Kingmark Pneumatic marking machine manual

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1 Main screen

Start up <K3 marking machine system>(be called k3-system below for shorted).The LCD display will show the main screen of k3-system.As shown in Figure 1.

Figure 1

Make sure that your marking mechine is ready for marking and the k3-system will do a initialise.The mechine will do reset one time after k3-system’s initialization.Then touch the screen to enter the k3-system operation page.

2 Quick start

2.1 Main screen overview

Enter the k3-system,screen will show the main screen,as shown below

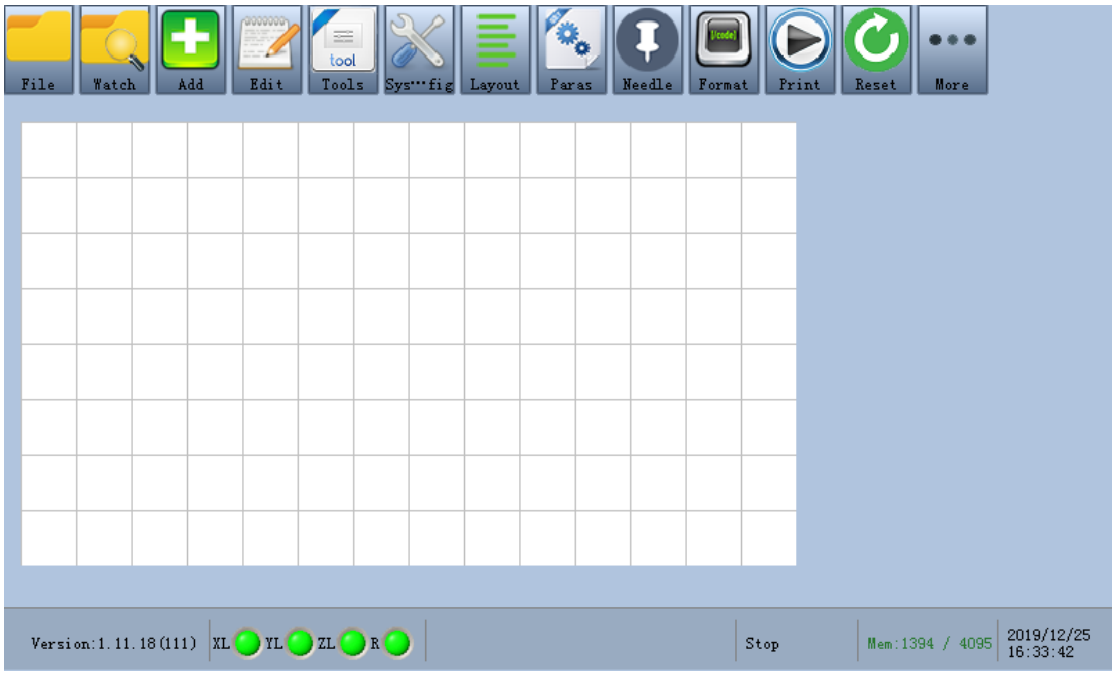


Figure 2.1

The user interface is simple.

On top is the k3-system's function menu.

In the middle is WYSIWYG edit area,defalut size is 140mmX80mm.And the right side is detail config area,which will tell below.

The buttom is the information of K3 system. Including system version, IO information, machine status, etc.

2.2 First marking

In this section,we will introduce how to create a TEXT mark and a SERAIL NUMBER mark,and Composing this two marks,than needle their posion,at last ,marking.

Click [Add]-[TEXT],as shown below:

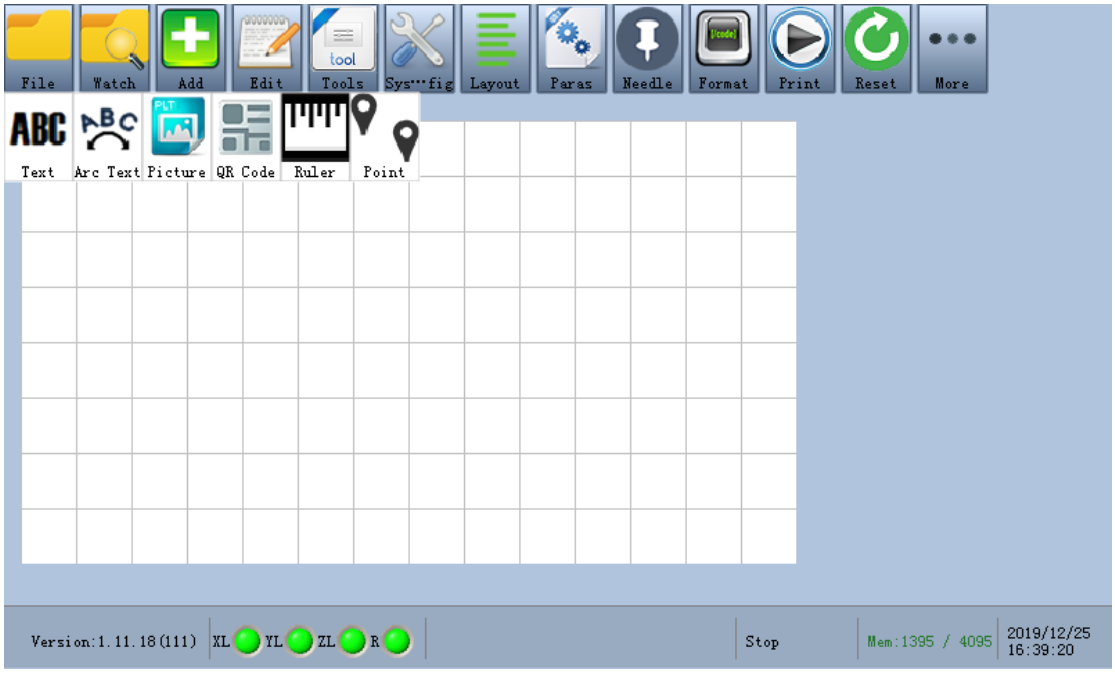


Figure 2.2

A TEXT mark will apear in edit area.As shown below

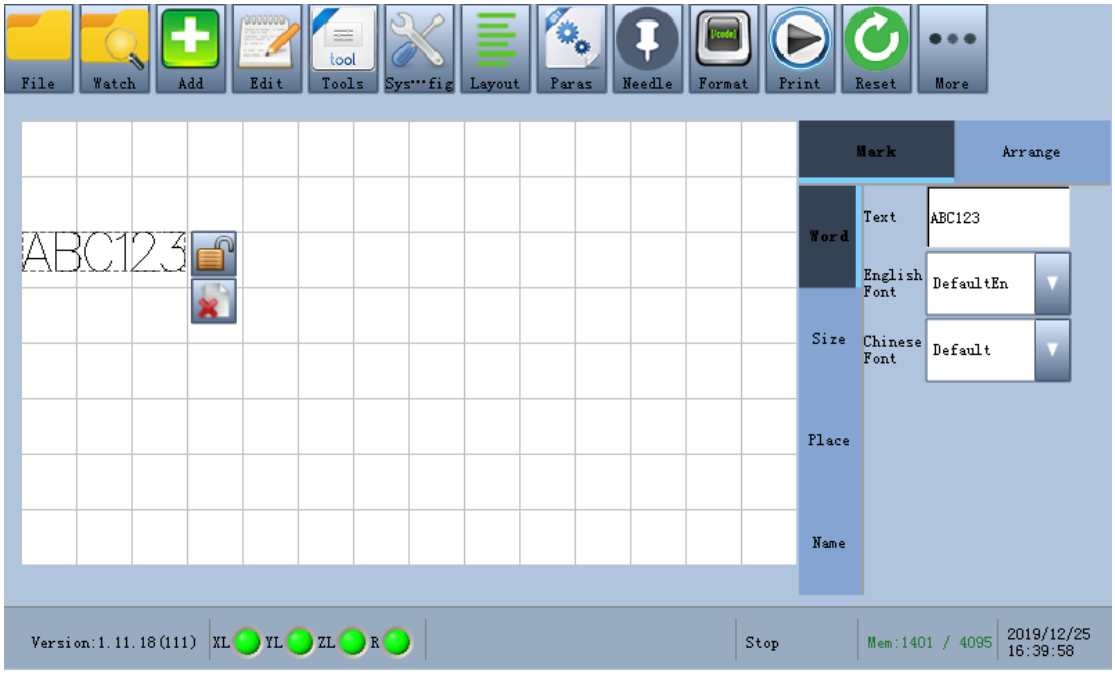


Figure 2.3

TEXT mark is surrounded by a black box,it's means this mark is selected.When a mark is selected,you can click the right side text input box,pop up a content edit dialog.Input new content,as shown below.

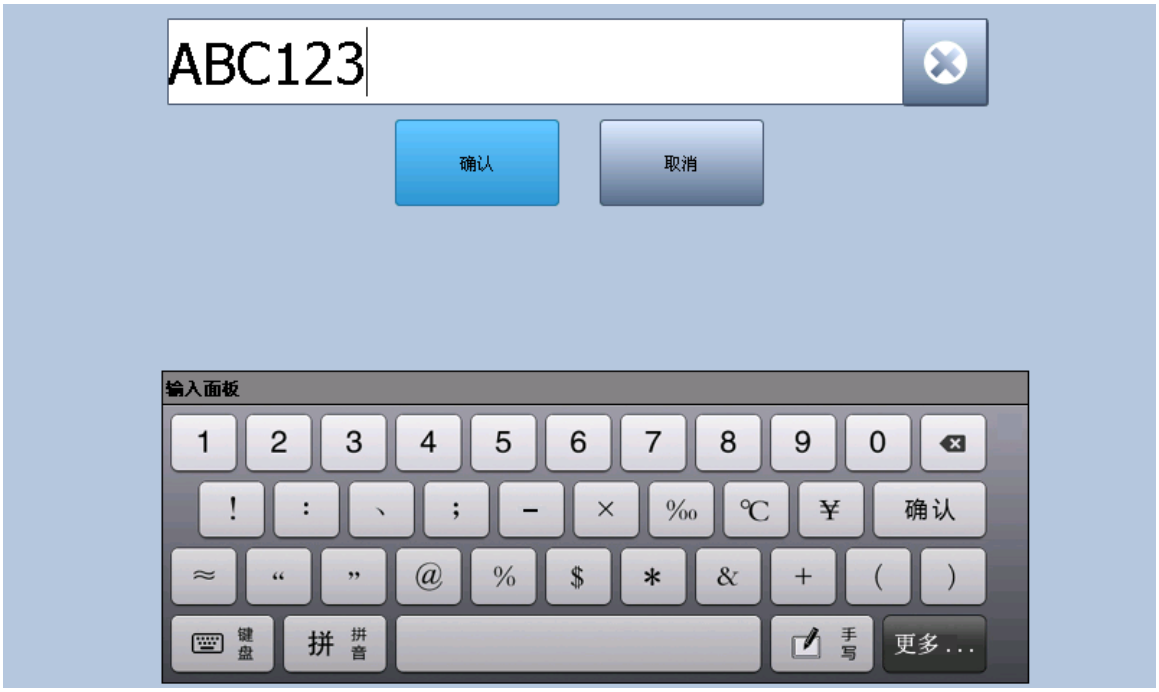


Figure 2.4

Change the content of the mark to anything else,for example “ABCDEF”,press OK,you will see the mark has been changed.

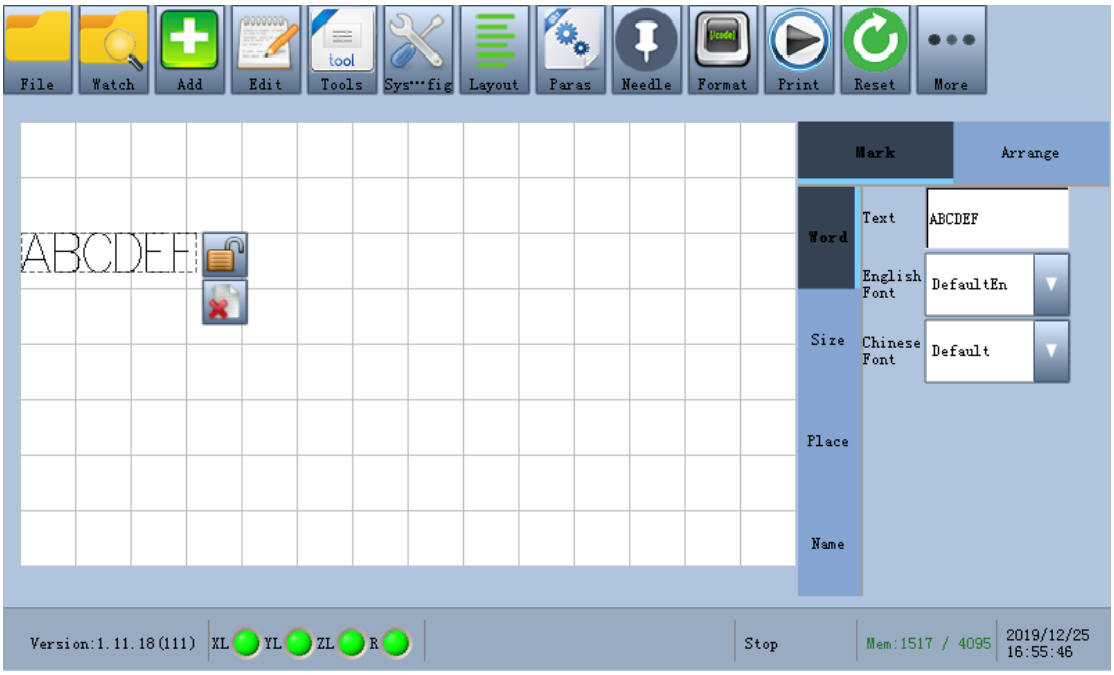


Figure 2.5

When a mark has been selected,you can change the property of the mark in the right area.For example font,click the font combobox will show font list.You can change the others property just like that.Figure 7 is English font property,Figure 8 is

size property

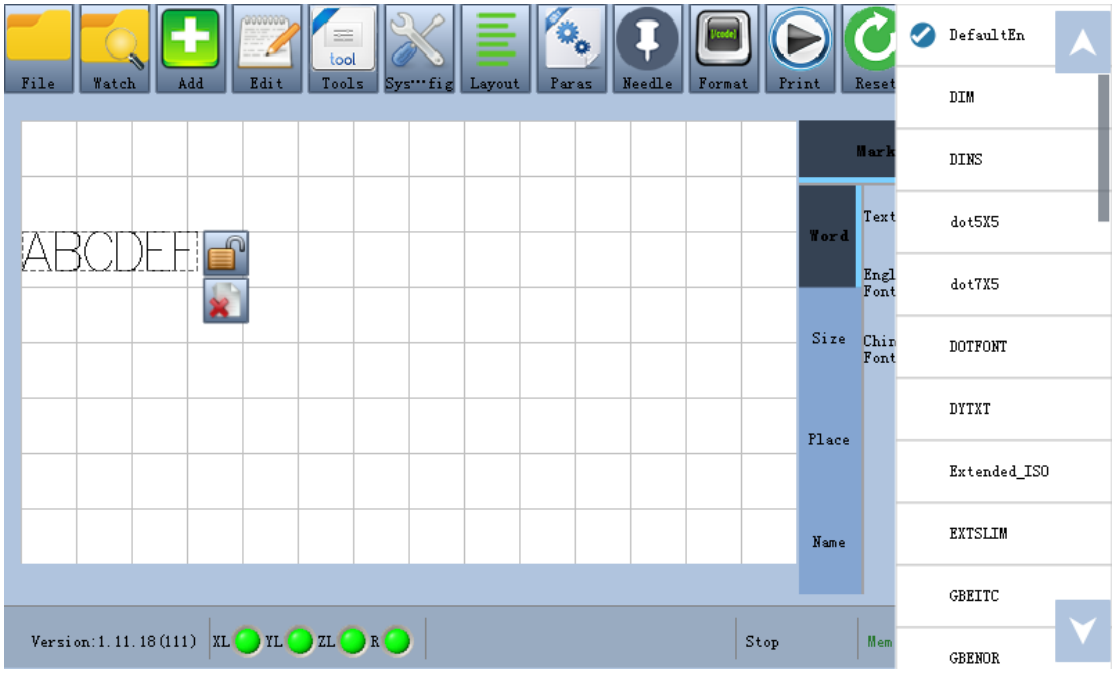


Figure 2.6

Now,K3 supports shx、ttf、slf and lyf font, user can import the fonts when needs.

User can changed the other property by click on the tab on the rigth side.

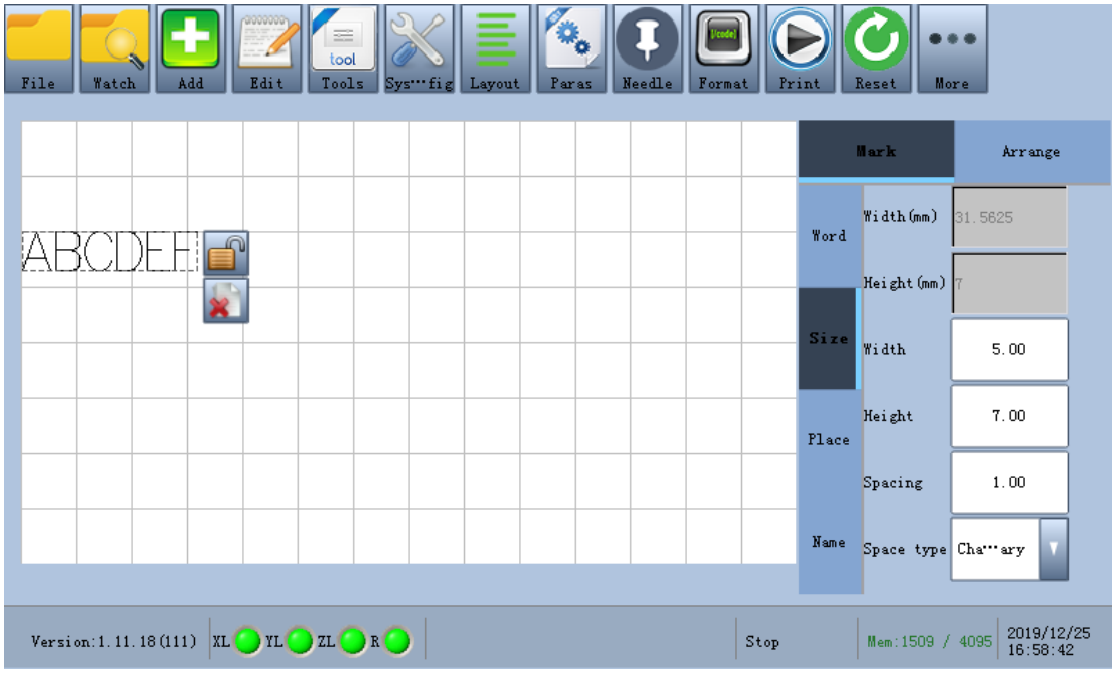


Figure 2.7

The operation of change property will effect at once you change it.

Now we will make a new mark to set it up with SERIALNUMBER witch is auto increase.

Click [ADD]-[TEXT],make a new TEXT mark.Then change the content too”123450”,as shown below.

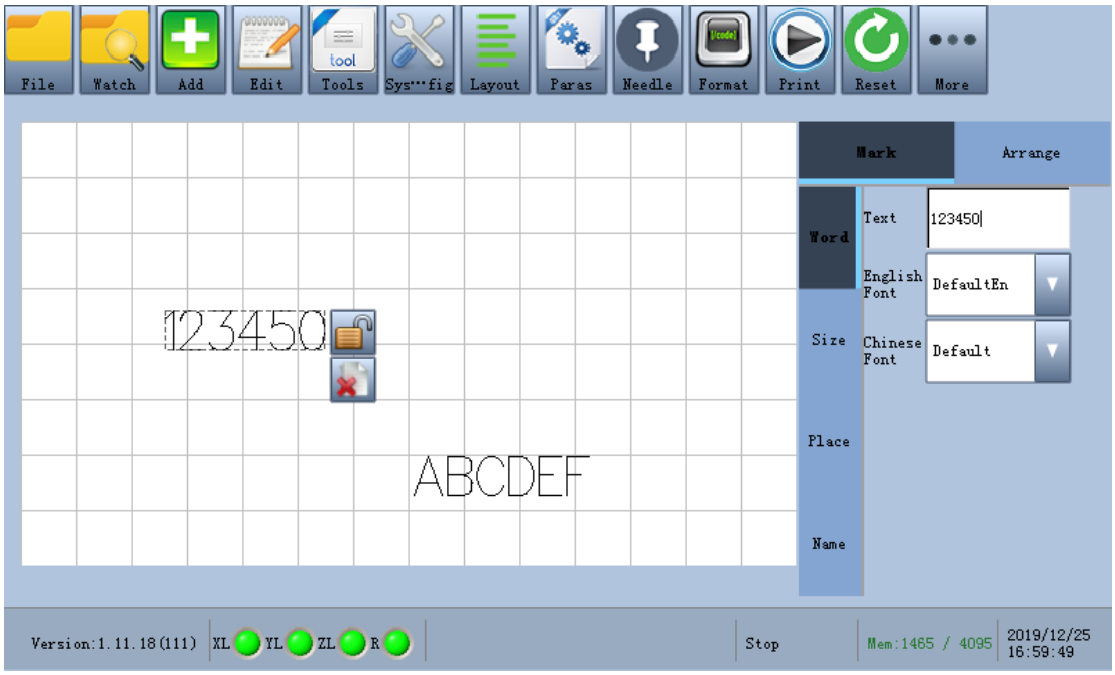


Figure 2.8

Then click tool button [Format],then click [Serial] tab in the right area,as shown below.

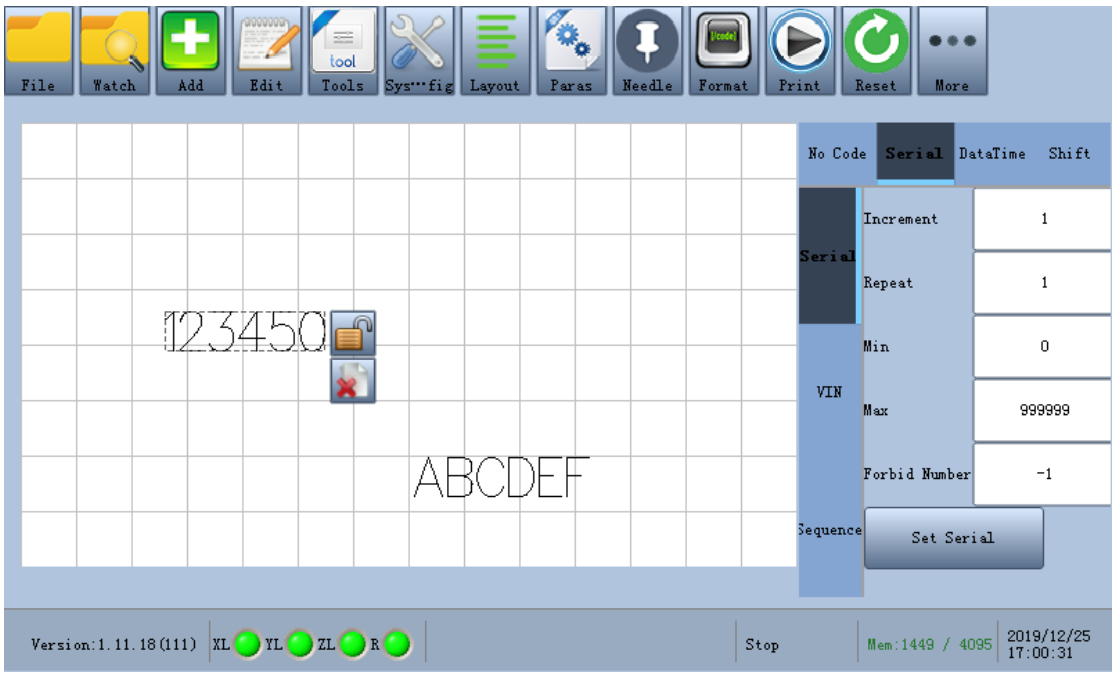


Figure 2.9

Set up the parameter of Serial number,click [Set Serial] button.Now the mark we

selected will be red,that’s means it has been set up a Serial number mark.As shown below.

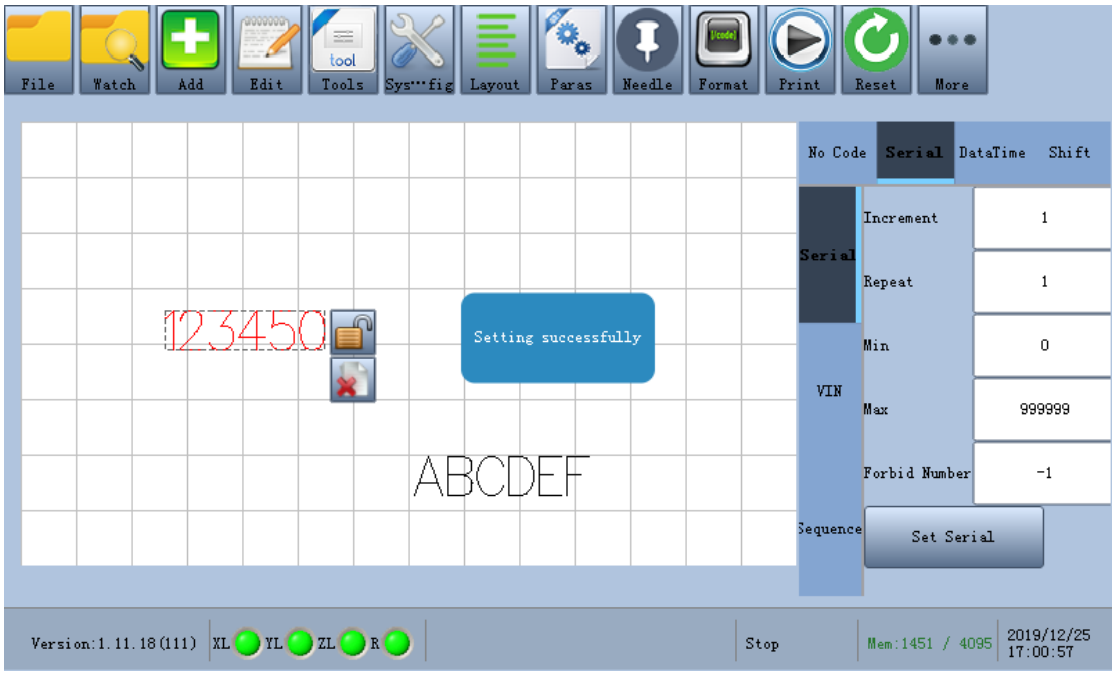


Figure 2.10

When a mark is Serial number,after a print work,will add a number with the setting rule,’+1’ by default.That means after the first print ‘123450’ will become ‘123451’.

Now to ascertain the mark’s actual makring position.Put a workpiece into marking machine work area,then select mark ‘ABCDEF’,click [needle],in the right area click [Left top],[Start],as shown below.

