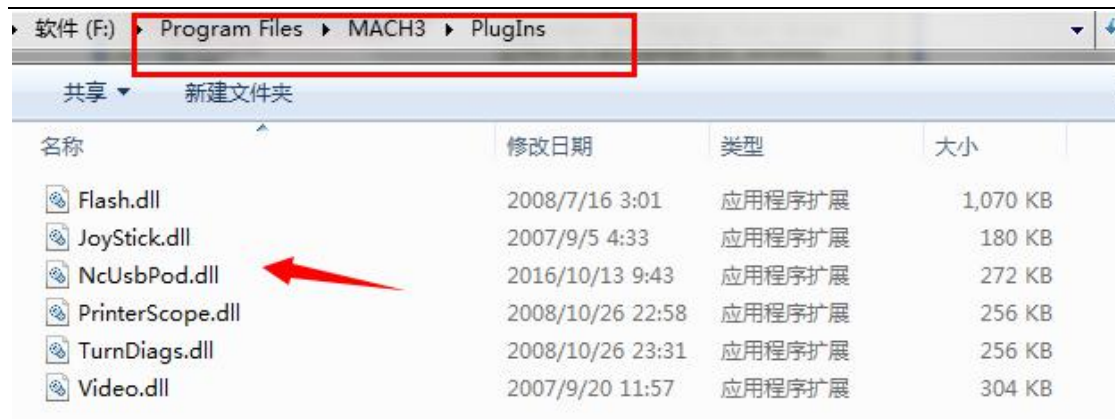
### 2 Install MACH3

Do not choose parallel port driver

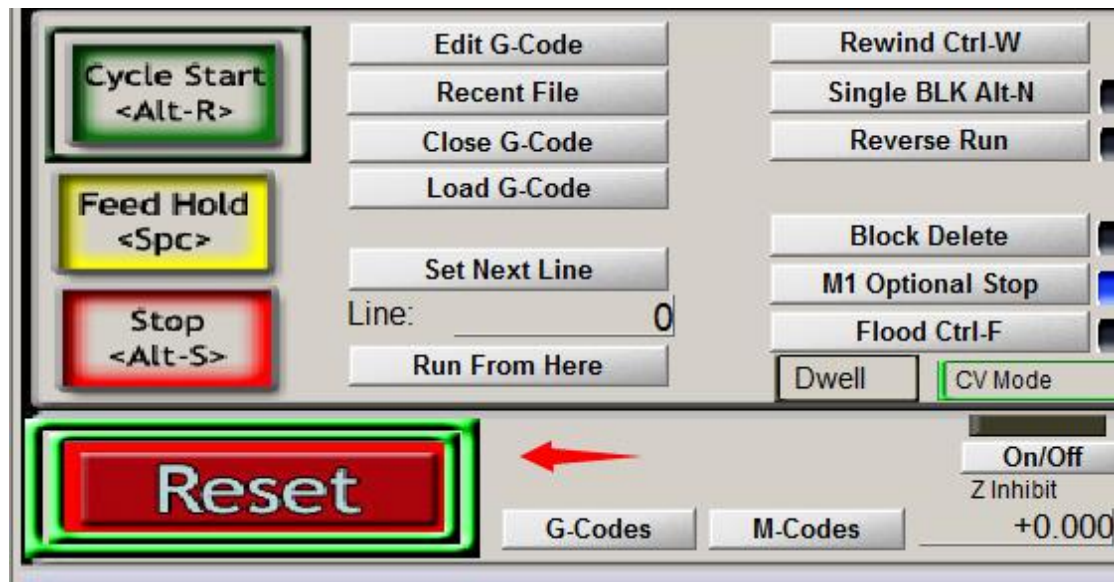


After installation finished ,Connect USB cable between controller box and computer. Copy [NcUsbPod.dll](#) from USB card driver file to [MAC3/PlugIns](#) file .This file to enable USB motion card.





At last, click reset button to keep it green , let machine can normal work.

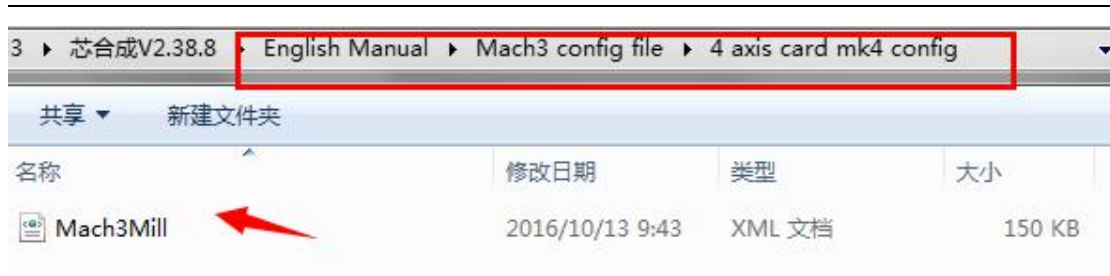


### 3 Mach3 software setting

#### Method 1:

Copy [mach3mill.xml](#) from Setting file we gave to the filewhere Mach3 installed, The file is used to basic software setting .

