

CNC USB 6090 Engraving Machine User Manual



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1. CNC USB Controller Introduction

CNC motion controller is a device connect computer with motor driver. It can work with your laptop or desktop which have USB port connection.

Computer System Requirements

Bottommost (lowest) configuration:

1 GHz or faster CPU processor

512MB of memory

500 MB of free disk space

DirectX 9 graphics device with WDDM 1.0 or higher driver

USB 2.0 port

.NET Framework 3.5 SP1

Recommend configuration:

2 GHz or faster CPU

2GB RAM

500 MB free disk space

DirectX 9 graphics device with WDDM 1.0 or higher driver

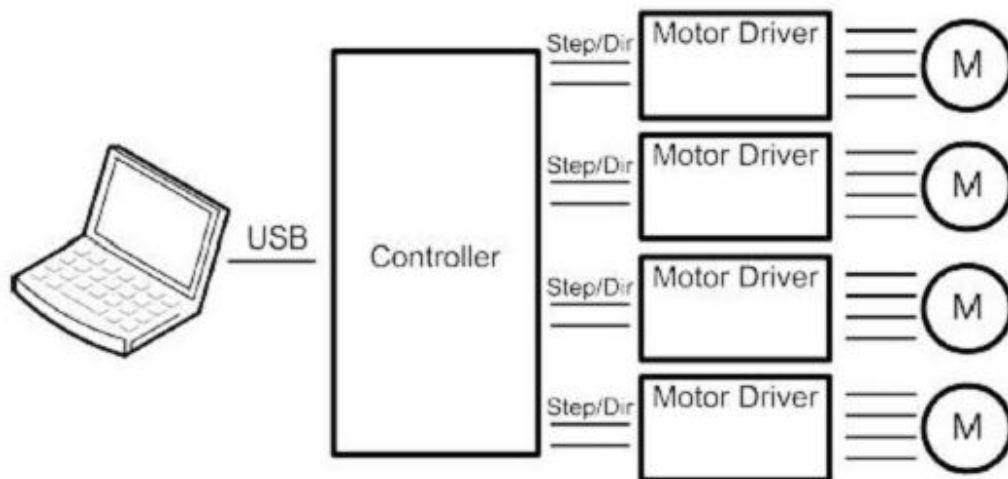
USB 2.0 port

.NET Framework 3.5 SP1

Hardware:



How to connect:



Spec & functions

Run Windows XP, Windows 7, Windows 8, Windows 10 with USB 2.0

Advanced Interpolation algorithm

High-performance IO buffer

Provide, Start, Stop, Pause, Continue

Support standard RS274/NGC G-code (EMC2 compatible)

Support advanced G-codes - G40, G41, G42 (tool radius compensation)

Support advanced G-codes - G43, G49 (Tool length encoding)

Support advanced G-codes - G54, G59.3 (coordinate system)

support SolidCAM, MasterCAM, ArtCAM, Vectric, ... creat G code

support 3-axis, 4-axis.

Load DXF file

Load directly PLT/HPGL file

Load directly picture file

Load directly drill file

Load directly GERBER file

Advanced tool change function

export G-code

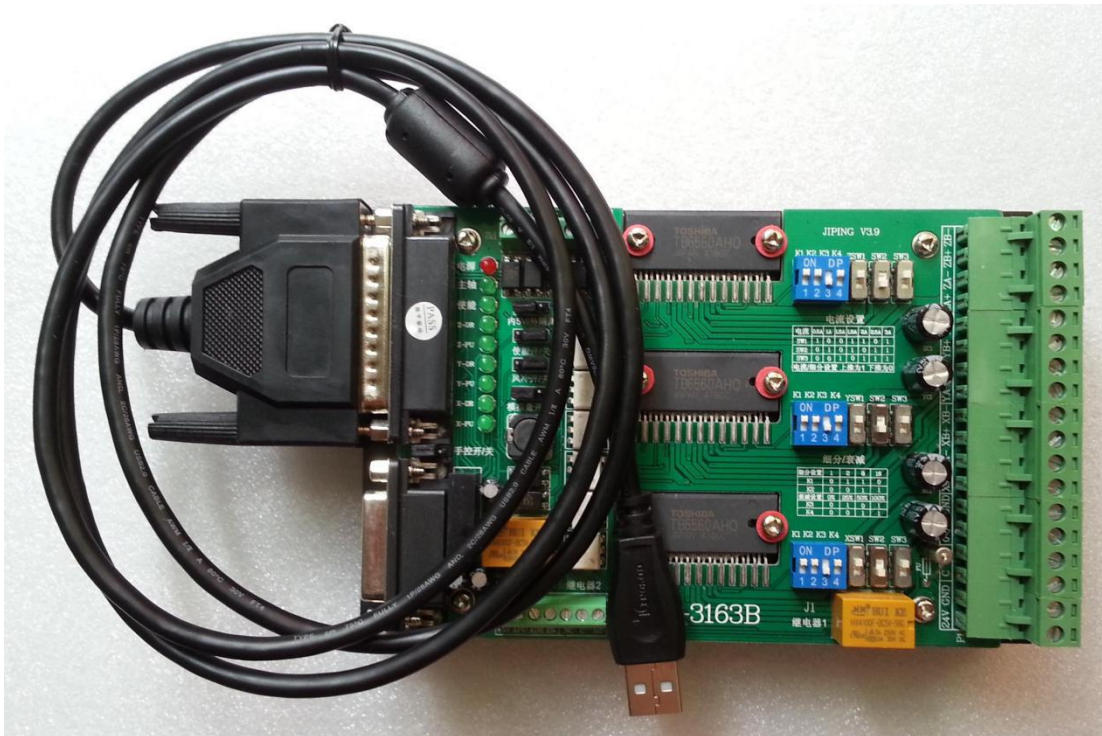
export DXF

export CSV

export NC

One port of USB card connect controller box by parallel port;
Another port connect computer USB port.

Four-axis controller card instruction



Support 4th axis machine
Can switch 3 modes: Normal XYZ, thermal cutting XYUV, rotating XYZA,
Provided for each axis 25 kHz pulse signal
12 us minimum pulse width
All axis limit
Can be accessed by external port, such as hand remote controller;
3 digital outputs (spindle / cutting liquid / mist)

2. Assembly

Tools and spare parts needed during assembly:



1. Water pump *1

2. Spanner *2

3. USB cable *1

4. Milling bit *2, engraving bit *3

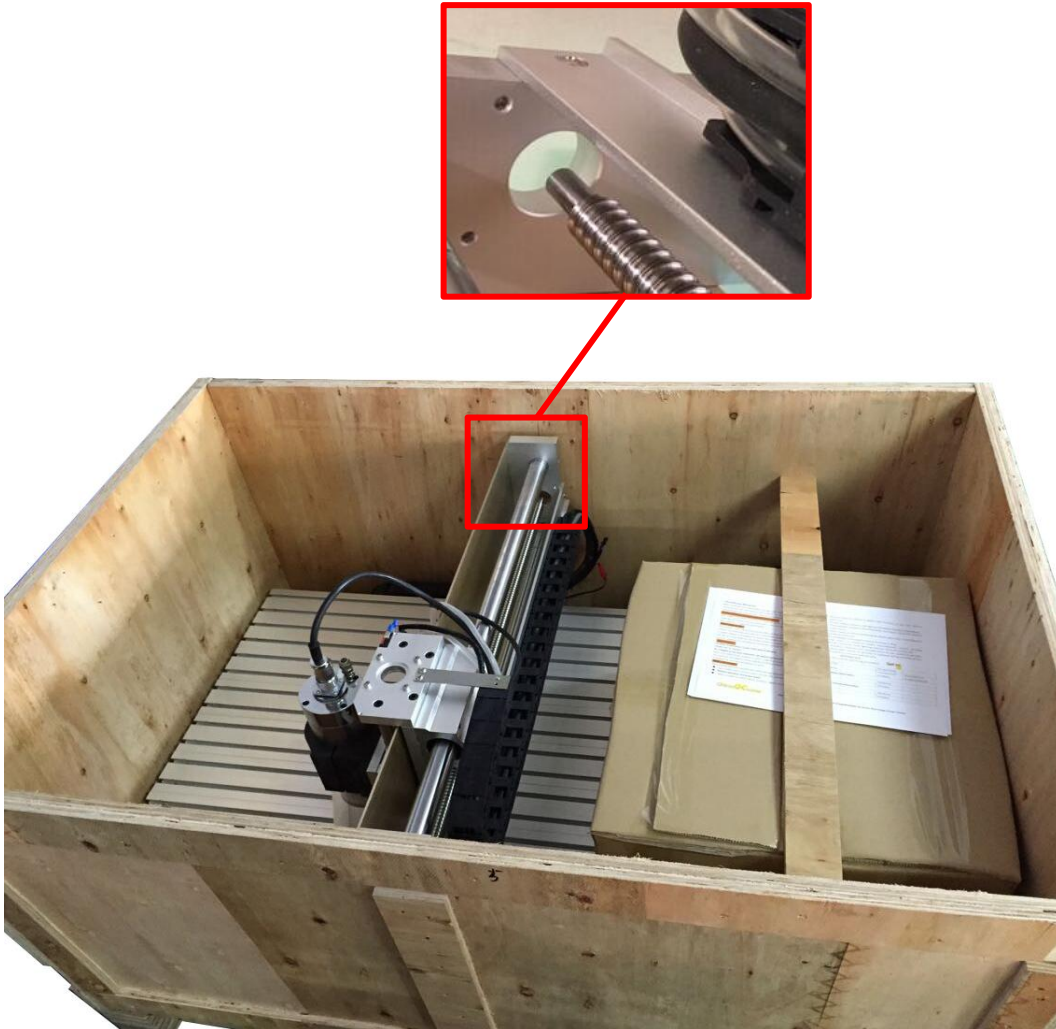
5. Clamp tool *6

6. Power cable *1

7. Stepper motors *3

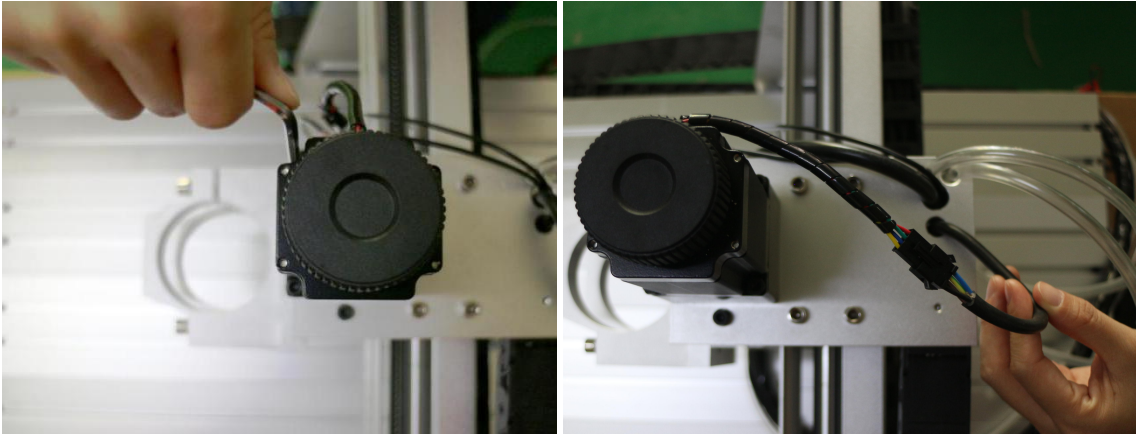
Step 1: Open the wooden box, then you can see as the picture attached.

There are machine body, the carton box is for control box and some accessories.



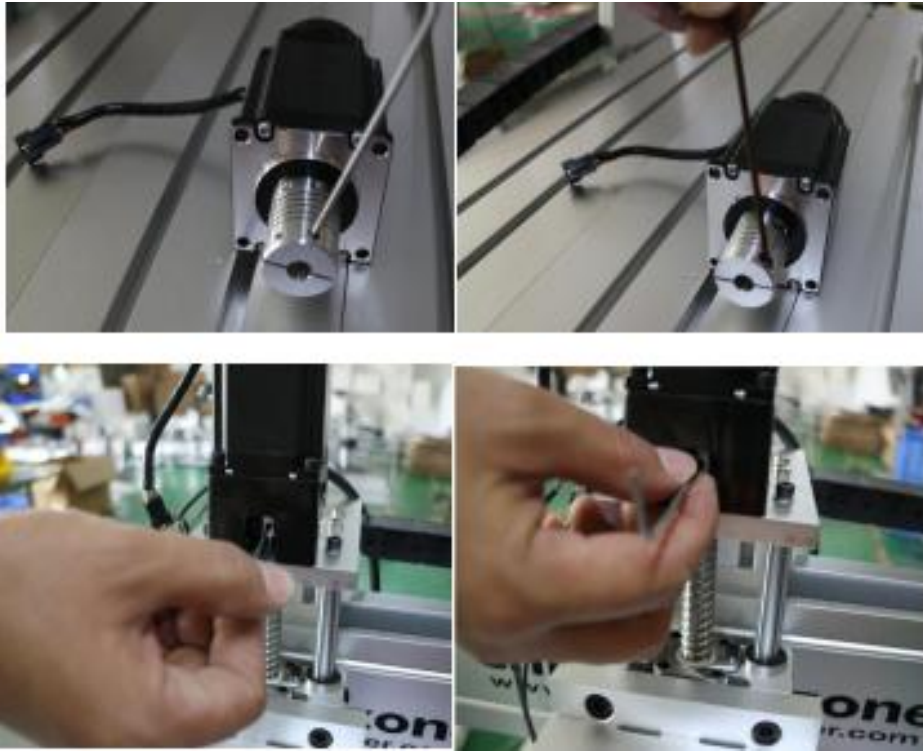
As you can see, the machine is almost assembled.

You only need to install the three step motors and water pump.



Step 2: Next step is to install the step motors. The black ones are step motors. There are three step motors. At first, you need to put the step motor to the machine. Tight the four screws as the first picture showed. In the second the put the two lines together.

Second, tight the inner screws of the step motor as the following pictures show. There are two screws. (The first two pictures just for showing where are the two screws, you don't need to do as that two pictures show). For this step, you need to tight the two screws as the third and fourth pictures show. After installing the step motor on the machine, you need to tight the inner screws. Use the same way to install the rest two step motors. Then the three step motors are assembled.



