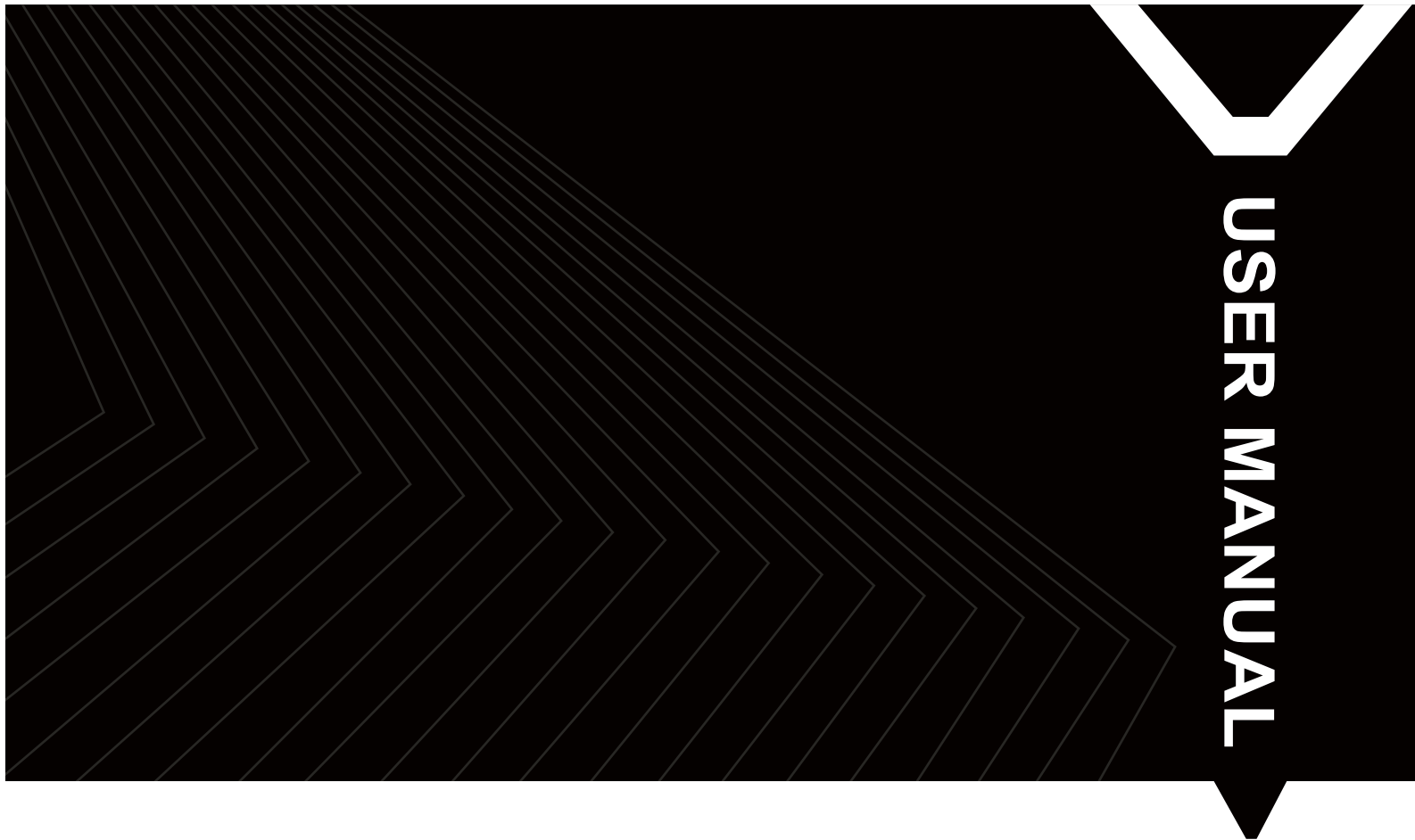




Genmitsu

Jinkosu LC-40 Desktop Laser Engraver

v1.0 Dec.2021



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Safety Guideline



Always exercise safety and caution when working with laser marking systems. Consider the listed recommendations to minimize risk:

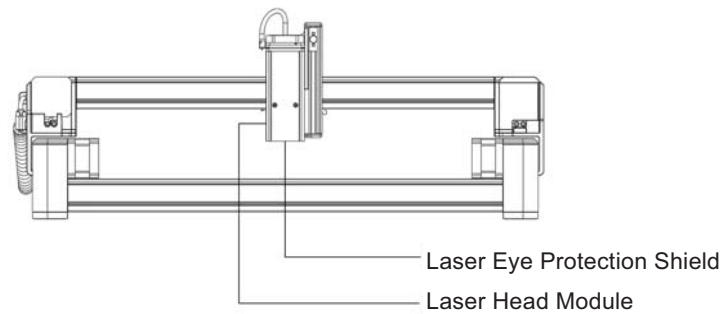
- You must be at least 13 years old to operate the laser engraver.
- Direct exposure to the laser beam can cause severe burns and eye damage. Ensure that you are wearing proper laser safety goggles when working in the vicinity of the laser equipment.
- When you focus the laser do so only on the lowest power setting.
- Keep a fire extinguisher nearby since use of the laser may lead to an unexpected fire.
- Never leave an operating laser unattended.
- Fumes and smoke generated during the engraving/cutting process must be extracted from the room as some can be poisonous; make sure there is a ventilated system to the outdoors.
- Make sure the cutting area under the laser is metal or non-flammable.
- Ensure that the room or area you are operating the laser in is sufficiently labeled to prevent someone from unknowingly walking into an active work area.
- Be sure to disconnect the power when cleaning, maintaining or servicing the laser equipment.
- DO NOT stare at the bright and intense light appearing during the engraving process. Doing so can cause serious eye damage.
- Never use the laser except for the purpose intended.

SainSmart does not accept any responsibility or liability for any use or misuse of the Laser.

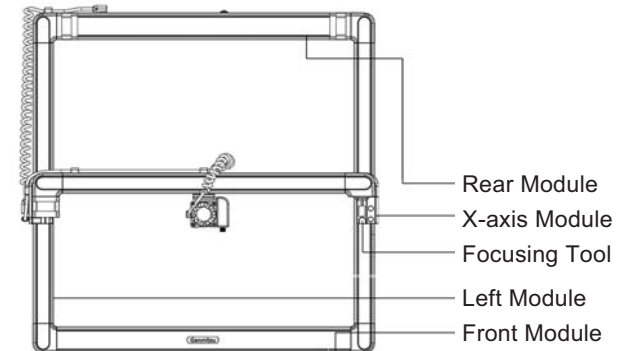


Product Structure and Accessories

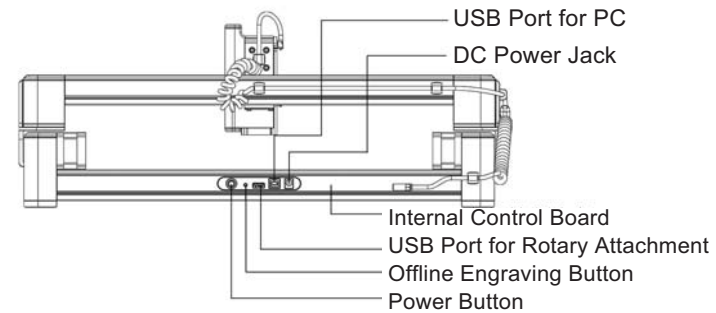
1 Front View



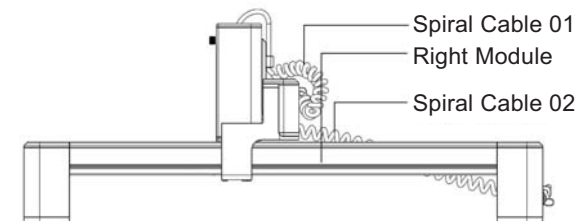
2 Top View



3 Rear View

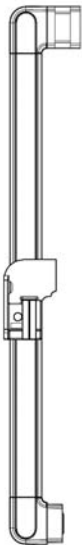
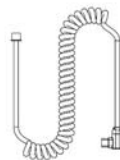
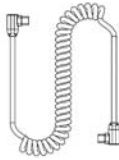


4 Right View



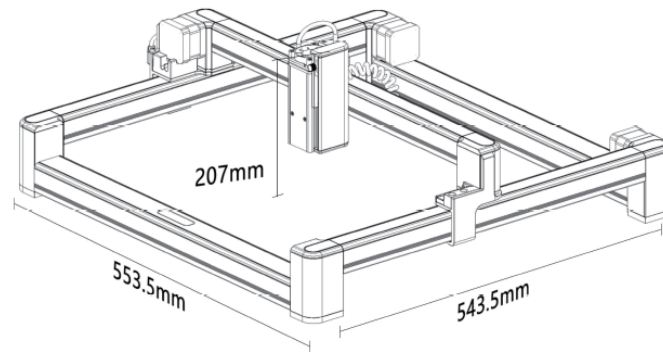


Product Structure and Accessories

						
		Rear Module, 1pcs	Laser Head Module 1pcs		Laser Head 1pcs	
						
Front Module, 1pcs		Spiral Cable 01, 1pcs		Spiral Cable 02, 1pcs		
						
	Cable Clips 01 3pcs		Cable Clips 02 3pcs		Connection Screw 02 4pcs	
						
Connection Screw 01 12pcs		X-axis Limit Switch Cable, 1pcs				



Product Structure and Accessories



Accessories Details



Power Supply*1



USB Data Cable*1



USB Flash Drive*1



Square Black Card*1



Kraft Paper*4



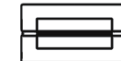
User Manual*1



Assembly Tool Set*1



Laser Safety Glasses*1
(Optional)



