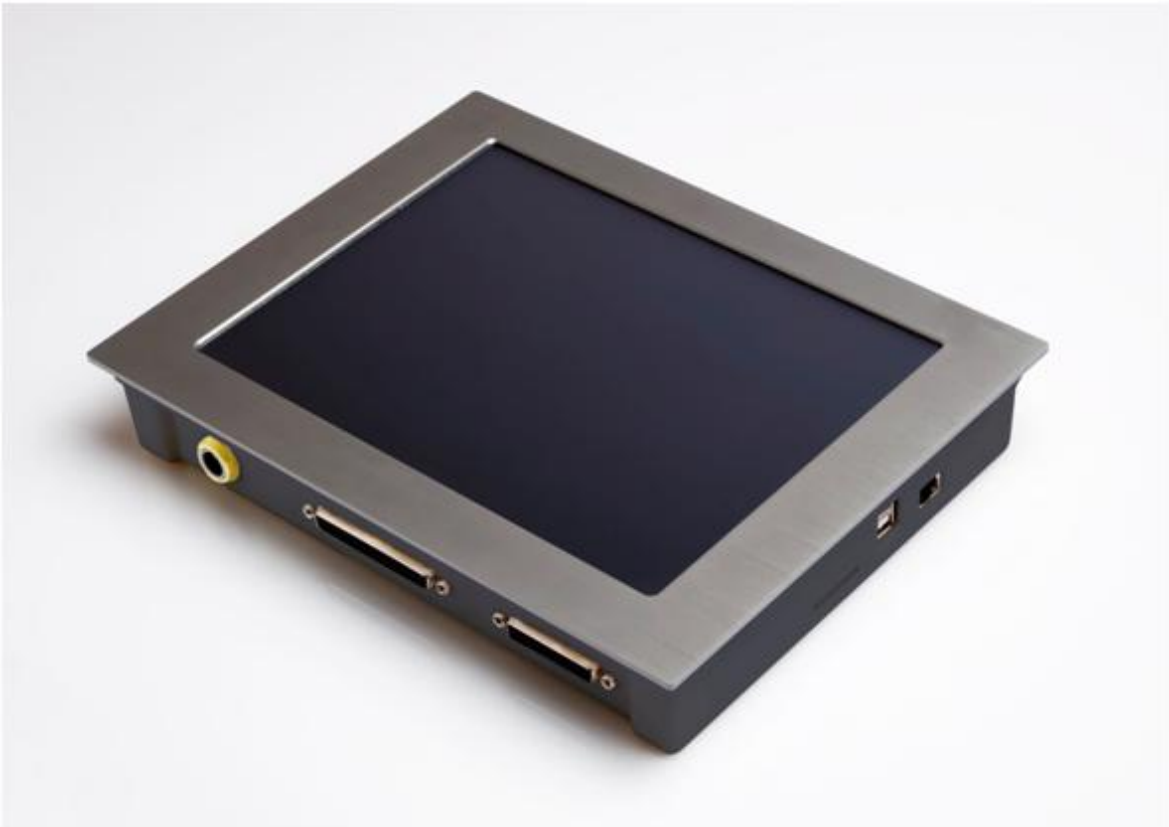
Operating Manual for CNF-130 Laser Marking Control System



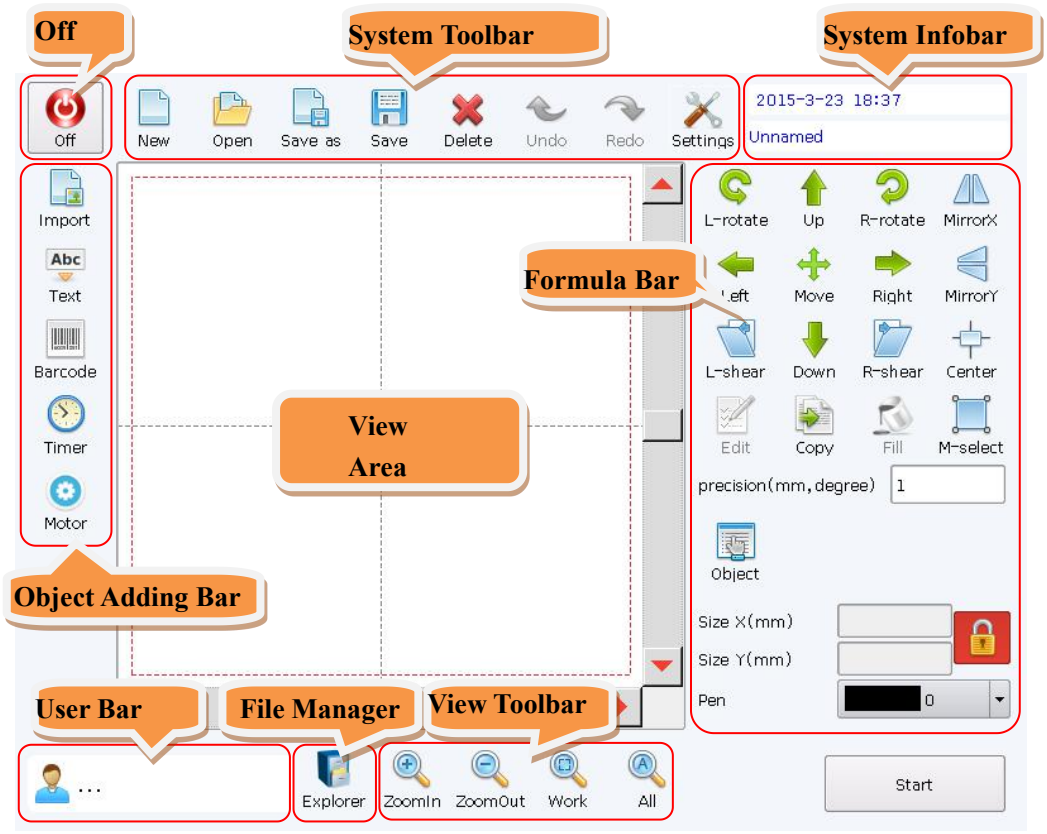
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Content

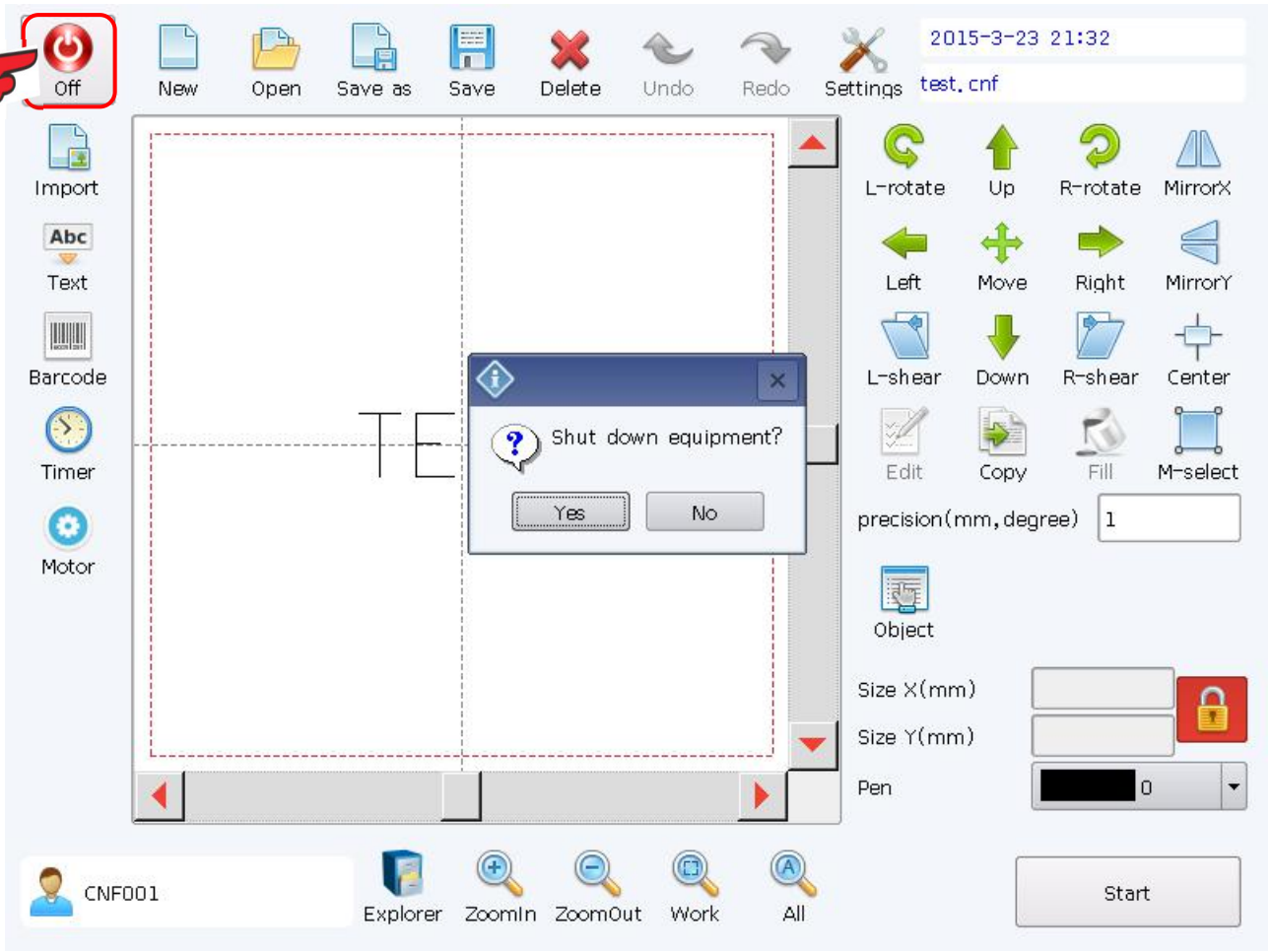
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I. Main Interface



1.1 Off Key

By Off key, the system can be shut down safely. Click the key to pop out the dialogue of system shutdown, choose "Yes/No" to shut down the equipment or cancel the operation. In case of accidental power outage (directly shut off the power supply), the system will automatically record important parameters like marking file, marking parameters, mark count, etc. before the power outage. To restart the equipment, the system will automatically recover the scene at power outage.



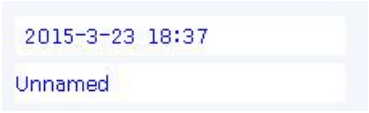
1.2 System Toolbar



	New		Open
	Save As		Save
	Delete		Undo/Cancel

	Redo/Rework		Settings

1.3 System Infobar



Display current system time and name of current marking file

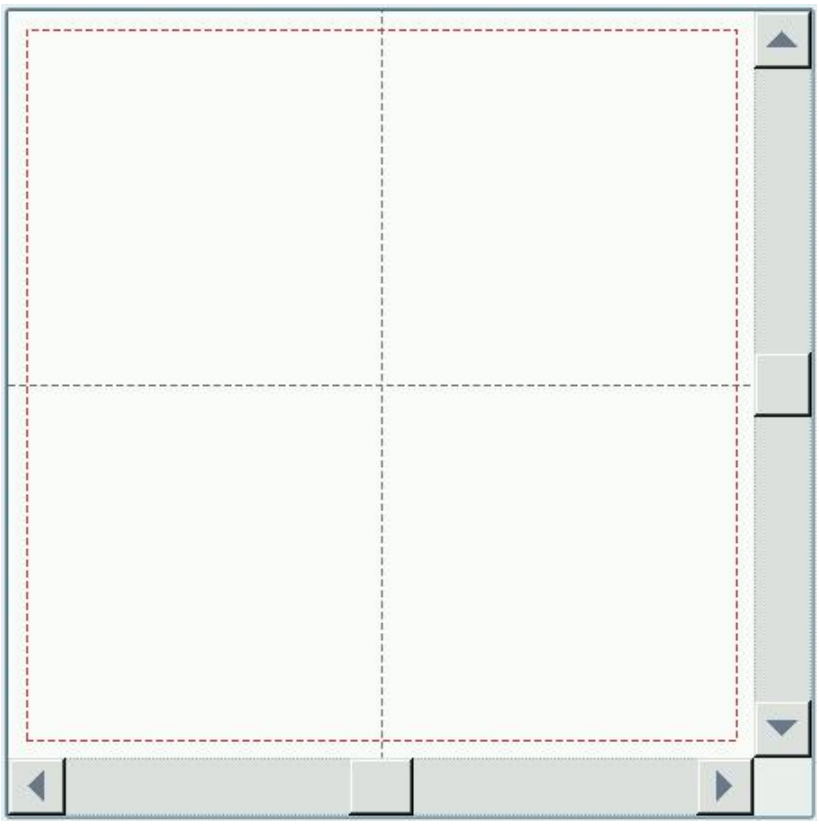
1.4 Object Adding Bar



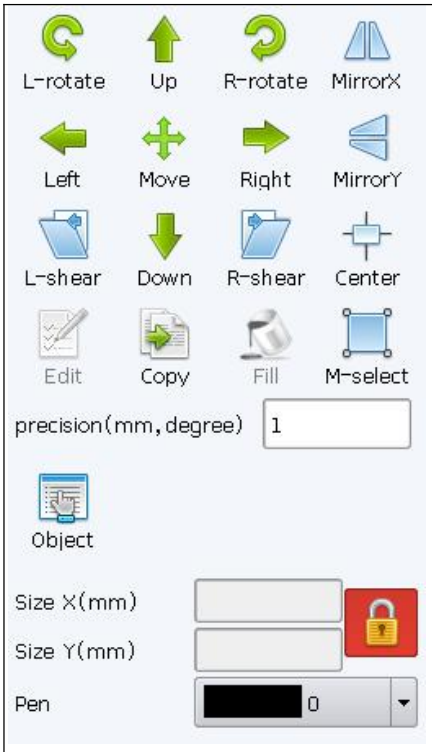
	Import vector files		**Add text**
	Add barcode		**Delayer**
	Stepper Motor Controller		

1.5 View Area

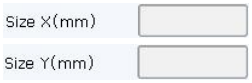
This area displays the marking content. Note: the marking file must be within the scope of marking (within the dotted box).



1.6 Formula Bar



	L-rotate		R-rotate
	Up		Down
	Left		Right
	MirrorY		MirrorX
	Move		Center
	L-shear		R-shear
	Copy		Fill
	S-select/M-select	10	Select the moving distance (unit: mm) or rotation degree (unit: degree)

		Text editing tool (gray is not editable, color is editable)		Object List
		Lock and unlock X, Y aspect ratio		Select the Size X/Size Y of the object
		Modify the pen and set different colors for different marking parameters		

1.7 View Toolbar



	ZoomIn		ZoomOut
	Work		Zoom All

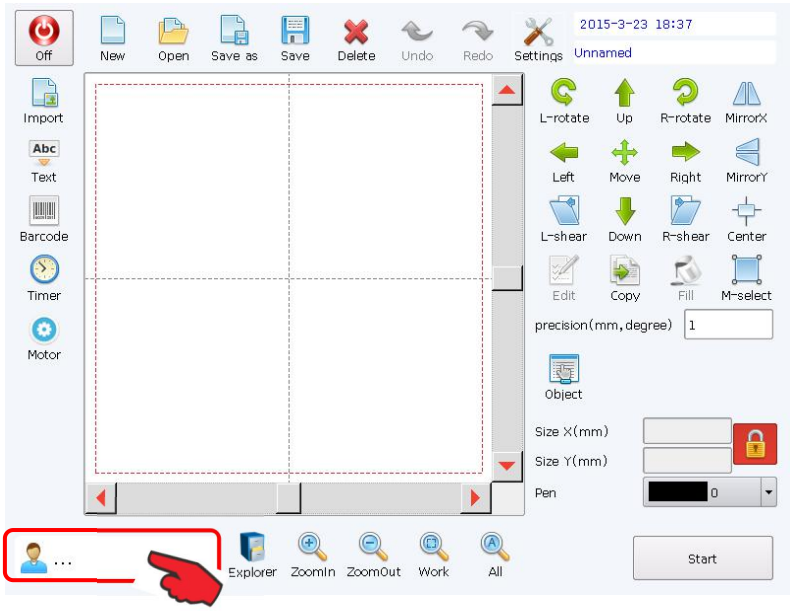
1.8 User Bar

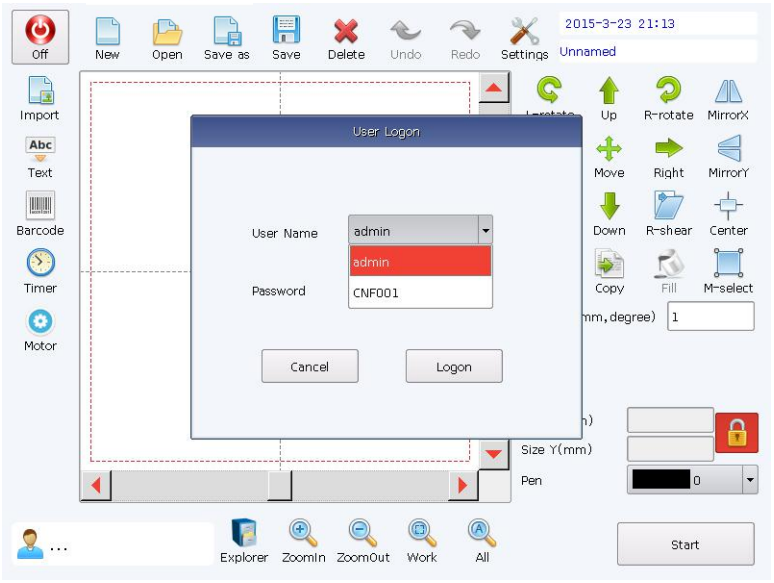
 Current Login User Name

1.9 Marking Control

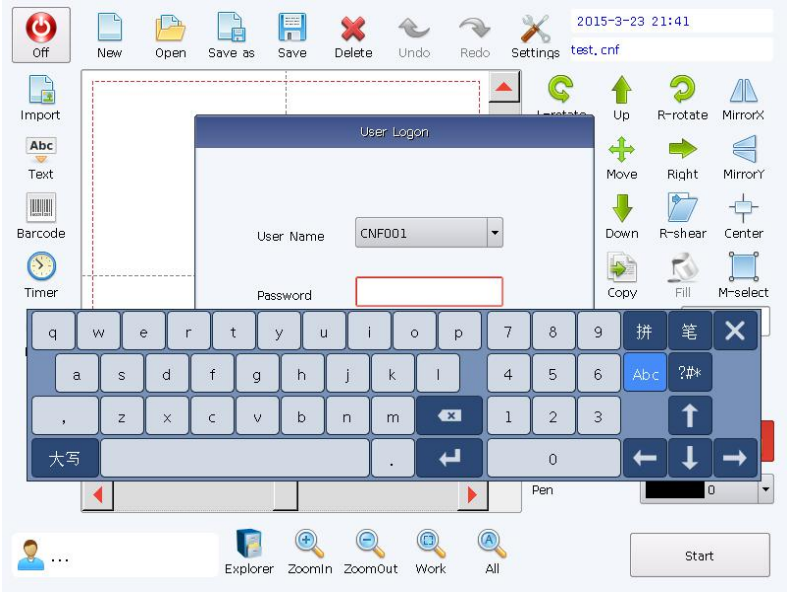
 Start marking

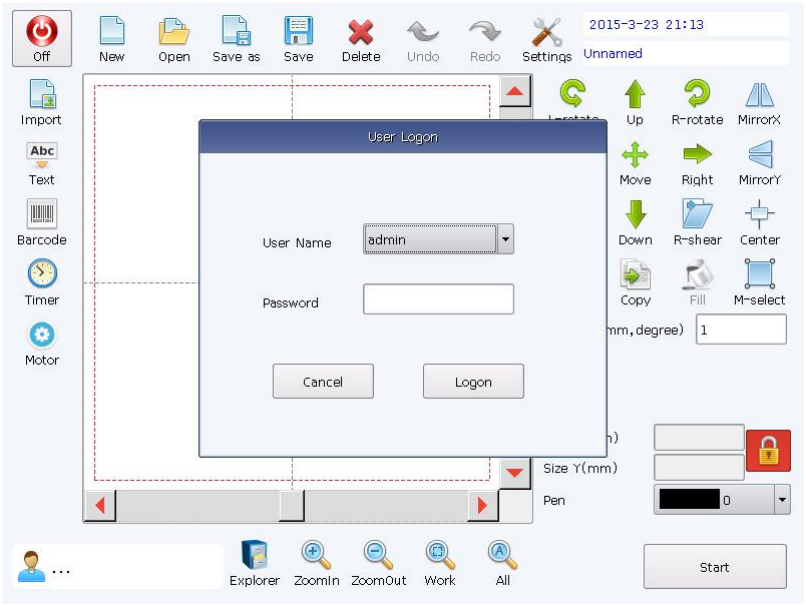
II. User Login





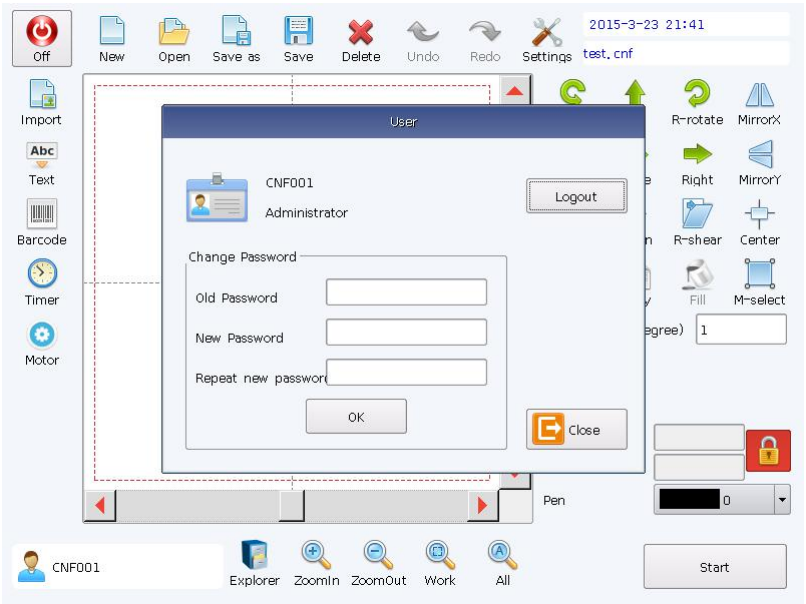
Click ... , select corresponding user in the dialogue popped out and input password to log in.





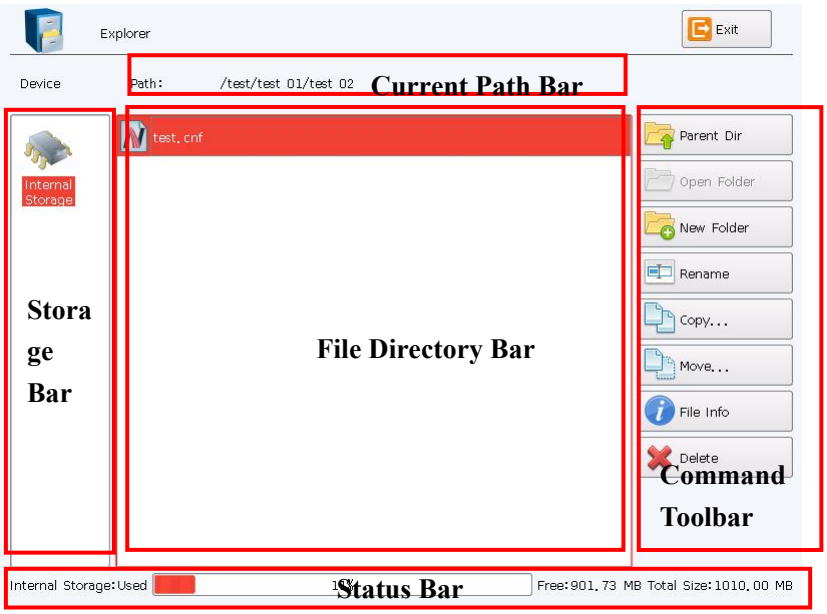
"admin" is the super administrator, with the highest root, the initial password is 111. After the super administrator successfully logs in,

click ... to change the password of super administrator.



After login, the current user name is displayed at the left bottom of the screen, click the user name again to log out or change password.

III. File Management



Click  in the main interface to enter the file manager.

"Storage Bar" displays the storage media available.

"File Directory Bar" displays the folder and file under current directory.

"Command Toolbar" displays the common file management commands.

"Current Path Bar" displays the path of current folder or file.

Command Tools:

"Parent Directory": Return to the parent folder from the subfolder.

"Open Folder": Open the selected folder.

"New Folder": Establish a new folder under current directory.

