CutterServer

User Manual

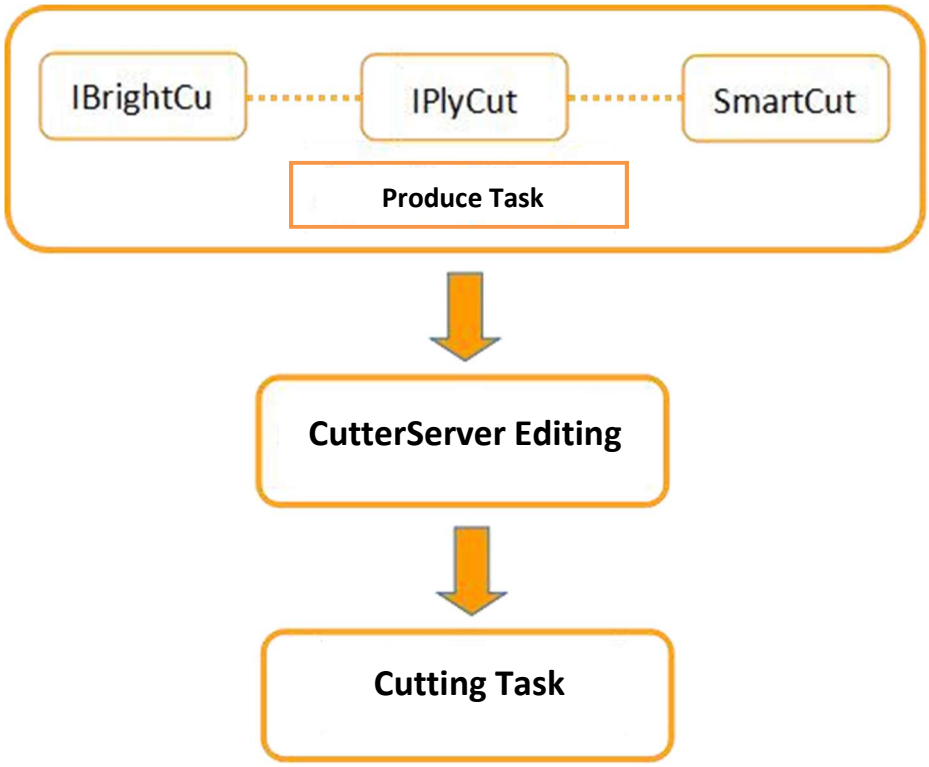
Directory

Chapter 1: Introduction of Software

1.1 Introduction

CutterServer is a software to set tool parameters and edit cutting tasks. Customers use iBrightcut, iPlycut and Smartcut to edit cutting files and send them to CutterServer to control cutting.

1.2 Cutting Process



1.3 Software Installation and Operating Environment

1.3.1 PC and DSP board requirement

CPU：2.0GHz or above

Memory：4GB or above

Graphics card：256MB or above

Resolution：1024×720 or above

DSP Version：2.2.8 or above

FPGA Version：1.3.7 or above

1.3.2 System and Software requirement

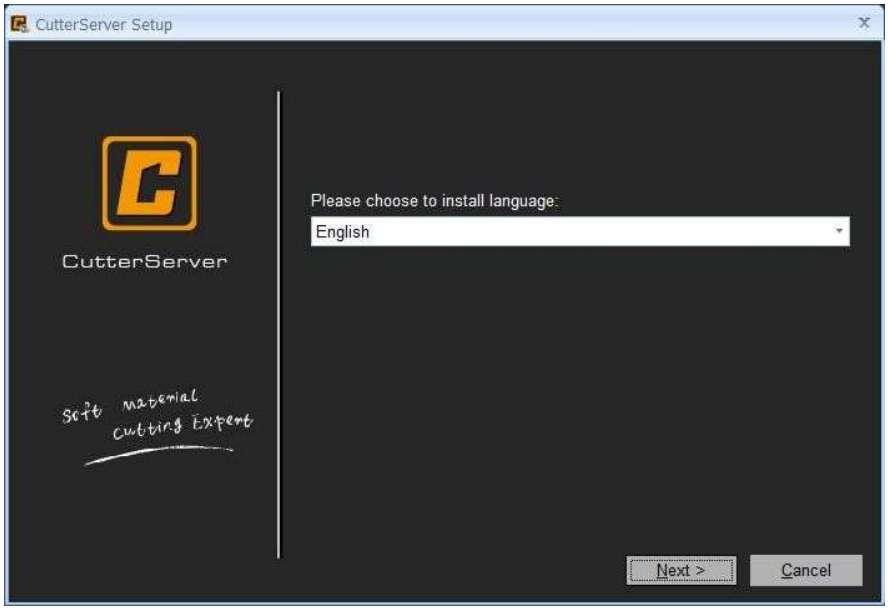
System：Windows 7、Windows 10（32bit\64bit）

CutterServer Version：V 3.0.0.1

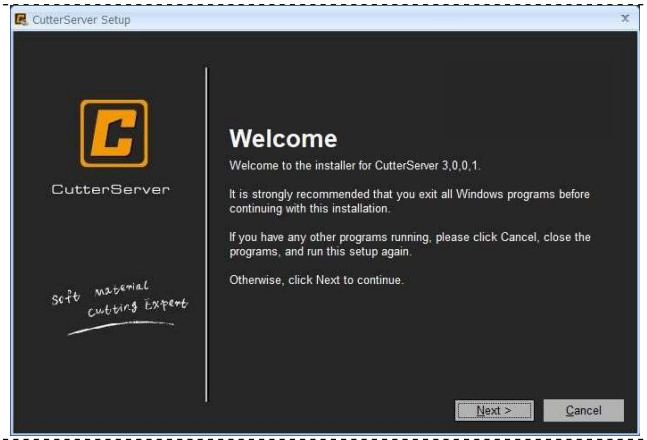
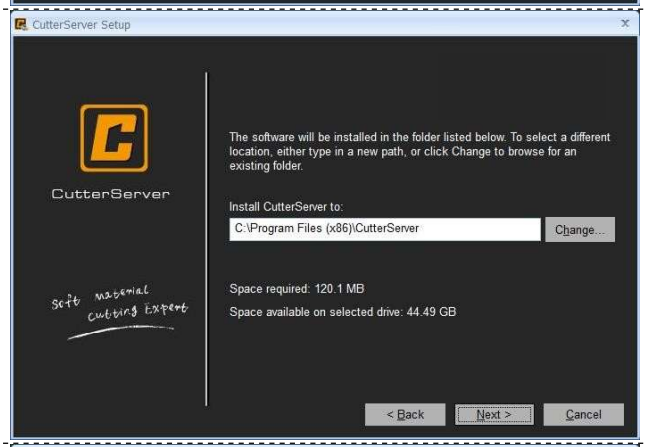
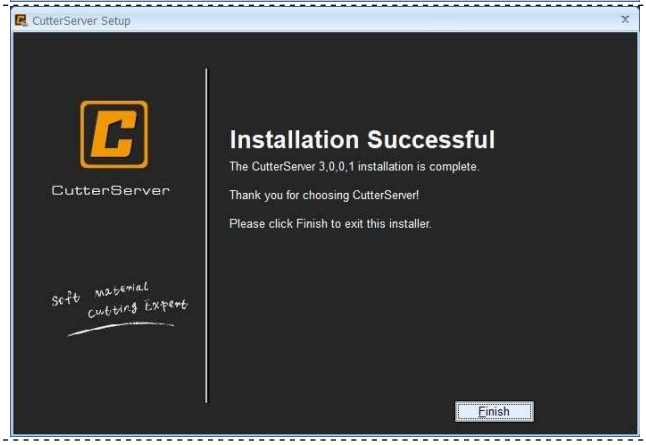
CutterServer Date：2018.8.30.1

1.3.3 Software Installation

- Note: WIN7, WIN10 need to run as administrator
- Note: Please select Chinese or English installation package according to the system's language. As shown in Figure 1.



（Figure 1）

WIN7, WIN10 need to run the installation package as administrator	
Please read the software license agreement carefully, agree to the installation, please select [I agree to the terms]	
Specify the program installation path	
Click [Finish] to complete the installation	

1.4 Software interface and function introduction

1.4.1 Configuration instruction

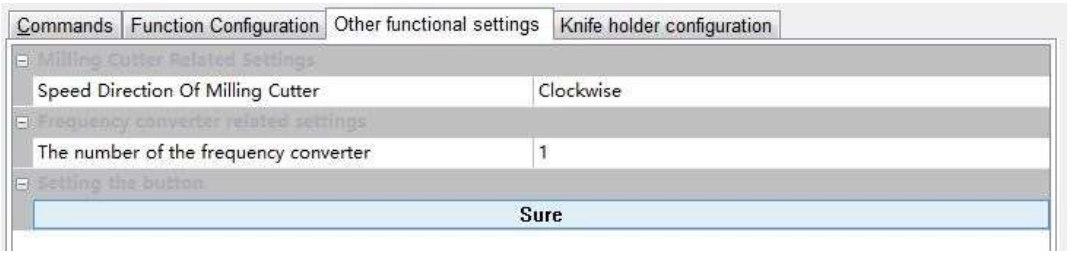
Before using the software, check whether the cutting equipment is a special model. If it is a dual-beam equipment, a multi-inverter equipment or a 1KW router equipment, please modify the parameters in the SysConfig configuration file in the program directory. The parameter modification method is as follows:

○ 1 Dual-beam: Modify the parameters in the SysConfig configuration file in the program directory, change the feeding mode to pull mode Push=1.

○ 2 Multi-inverter or 1KW router equipment:

Use the shortcut key Ctrl+Shift+Alt+C to open the function configuration interface, as shown in Figure 2. Click [Other Function Settings] to modify the [Inverter Related Settings] parameter. If there are 3 inverters, the number of inverters is 3; 4 inverters, the number of inverters is 4.

[Router related settings], modify the router rotation direction, here the clockwise or counterclockwise is meaningless, it needs to be configured according to the rotation direction of the spindle. (Refer to the "1KW router instructions".)



(Figure 2)

1.4.2 Main interface introduction

Open the CutterServer software, the main interface is shown as Figure 3.

