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1. Description

Connection method	Driver Version	Patch version	Card	Software version
USB	V3	V3	V3K1,V3K2	1.2.3 test6.4
USB	V6	V6	V3K1,V3K2 V6K2,V6K3	1.2.3 6.4 , 6.5 7.4 , 7.5
PCIE	V6	V6	PCIE	1.2.3 6.4 , 6.5 7.4 , 7.5

Note: When installing the software, select the corresponding driver and patch according to the table above.

Dongle	Software
standard software	Without vision
Vision software	With vision

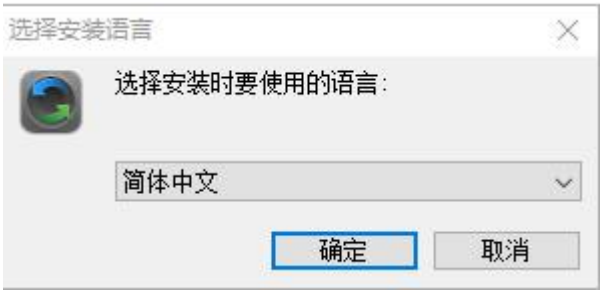
Note: The dongle needs to be used in conjunction with the software.

2. Software installation

2.1. Installation steps

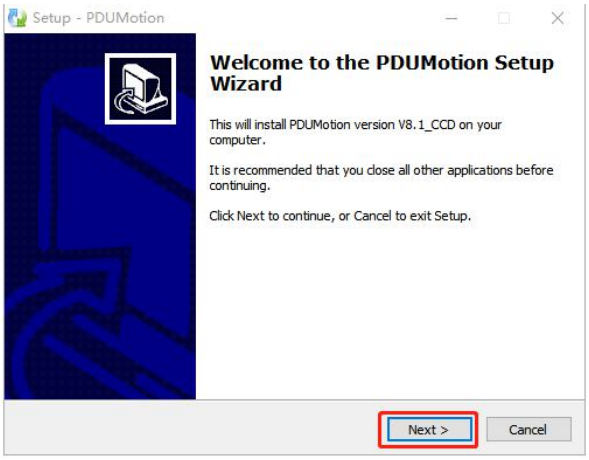
1. Find the location of the software installation package downloaded from the website.

2. Double click with the left mouse button to pop up the following window.

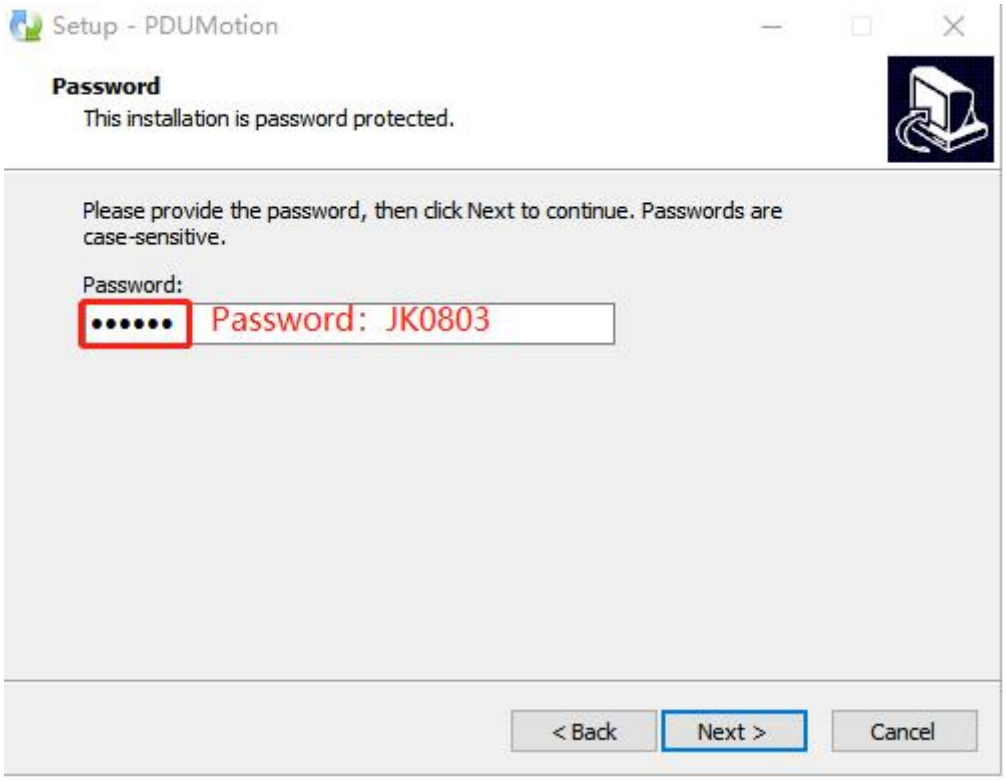


3. Please select the language used during installation before installation.

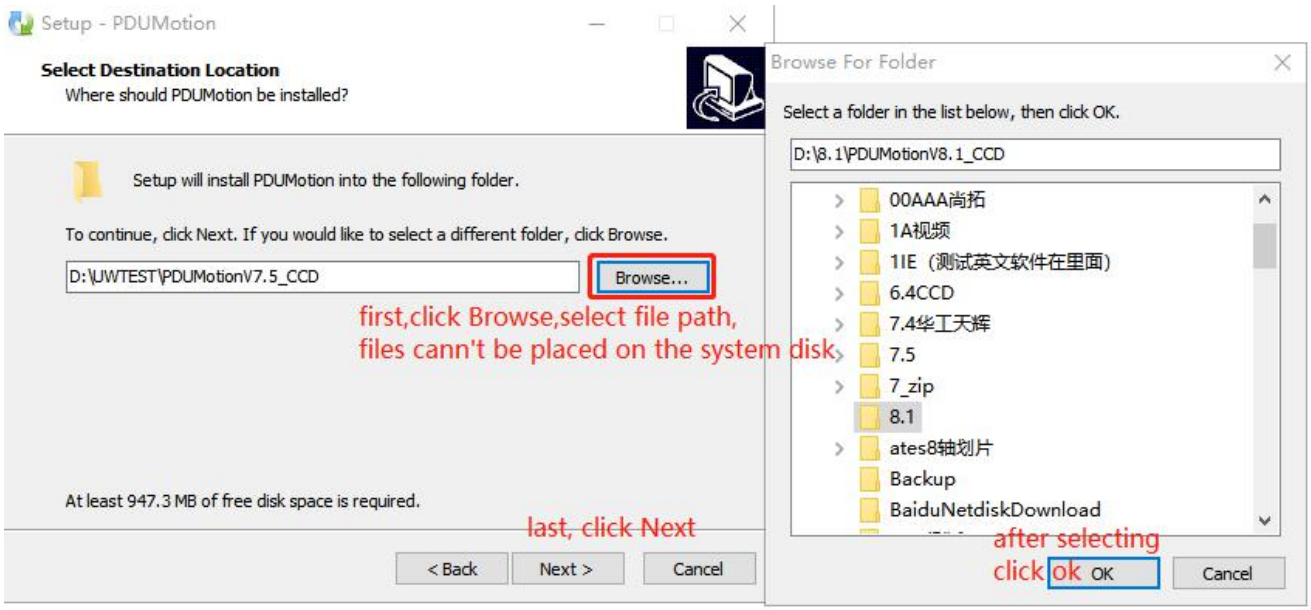
4. Please click on the Next> step with the left mouse button.



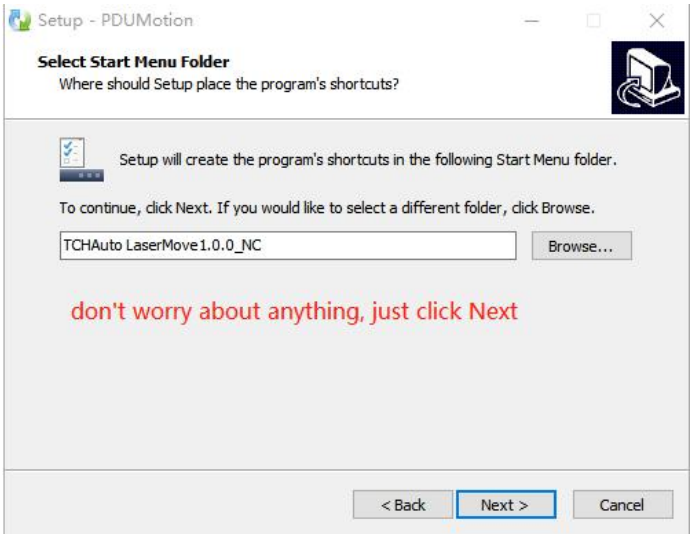
5. Please enter the password in the Password field and click Next>



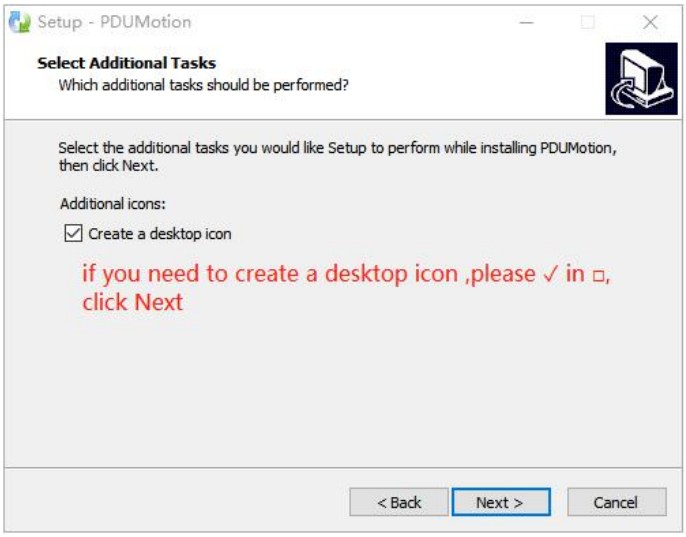
6.



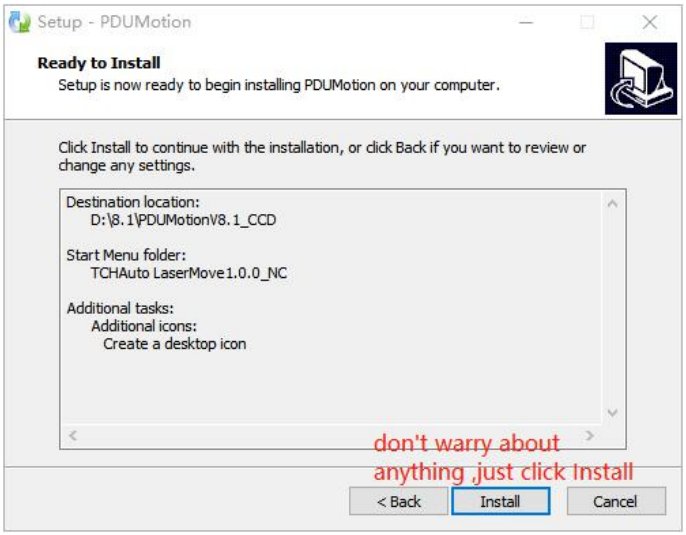
7.


Setup - PDUMotion
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
TCHAuto LaserMove1.0.0_NC
Browse...
don't worry about anything, just click Next
< Back
Next >
Cancel

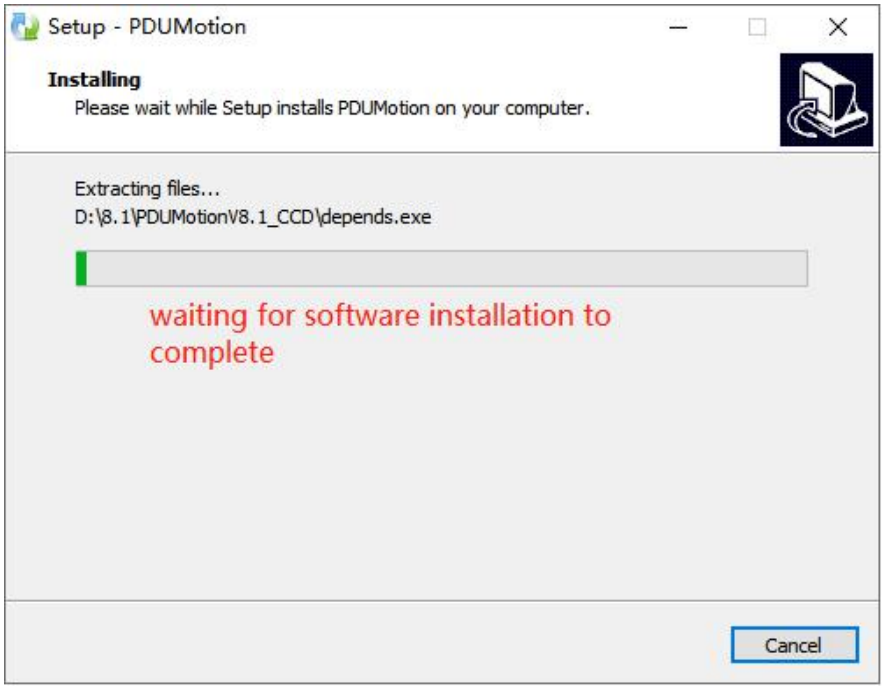
8.


Setup - PDUMotion
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing PDUMotion, then click Next.
Additional icons:
Create a desktop icon
if you need to create a desktop icon ,please ✓ in □, click Next
< Back
Next >
Cancel

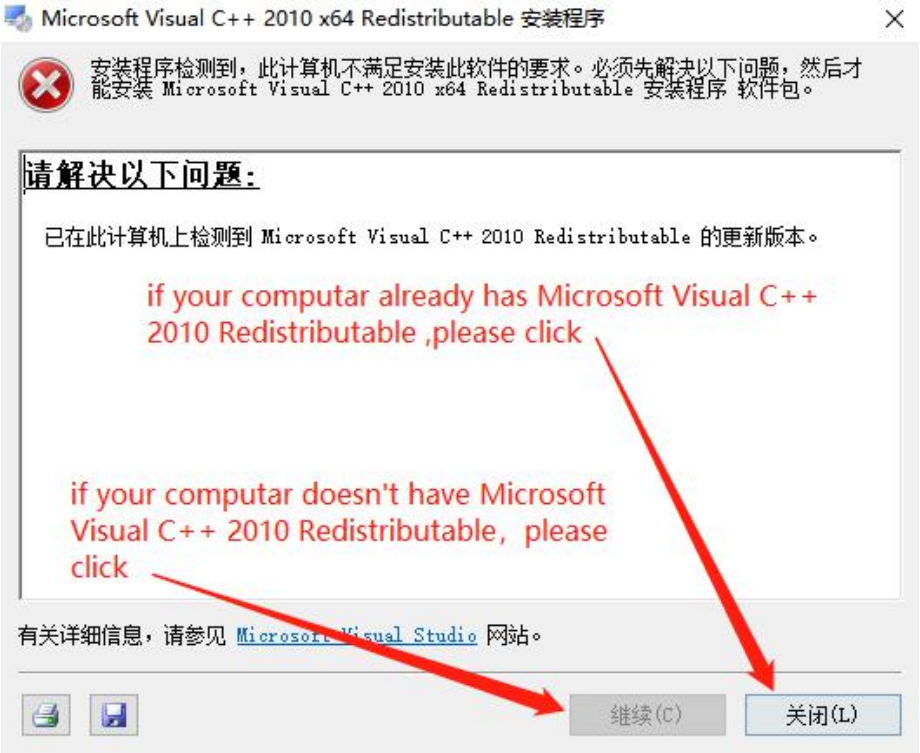
9.


Setup - PDUMotion
Ready to Install
Setup is now ready to begin installing PDUMotion on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
D:\8.1\PDUMotionV8.1_CCD
Start Menu folder:
TCHAuto LaserMove1.0.0_NC
Additional tasks:
Additional icons:
Create a desktop icon
don't warry about anything ,just click Install
< Back
Install
Cancel

10.

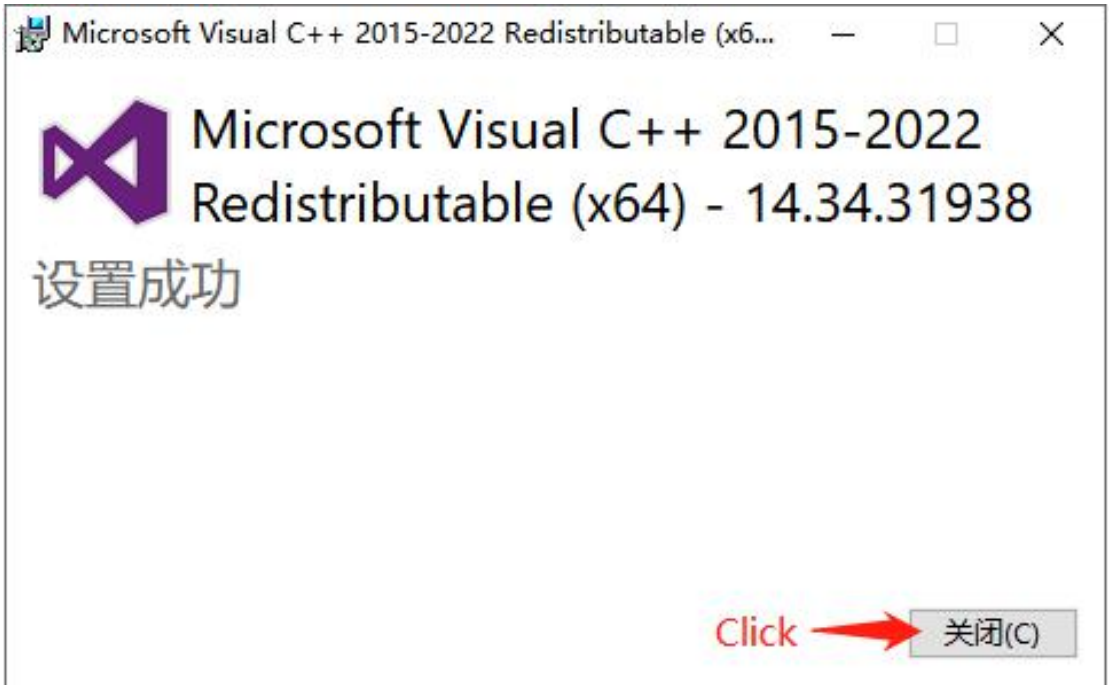


11. After the installation is completed, the following interface will pop up. If the plugin is not installed, the continue button can be clicked.

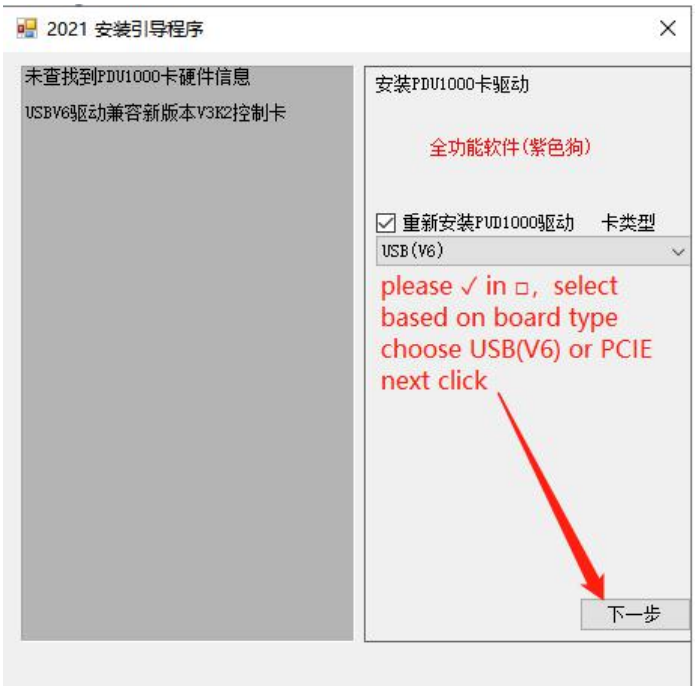


12. If you click the continue button , the following interface will pop up.Please follow the picture to operate.

13. After waiting for the plugin installation to complete, please follow the instructions in the picture.



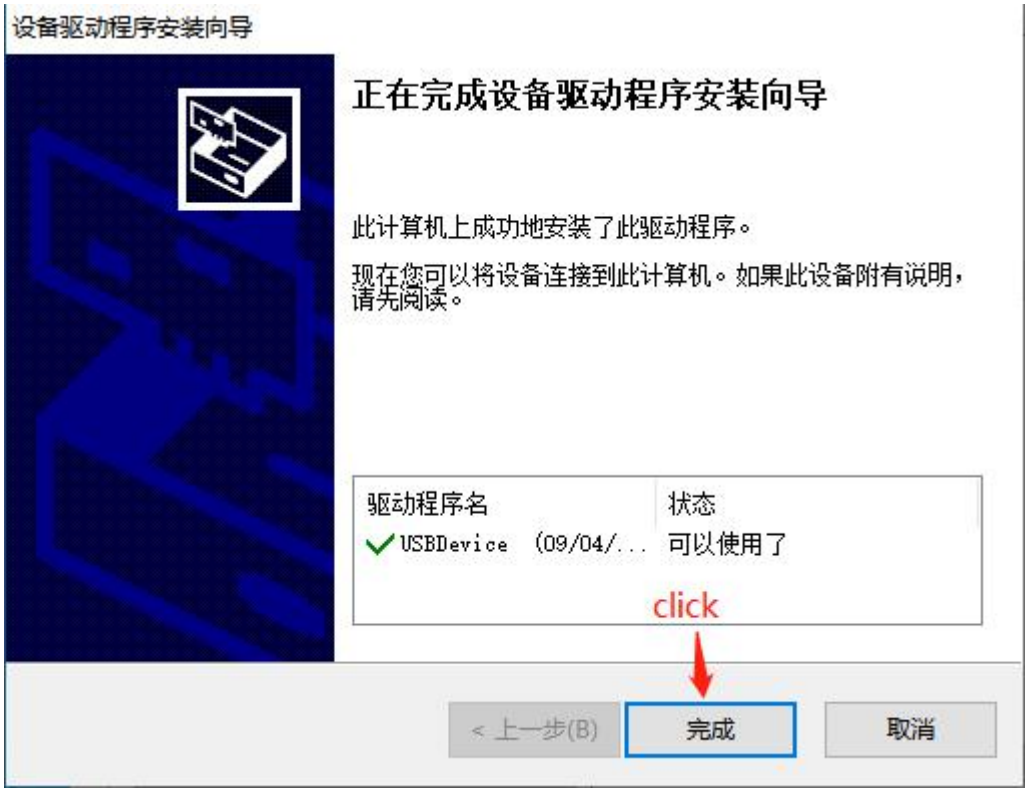
14. If the computer has never installed this software before, follow the instructions shown in the figure. If the software has been installed before, click 下一步.


2021 安装引导程序
未查找到PDV1000卡硬件信息
USBV6驱动兼容新版本V3K2控制卡
安装PDV1000卡驱动
全功能软件(紫色狗)
重新安装PDV1000驱动
卡类型
USB(V6)
please ✓ in □, select
based on board type
choose USB(V6) or PCIE
next click
下一步

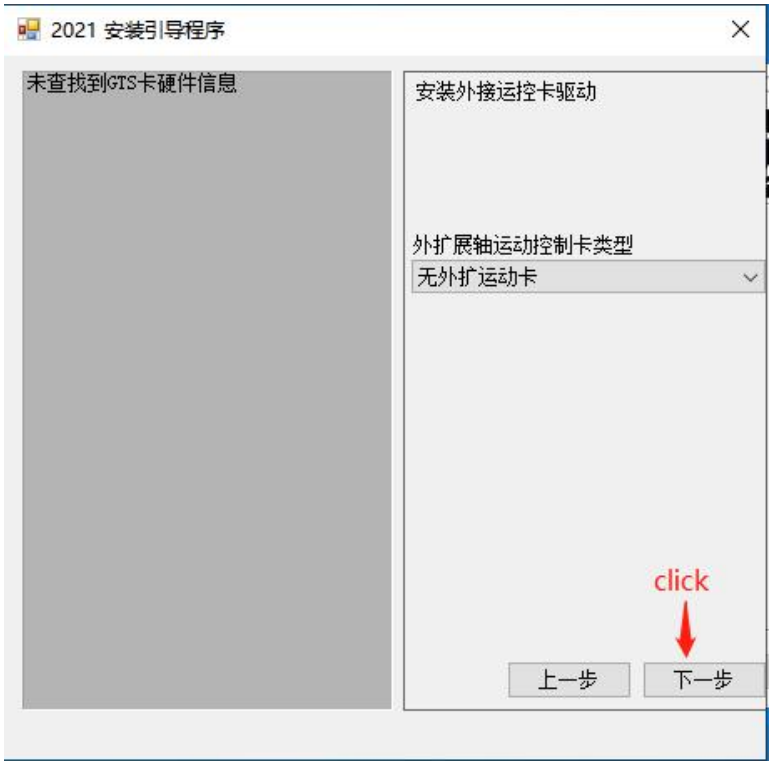
15.

设备驱动程序安装向导
欢迎使用设备驱动程序安装向导!
此向导帮助您安装软件驱动程序。没有这些驱动程序，有些计算机设备无法运行。
要继续，请单击“下一步”。
click
< 上一步(B)
下一步(N) >
取消

16.

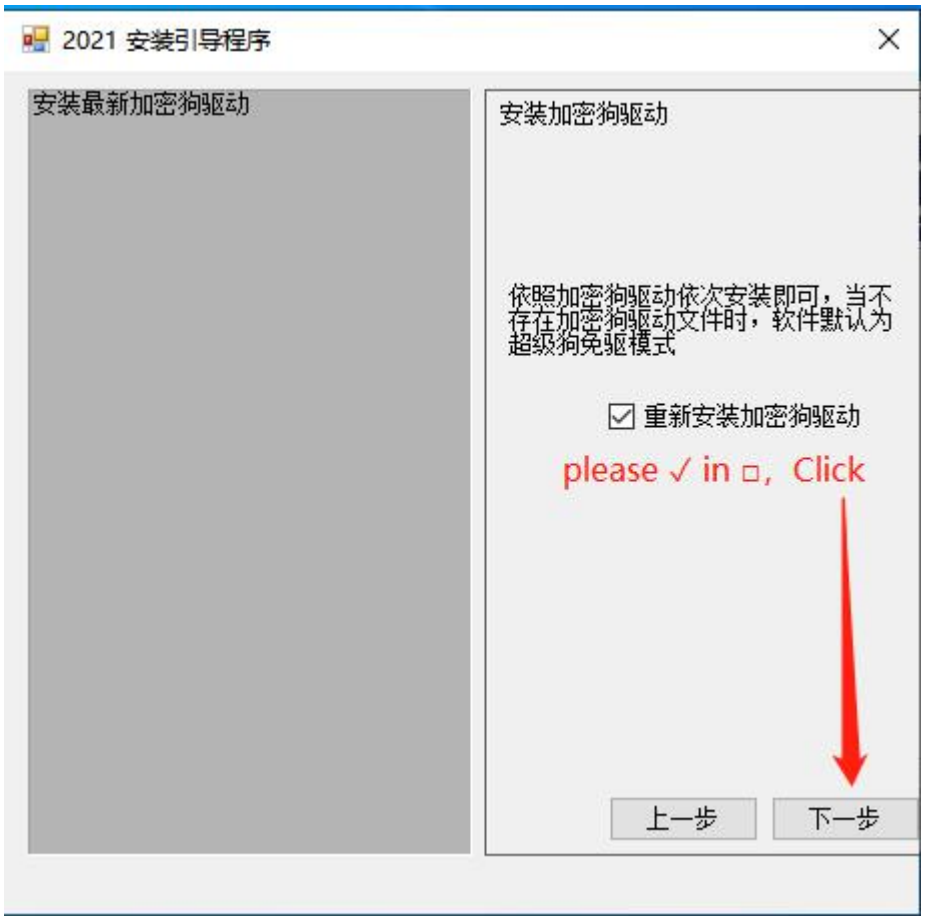


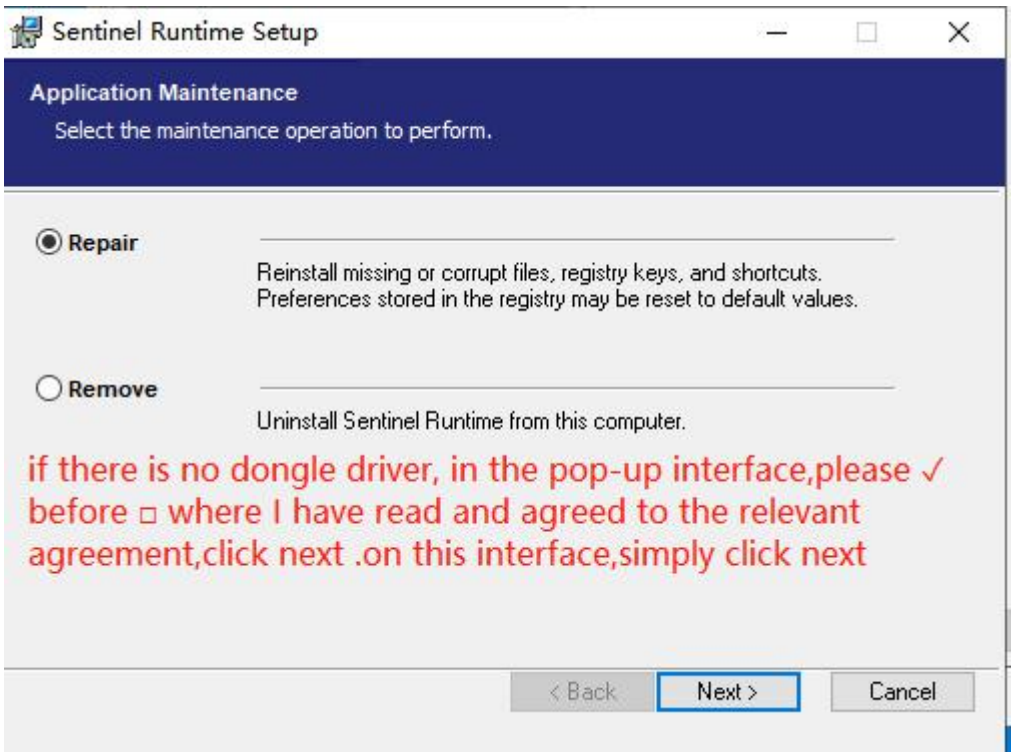
17. Install the motion control card driver, select different cards, and click 下一步 (if you do not need software to control the axis, default selection, directly click 下一步).



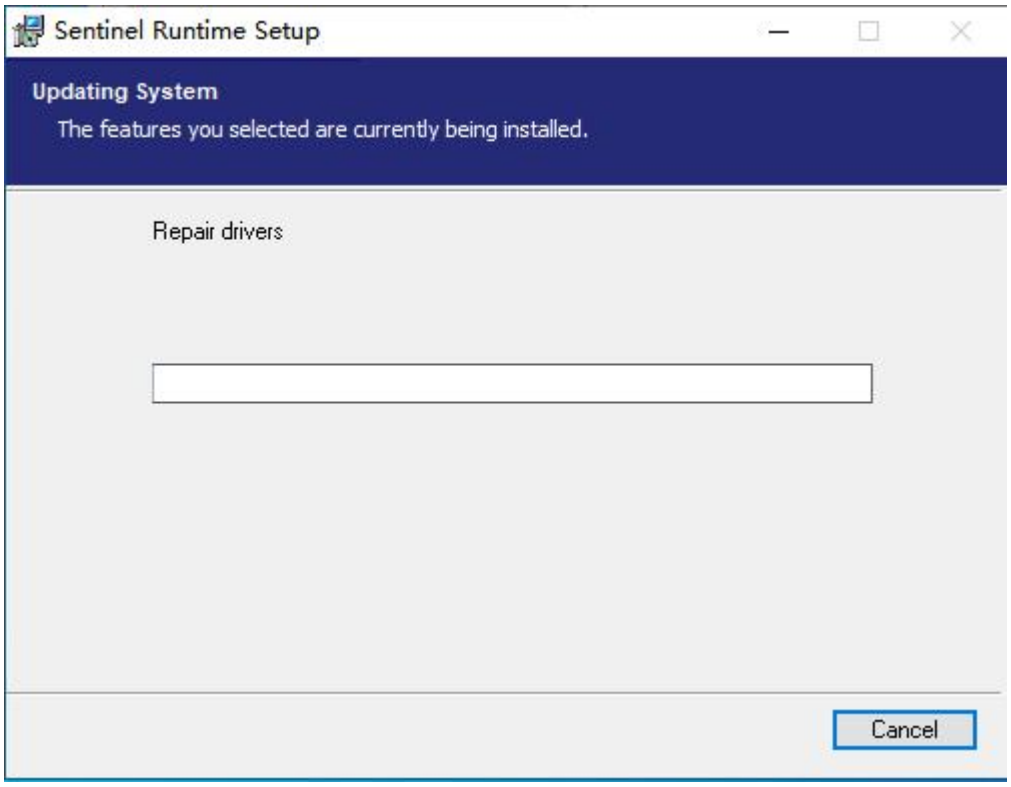
18. If this computer has never installed this software before, please follow the following steps

until the dongle driver is installed.If you have previously installed the dongle driver, clicking 下一步 will bring up the following interface.

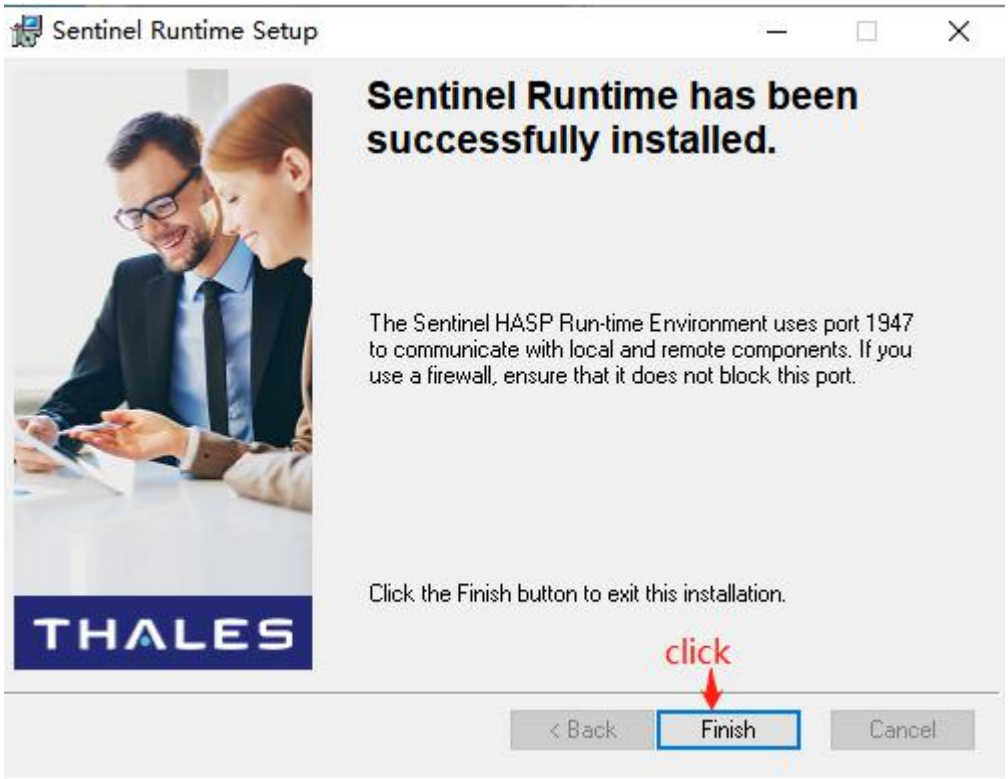




19. Waiting for the installation of the dongle driver to be completed.



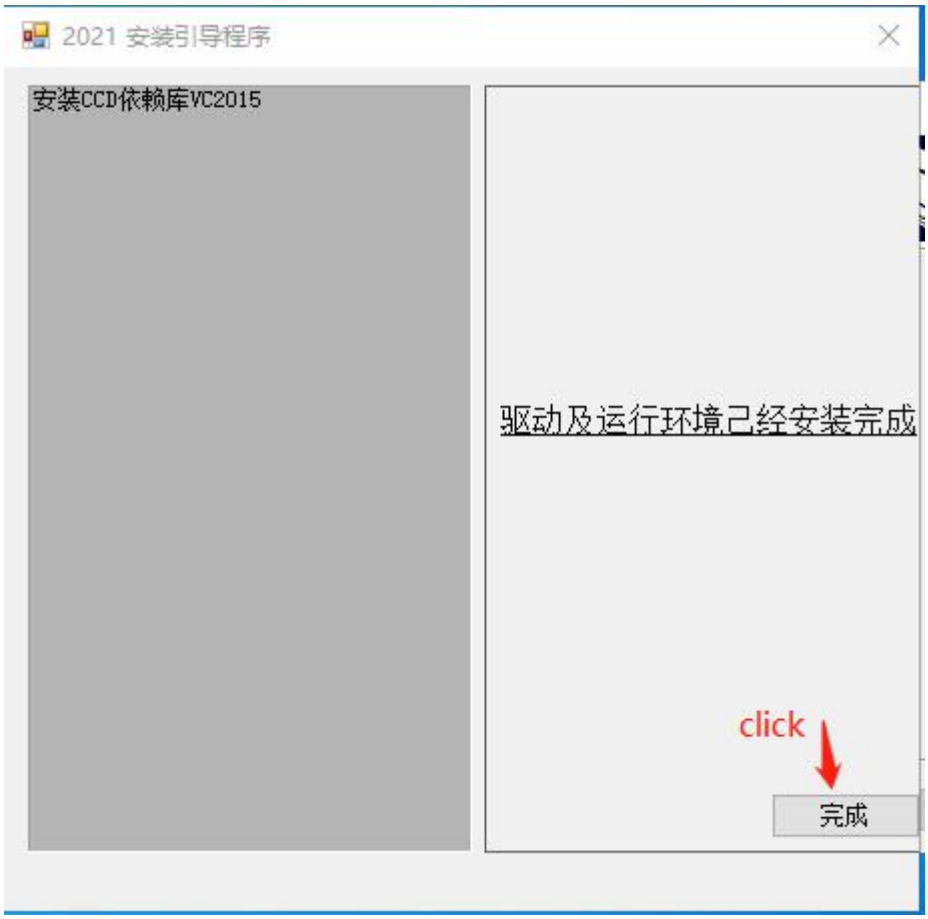
20. After the installation is completed, click Finish.



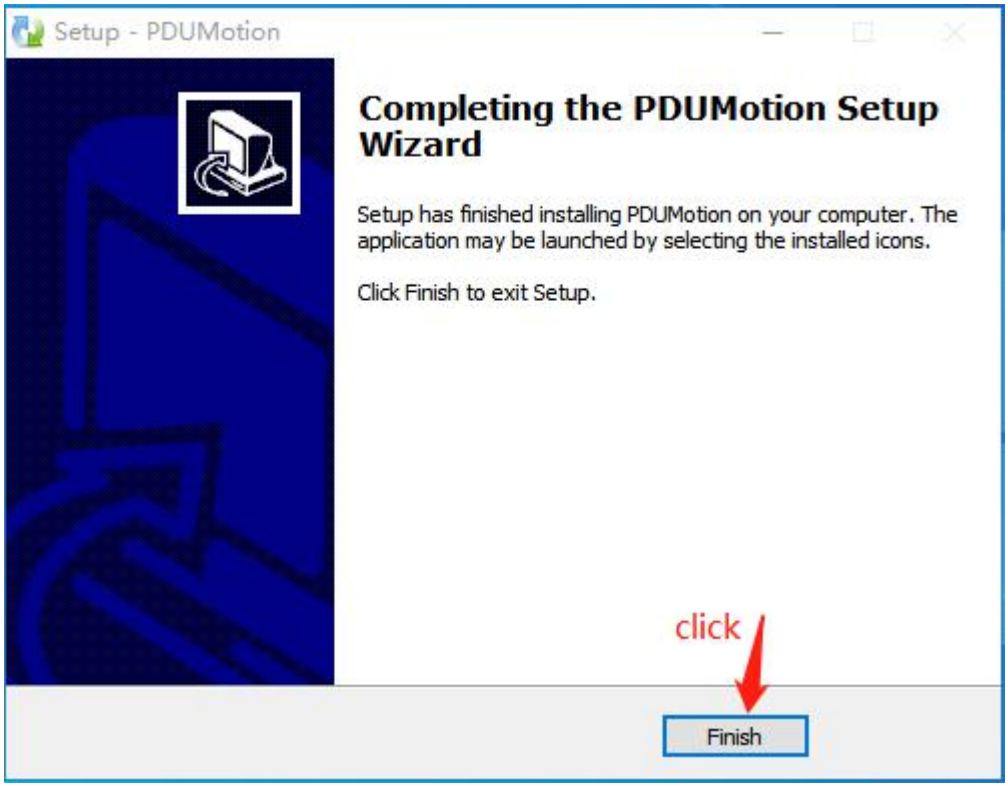
21. Install the visual dependency library, click "Next", and then proceed with the installation (without visual support).