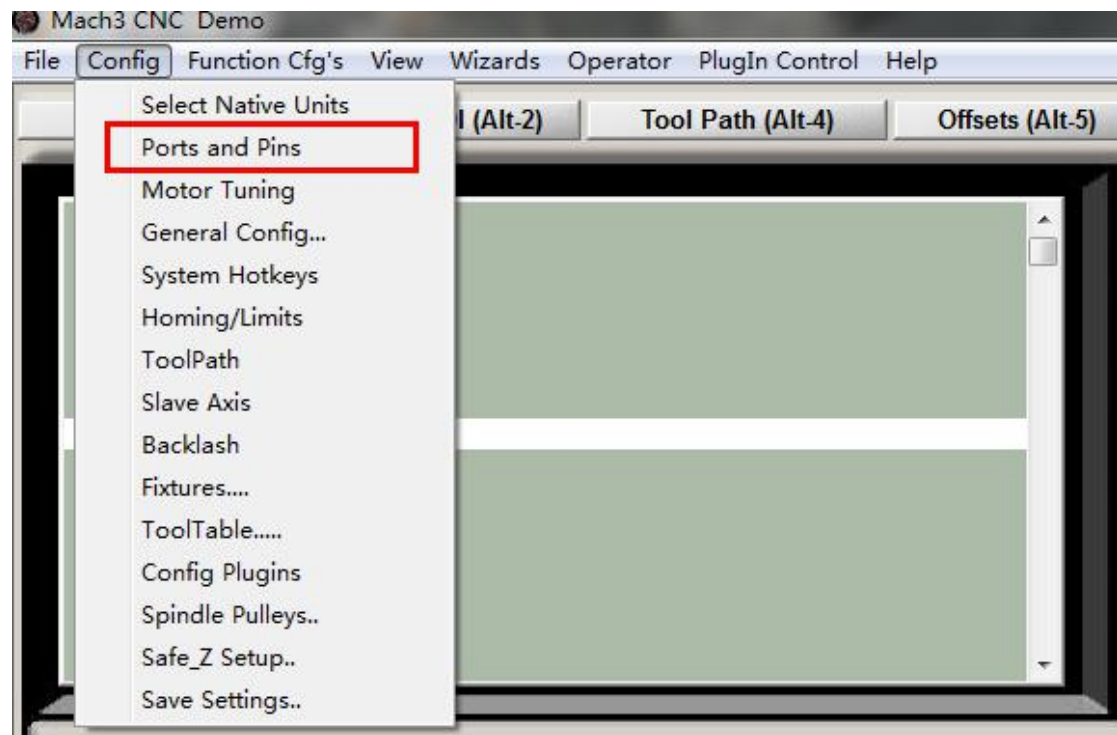




Then all setting will be done, machine ready to work.

## Method 2: manually setting step by step:

First, X Y Z A Axis output configuration as below, select config, Ports and pins .



Then ,make all setting as below:

**Engine Configuration... Ports & Pins**

Encoder/MFG's      Spindle Setup      Mill Options

Port Setup and Axis Selection      Motor Outputs      Input Signals      Output Signals

Port #1  
☐ Port Enable:  
 0x378 Port  
 Entry in Hex 0-9

Port #2  
☐ Port Enable:  
 0x278 Port  
 Entry in Hex 0-9  
☐ Pins 2-9 as inp

OR

MaxNC Mode  
☐ Max CL Mode enabled  
☐ Max NC-10 Wave Drive  
 Program restart

Restart if changed  
☐ Sherline 1/2 Pulse mo:  
☐ ModBus InputOutput Suppo  
☐ ModBus PlugIn Supported  
☐ TCP Modbus support  
☐ Event Driven Serial Co  
☐ Servo Serial Link Feedb:

Kernel Speed  
☒ 25000Hz    ☐ 35000Hz    ☐ 45000Hz    ☐ 60000hz  
☐ 65000hz    ☐ 75000hz    ☐ 100khz  
 Note: Software must be restarted and motors  
 kernel speed is

确定      取消      应用 (A)

**Engine Configuration... Ports & Pins**

Encoder/MFG's      Spindle Setup      Mill Options

Port Setup and Axis Selection      Motor Outputs      Input Signals      Output Signals

Signal	Enabled	Step Pin#	Dir Pin#	Dir Low...	Step Lo...	Step Port	Dir Port
X Axis		2	6			1	1
Y Axis		3	7			1	1
Z Axis		4	8			1	1
A Axis		5	9			1	1
B Axis		10	11			0	0
C Axis		12	13			0	0
Spindle		0	0			0	0

确定      取消      应用 (A)

### Engine Configuration... Ports & Pins

Encoder/MPG's			Spindle Setup		Mill Options	
Port Setup and Axis Selection			Motor Outputs	Input Signals	Output Signals	
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
X ++		1	0			0
X --		1	0			0
X Home		1	0			0
Y ++		1	1			0
Y --		1	1			0
Y Home		1	1			0
Z ++		1	2			0
Z --		1	2			0
Z Home		1	2			0
A ++		1	0			0

Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be

Automated Setup of Inputs

确定 取消 应用 (A)

### Engine Configuration... Ports & Pins

Encoder/MPG's			Spindle Setup		Mill Options	
Port Setup and Axis Selection			Motor Outputs	Input Signals	Output Signals	
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
C --		1	0			0
C Home		1	0			0
Input #1		1	0			0
Input #2		1	0			0
Input #3		1	0			0
Input #4		1	0			0
Probe		1	4			0
Index		1	0			0
Limit Ovrd		1	0			0
EStop		1	5			46