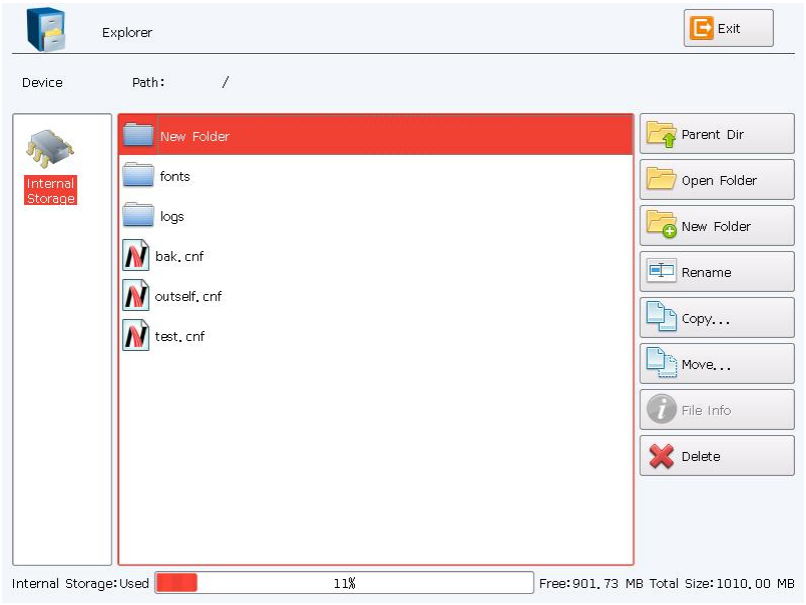
"Rename": Rename the selected folder or file.

"Copy…": Copy the selected folder or file to the designated directory.

"Move…": Move the selected folder or file to the designated directory.

“File Info”: View relevant information of the selected file, including “file name, file size, time of creation, last revision and last access”.

“Delete”: Delete the selected folder or file.

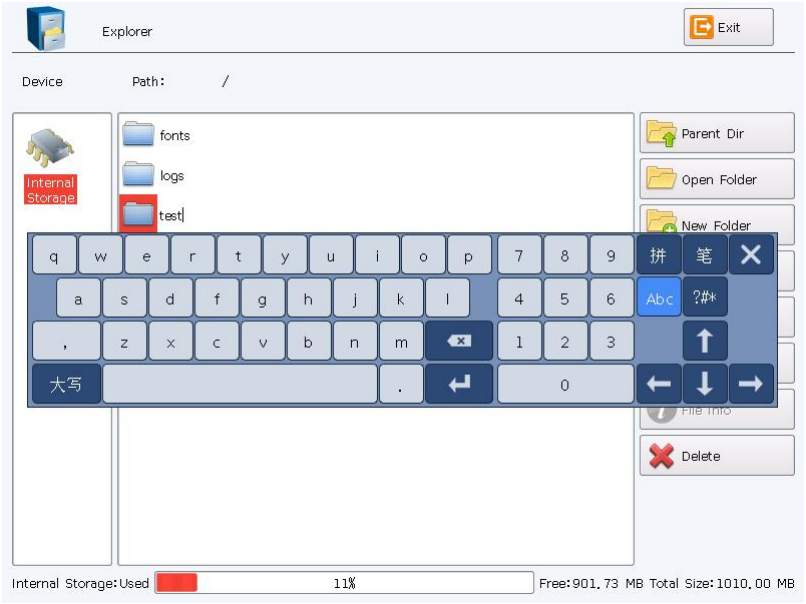


Parent Directory:

Return to parent directory.

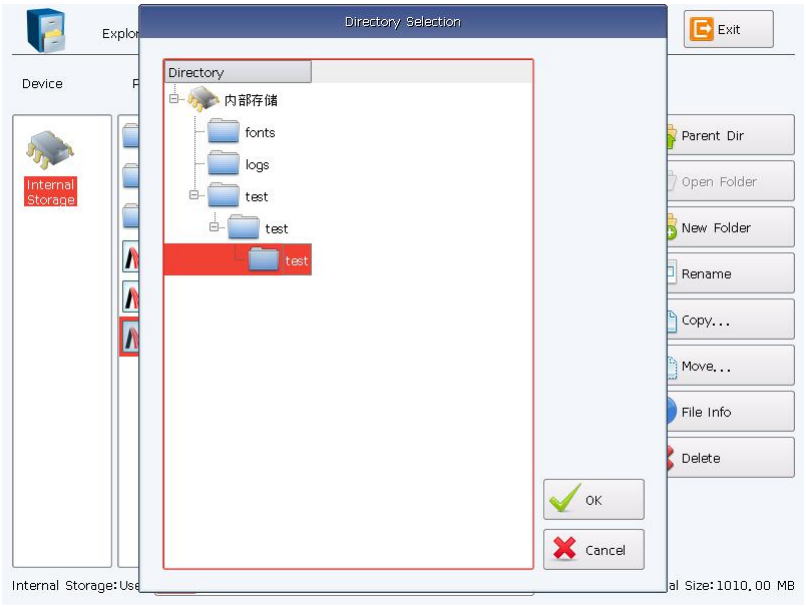
New Folder:

Click to create new folder, there is a “Unnamed Folder” in the File Directory Bar. At this time, the folder has been created.



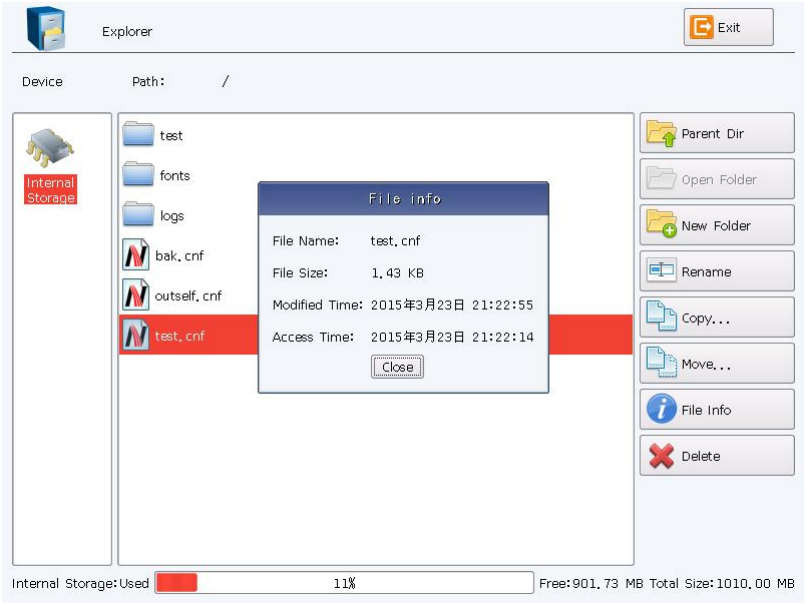
Rename:

Select the file or folder to be renamed and click rename in the “Command Toolbar”, and then click the name of file or folder to be renamed to pop out the Input Method Window and rename the file or folder.



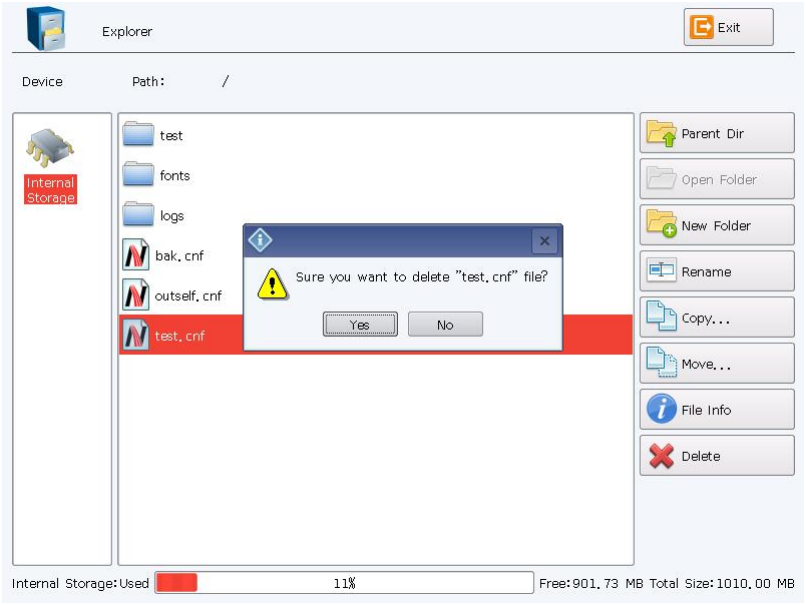
Copy/Move:

Select the file or folder to be copied or moved, click Copy…or Move… in the “Command Toolbar”, select the target path in the “Directory Selection” window popped out and click “OK” to complete the operation.



File Info:

Select the file for file information access, click File Info in “Command Toolbar” and the window popped out will display the file information.

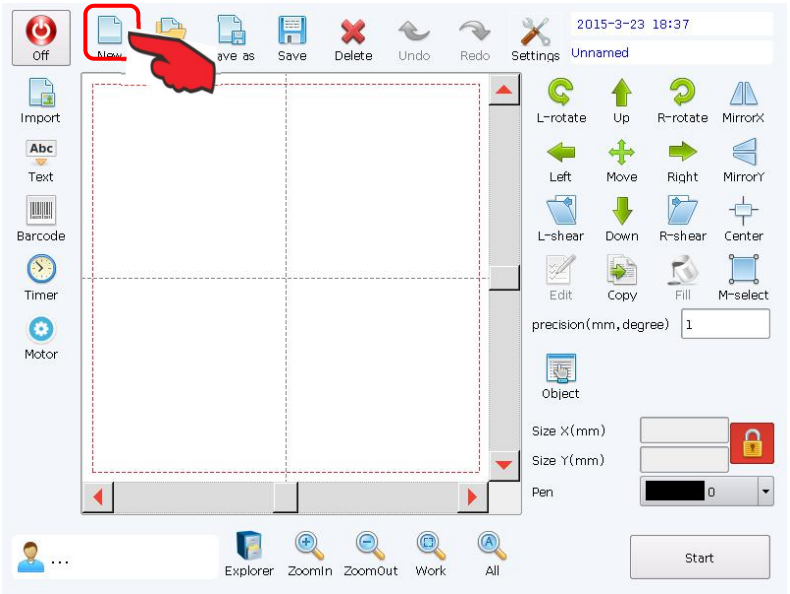


Delete:

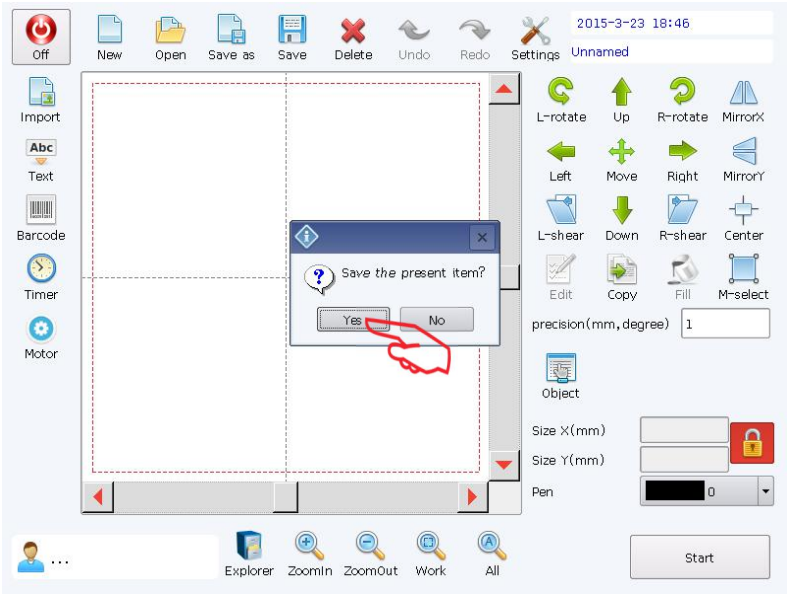
Select the file or folder to be deleted, click “Delete” in the “Command Toolbar”, and click “Yes” in the inqury window popped out to complete operation.

IV. System Toolbar

4.1 New

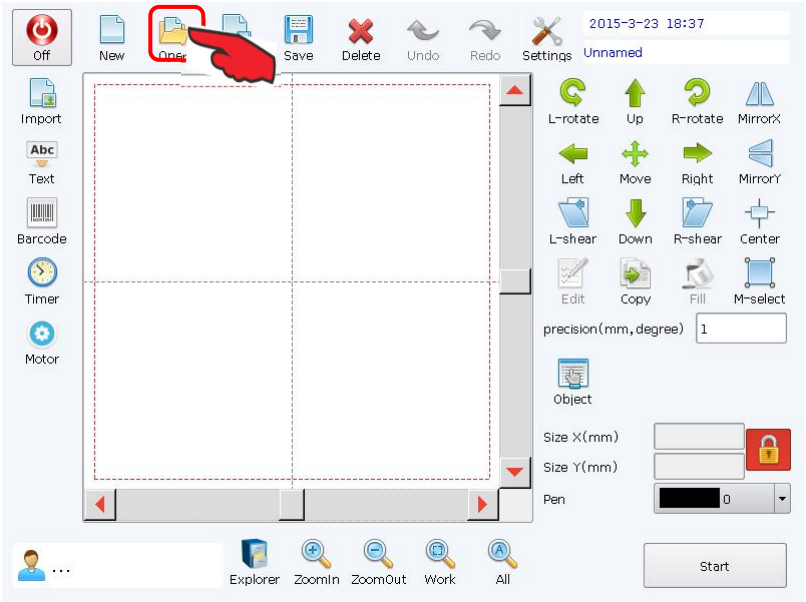



"New" is to create a blank workspace for adding marking content. Click "New", the software will automatically close the present item and create a new file.



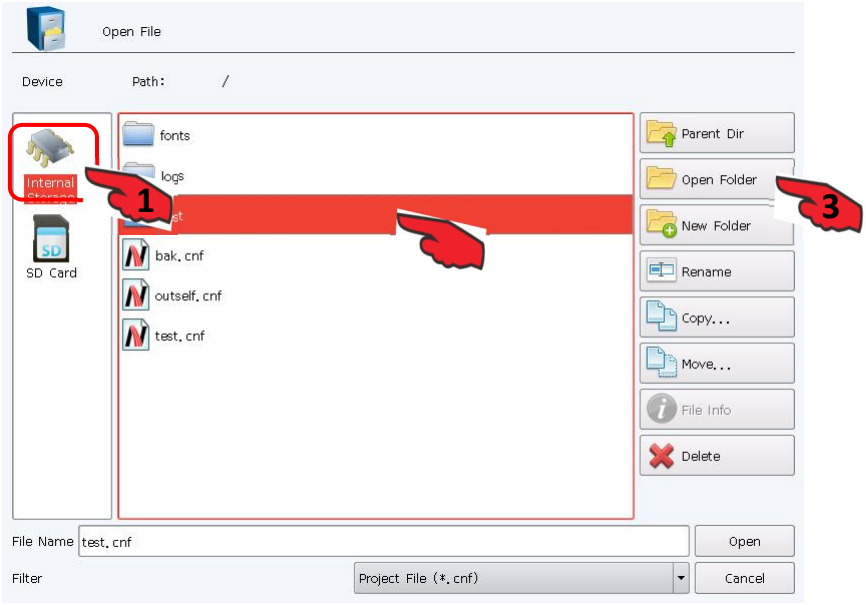
If the present item isn't saved, the software will prompt whether to save the present item, select "Yes" to save the present item or "No" not to save the present item.

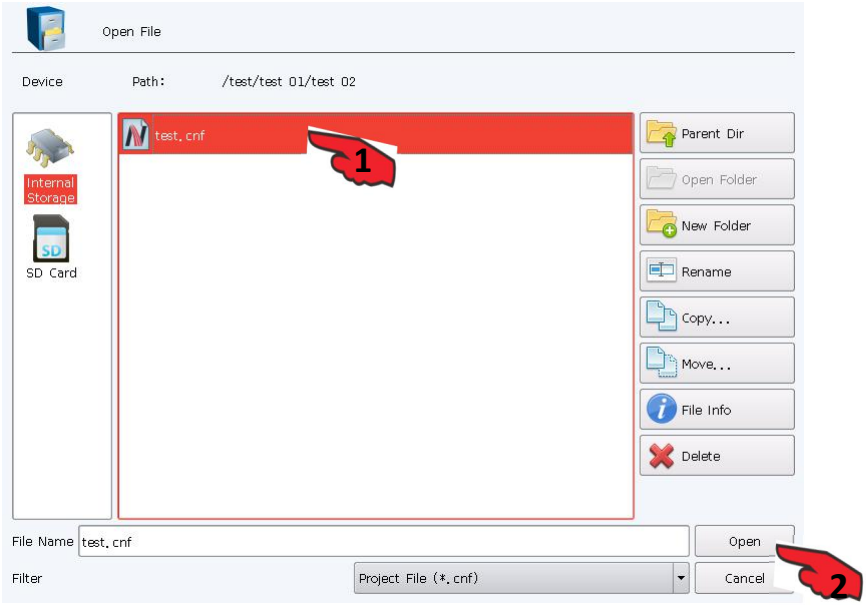
4.2 Open



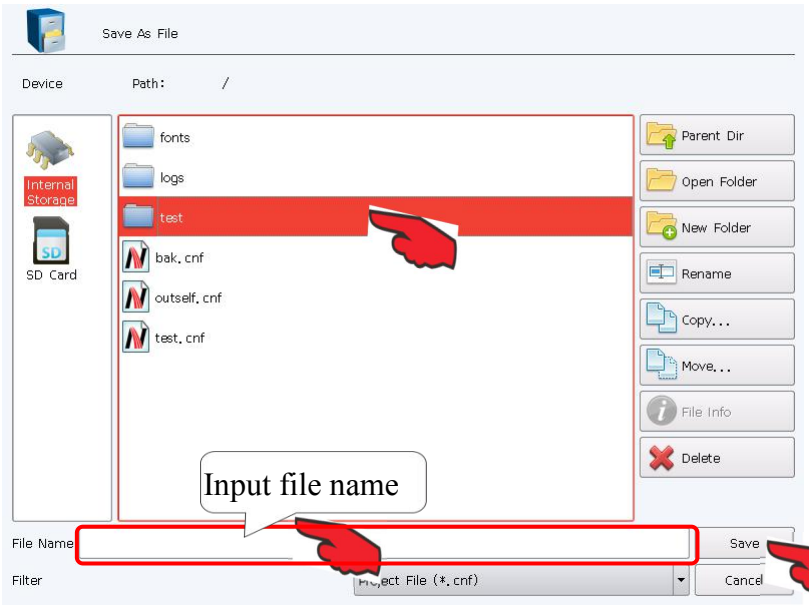


"Open" is to open .CNF file in the hard disk. Click "Open", the system will pop out a dialogue of open-file; select the file to be opened. Select corresponding storage device in the "Equipment" Column, select the file path, select corresponding file, and click "Open".


Open File
Device
Path:
/
Internal
SD Card
fonts
logs
bak. cnf
outself. cnf
test. cnf
Parent Dir
Open Folder
New Folder
Rename
Copy...
Move...
File Info
Delete
File Name
test. cnf
Open
Filter
Project File (*. cnf)
Cancel
1
3


Open File
Device
Path:
/test/test 01/test 02
Internal Storage
SD Card
test. cnf
Parent Dir
Open Folder
New Folder
Rename
Copy...
Move...
File Info
Delete
File Name
test. cnf
Open
Filter
Project File (*. cnf)
Cancel
1
2

4.3 Save and Save As




"Save" is to save the current marking file in the current file name;  "Save As" is to save the current marking file into another file name. Both can save files.

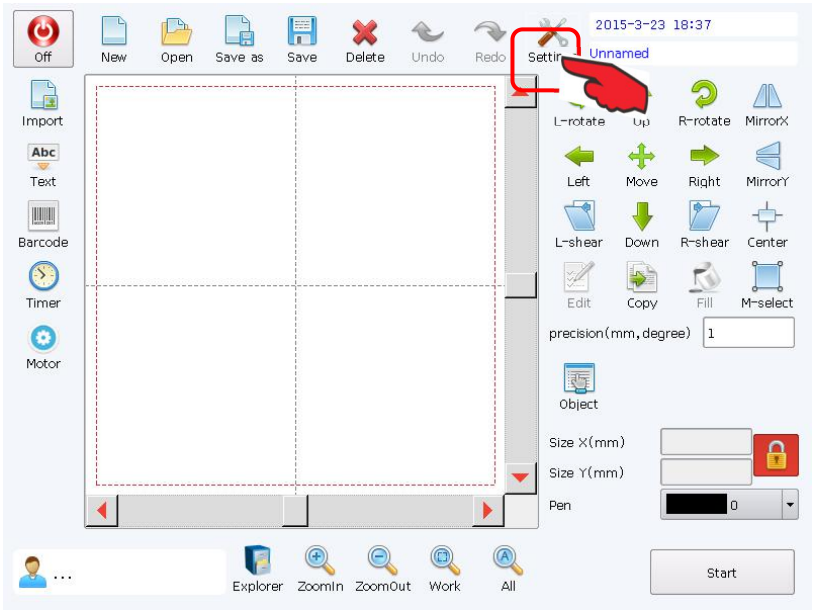
If the current file has a file name, click "Save" to save the current marking file in this file name; otherwise, a file dialogue will be popped out, you need to select the save path and file name of the file. No matter whether the current file has a file name, click "Save As", a file dialogue must be popped out, you need to input a new file name; at this time, the old file will not be covered.

4.4 “Delete” is to delete the selected object

4.5 Undo/Cancel is to cancel the previous operation

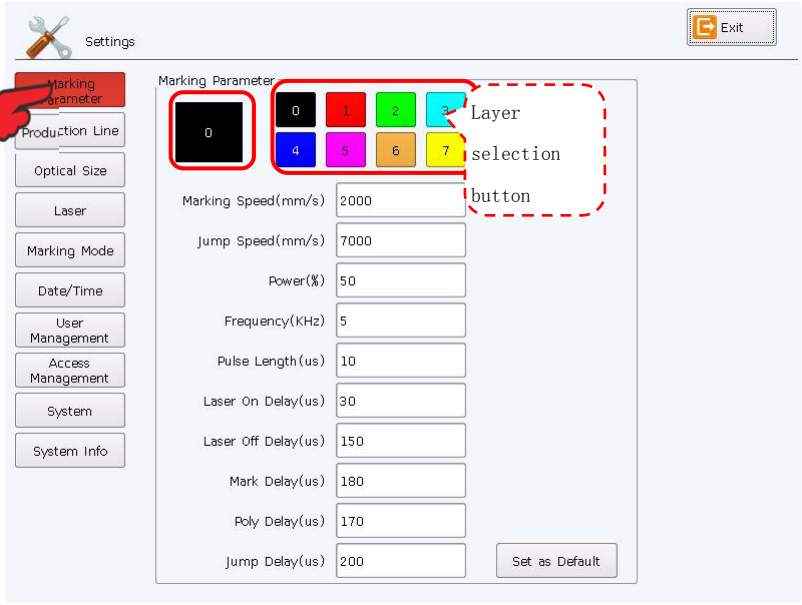
4.6 Redo/Rework is to redo the cancelled operation

4.7 Settings



“Settings” is to set the system parameters. You can use this command to set some features like display, user, etc. during program running.

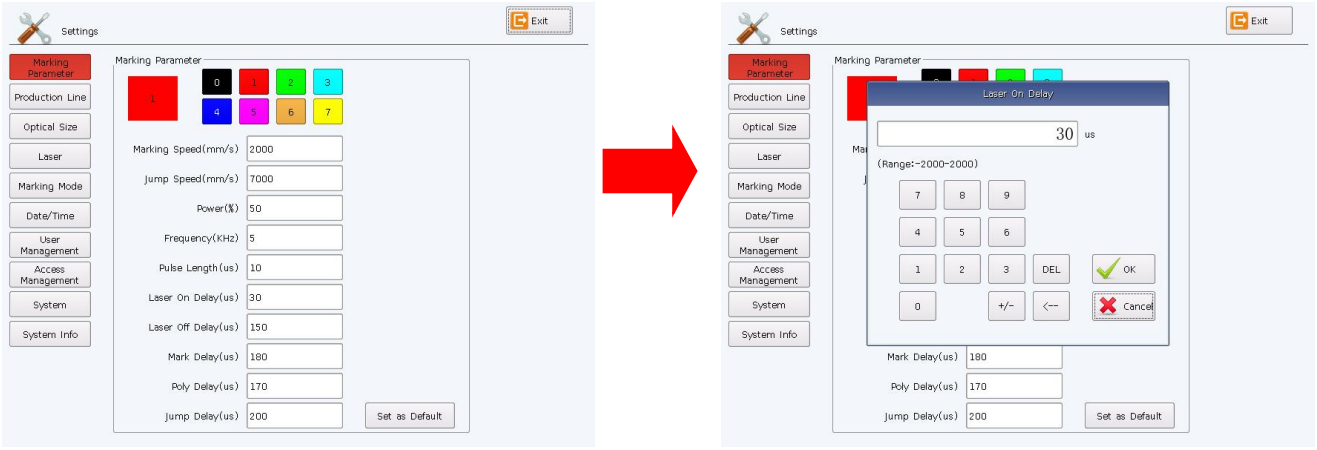
Click “Settings” to pop out a dialogue. In this dialogue, you can set the Marking Parameter, Production Line, Optical Size, Laser, Marking Mode, Date/Time, User Management and Access management, System and System Information, etc.