Step 3. The last step is to connect the water pump.

Attention: The water pump can not put into the water, it's very dangerous. Just put out side as the below, and keep dry. If the water pump is wet, cut off the electricity and dry it. The upper pipe connects to the machine, and the other one connects to the back of the control box, it has the logo of water pump. See the picture as below:



Step 4: Connect the lines with the control box. Look at the lines, there are logos, just connect all the lines to the back of the control box one by one. The installation of the machine is finished.



Front



Back



parallel port +



3. Software

3.1 Installation

CNC USB Controller software is compatible with Windows XP, Vista or Windows 7 /8/10(32 or 64 bit). Installation is a two-part process. Driver installation will be performed after the main application can be installed and configured. The installation process is mostly 'automatic.' In most cases it's possible to accept 'default' options.

This is simply a Windows 7 feature. It occurs when software from any publishers who are not part of the Microsoft 'verification' process is installed.

Some computers may require additional components to be installed. This is largely governed by the operating system and the installed software. More recent Microsoft releases contain these elements as part of the operating system. Older versions may not have them if software installed on the machine has not required their use.

Requirements:

DirectX 9c for .NET

Microsoft .NET 3.5 SP1 Framework

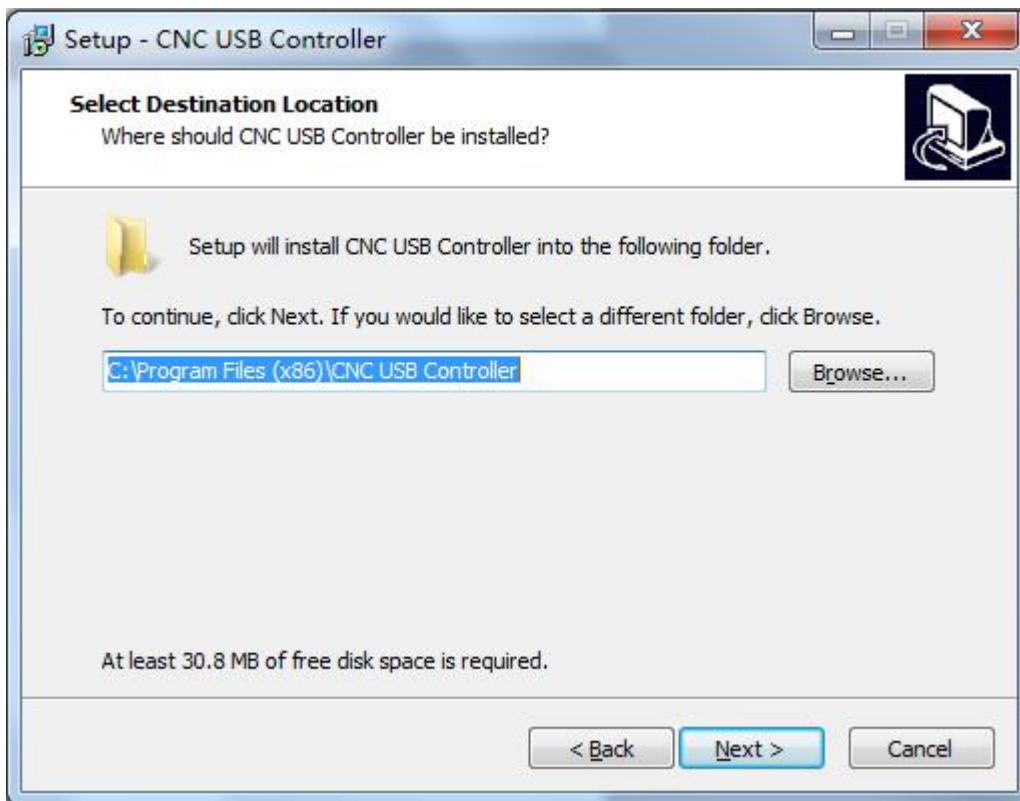
3.1.1 Software installation



CNC USB Controller software is installed by execution of the 'CNCUSB_Setup' Microsoft installer package.

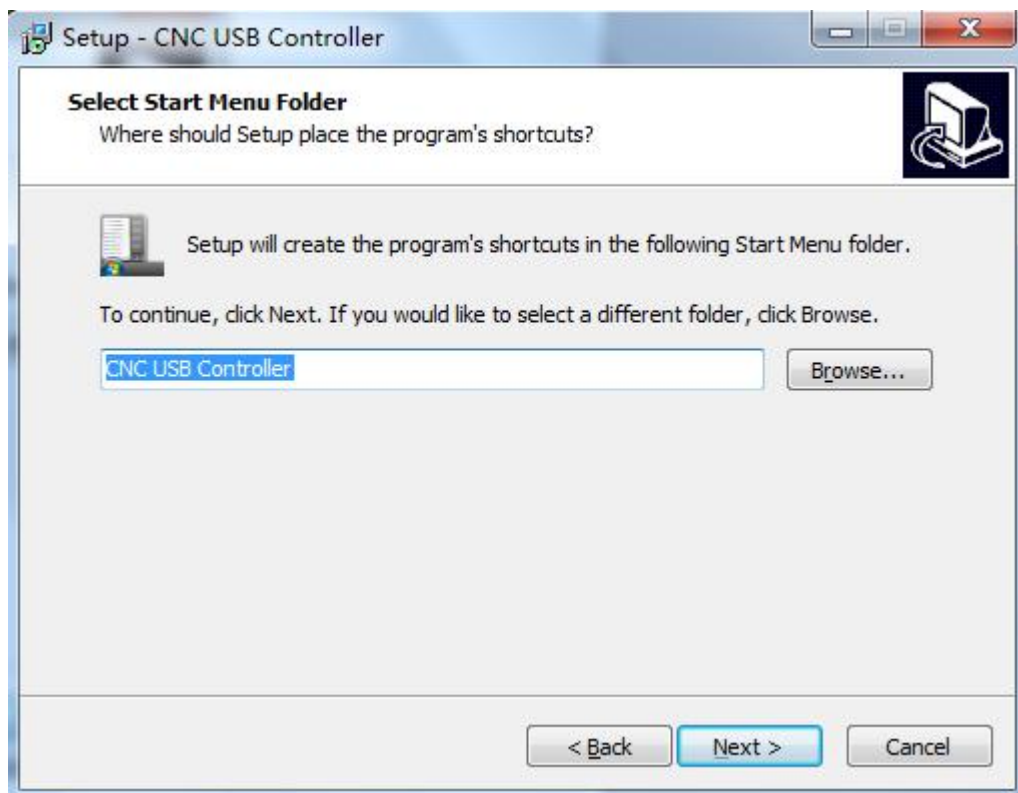
The 'CNC USB Controller Setup Wizard' will launch.

Press 'Next' to start installation or 'Cancel' to close the wizard and stop installation.

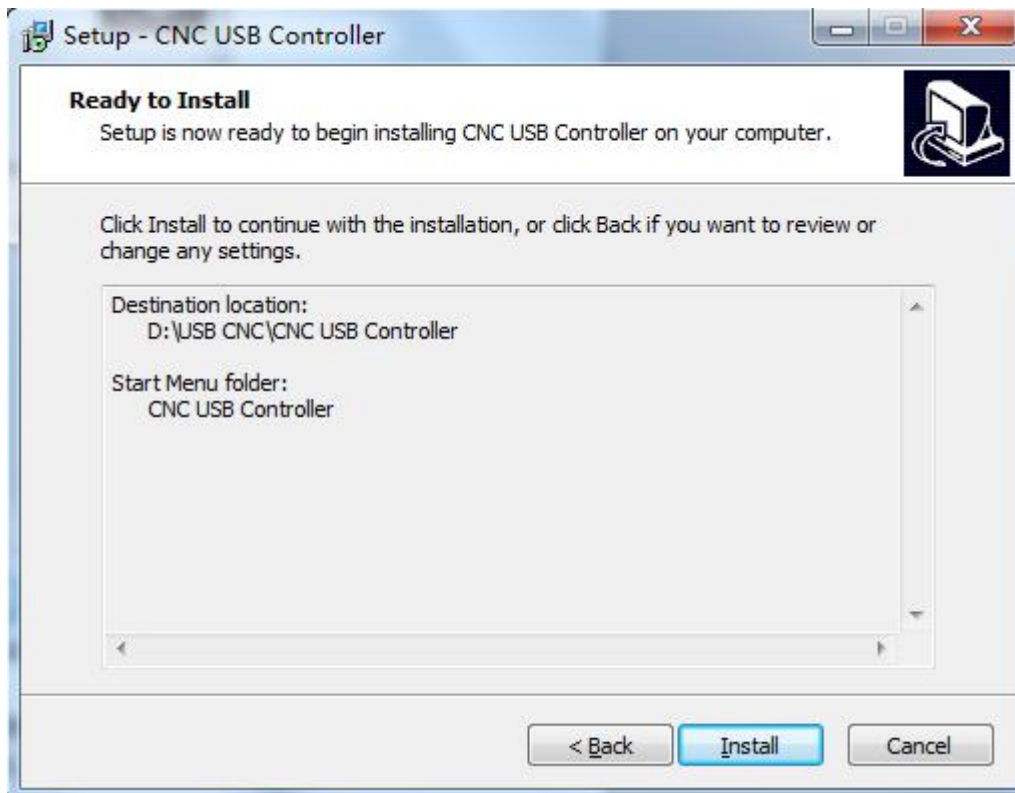


A destination folder is nominated. 'C:\Program Files\CNC USB Controller\' is the default install location. An alternate location can be selected by use of the 'Browse..' button. For example chosen disk D:

Press 'Next' to continue or 'Cancel' to exit the setup wizard.



The setup wizard will request confirmation. Press 'Next' to start installation, 'Back' to adjust settings or 'Cancel' to exit the setup wizard without installation.



Press "Install" to continue, 'Back' to adjust settings or 'Cancel' to exit the setup wizard without installation.



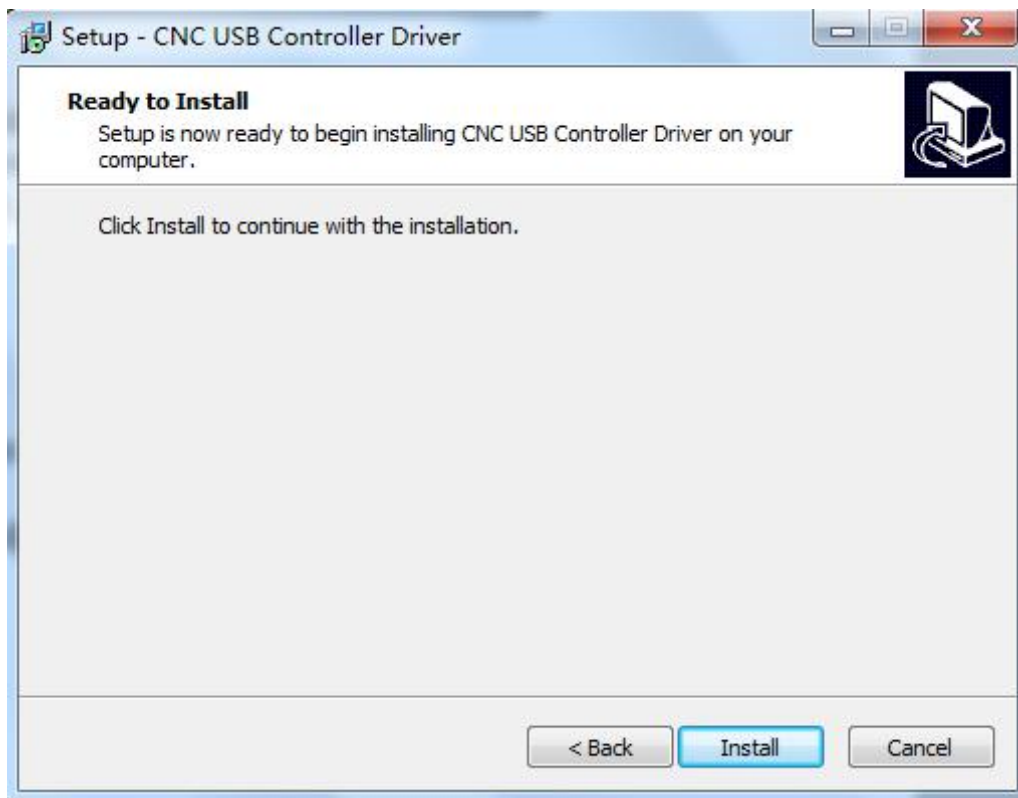
On completion the setup wizard will display "Completing the CNC USB Controller Setup Wizard". Press 'Finish' to exit the wizard.

3.1.2 Driver installation



Driver installation is achieved by running “CNCUSBControllerDriver.exe”, you can find this file in the same folder that software installed.

The ‘Driver Setup Wizard’ will launch, press ‘Next’ to continue, or ‘Cancel’ to stop installation.



The 'Ready to Install' pane will appear. This provides opportunity to review, and if so desired, change setup options.

Press 'Install' to continue, 'Back' to adjust settings or 'Cancel' to stop installation.

Driver is successfully installed. Press 'Finish' to exit setup.

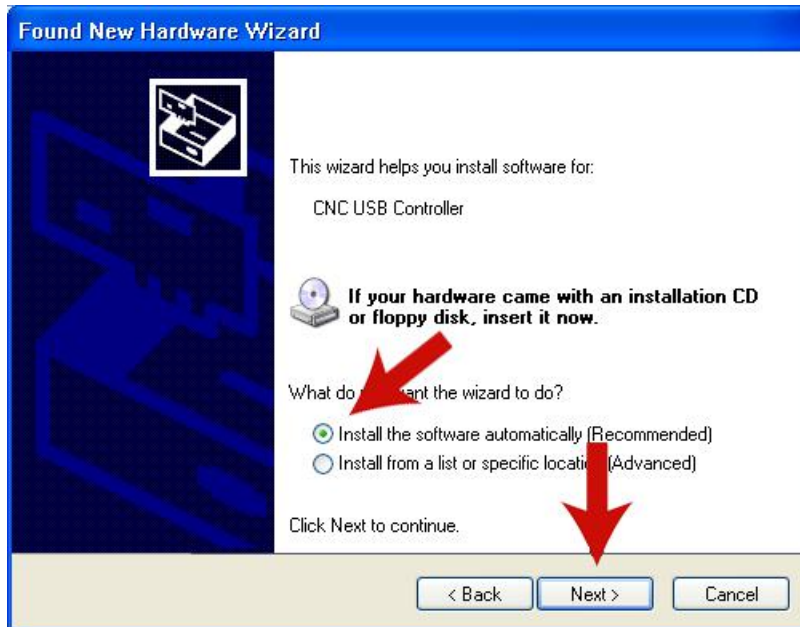


3.1.3 Completing driver installation (Windows XP will require this step)



Driver installation will complete when the CNC USB Controller is connected to the USB Port. Windows XP will detect controller hardware and the 'Found New Hardware Wizard' will launch. Use of 'Windows Update' is not required.

