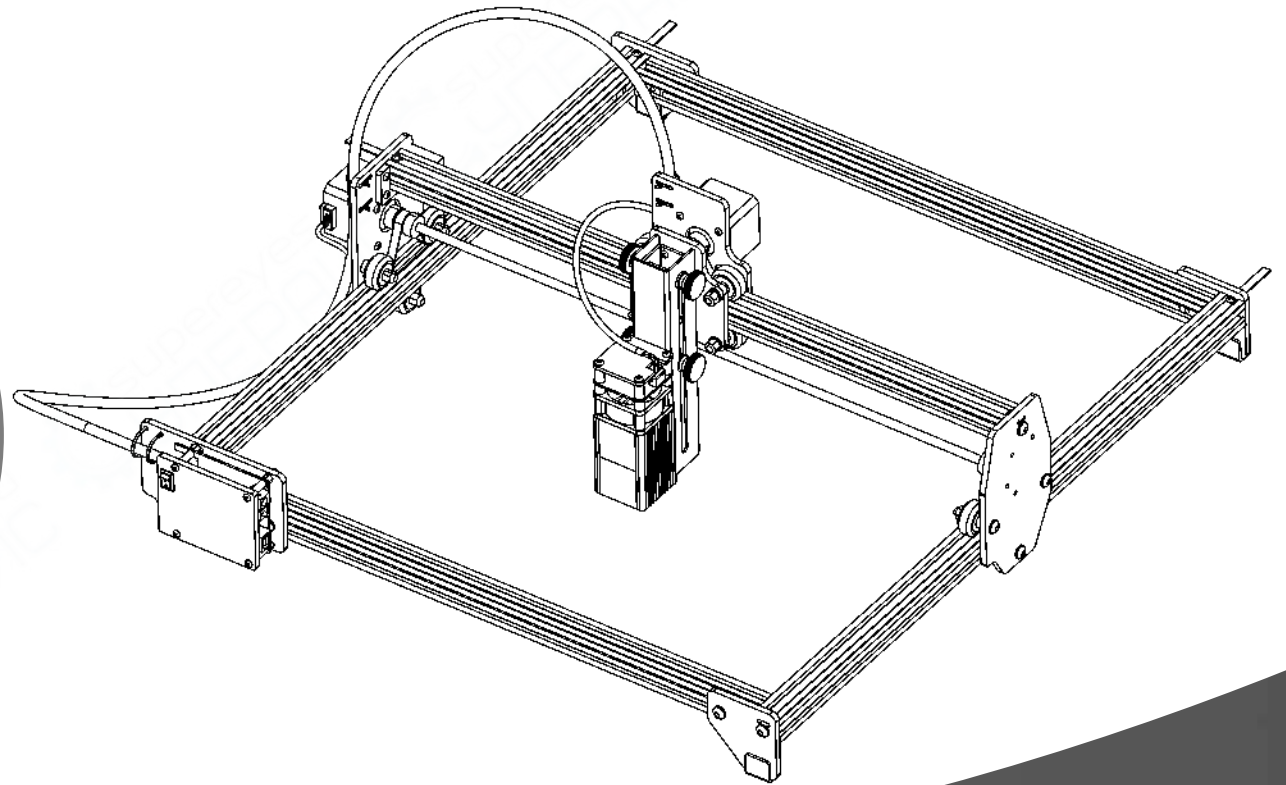# JL3
User Manual

JL3 Engraving Machine User Manual
Please read this manual carefully before use

Safety instructions

Thank you for purchasing our company's laser engraving machine, which is a high-tech product integrating light, machine and electricity. In order to make you better use and maintain the equipment, please read the manual carefully and follow the steps in the manual.

Important statement!

All losses caused by improper use or failure to follow the steps in the user manual shall be borne by the individual. The final interpretation right of the user manual belongs to the company, which has the right to modify all the materials, data, technical details, etc. in this manual.

Safety Precautions

★Before operating the equipment, the user must read this operating manual carefully and strictly follow the operating procedures.

★Laser processing may have risks, so users should carefully consider whether the processed object is suitable for laser processing.

★Processing objects and emissions should comply with local laws and regulations.

*This equipment uses the Class IV laser (strong laser radiation), which may cause the following conditions:

①Ignite the surrounding combustibles;

②During laser processing, other radiation and toxic and harmful gases may be generated due to different processing objects;

③The direct exposure of laser radiation can cause human injury. The place where it is used must be equipped with fire-fighting equipment. It is forbidden to stack flammable and explosive materials around the workbench and equipment.Be sure to maintain good ventilation.

*The environment where the equipment is located should be dry, free of interference and influences such as pollution, vibration, strong electricity, and strong magnetism. Working environment temperature should be 10-35℃, and working environment humidity should be 5-95% (non-condensing water).

★The working voltage of the equipment: AC100-240V.

*The engraving machine and other related equipment must be safely grounded before it can be turned on and operated.

★When the equipment is turned on, the personnel must be on duty throughout the whole process. Before personnel leave, all power must be cut off to prevent abnormal conditions from occurring. If any, please cut off the power immediately!

*It is not allowed to place any irrelevant total reflection or diffuse reflection objects in the equipment to prevent the laser from being reflected on the human body or flammable objects.

(v02-211215)

Safety instructions

*The equipment should be far away from electrical equipment sensitive to electromagnetic interference, which may cause electromagnetic interference.

*There are high voltages or other potential dangers inside the laser equipment.

Be careful!

Be careful of the laser

Do not
look directly

1. After the laser is turned on, it is not allowed to aim at humans, animals and flammable materials to avoid skin burns and fire.

2. The brightness of the laser is harmful to the eyes, so please try not to look directly at the laser.

Do not
reach in

Do not reach in

**TURN OFF MACHINE
WHEN NOT IN USE**

3. Keep your hands away from the machine when the machine is working to avoid injury.

4. Turn off the machine switch when the machine is not in use to avoid third-party operations.

JL3 Engraving Machine User Manual
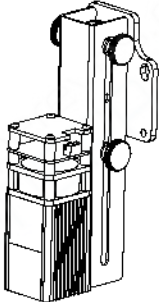
Table of Contents
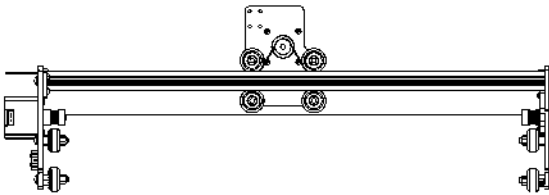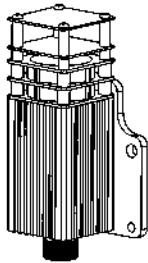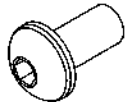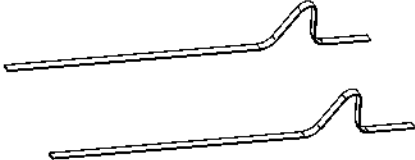
01 Product structure accessories

Structural diagram

Left and right timing belt (T1*2)

Stepper motor

X axis module

Rear bracket module of the base

switch

Power port

Offline engraving key

USB data interface

Front bracket-
module of the base

Laser head module

Base left and right bracket (P2*2)

X axis module	Front bracket module of the base	Fixed focus laser head module / Focus laser head module
Rear bracket module of the base	(P2*2) Left and right brackets of the base	(N3*5) Timing belt fixing nut / (S5*5) Timing belt fixing screw / (S10*5) Bracket set screw
PCBA harness module	Left and right timing belt (T1*2)	(N5*5) Laser head module fixing nut / (C1*5) Laser head module fixing flat washer / (S7*5) Lock travel switch / (N6*5) PCBA wiring harness module fixing nut / (C2*7) cable tie / (C3*4) Anti-slip foot pad