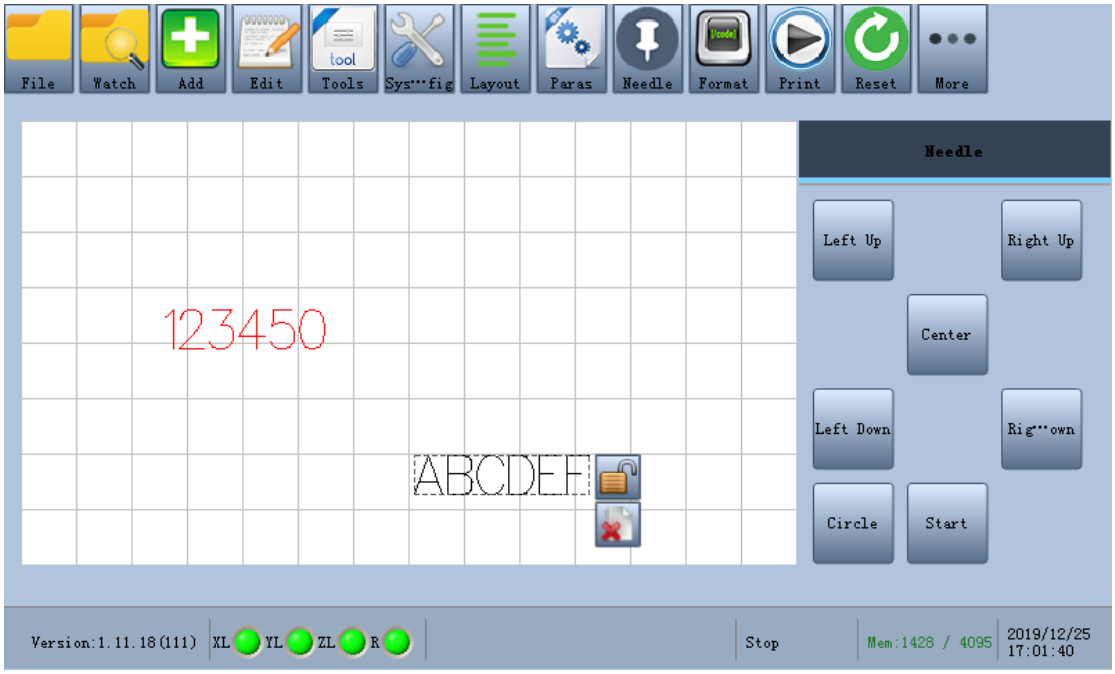


Figure 2.11

Now the needle will aim to the selected mark left top,then you drag it,the needle will follow it.If you want to change the position to follow,you can click [Needle] to set it up.

In [Layout]-[Move] you can adjustment the position of the mark.It's the same as drag it.

The after confirm all the marks position,you can print them now.Click [Print]-[Start] to start

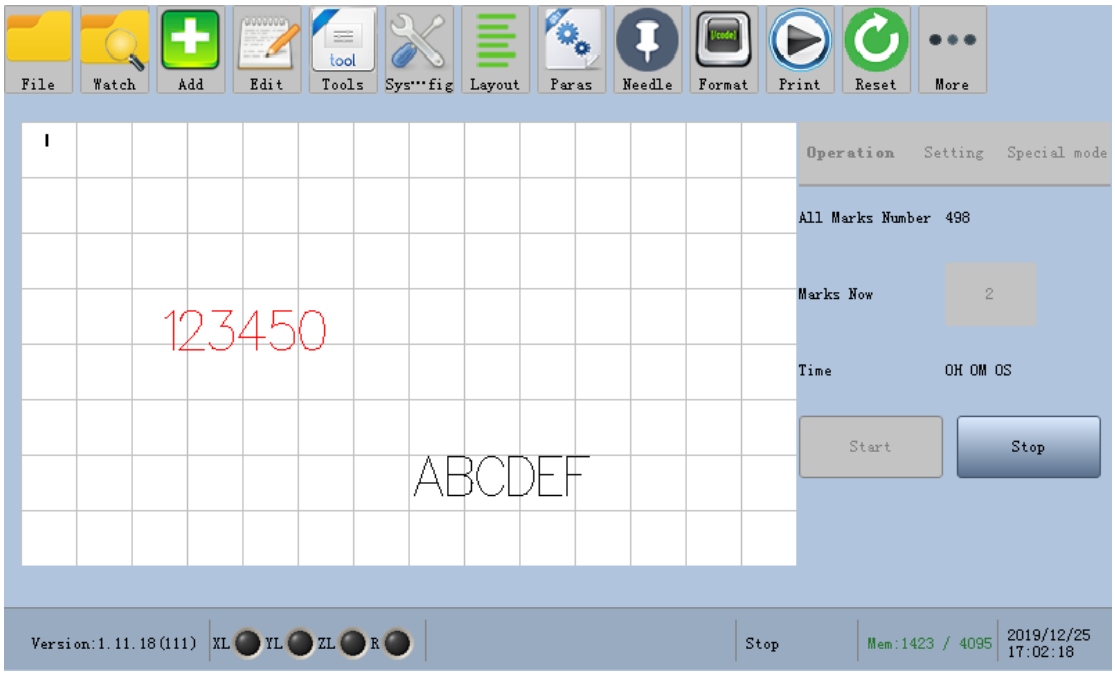


Figure 2.12

The machine will marking at once. According to the default parameters to imprint the edited content mark printed on the workpiece.

Thus,you have learn the base operation of k3 system.

3 Menu

3.1 File

All the documents are save inside the k3 system,you can click syspage [Doc] to manage them.

Click operation page [File],as shown below：

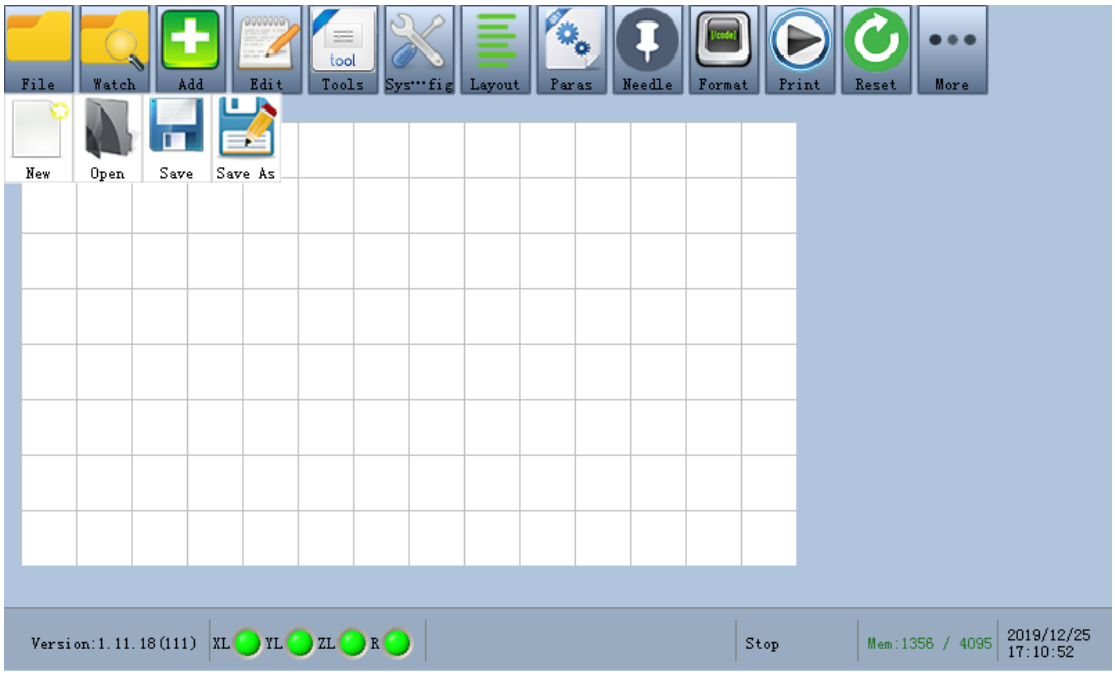


Figure 3.1

New:New a empty file.If current editing document not save,will show a dialog to prompt user to save it.

Open:Open a file,as shown below.

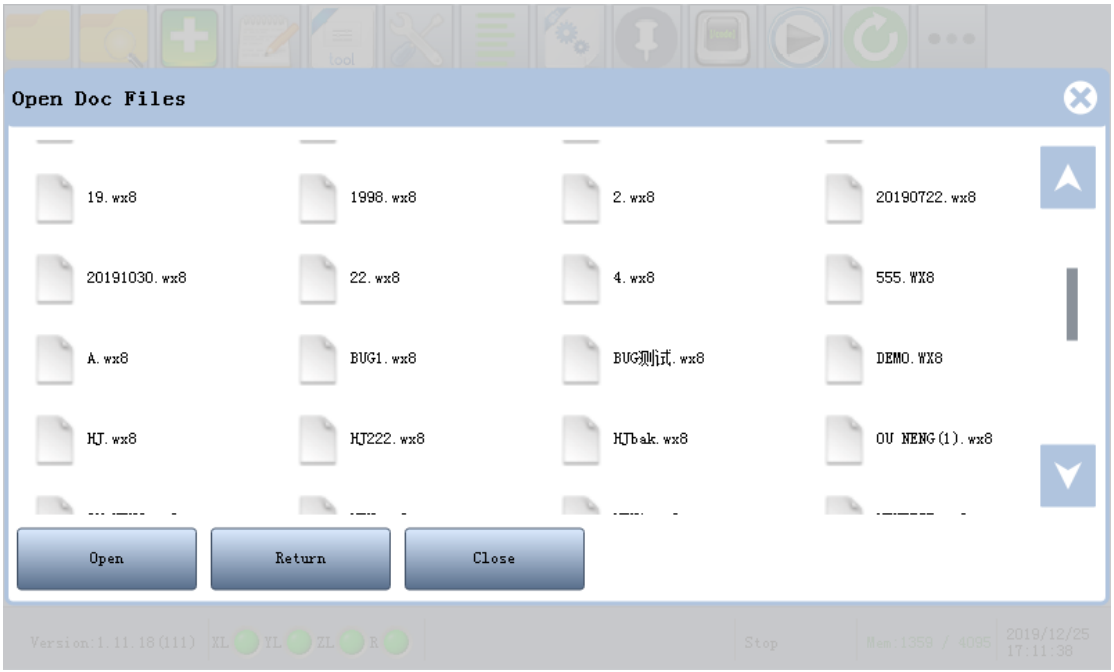


Figure 3.2

It will list all the marking file in k3 system,choose one then click [Open] to open it.

Save:Click the [Save] button,input the document name,then click [Save].Document will save in k3 system.

Figure 3.3

Save as:Save current document with another name.Operation is the same as [Save].

3.2 Watch

Click[Watch]:

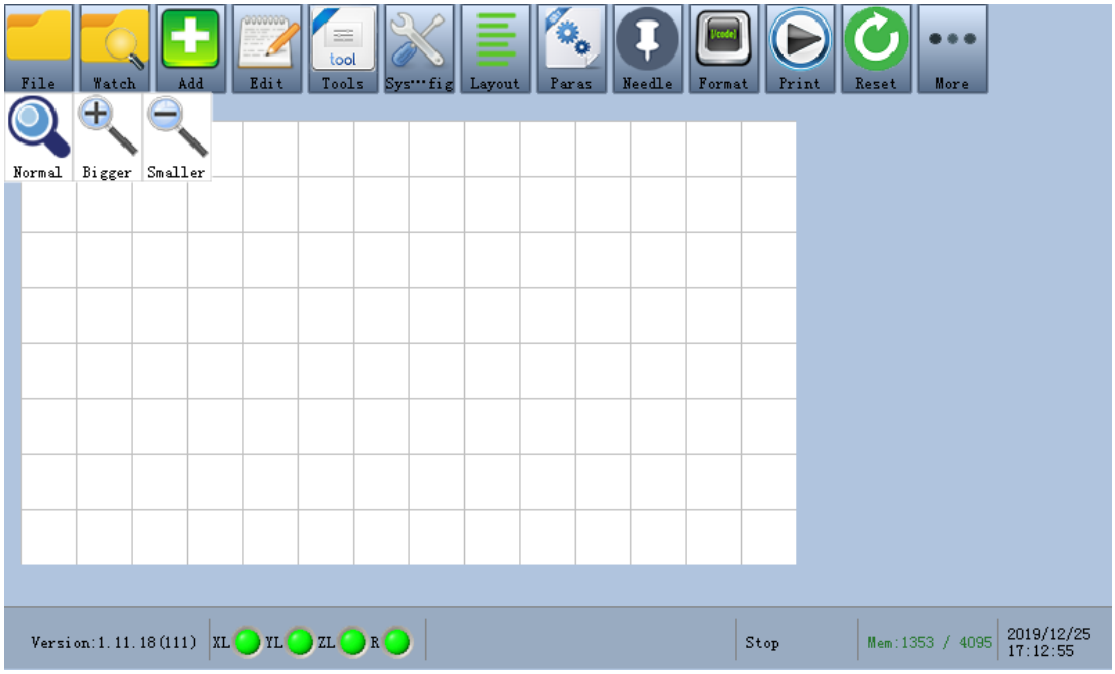


Figure 3.4

[Normal]:Show the whole editor area.

[Bigger]:Make editor area bigger.

[Smaller]:Make editor area smaller.

As shown below :

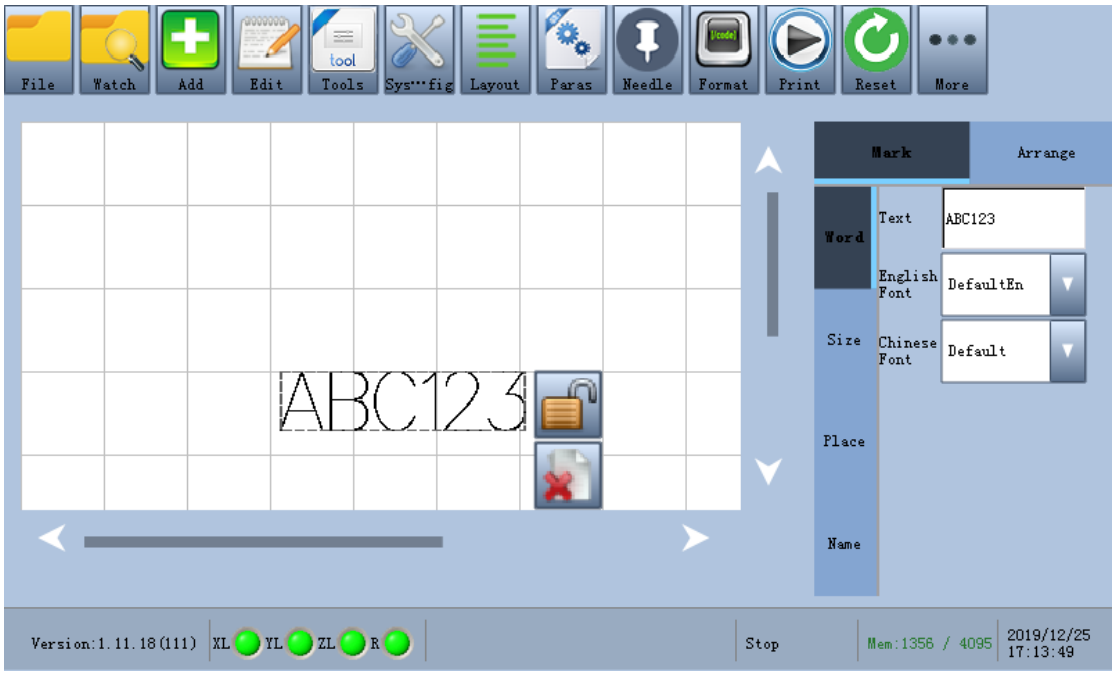


Figure 3.5

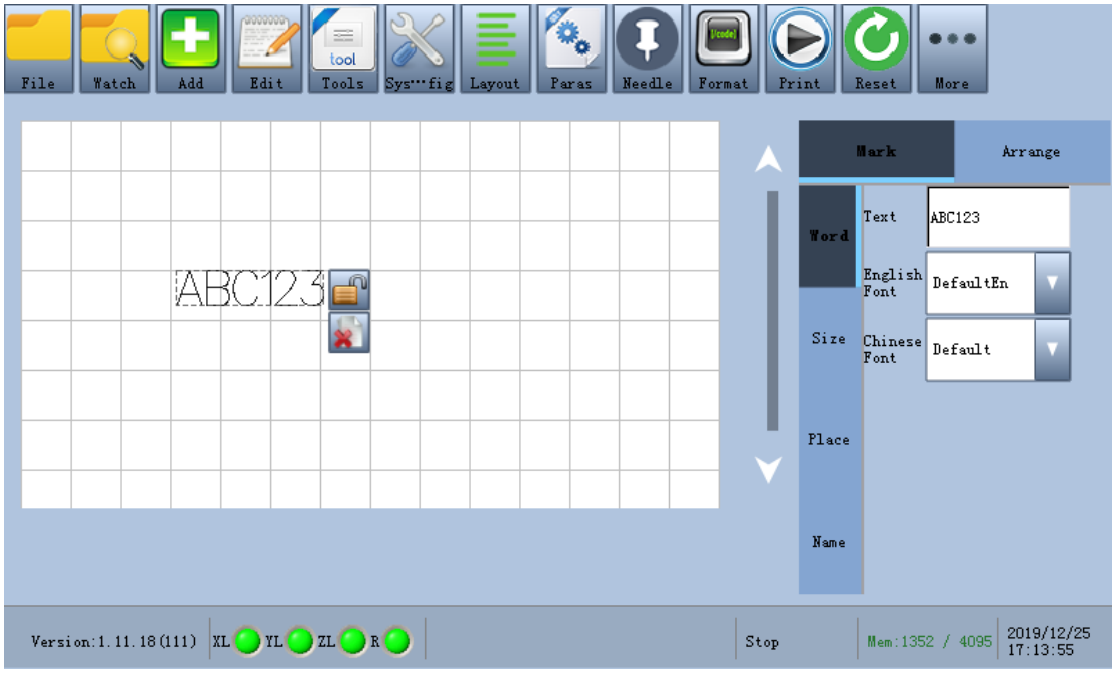


Figure 3.6

Watch can help user to check the detail part or the whole mark.

3.3 Make a mark

Text mark can combine English,digit,symbol and Chinese.

There are two type of marks in k3 system,one is [TEXT],the other is [ARC TEXT].The only different of them is array way.Base property are the same.

[TEXT] is left to right in a line,and [ARC TEXT] is according the specified radius of the sector and the starting angle are arranged.This two type of marks can select in [Mark] area.

Notice:once you choose a type of mark,you can’t change it.

As the way of make and edit a [TEXT] and [ARC TEXT] mark,we will introduce them together.

4 Text mark property

4.1 Word property

Click [Add]-[TEXT] to add a text mark,as shown below:

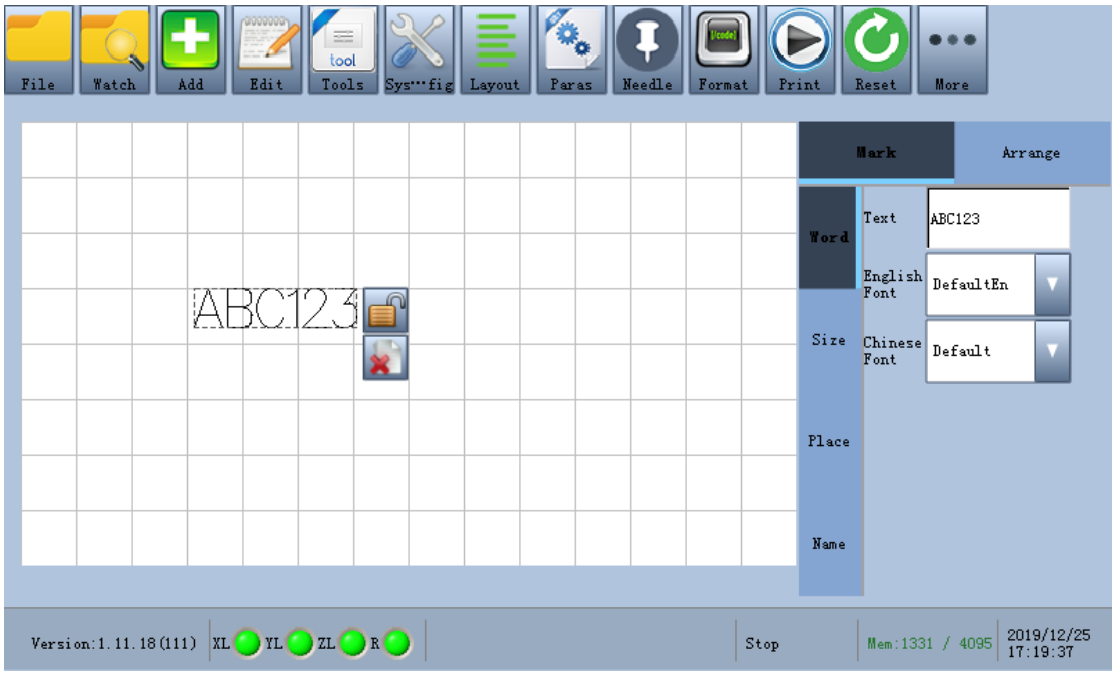


Figure 4.1

Text: Show the content of the text mark,and click to edit it.

English Font: The english letters and the numbers font.

Chinese Font: The chinese or the other language font.

Notice:the font may has no the correct font shape,if you choose a font and show nothing,please choose another one

4.1.1 Size property

Text mark size,as shown below.

Figure 4.2

Width,height:the font size of the mark.

Spacing: The distance between characters and characters in the tagged content, where the value of the word interval is proportional, and the distance between words can be changed by changing the proportion of the word interval.

Notice:font height and width is not the absolutely size, it's just a reference size.The absolutely size will be different when you choose different font.Such as font width is 5mm,digit ‘1’ will less than 5mm,and the font will change the width,as shown below

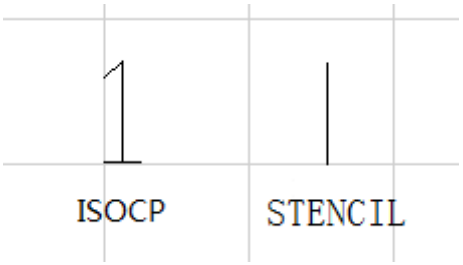


Figure 4.3

Space type：If you need a compact effect you can choose CharBoundary. Or you choose CharCenter you will get a equal spacing and the ‘1’ will be the same width with ‘M’.

4.1.2 Position property

Text mark position,as shown below：

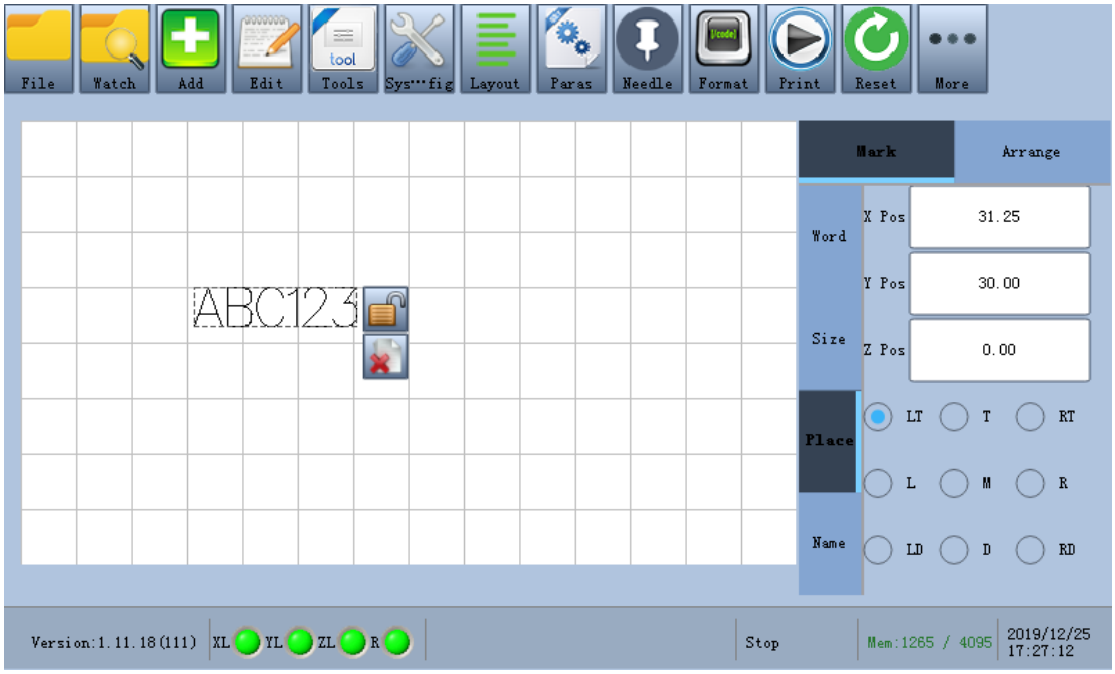


Figure 4.4

X pos,y pos,z pos:To define the position of the mark in the edit area.

Notice the Z position is valid only in the Z shaft lifting function is enabled, when your marking machine with lifting function, Z will be able to set the height mark engraves the plane.

Coodinate base：Lefttop is the default, means current coodinate is the left-top point of the mark. When you change the content of the mark, it will expend to the other side like right-down.