Press 'Next' to continue, or 'Cancel' to stop installation.



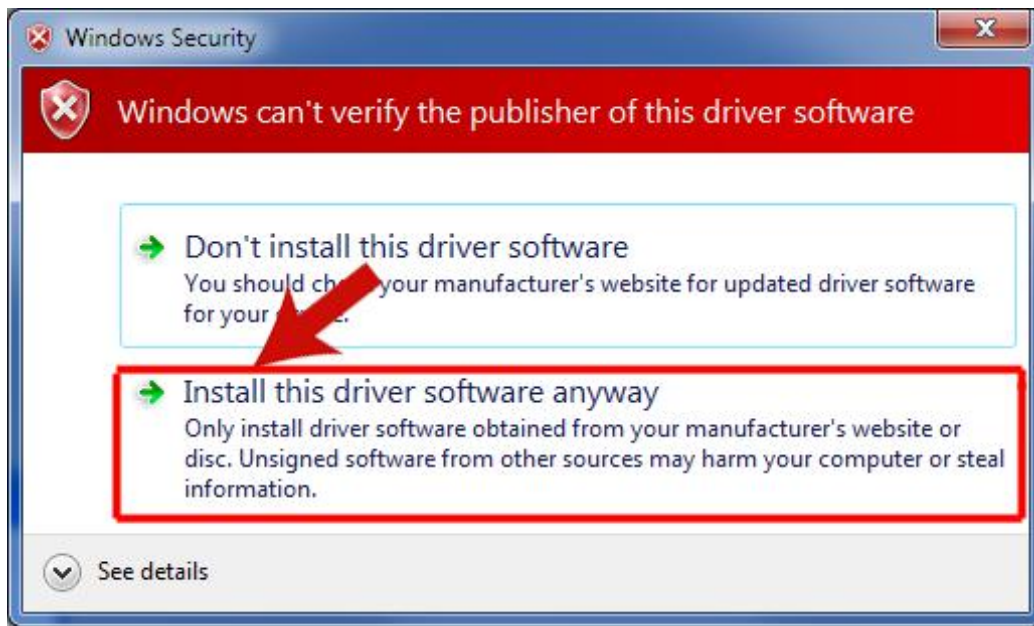
The new hardware wizard will present additional options. 'Install the software automatically' is the recommended option. Press 'Next' to continue, or 'Cancel' to stop installation.



Windows XP will continue installation without further user input.

The 'Found New Hardware Wizard' will report success on completion. Press 'Finish' to close the wizard.

3.1.4 Completing driver installation (Windows 7 may require this step)



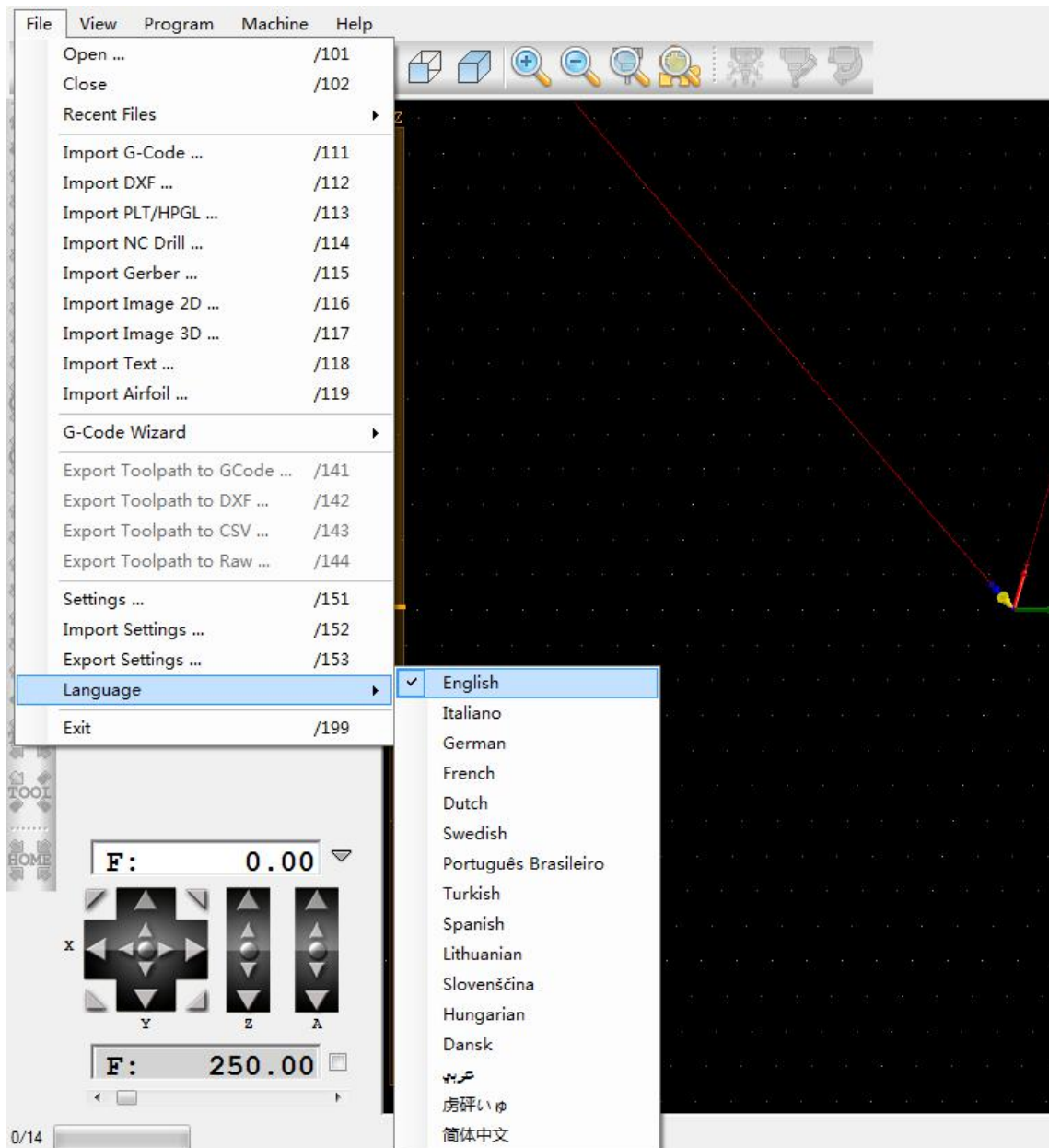
When the CNC USB Controller is connected to the USB Port, Windows 7 will detect controller hardware and begin the driver installation process. 'Windows Security' will launch a 'publisher verification' request.

Select 'Install this driver software anyway ' to continue with installation, the rest of the process does not require user input. When the driver has been installed, Windows 7 will show a pop up report of success at the lower right-hand side of the 'Taskbar'.

After installation, it needs Registration, otherwise can only run 25 rows Code. This software must work with controller card together.

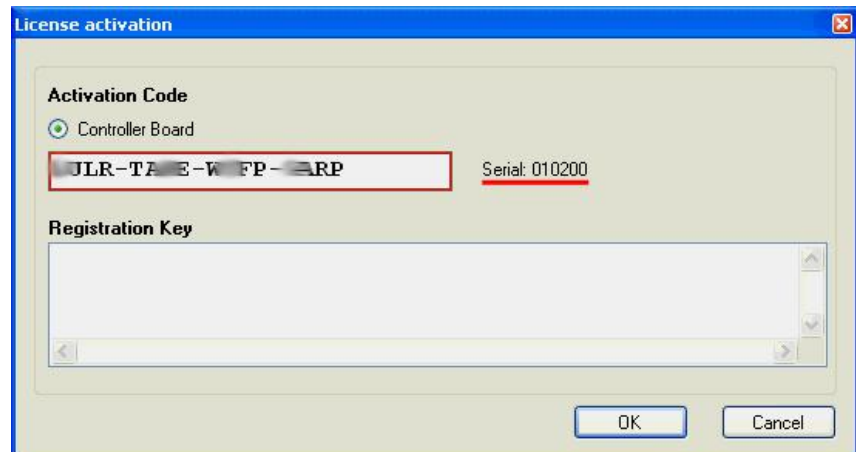
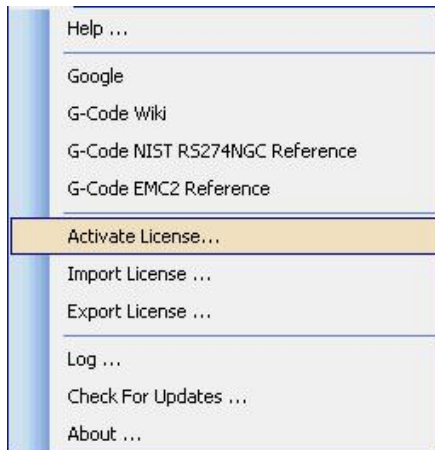
3.1.5 Language selection

Open CNC USB Controller, choose your language.
Click the red frame:File---language---English :

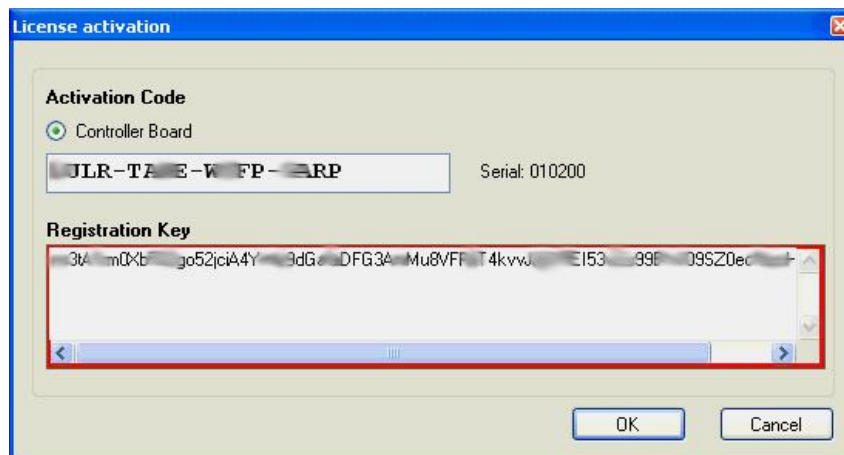


3.1.6 Activation

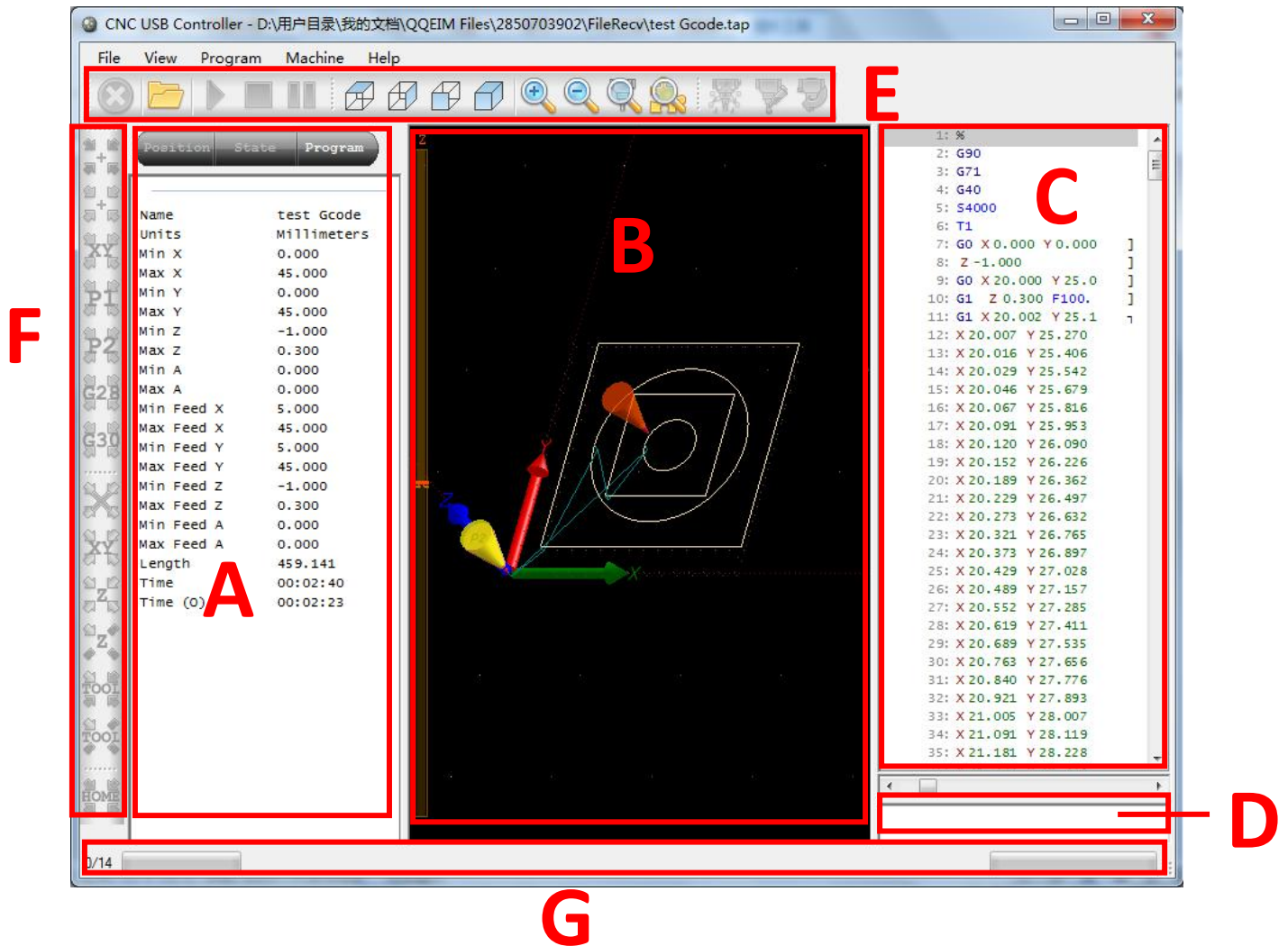
On the case of USB cable Connected, click”help”---“Activate License” , the Controller Board number and Serial number will come out automatically as bellows:



To find the Registration Key in the CD that we gave and copy the Registration Key into the following box.