Rotation Module
(Optional)

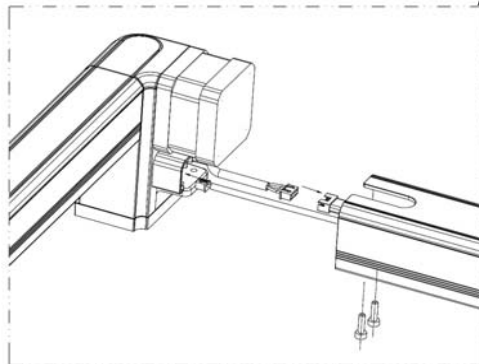
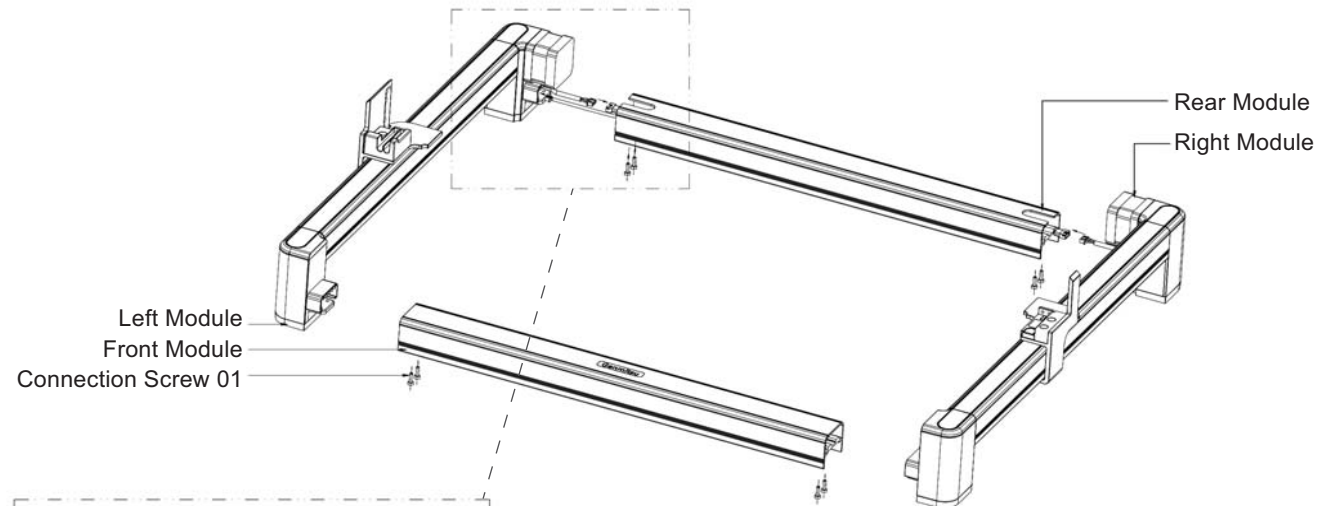


Height Extension Unit
(Optional)

1. Power Supply: Supply power for the engraving machine.
2. Data Cable: Connect the computer and the machine.
3. USB Flash Drive: Contains drivers, engraving software for PC, user manual and video instruction.
4. Square Calibration Card: Use for Laser Focus Calibration.
5. Craft paper: Sample materials to evaluate your laser engraver.
6. User manual: Introduction to engraving machine and operations
7. Assembly Tool Set: Includes Allen Wrench*1, Phillips Screwdriver*1 and Flat-head Screwdriver*1.
8. Laser Safety Glasses (Optional): Protects your eyes from hazardous laser eye exposure.
9. Rotary Attachment (Optional): Optional add-ons to engrave cylindrical objects; an additional USB cable is needed.
10. Height Extension Unit (Optional): To increase the machine height to engrave thicker materials.



Assembly Guide

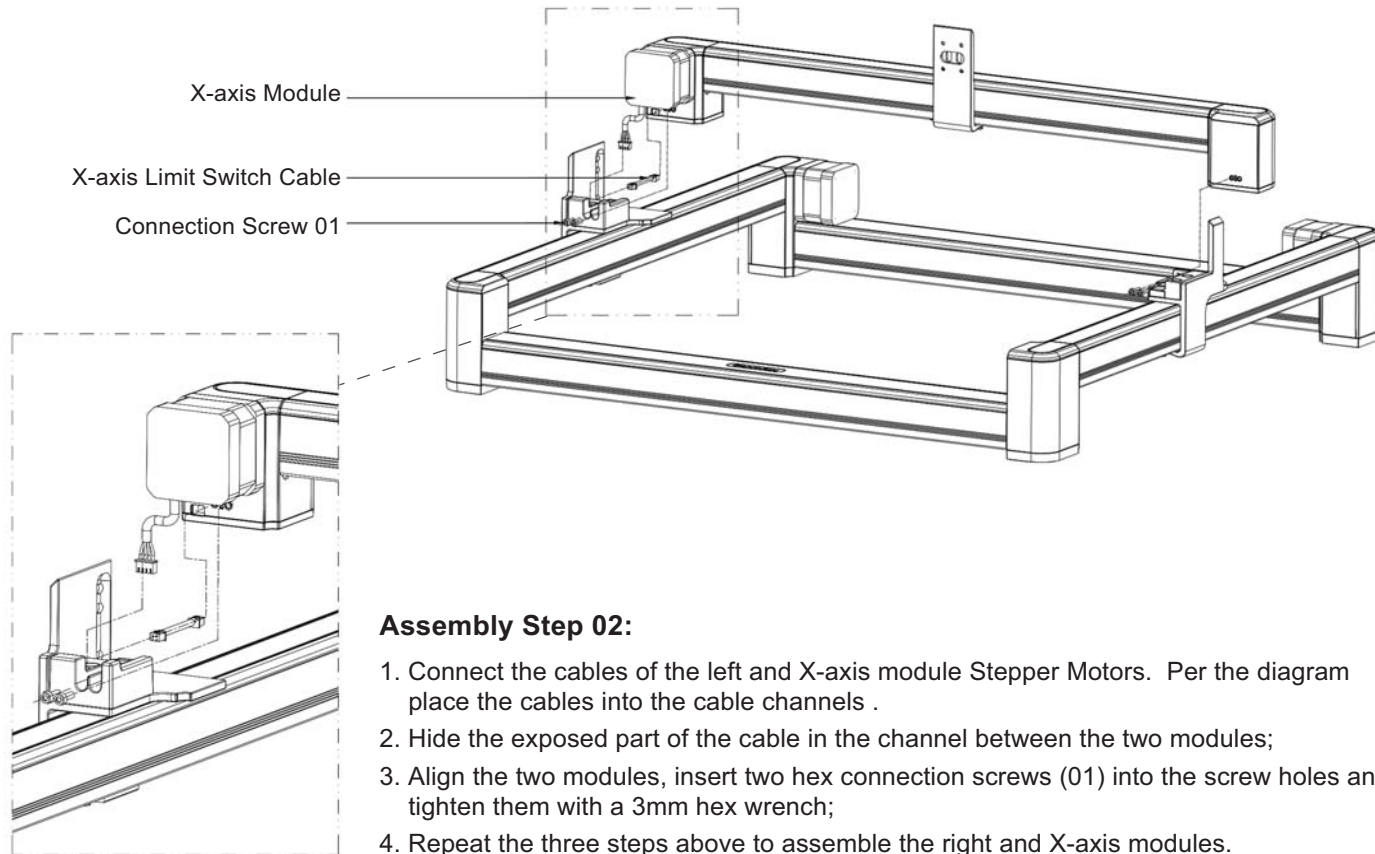


Assembly Step 01:

1. Connect Stepper Motor Cables for each Y axis Arm- Left (a) and Right (b); to Rear Brace (Contains Mainboard, I/O Connections)
2. Remove the Rear Brace Cover for cable management;
3. Align the two modules – Left (a) and Right (b) with 2 of the provided hex connection screws (01) into the screw holes and tighten them with the included 3mm hex wrench;
4. Repeat the steps above to assemble remaining frame modules. (X Axis Module excluded)