4.1.3 Layout

Setting the text mark arrange,as shown below：

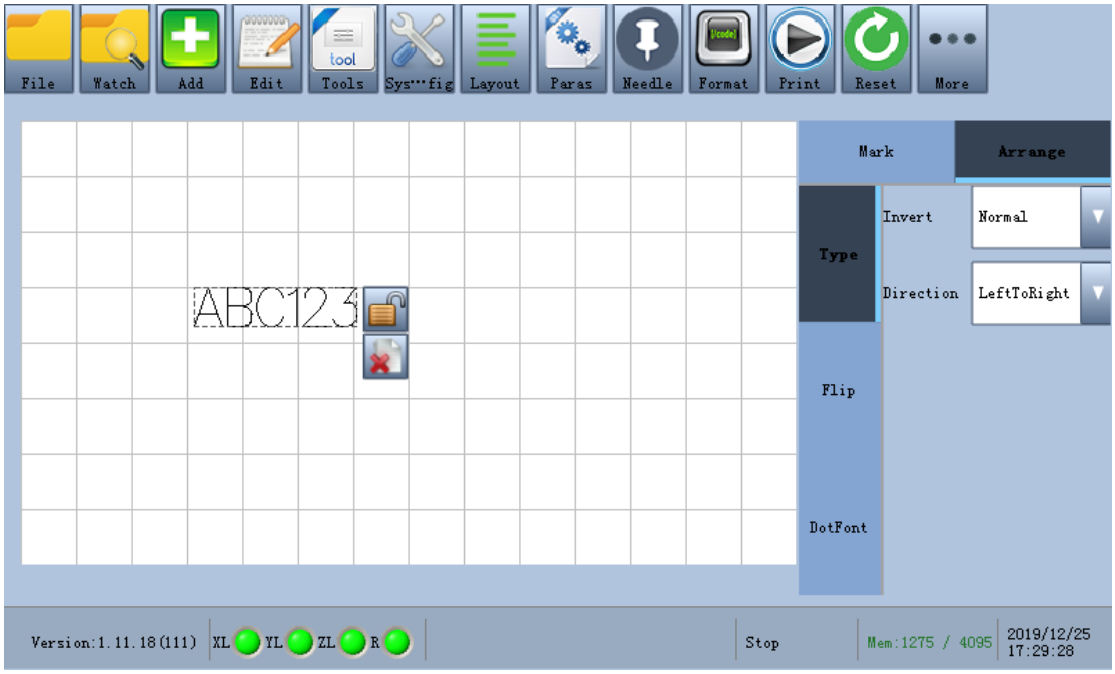
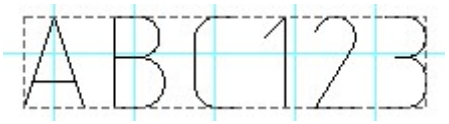
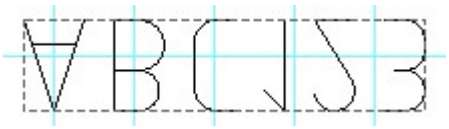


Figure 4.5

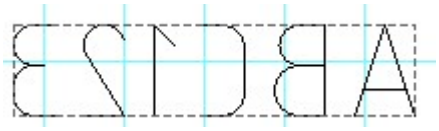
Invert:including normal,horizon and vertical:



Normal



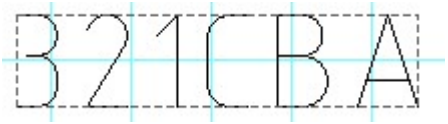
Horizon



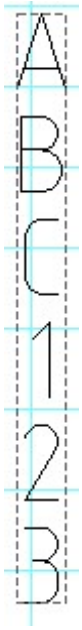
Vertical

Direction： The direction of the mark.Left to right,right to left,top to bottom,bottom to top:

Left to right



right to left



top to bottom

bottom to top

4.1.4 Flip

Text mark can flip,as shown below:

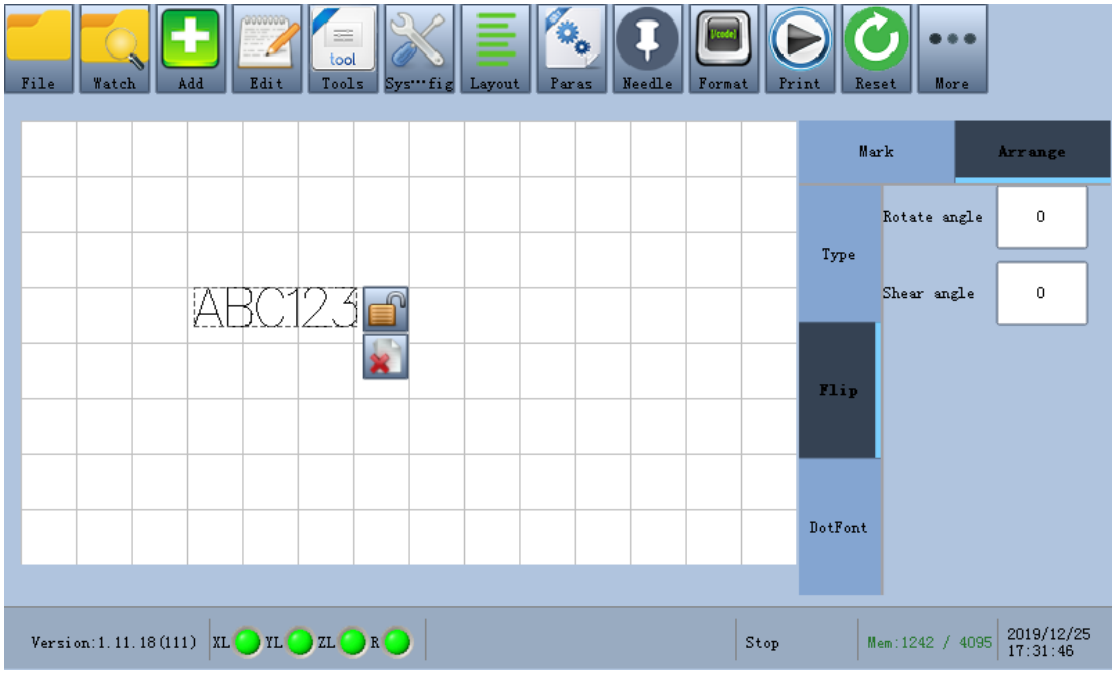
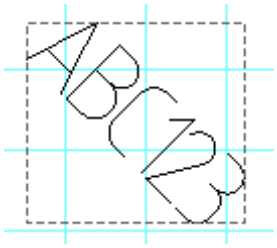
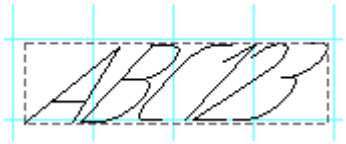


Figure 4.6

Rotate angle:The whole flip angle of the mark.For example input 45 degree in rotate angle,as shown below.



Shear angle：The shear angle of the mark，for example input 45 degree in shear angle，as shown below:



4.1.5 DotFont

As shown below:

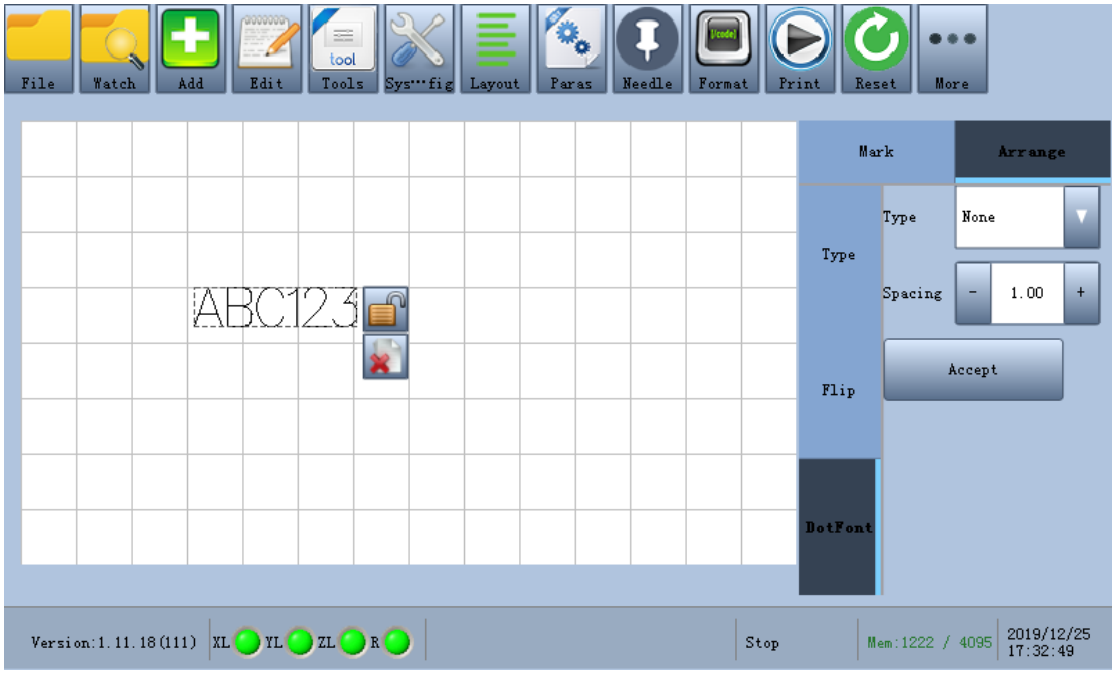


Figure 4.7

Can make the choosen mark to dot type.

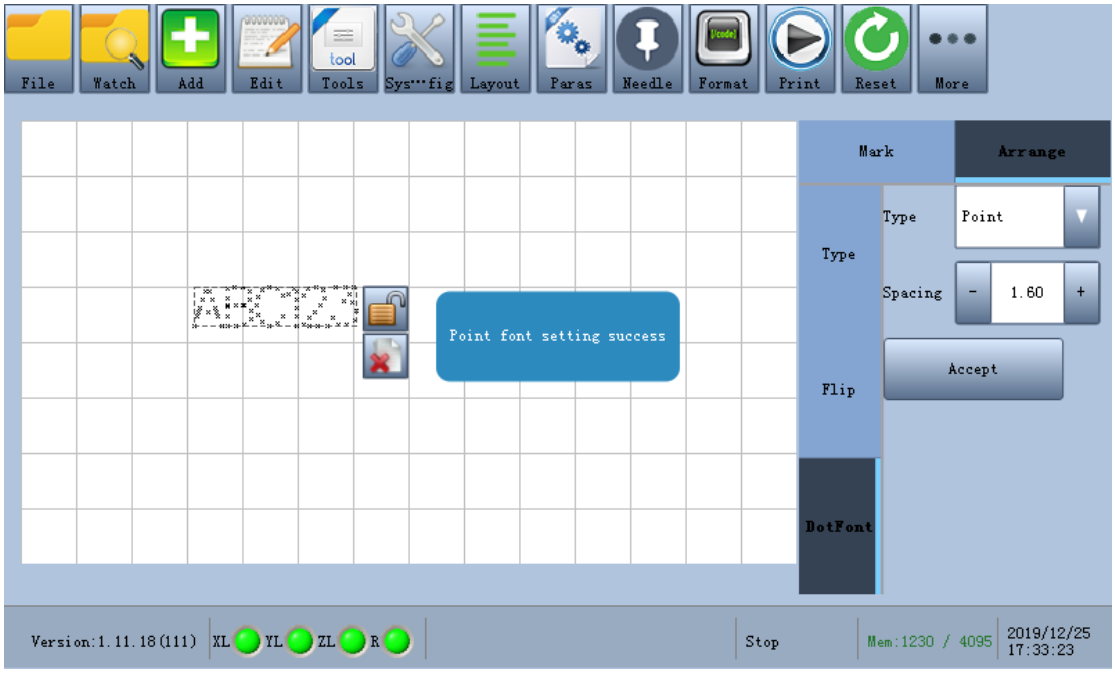


Figure 4.8

4.2 Arc text property

Click [Add]-[Arc text],as shown below:

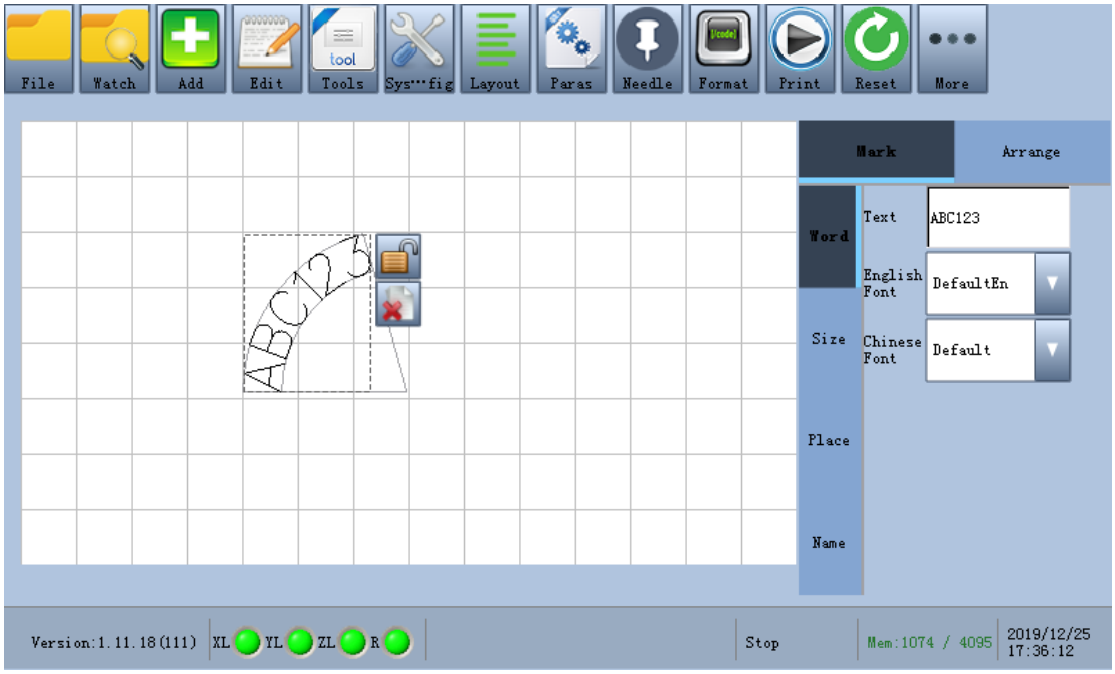


Figure 4.9

Text: Show the content of the text mark,and click to edit it.

English Font: The english letters and the numbers font.

Chinese Font: The chinese or the other language font.

Notice:the font may has no the correct font shape,if you choose a font and show nothing,please choose another one.

4.2.1 Size property

Arc mark size,as shown below.

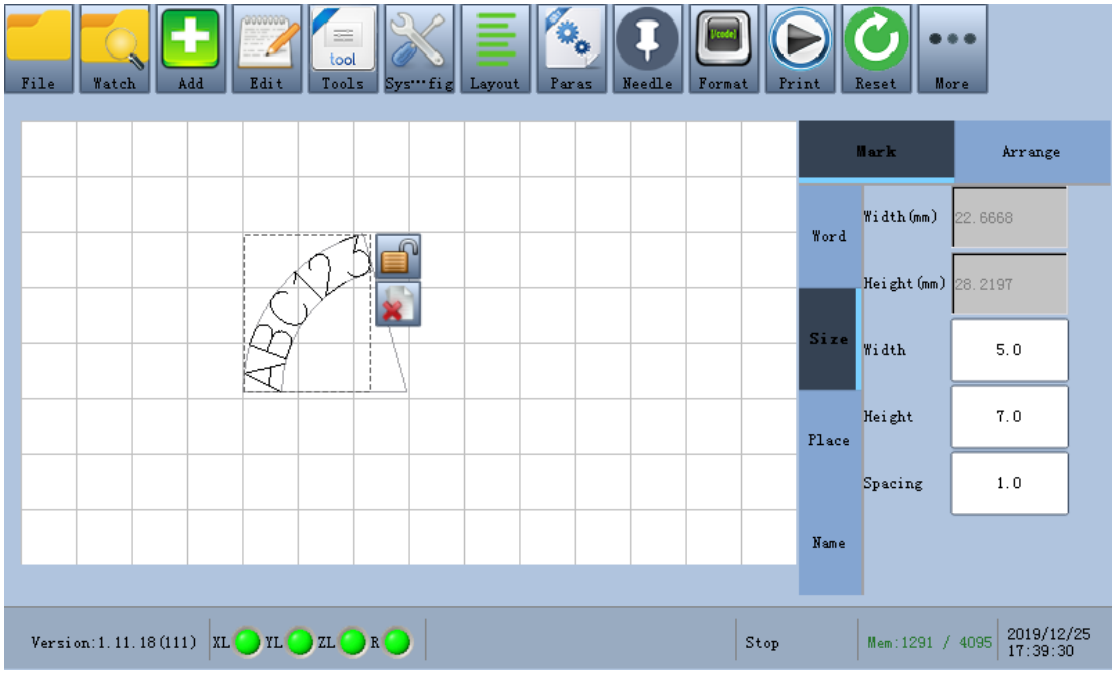


Figure 4.10

Font width,height,spacing:Mark's width,height,spacing is the actual size.

Notice:when you set up arc text arrange for angle,you can't modify the spacing size,as shown below :

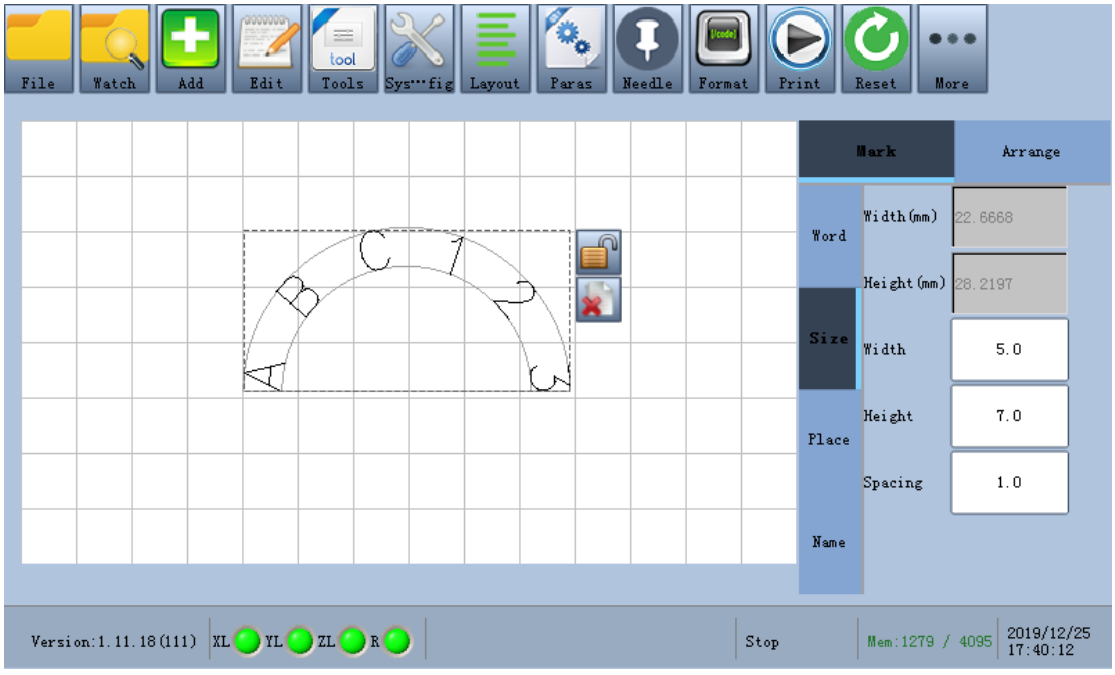


Figure 4.11

4.2.2 Position property

Arc mark position,as shown below:

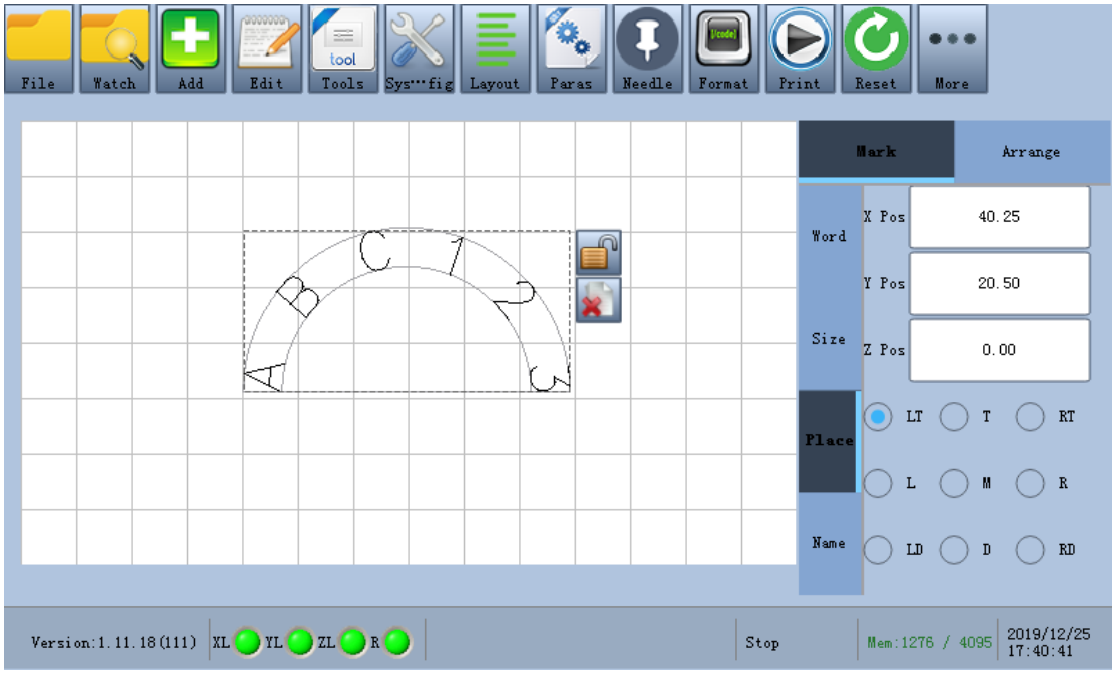


Figure 4.12

The same as Text mark.

4.2.3 Arc angle

Arc text angle parameter,as shown below:

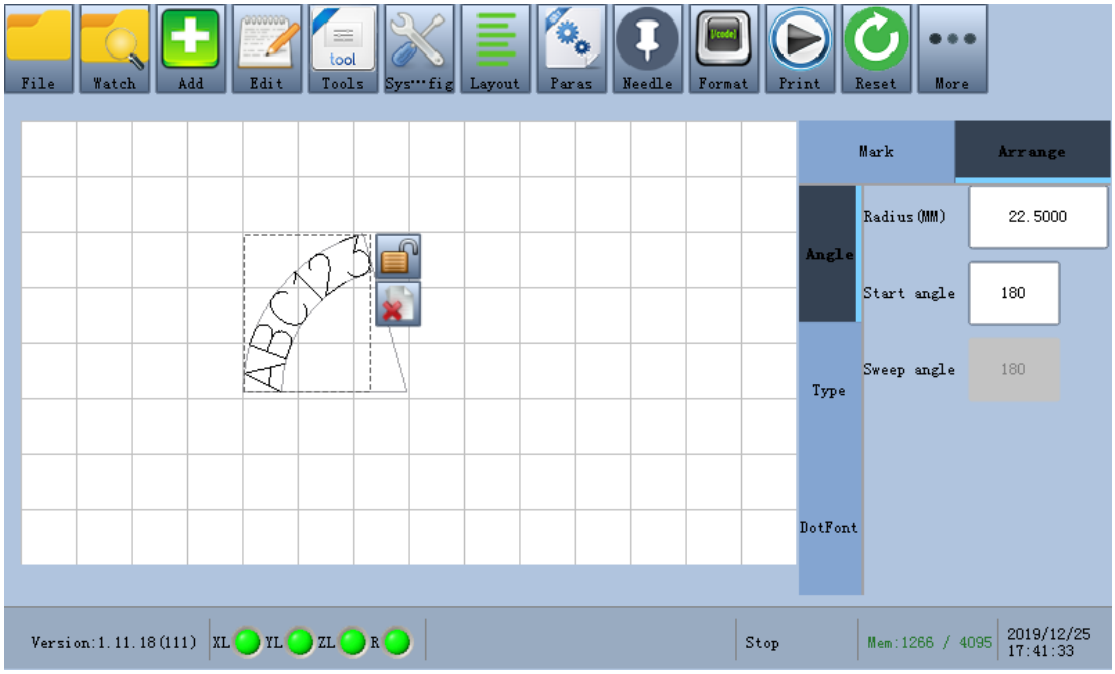


Figure 4.13

Arc text style is angle adjust.You can modify the arc text radius,start angle and sweep angle.If you use spacing mode,you can't modify the sweep angle.As shown below:

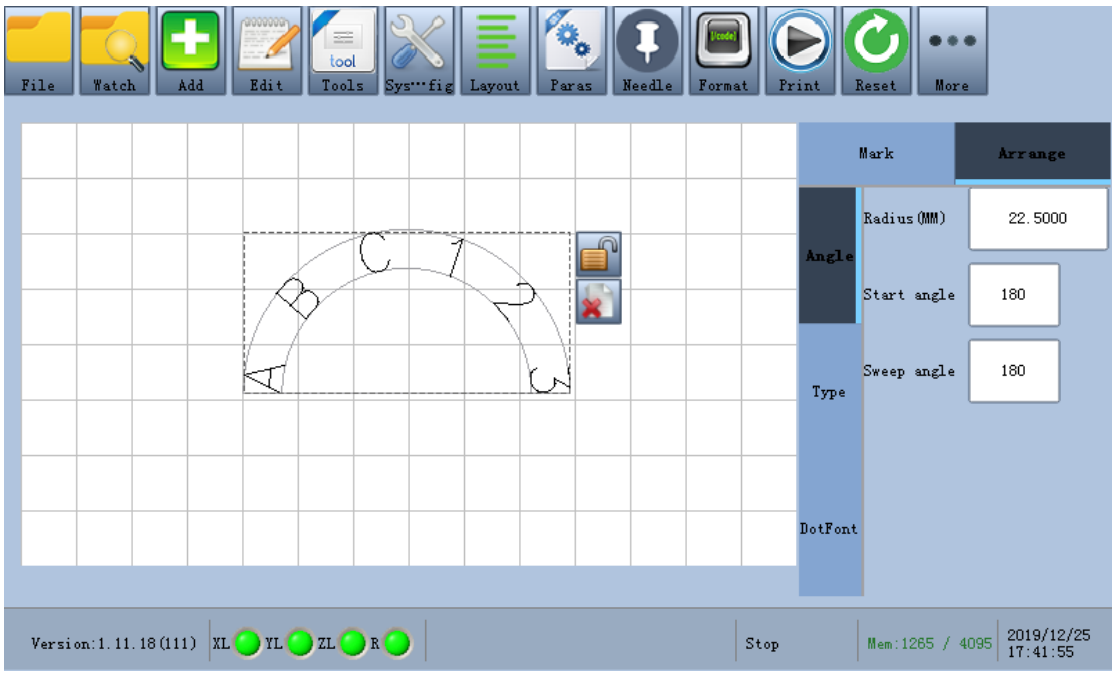


Figure 4.14

Radius：The radius of arc mark's external tangential circle. Pay attention to the distance from the center of the center to the bottom of the text.

Start angle:Arc text's start angle base on x axis direction.

Sweep angle：The angle between two radius.

4.2.4 Arc arrange type

As shown below:

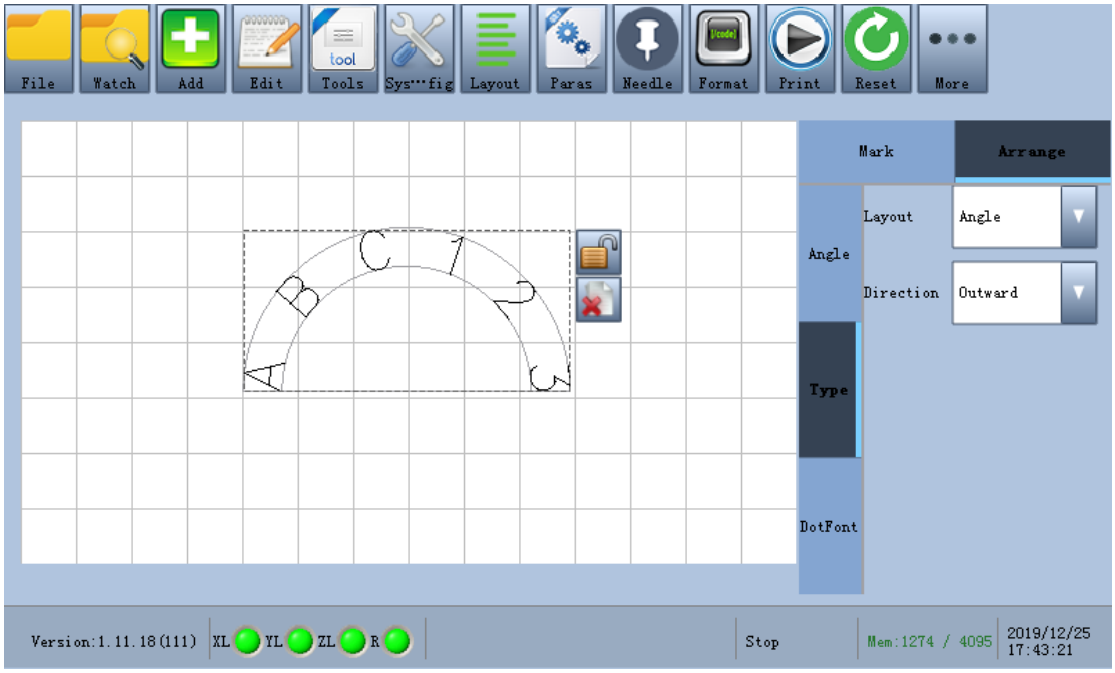
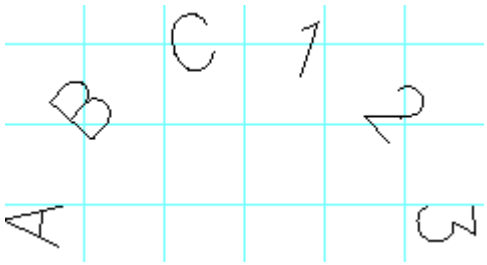
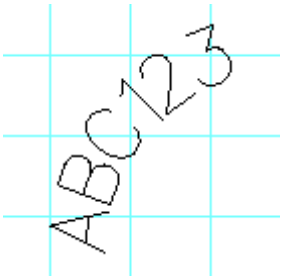


Figure 4.15

Layout：Can set spacing mode or angle mode.



