Laser machine manual

Thank you for purchasing our products, please read the instructions before using the product。

< use >

Before installing this control system, please read the notes and instructions for use, and fully understand them;
Please make sure you do not use the system without reading the instructions or not fully understand the content;
Please submit this manual to the end user and the custodian;
After reading, please be sure to keep this manual。

Special statement:

All the contents of this information have been carefully checked, if there are any errors or omissions in the content of the misunderstanding, the company reserves the right to interpret;
In addition, due to technical updates and structural changes, the following changes will be made in the new version of the specification without prior notice;
The appearance of the product, function, the use of change, in kind prevail。

2014-08-21

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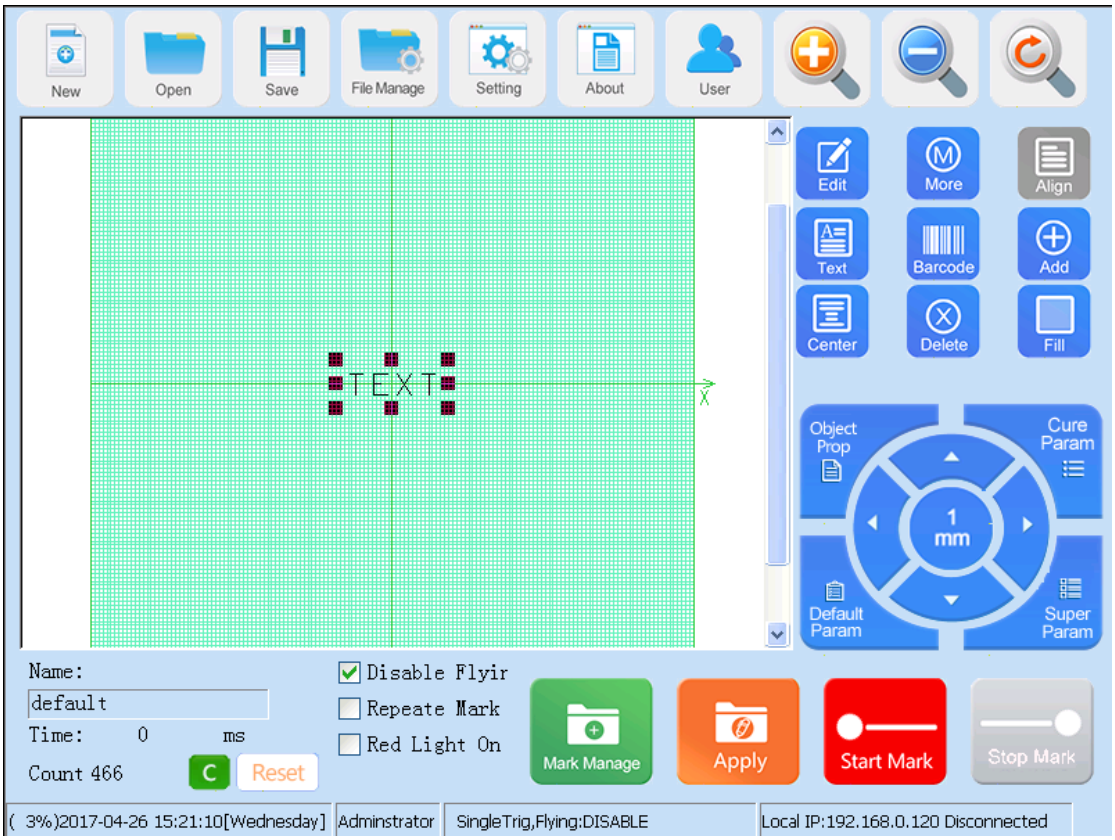
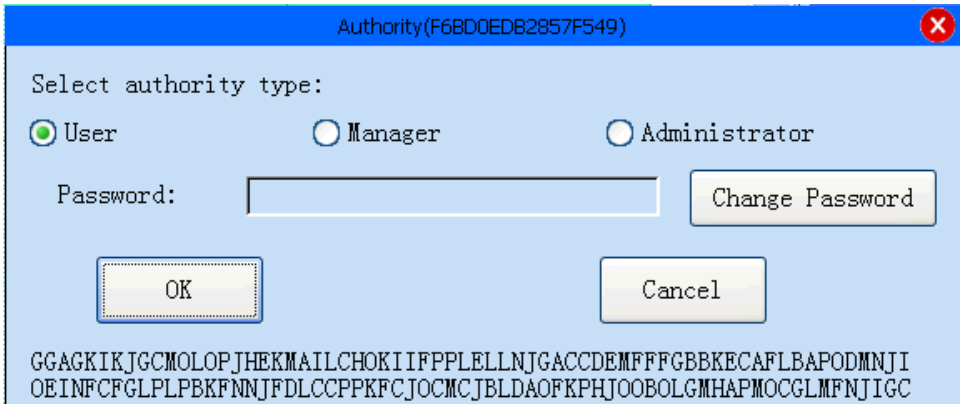
software documentation

One、Main interface：



1、Change user：

Press



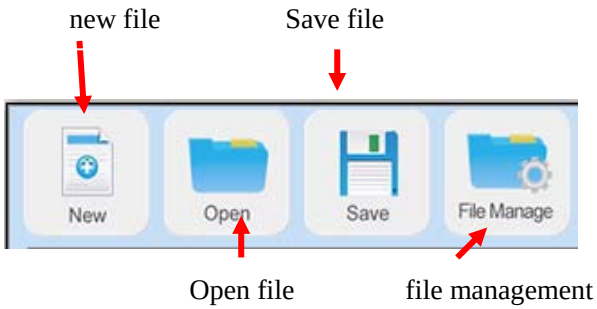
Explain：

Ordinary users: only marking

Advanced users: marking, editing, etc. factory password: 1234

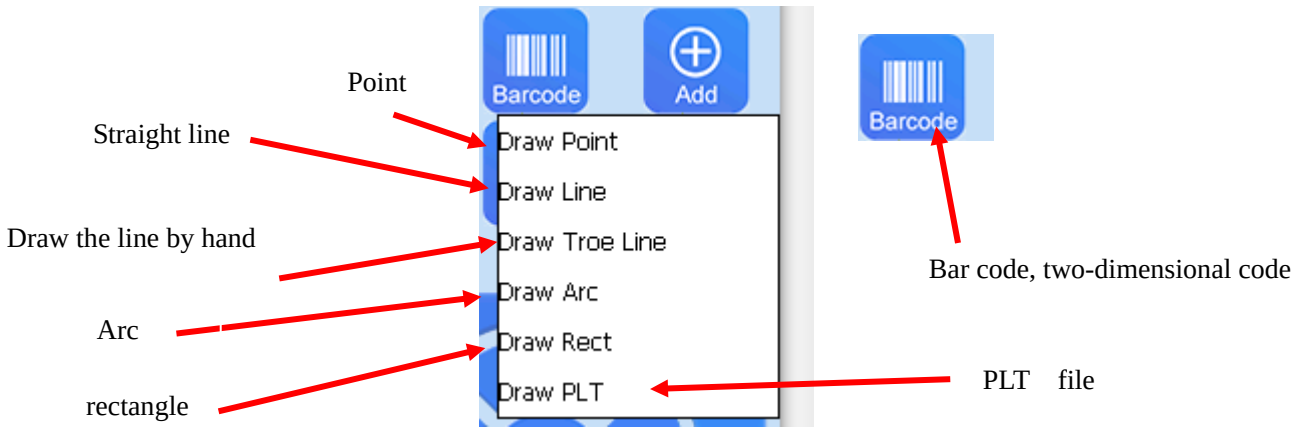
System administrator: can mark, edit, settings, etc. factory password: ABCD

2、file



3、Place

Text



4、zoom

enlarge show all

narrow

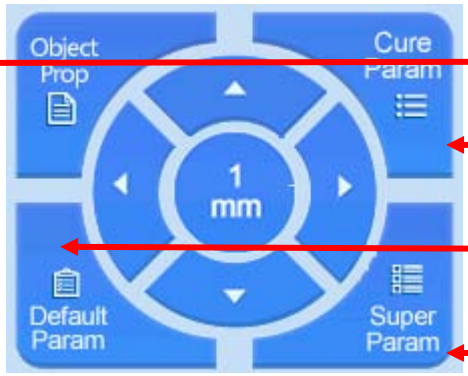
5、Administration

Change user

Version information

Equipment parameters

6、Set key：



Select the part to display th

Setting parameters for a sin

This parameter is used machining parameters are r

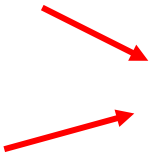
Default advanced paramete

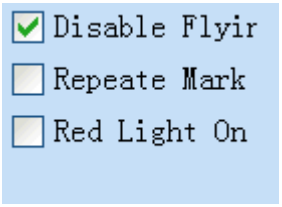
7、Marking control：

When the content or parameter is modified, it must be modified according to the application

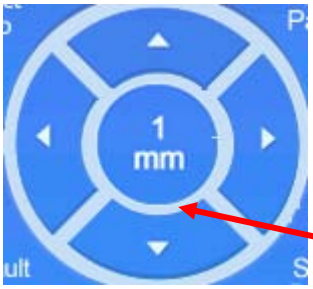
Start marking

Stop marking



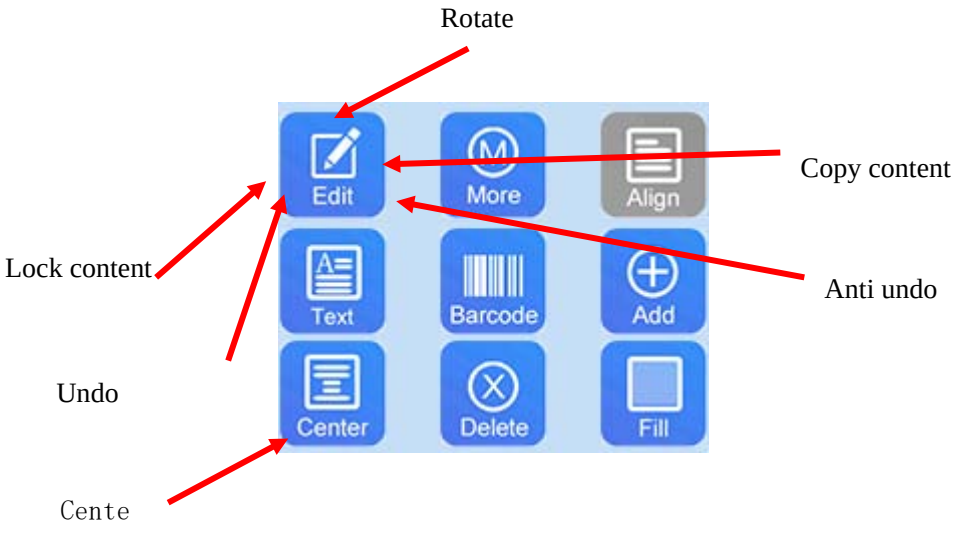


8、Move direction key：



Change the distance of each move

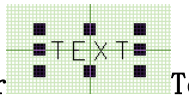
9、Edit control：

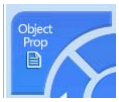


Two、Place text

According to the

Press the screen edit area,

Appear 

Text content, Then press 

Adjustable parameter。

1、Text content

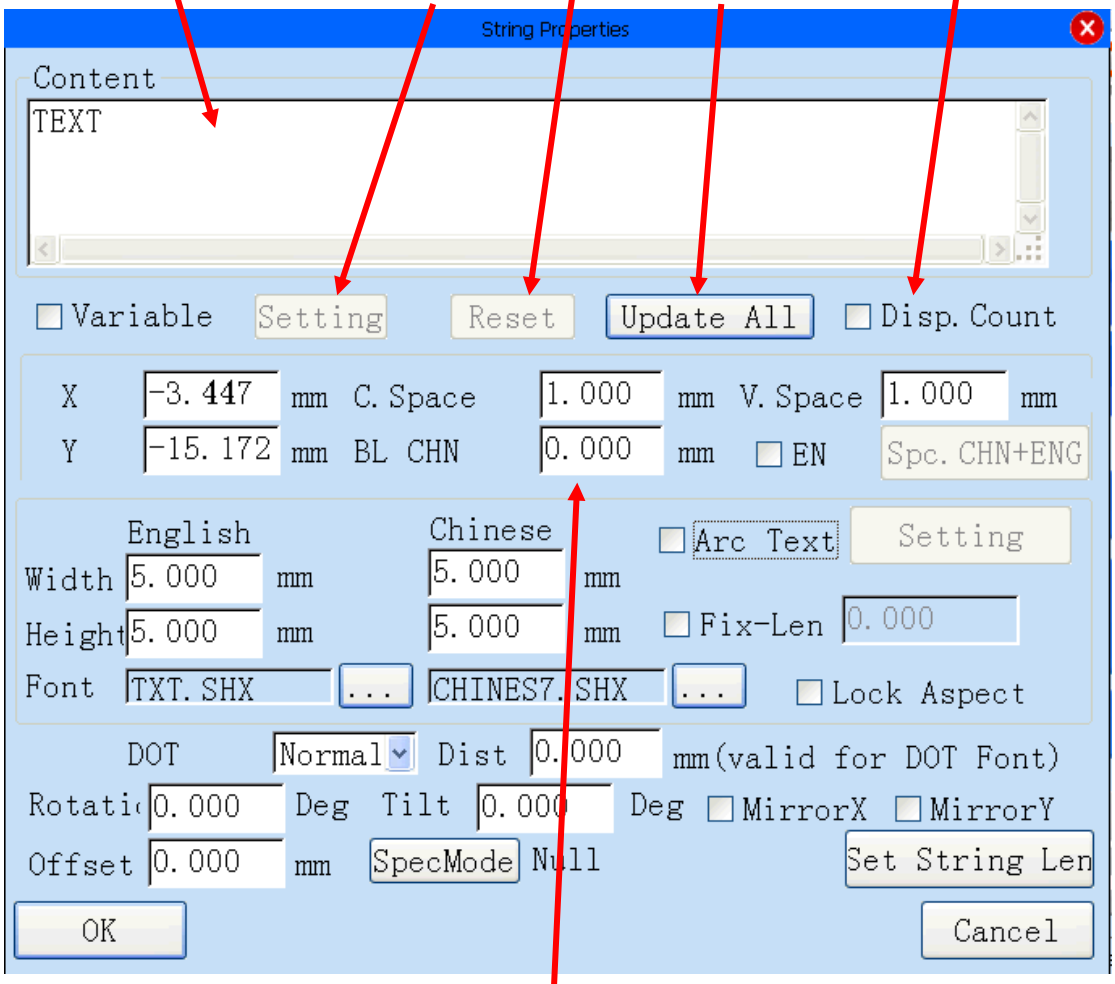
Enter or change text content in this box

Set number

Skip reset

Uniform modification

Popup count window in marking

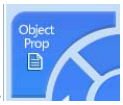


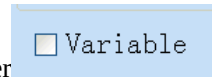
Chinese baseline:
Chinese characters and English characters are adjusted at the same line

Input keyboard：

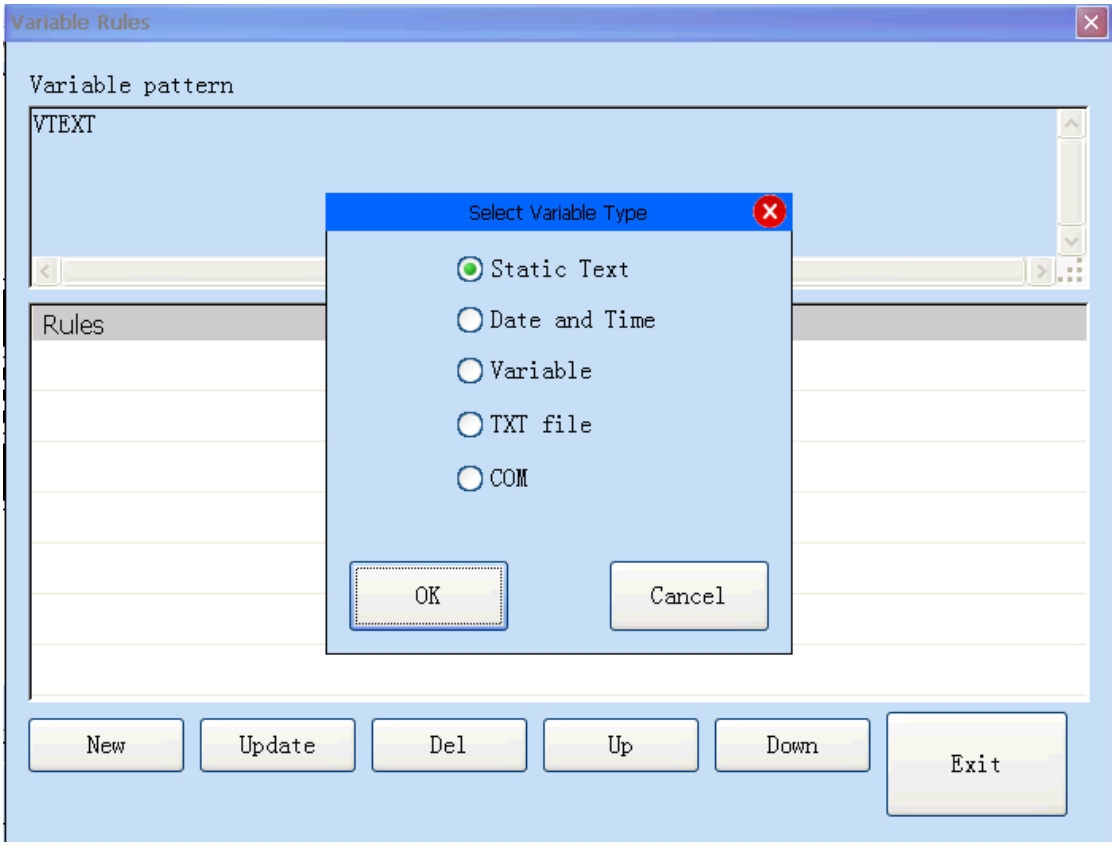
English case and common symbols　　Pinyin, five strokes, English input method

