Z6 Software

User Manual

V1.0

Version	Date	Illustrate
V1.0	2023.10.20	Interface optimization

Directory

Chapter 1 Interface Introduction

1.1 Main interface

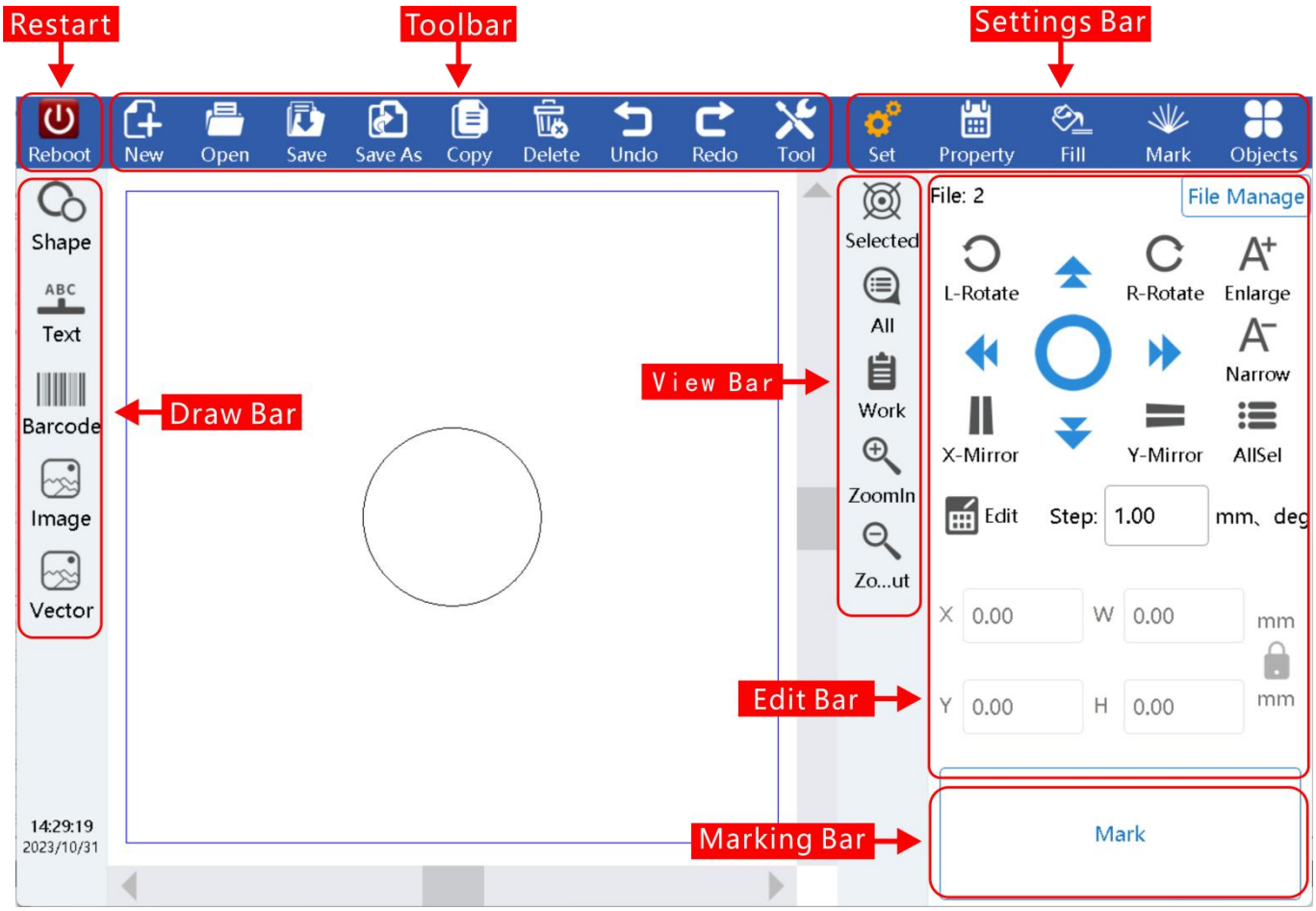


Figure 1-1

Chapter 2 Restart Key

The restart button is used for system restart. See Figure 2-1:

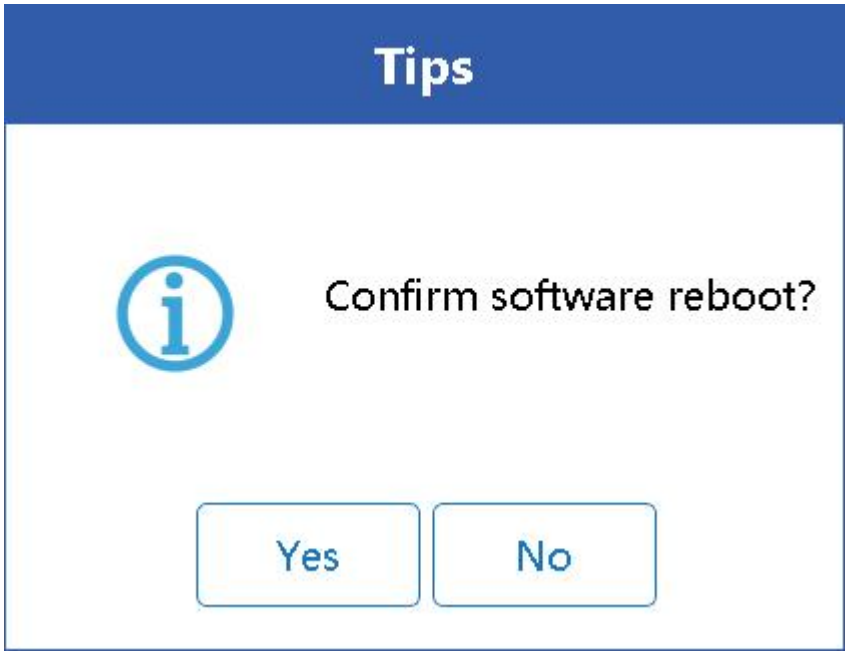


Figure 2-1

Chapter 3 Drawing Bar

The drawing bar is used to draw commonly used graphics, text, barcode, image, vector, as shown in Figure 3-1

Figure 3-1

3.1 Drawing Shapes

Click 

,You can choose one of the drawing options in the expanded menu.

3.2 绘制文字

Click 

, pop up the editing interface, as shown in Figure 3-3. After editing, a text will be drawn at the center of the workspace (coordinates: 0, 0). Enter the text in the text input box and click on it 

Perform secondary editing and modify more properties in the object properties and object editing bar.

Figure 3-3

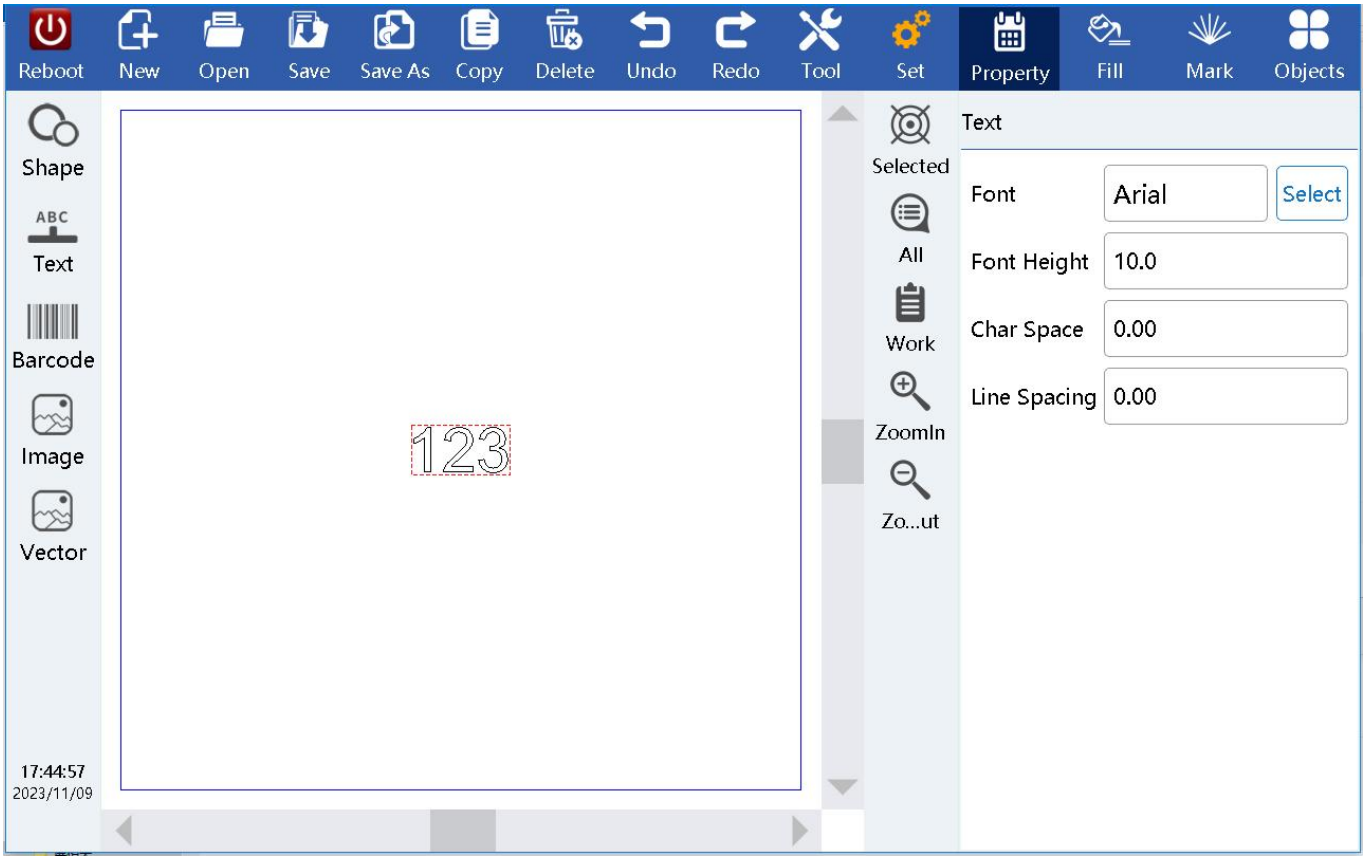


Figure 3-4

Font: Select font
Height: Font height
Spacing: The spacing between characters
Line spacing: the spacing between rows

3.3 Drawing Barcodes

Click Barcode, pop up the editing interface, as shown in Figure 3-5. The user selects the barcode or QR code that needs to be engraved. After editing, a barcode text will be drawn at the center position of the workspace (coordinates: 0,0), which can be clicked Edit Perform secondary modification editing to modify more properties in the object properties and object editing bar.