3.2 Main window



A : Position, status, code information board

B : process code

C : G-code

D : manually G-code

E : Tool

F : common positioning tool

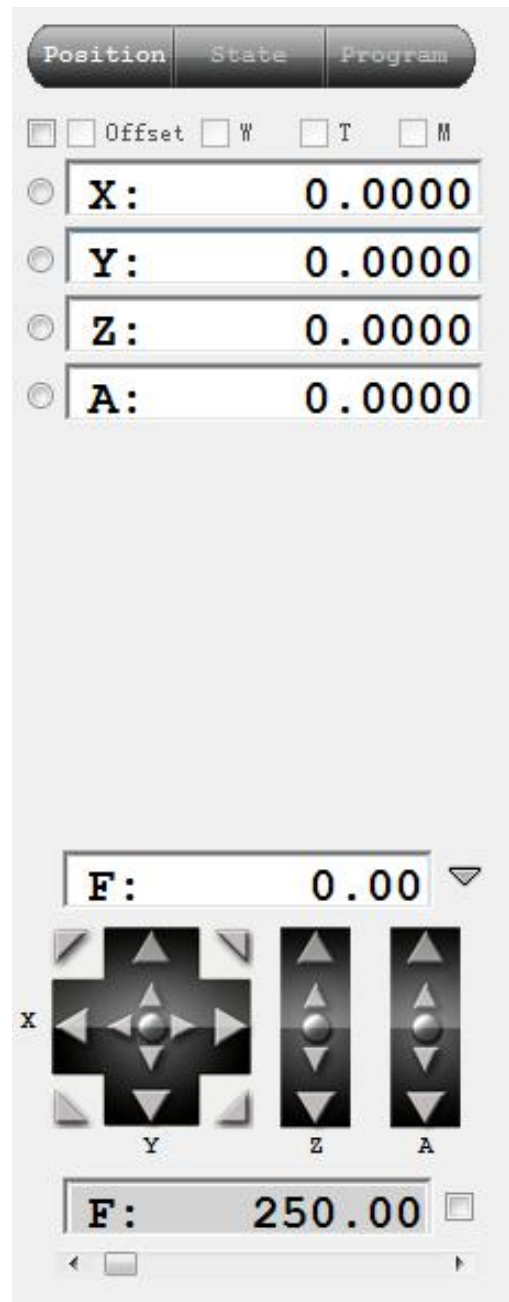
G : status

3.2.1 Position panel

The panel displays currently active offsets, machine position and speed. On panel are jog buttons used to move machine to desired position. There is also speed setting with speed override slider and check box.

WARNING:

If absolute position is changed automatic tool change and fixed tool sensor position might become invalid!



Main functions:

Position
 Clear button
 Current speed
 Move
 Speed adjust

Purple background: + Direction limit trigger

Red background: -Direction Limit Trigger

Above the window position coordinate system shows the current position information.

Absolute coordinates marked "absolute coordinates" option. You can also enter the figure directly then press Enter,

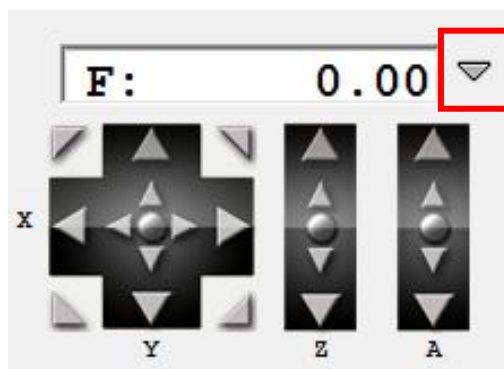
Of course, that means the position is the new figure. If you enter 0, the current axis position is cleared.

"Zero" button will clear all axis positions.

Speed F shows the 'unit / per minute.' Unit setting in the system parameters.

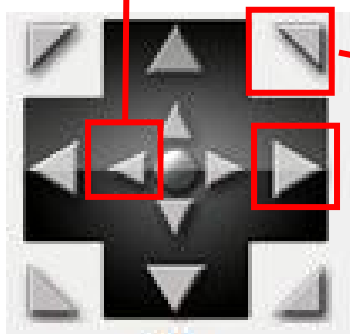
Jog key is moving the equipment to the desired position, the speed limited by the following slider as belows.

F value on the right drop-down button, when clicked, pop Stepping Options box, specify the stepping movement distance.



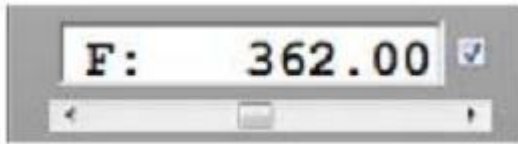
Move step by step

Jog Step Value ...		(0.100) /601
Step		/602
<input checked="" type="checkbox"/>	1×	(0.100) /61001
	2×	(0.200) /61002
	5×	(0.500) /61005
	10×	(1.000) /61010
	20×	(2.000) /61020
	50×	(5.000) /61050
	100×	(10.000) /61100
Axis		▶



Keep on moving

F speed value adjust by the sliding block:



Specify or entered manually.

Right hook - specified speed, ignoring F order of G code (generally on hook), after hook, the processing speed can be changed.

Do not hook – use accelerated speed of "General Settings" in speed of G code or system parameters.

The Select Default from the "General Settings" and "specified speed" item definition.

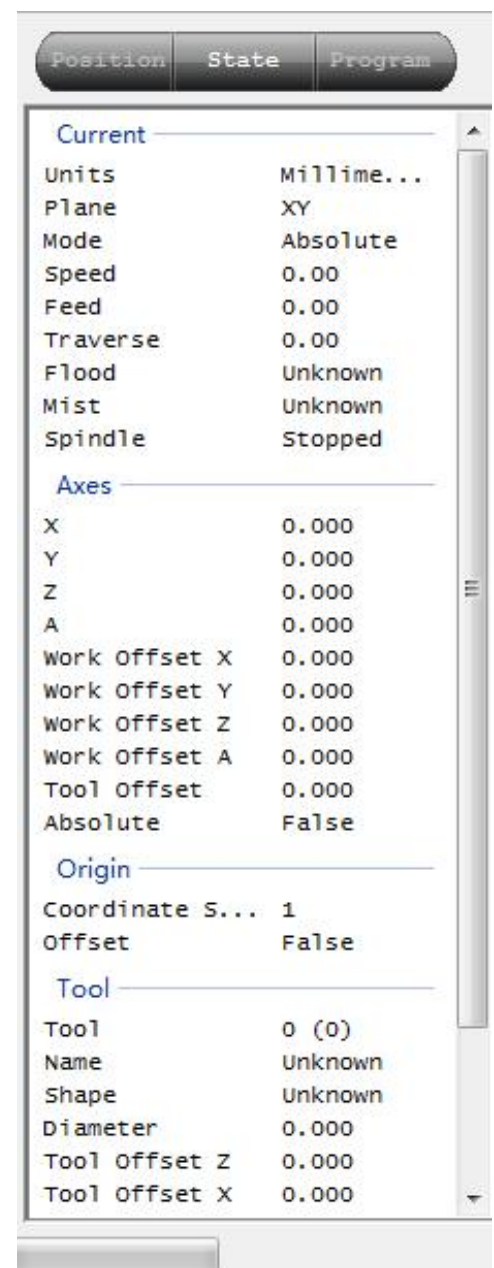
Speed Settings: System parameters "basic settings" default rate, "Axis Set 1"

The maximum speed of each axis.

3.2.2 State panel

The State panel displays a range of information in respect of active parameters and settings. Information has reference to current machine state and program simulation state.

Information displayed on the panel includes:



3.2.3 Program panel

The program panel shows information about the active NC program. Information displayed includes:

Position	State	Program
Name	test Gcode	
Units	Millimeters	
Min X	0.000	
Max X	45.000	
Min Y	0.000	
Max Y	45.000	
Min Z	-1.000	
Max Z	0.300	
Min A	0.000	
Max A	0.000	
Min Feed X	5.000	
Max Feed X	45.000	
Min Feed Y	5.000	
Max Feed Y	45.000	
Min Feed Z	-1.000	
Max Feed Z	0.300	
Min Feed A	0.000	
Max Feed A	0.000	
Length	459.141	
Time	00:02:40	
Time (O)	00:02:23	

3.2.4 Graphical program visualization display

This display shows 3D representation of machine, tool, toolpath,...

Orange box – machine limits

Gray grid – machine table

Axis arrows – displayed coordinate system origin

Red axis lines – selected coordinate system origin

White line – feed toolpath

Cyan line – traverse toolpath

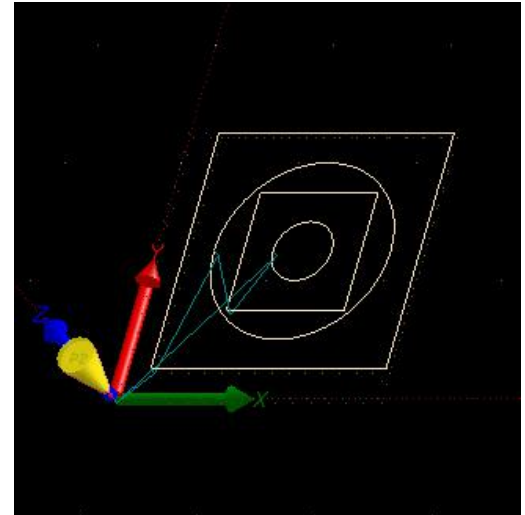
Red line – selected toolpath section

Yellow cone – current machine position

Orange cone – simulated position

Dark green/gray cone – G28 and G30 positions

Dark green/gray – program extents and program cutting extents



3.2.5 G-code panel

G-code panel shows current program lines.

Red lines show a pause. The software / machine will pause NC program execution at these lines.

Lines with dark red line numbers are bookmarked.

Lines with \perp means acceleration

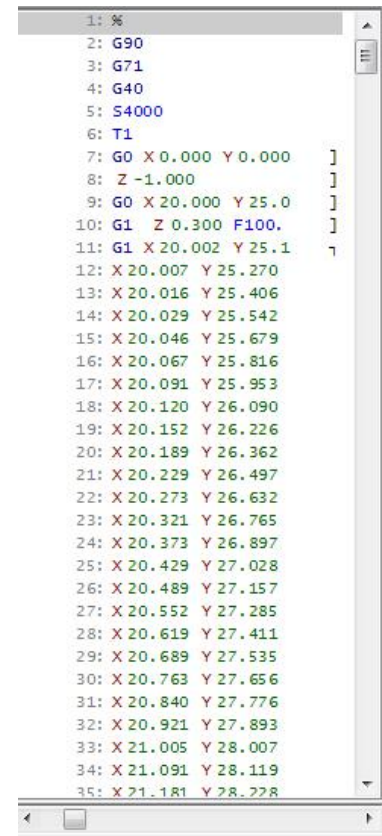
Lines with \lrcorner means deceleration

Lines with \sqcup means acceleration and deceleration

Lines with \boxtimes are removed by optimizer

Lines with \times are ignored

Under panel is horizontal slider which can be used for G-Code preview.



3.2.6 Manual data input (MDI) panel

MDI is text input box, which allows manual G-code input.

For example typing X10 Y20 will move machine to this position.

X10 Y20

This input can also be used for “MDI shortcuts”. Each menu command has “MDI shortcut” assigned. For example: File/Open has shortcut “/101”. Of you type “/101” into MDI input, File/Open command will be executed.

3.2.7 Toolbar



Emergency stop:	Executes immediate Emergency Stop
Open program:	Loads a G-Code program
Start execution:	Start program execution /machine
Stop execution:	Stop program execution / machine
Pause execution:	Pause program execution / machine
Top View:	Display G-Code program view from the top
Side View:	Display G-Code program view from the side
Front View:	Display G-Code program view from the front
Perspective View:	Display G-Code program using ‘Perspective’ view
Zoom In:	Zoom display in to view details
Zoom Out:	Zoom display out to view a larger area
Zoom Tool:	Zoom display to the current tool position
Zoom Extents:	Zoom display to the G-Code program extents
Mist:	Activate / Deactivate Coolant Mist
Flood:	Activate / Deactivate Coolant Flood
Spindle:	Activate / Deactivate Spindle



Set Position – Zero: Zero all axes. If any offset is checked, it will be used.

Warning: “Set Position” will change machine absolute position! If absolute position is changed automatic tool change and fixed tool sensor position might become invalid!

Go To Position - Zero: Moves the machine to the zero position. If any offset is checked, it will be used.

Go To Position - ZeroXY: Moves the machine X and Y axis to the zero position. If any offset is checked, it will be used.

Go To Position - Park1: Moves the machine to the absolute Park1 position defined in ‘Settings’.

Go To Position - Park2: Moves the machine to the absolute Park2 position defined in ‘Settings’.

Go To Position - G28: Moves the machine to the absolute G28 position as specified in ‘Settings’.

Go To Position - G30: Moves the machine to the absolute G30 position as specified in ‘Settings’.

Note: These four functions marked red are under developing.

Offset - Zero: Zero’s the working offset.

Offset - Current XY: Sets the current XY position as the XY working offset.

Offset - Current Z: Sets the current Z position as the Z working offset.

Offset – Measure Offset Z: Measures Z working offset at the current location, using a ‘movable’ tool sensor. (Mk2 and Mk2/4 only)

Offset - Measure Tool Offset: Measures tool length using a ‘fixed’ tool sensor.

Offset - Measure Tool Offset Here: Measures tool length at the current location, using a ‘movable’ tool sensor.

