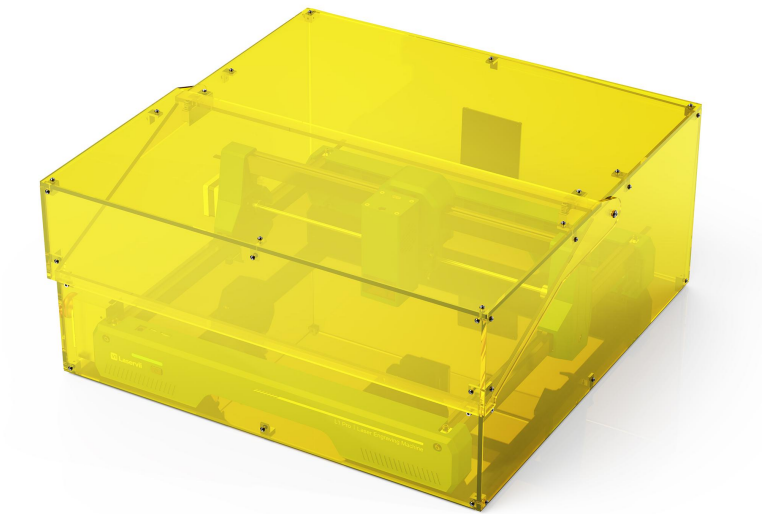
Laservii

L1 Pro 24W

Product Manual



Note: The images are for reference only, the actual product shall prevail.

A Letter to Customers

Dear Customer，

To ensure smooth assembly and use, we have prepared this assembly and operation guide manual. Please read the following content carefully and follow the instructions to ensure safety and convenience during use. If you encounter any issues, you can scan the WIKI QR code or visit the company website to access relevant tutorial videos. If the machine malfunctions, please refer to the names of the corresponding components and inform us of the problem and machine condition via the after-sales email provided on this page.

After-sales email:service@laservii.com

Inquiry email: marketing@laservii.com

Official website：https://laservii.com/

Wiki:https://wiki.laservii.com/en/home

Facebook: https://www.facebook.com/profile.php?id=61584424918207

Facebook

Official website

Wiki

Table of Contents

Safety Instructions

1.Always wear specialized protective glasses matched to the laser type (e.g., 1064nm for fiber lasers). Do not operate the machine without protection.

2.Strictly prohibit engraving PVC, foam, or chlorine-containing materials, as they produce highly toxic gases. Test unknown materials with an 1×1cm sample first.

3.Place the device on a stable surface with a load-bearing capacity ≥3 times the device weight. Leave ≥20cm of ventilation space around it, away from children's reach.

4.Turn on desktop ventilation or an external fan during engraving. For wood or leather processing, use an activated carbon filter box to reduce odors and dust.

5.Before powering on, check that the power cord is undamaged, USB connections are secure, and the device is properly grounded. Avoid touching power ports with wet hands.

6.Do not leave the station during operation. Press the emergency stop button for temporary pauses. Avoid touching the laser head's path or high-temperature workpieces.

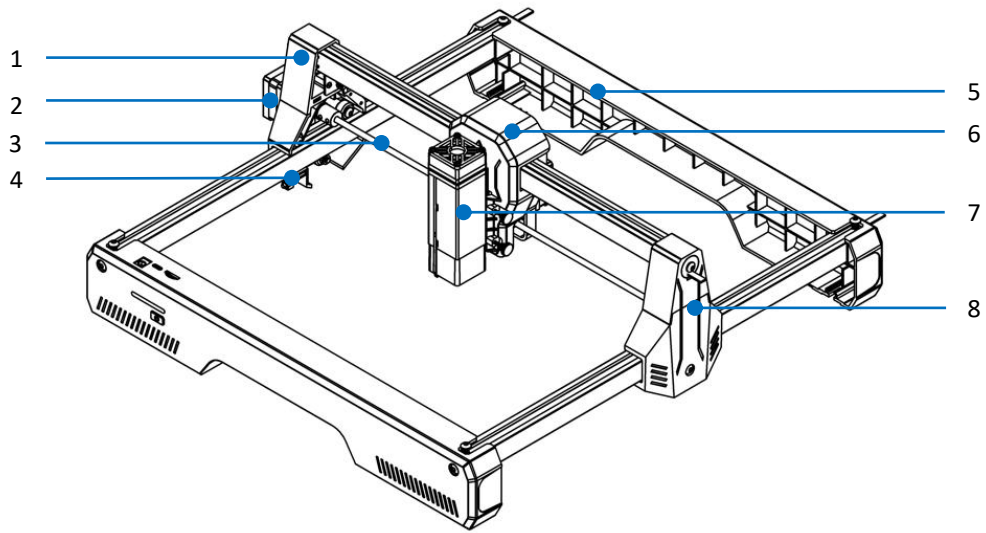
7.Keep a small dry powder fire extinguisher in the work area. When engraving flammable materials (e.g., cardboard), reduce power and shorten processing time.