Figure 3-5

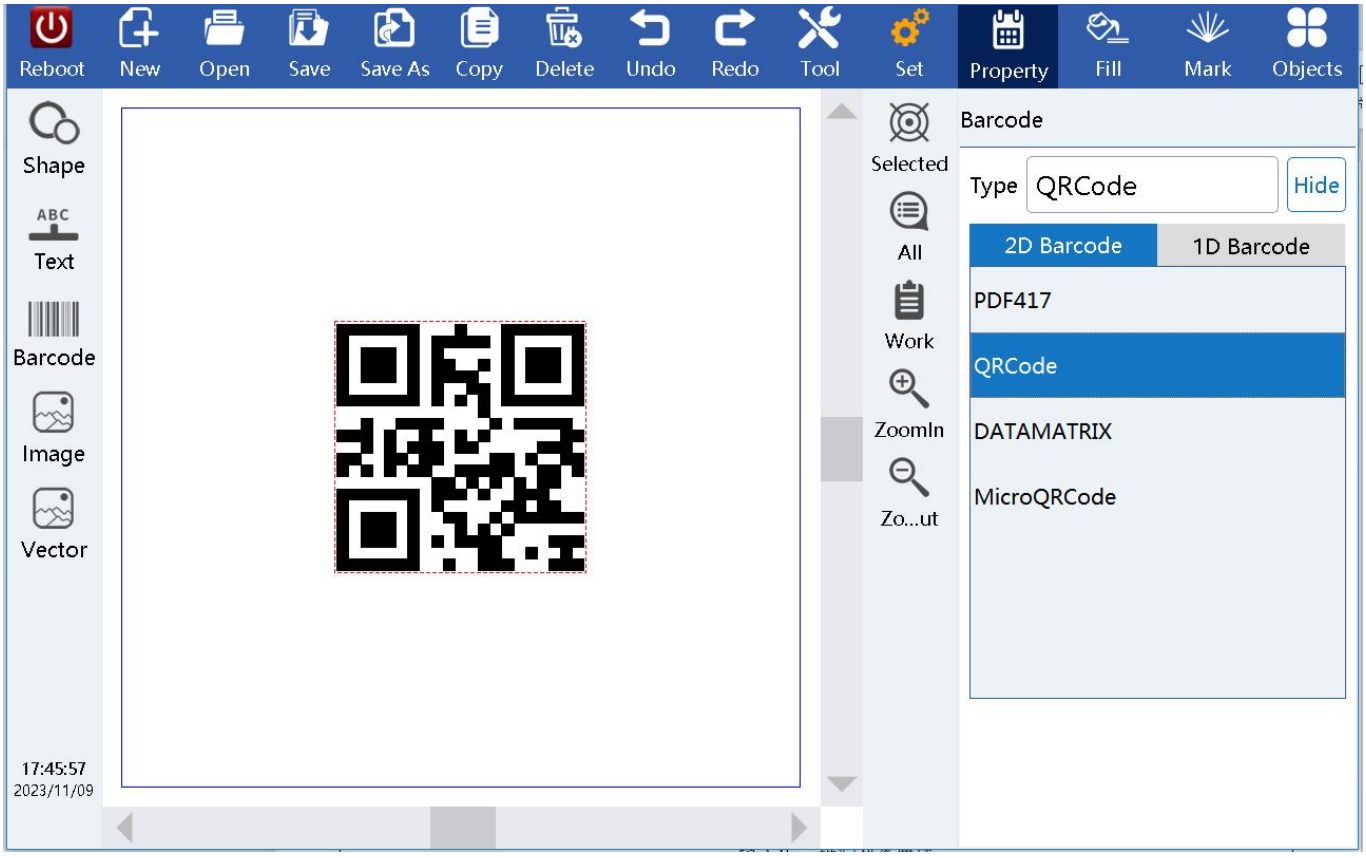


Figure 3-6

3.4 Drawing Pictures

Click 

The path interface for selecting images will pop up. After selection, an image will be drawn at the center of the workspace (coordinates: 0, 0), and more properties can be modified in the object properties or object editing bar.

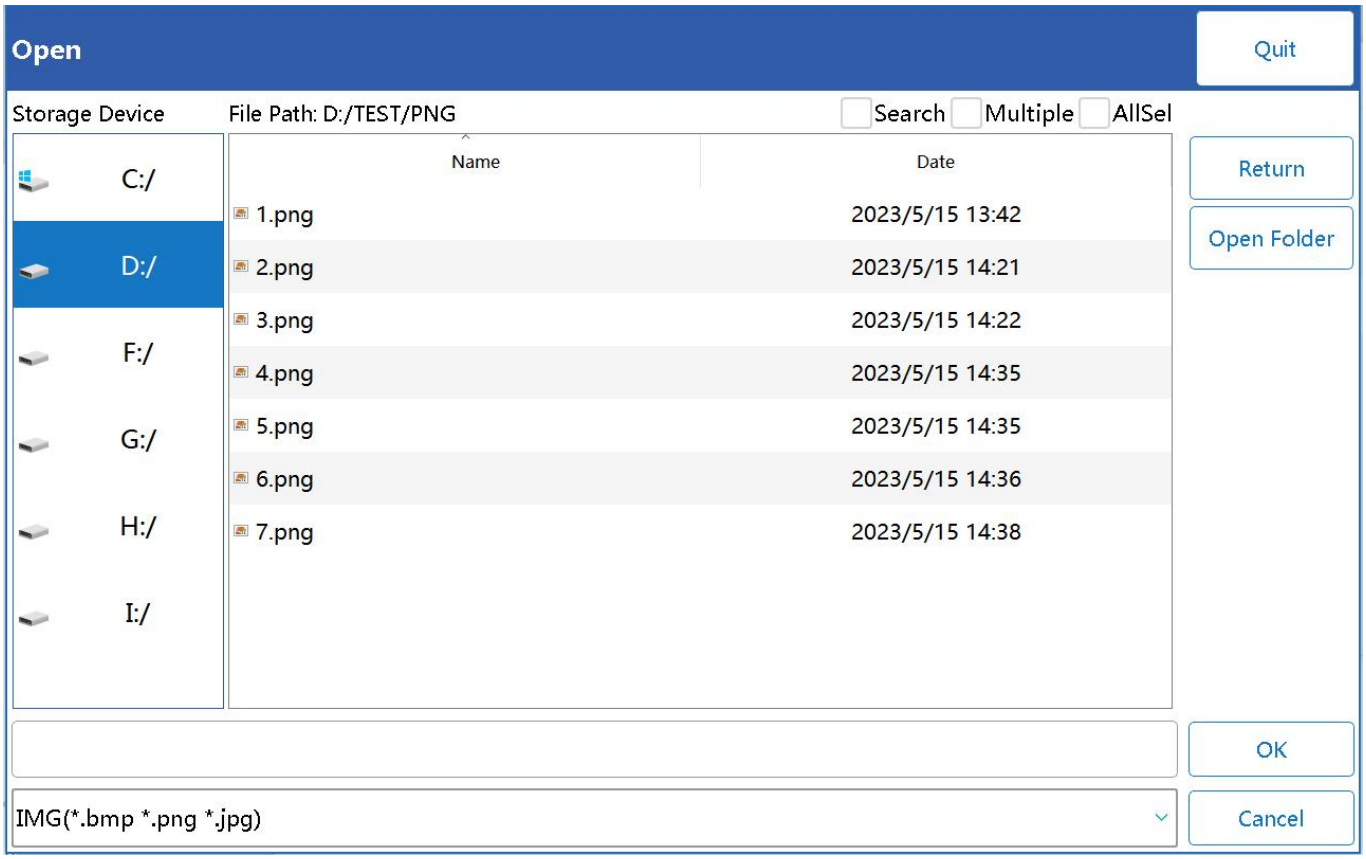


Figure 3-7

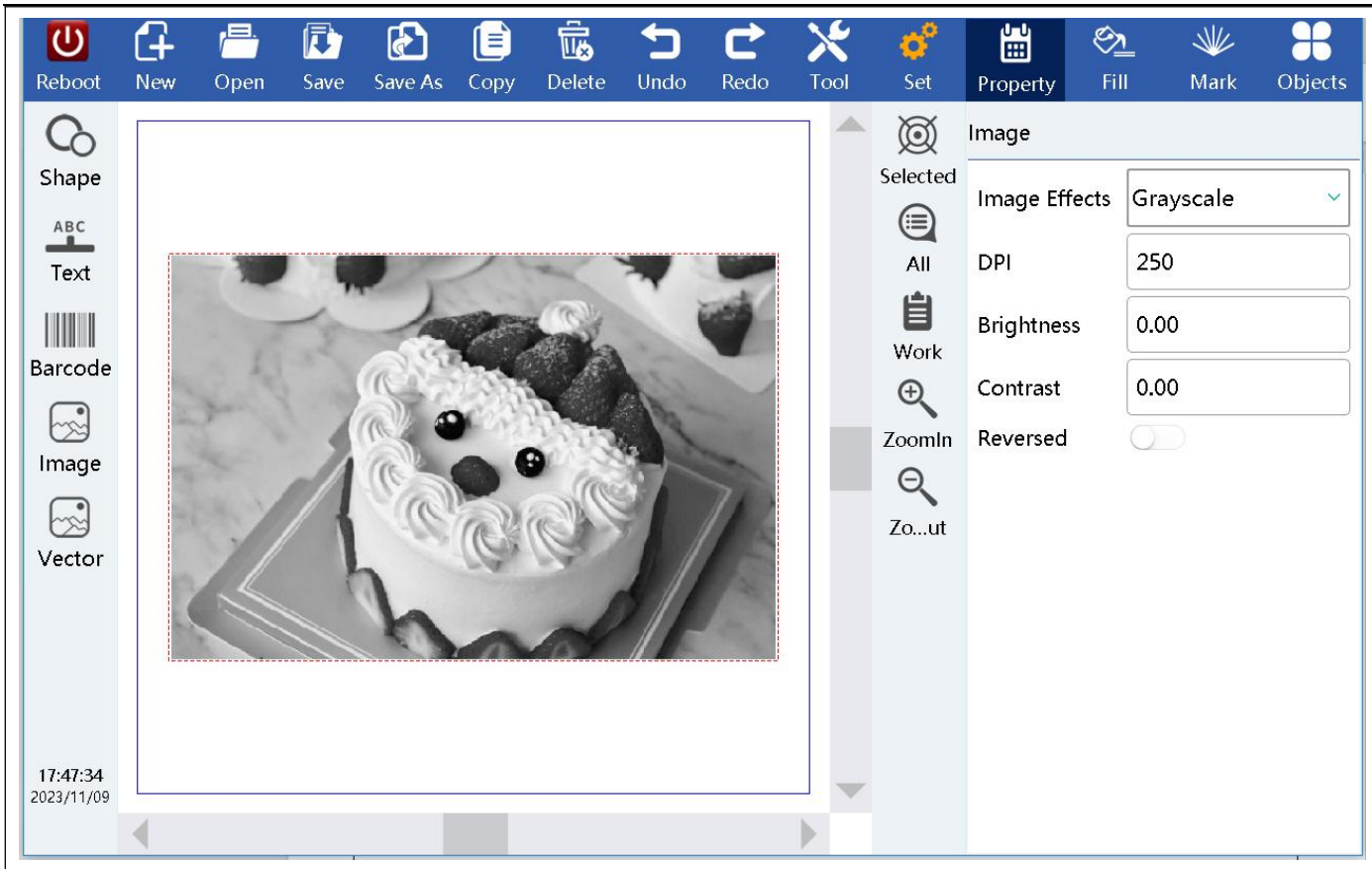


Figure 3-8

DPI: refers to the number of points per inch, where 1 inch is equal to 25.4 millimeters
Brightness: Change the brightness of an image
Contrast: Change the contrast of an image
Reverse: Invert the color values of each point in the current image