01 Product structure accessories

210mm

590mm

510mm
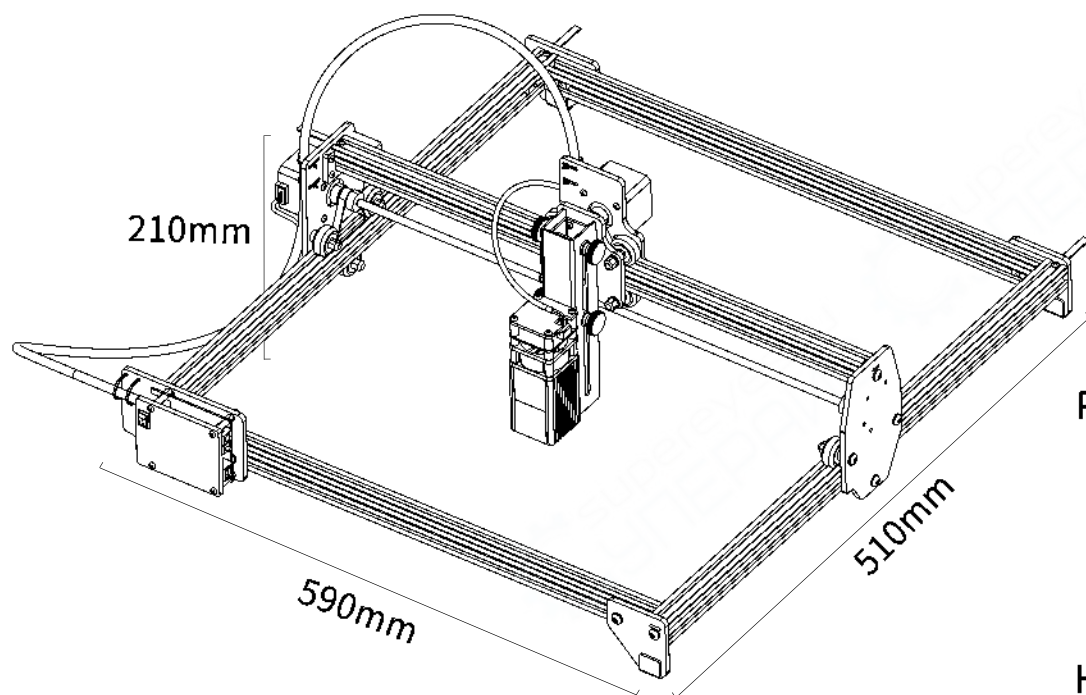
Accessories details

Power cable*1

Data cable*1

Brush*1

Protective glasses*1

Marker pen*1

Kraft paper+
Black card

Hexagonal wrench*3

Wrench*2

Instruction
manual*1

Assembly of X-axis module with left and right brackets and timing belt

Picture A

Picture B

Picture C
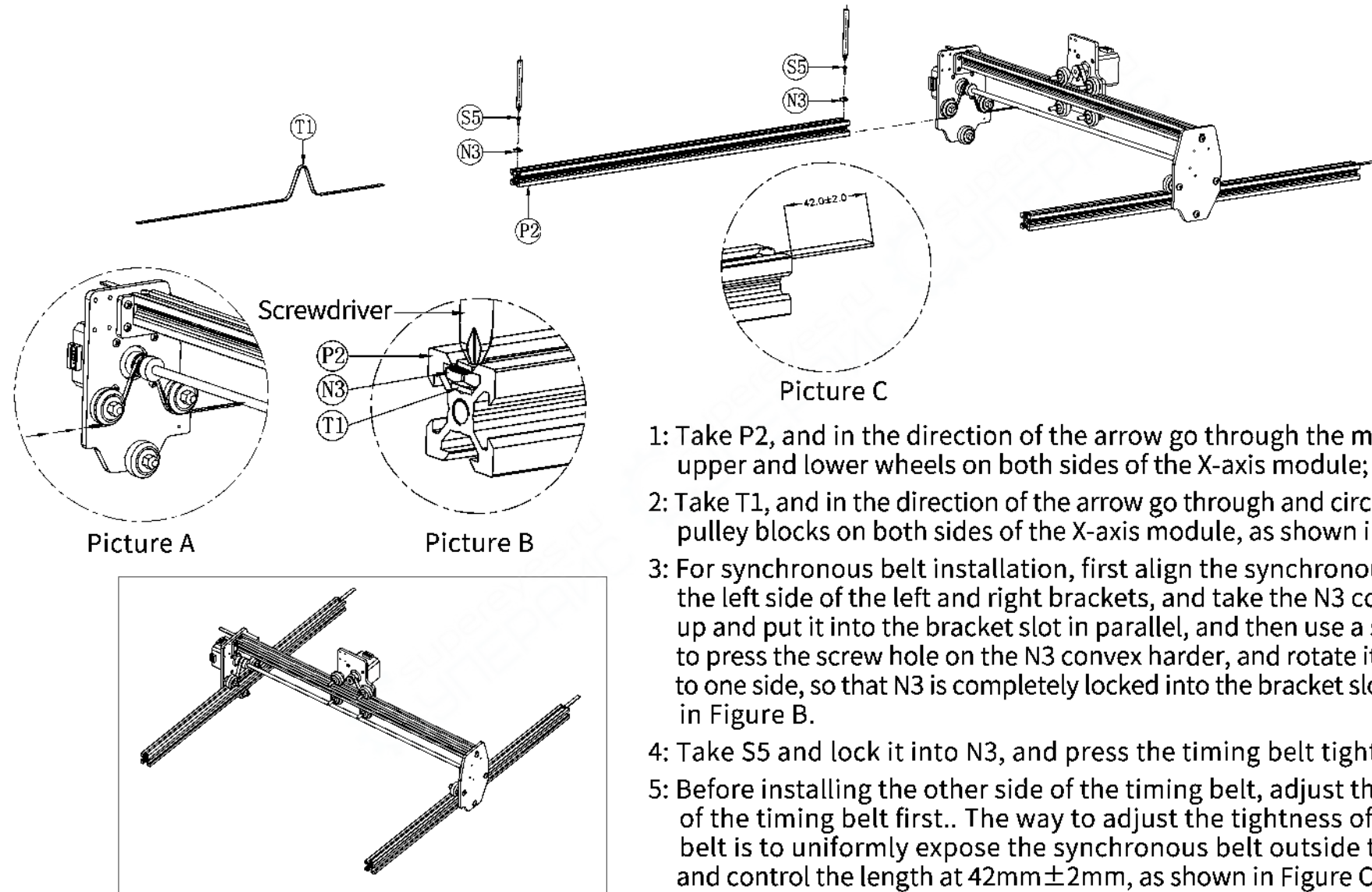
1: Take P2, and in the direction of the arrow go through the middle of the upper and lower wheels on both sides of the X-axis module;

2: Take T1, and in the direction of the arrow go through and circle the upper pulley blocks on both sides of the X-axis module, as shown in Figure A;
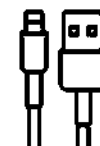
3: For synchronous belt installation, first align the synchronous belt with the left side of the left and right brackets, and take the N3 convex facing up and put it into the bracket slot in parallel, and then use a screwdriver to press the screw hole on the N3 convex harder, and rotate it 90 degrees to one side, so that N3 is completely locked into the bracket slot, as shown in Figure B.

4: Take S5 and lock it into N3, and press the timing belt tightly;

5: Before installing the other side of the timing belt, adjust the tightness of the timing belt first.. The way to adjust the tightness of the timing belt is to uniformly expose the synchronous belt outside the bracket and control the length at 42mm±2mm, as shown in Figure C, and install it in the same way;

6: Assemble the other side in the same way.

02 Assembly guidelines

Assembly of front and rear bracket modules of the base

Hexagonal wrench
S10
Hexagonal wrench
Hexagonal wrench
Hexagonal wrench
Front bracket module of the base
Front bracket module of the base
Hexagonal wrench
Hexagonal wrench
Hexagonal wrench
Hexagonal wrench
S10
S10
S10
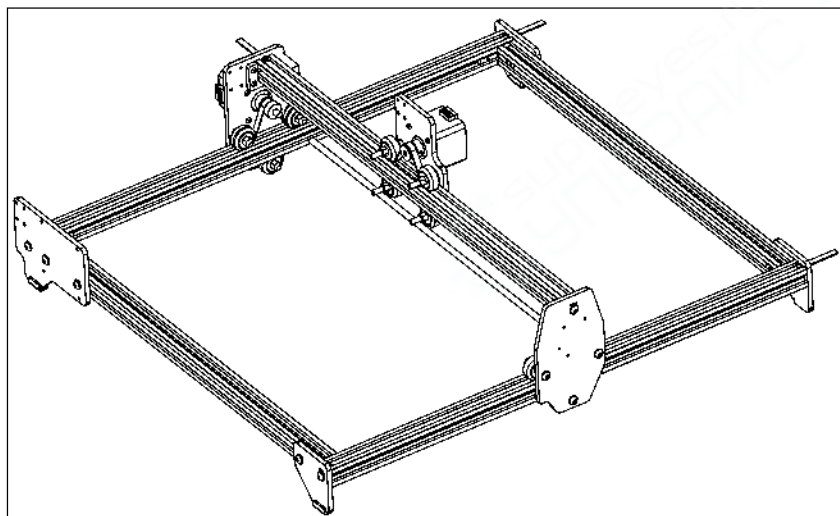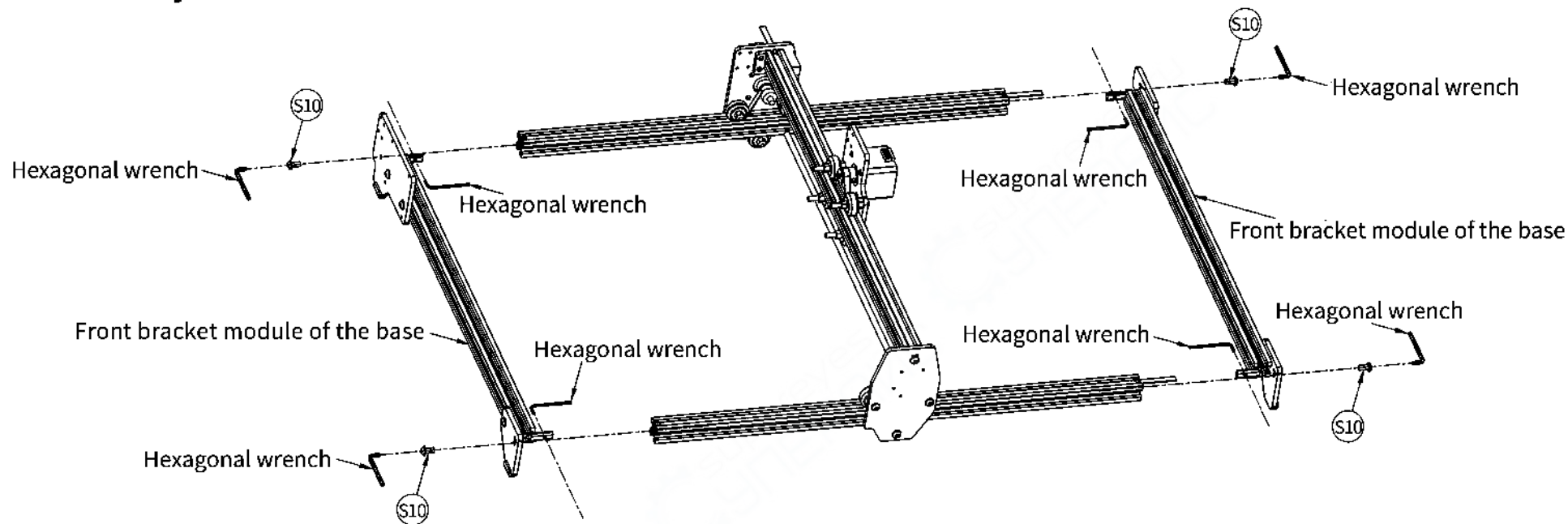
1: Take the front support module of the base and insert the right-angle connectors on both sides into the inner slot of the left and right supports, with no gap between the mating surfaces and with the leveled top surface, and then tighten the set screws on the right-angle connector with a hexagonal wrench, and finally pass the S10 through the front bracket of the base.