2021 安装引导程序
安装CCD依赖库VC2015
安装依赖库VC++
VC为算法依赖库，如果安装失败，请手动安装或重装系统
重新安装VC运行库
please ✓ in □, click
上一步
下一步

22.



23. Click Finish to complete the software installation.

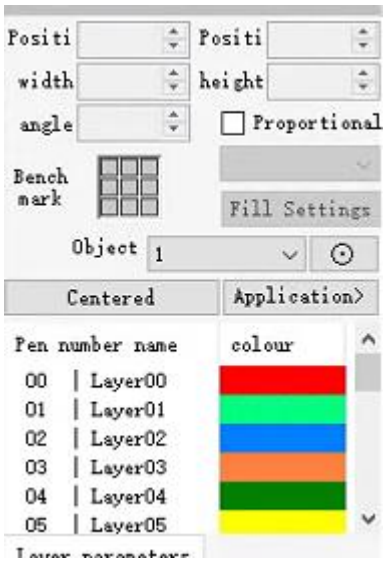


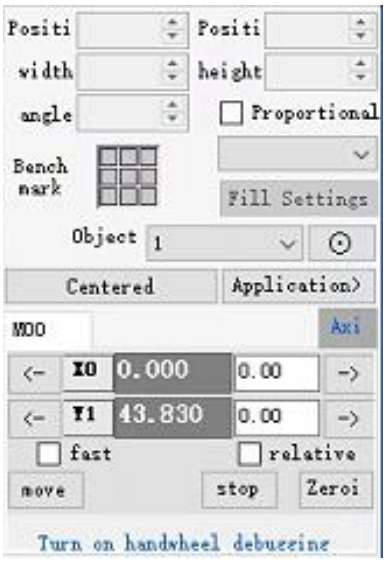
2.2. Problem investigation

Error code	Solution
H0007	No encryption dog
H0033	Dongle driver not installed
H0031	Wrong encryption dog model
H0041	The software has been infected. After antivirus, reInstall the software and replace the ini folder
H0042	Installing a dongle driver
H0027 or the encryption dog is disconnected	Remote operation requires opening the software in advance before enabling remote operation

Here is an example of a pop-up window without a dongle inserted:

When the motion control card fails to open, the software interface will not display the motion axis control menu.

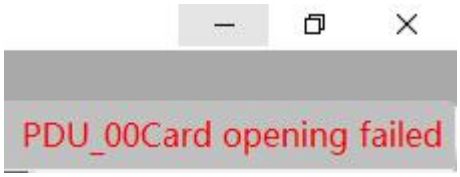


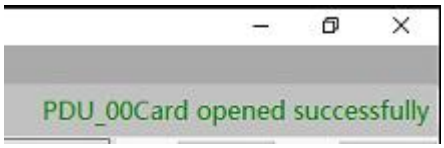


Failed to open the motion control card	
Check if the hardware connection is normal	Troubleshooting hardware connections
Check if the driver is installed correctly with the fixed high card	Reinstall the driver
PDS card checks if network connection is configured correctly	Reconfigure the network port IP corresponding to the PDS card, 192. 168. 1. 12
Is the platform sports card type selected correctly for software platform card parameter settings	Reset the platform control card type, tool ->platform Sports card settings

Note: If both the driver and IP are normal, refer to 7.2

When the laser card fails to open, there will be a red font prompt in the upper right corner of the software.





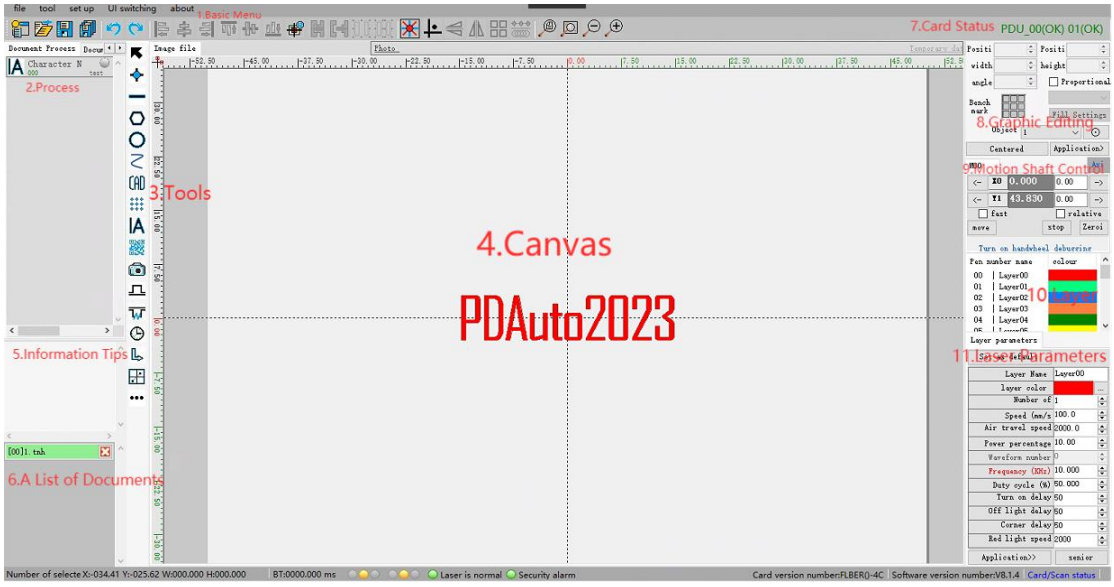
PDU series laser control card failed to open	
Check if the hardware connection is normal	Troubleshooting hardware connections
Check if the PDU series laser control card driver is installed correctly	Reinstall the driver, locate the CCDVER test 7.4\Drivers\PengDin path in the root directory of the marking software, and then select the corresponding driver for USB or PCIE. (If the

	driver has been installed before, it needs to be uninstalled before installing a new one)
Software PDU_ Is the patch selection for the 1000 library version number correct	Re select the card library version, find the CCDVER Test 7.4\Drivers\PDU card library path in the root directory of the marking software, then select the corresponding driver for V3 or V6, select all files in the folder, copy to the root directory of the marking software, and replace the original files.

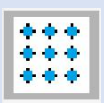
3. Software interface and tools

3.1. Interface layout

1. The basic menu is a software system level setting that includes visual, camera, laser, BOX 2, correction, platform motion card, IO, and other settings functions;
2. Marking process bar: edit marking tool parameters and sort processes;
3. Marking toolbar: Contains tools such as graphics, bitmaps, CAD, CCD, etc;
4. Canvas: display graphics;
5. Information prompt bar: displays marking information and CCD information;
6. Document list;
7. Connection status of the galvanometer card;
8. Graphic editing: edit the size, position, and fill of process objects;
9. Control axis movement;
10. Process object layer;
11. Laser parameters: Adjust the laser marking process.



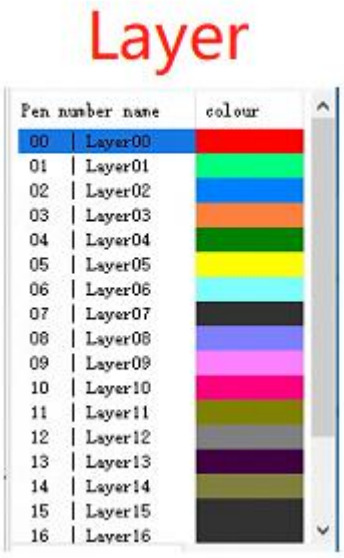
3. 2. Legend

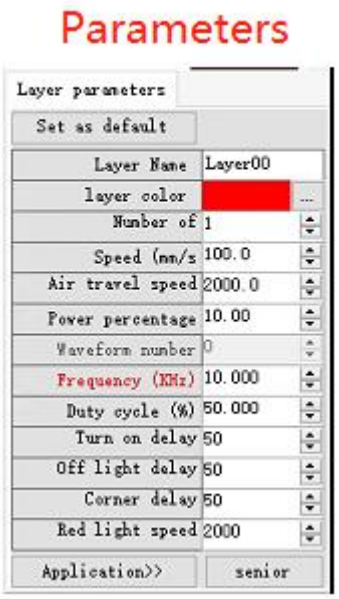
Legend	Tool	Instructions
	Point	Click on the "single point" icon, determine the location of the point on the canvas, and then click the left mouse button to display a "point" object.
	Line	Click on the "Line" icon, click the left mouse button on the canvas to determine the starting point of the line. Move the mouse and click the left mouse button again to determine the endpoint of the line. Click the right mouse button to "complete"; If you need to draw a continuous curved line, just click the left mouse button multiple times.
	Polygon	The default is a rectangle. Click the icon to select other polygonal shapes
	Circle (arc)	The default is a circle. Click the icon to use other arc drawing tools
	Array point	Click on the "Array point" icon, determine the position of the array point on the canvas, click the left mouse button, and a pop-up window will appear. In the pop-up window, set the number of rows and spacing of the array point.

	Character	Edit character text to enable text variables such as serial number, date, time, serial communication, network communication, etc
	QR code	Select bar code type (one-dimensional code and two-dimensional code) and set the code content
	CAD	Import completed CAD drawings, currently available in .dxf, .plt format files
	BMP	You can import images in .bmp format.
	Delayed	Marking delay tool.
	Platform motion	Set the platform motion position (X, Y).
	Mark	Mark a Mark point.
	SCR	Edit SCR
	Altimetry/bar code	Used for height measurement compensation Z-axis or triggering code scanning gun code scanning, Debugging is similar to a serial assistant
	Event variables	General script or custom variable usage
	Marking rectangular ROI	Only execute the graphics inside the box selection section, not outside the box selection
	Flight settings	Used during flight marking
	Call Sub document	Call other documents while executing this document
	Coaxial CCD breadth	Take multiple photos with a deflection mirror or mobile platform, then splice the images and display them on the canvas, making it easy to see the entire product image

	Array photography	Take multiple positions at once to record the corresponding offset, and then hit the corresponding positions with light (recommended for use in multiple product placement rules)
	Laser following	Follow the light when the axis moves (currently only in a straight line)
	Run	Run the current document, shortcut key F6
	Teach	Move the galvanometer through the mouse and keyboard, find the position to be welded, and generate points at the corresponding positions on the canvas
Note: The first time you click on a tool, a tool editing pop-up window will pop up. When the tool has been added to the process bar, double-click on the tool in the process bar to edit it again.		

3.3. Layers and Parameters





1. Number of processing: represents the number of repeated processing times

2. Speed: indicates the speed of processing. Under the same conditions, the faster the speed, the lower the laser energy density acting on the surface of the work piece being processed, resulting in insufficient laser energy, and vice versa.

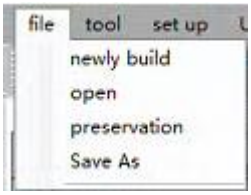
3. Idle speed: refers to the speed at which a solder joint jumps to the next solder joint after welding is completed.

4. Power percentage: The total power of the laser multiplied by the power percentage is the maximum peak output power of the laser.
5. Waveform number: Call the built-in waveform of the laser (applicable to some lasers)
6. Frequency: Refers to the number of times light is emitted in one second, and the larger the number of times light is emitted, the greater the laser energy output (the matching relationship between frequency and built-in pulse width, power, and other corresponding limitations is shown in the figure below)
7. Duty cycle: NA, only valid for continuous lasers.
8. Red Light Speed: The speed of the red light preview
9. Built-in pulse width: Click Advanced to enter, see 3.11 to see the built-in pulse width. The larger the pulse width, the greater the single point energy.
Parameter correspondence:
Peak power=total laser power * power percentage
Pulse width * peak power=single point energy
Single point energy * frequency=output power
Output power/speed=power density

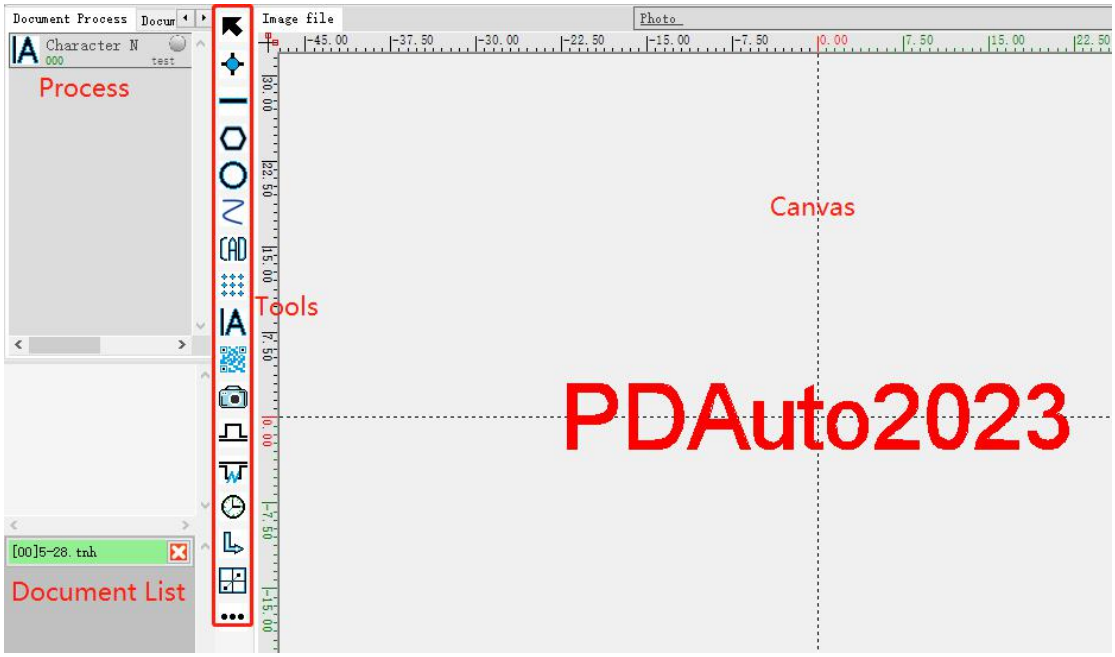
Explanation: Each layer corresponds to a set of laser parameters, and we can also change the name and color of the layer in the parameters. Click on the name of the layer, and the parameter bar will display the layer name, color, and corresponding parameter data of the current layer. The parameter data includes processing number, processing speed, power, etc. After changing the parameters, click Apply to save the parameters to the current layer.

3.4. Creating and Running Documents

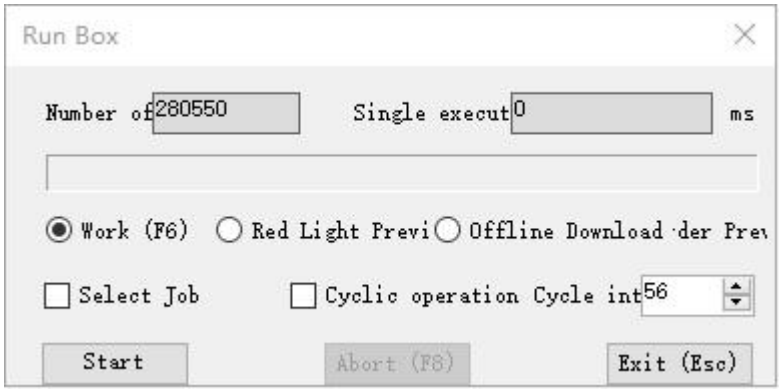
Note: Without creating a .tnh document, the scanning tool cannot be used
a.Open the software and create a new .tnh document



b.Use the tools on the toolbar to create the process, as shown in the following figure

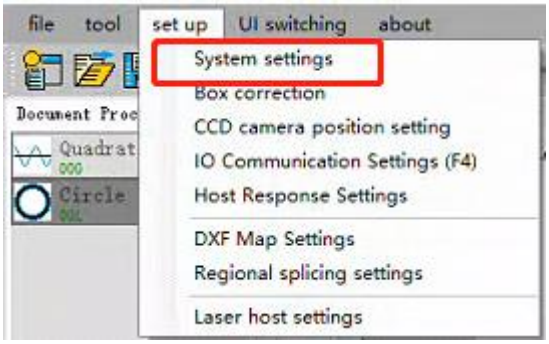


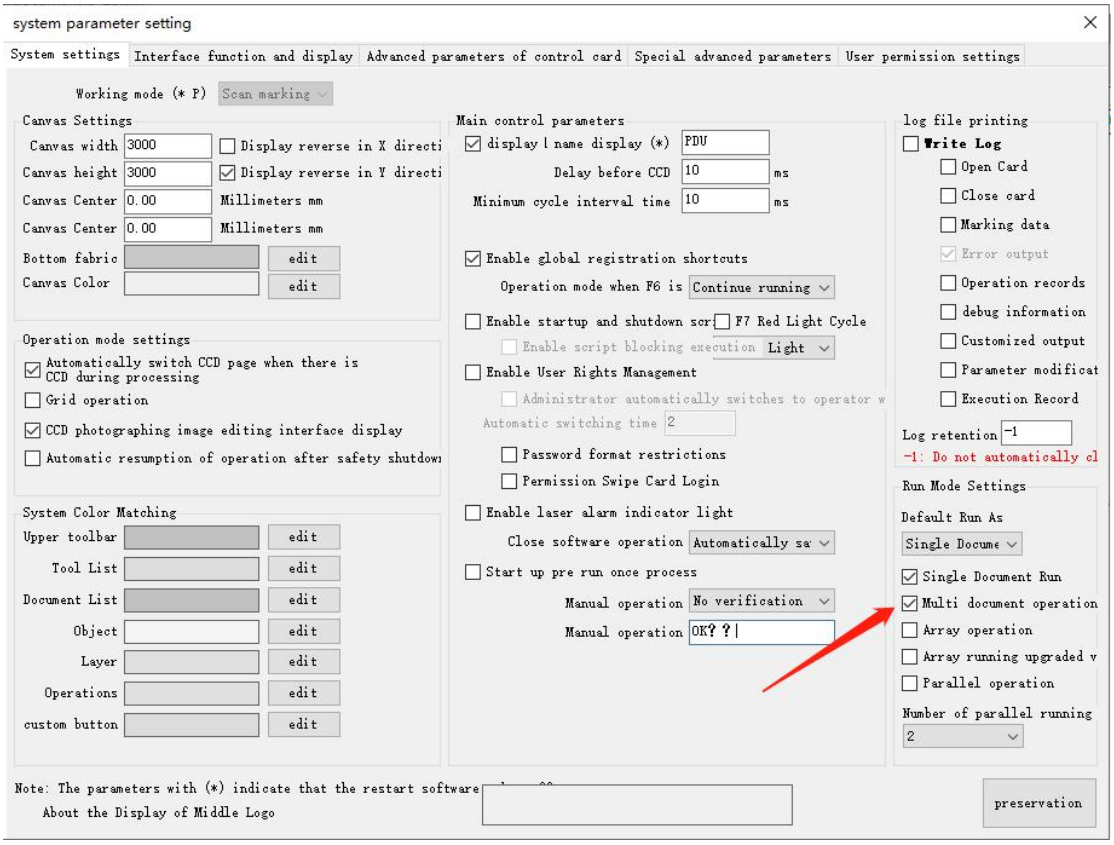
c.Running documents; Click the Run button or press (F6) to pop up the Run box, where you can choose the mode for running the document. The "Work Mode" laser will emit light, while the "Red Preview" laser will not emit light. Only the red light will run. In the "Select Work" mode, only the selected tool on the canvas will be executed



3.5. Run multiple documents

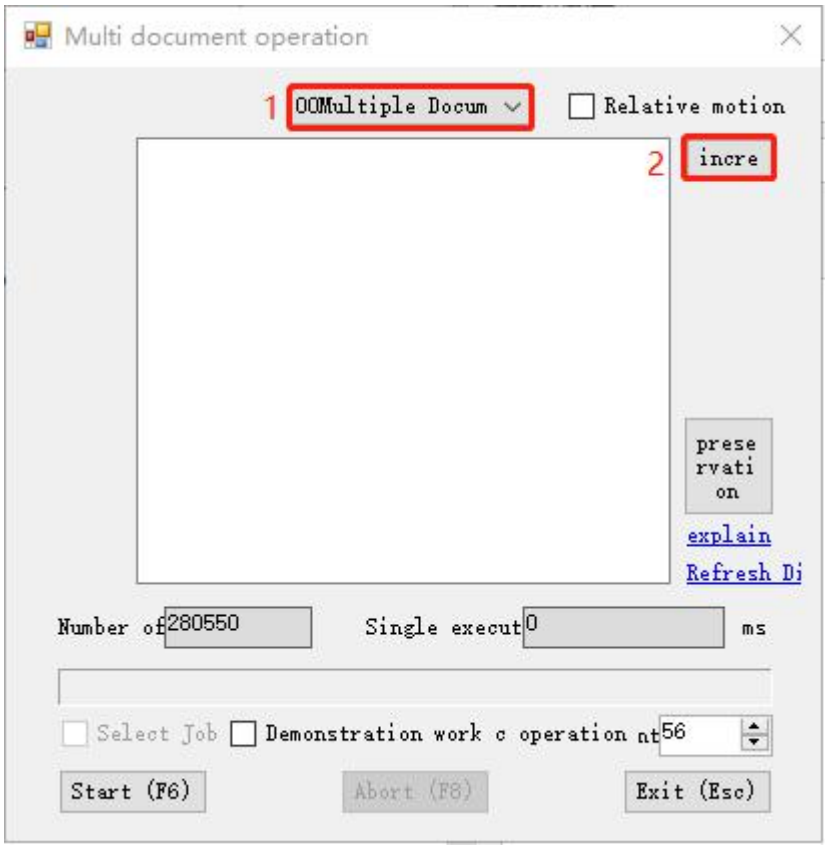
a.Open the "Multiple Document Run" function in the system settings; Set the system settings to check "Multiple Document Run" and click "Save" to exit;



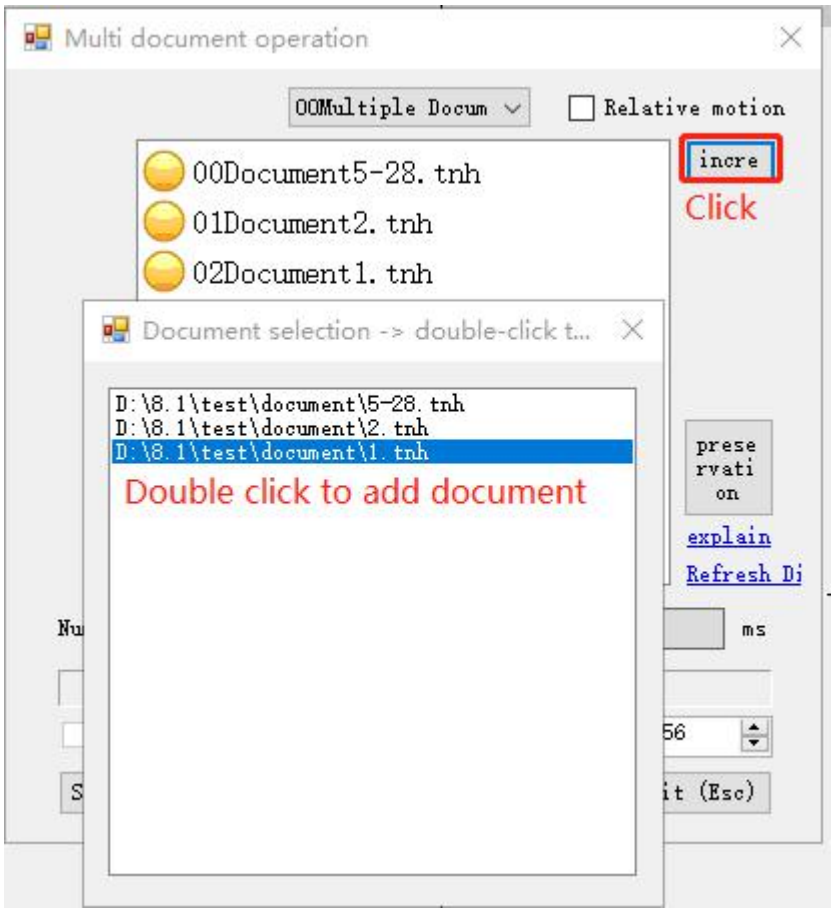


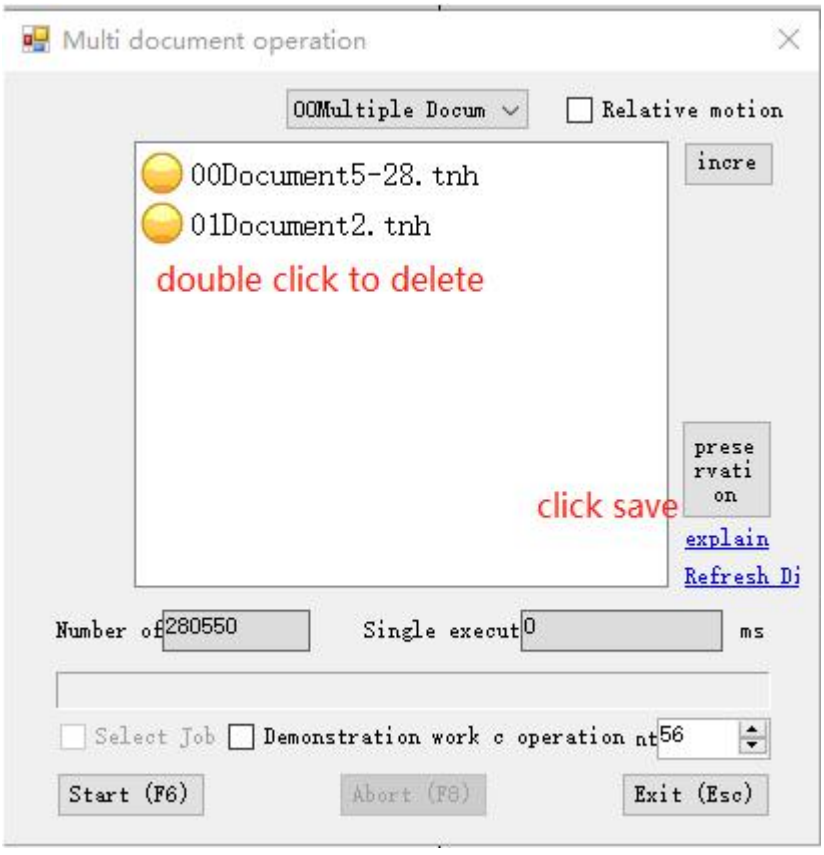
Click on the "Multiple Document Run" button to pop up the "Multiple Document Run" box;

Click to select multiple document sequences, and then click the "Add" button to add documents

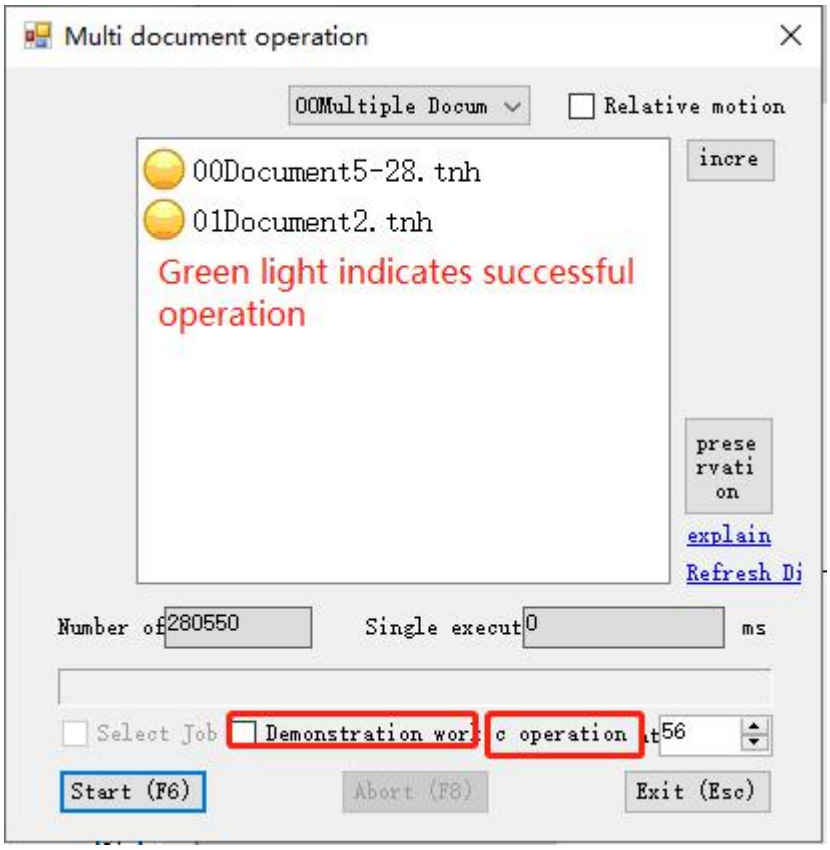


Click the "Add" button, double-click on the document in the pop-up window to add it. After the document is added, close the pop-up window; If you need to clear excess documents, double-click on the document in the multiple document sequence to clear it; Click Save to save the current multiple document sequence;


Multi document operation
00Multiple Docum
Relative motion
incre
Click
00Document5-28.tnh
01Document2.tnh
02Document1.tnh
Document selection -> double-click t...
D:\8.1\test\document\5-28.tnh
D:\8.1\test\document\2.tnh
D:\8.1\test\document\1.tnh
Double click to add document
prese rvati on
explain
Refresh Di
ms
56
it (Esc)

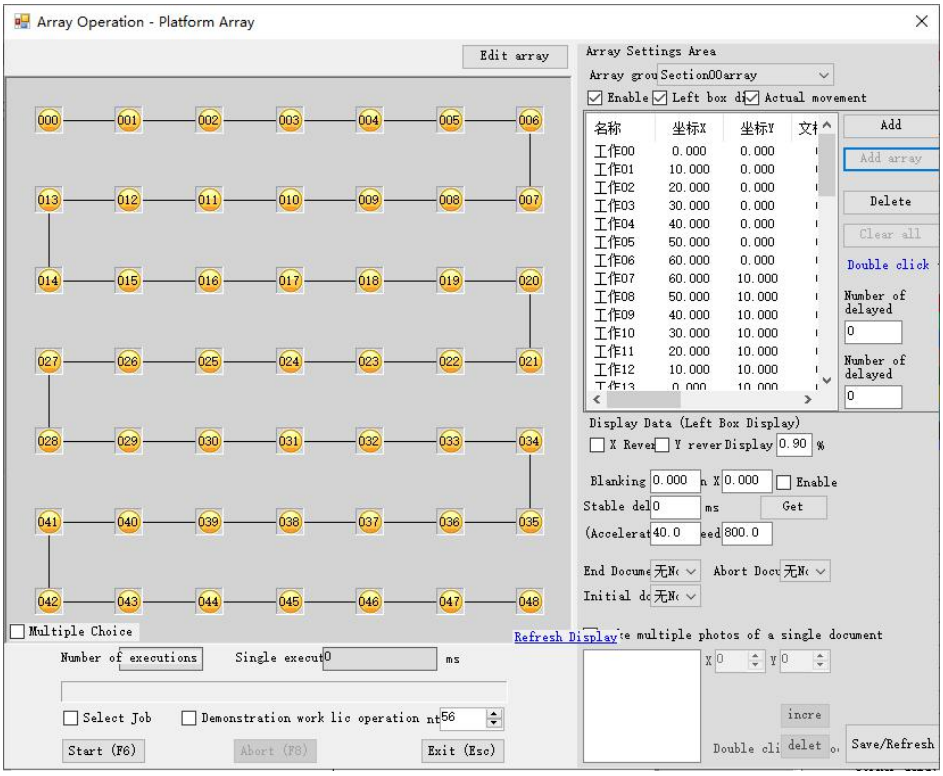

Multi document operation
00Multiple Docum
Relative motion
incre
00Document5-28.tnh
01Document2.tnh
double click to delete
click save
prese rvati on
explain
Refresh Di
Number of 280550
Single execut 0
ms
Select Job
Demonstration work c operation nt 56
Start (F6)
Abort (F8)
Exit (Esc)

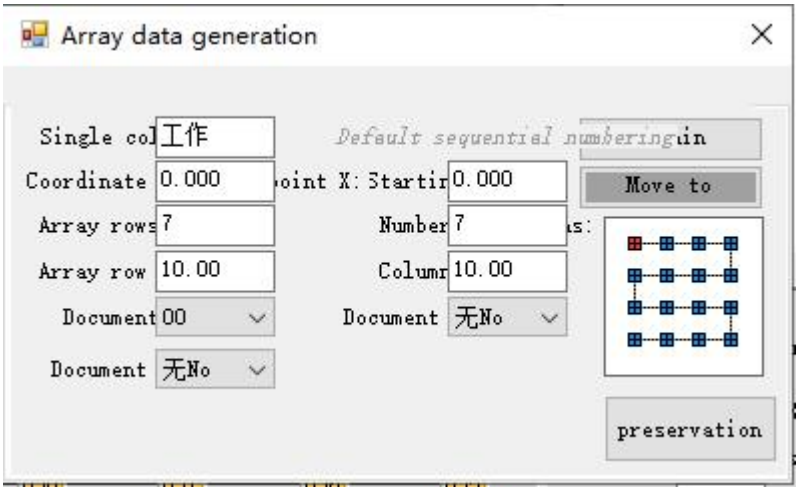
The "demonstration work" laser does not emit light and will perform red light work, while the "loop work" document will be executed in a loop;



3.6. Array operation

Function	Legend (Explanation)

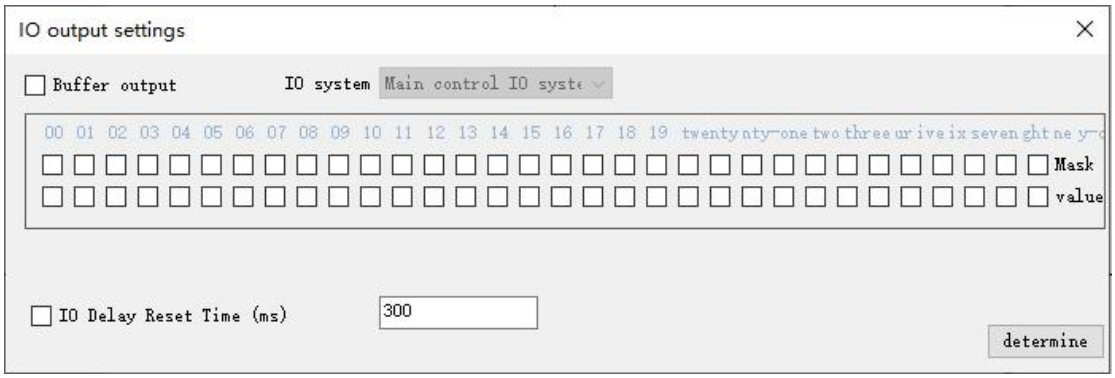
The manual or IO signal triggering method executes the machining process according to the edited platform trajectory.	 Tick the 'Enable' option to enable the trajectory completed by the current editing; Checking the "Left Box Display" option indicates that the position and running trajectory of the current array will be displayed. The white area will display the coordinates of each station in the current array and the document number used (the document number is the document in the bottom left corner of the software, counting from o. Multiple documents can be typed in the same position); Array group numbers can store different edited trajectories. When switching array group numbers, be sure to remove the "Enable" option from other array group numbers and only check the "Enable" option for the current edited trajectory array group number. In the white area, select a group of data to delete the selected data individually. Double click on a single group of data to modify its basic properties. At the same time, click Clear All Data to delete the entire array parameters;
Add individual data	When the workplace is irregularly distributed, it can be added by adding individual data.

Add array data	 When the work location is arranged in a regular manner, it can be added by adding array data. Set the number of rows and columns according to the actual situation, and set the row height and column width according to the actual situation (positive and negative values can be set according to the actual movement direction of the axis); Click to refresh the array operation trajectory, click Save to see the execution trajectory in the array operation interface, select the trajectory to save and exit; The document number is selected as the serial number (starting from 00) in the document list. When each workstation needs to execute two processes, document number 2 can be added (note: in array data, the first document is executed from 000 until the last workstation in the array, and after the execution is completed, the process in document number 2 can be executed from document number 000)
Delete selected data	Select a single data deletion
Modifying Array Data	Select a single data to modify
Clear all data	Clear all generated array data for the current array group number
Blanking position	Enable the unloading position. After the work is completed, move to the unloading position and set the stable delay, speed, and acceleration appropriately;
End Document Number	After the array runs, execute the process in the end document
Abort Document	When there is a manual termination signal during the operation of the array, the termination document will be run immediately;
Initial Document Number	Before the array runs, execute the process in the initial document first;
Select Work	When checking multiple options, multiple array positions can be selected and the process at the selected positions can be executed in sequence of serial numbers;
Demonstration	Red light preview work

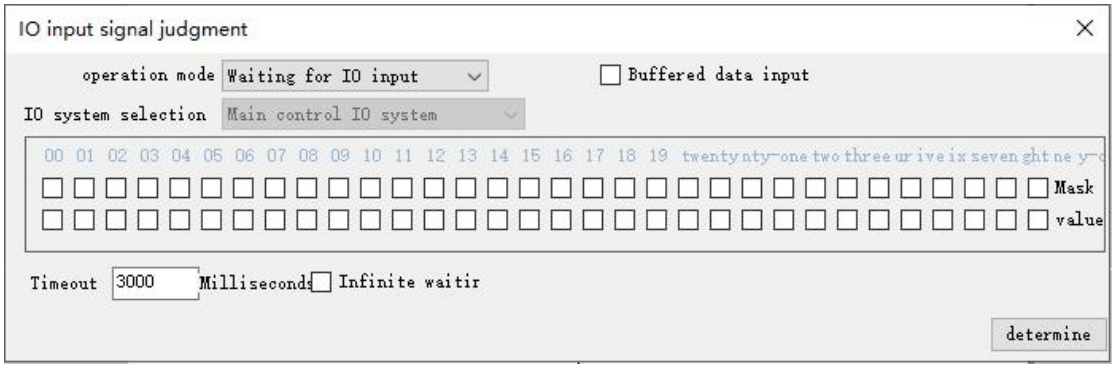
Cycle Work	Circular operation array;

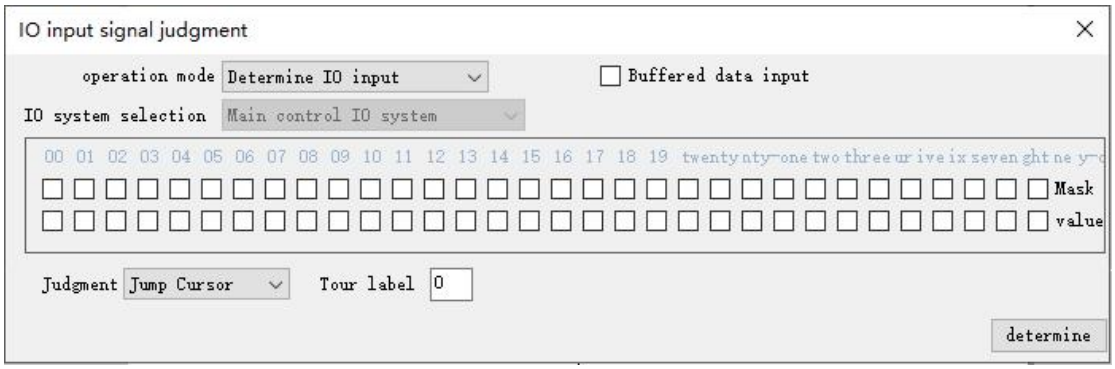
3.7. IO OUT Or IN

IO output tool. Double click on the icon to add an IO output tool to the document process. The following figure shows the output settings interface. If the document needs to be downloaded offline, you need to check "Buffer Output". In the IO system selection, you can select "Main Control IO System" and "Auxiliary Operation Control IO System". IO output number 8 shown in the figure. If you need to output a set of IO signals, check multiple IO (both the marking card and the operation control card are valid at low levels, just check "mask"). You can also use the "IO Delay Reset" function to automatically reset.



