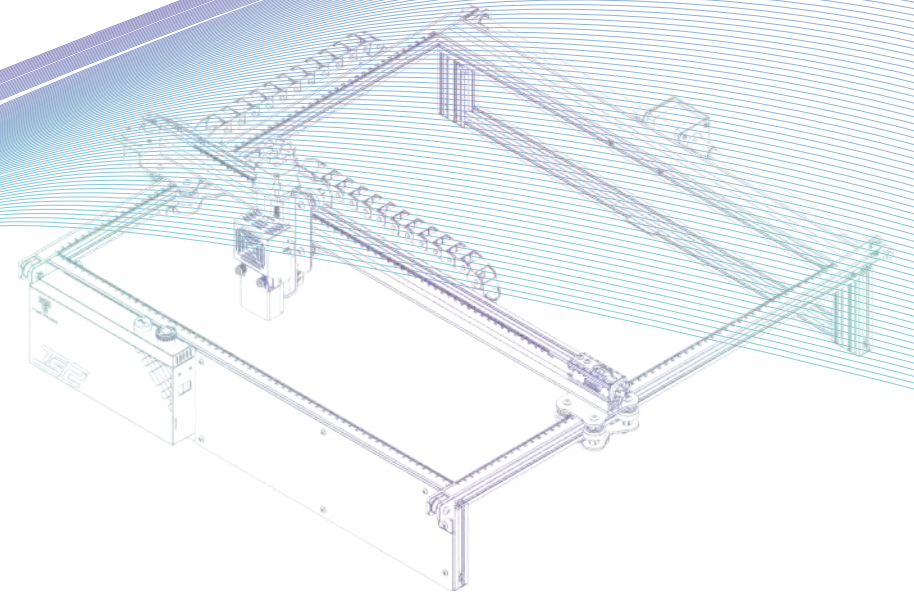


PRODUCT MANUAL

BURN DOWN ETERNITY

Laser engraver



TEL: +0086-0755-23987110

Http: www.twotrees3d.com

E-mail: service@twotrees3d.com

Facebook: <https://www.facebook.com/twotrees3d>

Address: Room 402, Building 11, No.9 Qilin Road, Nankeng Community,
Bantian Street, Longgang District, Shenzhen, Guangdong, China, 518000

TTS memory card short chain: <https://bit.ly/3yQAJyt>

Youtube channel short link: <https://reurl.cc/VjQa1n>

Note: The picture is for reference only, the actual product shall prevail



LETTER FROM TWOTREES

Dear Customers,

Thank you for choosing us.

It's customer-oriented idea, continuous innovation and pursuit of excellence that enable everybody to have wonderful experience in using process.

We believe that this manual will be helpful.

Hope you enjoy the good time with TwoTrees.

If you have any problems, please feel free to contact us via:

Website: www.twotrees3d.com

Facebook: <https://www.facebook.com/groups/twotrees3Dprinter/>

For general inquiry: info@twotrees3d.com

For technical support: service@twotrees3d.com

We will contact you within 24 hours.

TwoTrees Team

PRECAUTIONS

Please follow the instruction, due to misuse will be at your own risk.

1. Avoid looking steadily at the laser, which may damage your eyes.
2. Avoid touching directly during the machine working.
3. You can place a metal plate under the engraved or cut object to prevent your table being burned through.
4. Avoid combustible object or gas.
5. Keep it away from children or pregnant women.
6. Do Not take apart the laser without instructions.
7. Do Not use it on material that reflects the light.
8. Wear goggles while taking off the laser cover.
9. Turn off the power when not use.

SAFETY GUIDELINES

Warning: Laser engraving machine cannot directly carve or cut material that reflects the light; may cause injury.

The product has a high engraving speed and is not recommended for industrial cutting. And the laser head is a consumable.

Do not operate the laser head directly with your hands. Please wear goggles.

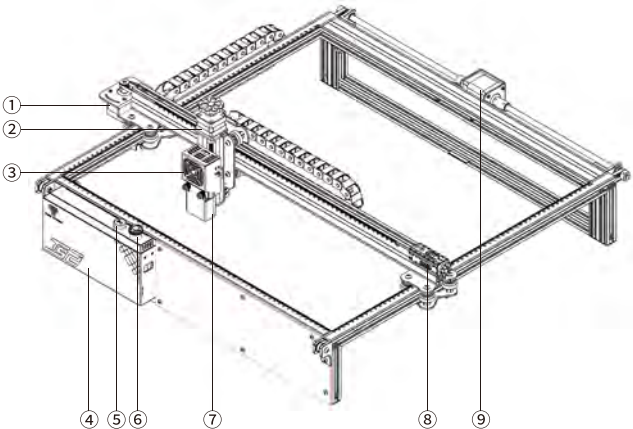
The laser diode is a sensitive component, please prevent static damage. (This product has an electrostatic protection design, but there is still a possibility of damage).

CONTENTS

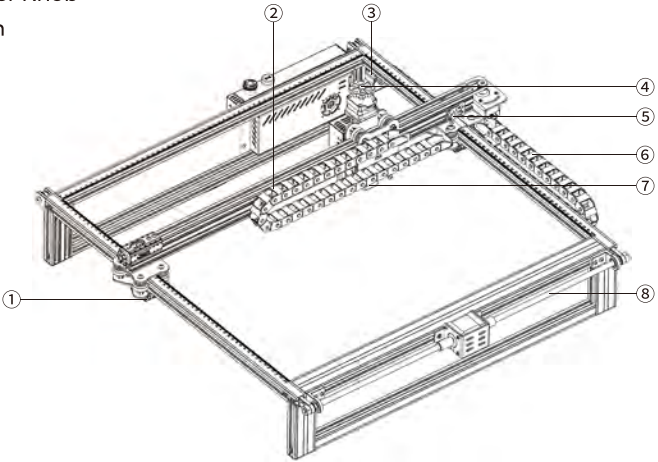
About Machine	02
Accessories List	03
Usage notice	05
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CONNECT PC	24
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Laser Auto-focusing Configuration Guide	28
Machine Testing Guide	31
APP User Guide	32
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After-sale Service	36

ABOUT YOUR MACHINE

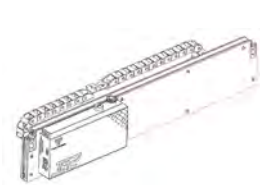
- 1. X-axis Stepper Motor
- 2. Z-axis Stepper Motor
- 3. Laser Module
- 4. Control Box
- 5. Flash Buzzer
- 6. Emergency Stop Button
- 7. Z-axis Focusing Probe
- 8. X-axis Tensioner
- 9. Y-axis Stepper Motor



- 1. Y-axis Tensioner
- 2. X-axis Drag Chain
- 3. Y-axis Endstop/Limit Switch
- 4. Z-axis Manual Focusing Lifter Knob
- 5. X-axis Endstop/Limit Switch
- 6. Y-axis Drag Chain
- 7. Flame Detector Module
- 8. Y-axis lead rod



PART LIST



Front Frame X1



Y-axis Left Frame X1



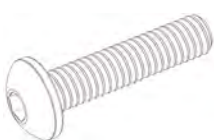
Y-axis Right Frame X1



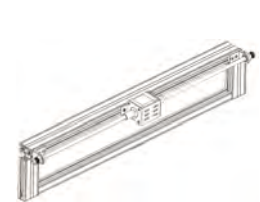
Schrauben M3*6X16



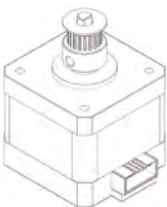
Y-axis drag chain Holder X1



Screw Bolt M5*20 X1



Back Frame X1



X-axis Stepper Motor X1



X-axis Crossbeam X1



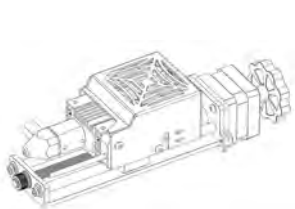
Data Cable x1



Tool Package X1



Power Adapter X1



Laser Module X1



Screw Bolt M4*10X2



Cup head screw M5*25X6



Power Cable X1



Cup head screw M5*40X2



Screw Bolt M4*16 X5



Cup head screw M3*6X4

Usage notice

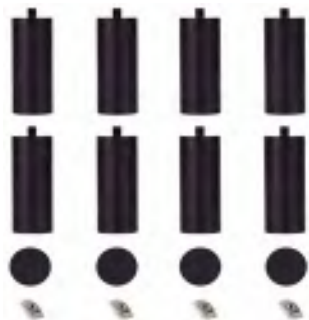
Make sure the cutting area under the laser is metal or non-flammable.
Ensure that the room or area you are operating the laser in is sufficiently labeled to prevent someone from unknowingly walking into an active work area.
Never use the laser except for the purpose intended.
When engraving mirror, stainless steel and other reflective materials, please paint the surface black to prevent damage to the laser head from reflective light.
The machine should be placed securely on a flat surface to avoid dropping or being hit.
Be within reach of the Emergency Stop or pause button when the machine is in operation.
In the event of an emergency, or if there are any conditions that may result in injury to yourself or others, the is equipped with an Emergency Stop button on top of the Controller.
When pressed, this button will latch in the Stop position. To reset, twist the red knob clockwise.