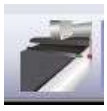
(Figure 3)

1.4.3 Icon function introduction

Item	Icon	Function Description
1		Start cutting icon: Clicking this icon after the cutting task is determined. Clicking this icon when you need to pause; click again to continue the cutting.
2		Cutting cancel icon: Clicking this icon when you need to cancel the current cutting task, the cutting task cannot continue if you click this icon

3		Preview icon: After clicking the preview icon, the cutting machine will show the cutting range by red light according to the size of the cutting task

Item	Icon	Function Description
4		Conveyor icon: Click the conveyor icon. The cutting machine will automatically feed material according to the set feeding length (only for the machine with conveyor).
5		Vacuum pump switch icon: Click this icon to turn on the vacuum pump, and click again to turn it off.
6		Pump reverse blowing icon: control pump reverse blowing
7		Machine zero point icon: Click this icon to return the cutting head to the zero point
8		Z-axis reset icon: select tool and click this icon, the system will automatically reset the selected tool in Z-axis.

9		Relative origin point icon: Click this icon and the head returns to the start cutting point of the last cut.
10		Automatically Knife Initialization
11		Manually Knife Initialization
12		film covering switch for GLS
13		Switch to iBrightCut
14		Pressure cylinder switch, can be manually fed with the direction key (after pressing the pressure cylinder, move the machine head in the X direction, and then lift the pressure cylinder)

1.4.4 Auto Knife Initialization

- Select the cutting tool, then click AKI icon ● The following dialog box pops up, click [AKI]

- Parameter Description:

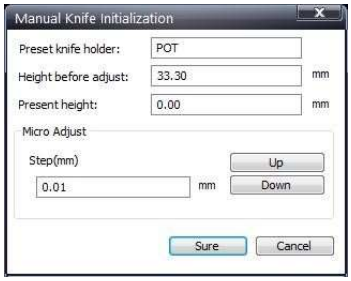
Parameter	Description
Pre-aligned tool holder	Display the currently selected tool name
Current height	Current tool depth
start testing	After checking, press any direction key, the machine head will automatically move to the position of the
	initialization point.
initialization point XY	Actual position coordinates of the AKI device (different parameters for different position)
Spare felt	When using router tool, check the thickness of the spare felt and fill in the thickness of the felt.
knife down compensation	Compensate the error between the AKI device and the table. By the difference between the manual tool setting and the automatic tool setting, the compensation range is ±5mm (the first, second and third holders can be inconsistent).
modify	After the compensation is modified, must click Modify to make the compensation value take effect
Initialization	After clicking, the machine starts the knife initializaton automatically
Cancel	Click to terminate the knife initialization and exit the interface

- The common problems of AKI are shown in the following table

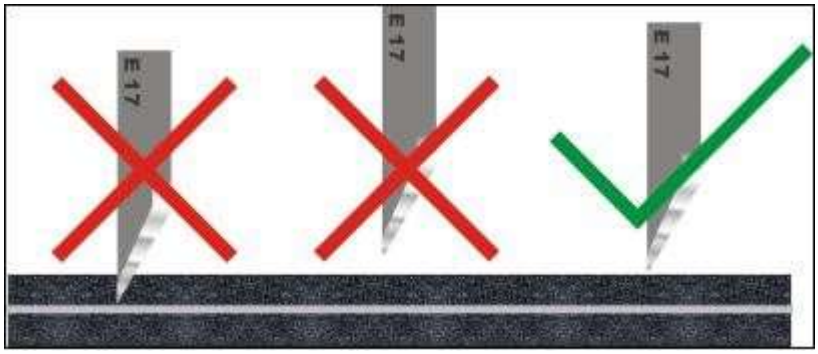
Alarm	Description
	The cutting equipment does not have AKI function
	No selected tool, please choose the tool type firstly.
	AKI is not available to the current tool(include: V-Cut tool, Kiss-Cut tool, 28mm rotary tool, 45mm rotary tool, pen, red light.)
	The red light or pen is selected.

1.4.5 Manual Knife Initialization

- Select the tool firstly, click the Manual Knife Initialization icon.
- The following dialog box pops up



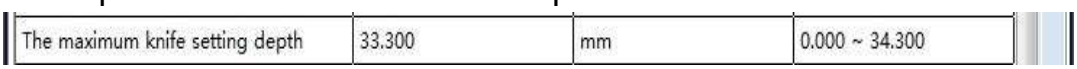
- The up/down of the tool can be controlled by clicking the up and down arrow buttons in the dialog box. When the distance between the blade and the felt is large, you can use the keyboard keys Ctrl+down to speed up the drop. When the blade is close to the felt, press the button slowly to make the knife fall. When the blade just touches the felt, click OK to complete the initialization.As shown in Figure 4.



(Figure 4)

- Maximum falling depth limit
  - By manual knife initialization, the maximum falling depth is 260mm.
  - Resetting the model will clear the maximum depth for all the tools, all set to 10mm.

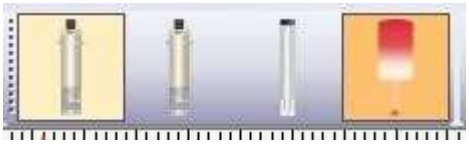
  - Auto Knife Initialization depth or Manual Knife Initialization depth plus 1mm is the maximum depth.



  - When manually modify the depth of the tool, can not exceed the maximum depth of the tool, but can be less than the maximum depth of the tool.

- If need to change the maximum range, please perform the initialization again.

1.4.6 Tools Parameters



Select the tool to be set, right-click to pop up the tool property selection, and modify the parameter dialog box. At this time, you can modify the parameters of the tool. The parameter setting dialog box is shown in Figure 5.

Parameter Set

Knife holder/knife tool modification

Parameter item	Value	Unit	Range Of Value
SOCKET2	POT		
Positive angle of knife and X axis	0.000	limit	-360.000 ~ 360.000
Knife-up compensation	0.000	mm	-100.000 ~ 100.000
Knife-down compensation	0.000	mm	-100.000 ~ 100.000
Knife lifting angel	360.000	limit	0.000 ~ 360.000
X,Y movement speed	0.050	m/s	0.010 ~ 1.500
Knife-lower speed.	93.749	mm/s	0.010 ~ 1000.000
Knife lifting speed	93.749	mm/s	0.010 ~ 1000.000
Movement acceleration	0.050	G	0.010 ~ 1.500
Setting acceleration	0.025	G	0.010 ~ 1.500
The maximum knife setting depth	33.300	mm	0.000 ~ 34.300
Waiting time before setting	10.000	ms	0.010 ~ 10000.000
Waiting time before knife lifting	10.000	ms	0.010 ~ 10000.000
Waiting time after setting	10.000	ms	0.010 ~ 10000.000
Waiting time after knife lifting	10.000	ms	0.010 ~ 10000.000
Direction to rotate	☑		
The distance between former knife poi	1.000	mm	-20.000 ~ 100.000
The distance between later knife point	1.000	mm	-20.000 ~ 100.000
Eccentricity enable	☑		
X eccentric distance	0.000	mm	-100.000 ~ 100.000
Y eccentric distance	0.000	mm	-100.000 ~ 100.000

Sure Apply(A) Exit(E)

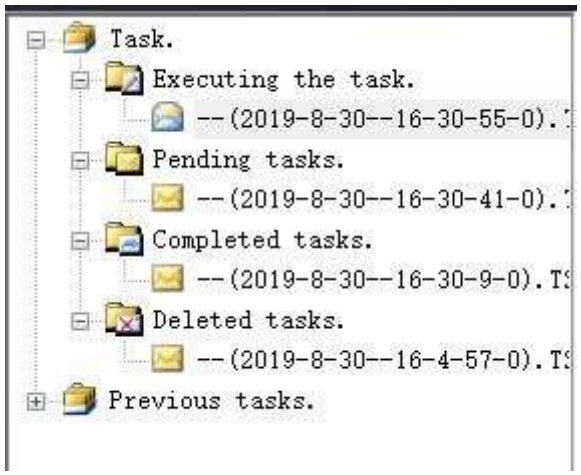
(Figure 5)

1.4.7 Side toolbar

The side toolbar is mainly divided into four toolbars: task view, log view, machine parameters, and gas field settings, which can be displayed or masked by the viewing function.

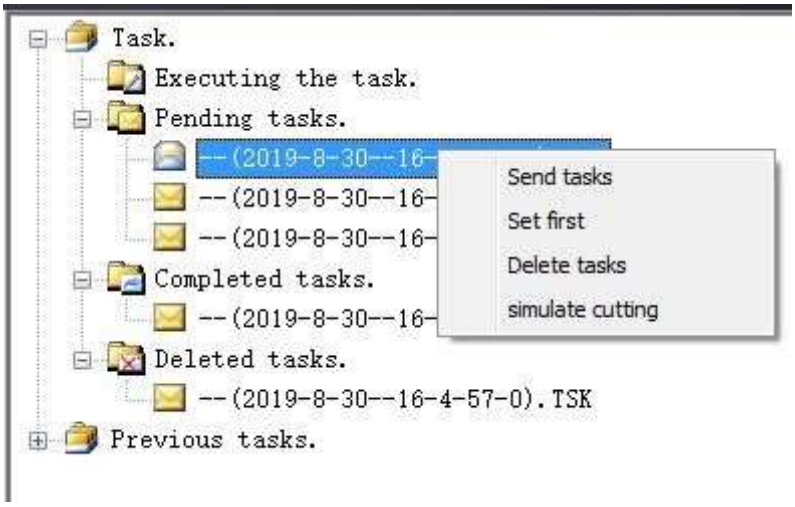
1.4.8 Task view

The task view dialog box is shown in Figure 6.



(Figure 6)

- Executing a task: displaying the currently cut task
- Pending tasks: Display the tasks sent by the application software. Can send tasks, set the first task, delete tasks, simulate cutting operations, and so on. Right-click [Pending Task] and select [Analog Cut], as shown in Figure 7, the current data can be simulated and cut. For details, refer to 2.3.4 Simulated Cut.



(Figure 7)

- Completed task: Shows the task of cutting completed.
- Deleted Task: Shows deleted tasks.
- Historical tasks: Show tasks that have been completed before, and click to redo the task again.

❖ Note: After sending the file, you can add the cutting estimation time in the task information column. As shown in Figure 8.