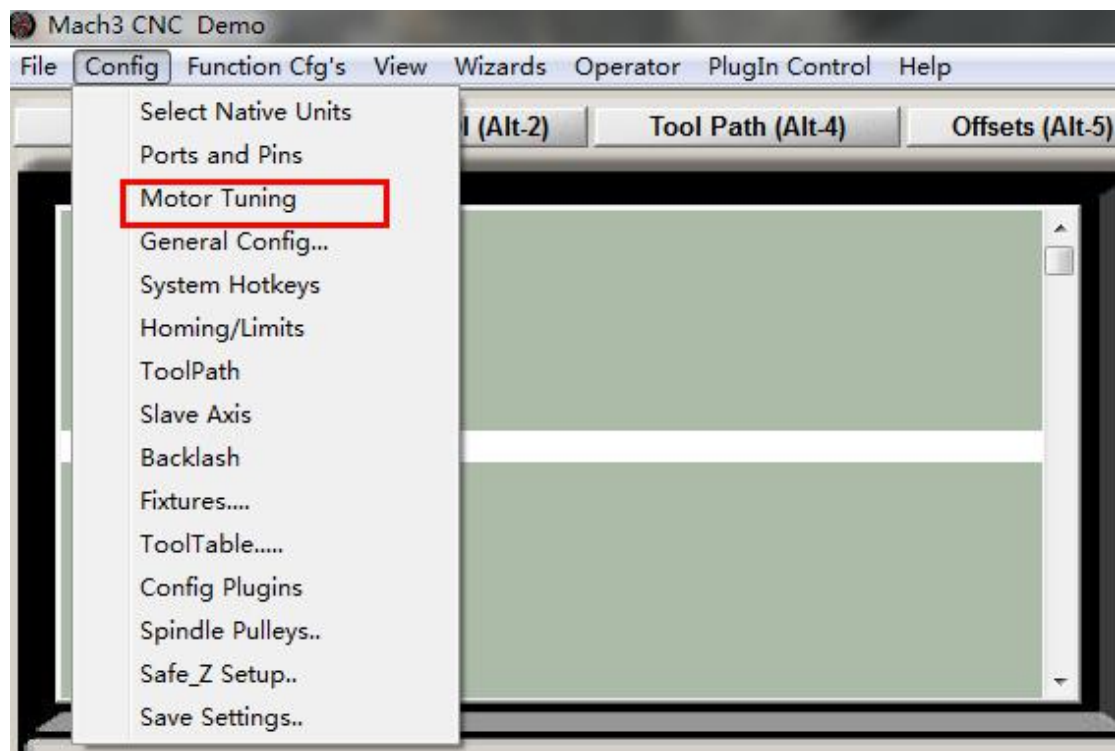
Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be

Automated Setup of Inputs

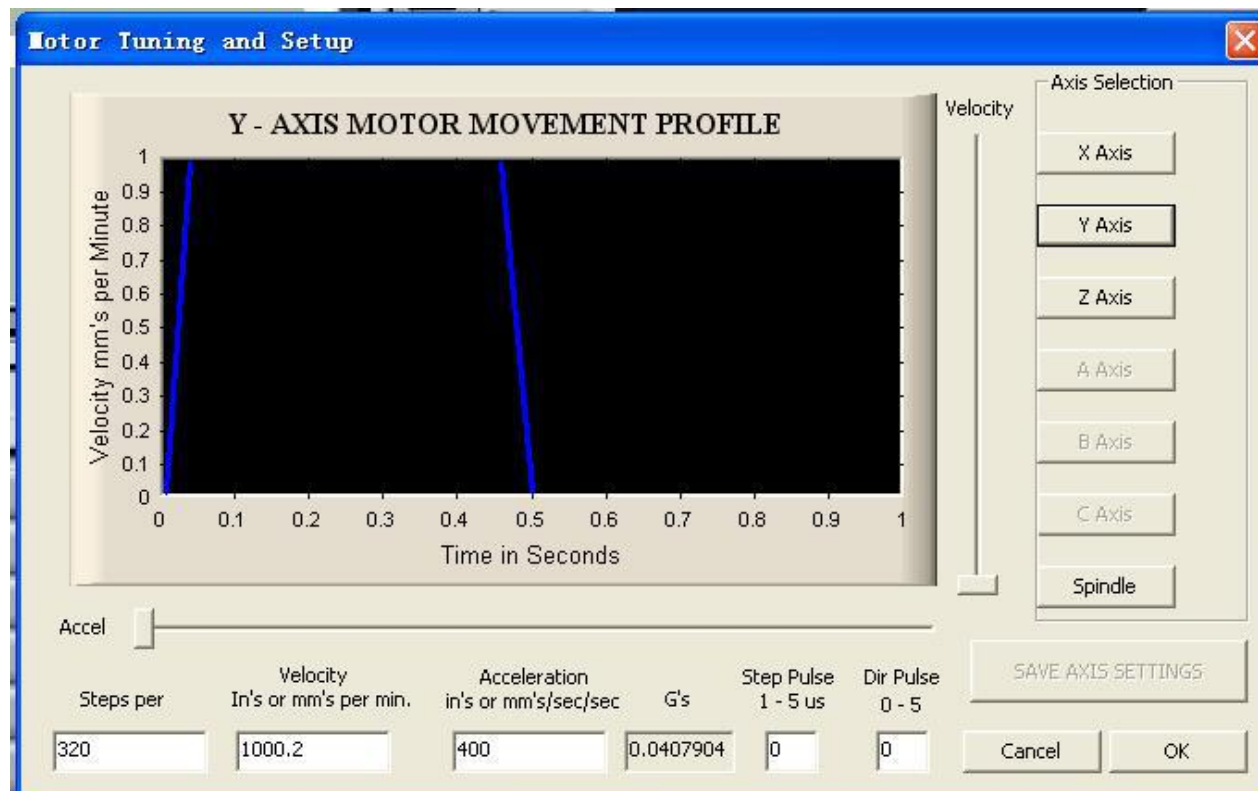
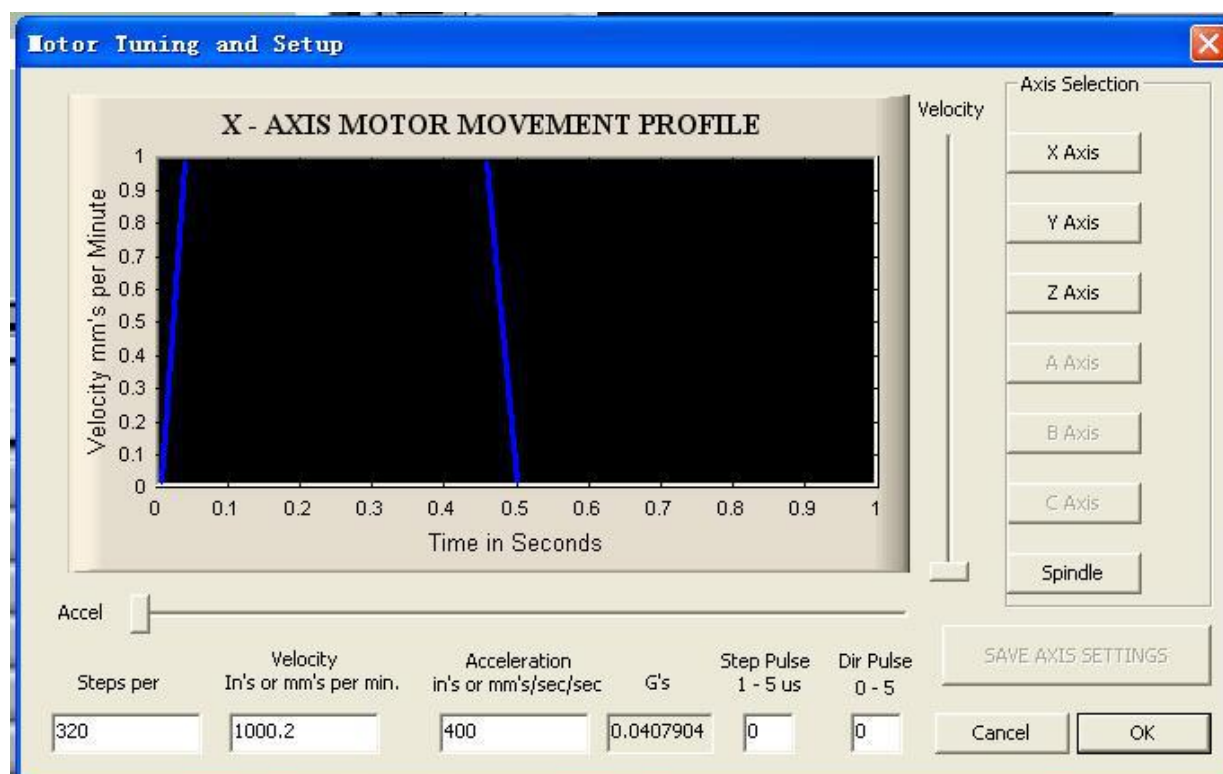
确定 取消 应用 (A)