8.Regularly clean lenses with anhydrous ethanol, wiping in one direction to avoid scratches. Always disconnect power before cleaning.

9.Do not operate after drinking, fatigue, or taking drowsiness-inducing medication. Do not remove safety covers for convenience.

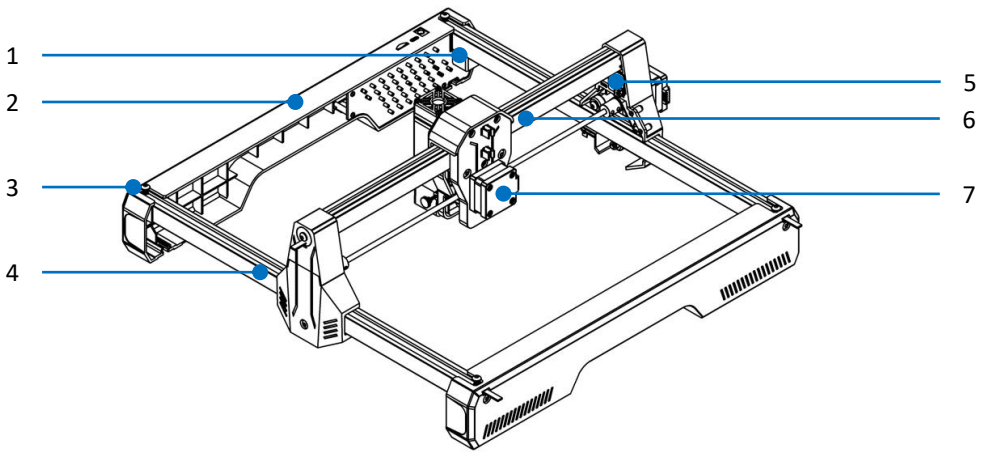
10.In case of fire, cut power immediately and use the extinguisher. For laser eye burns, rinse with water and seek medical attention promptly.

Component Introduction



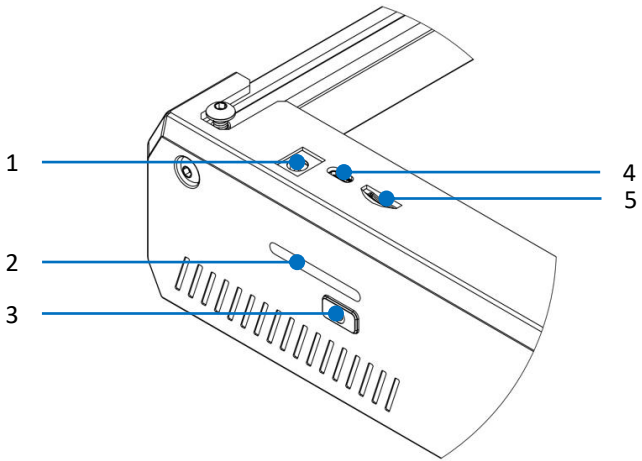
1	2	3	4	5	6	7	8
Y-axis left slider	Y-axis motor	Optical shaft	Y-axis limit	Rear frame	X-axis slider	Laser module	Y-axis right slider

Component Introduction



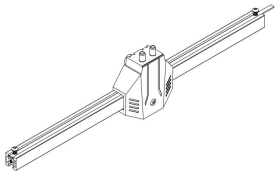
1	2	3	4	5	6	7
Y-axis limit trigger	Front frame	Belt tensioning piece	Y-axis profile	X-axis limit	X-axis profile	X-axis motor

Component Introduction

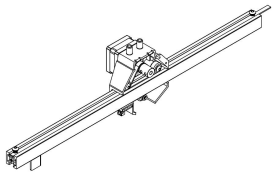


1	2	3	4	5
DC socket	Silicone light guide column	Power button	Type-C interface	TF card slot