3.5 Drawing vectors

Click Vector Select vector files on the hard drive or USB drive

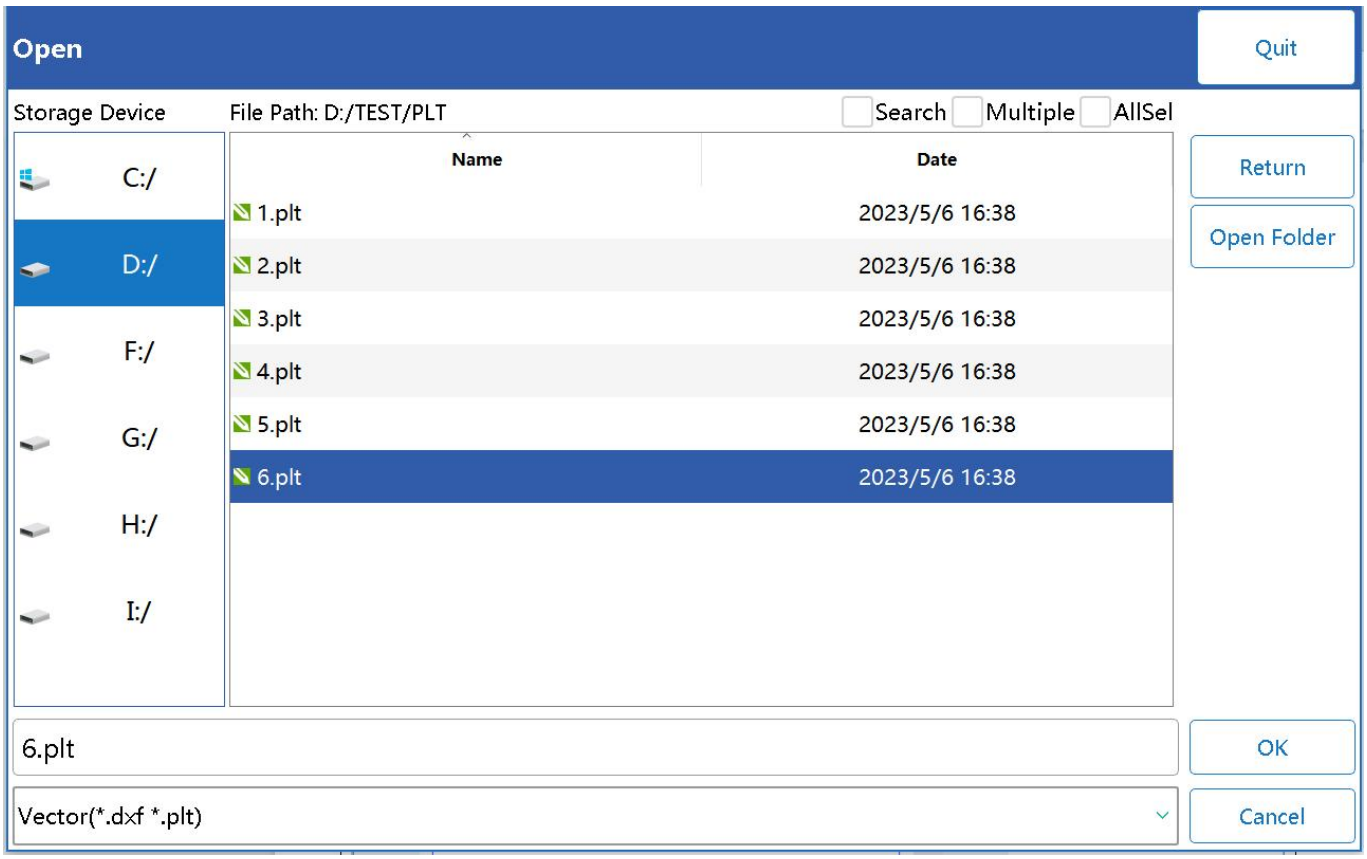


Figure 3-9

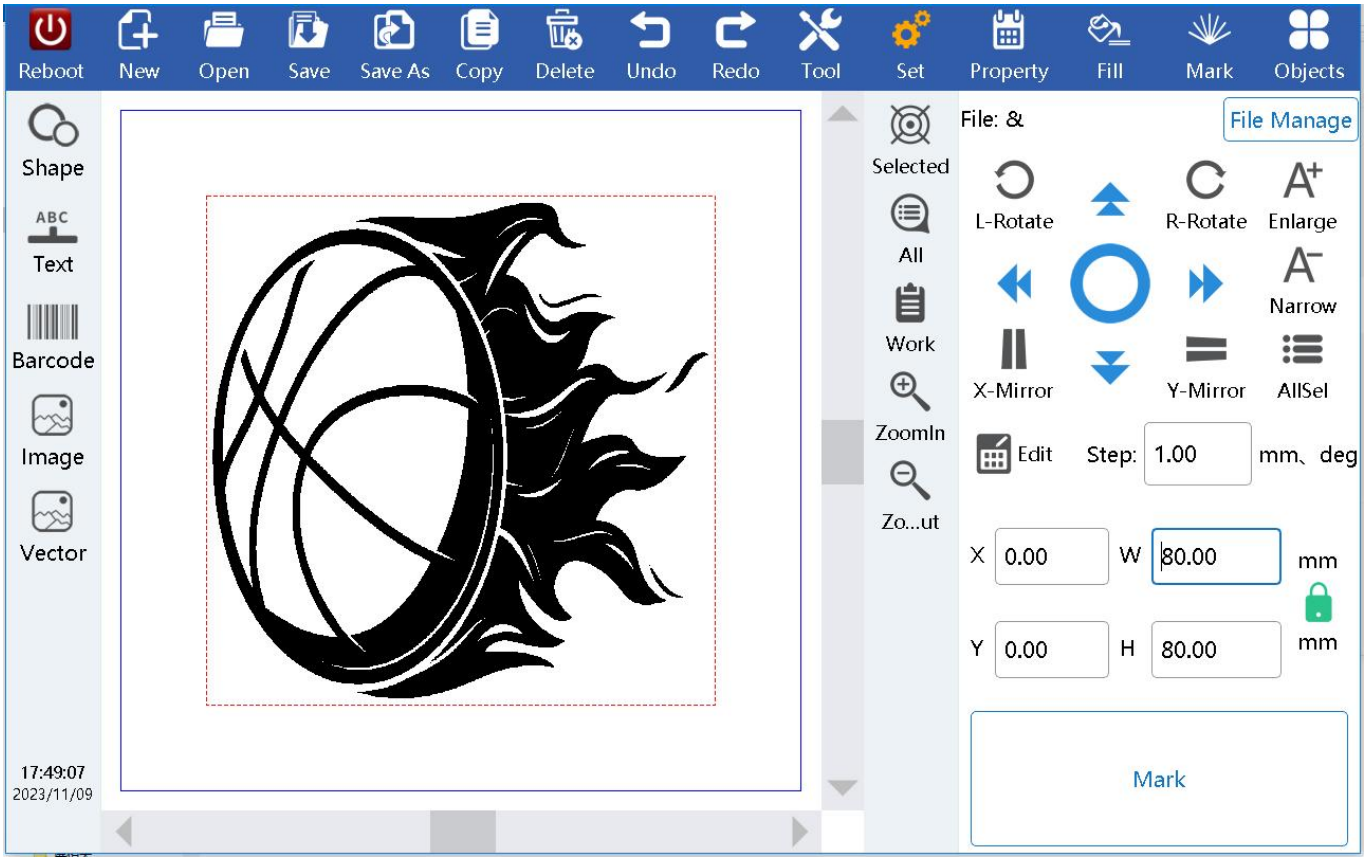


Figure 3-10

Chapter 4 Toolbars

4.1 New

Used to create a blank workspace for drawing. When selecting the "New" submenu, the software will close the file currently being edited and create a new file. The software will prompt whether to save the current file. If you click "Yes", it will be saved according to the current state and a new blank page will be created; If you click "No", the file will be saved in its previous state and a new blank page will be created.

4.2 Open

Used to open an archive file saved on an internal hard drive.

4.3 Save, Save As

Save the drawing in progress with the current file name

Used to save the current drawing to a different file name. Both implement the function of saving files.

4.4 Copy/Delete

Copy the selected graphic objects to the workspace while preserving the original graphic objects.

Delete the selected graphic objects.

4.5 Undo/Redo

When performing document editing operations, if you are not satisfied with the current operation, you can use the 

Cancel the current operation. After revoking the current operation, you can use 

The operation of canceling the function restoration. This is one of the most commonly used functions for editing work.

4.6 Tool

A series of processing for single or multiple objects

Chapter 5 View Bar

Figure 5-1

The currently selected object fills the entire view area for observation.

All objects in the current workspace fill the entire view area for observation.

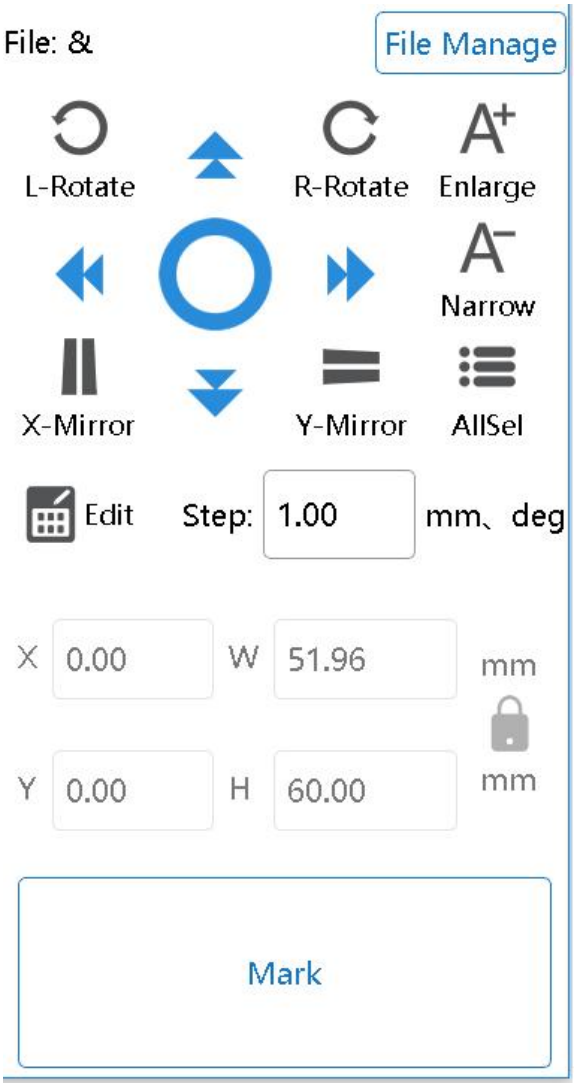
The current workspace fills the entire view area for observation.

Enlarge the current view.

Zoom out on the current view.

Chapter 6 Editorial Bar

6.1 Editorial Bar



	Counterclockwise rotation		clockwise rotation
	move up		Down
	left		Right
	Increase font size		Reduce font size
	Horizontal Mirror		mirror vertically
	Move to center		Select All Objects
Edit	Edit Text Object	Step: 1.00 mm、deg	Choose movement distance (mm), zoom in/out size (mm), or rotation angle (degrees)
	Lock and unlock the aspect ratio of objects	File Manage	Manage local and USB files
W 51.96 H 60.00	Size setting for selected objects (mm)	X 1.0 Y 0.0	Coordinate position setting for selected objects (mm)
Mark	Enter the marking page		

