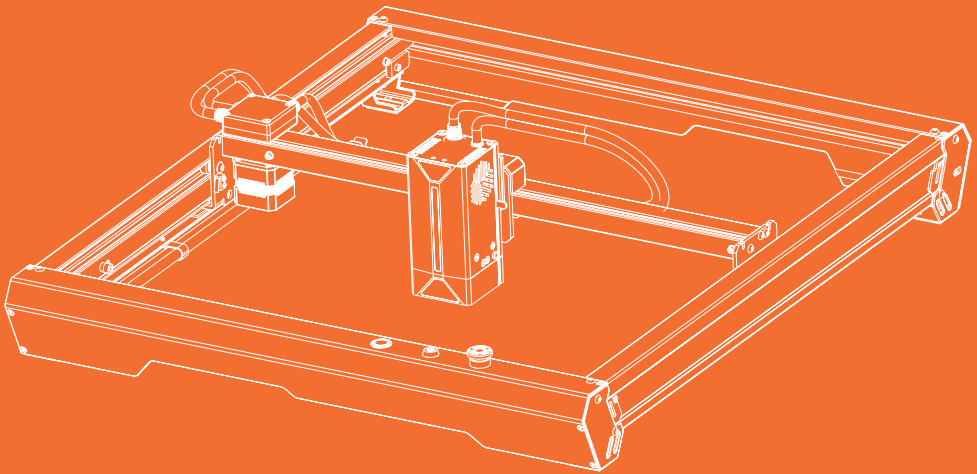


AlgoLaser **Alpha**

QUICK START GUIDE

Laser Engraver



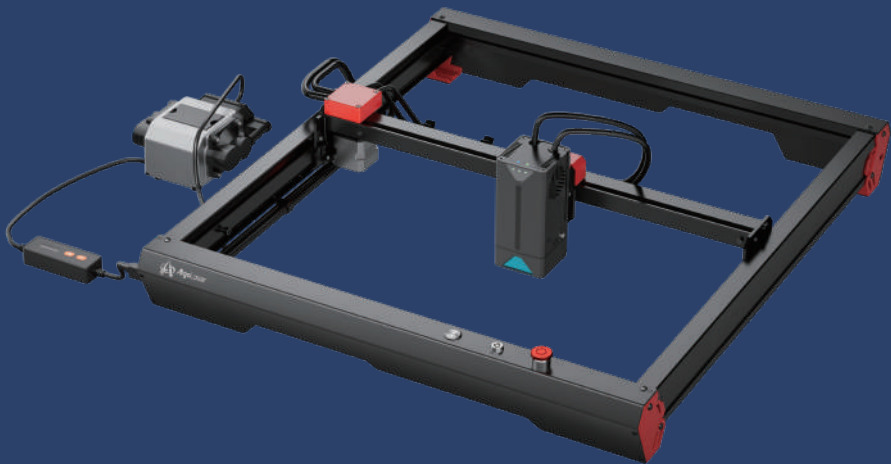
Always read the instructions before you start.

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01
Before You Start

02
Machine Assembly

03
How to Use



01

Before You Start



1.1 Disclaimer and safety Guidelines

1. The laser engraver emits laser light. Placing any living body under the laser emission port (marked with an orange warning sign) is strictly forbidden.
2. Patients with photosensitive epilepsy are prohibited from using or approaching the laser engraver.
3. When using the laser engraver, the operator and anyone near the machine must wear laser safety goggles. Operating the laser engraver without goggles' protection is not allowed. Our machine comes with a pair of safety goggles, but additional laser safety goggles need to be purchased separately.
The goggles should offer wavelength protection of 400-445m(±5m), an outer diameter of +5, and a minimum L-level L5.
4. Avoid placing flammable materials near the laser engraver. When the laser engraver is running, closely observe it and avoid leaving it unattended to prevent the engraved objects from catching fire. Set up the laser engraver in a fireproof area and ensure proper ventilation. If possible, we recommend purchasing a fire extinguisher and keeping it nearby the machine.
5. Ensure there is enough space when operating the laser engraver. Engraving certain materials may produce smoke, so it's important to use exhaust equipment to vent the smoke out.
6. When the machine is running, avoid letting your body or other objects touch the laser beam, as this may cause serious bodily injury or beam reflection. Do not touch the radiator, as it may still be hot even after the laser engraver has stopped working.
7. Do not allow children or teenagers to use the laser engraver alone, especially children under the age of 14. Adult supervision is required at all times.
8. The operating temperature range of the machine is -10°C to 40°C.
9. The use of the laser engraver carries a significant risk of fire. When operating the machine, please ensure that someone is available to handle any potential fire emergencies at all times.

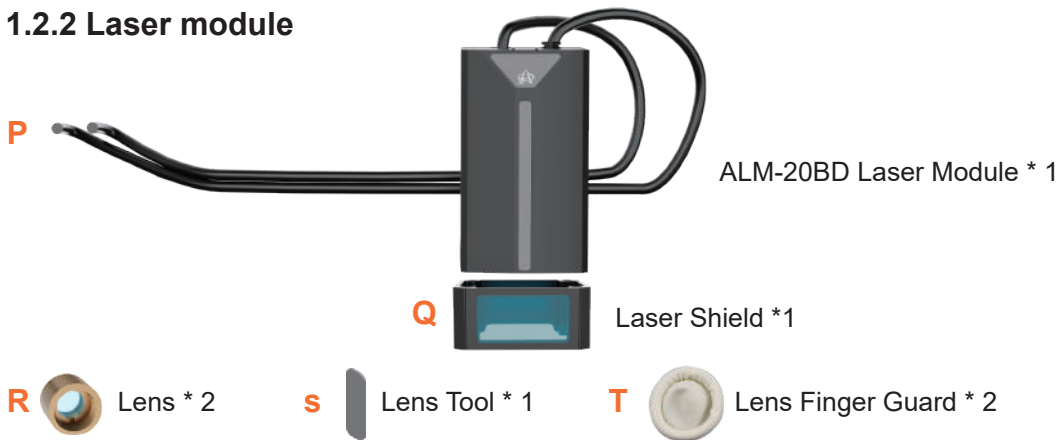


1.2 Parts List

1.2.1 Machine

- A**  Front Assembly * 1
- B**  Left Y-Axis Assembly * 1
- C**  Right Y-Axis Assembly * 1
- D**  Rear Panel Assembly * 1
- E**  X-Axis Assembly * 1
- F**  Motor Extension Shaft * 1
- G**  Coupling * 2
- H**  M4X12 Screw * 17
M4X16 Screw * 2
- I**  USB Cable * 1
- J**  Power Cable * 1
- K**  Power Adapter*1
- L**  M2.5 Allen Key * 1
M3.0 Allen Key * 1
- M**  Machine Key Set * 1
- N**  Brush * 1
- O**  Laser Goggle * 1