Assembly Guide

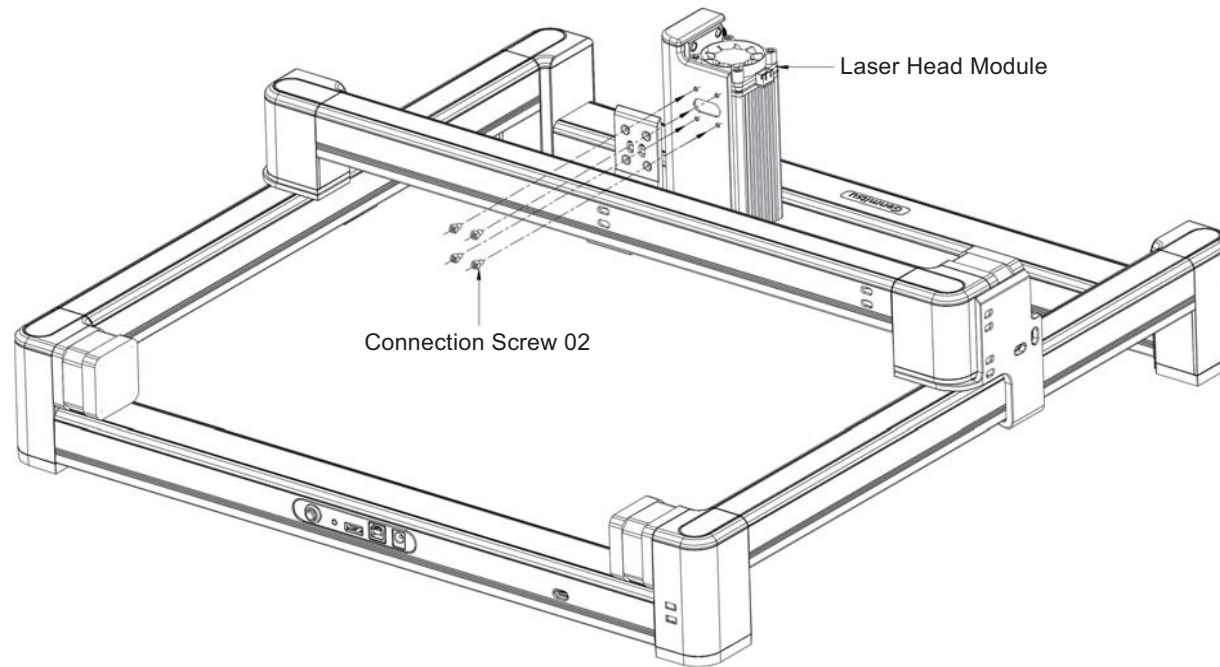


Assembly Step 02:

1. Connect the cables of the left and X-axis module Stepper Motors. Per the diagram place the cables into the cable channels .
2. Hide the exposed part of the cable in the channel between the two modules;
3. Align the two modules, insert two hex connection screws (01) into the screw holes and tighten them with a 3mm hex wrench;
4. Repeat the three steps above to assemble the right and X-axis modules.



Assembly Guide

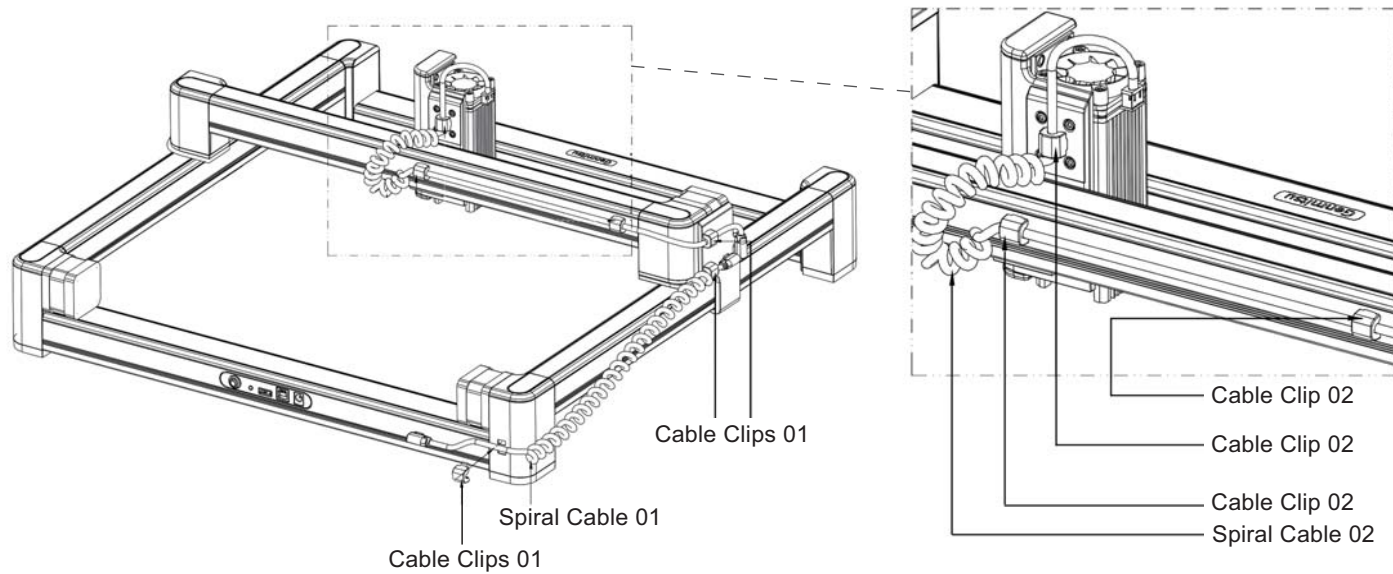


Assembly Step 03:

Align the X-axis module with the laser head module, insert hex connection screws (02) and tighten the screw with a 3mm hex wrench.



Assembly Guide



Assembly Step 04:

1. Connect the front module and X-axis module with the spiral cable and plug the type-c interface to each module; the long and straight part of the spiral cable should be connected to the front module.
2. Fix the spiral cable 01 on the right module.
3. Connect the right module and X-axis module with the spiral cable. The type-c interface in one end should be connected to the right module. The three-pin connector on the other end should be connected to the corresponding connector on the laser module.
4. Use cable clip 02 to fix the spiral cable on the X-axis module.



Product Parameters

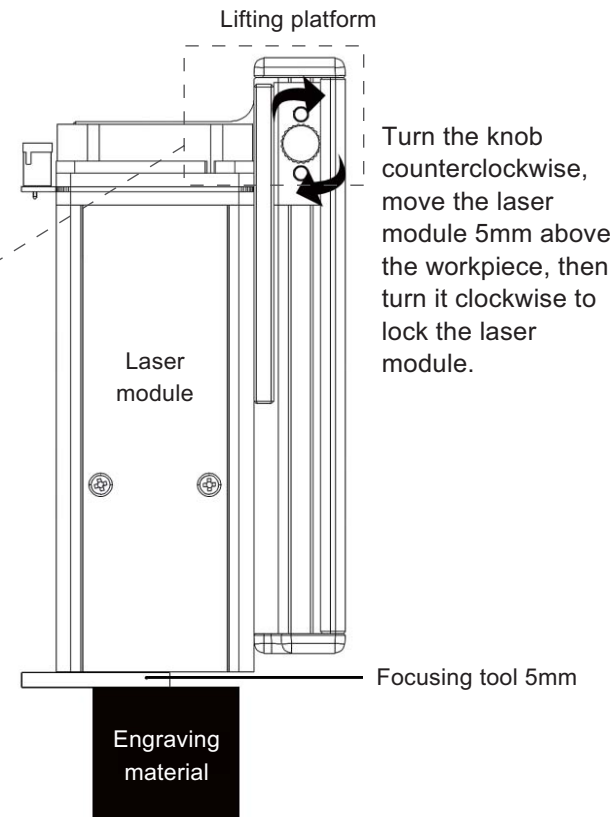
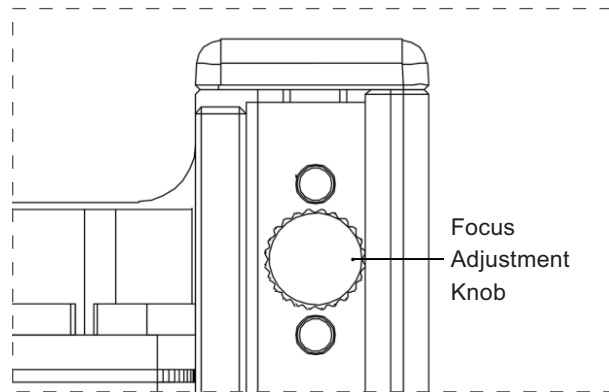
Model	LC-40
Material	High-strength aluminium alloy profile + high-speed linear guide + ABS engineering plastics
Laser Head	5MM Fixed distance
Max. Z-axis Material Height	0.1mm-76mm
Focal Distance	5mm
Power Supply	DC005, DC12V/5A
Data Interface	USB Type-C (Square USB Interface)
Cooling	Passive+ Forced Air Cooling
Machine Power	<60W
Laser Electric Power	10~20W(Standard); 20~40W-(Upgradeable)
Laser Optical Power	>4.5W(Standard); >8W (Upgradeable)
Laser Wavelength	455nm
Laser Service Time	>10000H
Spot Shape	Point
Laser Control	PWM
Engraving Area	400*400mm
Engraving Accuracy	0.05mm
Engraving Speed	≤170 mm/s
Engravable Materials	Cardboard, plywood, non-transparent plastic, cloth, leather, stone, glass, stainless steel and metal with oxidized spray paint
File Format	JPEG/BMP/GIF/PLT/PNG/DXF/JPG/XJ/HPGL
Supported OS	Win7/Win8/Win10/MAC/IOS/Android
Product Size	553.5X543.5X207mm
Package size	325.5X570X115mm



Laser Focusing

Instructions to adjust laser focus:

1. Place the focusing tool on the engraving material, manually adjust the slider up and down to move the laser module close to the focusing tool. The laser module is now focused, and you can place the focusing tool back to the holder.