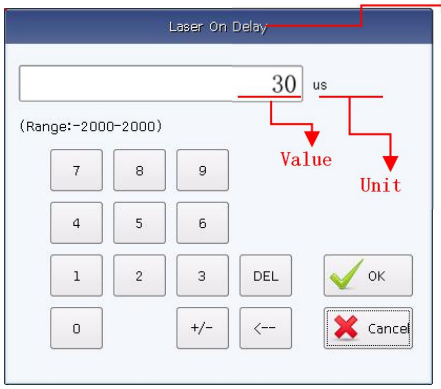


Marking Parameter: A color marks a parameter and different colors mark different marking parameters rather than the color of marking.

Selected layer: displays the color of the selected pen to be modified.

Layer selection button: Users select color corresponding to the object whose parameters need to be modified from the “Layer selection button” to modify parameters.





Current parameters to be modified

DEL Delete all current values

+/- Change of positive and negative value

<-- Delete characters in the left of the cursor

4.7.1Marking Parameters

Marking speed:

Definition: (Unit: mm/s). Refer to the oscillating speed of MirrorX and MirrorY in the scan head during laser marking. Range of (1-20,000mm/s).

Initial value of 10,000mm/s.

Application Method: Pay attention to the relation between speed and the power and frequency during adjustment; the faster the speed is, the higher the frequency is.

Parameter Feature: It directly influences the work efficiency. For bigger value, the marking time is shorter; for smaller value, the marking time is longer.

Jump speed:

Definition: (Unit: mm/s). Refer to the oscillating speed of MirrorX and MirrorY in the scan head during jumping. Range of (1-20,000mm/s).

Initial value of 10,000mm/s.

Application Method: It's the jump speed between strokes when controlling marking characters or patterns; which is the speed the mirror turns to the start point of the next character or the start point of stroke, after marking one character or moving to the last stroke, during which, there is no laser.

Parameter Feature: This parameter shall be combined with "Mark Delay" and "Jump Delay" to properly adjust the first stroke effect of marking characters.

Power:

Definition: (Unit: %). Refer to relative power of laser (actual power is subject to the energy of laser). Range of (1% -100%).

Initial value of 40%.

Parameter Feature: With other parameters remaining the same, the higher the power is, the greater the energy is, the darker the marking effect is and the deeper the trace is.

Frequency:

Definition: (Unit: KHz). Refer to the number of pulse in unit time, i.e. the number of spot generated per second. Range of (20KHz--500KHz).

Initial value of 20 KHz.

Application Method: The higher the frequency is, the more and dense the spots are arranged in the unit length. Proper spot space is good for effect adjusting.

Parameter Feature: With other parameters remaining the same, the lower the frequency is, the higher the peak power is; which has better direct gasification effect on materials. The laser effect reflected by high frequency is more close to the average power, i.e. it reflects more heat effect.

Pulse Length: Refer to the duration of maintaining the laser power at a certain value.

Parameter Feature: Under equal frequency, the higher the setting value is, the lower the peak power is.

Laser on Delay:

Definition: (Unit: μs). For laser delay, refer to the laser on delay to wait until the mirror completes command. Range of (-2,000-2,000μs).

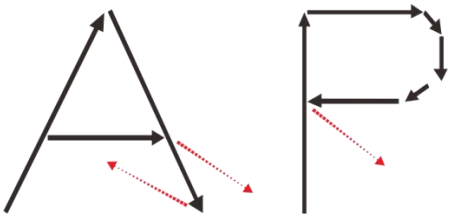
Initial value of 30μs.

Application Method: When the mirror jumps to the starting position of next character or pattern from the current arrest point, the mirror's response to the position signal may be later than the moment the signal is sent out by the system, so the Laser on Delay must be opened to wait until the mirror jumps to corresponding position and then send out laser. The

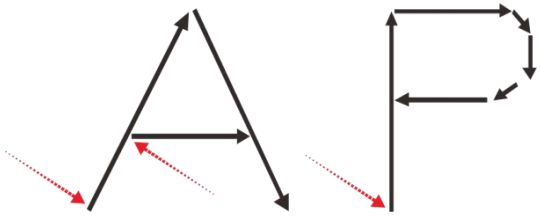
settings are related to the response time of laser. Generally, the value is positive. However, when the laser response time of laser is longer than the response time of mirror, the value shall be negative.
Proper laser on delay parameters can eliminate “overlapping point” or “tailing” at the beginning of marking. However, too long laser on delay may cause lacking of stroke in the starting section.

Laser Off Delay:
Definition: (Unit: μs). For laser delay, refer to the laser off delay to wait until the mirror responds to the last position command. Range of (-2,000-2,000μs).
Initial value of 200μs. If the selected mirror is fast enough or the marking speed is slow enough, the value can be smaller.
Application Method: As the laser’s response time to “laser off” is far shorter than the mirror’s response time to “final position” command, the Laser off Delay must be closed to wait until the mirror approaches the response position. This settings are related to the marking speed, which shall be matched with the setting marking speed. Proper laser off delay parameters can eliminate misclosure at the end of marking. However, too long laser off delay may cause “overlapping point” in the ending section.

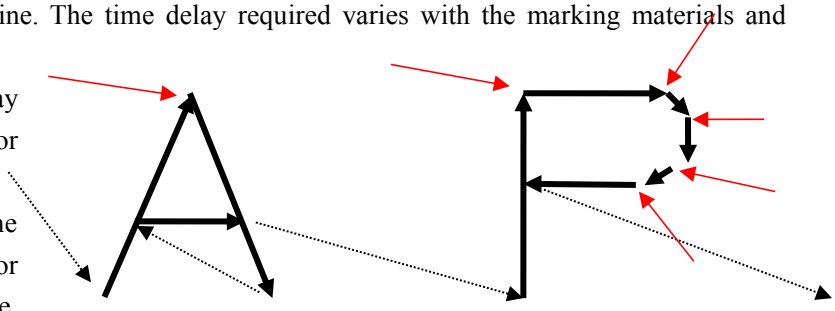
Mark Delay:
Definition: (Unit: μs). Refer to pen writing delay, delay of mirror signal and the delay from the last point of pen to the first point of jump.
Parameter Feature: Too short delay may cause “tailing” and slinging point between the previous writing and the next writing; Too long delay may seriously increase mark time, depending on the materials.


(Red arrows represents mark delay)

Jump Delay: Refer to the time delay for laser jumping between characters.
Parameter Feature: Too short delay may cause laser leakage and slinging point between the previous writing and the next writing; Too long delay may seriously increase mark time, depending on the materials.


(Red arrows represent jump delay)

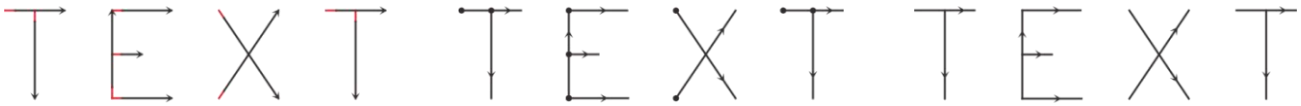
Corner Delay:
Definition: (Unit: μs). Refer to the time delay of mirror signal at the character corner. (Range of 30-200).
Initial value of 150μs.
Application Method: Time delay required for character corner or arc line laser marking. If the time delay is not proper, there may be burned black at the corner or arc line. The time delay required varies with the marking materials and marking speed.
Parameter Feature: It mainly refers to the time delay at corner for controlling laser marking character or pattern.
Too long time delay may cause dark spot on the laser marking character or pattern at the corner or the color at corner is darker than that of straight line. Too short time delay may cause a circular bead of laser marking character or pattern at the corner. The time delay is related to the marking speed. The faster the marking is, the longer the corner delay is.


(Red arrows represent corner delay)

Let's actually adjust these parameters:

Create a new marking file, add a fixed text "TEXT" with font of TXT.SHX, size of 50x11.8mm, and use arrows to simulate the direction of laser marking.

Mark the text and observe the line at the beginning of each segment of the mark letter, there may be three cases as below:



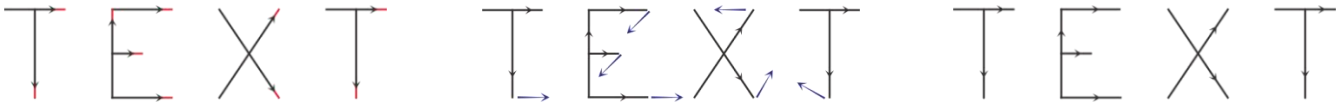
1 **2** **3**

Case 1: There is no laser on the line section of beginning end (red line is the line section without laser) as shown in the figure below. It's caused by too long laser on delay, so the laser on delay shall be shortened;

Case 2: There is "overlapping point" on the line section of beginning end as shown in the figure below, i.e. laser overlapping at the beginning section. It's caused by too short laser on delay, so the laser on delay shall be prolonged;

Case 3: The line is proper and there is no "overlapping point" as mentioned in Case 2, this is what we need and the laser on delay is proper.

Adjust the laser off delay: similarly, mark the above text and observe the line at the end of each segment of the mark letter, there may be three cases as below, which is similar to the beginning section:

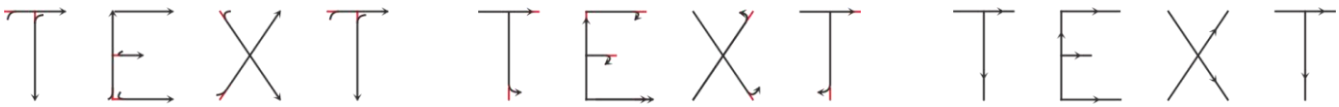


1 **2** **3**

Case 1: There is no laser on the line section of en (red line is the line section without laser) as shown in the figure below. It's caused by too short laser off delay, so the laser off delay shall be prolonged;

Case 2: There is "tailing" on the line section of end as shown in the figure below, i.e. laser overlapping at the end section. It's caused by too long laser off delay, so the laser off delay shall be shortened;

Case 3: The line is proper and there is no "tailing" as mentioned in Case 2, this is what we need and the laser off delay is proper.



1 **2** **3**

Case 1: The beginning line is deformed, at this time; the jump delay shall be prolonged.

Case 2: The ending line is deformed, at this time; the jump delay shall be prolonged.

Case 3: the beginning and ending line are not deformed, so the two delay parameters are proper. With no deformation of line, the lower the mark delay and jump delay, the better. Too long delay but normal line may cause the mark efficiency.

Adjust the corner delay:

Create a new marking file; add a fixed text "A4" with font of TXT.SHX, size of 24x12.7mm. Mark the text and observe the corner of character, there may be three cases as below:



1 2 3

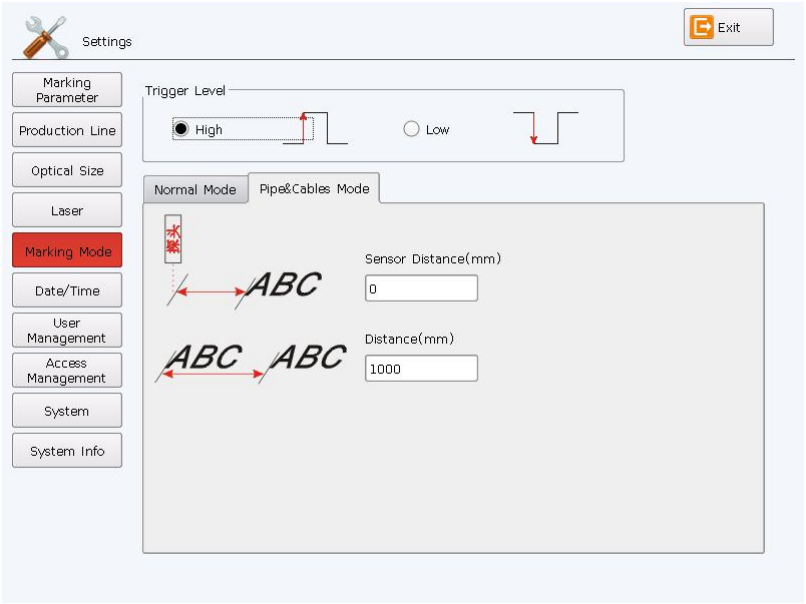
Case 1: As shown in the figure above, the graph with sharp angle required turns to arc angle. It's caused by too short corner delay, so the corner delay shall be prolonged.

Case 2: As shown in the figure above, the graph with sharp corner required turns to sharp angle but the top of right angle is overlapped by laser. It's caused by too long corner delay, so the corner delay shall be shortened.

Case 3: As shown in the figure above, the graph with sharp corner required turns to sharp angle, there is no top as overlapping point. So the corner delay is proper.

After the above parameter settings, these parameters can be used for marking. It's best not to modify the setting parameters, as the marking effect will be influenced after modification. Adopt similar method to establish and save other marking parameters. Thereafter, there is no need to modify parameters each time, just directly select the marking parameter required, which can greatly reduce the repeated work and improve work efficiency.

4.7.2 Marking Mode

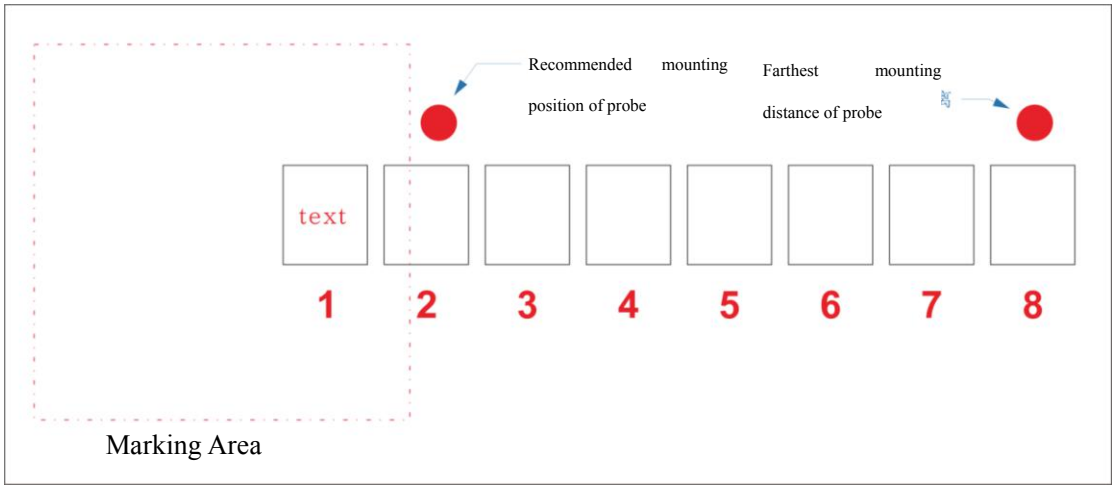


Trigger Level: Select high or low level of external trigger input, both of which are edge triggered (rising edge or falling edge trigger).

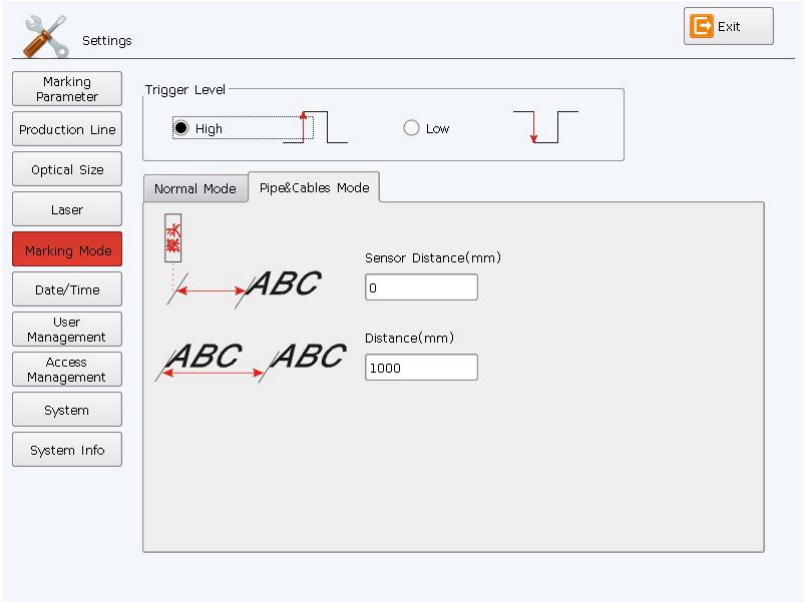
Normal Mode:

It's the most common marking mode in the production line, which supports single external trigger signal; each trigger will eject all contents in the plotting area.

Probe Distance: It's the distance between external trigger sensor and the first character of marking. Note: The distance between the external trigger sensor and the marking position shall be no more than 8 products. It's recommended to install the sensor out of the marking area but within 2 products.



The left figure shows the schematic diagram for installation of external trigger sensor under “Normal Mode”.



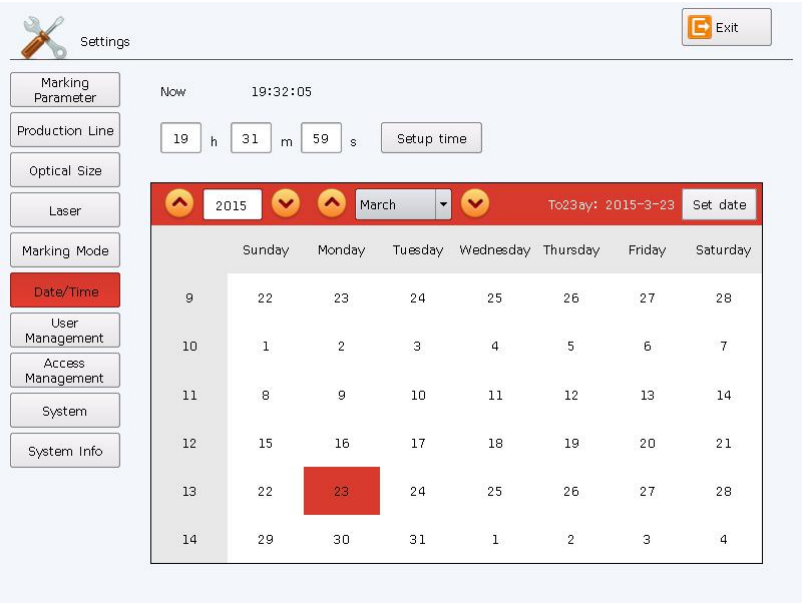
Pipe&Cables Mode:

“**Pipe&Cables Mode**” is to mark the cables and pipes.

Spacing Distance: Spacing distance of the marking content on the cables or pipes during repeated marking.

Note: It’s the distance between the first character of current marking and the first character of previous marking. The distance shall be longer than the full marking length.

4.7.3Date/Time



For setting date and time for the system

Time Settings:

Click "Hour""Minute""Second" to modify time and then click 

to confirm the modification.

Date Settings:

Year: Click " 

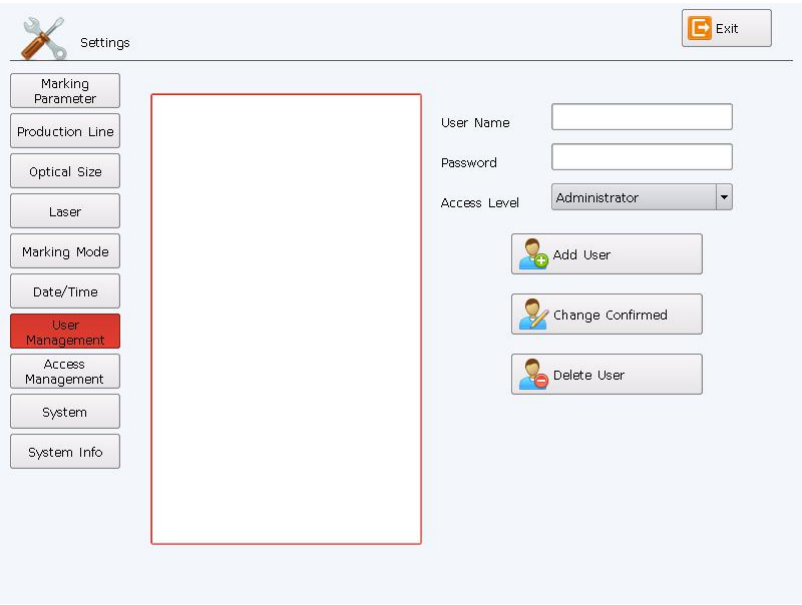
" and directly input the year or click "  " to roll up and down to select a year

Month: Click " 

" and directly select the month or click "  " to roll up and down to select a month, and then click 

to confirm the modification.

4.7.4User Management



Super administrator: admin

Initial password of super administrator: 111

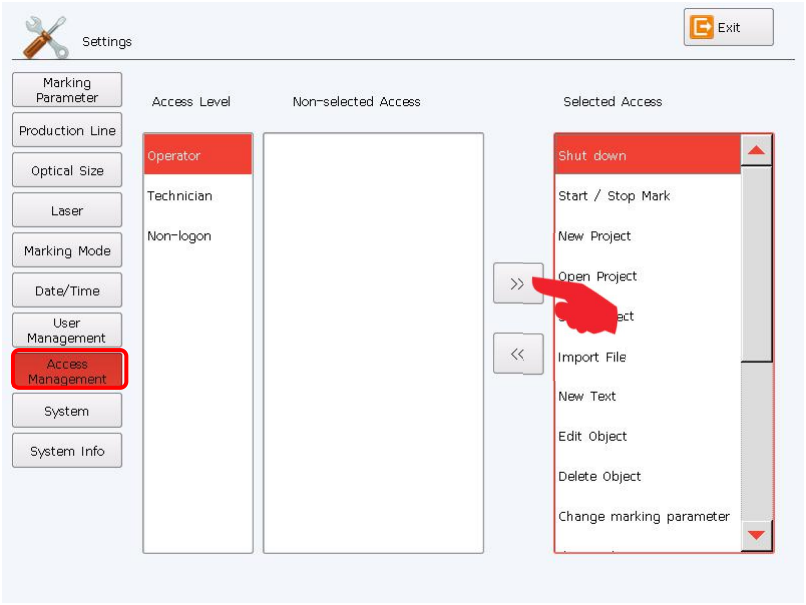
Mainly perform user management, including: add user, delete user and change user information. Functions are as follows:

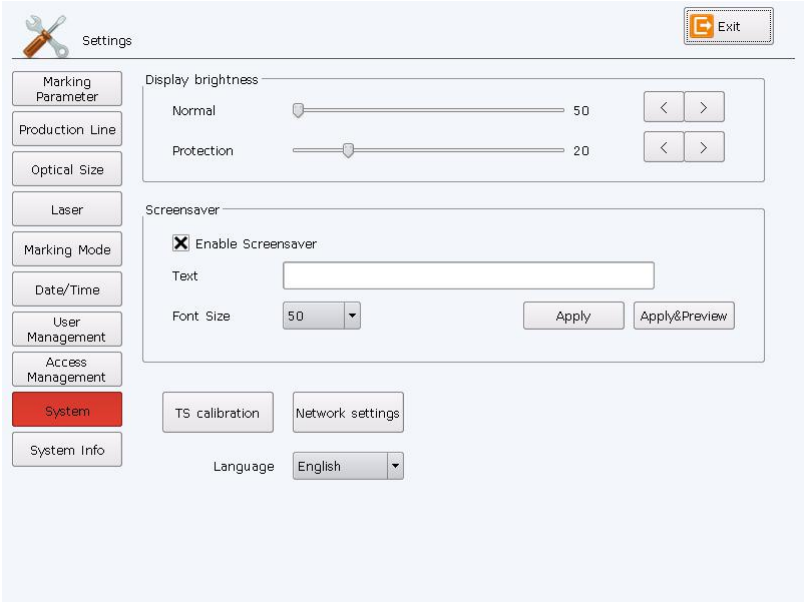
(1) Add user: The administrator can log in the system to add user.