Optional accessories (Not Included)



Honeycomb Platform



Leg extension kit



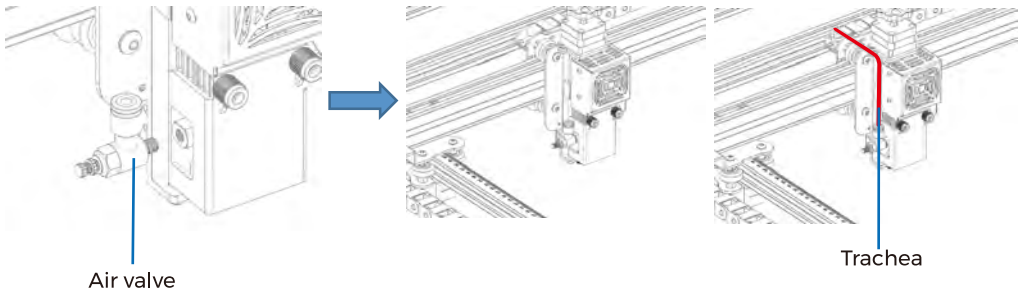
Rotate Module



Air Pump

Visit www.twotrees3d.com for details

Air valve and air pipe installation diagram



Schematic diagram of external air pump



The standard machine kit comes with air assistance accessories, but does not come with an air pump (if you need an air pump, please consult service team of the official website)

MAIN PARAMETERS

Model	TS2
Machine Size	733*721*172mm
Machine Weight	6.5kg
Engraving Size	450*450 mm
Laser Wavelength	445±5 nm
Engraving Accuracy	0.01 mm
Engraving Speed	10000mm / min
Software Support System	Mac, Windows
Material	Aluminum profile + Sheet metal parts
Electrical Requirement	24V 4A DC
Motherboard	DLC ESP32 Motherboard (32bit)
Laser Power	10000mw
File Format	NC, BMP, JPG, PNG, GCODE, ETC
Supported Software	LaserGRBL (Windows), Lightburn (Common)
Power Type	USA / EU Plug (Optional)
Software Support Languages	Chinese, English, Italian, French, German
Working Environment	RHTemperature 5-40°C, Humidity 20-60%RH
Engraving Method	USB connection/APP/ Wireless computer WEB terminal/Screen (optional)
Engraving Materials	Wood, Plastic, Paper, Leather, Bamboo, Sponge Paper, Alumina, Stainless Steel, Chevron, Acrylic, Glass, etc.
Engraving Mode	Image carving / Text carving / Scanning carving / Contour carving / Pixel carving

ASSEMBLY

1.1 Install the frames

Installation of Front Frame, Back Frame and Y-axis Left Frame

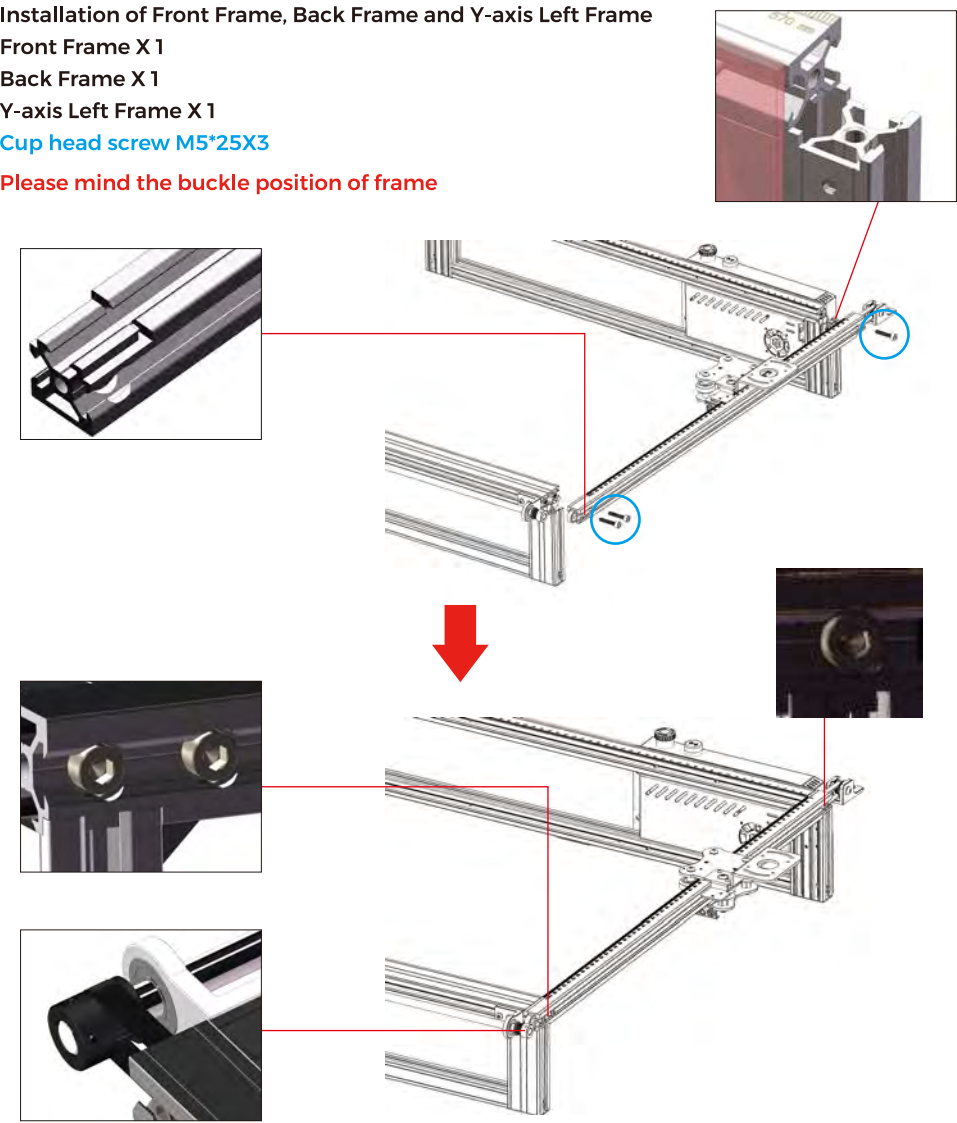
Front Frame X 1

Back Frame X 1

Y-axis Left Frame X 1

Cup head screw M5*25X3

Please mind the buckle position of frame

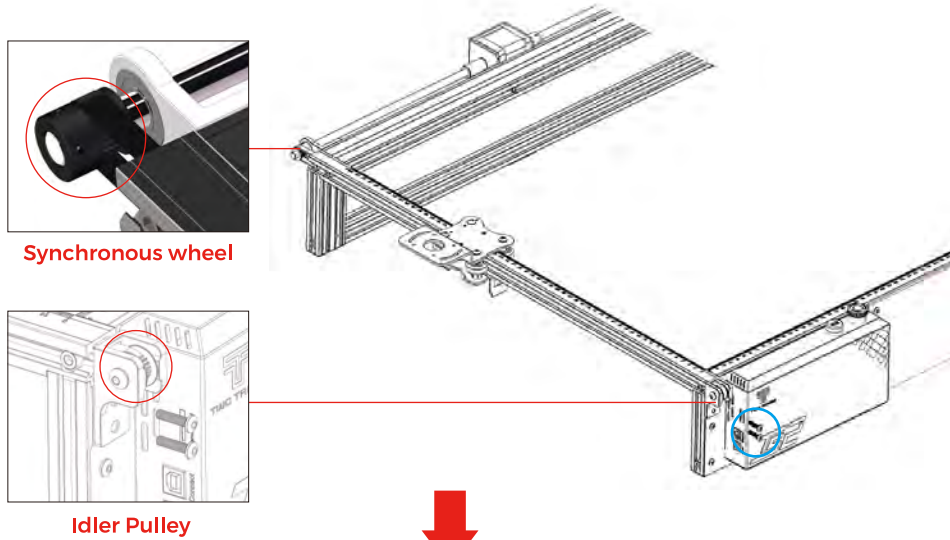


Note: 1. Please set the Timing belt into pulley groove and profile into buckle position before tighten the screw bolts.
2.For the adjustment of the eccentric nut, please see the instructions on P27

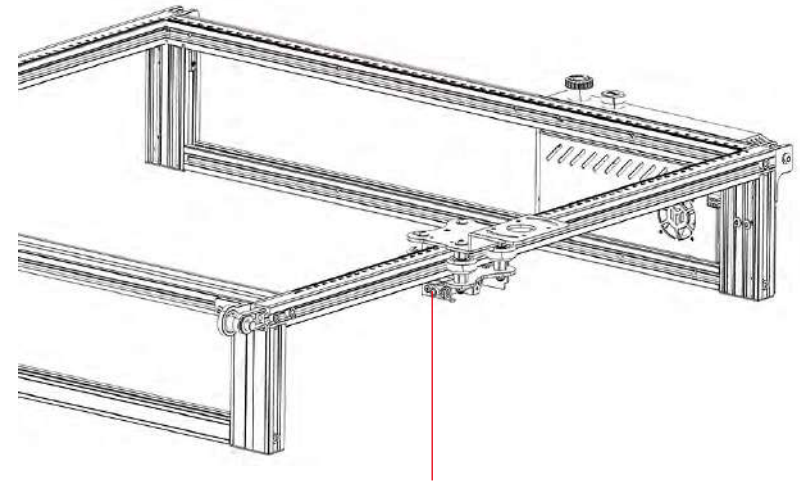
1.2 Installation of Y-axis Left Frame Timing belt & Idler Pulley

M4*16 Screw Bolt X2

Note: Please set the Timing belt into pulley groove before installing the idler pulley.



1.3 Y-axis Left Tensioner Adjustment



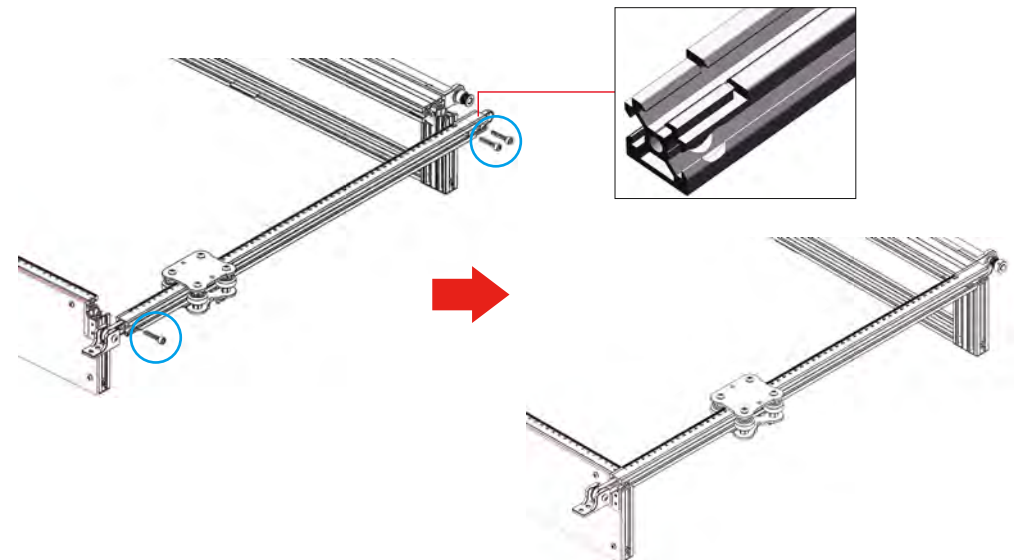
Please tighten tensioner screw in clockwise direction with hex key, or loosen the belt in counterclockwise direction.