Resources Download and Software Setup

Resources Download:

Method 1: Driver, software, sample picture and instructions can be found in the USB flash drive that comes with the machine. (Note: We recommend you to copy all files to your computer when you use it for the first time in case the flash drive get lost.)

Method 2: Download it from SainSmart Resources Center
All files included in the flash drive can also be downloaded from SainSmart Resources Center:
<https://docs.sainsmart.com/lc-40> or the following QR Code.

Scan QR code to download software and
user manual ↓↓↓



Windows driver and software installation video

Driver Installation on Windows



⑤ Click "Install"

⑥ Click "Confirm" to
complete the installation

1. Driver Installation on Windows:

File Location: USB Flash Drive/01-windows/driver/driver.exe
Locate and double-click the .exe file to start the installation program, click "install" to install the driver. When you see a dialogue box that reads "The driver is successfully pre-installed in advance", Click "OK" to finish the installation.

⚡ Video instruction on installing the driver and software can
⚡ also be found in the USB Flash Drive.



Resources Download and Software Setup

2. Software Installation on Windows:

File Location: USB Flash Drive/windows/software/
Laser_2.0.4(211018)/

Double-click the file icon to start the setup process, and the software is successfully installed when the progress bar reaches the end.

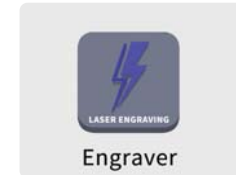


⑤ The software is successfully installed when the progress bar reaches the end.

3. Machine Connection on Windows:

Connect the machine to the computer with the USB Type-C cable.

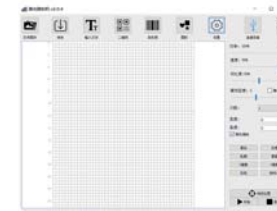
Open the engraving software — click the "connect device" icon — the machine is successfully connected to your computer when the icon turns blue.



① Double click the software icon



② Click the "connect device" icon



③ The machine is connected when the icon turns blue



Note: If you get an alert from your antivirus software when installing the engraver software, please add it as an exception to your antivirus software to allow it to install and operate. As an executable program, the engraving software sometimes receives false-positive alerts from some antivirus software.



Resources Download and Software Setup

4. Driver Installation on Mac OS:



①



③



⑤ Click "Continue"



⑦ Click "Continue Installation"



⑨ Complete Installation



②



④



⑥ Enter computer password



⑧ Continue Installation

File Location: USB Flash Drive/02_MAC/driver/
CH34x_Install_V1.5.pkg/

Double-click on the package(.pkg file) and an installation wizard for the application. The installation wizard then performs all the necessary tasks to install the driver correctly.

Note: After installing the driver, you can install the engraving software; please watch the video instruction for more information.



Video of MAC driver and software installation



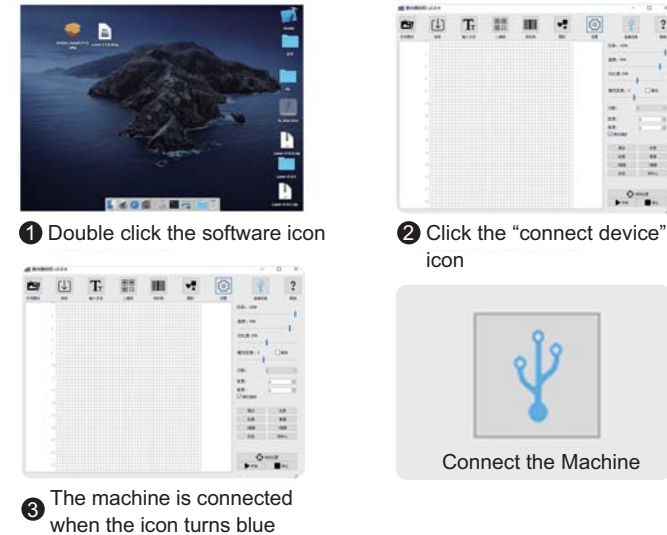
Resources Download and Software Setup

5. Software Installation on Mac OS:



File Location: USB Flash Drive/02_MAC/software/Engraver/
Locate and open the disk image(.dmg file), drag and drop the software to the Application folder, the software is successfully installed.

6. Machine Connection :



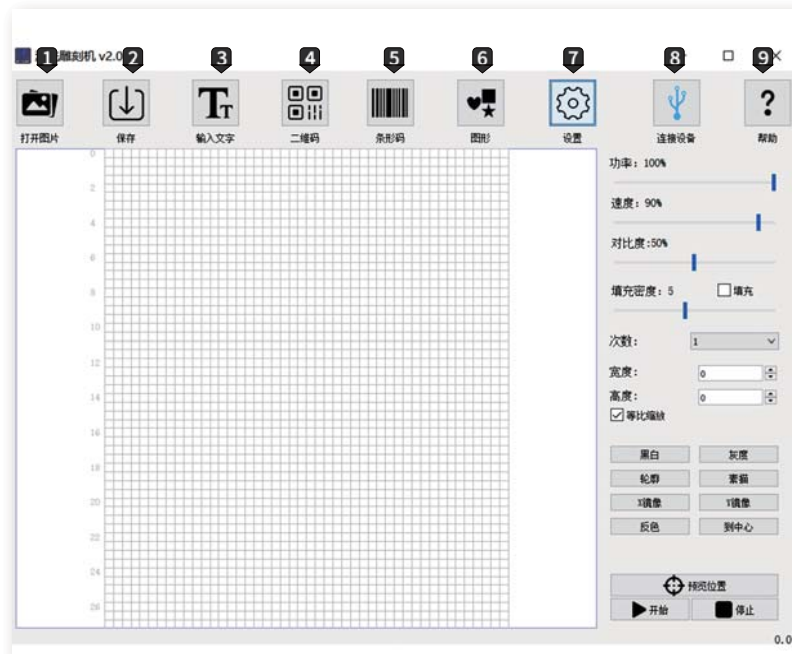
Connect the machine to the computer with the Type-C cable.

Open the engraving software — click the "connect device" icon — the machine is successfully connected to your computer when the icon turns blue.

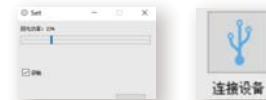


Custom PC Engraving Software Introduction

User Interface



- 1 Open**
Load photos from computer.
- 2 Save**
Save the edited texts and photos.
- 3 Input Text**
Create/edit text, change font family, font style, font size and text rotation etc.
- 4 QR code**
Create QR code
- 5 Bar Code**
Create Bar code
- 6 Graphics**
The graphics creation tool helps you quickly create graphics, including circles, squares, hearts and stars.
- 7 Settings**
You can set the power of your laser here for test firing and framing of projects. You can also enable/disable the rotary attachment here.



8 Connect the device

Click to connect the machine with your PC. The icon turns blue if the machine is successfully connected.

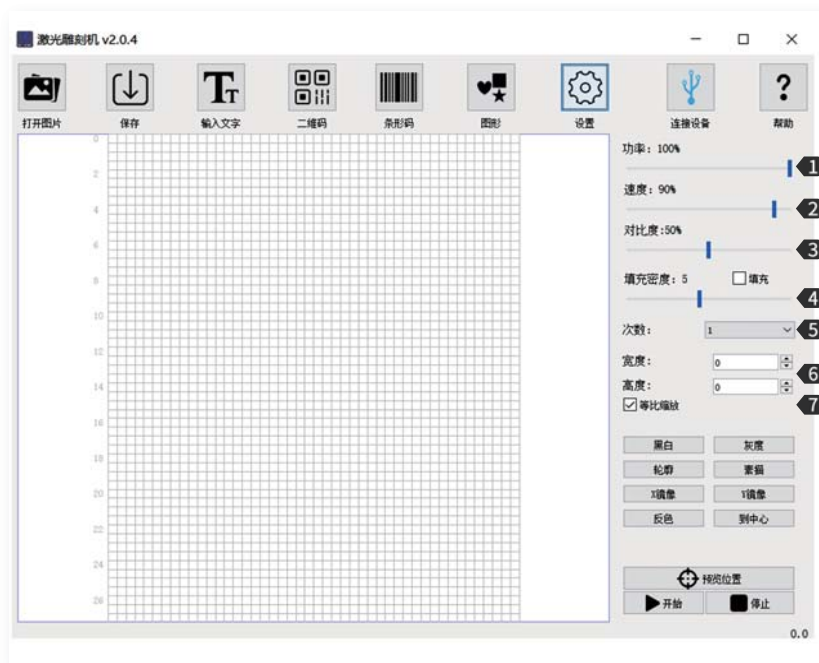
9 Help

Link to SainSmart Resources Center, where you can find software, user manual, and video tutorial for the machine.