2、Hop enable

In text 

lower 

Hit the hook and press



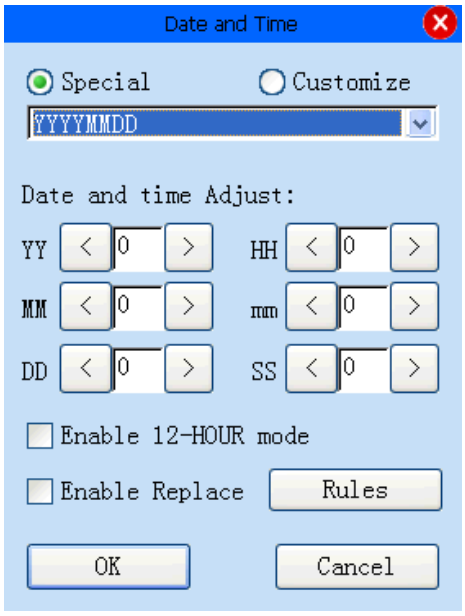
After the new mode of five options。

1.Fixed text

To insert a fixed text in the hop rule。

2.Date time (valid)

Specified format



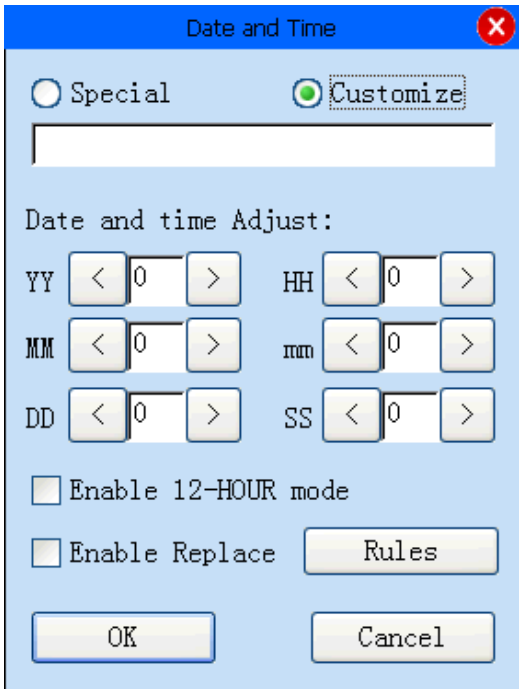
AM/PM：When using 12 hour system AM/PM

Shift：Shift（A08:00-16:00，B16:00-00:00，C00:00-08:00）

Date time adjustment：

For the period marked, add and subtract year, month, day, minute, hour, minute, second,

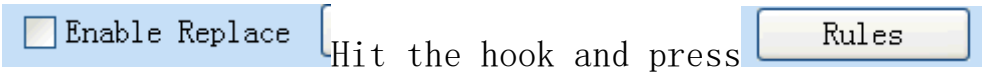
Custom format：

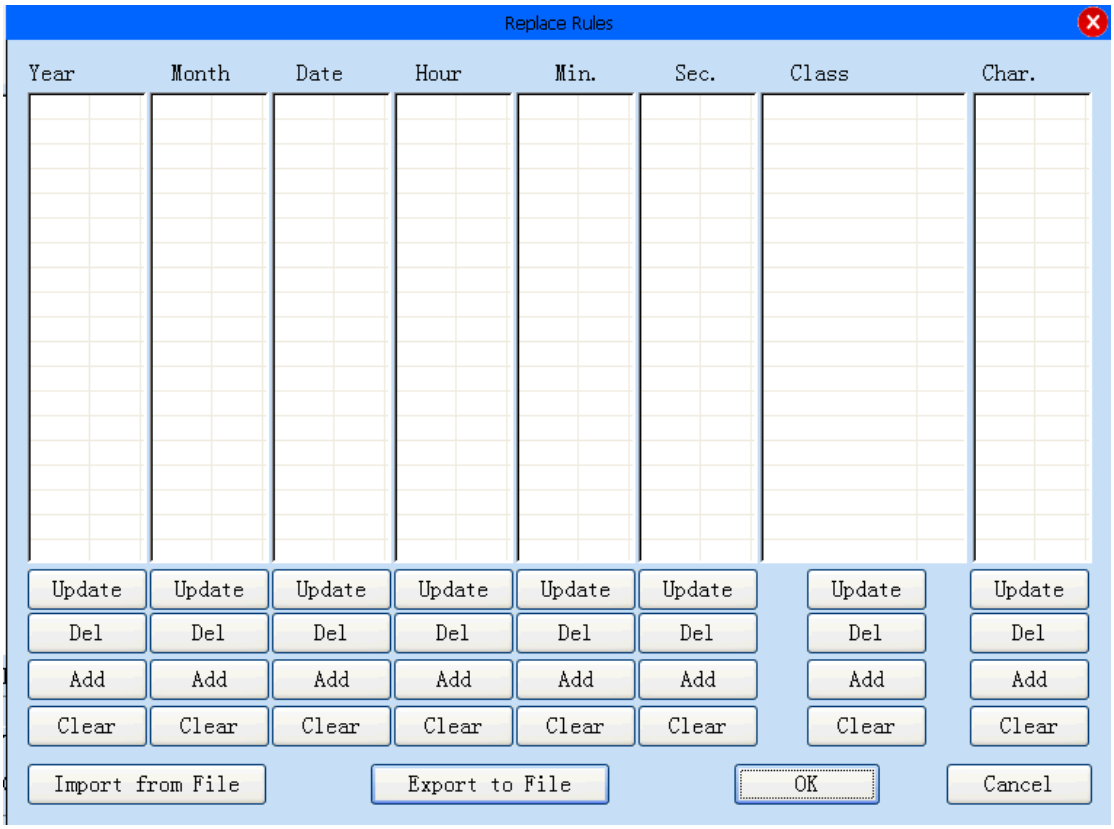


The custom format can be used under the table letters instead of the date when, among other words can be added。

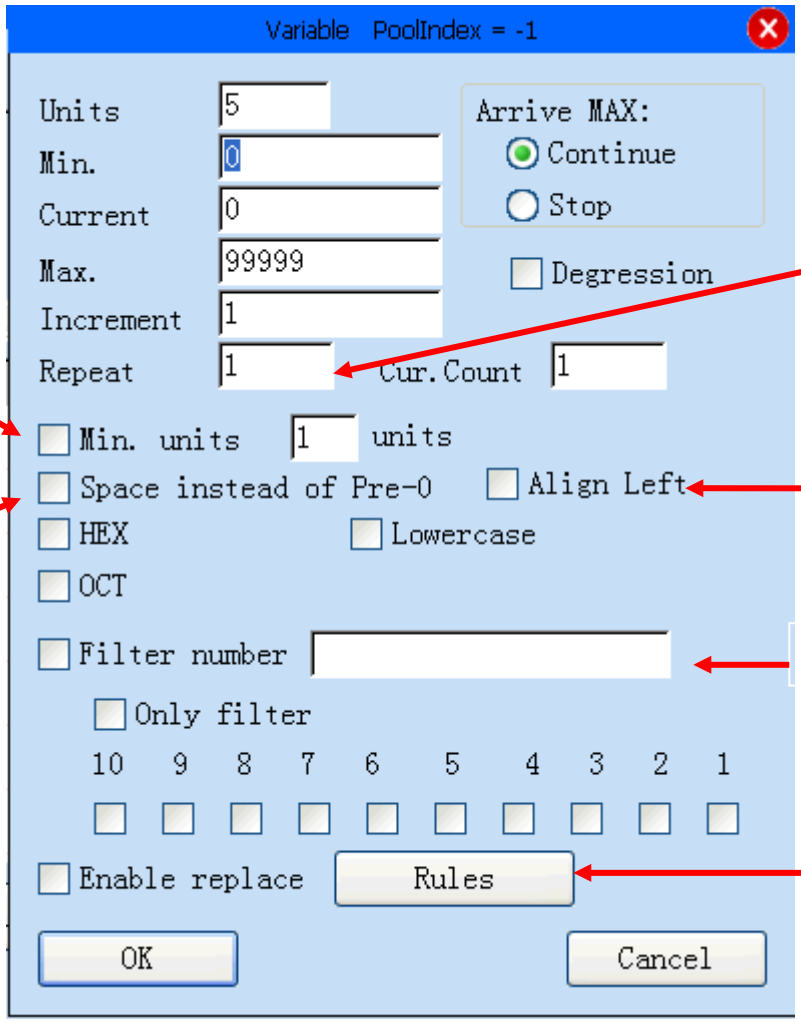
YYYY	Four digit year，for example2011
YY	Two digit year，for example11
MM	Two digit month，for example03
DD	Two digit day，for example25
hh	Two digit time，for example14
mm	Two digit score，for example28
ss	Two digit second，for example31
AM/PM	12hour AM/PM
Shift	Shift（A08-16，B16-00，C00-08）

Time date replacement rule：





3.Variable marking (serial number jump)



The first digit of the serial number is 0

Serial number of the first few when 0 does not show the 0

How many times each number

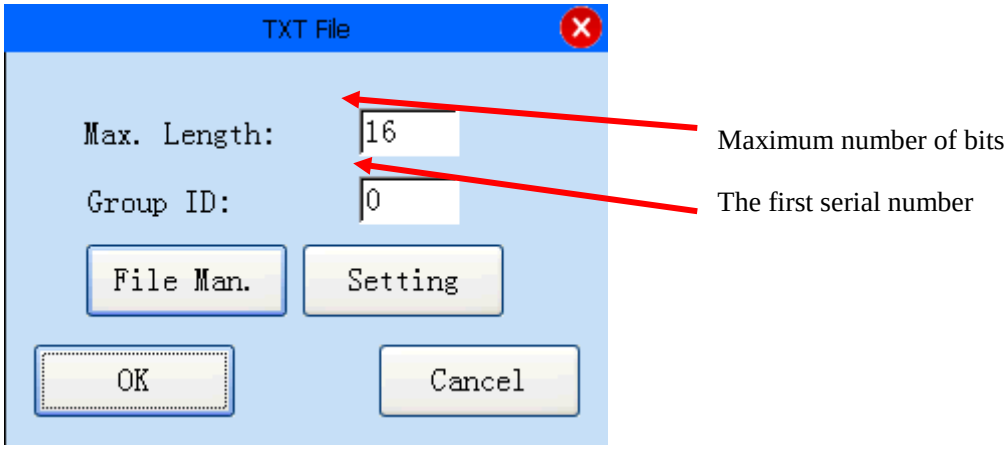
Serial number of the first few 0, left or right aligned

Don't mark some numbers

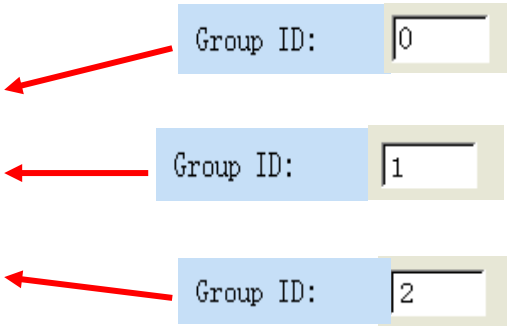
Can be replaced with Chinese or English characters

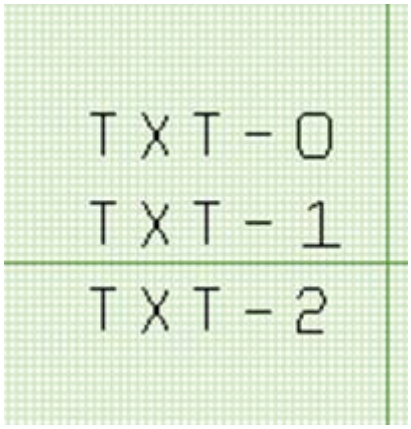
4.Text file marking

4. 1. choose TXT file



4. 2. The following text is not imported text file。

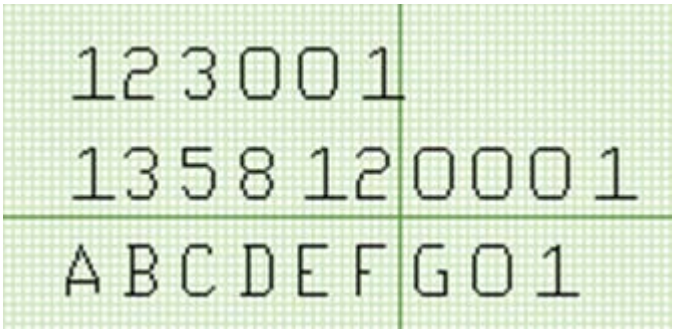




4. 3. Text format：

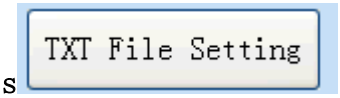
```
123001,1358120001,ABCDEFG01
123002,1358120002,ABCDEFG02
123003,1358120003,ABCDEFG03
123004,1358120004,ABCDEFG04
123005,1358120005,ABCDEFG05
```

4.4. The following text is imported text file。

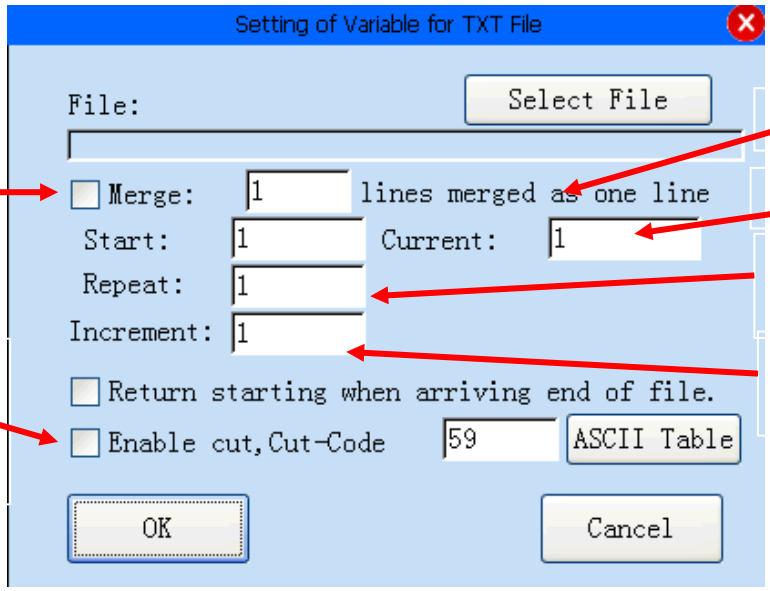


4.5. Import TXT text files and settings

Press

key, Then press 

。



Enable multi line marking (one hit multiple rows)

Segmentation symbols for each line with multiple serial numbers

Multi line marking

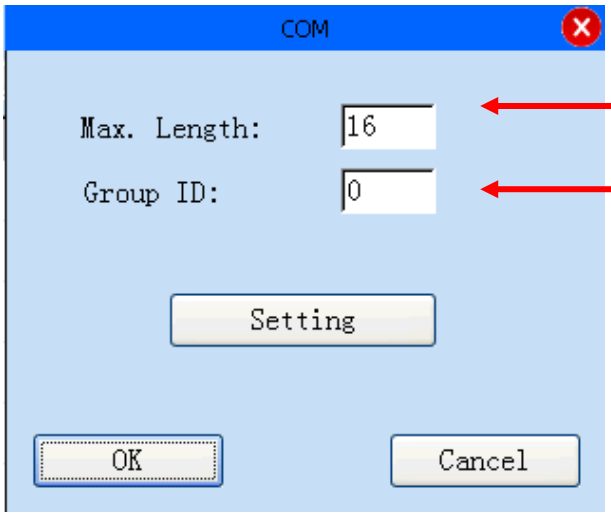
Has been hit to the first line

Repeat several times per row

After a few more lines to add

5.Serial marking

Choice



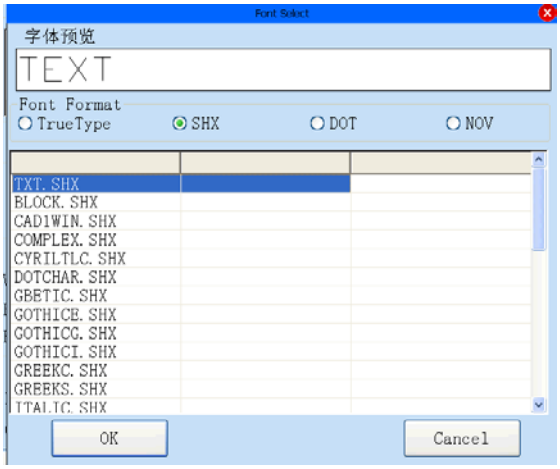
Maximum number of bits

The first serial number

Edit window display：

Waiting for the serial port to send data, the serial port to send data before changing。