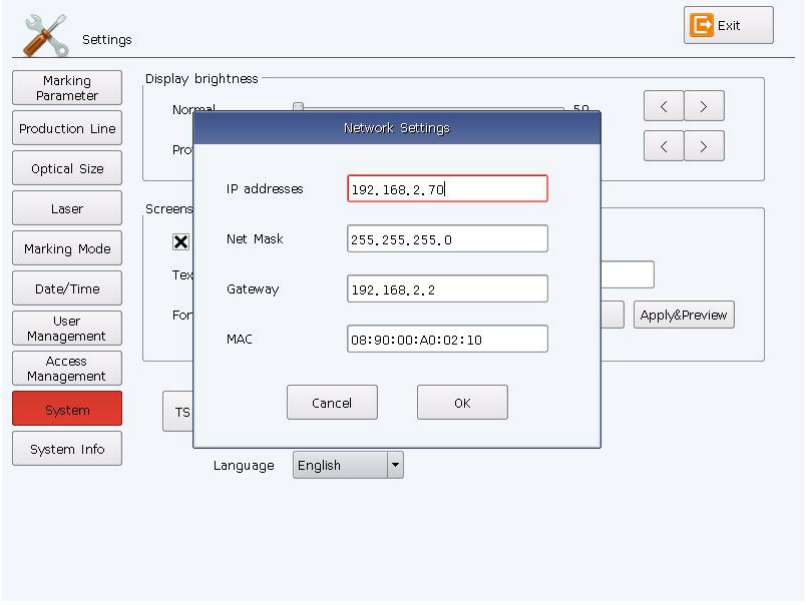
(2) Delete user: the administrator can log in the system to delete other users (but not to delete the current login user).

(3) Change user information. The administrator can log in the system to change user information.

The normal user can only log in the system to do operation within the access level and query user as per conditions.







4.7.5Access Management

Only the administrator can log in the system to change the user access.

A. Add access:

a) Select the username whose access needs to be changed

b) Select the access to be added in the "Non-selected Access"

c) Click » to add corresponding access

B. Delete access:

a) Select the username whose access needs to be changed

b) Select the access to be deleted in the "Selected Access"

c) Click « to delete corresponding access

4.7.6System Settings

Display brightness:

Normal brightness: Brightness percentage under normal operation (range of 50-99)

Protection brightness: Brightness percentage under screen protection mode (range of 1-99)

Screensaver:

Text: Input any text to be displayed under screen protection mode

Font Size: Set the size of screen protection text

After setting, click "Apply&Preview" to preview the text.

TS Calibration: Calibrate the touch screen in case of click deviation.

Network Settings:

This equipment can be used for networking. Necessary operation can be done on the equipment in the operating room.

IP addresses: Manually assign an IP addresses in LAN IP section for the equipment.

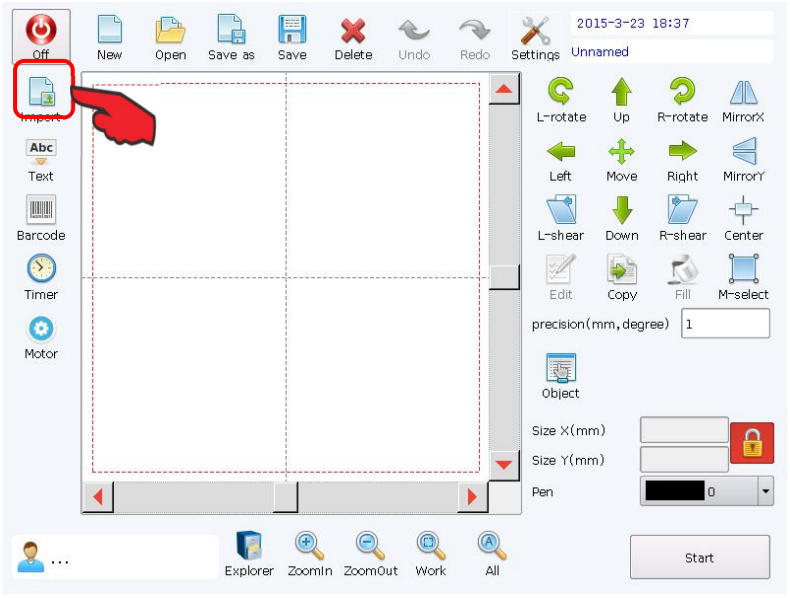
Net Mask: Usually: 255.255.255.0

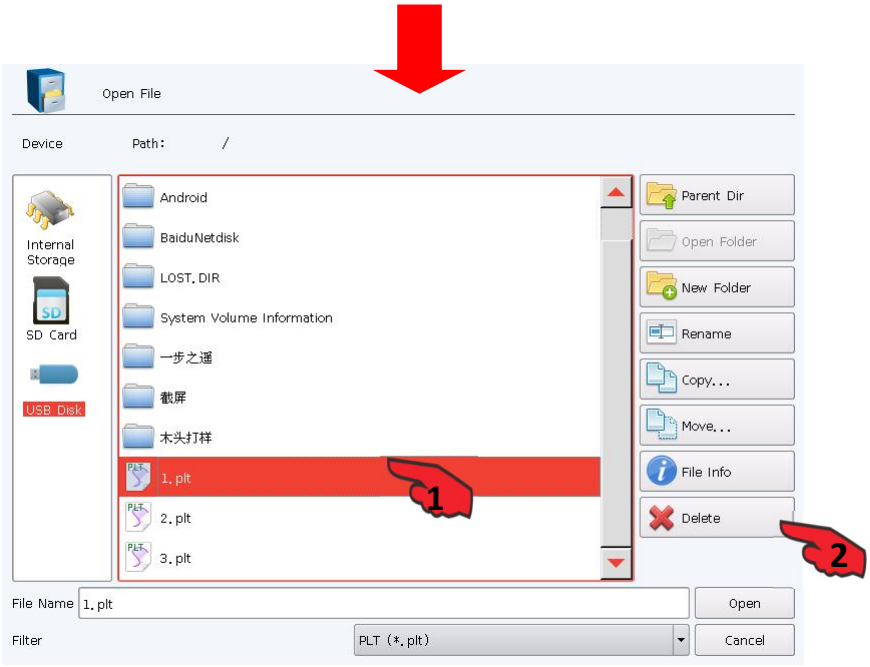
Gateway: Please fill in the IP addresses of the LAN router.

MAC: Network card number. If the preset value is not the same as any number of the host in the LAN, no change is needed; in case of repetition (there are two or above control systems of this version in the same LAN), randomly change several figures).

V. Object Adding Bar

5.1 Import Vector Files



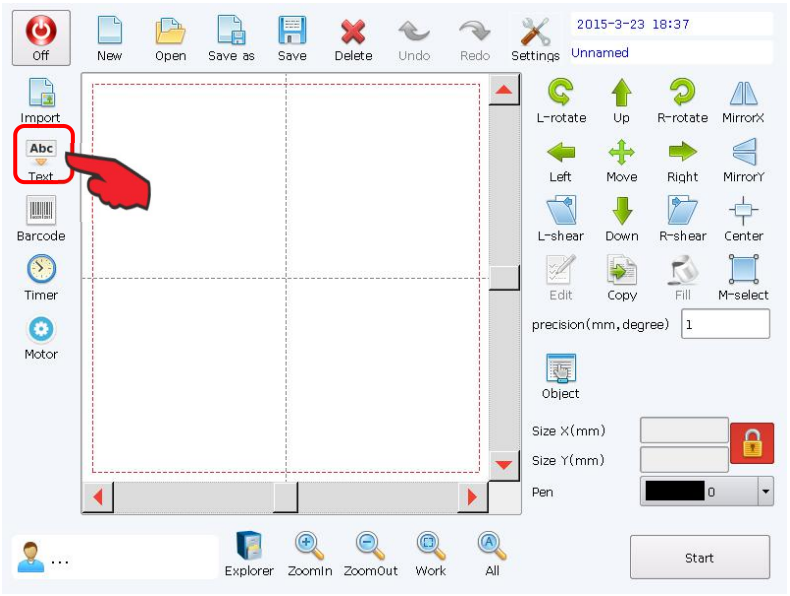


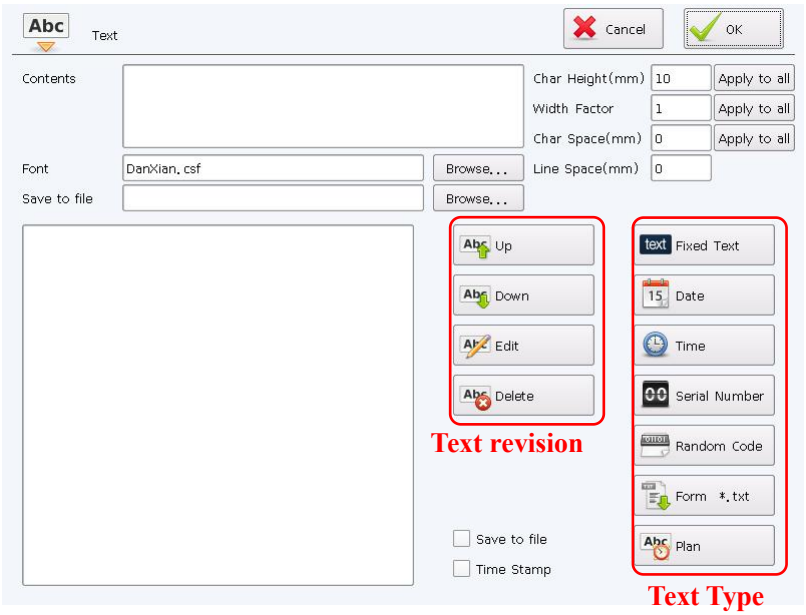


Import Vector Files

Open a ".plt" file saved on the storage. Click "Import", the system will pop out a dialogue of importing file and select the file to be selected. Select corresponding storage equipment in the "Equipment Bar", select corresponding file path, select the file with postfix of ".plt", and click "Open" to import the file to the working area.

5.2 Add Text





Create a text object

Click " " to pop out the text editing interface, and click the right "text type" to add corresponding text type.

Fixed Text: Fixed text during marking.

Date: Text with date information automatically obtained from the system during marking.

Time: Text with time information automatically obtained from the system during marking.

Serial Number: Text varying at fixed increment during marking.

Random Code: Text automatically generated in the system during marking.

Import from File: Read the text to be processed line by line from the text during marking.

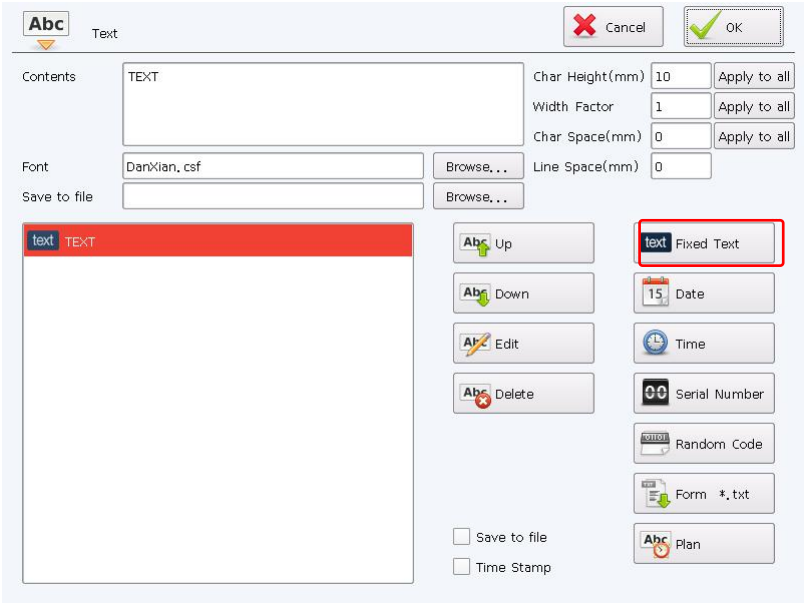
Up/Down: Move the selected text up/down and adjust the text order.

Save to File: Tick it to save the marking content in a .txt file.

Time Stamp: Tick it to add the marking time (Y/M/D/H/M/S) before each record in the .txt file with marking content.

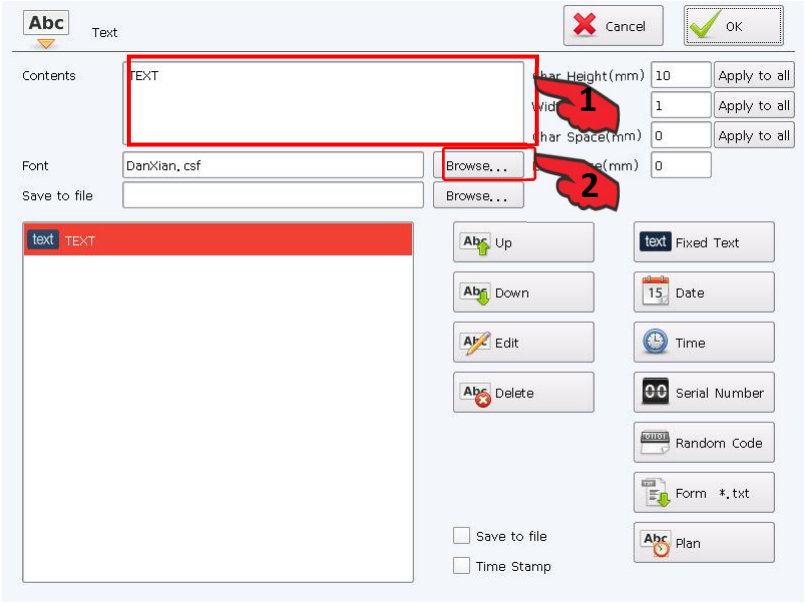


Fixed Text:



Click 

, “Fixed Text” will be automatically generated in the left column and the default content is “TEXT”.



。Select the “Contents”, click the text and edit the text on the soft keyboard popped out.

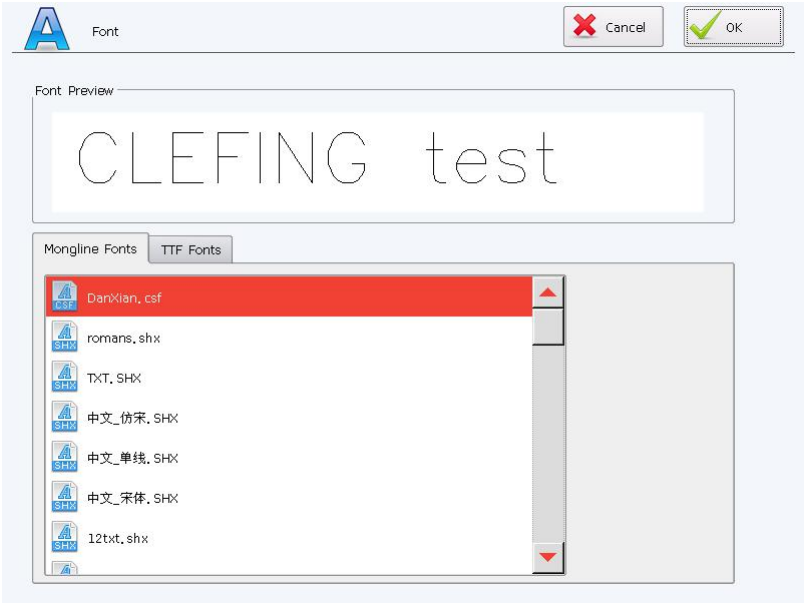
Click “Browse” at right to change the font of current text.

Char Height: Height of the current text font displayed.

Width Factor: Proportion between heightand width of font, i.e. (height/width).

Char Space: Space between characters.

Line Space: Space between lines.

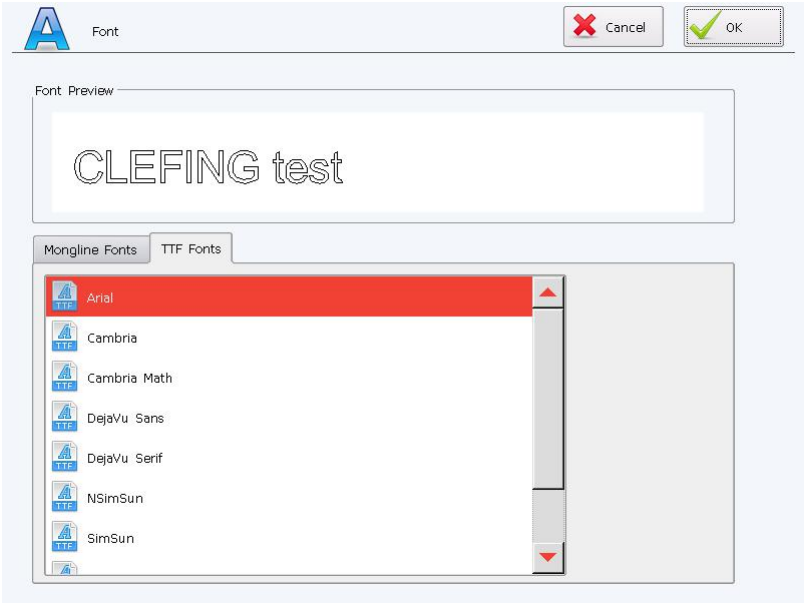


There are two types of fonts in the system settings: Mongline Fonts and TTF Fonts. To add font, please copy font file in the U disk to “fonts” of Internal Storage.

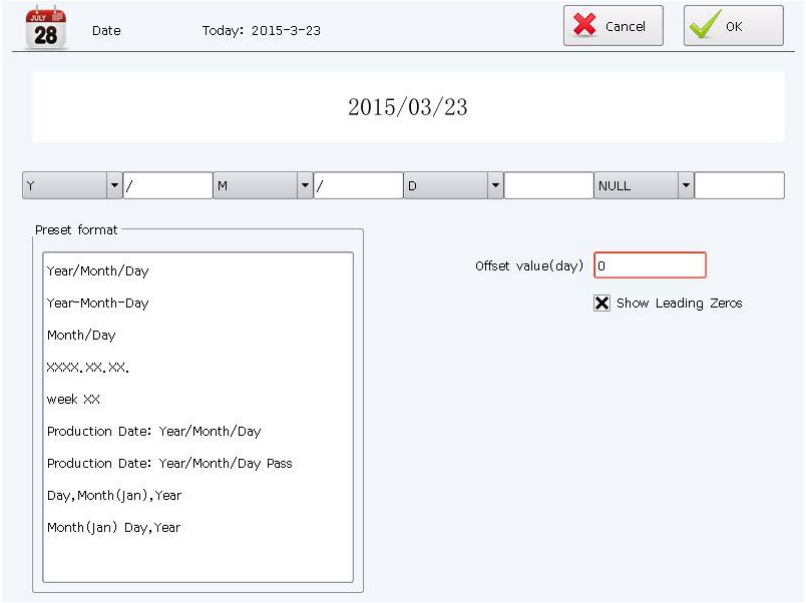
Mongline Fonts are mainly SHX fonts, excluding letter, figure and punctuation mark in Chinese fonts; while excluding Chinese character in English fonts.

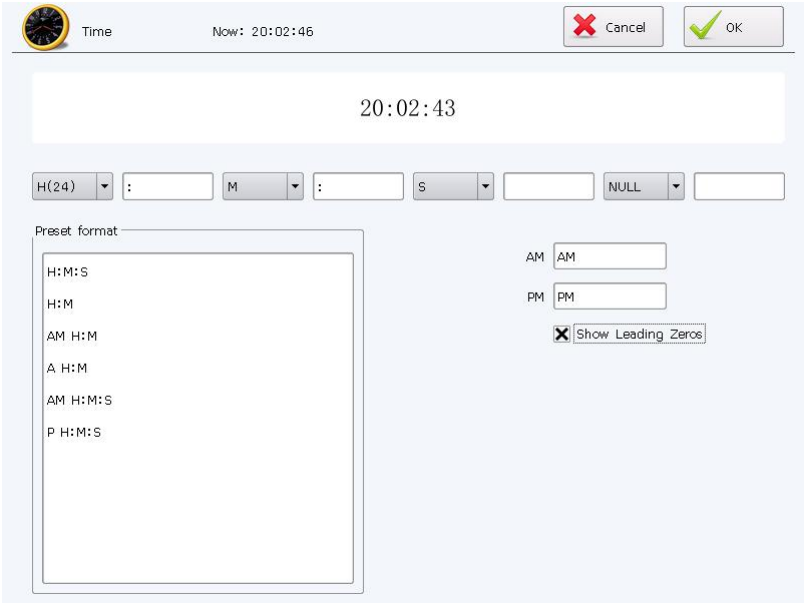
The font with postfix “CSF” in mongline fonts is special for this system, including Chinese, English, figure and punctuation mark. The height of Chinese and English fonts is the same.

TTF fonts are mainly double-line fonts.



Note: When selecting fonts, the fonts not displayed in the preview box have no characters required, so other fonts shall be applied; otherwise, the working area may not display this character.





Date Code:

Date code is the information text automatically accessed by the system during marking. When the user selects the date code, the text dialogue will automatically display the parameter definition of date code.

The system provides various date formats, so the user also can click Y solid button with the letter to change the format and click / hollow button to add any character in the Date Code.

Date Offset:

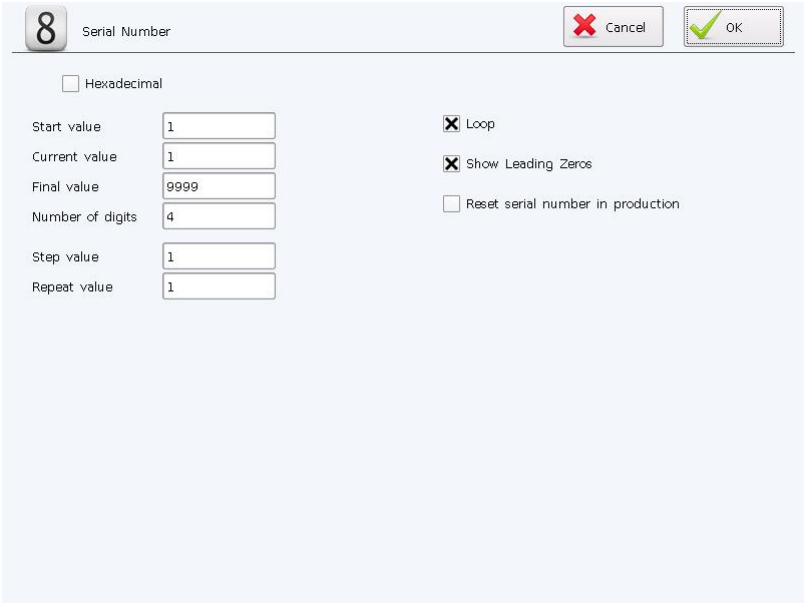
To mark expiry date, we may use “date offset” with unit of “day”.

For example, the expiry date of a product is 180 days. So we need to fill in 180 in "Offset value", otherwise, it may not display the date required or the date may not normally change with the system date.

Time Code:

The system provides various time formats, so the user also can click H(24) solid button with the letter to change the format and click : hollow button to add any character in the Time Code.

Period: Divide 24 hours into two periods (AM





and PM), in each period, the user can customize a text. For example, change the right period (AM) into “morning” and change the right period (PM) into “afternoon”, so it displays “morning” or “afternoon” after the period is added.

Serial Number:

Hexadecimal: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F and letters will jump the step in the form of 16 in 1.

Start value: The current first number of marking.

Current value: Current number of marking.

Final value: Max. number of marking.

Number of digits: Digit number of the marking.

Step value: Increment of the “Current value”. It may be negative, which means the serial number is decreasing progressively.

When the increment of “Current value” is 1 and “Start value” is 0000, the next value will be 1 plus the previous value, such as 0001, 0002, 0003……9997, 9998, 9999. When the increment of “Current value” is 5, the “Start value” is 0000, the serial number is 0000, 0005, 0010, 0015, 0020, 0025…and so on.

Marking time: The serial number can be changed until the specified marking times are reached. And the serial number can be changed again until the specified marking times are reached, being a circulation.

Loop: The serial number automatically returns to the start value for marking operation after specified marking times are reached. For example, the “current value” is 9999 and the “start value” is 0001; when the number is 9999, the system will automatically return to 0001.

Leading Zeros: When the digit of “current value” is less than the preset digit of “serial number”, the system will automatically add corresponding digit of “0” in the front to reach the same digit of “serial number”. For example, when the “current value” is 1, the digit is “5”, tick the Leading Zeros, the number is “00001”, not tick the Leading Zeros, the number is “1”.



Random Code:

The figure or capital and lowercase letter generated randomly by the system shall be the marking content.

The format can be randomly arranged. "*" represents figure, "@" represents lowercase letter, and "#" represents capital letter. Letter and figure represent the fixed letter or figure.