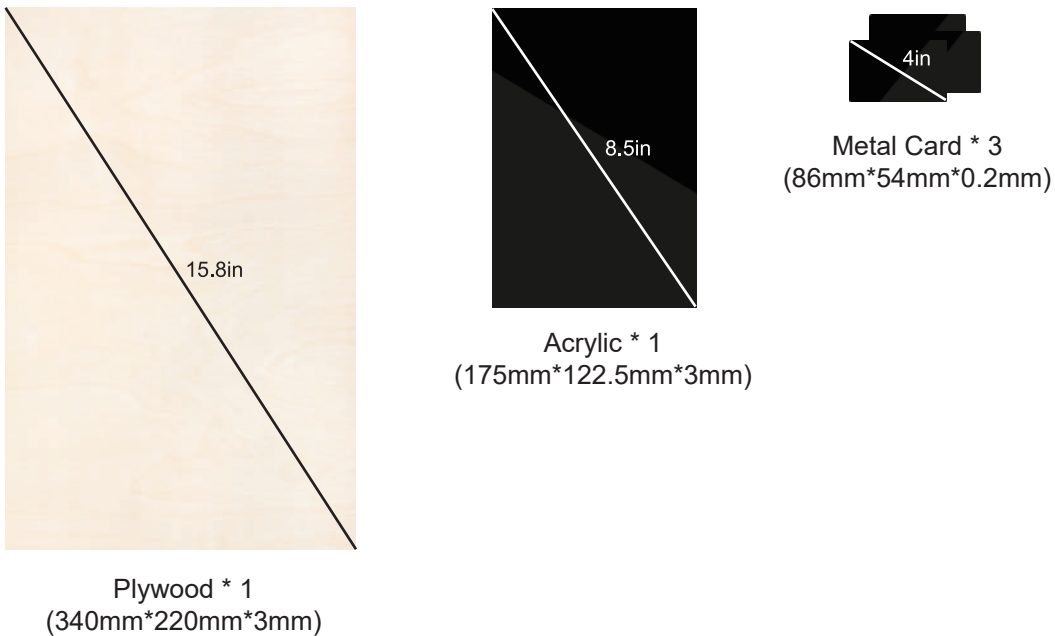
1.2.2 Laser module



1.2.3 Air Pump



1.2.4 Consumable



02

Machine Assembly

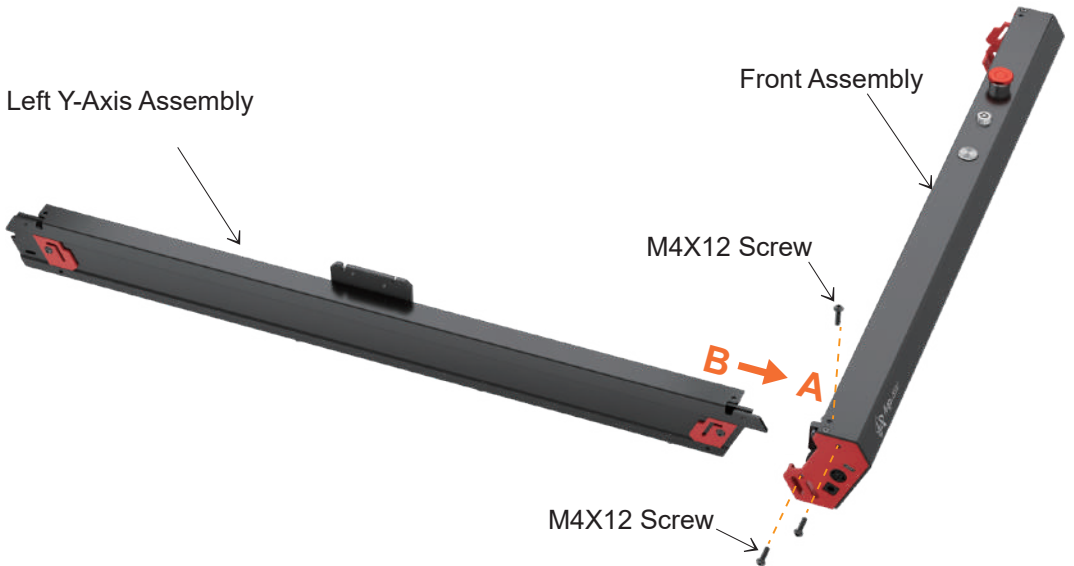




Assemble the Left Y-Axis Assembly



Precautions:
Be careful not to hit the motherboard of the front panel assembly.

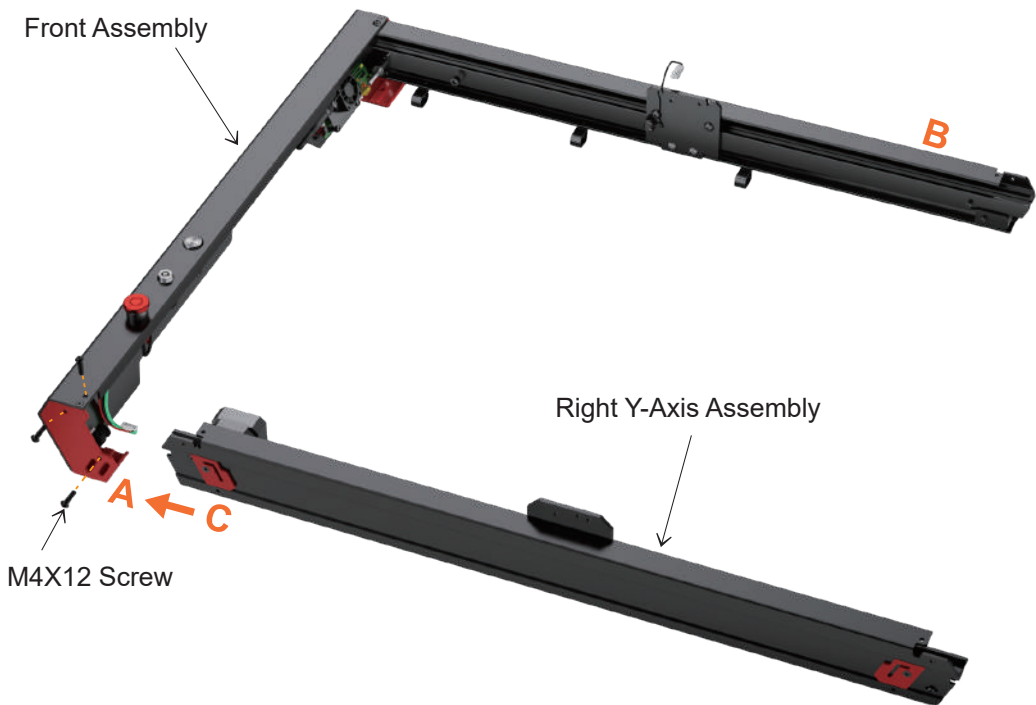


Step 1: Mount B(Left Y-Axis Assembly) on A(Front Assembly) from the side and secure it with 3 screws in total from the top and the side.