Custom PC Engraving Software Introduction

Engraving Settings



7 Lock Aspect Ratio

Preserve the relative width and height when you resize the image or text.

1 Engraving Power

Adjust the power level to engrave different materials.

2 Engraving Speed

Set the engraving speed. The engraving speed determines the engraving depth.

3 Contrast

Adjust the Contrast slider to increase or decrease the text/photo contrast.



4 Filling Density; Filling

The filling effect can only be effective for vector graphics, select vectorization; Click "Fill" to apply the effect, drag the fill slider to adjust the filling density.

5 Engraving Times

Sets how many times the laser runs with this engraving job.

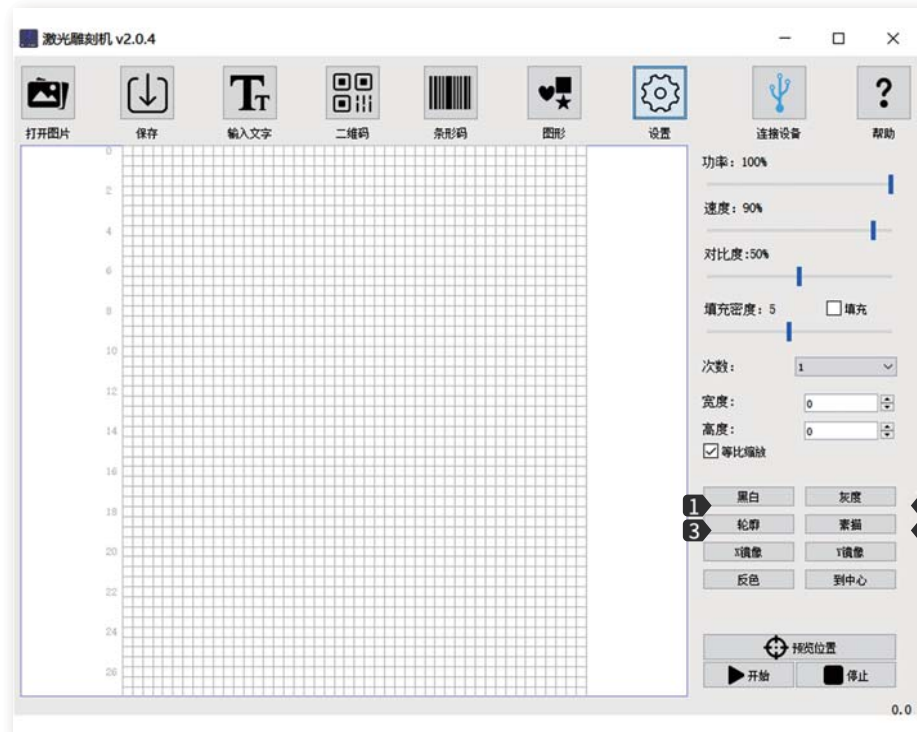
6 Width; Height

Customize the width and height of the text/photo.



Custom PC Engraving Software Introduction

Engraving Settings



1 Black and White
Convert your image to black and white.

2 Grayscale
Convert your image to a grayscale version.

3 Outline
Convert your image to an outline drawing.

4 Sketch
Convert your image to a sketch drawing.



Black and White



Grayscale



Outline

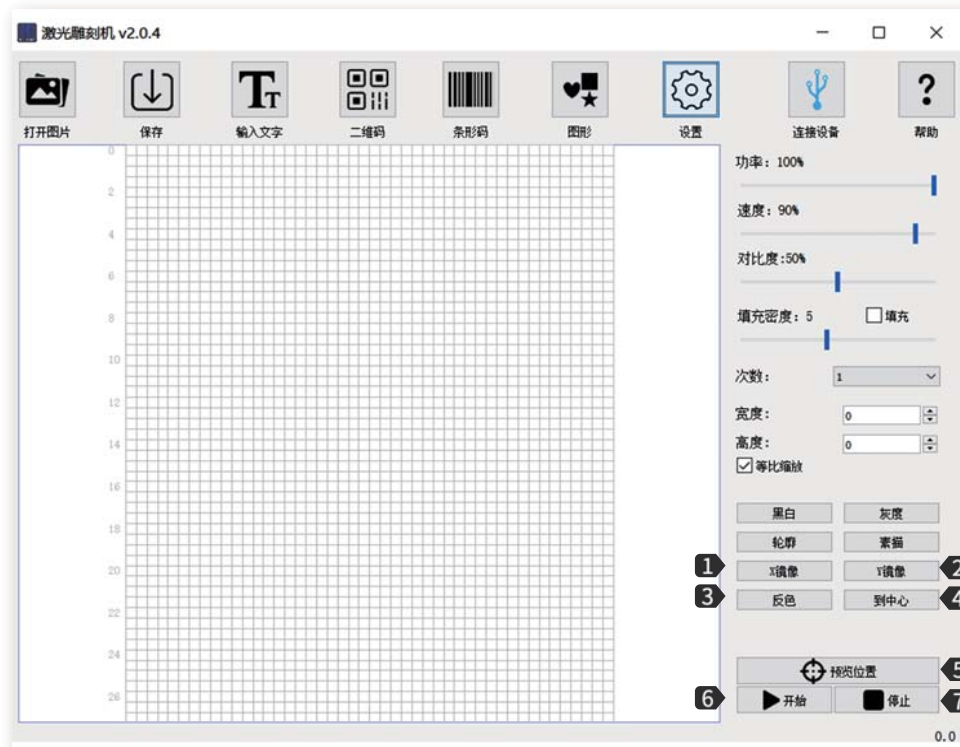


Sketch



Custom PC Engraving Software Introduction

Engraving Settings

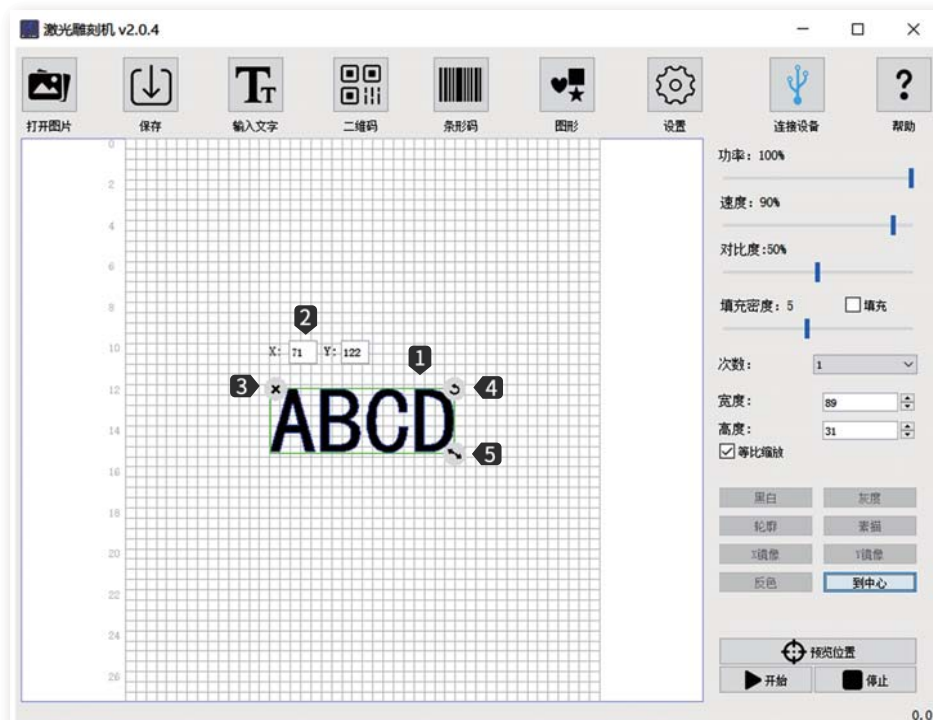


- ① **X Reversal**
Rotate your image horizontally.
- ② **Y Reversal**
Rotate your image vertically.
- ③ **Reversal**
Invert your image colors
- ④ **Center**
Move your image to the center.
- ⑤ **Preview Location**
The laser head moves in a rectangle around where the engraving job goes to help you position your workpiece.
- ⑥ **Start**
Start engraving.
- ⑦ **Stop**
Stop engraving.