2. The bracket module behind the base is assembled in the same way.

PCBA wiring harness module assembly

PCBA wiring harness module assembly

N6
N6
N6
N6

1: Take the PCBA wiring harness module and insert the four mounting screws into the four corresponding mounting holes on the front support module mounting plate of the base;

2: Take N6 and tighten them with four mounting screws respectively;

3: Wiring (motor, laser module)

4: Fixed travel switch;

5: Paste the foot pad as required.
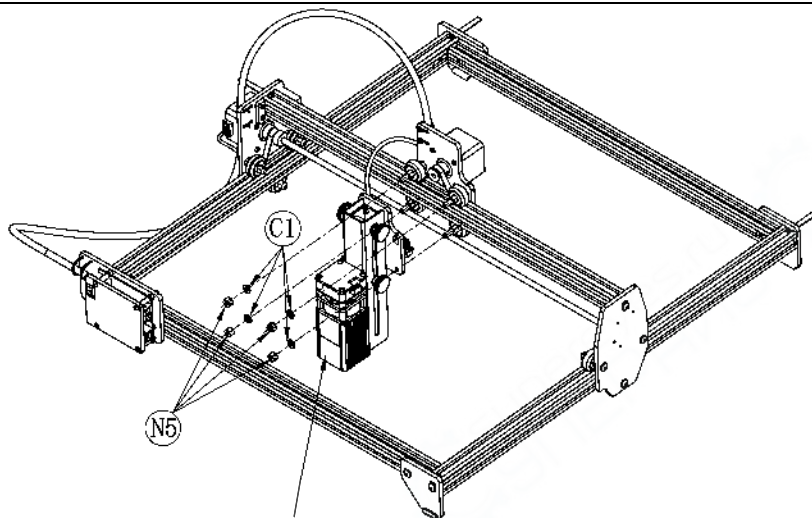
C1

N5

Fixed focus laser head module

1: Insert the four mounting screw holes on the mounting plate of the fixed-focus laser head module into the four mounting screws on the X-axis module;

2: Take R and put them into the four mounting screws on the X-axis module, and then take N5 and tighten them with the ounting screws;

C1
C

N5
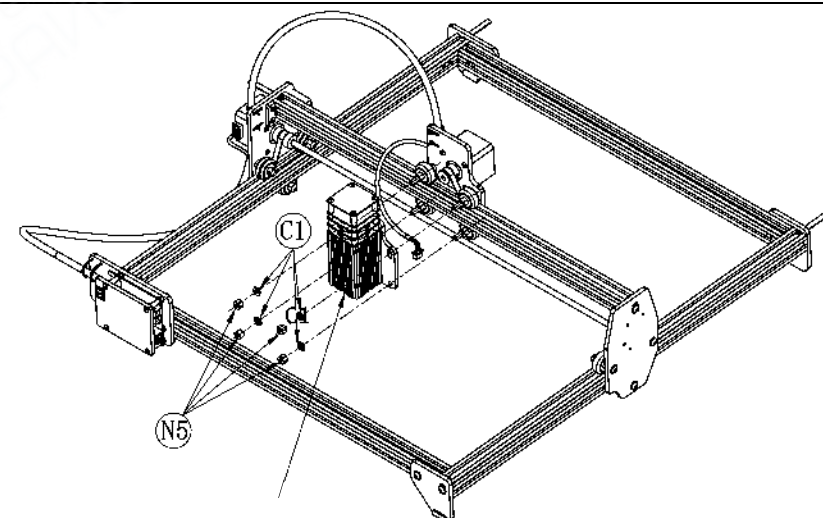
Focus adjustment laser head module

1: Insert the four mounting screw holes on the mounting plate of the focus-adjustment laser head module into the four mounting screws on the X-axis module;

2: Take R and put them into the four mounting screws on the X-axis module, and then take N5 and tighten them with the ounting screws;

02 Assembly guidelines

Cable tie, wiring, foot pad assembly

1: The wiring harness on the PCBA module needs to be tied to the mounting hole on the tripod in the vertical direction with a cable tie, as shown in the figure;

2: The wiring harness ports on the PCBA module are connected to the corresponding accessories respectively as shown in the figure.

3: As shown in the steps of the figure, the anti-slip foot pads respectively stick to the bottom of the tripod, and then press with your hands to increase the adhesion strength.

03 Laser focus adjustment guidelines

Picture 1

The engraving height should be 3-5 cm away from the engraving object for the best effect

3-5cm

Engraving object

Picture 2

Lifting frame

Laser module

Rotate the knob counter-clockwise, move the laser module up and down to the place 20mm away from the surface of the engraving object, and then rotate clockwise to lock it.

20mm Engraving object

Fixed focus film 20mm
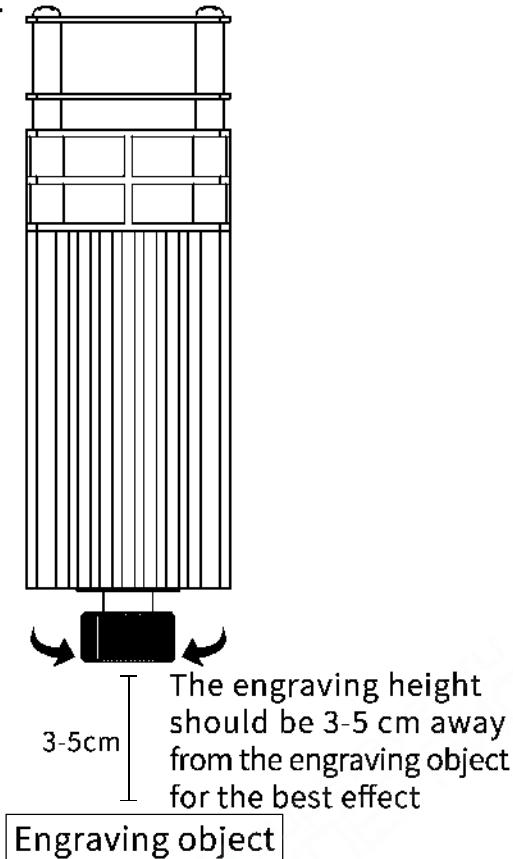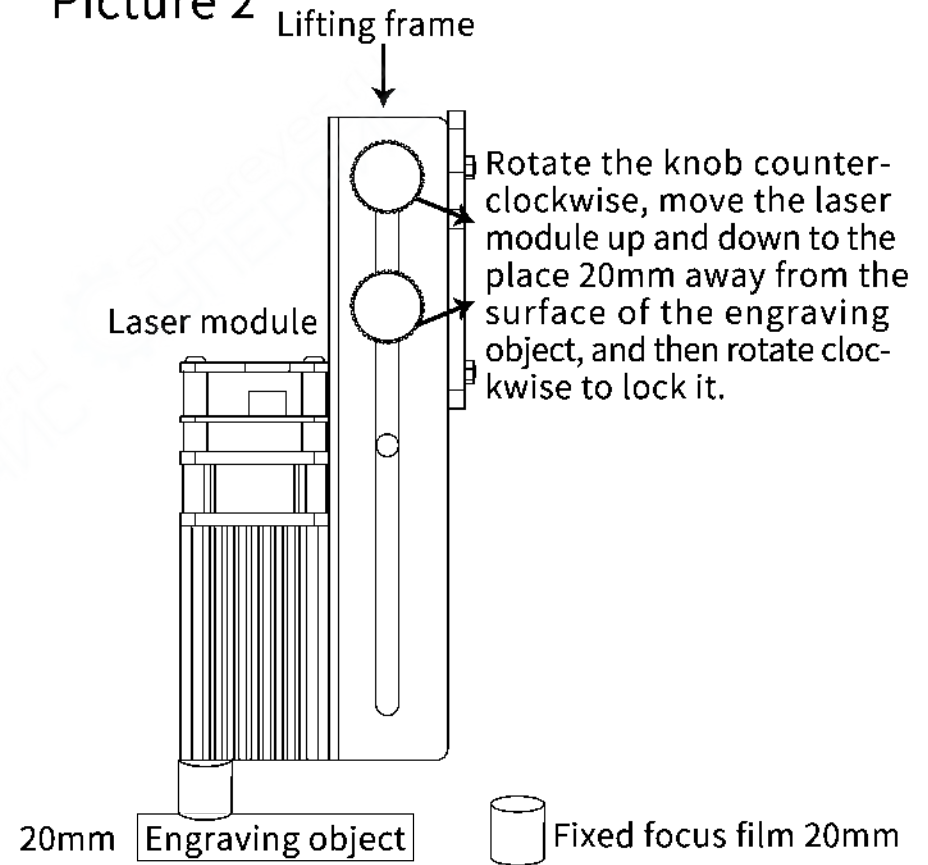
Laser focus adjustment instructions:

1. Subscription Figure 1 is a focus adjustment laser module. You need to manually rotate the laser cap left and right to focus. The smaller the light spot is, the better the engraving effect will be.

2. Subscription Figure 2 is a fixed-focus laser module. Place a fixed-focus film on the engraving surface, manually adjust the lifting slider up and down, and place the laser module close to the fixed-focus film, and then remove the fixed-focus film to complete focusing.