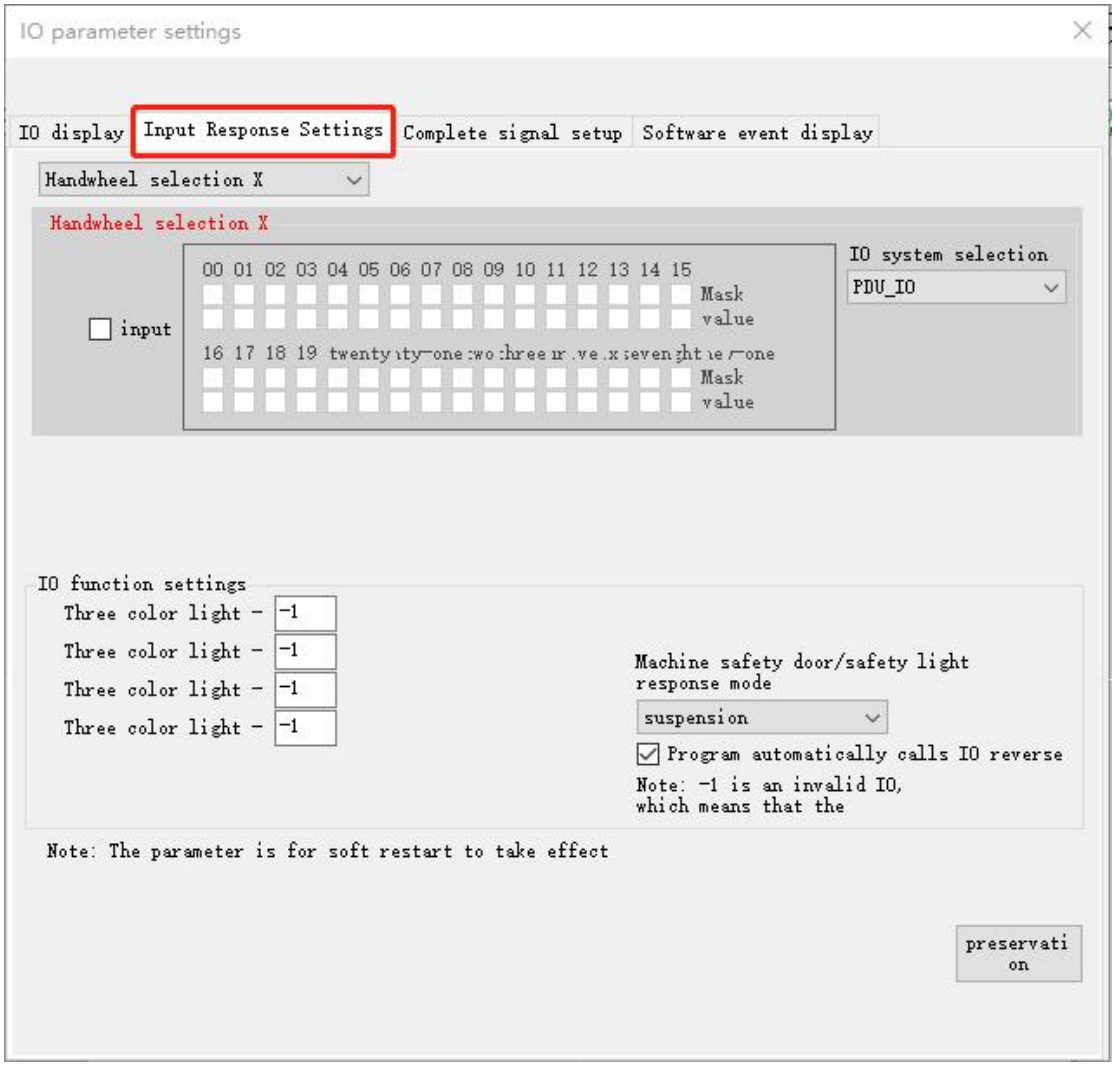
IO input judgment. Double click on the icon to add an IO input judgment tool to the document process. The following figure shows the output settings interface. The working mode can be selected from "Waiting for IO Input" and "Judging IO Input". The following is an example of waiting for IO Input No. 8 (valid at low level). If the waiting time is exceeded, the document will terminate. If wireless long wait is selected, the program will continue to wait for IO Input No. 8. Jump cursors can be set in the judgment of IO input.





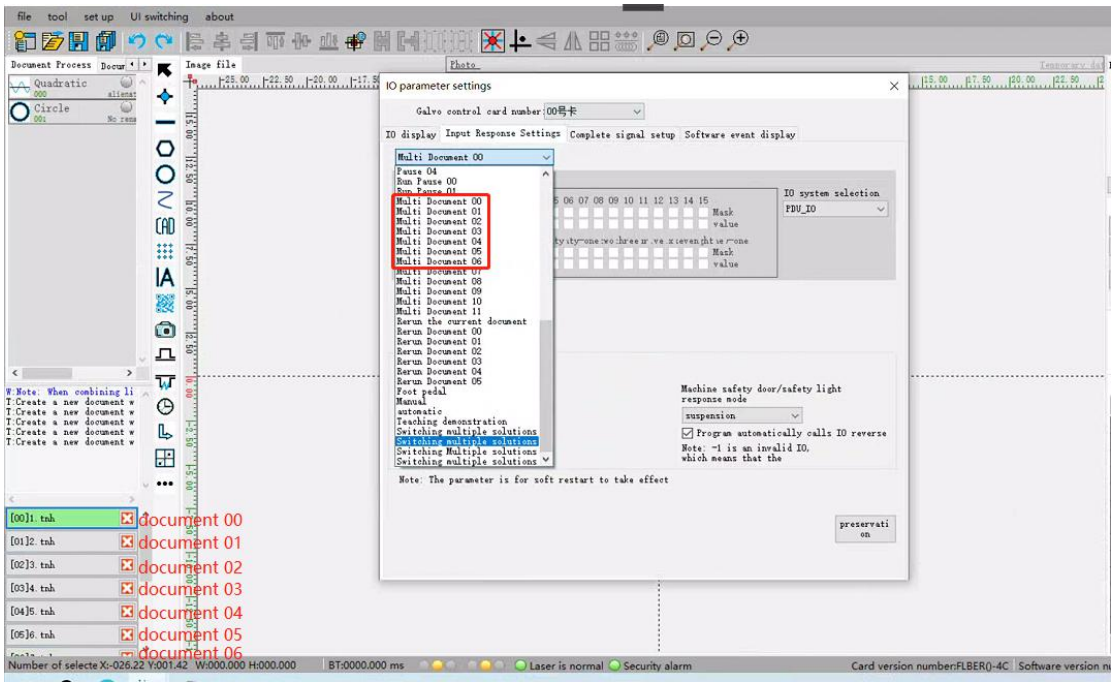
3.8. Multiple Document IO Trigger Run

Open 'Input Response Settings'. set up -> IO Communication Settings(F4) -> Input Response Settings.



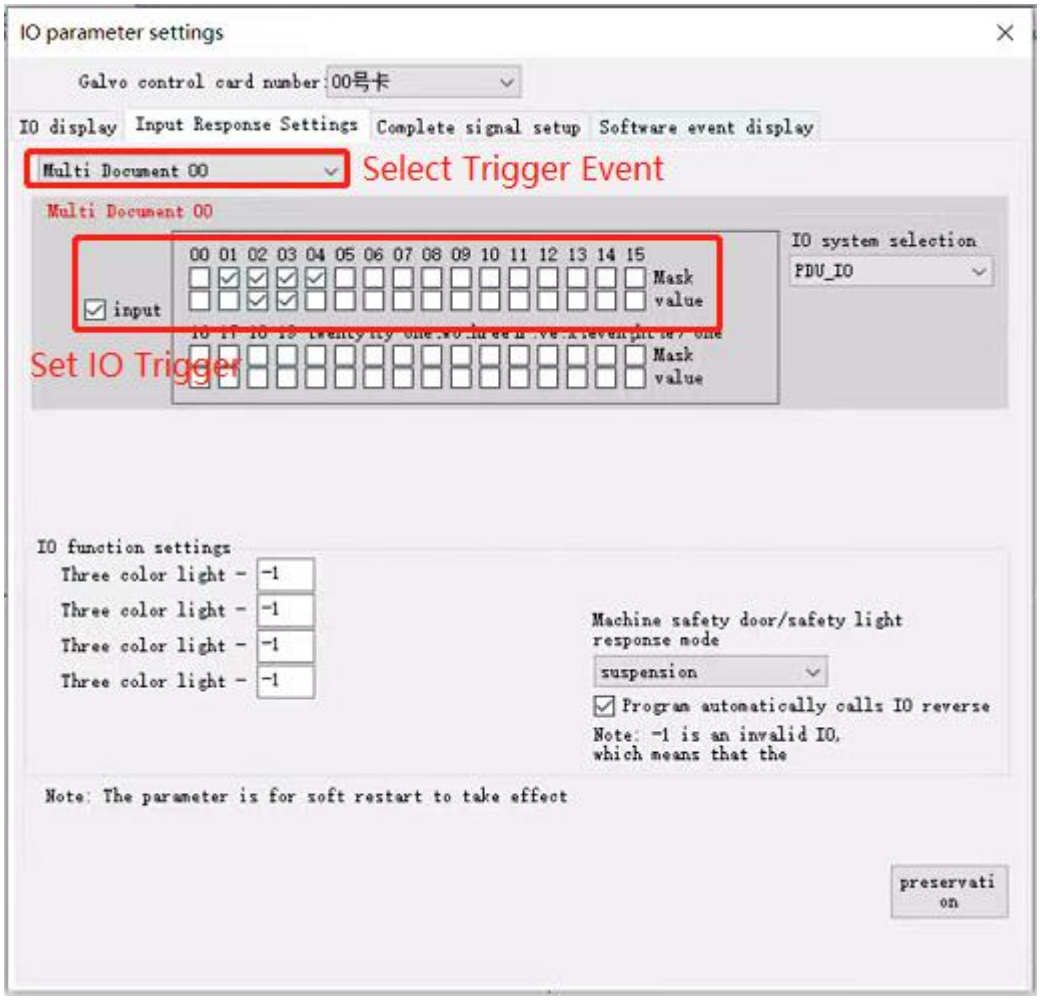
The sequence number sorting method for multiple documents starts from multiple document oo. The first .tnh file in the engineering file list corresponds to multiple document oo, and the

second corresponds to multiple document 01.

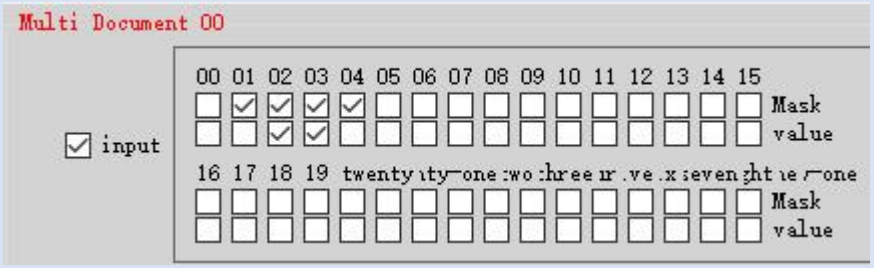
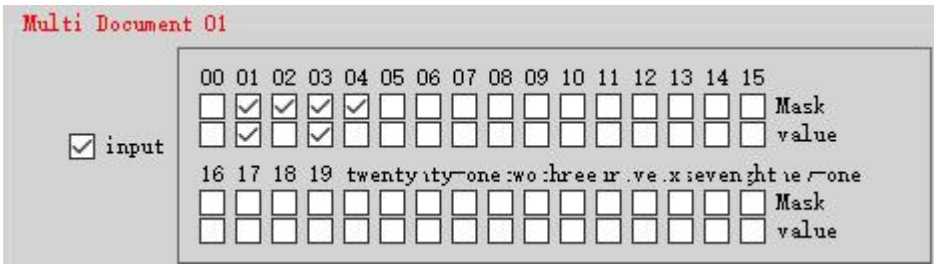


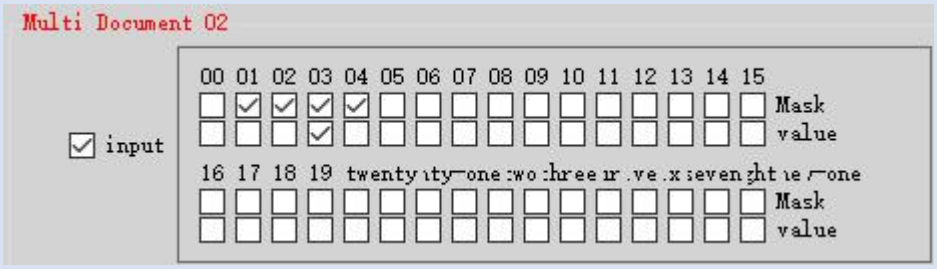
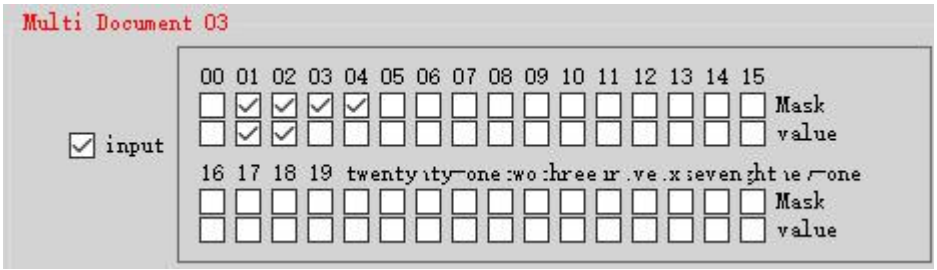
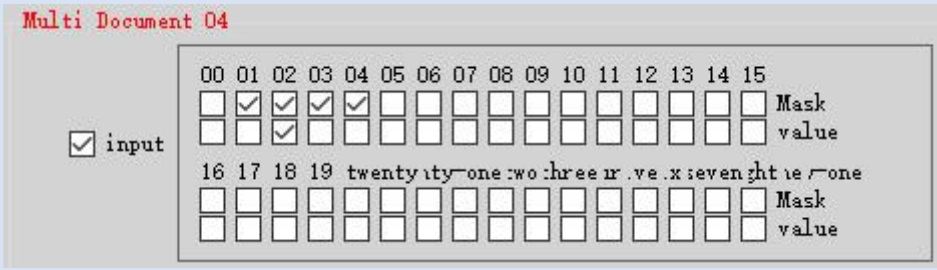
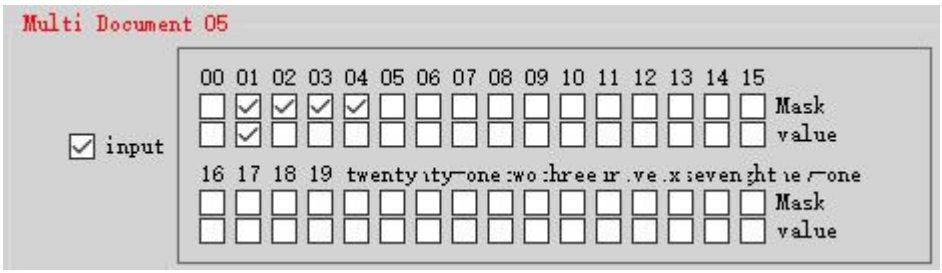
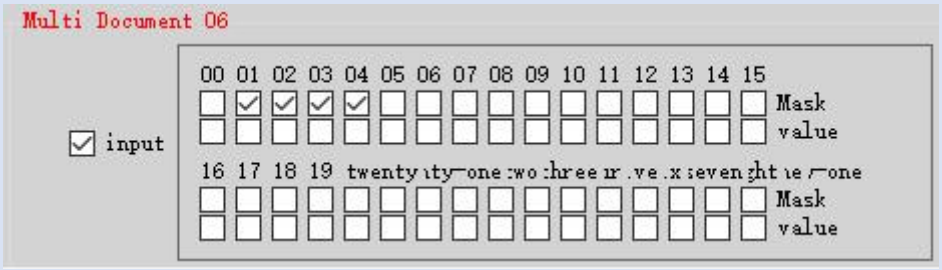
Combined IO input response settings (example):

The combined IO input response is generally used for triggering multiple document operations. Assuming there are four IO input points (01, 02, 03, 04), the low level is effective. Among them, (01, 02, 03) is used for document switching, and (04) is used for triggering operations. It is necessary to trigger 7 multiple document operations. The following is the method for setting "multiple document 00", which can be used to set other multiple documents.



Note: The combination IO setting needs to ensure the uniqueness of each group's IO response and avoid setting it as the initial state of the combination IO

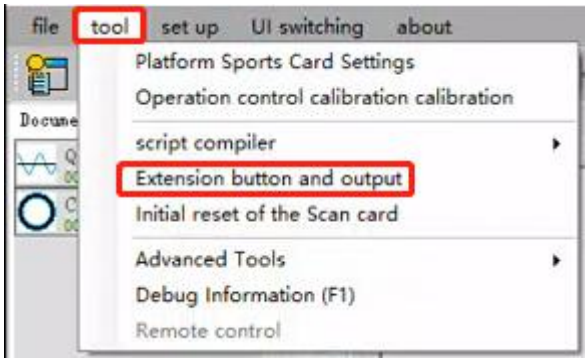
Event Name	IO Input point settings
multiple document 00	
multiple document 01	

multiple document 02	
multiple document 03	
multiple document 04	
multiple document 05	
multiple document 06	

3.9. Extension button

Open the main interface of the function. Tools -> Expand buttons and output, and add, delete, edit, and reorder buttons on the main interface.

(The default sorting of buttons is: top to bottom, left to right)



Delete: Click to select a function, then click 'Delete an object', and then click 'OK' to delete a button.

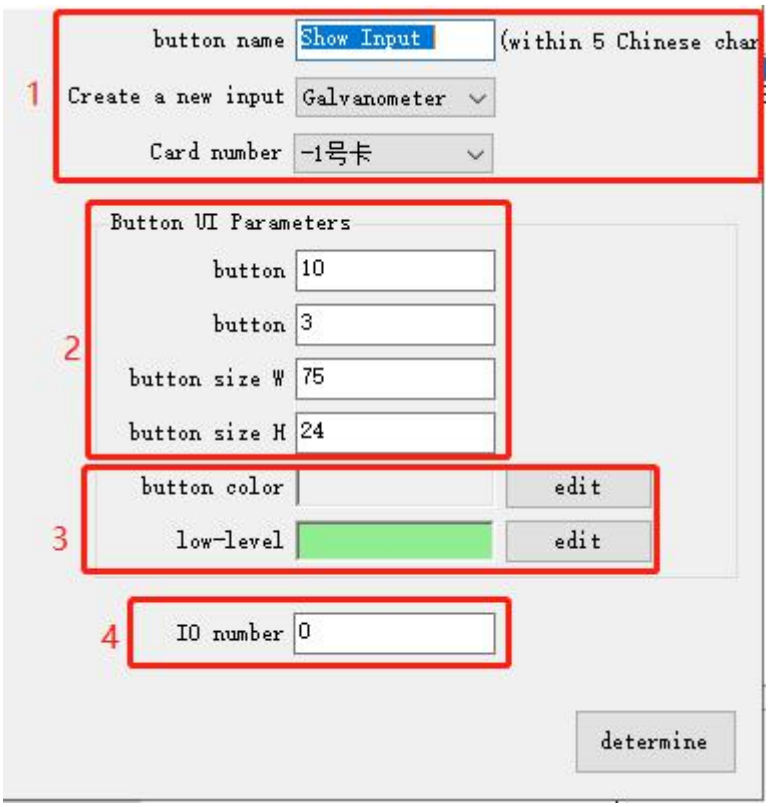
Reorder ranking: If the buttons in the front row are deleted, the buttons in the back will not automatically move forward, and manual ranking is required.

Three new buttons added

Delete the first button (not rearranged)

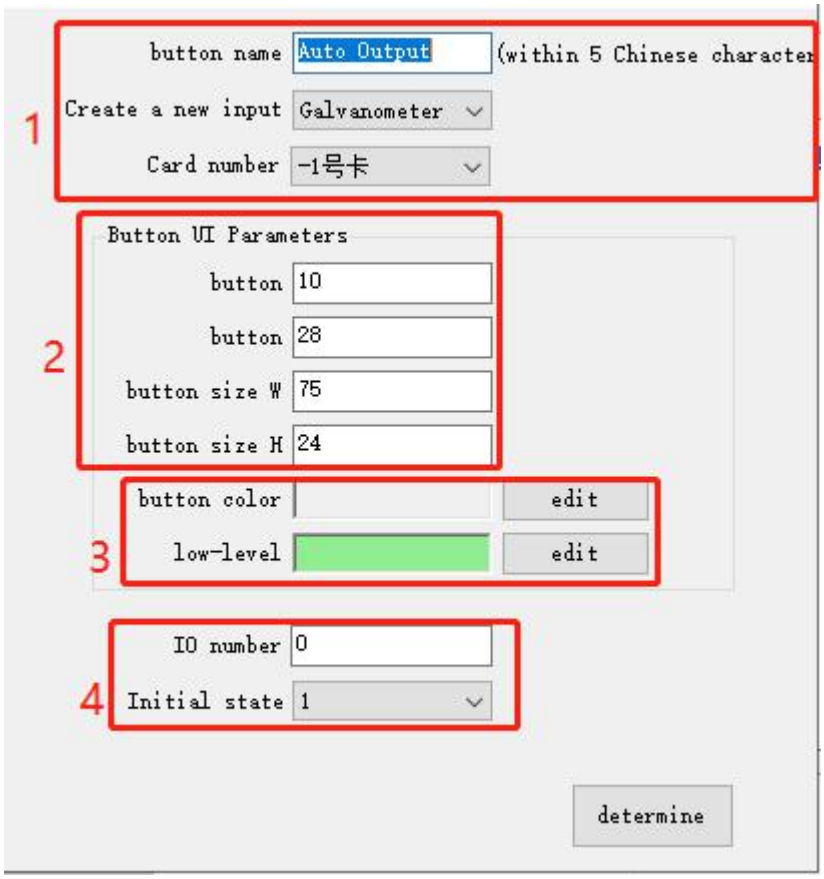
After rearrangement

3.9.1. Input display



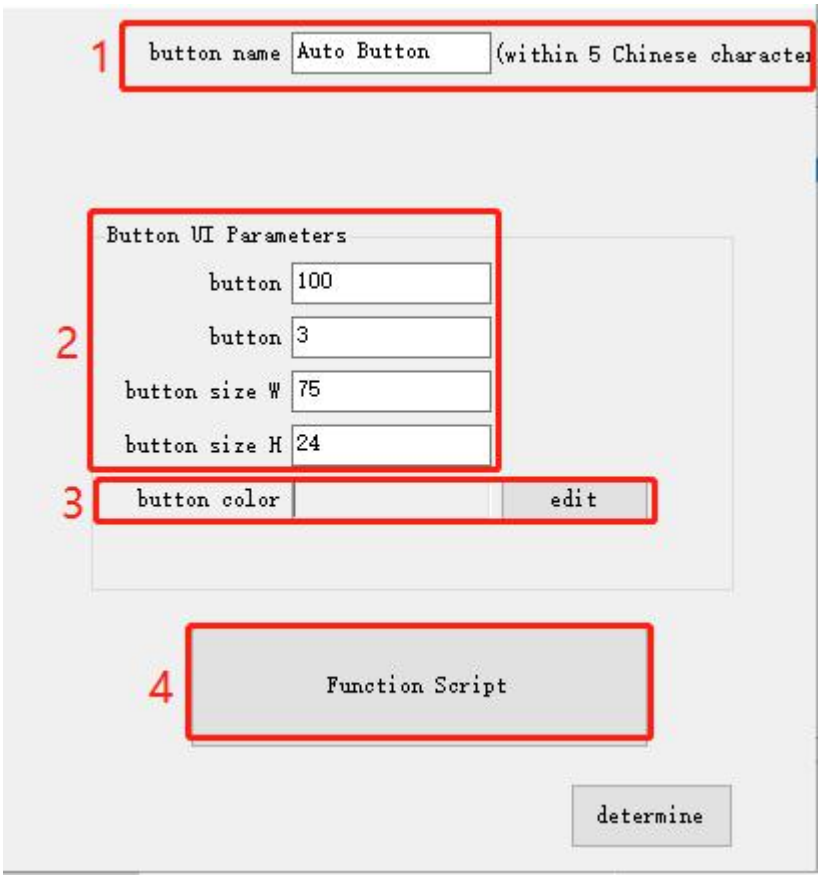
Customize the button name, set the input "main control IO" or "auxiliary control IO", and select the input card number;
Set the button position so that it does not need to be changed by default;
Set the "low-level color" to the color of the button when receiving an IO signal;
Set IO number

3.9.2. Custom Output



Customize the button name, set the output "main control IO" or "auxiliary control IO", and select the output card number;
Set the button position so that it does not need to be changed by default;
Set the "button color" and "low-level color" to refer to the button color and the color of the button when outputting IO signals;
Set IO number and IO status "0" or "1"

3.9.3. Custom Function Button



Custom button name;

Set the button position so that it does not need to be changed by default;

Set the 'button color';

Click on "Function Script" and edit the script content in the pop-up script pop-up window.

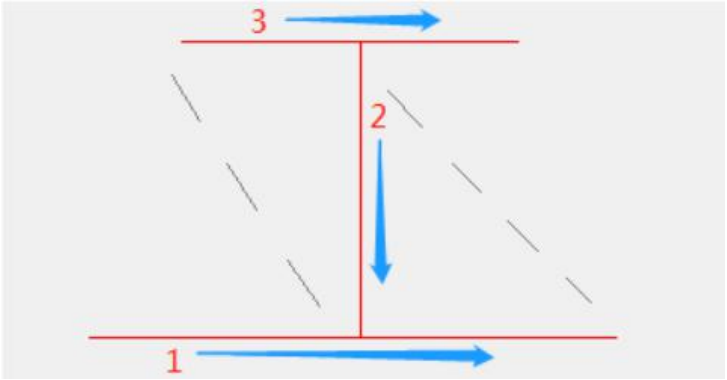
3.10. Laser Workmanship

Why do we need a delay?

Due to the fact that the scanning system is composed of a drive plate, motor, and lens, there is a delay in the transmission of motion signals between these components, and the lens has mechanical inertia, there is an uncertain delay between "marking card control galvanometer" and "true movement of the lens". Due to these uncertain delays, debugging the laser process requires setting five types of delays: Laser on delay, Laser off delay, jump delay, mark delay, and poly delay.

Unified workmanship debugging graphics: In marking practice, the marking graphics generally do not have directionality, making it difficult to diagnose which process parameter is unreasonable when the marking effect is not ideal. Therefore, we can draw a directional graph specifically for adjusting process parameters. Line 1 and Line 3 are used as reference, mainly

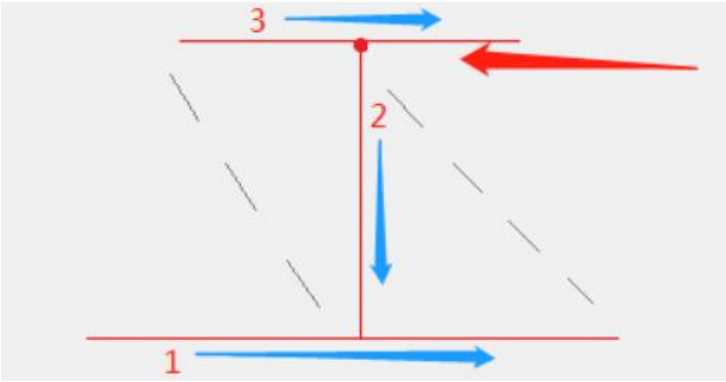
studying the welding effect of Line 2. This group of lines can be roughly drawn according to the required accuracy of the process, and can also be shaped through position and size parameters.



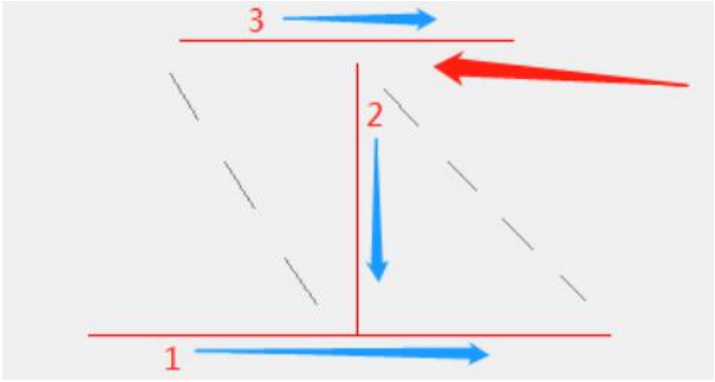
Laser On Delay. Abbreviation: LOnD

The delay of turning on the laser occurs when the galvanometer jumps to the specified position and starts to move, but the laser does not emit light at the same time but after delaying LOnD. This value can be set to a negative value. When set to a negative value, it means that when the galvanometer reaches the specified position, the light will first emit LOnD and then start Mark movement.

When setting the LOnD too small, it can be seen that there is a burst point at the opening point (the reason for this situation is that due to the low starting speed of the scanning and the low LOnD, the light emitted causes the laser to gather at the beginning and cause the burst point).



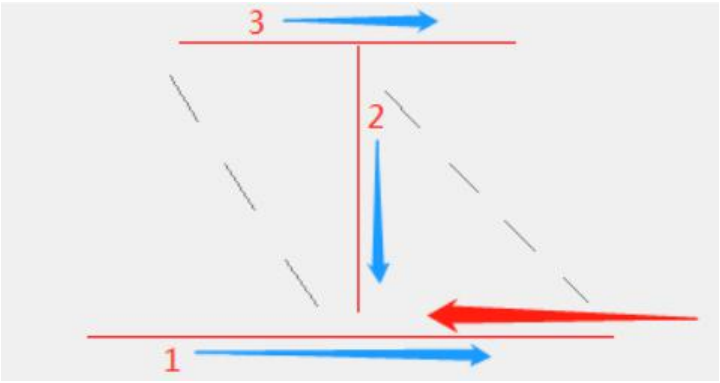
When setting the LOnD to be too large, it can be seen that there is a portion of the light source that has been turned on for a while (the reason for this situation is that due to the scanning starting to move and the LOnD being too large, the light will come out after a long time, causing the laser to leave the starting point far away, resulting in a portion of less welding).



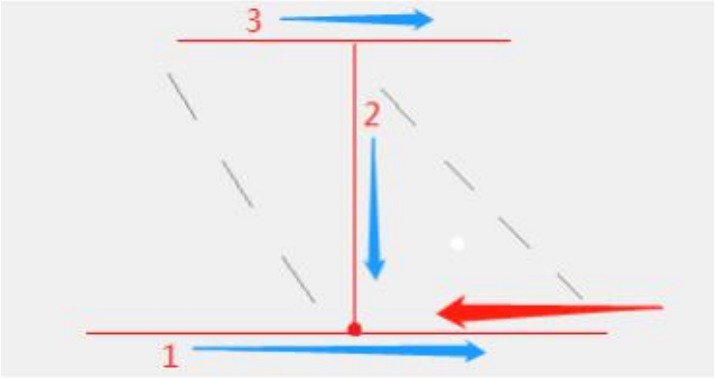
Laser Off Delay. Abbreviation: LOffD

The off light delay occurs when the scan is turned off. When the scan is welded to the designated position and ends its movement, but the laser is not turned off at the same time. Instead, the value of off light after delaying LOffD can be set to a negative value. When set to a negative value, it means that the light has been turned off before the scan reaches the designated position before LOffD, which means that the light has been turned off in advance.

When the LOffD is set too small, it can be seen that there is a short period of time at the end of the off light position (the reason for this situation is because there is a time difference between the command and the motion when the scan ends moving, which means that the command thinks it has been in place, but the actual position has not yet arrived, and the LOffD is too small, which causes the laser to weld a short section at the end of the off light position).



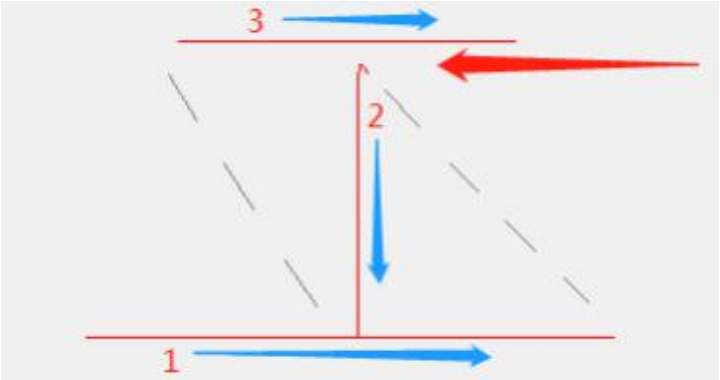
When setting the LOffD to be too large, you can see a burst point at the light off point (the reason for this situation is that when the scan stops moving, the scan is already in place, and the LOffD is too large, and the light is not yet turned off, causing the laser to produce a burst point at the end point)



Jump Delay. Abbreviation: JumpD

JumpD occurs after the galvanometer jumps, and when the galvanometer jumps to the specified position, it delays the time of JumpD before starting other movements.

When the JumpD is set too small, it can be seen that there is an unstable phenomenon at the beginning of the next movement after the Jump (the reason for this situation is because when the galvanometer ends the Jump movement, the galvanometer motor is not yet stable, and the JumpD is too small, which causes this phenomenon to occur when the galvanometer is still in an unstable state during the next movement).

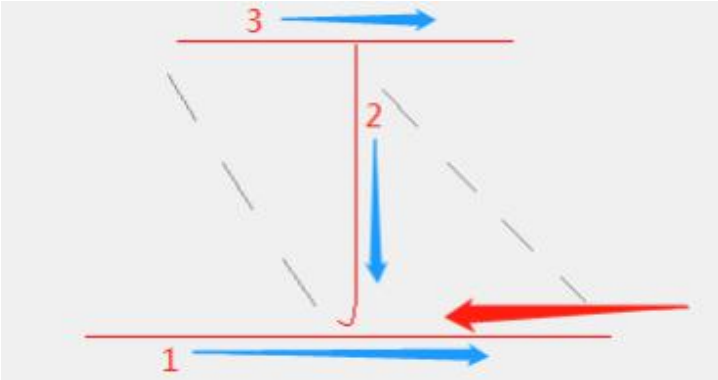


When setting JumpD too large, there will be no instability, but it will affect efficiency. The setting of JumpD is generally related to the galvanometer jump speed and the weight of the galvanometer lens. Generally, if the galvanometer jump speed is higher and the weight of the lens is higher, the JumpD also needs to be larger.

Mark Delay. Abbreviation: MarkD

After the galvanometer completes the light welding, delay the MarkD time before starting the jump command.

When the MarkD is set too small, it can be seen that the next Jump movement has started before reaching the end position of the welding, resulting in a corner at the off light position (the reason for this situation is due to the time difference between the theoretical and actual positions of the galvanometer. The theoretical movement is already in place, but the actual position is not yet in place, and the MarkD is too small. At this time, the next Jump movement has already started, causing this phenomenon to occur).

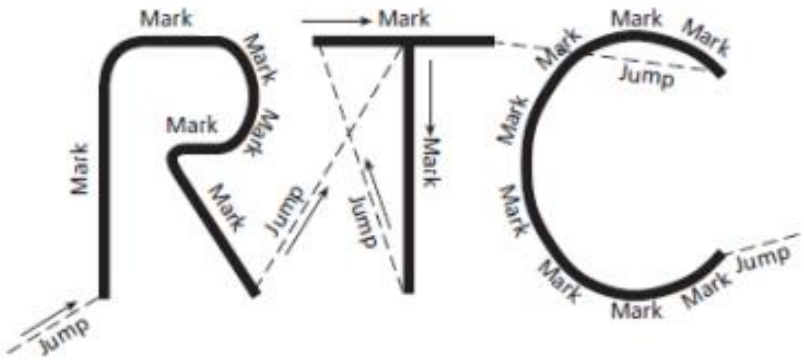


When setting the MarkD too large, there will be no instability, but it will affect efficiency.

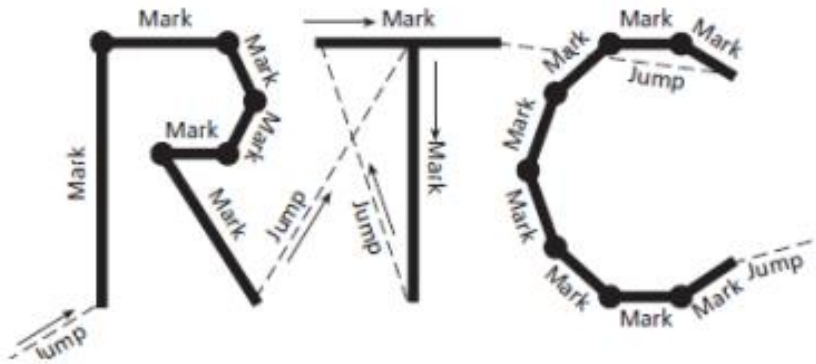
Poly Delay. Abbreviation: PolyD

PolyD occurs at the corner of two consecutive welding lines, which is the time it takes to wait for PolyD after the previous line has moved, and then the galvanometer moves to the next line, during which the laser continuously emits light.

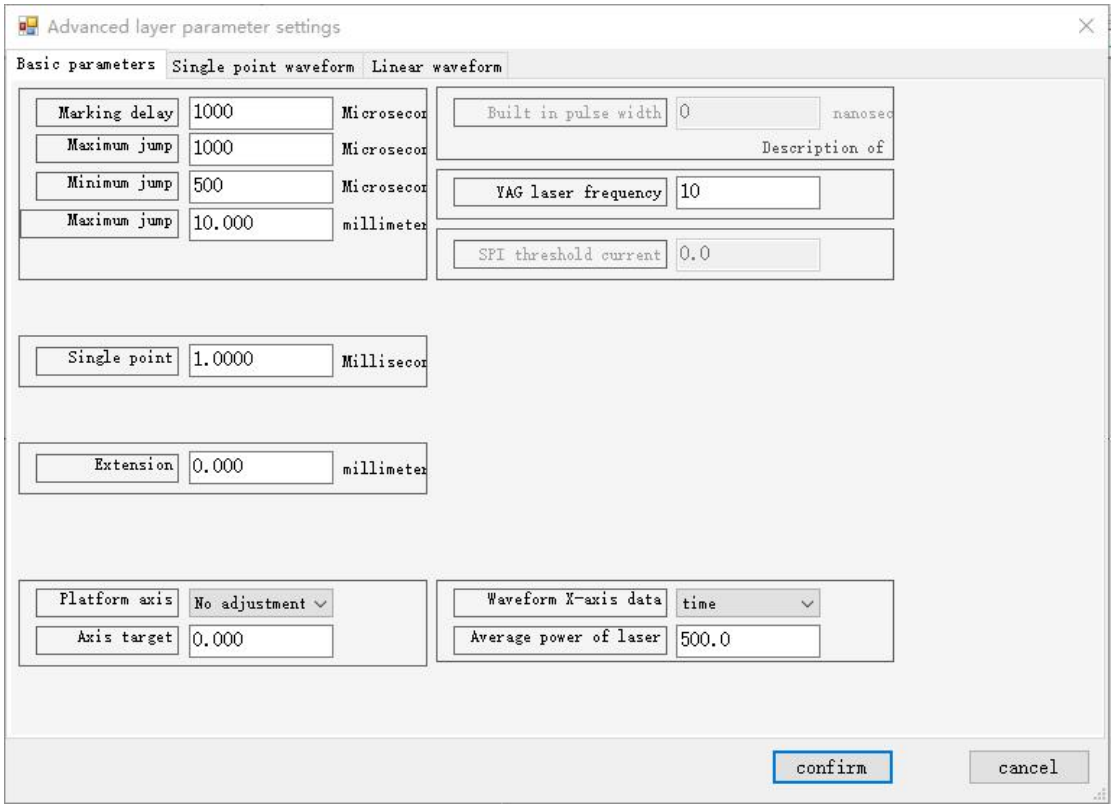
When setting PolyD too small, it can be seen that there is an arc transition at the corner between two consecutive Mark movements, which does not match the actual demand graph (the reason for this situation is that due to the end of the previous Mark segment, the galvanometer motor is not in place, and PolyD is too small, at this point in the next Mark segment, the galvanometer can only take a shortcut path, causing this phenomenon to occur).



When setting PolyD to be too large, it can be seen that there is a burst point at the corner between two consecutive Mark movements (the reason for this situation is that due to the end of the previous Mark segment, the galvanometer motor is already in place, and PolyD is too large, the next Mark segment has not yet started, but the laser is still emitting light, causing the burst point to occur).



3.11. Advanced laser parameters



Marking delay: the delay of the galvanometer during laser output

Maximum jump delay: Used in conjunction with the maximum jump delay distance. If the set maximum jump distance is exceeded, the delay used is the maximum jump delay

Minimum jump delay: As long as the galvanometer jumps, at least use this delay. If the maximum jump delay distance is not exceeded, the jump delay used is between the minimum and maximum. The relationship is a linear change

Maximum jump delay distance: Used in conjunction with jump delay (maximum/minimum).