Custom PC Engraving Software Introduction

User Interface



- 1 After loading your artwork, left-click the mouse to move the artwork position, right-click the mouse to move the drawing board. Scrolling the mouse wheel to zoom in or out from the mouse's location.
- 2 X:71 Y:122 are the X Position and Y Position of your artwork. These numbers change with your artwork position.
- 3 ✕ Remove your artwork from the drawing board.
- 4 ↻ Left-click the icon with your mouse to rotate your artwork.
- 5 🔍 Left-click the icon with your mouse to zoom in/out your artwork.



LaserGrbl & LightBurn Software Introduction

Laser GRBL

LaserGRBL Official Website: <https://lasergrbl.com/>



Note:

The Jinsoku LC-40 Laser Engraver supports GRBL firmware and our self-developed firmware. You can switch between different firmware according to your needs. Our custom firmware enables you to use our desktop software and mobile phone applications (for iOS and Android) to perform your engraving and cutting projects. When you switch to GRBL-based firmware, you can use LaserGRBL and LightBurn for your engraving projects, but control and engrave via your phone and the rotary attachment are no longer supported.

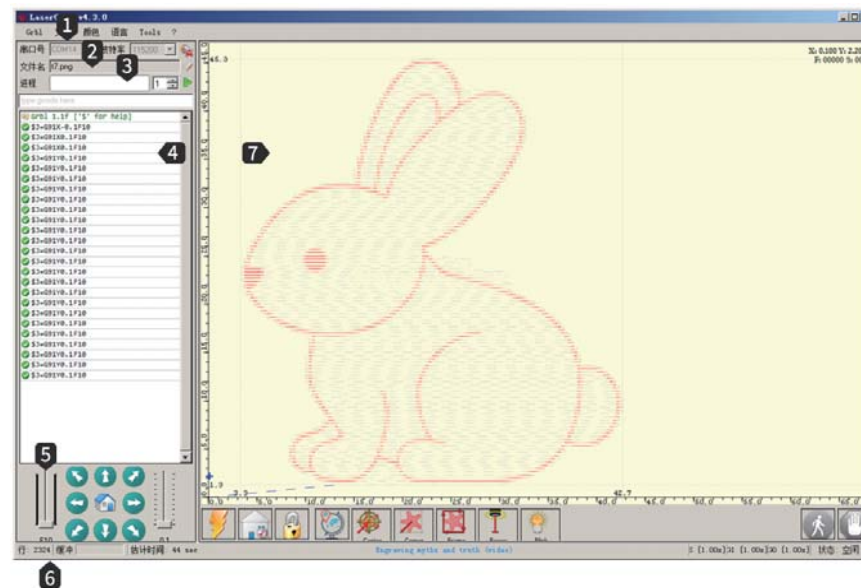
Video Instruction on installing the GRBL-based firmware can be found in the USB flash drive that comes with the machine.

File location: /LC-40 Engraver/LC-40 firmware update guide/



LaserGrbl & LightBurn Software Introduction

LaserGRBL User Interface (Source: <https://lasergrbl.com/usage/user-interface/>)



1 Connection control

You can select the serial port and proper baud rate for connection, according to grbl firmware configuration.

2 File control

This show loaded filename and engraving process progress. The green "Play" button will start program execution.

3 Manual commands

You can type any G-Code line here and press "enter". Commands will be enqueued to the command queue.

4 Command log and command return codes

Show enqueued commands and their execution status and errors.

5 Jogging control

Allow manual positioning of the laser. The left vertical slider control movement speed, right slider control step size.

6 Line count and time projection

LaserGRBL could estimate program execution time based on actual speed and job progress.

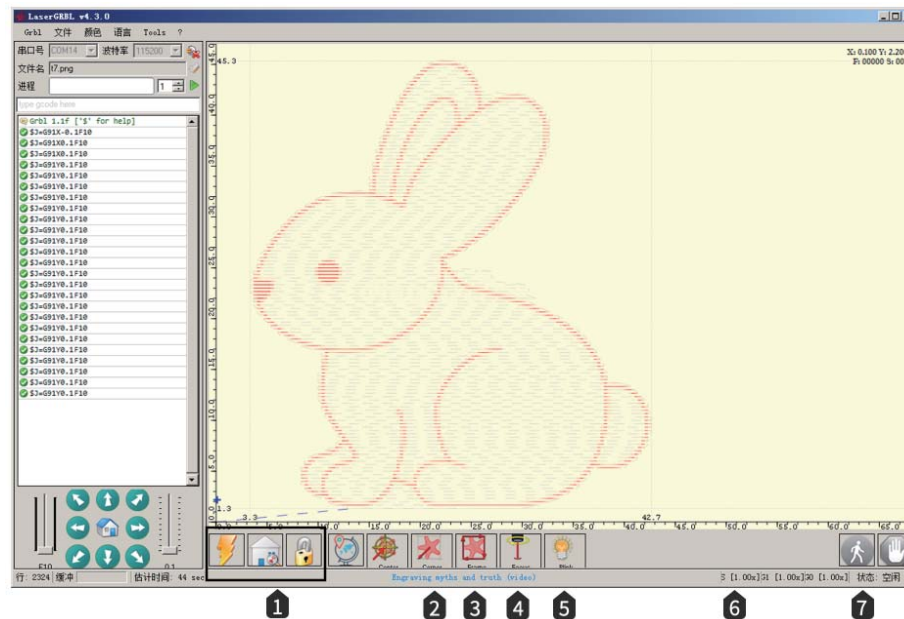
7 Engraving preview

This area shows the final work preview. A small blue cross shows the current laser position in real-time during engraving.



LaserGrbl & LightBurn Software Introduction

LaserGRBL User Interface (Source: <https://lasergrbl.com/usage/user-interface/>)

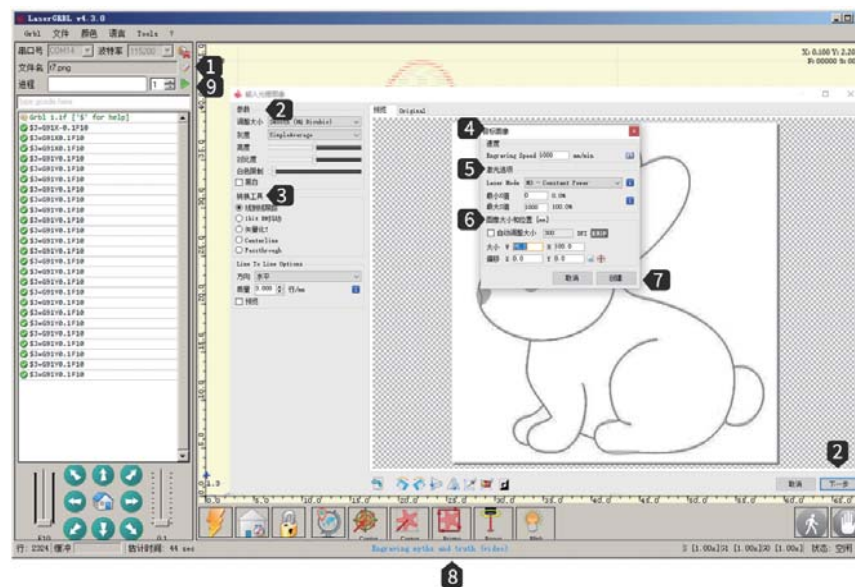


- 1 Grbl reset/homing/unlock**
These buttons submit soft-reset, homing and unlock commands to the grbl board.
On the right of unlock button, you can add some custom buttons.
- 2 Move to the bottom left corner.**
- 3 Framing**
After the photo is loaded, click this icon to preview the engraving position.
- 4 Turn on laser for focusing**
Turn on the laser with 3% power to focus it.
- 5 Blink**
Turn on the laser with 10% power in a short pulse that allows you to locate the laser spot visually.
- 6 Overrides status and control**
Show and change actual speed and power override. Overrides is a new feature of grbl v1.1 and is not supported in the older version.
- 7 Feed hold and resume**
This button can suspend and resume program execution by sending Feed Hold or Resume command to the grbl board.



LaserGRbl & LightBurn Software Introduction

Raster Image Import Tutorial on LaserGRBL (Source: <https://lasergrbl.com/usage/raster-image-import/>)



- 7 Create**
click the "Create" button after all settings have been adjusted to your needs.
- 8 Preview**
Click the "Preview" button to preview your engraving job.
- 9 Engraving**
Click the green "Play" button to start engraving.

- 1 Import Images**
Click the "Open File" icon or drag the file directly to the software interface;
- 2 Parameters**
Adjust import parameters.
- 3 Conversion tools**
Choose different conversion tools for various types of images.
- 4 Engraving Speed**
The speed at which an image will be filled by laser moves.
- 5 Laser Options**
Switch between two laser modes and set the laser power with "S-MIN" and "S-MAX".
- 6 Image size and position**
Adjust the image size and engraving position.

Note:
For detailed instruction on how to use the LaserGRBL, please kindly visit:
[Usage – LaserGRBL](#)



LaserGrbl & LightBurn Software Introduction

LightBurn

LightBurn Official Website: <https://lightburnsoftware.com/>





LaserGrbl & LightBurn Software Introduction

Setup-LightBurn

LightBurn

Step 1: Install LightBurn and run the program.