04 Product parameters

Model	JL3
Body material	High-strength aluminum body + acrylic
Laser focusing	Knob focus adjustment laser module/Fixed focus module +lifting Fram
Focusing range	Focusing laser module: 50-100mm; fixed-focus laser module: determined by the lifting frame
Best focal length	Focusing laser module 1: 30-50mm, light spot <1mm; Fixed focus laser module 2: 20mm, light spot <1mm
Whole machine power supply	DC005, DC12V/5A
Data interface	USB Type-B (square port USB)
Cooling method	Air cooling
Whole machine power	<60W
Laser power	Focusing laser module 1: 20W; Fixed focus laser module 2: 20W
Optical Output Power	Focusing laser module 1: >3W; Fixed focus laser module 2: >4.5W
Laser wavelength	455nm
Laser's life service	>10000h
Spot shape	Dot-like
Laser control	High-speed PWM
Engraving area	Fixed focus: 365mm*370mm/Focus adjustment: 365mm*390mm
Engraving accuracy	0.05mm
The engraving speed	can reach 80mm/s; regardless of the engraving result, the moving speed can reach 300mm/s
Engravable materials	paper, wood chips, non-transparent plastic, stone, cloth, leather, etc.
Support system	win7 /win8/ win10/IOS/MAC/Android
Picture format	JPEG/BMP/TIF/GIF/PLT/PNG/DXF
Product size	590*510*210mm
Packing size	600*370*167mm
Product weight	2.65kg
Package weight	4.4kg
Others	32-bit ARM high-precision and high-speed master control; Support the highest baud rate of 921600bit/s; Support the open source GRBL software platform in the future

# 05 PC-side driver software download and installation

How to obtain the driver software:

Insert the accessory U disk into the computer. The U disk has been added with drivers, application software, pictures and other materials (Note: When using it for the first time, please copy all the materials on the U disk toback up your computer to prevent loss due to improper operation)
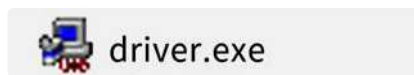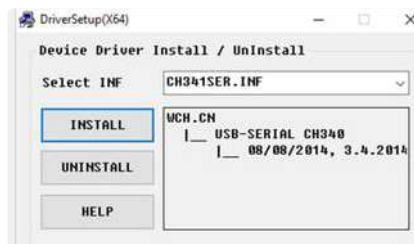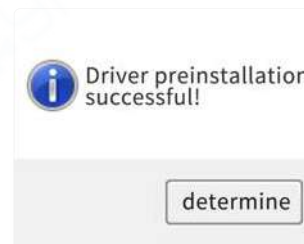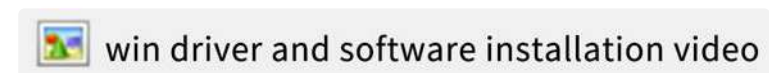
Windows driver software installation

📁 01_Windows

❶

📁 driver

❷

 driver.exe

❸

❹ Click Install

Driver preinstallation successful!

determine
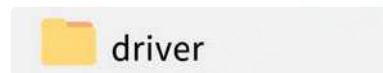
❺ Click OK to complete the installation

1.Drive installation path:

Double-click the U disk folder /windows/driver/driver.exe/ click install/After driverInstallation, please watch the relevant installation demonstration video of the U disk for the detailed steps
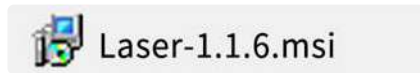
🖼️ win driver and software installation video
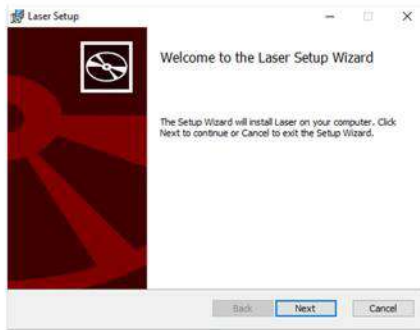
06 PC driver software installation online operation
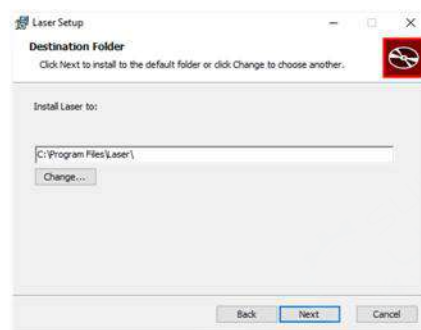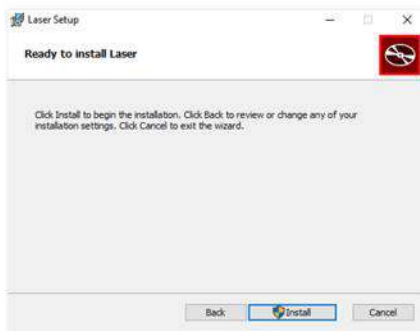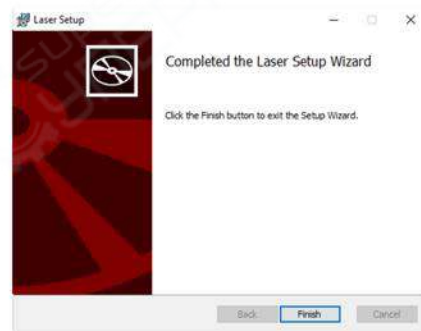

❶

❷

❸

❹ Click Next to continue the installation

❺ Click Next to install at the default folder location

❻ Click Install

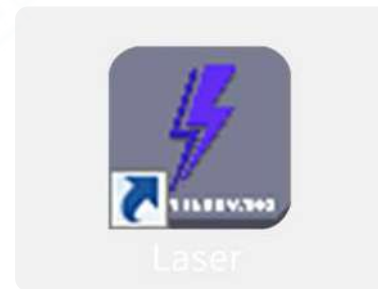❼ complete the installation

2. Software installation path:

Double-click the U disk data file /windows/software/Laser-1.1.6.msi/installation programOrder/click to allow all installations of the program/complete installation/Laser
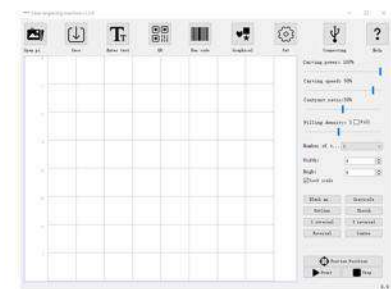
Prompt:

After clicking Laser-1.1.6.msi, anti-virus software or computer butler may prompt risk.The Laser-1.1.6.msi file is a win system installation package. If it is misjudged as a suspicious file, please select to allow all operations of the program to complete the software installation successfully

3. Online operation:

Double-click the software icon-Click the connected device icon-The icon turns blue and the connection is successful
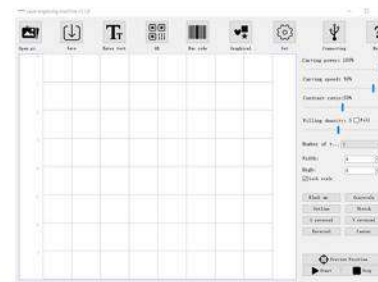

❶ Double-click the software icon
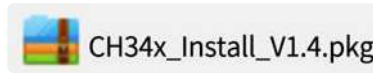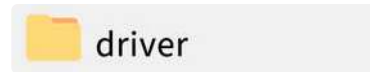

❷ Click the connected device icon

❸ The icon turns blue and the connection is successful

Connect the device

Mac driver installation

📁 02-MAC

❶

📁 driver

❷

🗂️ CH34x_Install_V1.4.pkg

❸

❹ Click to continue

❺ Enter the computer password

1.Drive installation path:

Driver installation path: double-click the U disk/02_MAC/ driver/CH34x_Install_V1.4.pkg/Installation introduction/ installation type/installation/summary installation is complete

Note: The software can be installed after the driver installation. Please watch the video for details.

🖼️ Mac driver and software installation video

❻ Click to continue the installation

❼ Continue the installation

❽ Complete the installation

Mac software installation and online

02-MAC

❶

software

❷
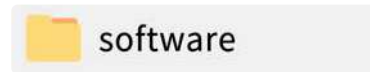
❸ Double-click the software icon

❹ Drag the icon to the right Applications folder with the right mouth button
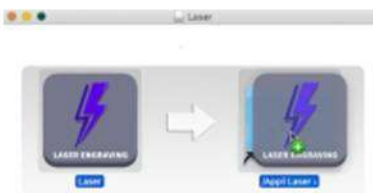
❺ Complete the installation

2. Software installation path:

Double-click the U disk/02_MAC/software/Laser-1.1.6.dmg/ software icon moves to the right/finish installation

3. Online operation:

Double-click the software icon-Click the connected device icon-The icon turns blue and the connection is successful
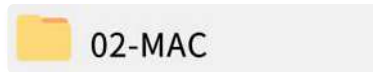