3、There are three types of Chinese and English fonts can be selected。



4、Dot font mode：

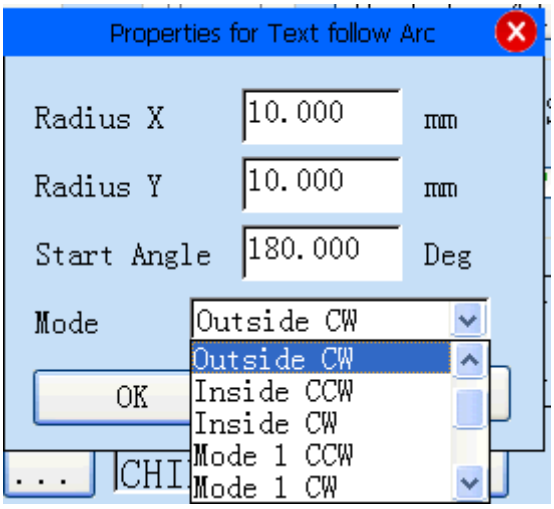
Dot font mode：
Common: single point。
Hard line: the point into a hard line。
Line：Mark a line。
Three atom：Beat a point to 3 points。
Five atom：Beat a point to 5 points。

distance：The length or distance of an atom。

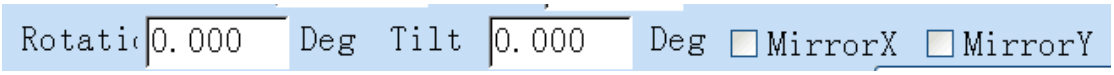
notes：After selecting the dot matrix font, to adjust the processing speed, the need to adjust the RBI time, not the speed。

5、Arc text

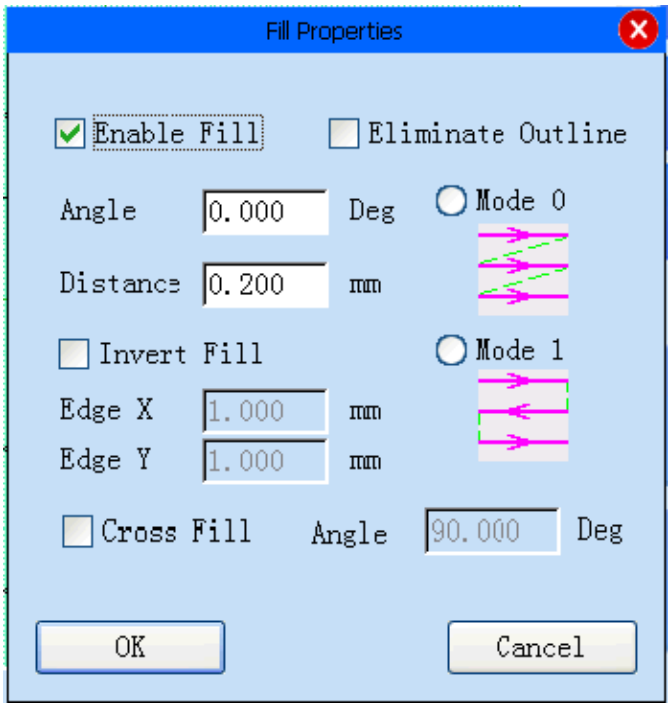
Design sketch 1：



6、 Rotate text



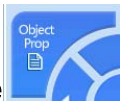
Three、Fill



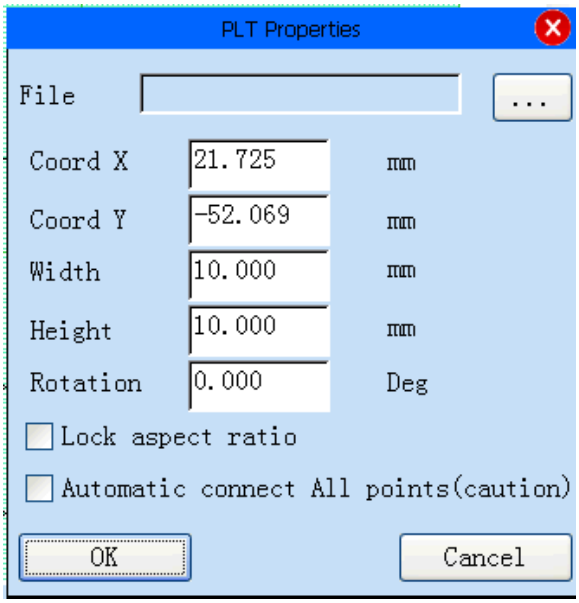
Hollow fonts can be filled, and closed graphics。

Four、Place PLT

Press

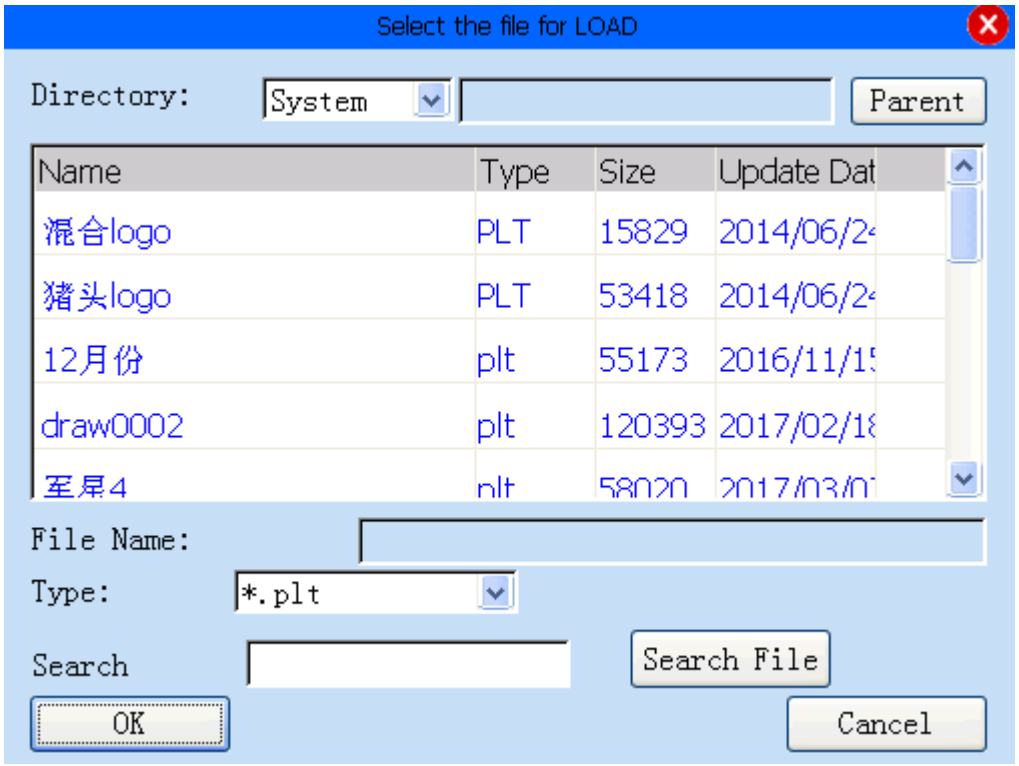
According to the 

PLT attribute：



PLTFile available CorelDRAW Software making。

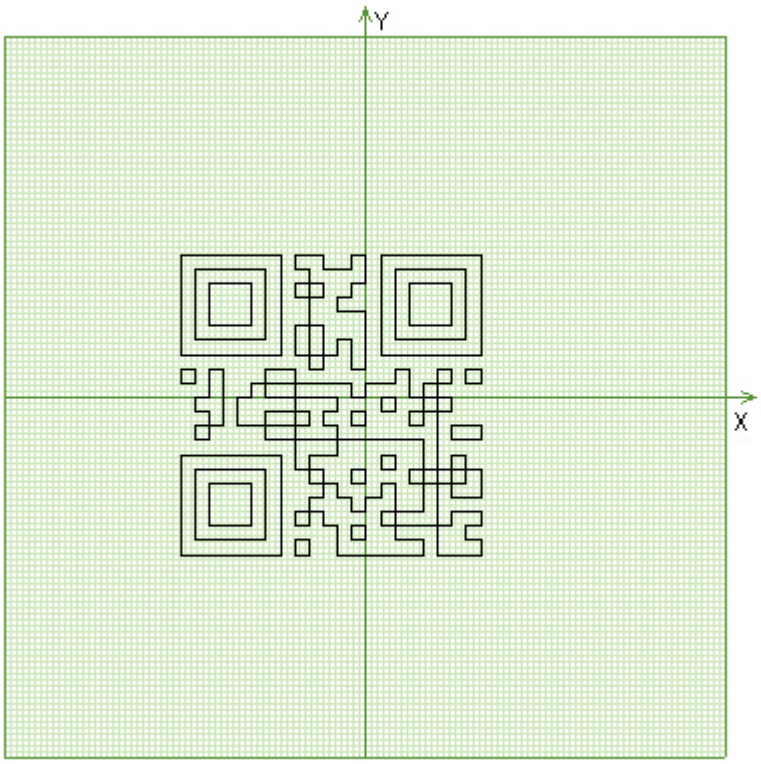
In the name of the file to import a PLT file, you can choose U disk or SD card。



Five、Place barcode、QR code

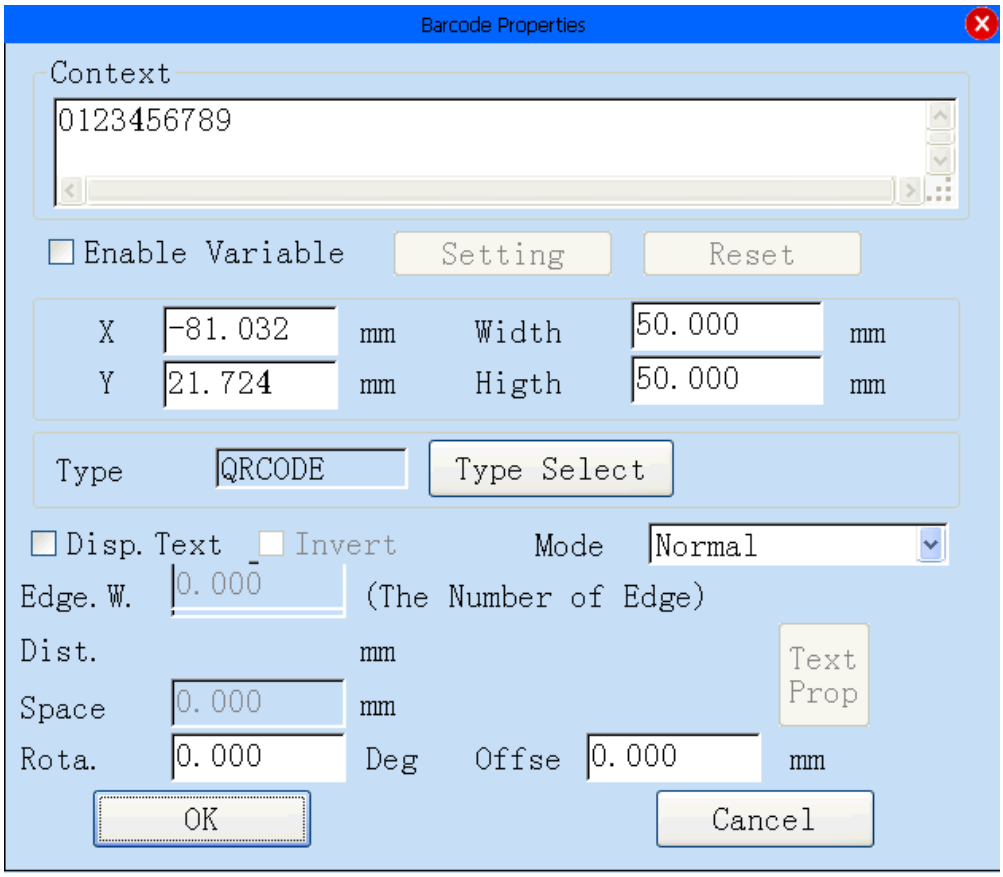
Press

, At any point in the drawing area click the corresponding two-dimensional code, As shown in the following figure: (Default display QRCODE, Code for 0123456789)

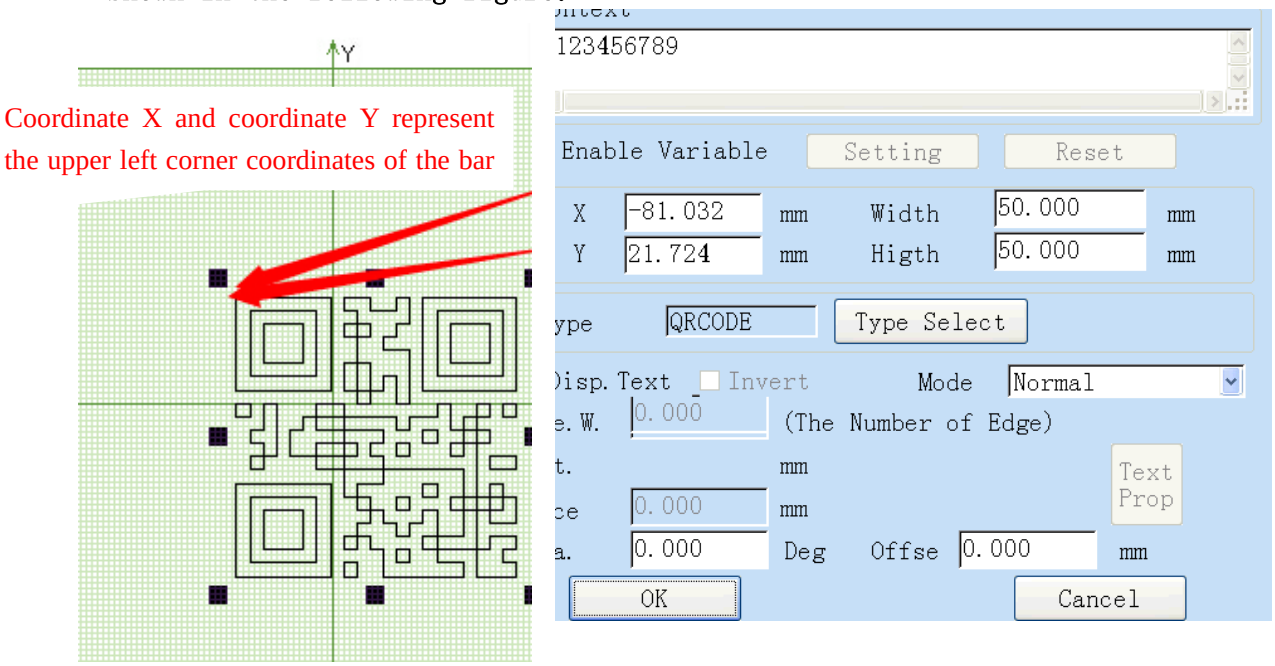


Bar code parameters need to be modified to modify the property. Click on the button as shown below to modify the bar code attributes:

Bar code, two-dimensional code related attribute values set as shown in the following figure: (The hop part is consistent with the text property)

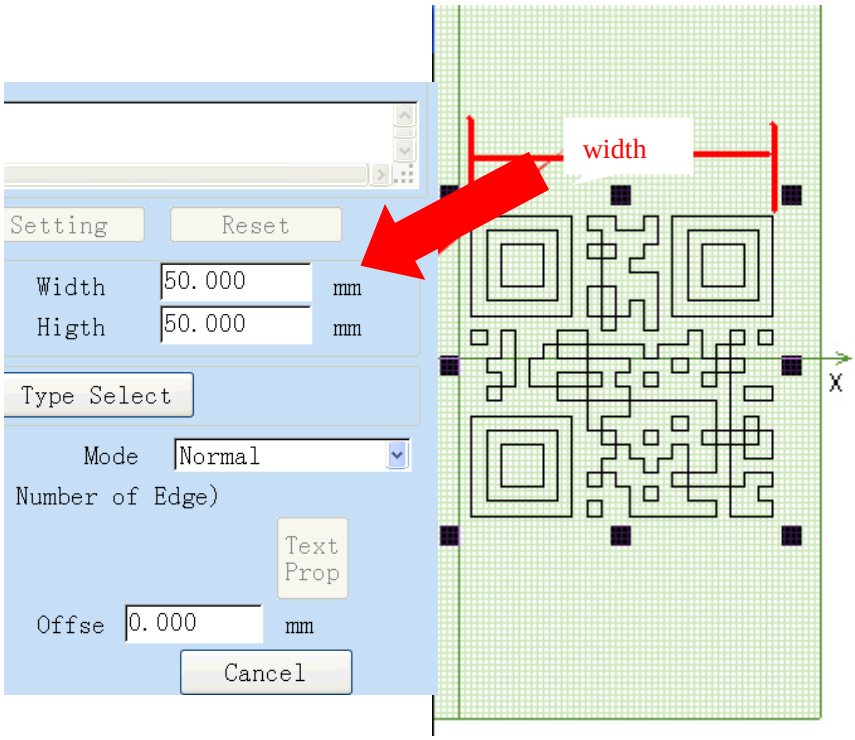


The coordinates of the attribute X and coordinate Y specific meaning as shown in the following figure:

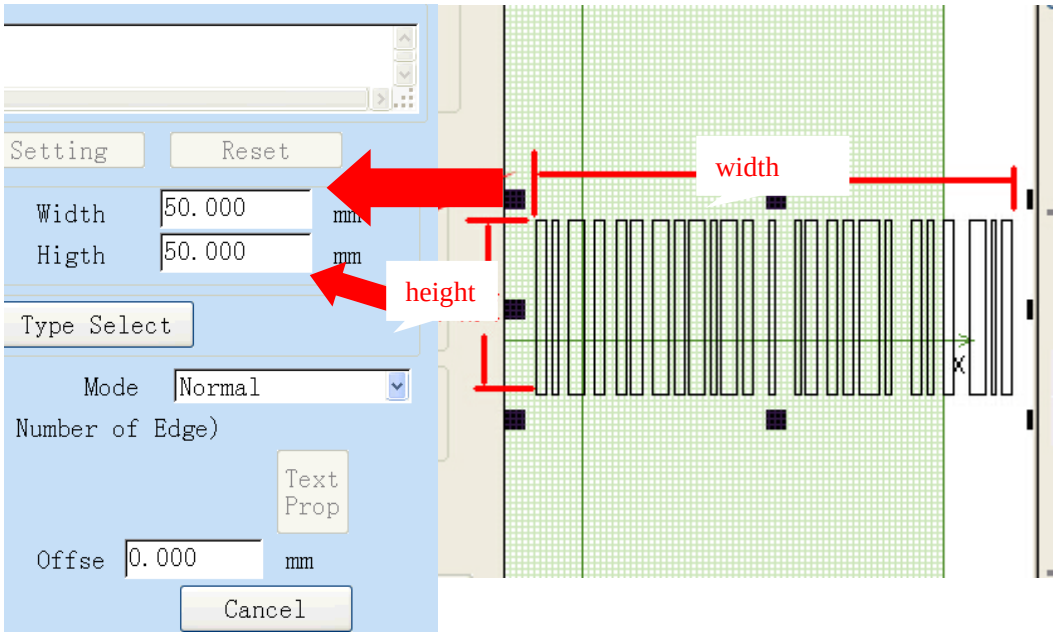


Bar code bar width and the specific meaning of the bar code needs to be based on the type of bar code to determine, when the two-dimensional code

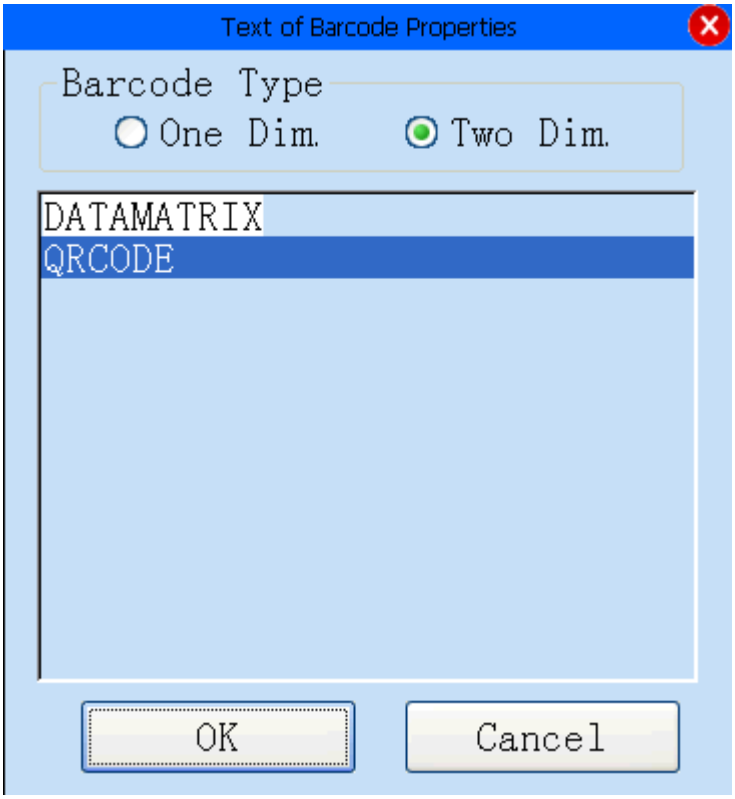
is invalid when the bar code, the bar code at the time of the bar height and width of the bar code are valid, as shown in the following figure:



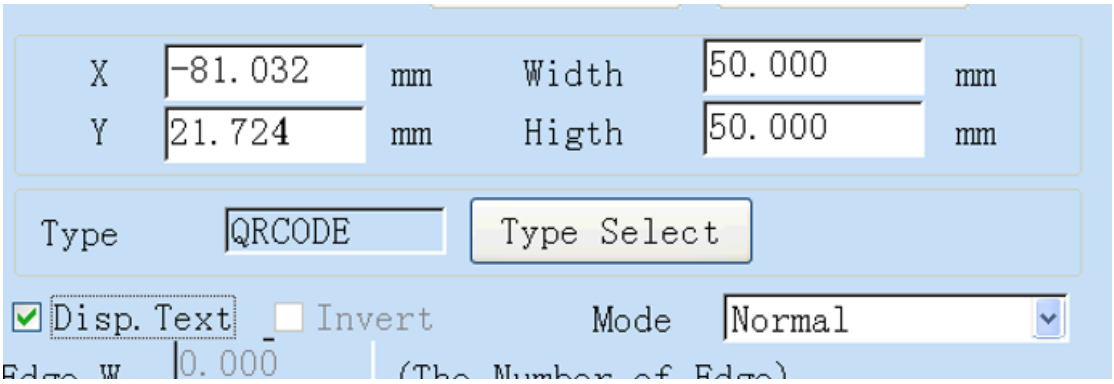
The specific width and height of the one-dimensional bar code as shown in the following figure:

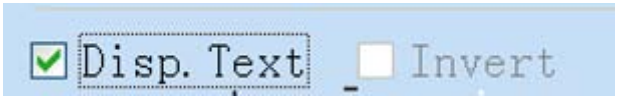


The choice of bar code system, as shown in the following figure, you can choose a one-dimensional bar code or two-dimensional barcode。(At present, the code system QRCODE、DATAMATRIX、Code128(A\B\C)、EAN8、EAN128、CODE39、CODE93、CODE25 etc.)

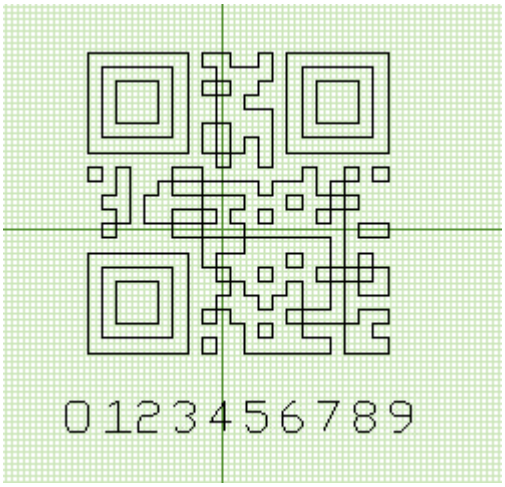


When you need to play the bar code while playing the bar code on behalf of the data, you need to check the following text display box, as shown in the following figure:

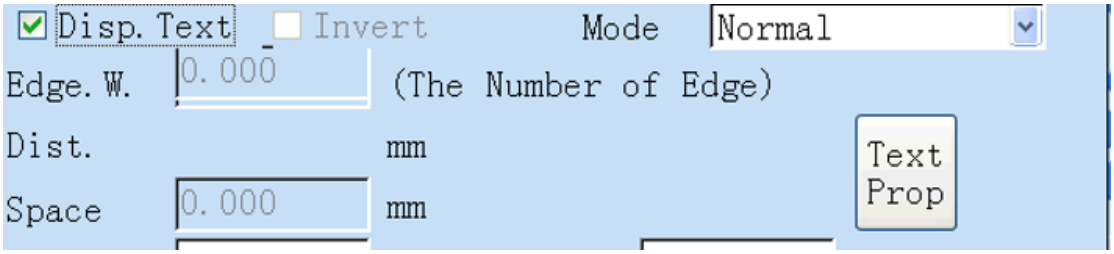




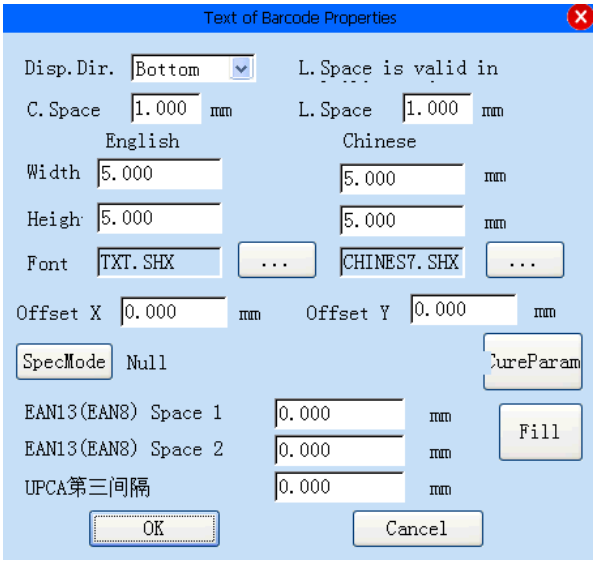
After the check, the corresponding bar code display as shown below(Barcode and two-dimensional code similar):



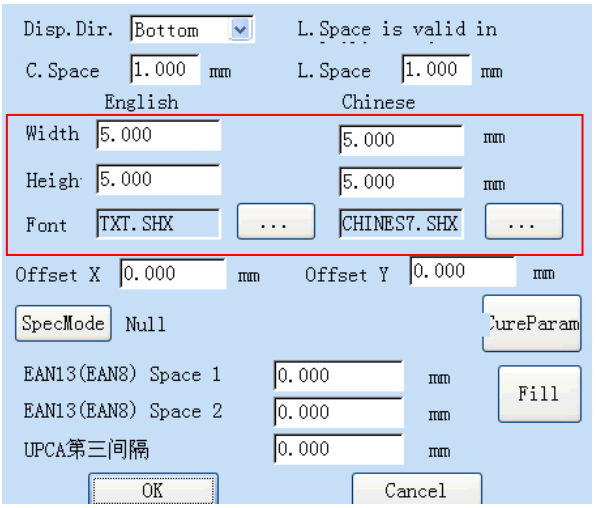
Specific text related parameters can be set through the text button to enter the settings: text settings button as shown below:



Specific text parameters set interface as shown below:

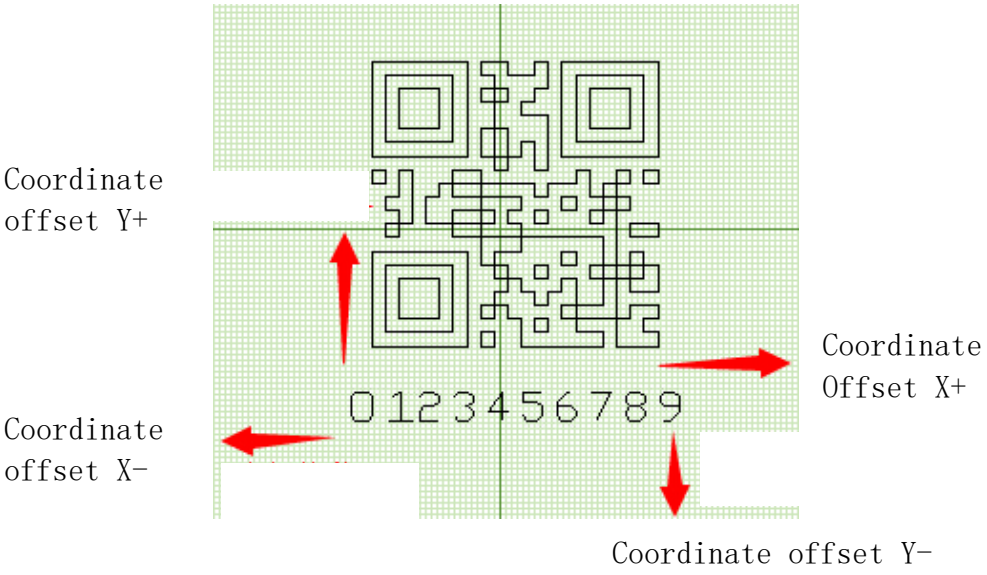


The following sections (with the red box selected part) with the standard character set, as shown in the following figure:

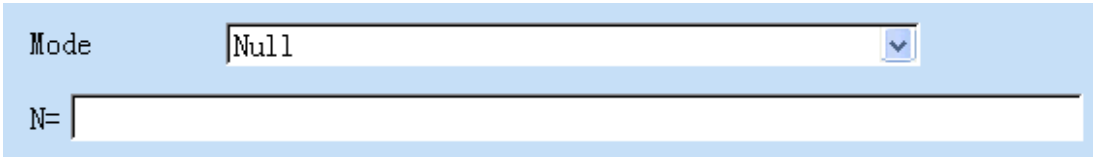


Which shows the direction tab, you can select the upper and lower text display position adjustment。

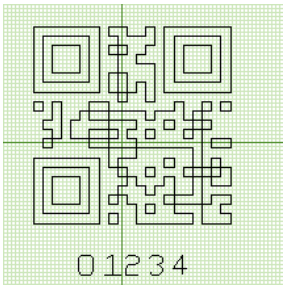
Coordinate offset X and coordinate offset Y, specifically refers to the adjustment of the current position in the position, where the specific direction as shown in the following figure:



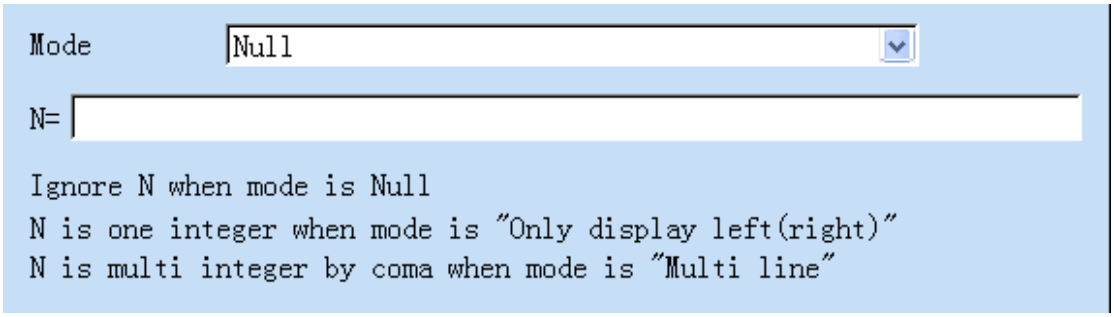
Text display mode can be based on user needs, choose to display the first few, or choose the following several, as shown in the following figure: When you choose to display the 5 left, the specific settings as shown below:



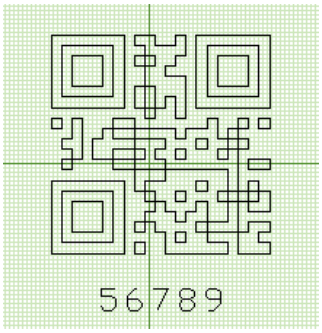
The interface shows the following results:



When you choose to display the 5 bit on the right, the settings are as follows:

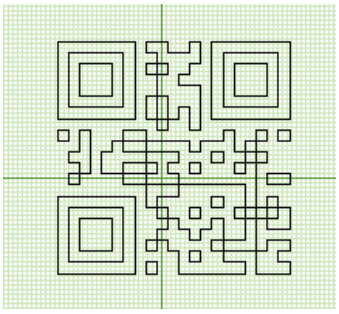


The interface shows the following results:

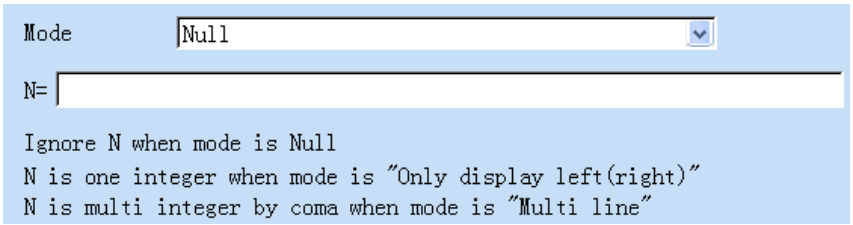


At present, there are several types of marking mode:

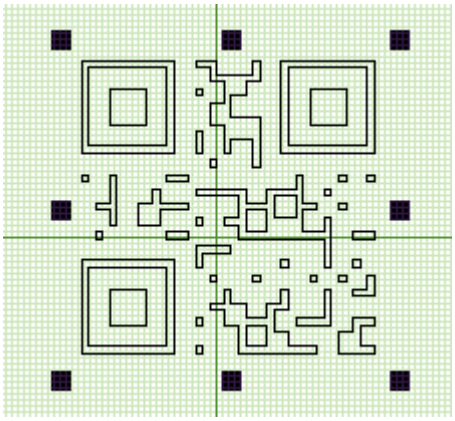
1、 Common mode, the specific interface as shown below:



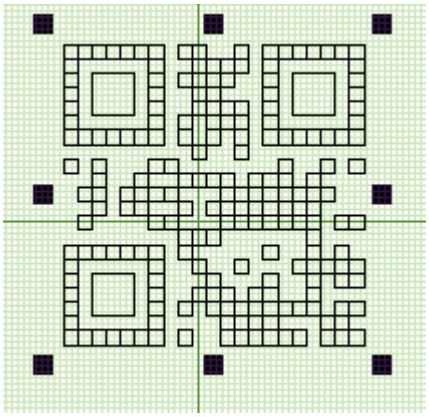
Common mode parameter settings, as shown in the following figure:



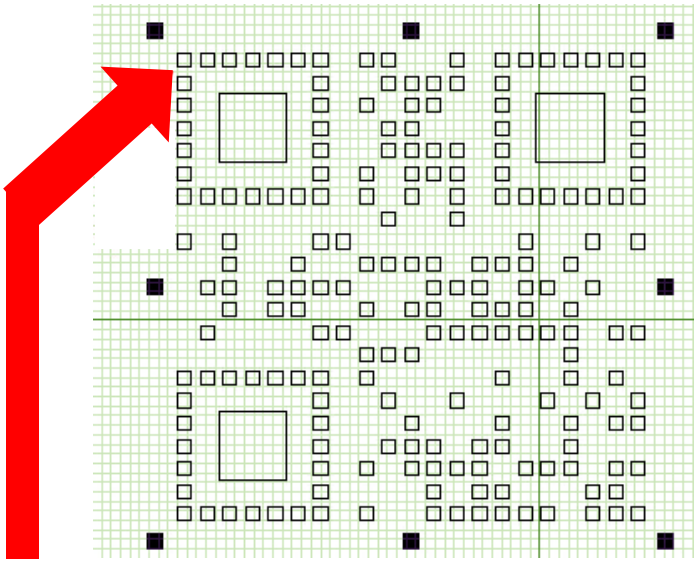
Offset changes will affect the marking effect, the specific needs to be adjusted according to the needs, which adjusted the results shown in the following figure:



2、Border mode, the specific display as shown below:

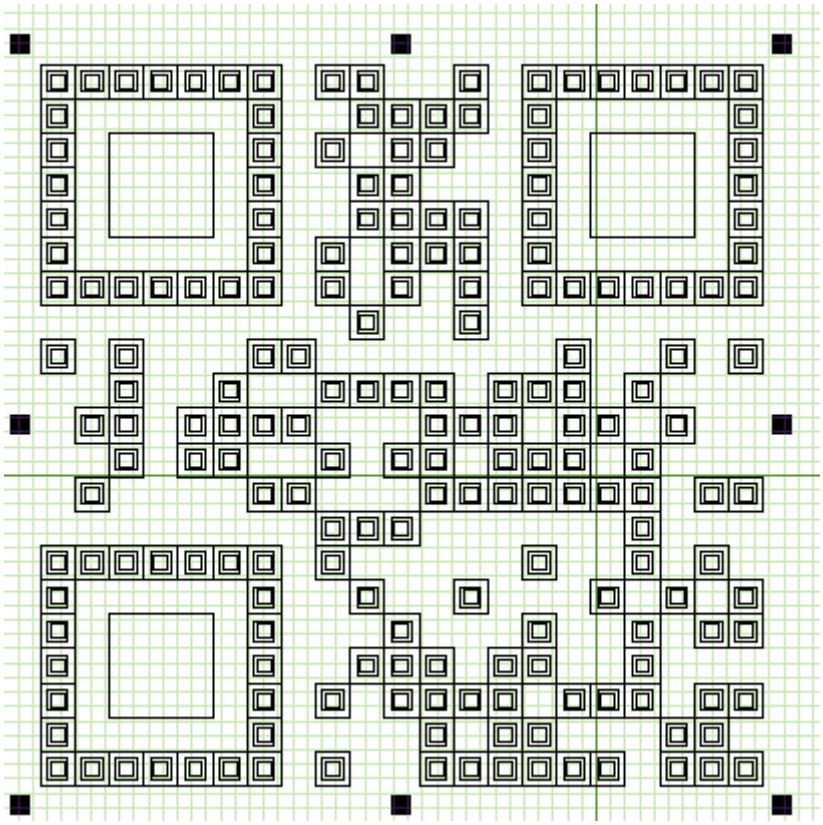


Border mode parameters are as follows:
The margin parameter is adjusted to produce the result as shown in the figure below (actually the distance between each rectangle):



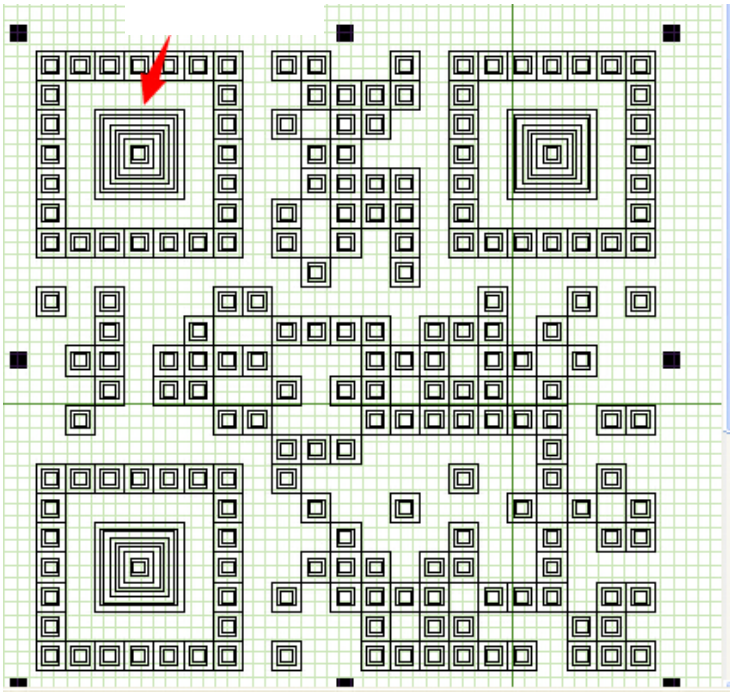
The distance between the border and the border

The spacing parameter is adjusted to produce the result as shown in the figure below (actually the density of the rectangle in each small rectangle):

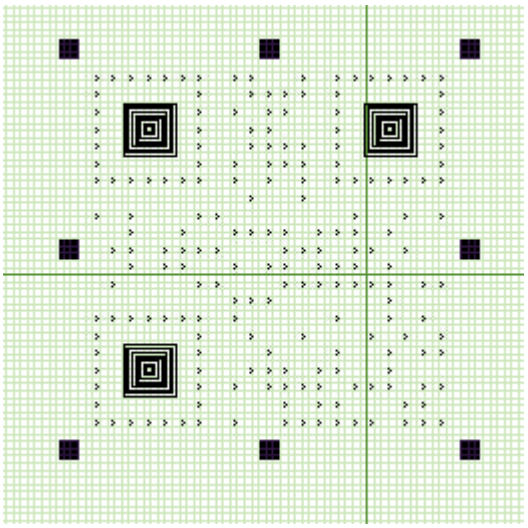


The position and distance of the position detection graphics are mainly adjusted as shown in the following figure:

Position detecting pattern

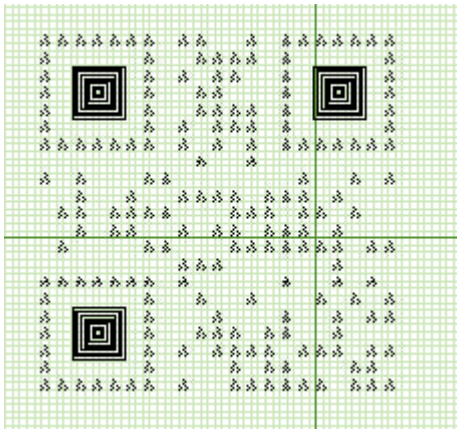


3、Point mode, as shown in the following figure:



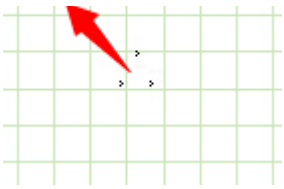
The position detection graphics related attributes are set in the same frame mode。

4、3 point mode, the specific display as shown below:



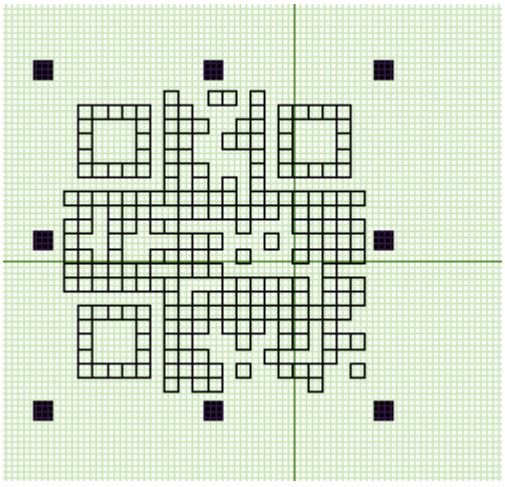
In this mode, the distance between points refers to the distance between the 3 points as shown below。

Distance between points



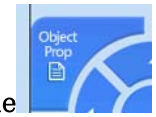
5、The 4 point mode is similar to the 9 point mode and the 3 point mode。

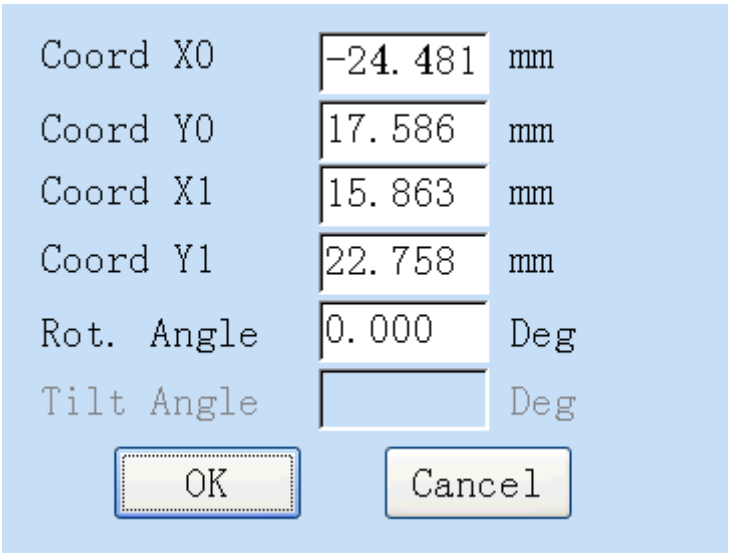
6、The function of bar code reverse function, in addition to the common mode and other modes are effective, specific purpose is mainly to adapt to different marking material. (when playing black material, you need to use the reverse function of bar code marking), Specific bar code reverse display results as shown in the following figure:



Six、Other place Point, line, rectangle, arc

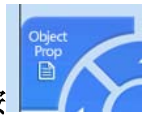
Press

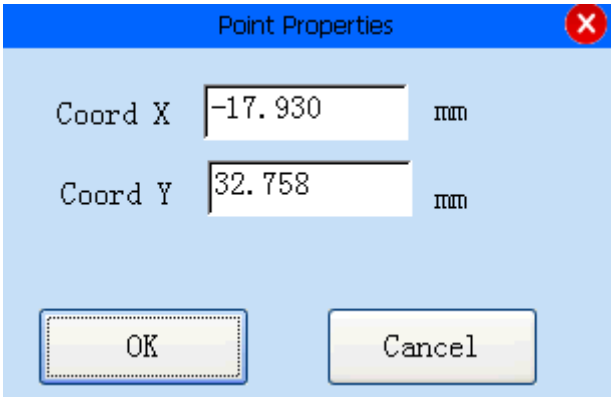
According to the 



1、Placement point

按

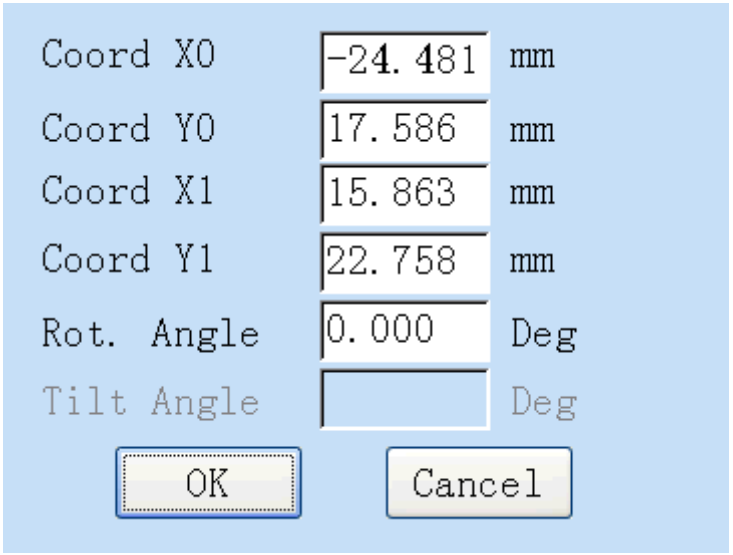
再按 



2、Place rectangle

Press

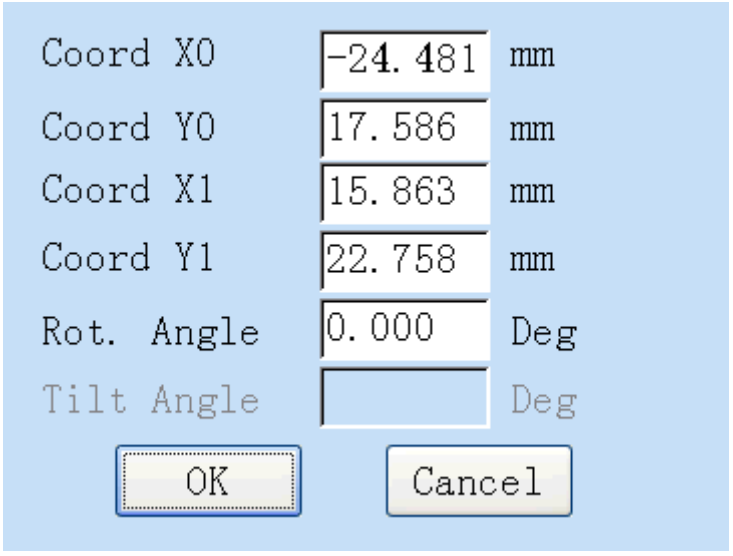
According to the



3、Place line

Press

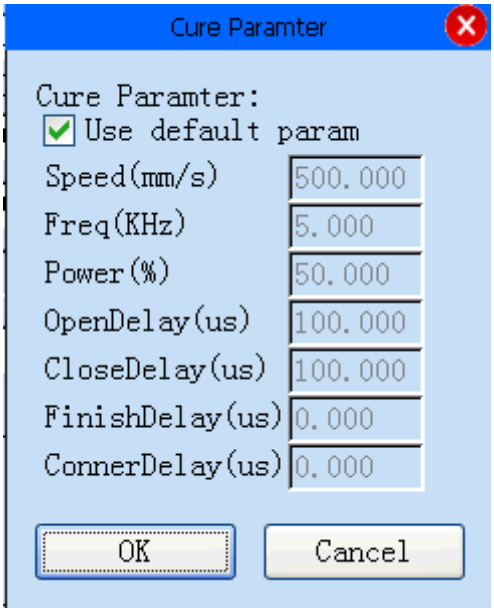
According to the



Seven、Parameter setting

1、Processing parameters

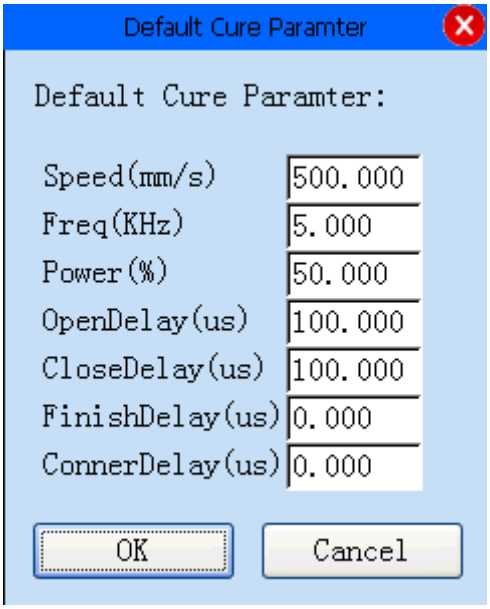
Press



Modify parameters for a single content (please refer to the default parameter settings)。

2、Default parameters

Press



speed:

The slower the processing speed, the deeper the marking, the faster the processing speed, and the shorter the marking. It can be adjusted by adjusting the duty ratio of laser or the depth of power compensation。

Note: dot matrix font or RBI when this parameter is invalid, the need to cut down time in advanced parameters。

frequency:

Specify output frequency。

power:

Specifies the output power of the mark 1% to 100% adjustable。

Delay switch:

The specified marking switch delay. This parameter is set too high, there will be a lack of marking pen drawing; setting is too small, low speed will appear in focus at the beginning (can be negative, if you need to enter a negative number, please enter the value and then press "-" number)

Turn off delay:

Specifies that each time the mark off light delay. When the parameter setting is too large, the end of each mark will be the focus, the parameters set too fast and the hour will be marked when the tail stroke

End delay:

Numerical type parameter, unit us. specifies the residence time after each marking

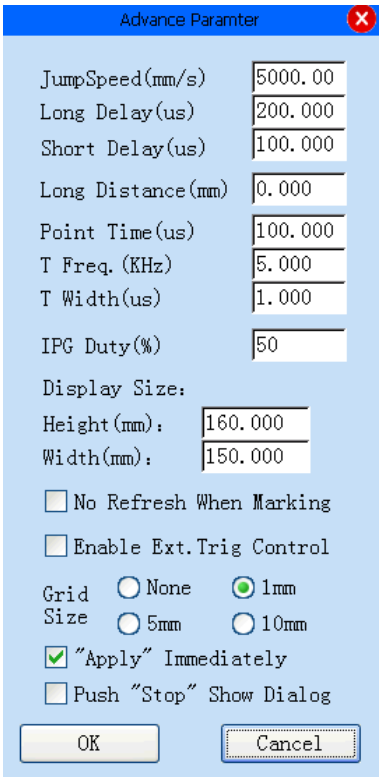
Note: when using IPG marking, this parameter must be set to not 0, in order to avoid marking the end of the hook of the character stroke.