Screw type: M4X12 Screw

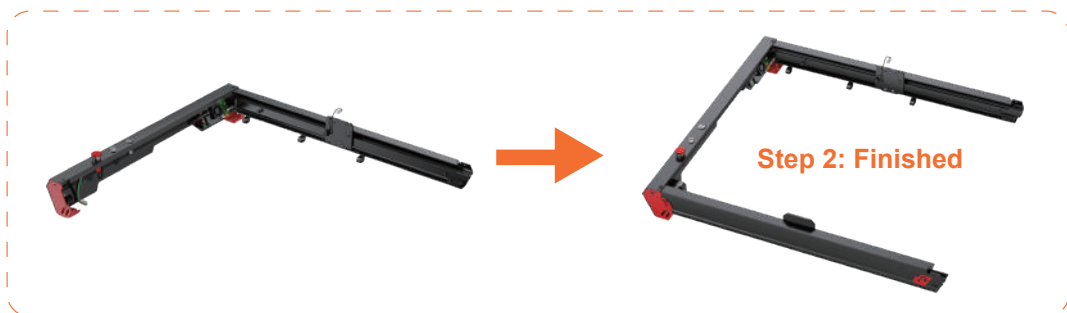


Assemble the Right Y-Axis Assembly



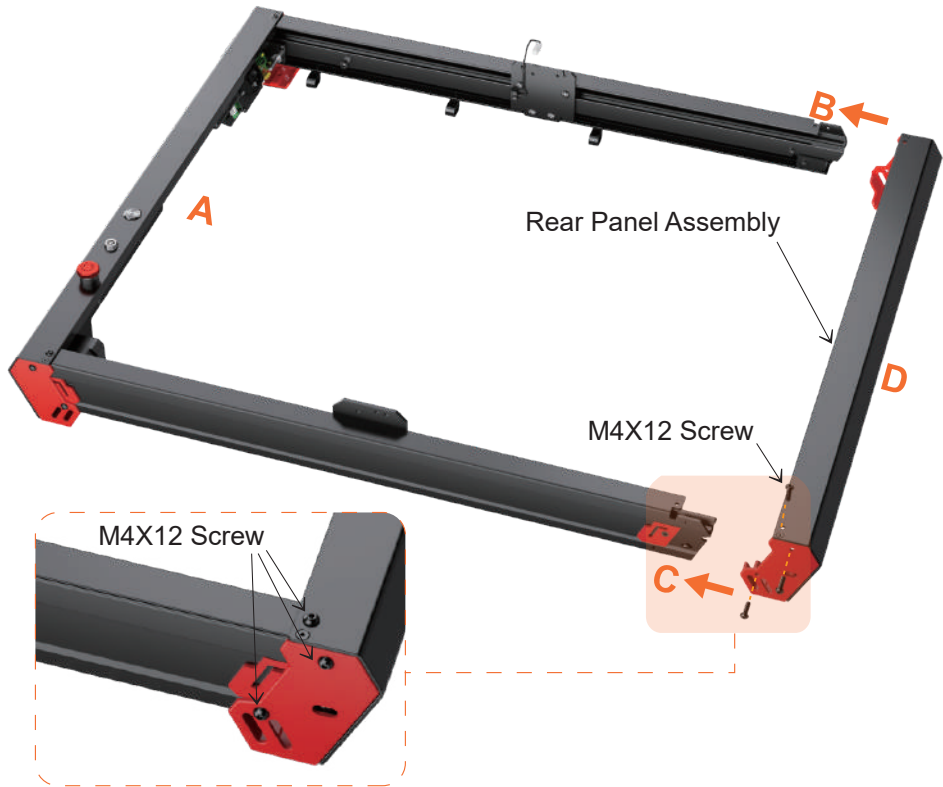
Step 2: Mount C(Right Y-Axis Assembly) on A(Front Assembly) from the side and secure it with 3 screws in total from the top and the side.

Screw type: M4X12 Screw





Assemble the Rear Panel Assembly



Step 3: Mount D(Rear Panel Assembly) to B(Left Y-Axis Assembly) and C(Right Y-axis Assembly) from the rear and secure them with 6 screws in total from the top and the side.

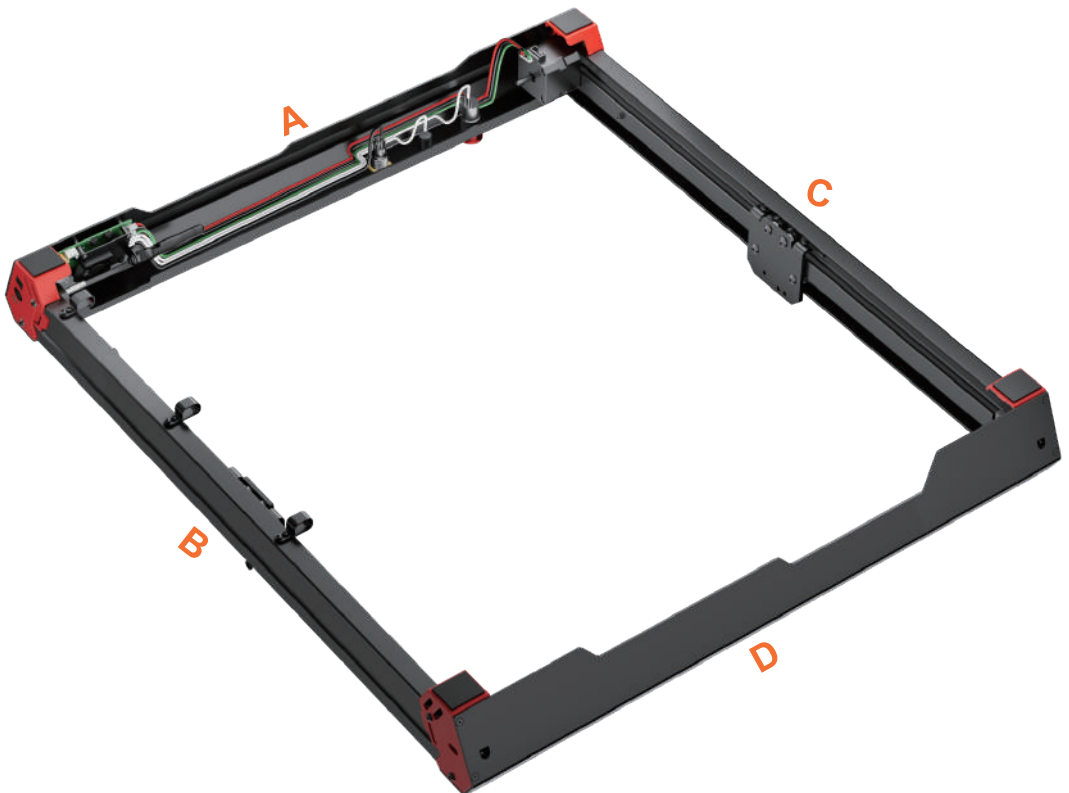
Screw type: M4X12 Screw



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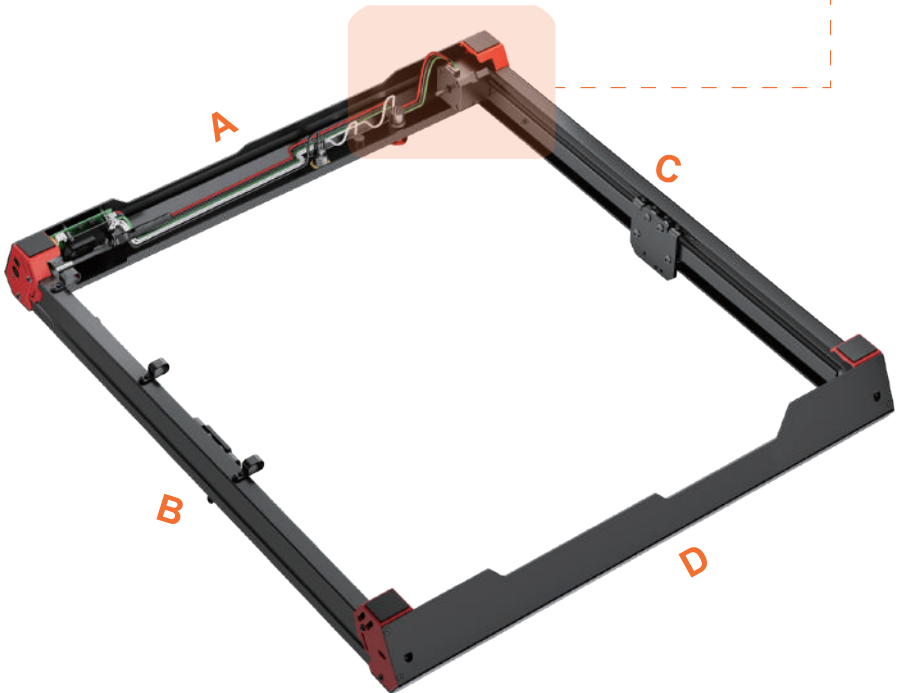
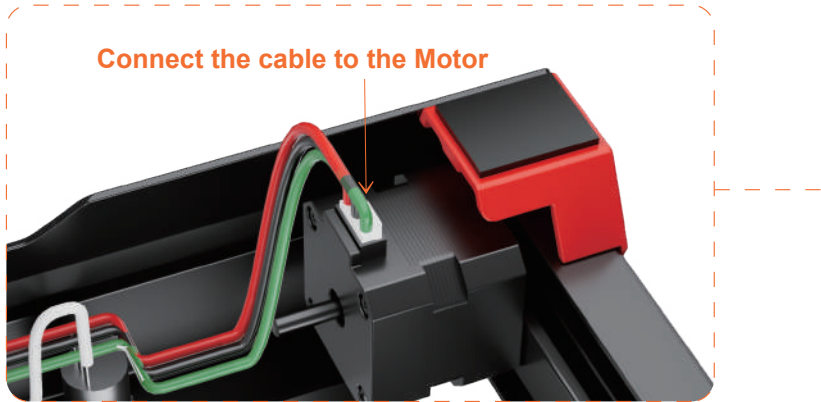
Flip the Machine

Flip the machine upside down, with its bottom facing up.