Angle mode



spacing mode

Direction：The top of the text is toward the center of the circle or the opposite.As shown below.

Outward Inward

4.3 Pic mark

User can import the enterprise trademark or the other picture into K3 marking system.Then marking it on workpiece.K3 marking system supports PLT format picture.

Click [Add]-[Pic] will display open pics dialog as shown below.

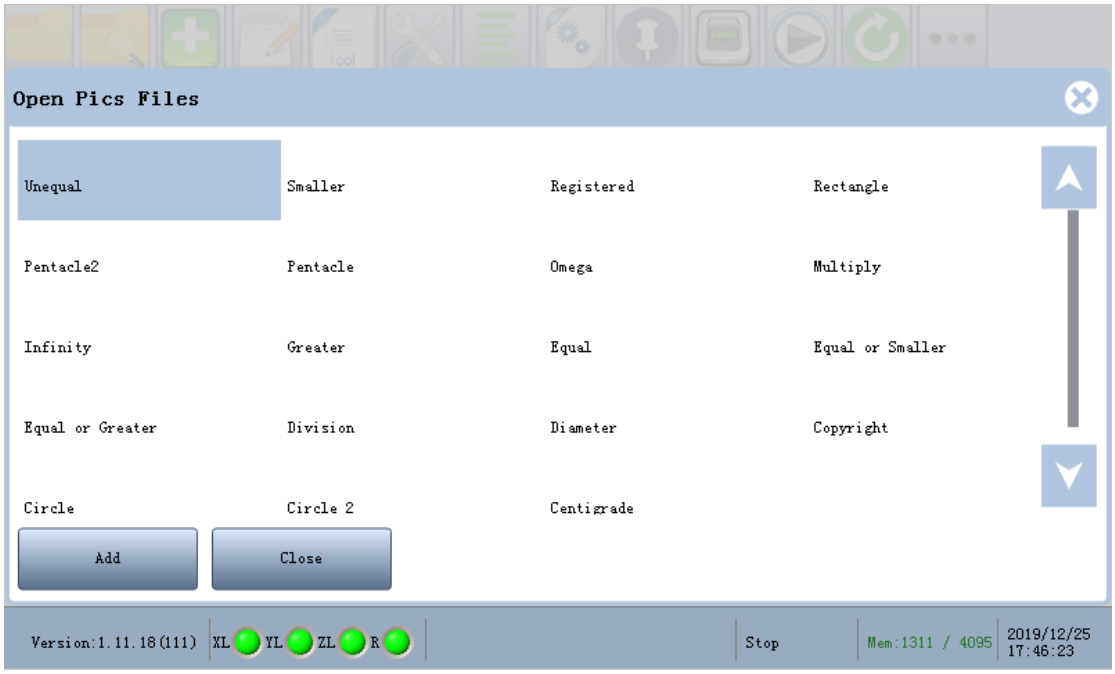


Figure 4.16

Choose a picture file and click [Add],will add it to edit area:

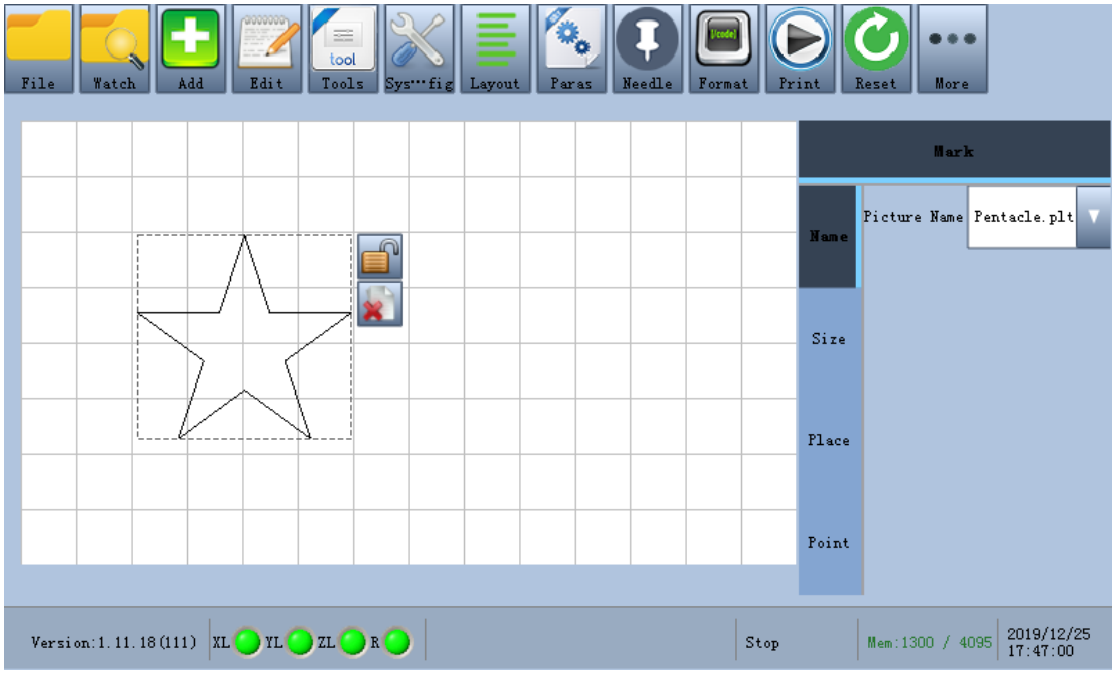


Figure 4.17

Name：The name of the picture,you can click the combobox to show picture list and change it to others.

Size：The width and the height of picture mark.

X pos,y pos,z pos:To define the position of the mark in the edit area.

Notice the Z position is valid only in the Z shaft lifting function is enabled, when your marking machine with lifting function, Z will be able to set the height mark engraves the plane

4.4 DataMatrix

Click [Add]-[DataMatrix] will show.

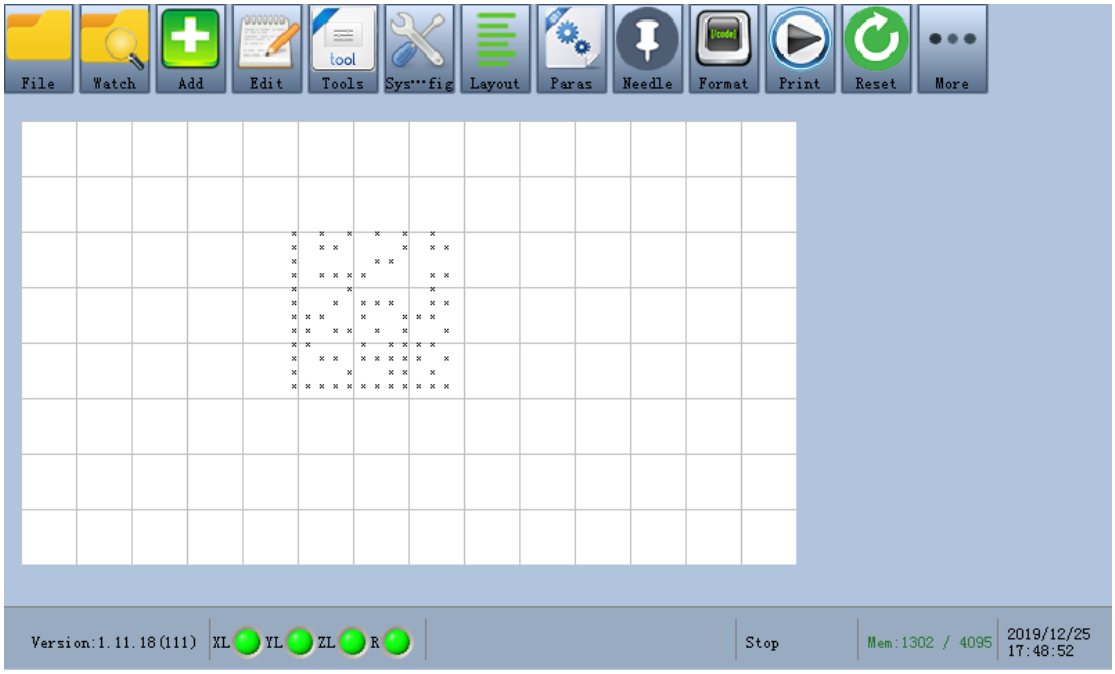


Figure 4.18

Text property:

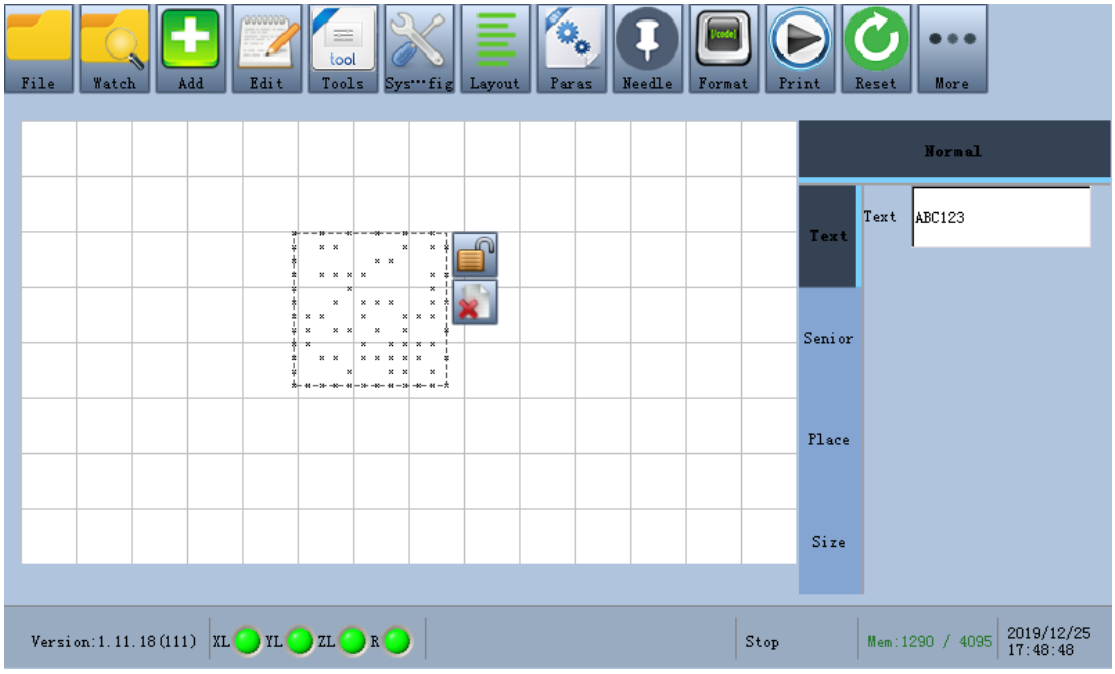


Figure 4.19

Click text input box,popup text content input box,and input the content of the datamatrix.

The senior property of the datamatrix.

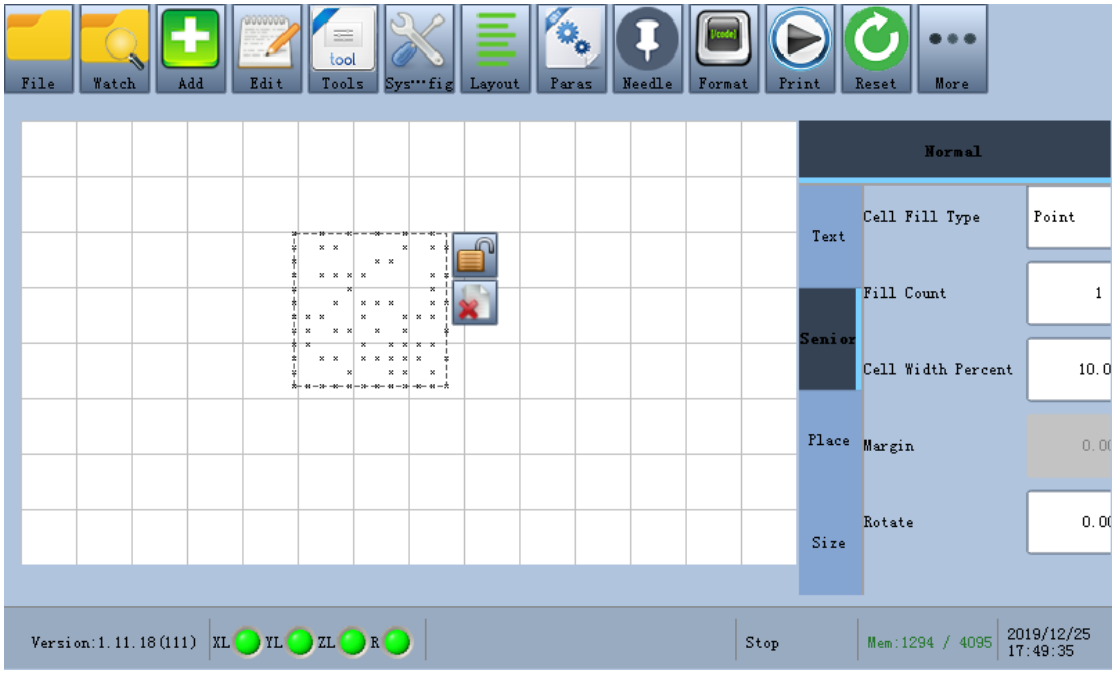


Figure 4.20

Cell fill type：Including NoFill、Point、Rectangle、Circle.

Fill count:Datamatrix' point number of the same posiotion.

Cell width pecent:Adjust Datamatrix width scale.Width range:1-100.

Margin:The margin between two points in datamatrix.When the fill type is Rectangle or Circle can modify the margin.

Rotate:The rotate angle of datamatrix, user can changed the angle of the mark by center.

Place:The same as other type of mark.

Size:User can changed the size of the datamatrix.

4.5 Ruler property

Click [Add]-[Ruler]:

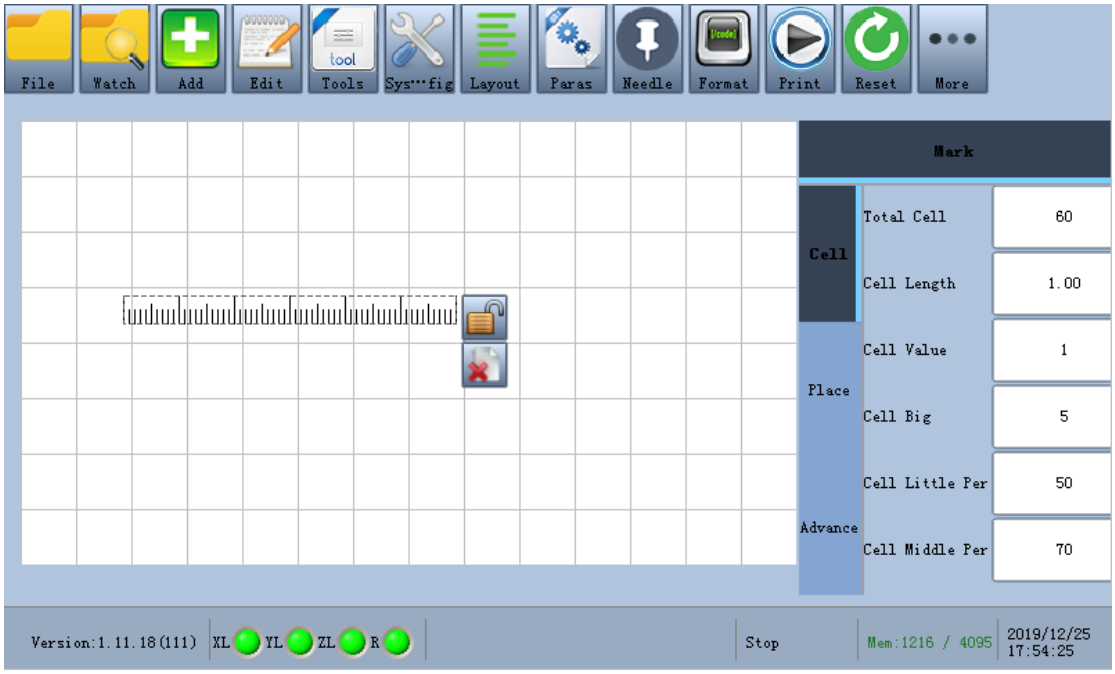


图 4.21

Total Cell:The number of the cells.

Cell length:Every cell’s length.

Cell Value:One cell’s step value.

Cell big:The big grid line’s height.

Cell Little Pre:Small grid line’s percent of big grid line.

Cell Middle Pre:Middle grid line’s percent of big grid line.

Place:As the other mark.

Rotate:The rotation angle.

4.6 Passing Point

Click [Add]-[Point]:

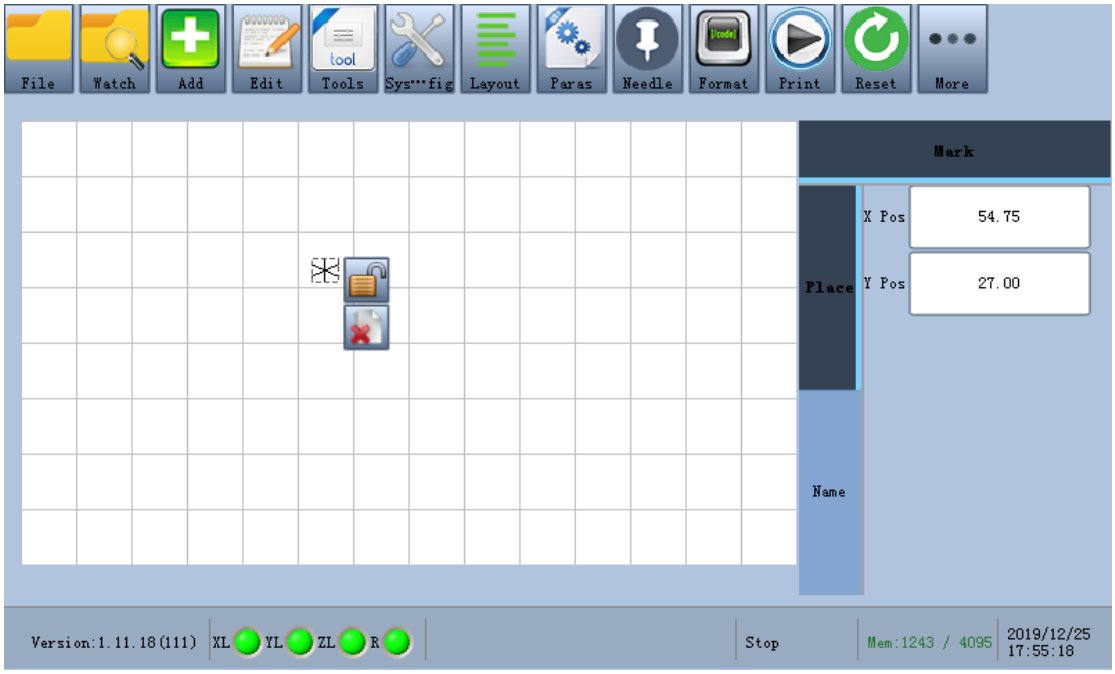


Figure 4.22

Notice:Passing point means to avoid the obstacle in the marking area.

4.7 Copy

Choose the mark you want to copy,then click [Edit]-[Cpoy],as shown below.

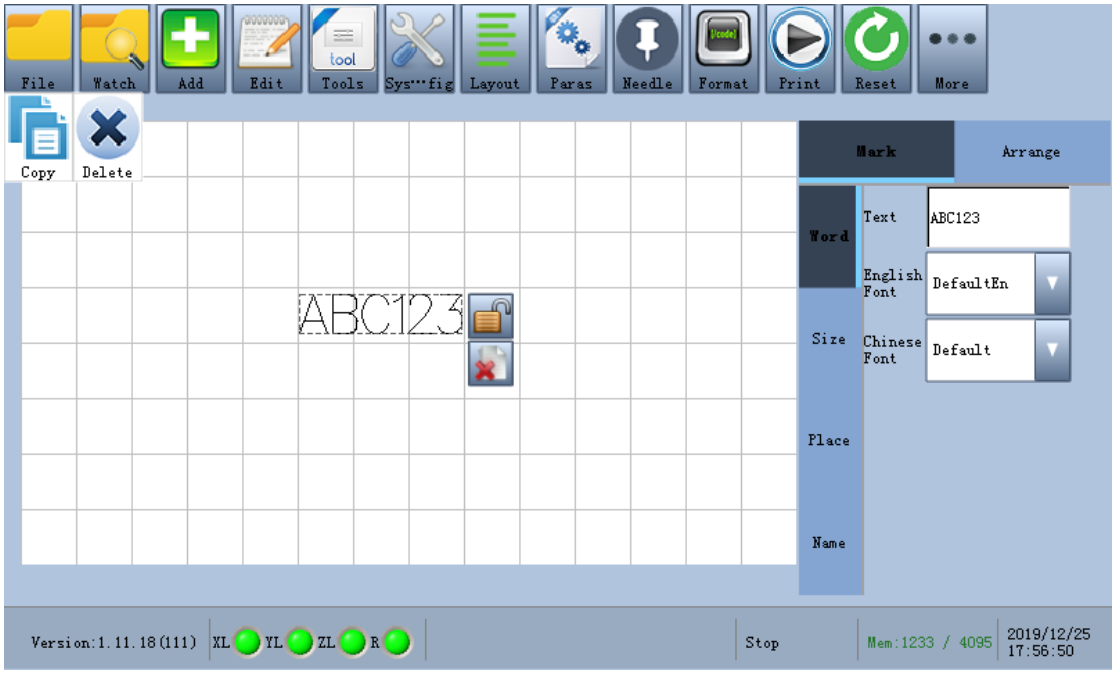


Figure 4.23

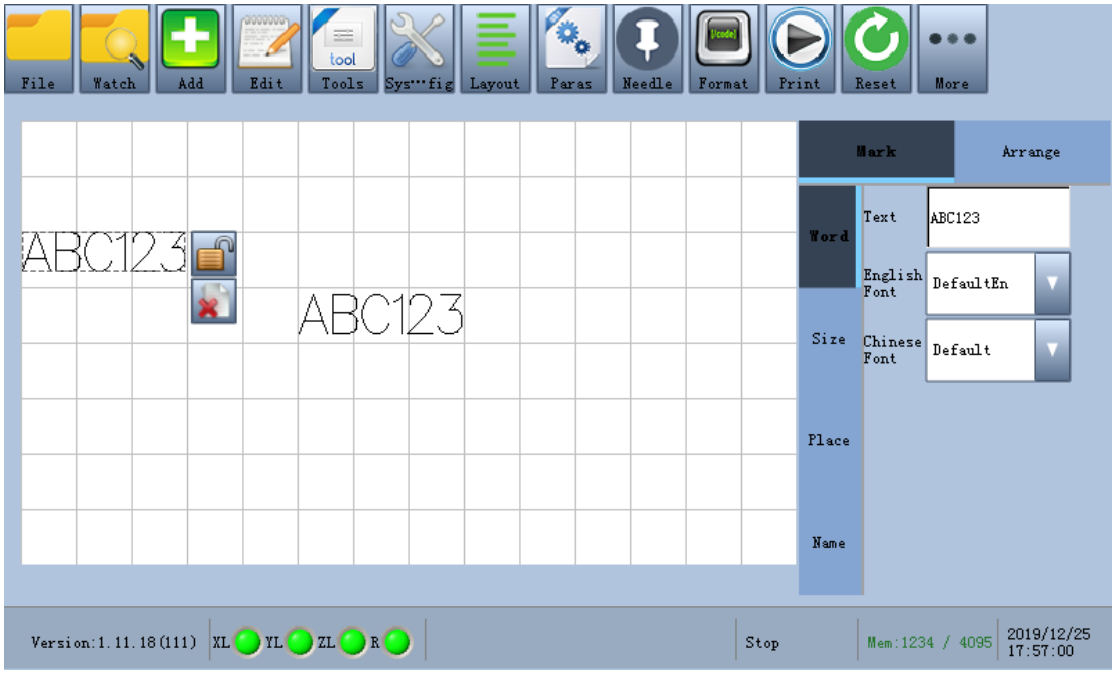


Figure 4.24

Notice:The new mark' property will be the same as the old mark(except position and name).

5 Tools

5.1 Barcode print

Click [Tools]-[Barcode],will display barcode print property dialog.You can config the barcode print.You can use user-define template or system setting template.

System setting template can copy to user-define.