(Figure 8)

1.4.9 Log view

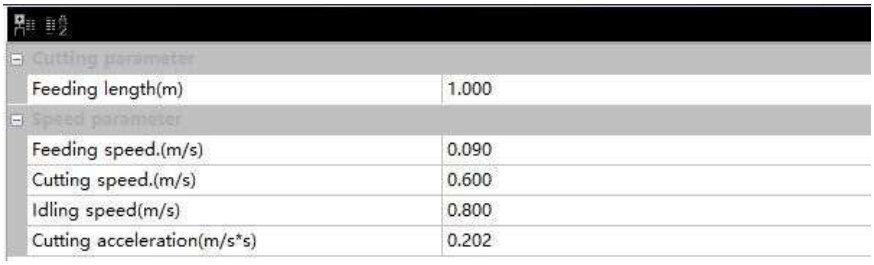
Mainly used to view machine operation records, including alarm information, cutting information, etc. The log view dialog box is shown in Figure 9.

Time	Event
16:37:07	Red Light Select
16:36:40	MILL_1KW Select
16:36:37	Pen. Select
16:33:50	The change slot cover is not...
16:32:17	The change slot cover is not...
16:32:00	MILL_1KW Knife-lift.
16:30:18	Have entered into cutting st...
16:30:12	Red Light Select
16:30:06	Modify part of knife holder/t...
16:29:35	Initialization Cancel
16:29:32	POT Select
16:29:27	Red Light Select
16:28:50	Pen. Select
16:28:50	VCUT Select
16:05:28	POT Knife-lift.
16:05:28	Y axis motor error.
16:05:24	POT Select
16:05:23	Have entered into cutting st...
16:00:59	POT Select
15:59:30	Red Light Select
15:59:07	Pen. Select
15:58:36	There is a barrier.
15:57:49	EOT Select
15:57:39	Red Light Select
15:57:17	Pen. Select
15:56:40	Pen. Select
15:56:08	There is a barrier.
15:56:05	Initialization Cancel
15:55:56	EOT Select
15:55:50	Red Light Select
15:55:21	Pen. Select
15:55:16	There is a barrier.
15:54:55	There is a barrier.
15:54:02	POT Select
15:53:55	Red Light Select
15:53:30	Pen. Select
15:53:30	EOT Select
15:45:48	Reboot Please(if write speci...
15:45:29	There is a barrier.
15:45:12	Red Light Select
15:44:02	Pen. Select
15:44:01	Initialization Cancel
15:42:34	POT Select
15:42:09	Red Light Select
15:41:41	Pen. Select
15:38:22	Pen. Select
15:37:45	Direction can not be reset
15:37:24	Pen. Select

(Figure 9)

1.4.10 Machine Parameters

The machine parameter dialog box is as shown in Figure 10.

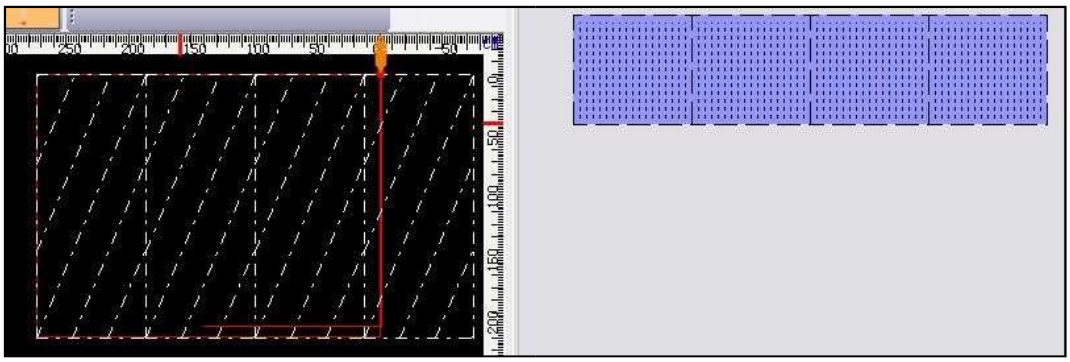


Cutting parameter	
Feeding length(m)	1.000
Speed parameter	
Feeding speed.(m/s)	0.090
Cutting speed.(m/s)	0.600
Idling speed(m/s)	0.800
Cutting acceleration(m/s*s)	0.202

(Figure 10)

1.4.11 Gas field setting

The gas field setting function is mainly to modify the suction range and suction force of the air pump. The display interface is shown in Figure 11 and Figure 12.



(Figure 11)

(Figure 12)

1.4.12 Status information

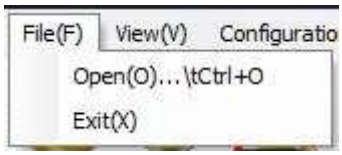
bar

The contents of the machine status information bar: machine current status, file sending status, communication light, hand-held device, coordinate status, model model, cloud service light.

Chapter 2: Software Operation

2.1 Menu bar operation

2.1.1 File operation



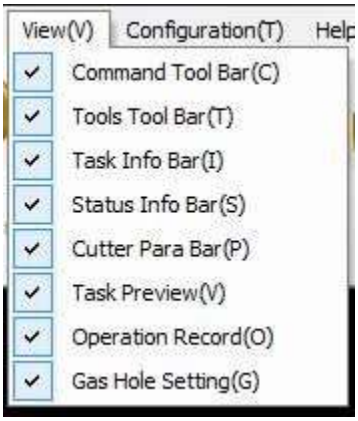
Click the [File]-[Open] function to pop up the Select File dialog box and select the file you want to open. Click [OK] to open this file. An example is shown in Figure 13.

(Figure 13)

Click the [Exit] function to pop up the Exit dialog box, and then click [Yes] to exit CutterServer.

2.1.2 View operation

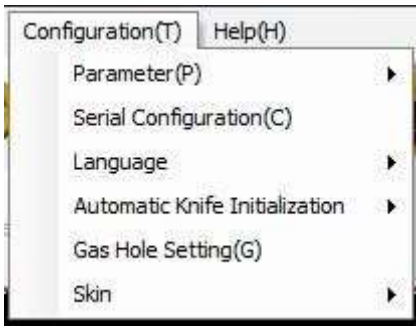
According to the user's needs, the toolbars of the interface can be hidden, ticked to display, and unchecked to be hidden. As shown in Figure 14.



(Figure 14)

2.2 System configuration operation

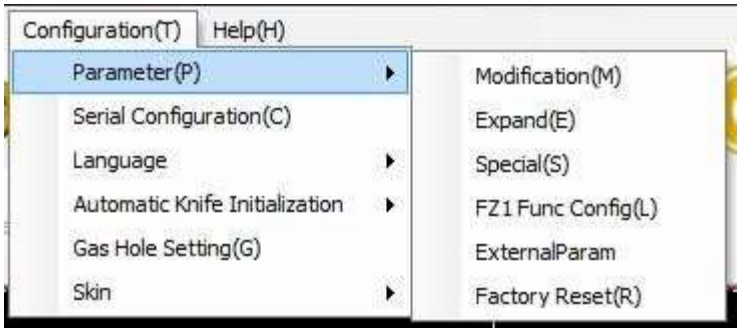
The system configuration function includes parameters, serial port configuration, language, background color, machine configuration and other options. As shown in Figure 15.



(Figure 15)

2.2.1 Parameter introduction

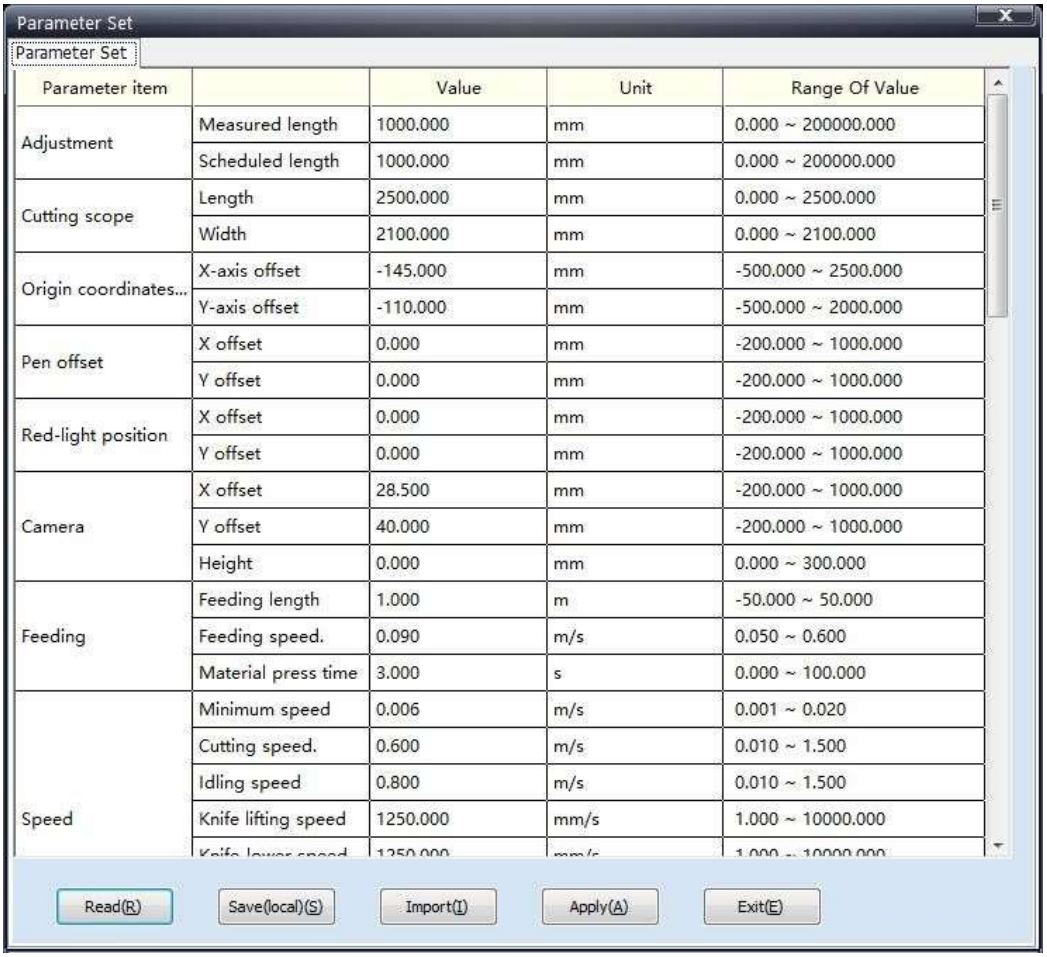
The parameter functions include modification, restoration of factory parameters, expansion, special, FZ1 board function configuration, external parameters, and saving to factory parameters. As shown in Figure 16.