If it is 0, the minimum jump delay does not take effect, and the maximum jump delay is used instead

Jump delay: When the galvanometer jumps to the specified position, delay the JumpD time before starting other movements

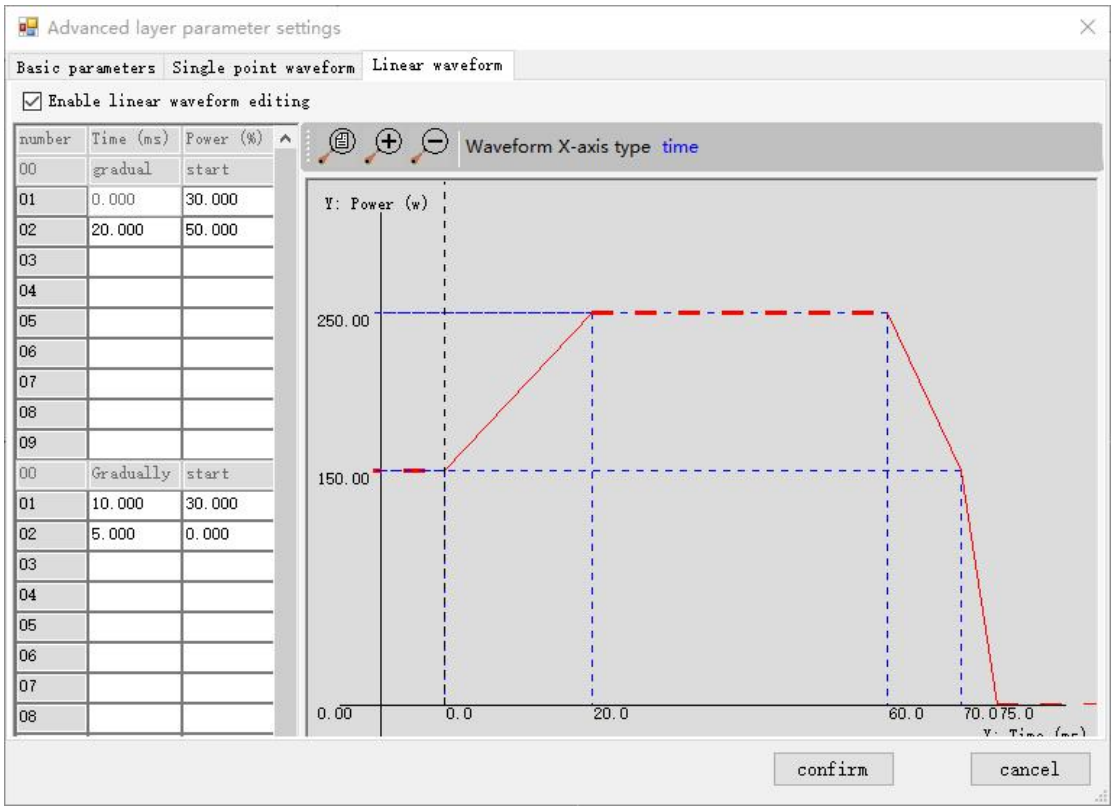
Single point time: The continuous light output time of a single point in the process

Extension line length: A distance of acceleration or deceleration before and after the beginning and end of each line (on and off), where the laser will not emit light during the extension line.

3.12. Laser progression and gradual exit

For example, the welding line or welding spot time is 200MS: the welding spot is the spot welding time set in the advanced section, and the welding time is the line length/speed.

The waveform settings of the welding line are as follows:



0-20ms progressive: initial light output section

The first period of time cannot be set, and energy signals need to be given in advance;

20ms is progressive: within 20ms, the energy increases from 30% to 50%, and multiple stages can be set according to specific needs

20-60ms is the automatically calculated light output time: this section only displays so much time, and the actual light output time is the line length/speed. If the total light output time is 200ms, 50% of the actual light output time here is 165ms (200-20-10-5); If the total light output time is 2000ms, it will only display 30-70 here, but the actual light output time at 50% power is 1965ms (2000-20-10-5)

60-75ms gradually emerging: the time period when the last light appears

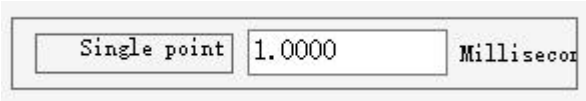
60-70ms: Laser reduced from 50% to 30% within 10ms

70-75ms: Laser energy from 30% to 0 in 5ms

Progressive: A total of 8 segments from 02 to 09 can be set, with time referring to the light output time and power referring to the power within the corresponding time. For example, in the 02 segment, 0-20ms, the corresponding power varies from 30% to 50%, and it is best to gradually change the power from small to large over time.

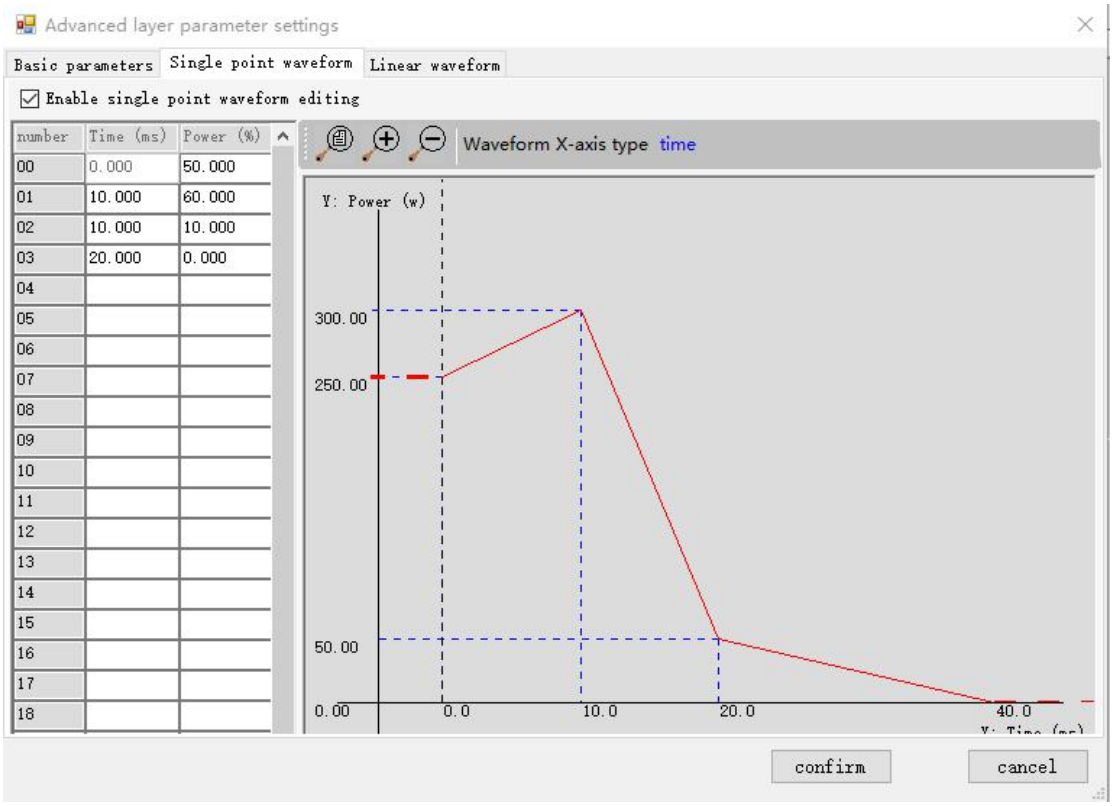
Just set the progressive and gradual exit times, and the software automatically calculates the uniform power output time in the middle. The gradual exit stage is the off light stage, and only nine segments are open. If the final solder joint energy is particularly high, the last period of time will be extended.

Note: a. The total time for gradual (gradual) progress alone cannot be greater than the total time for light output, and the time for gradual+gradual progress cannot be greater than or equal to the total time for light output; The total light output time is less than the single point time set in the "Basic Parameters";



b. Just set the gradual (starting stage) and gradual (ending) stages, and the intermediate time will be automatically calculated based on the total light output time; When setting the waveform, consider the delay time (corner delay, marking, jump, and on/off light).

The reference waveform for spot welding is shown in the following figure:

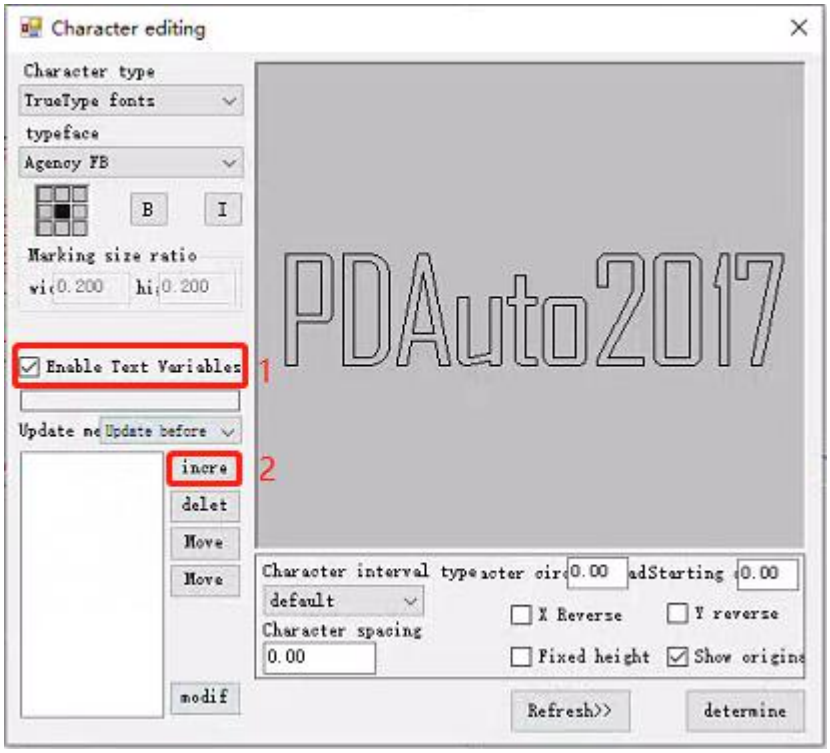


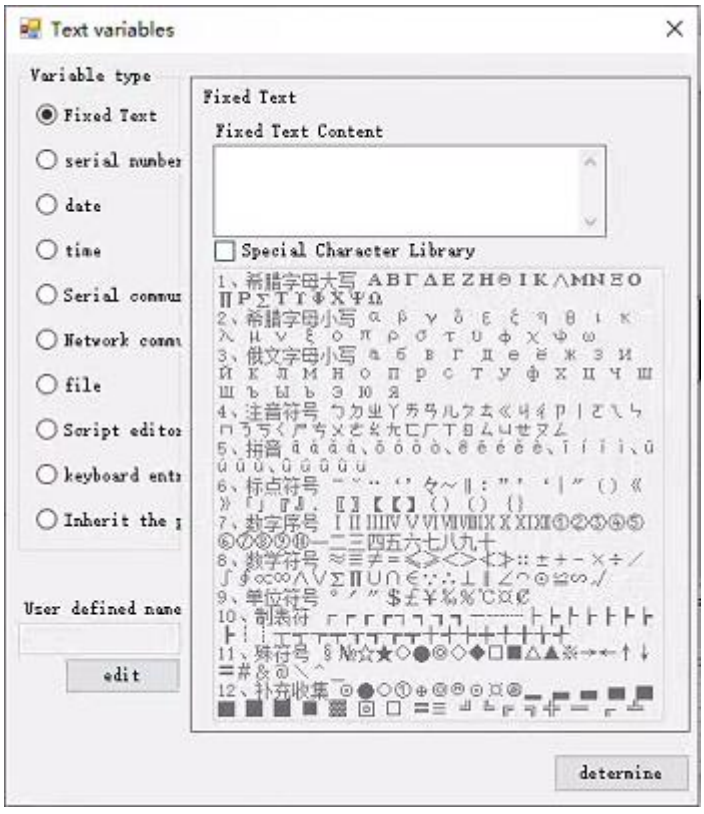
3.13. Enable text for characters and QR codes

Note: When using character tools and QR code tools at that time, static text was generated by default. If real-time updates of text content were needed, "enable text variables" were needed.

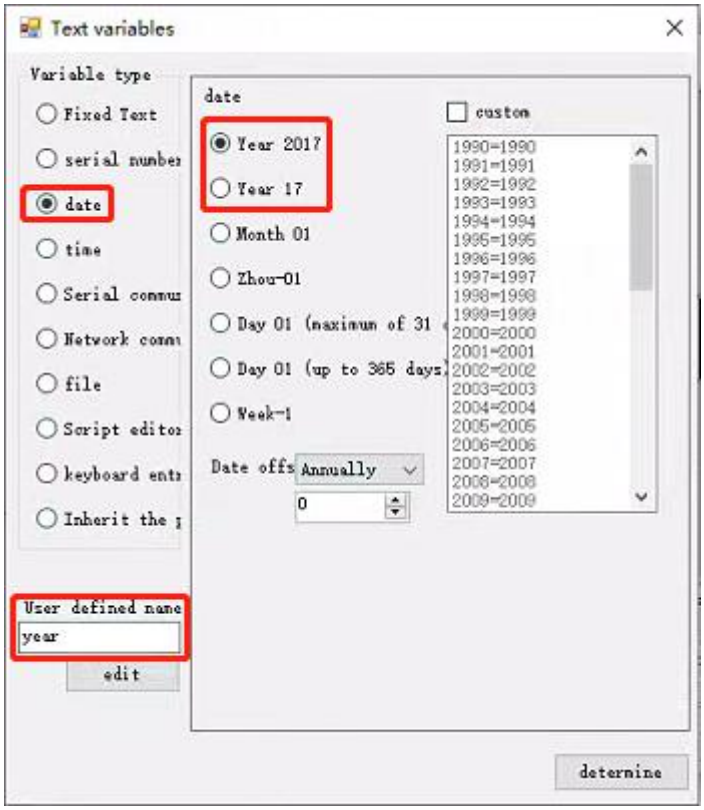
Example: Add date+serial number (self updating)

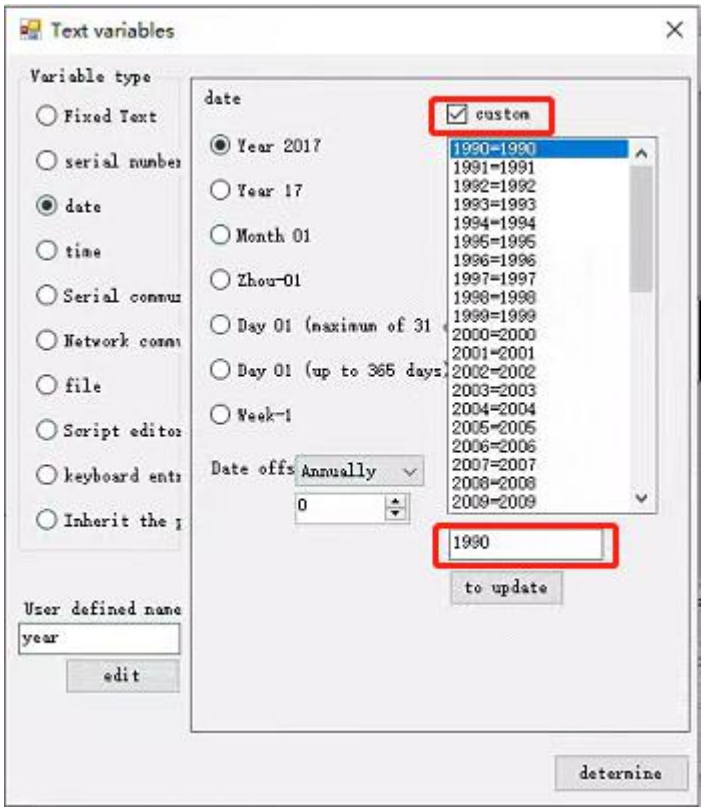
a. Open the Character (QR Code) tool, check "Enable Text Variable", and then click "Add" to pop up the "Text Variable" edit box; Each time an edit box pops up, a "text variable type" can be added.



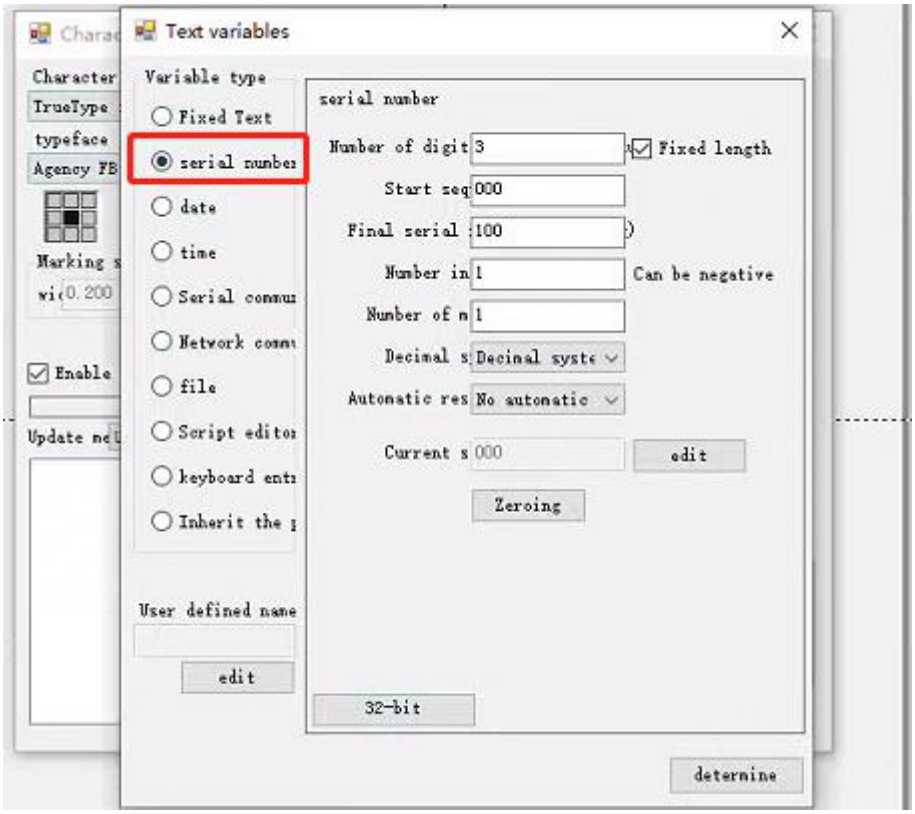


b. Select 'Date', then select the format of the year, or you can customize the format of the year. Users can customize the 'Name of Text Variable' and use the same method to add months and days

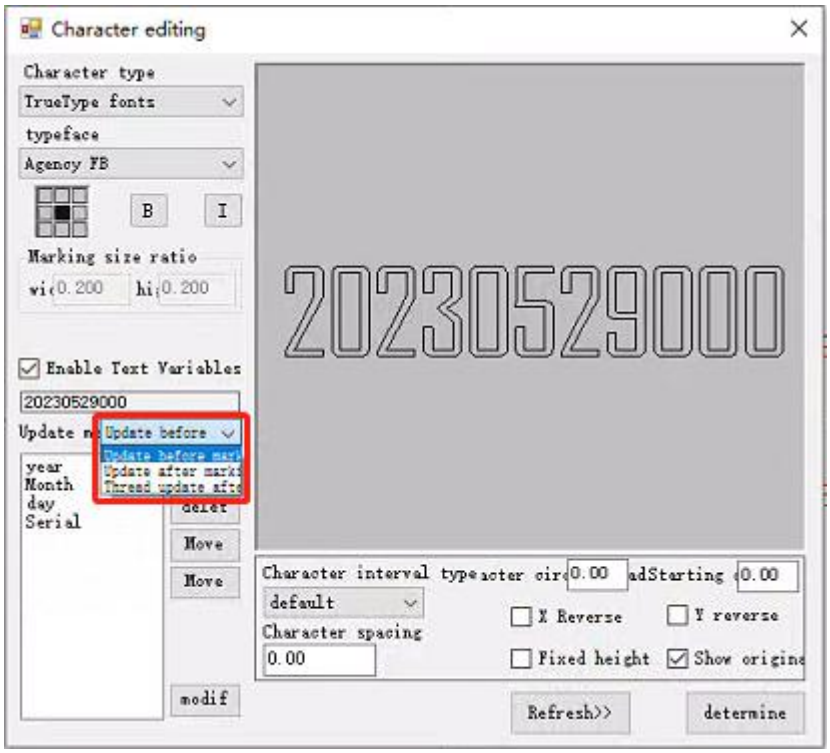




c. Select "Serial Number" to set the length and starting number of the serial number. Special requirements can also set the decimal system of the number

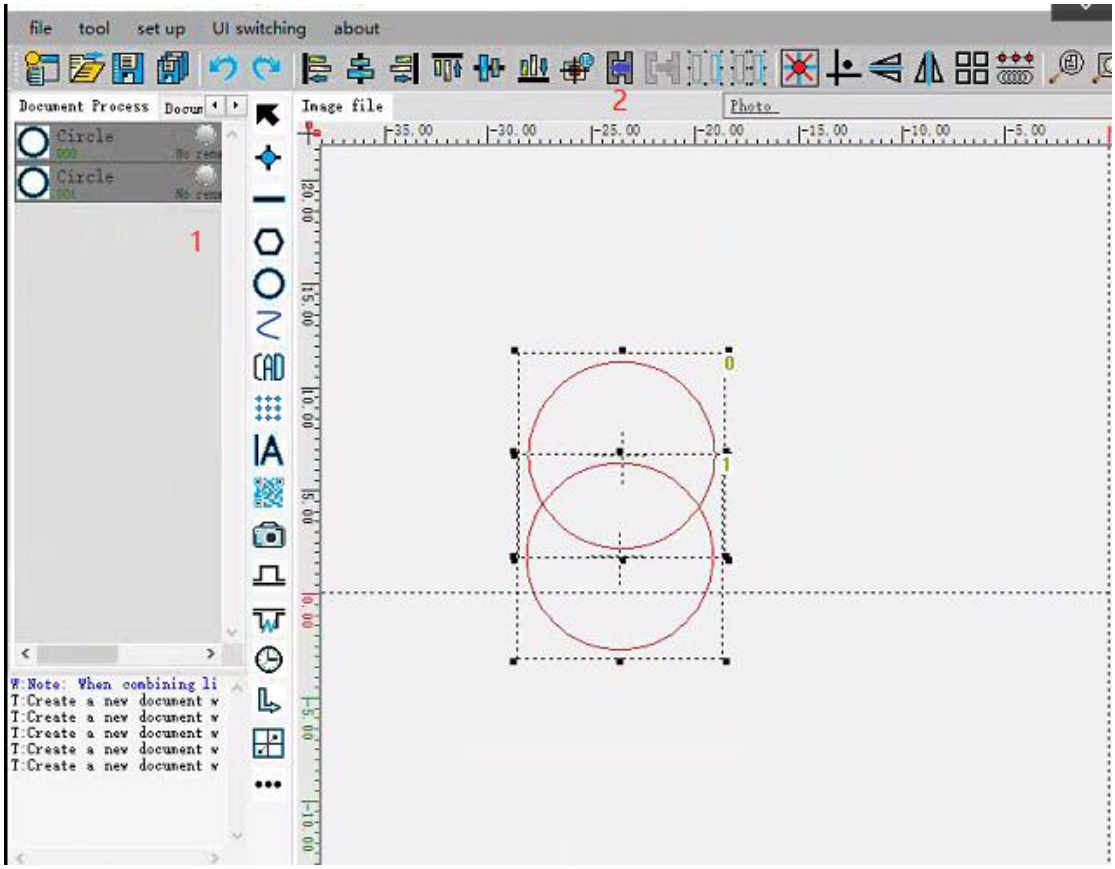


d.After setting the characters, you can preview them first and then set the method for updating the text, usually using 'Update after marking'

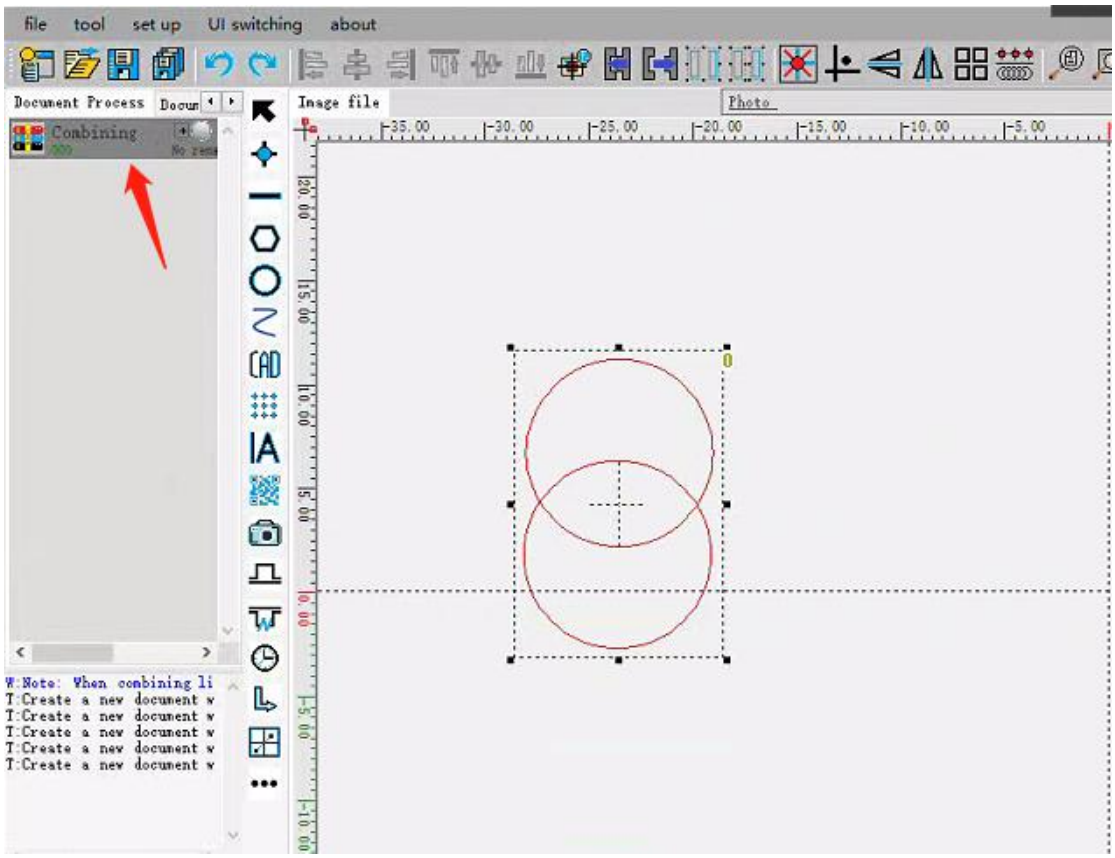


3.14. Combined linear array tool

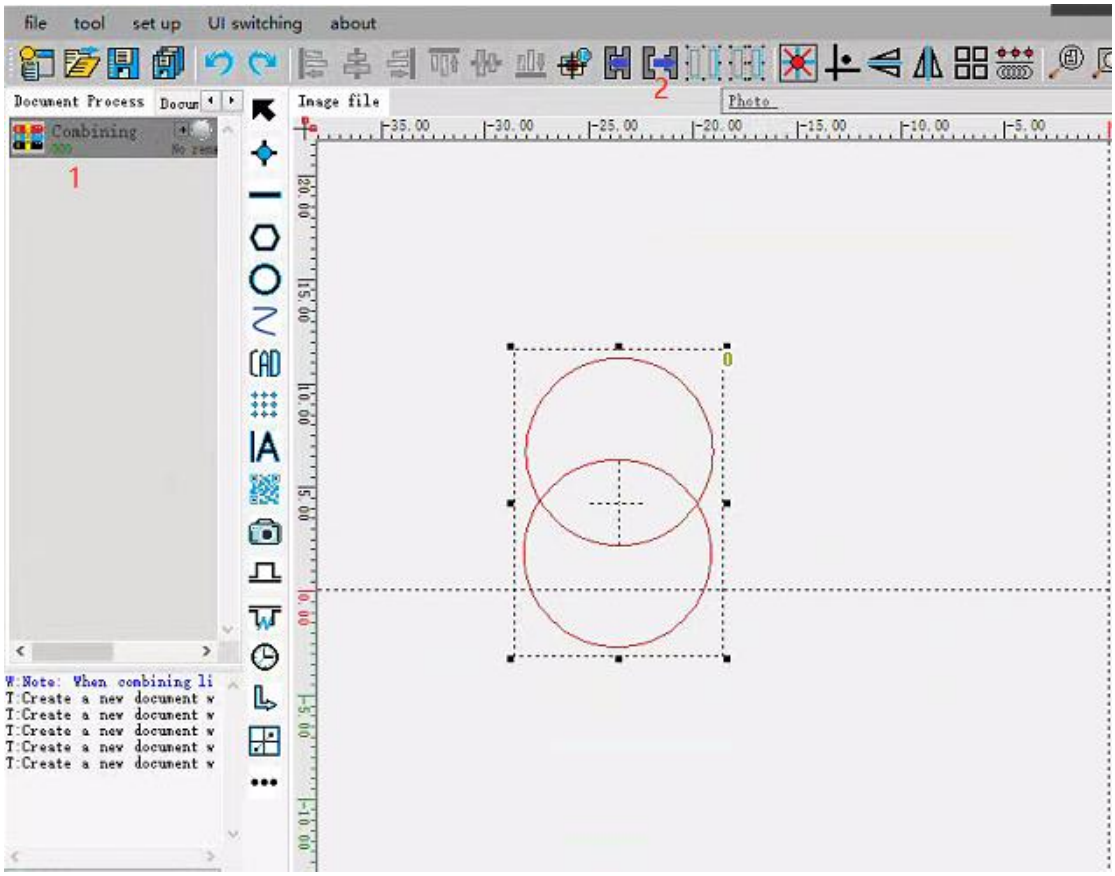
a.Hold down the CTRL key, select two circles, and then click the group object button



b.Two circular objects, becoming a composite object

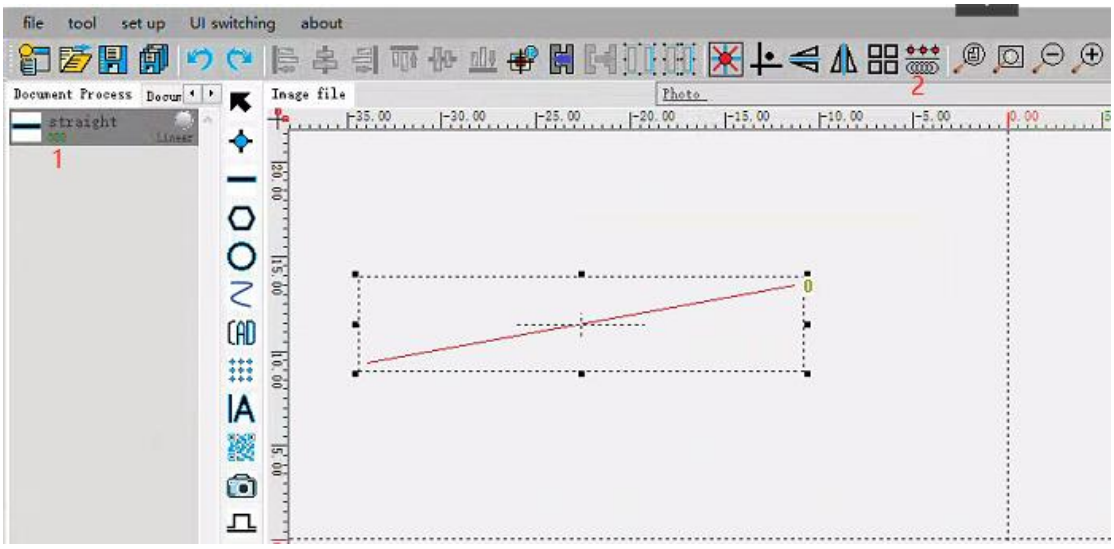


c.Select the combination object and then click 'Split Object' to split the combination object

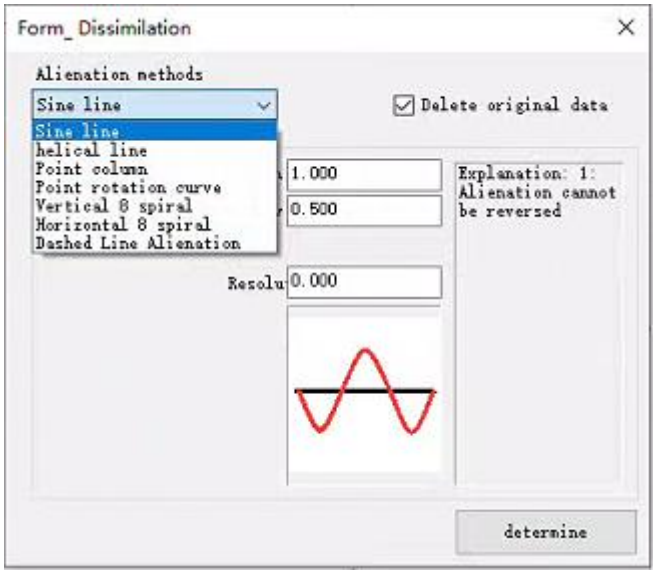


3.15. Curve alienation

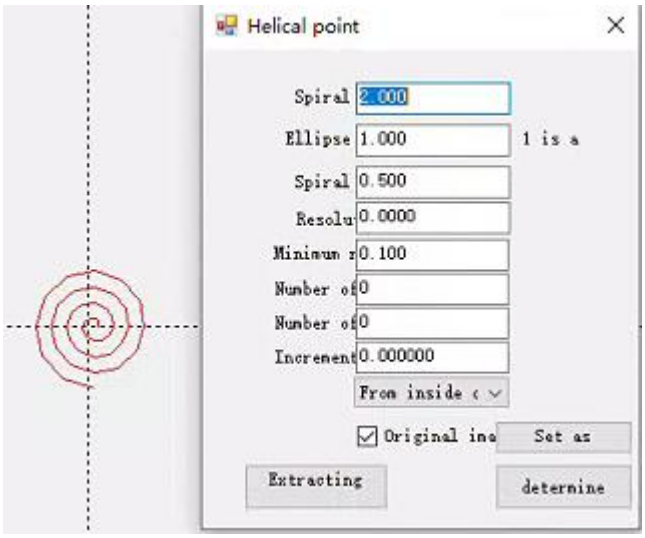
a.Select a straight object and click on the Curve Alienation tool;



b.Select the corresponding alienation tool in the curve alienation pop-up window, and then set the parameters

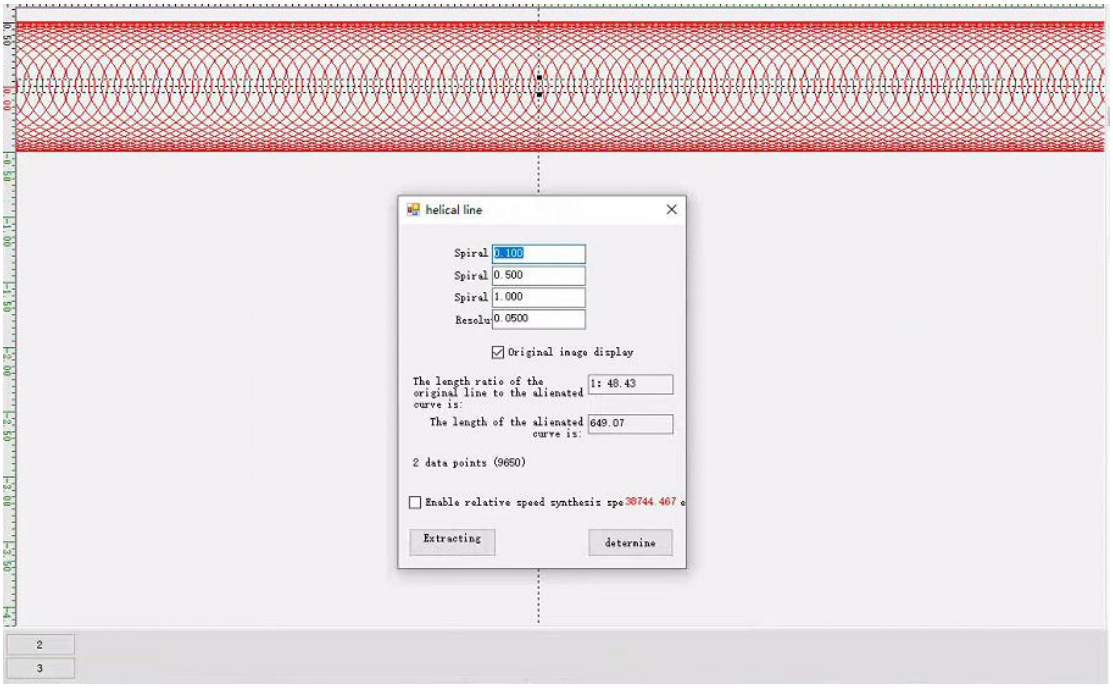


	legend	illustrate
1		Select the machining graphic object and click on the alienation tool

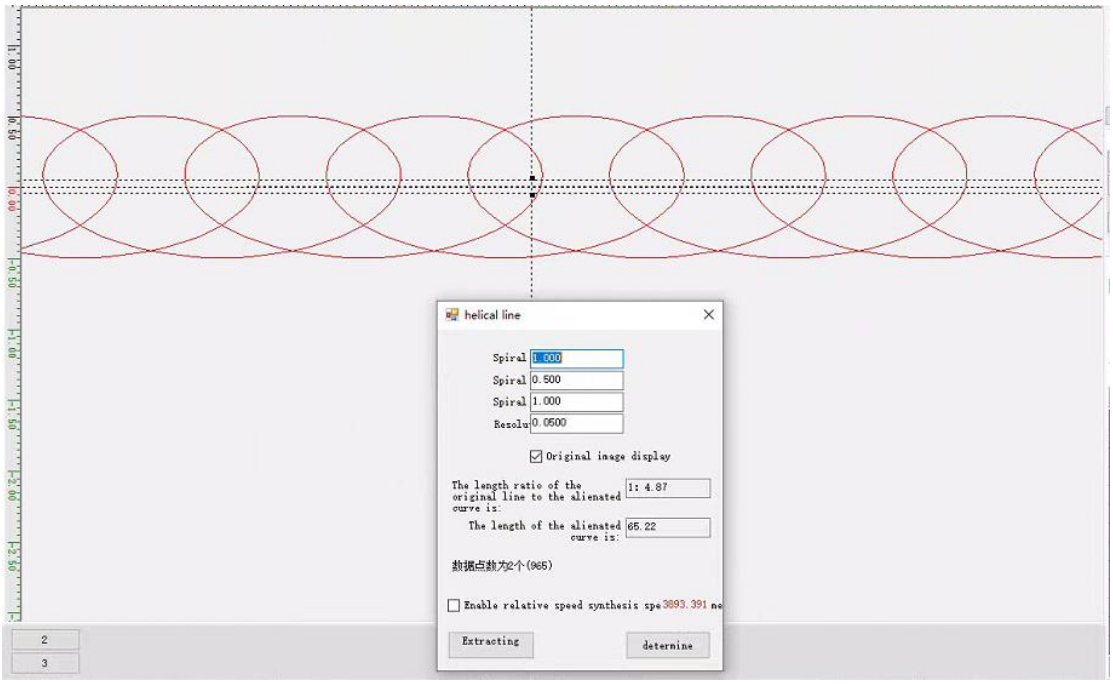
<table>
<tr>
<td>2</td>
<td> 
</td>
<td>As shown in the figure, select the dissimilation parameter spiral point, click on the dissimilation tool, and select to display the original image.</td>
</tr>
<tr>
<td>3</td>
<td>
<table>
<tr><th>parameter</th><th>describe</th></tr>
<tr><td>Spiral radius</td><td>The size of the spiral point</td></tr>
<tr><td>Spiral spacing</td><td>Line spacing</td></tr>
<tr><td>Resolution</td><td>Smoothness</td></tr>
<tr><td>Minimum radius</td><td>The radius size of the innermost circle</td></tr>
<tr><td>Number of outer rings</td><td>Welding frequency of outer ring trajectory</td></tr>
<tr><td>Number of inner rings</td><td>Welding frequency of inner ring trajectory</td></tr>
<tr><td>Incremental radius</td><td>The value of increasing radius when the number of spiral turns increases</td></tr>
<tr><td>Direction issues</td><td>Is welding done from the outside in or from the inside out</td></tr>
</table>
</td>
<td>When you modify parameters, there are different changes in the graphics</td>
</tr>
</table>