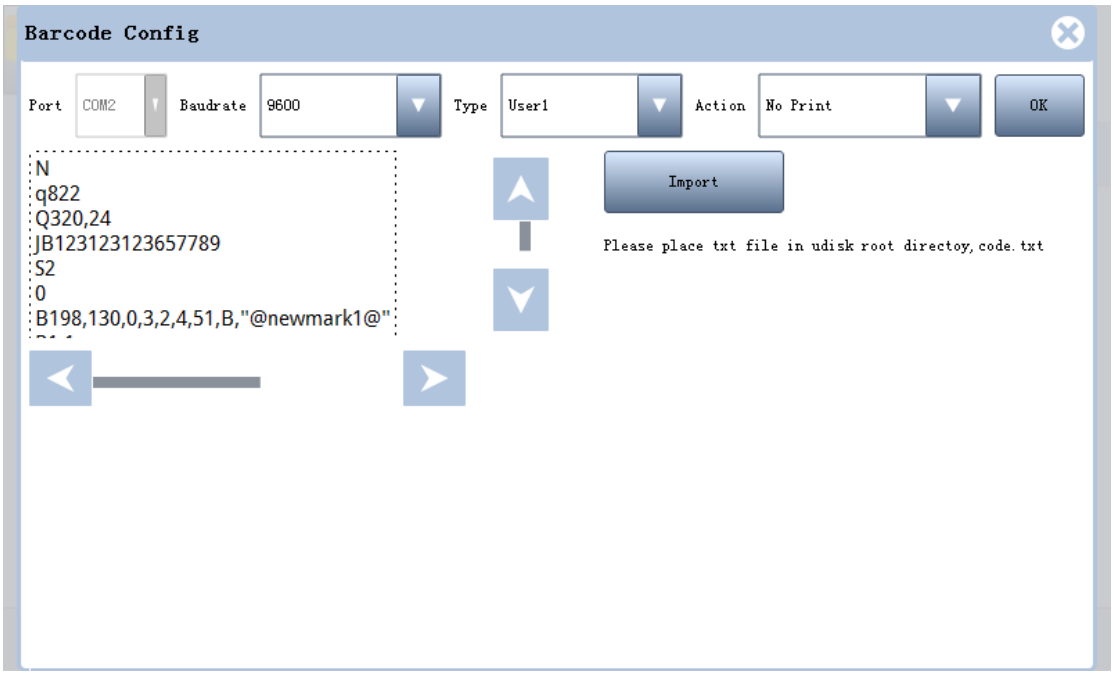


Figure 5.1

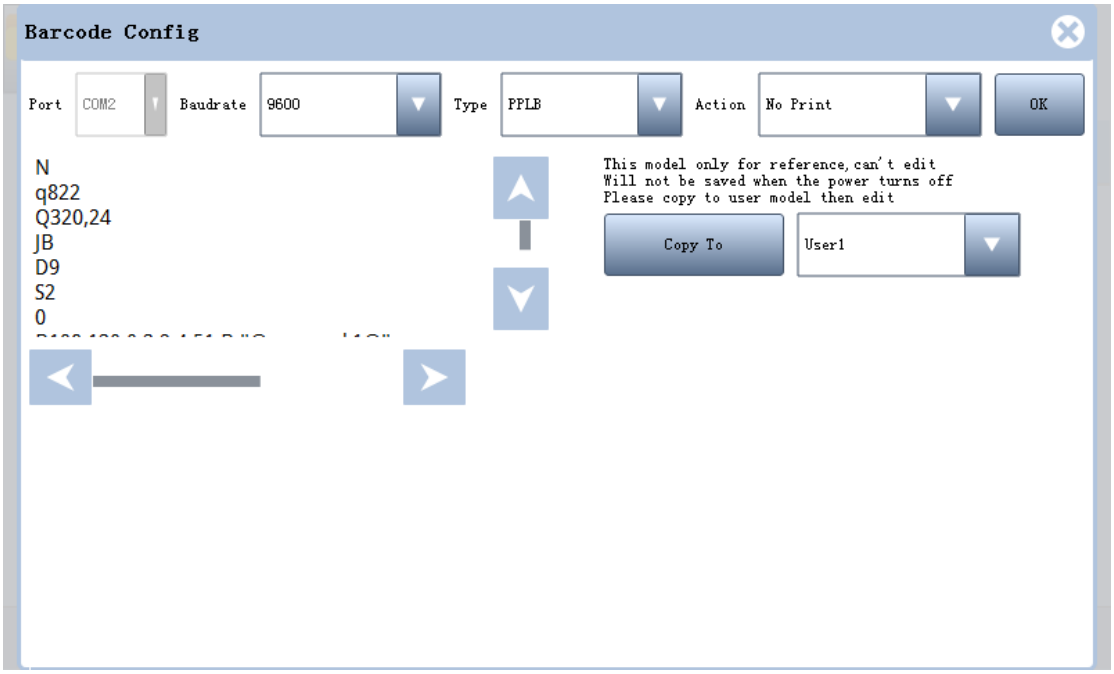


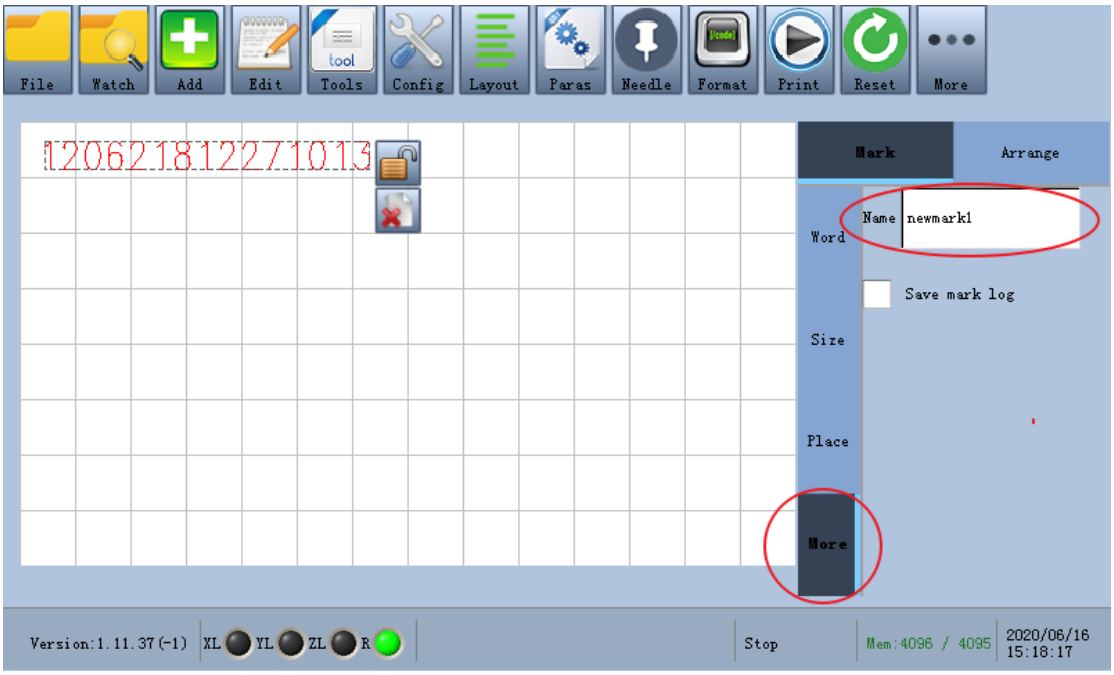
Figure 5.2

Type:Barcode printer brand.And user can use user-define template to print.

Action:Set up no print,before print and after print.

Mark content: If you need to use the marked content in the script, you can use @newmark1@ in the form of, you can surround the mark name with @@. For example, the content of newmark1 is ABC123, then the script during the actual output, @newmark1@ will be replaced with ABC123.

The name of the mark can be checked after clicking the mark, as shown below:



Edit area：Fill up the script of print,it will save after edit.

Barcode script also supports txt file import. User can make a txt file name code.txt and type in the script and copy to u-disk root. Then import it by click on [Import] button.

5.2 Mark combine

Click [Tools]-[Combine].

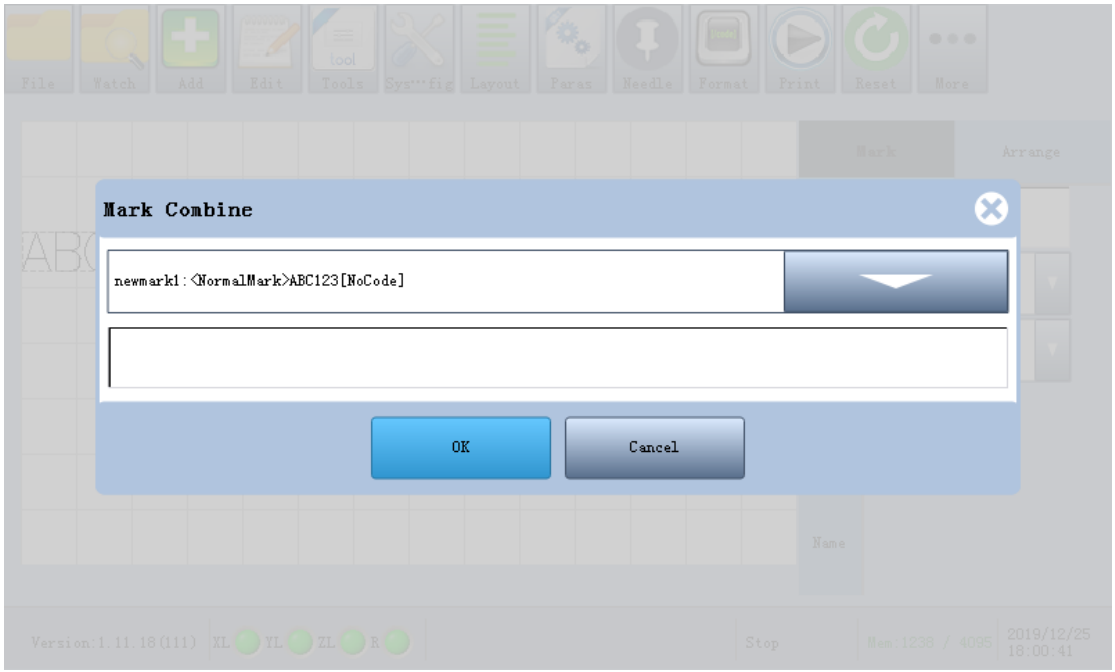


Figure 5.3

Select the mark you want to combine.Input the code and get the combine text.For example input ‘@newmark1:1-9’ means selected mark link to newmark1’s bit 1 to bit 9.

5.3 Scan print

Click [Tools]-[Print].

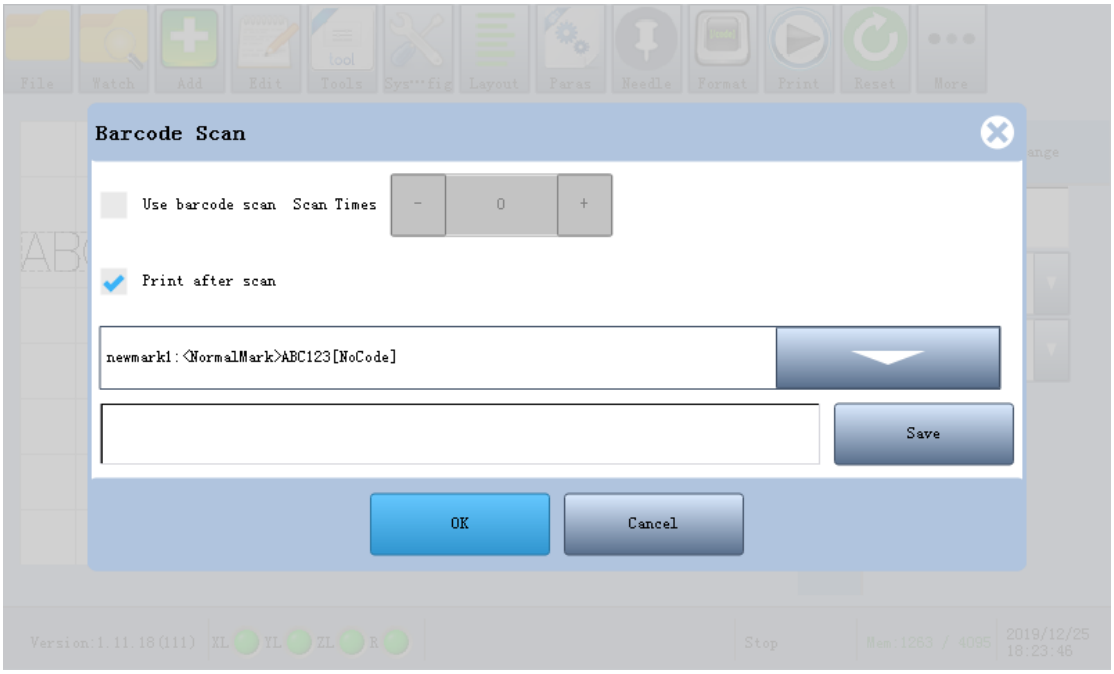


Figure 5.4

Select the mark you want to scan,setting scan times,and input the position of barcode.For example ‘@1:1-9’ means use the first time scan code and select the bit 1 to bit 9. ‘@2:1-9’means use the second time scan code.

If you unchecked [Print after scan],after scan there will be a dialog to check if you want to print.

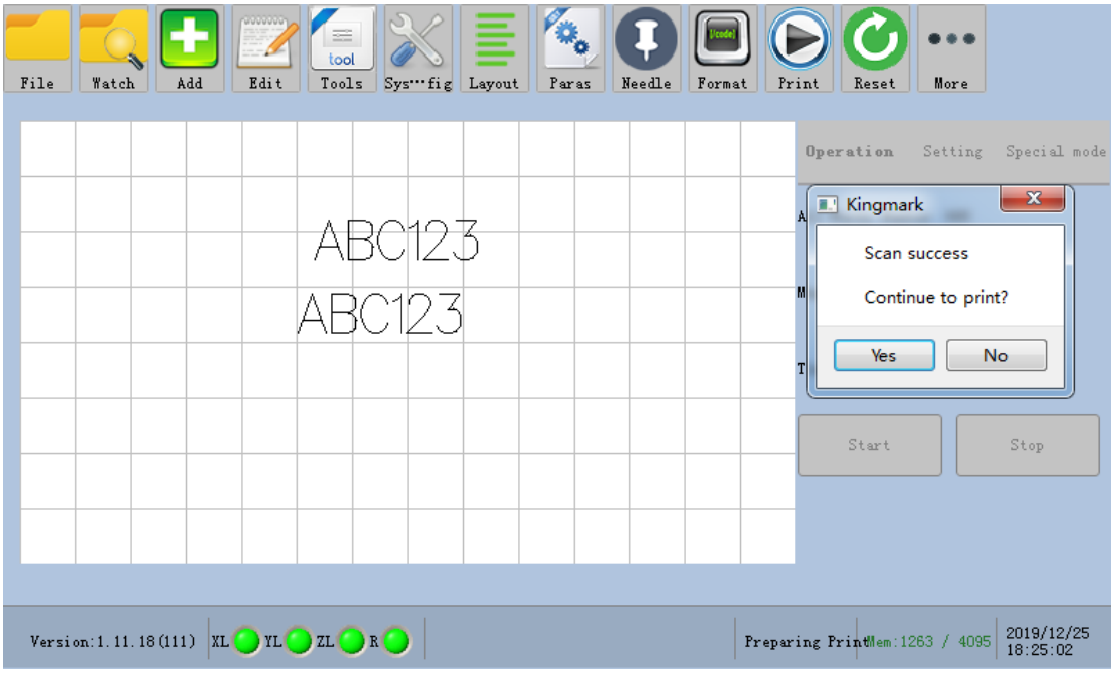


Figure 5.5

5.4 Same code check

Click [Tools]-[Check],choose the mark type you want to check.K3 marking system has VIN code check and serial number check.When the content has been printed before,k3 system will show a dialog.

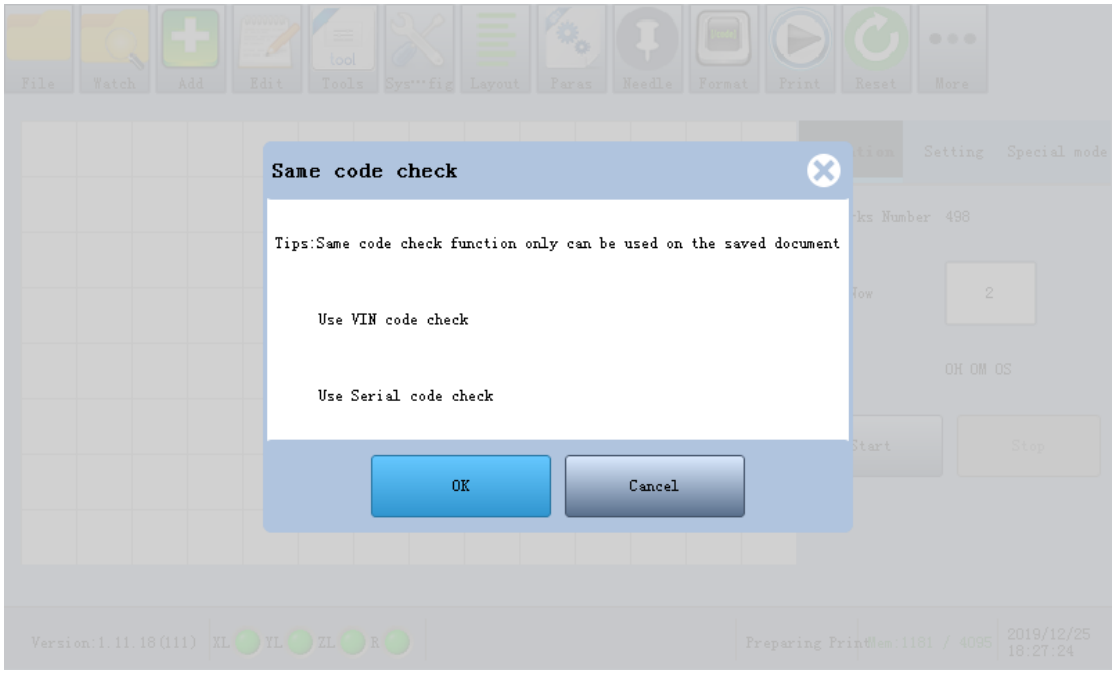
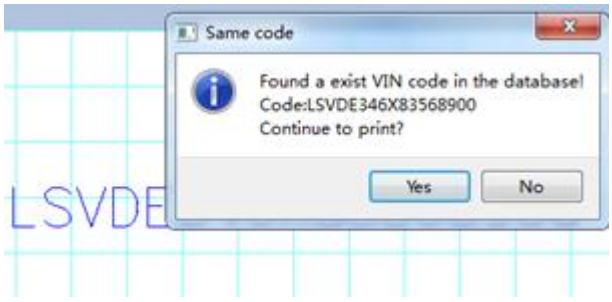
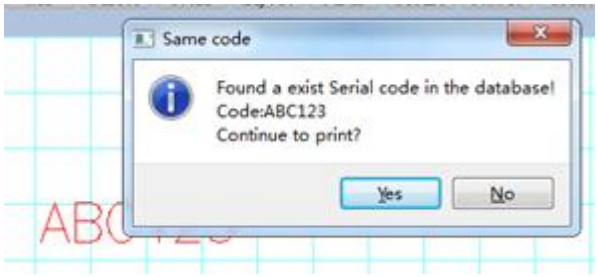


Figure 5.6





Notice: Same code check only supports saved document, because only saved document record the marking result.

5.5 Text marking

Click [Tools]-[Text]. You can config the text marking parameter of text marking.(use this function you need to put the txt file in the u disk root path,and the txt file must be UTF-8 format),as shown below.

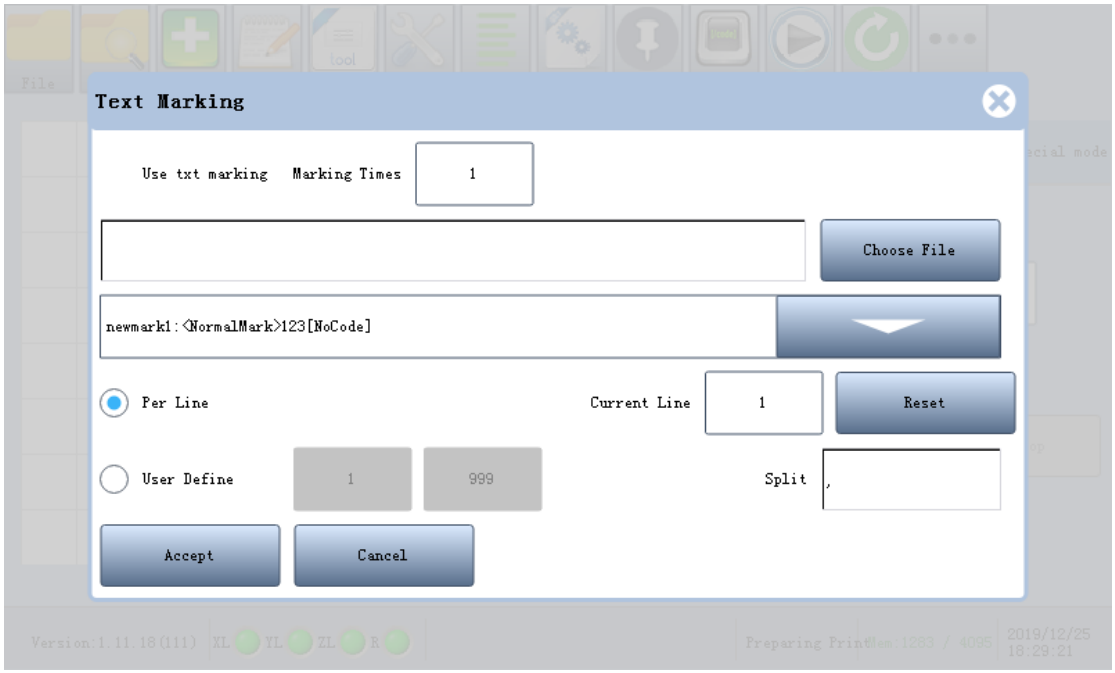


图 5.7

Use txt marking:Make the system use txt marking function.

Marking times:Current txt file repeat times.

Choose file:Choose the txt file to marking.

Mark choose:Choose the mark to marking.

Pre line:According txt file contents line by line print.

User define:Line range of the txt file.

Current line:Current txt file line.

Reset:Set current line to default value.

Split:Txt file split symbol.

6 Layout

6.1 Move

Click the mark you want to operate,then click [Layout]-[Move].As shown below.

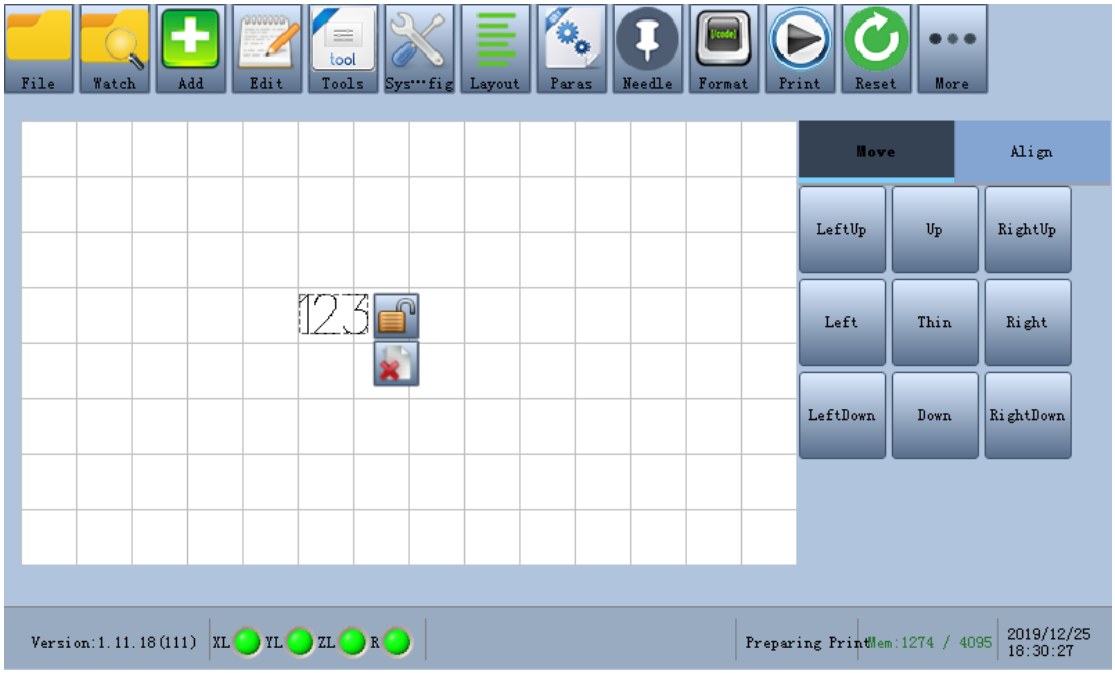


Figure 6.1

Click the corresponding button to move the mark.And keyboard direction key will do the same thing.If you use [Needle]-[Start],the needle of the marking machine will move too.

Thin:To change the step value of move.

6.2 Align

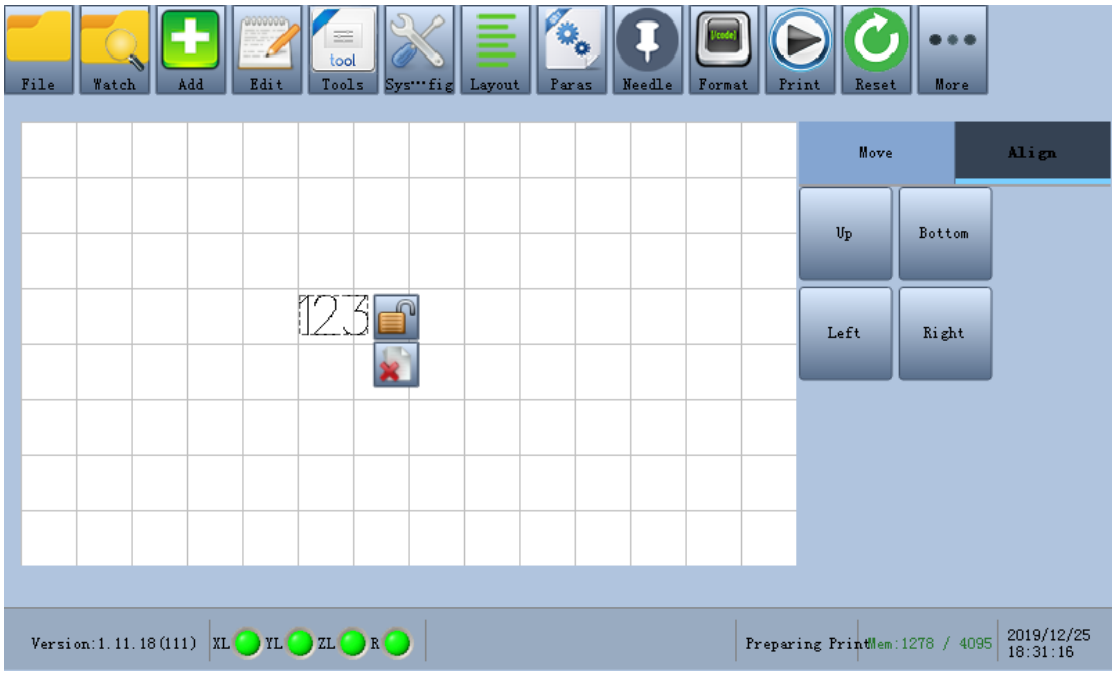


Figure 6.2

You can use align to move more than one mark in a time.

Up:Base on the top mark's up edge and move all the selected marks.

Bottom:Base on the bottom mark's bottom edge.

Left:Base on the leftest mark's left edge.

Right:Base on the rightestmark's right edge.

7 Needle

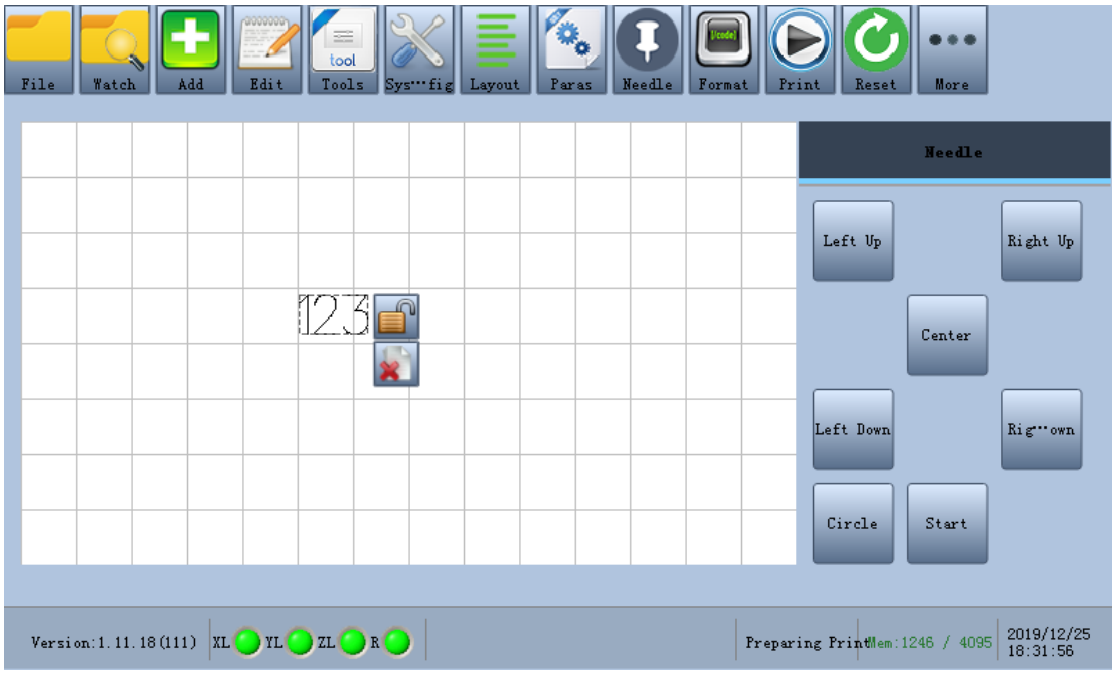


Figure 7.1

Needle function is used to make sure the actual position of mark on the working area. Base on the point that click on the right area.