(Figure 16)

2.2.1.1 Parameter settings

Click [Modify] to pop up the overall parameter dialog box of the cutting machine, as shown in Figure 17.



(Figure 17)

❖ Note: The parameter setting dialog can be called up directly via the shortcut key. (shortcut is Shift+Ctrl+Alt+P)

【 Reading parameter 】 : Automatically read the machine's own parameters

【Save (local)】: Save the cutting parameters to your local computer

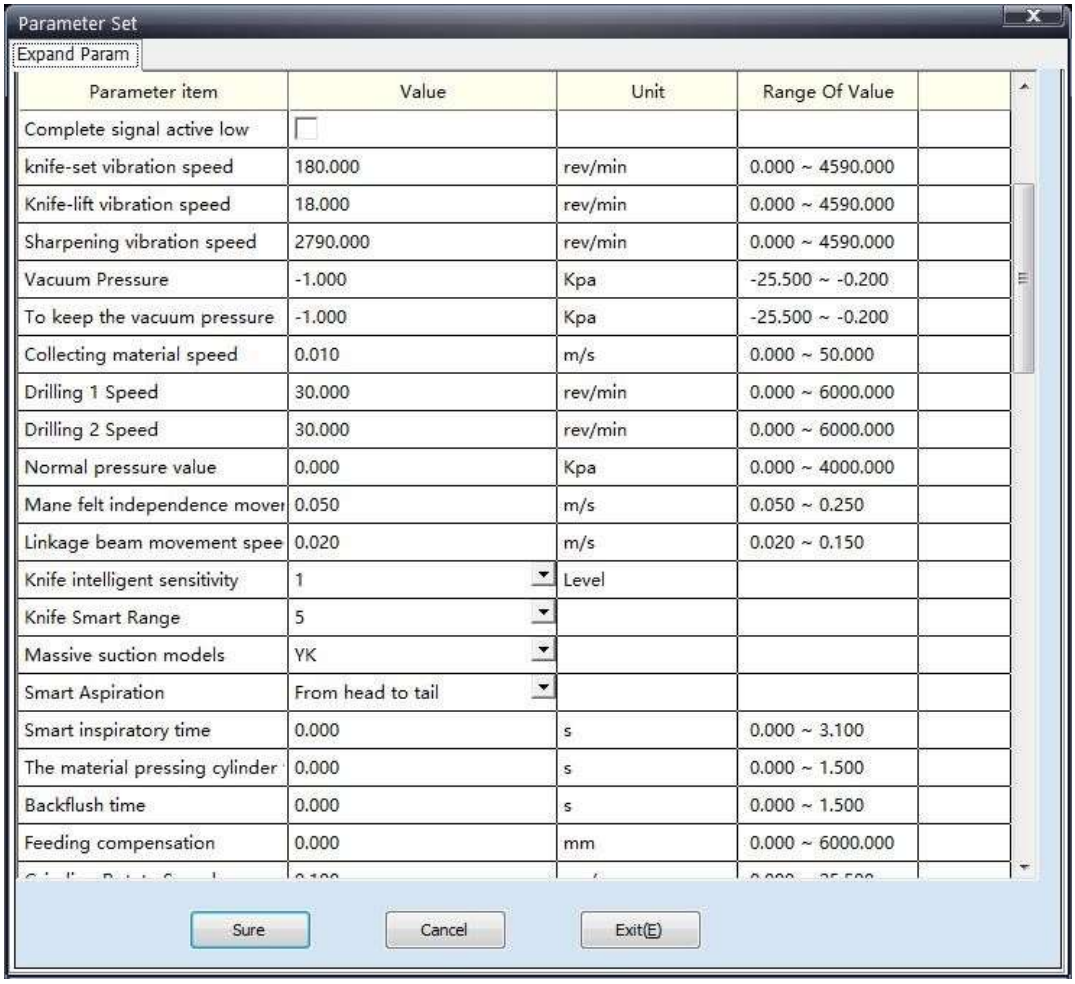
【Import】: Import parameter configuration table

【Apply】: Apply the modified parameters and save them to the DSP

【Exit】: Exit the cutting overall parameter dialog

2.2.1.2 Extended parameter

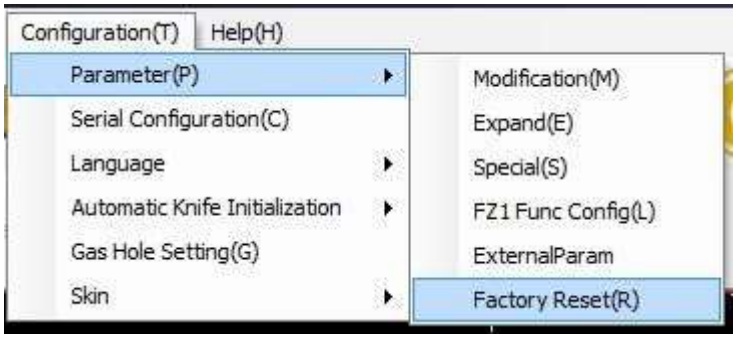
Click [Extended Parameter] to modify the corresponding parameters, as shown in Figure 18.



(Figure 18.)

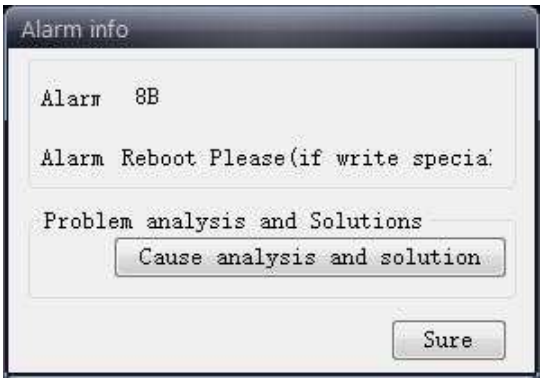
2.2.1.3 Restore factory parameters

Restore the factory parameters, that is restore to the last saved factory parameters, as shown in Figure 19. Restore the original parameters of the machine if the factory parameters have not been saved. (Note: This feature is recommended only for data loss)



(Figure 19)

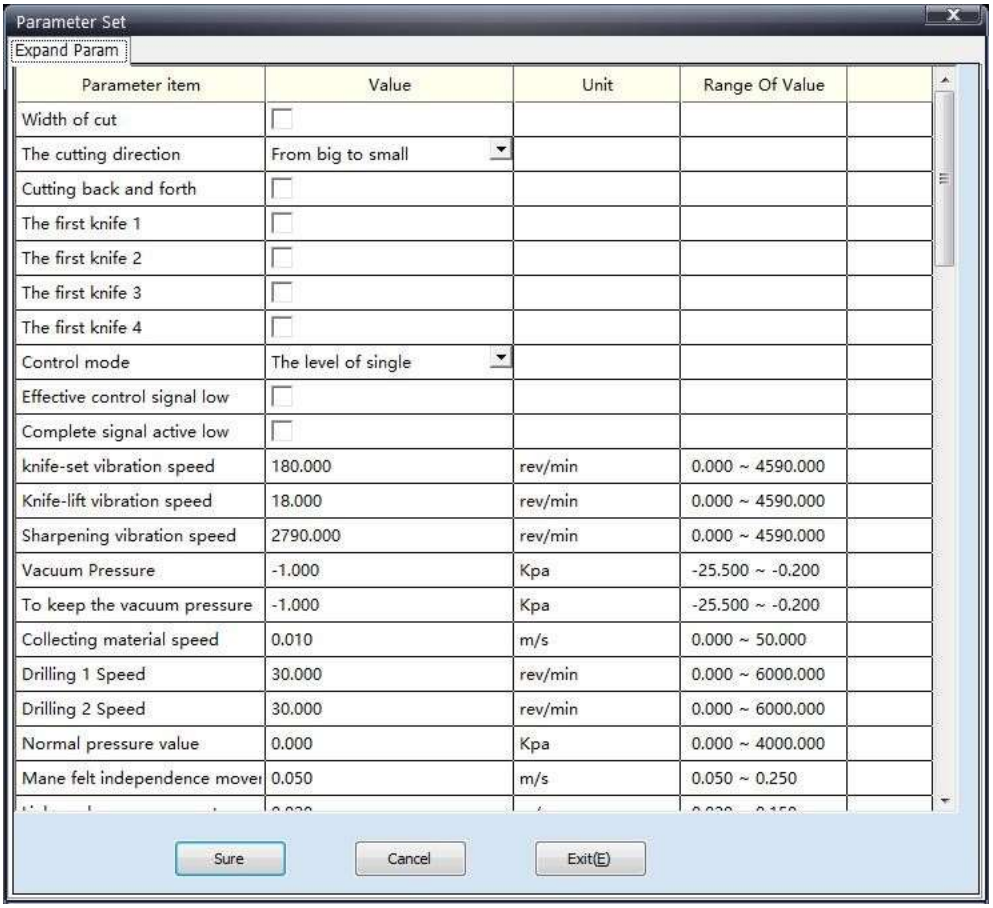
- Note: All parameters, including factory parameters, will be cleared when the model is reset. (need to reset factory parameters)
- Note: The machine needs to be restarted to restore the factory parameters. After resetting the model, the alarm message pops up as shown in Figure 20.