Corner delay:

Specify dwell time at the corner。

First point excess	Increase the opening delay
First you draw	To reduce the switch delay
Initial deformation	Jump delay
Excessive tail point	Reduce light off delay
Tail pen	Turn off the light
Tail deformation	Increase the turn off delay, increase the end delay
Corner overweight	Reduce corner delay
Corner deformation	Corner delay

3、Advanced parameters



Jump speed:

To specify the speed of a moving mirror (s) when the laser is not in the light

Short jump delay:

Specifies the time required for the shorter duration of the marking process, from the last "empty" to the beginning of the next 1mm。

Long jump delay:

Specifies the length of time required for the marking process to be greater than 1mm, from the last "empty" to the beginning of the next mark。

Dotting time:

Time spent on each dot for dot matrix font or dot。

Preionization frequency:

Specifies the PWM output frequency (CO2 laser) of the laser in the state of being out of light。

Preionization width:

Specifies the PWM output width (CO2) of the laser in the state of being out of light。

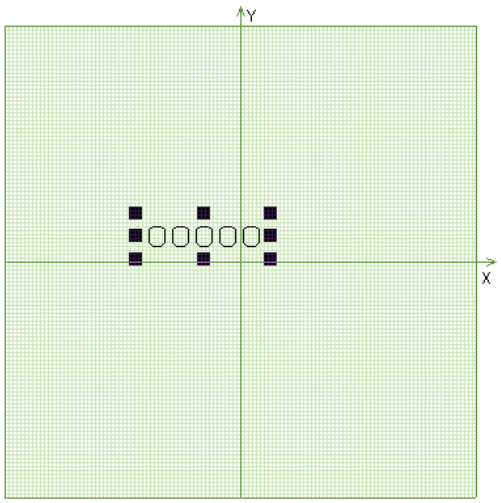
Note: this parameter will often turn out the light。

IPG Duty cycle:

Adjust the duty cycle of IPG, commonly used 50% 。

Edit area size:

Refers to the size of the edit area of the following graph。



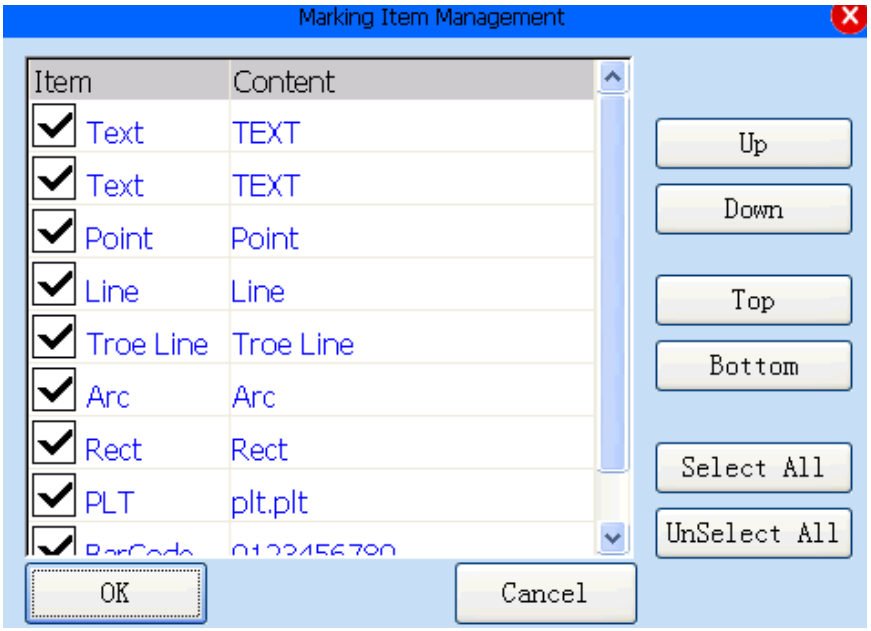
In the flying or long marking, try to adjust the editing area, do not have too much content area。

No refresh during marking:

For jump mode, select the marking speed will be faster。

4、Marking management

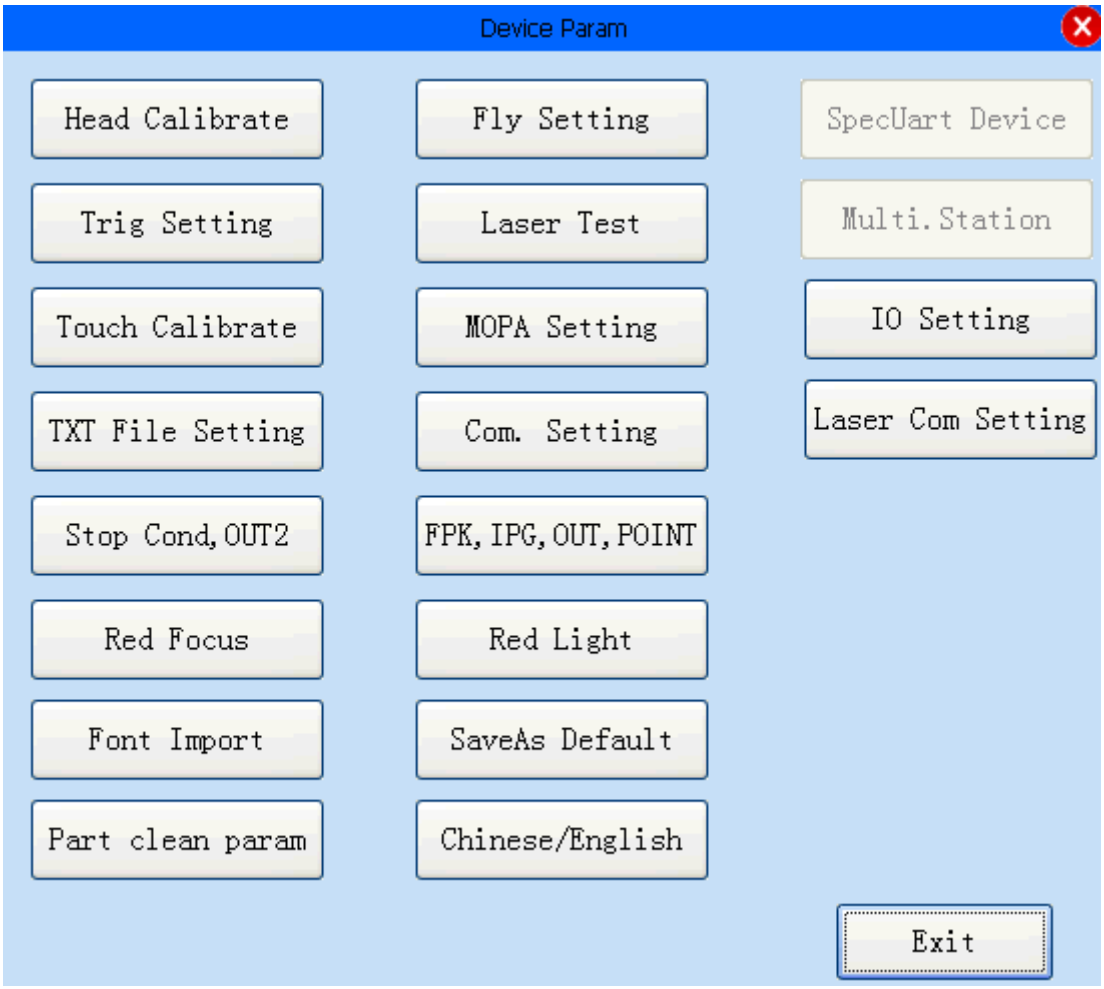
Press



When there are multiple contents, one or more individual labels can be selected。

Eight、Equipment parameters：

Press



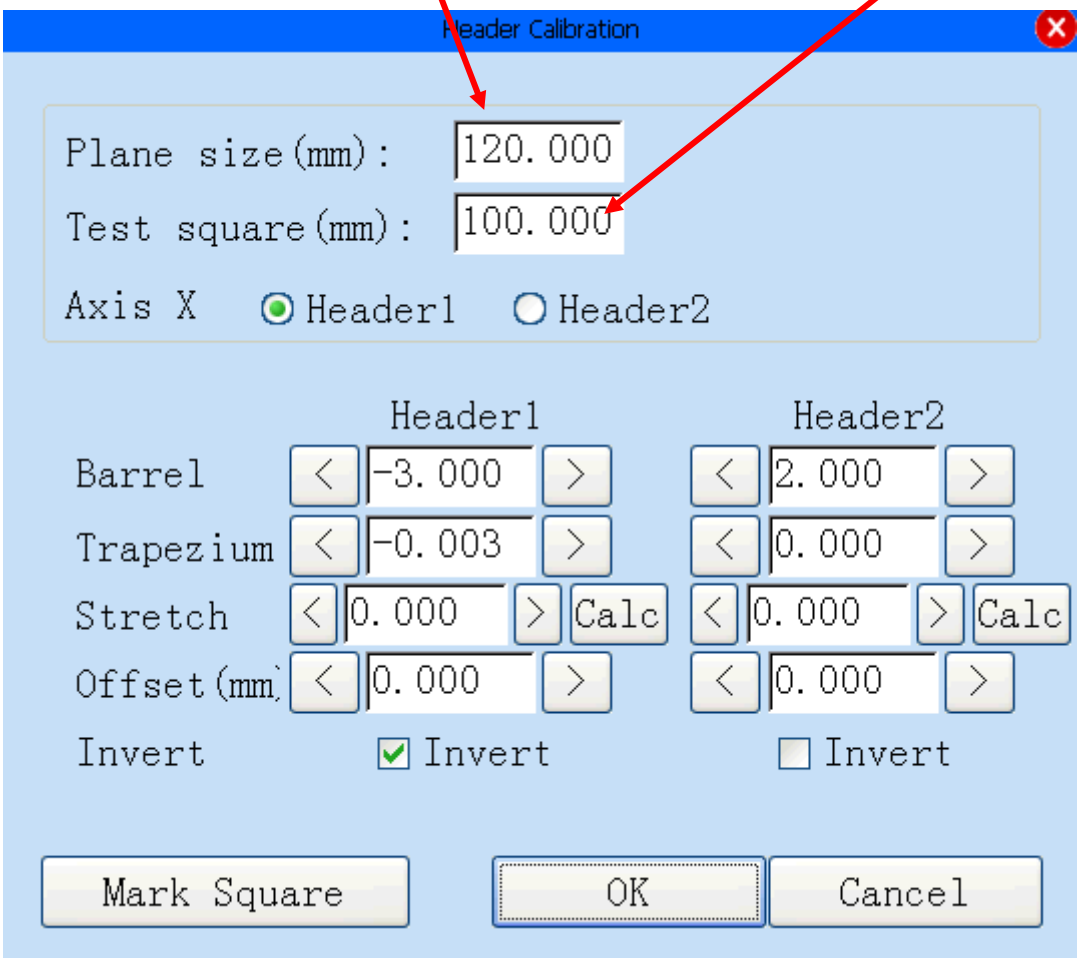
Access to this operation requires a system administrator to enter。

1、Galvanometer calibration：

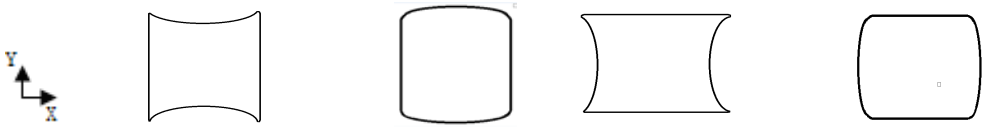
Enter the actual need to test the scope of the test

This size must be adjusted

Actual working range of input field mirror

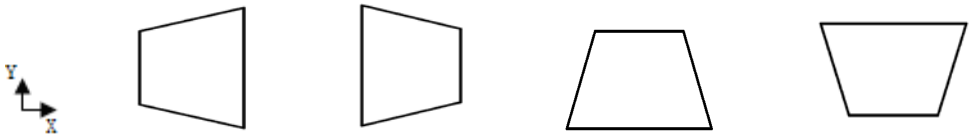


1. **Mirror working plane：**
   Actual working range of input field mirror
2. **Calibration test rectangle：**
   Enter the actual need to test the scope of the test, usually smaller than the mirror plane。
3. **Specify X axis：**
   Vibrating mirror two axes, one of which is designated as X axis, and the other for the Y axis。
4. **Barrel correction：**
   The following figure with bucket correction



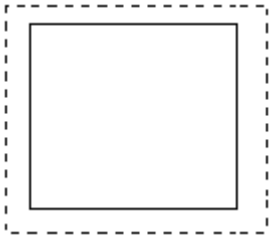
5. **Ladder correction:**

The following figure with ladder type correction



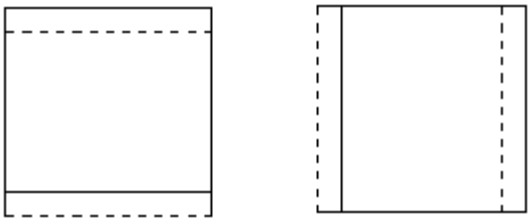
6. **stretching:**

Fine tuning parameters, zoom in or out rectangular size

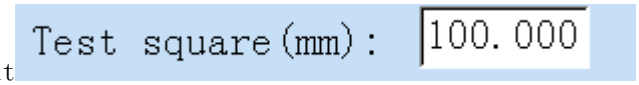


7. **deviation:**

Fine tuning parameters, specify the X of the engraved plane, Y axis offset



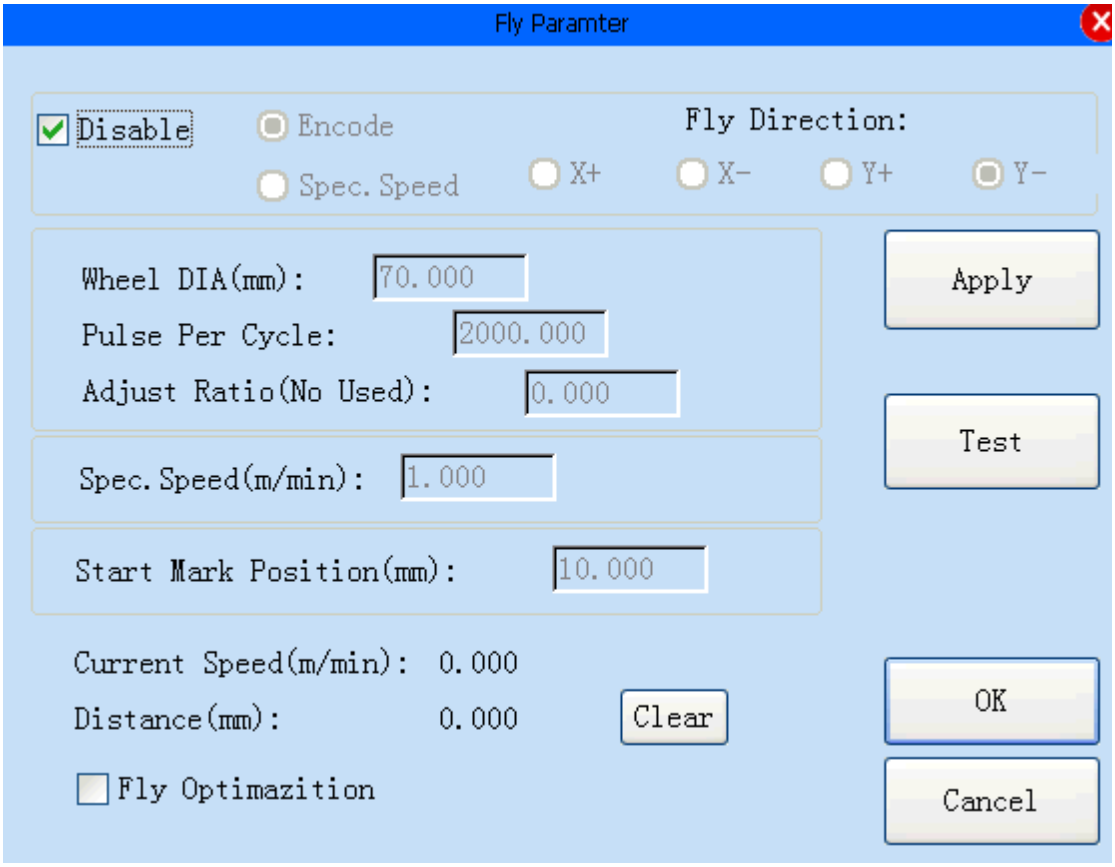
8. **Marking rectangle:**

Mark the effect of testing the calibration of the mirror, according to the size of the size of the calibration test rectangular input 