Note: If tensioner too tight, pulley would stuck. And if too loose, it would also affect engraving results.

1.4 Installation of Y-axis Right Frame

Y-axis Right Frame Parts X1

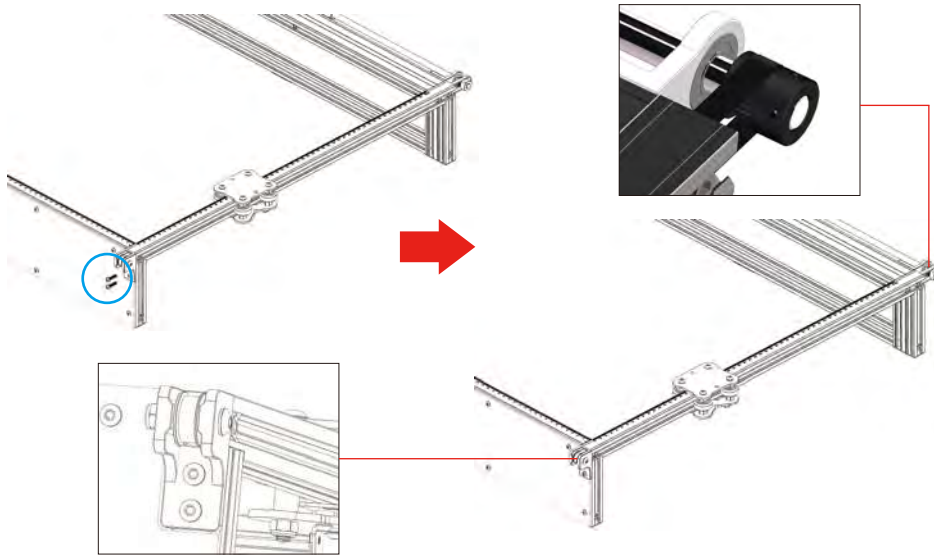
Cup head screw M5*25 X3



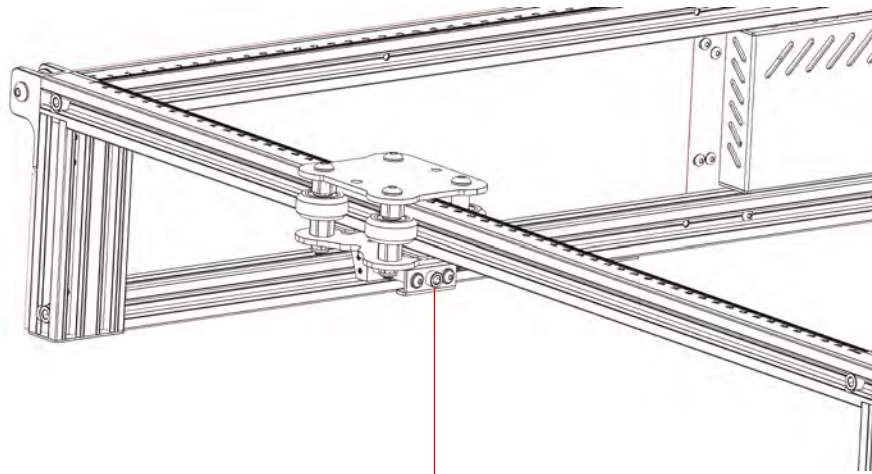
1.5 Installation of Y-axis Right Timing belt & Idler Pulley

Screw Bolt M4*16 X2

Note: Please set the Timing belt into pulley groove before installing the idler pulley.



1.6 Adjustment of Y-axis Right Tensioner



Please tighten tensioner screw in clockwise direction with hex key, or loosen the belt in counterclockwise direction.

Note: If tensioner too tight, pulley would stuck. And if too loose, it would also affect engraving results.

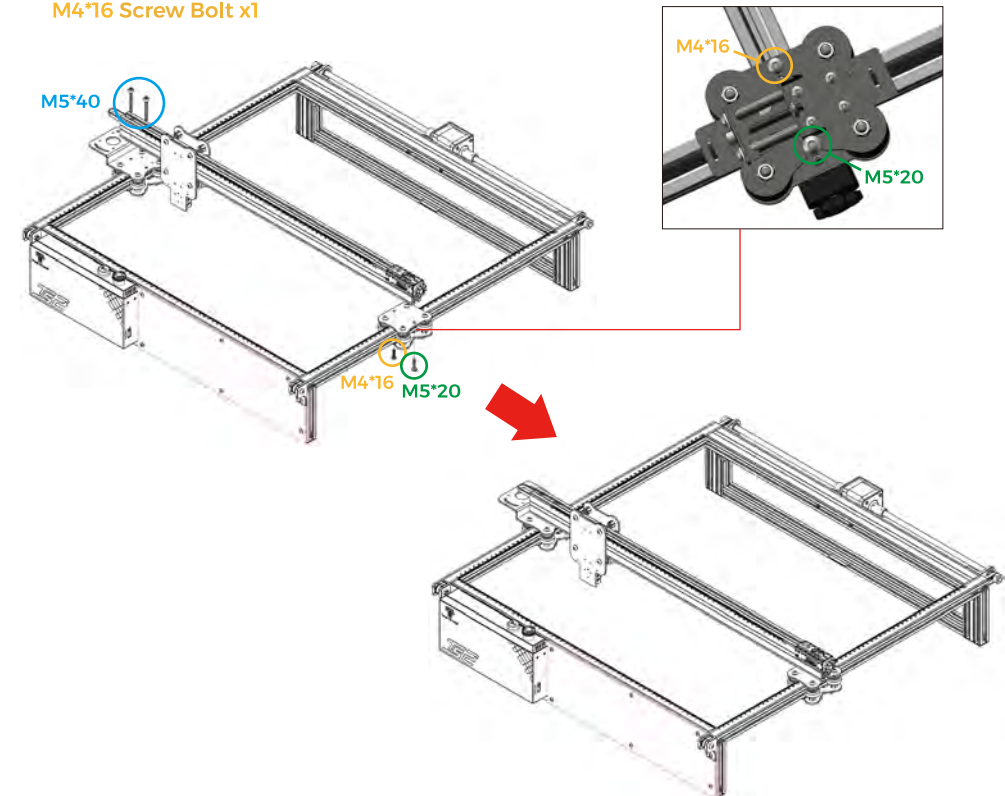
2.1 Installation of X-axis Crossbeam Parts

X-axis Crossbeam Parts x1

M5*40 Cup head screw x2

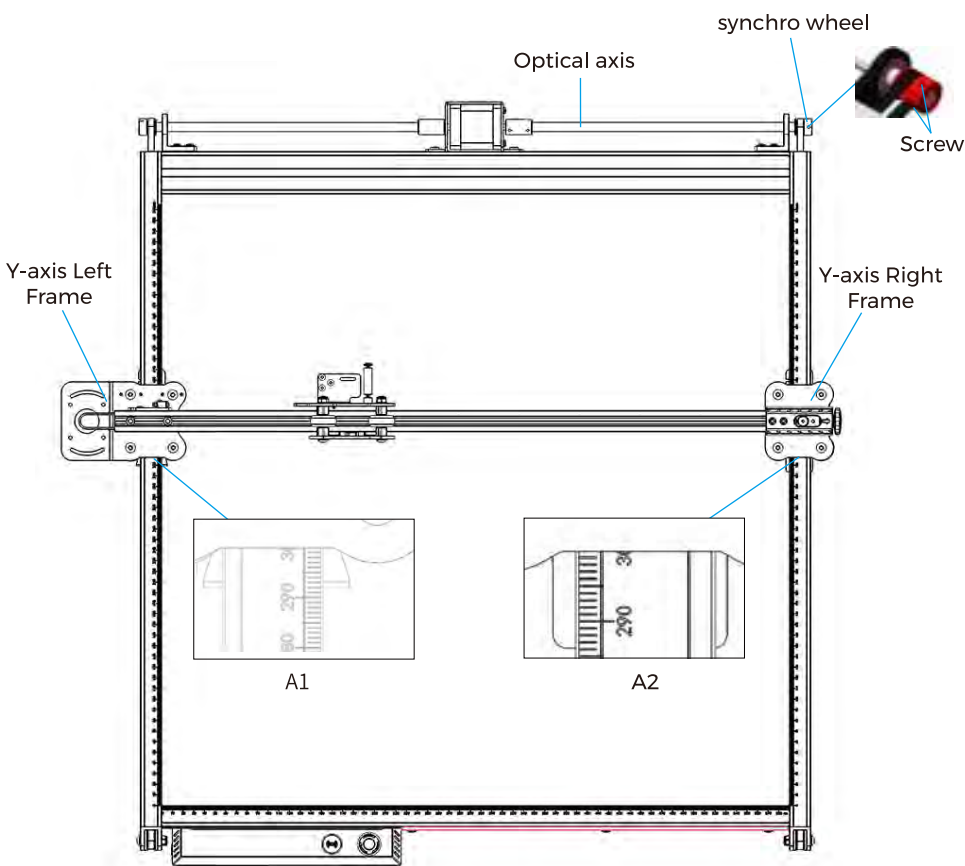
M5*20 Screw Bolt x1

M4*16 Screw Bolt x1



Note: For the adjustment of the eccentric nut, please see the instructions on P27