(Figure 20)

2.2.1.4 Extended parameter

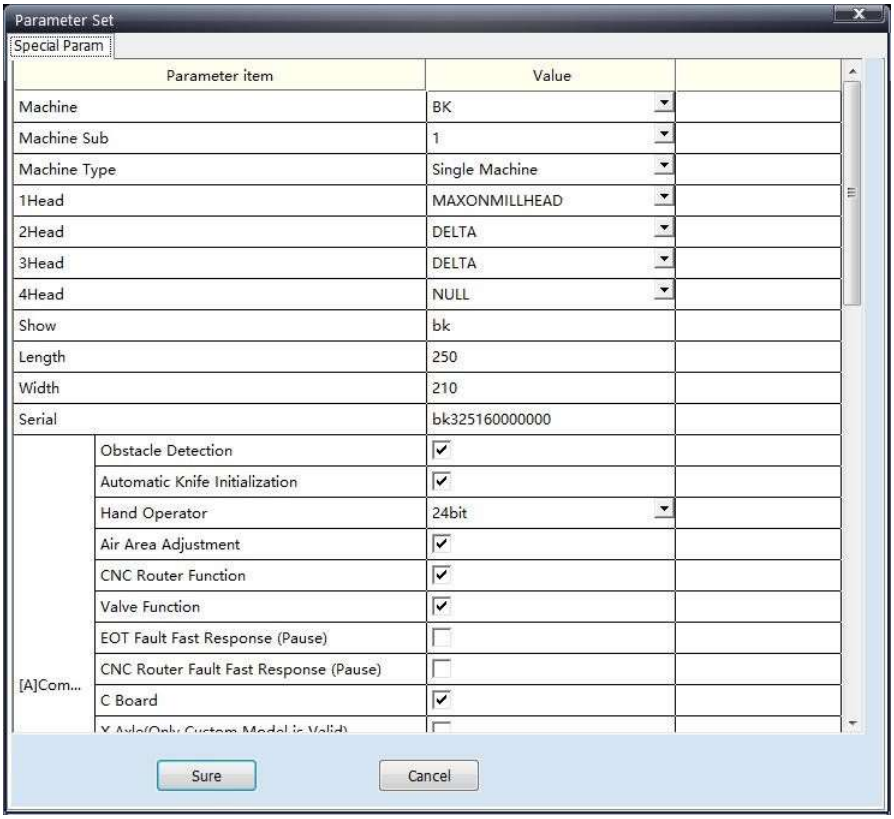
Since the V2.5.1.0 version has parameter classifications for different models, different models will display different parameters. The extended parameter dialog is shown in Figure 21.



(Figure 21)

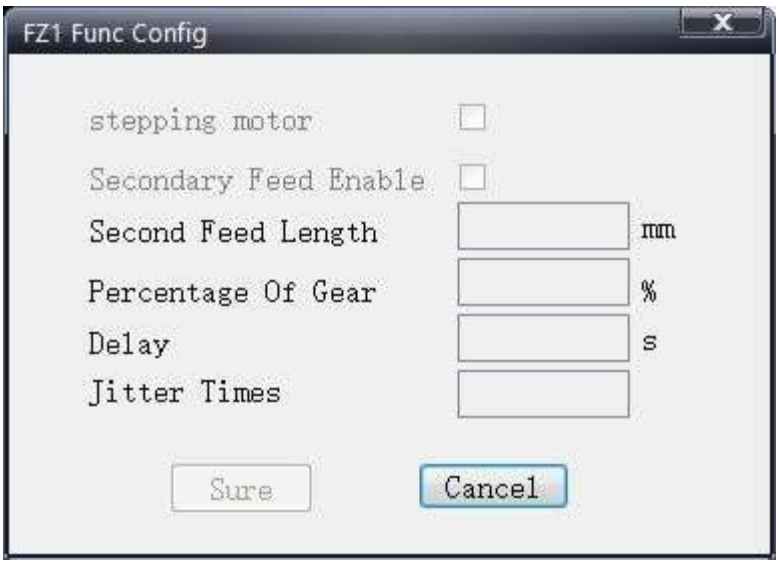
2.2.1.5 Special parameter

❖ Note: This parameter is only allowed to be modified in the alarm state.



(Figure 22)

2.2.1.6 Functional configurations of FZ1 board (duplicate feeding)



(Figure 23)

【Duplicate Feeding Function】: Choose to open the function.

【Feeding Length】: Second-feeding length; The distance between the front and the back of the cutter according to the first-time feeding (0mm--440mm).

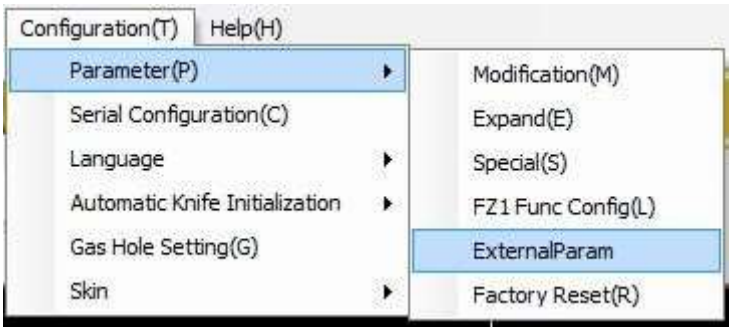
【Electronic Gear Ratio】: The ratio between the set distance and the actual movement distance; Adjust the step factor of the feeding motor when there is difference between the actual feeding length and set value (50%--101%).

【Delay Time】: The interval between the first and second feeding (0--25.5s).

【Shaking Time】: The up-down frequency of the sucking discs of the feeding device (0--255).

2.2.1.7 External parameters

The external data can be set and read, which can be used to install on Pad equipment and be compatible with the machine code.



(Figure 24)

2.2.1.8 Factory Parameter

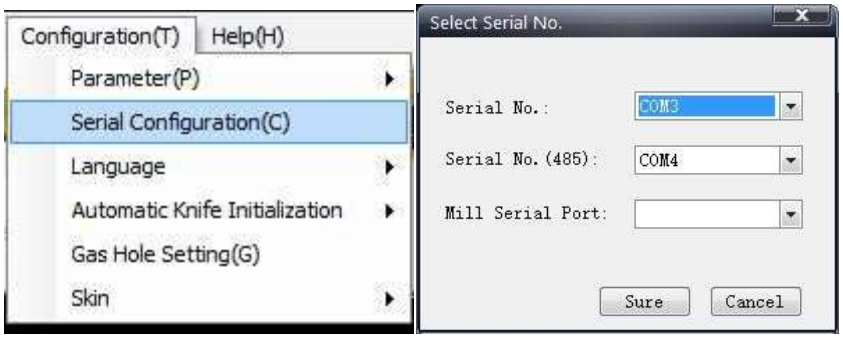
Factory parameter is the one set before the machine delivered out of factory. 【 Save as Factory Parameter 】 Save the current parameter as factory parameter corresponding to recovering the factory parameter.

2.2.2 Serial Port Configuration

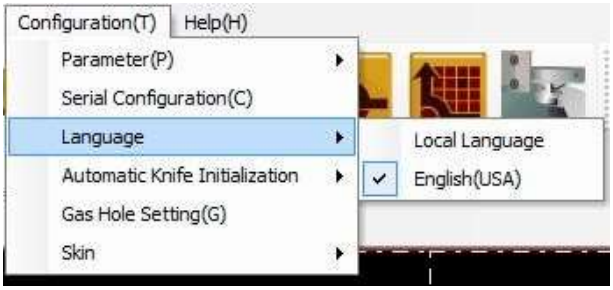
Choose【Serial Port Configuration】. A 【Choose Serial Port Number】 dialog pops up, in which choose the relevant serial port number.

Green sign shows the successful connection of DSP board.:

Red sign shows the DSP board's connection is failed.:



2.2.3 Language Setting



(Figure 25)

❖ Note: Native language changes according to the operation system.

2.2.4 Background Color Setting

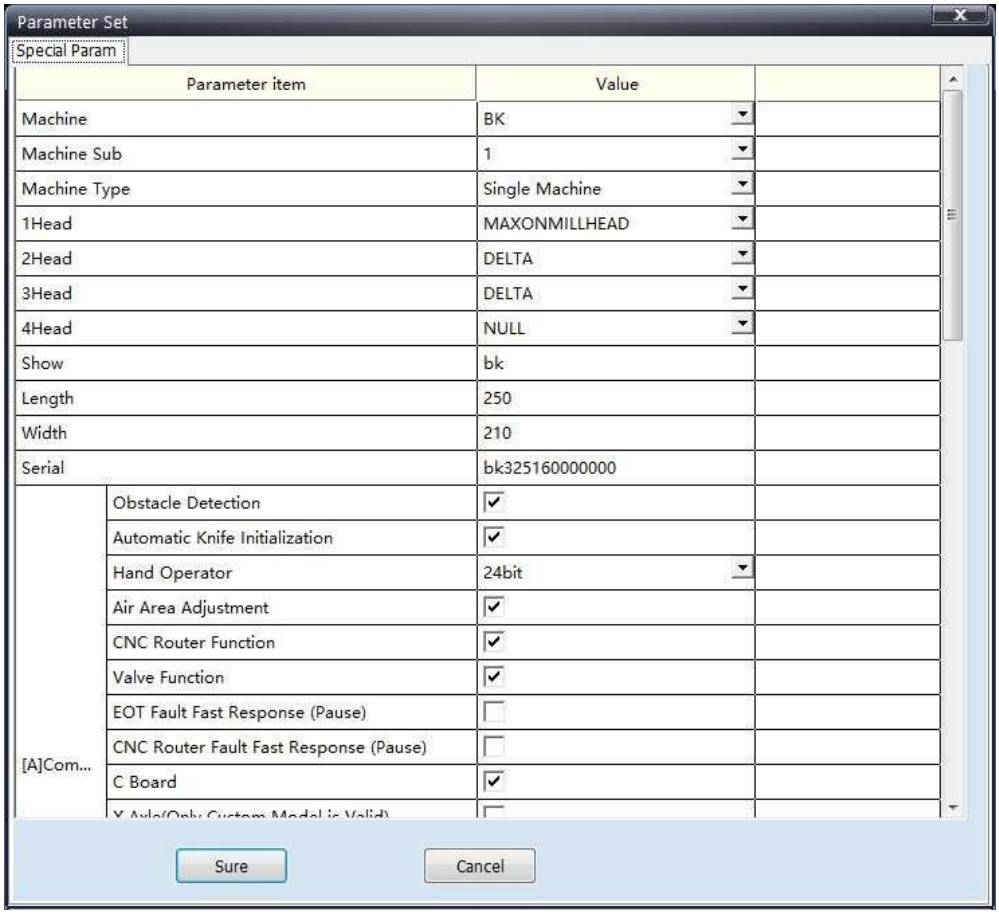
Change color of the coordinate axis.

(Figure 26)

2.2.5 Machine Configuration

Introduce another means of changing machine's special parameters as below.

- Click 【Machine Configuration】, a popup dialog as below Figure 27.



(Figure 27)

- Choose the relevant serial port number and click Test Communication as below Figure 28, which shows the correct connection of the serial port hardware.

(Figure 28)

- Change the needed parameters and click Apply as below Figure 29, which shows the parameters are changed successfully and just need to power on again.