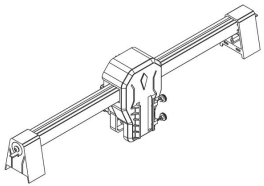
Accessories List



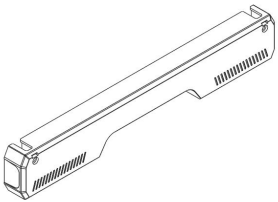
Y-axis right part X1



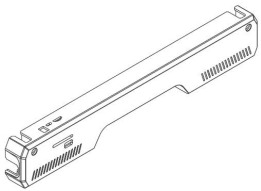
Y-axis left part X1



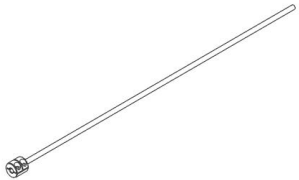
X-axis module X1



Rear Frame X1

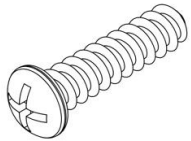


Front Frame X1

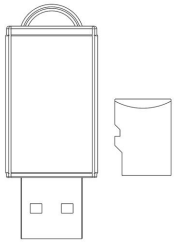


Optical Axis Module X1

Screw M5*12 X4

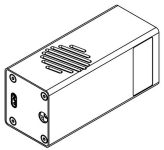


Self-tapping screw M3*10 X2

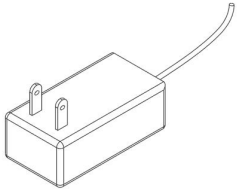


TF Card X1

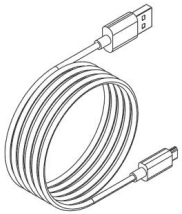
Accessory List



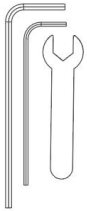
Laser module
24W X1



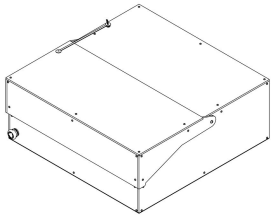
12V 3A/5A
Adapter X1



data line X1



Wrench Set
X1



Housing X1

Screw M3*8 X8

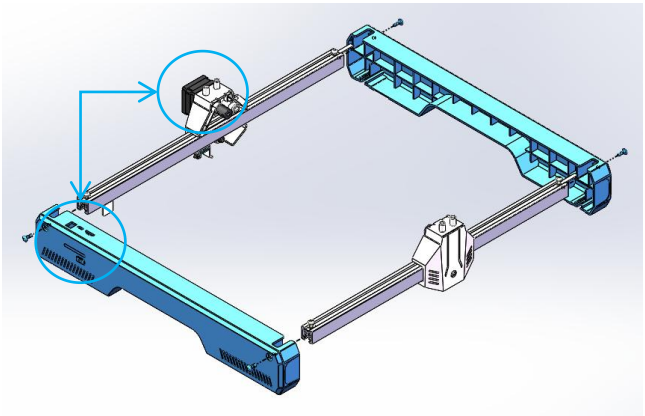
Machine Assembly

1. Front and Rear Frame Assembly

Required materials:
Y-axis left part X1, Y-axis right part X1, front frame X1, rear frame X1, Screw M5*12 X4.

Insert the front and rear frames into the slots of the Y-axis left and right parts. Pass the M5 * 12 screws through the frames and tighten them onto the profiles.

Note: The Y-axis left part includes the motor.

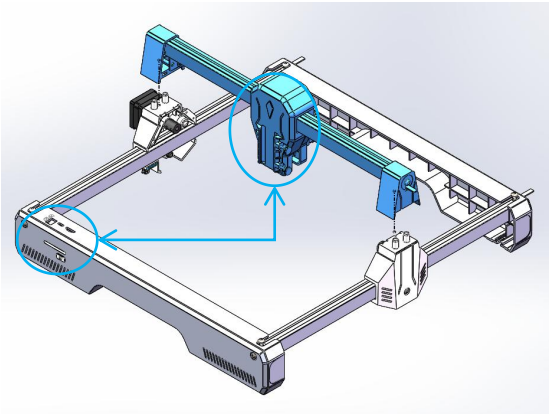


2. X-axis Component Assembly

Required materials:
X-axis component X1.

Align the X-axis front plate with the front frame and press the X-axis component onto the Y-axis left and right parts from top to bottom.

Note: Confirm the direction of the X-axis slider before pressing down.



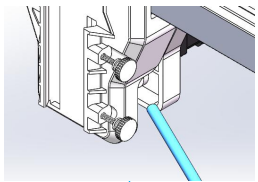
Machine Assembly

3. Optical Shaft Component Installation

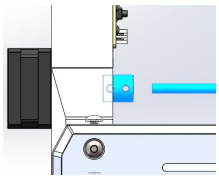
Required materials:
Optical shaft component X1.

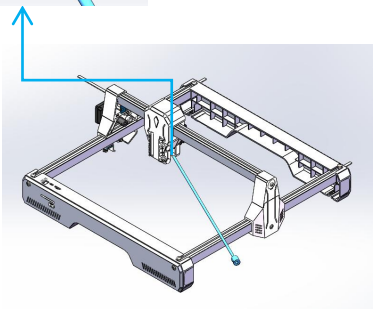
Pass the optical shaft component through the hole under the X-axis slider and insert it into the coupling on the Y-axis left part. Tighten the two set screws on the coupling.