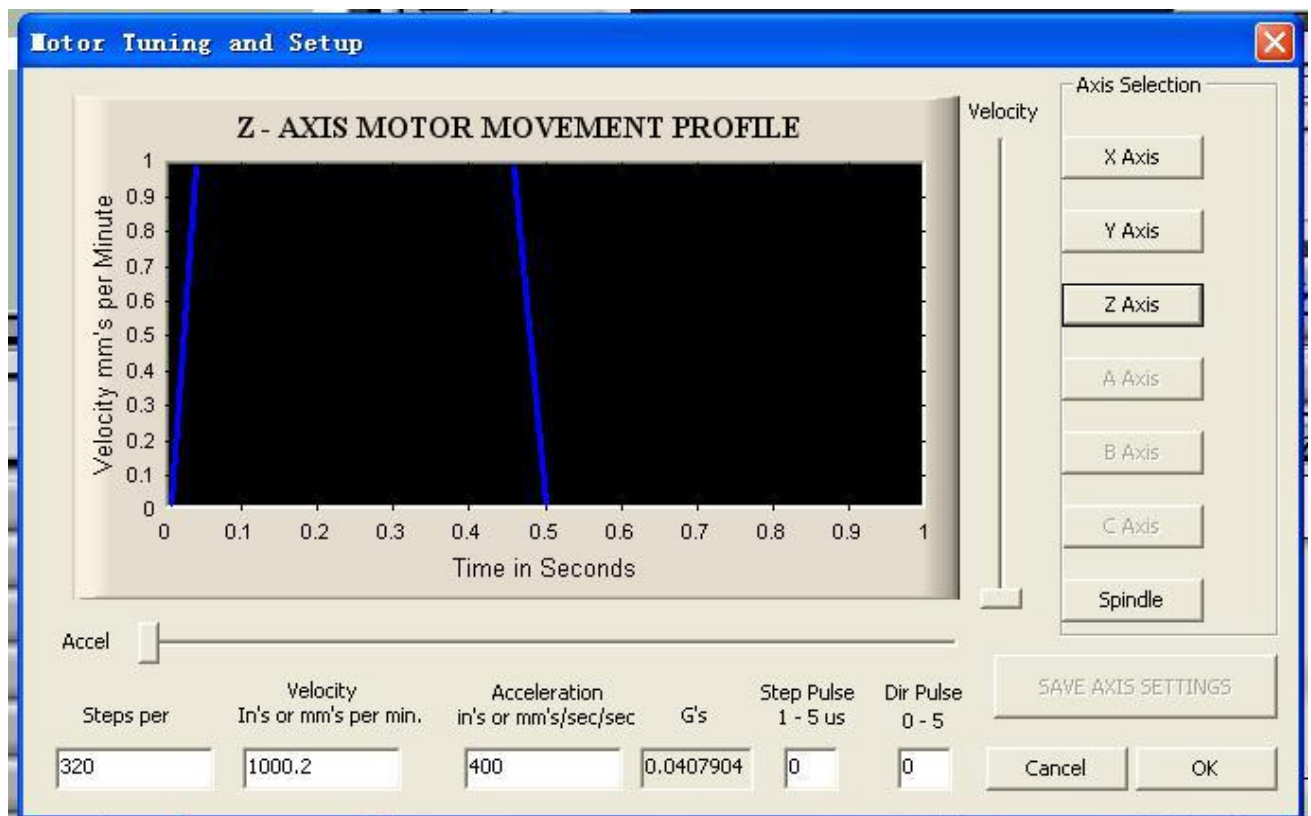


Motor parameter settings, X Y Z Axis setting is completely same









**Input Signals for mechanical limit, Estop , Probe , Noted:The machine did not support Motor Home/Soft limit , So no need to set.**