Chapter 7 Setting Menu

7.1 Laser settings

Laser type: fiber optic, blue light. As shown in Figure 7-1

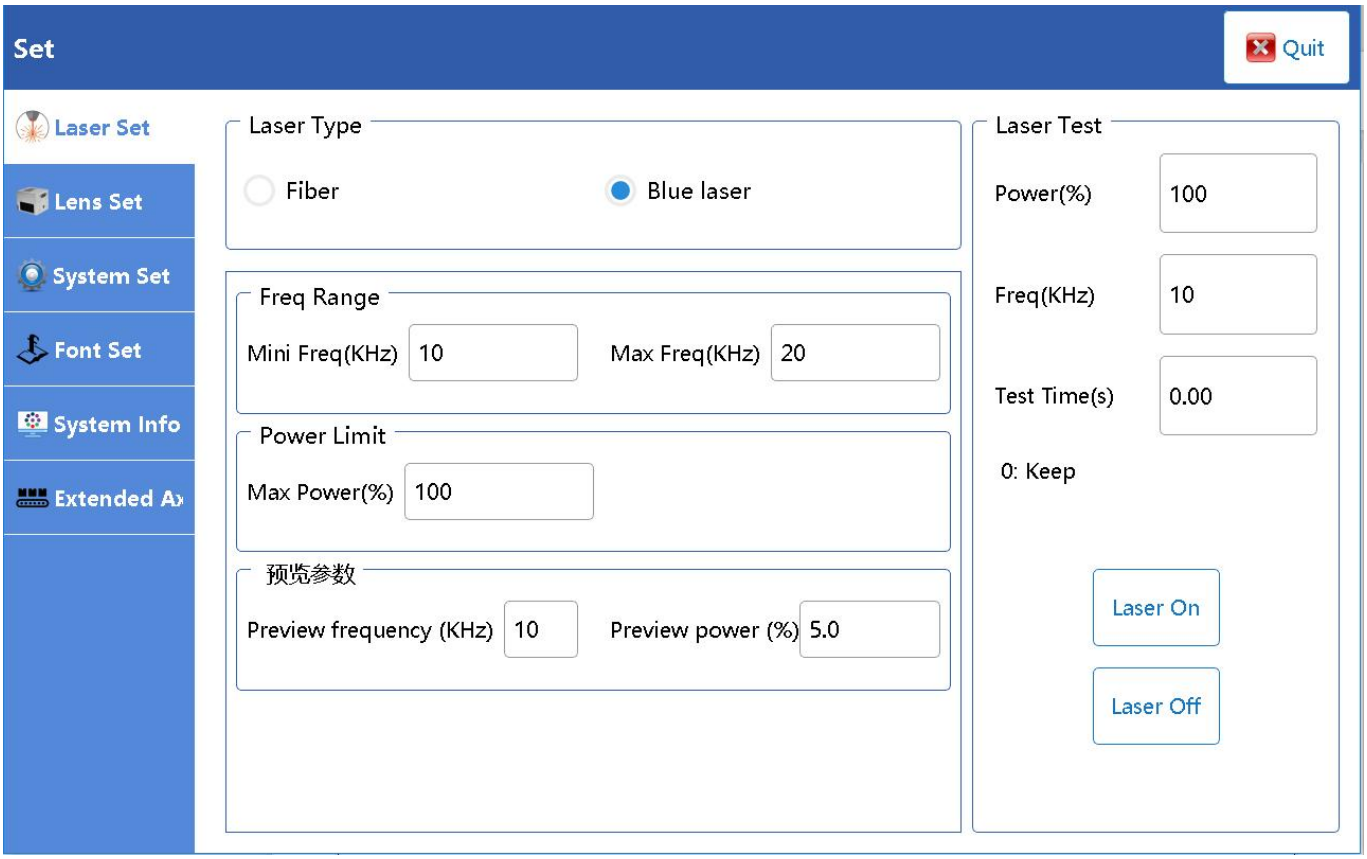


Figure 7-1

Fiber optic

MO: Default Normally Open

Frequency range: Set minimum and maximum frequencies

Laser testing: used for power measurement

Blue light

Frequency range: Set minimum and maximum frequencies

Power limit: Set power limit

Preview parameters: Set parameters for preview light

7.2 Galvanometer settings

The galvanometer of the laser marking machine may cause inconsistency between the actual engraved graphics and the software settings due to some physical characteristics of the lens and issues in optical path design. In order to make the actual engraved graphics consistent with the graphics designed in the software, the following parameters can be adjusted for correction. As shown in Figure 7-2

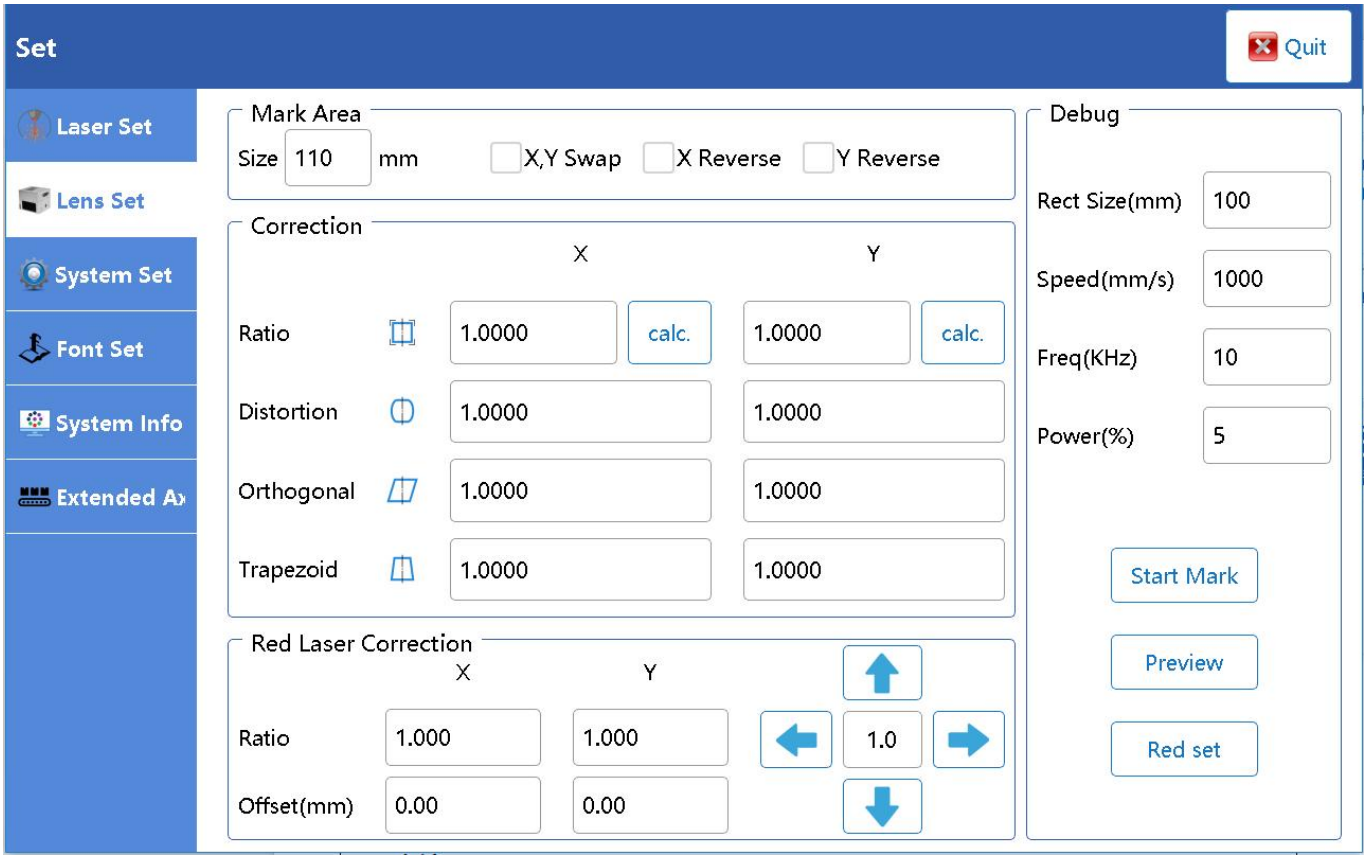


Figure 7-2

Mark Area

Size:the size of the work area size, the general set to the lens corresponding to the actual maximum marking range

X,YSwap: Coordinate eline XY exchange.

X/Y Reverse: Represents ote the output reverse direction of the current mirror.

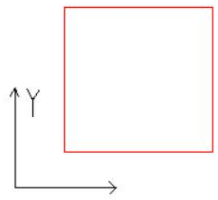
Correction

Ratio of actual line length to set line length.

Represents the barrel or pillow distortion correction coefficient. The default coefficient is 1(parameter range 0.8 to 1.2). To achieve the effect of the target graph, you can adjust this value:

X-Axis Correction method: First look at the two vertical lines is a straight line, if the first case on the right, then the X axis corresponding to the galvanometer coefficient smaller; if the second case, the X-axis corresponding The coefficient of the galvanometer is changed.

Y-Axis Correction method: Refer to the above methods



Target Graph

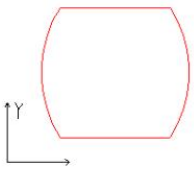


Figure 1

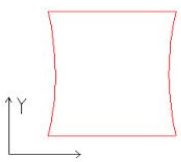
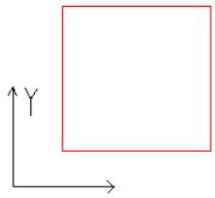


Figure 2

Represents the parallelogram correction coefficient. The default coefficient is 1. To achieve the effect of the target graph, you can adjust this value.



Target Graph

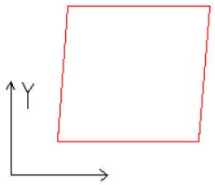
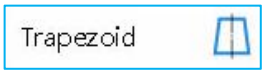
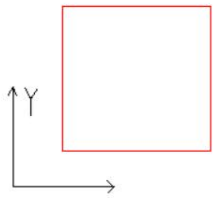


Figure 3



Represents the trapezoidal correction coefficient, the default coefficient is 1.To achieve the effect of the target graph, adjust the value:



Target Graph

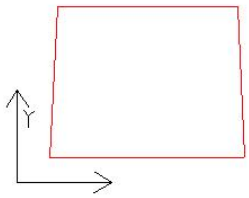


Figure 4

Red light correction

Scale: Adjusting the preview red light scale

Offset: Adjust the preview red light position offset or adjust it by moving the cursor up, down, left, and right

7.3 System Settings

System settings. As shown in Figure 7-3

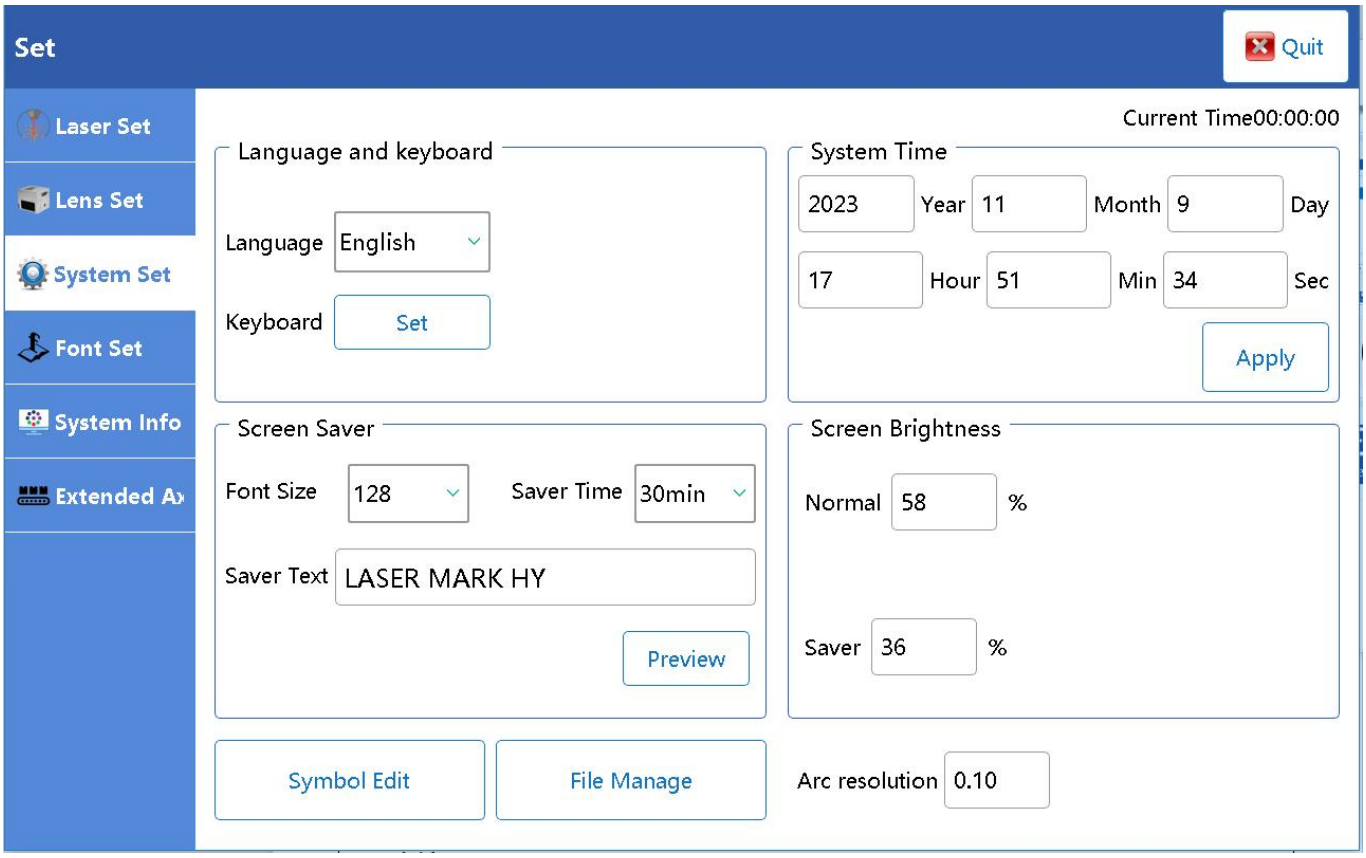


Figure 7-3

7.3.1 Keyboard

Language: Language switching, requires a restart to take effect

Keyboard: input method settings

7.3.2 system time

Modify the time, click on the application to take effect immediately

7.3.3 Screen saver

Screen saver settings

7.3.4 Input Method Symbols

: Add Unicode encoding symbols, add corresponding symbols according to Unicode encoding, and after adding, the symbols can be displayed in the input method

7.3.5 file management

: Management system internal files

7.3.6 Arc resolution

Curve resolution, the smaller the value, the higher the resolution.