X-axis parallel adjustment method

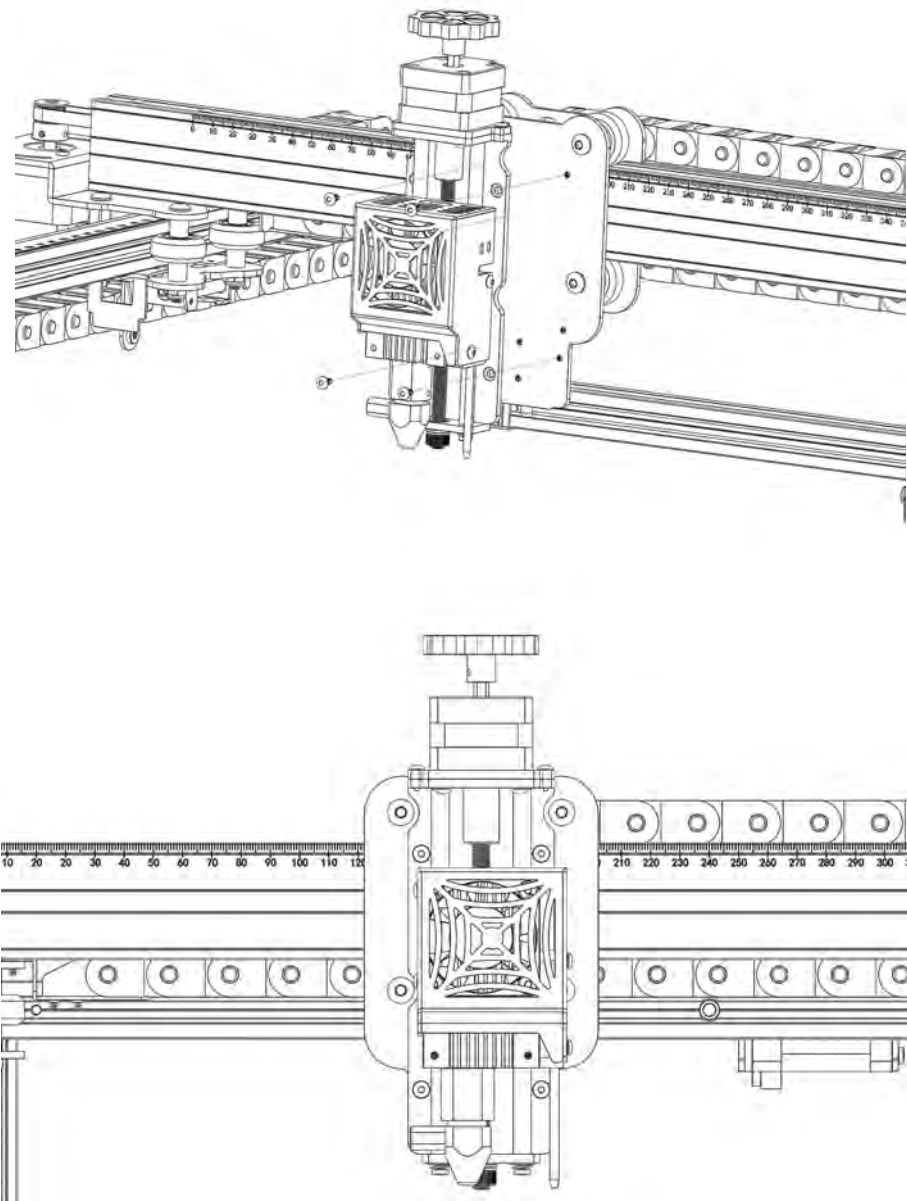


Attention: Please make sure the X-axis crossbeam is parallel to (check ruler marks on both sides as reference) while installation, otherwise it would affect movement of Y-axis and engraving effects.

- Step 1. Move the left component of the Y-axis to the scale 300 (A1)
2. Loosen the two screws on the synchronizing wheel with a hexagonal wrench, and then press the to move the right component of the Y-axis to 300 of the scale (A2).
- Then lock the two screws on the synchronous wheel (if the screws are not locked, it will affect the Y-axis movement and the engraving effect)
3. If you don't understand anything, please scan the QR code on the cover of the manual to watch the relevant video tutorials.

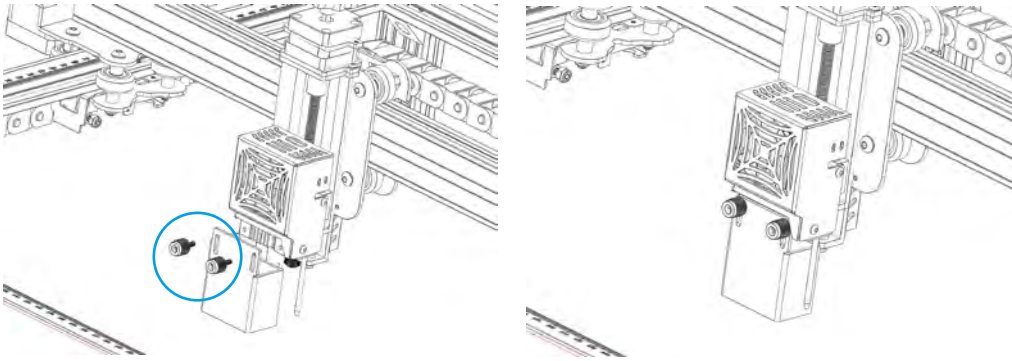
2.2 Installation of Laser Module

Laser Module x1
M3*6 Screw Bolt x4

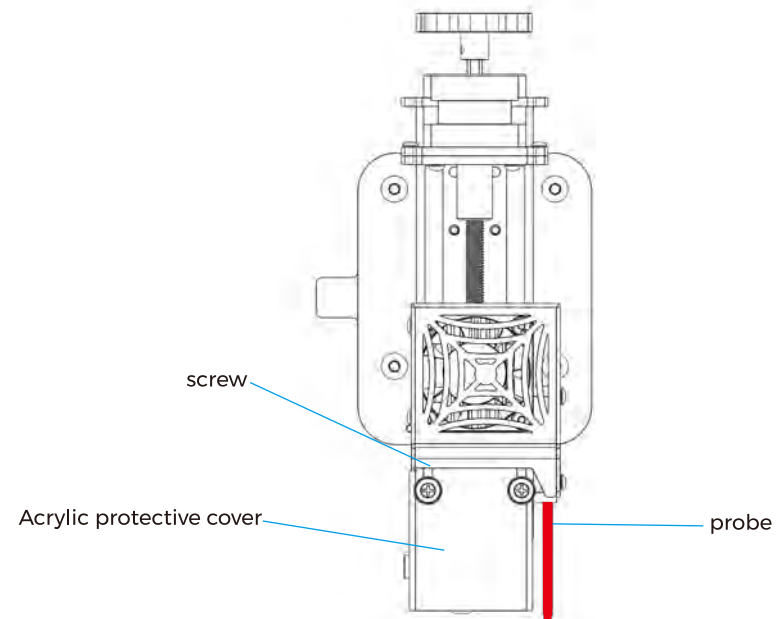


2.3 Installation of Protective Cover

Laser Protective Cove X1
M3*8 Screws X2



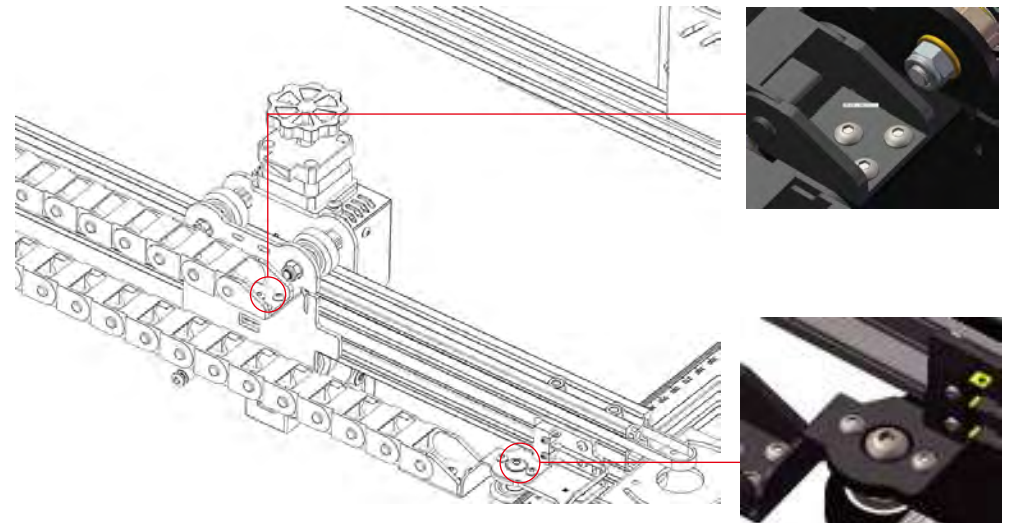
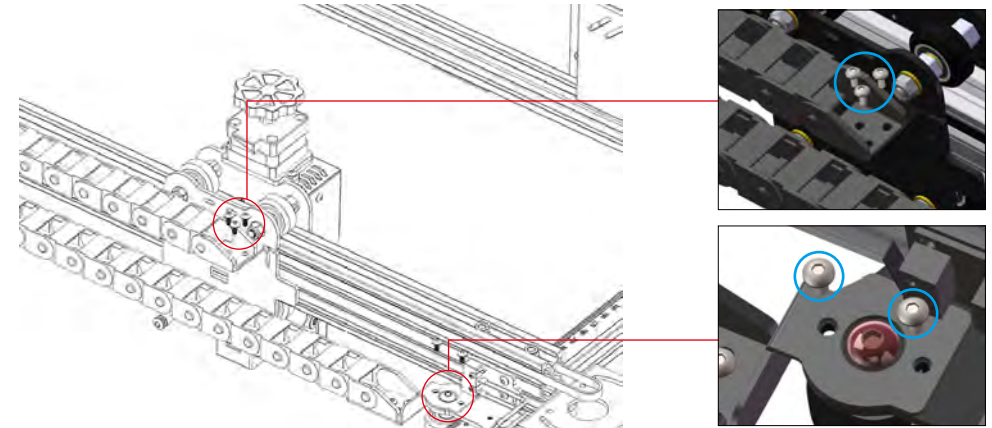
Precautions



Note: 1. When installing, make sure the probe is lower than the acrylic shield (if it is higher than the acrylic shield, it will affect the Z-axis auto focus),
2. When the machine completes the automatic focusing, the installation position of the acrylic cover can be lowered for safety protection
3. If the regulating valve is installed when the acrylic protective cover is installed, the regulating valve needs to be removed.