(Figure 29)

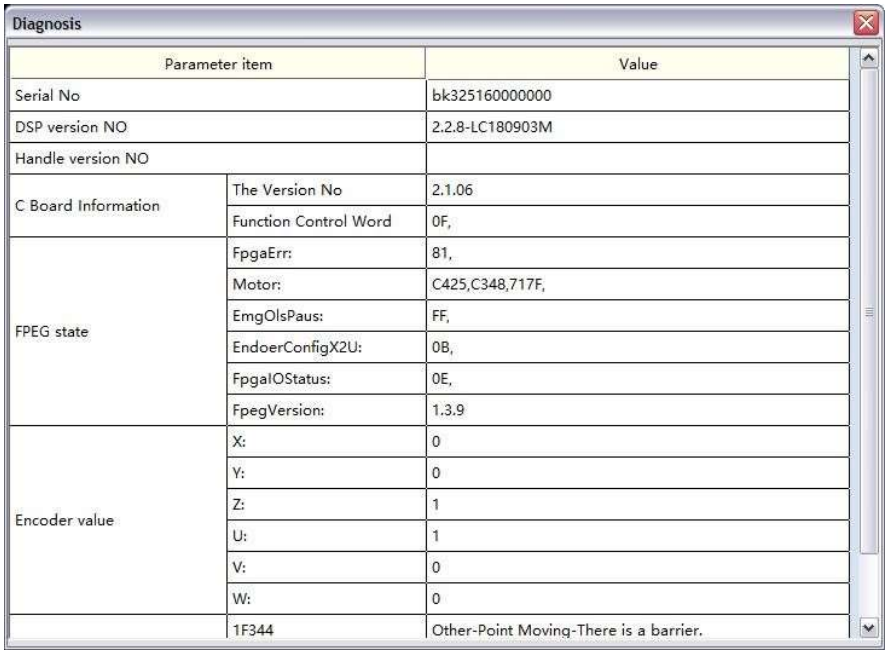
2.3 Help

2.3.1 About CutterServer

Check CutterServer version.

2.3.2 Diagnosis

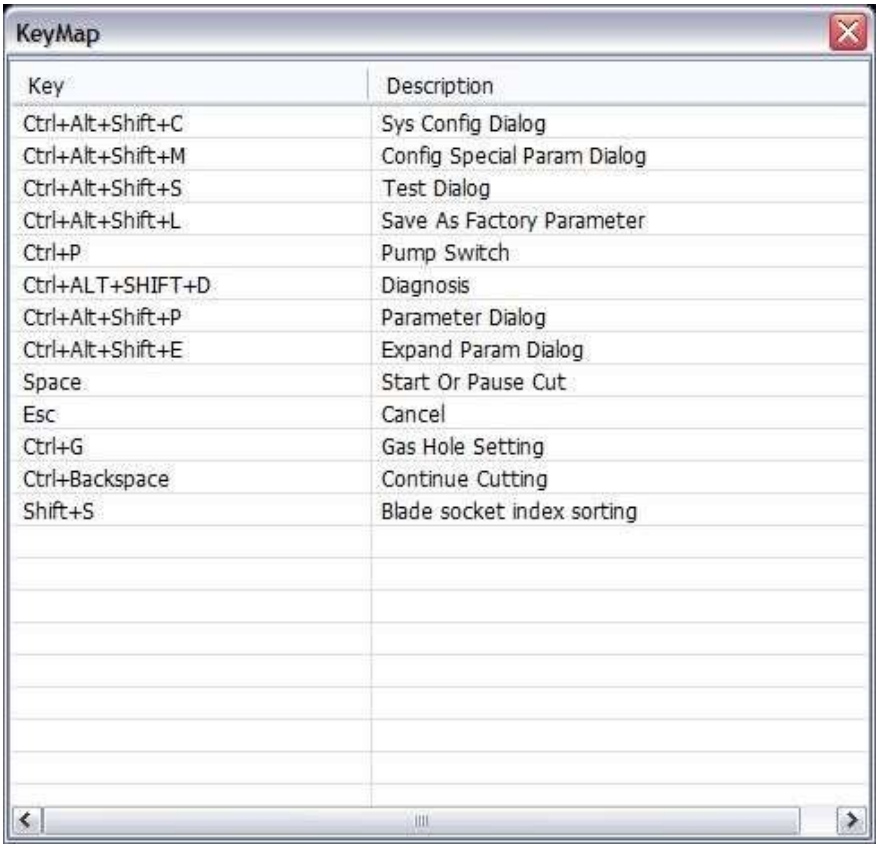
Check the machine's serial number, C board and the version of DSP board.



Parameter item		Value
Serial No		bk325160000000
DSP version NO		2.2.8-LC180903M
Handle version NO		
C Board Information	The Version No	2.1.06
	Function Control Word	0F,
FPEG state	FpgaErr:	81,
	Motor:	C425,C348,717F,
	EmgOlsPaus:	FF,
	EndoerConfigX2U:	0B,
	FpgaIOStatus:	0E,
	FpegVersion:	1.3.9
Encoder value	X:	0
	Y:	0
	Z:	1
	U:	1
	V:	0
	W:	0
	1F344	Other-Point Moving-There is a barrier.

(Figure 31)

2.3.3 Shortcut Key



Key	Description
Ctrl+Alt+Shift+C	Sys Config Dialog
Ctrl+Alt+Shift+M	Config Special Param Dialog
Ctrl+Alt+Shift+S	Test Dialog
Ctrl+Alt+Shift+L	Save As Factory Parameter
Ctrl+P	Pump Switch
Ctrl+ALT+SHIFT+D	Diagnosis
Ctrl+Alt+Shift+P	Parameter Dialog
Ctrl+Alt+Shift+E	Expand Param Dialog
Space	Start Or Pause Cut
Esc	Cancel
Ctrl+G	Gas Hole Setting
Ctrl+Backspace	Continue Cutting
Shift+S	Blade socket index sorting

(Figure 32)

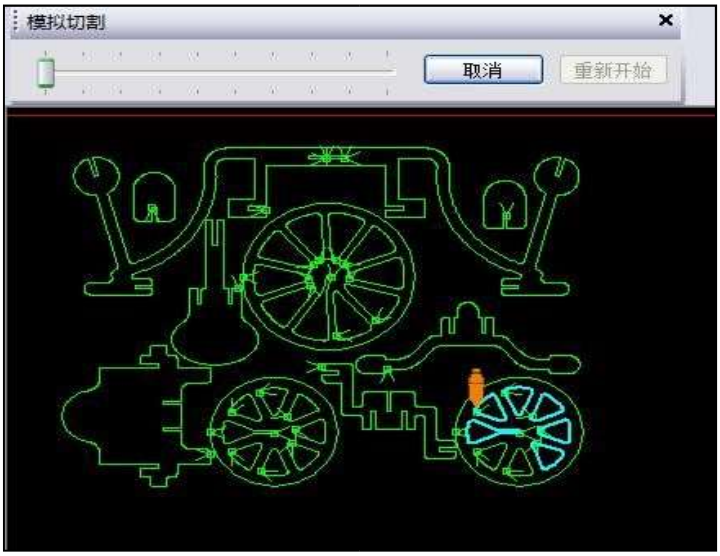
2.3.4 Cutting Simulation

When the software is unconnected to the machine, then it can simulate the cutting with the data.

- Choose and click the needed plt. Tsk cutting files as the below Figure 33.

(Figure 33)

- Open 【Automatically Start Cutting Simulation】, drag the Speed Bar to adjust the cutting simulation speed; 【Cancel】, can cancel the current cutting simulation, and it can restart after the completion of the cutting simulation.

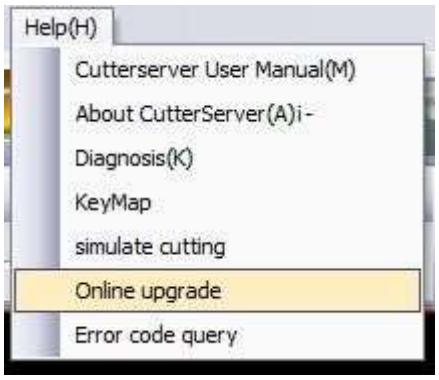


(Figure 34)

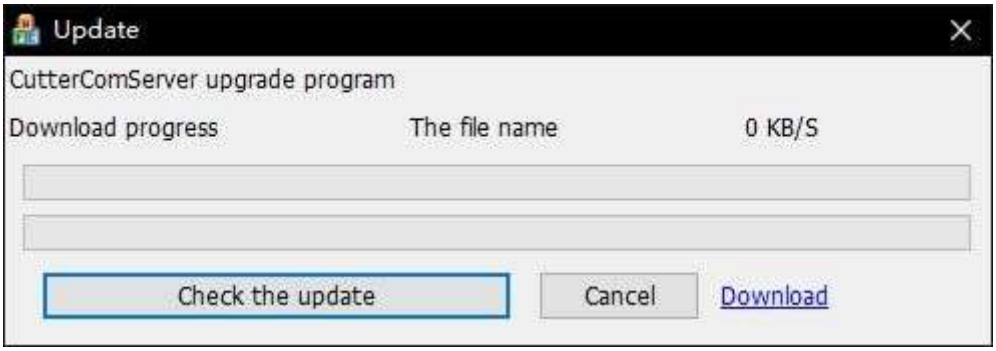
2.3.5 Online Update

Choose 【Online Update】under the Help menu bar, and also can download the offline installation package.

❖ Note: If the online update software cannot close automatically, then then update needs to wait after software closed manually.



(Figure 35)

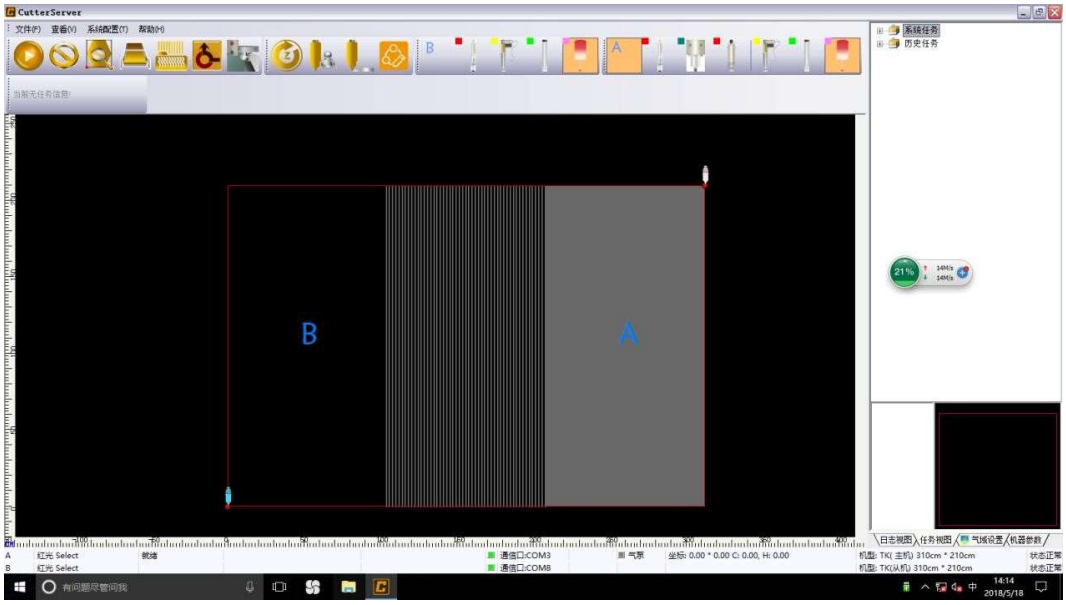


(Figure 36)

2.4 Single Interface of Dual Beam Mode

2.4.1 Single Interface of Dual Beam Mode

New-added single interface of dual beam mode in CutterServer.