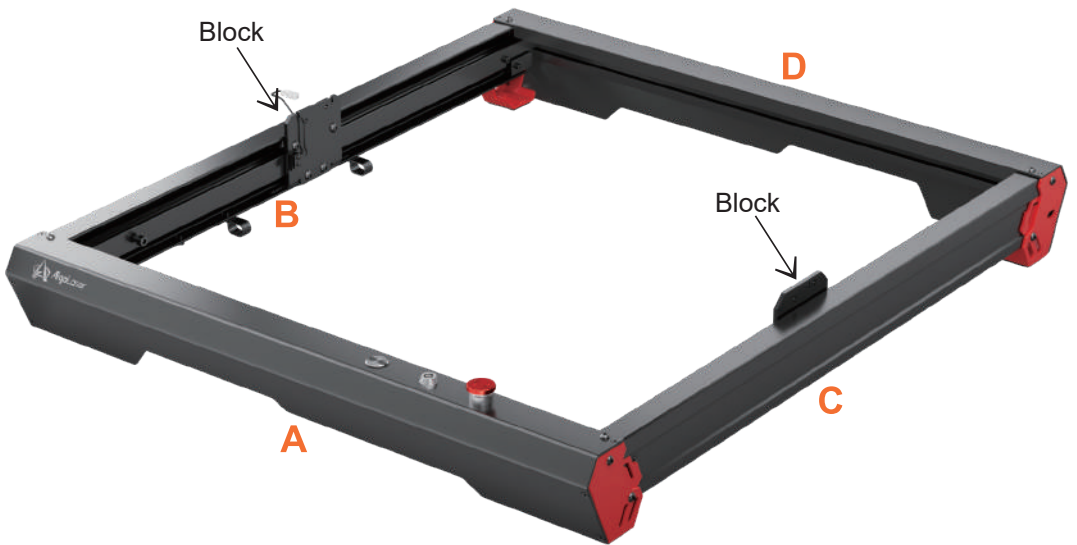
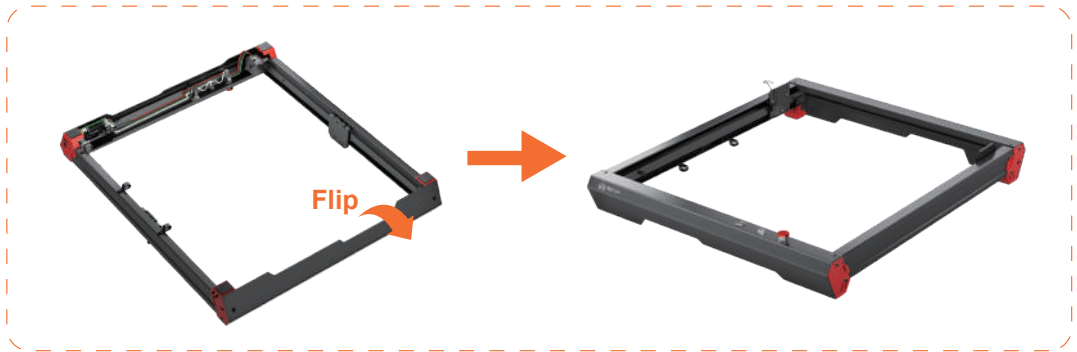
Link Y-Axis Motor to Motherboard