7.4 Font Management

Users can add fonts (format:. ttf) in font management (As shown in Figure 8-4).

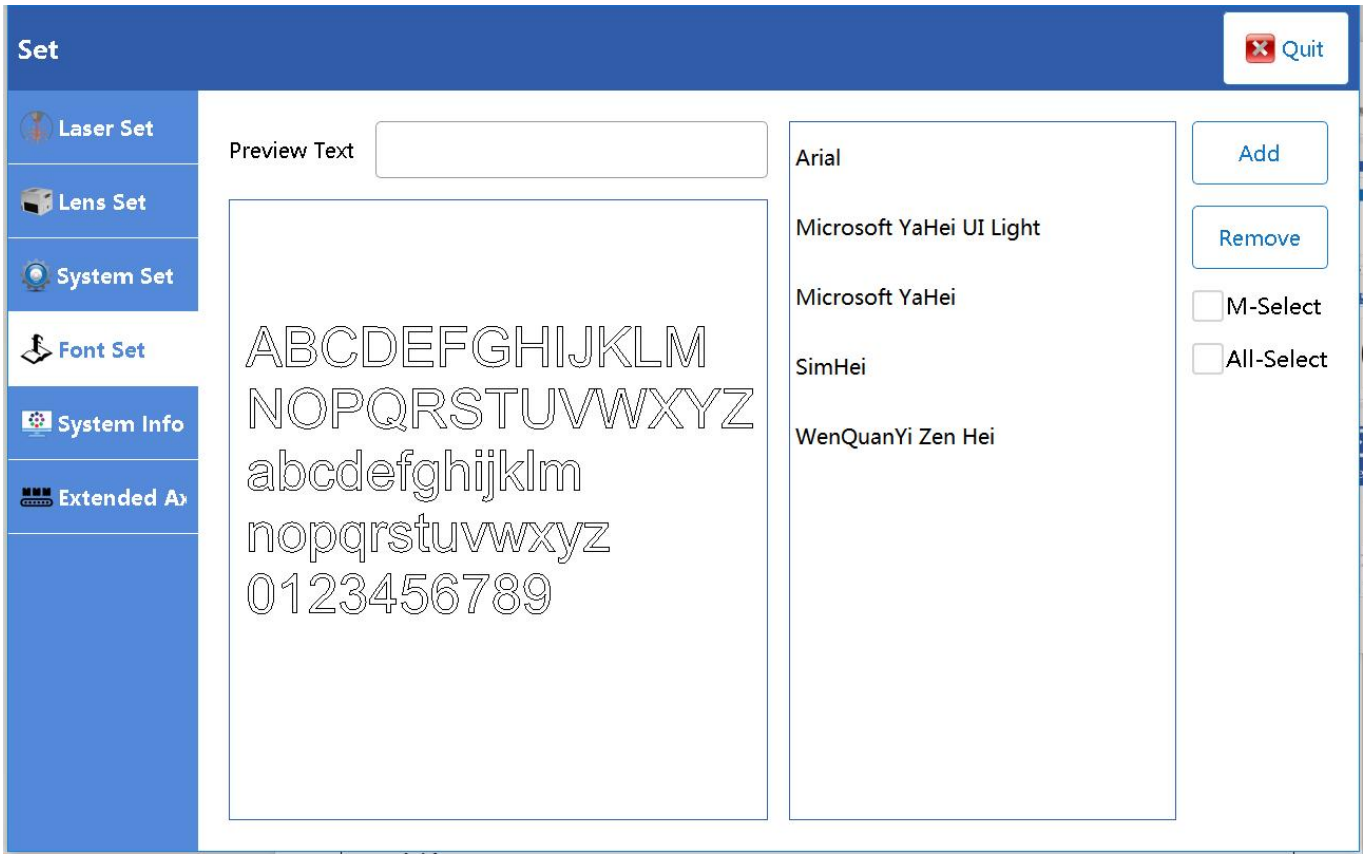


Figure 7-4

7.5 System information

As shown in Figure 7-5, display product information

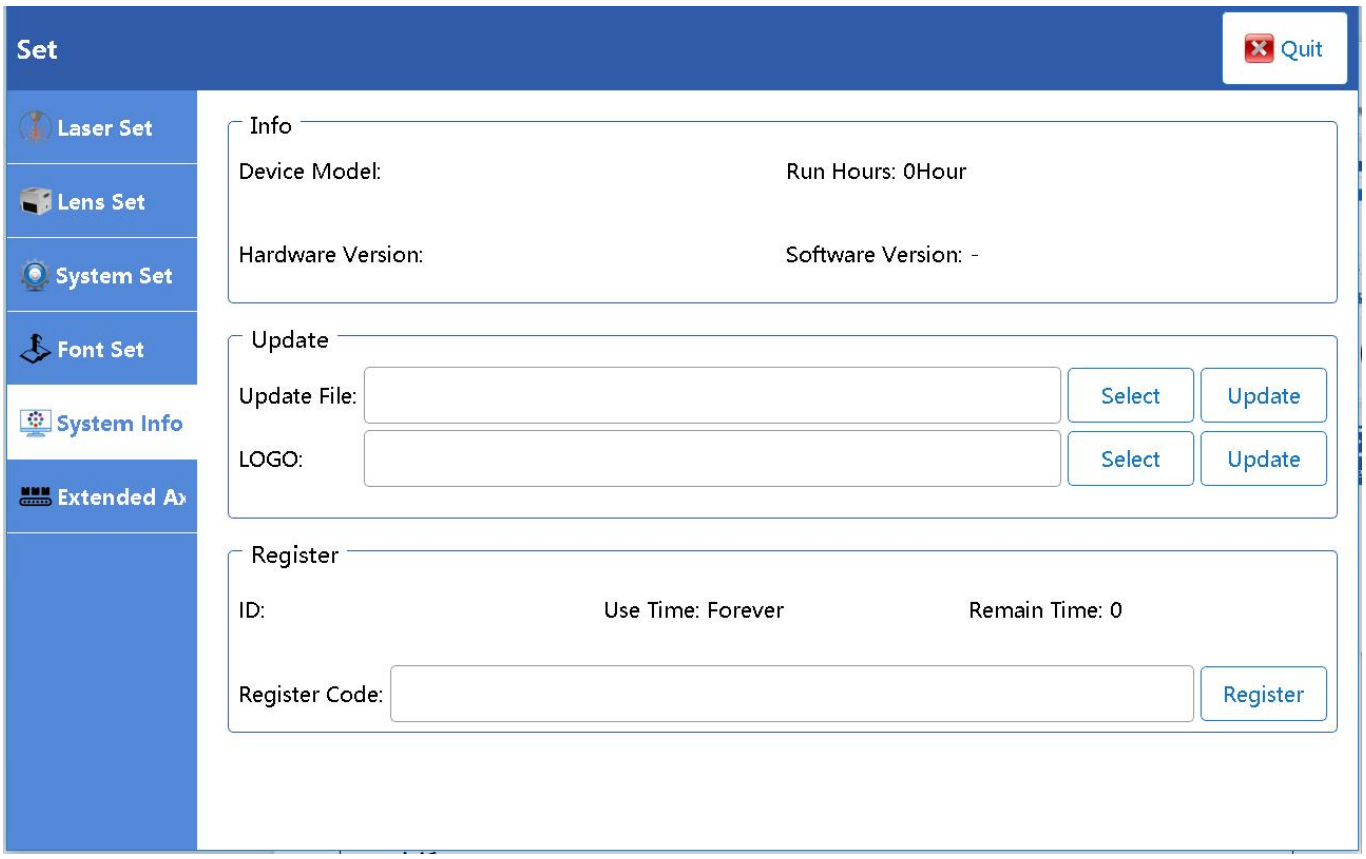


Figure 7-5

Upgrade package: Copy the manufacturer's price increase package to a USB drive and upgrade through the USB drive

7.6 Extension Axis Settings

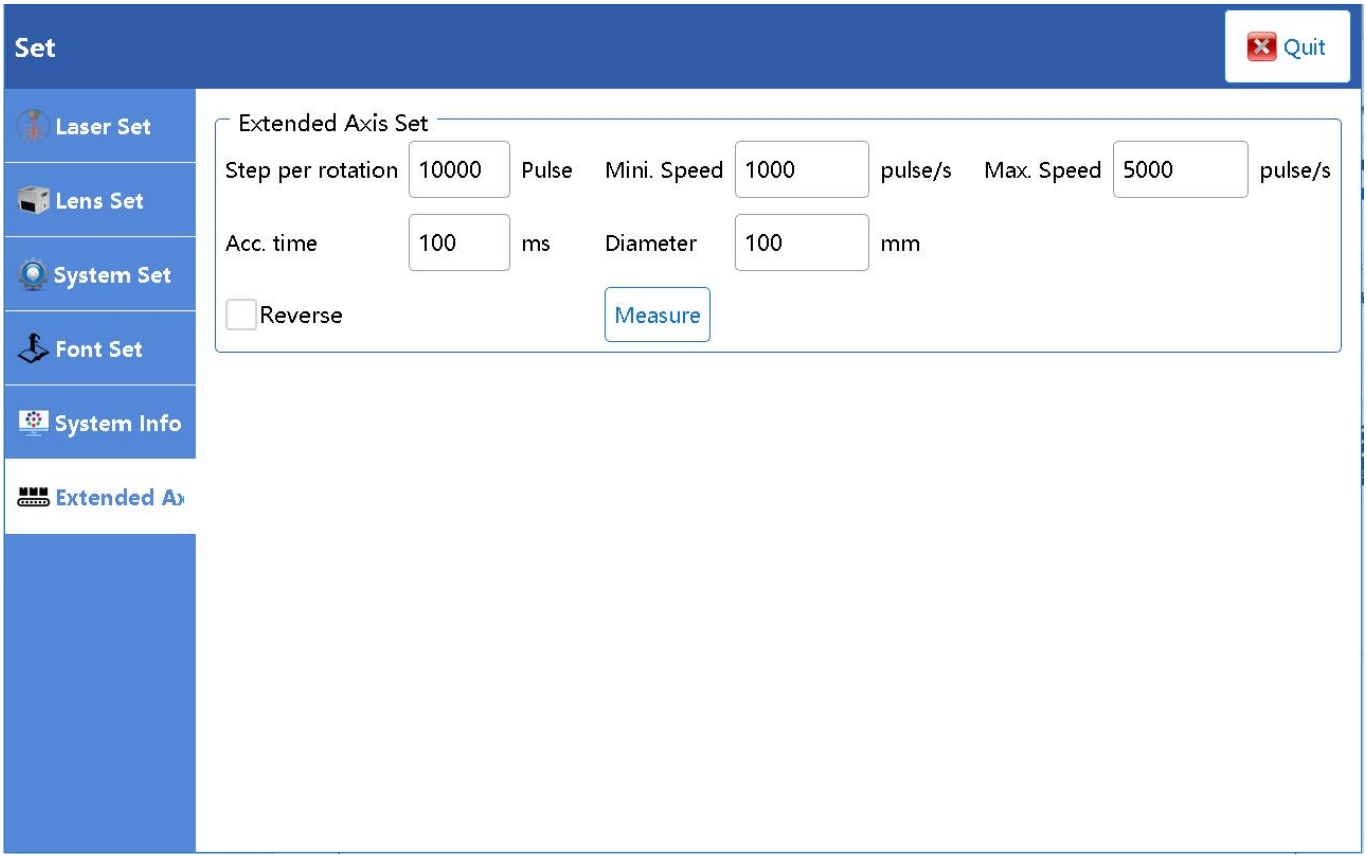


Figure 7-6

Pulse per revolution: refers to the number of pulses per revolution of the product