Enlarge image1



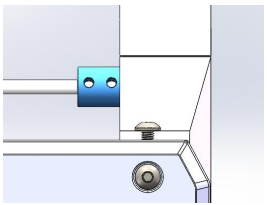
Enlarge image2



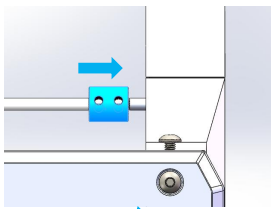


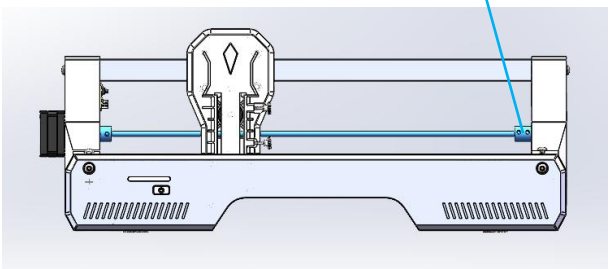
Loosen the set screws on the coupling at the other end, push it to the right against the synchronous pulley, and tighten the four set screws on the coupling.

Enlarge image4



Enlarge image3





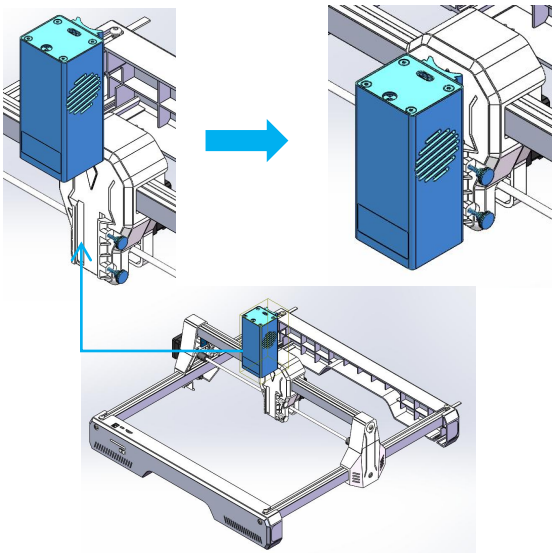
Machine Assembly

4. Laser Module Installation

Required materials:
Laser module 7W/12W X1.

Insert the laser module into the X-axis slider from top to bottom, then tighten the hand-tightened screw from the side.

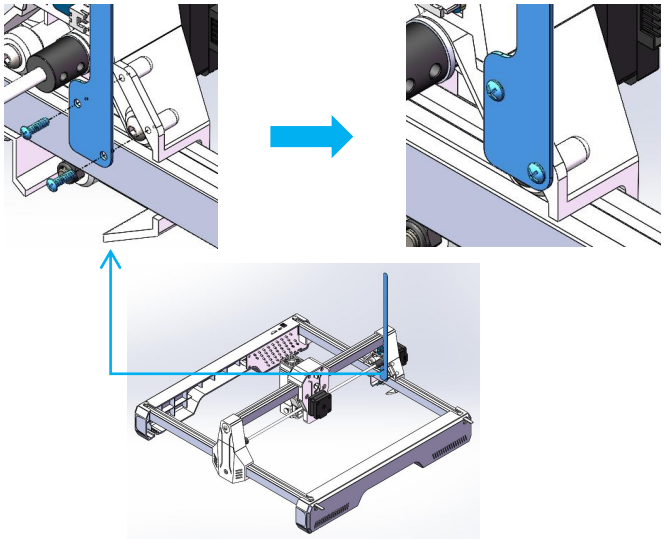
Note: If the laser module is low, only tighten the bottom hand-tightened screw.



5. Harness Mylar Sheet Assembly

Required materials:
Self-tapping screw M3 * 10 X2.