Step 5: Insert the cable into the port of the Y-Axis Motor

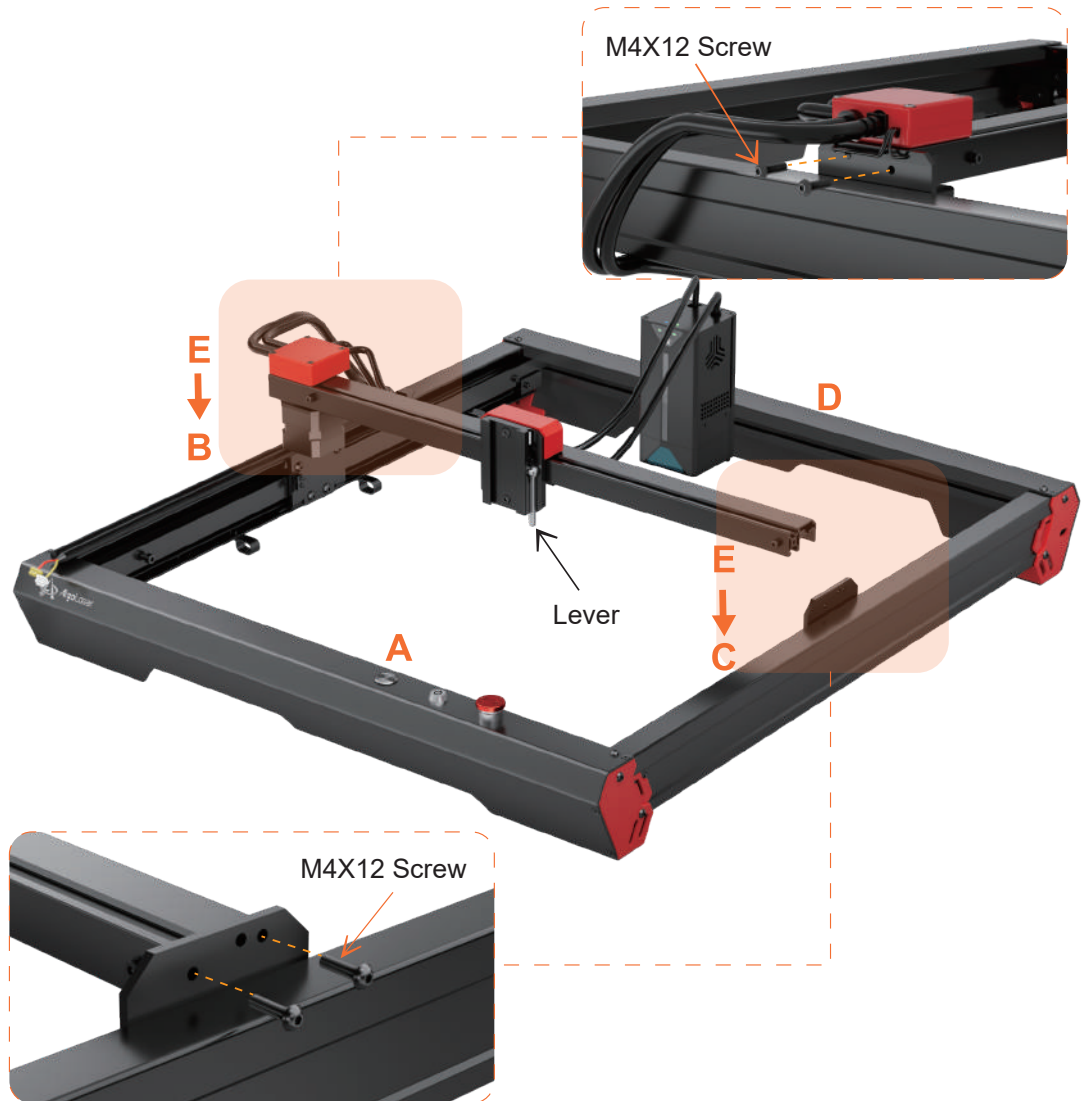


Flip the Machine Again





Assemble the X-Axis Assembly

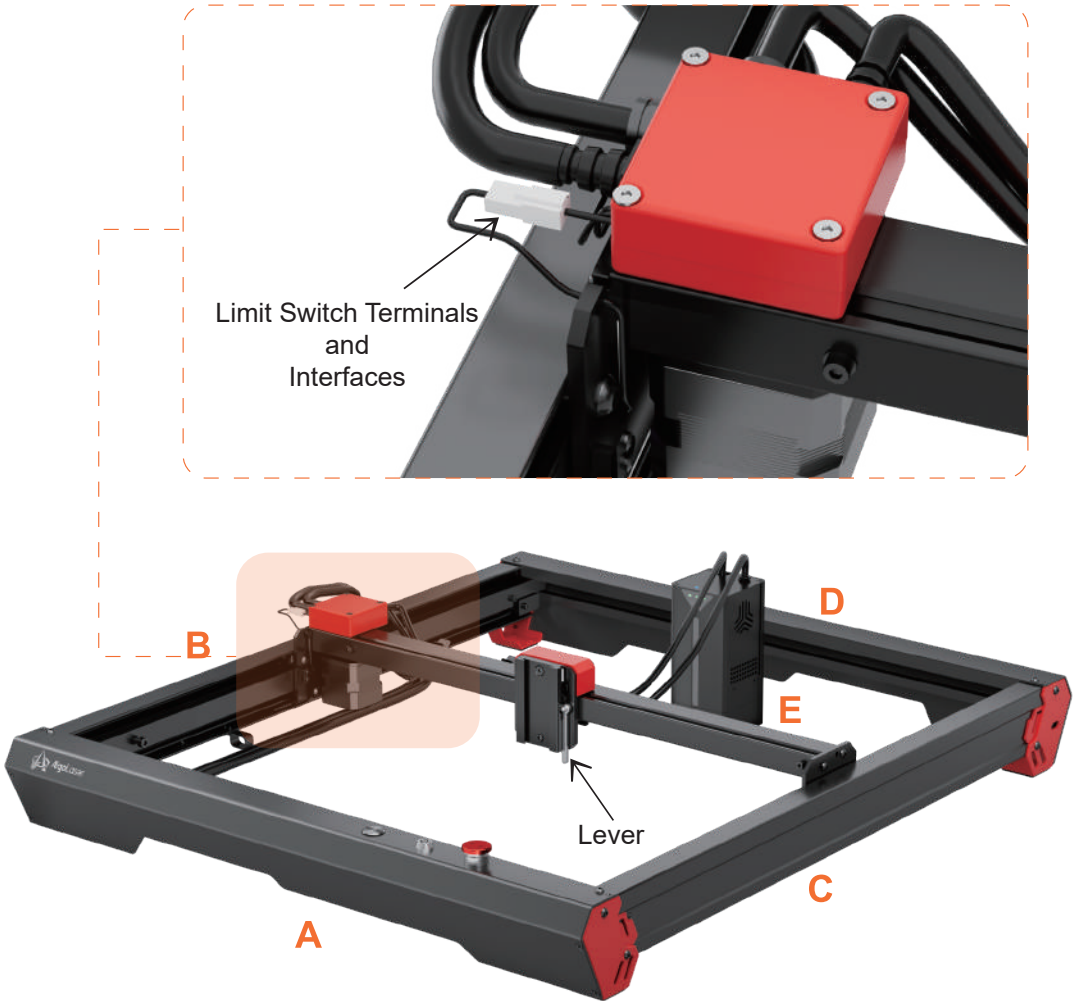


Step 7: Place E(X-Axis Assembly) on the top of the machine. NOTE: E(X-Axis Assembly) with the end of the Cable Box should face B(Left Y-Axis Assembly). Then install the end with Cable Box of E(X-Axis Assembly) on the Block of B(Left Y-Axis Assembly) with 2 screws. Install the other end of the E(X-Axis Assembly) on the Block of C(Right Y-Axis Assembly) with 2 screws.

Screw type: M4X12 Screw.



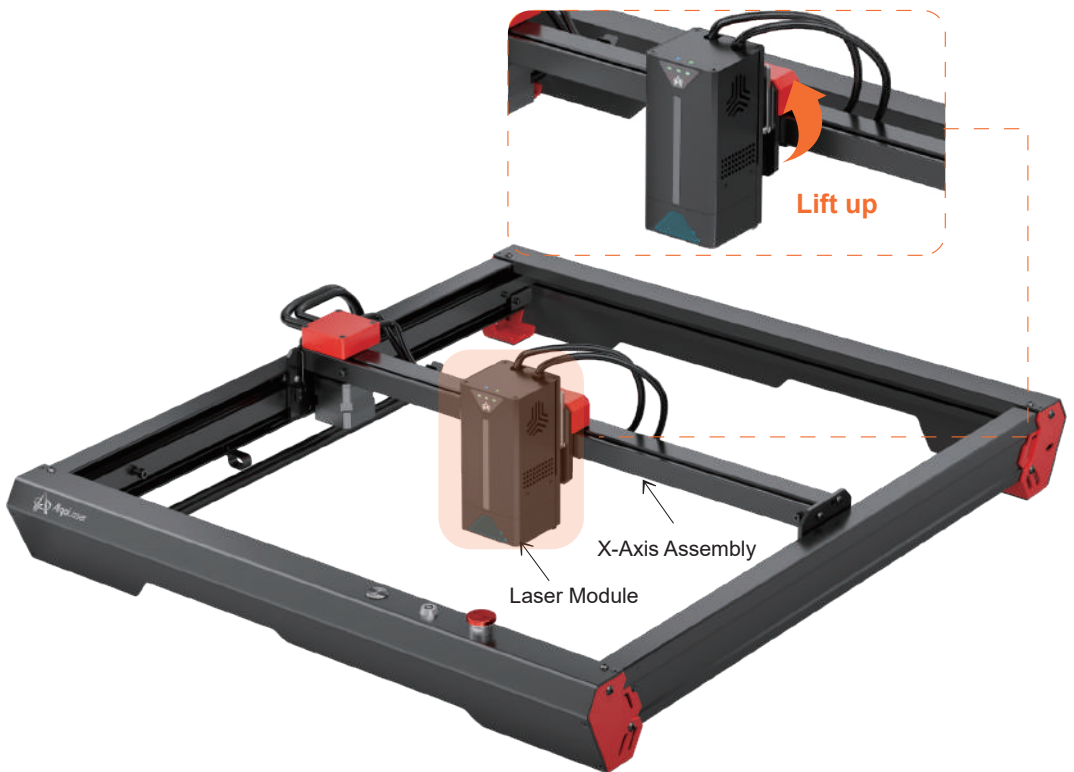
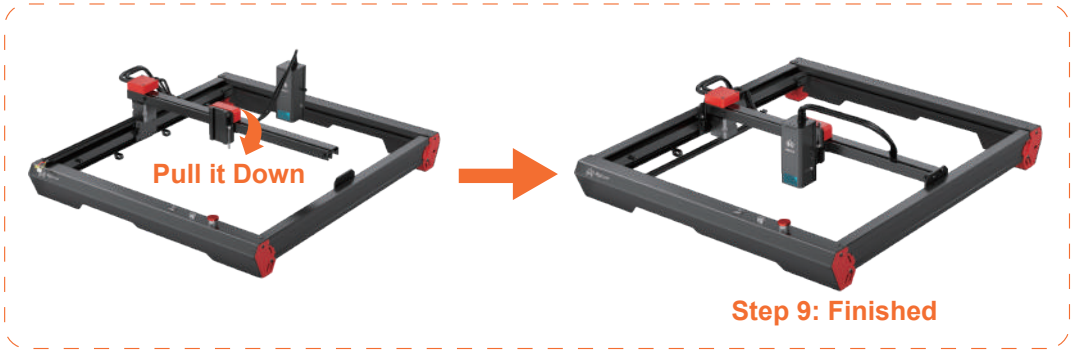
Link the Limit Switch