Example: Helix parameters

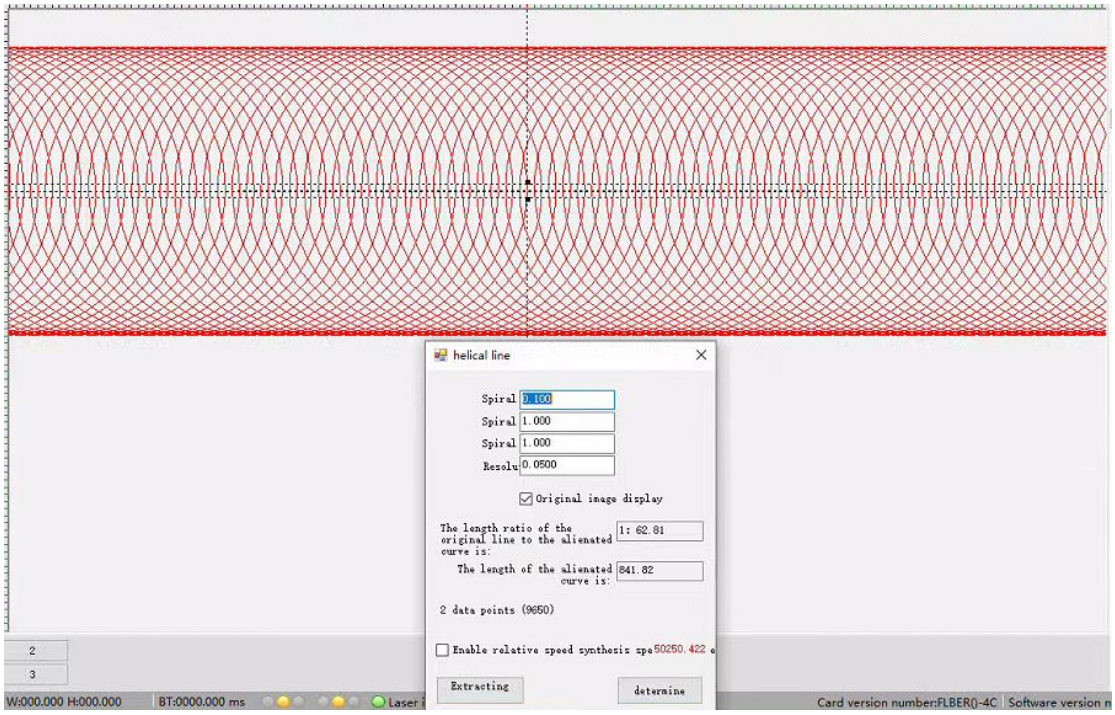
Spiral Alienation Effect under Default Parameters



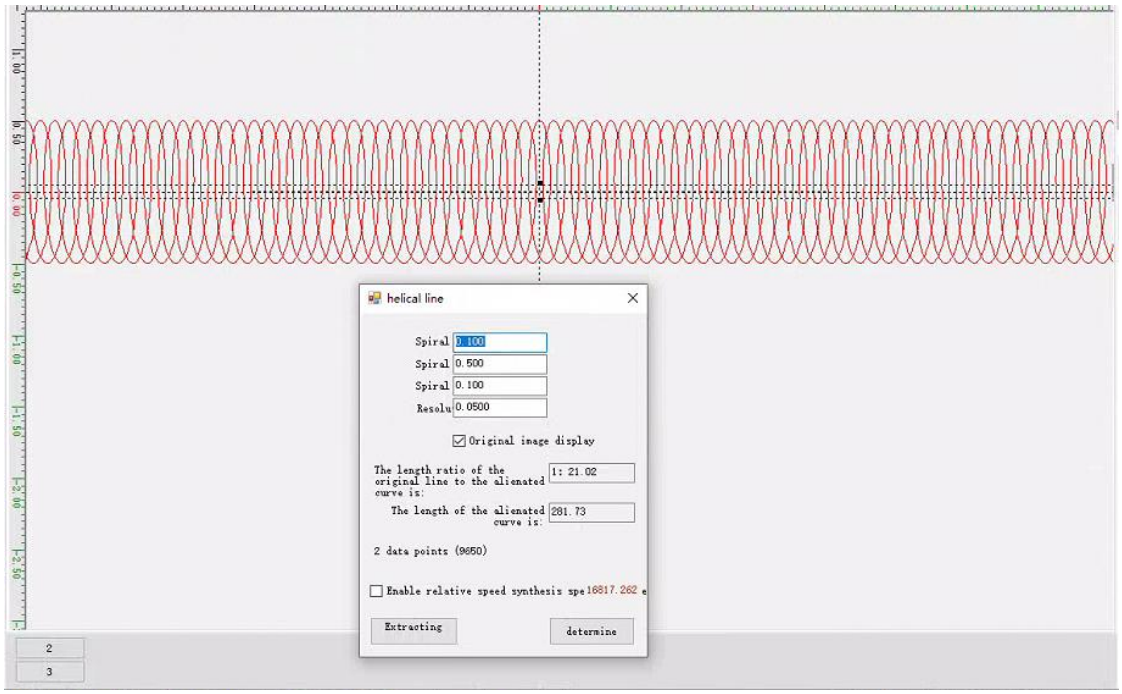
1.Spiral spacing: The smaller the numerical value, the smaller the distance between left and right dissimilation, and the denser the lines. The effect of changing the value to 1 (default 0.1) is as follows



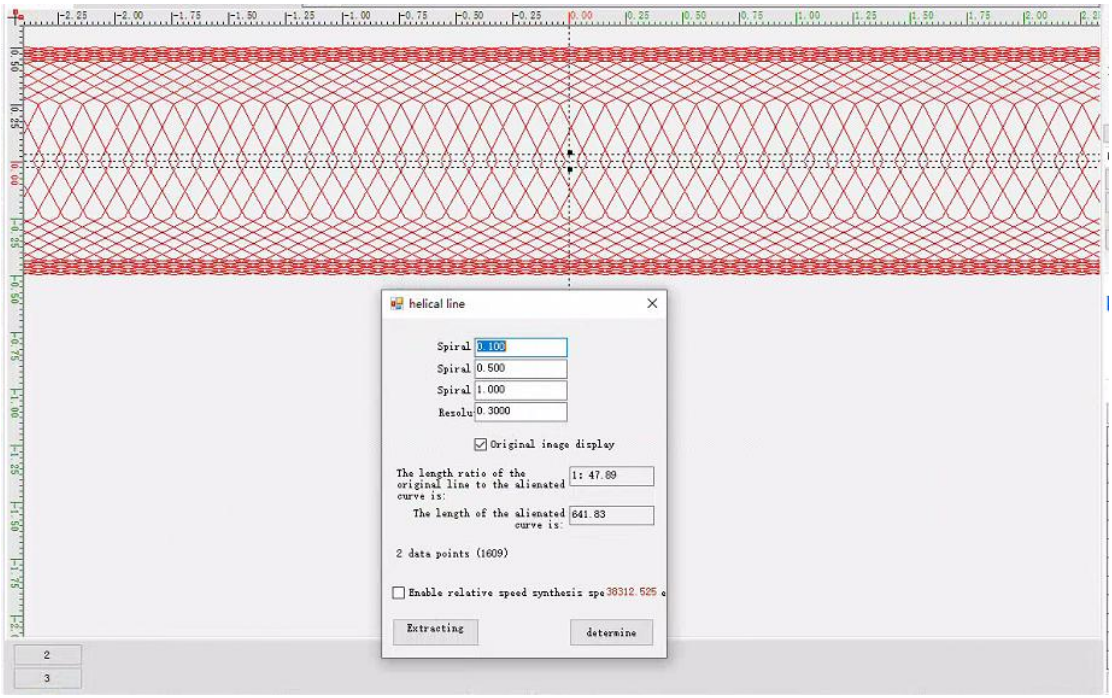
2.Spiral radius A: The larger the numerical value, the larger the dissimilation radius (X direction straight line, Y direction radius). The effect of numerical value 1 (default 0.5) is as follows:



3.Spiral radius B: The smaller the value, the smaller the dissimilation radius (X direction straight line, X direction radius), with a value of 0.1 (default 1). The effect is as follows:



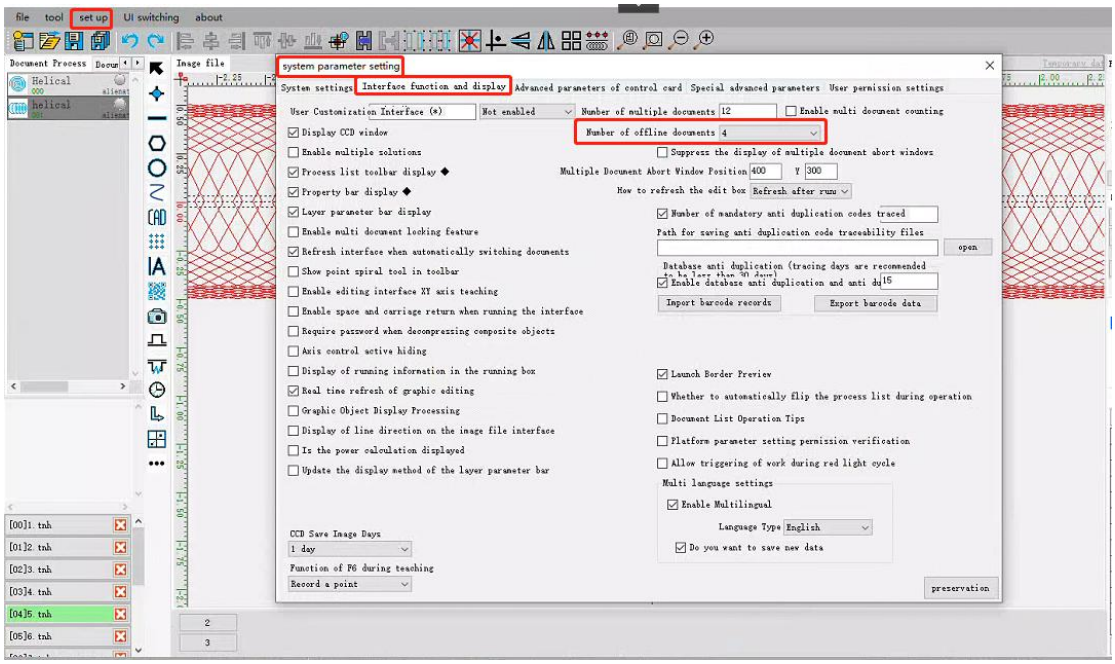
4.Resolution: The smaller the resolution, the smoother the curve, but the larger the data volume. Change the number to 0.3 (default 0.05), and the effect is as follows:



3.16. Offline Download

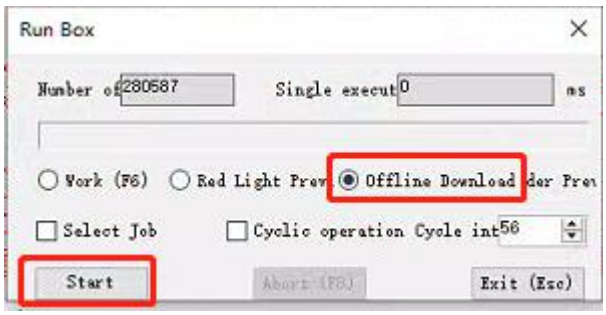
1.Set the 'number of offline documents', the software defaults to 4, with a maximum support of 16;

Settings ->System Settings ->Interface Functions and Display; Select the number of offline documents from the drop-down box.

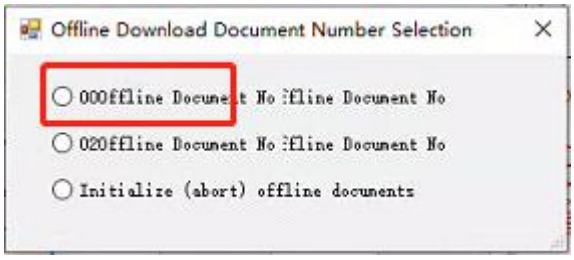


2.Click the "Run" button, or press "F6" to pop up the Run box; Select 'Offline Download' and then

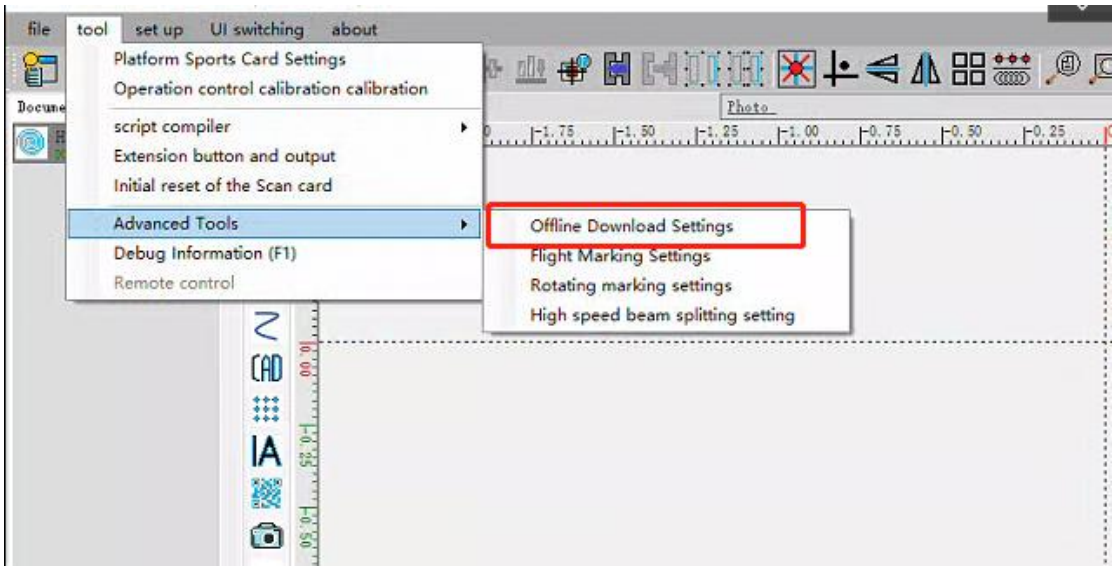
click 'Start';



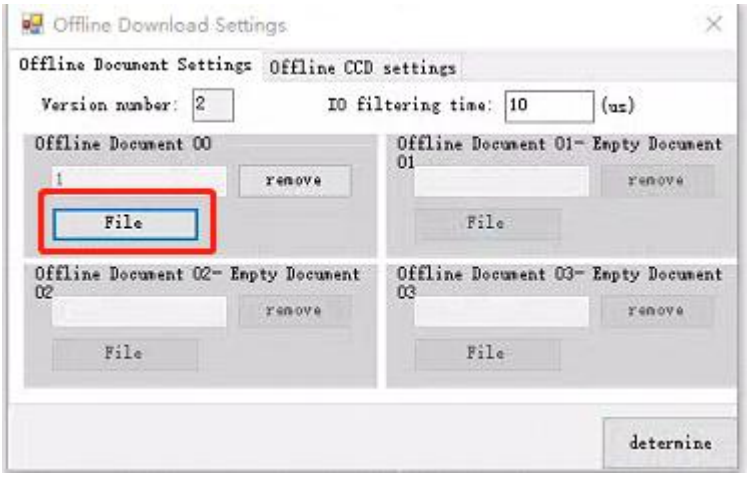
3.The pop-up window 'Offline Download Document Number Selection' appears, and we choose '00 Offline Document' as an example;



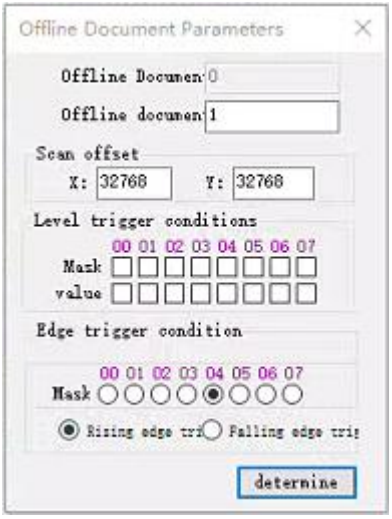
4.After the offline download is completed, close the run box and open "Tools>Advanced Tools>Offline Download Settings"



5.We can see the offline document named "platform" that was just downloaded offline. Click the "File Parameter Settings" button under the offline document to set the trigger to run the document;

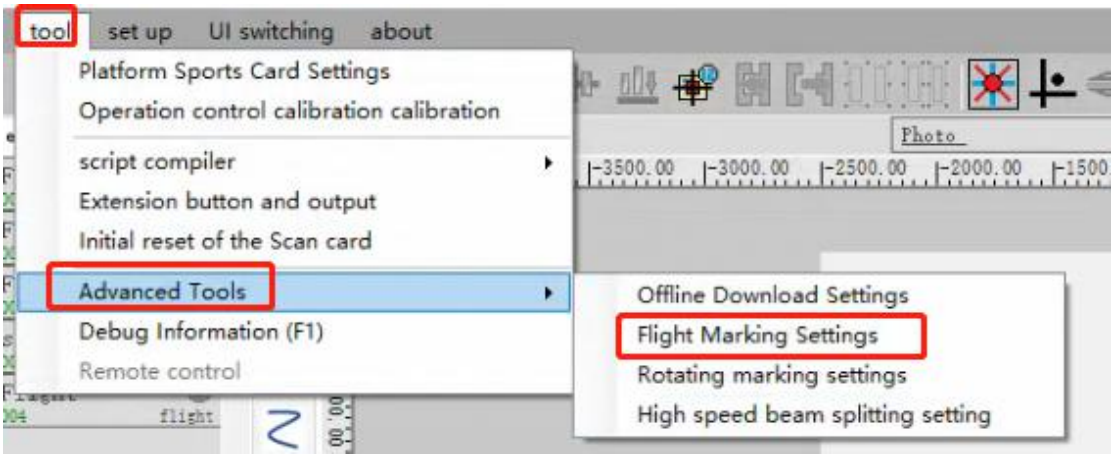


6.Set the corresponding triggering conditions and click Save.



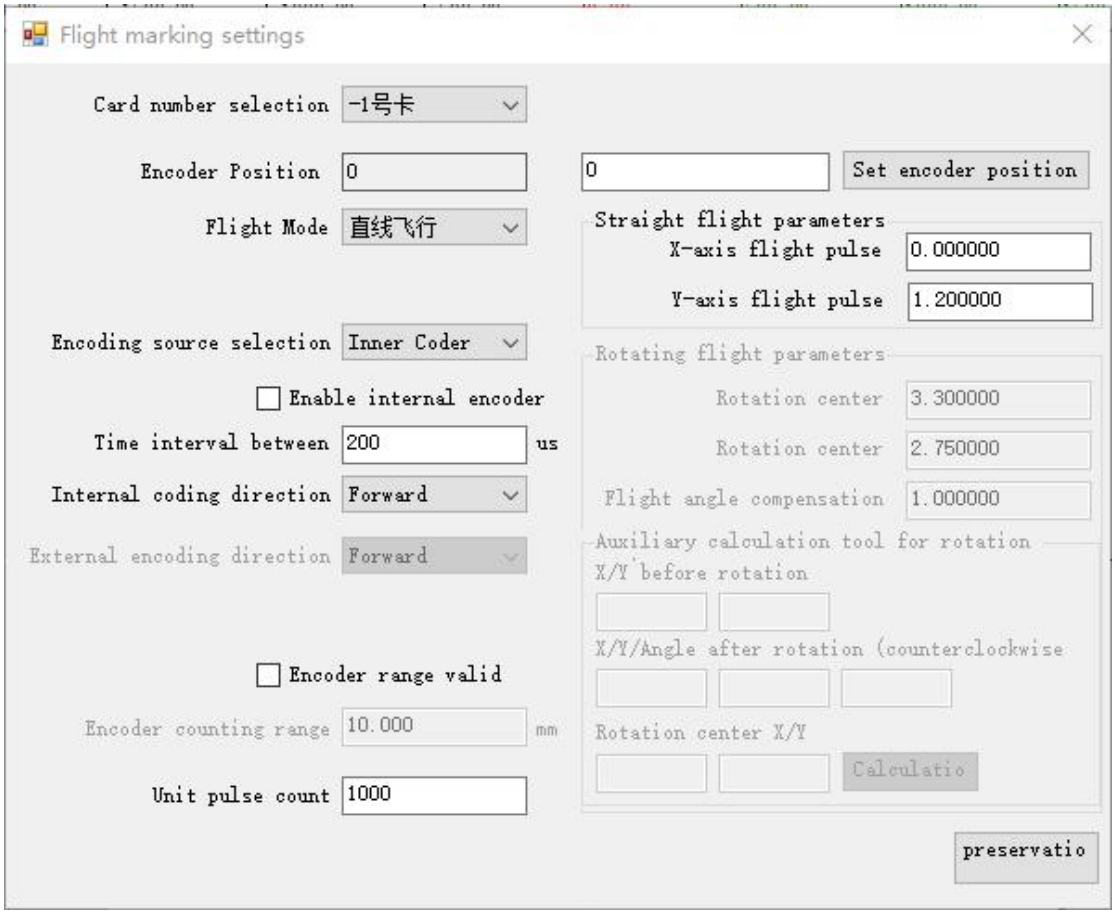
3.17. Flight marking

1. Activate the flight function. Tools - Attack Tools - Flight Marking Settings;



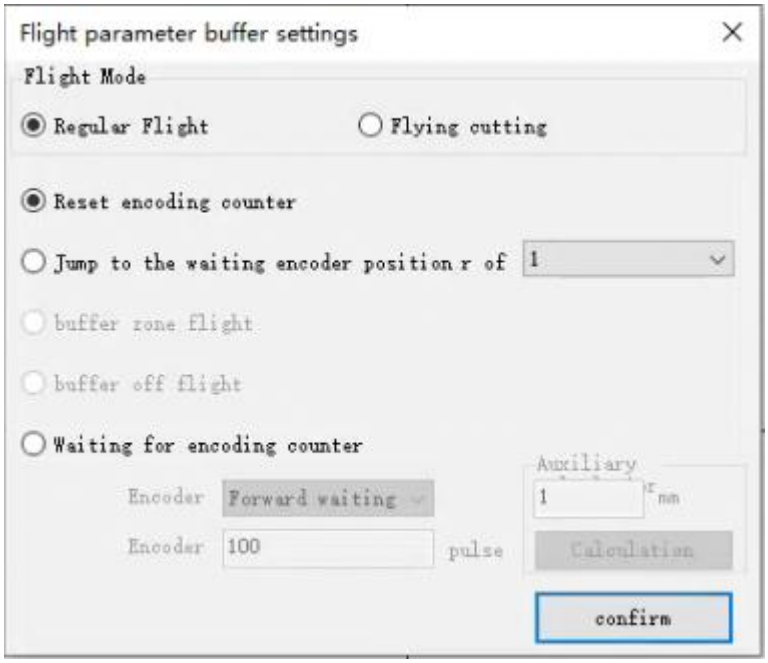
2. Tick 'Auto fly when marking starts'. X-axis Y-axis flight pulse equivalent, modify

the graphic effect of the marking pattern in the XY axis direction. The "encoder counting range" means the flight marking interval.

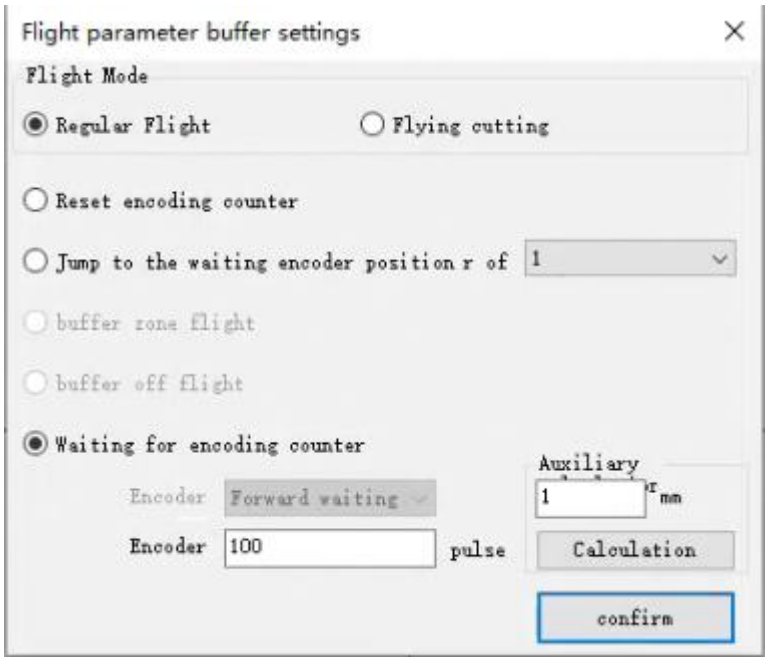


3. Double click to add a flying tool. We need to add four flight tools to complete a complete flight marking process. Reset encoding counter "-" Wait encoding counter "-" Turn on flight mode "-" Turn off flight mode ". Add a marking graphic between "Open Flight Mode" and "Close Flight Mode", as shown in the following process.

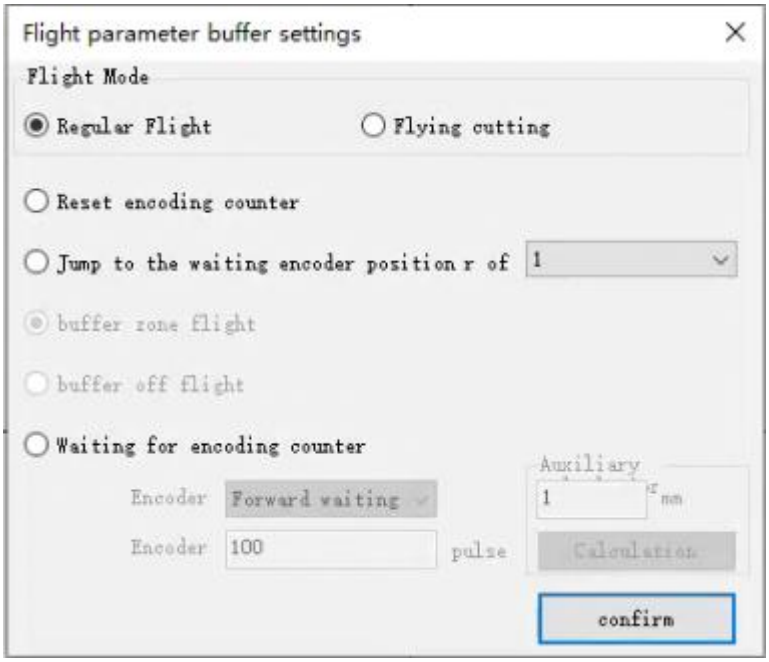
a. Reset encoding counter



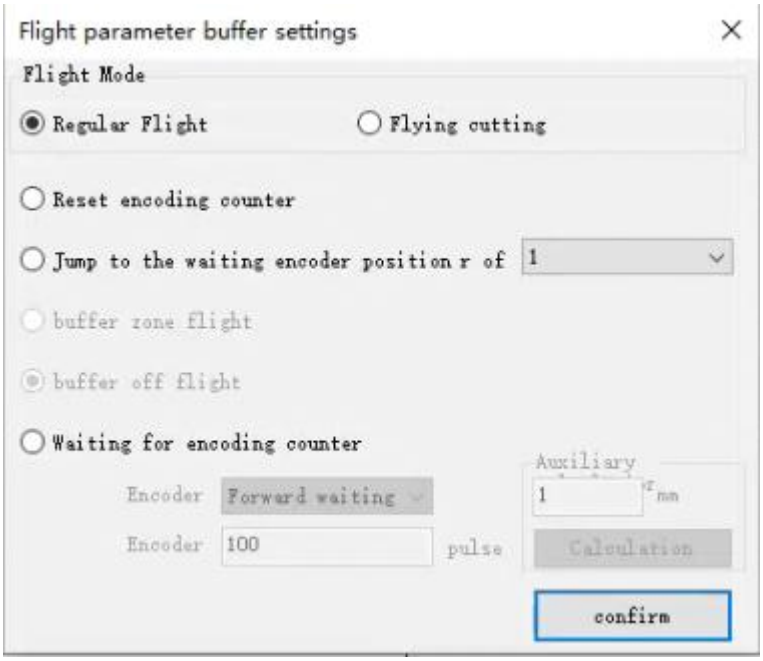
b. Wait for the encoding counter (marking starts when the encoder moves to this position)



c. Turn on flight mode

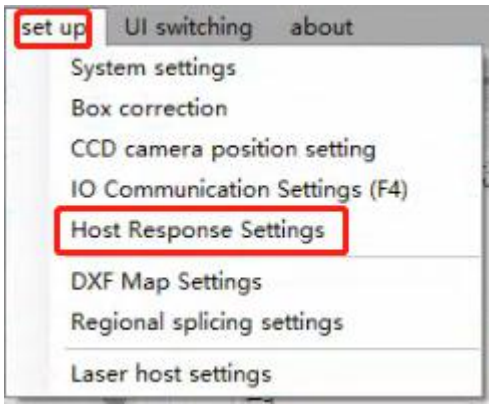


d. Turn off flight mode



3.18. Host Response Settings

Open "Host Response Settings", Settings -> Host Response Settings, which includes "IO System", "TCP System", and "Custom System" (which needs to be developed separately).

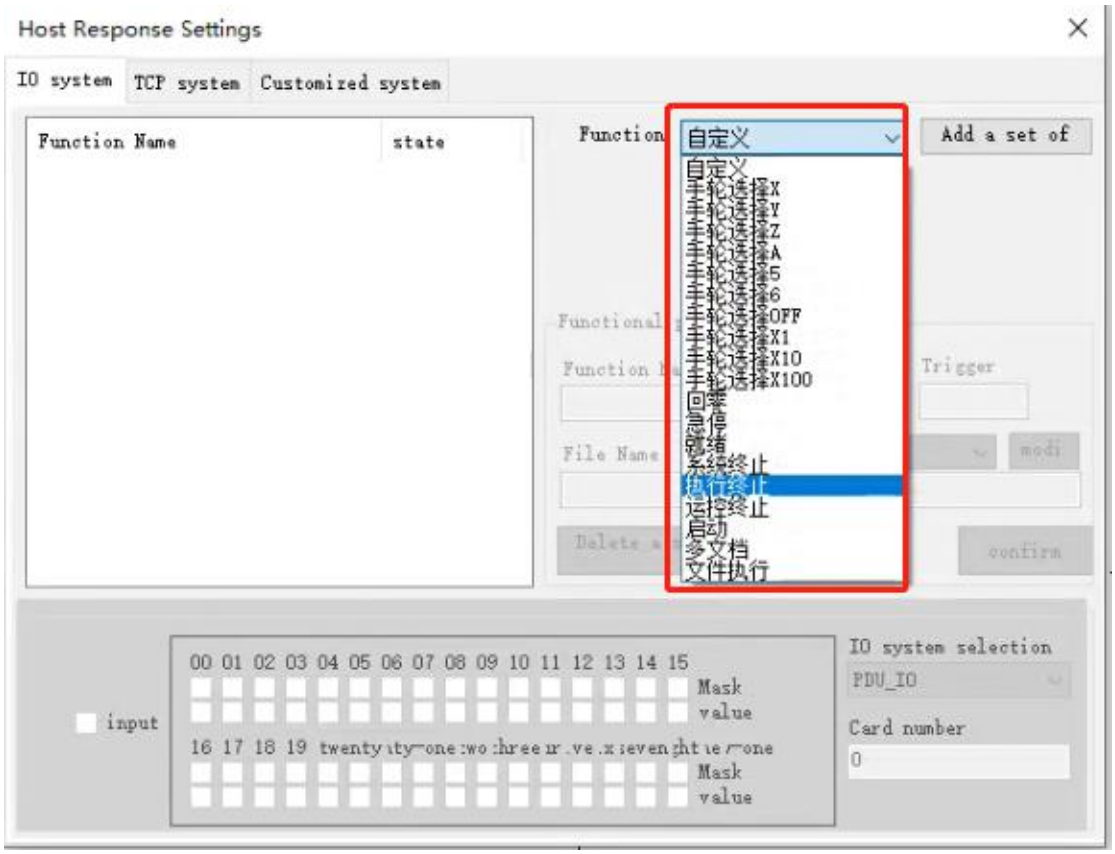


3.18.1. IO System

In the IO system, IO input signals can be configured and corresponding response actions can be set.

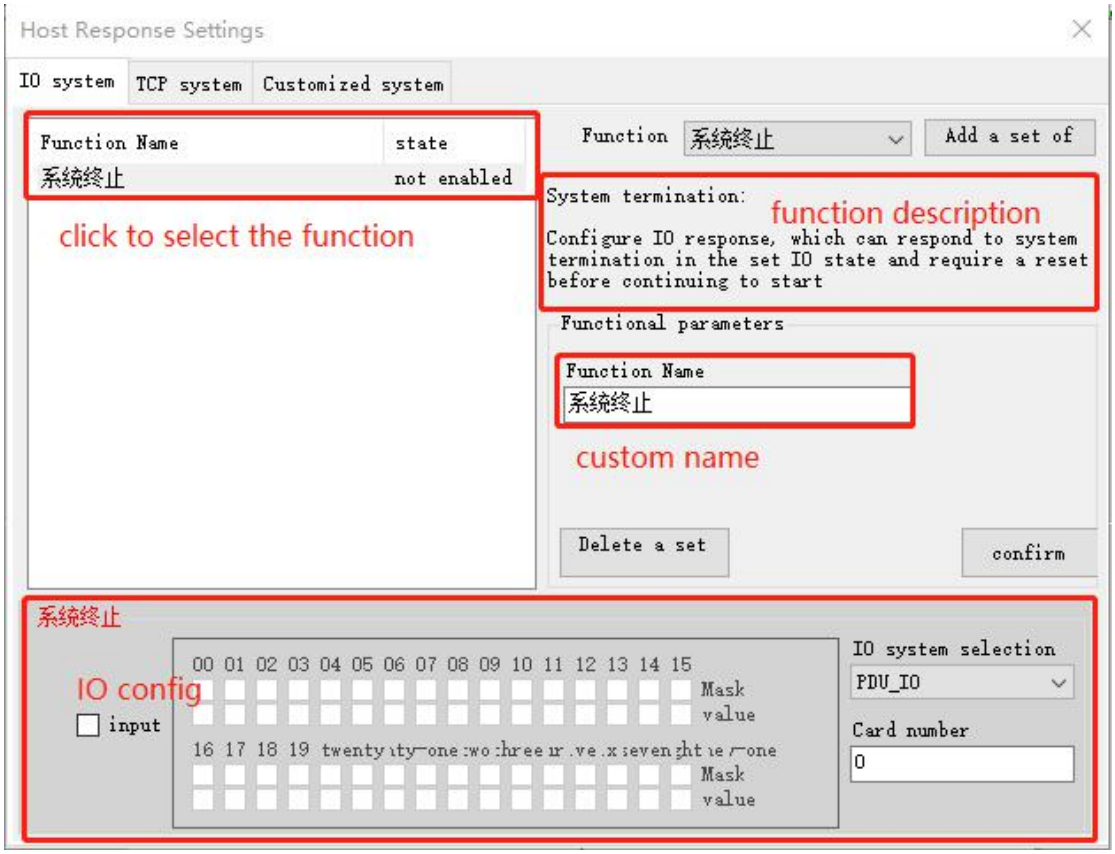
Example: Configure 'System Termination'. This function can terminate program operation, and alarm the red light and buzzer at the same time (the IO number corresponding to the three color light and buzzer needs to be configured in "IO Communication Settings - Input Response Settings").

1. Select 'System Termination' and then click 'Add a Group of Responses'

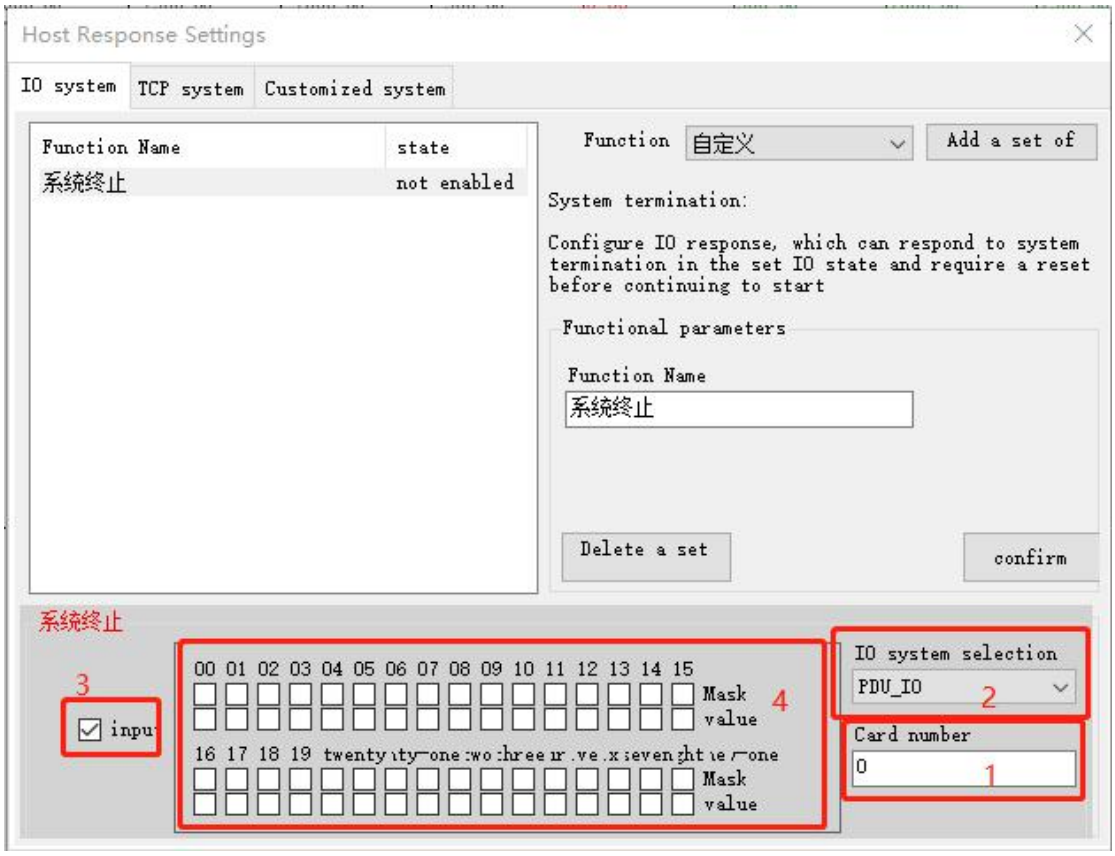


2. At this point, "System Termination" has been added to the feature list, which is

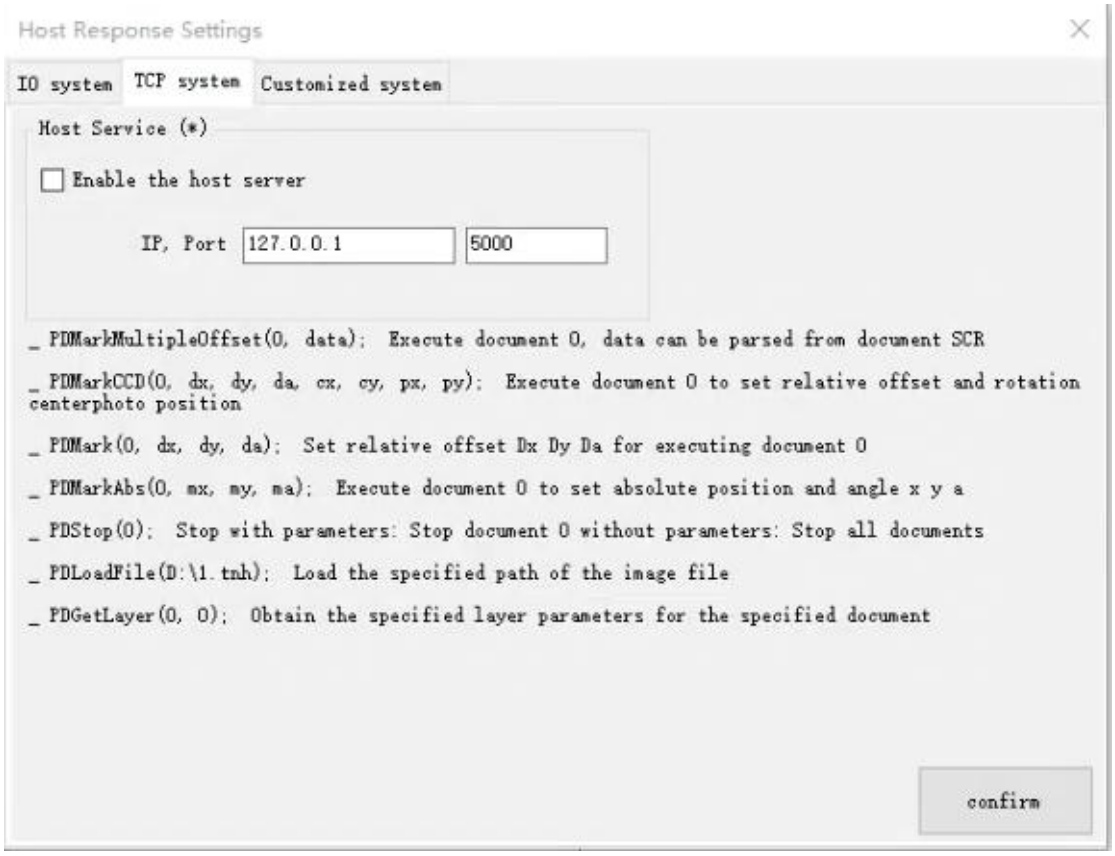
not yet enabled. It is necessary to configure IO response for the feature. Click on the "System Termination" function in the selected list, and we can rename, configure IO, and delete the function.