3.1 Installation of X-axis drag chain

Screw Bolt M3*6X5
X-axis Cable Carriage Parts X1

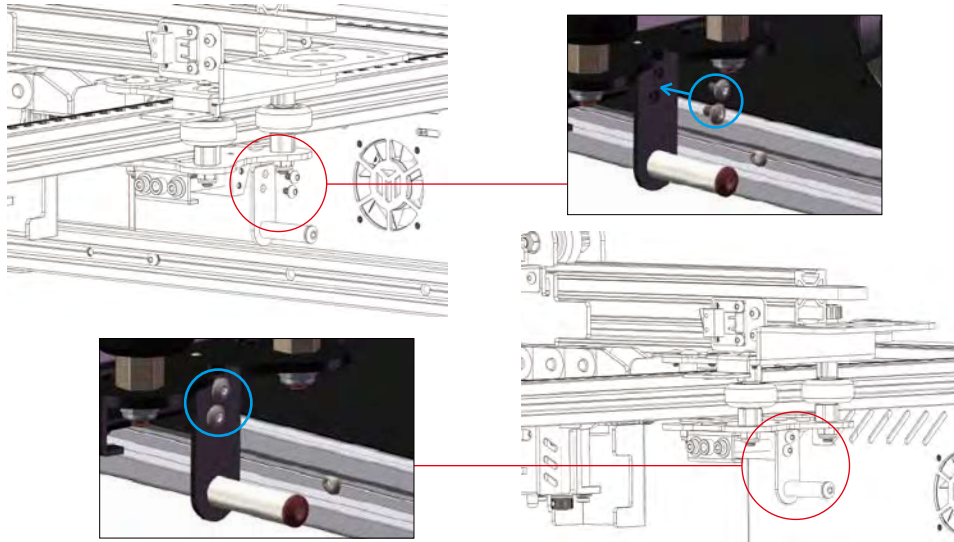


4.1 Installation of Y-axis drag chain

Installation of Y-axis drag chain Parts

Y-axis drag chain Holder X1

Screw Bolt M3*6X2

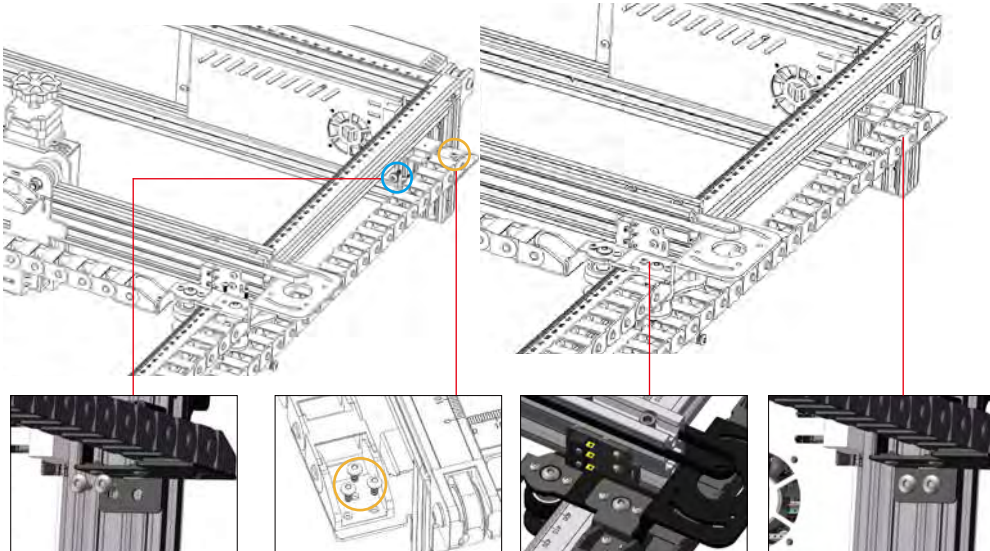


4.2 Installation of drag chain

Y-axis drag chain Parts

M3*6 Screw Bolt x5

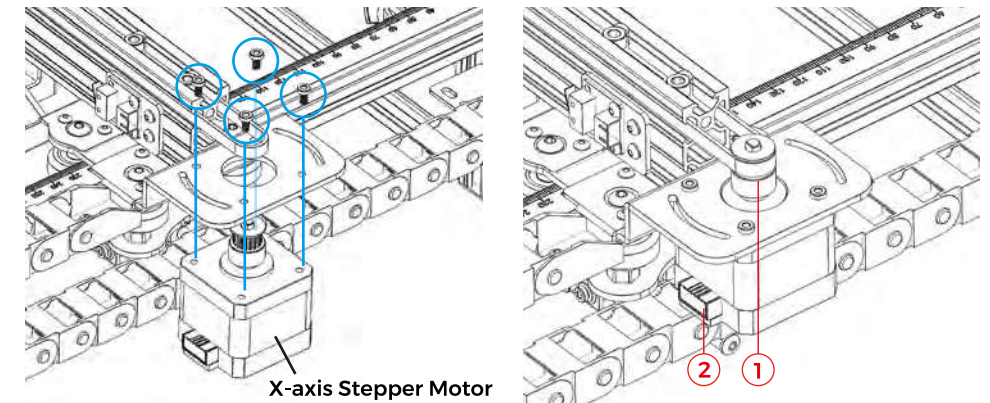
M4*10 Screw Bolt x2



5. Installation of X-axis Stepper Motor

M3*6 Screw x4

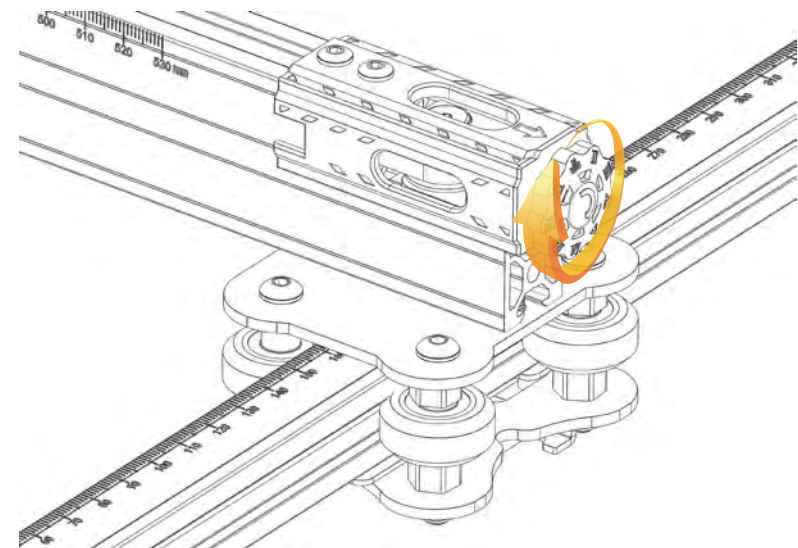
X-axis stepper motor x1



Note:

1. please put timing belt into pulley groove on stepper motor.
2. please make sure the circuit connector in the right direction as above picture.

6. Adjustment of X-axis Tensioner



Note: Please make sure the timing belt is tight to avoid engraving dislocation.

WIRING INSTRUCTION

1.1 Cable Marking Explanation

- X(2PIN)→X-axis Endstop Switch Cable
- X(4PIN)→X-axis Stepper Motor Cable
- Y(4PIN)→Y-axis Stepper Motor Cable
- Z(2PIN)→Z-axis Endstop Switch Cable
- Z(4PIN)→Z-axis Stepper Motor Cable
- A(2PIN)→ Laser Signal Cable
- E(3PIN)→ Flame Detector Signal Cable
- I(2PIN)→Laser Fan Line

Note: PIN refs to the quantity of cable connecting pins

1.2 Wiring diagram



X(4PIN)→X-axis Stepper Motor Cable



X(2PIN)-axis Endstop Switch Cable



Y(4PIN)→Y-axis Stepper Motor Cable



Y(4PIN)→Y-axis Stepper Motor Cable



E(3PIN)→ Flame Detector Signal Cable



Z(4PIN)→Z-axis Stepper Motor Cable



A(2PIN)→ Laser Signal Cable



Z(2PIN)→Z-axis Endstop Switch Cable



I(2PIN)→Laser Fan Line

- Note: 1. Please make sure all wiring correct before turn on the machine.
2. Manually push the machine before powering on to see if the wire will affect the machine's movement track (the motor will be pushed after the wire is inserted, and the mainboard will be powered on, and the mainboard will be slightly locked when it is powered on, so that it is normal to feel stuck when pushing)

GRBL BEGINNER'S GUIDE

1. Software Downloading

LaserGRBL is one of the most popular DIY laser engraving software, which can be downloaded in LaserGRBL website <http://lasergrbl.com/download/> (The installation package is also available on the TF card from the manufacturer or USB flash disk).

Brief introduction:

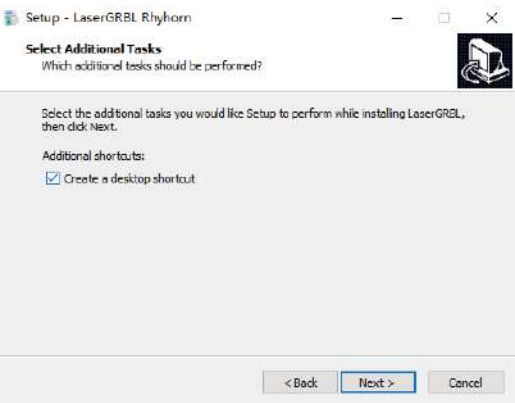
LaserGRBL is easy to use. However, LaserGRBL only supports Windows system (Win XP/Win 7 / Win 8 / XP/Win 10).