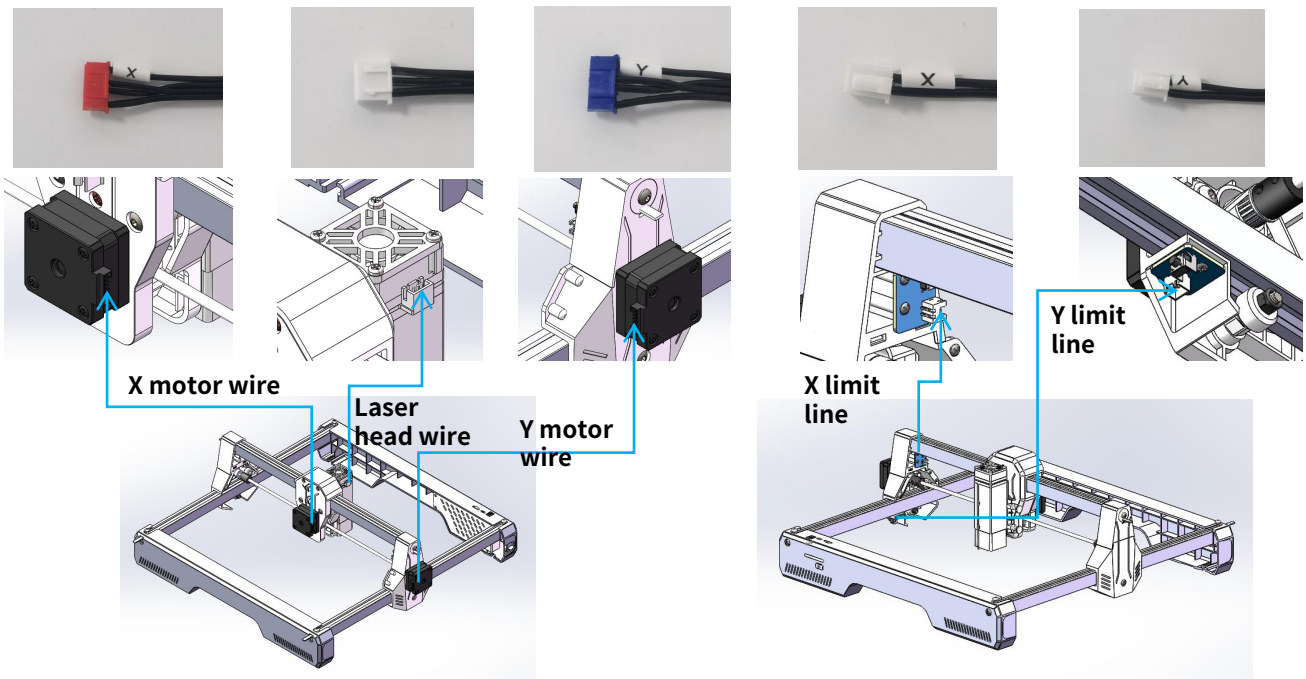
Use two M3 self-tapping screws to pass through the Mylar sheet on the harness and tighten it onto the Y-axis left part.



Machine Assembly

6. Wiring

Connect the wires from the motherboard harness to the corresponding positions on the machine as shown.

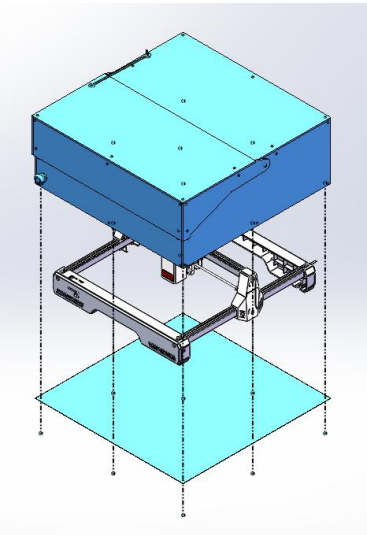


Machine Assembly

7. Housing Installation

Required materials:
Housing X1 Base Plate X1 Screws M3*8 X8

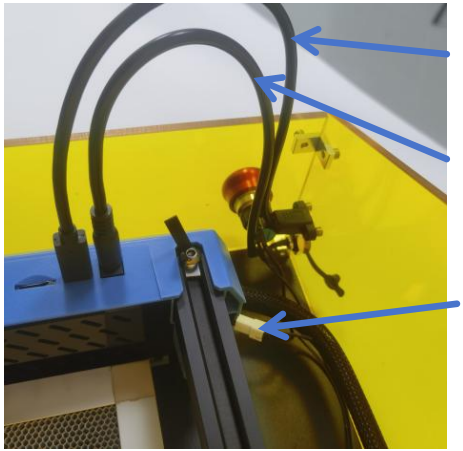
Place the housing over the machine from the top, then secure it to the housing by passing the M3*8 screws through the base plate from underneath.



8. Housing Wiring

Required materials:
Type-C Cable X1 DC Cable X1

As shown in the figure, use the cables to connect the DC ports and Type-C ports of the main board and the housing respectively. Connect the emergency stop switch cable to the wiring port of the main board.