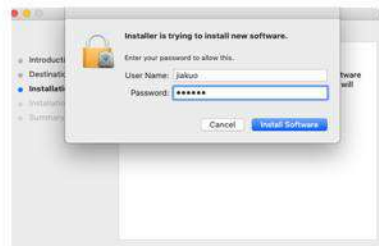❶ Double-click the software icon

❷ Click the connected device icon

Connected devices

❸ The icon turns blue and the connection is successful

13
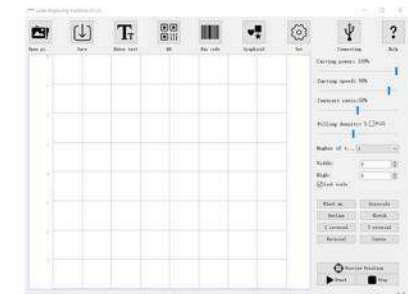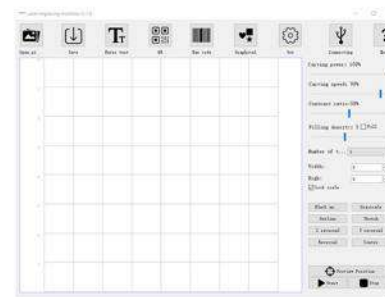
Introduction to the functions of the software interface icons:
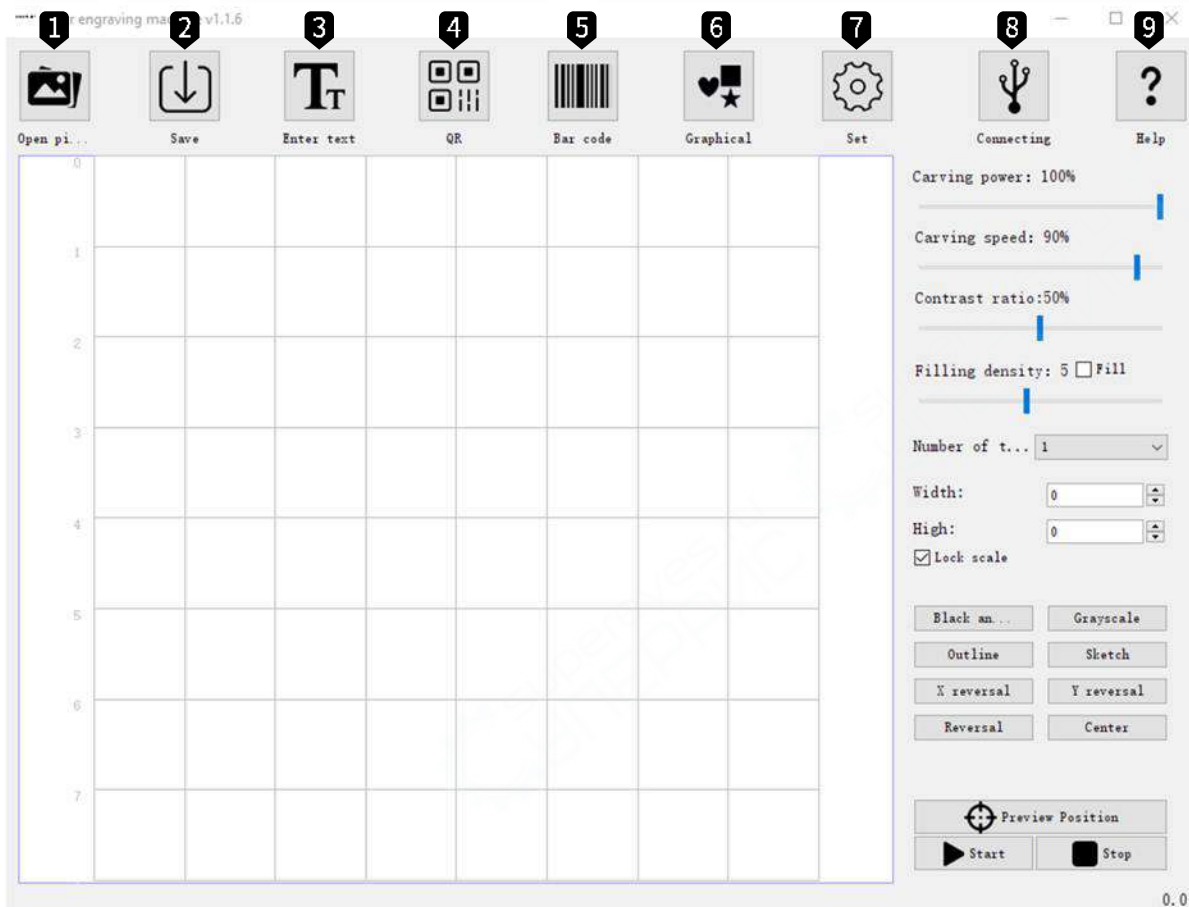
❶ **Open pi:**
Load the picture from the computer

❷ **Save:**
Save the edited text image

❸ **Enter text:**
Enter text, font, style, size, landscape, solid orientation, vectorization

❹ **QR:**
Create a QR code

❺ **Bar code:**
Create a barcode

❻ **Graphical:**
Round-square-heart-pentagon, with quick creation

❼ **Set**
Laser low light state adjustment

❽ **Connecting:**
The icon turns blue after the connection is successful

❾ **Help:**
Open the official website link; watch the instructional video to check the FAQ

14

Software parameter setting:
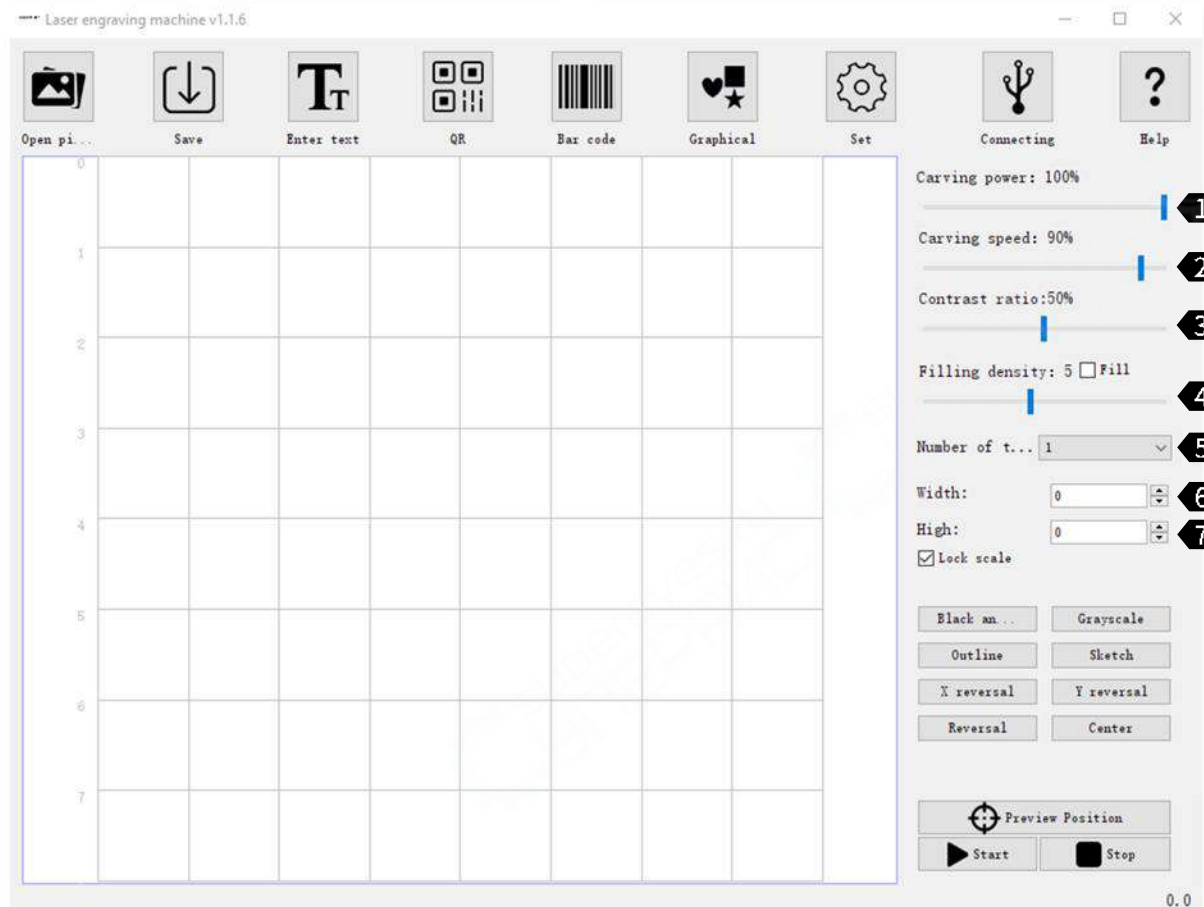
❶ Carving power :

Adjustable power for engraving different materials

❷ Carving speed :

Engraving speed setting, the speed of engraving determines the depth of engraving

❸ Contrast ratio :

Drag the slider to adjust the contrast of text image

ABCD   ABCD   ABCD
Contrast16   Contrast50   Contrast80

❹ Filling density :

Filling: The filling effect can only be effective for vector graphics. Select the vectorization, click and fill the text image, and slide the filling slider to adjust the filling density

❺ Number of :

Setting times represents engraving times

❻ Width:

The width and height of the text image can be adjusted freely in a single item

❼ Height:

Lock the image text to zoom in and out proportionally

Software parameter setting:
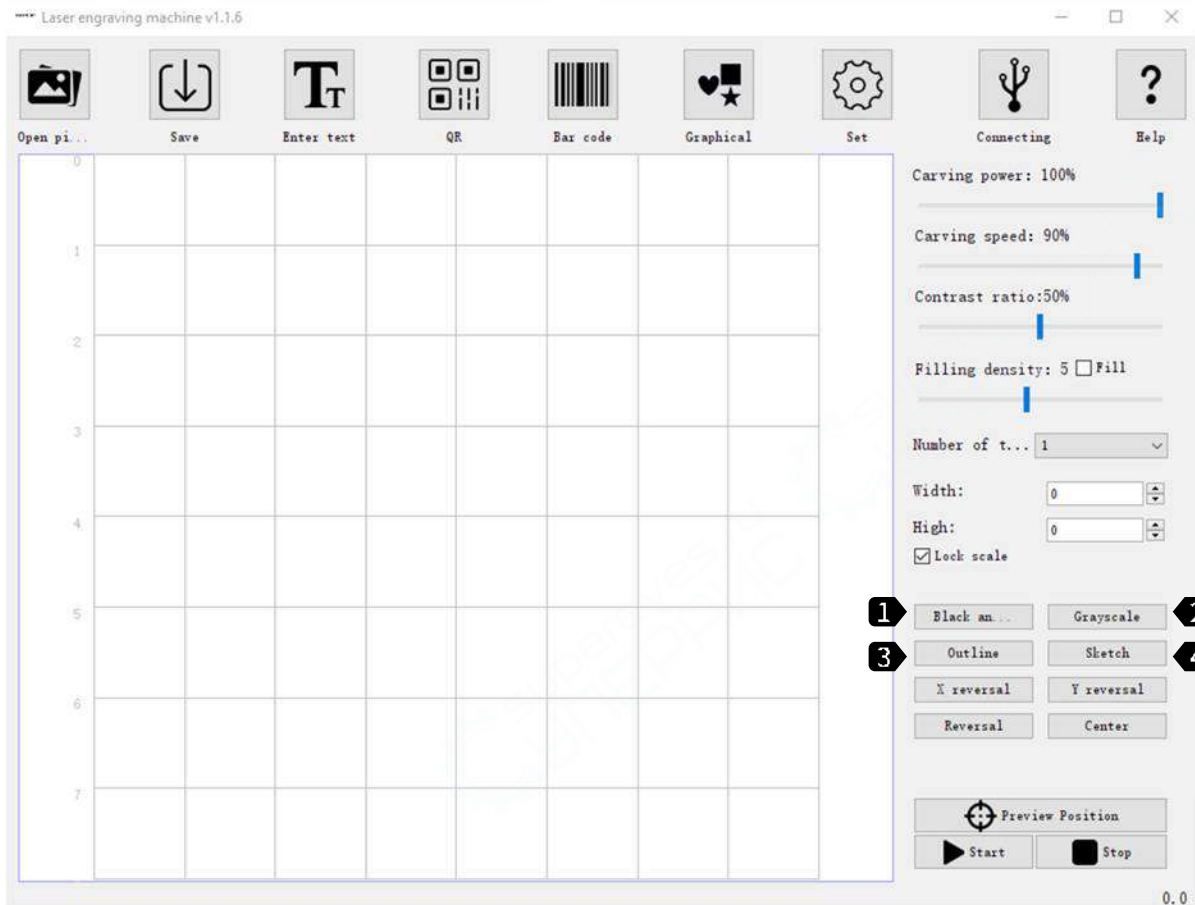
❶ **Black and white:**