Home: Initiate automatic homing procedure.

3.3 Menu list

3.3.1 File menu

The file menu opens or imports files for toolpath, simulation and cutting. Numbers next to items are MDI key codes or shortcuts assigned to functions.

Note: settings details please refer to 2.4

File	View	Program	Machine	Help
Open ...				/101
Close				/102
Recent Files				▶
Import G-Code ...				/111
Import DXF ...				/112
Import PLT/HPGL ...				/113
Import NC Drill ...				/114
Import Gerber ...				/115
Import Image 2D ...				/116
Import Image 3D ...				/117
Import Text ...				/118
Import Airfoil ...				/119
G-Code Wizard				▶
Export Toolpath to GCode ...				/141
Export Toolpath to DXF ...				/142
Export Toolpath to CSV ...				/143
Export Toolpath to Raw ...				/144
Settings ...				/151
Import Settings ...				/152
Export Settings ...				/153
Language				▶
Exit				/199

3.3.2 View menu

The view menu controls various aspects of the G-Code program visualization. Only program visualization is affected by view menu options, there are no changes applied to active program G-Code.

For example, where 'Settings', options have defined user coordinate systems, 'View / Origin' options can display origin locations assigned in user coordinate systems.

If so, the 'Origin' icon will relocate in the visualization display, showing the location assigned in the selected coordinate system. This does not affect the origin in the active G-Code program. Simulation and cutting use the origin embedded in G-Code.

View	Program	Machine	Help
Origin			▶
Top View		F1 /221	
Side View		F2 /222	
Front View		F3 /223	
Perspective View		F4 /224	
Zoom In		F5 /225	
Zoom Out		F6 /226	
Zoom Tool		F7 /227	
Zoom Extents		F8 /228	
Center Tool		F9 /231	
Center View		F10 /232	
Change View		F11 /233	
Simulate			▶
Window			▶
Show			▶
Material			▶

3.3.3 Program menu

The program menu provides G-Code processing functions to conform NC programs to user requirements. In most cases only parameter entry is required to make desired adjustments.

Functions to navigate NC programs and ‘bookmark’ blocks of code are also available. NC programs can be ‘sectioned’ by use of toolchange or pause codes.

Program	Machine	Help
Lines		▶
Bookmarks		▶
Shift		▶
Scale ...		/341
Mirror		▶
Rotate XY ...		/345
Warp		/346
Transform ...		/347
Set Speed ...		/351
Copy XYZ -> UVW		/361
Swap XYZ <-> UVW		/362
Convert Arcs To Lines		/371
Convert All To Lines		/372
Edit G-Code ...		/381
Edit DXF ...		/382
Copy To Clipboard	LCtrl+C	/391
Paste From Clipboard	LCtrl+V	/392

Shift, Scale and Rotate can be applied to entire programs. These functions can assist with repeat usage of the same NC program or defined program block, for corners, patterns and so forth.

3.3.4 Machine menu

The machine menu provides means to directly interact with controlled machines and attached hardware.

The machine can be positioned at preset locations or user specified positions. Cutting can be controlled. Raw binary files can be processed. Programs can be looped or segmented. Outputs can be controlled.

Where a tool table database has been configured, tool change commands can be issued or tools can directly selected from a named list. These options are designed for use with auto toolchangers, allowing tools to be manually selected.

Transformation options provide advanced features, for use with ‘movable’ tool-sensors. Mk2 controller users can make use of inexpensive USB webcam as optical sensor. Only Mk2 and Mk2/4 controllers support use of transformations.

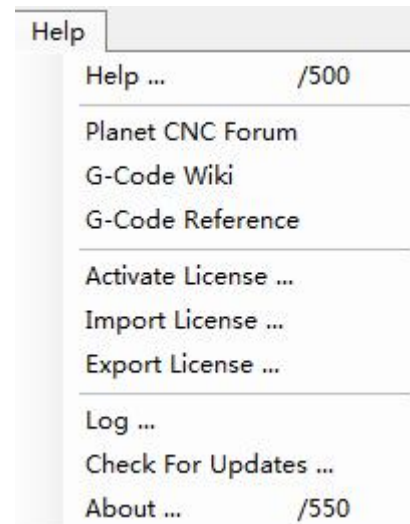
Firmware options allow update and verification of firmware.

Machine	Help
Emergency Stop	Escape /400
Start	Enter /401
Start Loop ...	/402
Start Raw File ...	/403
Start From Selected Line	/404
Start From SD Card	/405
Stop	Backspace /406
Pause	Pause /407
Bookmarks ▶	
Mist	LCtrl+M /421
Flood	LCtrl+F /422
Spindle	▶
Outputs ▶	
Go To	▶
Set Position	▶
Offset	▶
Tools	▶
Home	/470
Camera ▶	
Transformation ▶	
Soft Limits	/490
Firmware ▶	

2.3.5 Help menu

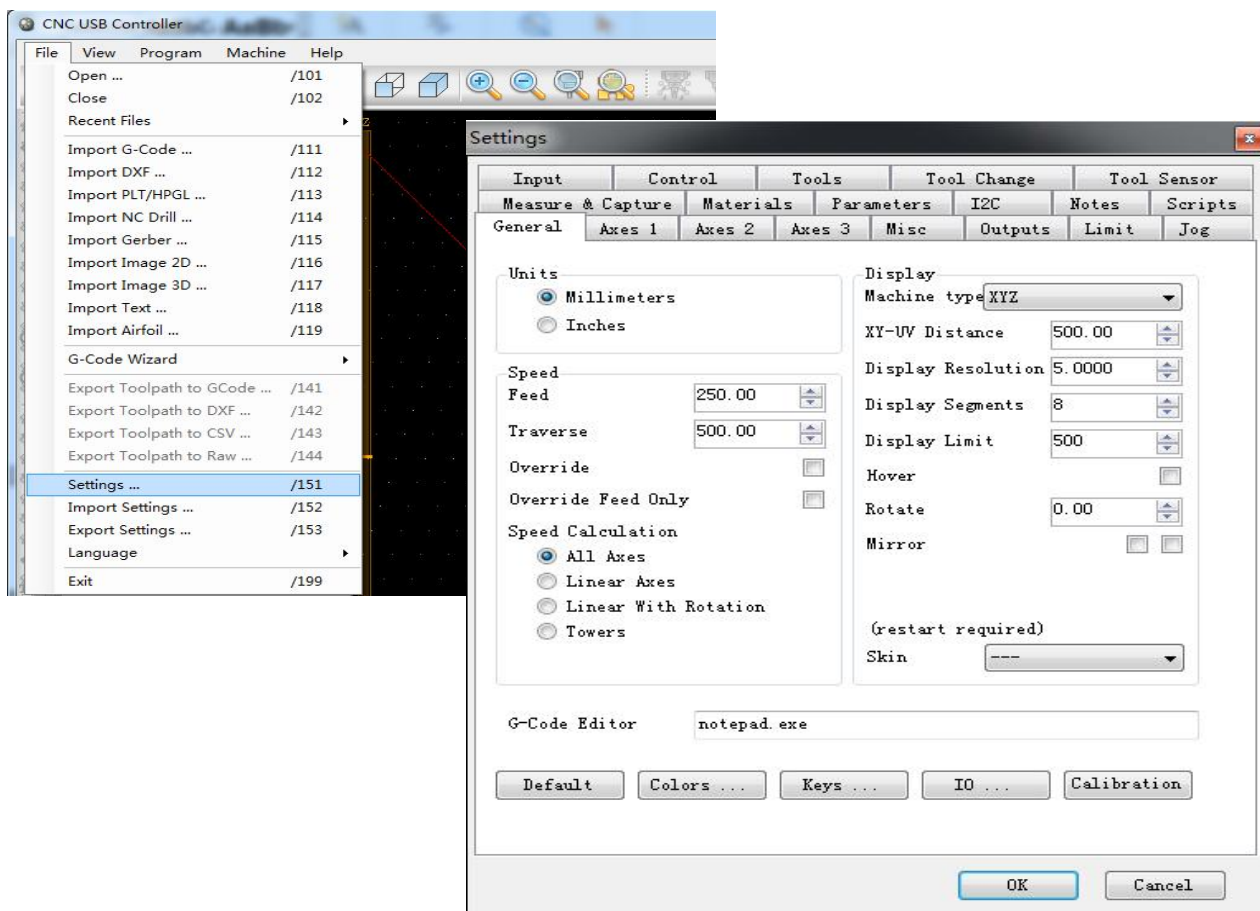
The help menu provides access to offline and internet assistance for CNC USB software. Reference content related to supported G-Code is also linked.

Software license activation and management are also catered for along with information regarding start-up, update status and software version.



3.4 Settings

Controller software configuration is adjusted using the 'File' menu 'Settings' item. A tabbed panel will appear. The panel allows setup of all software options and features.



3.4.1 General

The screenshot shows the 'Settings' dialog box with the 'General' tab selected. The dialog has a tabbed interface with the following tabs: Input, Control, Tools, Tool Change, Tool Sensor, Measure & Capture, Materials, Parameters, I2C, Notes, Scripts, General, Axes 1, Axes 2, Axes 3, Misc, Outputs, Limit, and Jog. The 'General' tab is active, displaying various configuration options.

Units

- ☒ Millimeters
- ☐ Inches

Speed

Feed: 250.00

Traverse: 500.00

Override: ☐

Override Feed Only: ☐

Speed Calculation

- ☒ All Axes
- ☐ Linear Axes
- ☐ Linear With Rotation
- ☐ Towers

Display

Machine type: XYZ

XY-UV Distance: 500.00

Display Resolution: 5.0000

Display Segments: 8

Display Limit: 500

Hover: ☐

Rotate: 0.00

Mirror: ☐ ☐

(restart required)

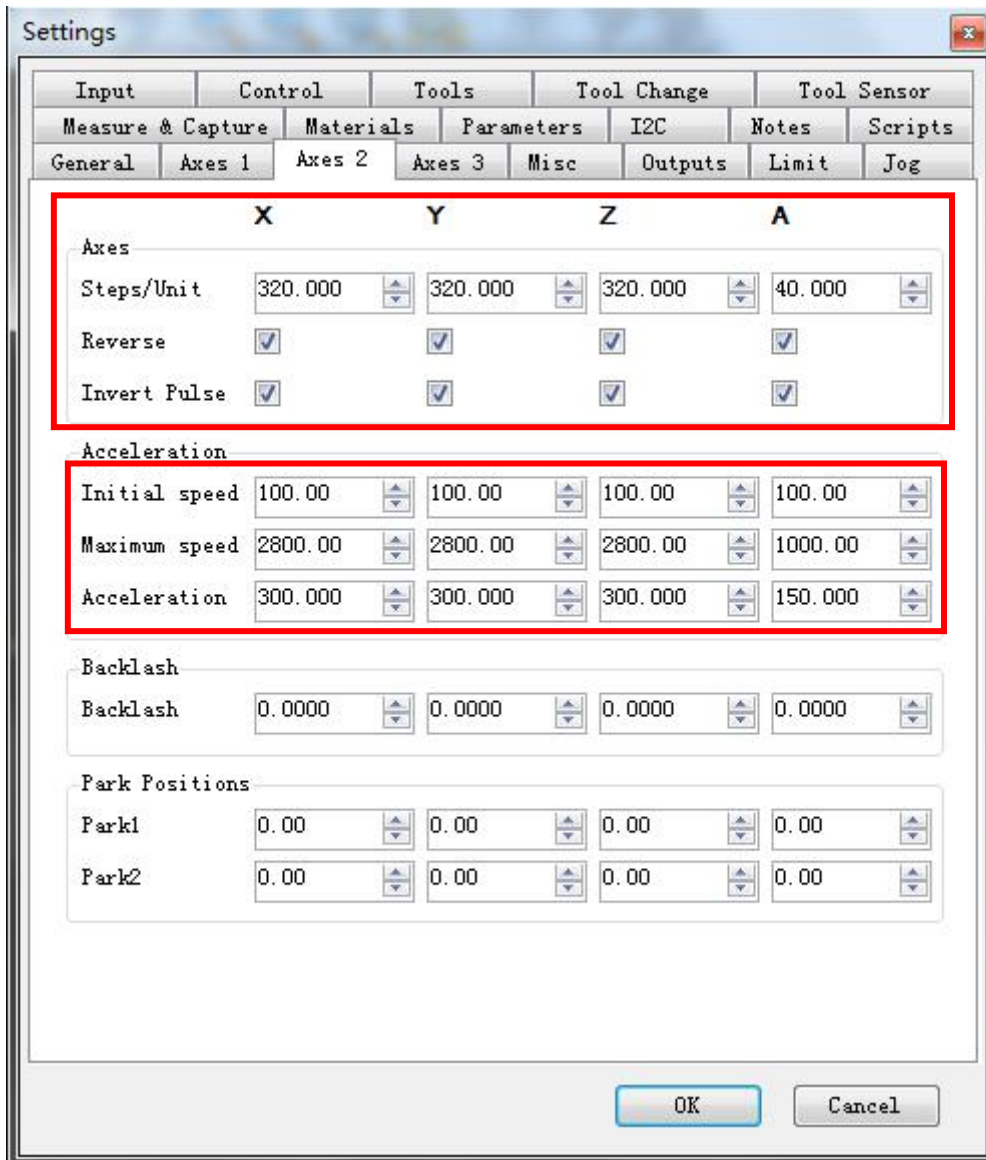
Skin: ---

G-Code Editor: notepad.exe

Buttons: Default, Colors ..., Keys ..., IO ..., Calibration

Buttons: OK, Cancel

3.4.2 Axes 2



	X	Y	Z	A
Steps/Unit				
Steps/Unit	320.000	320.000	320.000	40.000
Reverse				
Reverse	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Invert Pulse				
Invert Pulse	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Acceleration				
Initial speed	100.00	100.00	100.00	100.00
Maximum speed	2800.00	2800.00	2800.00	1000.00
Acceleration	300.000	300.000	300.000	150.000
Backlash				
Backlash	0.0000	0.0000	0.0000	0.0000
Park Positions				
Park1	0.00	0.00	0.00	0.00
Park2	0.00	0.00	0.00	0.00

OK Cancel

Pulses / step

Set the number of pulses per unit, this value is very important, please use the basic settings after setting the calibration function tests.