Step 8: Insert the Y-Axis Limit Switch Terminal here into the Interface out of the cable box.



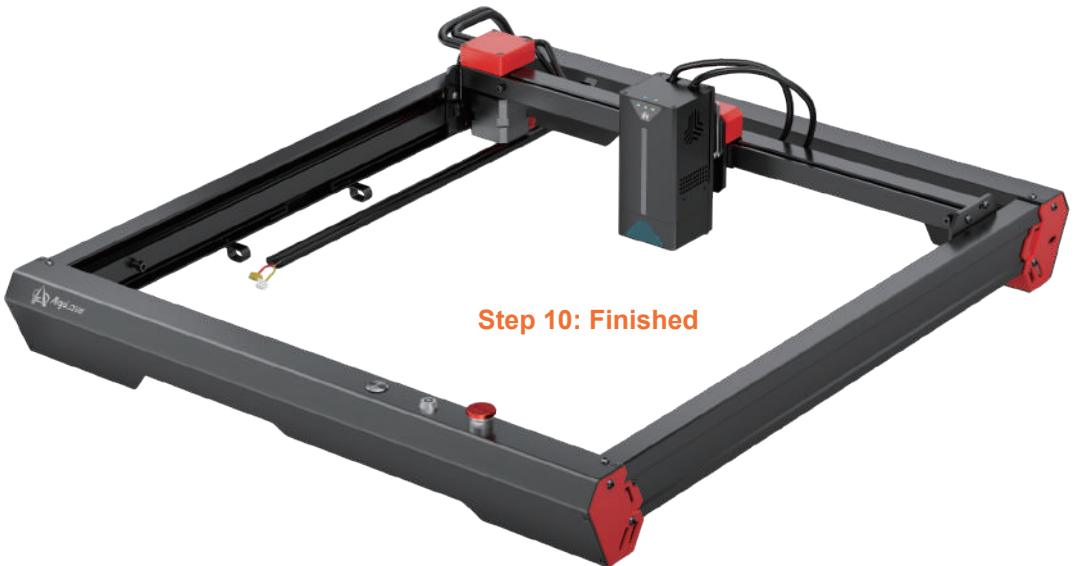
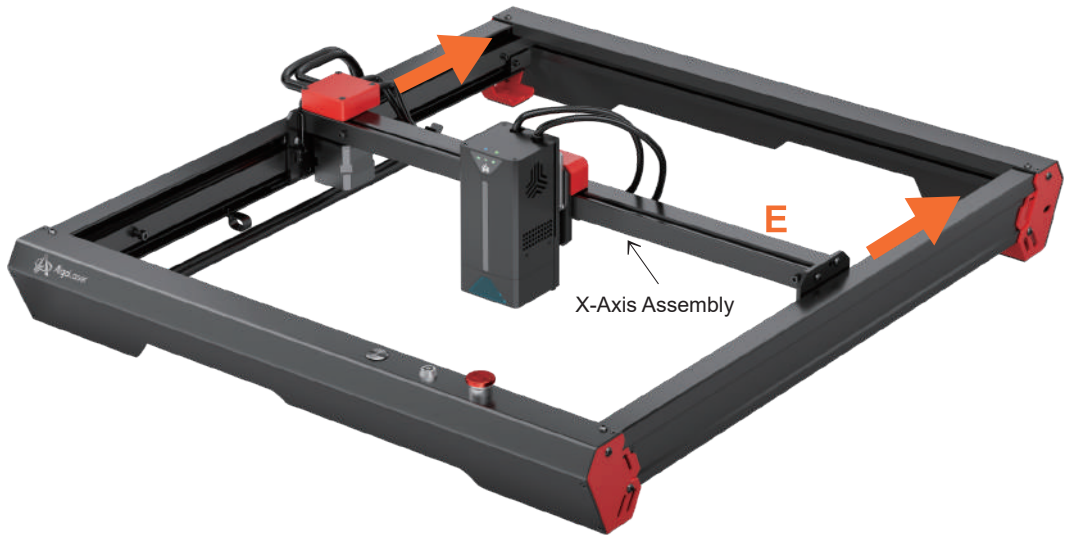
Mount Laser Module



Step 9: Pull down the Lever, and install the Laser Module on the Fixture, and then lift up the Lever to secure it in place.

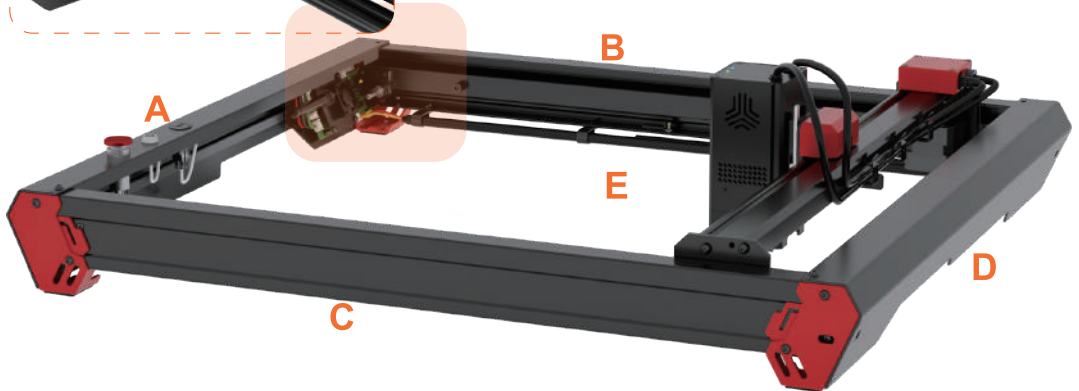
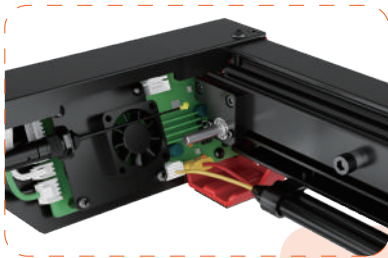
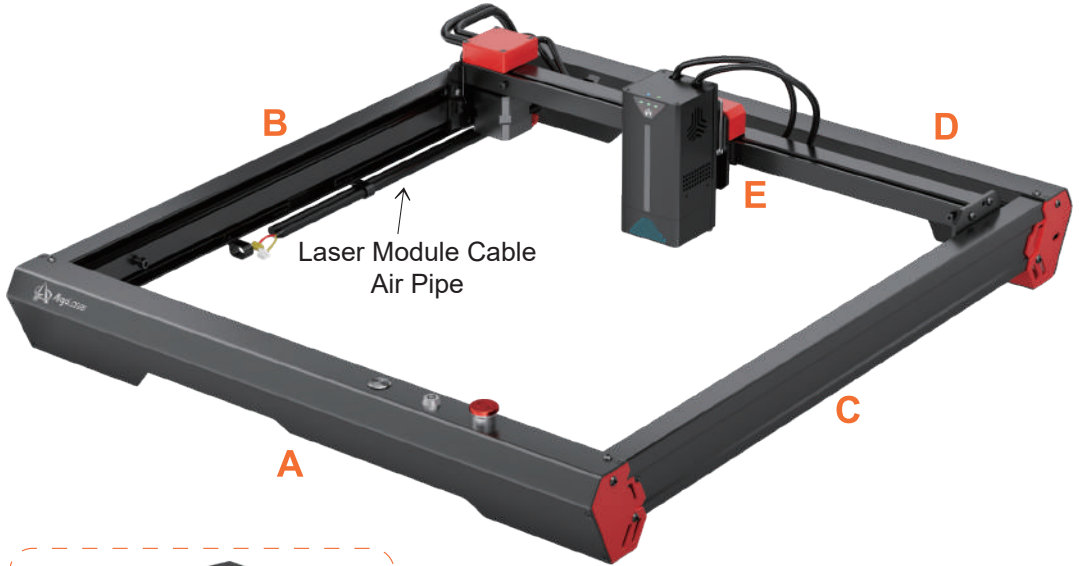