3. Configuration is divided into several small steps for IO. First select the card number, then select the IO system (Main control card IO, Auxiliary control card IO, Expansion card IO), check "Input", then check the corresponding IO number, and click OK.


Host Response Settings
IO system
TCP system
Customized system
Function Name
state
系统终止
not enabled
Function
自定义
Add a set of
System termination:
Configure IO response, which can respond to system termination in the set IO state and require a reset before continuing to start
Functional parameters
Function Name
系统终止
Delete a set
confirm
系统终止
3
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
Mask value
4
16 17 18 19
Mask value
IO system selection
PDU_IO
2
Card number
0
1

3.18.2. TCP System



Set the server IP and port, check 'Enable Host Server', click 'Confirm', and restart the software service to take effect. Sending corresponding instructions from the client to the server can trigger the software to run or stop, and the offset of the galvanometer can be set in the running instructions. For example:_PDMark (0,20,20,90), this instruction means to run document 0, with an offset of 20mm in the X direction and 20mm in the Y direction, and an angle rotation of 90 °.

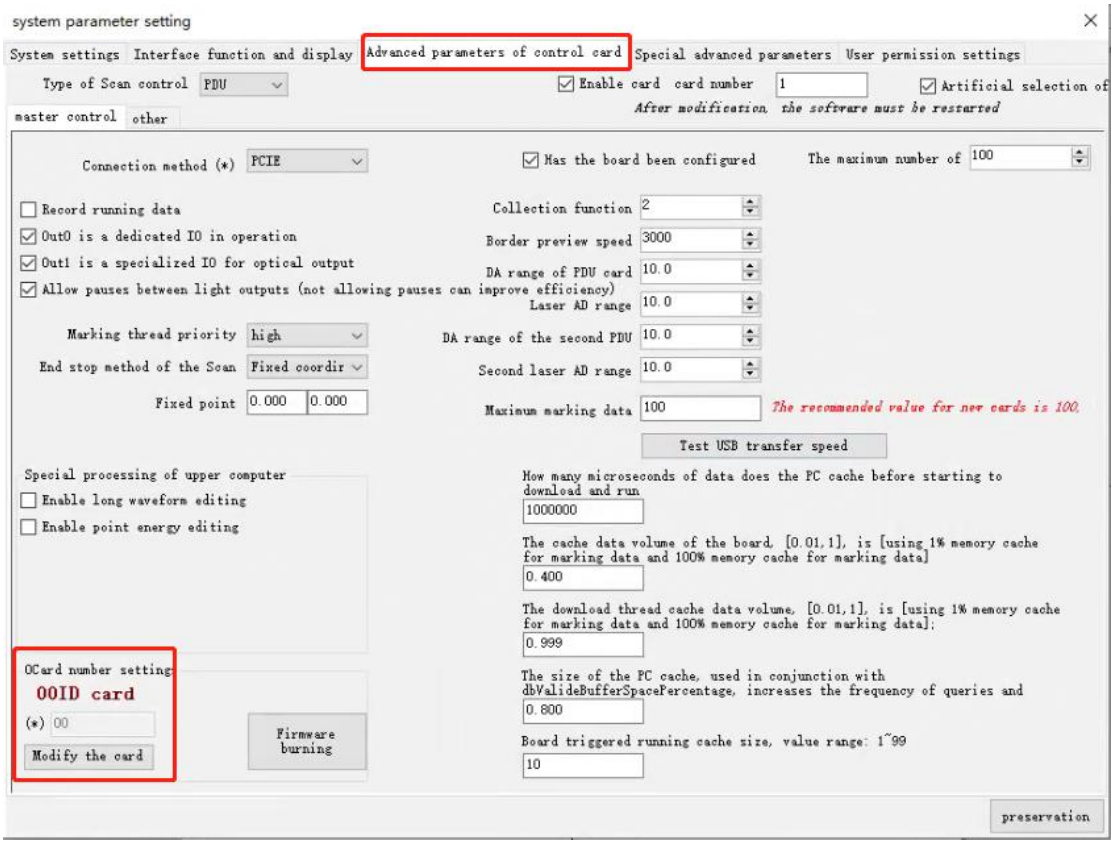
3.19. Multiple Card and Multiple Software

3.19.1. Multiple Card

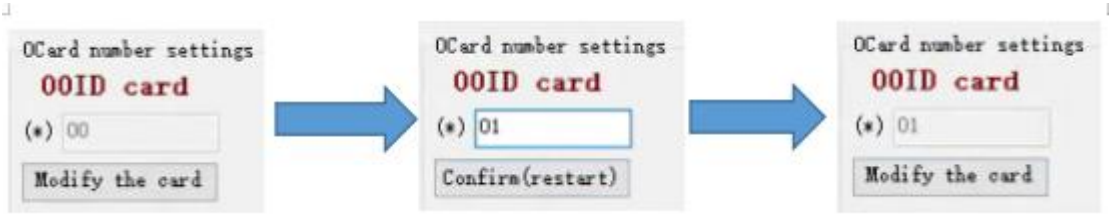
The default card number for PDU cards at the factory is card number 0. It is not possible to open duplicate card numbers on the same industrial computer at the same time. Therefore, if multiple cards need to be opened at the same time, the card number needs to be changed. Let's take opening two cards simultaneously as an example (a software can support opening up to 4 cards).

1. Connect the industrial computer separately to a card that requires changing the card number. Open the software, and the software displays that the card has been

successfully opened. Next, you can change the card number. Settings – System Settings – Control Card Advanced Parameters.

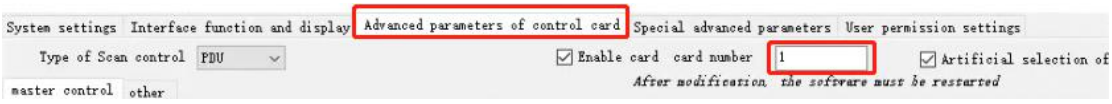


2. Click "Modify Card" – "Fill in New Card Number" – click "Confirm(restart)", and then click "perservation".



3. After modifying the card number, close the software, power off the card, and the new card number will take effect when powered on again.

4. After modifying the card numbers for all cards, set the number of cards that need to be opened simultaneously in the software. Settings -- System Settings -- Control Card Advanced Parameters. After filling in the number of cards, click Save to exit (this setting requires restarting the software to take effect) and close the software.

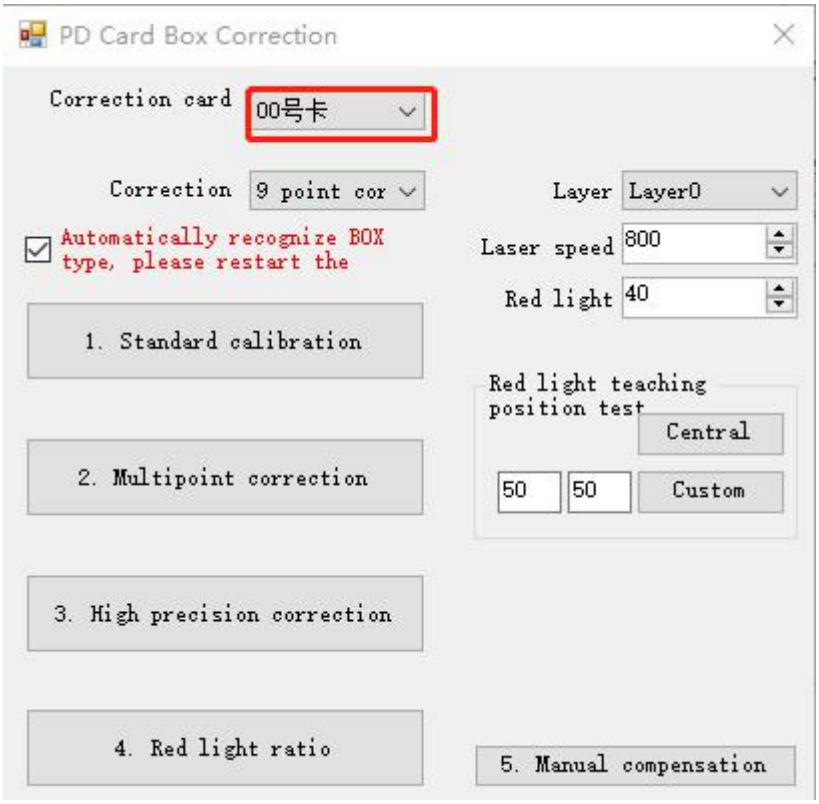


5. All cards are powered on, the industrial computer connects all cards, and opens the software

6. In the software startup interface, there will be a prompt for the card number that needs to be opened. By default, the software will open card number 0, so select a card other than card number 0. Click on the dropdown box, select the card number, and then click OK. If there are multiple cards, the software will prompt multiple times to select the card number.

7. After entering the software, the successfully opened card number will be displayed in the upper right corner.

Note: If the software is set to open multiple cards, but only one card is connected to the industrial computer, it will not affect the functional use of a single card. The software has opened multiple cards, and each card needs to be individually calibrated for BOX. When running the marking program, it is also necessary to select a card.

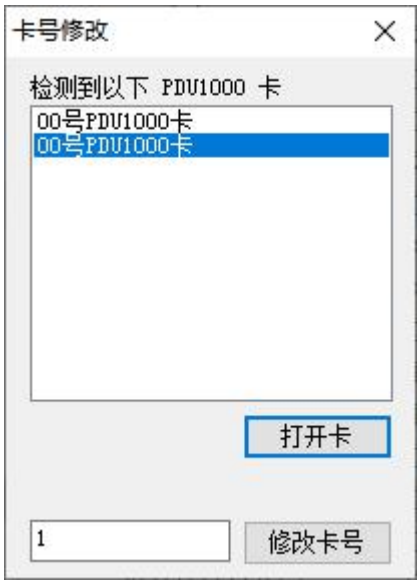


3.19.2. Change Card Number

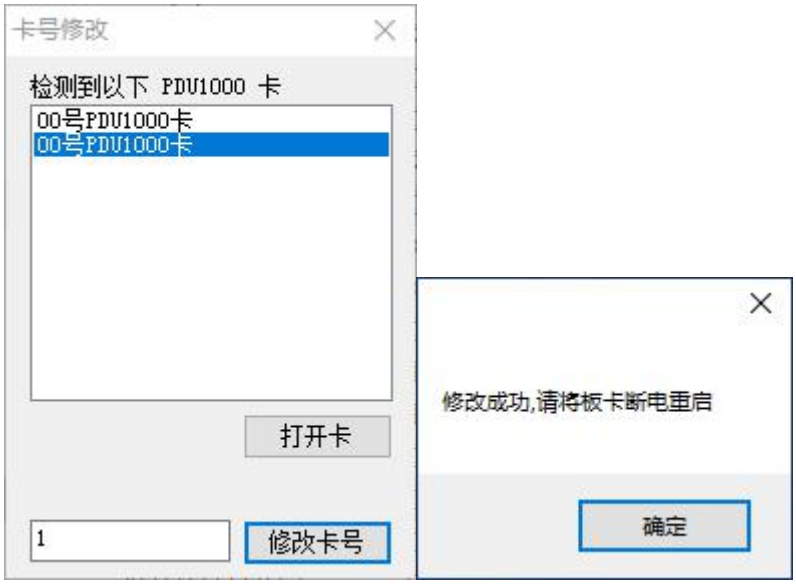
In 3.19.1, the steps for connecting an industrial computer to a single card and changing the card number are introduced. The following steps are for connecting multiple cards to an industrial computer and changing the card number.

1. Open the "CardWriter. exe" application program in the software directory, and you can see all the boards connected to the industrial computer (drivers need to be installed correctly)

2. Click to select a card and then click 'Open Card'

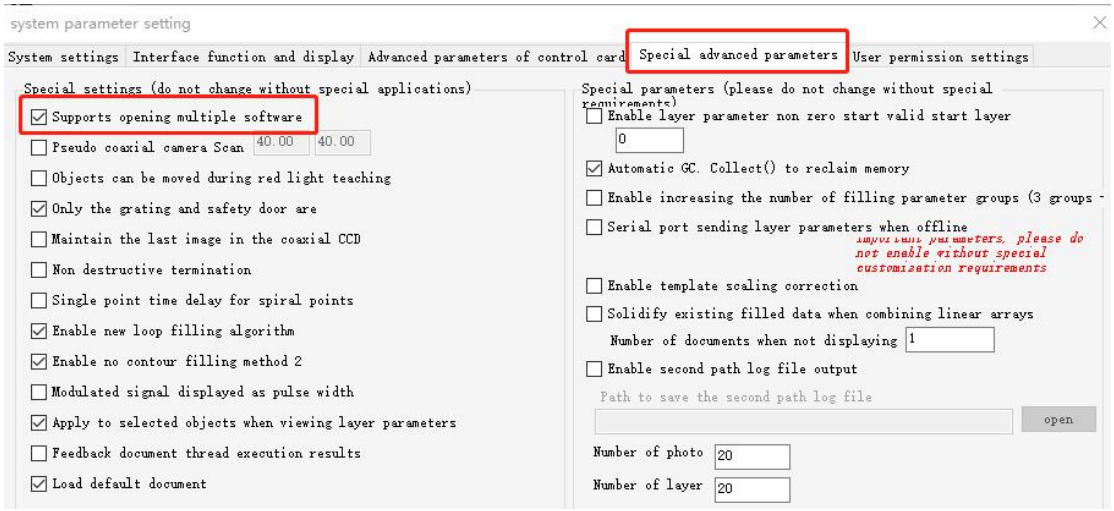


Fill in the card number that needs to be changed, click on "Modify Card Number", and according to the prompts, power off and then power on the board.



3.19.3. Multiple Software

The marking (welding) software of PD can only open one client by default. If multiple clients need to be opened at the same time, multiple software functions need to be enabled. Settings--System Settings--Special Advanced Parameters ", check" Support opening multiple software at the same time ", save the settings, and restart the software to take effect.



3.20. Rights Management

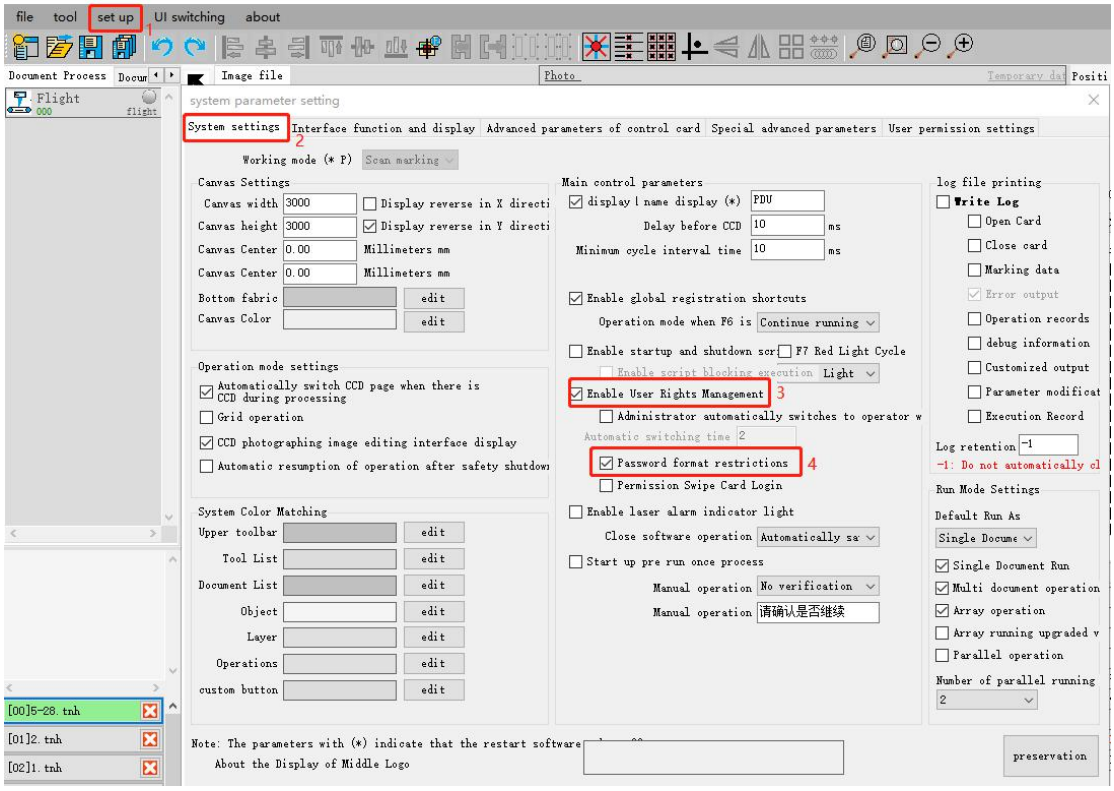
Default account password

Administrator: 7777 Password: 7777

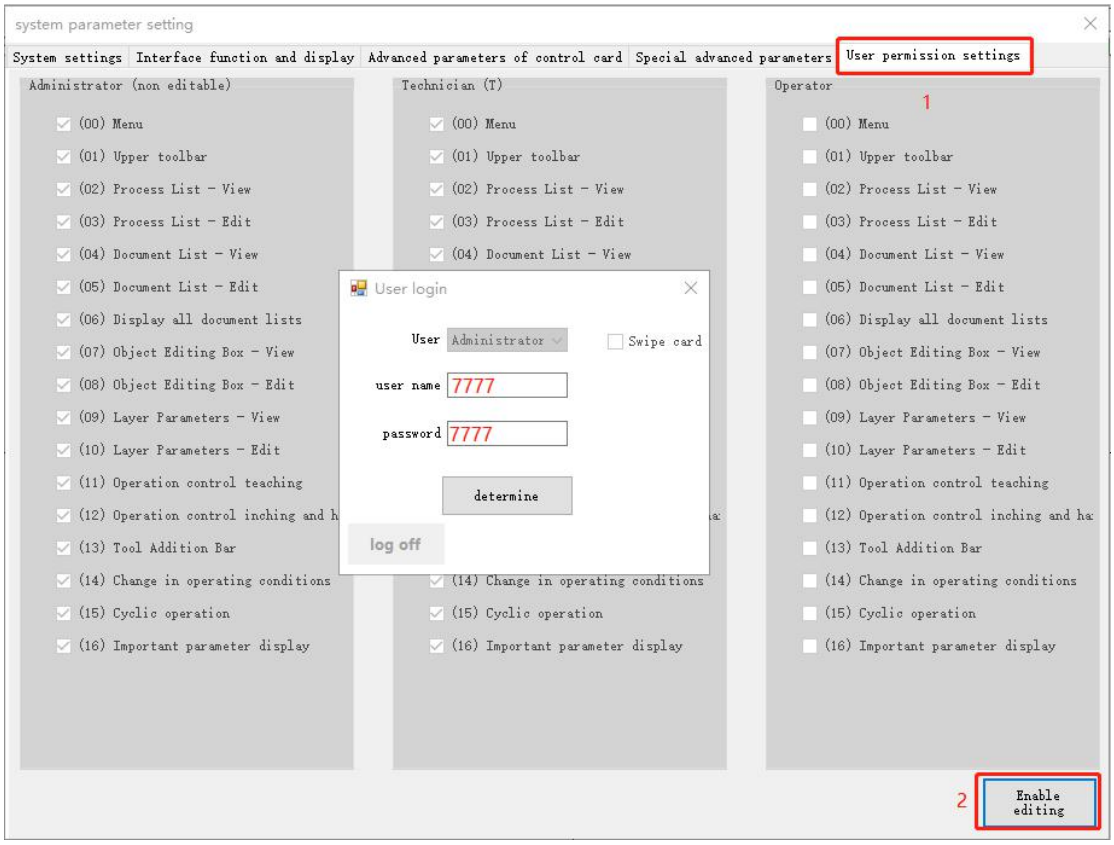
Engineer: 6666 Password: 6666

Operator: 8888 Password: 8888

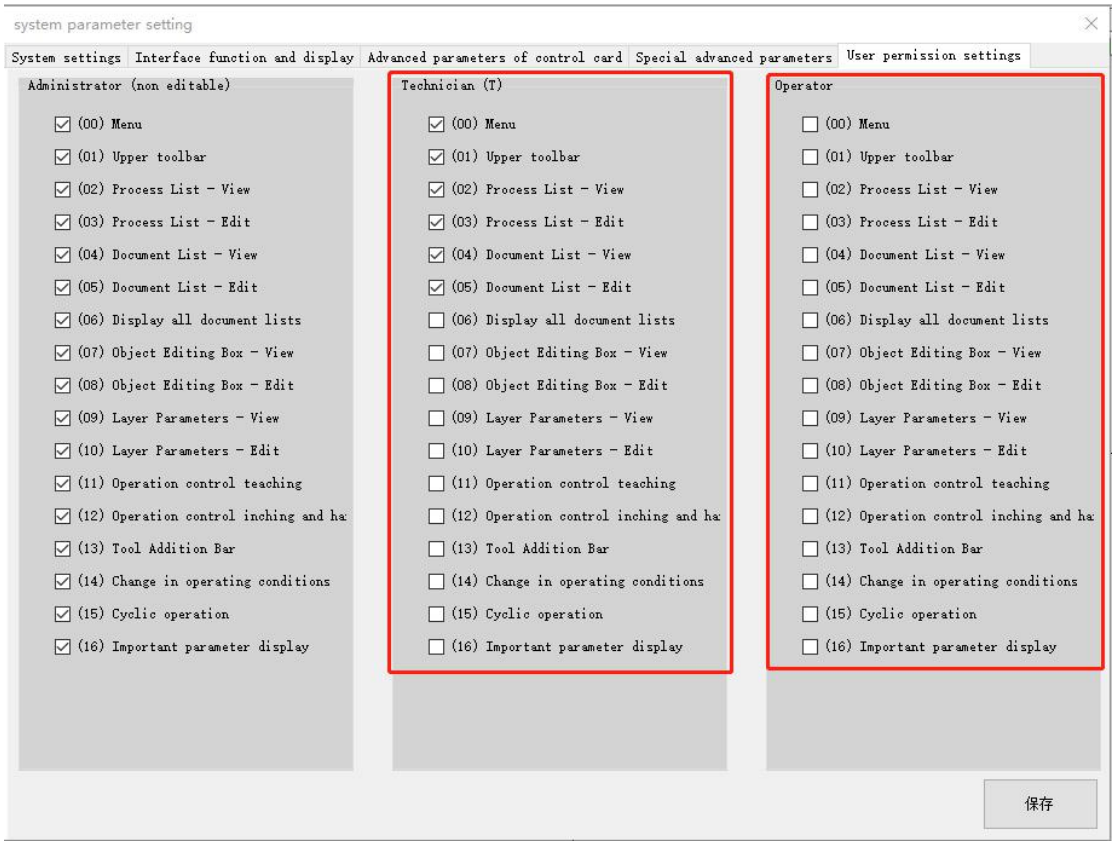
a.Enable permission function. Click on "Settings System Settings", check "Enable User Rights Management", then check "Password Format Restrictions", save and restart the software.



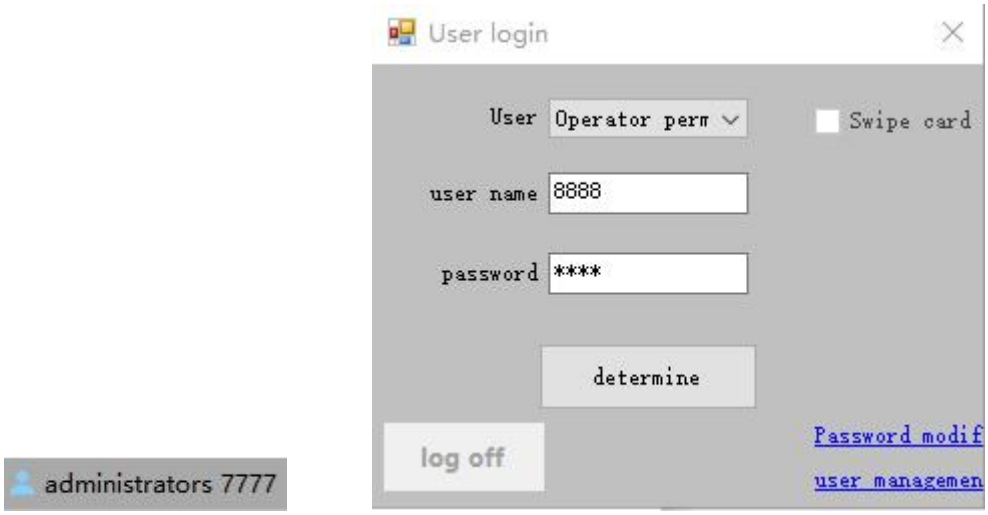
b.Edit permission range. Click on "User Permission Settings - Enable Editing" and enter the administrator password. The default administrator account is 7777 and password is 7777.



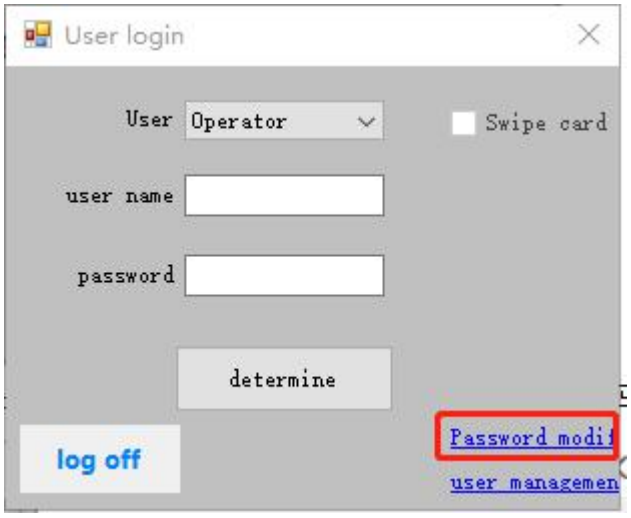
c.Assign permissions to technicians and operators, check the corresponding permissions. Save it.

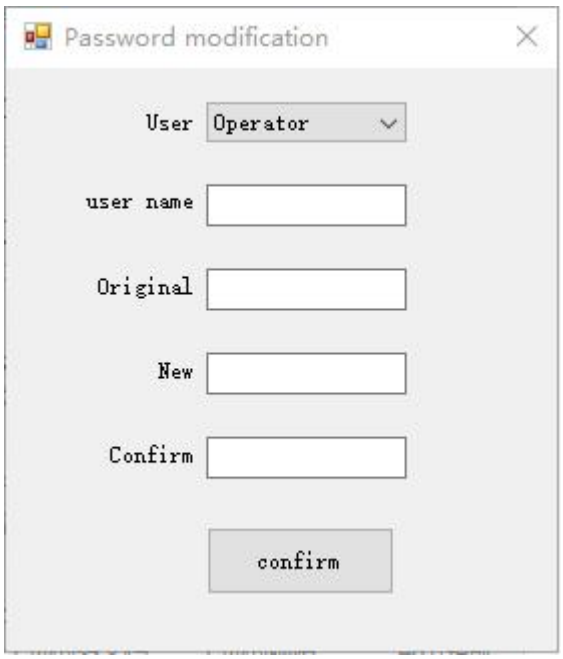


d.Switch users. Click on the user in the upper left corner of the software to pop up a pop-up window for user login. Select the permission type, and then enter the account password to log in to switch users.



e.Change password. Click on "Change Password", select User Permissions in the pop-up window, and enter the account, old password, and new password in sequence.




Password modification
User
Operator
user name
Original
New
Confirm
confirm

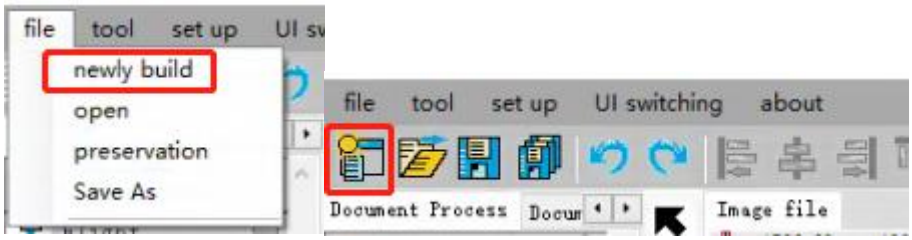
4. Set up laser

4.1. Debugging the laser

a. Connect the board, laser, and galvanometer properly

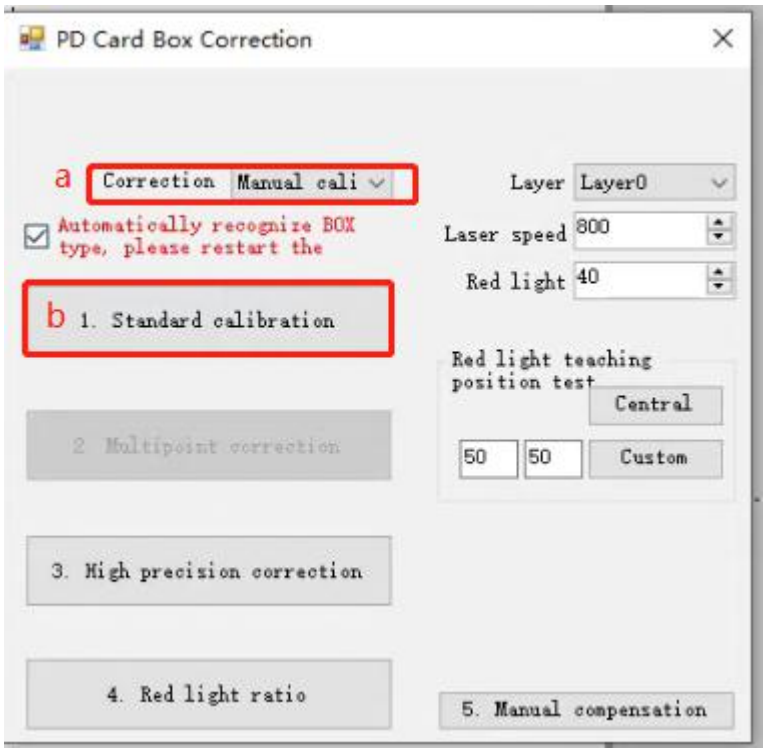
b. Open the software and the green "PDU card opened successfully" appears in the upper right corner, indicating that the software has successfully connected to the card

c. Create a new project



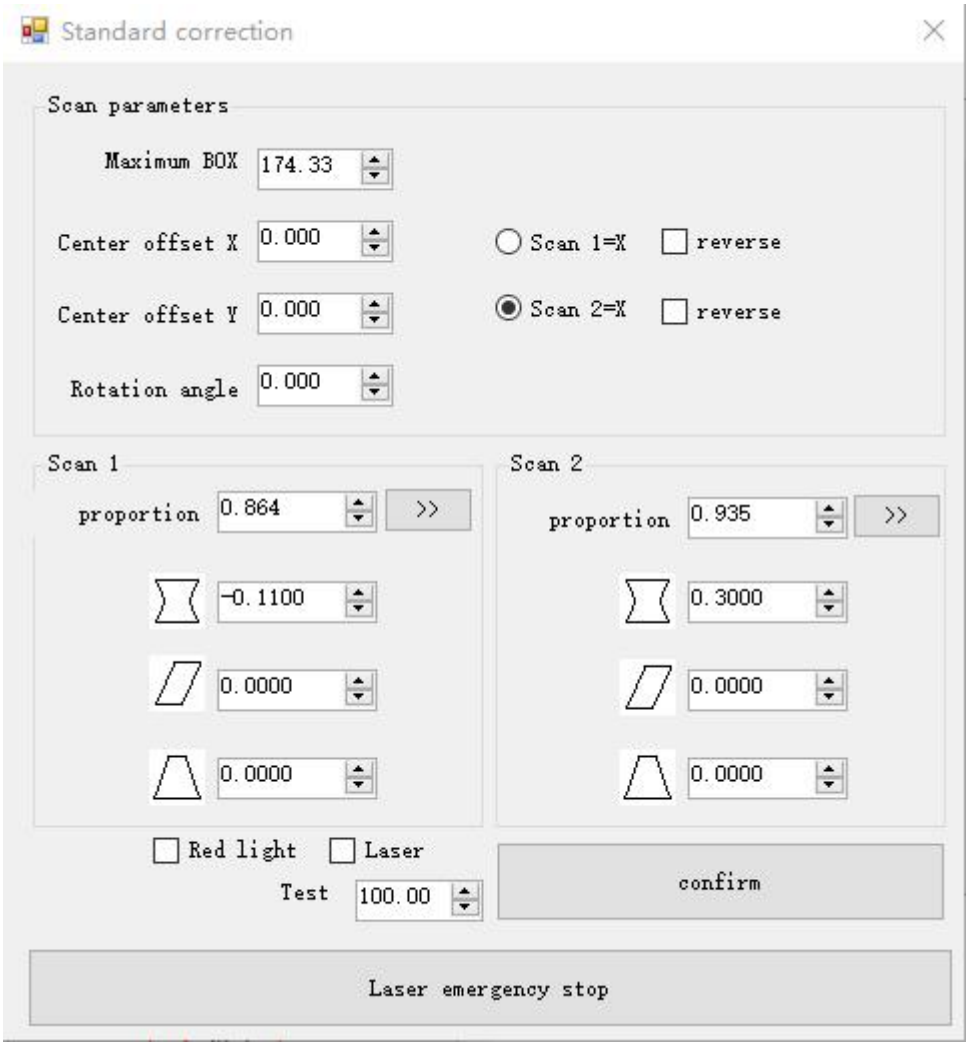
d. Draw a graph, cycle out light, adjust the height of the galvanometer, and find the focus of the laser based on the intensity of the marking laser

4.2. BOX calibration method 1: manual calibration



a. Select 'Manual calibration' (PDU-1000V3K2 Card does not have this option, defaults to 'Manual calibration');

b. Select 'Standard Calibration';



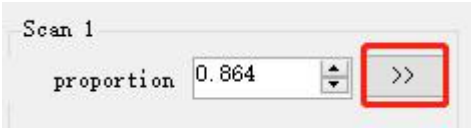
c. Set the value of "Test Rectangle Size" to the actual required marking size;

d. Set "Max BOX", it is recommended that the value of "Max BOX" be slightly larger than the value of "Test Rectangle Size";

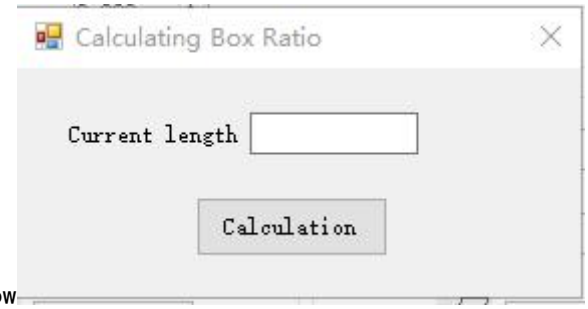
e. Check to turn on the laser;

f. Click to confirm and laser print;

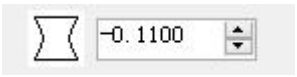
g. Use a ruler to measure whether the length of the X and Y axes is equal to the "test rectangle size" set in c. If the measured lengths are not equal, find the corresponding galvanometer for the X (Y) axis, click the button



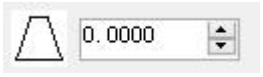
as shown in the figure, fill in the measured



length in the pop-up window , and click "Calculate". Click on "Laser Test" again to repeat the test until the measured length is equal to the set "Test Rectangle Size" length;

h. Click "OK" at f and laser print. ① If the printed rectangular line is curved, find the corresponding galvanometer on the X (Y) axis and adjust the value 

in the galvanometer; ② If the printed rectangle is a parallelogram, find the corresponding galvanometer on the X (Y) axis and adjust the value

in the galvanometer; ③ If the printed rectangle is trapezoidal, adjust the value 

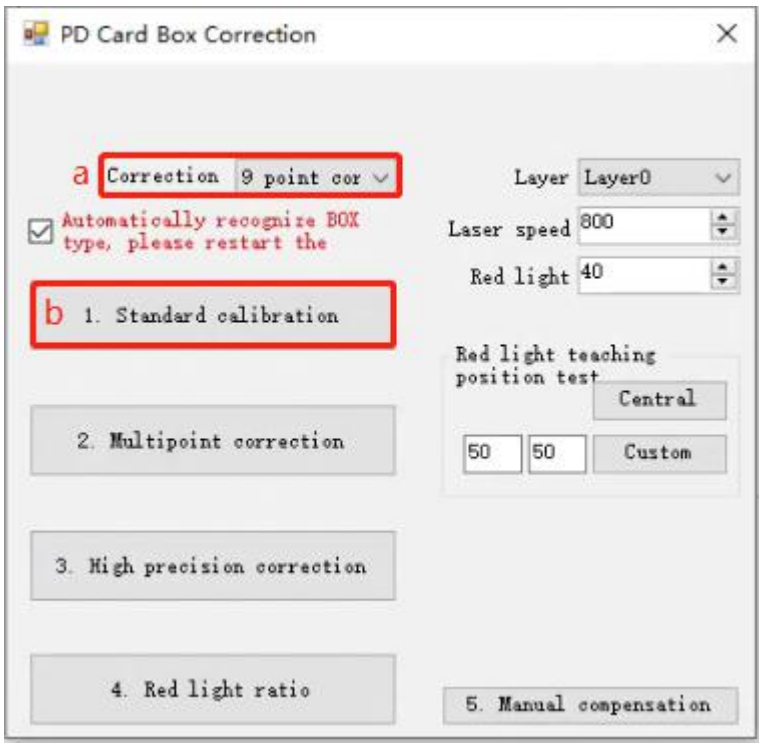
in the galvanometer; Adjust repeatedly until the desired rectangle is printed out;

i. Click "OK" at f to observe whether the printed coordinates of the X and Y axes meet the requirements. You can adjust them by setting the corresponding relationship between the galvanometer and X (Y). If the direction of the X (Y) axis is reversed, check "Reverse";

j. The default center point of the galvanometer is (0,0). The position of the galvanometer center point can be changed according to actual needs, but the offset should not be too large. Do not change the "center offset" unless there are special requirements; The function of "rotation angle" is to adjust the angle of the galvanometer coordinate system, which can be changed according to the marking direction requirements. Do not change it unless there are special requirements.