Minimum speed: The minimum speed at which the extension axis can move, which is the starting speed of the extension axis

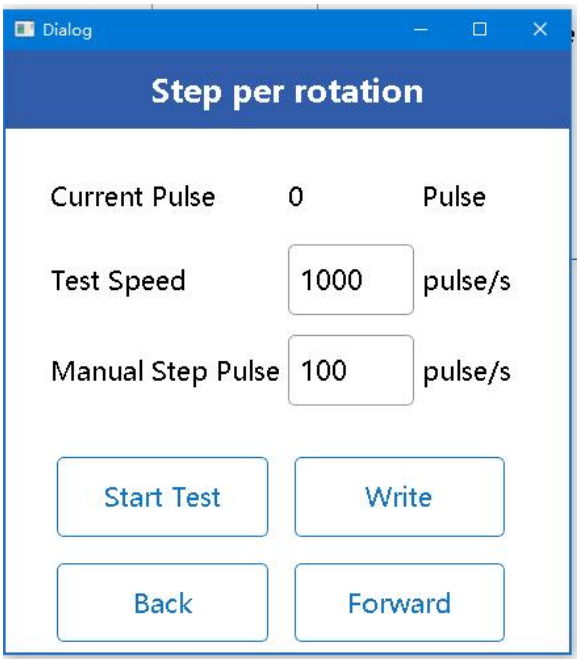
Maximum speed: the maximum speed at which the extended axis can move

Acceleration time: The time required for the extended axis to accelerate from the minimum speed to the maximum speed

Reverse: Check this option to indicate that the rotation axis is reversed

Object diameter: The diameter of the object that needs to be carved

Measurement: Measure the number of pulses per revolution



Current pulse count: represents the real-time pulse count of the object's rotation at this time

Test speed: The rotational speed at which the extended axis can move

Manual step pulse: represents the number of pulses when clicking "forward" and "backward"

Start testing: Mark the product first, then click to start testing. The rotation axis starts to rotate. When the object rotates one full circle, click to stop testing (when the stopping position has not been reached or has exceeded one circle, it can be adjusted by jogging forward and backward)

Forward: Jog forward rotation (the number of pulses per step is the set value for manual step pulses)

Step back: jog and rotate in reverse (the number of pulses per step is the set value for manual step pulses)

Write: After the test is completed, write the current number of pulses to the device

Chapter 8 Filling Parameters

The selected shape can be filled with a closed curve, as shown in Figure 8-1

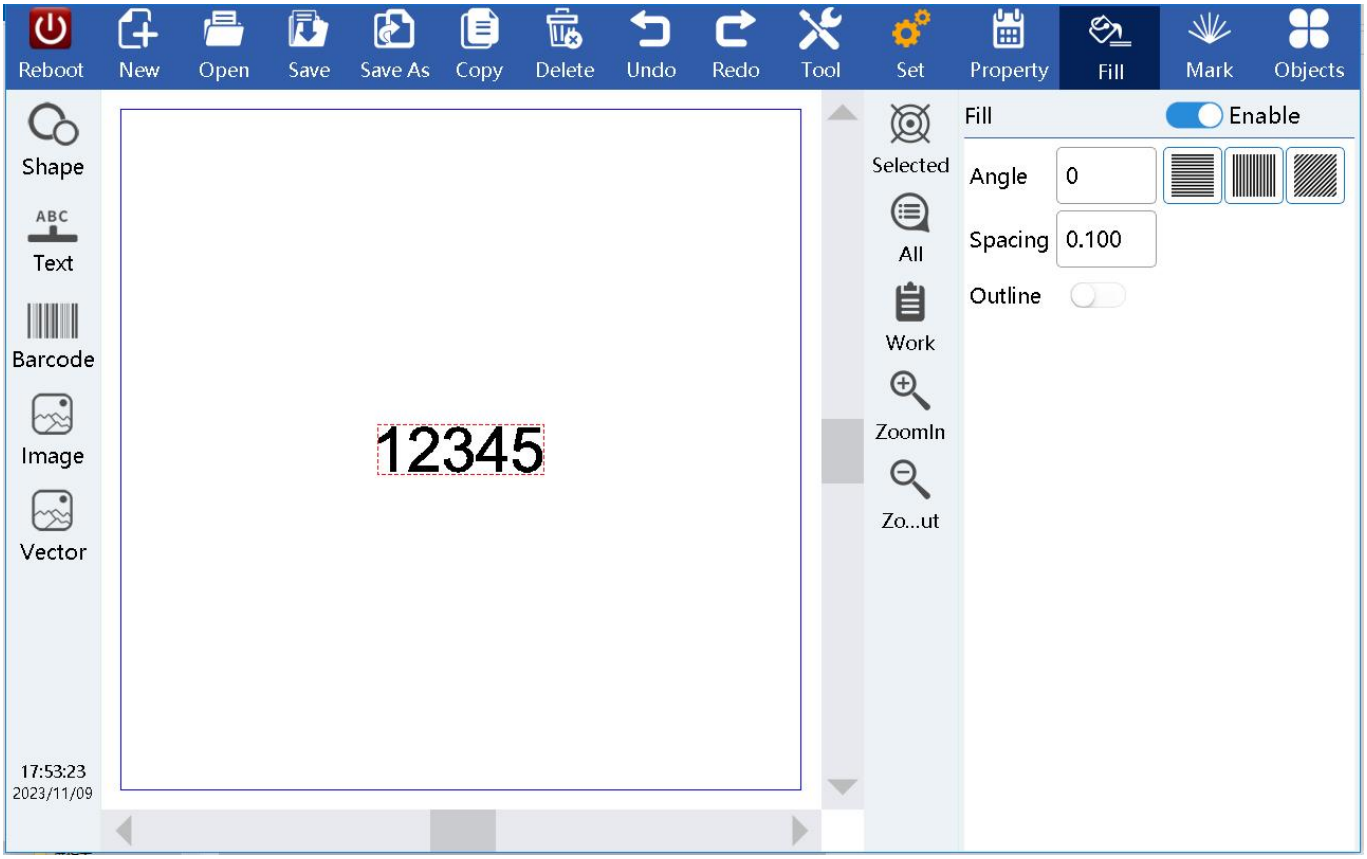


Figure 8-1

Enable: Enable the filling function.

Angle: Refers to the angle between the fill line and the X-axis.

Line spacing: refers to the distance between adjacent lines of a fill line.

Outline: Indicates whether to display and mark the outline of the original shape. Whether the filling shape retains the original contour.