For Mac users, you can also choose LightBurn, which is also an impressive engraving software, but it's not free. And this software also supports Windows system.

Note: The engraving machine needs to be connected with the computer during engraving, and the software of the engraving machine cannot be turned off.

2. Software Installation

Double click the software installation package to start the software installation and click "Next" until the installation is complete.



3. Language

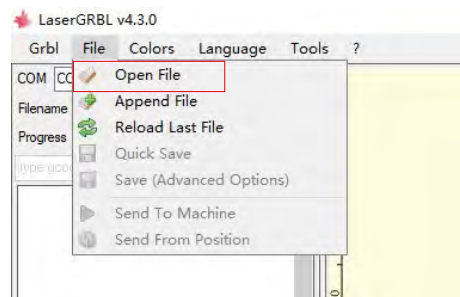
Click "Language" on the menu at the top to select the language you need.



4. Load Engraving File

Click "File" and "Open File" in turn, as shown in figure 8.1, and then select the graph you want to engrave.

LaserGRBL supports files in the formats of NC, BMP, JPG, PNG, etc.



5. Set picture parameters, engraving mode and engraving quality.

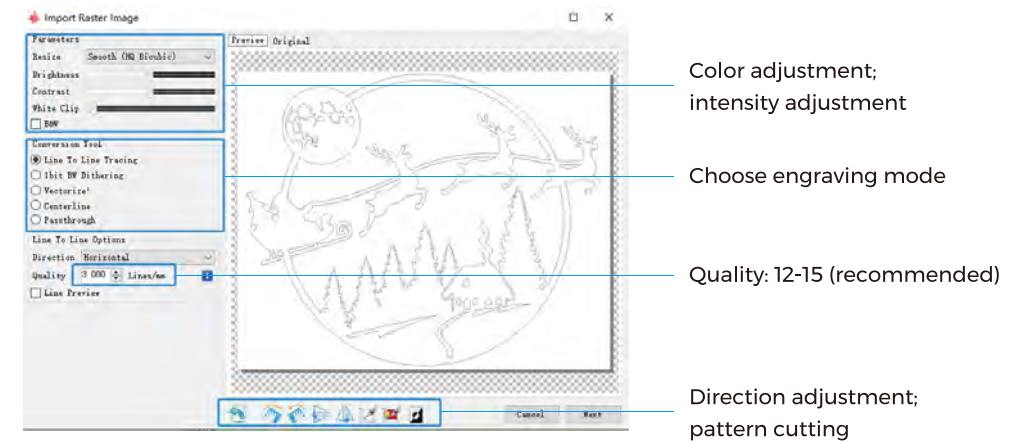
1. LaserGRBL can adjust the sharpness, brightness, contrast, highlight and other properties of the target graph. We can preview window effect during adjustment, and adjust the effect to your satisfaction.

2. In the engraving mode, "Line-to-line Tracking" and "1Bit Shaking" can usually be chosen; "1Bit Shaking" is more suitable for carving grayscale graph. Please Choose "Vector Diagram" or "Center Line" if you need cutting.

3. Engraving quality essentially refers to the line width of laser scanning. This parameter mainly depends on the size of the laser spot of the engraving machine.

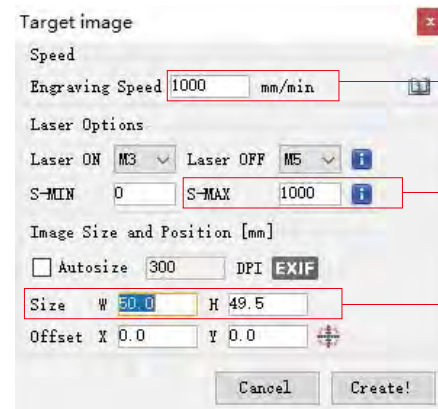
Note: The recommended engraving quality range is 12-15. Different materials have different reactions to laser irradiation, so the specific value depends on the specific engraving material.

4. At the bottom of the preview window, the graph can also be rotated, mirrored, cut and so on. After completing the above settings, click next to enter the settings of engraving speed, engraving energy, and engraving size.



6. Set engraving speed, engraving energy, and engraving size

1. The recommended engraving speed is 1000, which is considered to be a relative appropriate value after repeated experiments. Of course, you can increase or decrease this speed according to your preference. A faster engraving speed will save time but lead to the decline in the engraving effect. Slower speed is the opposite.
2. In laser mode, there are two instructions: M3 and M4. M4 instruction is recommended for engraving in "1bit jitter" mode, and M3 instruction is recommended for other cases. If you have only M3 instruction on the laser, please check whether the laser mode is used in the GRBL configuration. Please refer to the official instructions of LaserGRBL for GRBL configuration.
3. Choice of engraving energy. Choose it according to different materials.
4. Finally, set the size and click the "Create" button to complete the setting of all engraving parameters.



The default engraving speed is 1000 and can be adjusted as required

Set the energy value. Improper energy will affect the engraving effect

Enter the size of the graph you want to engrave

Save GCODE file

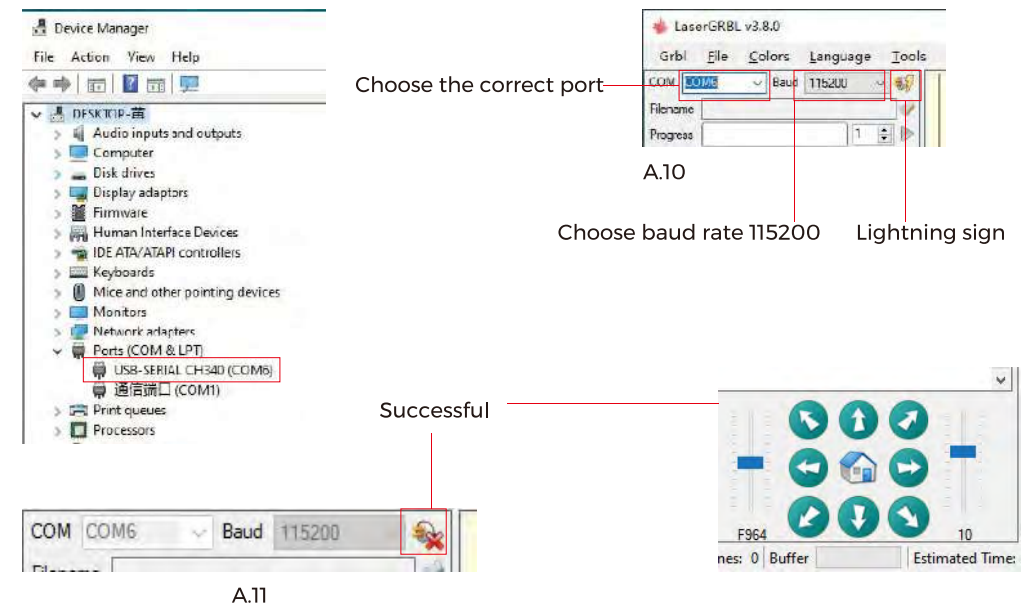
Click "File" in the menu at the top of the software interface, enter the drop-down menu, and select "Save". Copy the saved .nc file to the TF card and insert the TF card into the engraver to use the file to engrave your work.

Use the "MKSLaserTool" software in TF to add preview codes to Gcode files.

CONNECT PC

1. Connect the machine with the computer installed with LaserGRBL software with USB data cable.
2. Plug in the power.
3. Open LaserGRBL on the computer.
4. Select the specific port number and baud rate—115200 (Figure A.10)
5. Click the lightning sign. When the lightning sign changes to the red "X" and the direction sign is lit, it indicates that the connection is successful. (Figure A.11)

Generally, the COM port does not need to be selected manually, unless multiple serial port devices are connected to the computer, you can find the port of the machine in the device manager of the windows system (as shown in Figure A.09). A simpler way is to try the displayed port number one by one.



Choose the correct port

A.10

Choose baud rate 115200

Lightning sign

Successful

A.11

Note:

If you cannot find the correct port in the "Ports", you may need to

Method 1: Click "Tools" in the menu to install CH340 driver (This function is not available in some software versions);

Method 2: Copy the "CH340ser. Exe" file in the TF Card (USB flash disk) to the computer and install it.

1. After the laser head has been used for a period of time, it is necessary to clean the lens of the light outlet under the laser head to ensure normal cutting ability
2. Wiping the lens must be done after the machine is powered off, otherwise the laser will hurt people
3. After wiping the lens, please dry it naturally for about 3-5 minutes and wait for the lens to dry before powering it on, otherwise the light will cause the lens to break
4. You can watch the video tutorial by scanning the QR code of the manual

LightBurn INTRODUCTION

LightBurn is a charging but powerful engraving software, which can be downloaded on the its official website <https://LightBurnsoftware.com/>

(TF card or USB flash disk supplied by the manufacturer also has an installation package)

Introduction: LightBurn is a layout, editing and control software for laser engraving machine.

With LightBurn, you can:

-Import artwork in various common vector graphics and image formats (Including AI, PDF, SVG, DXF, PLT, PNG, JPG, GIF, BMP)

-Powerful editing function (You can edit the graphics you want to carve)

-LightBurn is a native application written for windows, Mac OS and Linux (But it needs to be activated with a key for permanent use, with a trial period of 30 days)

Note: during the engraving process, the engraving machine needs to be connected to the computer, and the engraving machine software cannot be closed.