Start/stop: Start to use needle follow.

If you start a needle follow ,you change the selection of the mark, the needle of the machine will move to the new position which is your setting.

8 Format

Only text type mark can set format.

Format can set to make the mark auto change by the rule you set.For example a serial number mark will increase 1 after ever print.

Select the mark you want to format,click [Format],right arear will show some choice.

As shown below.

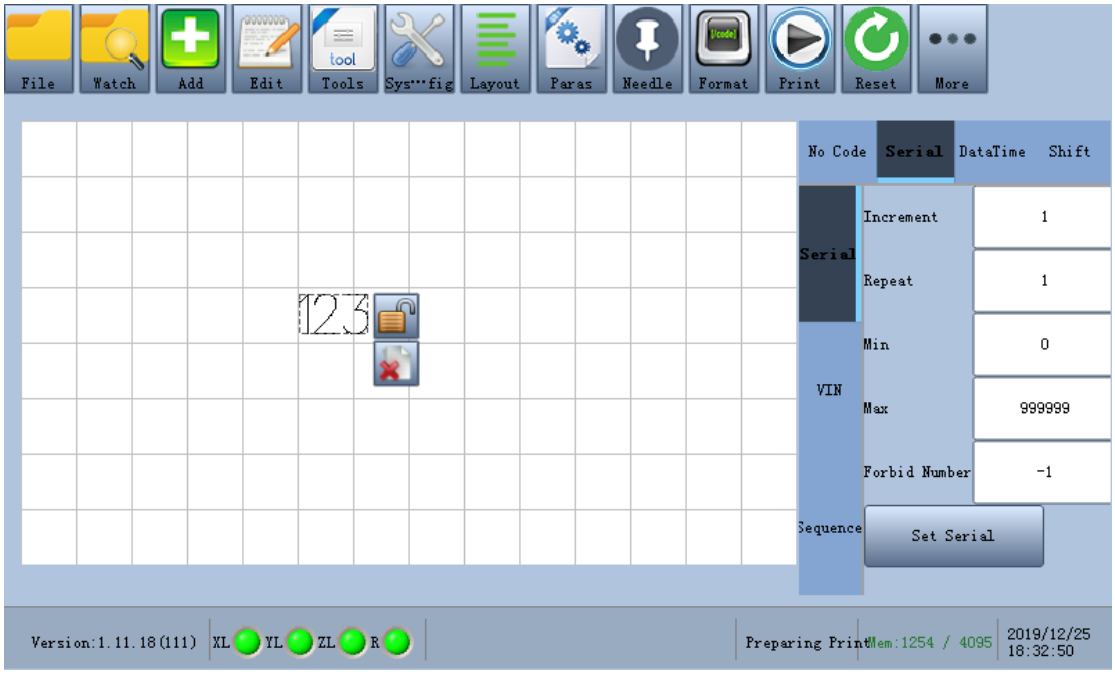


Figure 8.1

No code:As it’s name,mark will do nothing after print.

Serial number:The mark must end up with digit.The serial number mark will increase a number which is set.

Increment:The value of the mark to change after print.

Repeat:Print times before change.

Min/Max:Mark value can’t over the range,if a value is bigger than max,it will turn to min value.

Forbid number:If you don’t want the mark has a digit such as ‘4’,you can input

‘4’ here,and the mark’s content will skip ‘4’.For example ‘123’ will be ‘125’,’1399’ will be ‘1500’.

Notice:the length of the mark will never change,’AB9999’ will be ‘AB0000’ not ‘AB10000’.

Date:See appendix 1.

Shift:Set the time and the corresponding content.And when systemtimeis arrive,the mark will change content to the setting value.

9 Print

9.1 Operation

Click [Print]-[Operation]:

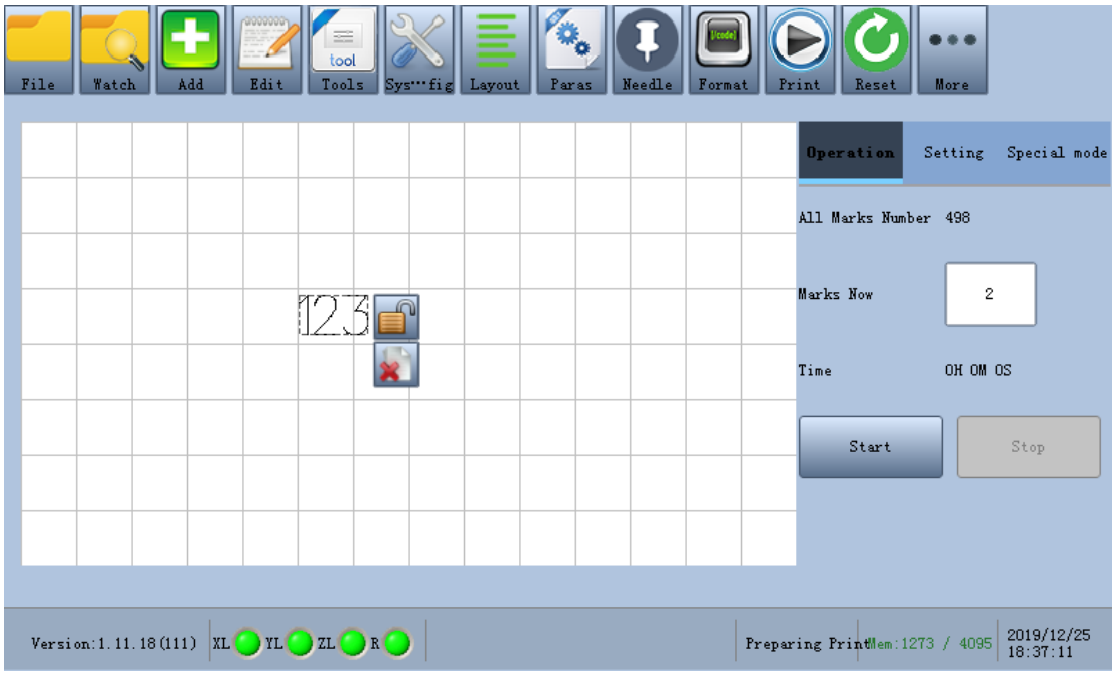


Figure 9.1

Start:Click to start the print.

Stop:Click to stop the print.

All marks number:Base on the print mode,if you set up a mutil mode,it will show the number you set.And infinte mode will show ‘-1’.

Marks now:Total marking number.

Time:Marking one round’s time.

9.2 Print setting

Click [Print]-[Setting].

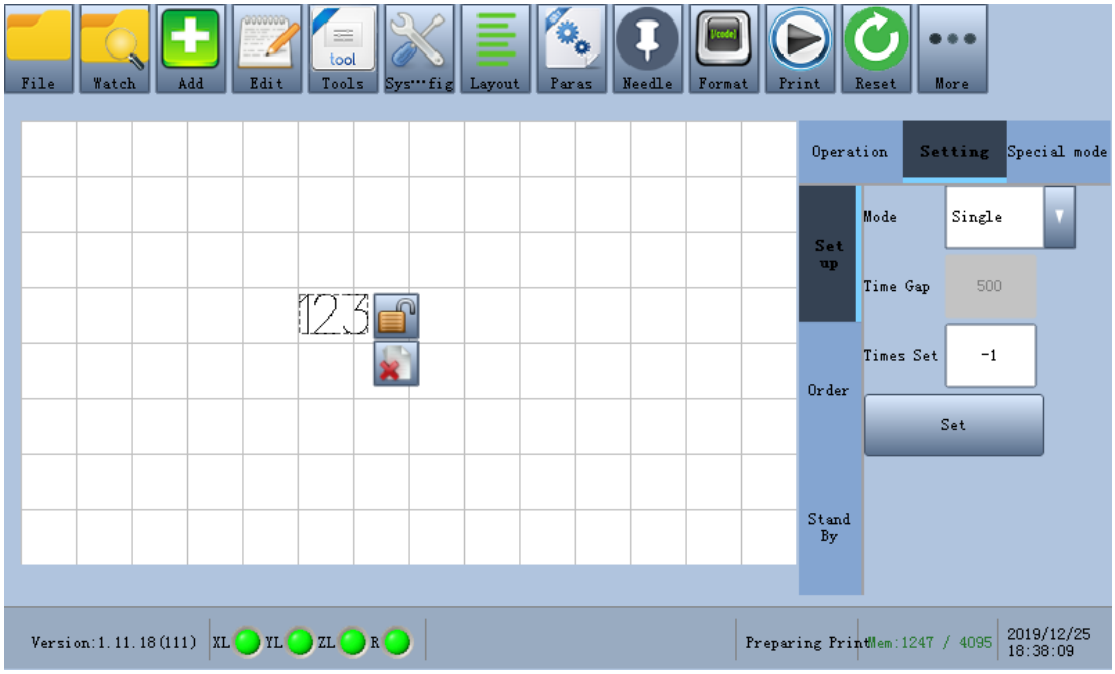


Figure 9.2

Mode:Single,mutil and infinte.

Time Gap:Time between two print.Single mode will not effect.

Time Set:To set up the print times.

Order:The marks will print according to the order by they create.If you want to change the order,you can select the mark then click up/down to switch the order near by.If you don’t want to print this mark, just click not button.

Stand by:Setting the last position after marking.

9.3 Special mode

Click [Print]-[Special mode]:

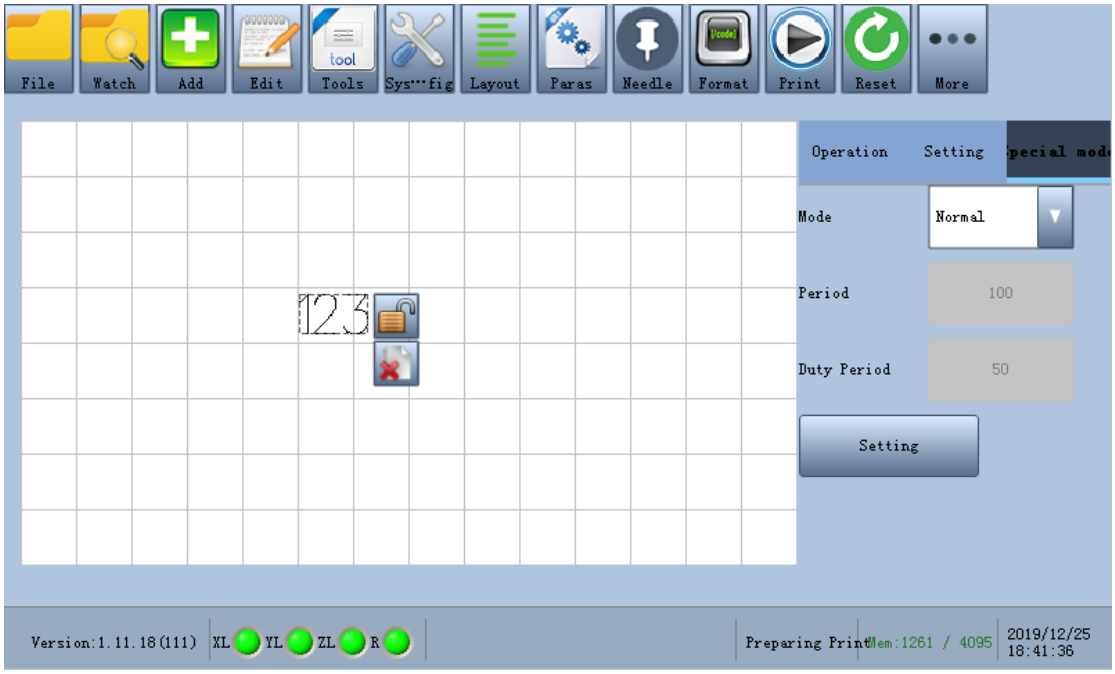


图 9.3

Mode:Normal, line and duty.

Line:According period and duty period, print the mark section to section.

Duty: According duty period, print the mark section to section.

10 Reset

Click [Reset] to make K3 system needle move to origin.

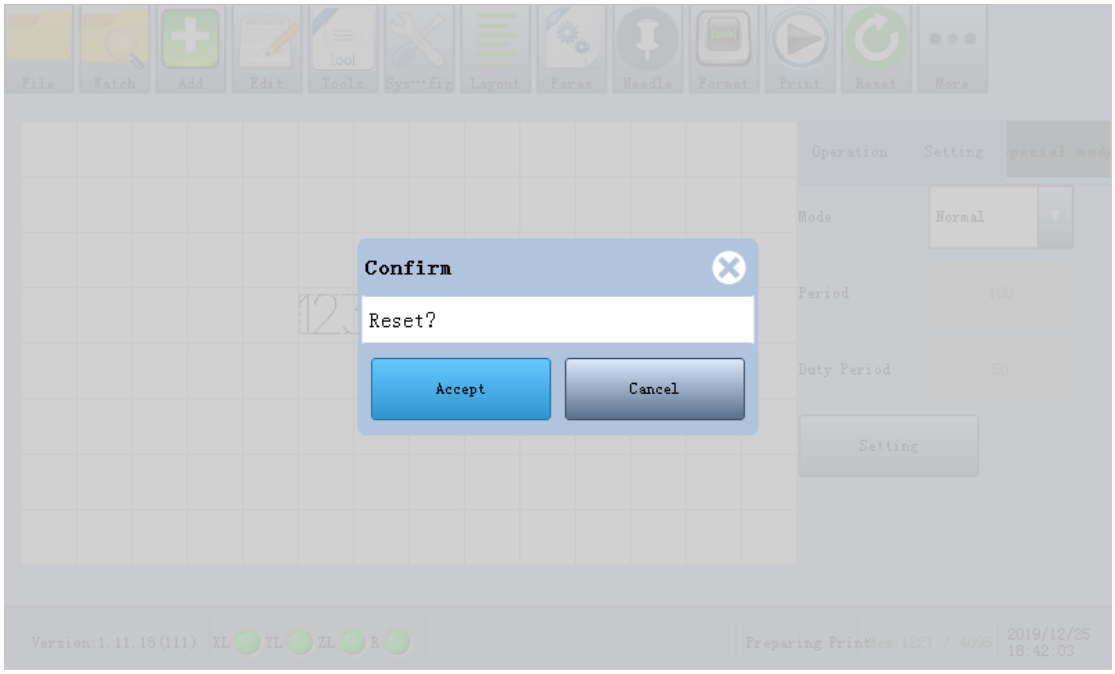


Figure 10.1

Notice:When a reset action is running,don’t click [Reset] again.It’s will cause overtime and make the k3 system very slowly.

11 Resource manage

11.1 Docs manage

Click [System config]-[Docs].

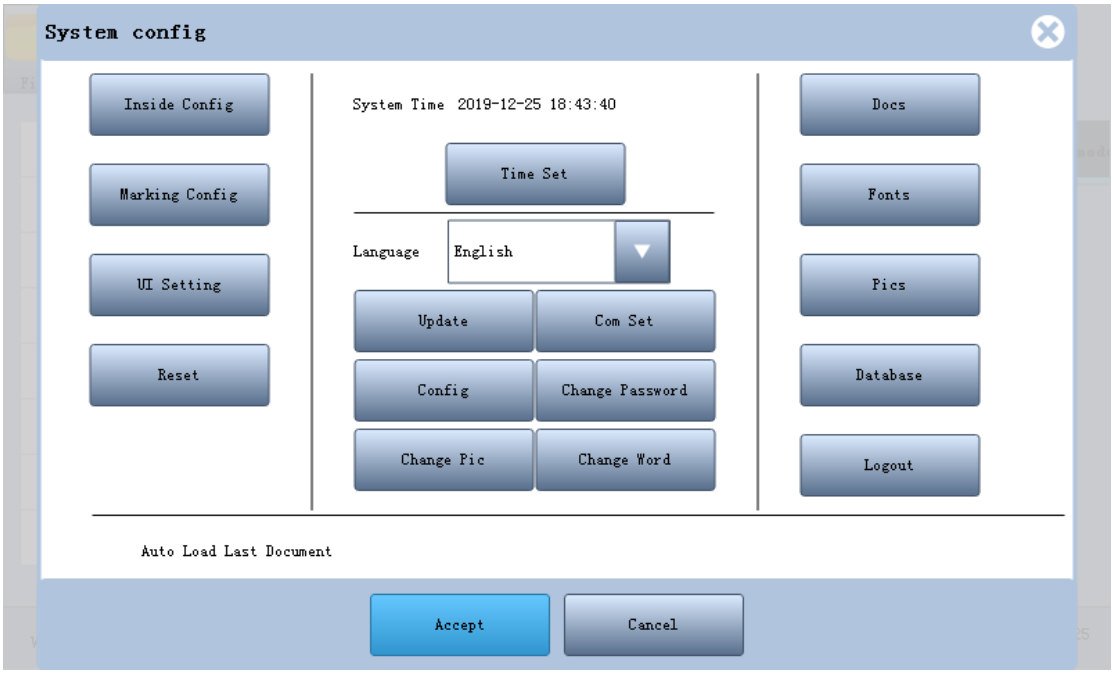


Figure 11.1

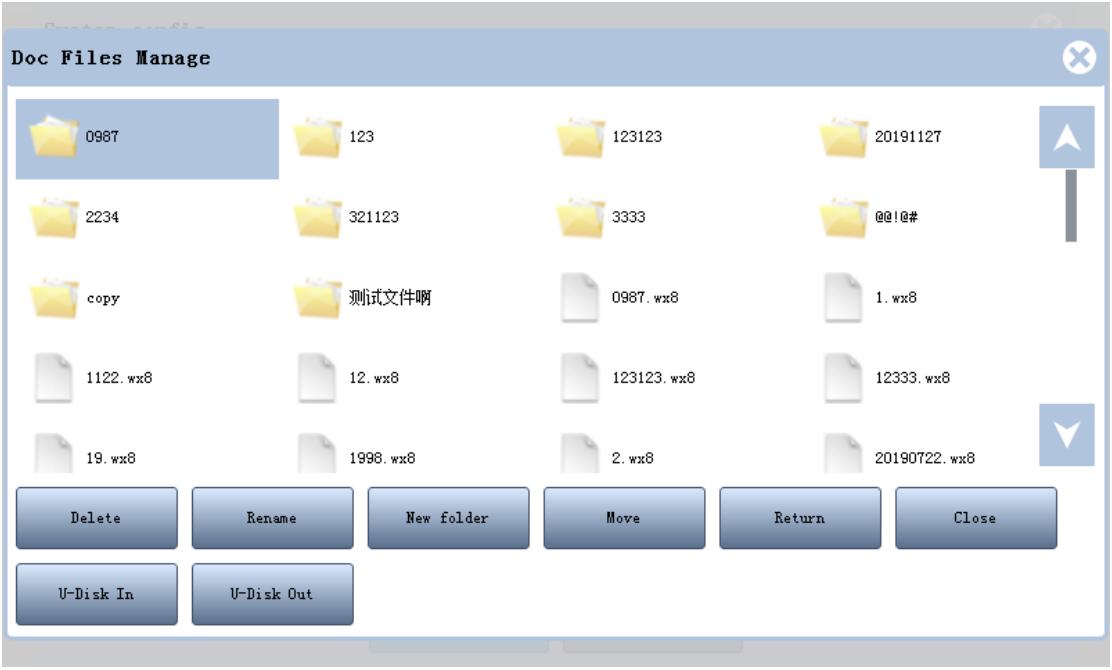


Figure 11.2

Delete:Delete the document in K3 system.Current open file can’t be deleted.

Rename:Rename the document.

U-disk in:Copy the document from U-disk to K3 system.Notice: the import file path must be U-disk root path.

U-disk out:Copy the selected document to U-disk root path.

11.2 Font manage

Click [System config]-[Font].

Figure 11.3

Font Files manage is the same as document manage.

K3 system supports shx, ttf , slf and lyf font.

11.3 Picture manage

Click [System config]-[Pic]:

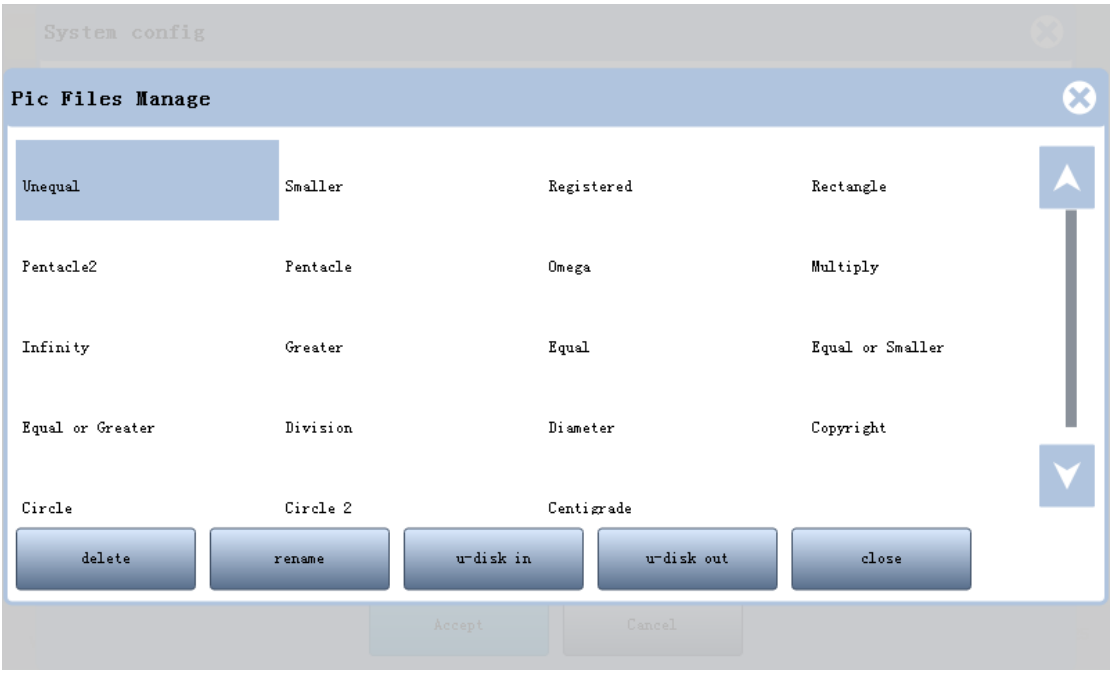


Figure 11.4

K3 only supports PLT picture.

11.4 Database manage

Click [System config]-[Database].

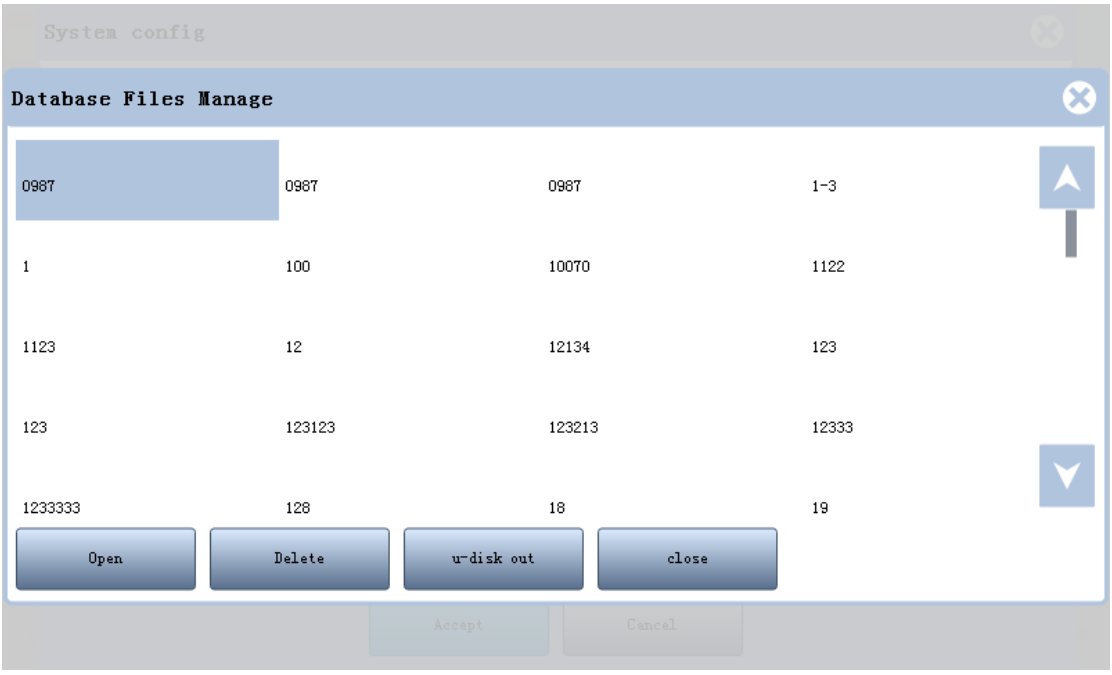
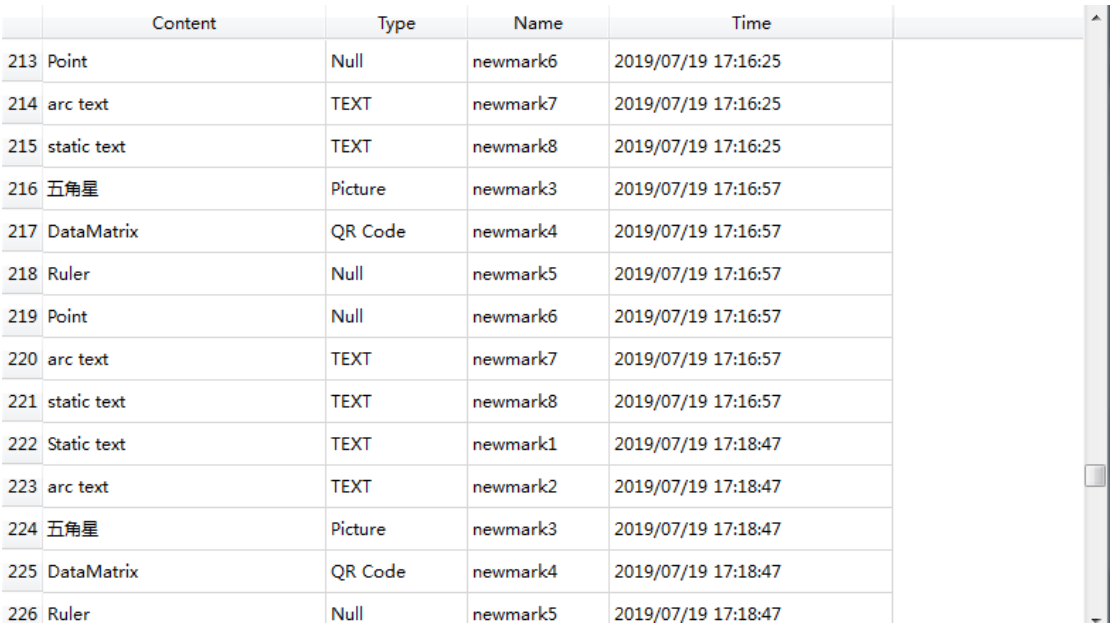


Figure 11.5



	Content	Type	Name	Time
213	Point	Null	newmark6	2019/07/19 17:16:25
214	arc text	TEXT	newmark7	2019/07/19 17:16:25
215	static text	TEXT	newmark8	2019/07/19 17:16:25
216	五角星	Picture	newmark3	2019/07/19 17:16:57
217	DataMatrix	QR Code	newmark4	2019/07/19 17:16:57
218	Ruler	Null	newmark5	2019/07/19 17:16:57
219	Point	Null	newmark6	2019/07/19 17:16:57
220	arc text	TEXT	newmark7	2019/07/19 17:16:57
221	static text	TEXT	newmark8	2019/07/19 17:16:57
222	Static text	TEXT	newmark1	2019/07/19 17:18:47
223	arc text	TEXT	newmark2	2019/07/19 17:18:47
224	五角星	Picture	newmark3	2019/07/19 17:18:47
225	DataMatrix	QR Code	newmark4	2019/07/19 17:18:47
226	Ruler	Null	newmark5	2019/07/19 17:18:47

Figure 11.6

12 System config

12.1 Inside config

Click [Inside config] to open inside config dialog.