Machine Calibration

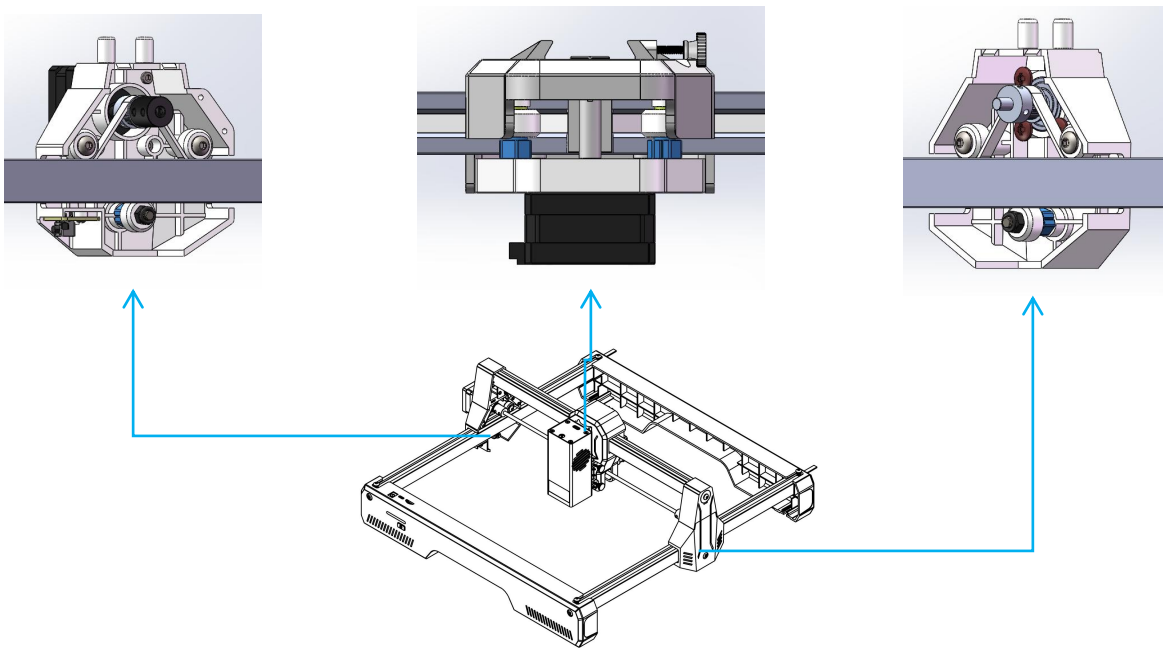
1. Eccentric Nut Adjustment

Check if the POM wheels on the Y-axis left/right parts and X-axis slider match the profiles and move smoothly without jamming.

Note:

1.Ideal state: When rotating the POM wheels, there should be slight friction with the profiles.

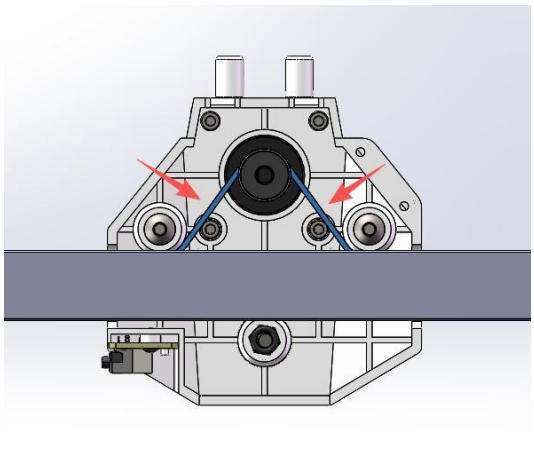
2.If the wheels spin without contact, adjust the eccentric nut with an open-end wrench.



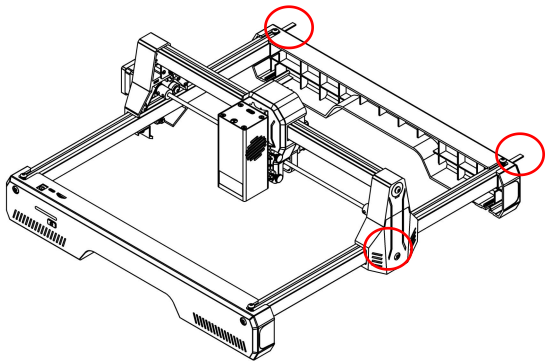
Machine Calibration

2. Synchronization Belt Adjustment

Check the tightness of the synchronization belts on the Y-axis left/right parts and X-axis slider. Proper state: The belt should be tight when pressed at the arrow-indicated position.



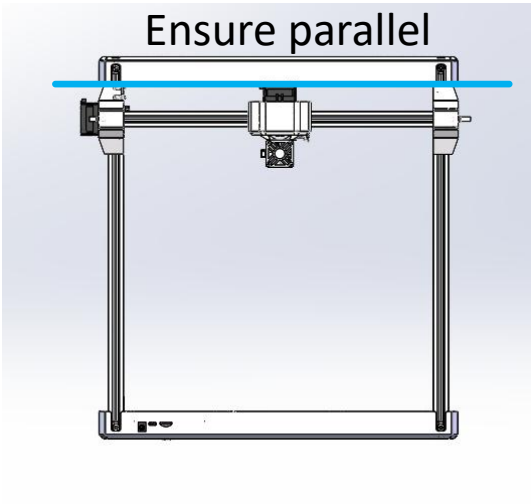
Adjustment method: Loosen the screws in the red box area, tighten the belt, and then retighten the screws.