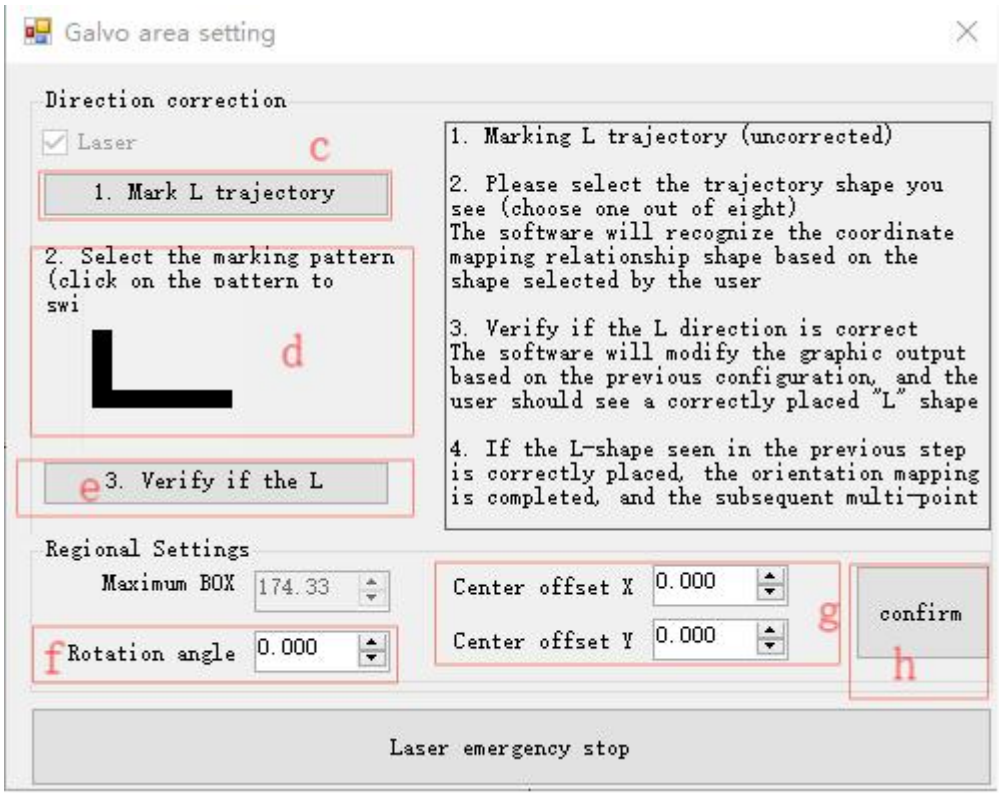
4.3. BOX correction method 2: 9-point correction

1. Correct Direction



a. Select '9-point correction' (PDU1000-V6K3 and PCIE-V3K1 Version card has this option) ;

b. Select 'Standard Correction' (set the direction of the galvanometer);



c. Place a piece of black paper under the galvanometer, click on "Mark L trajectory" (Will emit laser), and view the style of "L" on the black paper at the observation position of the machine;

d. Click on the pattern to switch the style of the pattern until it matches the pattern observed in the previous step

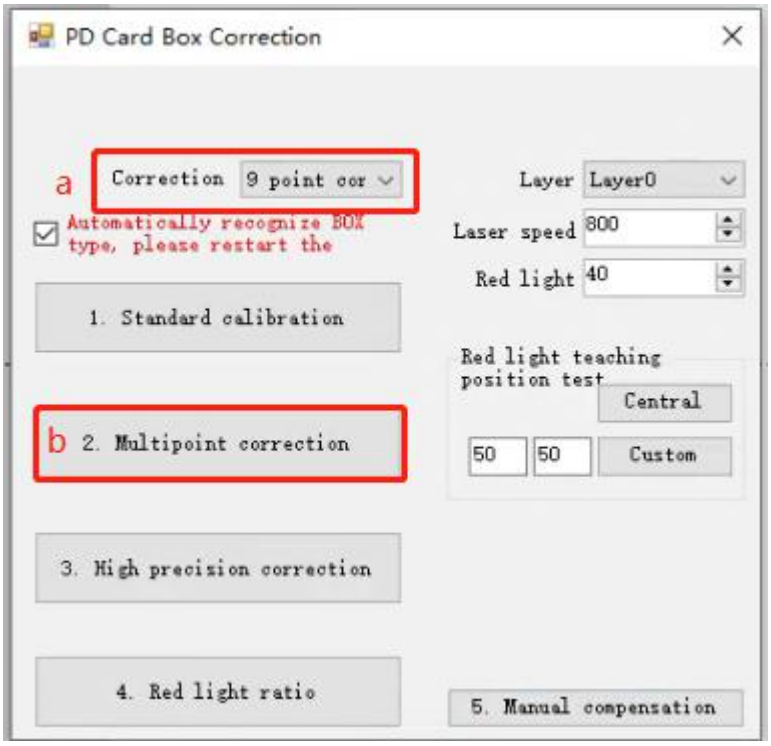
e. Place a piece of black paper under the galvanometer, click on "Verify if the L direction is correct" (Will emit laser), and check the "L" style on the black paper at the machine observation position. If you do not observe a correct "L" letter style pattern, please check if the two steps above are correct;

f. If it is necessary to modify the galvanometer, the angle value can be modified;

g. If it is necessary to modify the center position of the galvanometer, the offset in the XY direction of the galvanometer can be filled in;

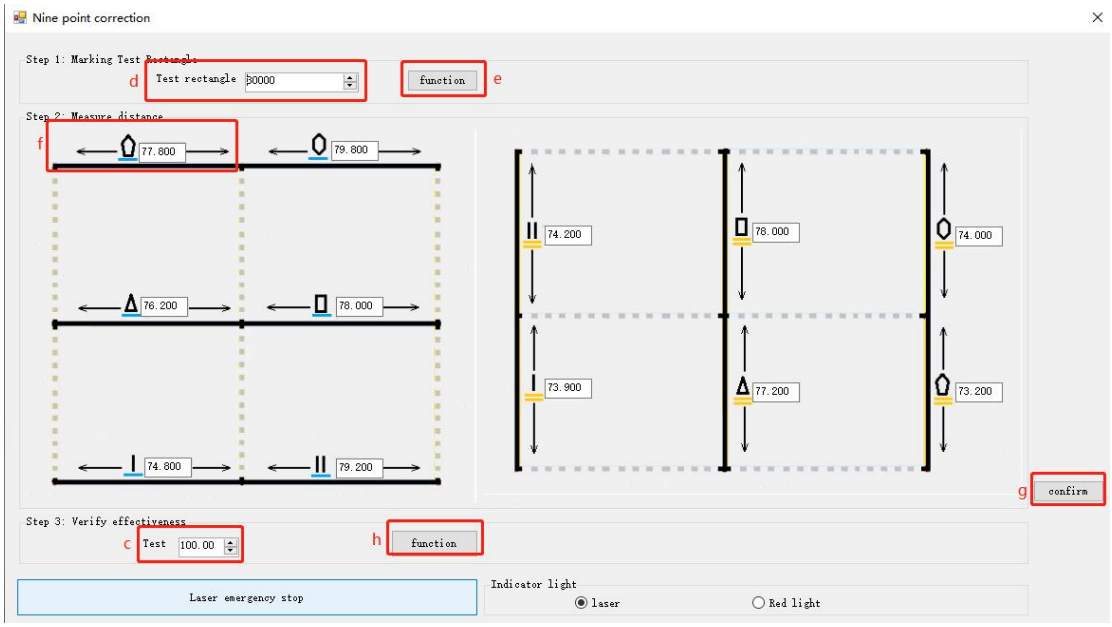
h. Click 'Confirm' to save.

2. Correct size



a. Select '9-point correction';

b. Select 'Multiple point correction';



c. Set the value of "Test Rectangle Size" to the actual required BOX size;

d. Set the maximum BOX size, where the value is the ratio, with a range of 8000-32000;

e. Click 'Run' and adjust the value at point c based on the size of the laser printed rectangle. It is recommended that the maximum BOX be slightly larger than the value in point c;

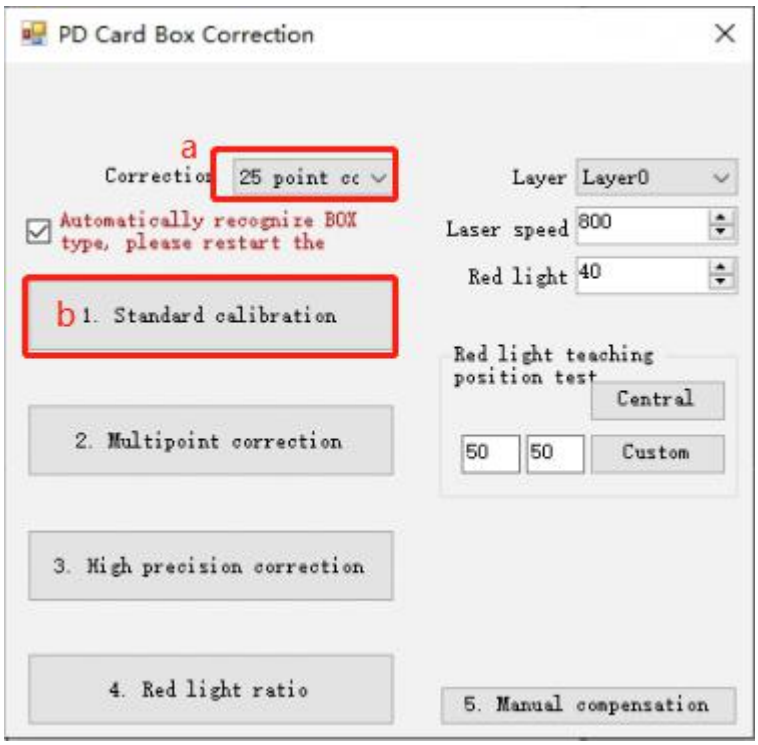
f. Click on the Run Print Rectangle at e, find the same edge as the graph at f, measure the length with a ruler, and fill the measured length in the corresponding image at f. Use this method to fill in the length of other edges at once;

g. Click to confirm and save;

h. Click on Run, laser print the run result, and use a ruler to measure whether the printed result meets the length set by c;

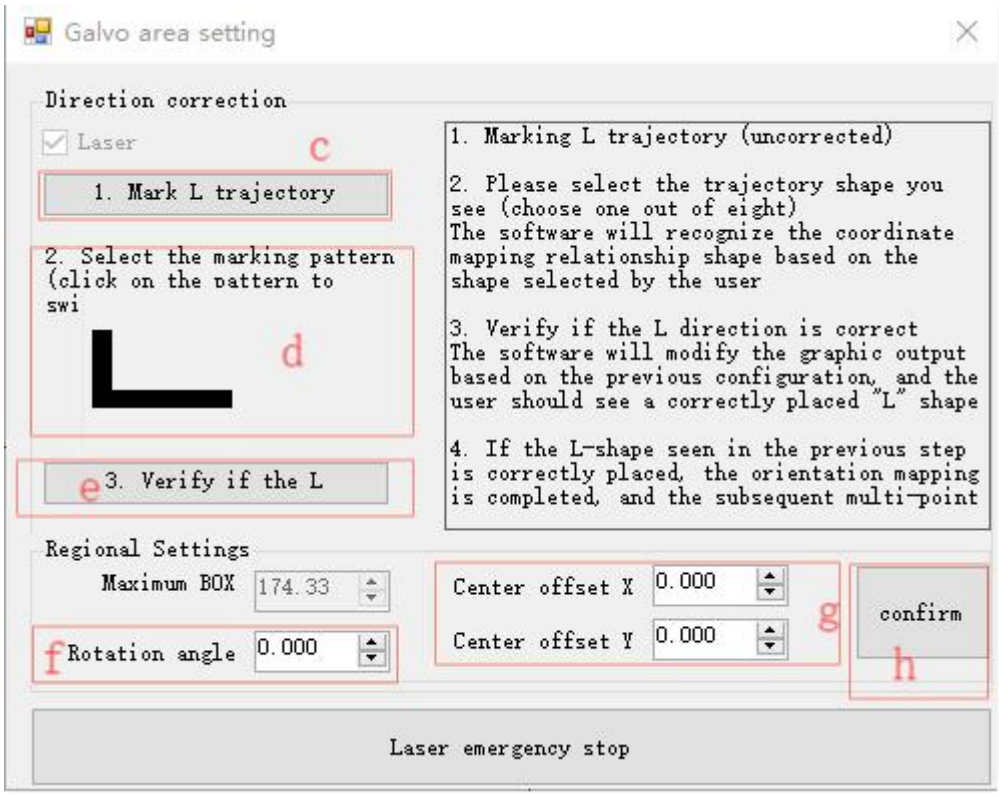
4.4. BOX correction method 3: 25 point correction

1. Correct Direction



a. Select '25 point correction' (PDU1000-V6K3 and PCIE-V3K1 Version card has this option) ;

b. Select 'Standard Correction' (set the direction of the galvanometer);



c. Place a piece of black paper under the galvanometer, click on "Mark L trajectory" (Will emit laser), and view the style of "L" on the black paper at the observation position of the machine;

d. Click on the pattern to switch the style of the pattern until it matches the pattern observed in the previous step

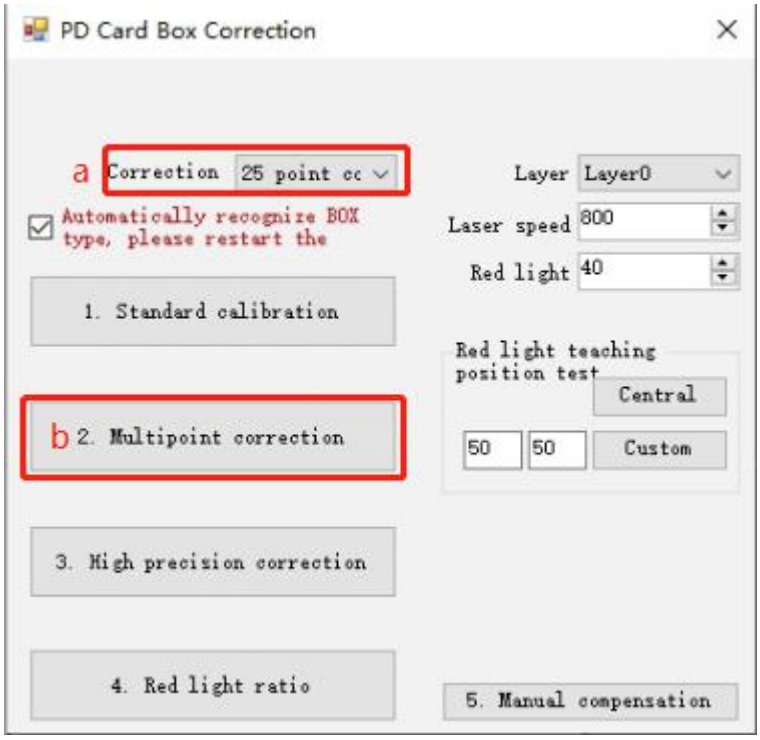
e. Place a piece of black paper under the galvanometer, click on "Verify if the L direction is correct" (Will emit laser), and check the "L" style on the black paper at the machine observation position. If you do not observe a correct "L" letter style pattern, please check if the two steps above are correct;

f. If it is necessary to modify the galvanometer, the angle value can be modified;

g. If it is necessary to modify the center position of the galvanometer, the offset in the XY direction of the galvanometer can be filled in;

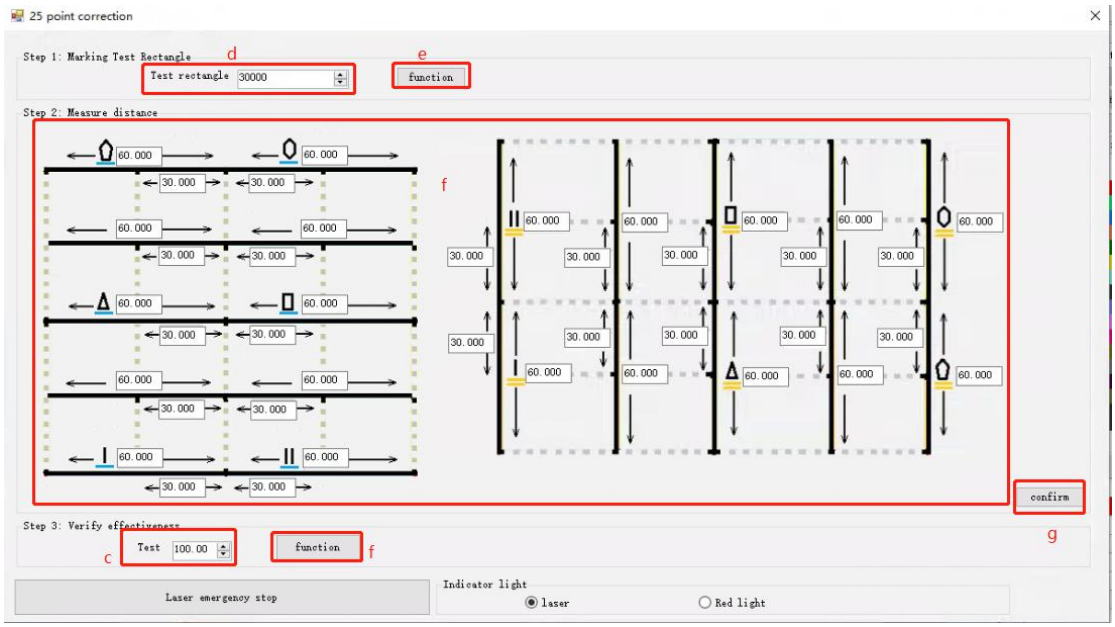
h. Click 'OK' to save.

2. Correct size



a. Select '25 point correction';

b. Select 'Multiple point correction';



c. Set the value of "Test Rectangle Size" to the actual required BOX size;

d. Set the maximum BOX size, where the value is the ratio, with a range of 8000-32000;

e. Click 'Run' and adjust the value at point c based on the size of the laser printed rectangle. It is recommended that the maximum BOX be slightly larger than the value in point c;

f. Click on the Run Print Rectangle at e, find the same edge as the graph at f, measure the length with a ruler, and fill the measured length in the corresponding image at f. Use this method to fill in the length of other edges at once;

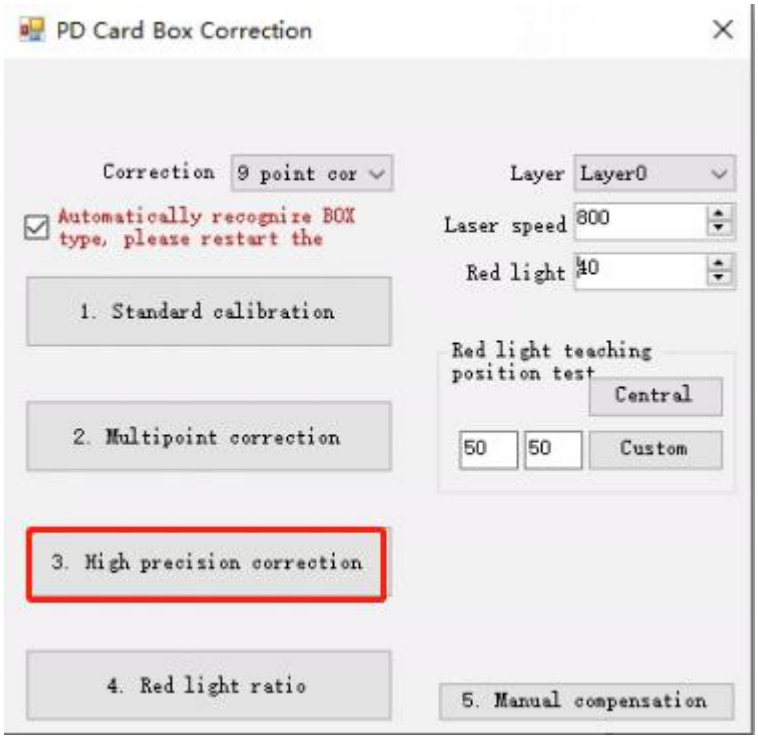
g. Click to confirm and save;

h. Click on Run, laser print the run result, and use a ruler to measure whether the printed result meets the length set by c;

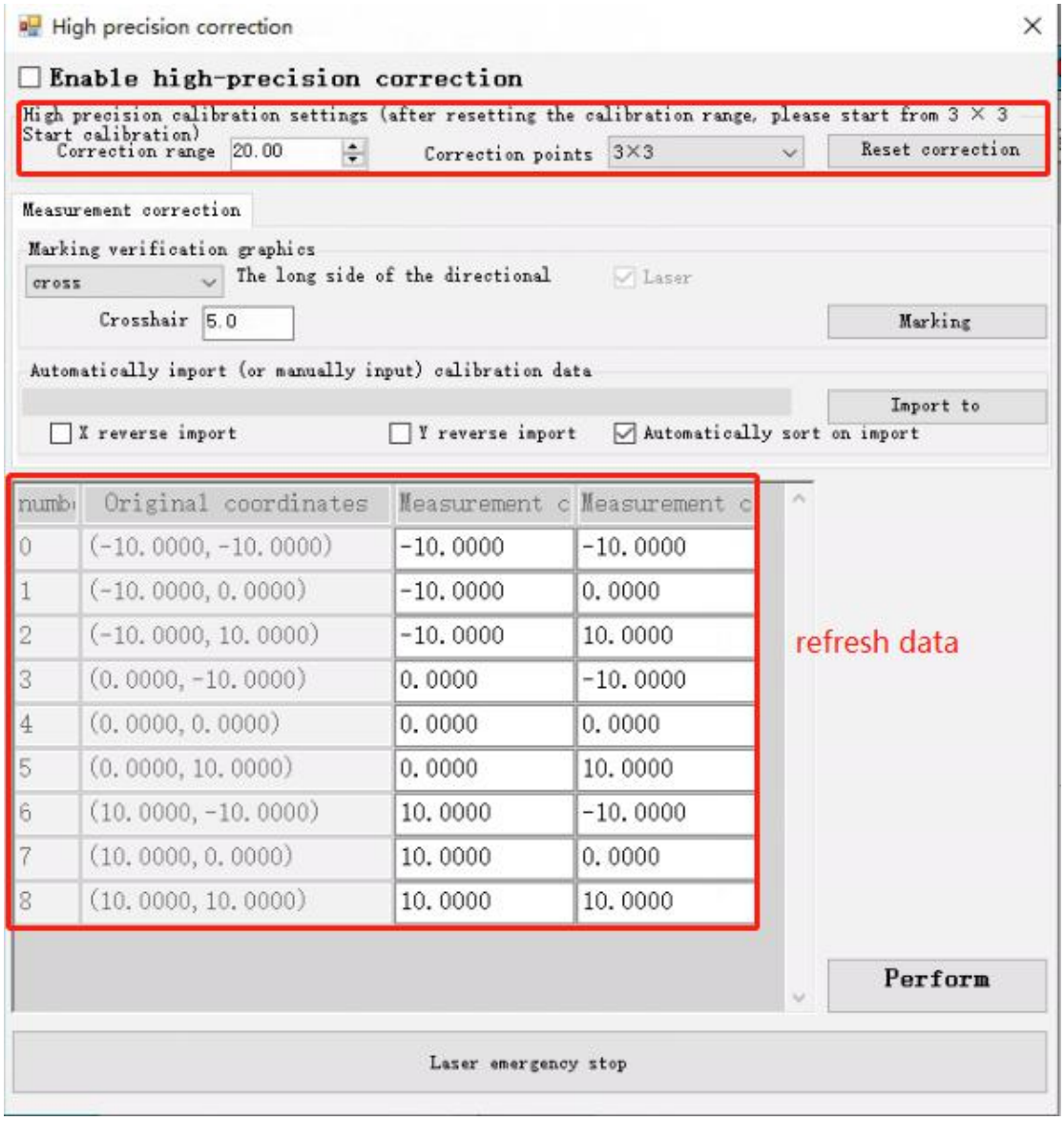
4.5. BOX correction method 4: Manual high-precision correction

Note: Before performing high-precision calibration, complete regular BOX calibration first. High precision correction is a hierarchical correction, which requires completing the lower level correction before proceeding to the next level correction. The following is an example of the 3 * 3 step, which is the same as other hierarchical correction operations.

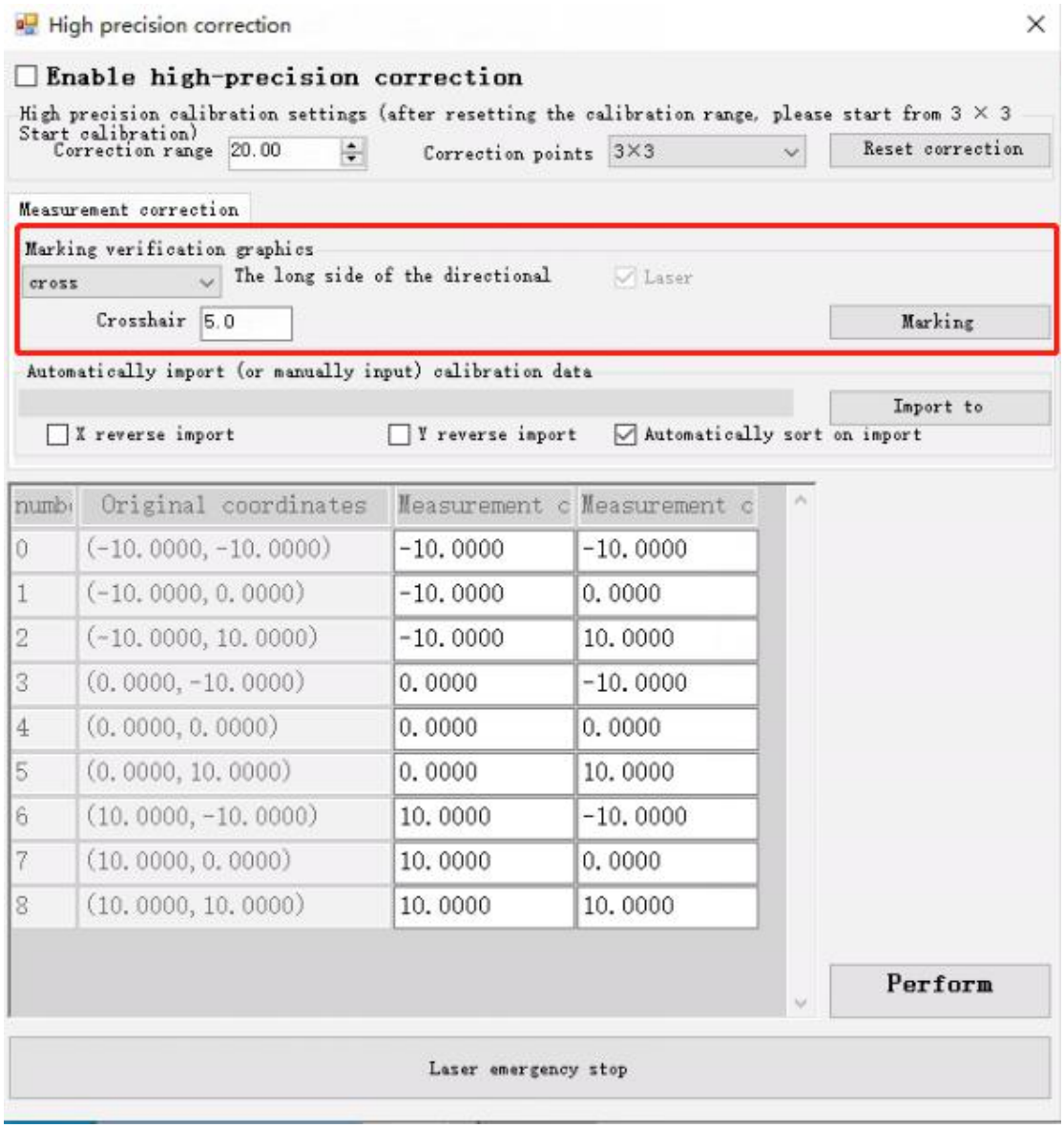
a. Open high-precision menu

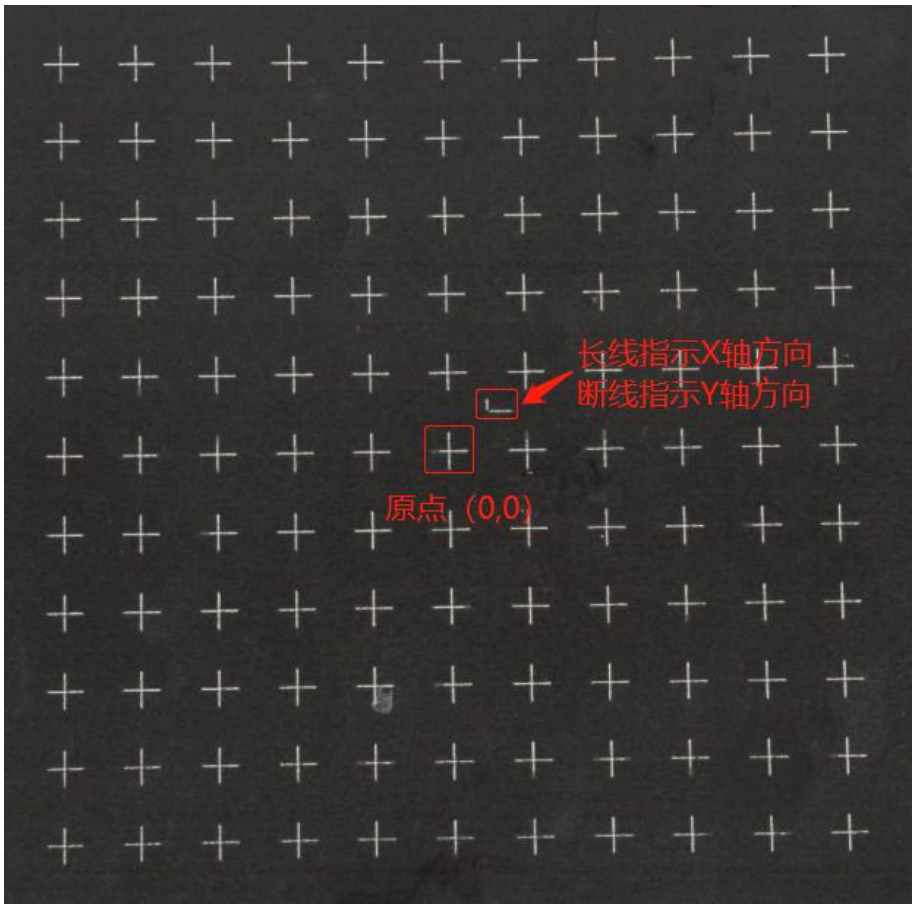


b. Set the calibration range and number of calibration points, starting from the minimum level of 3 * 3. Click on Generate Calibration List to refresh the calibration list



c. Select the marking pattern (cross, circle, point), Click on the marking and the laser will emit light.


High precision correction
Enable high-precision correction
High precision calibration settings (after resetting the calibration range, please start from 3 × 3
Start calibration)
Correction range
20.00
Correction points
3×3
Reset correction
Measurement correction
Marking verification graphics
cross
The long side of the directional
Laser
Crosshair
5.0
Marking
Automatically import (or manually input) calibration data
Import to
X reverse import
Y reverse import
Automatically sort on import
numb
Original coordinates
Measurement c
Measurement c
0 (-10.0000, -10.0000) -10.0000 -10.0000
1 (-10.0000, 0.0000) -10.0000 0.0000
2 (-10.0000, 10.0000) -10.0000 10.0000
3 (0.0000, -10.0000) 0.0000 -10.0000
4 (0.0000, 0.0000) 0.0000 0.0000
5 (0.0000, 10.0000) 0.0000 10.0000
6 (10.0000, -10.0000) 10.0000 -10.0000
7 (10.0000, 0.0000) 10.0000 0.0000
8 (10.0000, 10.0000) 10.0000 10.0000
Perform
Laser emergency stop



d. Put each marked point on the anime element to measure the position, and then fill each position in the measurement coordinates.

numb	Original coordinates	Measurement c	Measurement c
0	(-10.0000, -10.0000)	-10.0000	-10.0000
1	(-10.0000, 0.0000)	-10.0000	0.0000
2	(-10.0000, 10.0000)	-10.0000	10.0000
3	(0.0000, -10.0000)	0.0000	-10.0000
4	(0.0000, 0.0000)	0.0000	0.0000
5	(0.0000, 10.0000)	0.0000	10.0000
6	(10.0000, -10.0000)	10.0000	-10.0000
7	(10.0000, 0.0000)	10.0000	0.0000
8	(10.0000, 10.0000)	10.0000	10.0000

e. You can also record the measured coordinates in a txt document and import them into the calibration data.

f. After completion, click to perform calibration, and finally check to enable high-precision.

Note: In the case of importing with TXT documents, write the TXT document from the

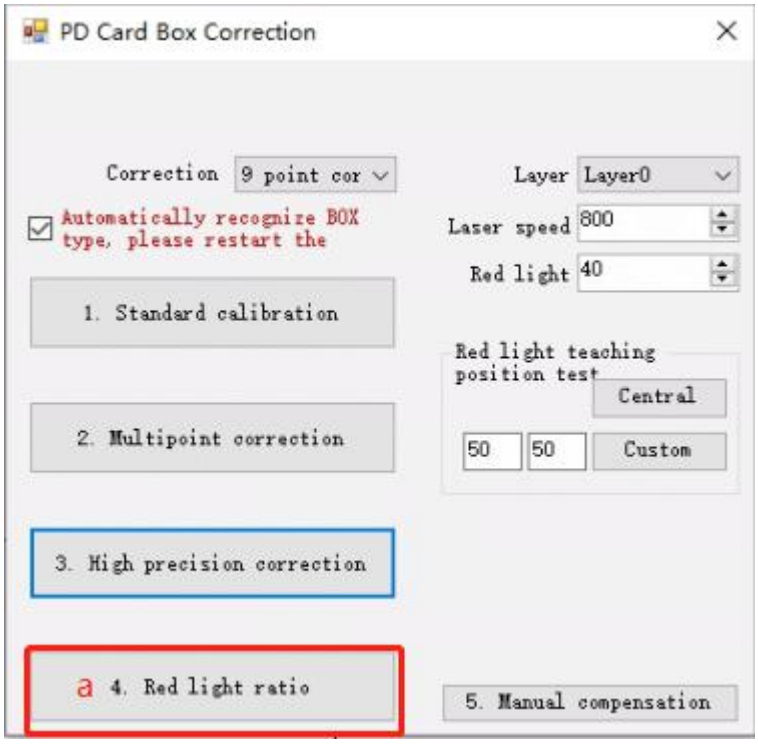
first point in the negative direction of the X and Y axes, in order of each line.

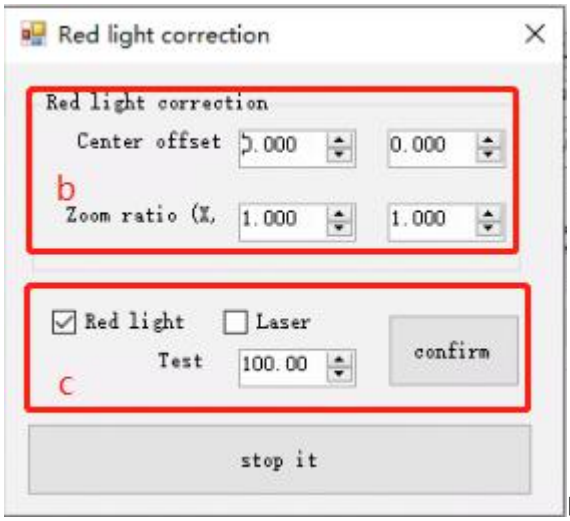
文件(F) 编辑(E) 格式(O)

-19.929,-20.066
-14.942,-20.057
-9.938,-20.038
-4.918,-20.038
0.072,-20.009
5.053,-19.998
10.074,-19.983
15.067,-19.968
20.066,-19.952
20.063,-14.967
15.053,-14.968

4.6. Red light ratio

a. Select 'Red Light Ratio'





b. Check "Enable Red Light", fill in the value of "Test Rectangle Size" at position c, and click "Confirm";

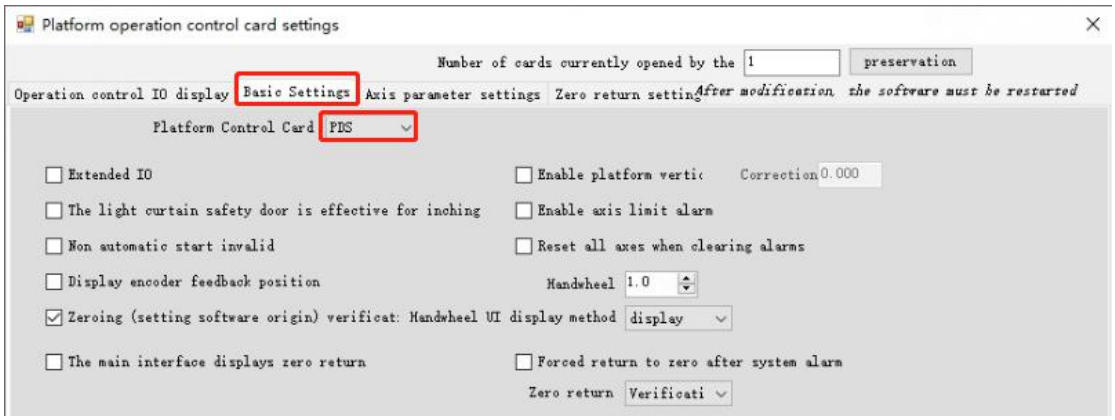
c. Observe whether the red light running trajectory coincides with the rectangle printed by the laser. If it does not, set the "scaling ratio (X, Y)" to adjust the red light running trajectory; Click on "Red Light Test". If the spot does not coincide with the origin of the laser printing, set the "Center Offset (X, Y)" to adjust the position of the spot.

5. Motion Axis Application

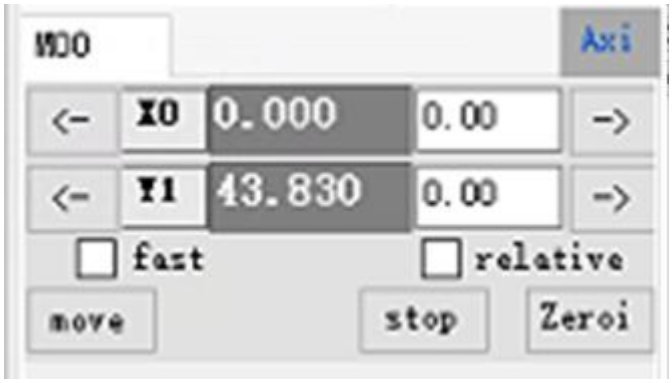
5.1. Connecting the motion axis

a. Connecting the board and motion axis

b. Set motion axis control, tool->platform Sports Card settings, Basic Settings->Platform Control Card, select PDS, click "preservation", close the setting interface, and close the software;

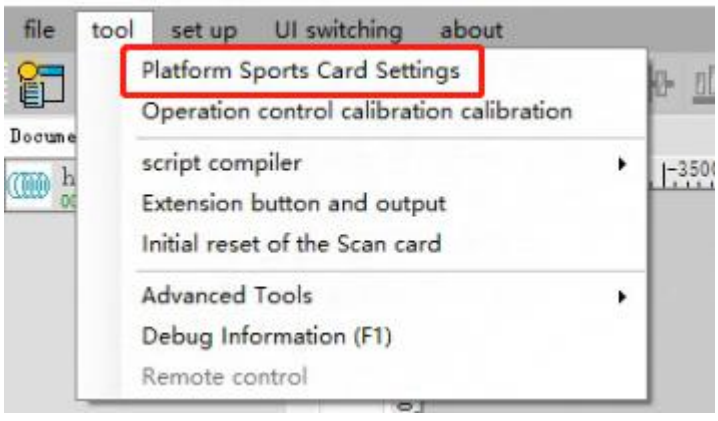


c. Open the software again, and the operation axis control bar will appear in the right column of the software main interface, indicating that the axis connection is successful.