REFERENCE OF MATERIALS

For engraving :

Material	Speed (mm/min)	Power (%)	Times
Plywood	6000	50	1
Acrylic	6000	20	1
Leather	6000	20	1
Electroplated coating	1000	100	1
Powder coating	6000	50	1
Anodic alumina	6000	20	1
Stainless steel	3000	100	1
Density board	6000	60	1
Peddle	6000	100	1
Plastic board	6000	40	1
Cardboard	6000	50	1

For Cutting :

Material	Speed (mm/min)	Power (%)	Times
Plywood 1mm	600	100	1
Plywood 2mm	450	100	1
Plywood 3mm	280	100	1
Plywood 4mm	200	100	1
Plywood 5mm	150	100	1
Plywood 6mm	100	100	1
Plywood 7-8mm	100	100	1—2
Acrylic 1mm	500	100	1
Acrylic 3mm	200	100	1
Acrylic 6mm	100	100	1-2

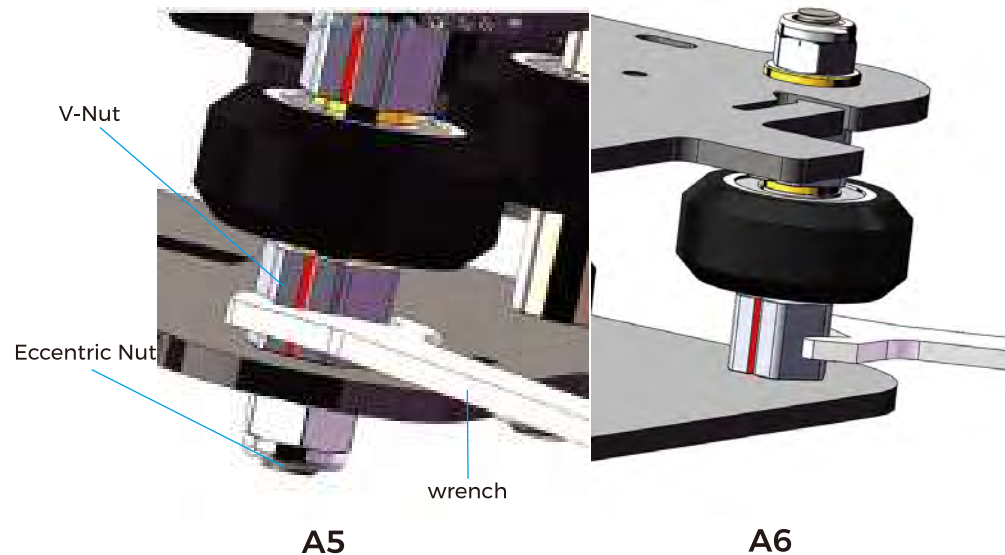
Note:

The energy value is set to 500, and the laser intensity accounts for 50% of the power.

The energy value is set to 1000, and the proportion of laser intensity to power is 100%. The larger the energy, the faster the speed can be set.

The above parameters only for reference. Due to the different properties of the materials, please adjust the parameter values according to the actual situations.

About the adjustment method of the eccentric nut



When the V groove of the eccentric nut faces outward, the distance between the 4 POM wheels is the largest, that is, the loosest state (A5)
 When the V groove of the eccentric nut faces inward, the distance between the 4 POM wheels is the smallest, that is, the tightest state (A6)

Z-AXIS AUTO-FOCUSING CONFIGURATION GUIDE

Working Principle:

The laser module lifter would move downward, once probe touching engraving surface, Z-axis limit switch would be activated and laser module would move upward to pre-set lifting height. Once lifting height set in software, the machine would complete focusing automatically.

When laser module moved 7mm upward (lifting height set to 7mm), the focal length (distance between laser module to engraving surface) would be 50mm.



Lightburn Custom Auto Focus Import Tutorial

1. Turn on the machine and connect to the computer (after the connection is successful, the software: "Console" will show that the connection is successful)
2. Click the icon: "Device" to pop up the pop-up window (A05). Click the import pop-up window (A06), and select the file "TS2 Engraver". Click to open

Select and click OK to complete the configuration file import.

3. Select the device (A08), the software will display the window interface of the configuration file (A09)
4. About macro instructions
 Macro command - Z-axis lift 20mm: issue a name to let the Z-axis lift (it can avoid the probe hitting the object during the movement of the machine)
 Macro command - engraving: click the engraving button when engraving, the machine automatically completes the setting of the focal length (the focal length of the laser is a fixed value during engraving, no need to do any modification), execute this command when engraving (any material)
 Macro command - cutting 2MM: refers to the focal length setting when cutting 2MM thick material (the focal length needs to be half of the material thickness when the middle layer of the material is thick to start the calculation, and Z-1 in the macro command refers to half of the material thickness (A10) Right-click to modify the named value), execute this command when cutting a material with a thickness of 2MM

Notice:

1. After the machine guides the configuration file, modify the start position to: the current position, and modify the job origin to the lower left corner (A11)
2. If it is cutting materials of other thicknesses and so on (if you are unclear, you can scan the QR code on the front of the manual to watch the relevant video tutorials)
3. Please download the configuration file from TF or scan the QR code to obtain it.

LaserGRBL Custom Auto Focus Import Tutorial

Add Custom Button

LaserGRBL supports custom button. Right-click the button area to add new custom buttons. It is recommended to use the custom button set by the manufacturer, which can be obtained from the TF card of the manufacturer (USB flash disk).



Figure 5.1 Installation Package for Custom Button

How to load into software:

In LaserGRBL software, right-click the mouse in the blank space next to button at the bottom (as shown in figure 5.2) -> import custom button, and then select the package for custom button obtained before and the custom button zip can be imported. Press (Y) until no window pops up to complete the installation of the custom button. (if you are unclear, you can scan the QR code on the front of the manual to watch the relevant video tutorials)

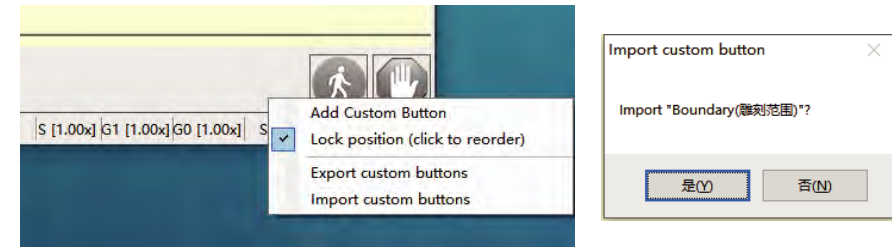
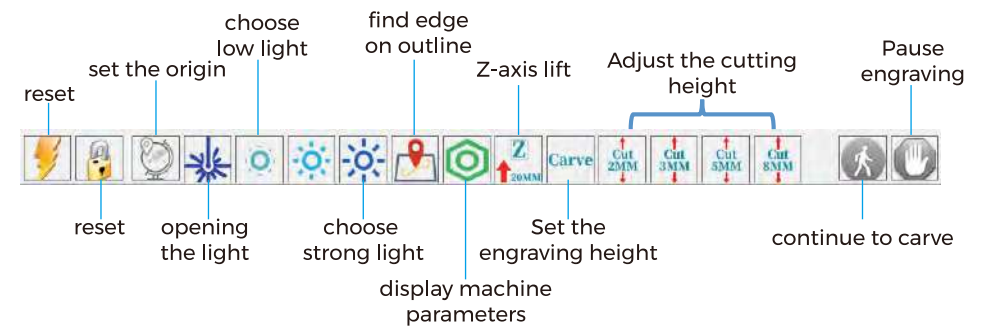


Figure 5.2 How to add

Introduction of button function



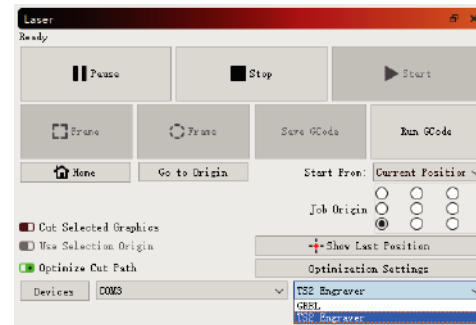
A05



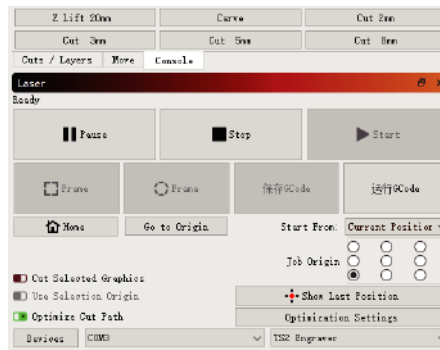
A06



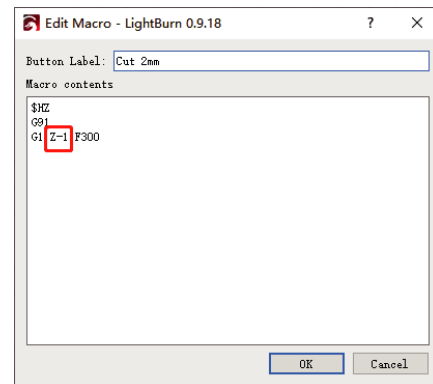
A07



A08



A09



A10



A11

MACHINE TESTING GUIDE

1. Turn on the power switch, connect the USB data cable of the engraving machine to the computer, and start the machine

2. Movement test:

Control the machine to move up, down, left and right on the software, check whether the moving direction is correct (Figure A01), and check whether the moving distance is correct (Figure A02)

3. Laser emission test:

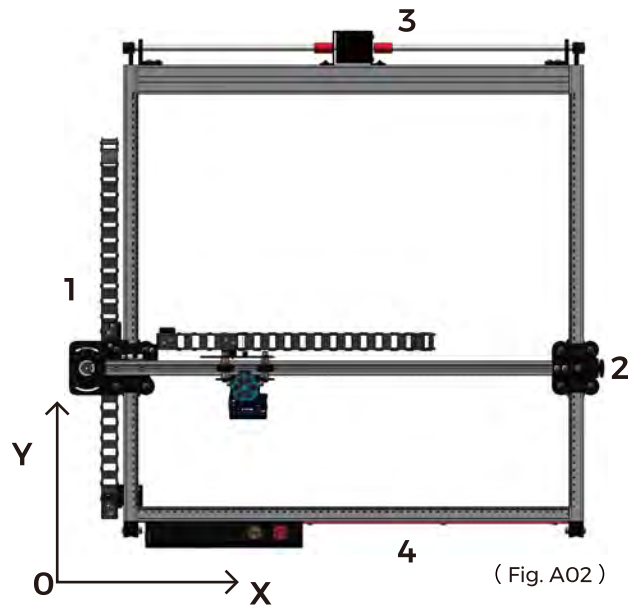
The software imports the custom icon, click on the light (low light). Wear protective glasses to observe whether the laser module emits blue light.