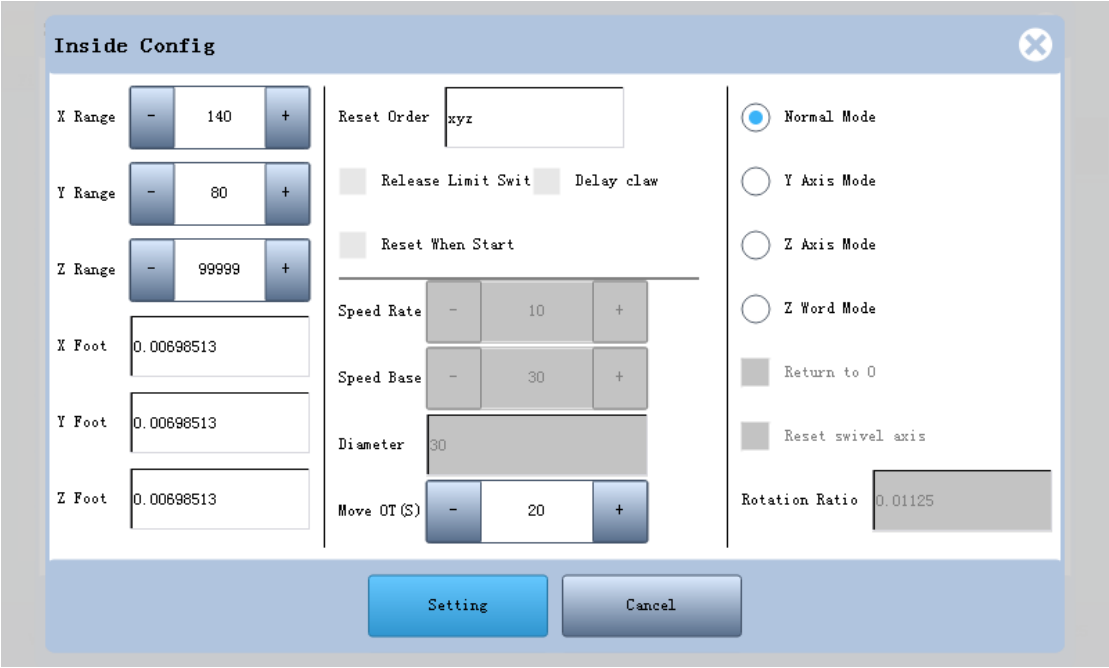


Figure 12.1

X Range:Marking machine needle X Range.

Y Range:Marking machine needle Y Range.

Z Range:Marking machine needle Z Range.Notice when z axis use rotate marking,the range must set to wordpiece perimeter.

X,Y,Z foot:See Appendix 2.

Speed rate,speed base:See Appendix 2.

Reset order:Reset asix at the same time.If you want to reset one asix first,you can input ‘,’ to separate.For example y aisx first then the x asix ,just input ‘y,x’.

Release limit switch:relase the switch at the origin.Suggest the marking machine which use close switch to open it.

Reset when start:If check this,when a stop happen,next start will do a reset first.

Diameter:For z axis mode.

Mode:Normal,y axis,z axis,z word.

Normal:Plane marking.

Y axis:Y axis as rotate axis.Means plane y axis not effect.

Z axis:Z axis as rotate axis.Means plane y axis not effect.

Z word:Z axis as rotate axis.X,Y axis are auxiliary axis.

Rotation radio:See Appendix 2.

12.2 Marking config

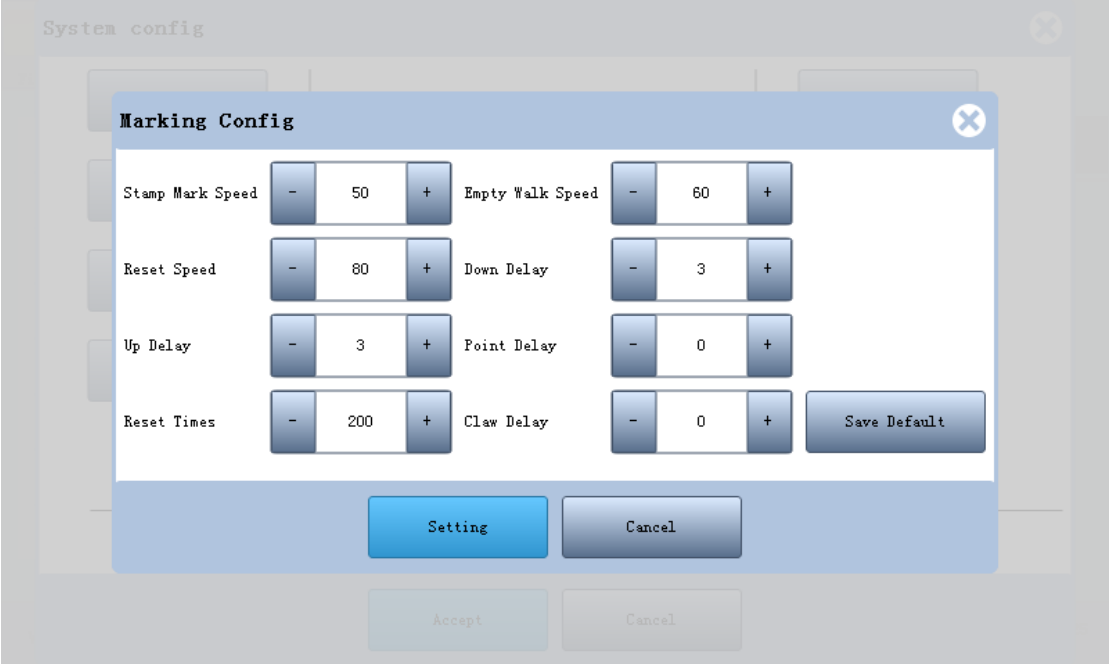


Figure 12.2

Stamp mark speed:Needle move speed when marking(Max 100)

Empty walk speed :Needle move speed when no marking(Max100).

Reset speed: Needle move speed when reset.

Down、Up delay:Needle do up/down operation delay.

Reset times:For mutil print,reset after the setting times.

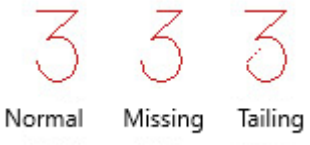
Claw delay:Claw get static delay.

Save default: Save current parameter to default and it will effect when create a new document.

Notice:

1. Empty walk speed should be fast than Stamp mark speed.But not more than 20.

2． To avoid ‘missing pen’ or ‘tailing’,delay must set to current value.



At the beginning of marking each character each successive strokes initial position, The high pressure gas source will be opened. To drive the needle imprint stamped high impact. But because the high pressure gas takes a short time during the inflating process, If at this time period,needle is start,but gas not arrive.Will cause missing pen.To avoid it, after the high pressure gas source is opened,let the needle stop for a while to wait the gas.We call it Down delay. Normally 2-8 ms.

Up delay is almost the same,the only different is the needle wait for gas close before move.

3.Machine has deviation,need to reset after a number of print.Normally set it 200.

12.3 Reset

Click [Reset] will show the dialog below

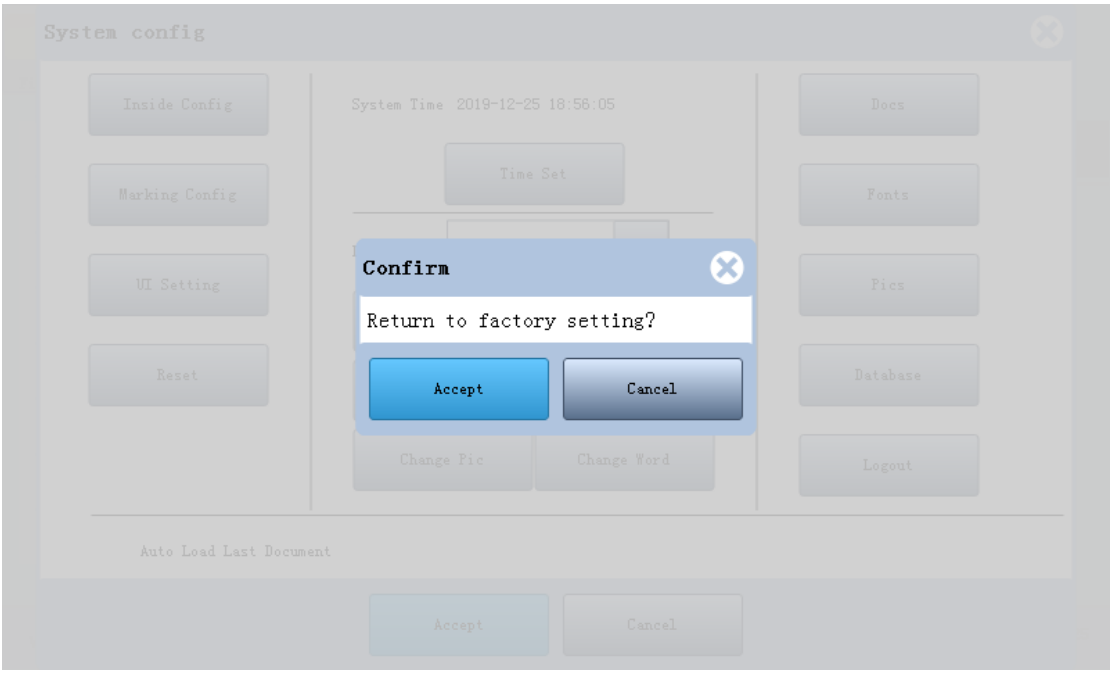


Figure 12.4

Notice:This action will reset the inside config of K3 system,not the other parameter.

12.4 System date time

Click [System time] to set up K3 system date time.

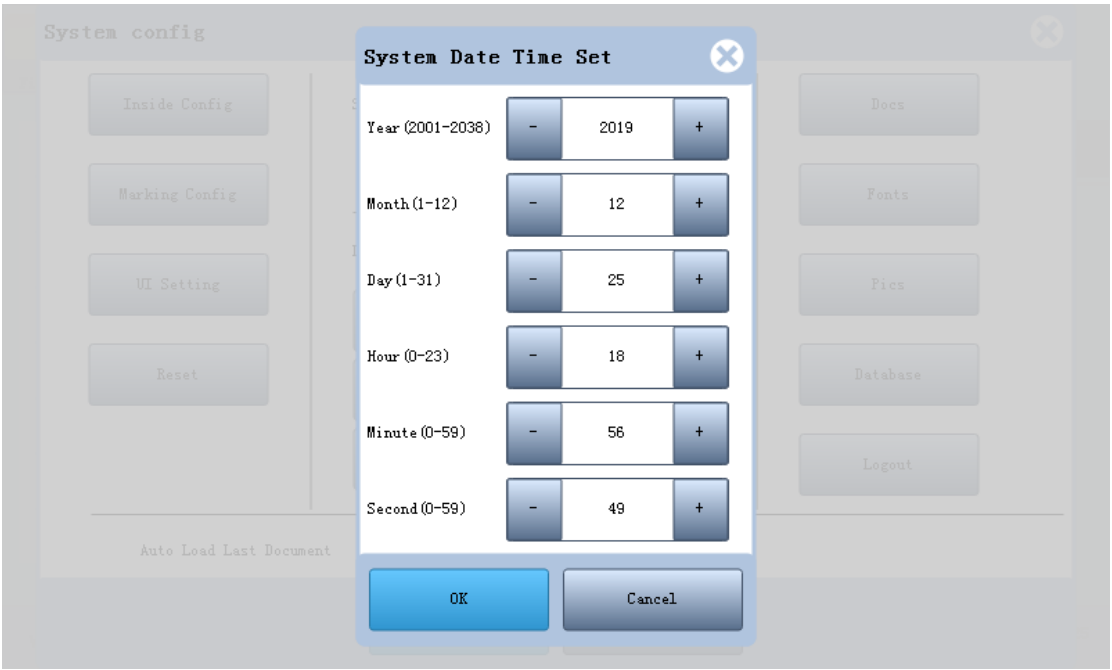


Figure 12.5

12.5 System language

Click Language combobox,to select a language for K3 system.Then reboot the K3 system.

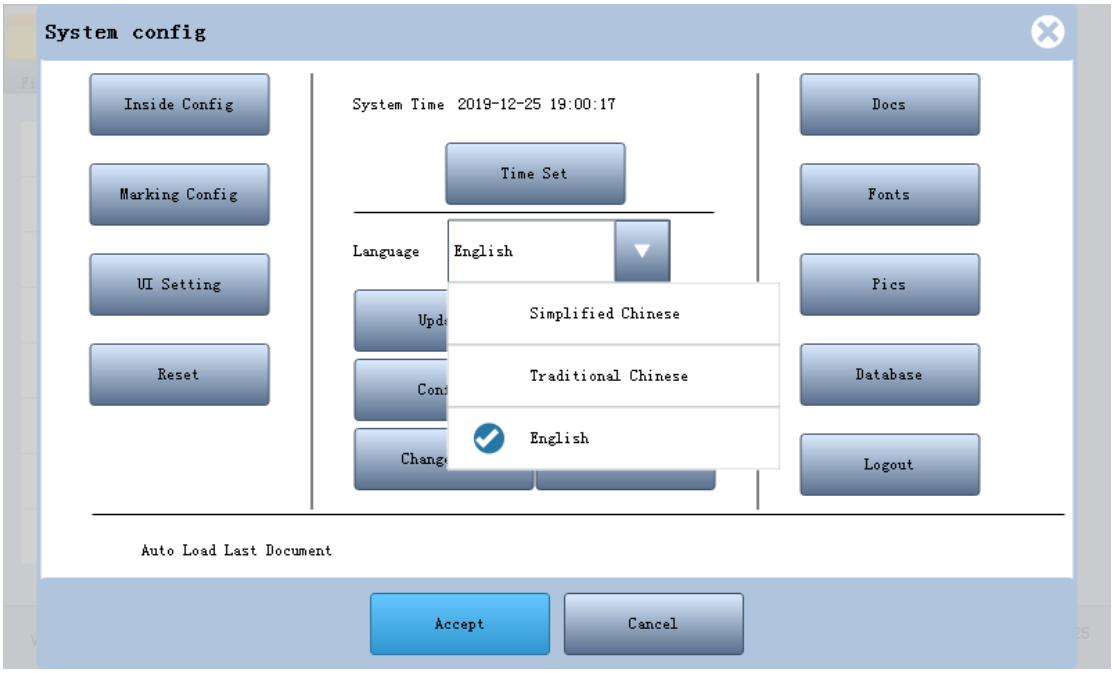


Figure 12.6

12.6 About

Click [Change word]

Figure 12.7

12.7 Change Pic

Now can change the start up picture very fast. User only need to put the picture to the root path of u-disk.And the picture must be 800×480 and the jpg format. Chinese interface name main_CN.jpg, english interface name main_EN.jpg. Then click on the [Change Pic].

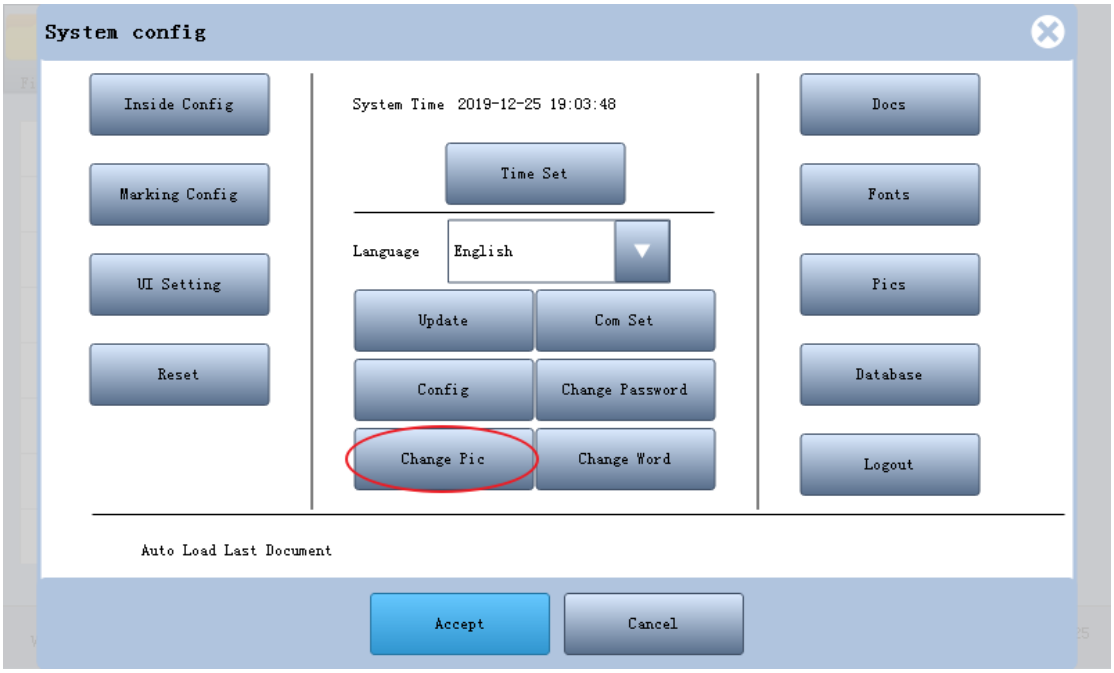


Figure 12.8

12.8 Auto load last document

Check this option and K3 system will load the last document user had printed last time, not just open.

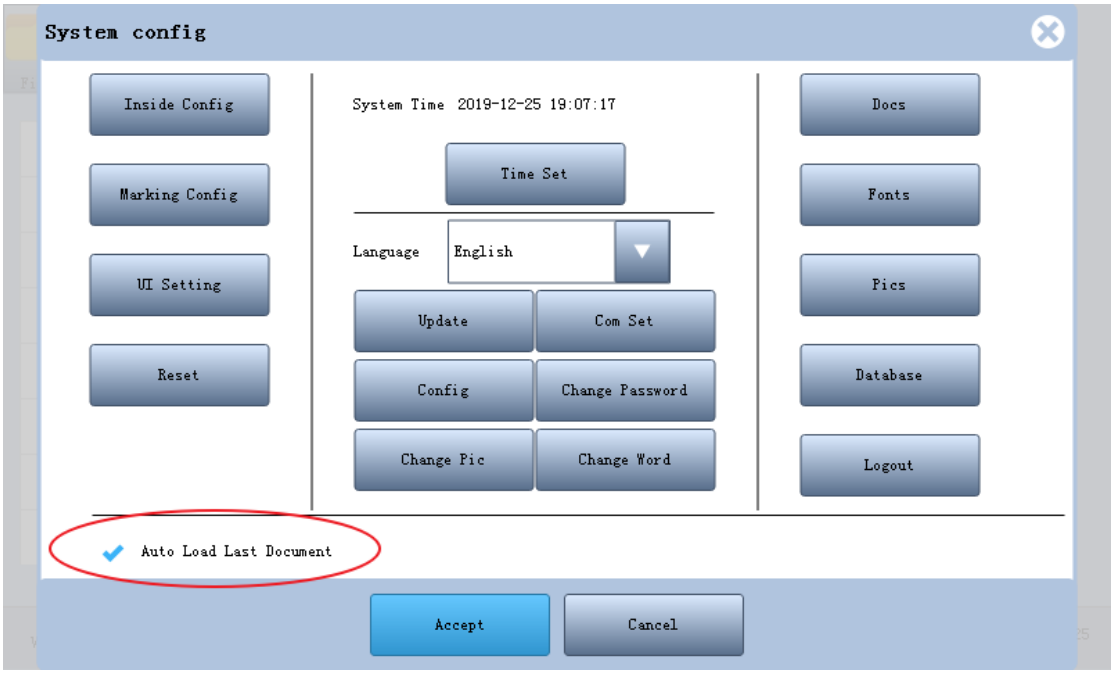


Figure 12.9

12.9 Update

Copy the K3 update bin file to U-disk root path.Click [Set page]-[Update] to update the system.

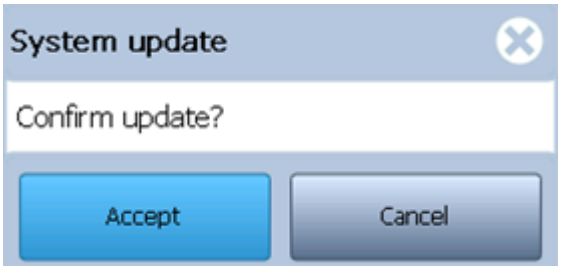


Figure 12.10

Wait for the update function finish,the K3 system will reboot automantically.You can’t reboot or shutdown the K3 system when updating to avoid data loss.

12.10 Serial port

Click [Serial port]:

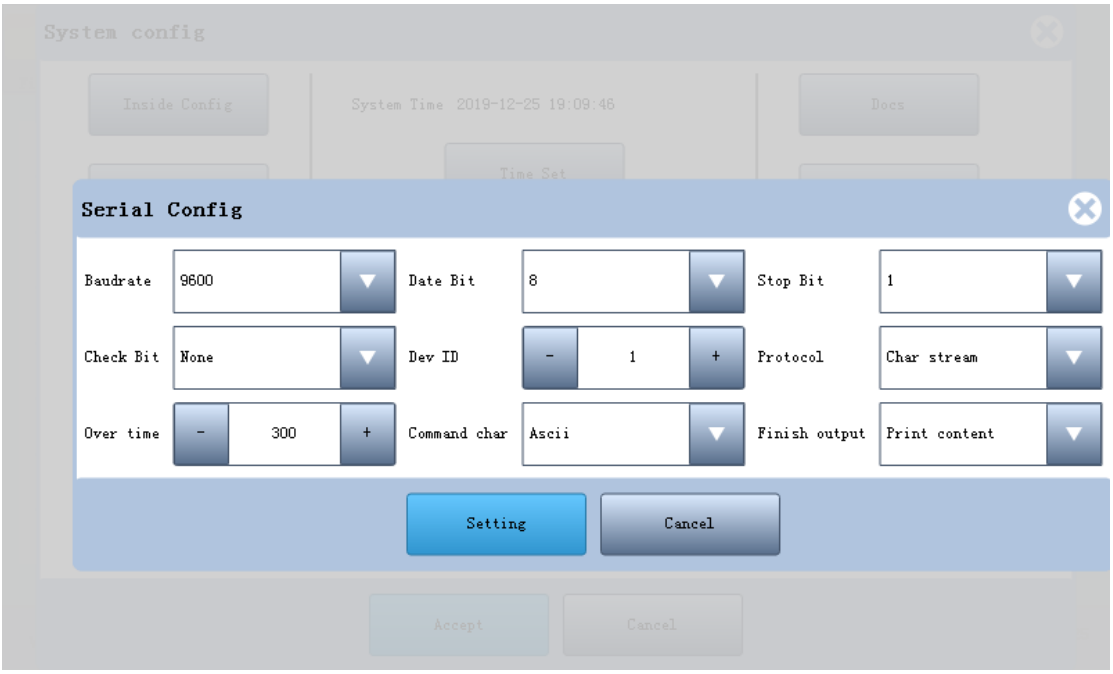


Figure 12.11

Serial port part please check the detail protocol specification.

12.11 Config page

Click [Config page].

Figure 12.12

Use percentage size:For text mark size setting.

Save all data:For vin code and serial check.

Use lock screen button:Lock the screen and avoid misoperation.You must unlock screen first to do anything else.(Password WQ666888)

Use path reverse:After all the marks printed,the path will reverse.

Use Start up stand by:Needle move to stand by position when K3 system start up.

Use com(IO) file print:Set it up and use serial port or IO port to control file open.

Click [OK] and restart K3 system make it effect

12.12 Change Password

Super user can input the password and change the admin password.

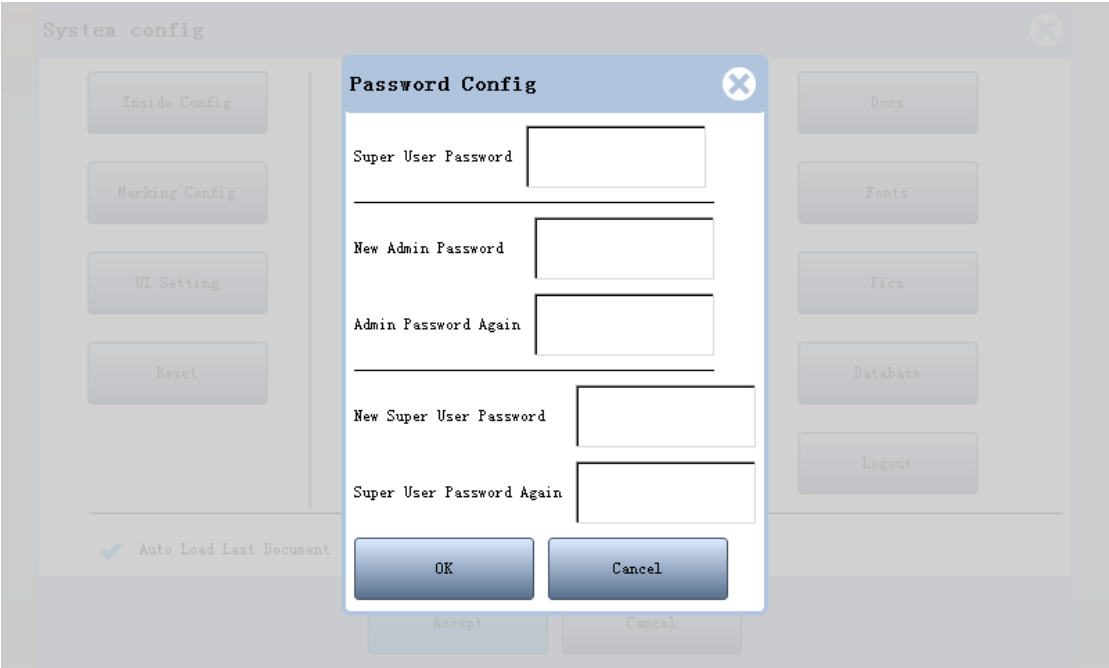


Figure 12.13

12.13 UI Setting

Click [UI Setting].