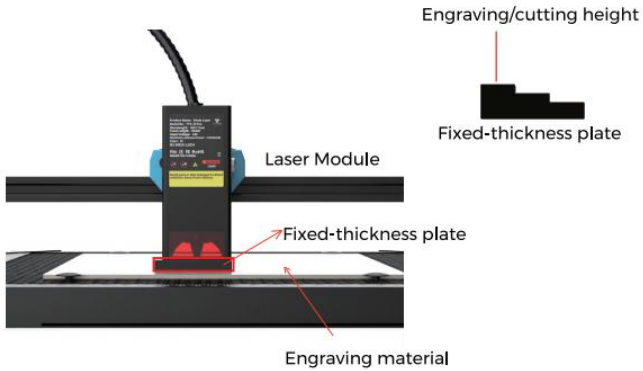
Machine Calibration

3. Y-axis Leveling

Push the X-axis component to the rear of the machine, ensuring both Y-axis plastic parts contact the rear frame.



4. Laser Module Focusing



Machine Testing

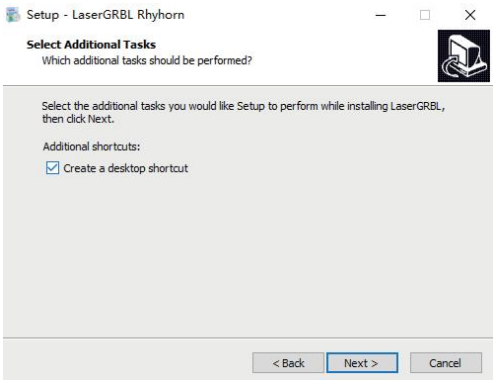
1. Software Download

LaserGRBL is one of the most popular DIY laser engraving software. Download it from http://lasergrbl.com/download(the installer is also available on the TF card or USB drive provided by the manufacturer).

Introduction: LaserGRBL is easy to use but only supports Windows (Win XP/7/8/10). Mac users can choose LightBurn, which is impressive but not free. LightBurn also supports Windows.。

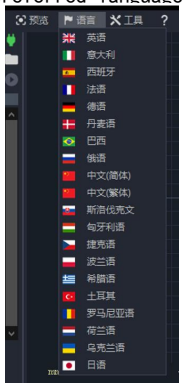
2. Software Installation

Double-click the installer and click "Next" until installation is complete



3. Language

Click "Language" at the top menu to select your preferred language.



4. CH340 Driver Installation

Method 1: Click "Tools" in the menu to install the CH340 driver (not available in some versions).

Method 2: Copy the "CH340SER" file from the TF card to your computer and install it.

5. Power-on Self-Test

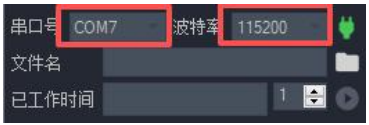
5.1 Connect the power cord to the DC port on the motherboard.

5.2 Press the power button to turn on the machine. Press the button three times shortly, and the machine will run a test program (return to origin and traverse the maximum engraving area twice).

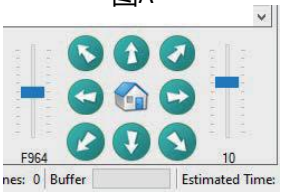
Machine Testing

6. Computer Connection

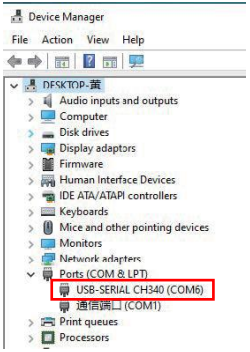
1. Connect the machine to the computer via the data cable.
2. Open LaserGRBL on the computer.
3. Select the specific port number and baud rate 115200 (Figure A).
4. Click the green plug icon (Figure B). When the direction icon lights up, the connection is successful (Figure C). Normally, manual port selection is not needed unless multiple serial devices are connected. Check the port in Windows Device Manager (Figure D). Alternatively, try each port number.



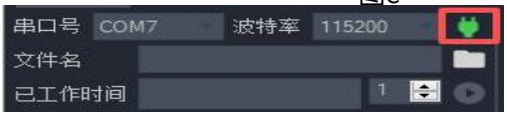
图A



图C



图D



图B

7. Load Engraving File

Click "File" and "Open File," then select the graphic to engrave. LaserGRBL supports NC, BMP, JPG, PNG, etc.