(Figure 37)

2.4.2 Toolbar

Toolbar changes when the CutterServer is installed on the dual-beam cutter.

【A】： Toolbar A shows the tool configurations on the main gantry

【B】： Toolbar B shows the tool configurations on the auxiliary gantry

2.4.3 Status Bar

For the dual-beam cutters, the status bar has two lines which show the current status of the main and auxiliary gantries, the chosen tool, vacuum on-or-off, and communications.

2.4.4 Software Operation

The operation for the dual-beam cutters generally keeps same as the single gantry cutters. It only needs to click【A】or【B】 in the toolbar and the icon for the relative activated gantry will light.

2.4.5 Basic Configuration

When CutterServerV3.0.0.1 is applied on the dual-beam gantry cutter, it needs to open the SYSConfig file under CutterServer's installation directory and to change BeamsCount=1 into BeamsCount=2, as below Fugure 38.

(Figure 38)

2.5 Parameter Modification

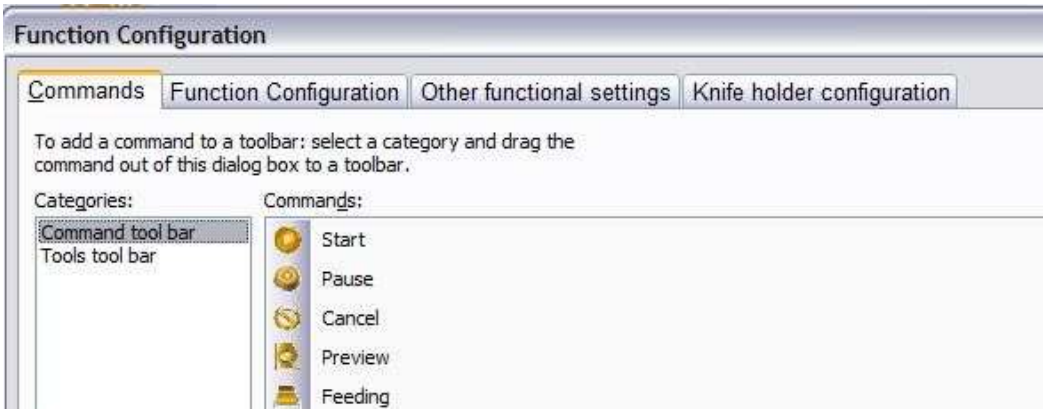
2.5.1 Configuration Parameter Modification

Through the shortcut keys to enter the configuration parameter modification dialog. (Shortcut keys: Ctrl+Alt+shift+C)

- Note： modificate the configuratoin parameters needs to pass the permissions first.

(Figure 39)

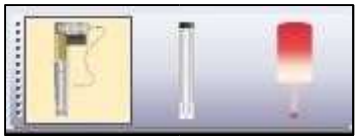
2.5.2 Commands Parameter

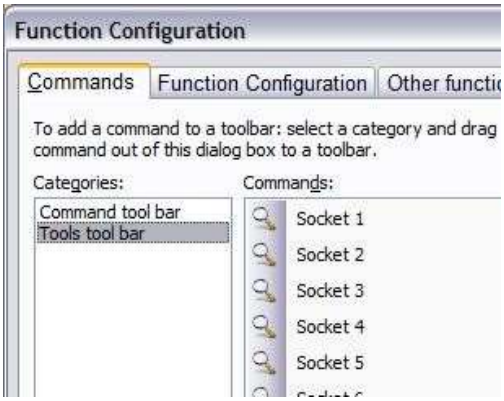


(Figure 40)

【Command Bar】: Choose the tool according to the needs (by clicking the lift mouse button).

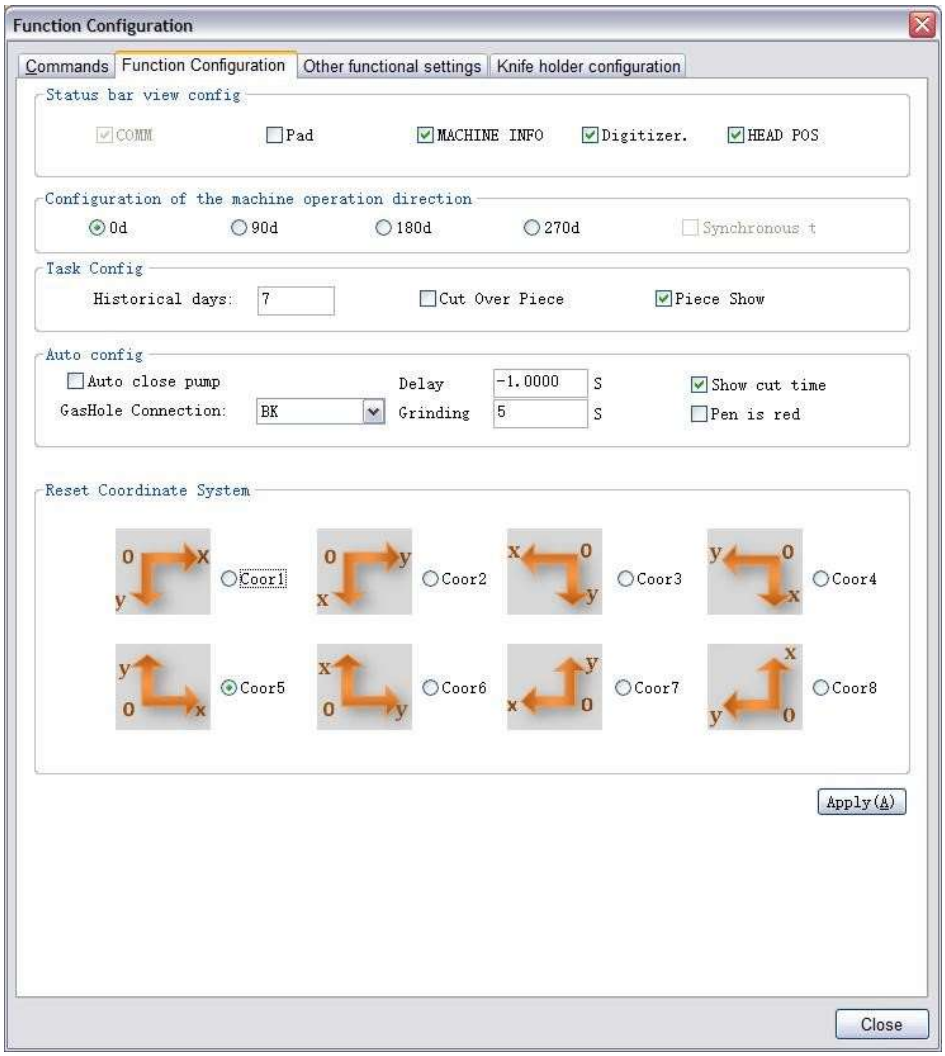
【Socket Bar】: Choose the socket according to the needs (by clikcing the lift mouse button).





(Figure 41) (Figure 42)

2.5.3 Functional Configuration Modification



(Figure 43)

【Configurations Display in Status Bar】: Choose to display/hide according to the needs.

【Machine operation direction configuration】: Change the control button for the movement direction of cutting head.

【Task Configuration】: Change the history and property of samples.

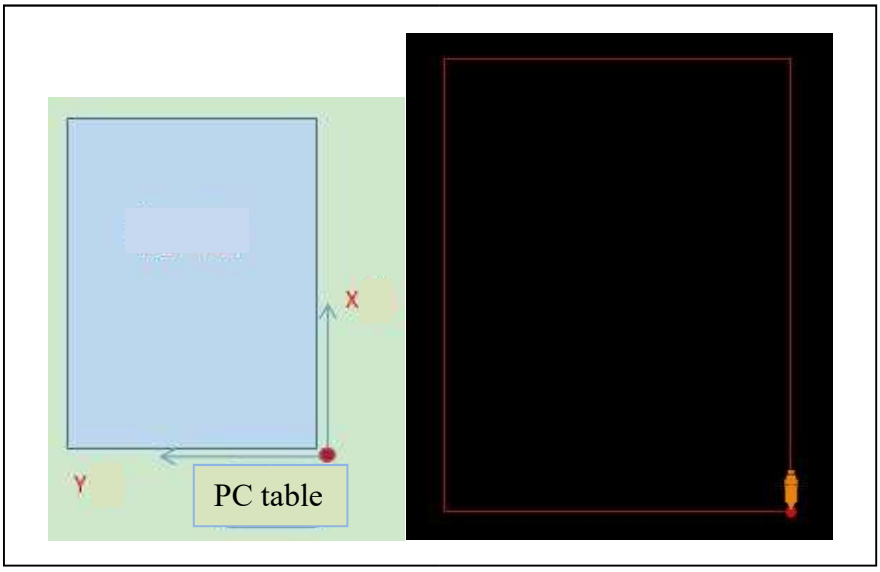
【 Automatically Close Vacuum Pump 】 : Control if automatically close the vacuum pump after cutting.

【Display Cutting Time】: Choose to see the cutting time in the main interface as below figure 44.