Chapter 9 Marking

click Mark Enter the marking page, as shown in Figure 9-1

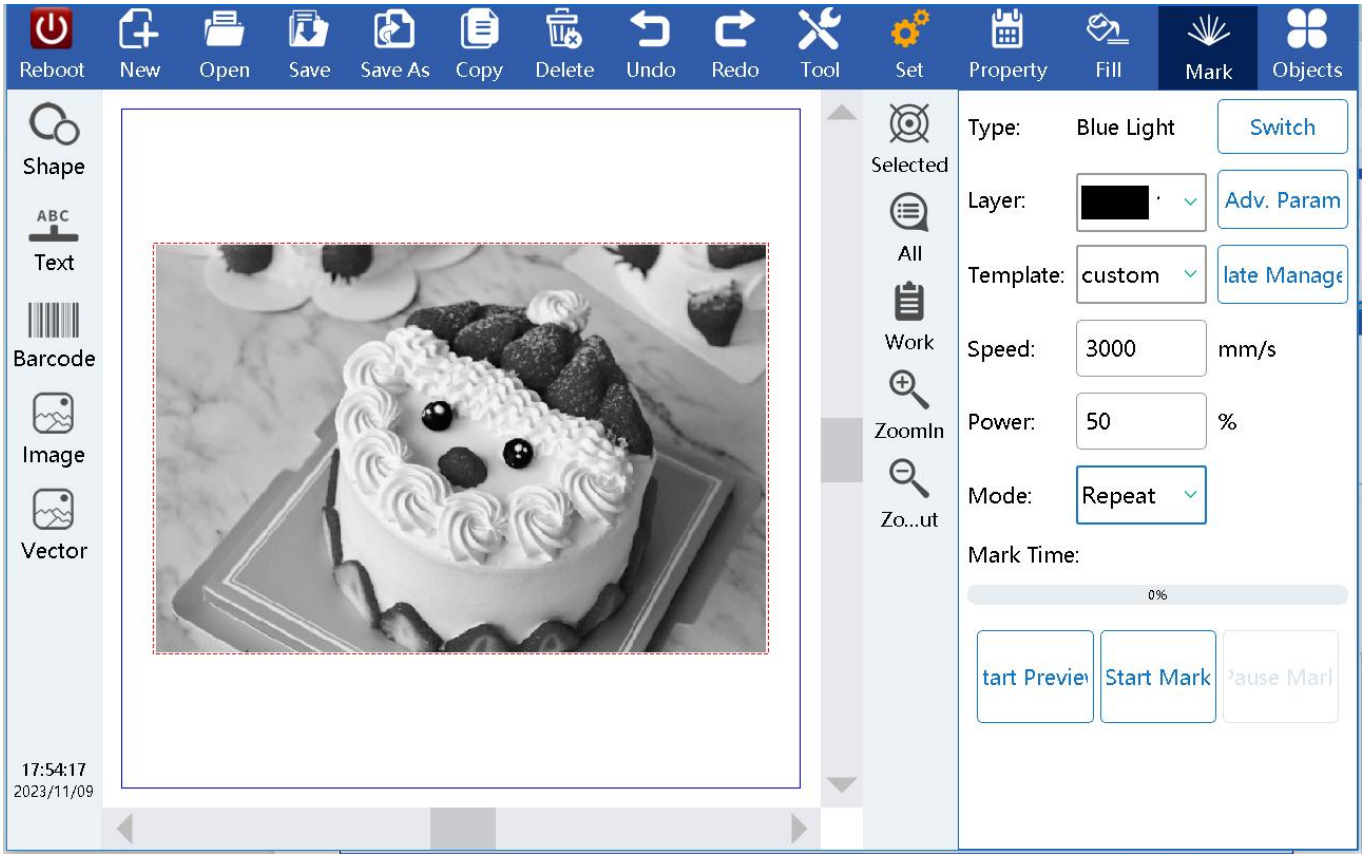


Figure 9-1

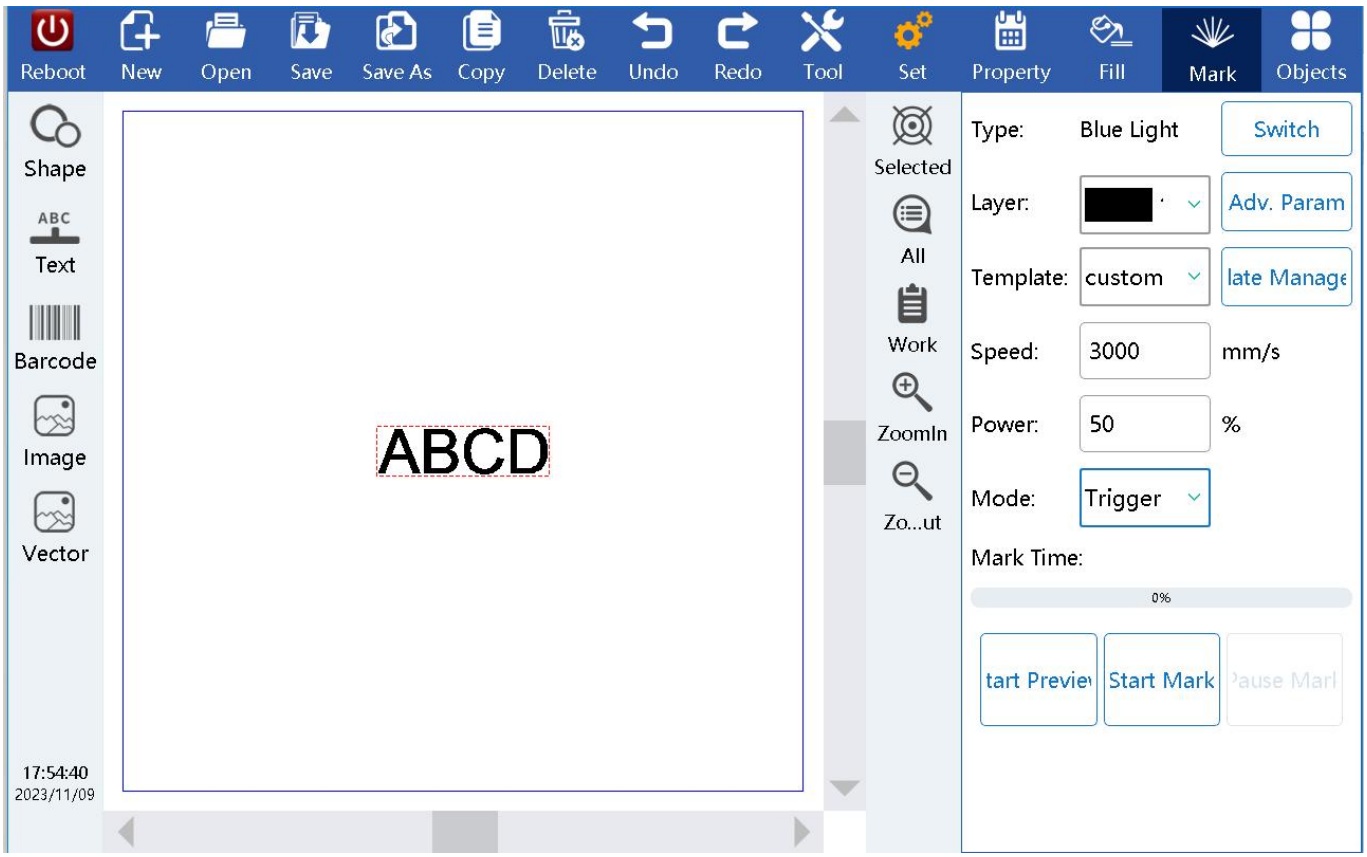


Figure 9-2

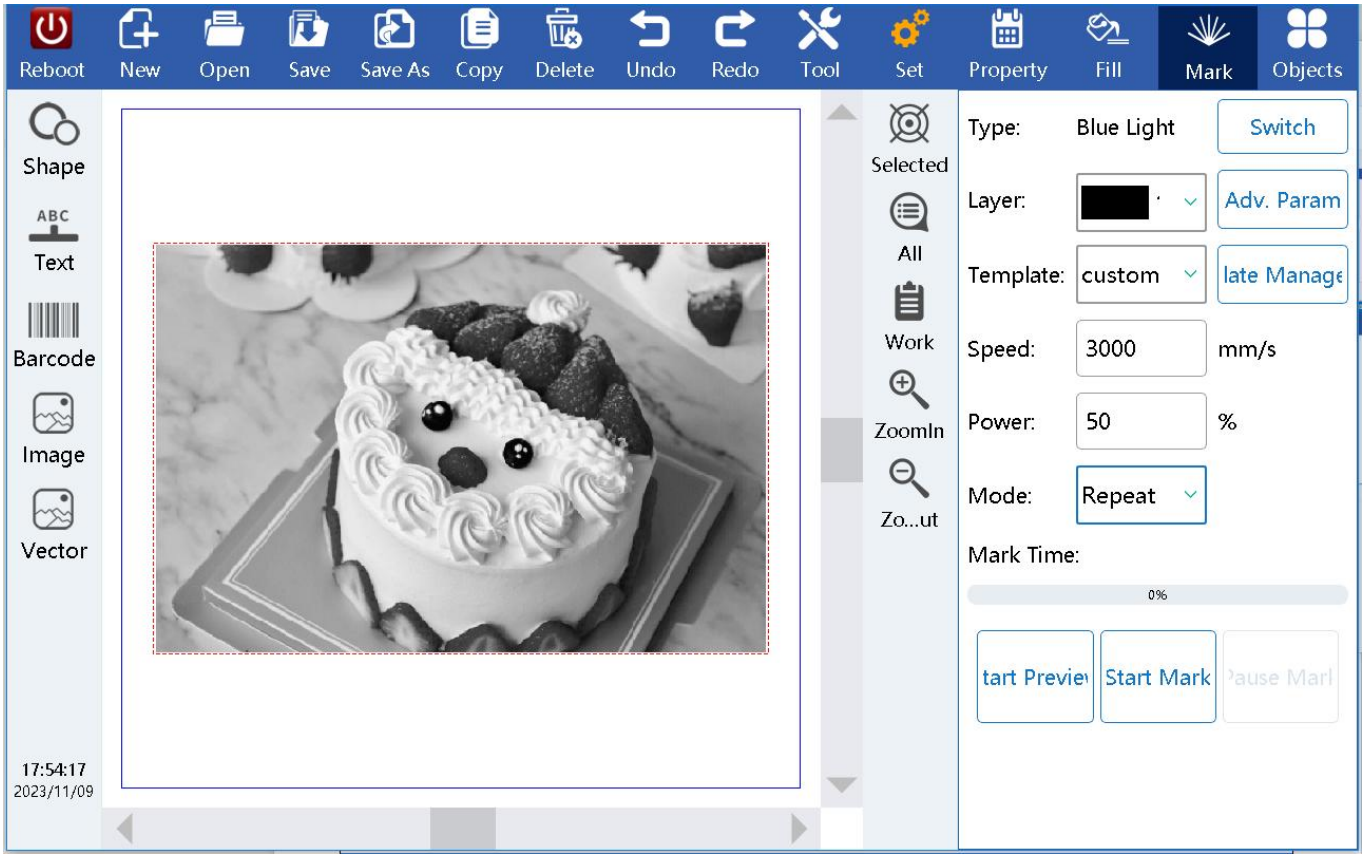


Figure 9-3

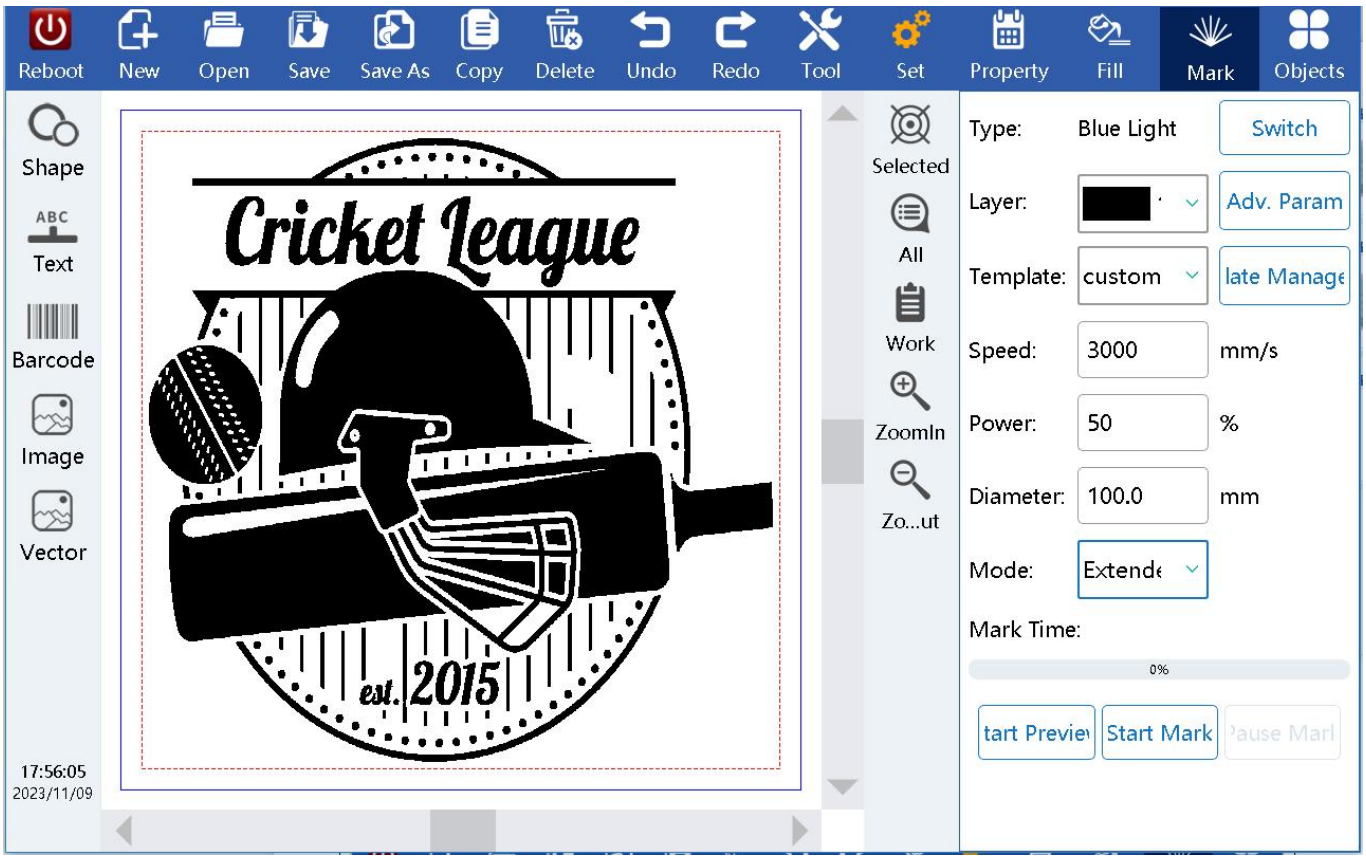


Figure 9-4

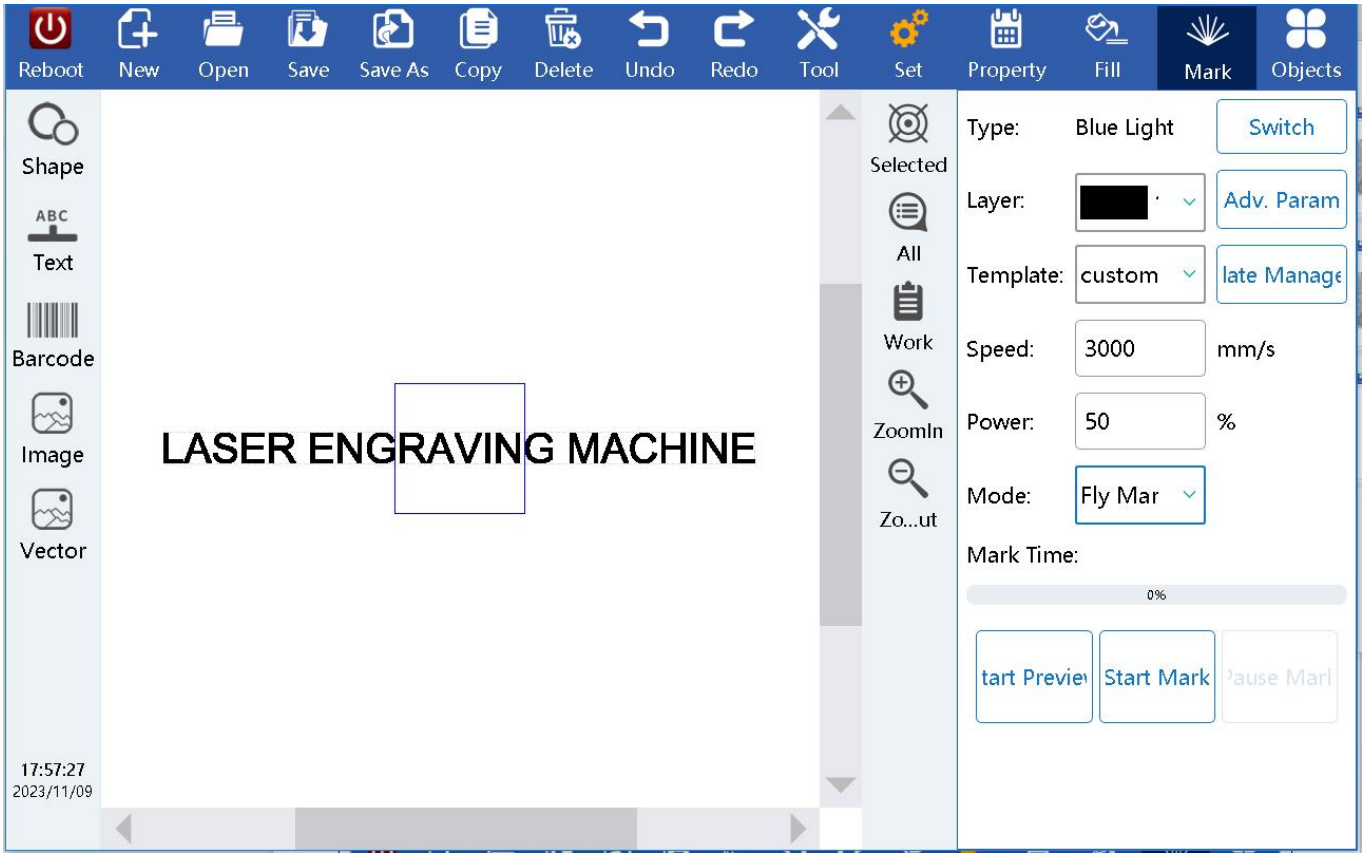


Figure 9-5

Type: Switching laser types

Speed: refers to the percentage of maximum marking speed (maximum speed for advanced parameters)