Machine Testing

8. Set Image Parameters, Engraving Mode, and Quality。

1. Adjust sharpness, brightness, contrast, highlights, etc., in LaserGRBL. Preview the effect and adjust to satisfaction.
2. For engraving mode, typically choose "Line To Line Tracing" or "1bit Bw Dithering" (better for grayscale images). For cutting, select "Vectorize!" or "Centerline."
3. Engraving line width depends on the laser spot size. Recommended quality range: 12–15. Adjust based on material response.
4. Rotate, mirror, or cut the graphic in the preview window. After settings, click Next to set speed, energy, and size.

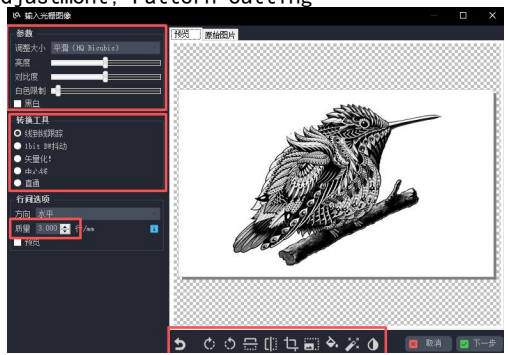
Color adjustment; Intensity adjustment

Direction adjustment; Pattern cutting

Color adjustment; intensity adjustment

Select carving mode

Quality: 12–15 (recommended)



Direction adjustment; pattern cutting

9. Set Engraving Speed, Energy, and Size

1. The recommended engraving speed is 8000, which has been found to be relatively suitable after repeated experiments. Of course, you can adjust this speed according to your preference. A higher engraving speed will save time but may reduce the engraving quality.
2. In laser mode, there are two commands: M3 and M4. If your laser only has the M3 command, please check whether this laser mode is used in the GRBL configuration. For GRBL configuration, refer to the official LaserGRBL instructions.
3. Choose the engraving power according to different materials.
4. Finally, set the dimensions and click the "Create" button to complete all engraving parameter settings.

The default carving speed is 1000 and can be adjusted as needed.

Set the energy level; too much energy can affect the engraving result.

Enter the dimensions of the design to be carved

10. Start carving

After returning to the main interface, click the start button as shown to begin carving

App Introduction

APP Connection
Open the mobile app, click on 'Connect Device', then click 'Bluetooth' and 'Search for Engraver'. The mainboard will send a Bluetooth name called Laser-XXXXX (XXXXX refers to the mainboard's serial number, which is different for each machine).

Note: After completing the slicing in the app, you need to insert the TF card into the mainboard when uploading files. If the upload fails, please check if the TF card is functioning properly.

Regular maintenance

1. Laser Head and Lens Cleaning

Check whether there is dust or smoke residue on the laser lens surface (smoke and dust generated during laser processing easily adhere to the lens, causing laser energy loss and reduced processing accuracy). Cleaning method: use a cotton swab dipped in a small amount of alcohol to gently wipe the lens surface in one direction. Do not rub back and forth or touch with hard objects. After cleaning, make sure the alcohol has completely evaporated before powering on.

2. Transmission Component Check

Check the tension of the belt. If the belt is loose, it may cause processing accuracy deviations. The belt can be tightened by loosening the screw that holds it, pulling the belt tight, and then re-tightening the screw. Clean the dust on the belt surface to prevent slipping.

3. Limit Switch Check

Manually trigger the limit switch on each axis and confirm that the device can stop normally to avoid over-travel that could damage components. Clean dust from the surface of the limit switch to prevent poor contact.

4. Worktable Cleaning

Remove processing debris and waste material from the table to prevent scratches on the worktable or affect the positioning accuracy of the next process.

5.Equipment Appearance and Power Supply Check

Wipe the dust off the equipment casing and check whether the power cord, data cables, and air hoses are loose or worn to prevent short circuits or signal interruption.

Product Specifications

Name	Laser Engraving Machine	**Net Product Weight**	2.5KG
Model	L1 pro	**Packaging Weight**	3.5KG
Molding Technology	Laser Engraving	**Internal Packaging Dimensions**	510x166x240mm
Main Body Color	Black + Blue	**External Packaging Dimensions**	525*186*260mm
Main Body Material	Aluminum + Injection Molded Parts	**Transmission Timing Belt Model**	GT2-6mm
Product Dimensions	483*487*184mm	**X/Y - axis Positioning Accuracy**	0.01mm
Working Range	300x300mm	**Engraving Accuracy**	±0.1mm
Engraving Materials	Wooden boards, plastics, paper, leather, bamboo, sponge paper, stainless steel, Celuka board, acrylic	**Maximum Engraving Speed**	12000mm/min
Operating Frequency	2.4GHz	**RF Output Power**	10dBm

Warning

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

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