Black and white processing of the image

❷ **Grayscale:**

Grayscale mode can be used for engraving photos to turn the image into gray

❸ **Outline:**

Cutting mode for the engraving machine to cut the wireframe

❹ **Sketch:**

Sketch mode, enhance the three-dimensional sense of the line outline of the picture

Black and white   Grayscale

Cut   Sketch

Software parameter setting:
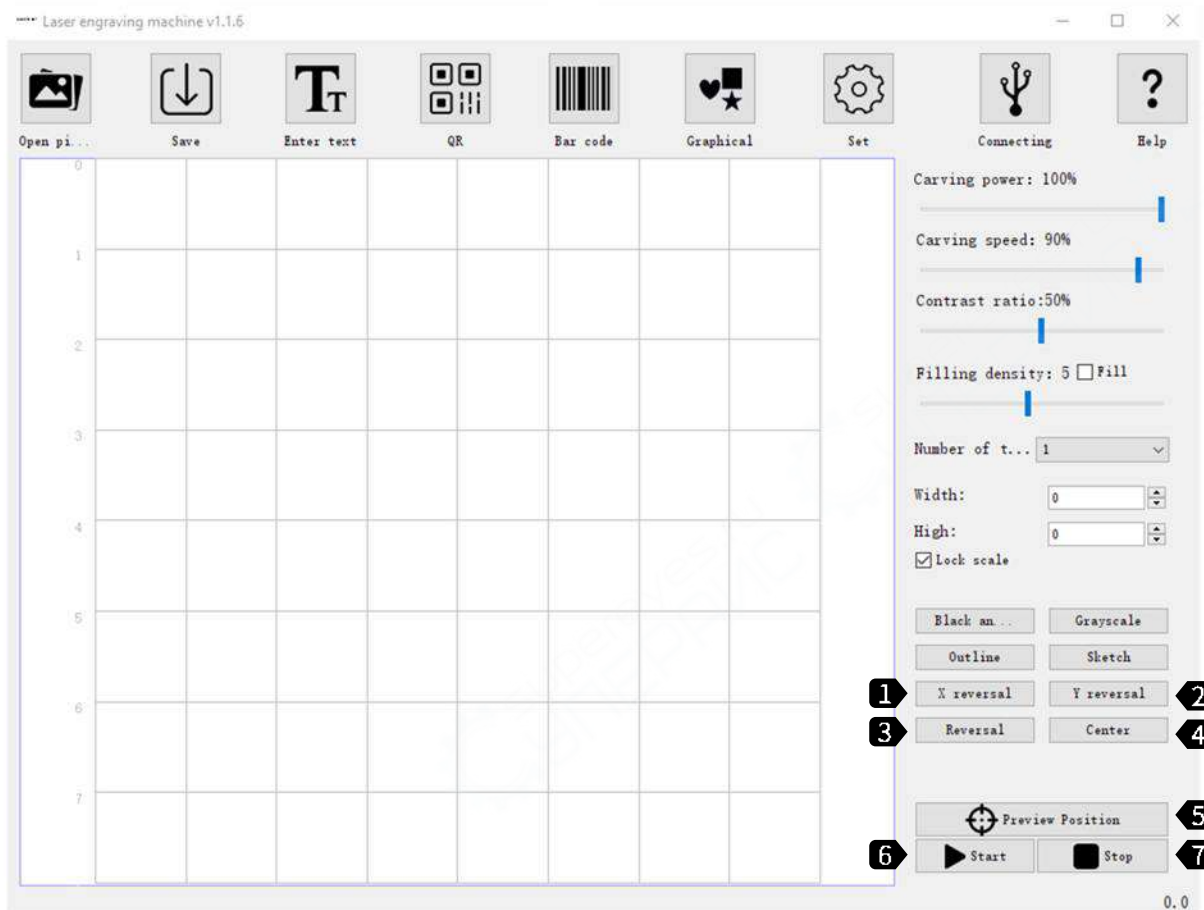
❶ X reversal:

Left and right mirror image reverse

❷ Y reversal:

Reverse mirror image up and down

❸ Reversal:

Reverse the background color of the text and picture

❹ Center:

One-click the center of the text image in the preview area

❺ Preview position:

Engraving preview, confirm the engraving position

❻ Start:

Start engraving

❼ Stop:

End engraving 0.0 record the engraving timing

Introduction to the loading content of the interface:
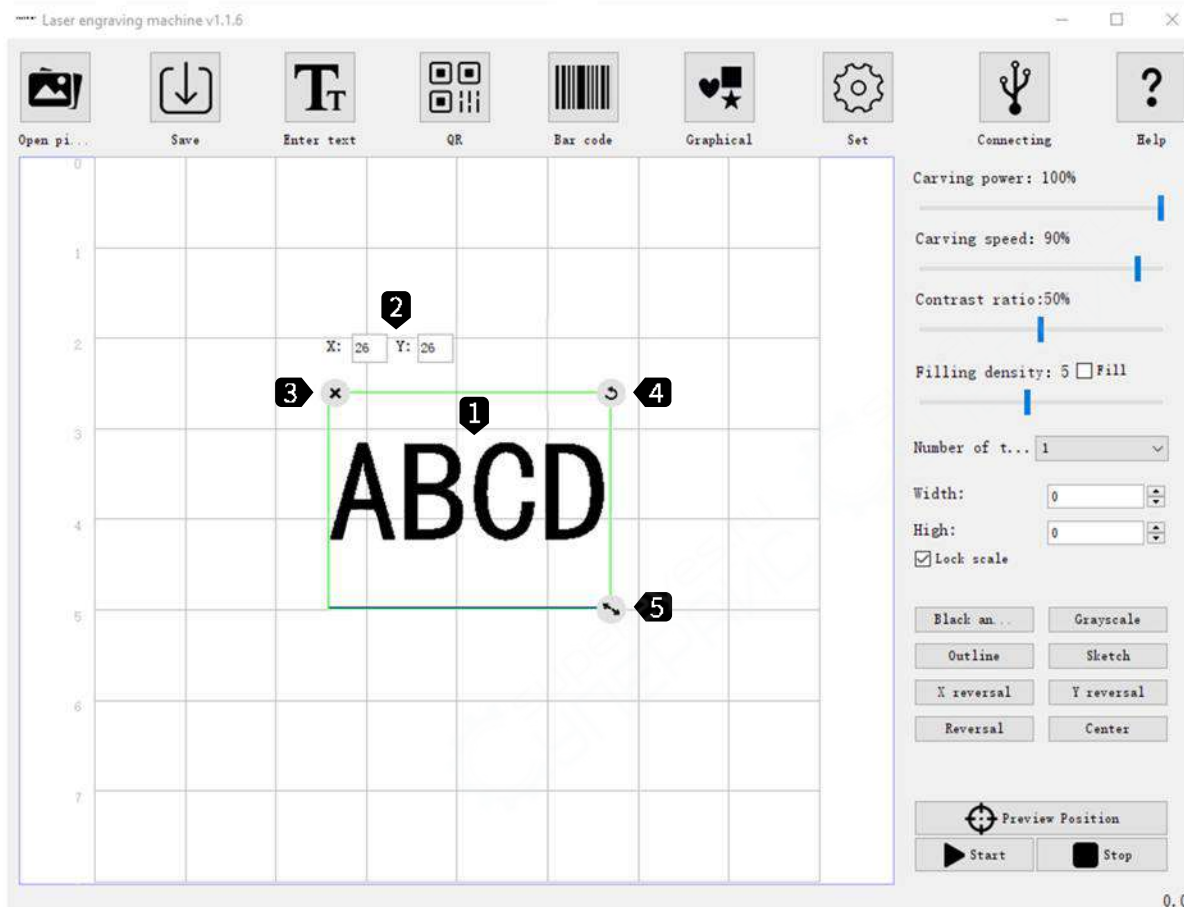
❶ After loading the text image, drag to change the position of text picture with the left mouse button, translate the drawing board with the right mouse button, and zoom the drawing board with the mouse wheel.

❷ X:19 Y:23 only represents the coordinate of the position of the text image. If the position of the text image changes, the coordinates will change accordingly.

❸ ✕ Clear the text image on the drawing board

❹ ↺ Click with the left mouse button to rotate the corner of the text image 360°

❺ ↘ Click and drag with the left mouse button to zoom in and out the text image

1. Software download and installation:

Scan the QR code below to download

| Google Play | Android | IOS |

Note: Corresponding permissions shall be given after successful installation.