Engine Configuration... Ports & Pins

Encoder/MPG's			Spindle Setup		Mill Options	
Port Setup and Axis Selection			Motor Outputs		Input Signals	
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
X ++		2	1			0
X --		2	1			0
X Home		2	1			0
Y ++		2	2			0
Y --		2	2			0
Y Home		2	2			0
Z ++		2	3			0

Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be

确定 取消 应用(A)

Engine Configuration... Ports & Pins

Encoder/MPG's			Spindle Setup		Mill Options	
Port Setup and Axis Selection			Motor Outputs		Input Signals	
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
Z ++		2	3			0
Z --		2	3			0
Z Home		2	3			0
A ++		0	0			0
A --		0	0			0
A Home		0	0			0
B ++		0	0			0

Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be

确定 取消 应用 (A)

Engine Configuration... Ports & Pins

Encoder/MPG's			Spindle Setup		Mill Options	
Port Setup and Axis Selection			Motor Outputs		Input Signals	
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
Input #3		0	0			0
Input #4		0	0			0
Probe		2	10			0
Index		0	0			0
Limit Ovrd		0	0			0
EStop		2	16			0
THC On		0	0			0

Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be

确定 取消 应用 (A)

**Output Signals:**

Engine Configuration... Ports & Pins

Encoder/MPG's		Spindle Setup		Mill Options	
Port Setup and Axis Selection		Motor Outputs		Input Signals	
				Output Signals	
Signal	Enabled	Port #	Pin Number	Active Low	
Digit Trig		2	0		
Enable1		2	16		
Enable2		2	15		
Enable3		2	13		
Enable4		2	14		
Enable5		2	13		
Enable6		2	0		
Output #1		2	16		

Pins 2 - 9 , 1, 14, 16, and 17 are output pins. No other pin

确定 取消 应用 (A)

Engine Configuration... Ports & Pins

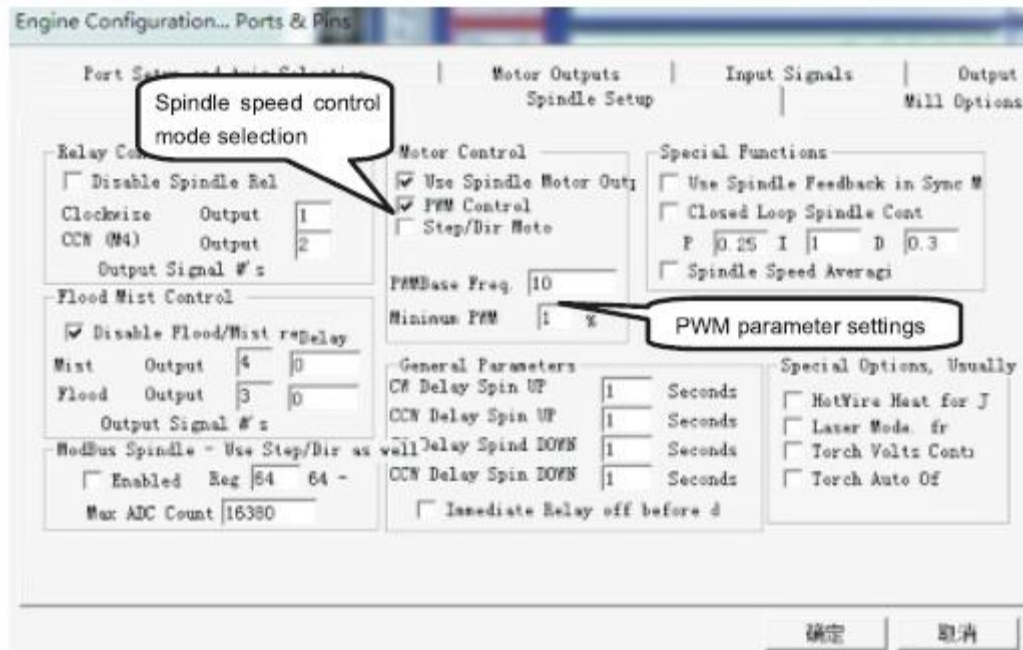
Encoder/MPG's		Spindle Setup		Mill Options	
Port Setup and Axis Selection		Motor Outputs		Input Signals	
				Output Signals	
Signal	Enabled	Port #	Pin Number	Active Low	
Enable4		2	14		
Enable5		2	0		
Enable6		2	0		
Output #1		2	0		
Output #2		2	0		
Output #3		2	0		
Output #4		2	0		
Output #5		2	0		