Trapezoidal screw pitch is generally 4MM, axis number of steps to be set to 400.

Ball screw pitch is generally 5MM, axes should be set to 320 the number of steps

Reverse

Set against the direction of movement

Level inverter

Some motor drives with a total of yin yang connection of different correlation.

Acceleration

Movement started from the initial velocity (units / min) and speed (units / second squared) to the maximum speed.

Acceleration value is smaller, the maximum speed from the initial speed to the longer time-consuming, the more stable the motor.

Maximum Speed

Please set up the machine movement is not lost step value.

Be careful to set these parameters, serious adjustment.

Backlash

Can be set for each axis hysteresis

Stops

Set PACK1, PACK2 information.

In manual homing useful tool.

3.4.3 Axes 3

Settings

Input	Control	Tools	Tool Change	Tool Sensor
Measure & Capture	Materials	Parameters	I2C	Notes
General	Axes 1	Axes 2	Axes 3	Misc
			Outputs	Limit
				Jog

	X	Y	Z	A
Limits				
Limit Switch	<input checked="" type="checkbox"/> - <input checked="" type="checkbox"/> +	<input checked="" type="checkbox"/> - <input checked="" type="checkbox"/> +	<input checked="" type="checkbox"/> - <input checked="" type="checkbox"/> +	<input checked="" type="checkbox"/> - <input checked="" type="checkbox"/> +
Limit -	0.00	0.00	0.00	0.00
Limit +	0.00	0.00	0.00	0.00
Soft Limits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Homing

Enable ☐

Sequence 2 2 1 -----

Speed 0.00 0.00 0.00 0.00

Direction ☒ - ☐ + ☒ - ☐ + ☐ - ☒ + ☒ - ☐ +

Set Position -10.00 -10.00 100.00 0.00

Go To 0.00 0.00 50.00 0.00

Return Distance 5.0000

OK Cancel

Limits for each axis hardware limit switch, hook hired

Limit -

Usually set to 0

Limit +

Effective working distance, the settings icon in the main interface window will work area

Homing

This function is implemented with hardware limit switch. After execution, the one axial direction, that come into contact with the contact limit switch is a certain position, and then move a distance.

Y axis is homed when the - direction moves at a speed of 200, met - limit switch, the point defined as -10

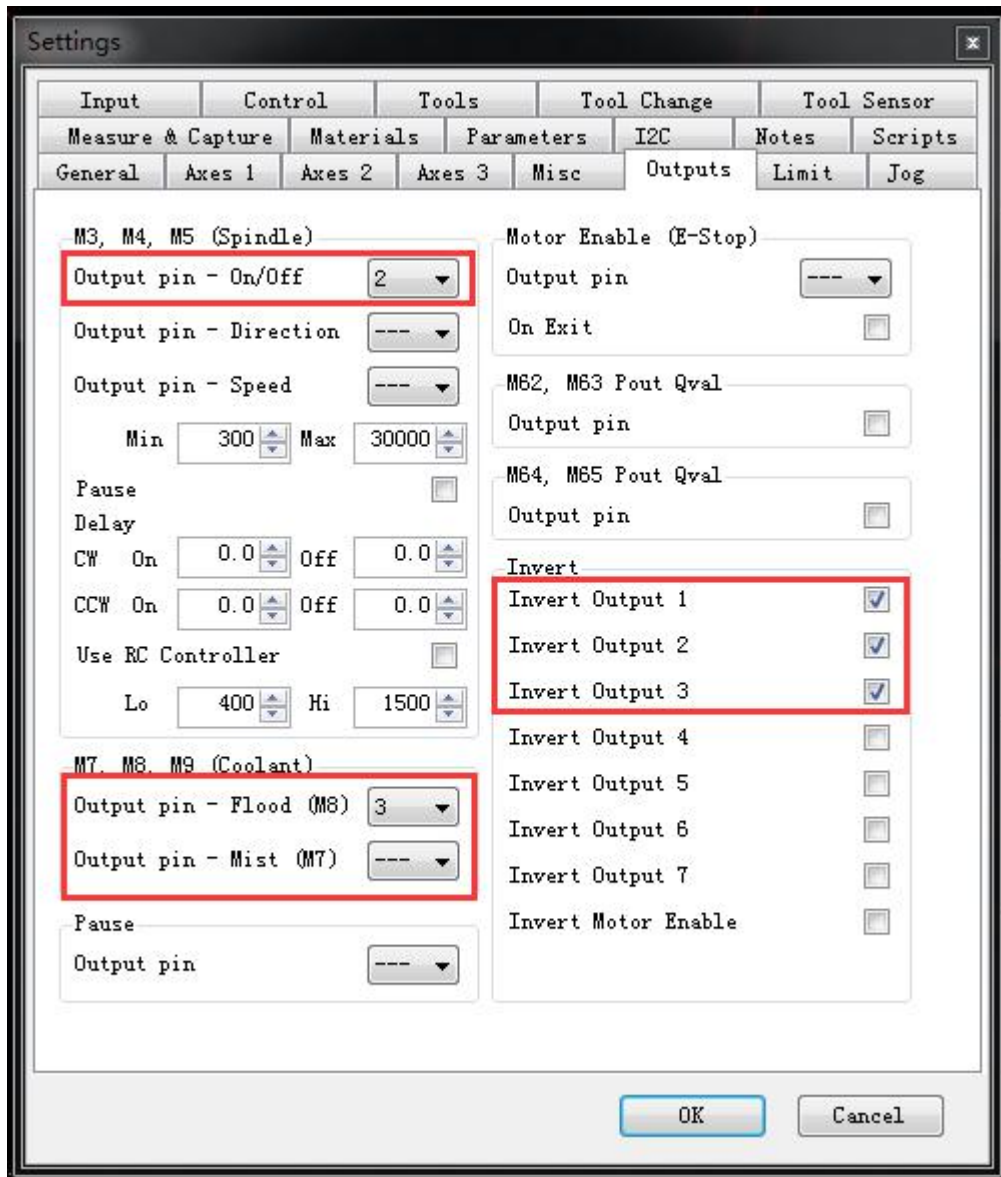
Point, Y and then moved to 0:00.

That is the Y axis 0:00 from a real hard limit has 10 safe distance.

Note that with the relationship between different coordinate systems.

Lower left corner of the main interface hired origin is in effect.

3.4.4 Output



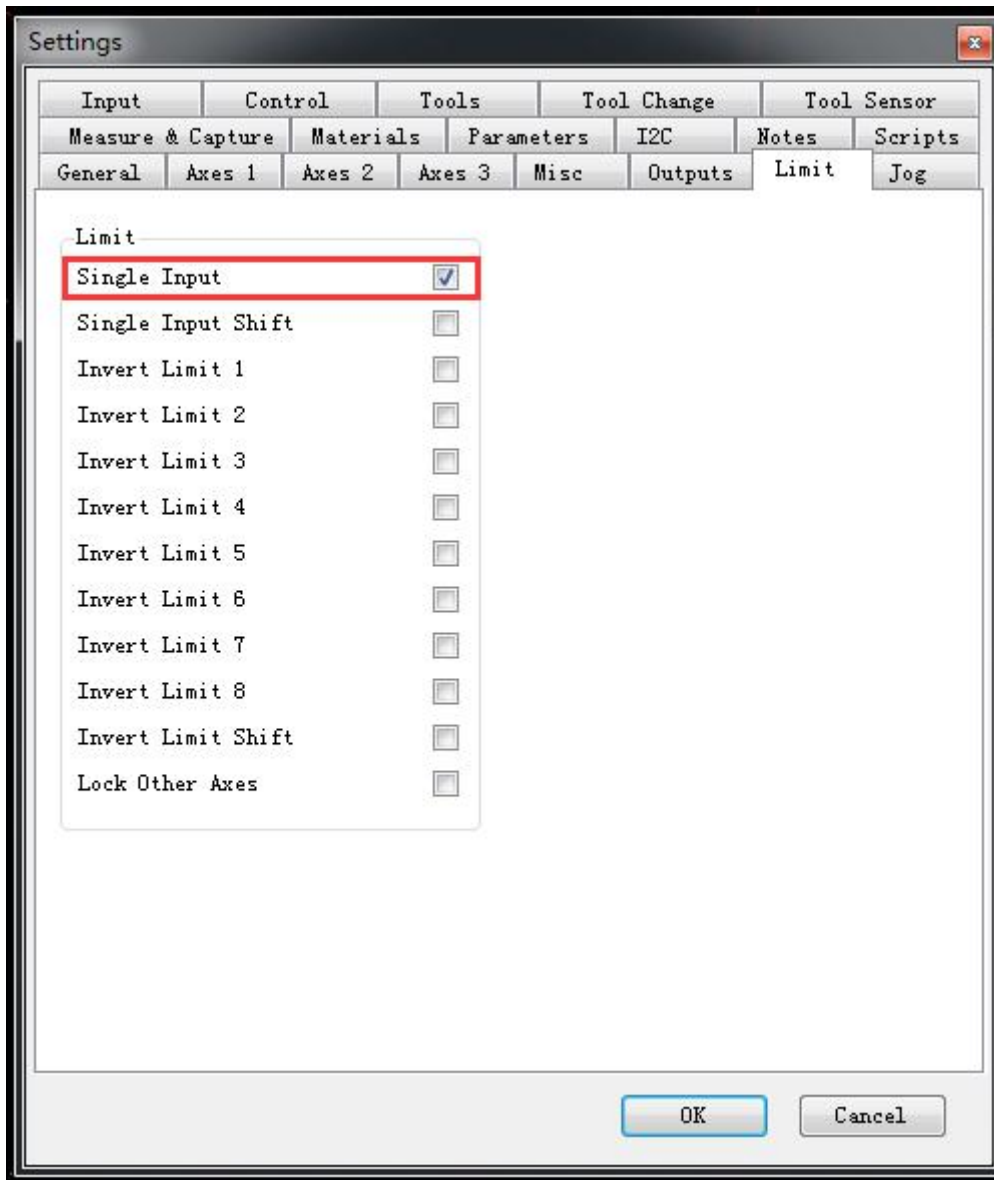
M3, M4, M5 Spindle control command (control spindle function temporarily use)

Switch port

Direction for the port

Speed port

3.4.5 Limit

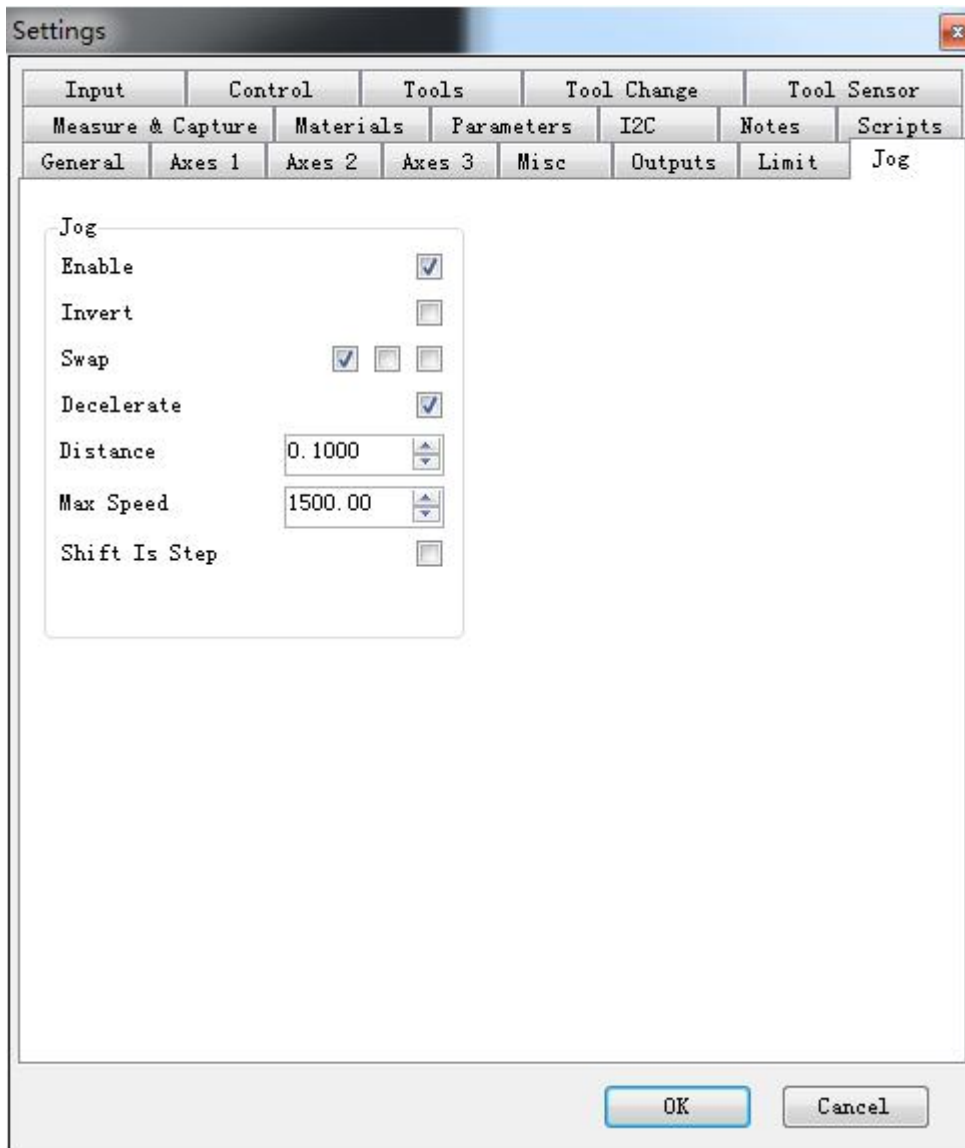


Single Limit: hook after: each axis - + direction limit sharing a port that is restricted to the axis 2 position switch in parallel. Limit one point to the X with, limit 2 to Y, limit 3 to Z, limit 4 to A.

Not hook: Limit 1 to X-, limit 2 to X +

Anti level: normally closed limit switch hook.