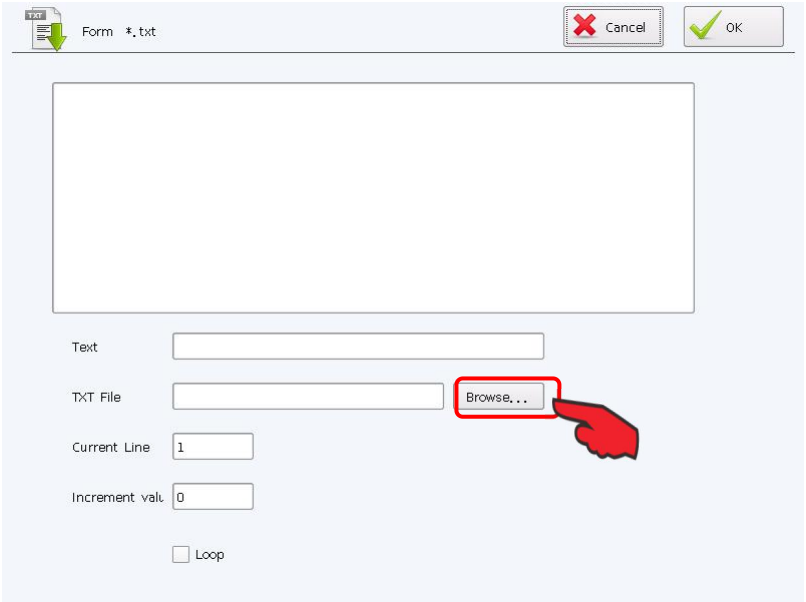
E.g.: "******" represents six random number

"******9" represents six random numbers and a fixed number "9".

"**##@@" represents the random code in the format of "figure figure capital letter capital letter lowercase letter lowercase letter".

The format of common random security code: ****** ******

****** ******



Import from File:

The system reads content of text file with postfix of ".txt" as the marking content.

The system reads file by "Line" as the one-time marking content.

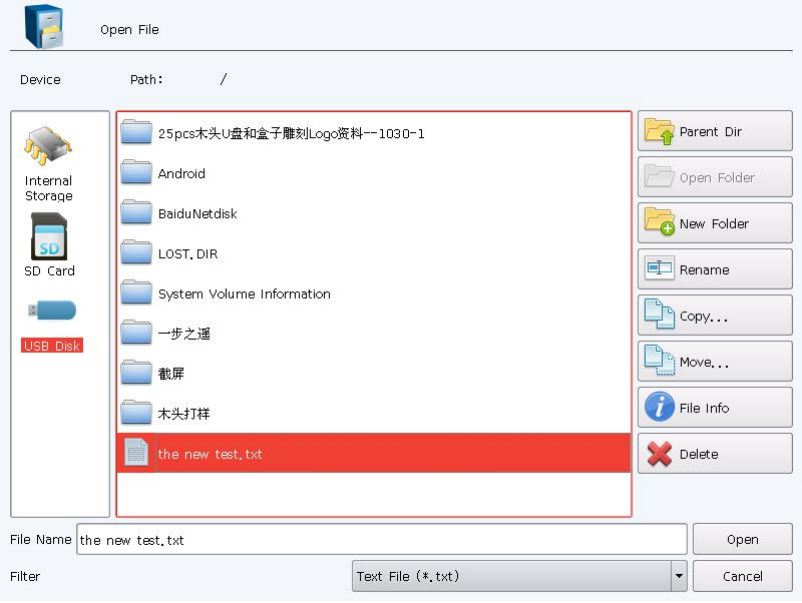
Text: Current marking content.

TXT File: Display the current file path and file name imported

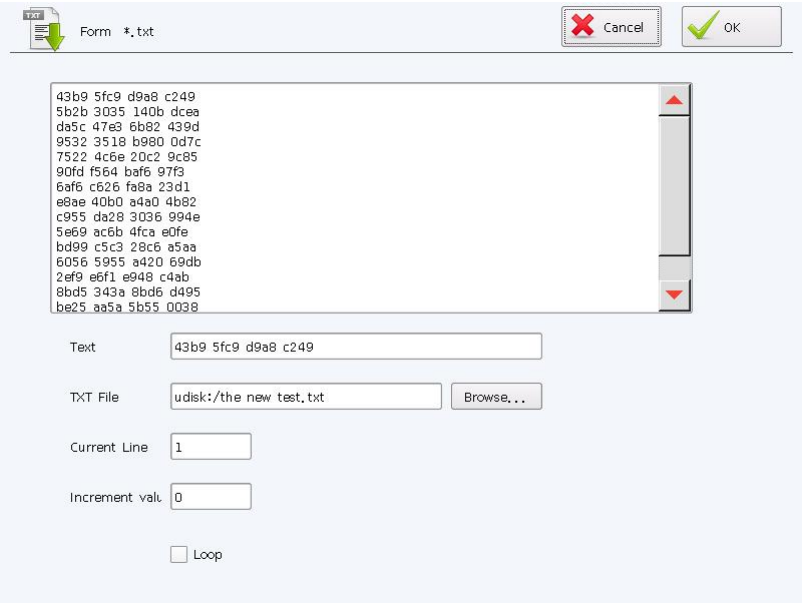
Current Line: The line number of the file with current marking content

Increment value: Set the line interval of reading.

Loop: After reading the text, repeat from the 1st line.

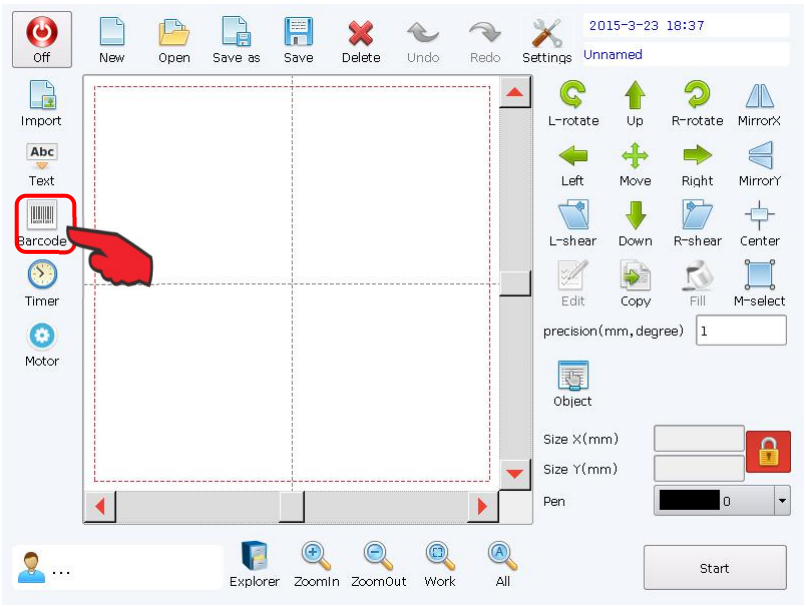


Click  to file selection interface and select related ".txt" file (only support txt file)



Please note: The display window only displays the front part of text, not the complete text.

5.3 Add Barcode





Create the barcode object.

Bar-code Type: Display the type of current bar-code

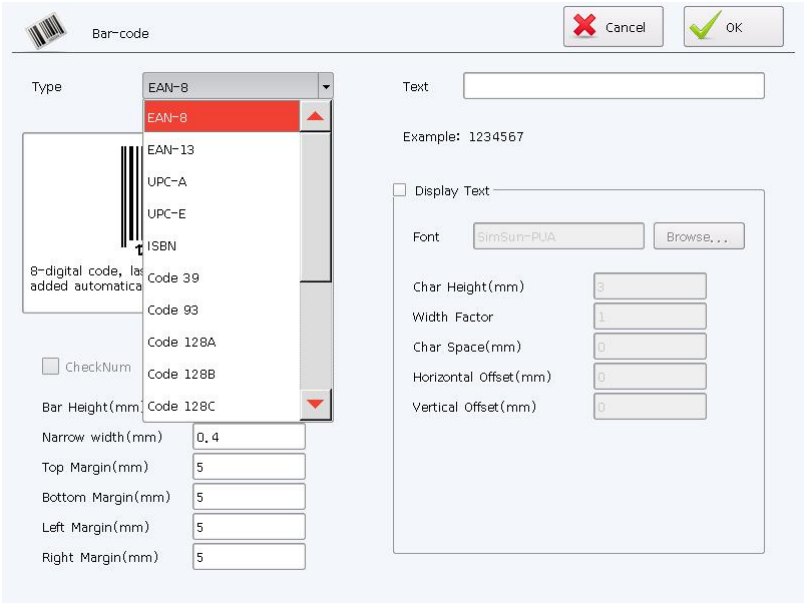
Bar-code Image and Description: The image displays the appearance of bar-code corresponding to the bar-code type, and format description of current bar-code. If the user is not clear about the format of current bar-code, please carefully read the barcode-description to learn the legal characters to be added.

CheckNum: Whether the current barcode needs checknum. The user can choose whether the barcode needs checknum.

Invert: Invert marking. Some materials are in light gray after invert marking, so this box must be ticked.

Bar Height: Bar height.

Narrow Width: Width of the narrowest module, i.e. width of the benchmark module.



Text: Text of the barcode currently generated, please input text as per barcode rules.

Display Text: Whether to display identifiable character (tick it to display).

Font: Display the font of text below the barcode.

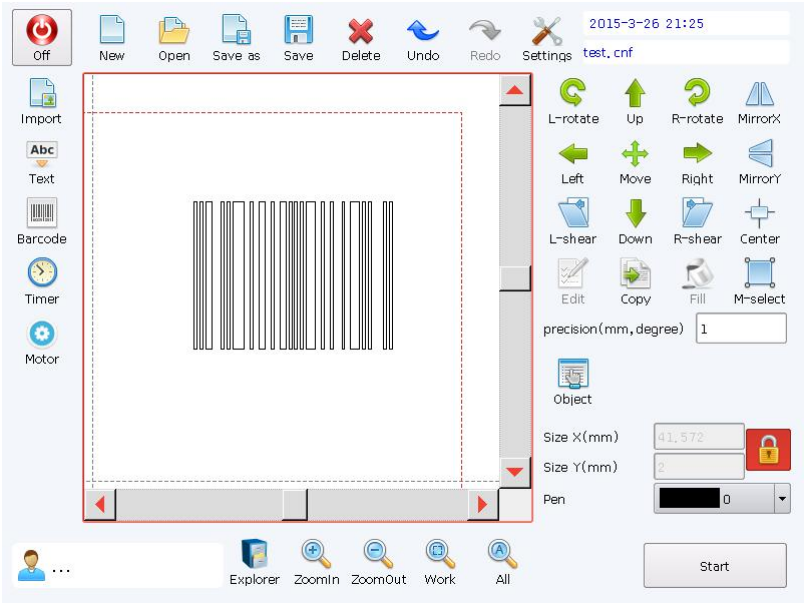
Char Height: Character height of current text.

Width Factor: Proportion between heightand width of font, i.e. (height/width).

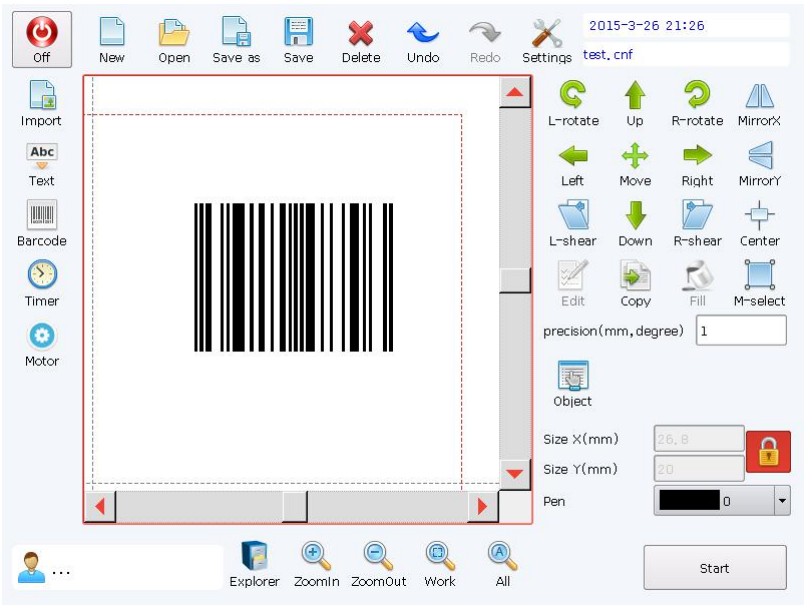
Char Space: Space between characters.

Horizontal Offset: Left/right offset of text relative to the bar-code

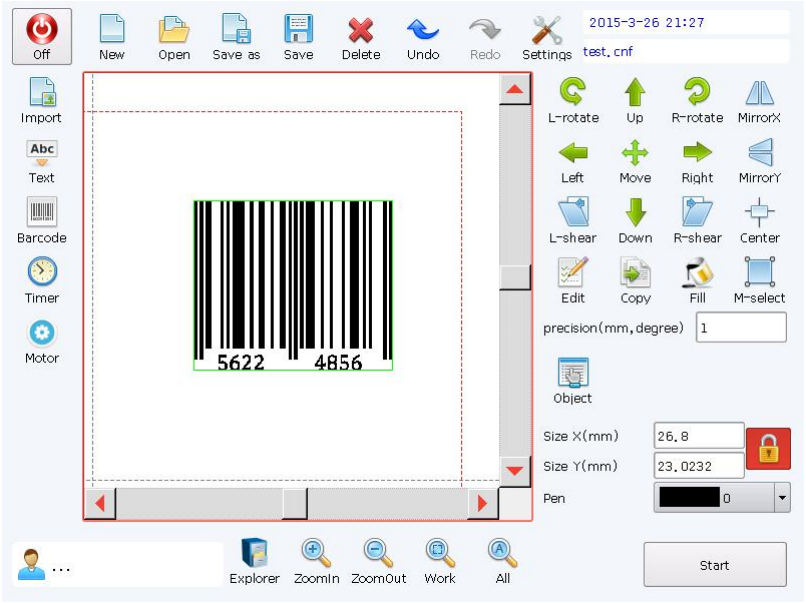
Vertical Offset: Up/down offset of text relative to the bar-code



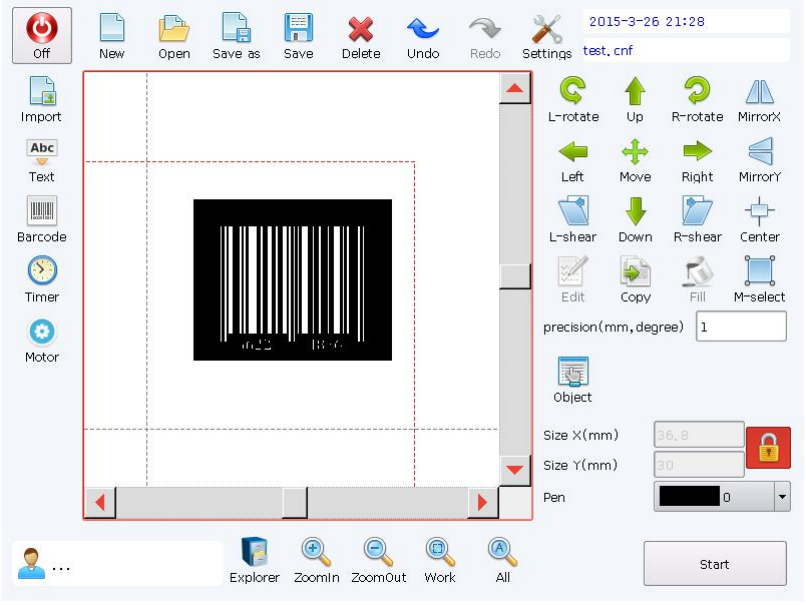
The left figure shows the outline border of bar-code generated.



The left figure shows the filled barcode. It's recommended to select 90º when filling, but not tick "Outline".

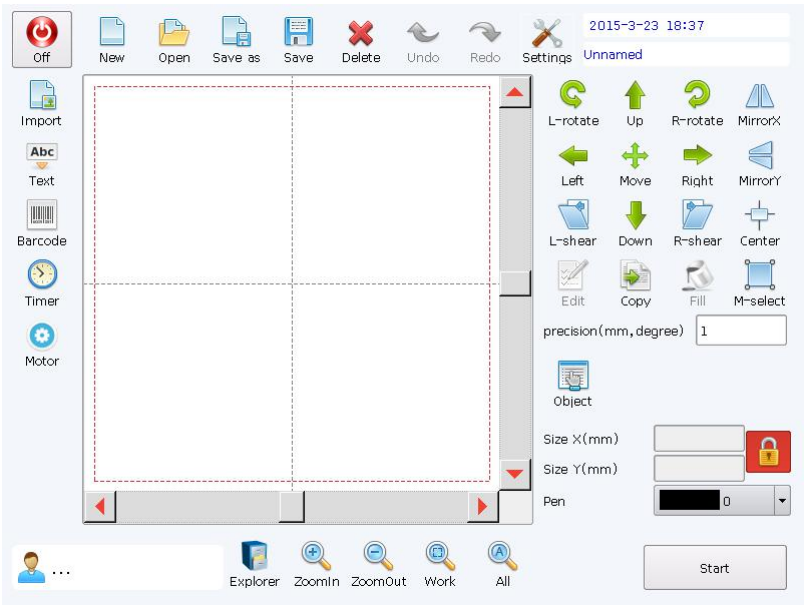


The left figure shows the filling effect of barcode after the "Display Text" is ticked.

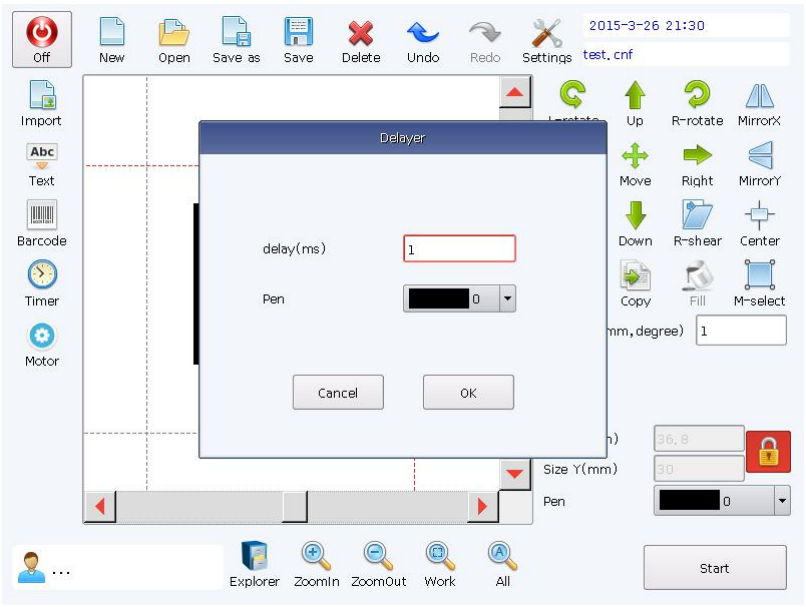


The figure shows the filling effect of barcode after the "Invert" is ticked.

5.4 Delayer

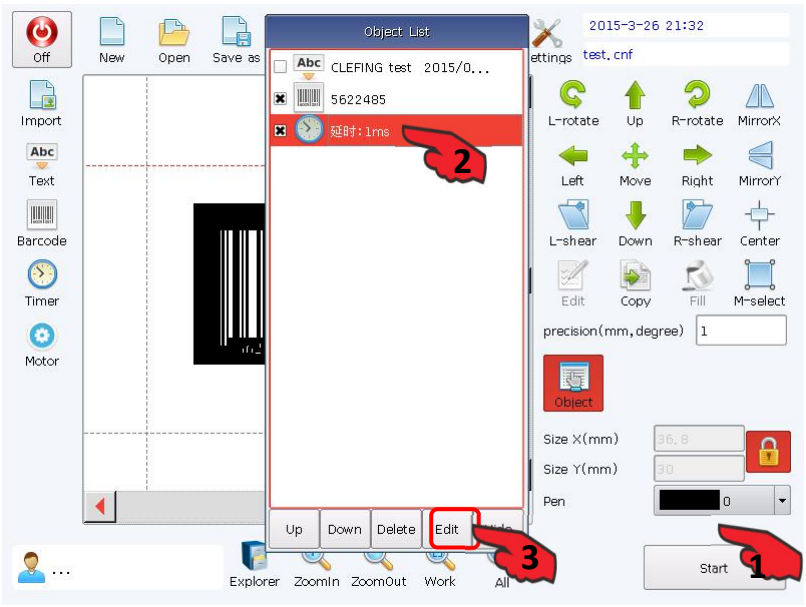


Create the delayer object.



During marking, as required, add a delayer, with unit of “ms”, 1s=1,000ms=1,000,000us.

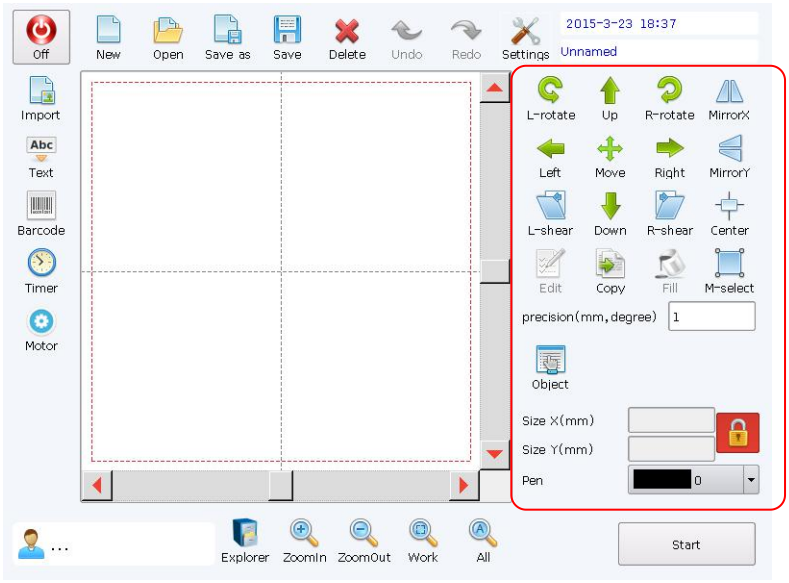
Only view the delayer in the “Object List” after adding it.

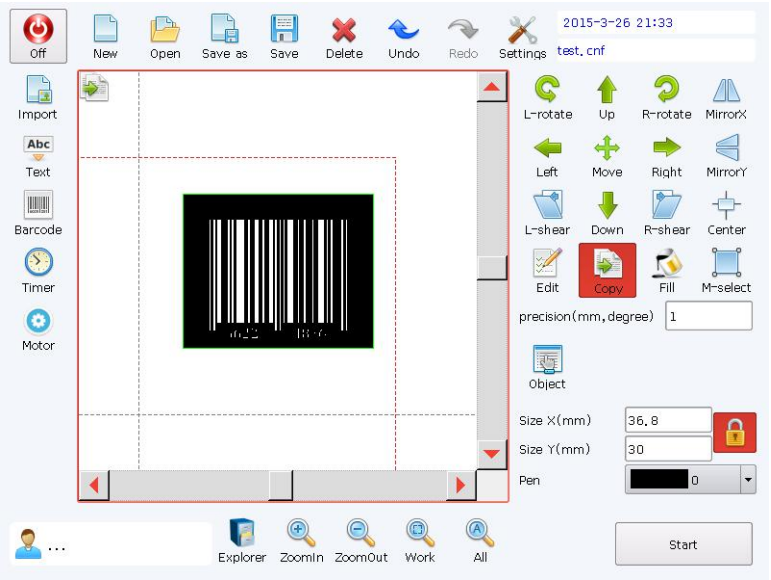


To change the delayer, select the delayer to be changed from the “Object List”, and then click “Edit” at the bottom of the “Object List” and then change the delay value in the window popped out.

To delete the delayer, select the delayer to be deleted from the “Object List” and tehn click “Delete” at the bottom of the “Object List” to delete the delayer.

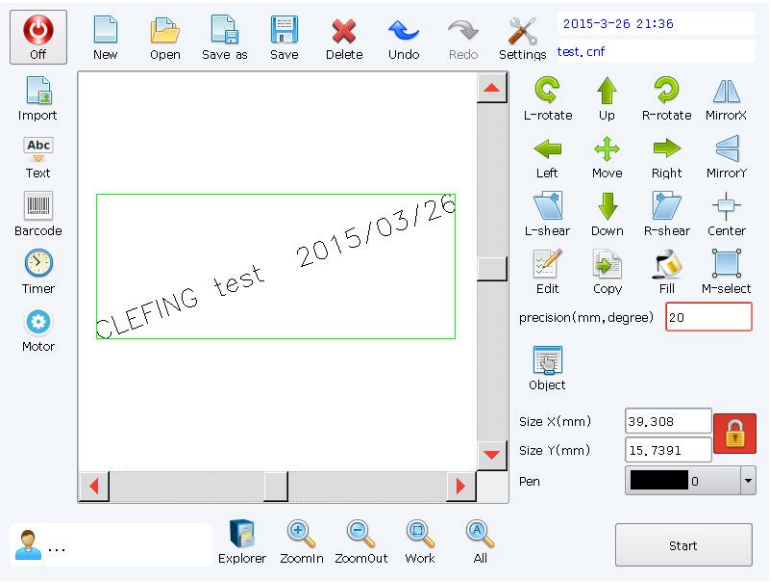
VI. Formula Bar



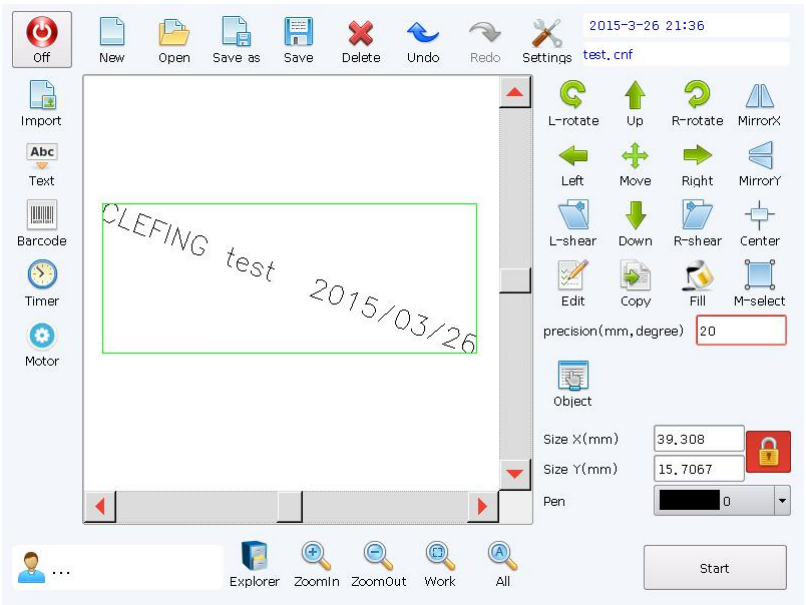


Copy. Click Copy, it turns to red, and the same icon will appear at the top left corner of the working area.