。

As shown in the icon of the square shape of the central cross of the size of 100mm, such as not for 100mm by stretching it to 100mm。

2、Flying parameters：



1.Flying mode：

There are three modes

1. prohibit：

   Prohibit flying

2. Specified speed：

   Refers not to install the encoder to synchronize the system by adjusting the line speed and flying speed, synchronous marking mode, can be used in the pipeline is stable, otherwise the standard font will be engraved when deformation。

3. **Encoder：**

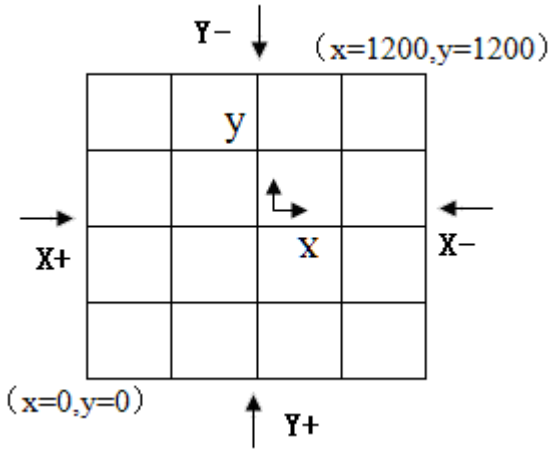
   It is the mode of installing the rotary encoder to detect the speed on the assembly line

2.Flying direction：

Specify the flying direction, you can choose X+、X-、Y+、Y-。

First of all, in the calibration of the lens under the standard test rectangle。

According to the direction of the movement of the goods in the same direction as the arrow in the figure below, select the corresponding direction。

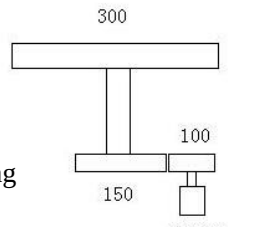


3.Drive wheel diameter：

The diameter of the drive wheel on the encoder, if the synchronization test is not synchronized, fine tuning the diameter of the drive wheel Under normal circumstances, static marking and flying marking played the same。

Calculation method for large wheel：

Encoder diameter calculation



The main wheel

Driving

Encoder wheel

Encoder

$$\text{The main wheel} \times \frac{\text{Encoder wheel}}{\text{Driving wheel}} = \text{Encoder diameter} \qquad 300 \times \frac{100}{150} = 200$$

How many rounds of encoders rotate in one turn

4.Encoder pulses：

According to the number of pulses per revolution of the encoder。

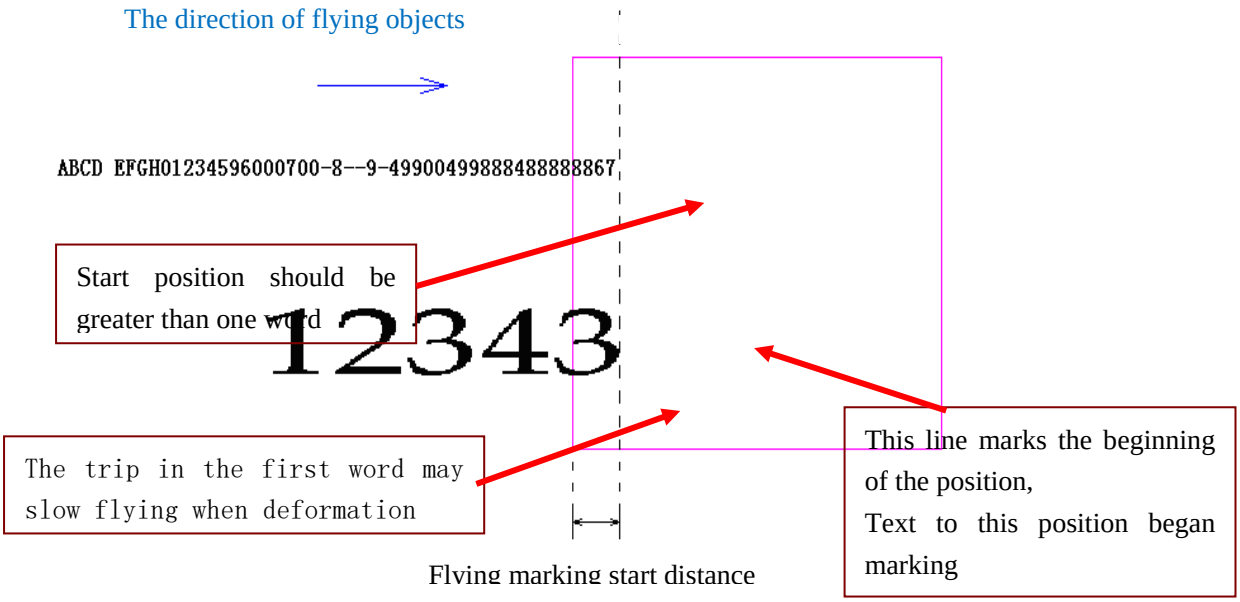
5.Trimming coefficient：（Retain）

6.Specified speed：

In the flying mode for the specified speed, the actual speed input of the drive belt。

7.Flying marking start position

The object into the marking scope after long distance after marking. This function in the "flying"。 Range of galvanometer



Head deformation： The start position should increase, but the flying speed might affect the speed of marking, this can be small。

8.Flying test synchronization adjustment：

In flyingmarking state, according to the "effect test" logo engraved 7 lines。

picture 1 7 lines are shown to be out of sync with the assembly line

（Wrong or adjust the encoder pulse transmission wheel diameter, flying speed specified speed adjustment）

Picture 2 7 lines will overlap with the pipeline to prove the basic synchronization。

picture1 Asynchrony　　picture 2　synchronization

Note: if the synchronization adjustment is not perfect, you can speed up the processing speed to improve。

Speed adjustment steps: （Just started to adjust the flying, flight speed to slow, after a good tune to accelerate）

1. Adjust the galvanometer calibration, and confirm the flying direction above "flying direction"。
2. Input content (e.g. 1234567890)
3. Adjust the content of the standard marking and static marked out, to retain the model marked。
4. A good flying direction。
5. Input encoder pulse。（If the specified speed, enter the specified speed）
6. Input drive wheel size。（If the specified speed, enter the specified speed）
7. Flying marking just marking content（e.g.1234567890）
8. **Flying marking content and static marking content for comparison, comparison of two content length**

   Longer than the static: the diameter of the drive wheel to be changed or specify the speed to change fast。

   Shorter than static: the diameter of the drive wheel to be changed or the specified speed to slow。
9. Two kinds of marking the content of the same length, complete adjustment。

Speed reference:

1 2 3 4 5 6 7 8 9 0 ← Flying marking, driving wheel diameter should be modified or specified speed to change quickly

1 2 3 4 5 6 7 8 9 0 ← **Static marking, the length of the standard。**

1 2 3 4 5 6 7 8 9 0 ← Flying marking, driving wheel diameter should be modified or designated to slow speed

The middle of a static marking, the length of the standard. Flying marking out length is as long as the basic。

The top row of the transmission wheel straight offset small, need to change the point。

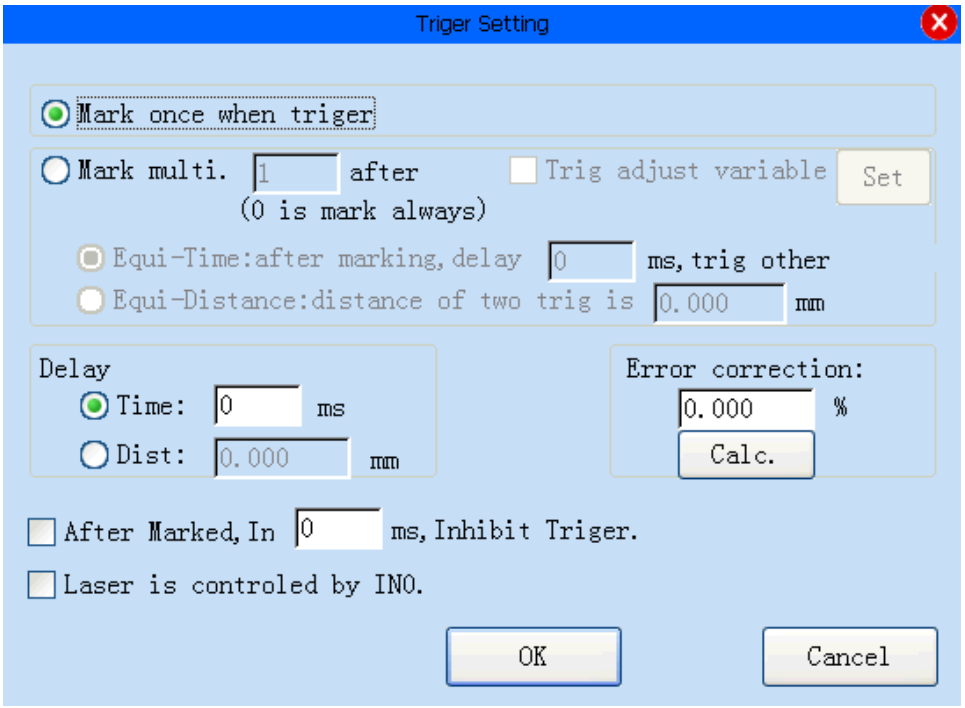
The bottom line of the drive wheel straight diameter, need to change points。

9.Flying speed calculation：

This calculation method can only calculate the approximate speed, not accurate。

$$\frac{\text{Marking content length}}{\text{Marking time consuming}} = \frac{\text{Length (meter)} \times 60}{\text{Time (seconds)}} = \text{Speed of conveyor belt running}\ \text{Speed (M / min)}$$

3、Trigger setting：



1. Trigger once：

For flying such as marking and isometric marking use, marking a trigger control

2. Trigger multiple times：

For flying such as marking and isometric marking use, marking control trigger repeatedly

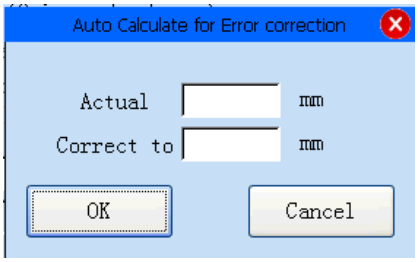
3. Trigger delay：

Time: how long will it take for the trigger to start marking。

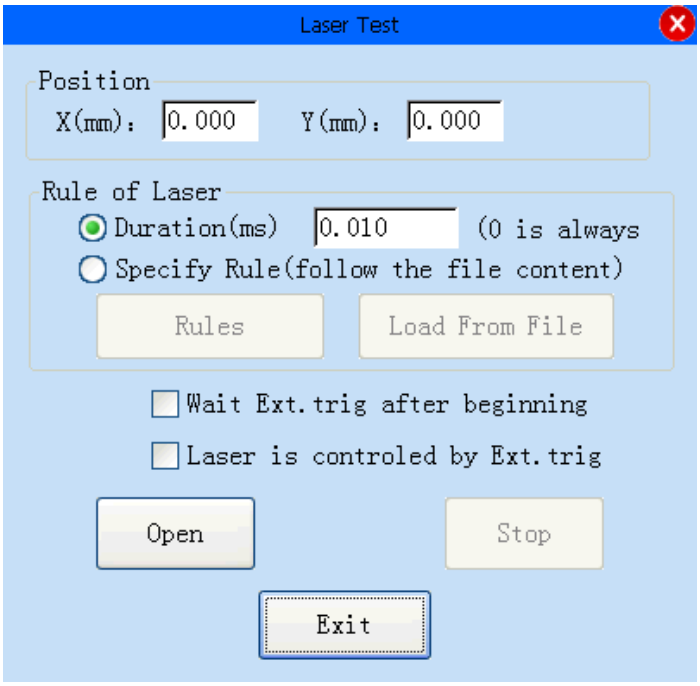
Distance: how long will it take for the trigger to start marking。

4. Error correction factor：

The correction for the error in the isometric marking。



4、Laser test:



• **position：** Specify the position of light。

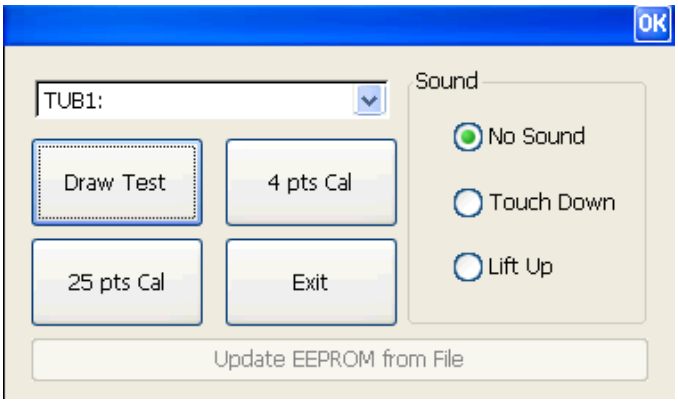
• **Specified time：** When the light is long, enter 0 when it has been out of light, need to stop to stop。

• **Specified rule：** Special purpose。

•**Wait outside trigger after start：**After selection, according to a wait for an external trigger (such as photoelectric switch) to light。

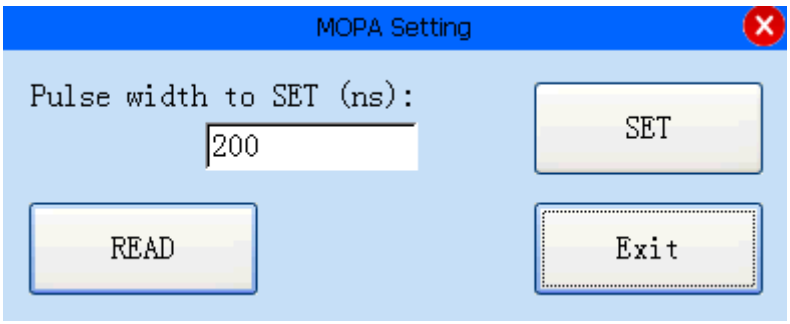
• **A laser trigger signal level control：** After selection, by opening wait for an external trigger, press the trigger signal to release the light, no light。

5、Touch screen calibration

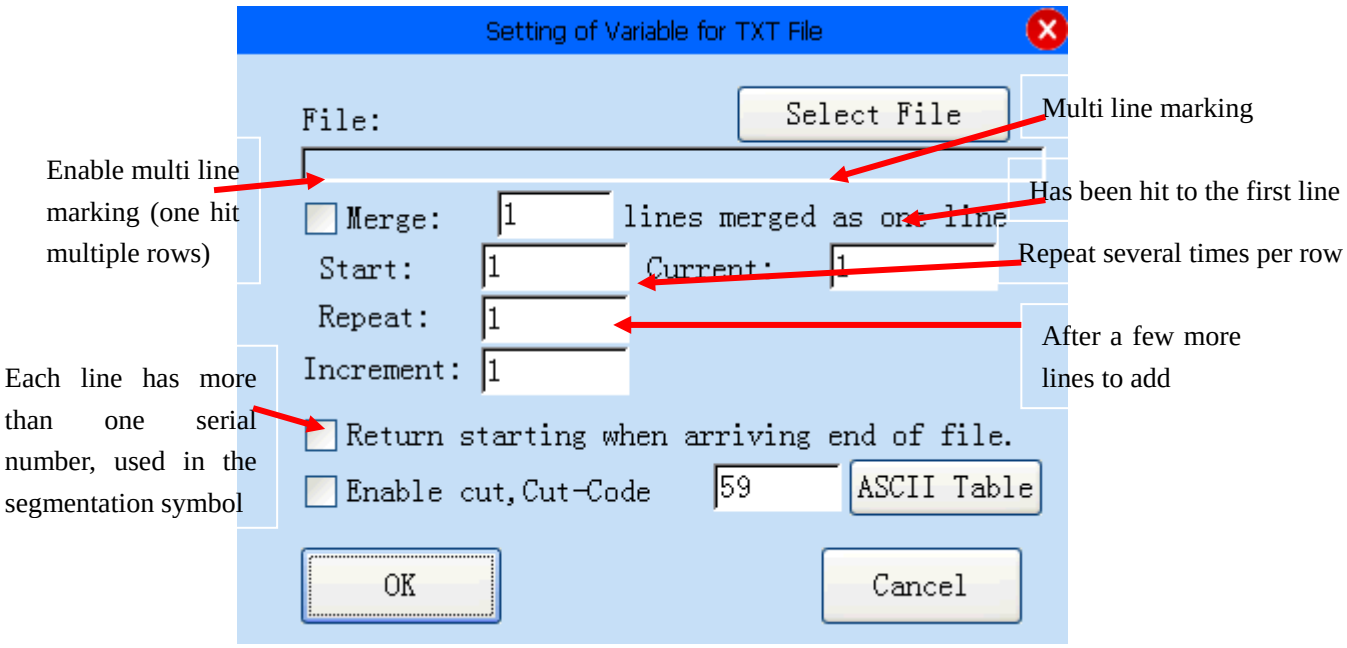


•Select the 4 point correction, the screen appears in turn 4 points, according to the order of 4 points。