3.4.6 Jog key



External point switch

Enable

Hook This feature takes effect after

Inverting

No hook

Acceleration and deceleration

After the acceleration and deceleration function hook effect

Stepping

Minimum step size, how many units to move once more

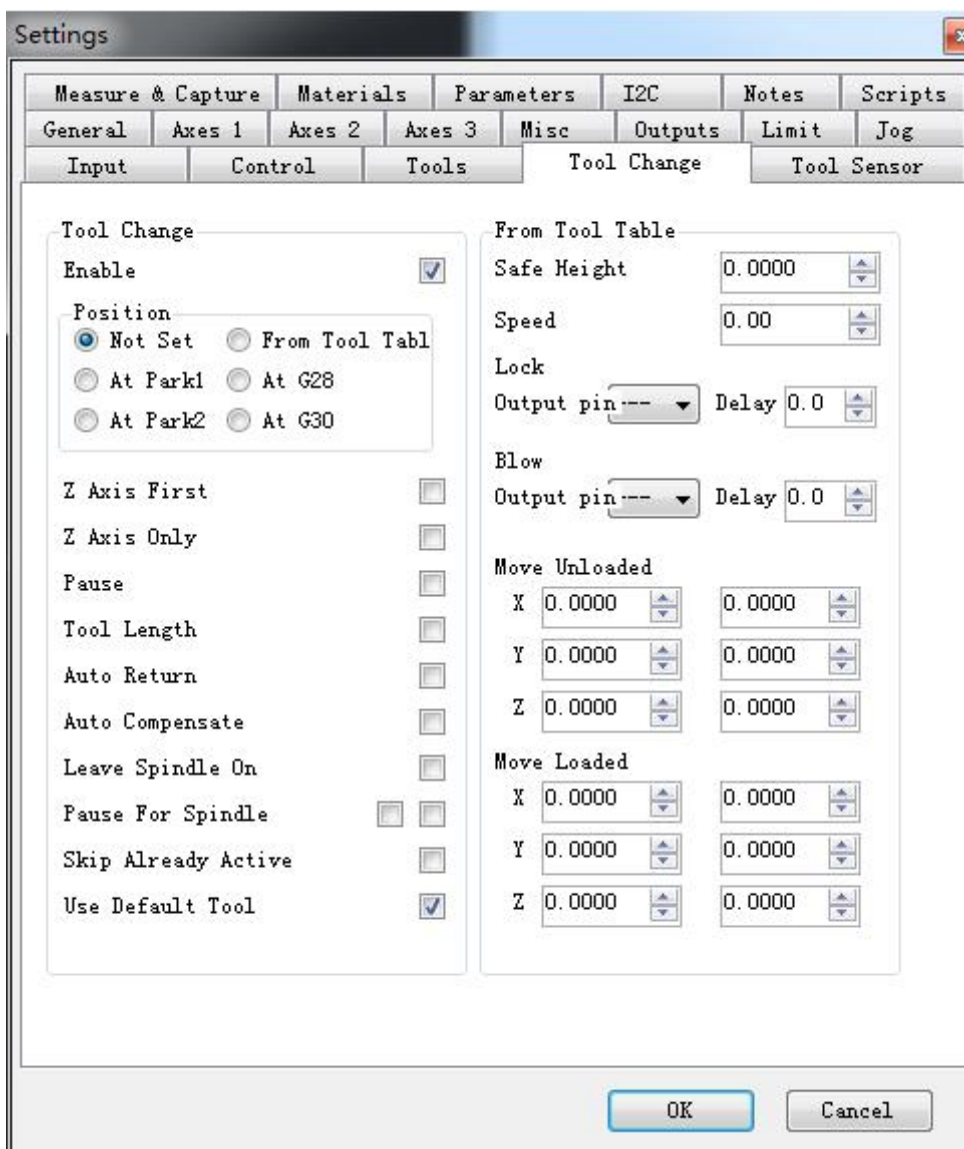
Max speed

Move the fastest speed

Movement speed by the control card external speed potentiometer control, if not then press the top speed.

3.4.7 tool change

Tool change setting is default.



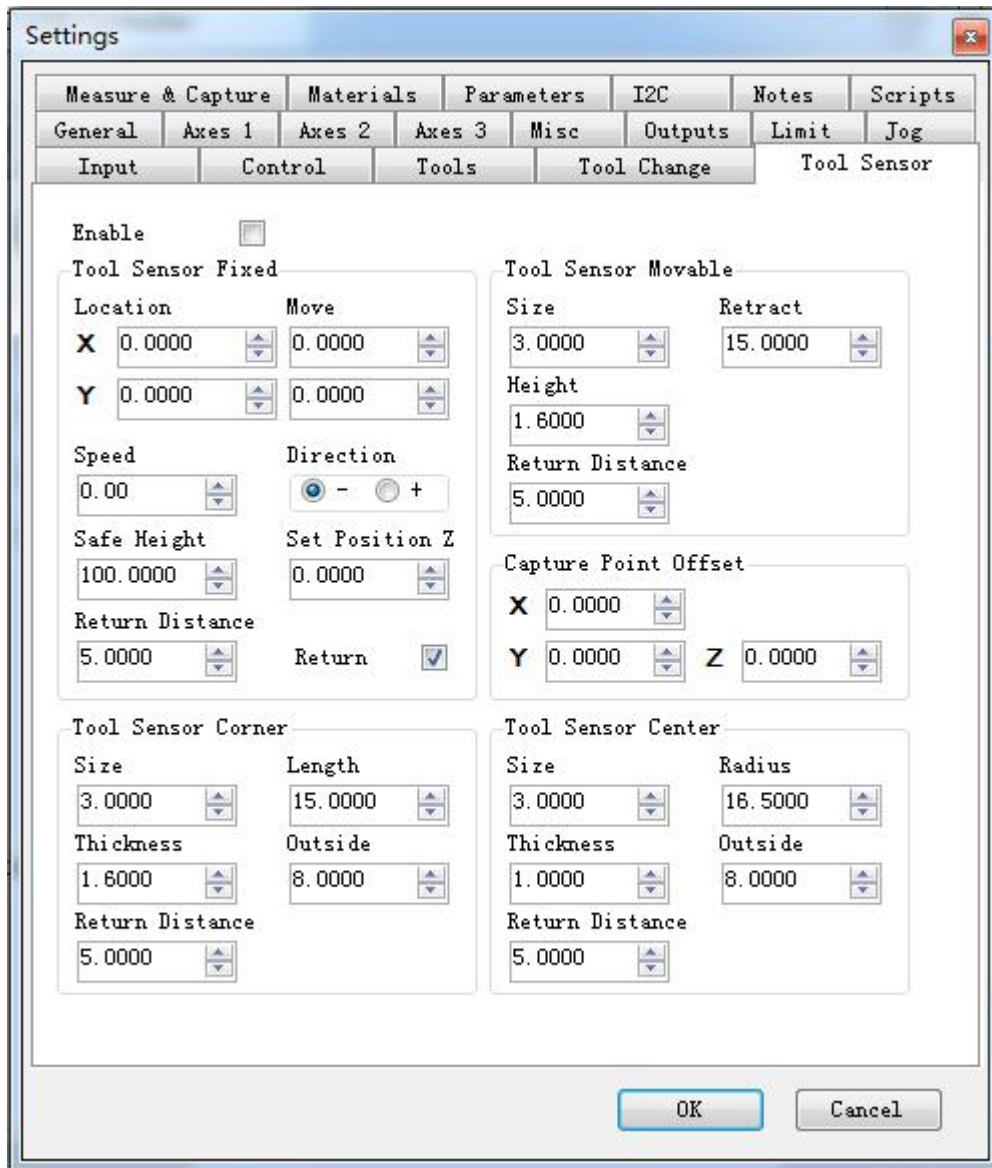
3.4.8 Tools

The screenshot shows the 'Settings' dialog box with the 'Tools' tab selected. The dialog has a tabbed interface with the following tabs: Measure & Capture, Materials, Parameters, I2C, Notes, Scripts, General, Axes 1, Axes 2, Axes 3, Misc, Outputs, Limit, Jog, Input, Control, Tools, Tool Change, and Tool Sensor. The 'Tools' tab is active, displaying a list of tool parameters for a single tool. The parameters include: Number (0), Name (empty), Shape (dropdown), Description (text area), Diameter (0.0000), Z Offset (0.0000), X Offset (0.0000), and Tool Change X, Y, Z (all 0.0000). At the bottom of the tool list are buttons for 'Update', 'Add', and 'Remove'. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Number	Name	Shape	Description	Diameter	Z Offset	X Offset	Tool Change X	Tool Change Y	Tool Change Z
0				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Need to cooperate with tool library

3.4.9 Tool setting



Settings

Measure & Capture Materials Parameters I2C Notes Scripts

General Axes 1 Axes 2 Axes 3 Misc Outputs Limit Jog

Input Control Tools Tool Change Tool Sensor

Enable ☐

Tool Sensor Fixed

Location Move

X 0.0000 0.0000

Y 0.0000 0.0000

Speed 0.00

Direction ☒ - ☐ +

Safe Height 100.0000

Set Position Z 0.0000

Return Distance 5.0000

Return ☒

Tool Sensor Movable

Size Retract

3.0000 15.0000

Height 1.6000

Return Distance 5.0000

Capture Point Offset

X 0.0000 Y 0.0000 Z 0.0000

Tool Sensor Corner

Size Length

3.0000 15.0000

Thickness Outside

1.6000 8.0000

Return Distance 5.0000

Tool Sensor Center

Size Radius

3.0000 16.5000

Thickness Outside

1.0000 8.0000

Return Distance 5.0000

OK Cancel

Enable

Enable the feature on the hook

Position the knife speed

Equipment before moving to the XY position, then the Z-axis direction at a speed of a movement in that direction until the limit switch is hit.

Let position is usually the thickness of the knife block, increase the number of actual use to avoid carving does not penetrate.

Tool sensor

Tool usage.

3.4.10 Material

Settings

General	Axes 1	Axes 2	Axes 3	Misc	Outputs	Limit	Jog
Input	Control	Tools	Tool Change	Tool Sensor			
Measure & Capture	Materials	Parameters	I2C	Notes	Scripts		

Number
0

Name

Description

Kind

XSize 0.0000	XPosition 0.0000
YSize 0.0000	YPosition 0.0000
ZSize 0.0000	ZPosition 0.0000