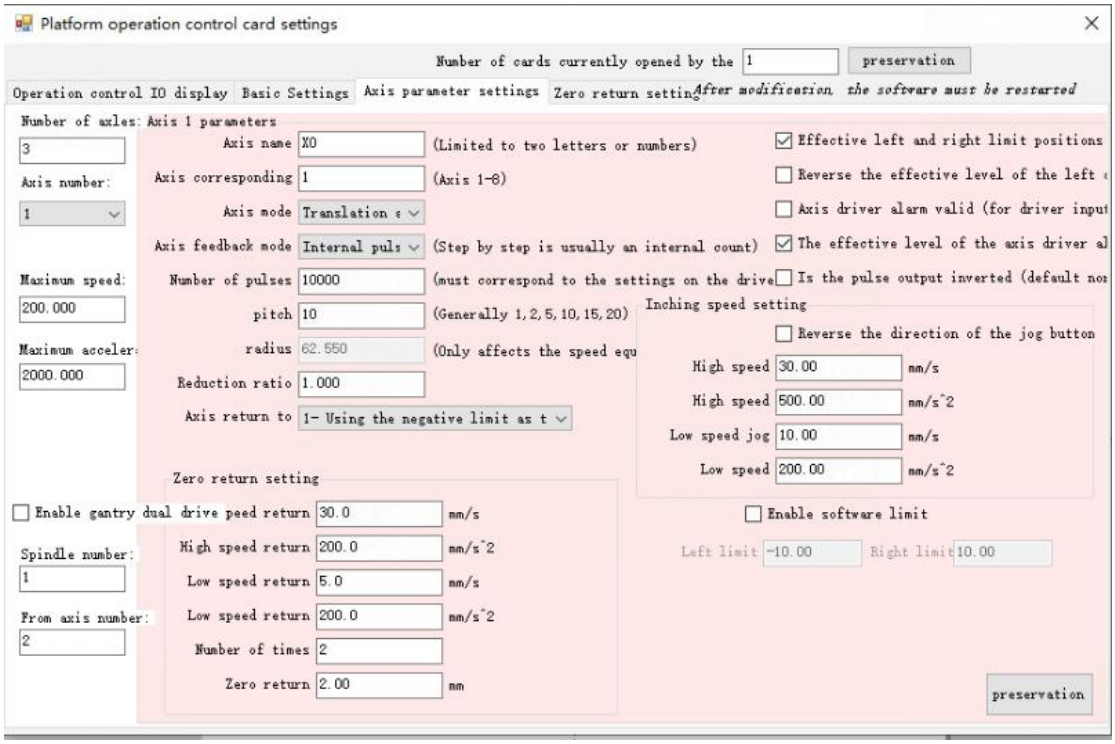
5.2. Configure axis parameters

a. Open the axis parameter setting interface. Tool platform sports card settings, you can also use the F3 shortcut key;



b. Axis parameter setting interface

c. Configure Axis Equivalent



Axis parameters	
Axis corresponding motor serial number	The control card axis number corresponding to the current axis number, which defaults to the axis number
axis mode	Currently supports' translation axis' and 'rotation axis'
Axis feedback mode	Currently supports "internal pulse counting" and "external

	encoder"
Pulses per revolution	Set the number of pulses per revolution consistent with the corresponding driver, that is, the number of pulses that the motor needs to send per revolution
pitch	Set the pitch of the shaft drive screw
radius	Only the rotation axis is effective. Set the maximum radius of the rotating part, and the software calculates the circumference of the rotating part using this parameter. The running speed of the rotating shaft is linear velocity, and the smaller the radius, the shorter the circumference. Under the same linear velocity, the angular velocity of the rotating shaft increases, which affects the speed of the rotating shaft
reduction ratio	When the motor directly drives the shaft, the reduction ratio is 1, while when the motor drives the shaft through the reducer, the reduction ratio of the reducer is set

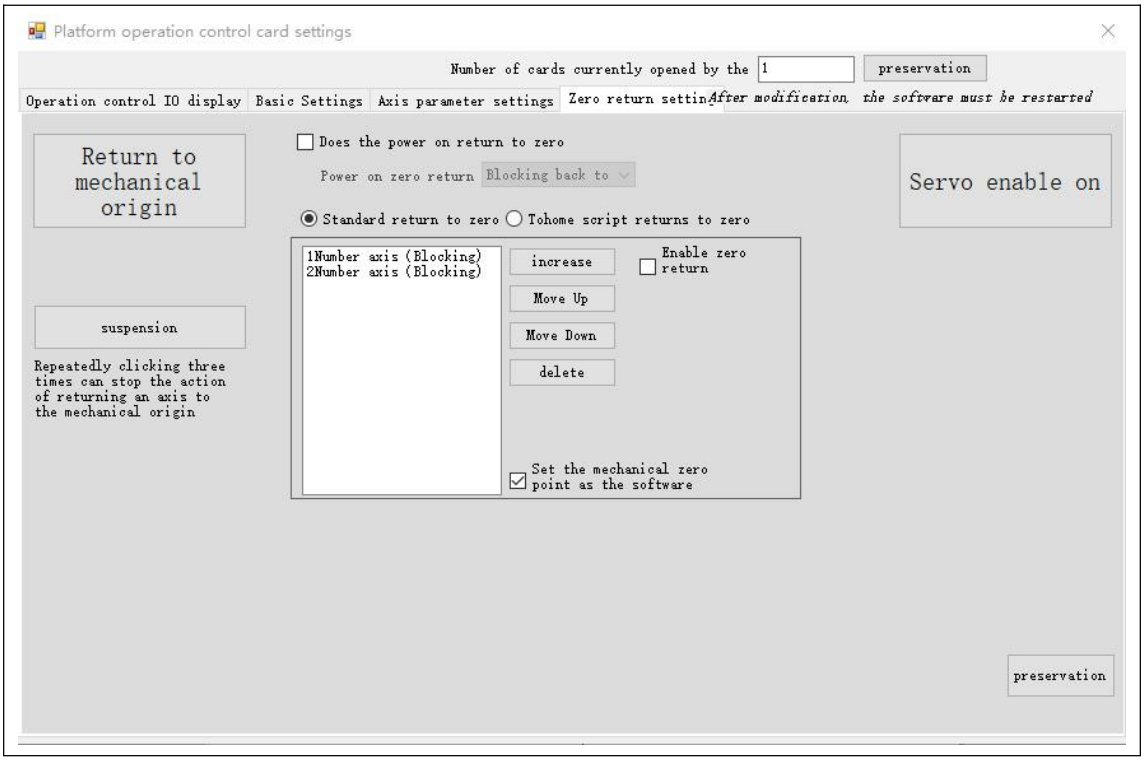
Signal and level parameters	
Limit	Set the limit signal and signal level, check "Left and Right Limit Valid" to enable the limit signal, and check "Left and Right Limit Valid Level Inverted" to invert the limit signal level
Axis driver alarm	Set the alarm signal and signal level of the driver, check "Axis Driver Alarm Valid" to enable the alarm signal, and check "Axis Driver Alarm Valid Level Inverted" to invert the alarm signal level
Is the pulse output reversed	Set pulse reversal, check "Pulse output reverse" to reverse the pulse direction, that is, the axis running direction

d. Zero return setting

Zero return parameter	
Axis return to mechanical origin mode	Currently supports multiple zero return modes: " Positive limit as origin" " Negative limit as origin" " Positive limit HOME point as origin" " Negative limit HOME point as origin" " Positive limit Z-direction" " Negative limit Z-direction" " Positive limit reverse Z-direction"

	” Negative limit reverse Z-direction”
Number of times to return to zero	Set the number of zeros to 2 by default. The first time is for high-speed zeroing to improve the efficiency of zeroing, and the second time is for low-speed zeroing to ensure the accuracy of zeroing
Zero return distance	Set the return distance to zero to avoid the limit switch when the limit is at the origin mode. After finding the origin, move for a certain distance to avoid the limit switch (the return distance is negative when returning to the positive limit, and positive when returning to the negative limit)

e. Return to mechanical origin



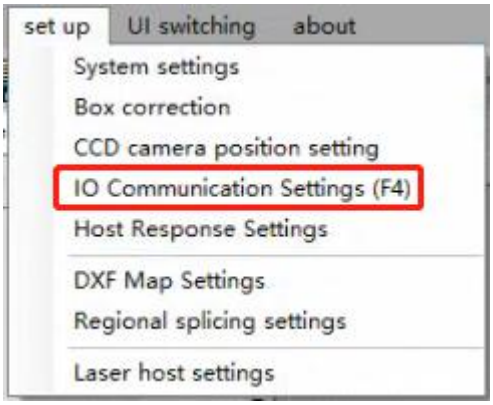
step	illustrate
Single axis zero return test	Click the "Add" button, add an axis, and then click the "Return to Mechanical Origin" button to test whether the return to zero of a single axis is effective
All axis return to zero test	Add axes in order. Check 'Blocking waiting', and the next axis will only begin to return to zero after the current axis completes its return to zero.

Power on reset setting	When the zero return operation is confirmed to be correct, you can check "Power on Zero Return" as needed.
Enable zero return completion signal	Check the "Enable zero return completion signal" option and set the specified IO port number for completing signal output in the completion signal bit. When the axis is reset to the mechanical origin, the zero return completion signal will be output. When the axis is reset, the zero return completion signal will be automatically cleared.

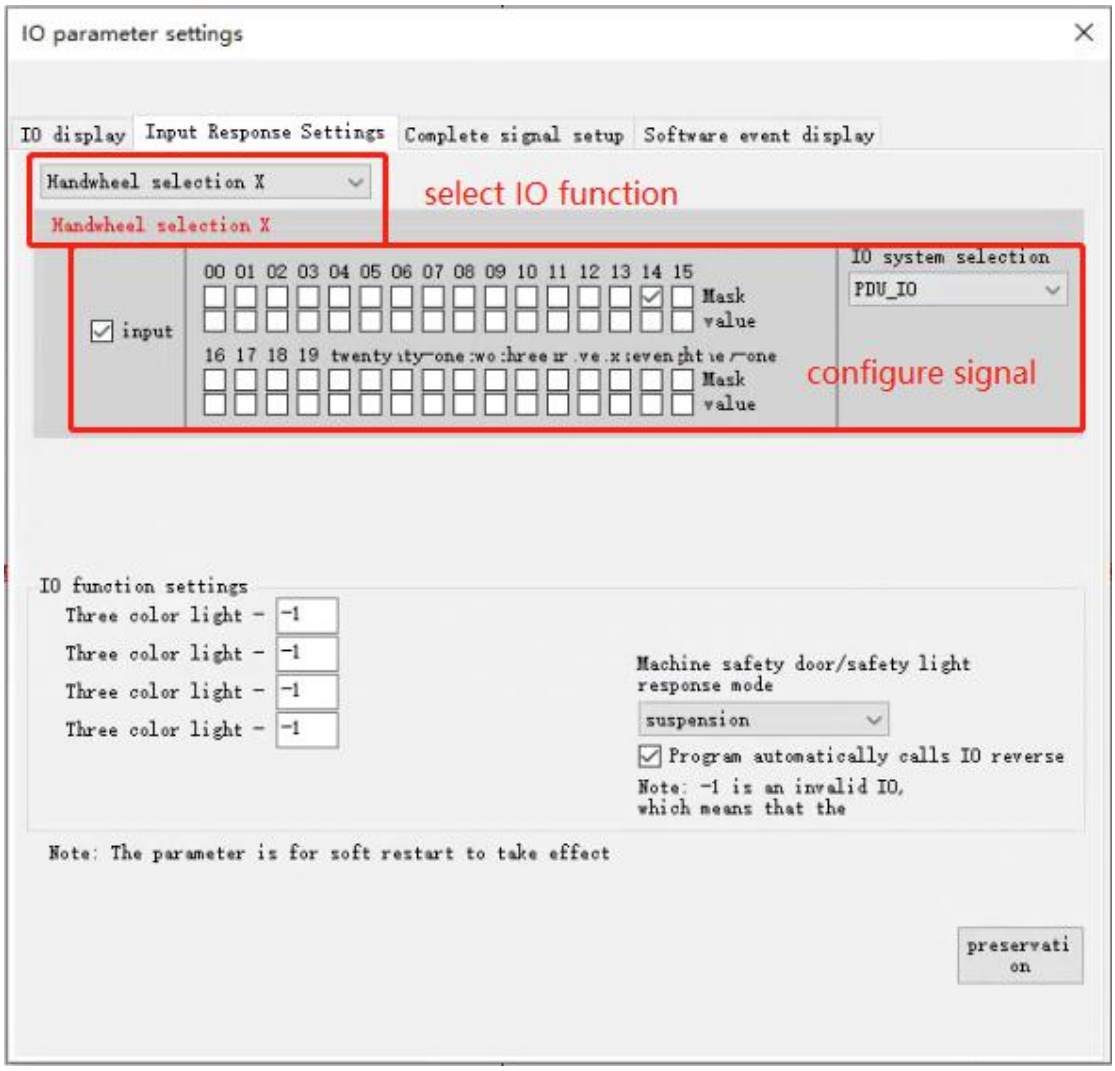
Note: After the settings are completed, restarting the software will take effect.

5.3. Configure IO

a. Open the laser control card IO settings interface. Set IO communication settings, or use the shortcut key F4.



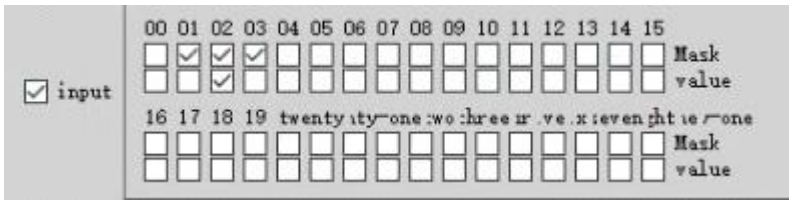
b. Laser control card IO interface. The input and output states correspond to the input terminals I1~I20 and output terminals O1~O18 of the laser control card. After checking 'Test Output', you can manually test a single port for the output. Attention: The first three output ports are occupied by the system (00, 01, 02).



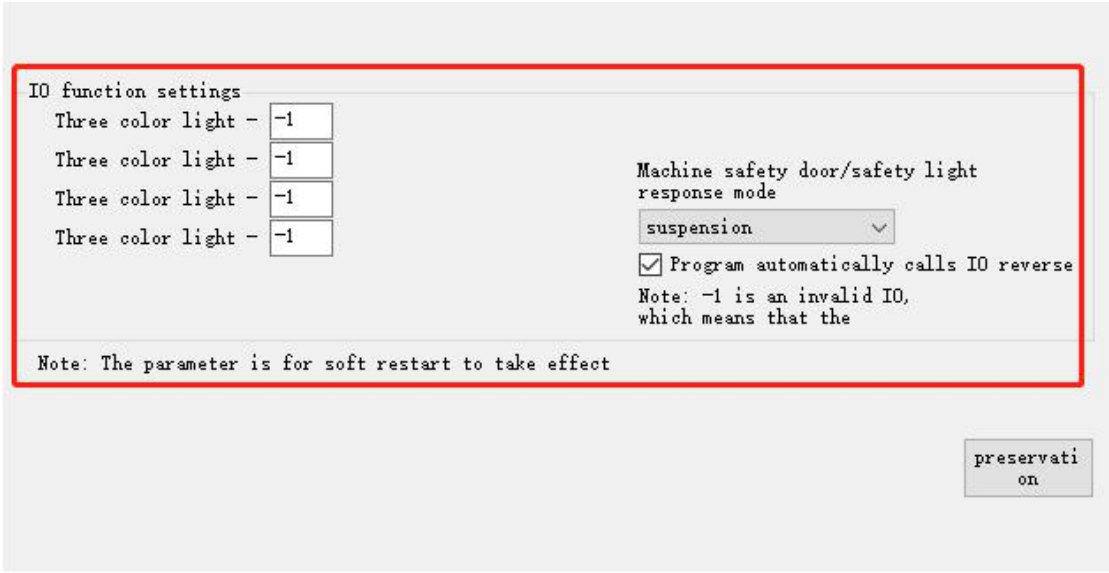
c. Laser control card IO special function customization selection settings

In the IO parameter setting interface, open the drop-down list of "IO input response settings", select the IO response object as needed, and check the enable "input" option box. Users can choose the input port number on the corresponding motion control card between serial numbers 00 and 15 based on the actual wiring method. Select the level mask value based on the signal wiring trigger method and set the trigger method. Taking input as an example: "01 input low level, 02 input high level, 03 low level", this state is valid when this set of signals is met.

As shown in the following figure:



The input response setting provides several commonly used IO response output objects, and users can customize the IO output port indication. For example, waveforms 1-6, three color lights, buzzer, red light indication, external control switching, and laser alarm clearing. These IO settings are set to '-1' as invalid states. The response mode of the machine safety door/safety grating can be set to indicate whether the software enters the stop or pause state when there is a signal input. Check "Program automatically calls IO reverse" to invert all IO states. Users can customize and edit according to the actual signal, and save and restart the software after modifying the parameters to take effect. As shown in the following figure.

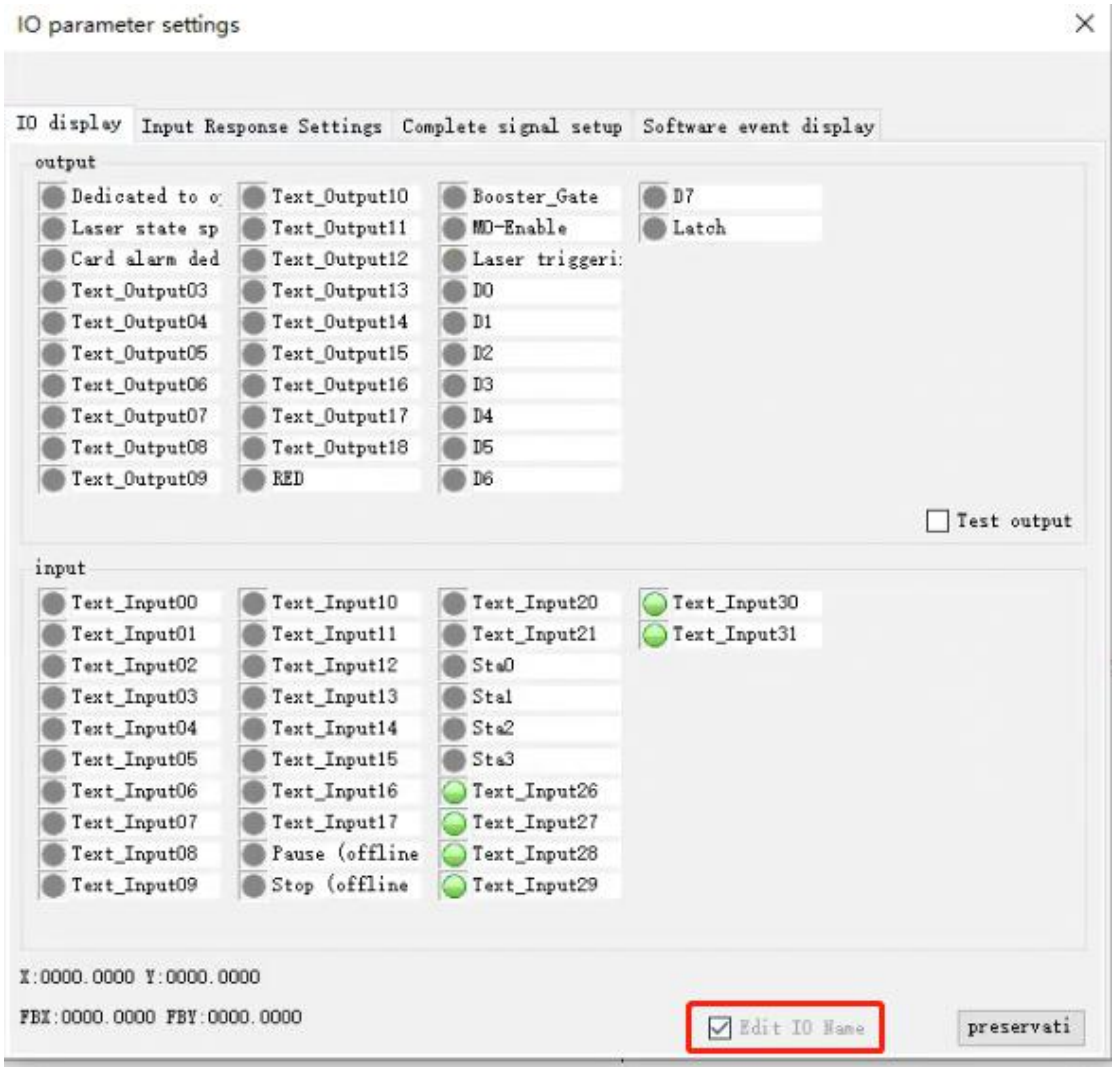


Attachment: List of IO Input Response Settings

Function	Function Description
Handwheel	Set IO handwheel signal
Machine ready	Set the machine safety door signal, triggering this signal will terminate program operation, and there will be a safety alarm indication.
Machine safety door	Set the machine safety door signal, triggering this signal will terminate program operation, and there will be a safety alarm indication.
Safety grating	Set a safety grating signal, trigger this signal to stop program operation, and there is a safety alarm indication.
Emergency stop button	Set the emergency stop button signal to trigger this signal to abort program

	operation.
Platform return to mechanical zero point	Set IO trigger to directly return to mechanical zero point.
Clear alarm	Set manual IO trigger to clear the alarm.
Laser alarm	Set the laser alarm signal.
Suspension	Set IO trigger to directly terminate operation.
Run	Set one or more IO triggers to directly trigger operation.
Run red light	Set IO trigger to execute red light.
Suspend	Set one or more IO triggers to directly trigger a pause.
Run suspend	Set one or more IO triggers pauses and signal cancellation resumes.
Multiple documents	By calling different document numbers for different IO signals, execute the process content of different document numbers.
Rerun the current document	When the document is paused, IO can be triggered to continue running the current document.
Rerun Document	Set one or more IO triggers a signal to continue running after multiple documents are paused.
Foot pedal	Set foot IO to trigger the current displayed process.
Manual	
Automatic	
Teaching demonstration	Set the current display position of the IO trigger record axis and add it to the process.
Switch multiple solutions	Set IO trigger to automatically switch multiple solutions.

d. Customize and modify the IO name of the laser control card. Check the 'Edit IO Name' checkbox to customize the IO name. After making the modifications, click 'Save'. As shown in the following figure:


IO parameter settings
IO display
Input Response Settings
Complete signal setup
Software event display
output
Dedicated to o
Laser state sp
Card alarm ded
Text_Output03
Text_Output04
Text_Output05
Text_Output06
Text_Output07
Text_Output08
Text_Output09
Text_Output10
Text_Output11
Text_Output12
Text_Output13
Text_Output14
Text_Output15
Text_Output16
Text_Output17
Text_Output18
RED
Booster_Gate
MO-Enable
Laser triggeri:
D0
D1
D2
D3
D4
D5
D6
D7
Latch
Test output
input
Text_Input00
Text_Input01
Text_Input02
Text_Input03
Text_Input04
Text_Input05
Text_Input06
Text_Input07
Text_Input08
Text_Input09
Text_Input10
Text_Input11
Text_Input12
Text_Input13
Text_Input14
Text_Input15
Text_Input16
Text_Input17
Pause (offline
Stop (offline
Text_Input20
Text_Input21
Sta0
Sta1
Sta2
Sta3
Text_Input26
Text_Input27
Text_Input28
Text_Input29
Text_Input30
Text_Input31
X:0000.0000 Y:0000.0000
FBX:0000.0000 FBY:0000.0000
Edit IO Name
preservati

6. Appendix

6.1. Change software Logo

1. Change the display information of the software startup interface. Open the directory where the software is installed, find the "UserSkin" folder, replace or edit the "LOGO.bmp" image, or change the content in the "工程名称.txt" file to change the display information of the software startup interface.

2. Change the information about version and copyright. Open the "UserSkin" folder, replace or edit the "AboutLogo .bmp" image, or change the content in the "AboutLogo .txt" file.

Click "Settings" - "System Settings", and you can see that the words displayed in the bottom left corner of the system settings menu are "About displaying middle logos". At this time, press Ctrl+"U" to change the words "About displaying middle logos" to "About not displaying middle logos" and save the settings. Restart the software again, and the software logo information will be changed.

6.2. Required libraries for Windows systems

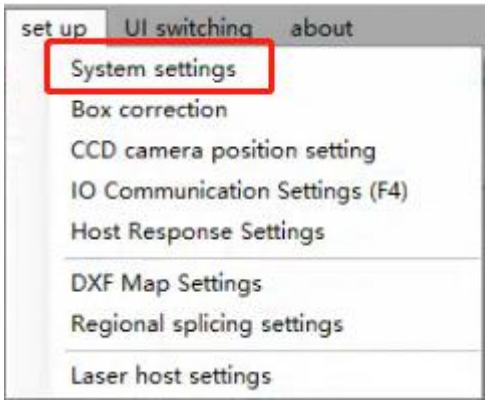
1. The PDS control card function requires the installation of Microsoft Visual C++2010 Redistributable
2. CCD visual software functionality requires the installation of Microsoft Visual C++2015-2019 Redistributable
3. The main function of the software requires the installation of .NET Framework 4 (included in the Win10 system, no additional installation is required)

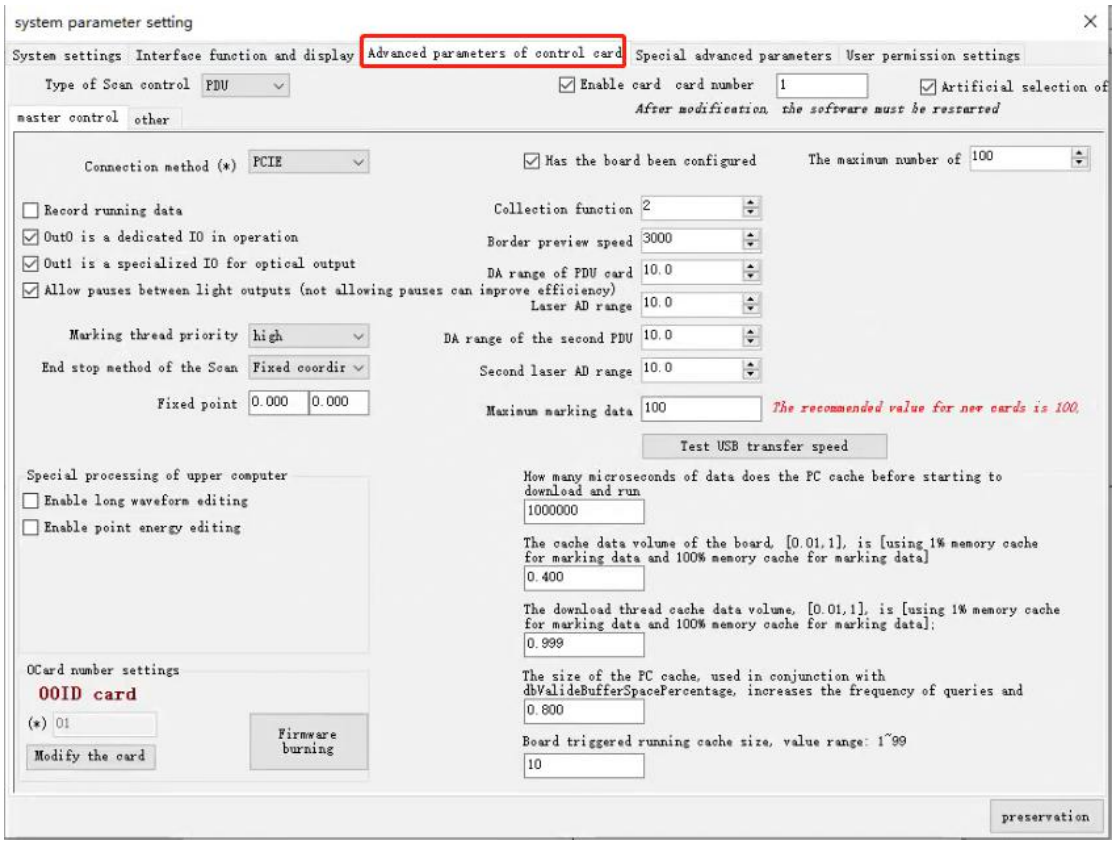
Note: The required support libraries mentioned above all have installation packages in the galvanometer software installation directory. Open the folder with the corresponding name for installation, and the installation of 32-bit or 64-bit

versions should be consistent with the system version.

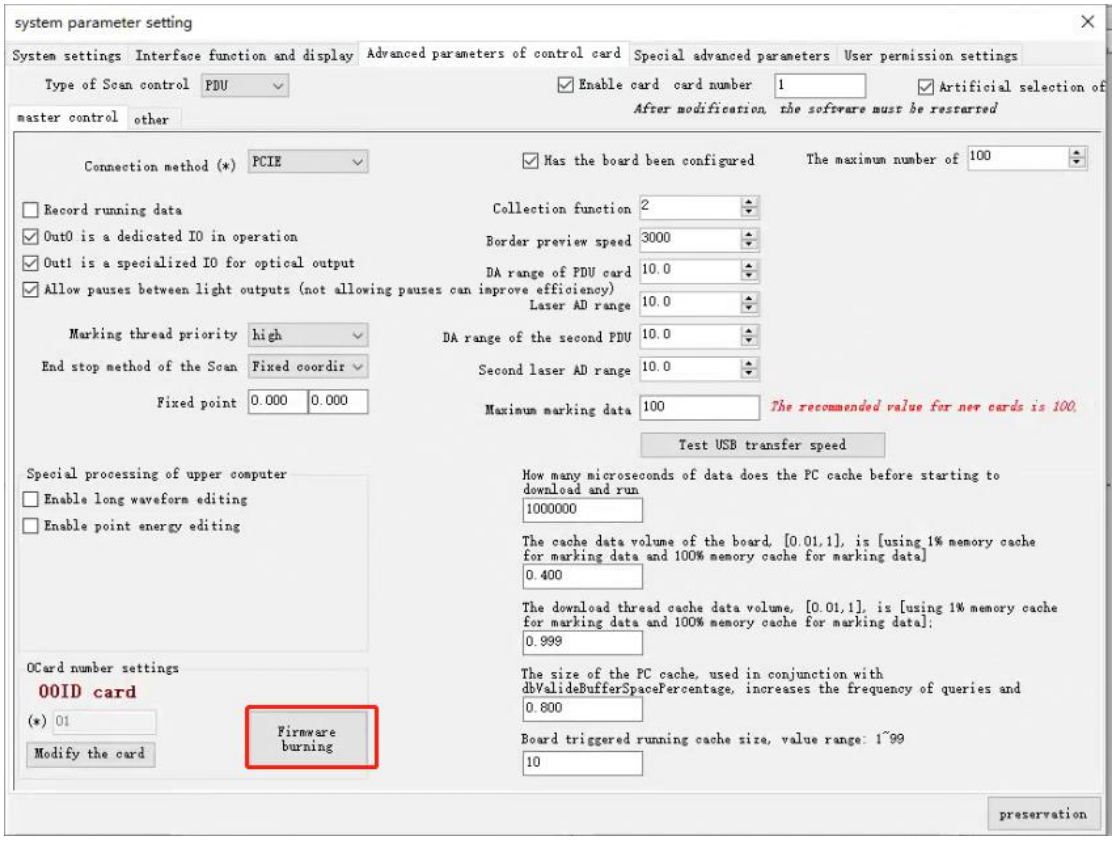
6.3. Board update firmware

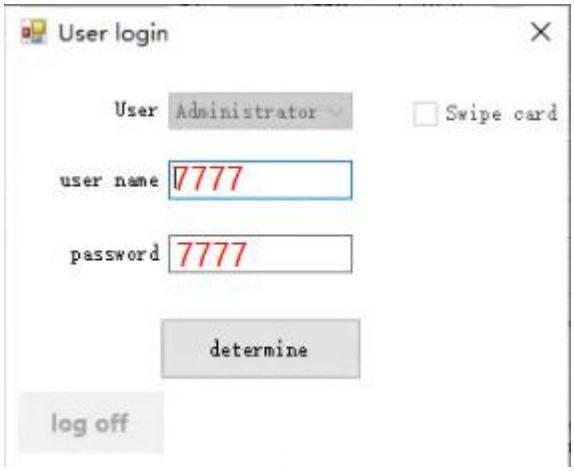
1. Open "Settings" → "System Settings" → "Advanced Parameters of Control Card"



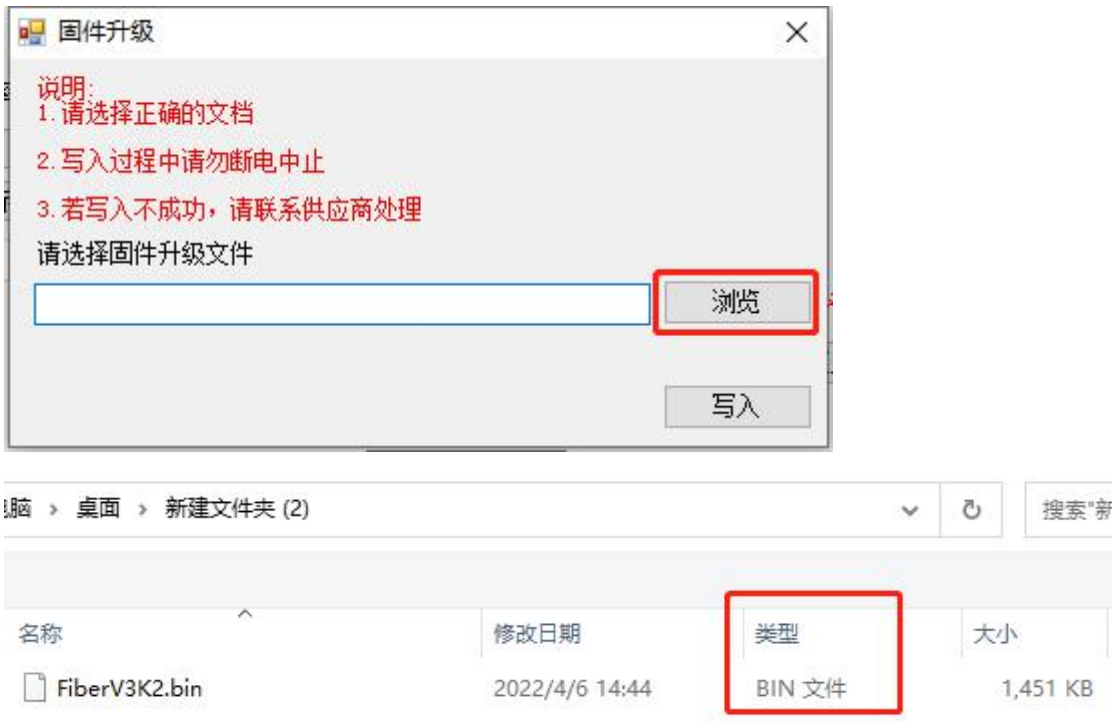


2. Click on the "Firmware Burn" button to log in with administrator privileges (default account: 7777 Password: 7777)





3. Click 'Browse' and select the BIN file corresponding to the board model



4. After selecting the firmware file, click "Write" and wait for the firmware to be written.

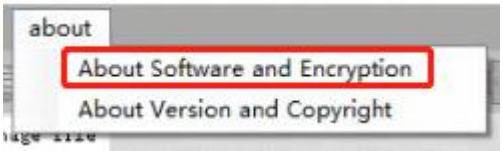
5. After the burning is completed, a prompt will appear saying "Write successful, please power off and restart". If there is no prompt for a long time, check for any abnormal pop-up windows.

Note: If the board is a USB card, it is necessary to disconnect the 15V power supply of the board; If the board is a PEIC card, it is necessary to shut down the industrial computer connected to the main card, and then turn on the industrial computer after 10 seconds.

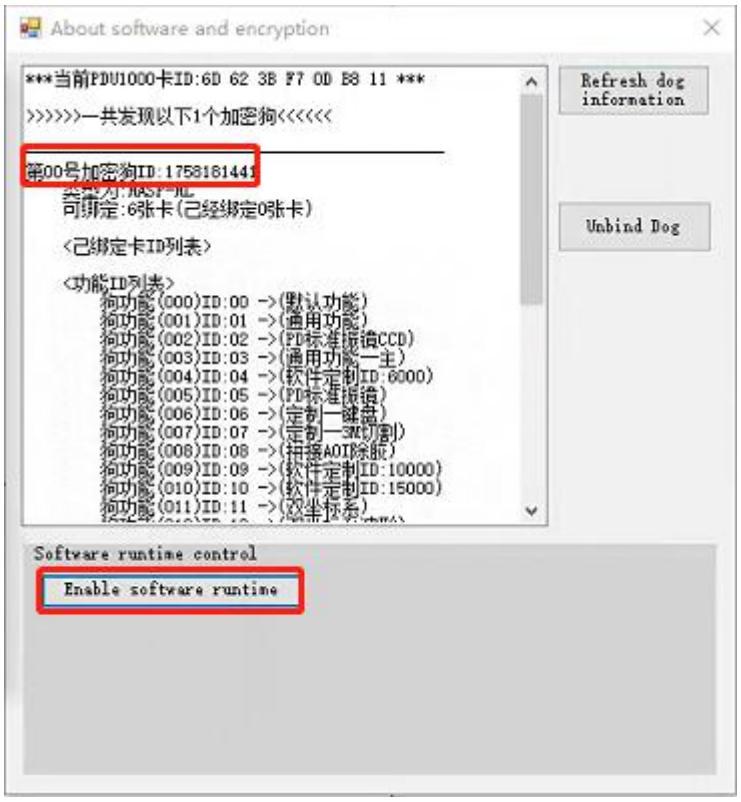
6.4. Encryption dog time expired

***When encountering the expiration of the encryption dog time, inform the supplier of the encryption dog ID and need to obtain the decryption file from the supplier to unlock it. After obtaining the decryption file, follow the following steps to unlock it.**

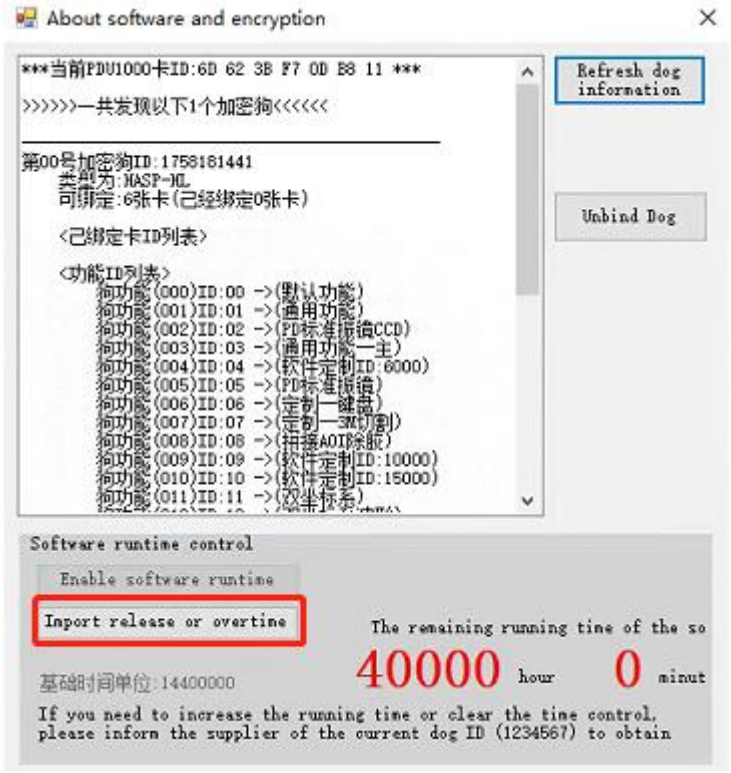
a. Open the software and click on "About" ->"About Software and Encryption"

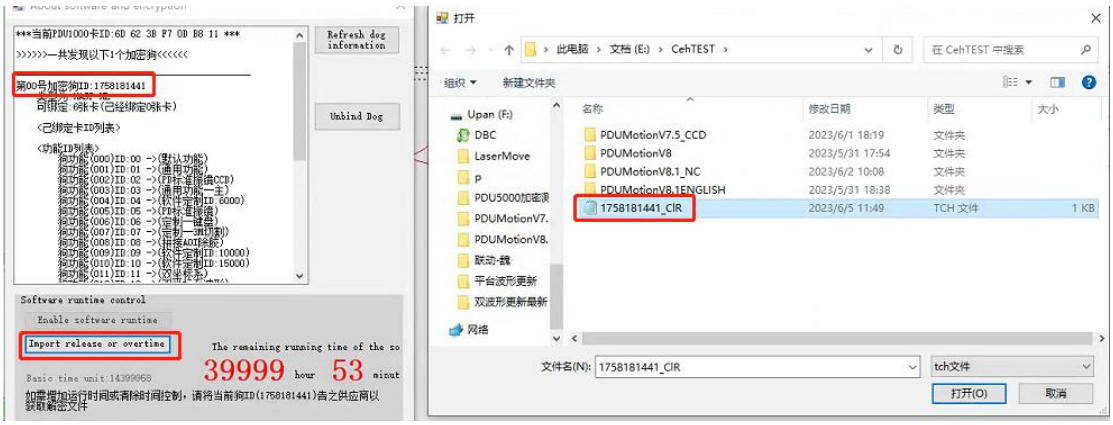


b. After receiving the .tch file, click on "Import Release or Add Time File" and follow the steps to import the .tch file to unlock the encryption dog.


About software and encryption
***当前PDU1000卡ID:6D 62 3B F7 0D B8 11 ***
>>>>>>一共发现以下1个加密狗<<<<<<
第00号加密狗ID:1758181441
可绑定:6张卡(已经绑定0张卡)
<已绑定卡ID列表>
<功能ID列表>
Refresh dog information
Unbind Dog
Software runtime control
Enable software runtime

Confirm the control of startup and running time
After activation, it cannot be cancelled. After the time expires, contact the supplier, provide the encryption dog ID, and obtain the release file. Enter the verification code "bcrp" in the box to enable
Code
bcrp
Runable Time
hour
determine


About software and encryption
***当前PDU1000卡ID:6D 62 3B F7 0D B8 11 ***
>>>>>>一共发现以下1个加密狗<<<<<<
第00号加密狗ID:1758181441
Refresh dog information
Unbind Dog
<已绑定卡ID列表>
<功能ID列表>
Software runtime control
Enable software runtime
Inport release or overtime
The remaining running time of the so
40000 hour 0 minut
基础时间单位:14400000
If you need to increase the running time or clear the time control,
please inform the supplier of the current dog ID (1234567) to obtain


39999 hour 53 minut
打开
1758181441_CIR
文件名(N): 1758181441_CIR
打开(O)
取消

About software and encryption
***当前PDU1000卡ID:6D 62 3B F7 0D E8 11 ***
>>>>>>一共发现以下1个加密狗<<<<<<
第00号加密狗ID:1758161441
类型为:HASP-HL
可绑定:6张卡(已经绑定0张卡)
<已绑定卡ID列表>
<功能ID列表>
狗功能(000)ID:00 ->(默认功能)
狗功能(001)ID:01 ->(通用功能)
Refresh dog information
Unbind Dog
加密文件更新成功;
确定
Software runtime control
Enable software runtime