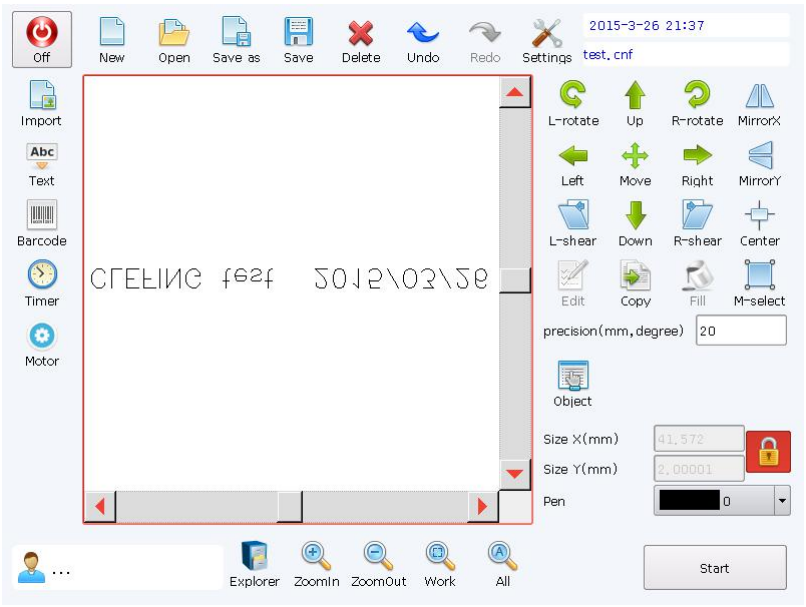
Enter the Copy command status. Click any position in the working area to copy the selected content to the specified position.



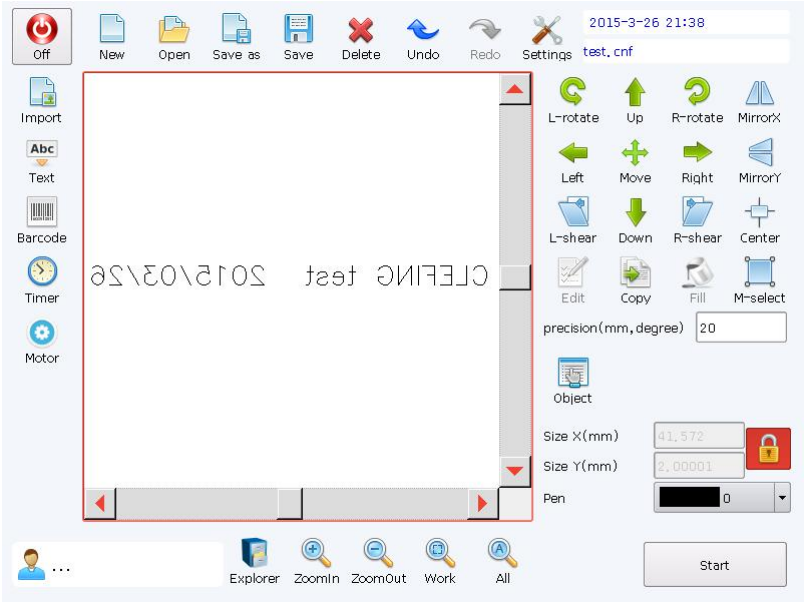
L-rotate. Click  to adjust the rotation precision.



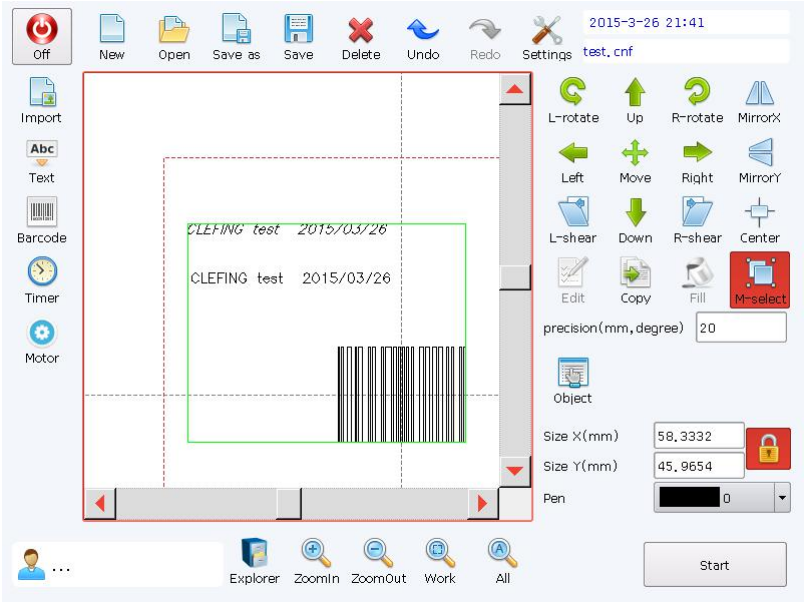
R-rotate. Click  to adjust the rotation precision.



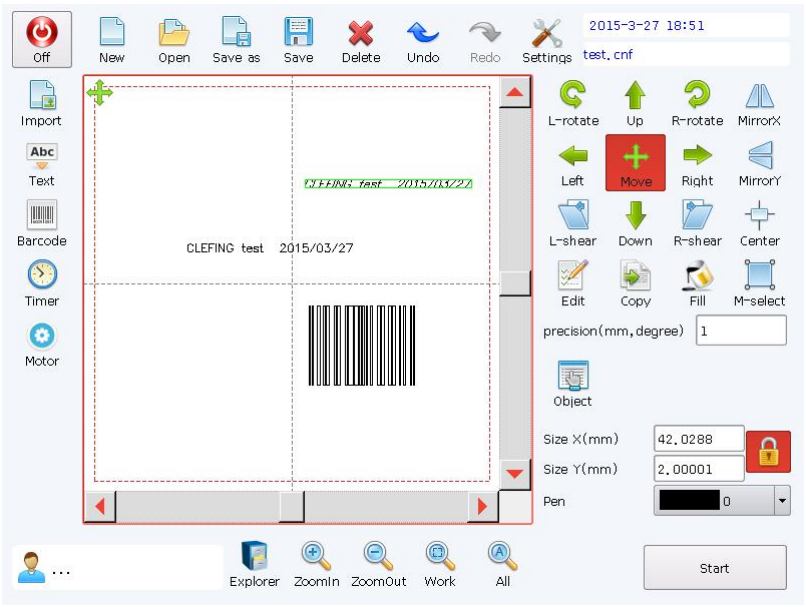
Mirror Y.



MirrorX.

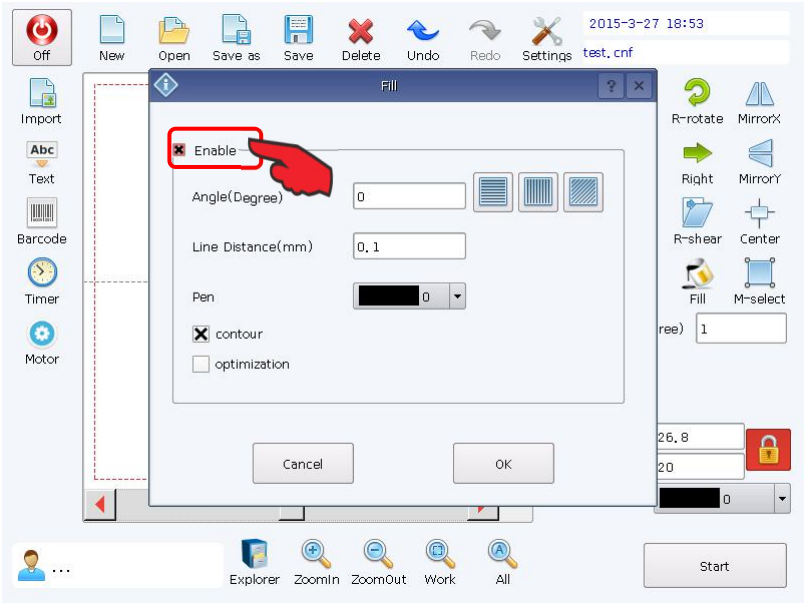


S-select/M-select toggle button. Clickit, the button turns to in red. To move or rotate two or above objects synchronously, press the M-select button to select several objects.



Move. Click Move, it turns to red, and the same icon will appear at the top left corner of the working area.

Select the object to be moved, click , and then click the target position to move the object to the target position.



Fill: The system default graphs to be imported or text to be edited are contour (hollow), to mark solid graph or text, you need to fill it.

It's recommended to fill the object without cross, overlapping or closure curve; otherwise, the expected filling effect may not be realized.

Click , the filling dialogue will pop out as shown in the figure.

Click "Enable" to activate the filling parameters. Not to tick "Enable" means no filling.

Angle: The angle of filling line. Right icons show the common filling angle, respectively 0°, 90° and 45°.

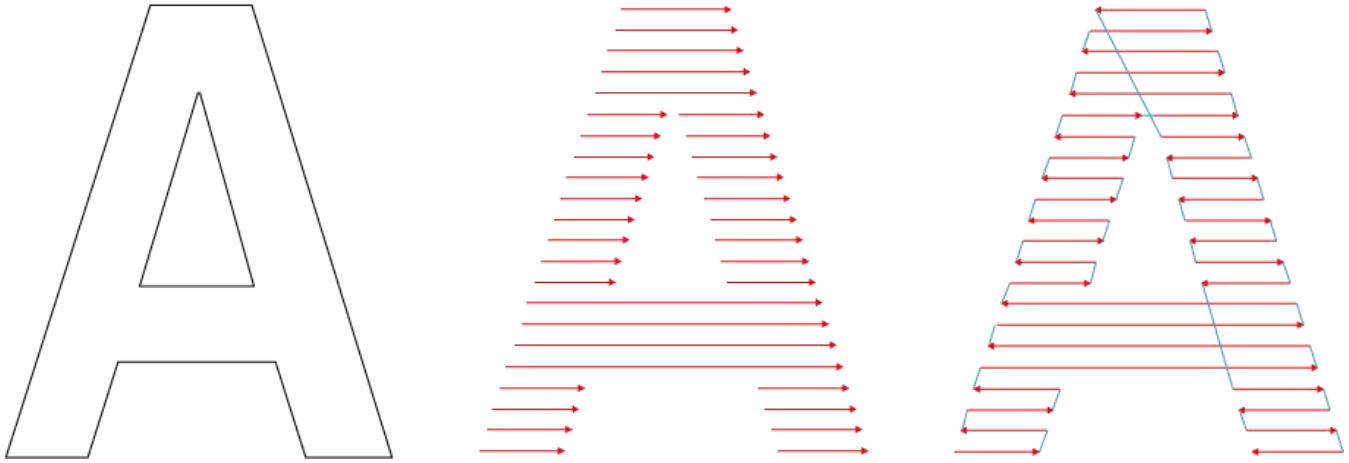


Line Distance: Distance between filling lines.

Layer: Marking parameter layer required for filling line.

Contour: Indicate whether to display or mark the contour of original graph, i.e. whether to maintain original contour of filling graph.

Optimization: The laser order after optimization filling.

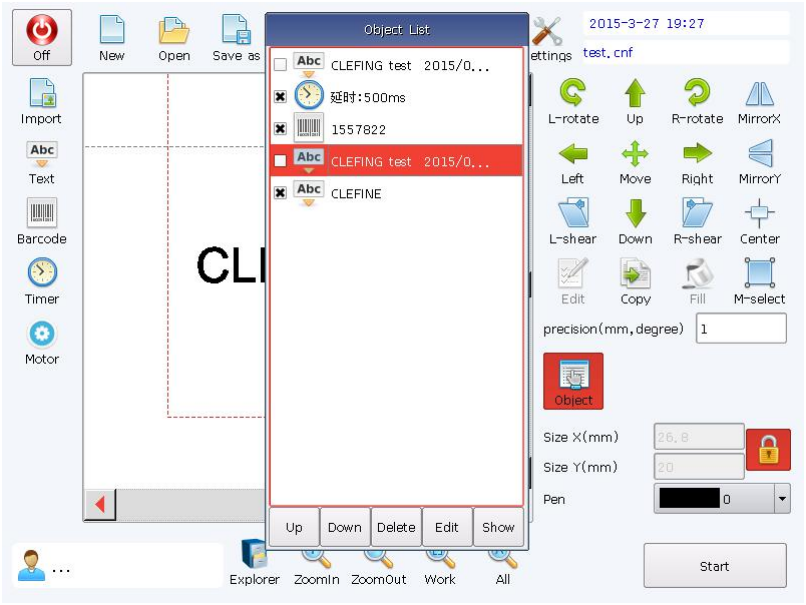


1 2 3

Figure 1, 2 and 3 respectively show the simulated diagram of laser pen writing order before filling, during common filling and optimization filling; wherein, red line represents the filling line, and blue line represents the jump path.



The left figure shows the rendering after filling.



Object List:

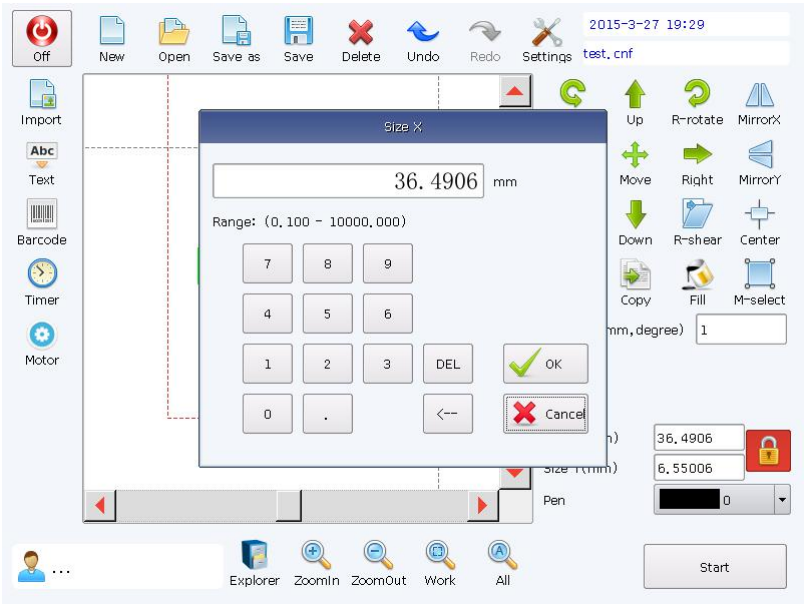
The Object List displays all objects currently added.

Click “Up” and “Down” to adjust the marking sequence of all objects.

Click “Delete” to delete selected object.

Click “Edit” to edit the selected object.

Click “Open/Close” to open or close selected object. If the object is closed, the object will not be displayed in the working area or marking is done, but the object may not be deleted. Open the object, the object will be displayed and the marking will be done.

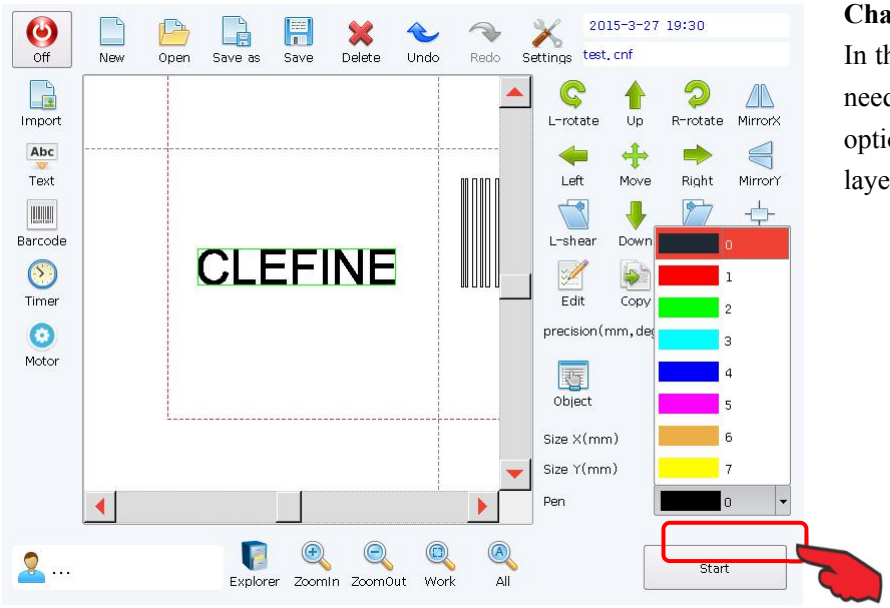


Change Size:

Select the graph in the working area, the lock and unlock at lower right corner are available. At this time, set the Size X and Y of lock or unlock.

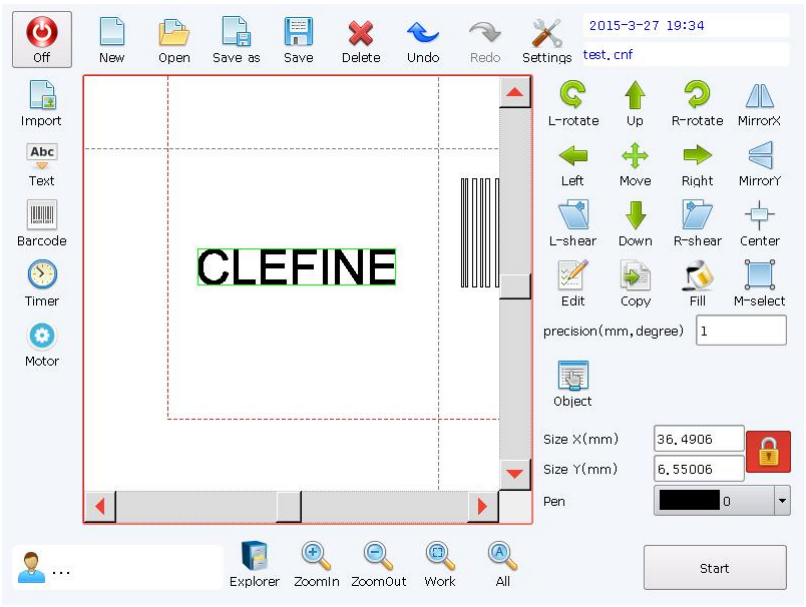
	Size X and Y of lock or unlock

Click the size (X-width, Y-height) and input corresponding value in the dialogue popped out, and click “OK” to change the value. If the X-Y is locked, to change a value, the other value will be zoomed automatically. If the X-Y is unlocked, to change a value, the other value will not be changed.

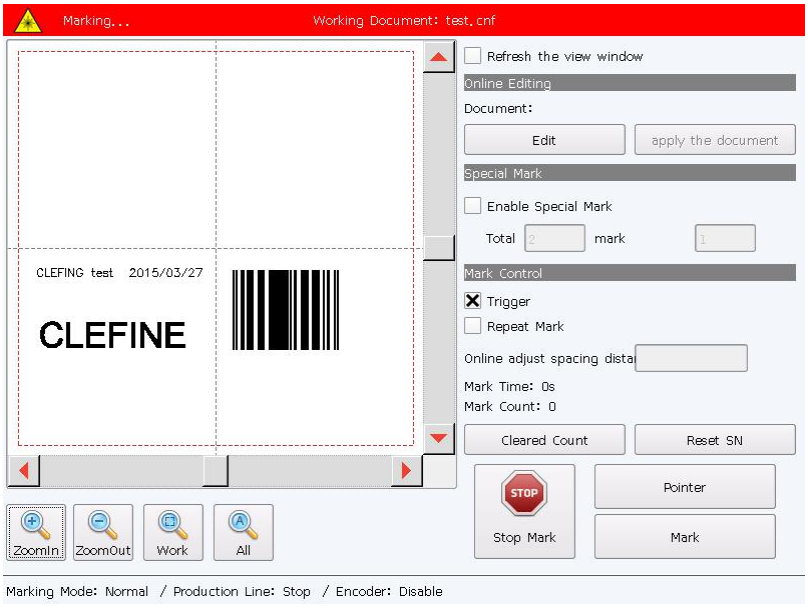


Change the marking parameter layer:

In the working area, click the object whose layer needs to be changed, and then click “layer” option, and select corresponding layer from layers of different colors popped out.



After all preparation works are completed, click Start to start marking.



"Marking Mode", "production Line Direction", "Speed Encoder", "Mark Count" and "Mark Time" are displayed in the right of interface.

Cleared Count: Click this button to clear the mark count.

Enable port trigger: Only this option is ticked, the external trigger signal can be accepted by the system; otherwise, the external trigger signal is invalid. It's recommended to always tick this option; otherwise, the system may not respond to trigger signal of photoelectric sensor.

Refresh the view window: Tick it to refresh mark content in the view window during marking, other wise, click "Stop Mark" to refresh the content in the view window as current mark content at one time. Close "Refresh the view window", the marking speed will be greatly improved, so it's suggested to close "Refresh the view window" during high-speed marking.

Conditional Mark: This option is usually used for marking of integrated circuit or triode. Generally, use this option during debugging or replenishment.

For example, a triode has 25 pieces. During debugging or replenishment, only 1 piece needs marking (assume the 17th one), tick "Conditional Mark" and fill in "25" and "17" in two boxes below. So, during marking, it only marks the 17th one.

Red laser guide: Click this button, it turns to red, the guide laser will scan the overall contour of the selected object. During marking, it automatically shuts down the guide laser. After marking, it automatically opens the guide laser and then click this button to close the guide laser. Generally, it's only used for debugging. It's suggested closing "red laser guide" in

normal mark status.

Soft trigger: Manual marking, click it once to complete a mark.

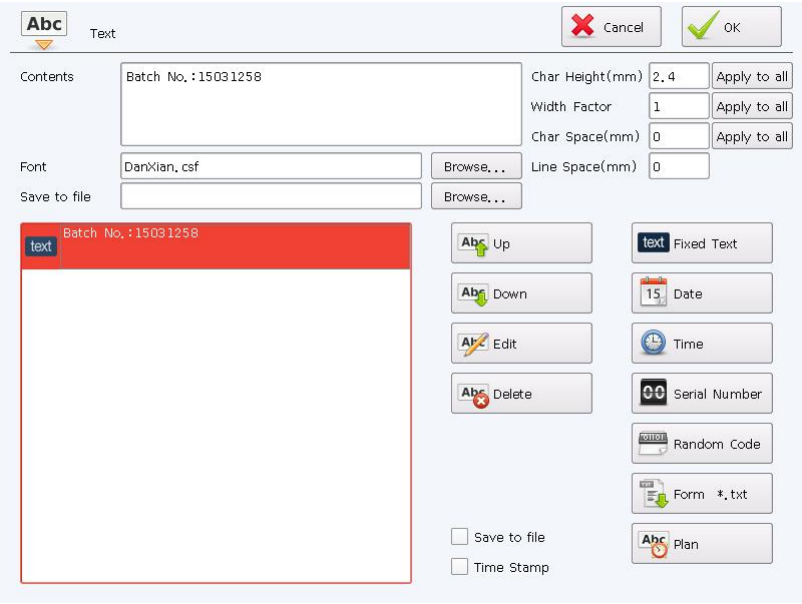
Stop Mark: Exit mark status.