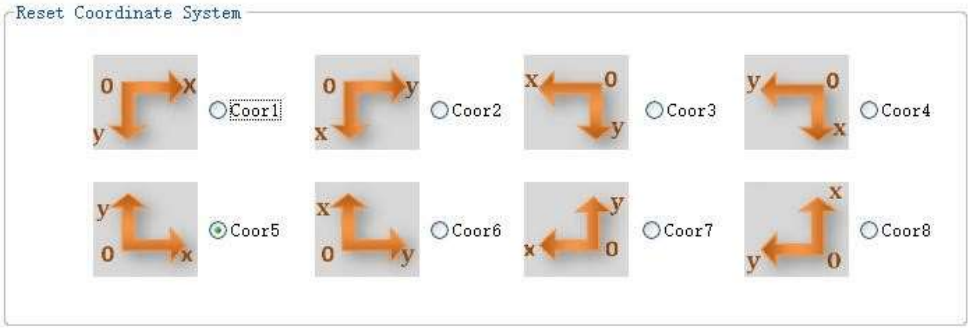
(Figure 44)

【Coordinates Reset】: Make the cutter and operation interface by turning the coordinates.

Example: For the position of the cutter and computer stand as below picture 45, then it should choose the coordinate 5.



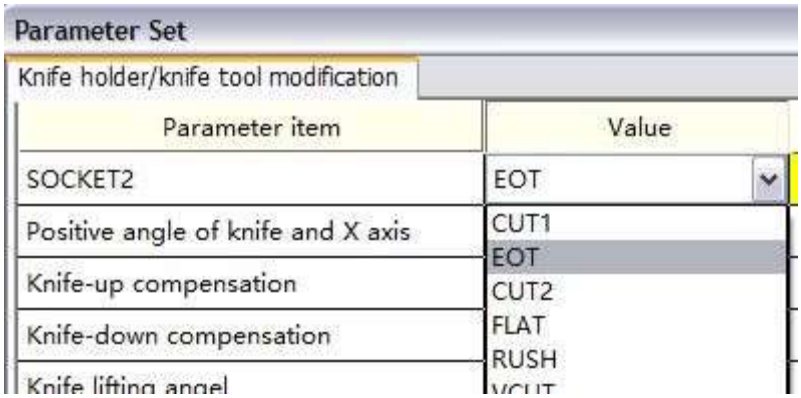
(Figure 45)



(Figure 46)

2.5.4 Tool Configuration Modification

Change the tool parameter according to the relative cutting tool.



(Figure 47)

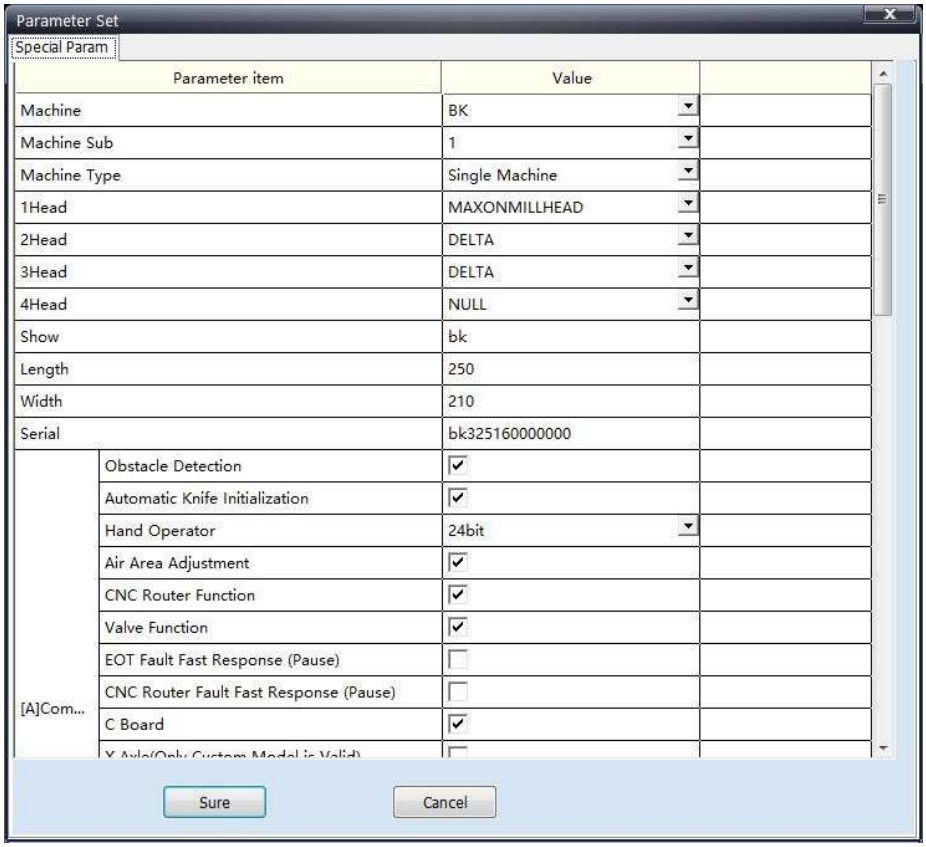
(Figure 48)

2.6 Special Parameter

2.6.1 Special parameter setting

Through the shortcut keys to enter the special parameter setting. (shortcut keys: Ctrl+Alt+shift+M).

- Note: special parameters need to be modified under the machine alarm status and after modification, it needs to power on again.



(Figure 49)

2.6.2 Introduction of Multi-usage Cutting Head

Multi-usage cutting head, that is, one cutting head for two cutting tools.

When using the mutli-usage cutting head, it needs to add the relations between sockets and cutting tools.

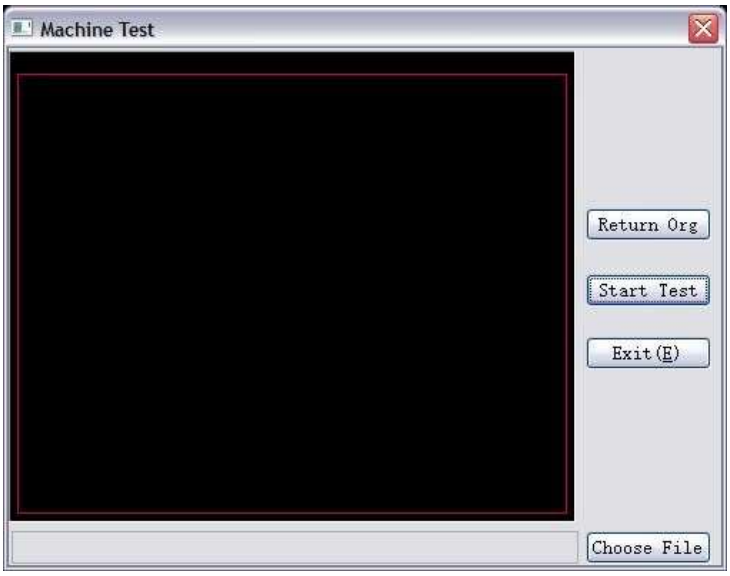
Cutting Head Type	PPT	PTM	PTMS	MAM_D
Relative Cutting Tool	Dual Punching Tool	One Punching Tool; One Rotary Tool	One Rotary Tool; One Punching Tool (with rotation and without height)	Marking Head

When SC, GLS machines use multi-usage cutting head, it will automatically turn into SC or GLS cutting head type, then other models can use the multi-usage cutting head.

2.6.3 Test Interface

Through shortcut keys to enter into the machine test interface. (shortcut keys: Ctrl+Alt+shift+S).

Test interface currently mainly is applied for the camera's offset adjustment on LCP model.



(Figure 50)

Chapter 3: Notes

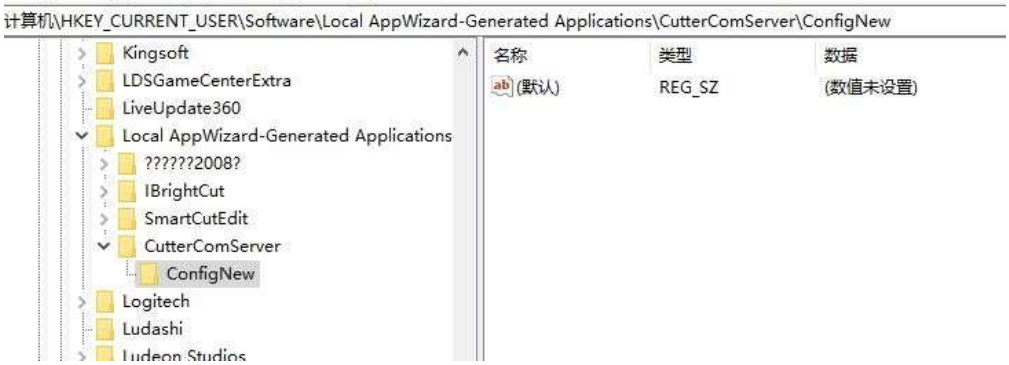
- When two tools install in the same cutting head, after the second tool's initialization, it needs to use the first tool again, then for the safety, the lowering depth of the first tool cannot be saved in the DSP setting, it needs to do the initialization for the first tool again.
- Open the program which shows "...menu bar..." dialog.

(Figure 51)

Solution:

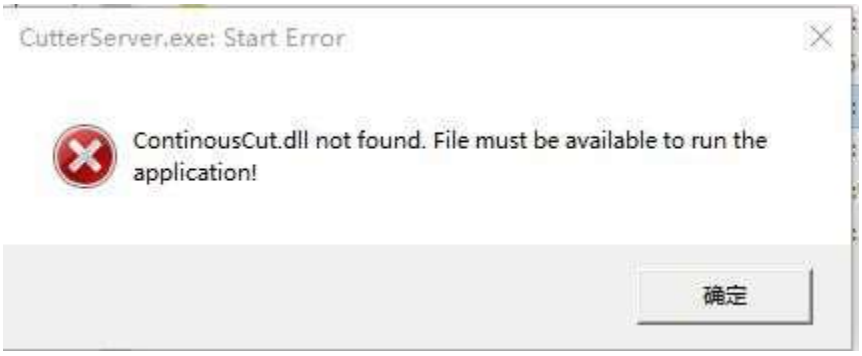
①Use the shortcut keys (WIN+R) to open, and input regedit to open registration list.

②Open the below path in turn, delete ConfigNew file folder, and reopen the software.



(Figure 52)

- In the XP system, CutterServer and SmartCut are under the same directory, and it shows "cannot position entry point _ftol2 to DLLS msvcrt.dll."



(Figure 53)

Solution:

Delete opengl32.dll file under the SmartCut installation directory, and open CutterServer again.

- Serial Port Cannot Connect

Solution: delete the serial port in the computer manager and install again.