Power: represents the percentage of marked power, and 100% represents the maximum power of the current laser. (Range 0-100%)

Mode:

① Single marking: Refers to starting marking with one jog, marking once

② Trigger marking: indicates the marking is triggered by external signals

③ Repetitive marking: A marking that indicates uninterrupted repetition

④ Extended axis marking: represents the dynamic marking of object rotation

⑤ Motion marking: Refers to the horizontal dynamic marking of an object, which can be selected for marking ultra long information

Start marking: Click to start marking

Stop marking: Click to stop marking

Pause marking: Click to pause marking

Advanced parameters: as shown in Figures 9-6

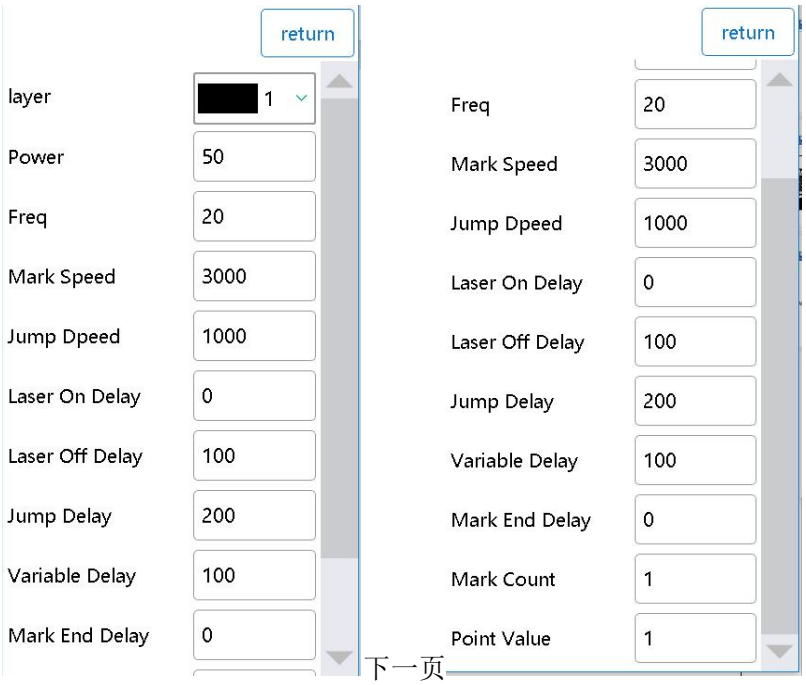


Figure 9-6

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

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

Mark 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).

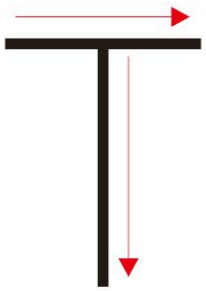
Jump speed:Definition: (Unit: mm/s). Refer to the oscillating speed of MirrorX and MirrorY in the scan head during jumping. Range of (1-20,000mm/s).

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 50μs.

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. Thesettings 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.



Target Graph

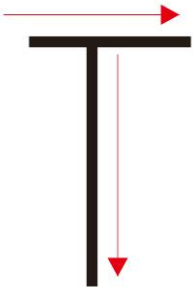


Figure 6

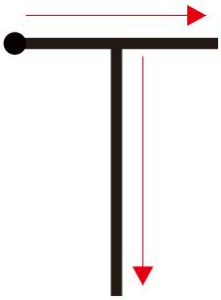
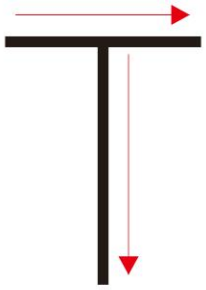


Figure 7

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.



Target Graph

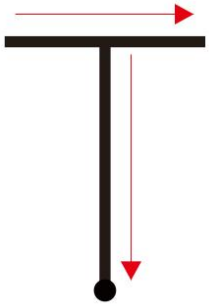


Figure 8

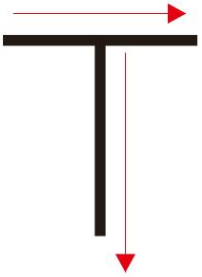


Figure 9

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.

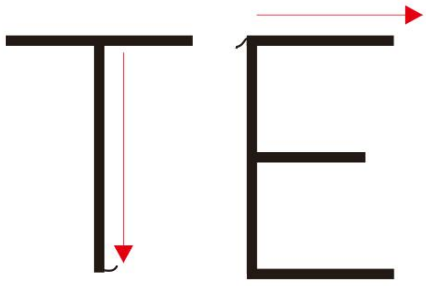
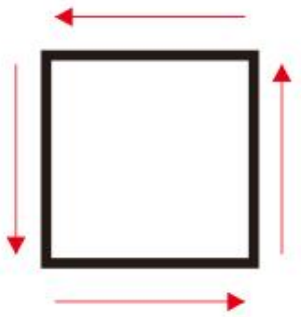


Figure 10

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.



Target Graph

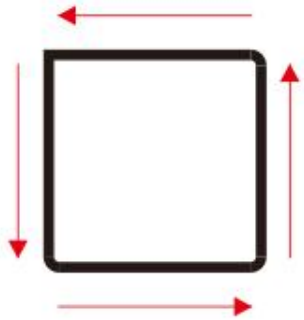


Figure 11

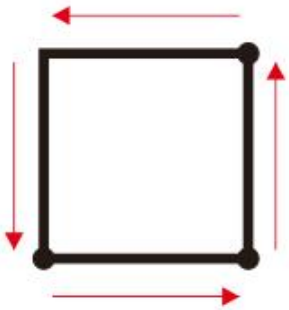


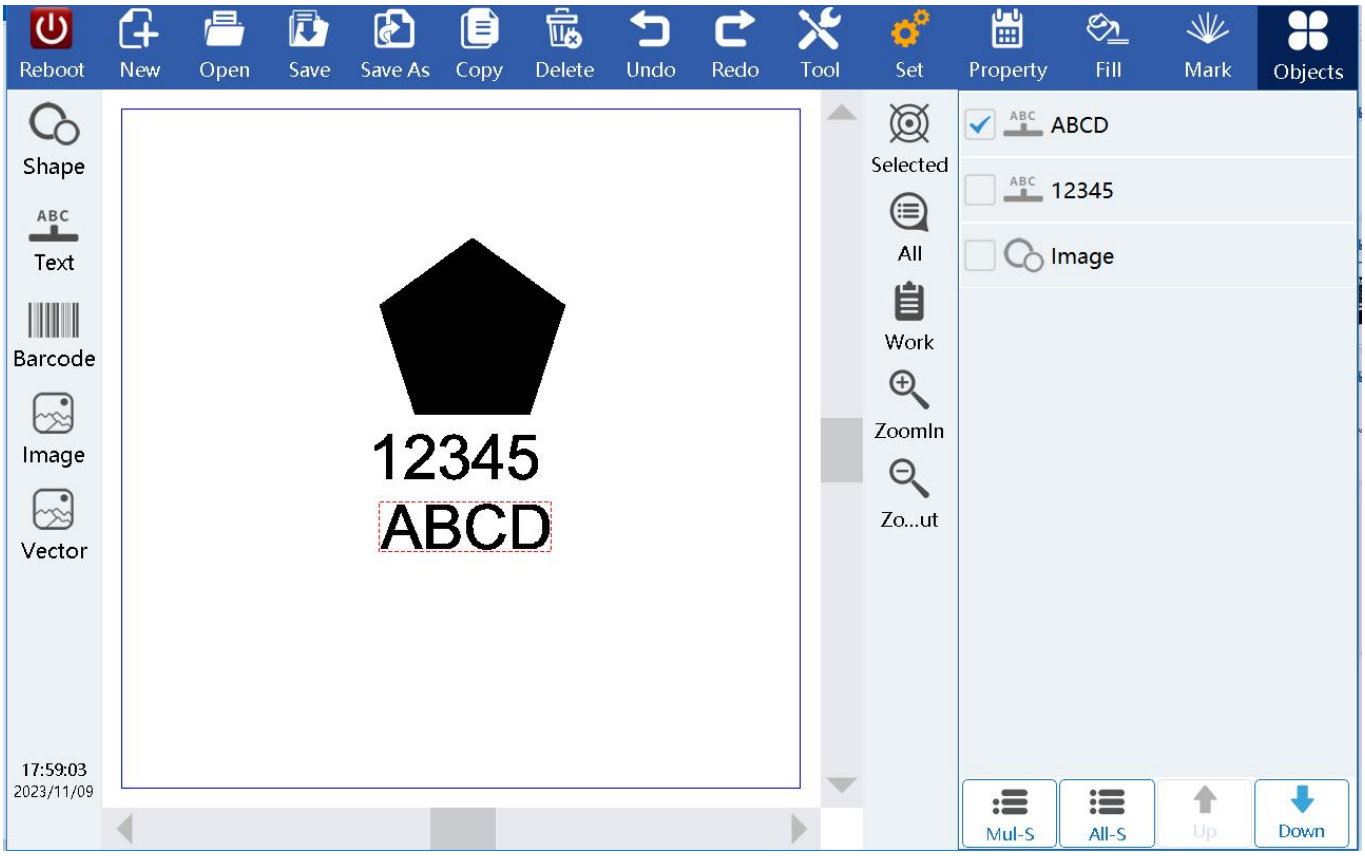
Figure 12

Mark end delay: General situation where the light command issued to completely shut down after the need for a period of time, response time, set the end of the appropriate delay for laser fully closed laser response time, to let the laser in the case of fully closed, the purpose of the next carving prevent light-leaking, point phenomenon appeared.

Min. jump delay: Jump distance delay. After each jump, the system automatically waits for a period of time before executing the next command. The actual delay time is calculated by the formula: Jump delay = jump position delay + jump distance × jump distance delay.
Min. jump length: The system automatically waits for a period of time before executing the next command after each jump. This period locks the jump distance.
Point Value： The number of 10us outputs or pulses from the same point.

Chapter 10 Object List

The marking order in the list is from top to bottom, so different marking orders can be achieved by adjusting the sorting of objects. In order to select objects more accurately and when there are too many objects that are difficult to select on the display interface, you can select them in the object list and then perform operations such as adjusting the order, editing, copying, and deleting.



Click to enable this feature, which allows you to manually select multiple objects

Click to enable this feature and select all objects

Move Selected Object Up

Move Selected Object Down