Push the X-Axis Assembly and Hold





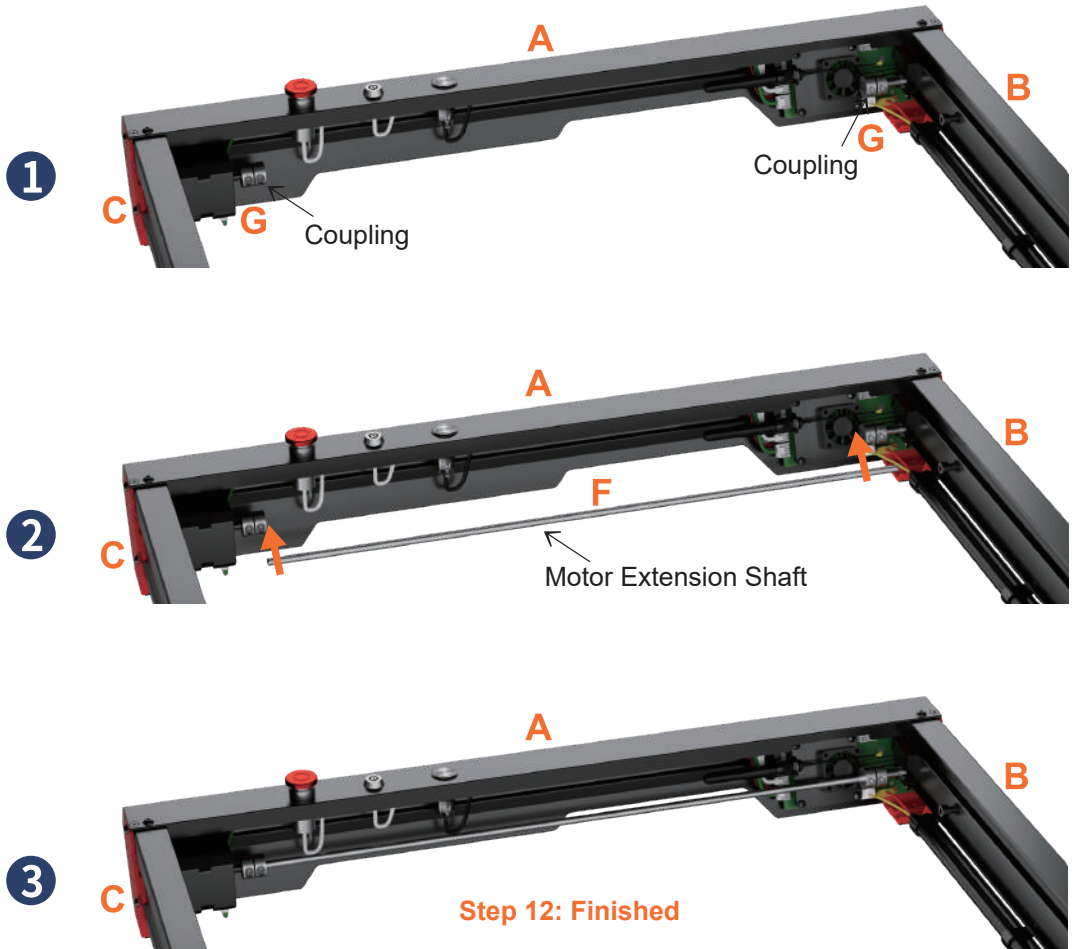
Connect the Main Cable to the Mainboard



Step 11: Put the air pipe and main cable through the hole under the Y-axis,
Insert the cable into the port of the mainboard that matches the color of the cable.