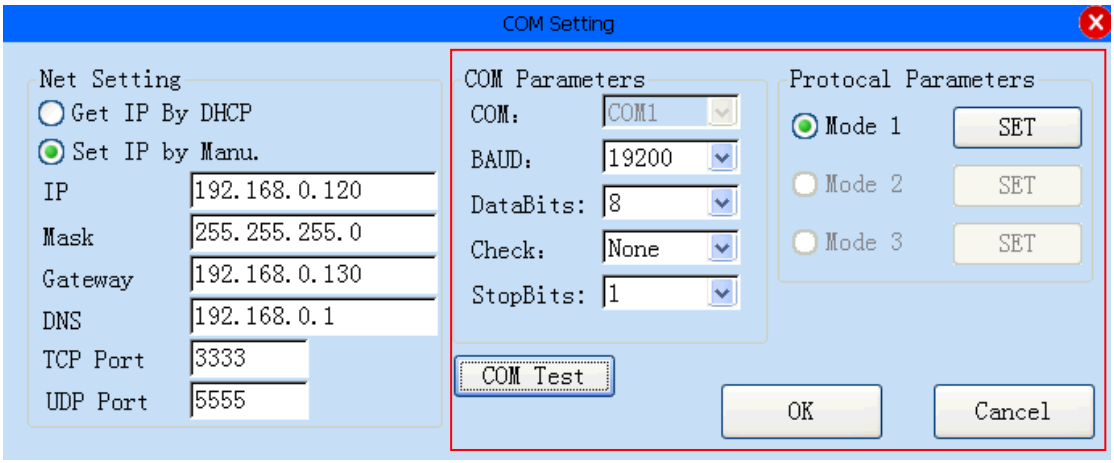
6、MOPA Laser setup



7、Text file marking settings



8、Serial port setup



• Serial setting:

Serial number ： Please select the appropriate COM Port in accordance with the host device。

baud rate ： Please send the same settings according to the message source。

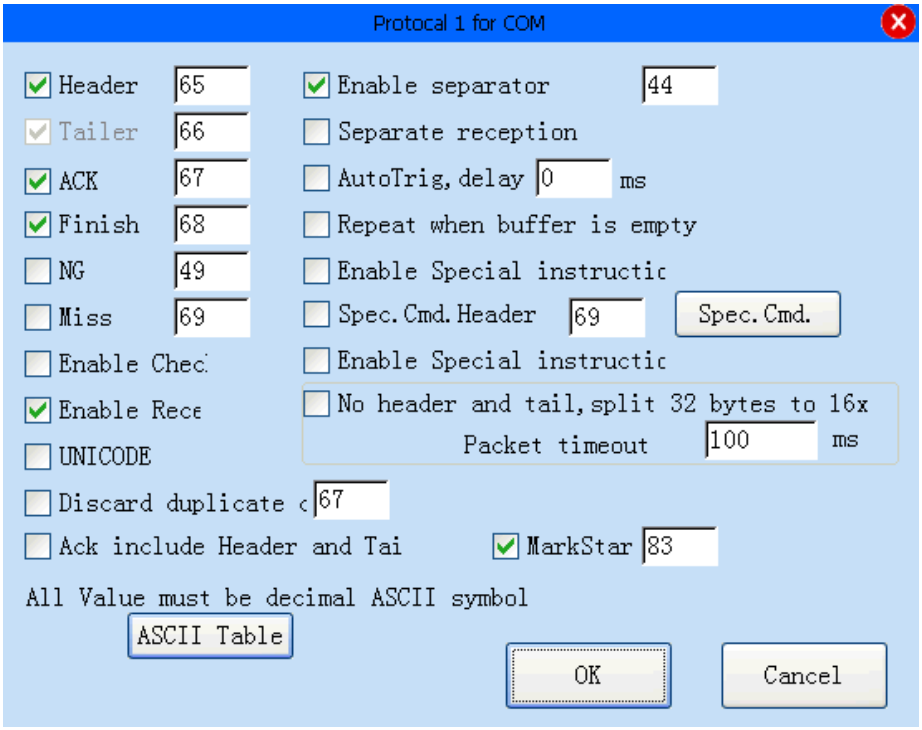
Data bit ： Please send the same settings according to the message source。

Check bit ： Please send the same settings according to the message

source。

Stop bit ： Please send the same settings according to the message source。

The related parameters can be set by clicking on the serial port protocol:



• **Start character** When the system receives the host sends this information, then said data is correct. If the content is blank, said first character received as automatic text。

• **Terminator** It is necessary to set by the main control end receives the data that has been transmitted over the data field. The default value is "65", namely the character "A". The default column is checked, the field cannot be empty, otherwise the system cannot distinguish the data when the end of transmission。

• **ACK Fu** When the system receives the "end" and "check code" (if there is a check), and confirm that the received information is correct, you can choose whether the software to send this signal to the main control means that the normal reception。

• **NG Fu** When the check code is wrong, you can choose whether the software to send this signal to the main control means that the receiver is wrong。

• **Marked finish** After marking, the software can choose whether to send this signal to the main control means that the completion of marking。

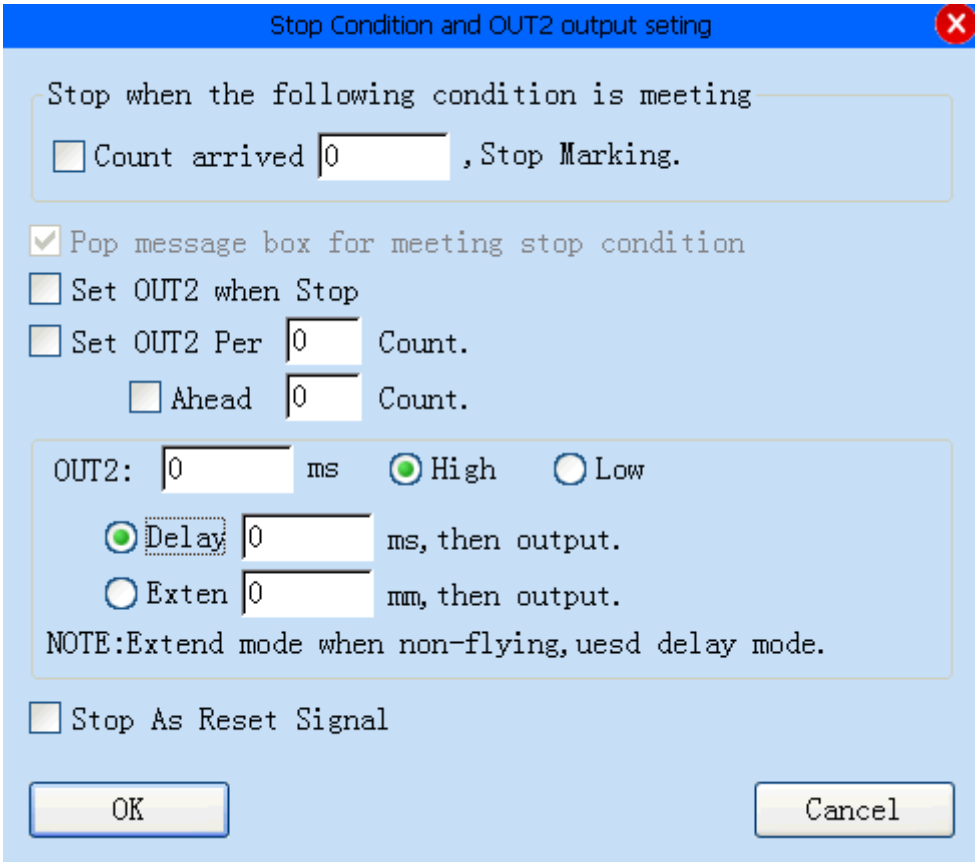
• **Check enable:** You can choose whether to send data check code to validate the data. Check code calculation method is the data for each

character in the first turn to the Hex code again in order to do XOR operations, the obtained result was converted to 16 binary values is equal to the check code. If the information is only one character, check codes the character of the 16 digit code。

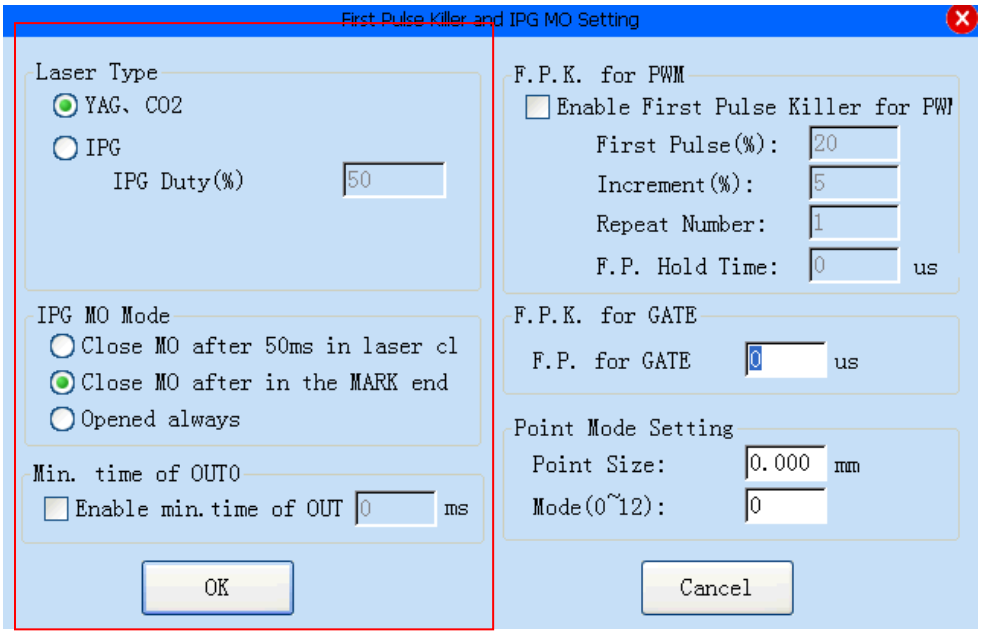
Enable multi group content segmentation:
Received data: how many hours after the delay MS automatic marking
When the serial port has no data to repeat the last content

9、Stop condition setting

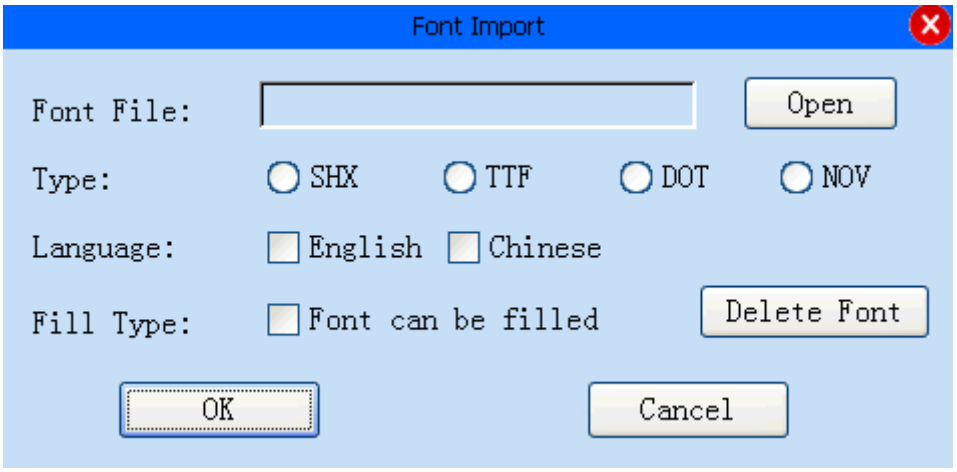
This function can be set to a certain number of labels to stop marking。



10、First pulse、IPGMO

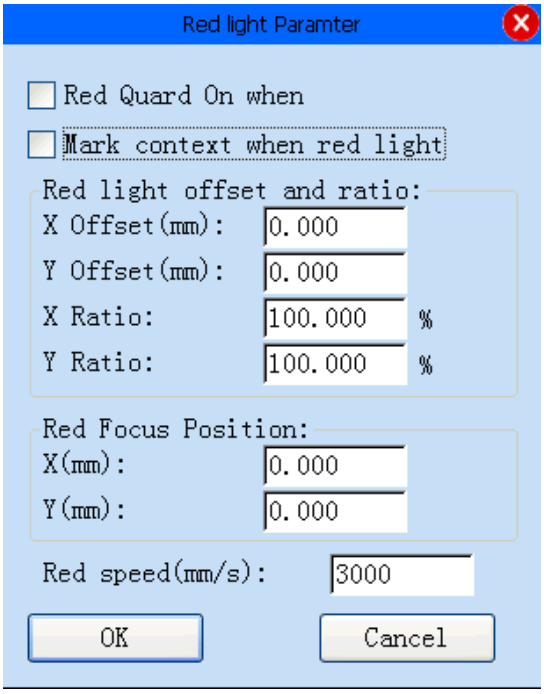


11、Font import

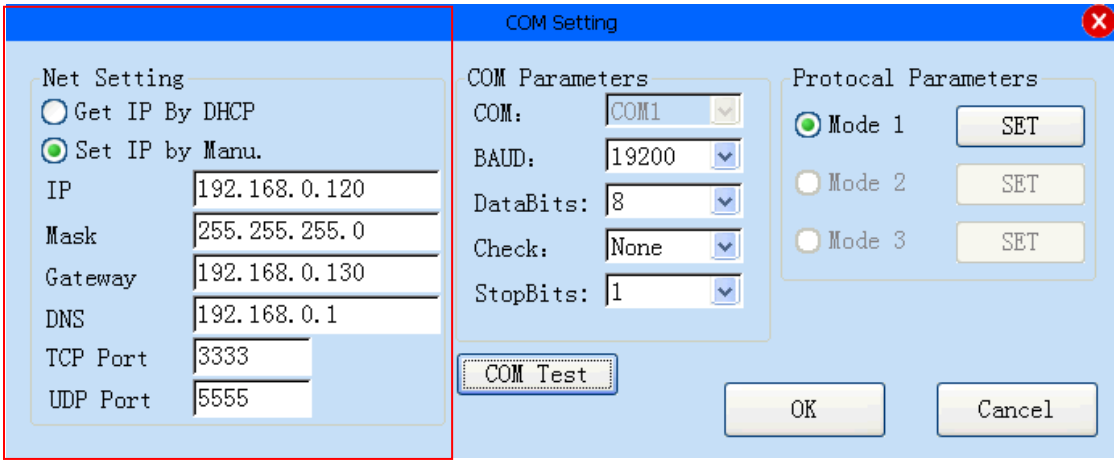


12、Red setting

This setting can be adjusted when the laser does not match the red path。



13、Network parameter setting

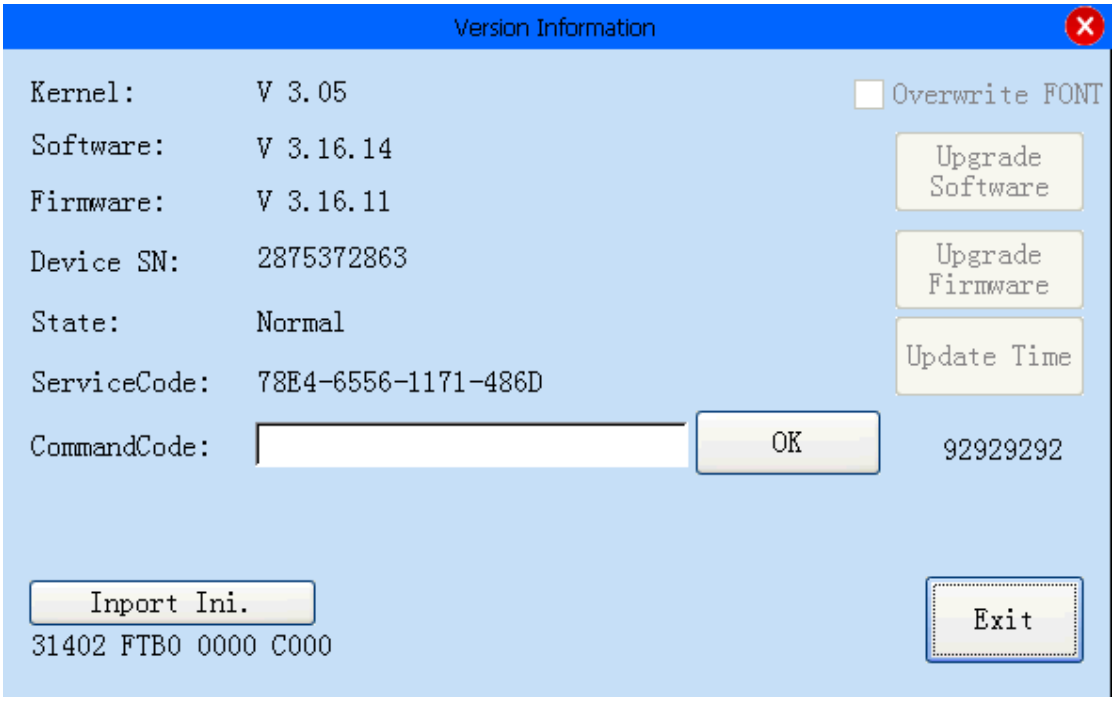


14、Parameter save as default

Save the existing parameters (default parameters, advanced parameters) to the default parameters。

15、Chinese / English

Chinese and English translation。

Nine、Version information：

Press