Pins 2 - 9 , 1, 14, 16, and 17 are output pins. No other pin

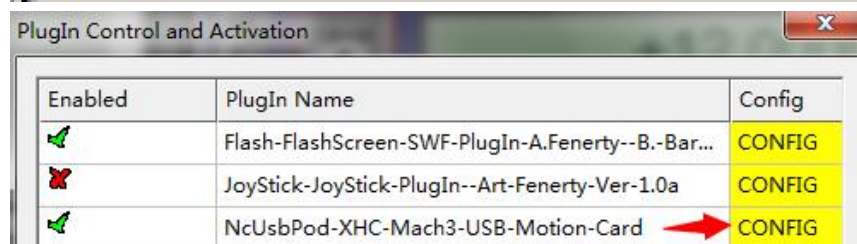
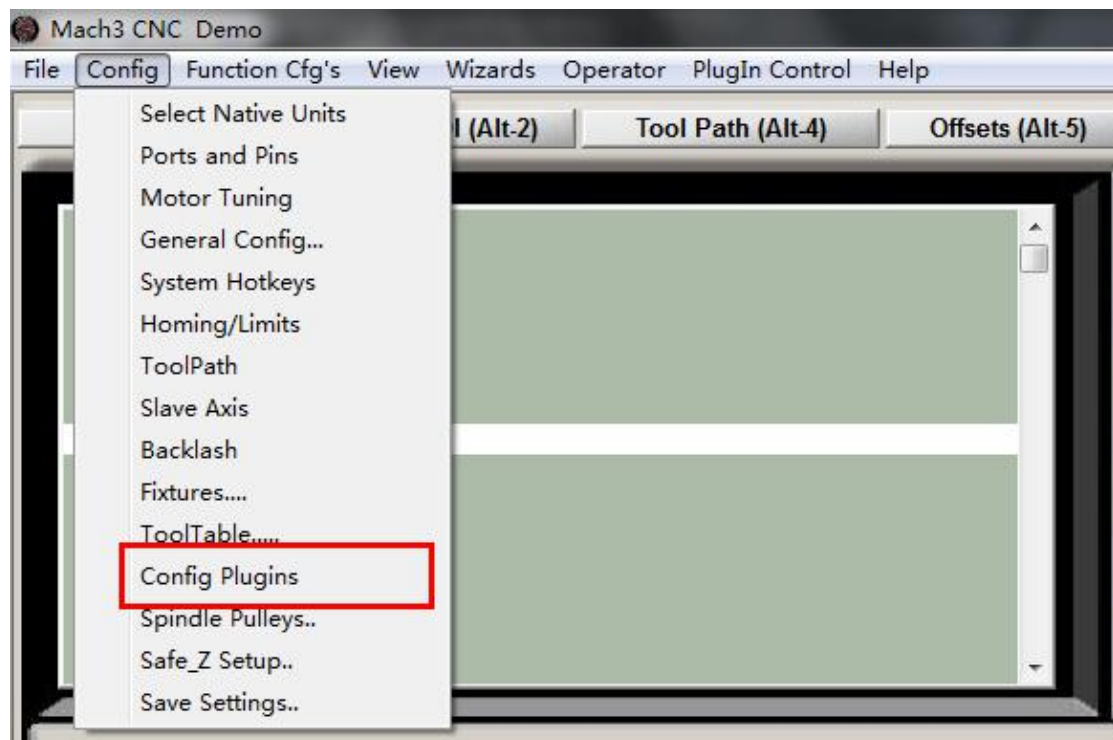
确定 取消 应用 (A)

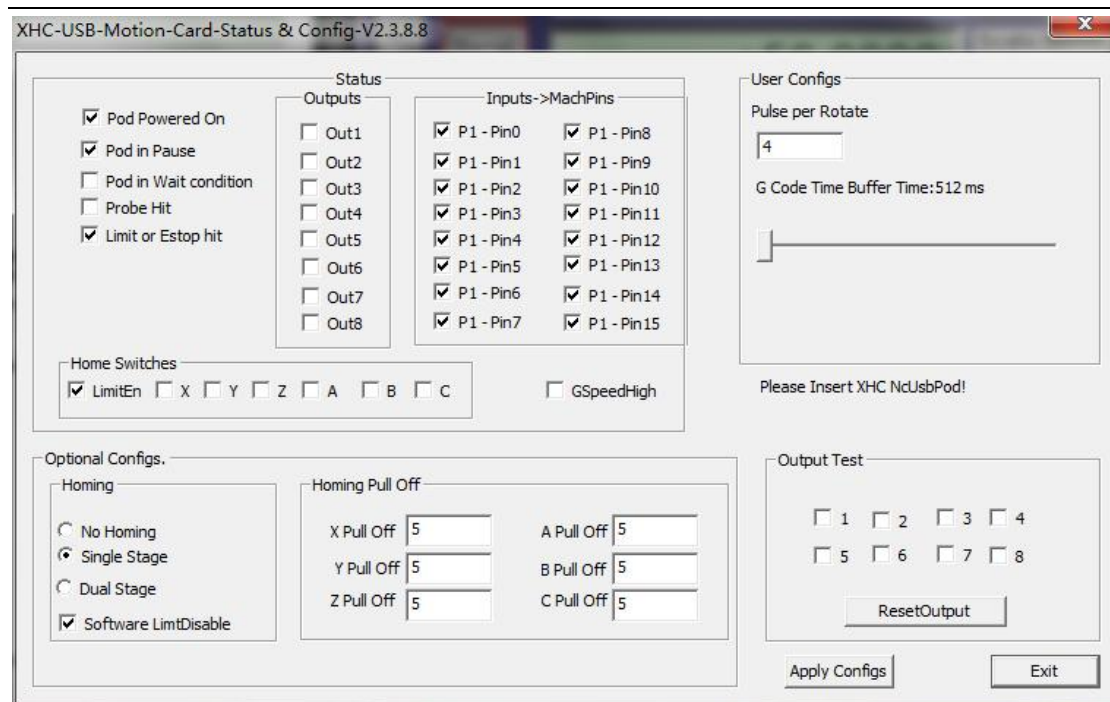


Spindle speed control as below:

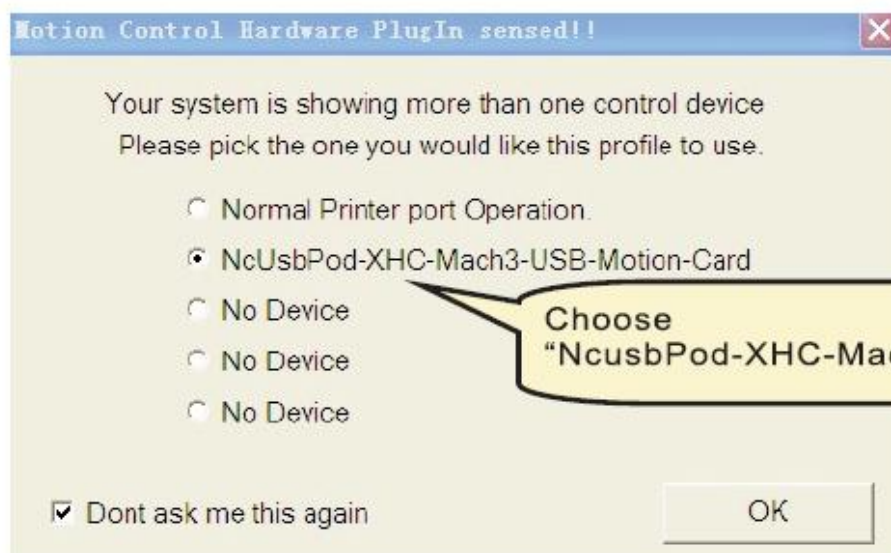


USB Motion control card configuration





At last , Open  
software ,Choose"NcUsbPod-XHC-Mach3-USB-Motion-Card",andChoo  
se "Don't ask me this again"

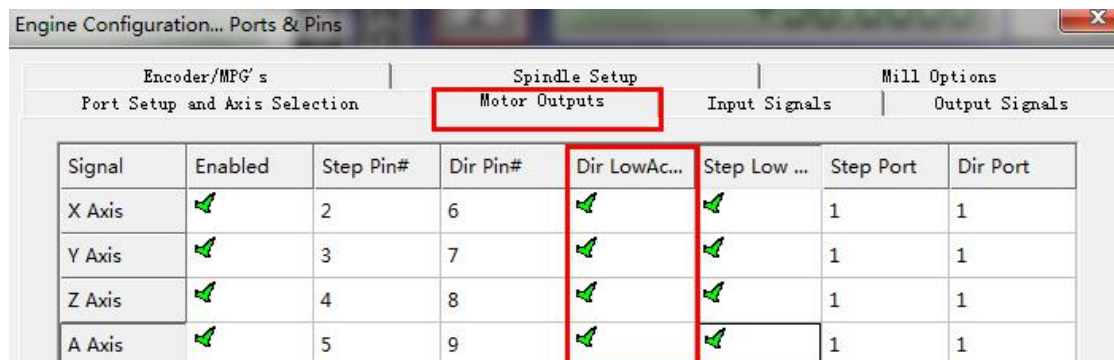


All above , The MACH3 installation and setting is finished.

## Part 3 FAQ

### 1.The Axis moving direction is wrong

Which Axis goes wrong direction , you change that Axis below Dir low active setting ,If home moving way reverse ,change Active low from ☒ to ☐,or change from ☐ to ☒.



### 2.USB motion card can be found by MACH3

Make sure USB cable connection is good ,make sure VFD has ground and input power of VFD has electrical filter to isolate noise.

### 3. How to ref all home

Firstly enable X Home ,Y Home ,Z Home , and confirm setting is correct.

Engine Configuration... Ports & Pins

Encoder/MPG's		Spindle Setup		Mill Options		
Port Setup and Axis Selection		Motor Outputs		Input Signals		
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
X ++		1	0			0
X --		1	0			0
X Home		1	0			0
Y ++		1	1			0
Y --		1	1			0
Y Home		1	1			0
Z ++		1	2			0

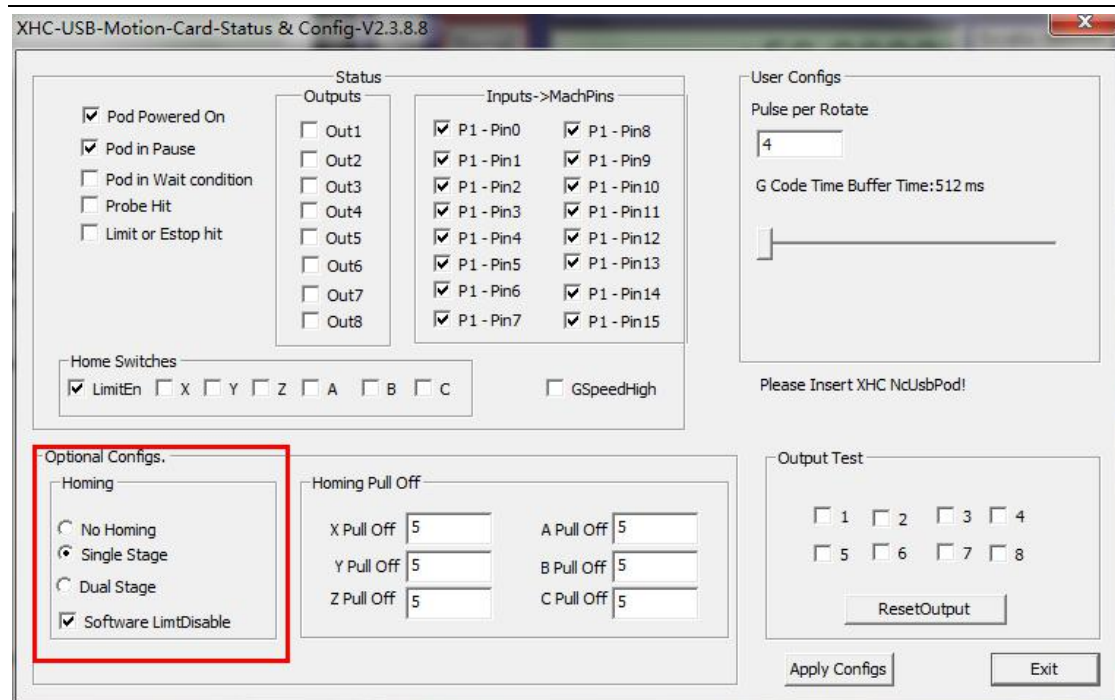
Engine Configuration... Ports & Pins

Encoder/MPG's		Spindle Setup		Mill Options		
Port Setup and Axis Selection		Motor Outputs		Input Signals		
Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
X Home		1	0			0
Y ++		1	1			0
Y --		1	1			0
Y Home		1	1			0
Z ++		1	2			0
Z --		1	2			0
Z Home		1	2			0