Step 2: Connect your PC to the Control board with the included USB cable.

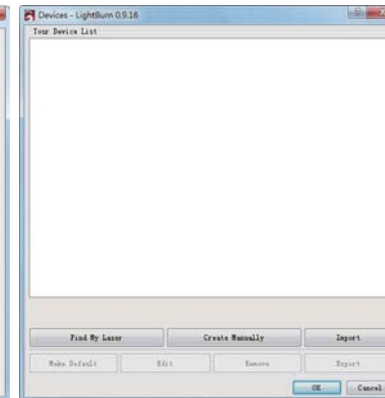
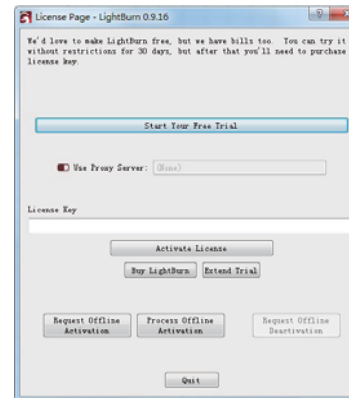
Step 3: Lightburn comes with a free 30 day trial, after this you can purchase a licence key from SainSmart at <https://www.sainsmart.com/products/lightburn-gcode-license-key>

Step 4: Click “Find My Laser” and start to “Device Discovery Wizard”

You can use the laser engraving and cutting software Lightburn or LaserGBRL.

You can open this link or scan to get the LightBurn GCode License Key from SainSmart.

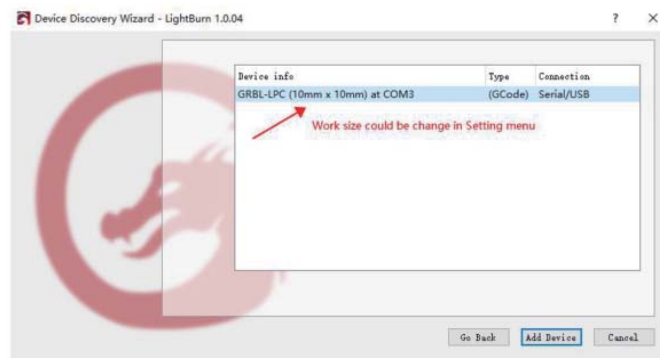
<https://www.sainsmart.com/products/lightburn-gcode-license-key>





LaserGrbl & LightBurn Software Introduction

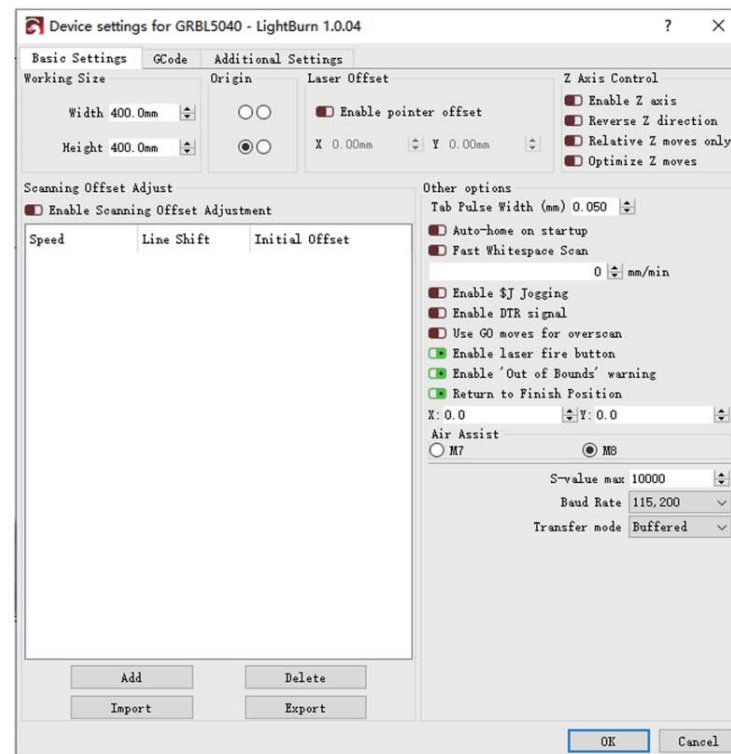
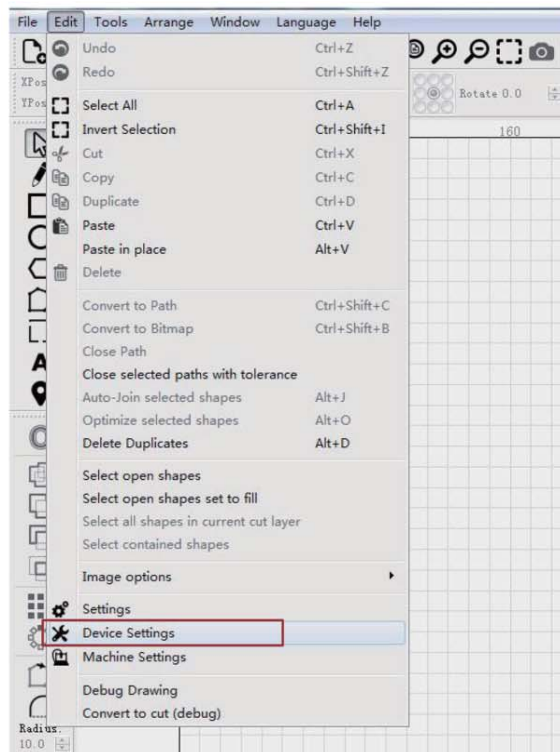
Step 5: Select the appropriate COM Port, With a successful connection you will see text in the console window that says “Grbl 1.1f ['\$' for help] and show “Laser Ready”.





LaserGrbl & LightBurn Software Introduction

Step 6: Click “Edit”, select “Device Settings”, Check the Basic settings, “Working Size”, width=500mm, Height=400mm, “S-value Max”, S=10000.



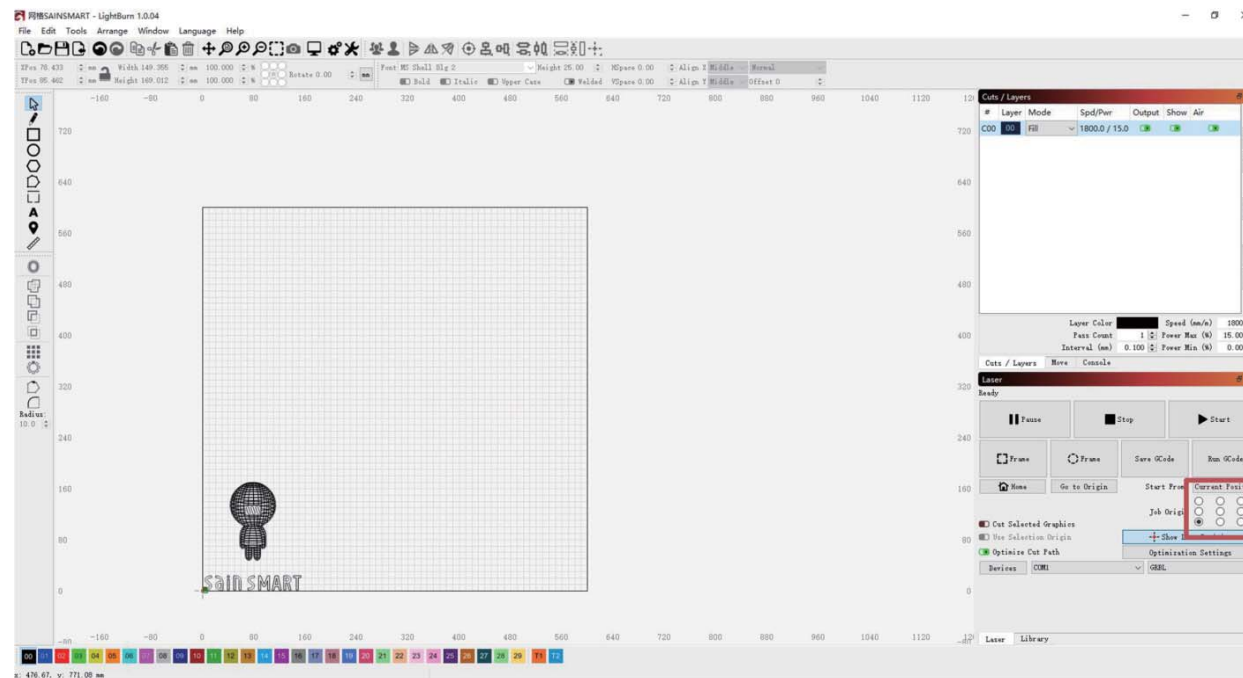


LaserGrbl & LightBurn Software Introduction

Engraving the Test File-LightBurn

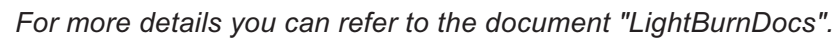
Step 1: File→Open File: Open GCODE file or Image format file.