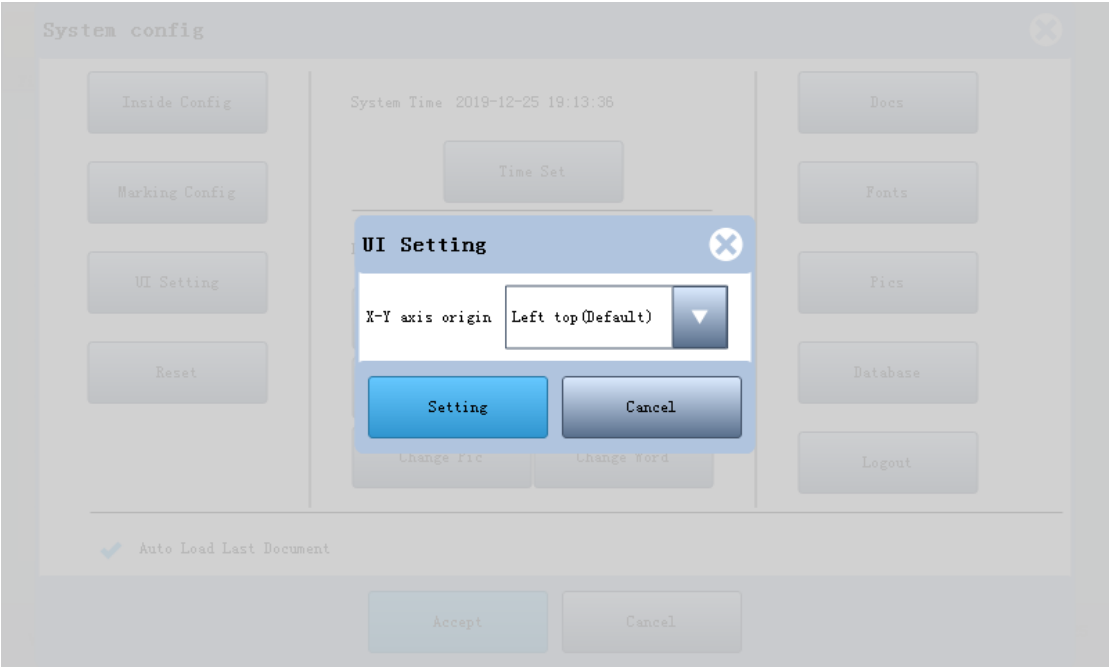


Figure 12.14

UI Setting can change the setting of main screen.

Axis origin will changed the base origin of main screen. It will only affect on the

showing but not marking. Change it to right down will shown as:

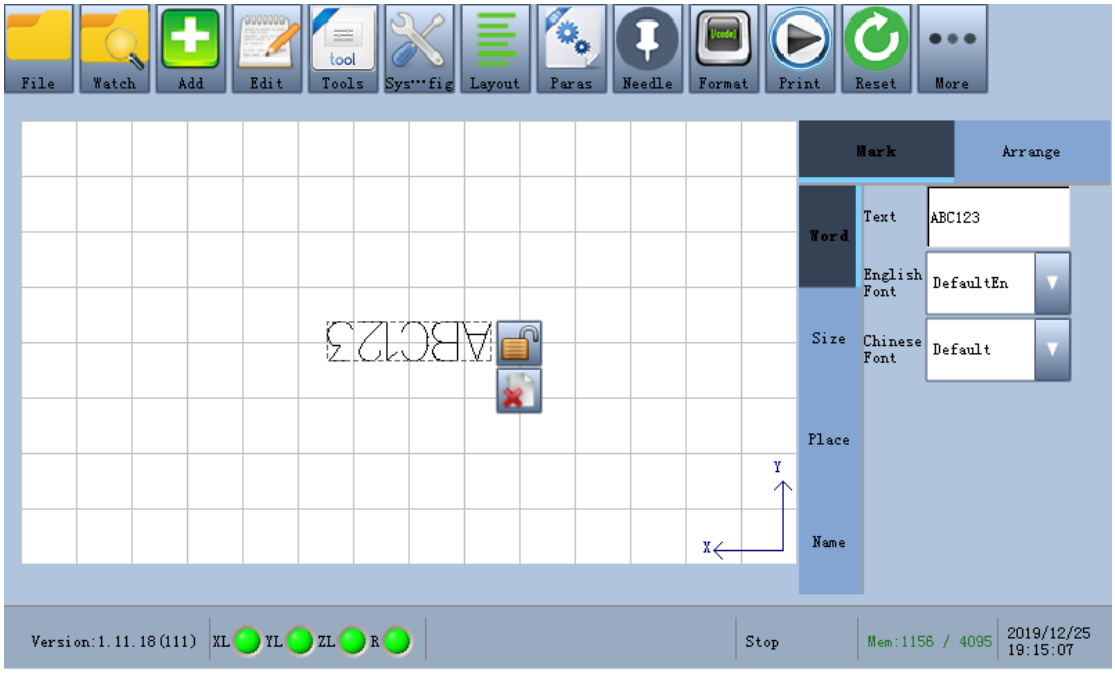


Figure 12.15

13 Communication control function

K3 system provide communication control function.

Include: Modify the content function graphic communication, Call the existing document marking function, To control the print start and stop.

User can find the detail protocol in <K3 system communication protocol>

14 More

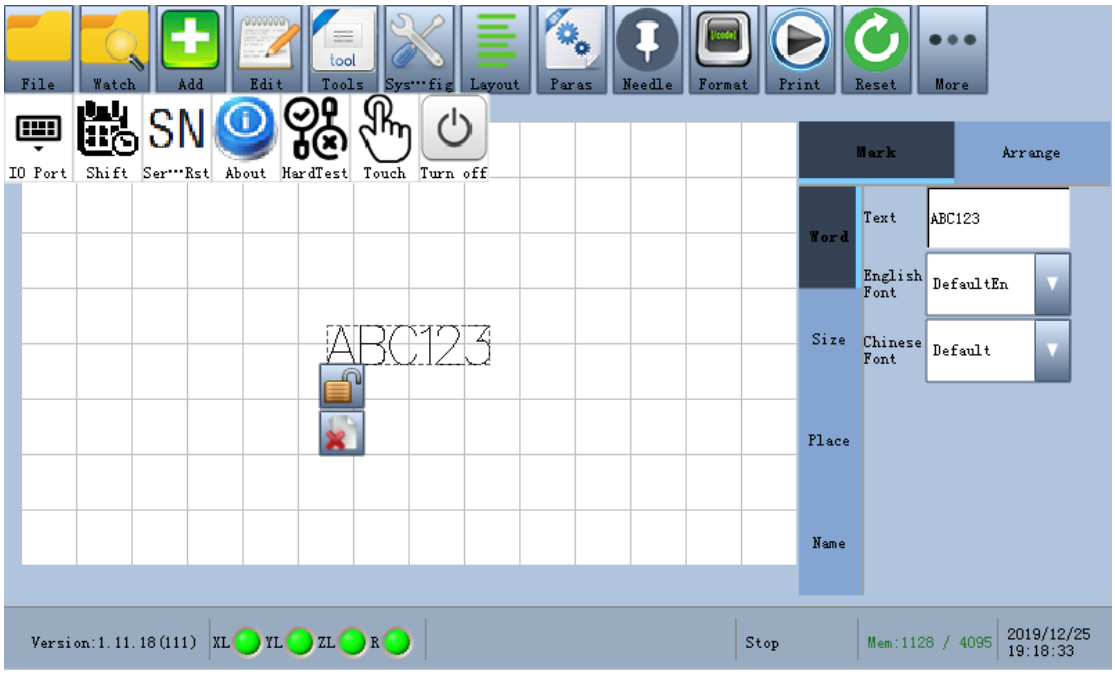


Figure 14.1

14.1 IO Port

IO Port setting can customized the IO port function of K3. Including input and output.

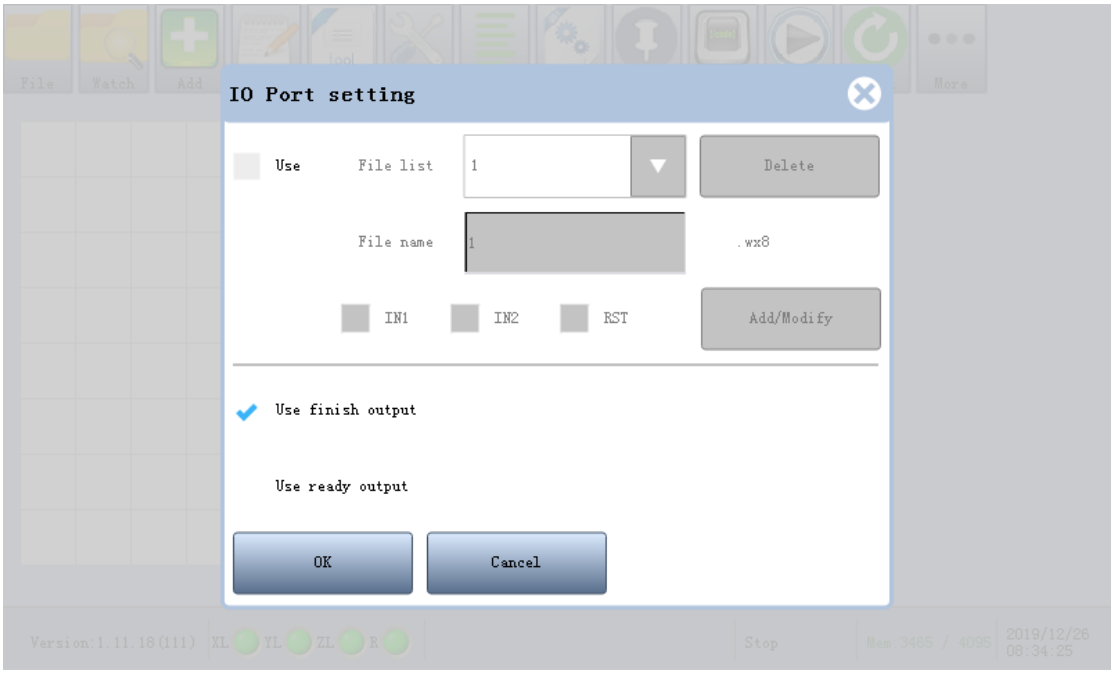


Figure 14.2

14.1.1 Input

Input part is the first part in figure 14.2. To set up the combination of input port to open document. K3 supoorts 3 input port now ,IN1, IN2, RST(reset). Notice that is use RST as an input port it will not be a reset button.

Choose input port then type in the document name, for example press IN1 and IN2 to open document name ‘demo’ ,will be setted as figure 14.3.

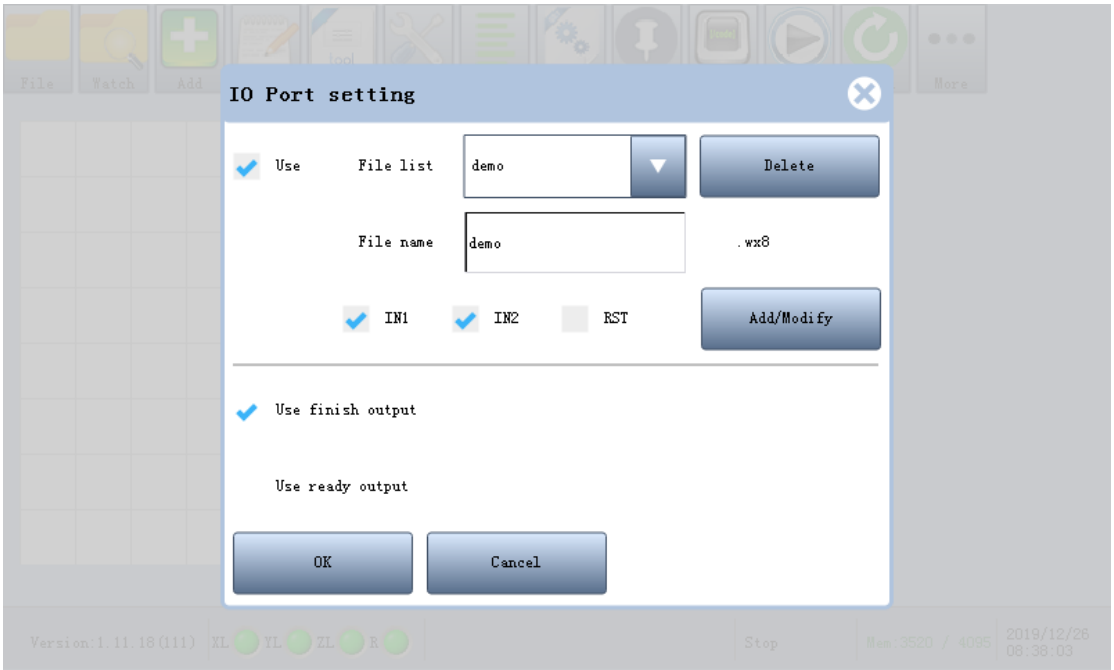


Figure 14.3

If the port combination is already in use, then when you click on Add/Modify button will notice if you want to change the old setting to the new one.

14.1.2 Output

Output port is the second part in figure 14.2, including finish output and ready output.

Finish output means when finish a marking, the output port will output an one second high level.

Ready output means when K3 is not marking or doing any other work, will continue output a high level. For example after initial to enter the main screen, or finish marking.

14.2 Shift setting

Shift setting including shift reset and serialnumber reset.

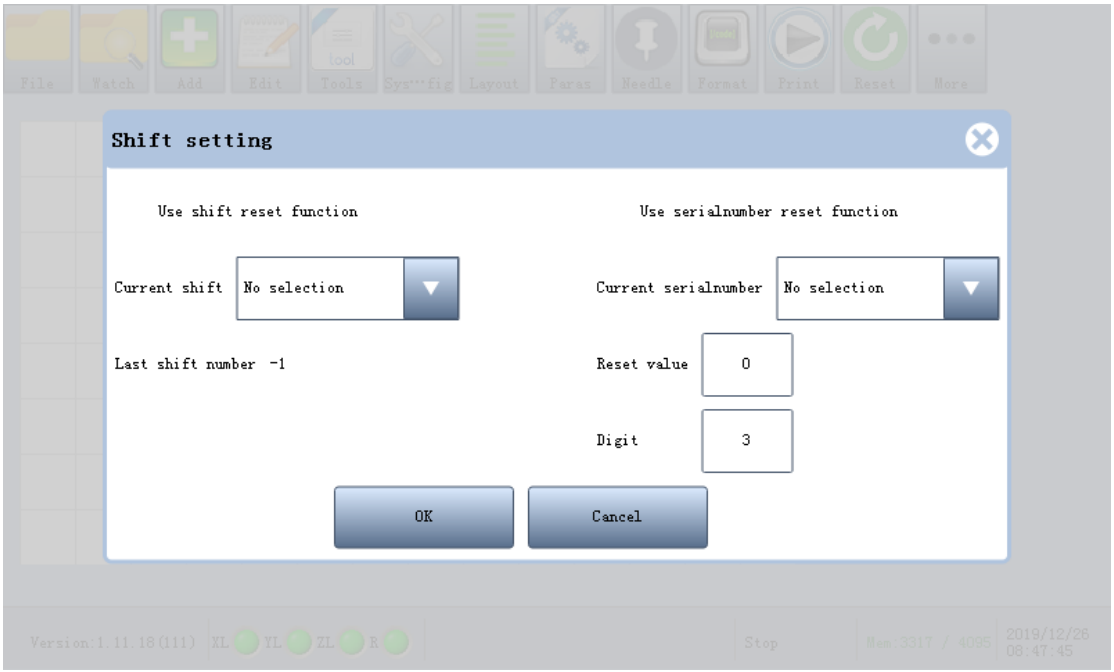


Figure 14.4

14.2.1 Shift reset

Left part in figure 14.4 is shift reset. Check the use box, choose a shift name, will count the shift total times. When shift change, marking page count will be set to 0,then the last shift count will show in this dialog.

14.2.2 Serialnumber reset

Use with shift reset, when the shift has been changed, the choosen serialnumber will be initial.

14.3 Serial reset

Figure 14.5

It’s different with serialnumber reset. This function is to reset all the serialnumber in current document when the setting time is arrived. This function can only trigger one time a day. If you change the system time ,you need to set this function again to make it effective.

14.4 About

Click [About] button ,will show an about dialog.

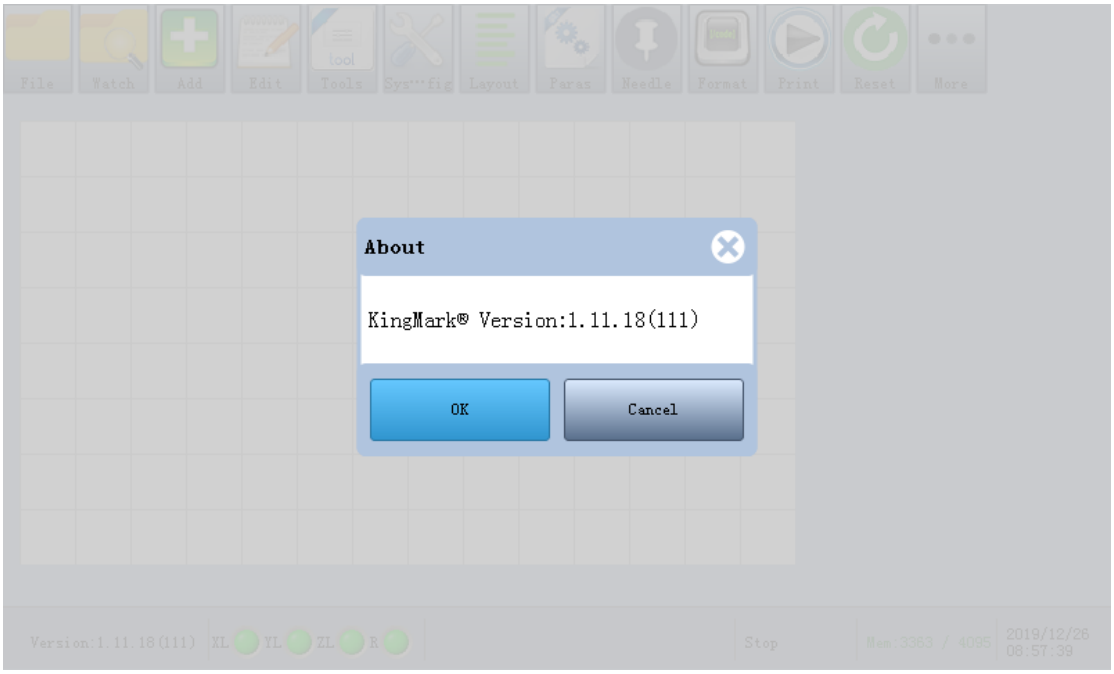


Figure 14.6

In this dialog you can check the system version of K3 system and the user define words which is setted in [system config]-[change word].

14.5 Hardware Test

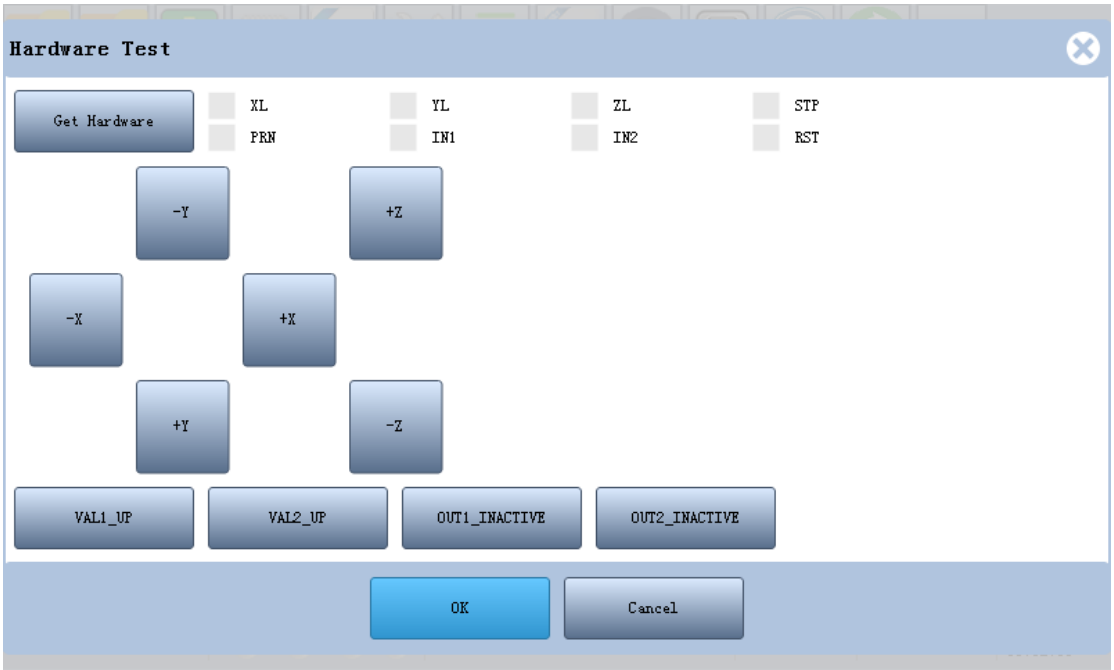


Figure 14.7

Get Hardware button will get the current input port status.

X,Y,Z button will move the needle.

VAL1,VAL2,OUT1,OUT2 is output port, when active will output a high level.

14.6 Touch

It’s a screen touch calibration function.

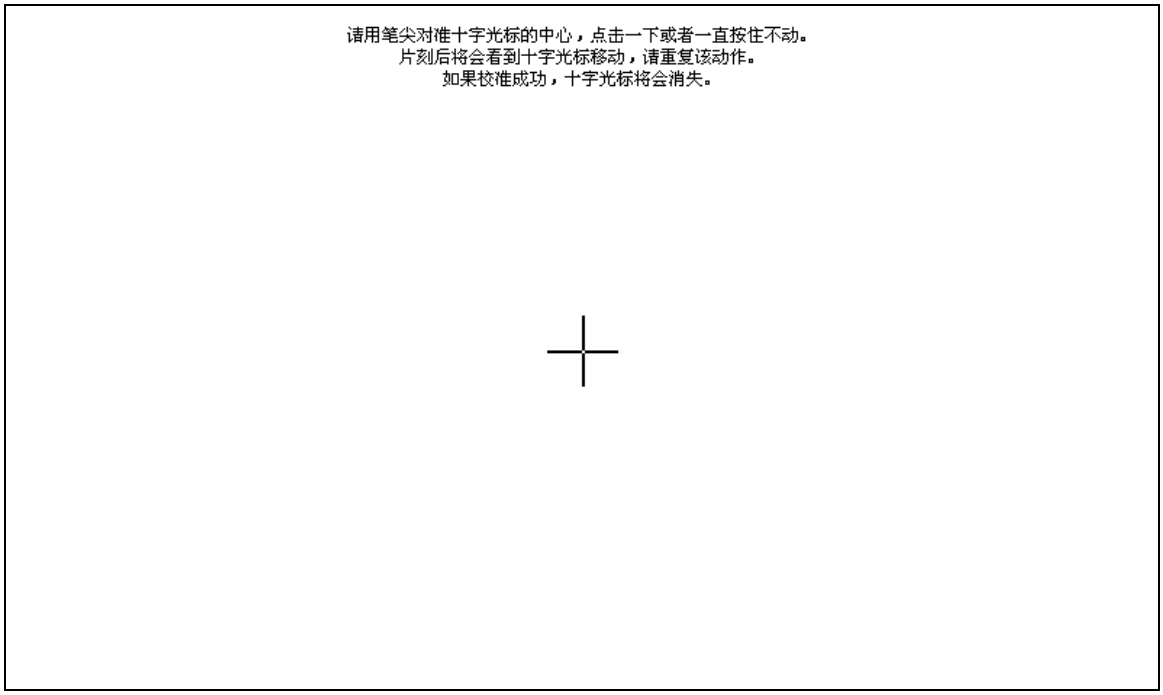


Figure 14.8

14.7 Tunr off

To avoid disk is writing when shutdown the K3 system , we suggest user to use this button before shutdown K3 system.

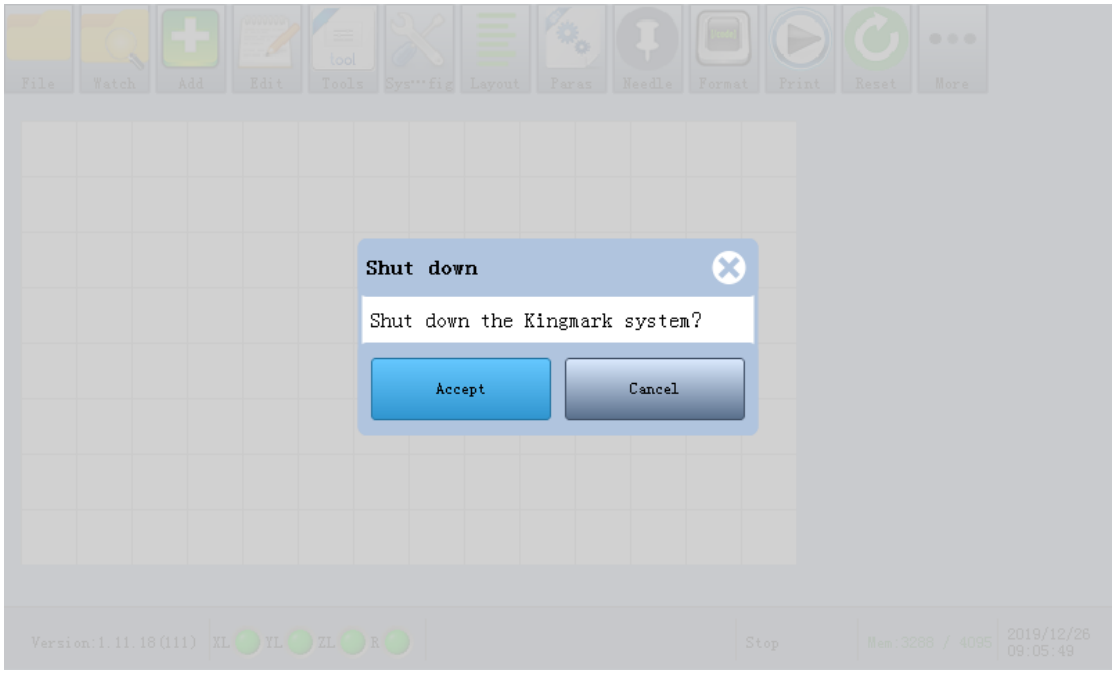


Figure 14.9

Click accept and wait for a second, will notice “Now you can turn off the power”. Then you can cut off the power.

15 Other

15.1 Flow toolbar

Figure 15.1

First is a locker icon, means Lock/Unclock function. When a mark is locked, it can’t move by draging.

Second is delete button.

Appendix 1. Datetime format

%a：Soft of week day(Base on language)

%A：Week day(Base on language)

%b：Soft of month(Base on language)

%B：Month(Base on language)

%c：Date format（day/month/year hour:minute:second）

%d：Day（01－31）

%f：Month（A-H，W-Z）

%F：Month（A-H，W-Z）

%H：Hour（24 hour 0－23）

%I：hour（12 hour 1－12）

%j：day of year（001－366）

%m：month（1－12）（without leading 0）

%M：minute（0－59）

%p：AM/PM

%Q：month（01-12）（with leading 0）

%S：second（0－59）

%U：week of year（start with sunday 00－53）

%w：day of week （Sunday is“0” 0－6）

%W：week of year（start with mondy 00－53）

%x：Date（day/month/year）

%X：time（hour:minute:second）

%y：year（00－99）

%Y：year（full）

%%：%

Appendix 2. Hardware parameters formula

Footlength＝Motor gear diameter×π÷360×Motor step angle÷Driver finer fraction.

In most cases，Most of the motor gears we use are in diameter 14.23，Motor step angle　is 1.8，Driver finer fraction　is 32，footlength will be:

Footlength＝14.23×3.14159265359÷360×1.8÷32

＝0.006985134915716515625

≈0.0069851349 （keep 10 bits）

Rotation coefficient＝Motor step angle÷Deceleration ratio÷Driver finer fraction

In most cases，Motor step angle　is 1.8，Deceleration ratio is 5，Driver finer fraction is 32，and Rotation coefficient is :

Rotation coefficient＝1.8÷5÷32

＝0.01125