VII. Operation Examples

7.1 Example 1

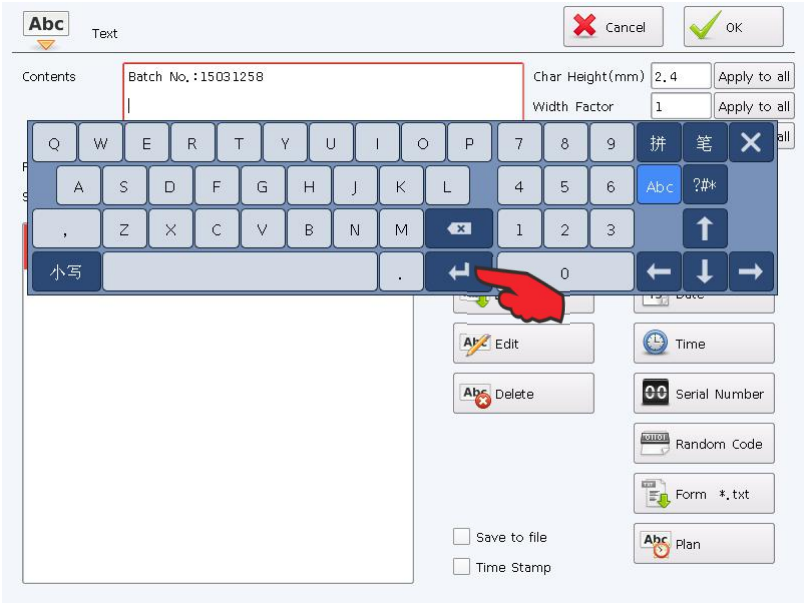
Mfg.date:2015.03.27
Exp.date:2016.03.26
Batch No.:15031258

Create a project file and add the content shown in the left figure to the working area. The overall height is 12mm.

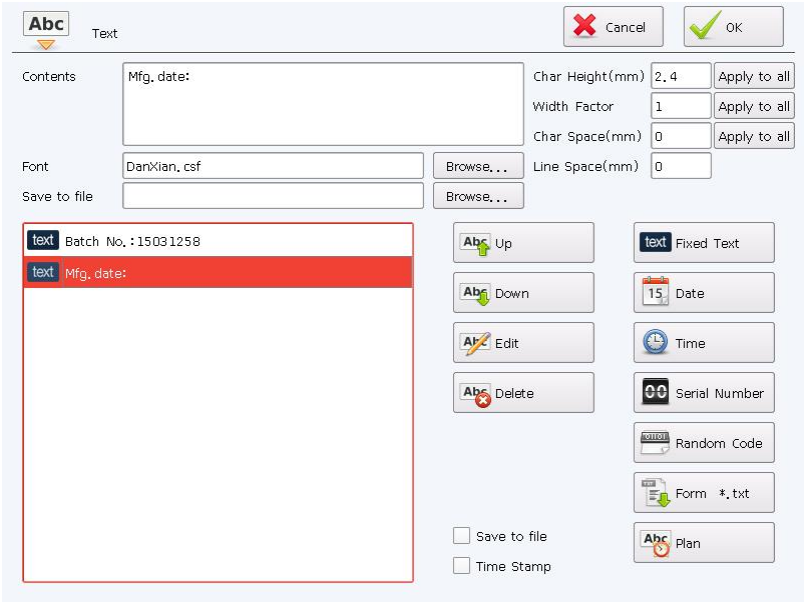


Click  to create a text object.

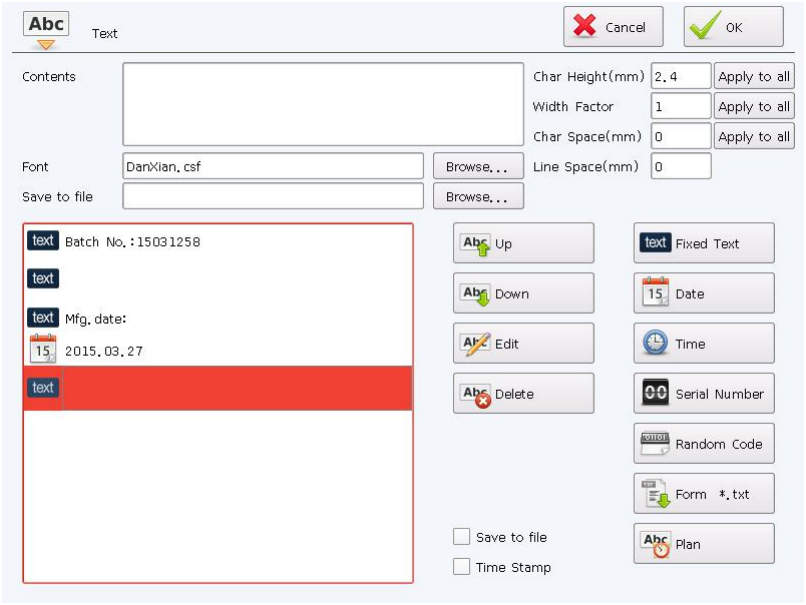
Click  to add a fixed text, change the content to “Batch No.:15031258” and change the font to “DanXin.csf”.



To insert a newline, input "Batch No.:15031258" and then click "(newline)". If no "line break" is added, the text will be in a row.



Click  to add a fixed text, change the content to "Mfg.date:", and change the font to "DanXin.csf".

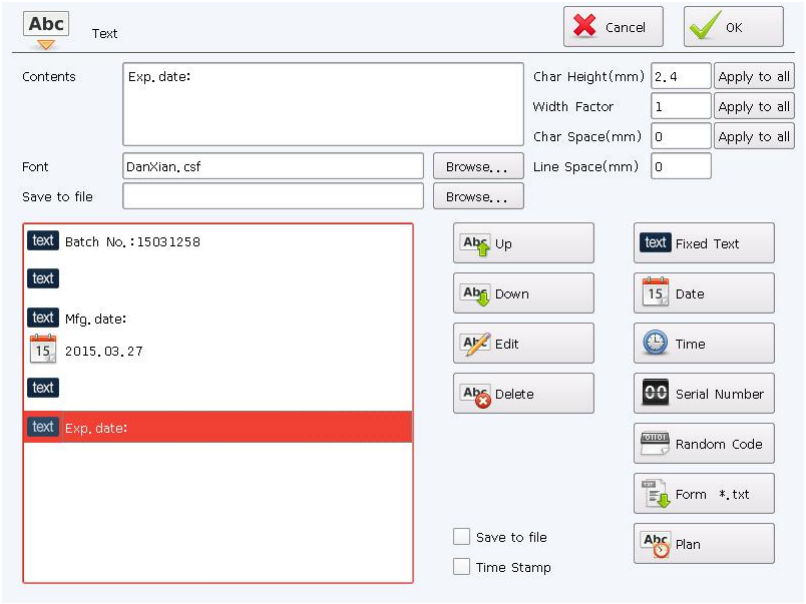


Click 

to add a date text andchange the font to “DanXin.csf”.

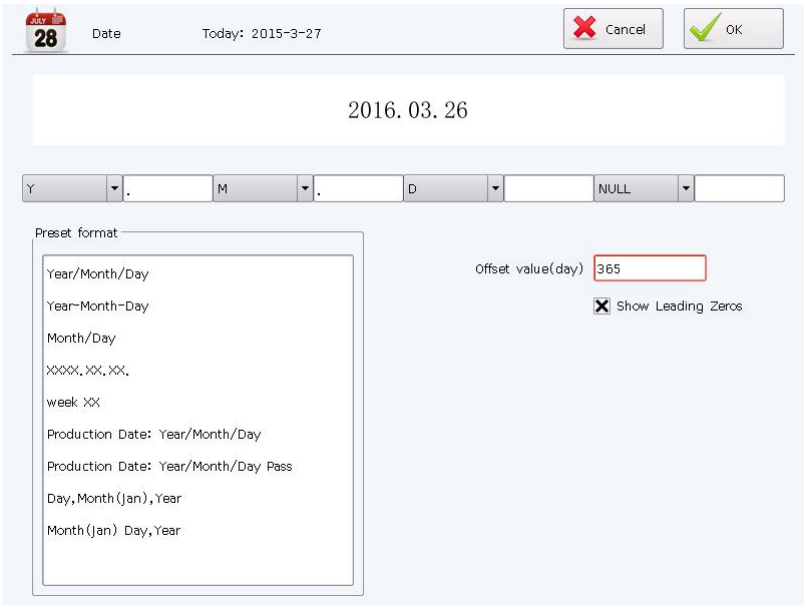
As the system may not insert a new line after adding the date code, click 

to add a fixed text, change the content to “  (newline)” and change the font to “DanXin.csf”. If no “line break” is added, the text will be in a row.



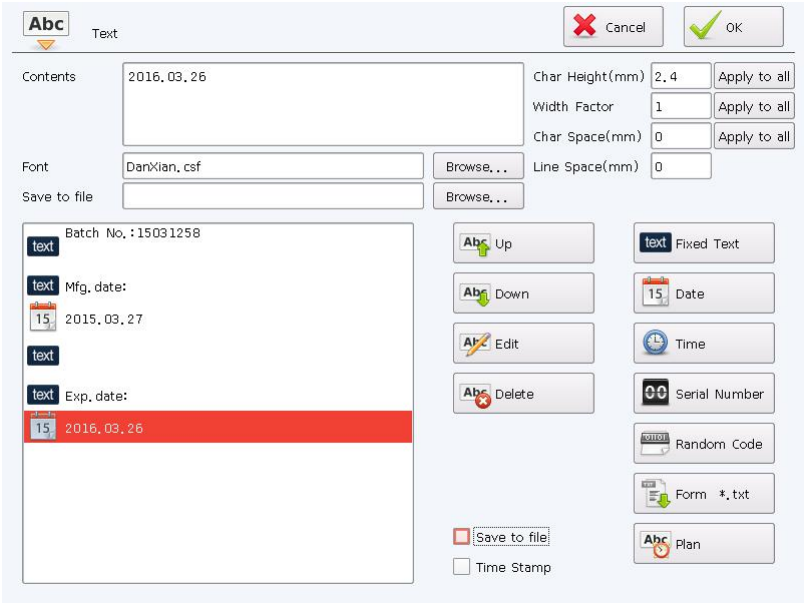
Click 

to add a fixed text, change the content to “Exp.date:” and change the font to “DanXin.csf”.



Click 

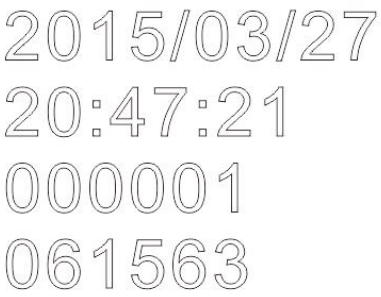
to add a date text, and change the font to “DanXin.csf”. Modify “offset value” to “365” (one year warranty). If no “offset value” is set, the “date code” may not display the offset value. Change the font to “DanXin.csf”.



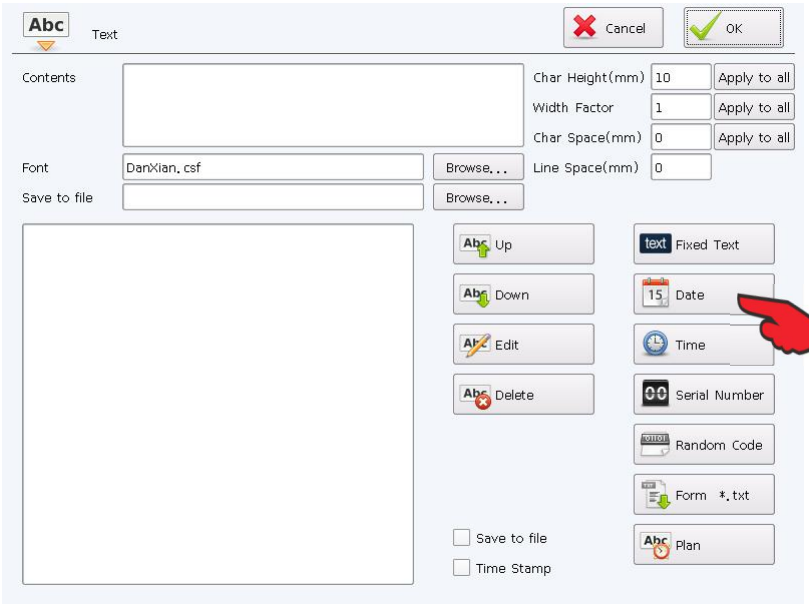
The left figure shows the rendering after the “Exp. date” is added, the date behind the “Exp. date” is 365 days (one year) later than the current date.

7.2 Example 2

Create a project file and add the content shown in the left figure to the working area. The overall height is 16mm.

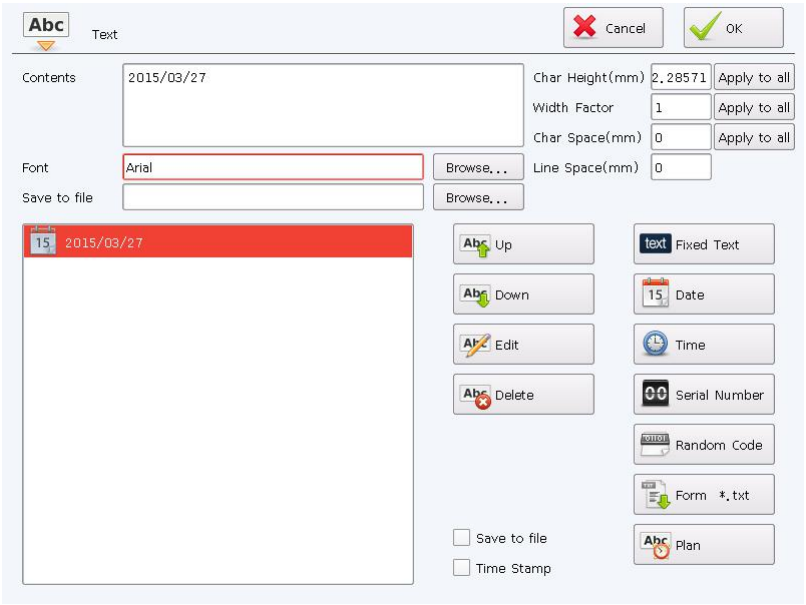


Format: Date (Y/M/D)
Time (H:M:S)
Random Code (6 digits traceable)
Serial No. (6 digits traceable)

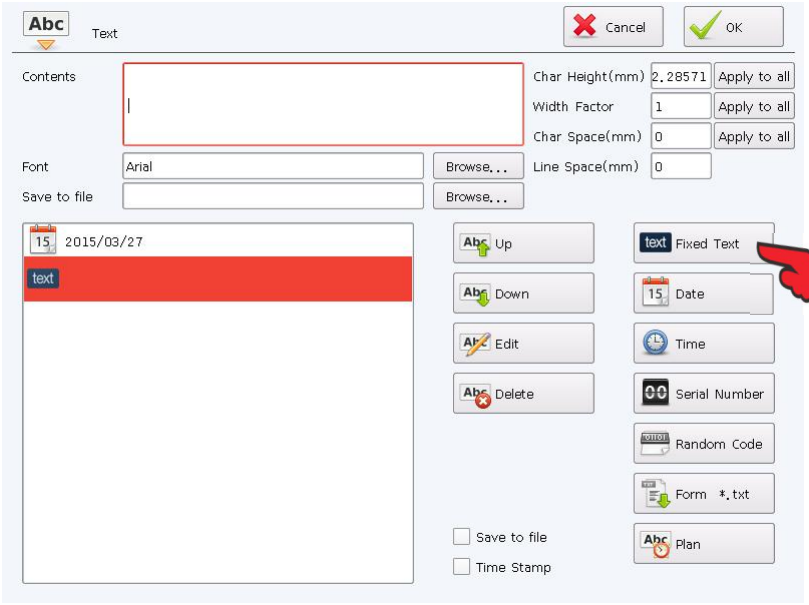


Click Abc to add a text object.

Click 15 Date to add a date text, as shown in the left figure.

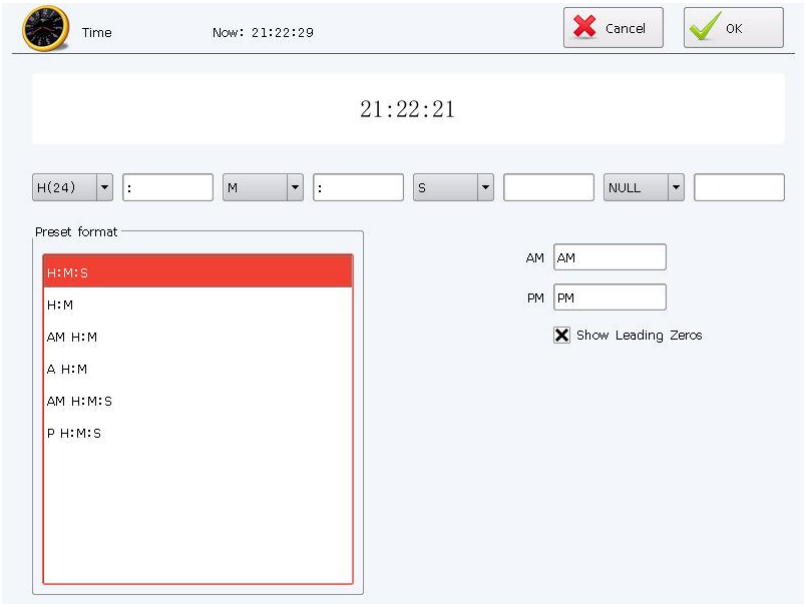


Change the font to “Arial.ttf”.



Click 

to add a fixed text, change the content to “  (newline)” and change the font to “Arial.ttf”.

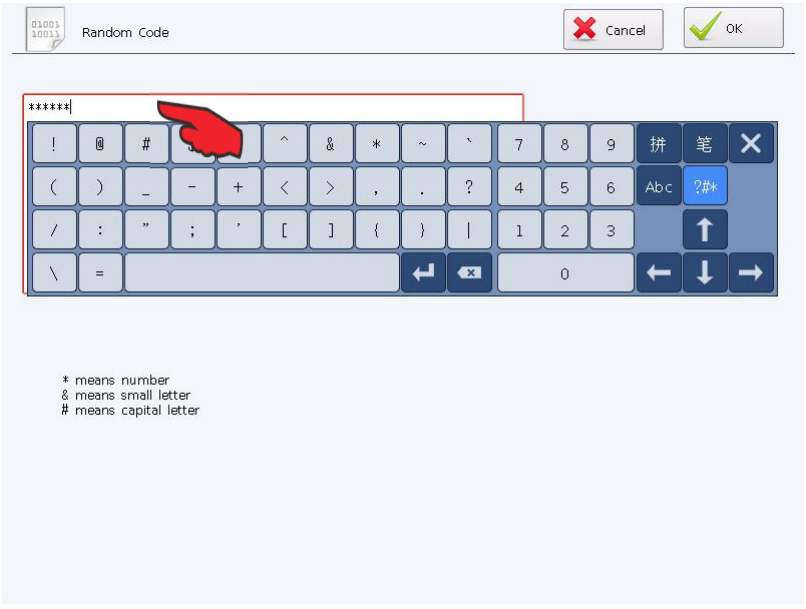


Click 

to add a time texture, and change the font to “Arial.ttf”.

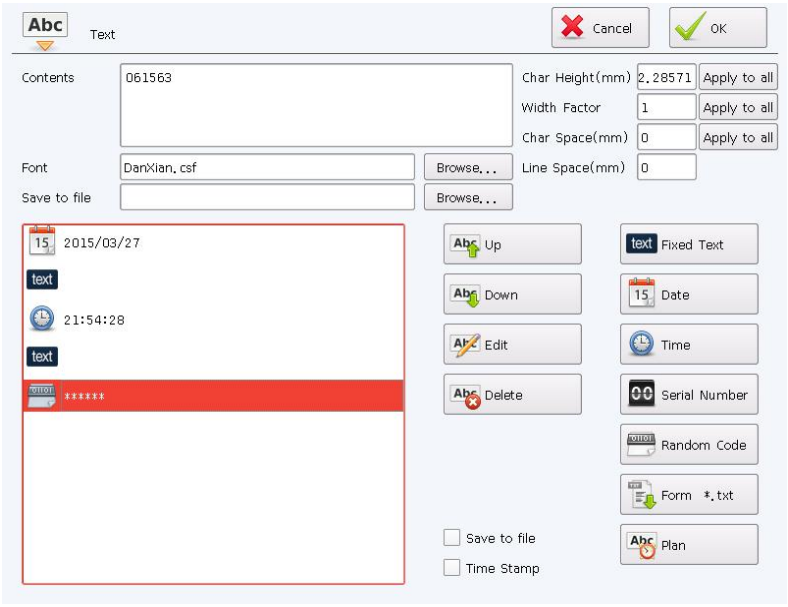
And then, click 

to add a fixed text, change the content to “  (newline)” and change the font to “Arial.ttf”.



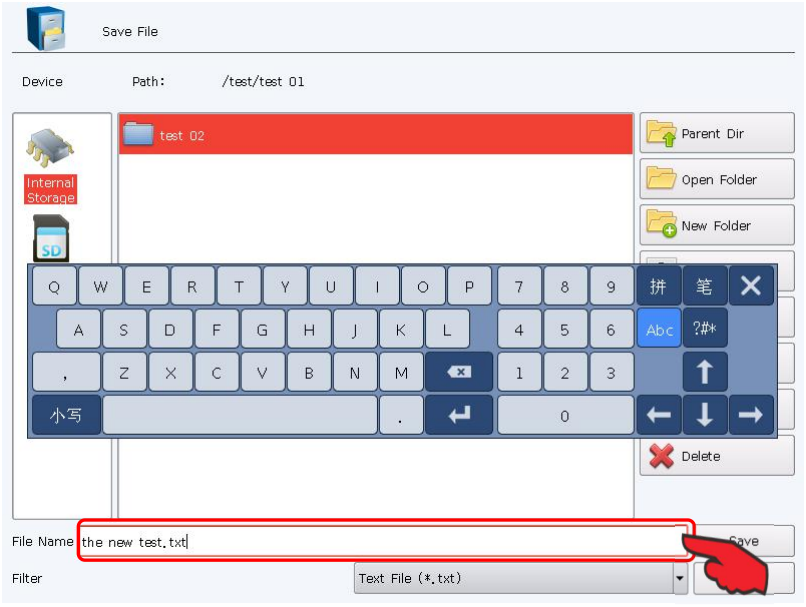
Click 

to add a random code text, as shown in the left figure. Edit the random code format in the random code editor. The random code shall be 6 digits, so we input six “*” in the edit box and click OK.

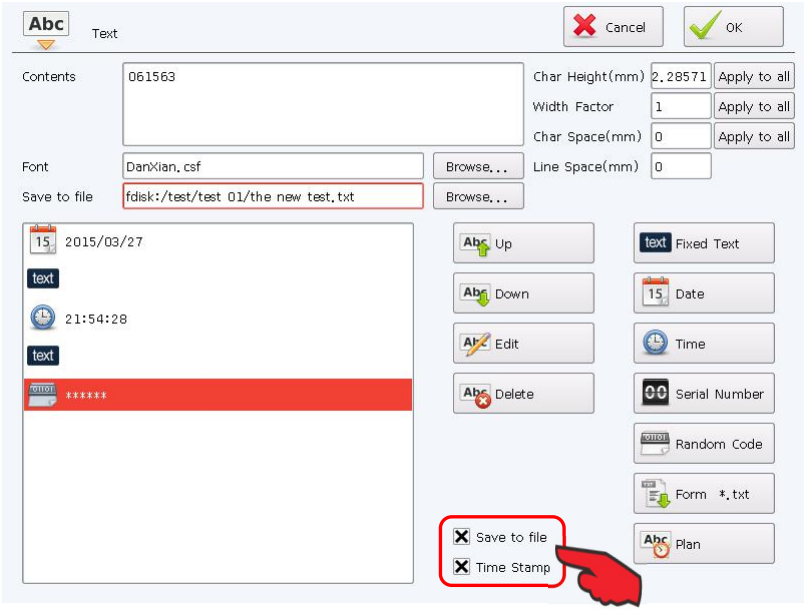


Change the font to “Arial.ttf”.