Laser engraving machine
v1.3.6
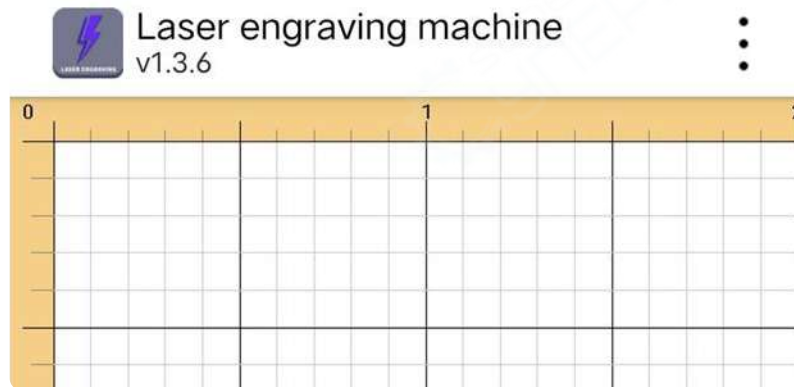
2. APP connects to the machine

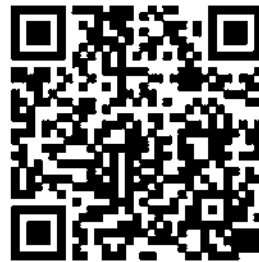❶ Method 1: Connect the power supply, start the engraving machine, connect the mobile phone to WiFi whose network was called Wainlux, enter the password 11112222, and then open the mobile phone engraving software, wait for 5~10 seconds to automatically connect; (If the mobile phone cannot be connected to the Internet throughthis connection method, for example, the mobile phone prompts whether it needs to be switched to another network, please choose not to switch to another networks)

❷ Method 2: Turn on the mobile hotspot and change the name of the hotspot to waSet the password to 11112222, wait for 10-15 seconds to connect the machine power, start the engraving machine, and then open the mobile phone engraving software, and the engraving machine will automatically connect to the mobile phone.(Set the mobile hotspot first and then turn on the power of the engraving machine)

Note: Wait for 5~10 seconds to start the software. When "connected" is displayed in the upper left corner, it means the APP has successfully connected to the machine and can proceed to the next step.

Introduction to the software interface (unloaded content):

Laser engraving machine
v1.3.6

Image Text Creation Edit Set Preview Start
❶   ❷   ❸   ❹   ❺   ❻   ❼
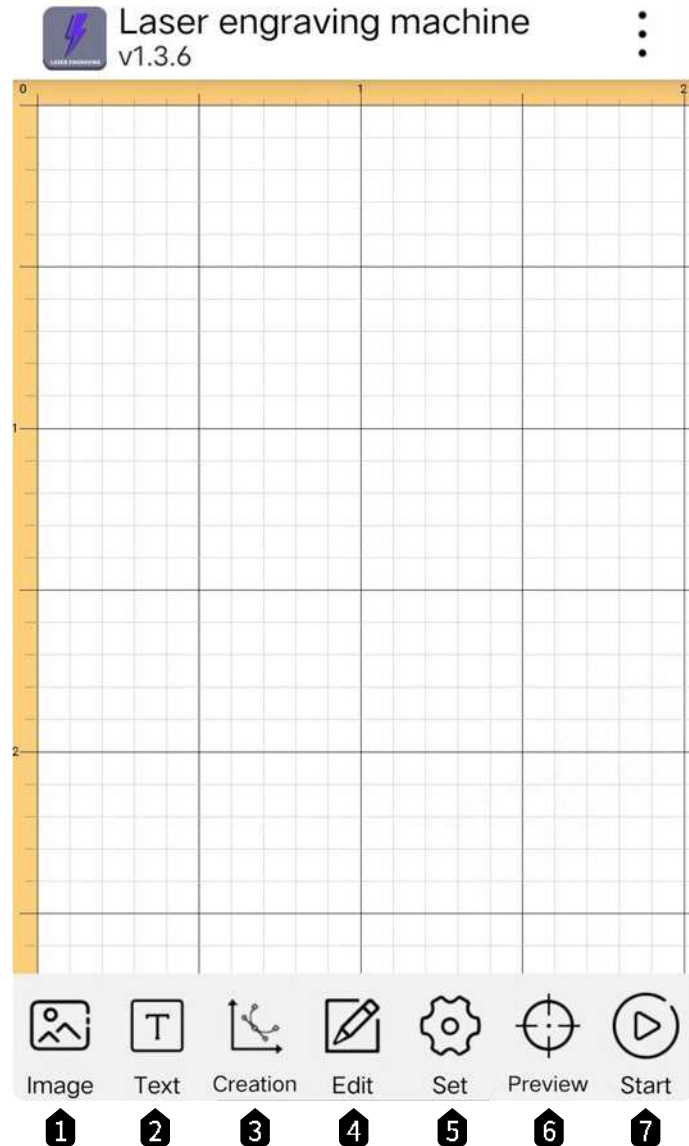
❶ **Engraving and loading pictures**
Load pictures from album
Take pictures via camera
Add pictures from gallery

❷ **Edit text content**

❸ **Add graphics**
Graffiti, QR code, barcode, and shape

❹ **Content editing**
Adjust the position, size, angle, black and white reverse of the content Picture mode, black and white, grayscale, cutting and sketch Set content contrast

❺ **Settings**
Low light power: laser brightness in standby
Engraving power: adjust the output power of the laser head
Engraving depth: adjust the depth of engraving
Engraving times: the number of repeated engraving
Engraving accuracy: low/medium/high optional, the default is high

❻ **Preview the position and size of the engraving content**

❼ **Start/pause, stop**

Introduction to the software interface (loading content):
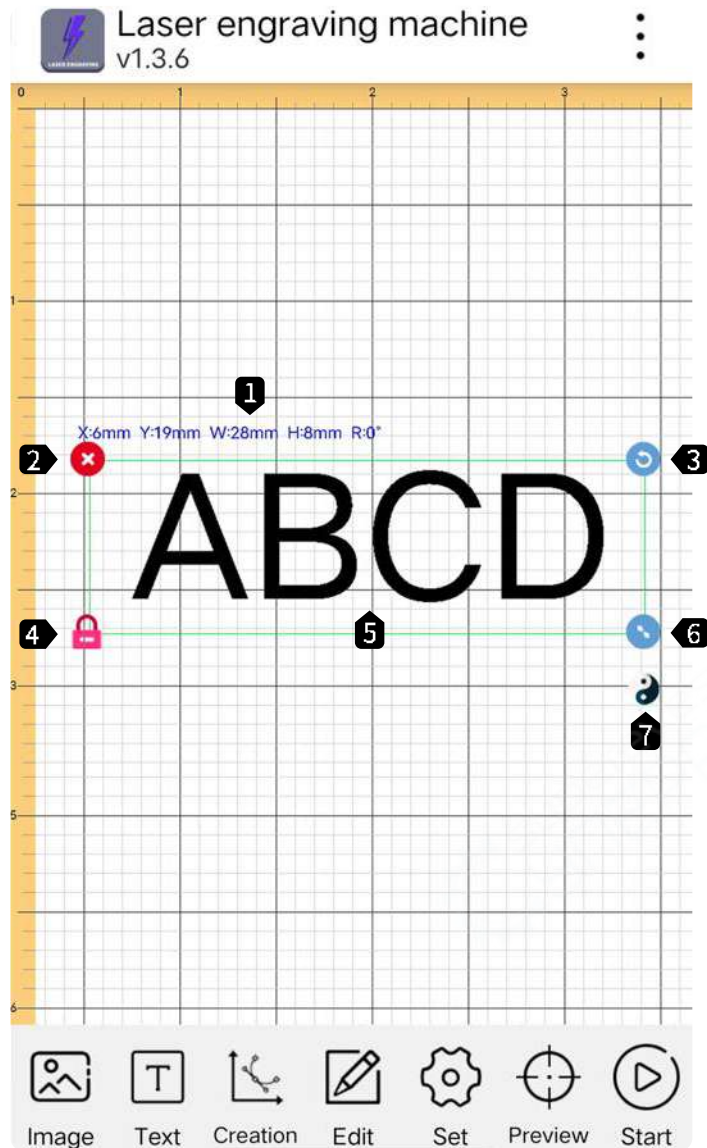
❶ **Parameter display column**

❷ **Delete layer/image**

❸ **Rotate the picture**

   press and hold with your finger, and move your finger up and down to rotate the image

❹ **Lock the aspect ratio**

❺ **Setting**

   hold and drag with your finger to change the position of the image freely

❻ **Zoom the image**

   hold down and drag with your finger to zoom out and zoom in the image freely

❼ **Black and white reverse**

   click to reverse the black and white color of the image

Loading content:

Load image	Add text	Load graphic
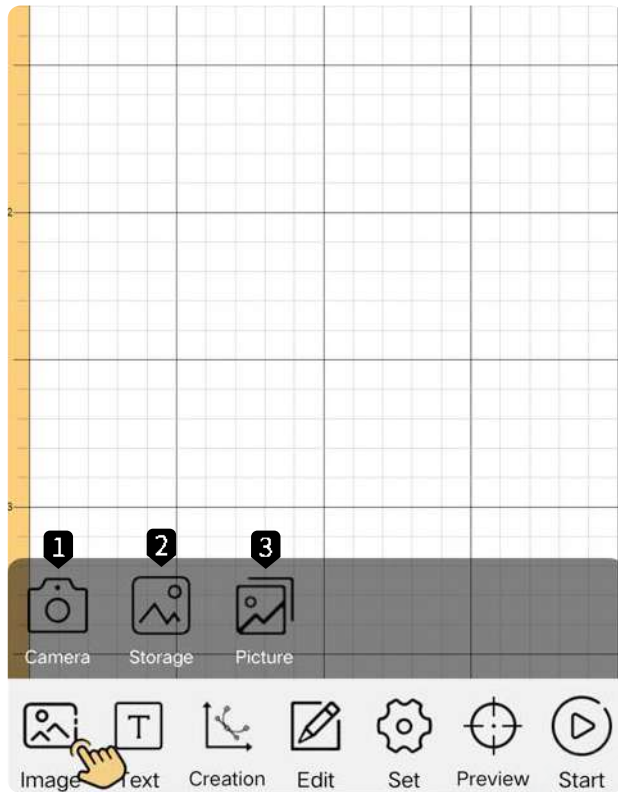
Load image