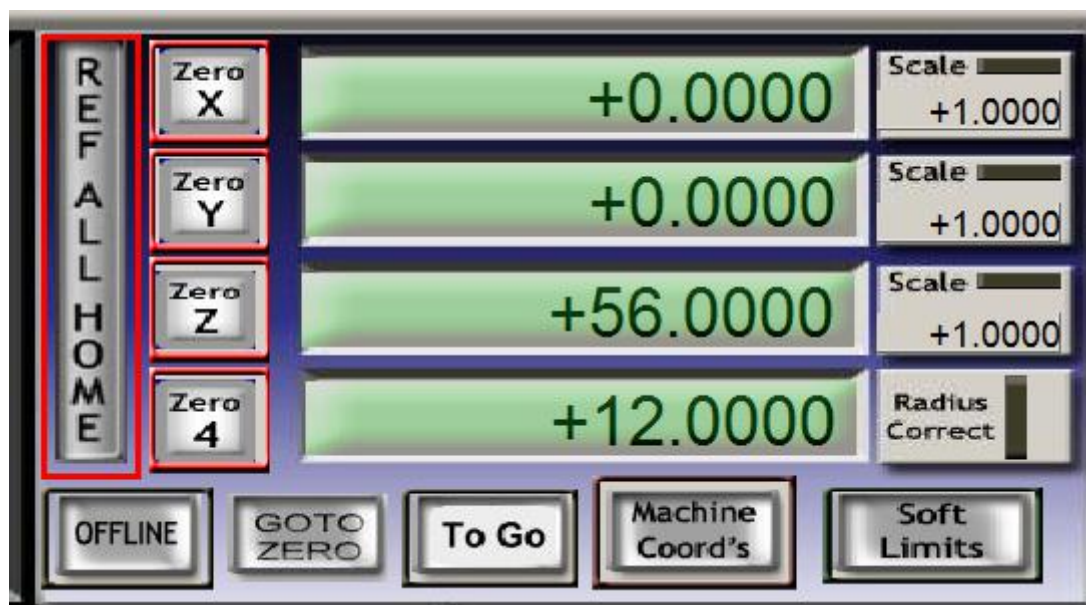
Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be

Secondly ,Confirm plugin setting correct ,especially ,Choose single stage





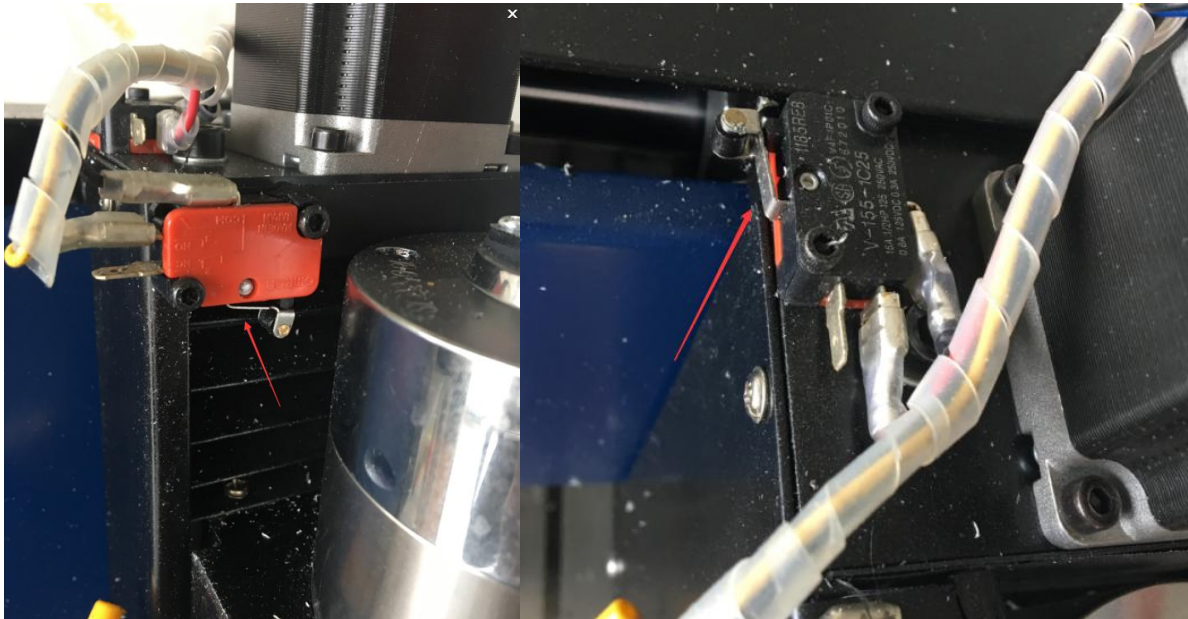
At last ,click ref all home button in MACH3.



#### 4. Manual reset limit switch

All X Y Z has 2 limited switch . Once the Axis touch below limit switch ,Machine will stop work ,and reset button will get red in controller box . Then Manually Moving axis away from limit switch(switch off

machine, easy to move) , press reset to make sure to get green at last  
restart machine to work .



## 5 How to active MACH3

if MACH3 software said limited version , Please copy Mach1lic to  
MACH3 file