Step 2: Set the Origin Zero Position (Starting Point).





The Max power should be set to 10%-100%, depending on materials they will require different Speeds and Percentage. Set the Power Scale to your lowest test power +10% to mimic what you want. make record and find that Power & speed.





APP Download & Introduction

1. APP Download & Installation:

Method 1: Scan the following QR code to download



Method 2: Download from SainSmart Resources Center:
<https://docs.sainsmart.com/lc-40>. Other resources like the user manual and video instructions can also be downloaded here.



Note:

Corresponding permission should be granted after successful installation.

2. Connect the machine:

- ① Connect the machine to the power supply and power on;
- ② Turn on Bluetooth on your mobile phone;
- ③ Open "Engraver" and click "No Connection" in the upper right corner. The app will search for available devices for connection;
- ④ Then click "Genmitsu LC-40";
- ⑤ The machine will be connected to your phone in a few seconds. The upper right corner will show "Connected". You can now start your engraving job with the app.





APP Download & Introduction

Introduction to Software Interface (Load Content)



- 1 Menu**
New User Guide/ Feedback/
User Agreement/Equipment/
Language Setting.
- 2 Picture**
Import photos from Gallery.
- 3 Camera**
Take photos via camera.
- 4 Material**
Built-in Graphic Library.
- 5 Graffiti**
Create your artwork.
- 6 Text**
Add text.
- 7 QR code**
Generate bar code or QR
code.

Roller Settings

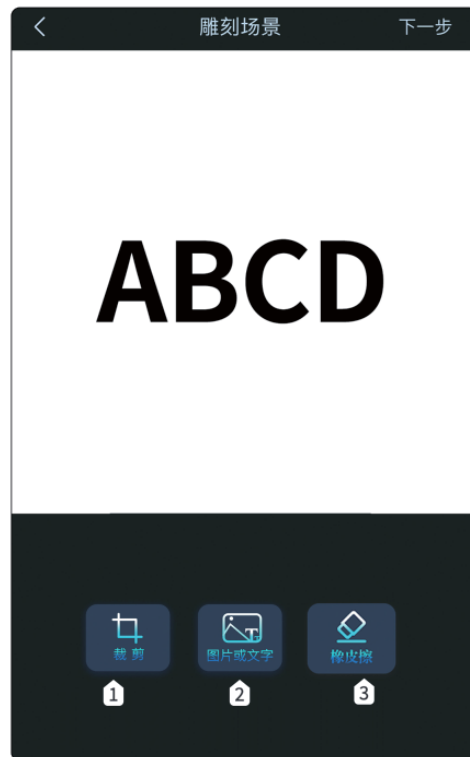


- 1 Standby laser power**
Set the laser power
when the machine has
no engraving job.
- 2 Roller mode**
Activate/inactive the
roller mode. When it is
activated, it can
engrave cyclical
objects.



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Introduction to Software Interface (Load Content)



① Cut out
Crop your image in different shapes.

② Photo or Text
Add additional images, custom text to your images.



Input Text



Load Photos
from Album



Shoot
via Camera



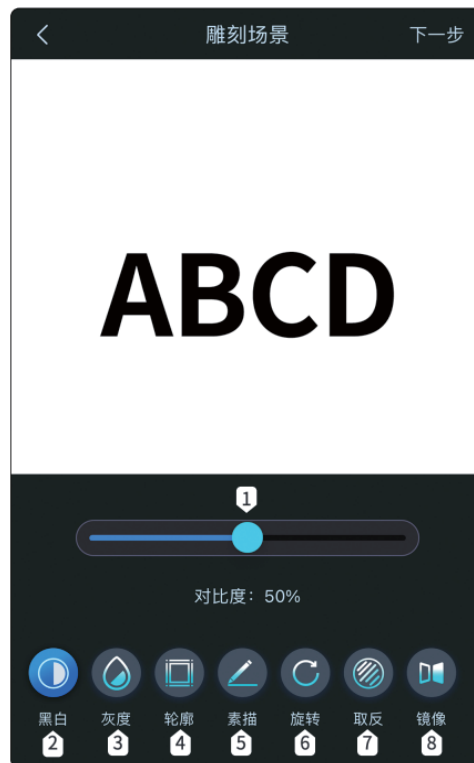
Add Photo from
Image Library

③ Eraser
Modify the photo with erase



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① Contrast

Adjust the Contrast slider to increase or decrease the text/photo contrast.



② Black and White

Convert your image to black and white.

③ Grayscale

Convert your image to a grayscale version.

④ Outline

Convert your image to an outline drawing.

⑤ Sketch

Convert your image to a sketch drawing.



⑥ Rotation

Rotate your image 90°, 180° or 360°.

⑦ Invert

Invert your image colors.

⑧ Mirror

Rotate your image horizontally or vertically.



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① Width

Customize the width and height of your image.

② Height

Customize the width and height of your image.

③ Lock Ratio

Preserve the relative width and height when resizing images or text.

④ Region Positioning

The laser head moves in a rectangle around where the engraving job goes to help you position your workpiece.

⑤ Smart Positioning

Confirm the engraving job position by scanning the QR Code.



① Material Selection

The app has built-in engraving settings for common materials, including cork, bamboo, cloth, etc.

② Add Material

Add your custom material and its engraving settings (laser power/engraving speed)

③ Engraving Power

Adjust the power level to engrave different materials.

④ Engraving Speed

Set the engraving speed. The engraving speed determines the engraving depth.

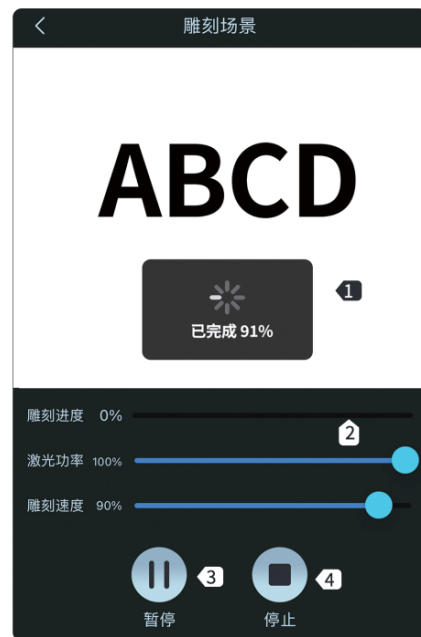
⑤ Engraving Times

Sets how many times the laser runs with this engraving job.



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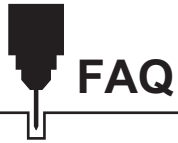
Introduction to Software Interface (Load Content)



- 1 **Engraving job transferring**
Start engraving when 100% is completed
- 2 **Engraving progress**
Display the engraving progress
- 3 **Pause**
Pause the engraving process
- 4 **Stop**
Stop the engraving job.



- 1 **Save**
Save the image you edited with the app to your phone.
- 2 **Engraving Completed**
Current engraving job is finished.



I. Unable to power on the machine.

Ensure all outlets, switches, and power cables are plugged in and powered up properly. Try a different power source or cable if necessary.

II. Unable to connect to computers.

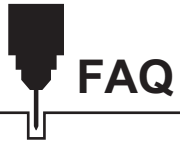
1. USB cable not connected: Please make sure the data cable is correctly plugged. On some PCs, the front USB port is not receiving enough power for the engraving machine. We recommend using the USB port at the back for a stable connection.
2. The driver is not correctly installed: Install the driver according to the instructions again. After the installation is done, your computer os can recognize the machine as a serial port. You can find a serial COM port in the computer's device manager.
3. If both solutions above are not working, try unplugging the USB cable and power cord, turn off the machine for at least five seconds, then power it on and re-connect again.

III. Machine gives no response when controlling via the mobile phone application.

1. The wrong machine is connected: If you have multiple machines in the workspace, please make sure you connect to the correct machine.
2. Compatibility Issue: Compatibility issues may occur when updating your phone to a new system version. Please don't hesitate to contact us with your system information if that happens. We will add support for it as soon as possible.

IV. The engraving looks blurry or shadowed.

1. Focus: Most commonly, the laser was not correctly focused before starting the job.
2. Engraving Speed: If you set the engraving speed too fast, the laser will have insufficient time to engrave your workpiece. Please adjust your engraving settings and do the engraving again.



3. Image Quality: If the image you imported has very light colors and fine lines, it will also affect the engraving quality.
4. Workpiece Position: The laser module has a fixed focal length, which means the workpiece should be placed on a flat surface and make sure it is in parallel to the machine, or poor engraving result.

V. Unexpected stops when offline engraving.

The engraving job has not been fully transferred. Re-connect the machine and transfer the engraving job again should solve the problem.

VI. Inaccurate focus

Read the "Focus" section in the User Manual carefully. Use the focusing tools provided with the machine to adjust the focus. If the focusing tool is missing, you can use white cardboard with 5mm thickness to adjust the focus instead. You can contact our support team for further assistance if needed.

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.



Genmitsu

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