❶ Click Picture>Album to load from the album

❷ Click Picture>Camera to take the image directly

❸ Click Picture>Gallery to select the built-in material

Add text
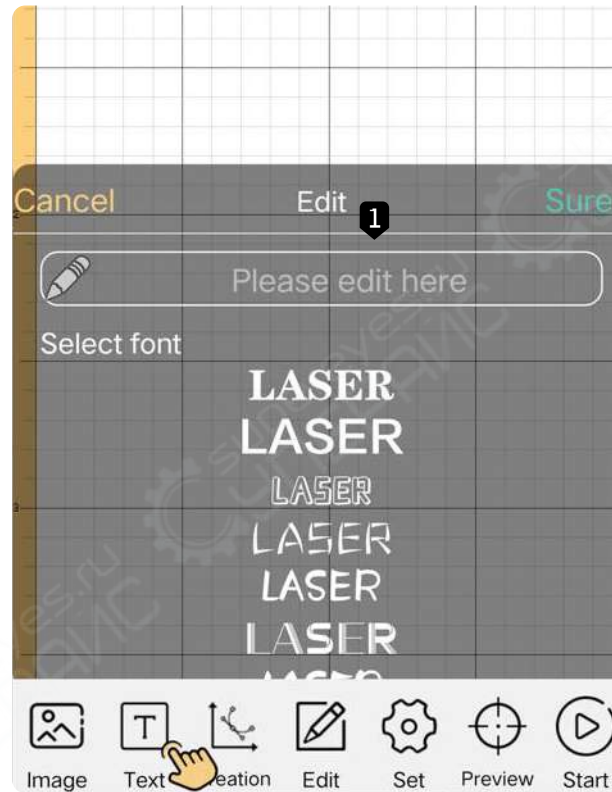
❶ Click on the text and enter the content in the text boxFreely choose the built-in fontsClick OK to finish editing

Load graphics
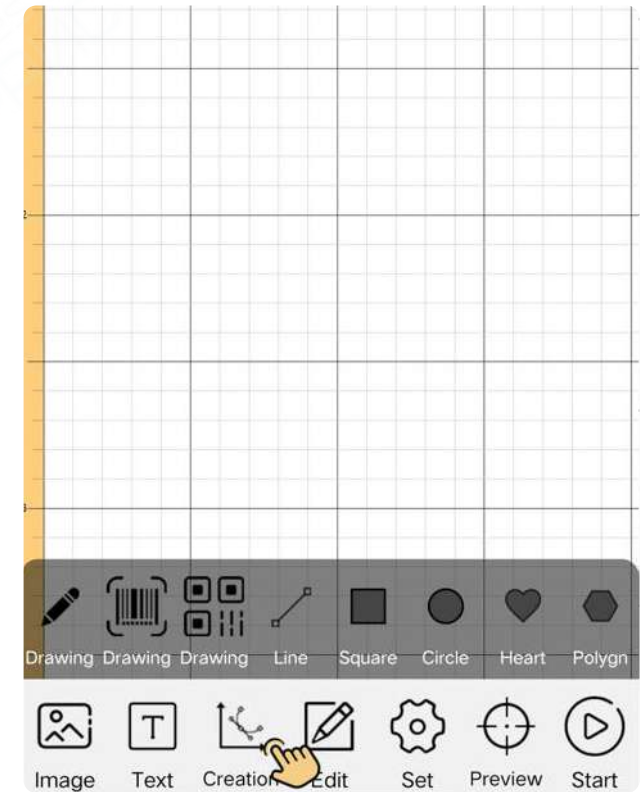
❶ Click the vector diagram to quickly select the shape

❷ Click the vector diagram to set the barcode

❸ Click the vector diagram to set the QR code

Drawing

⟨Drawing

WAINLUX

determine

Drawing

Click drawing to enter the drawing interface, and click OK to complete.

Barcode

⟨Barcode

202106163890

cancel   determine

Add a barcode

Click the barcode, enter the content, and click OK to complete.

QR code

⟨QR code

www.---------.com

cancel   determine

Add a QR code

Click the QR code, enter the content and click OK to complete.

Content edited:
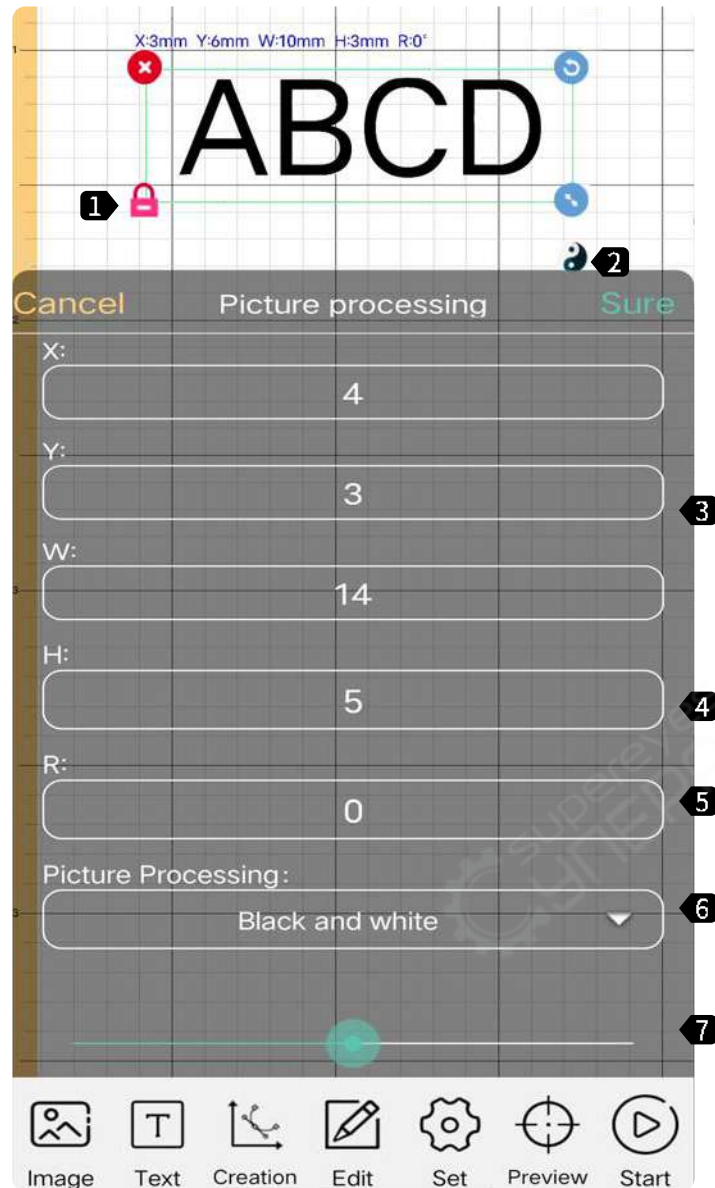
❶ **Lock the aspect ratio**

❷ **Black and white reverse**
Tap to reverse the black and white color of the image

❸ **X-Y position**
Input the corresponding value to adjust the image position

❹ **W-H width and height**
Input the corresponding value to adjust the height and width of the image

❺ **R rotation**
Input the corresponding value to rotate the image angle

❻ **Engraving mode**
There are four modes to choose from, and the corresponding effects are as follows
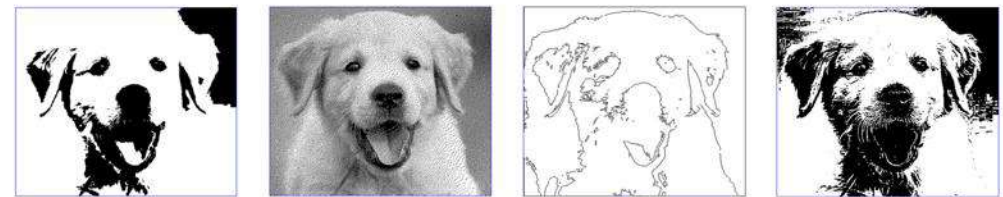
Black and white   Grayscale   Cut   Sketch

❼ **Contrast**
Slide the slider to adjust the image contrast, and the corresponding effect is as follows (grayscale)

Contrast16   Contrast50   Contrast80

10 Common problems

JL3 Frequently Asked Questions

I. The machine does not respond when it is powered on

1. Check whether the power plug and power socket on the machine end are inserted in place;
2. Check whether the power socket is energized and the switch is turned on;
3. Check if the red power switch on the machine is turned on.

II. 2. The machine cannot connect to the computer

1. Check the computer end of the USB data cable and the machine interface to ensure that it is properly connected. The front USB interface of some desktop computers is invalid and needs to be connected to the USB socket on the back of the computer.
2. Complete the driver installation according to the operating instructions. After installation, the computer recognizes the device as a serial port, indicating that the hardware connection is OK.
3. In other special cases, unplug the USB data cable and power supply, connect the device after the device is completely powered off for 5S, and then perform the connection operation.

III. The mobile phone cannot be connected to the machine or the machine does not respond after connecting

1. Confirm that the connection is the wifi released by the machine, and read the App connection part of the manual.
2. Due to the newly-listed mobile phone or the system upgrade, the connection may be abnormal due to compatibility issues. You can contact our customer service and send back the screenshot of the mobile phone configuration to get fast technical support.

IV. The engraving effect is very shallow or there is no trace

1. Please read the focusing part of the manual carefully for accurate focusing.
2. Too fast engraving speed will result in shallow engraving effect. Please read the engraving parameter part of the manual carefully to adjust the parameters.
3. The imported pictures should be clear, and too thin lines and too light color will directly affect the engraving effect.

10 Common problems

V. Abnormal stop during offline engraving

1. The picture download is incomplete when it is connected to the computer, so it is necessary to download the picture again.

VI. The laser head can not work and engrave normally

1. Check whether the power-on reset is normal;
2. Check whether the computer can be connected;
3. Check whether the fan of the laser module rotates and whether the circuit board above the laser module emits light;
4. If you can connect to a computer, try to engrave the pattern to see if the machine operates normally.

VII. The engraving is stuck after using the machine for a period of time

1. Check and confirm whether the rollers on both sides of the X axis are installed too tightly or too loosely;
2. Rotate one of the rollers respectively to confirm whether the other rollers rotate synchronously, and there will be no tightness when the rollers rotate.