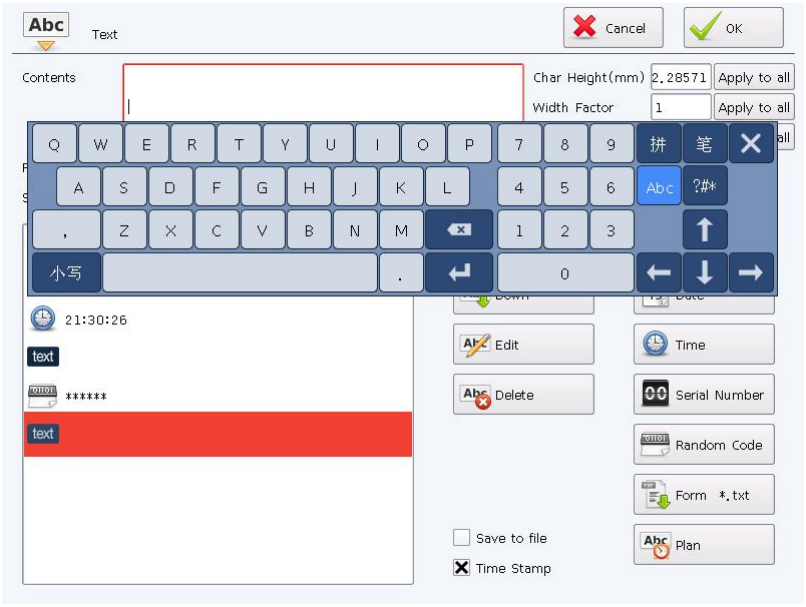
Click “Browse” after the “Save to file”. It’s highly recommended to save it to “Internal Storage” (the system can automatically protect the file from being lost in case of accident power outage). Customize a file name for collecting the saved data.



Input the file name and click Save to save the file.

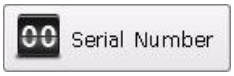


Tick both “Save to file” and “Time Stamp”.

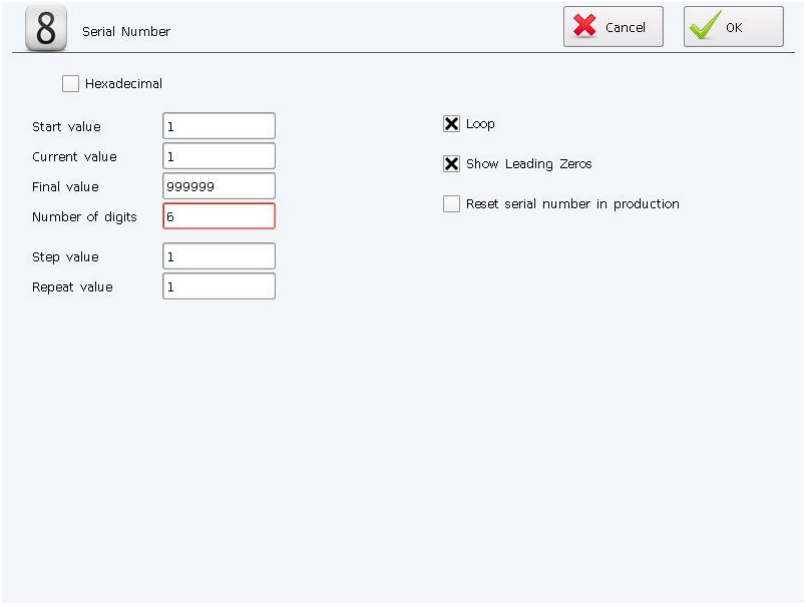


And then click 

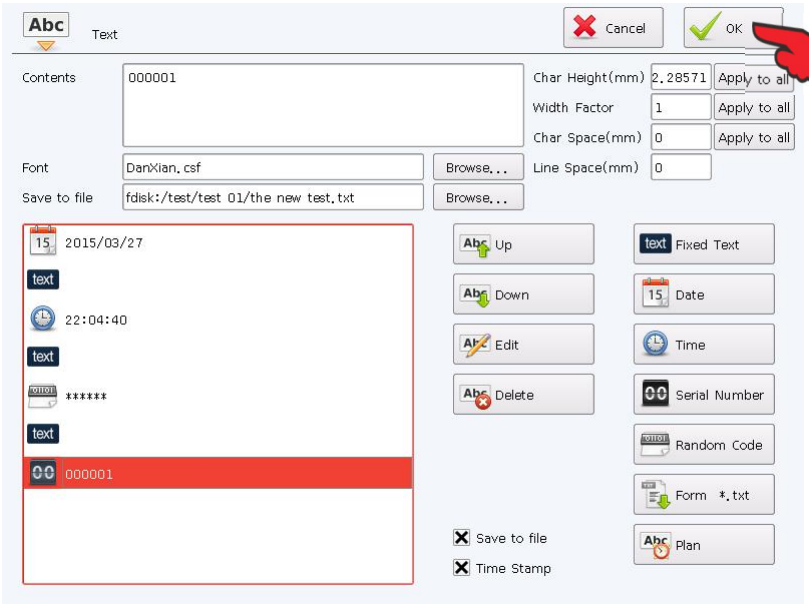
to add a fixed text, chagne the content to “
(newline)” and change the font to “Arial.ttf”.

Click 

to add a serial number text.



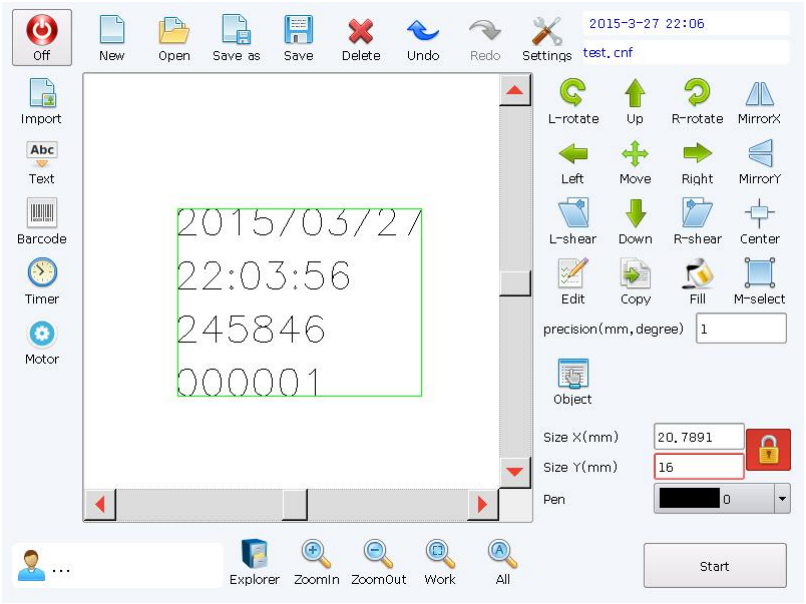
Start value: 1 (The first number is “1”)
Current value: 1 (after editing, “start marking” from “1”)
Final value: 999999 (Max. 999999)
Number of digits: 6 (Max. 6 digits)
Step value: 1 (progressive increase of 1 at once)
Number of marking: 1 (once for a serial number)
Loop: Ticking means marking from “000001” after “999999” is completed. No ticking means to stop marking after “999999” is completed.
Leading zeros: Ticking means that “0” will be supplemented for the value less than 6 digits. No ticking means to show the actual digit of the serial number.



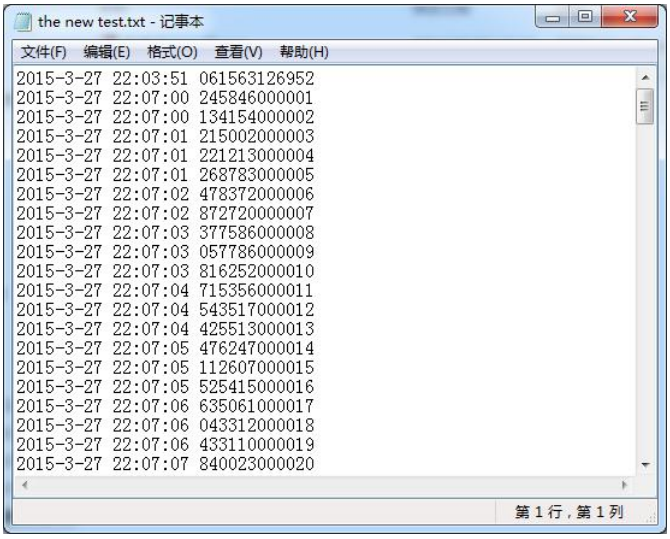
Tick both “Save to file” and “Time Stamp”.

To save the serial number with the random code in the same file, there is no need to change the save directory or file name. Not to save the serial number with the random code in the same file, “Browse” to customize a file name. In the examples, we save the random code and serial number in the same file.

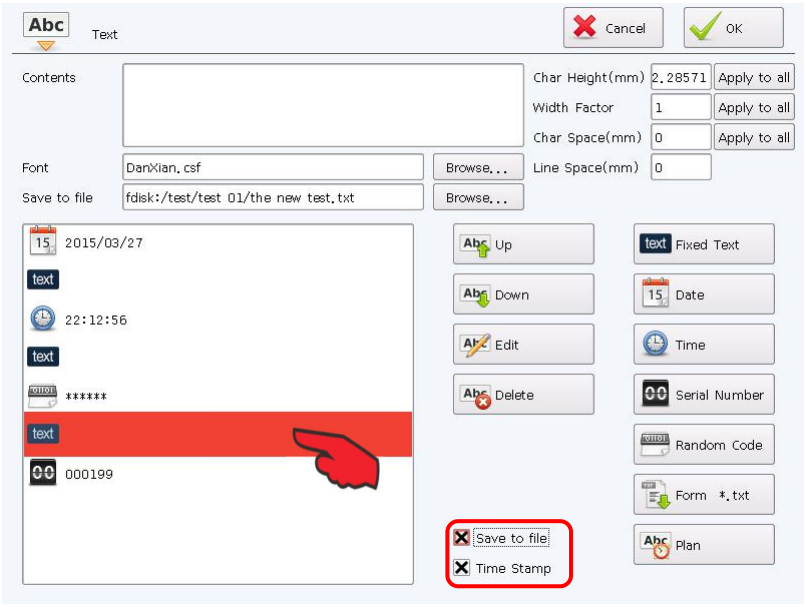
After completion, click “OK” on the top right corner of the screen.



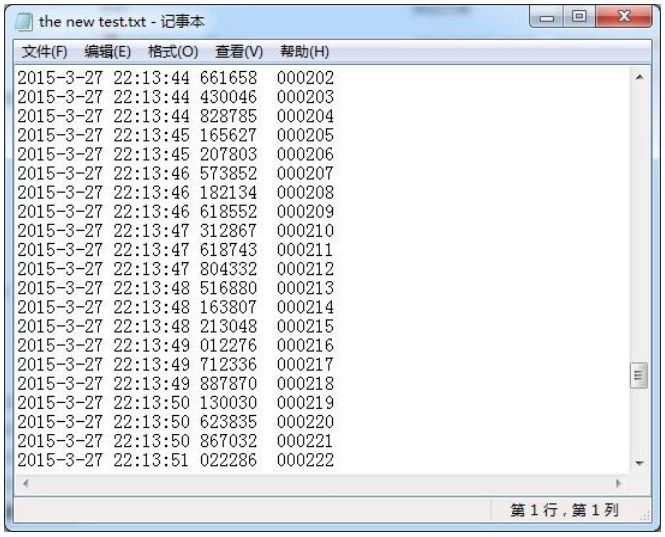
As shown in the left figure, modify it to normal length.
Adjust Y size to 16mm.



The left figure shows the rendering that the random code and serial number file is opened. As shown, there is no “blank space” between the random code and serial number. To separate the random code and serial number with a “blank space”, save the fixed text “  ” of the two in the marking file in the same file.



Select the “fixed text” (New Line) between the random code and serial number, tick “Save to file”, and then the file name and the file path are consistent with the random code and serial number.

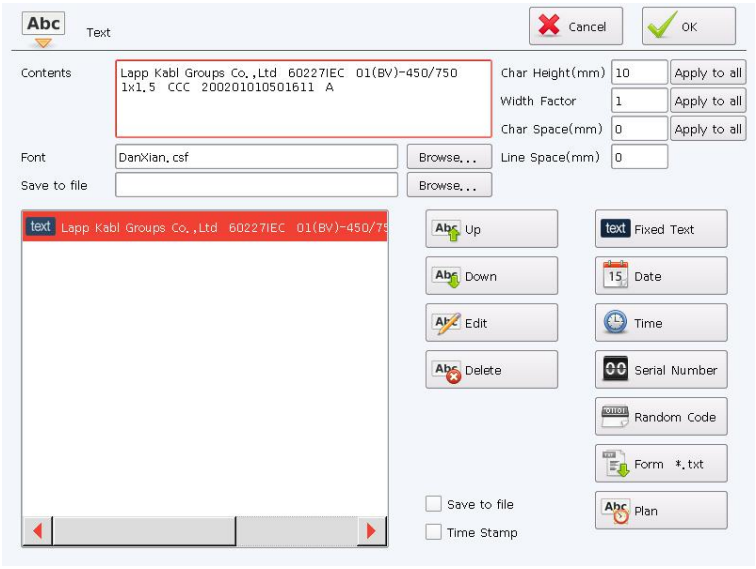


As shown in the left figure, there is “blank space” between the random code and serial number. This example is completed.

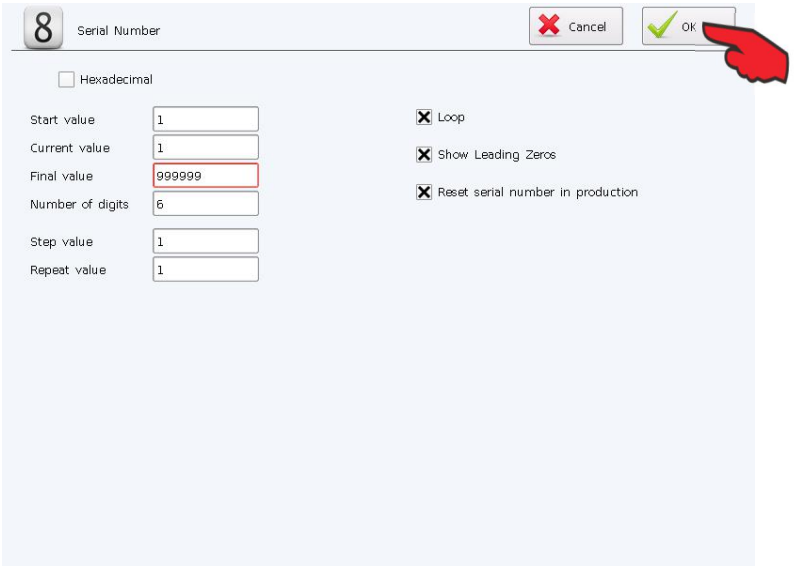
7.3 Example 3

Method of editing marking content under “Pipe&Cables Mode”:

Method of editing marking content under “Pipe&Cables Mode”:

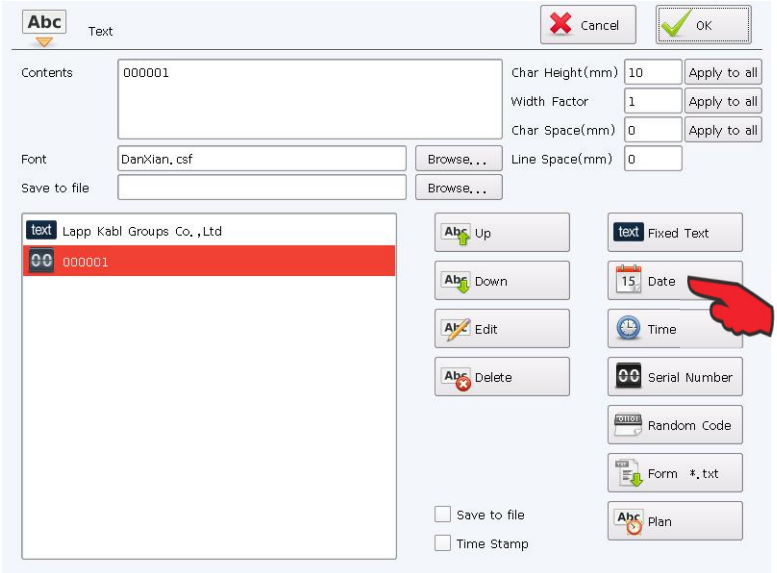


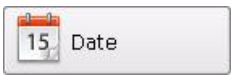
Assume that "**Lapp Kalb Groups Co., Ltd 60227 IEC 01(BV)-450/750 1X1.5 CCC 2002010105010611 A000001 Jan. 2, 2015**" is marked on the cable in characters of 4mm height (limited to one row), wherein, 6 digits in "A0000001" is the serial number with jump change, 2015/3/27 is the date code that automatically varies with the system, and the whole content shall be repeated at an interval of 50mm. The optical size is 100mmX100mm. As per requirements, the above character string must exceed the marking scope, at this time; we need to use "Pipe&Cables Mode" for marking. When editing the character, the text can exceed the maximum marking scope, so we edit this paragraph in the text object at one time.



Click  and then click  to add a fixed text "Lapp Kalb Groups Co., Ltd 60227 IEC 01(BV)-450/750 1X1.5 CCC 2002010105010611 A" and select the font "Danxian.csf " in the single font.

Click  to add a serial number of 6 digits, if necessary, during marking, rapidly reset the serial number by one key, select "reset the serial number by one key during marking" and click "OK".



Click  to add the date code.



Select the first box and change the content to "blank space" (enter the space key for several times as required for the date code and serial number).

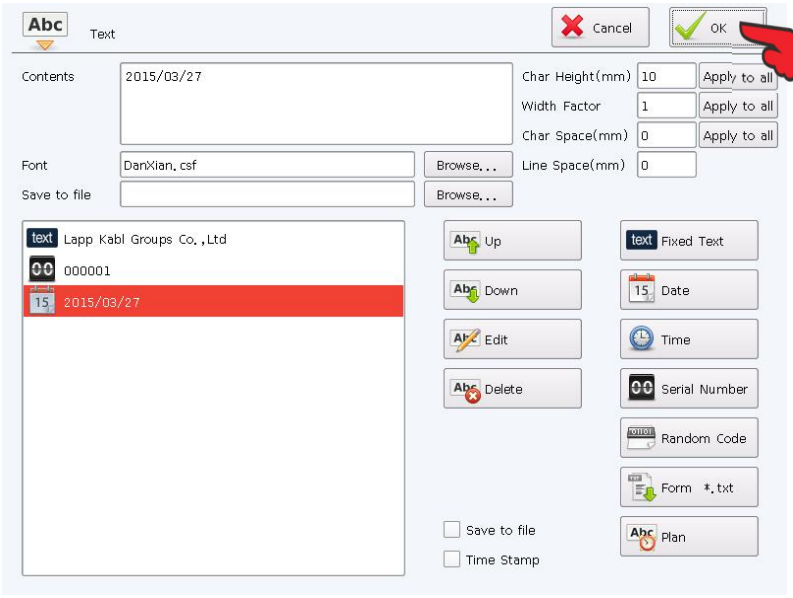
Select "year" in the drop-down bar in the second box, and input word "year" in the fourth box. The previous "year" represents a variation that automatically varies with the system; while the later "year" represents the unit "year" in "xxxx year".

Select "month" in the drop-down bar in the third box, and input word "month" in the fourth box.

Select "date" in the drop-down bar in the fourth box, and input word "date" in the fourth box.

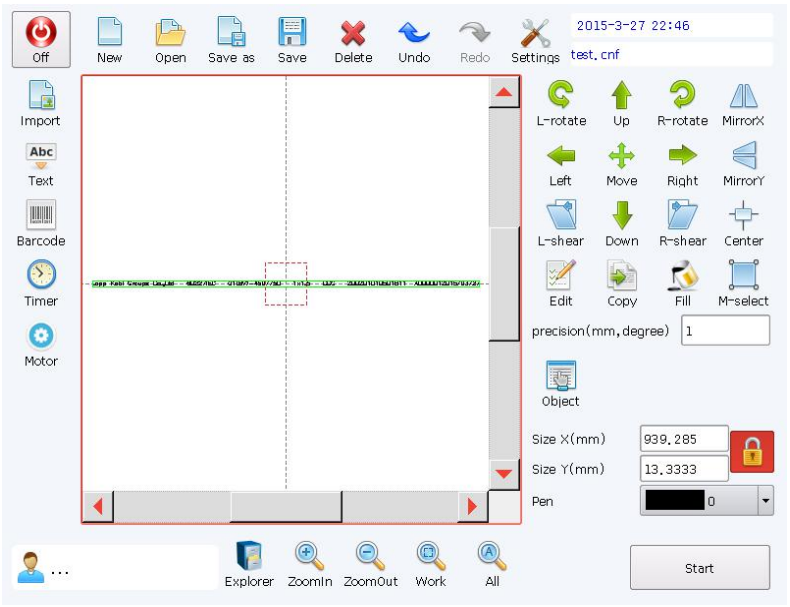
Select "None" in the fifth box, (select "None" for the first box to add space between the date code and serial number).

After completion, click "OK" in the top right corner of screen.



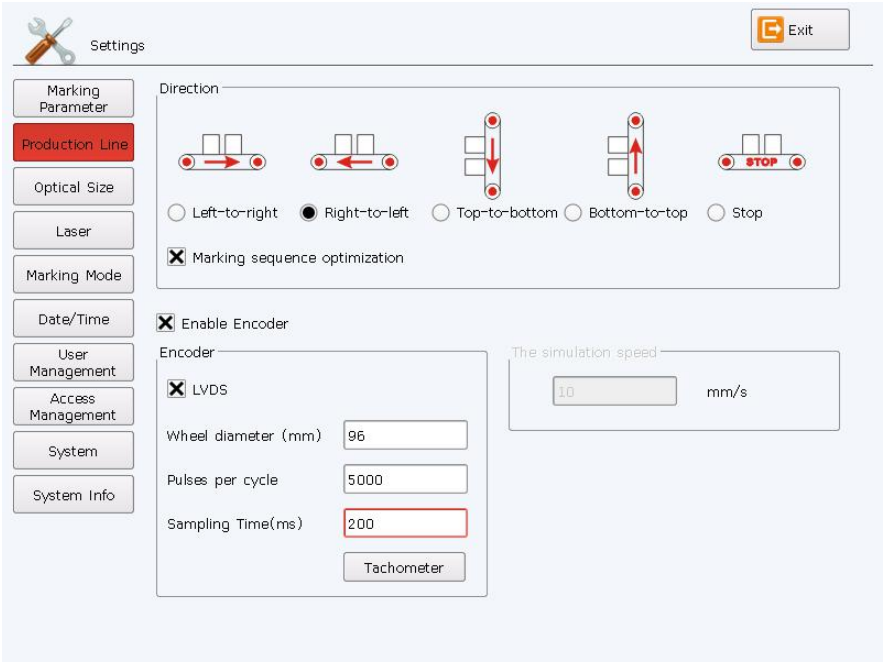
The left figure shows the rendering that adding is completed.

Click "OK" to complete adding content.



The left figure shows the content edited currently. Red dashed box is the area set by the field lens.

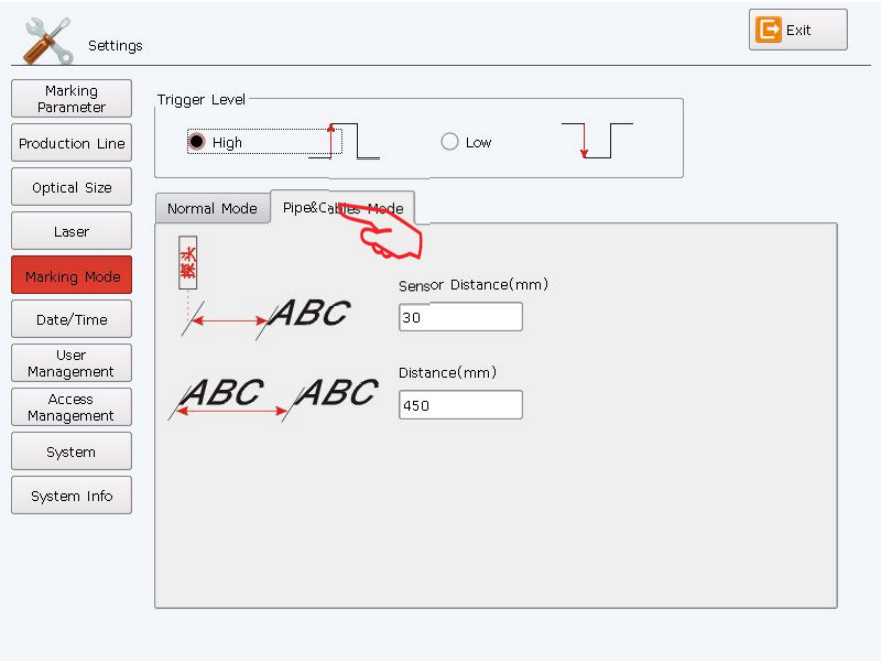
Select current content and adjust “Size Y” as 4.



Click  to perform necessary settings of marking under Pipe&Cables Mode in the settings page.

Click the “Production Line” at left, as per site condition, select the production line direction and select “Marking Sequence Optimization”.

As per site condition, decide whether to use encoder or not. If using encoder, fill in the encoder parameters.



Click “Marking Mode” to enter the settings page.
Select “Pipe&Cables Mode” and select “Low trigger level” in the Trigger Level

Set the “Probe Distance” (or 0 for idle time)

Set the “Spacing Distance” so that the system can automatically repeat marking at fixed spacing distance.



Exhibition Figure of Pipe&Cables Mode