4. Test the files in the TF card:

Note: laser will generate heat and glare, which may cause harm. Please follow the instructions to avoid injury.



(Fig. A01)



(Fig. A02)

Kind tips:

1. If the buzzer triggers the machine during the engraving process, the machine will automatically stop. This belongs to the flame alarm trigger. It is recommended to restart the machine to recover (or to recover through the reset function on the software).

2. Before the machine moves, please check whether the probe will hit other objects.

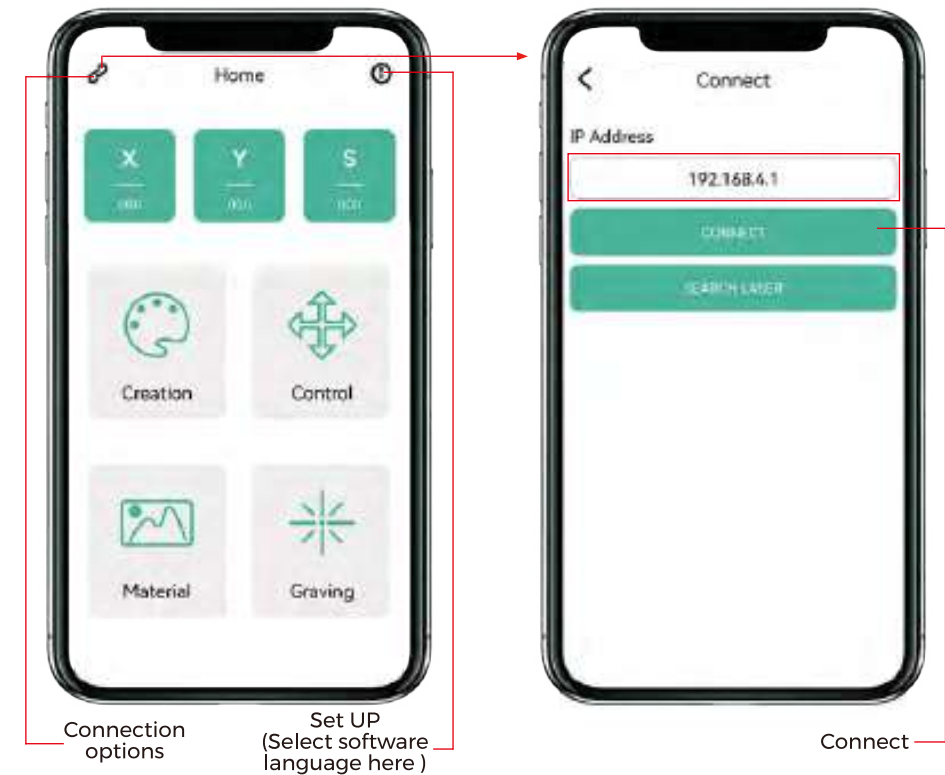
APP CONNECTION

The WIFI of this machine is a signal sent by the ESP32 chip of the main board. The machine has been set up when the machine leaves the factory. After the machine is turned on, the main board will send out the WIFI network with the name Laser_XXXXX (XXXXX refers to the serial number of the main board, the serial number of each machine), all different)

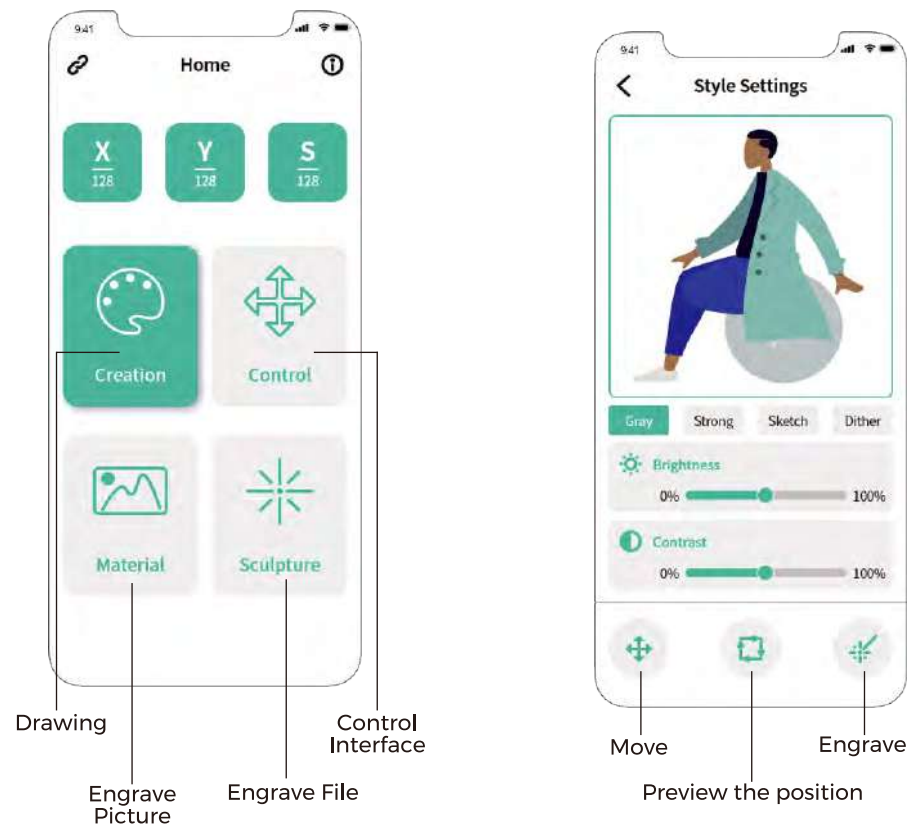
1. Open the Laser_XXXXX network found by the mobile phone connection, enter the password 12345678, and connect to the network.

2. Open the APP and enter the connection options interface. Enter the IP address: 192.168.4.1 and click connect.

3. After the APP slicing is completed, you need to insert the TF card into the motherboard when uploading files. If the upload fails, please confirm whether the TF card is normal.



APP main interface



WEB USER GUIDE

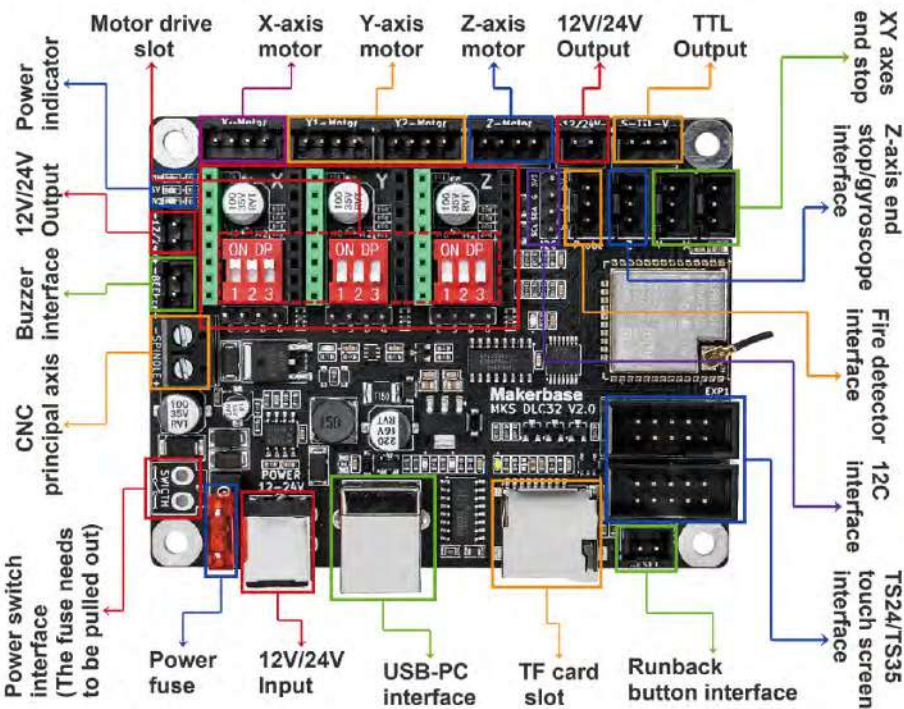
1. On the touch screen, connect a Wi-Fi.
2. Click "Tools" on the main interface to enter the next interface.
3. Click "Wi-Fi" to enter the selection interface.
4. Select the Wi-Fi to be connected, enter the password, and click "Connect".
5. After the connection is successful, you will obtain an assigned IP address.

Tip: The obtained IP is used for WEB/APP connection. You can type the address into your browser to enter the WEB control interface.

Note: The Wi-Fi used at the computer or the screen must be the same. It is recommended to use the mobile hotspot.



Motherboard Introduction



AFTER-SALES SERVICE

The guarantee period is 12 months from the date of purchase.

- 1. Missing/Damaged/Defective Parts
Within 7 days of the date of receipt, we will replace any parts for free of charge including shipping fees.
After 7 days of the date of receipt, we will replace any parts for free of charge. But you need to pay the shipping fees.
- 2. Customer Damaged Parts: You need to pay for the cost of the parts and the shipping fees.
- 3. Courier company loss, missing, damaged, and defective parts.
 - a. Lost or damaged shipments must be reported to the carrier within the carrier's claim window, and you need to inform us within 7 days of the date of receipt.
 - b. For any parts lost or damaged during shipping, you need to take photos or video and send them to us.
 - c. Once the Carrier dispute is settled, please provide us with all communications with the carrier. It is the customer's responsibility to keep us up to date with ALL communication with the carrier.
 - d. For Missing Parts, you need to fill out a Service Ticket.
 - e. For Damaged Parts, you need to fill out a Service Ticket and send us the photos or video.
 - f. If the part is one of the LCD Panel, Power Supply or Mainboard, you need to ship the part back to us and we will send a new one.

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.

NOTE 1: 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.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure Statement

To maintain compliance with FCC'S RF Exposure guidelines, This equipment should be installed and operated with minimum distance of 20cm between the radiator your body. This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.