Update Add Remove

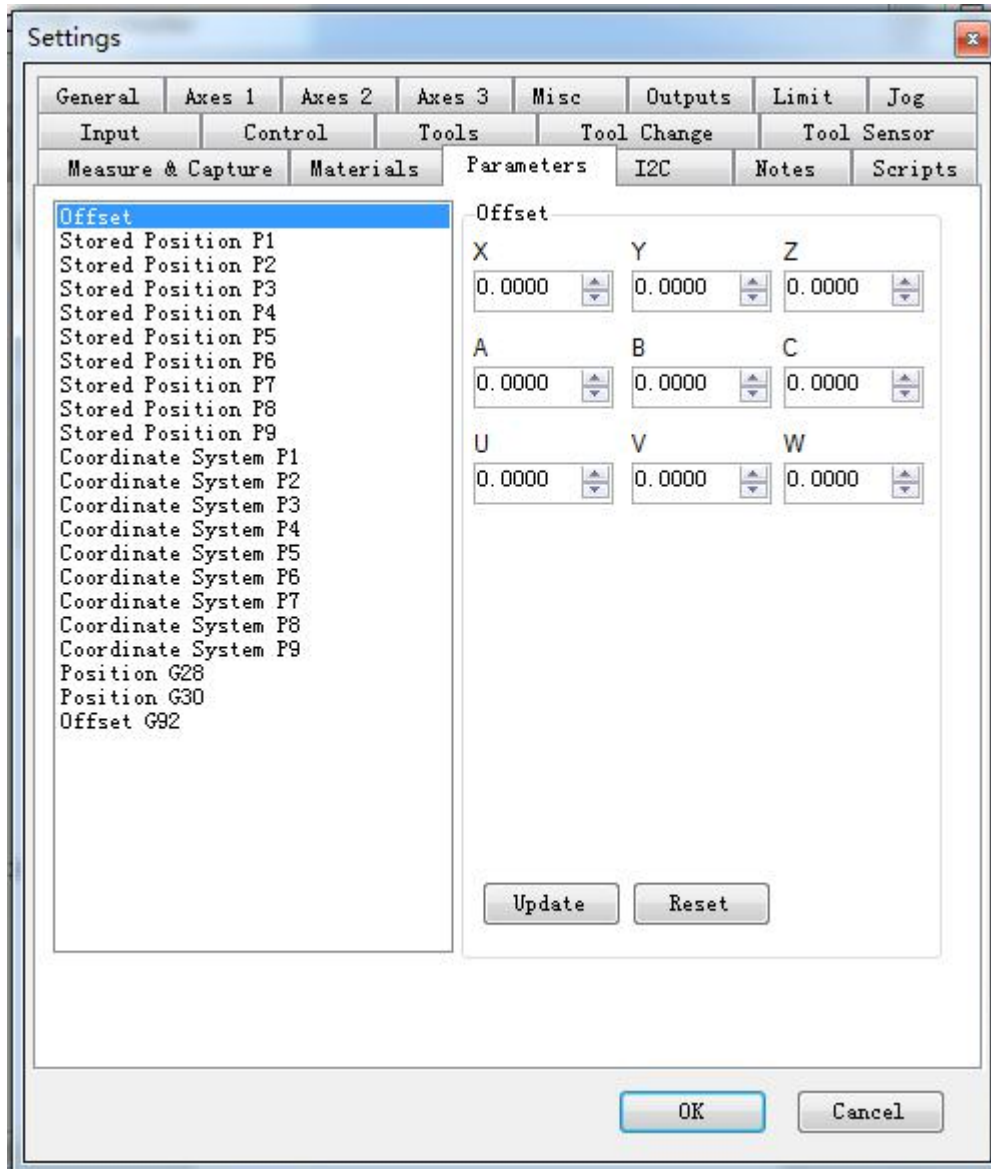
OK Cancel

3.4.11 Parameter

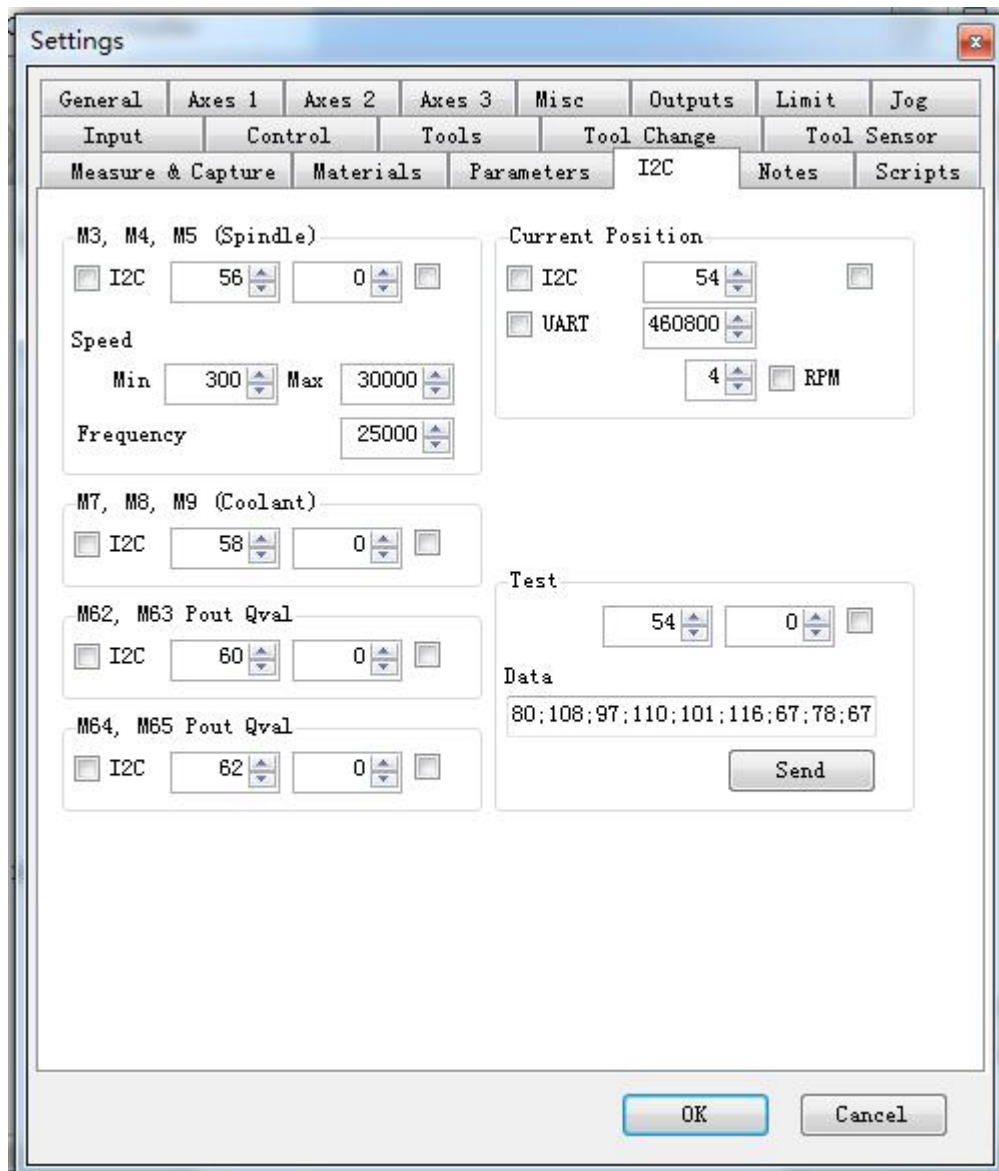
Set coordinates with several common position.

Modified point update.

Reset to the default values.



3.4.12 I2C extension



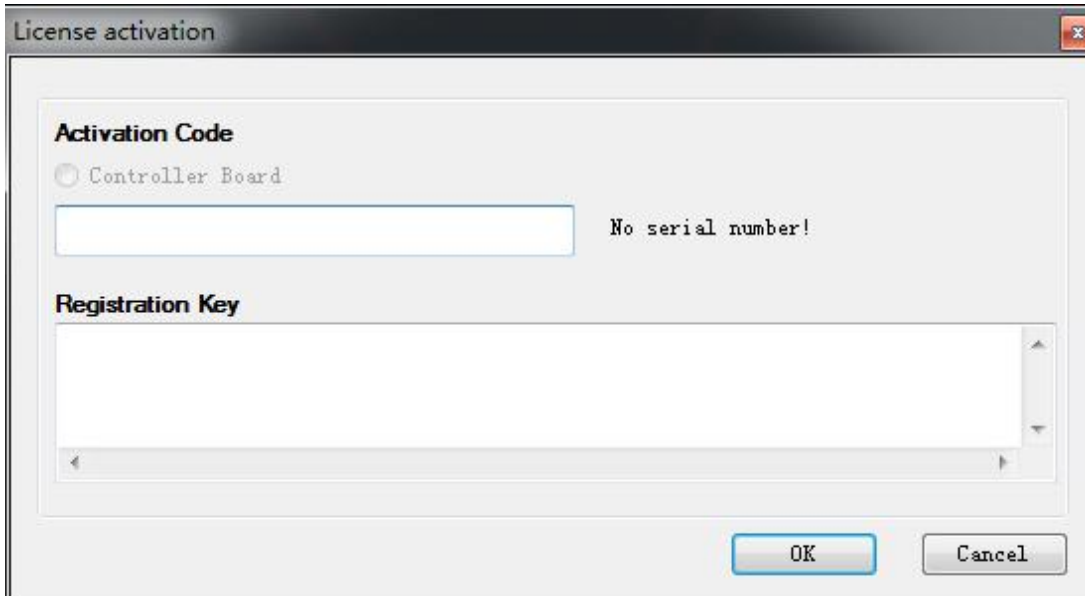
I2C control card provides external communication function, the external hardware support can achieve:

External coordinate display

Spindle control

Other controls.

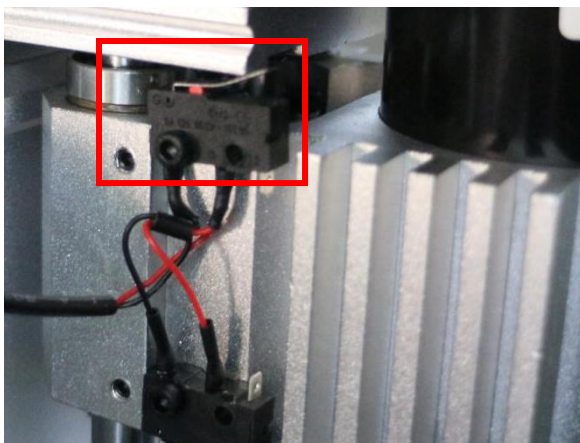
4. FAQ



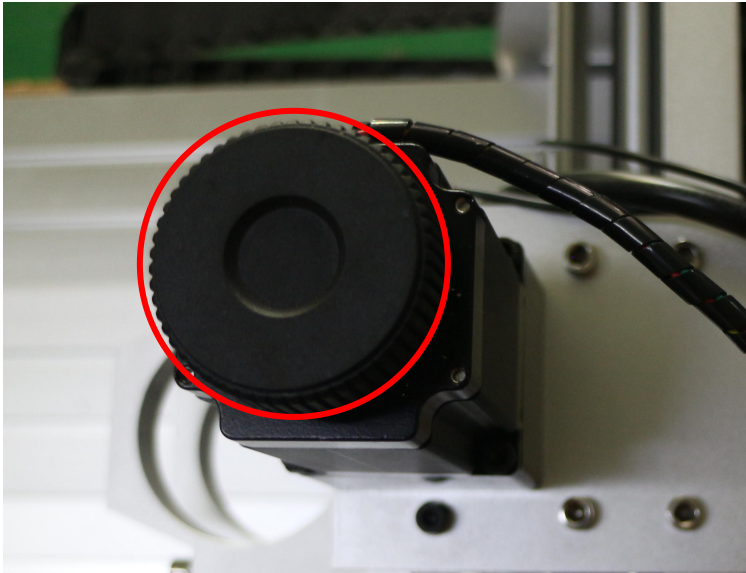
Q1: Why activation code have no serial number?

- A: a. USB cable not connected, please make sure all cables are connected.
b. Computer driver not installed, please complete the installation.

Q2: How to Manual Reset? Any axis touched the limit switch, machine top working as following picture:



- A: To rotate the knob on the stepper motor that control the related axis, for example the following picture shows the knob of Z axis:



Q3: Any axis move in opposite direction.

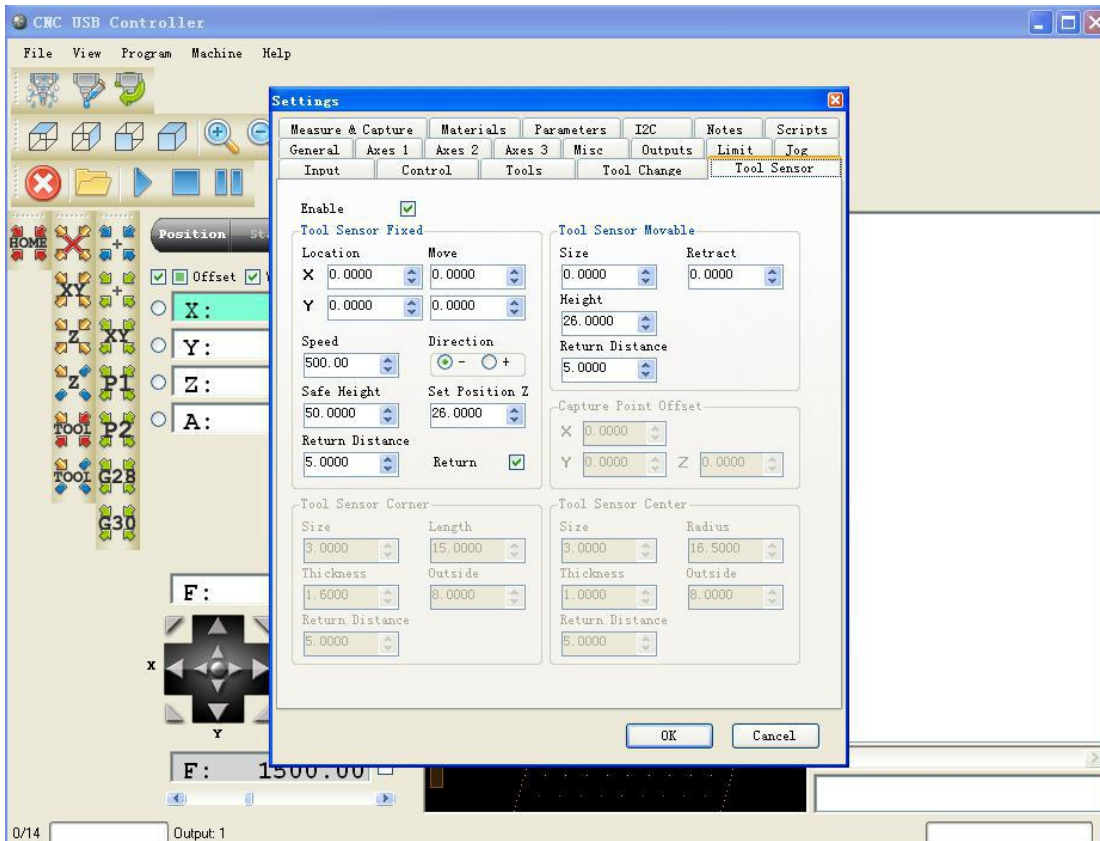
A: Please change the reverse setting of that axis, for example, X axis move in opposite direction, if the reverse setting of X axis box is checked, then uncheck that box, if unchecked, then check that box.

General	Axes 1	Axes 2	Axes 3	Misc	Outputs	Limit	Jog
	X	Y	Z				A
Axes							
Steps/Unit	320.000	320.000	320.000				40.000
Reverse	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
Invert Pulse	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
Acceleration							
Initial speed	100.00	100.00	100.00				100.00
Maximum speed	2800.00	2800.00	2800.00				1000.00

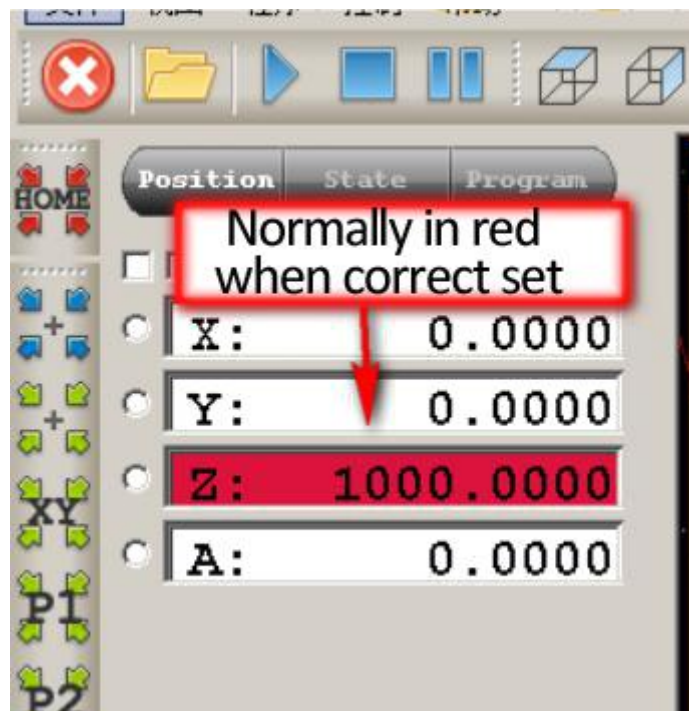
Q4: How to Use Auto-Checking Function

First, Setting the software as below

Click: File-Settings-Tool Sensor, Height and Set Position Z, input the actual thickness of the auto-checking block as below:



Second:Auto-Checking block operating



A: To make sure the auto-checking function work well and protect the router bits efficiently, we should confirm the reliability of the auto-checking block first by doing as below: use the block to touch the spindle router bit, if the interface of USB software should show as below picture.

B: Enter into auto-checking process

Do as below, picture, press the auto-checking button Z.

The spindle bit will move up automatically once it touched the block, and the button color into orange.

Click the orange color Z again, the Z axis height will be the sum of actual set thickness value of the block and the set return distance.

Then the auto checking block test finished.



Third:After the auto-checking function process finished,Click below button to back to zero position, and the spindle cutter will move down to zero position too.