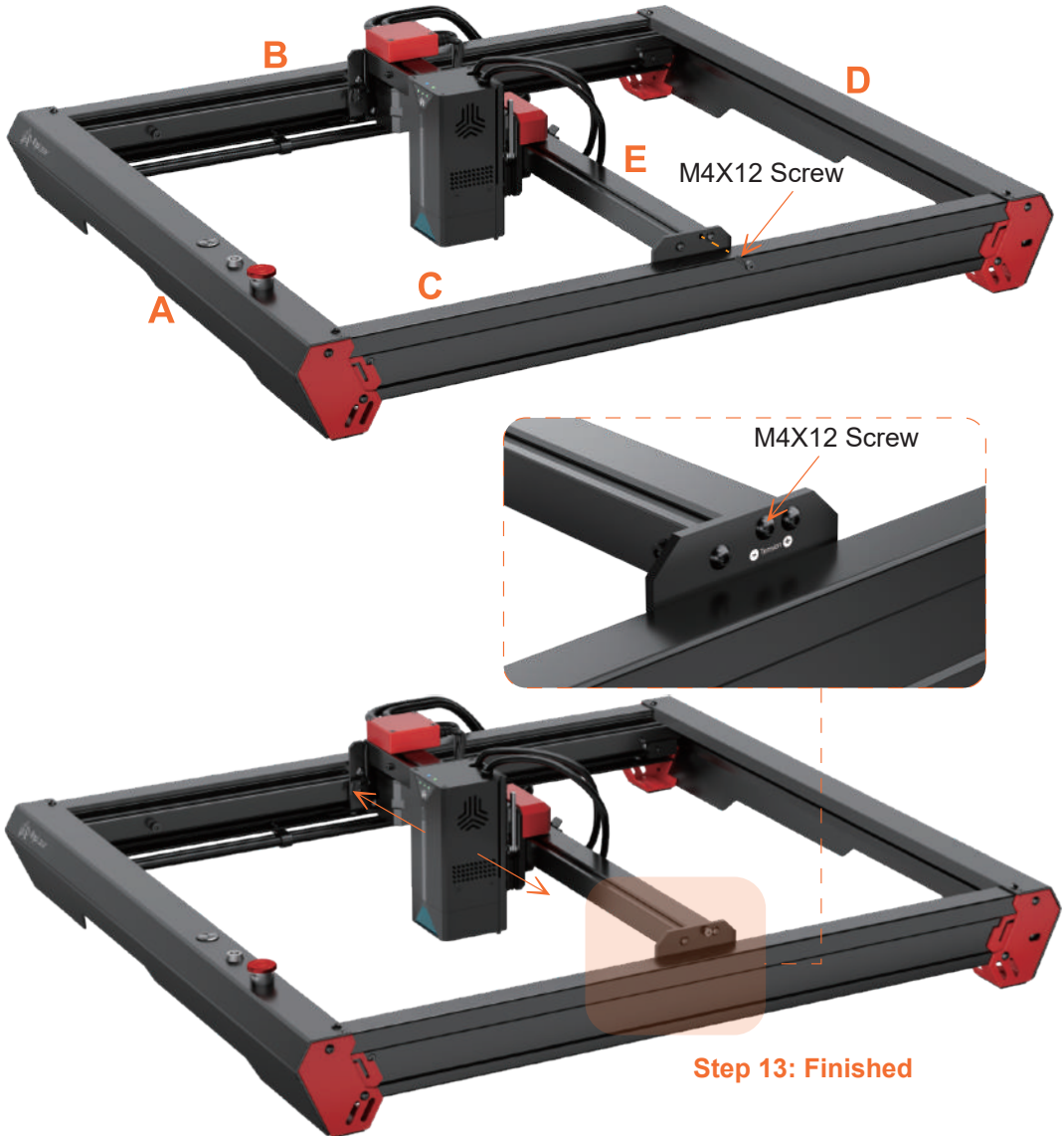
Assemble the Motor Extension Shaft



Step 12: Let the short stick go through G(Coupling), do not tighten the screws,
Then fit F(Motor Extension Shaft) into the Extension Shaft of A(Front Assembly).
finally tighten the screws on G(Coupling).



Tighten the Belt

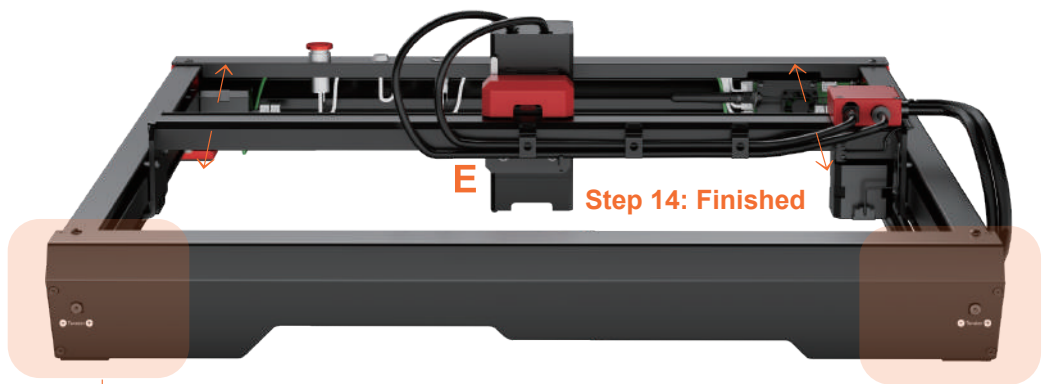
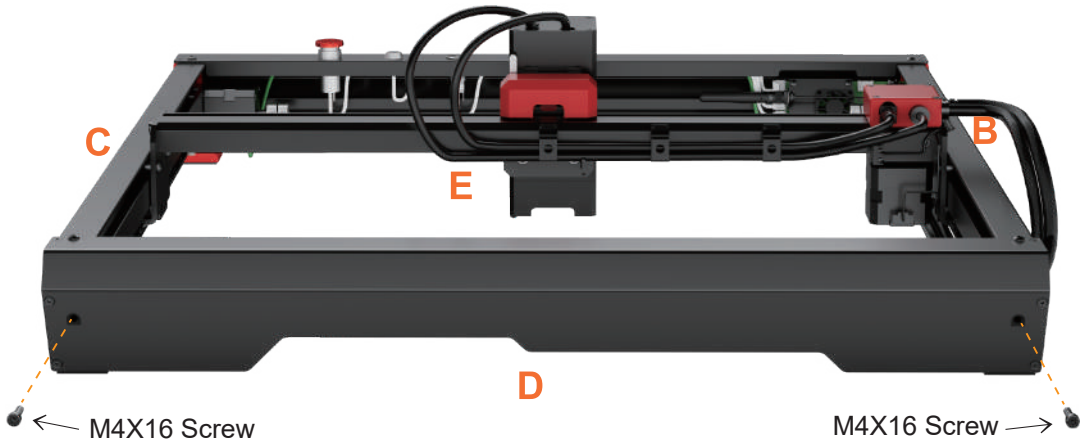


Step 13: Install a screw on E (X-Axis Assembly), tighten the screw until the belt is properly tightened (this means the laser module can move smoothly).

Screw type: M4X12 Screw



Tighten the Belt

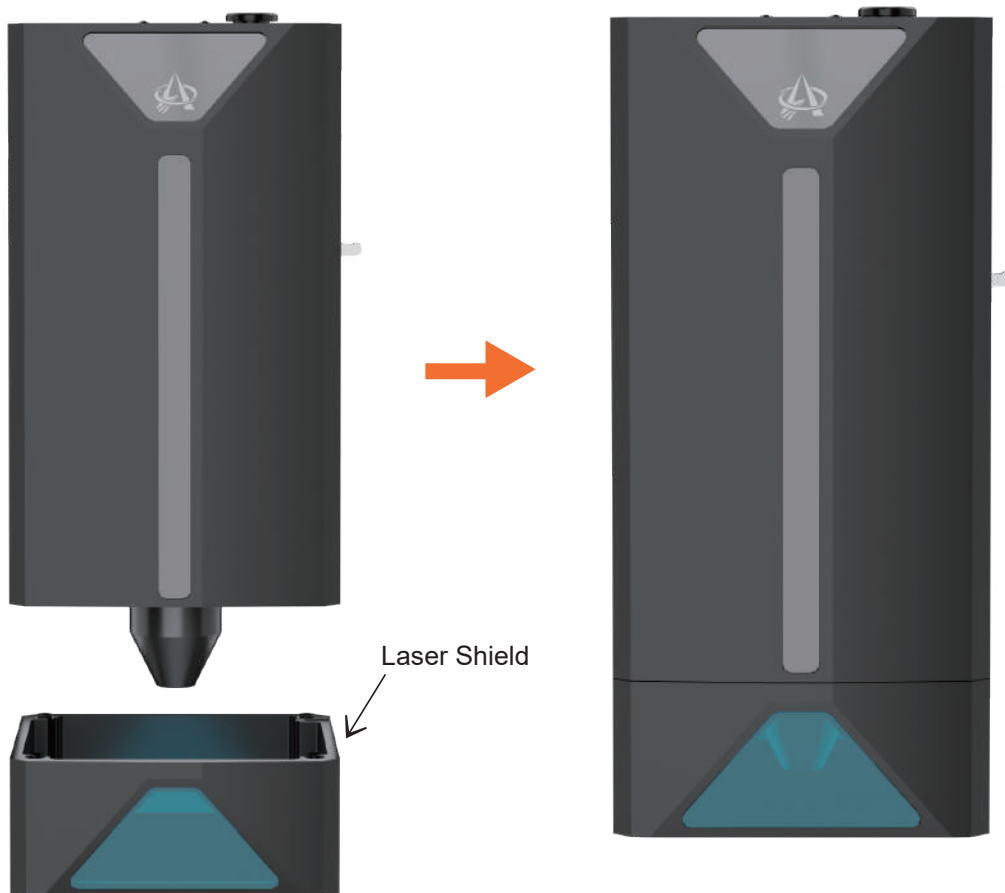


Step 14: Install two screws on D, tighten the screws until the belt of each side is properly tightened (this means the E (X-Axis Assembly) can move smoothly).

Screw type: M4X16 Screw



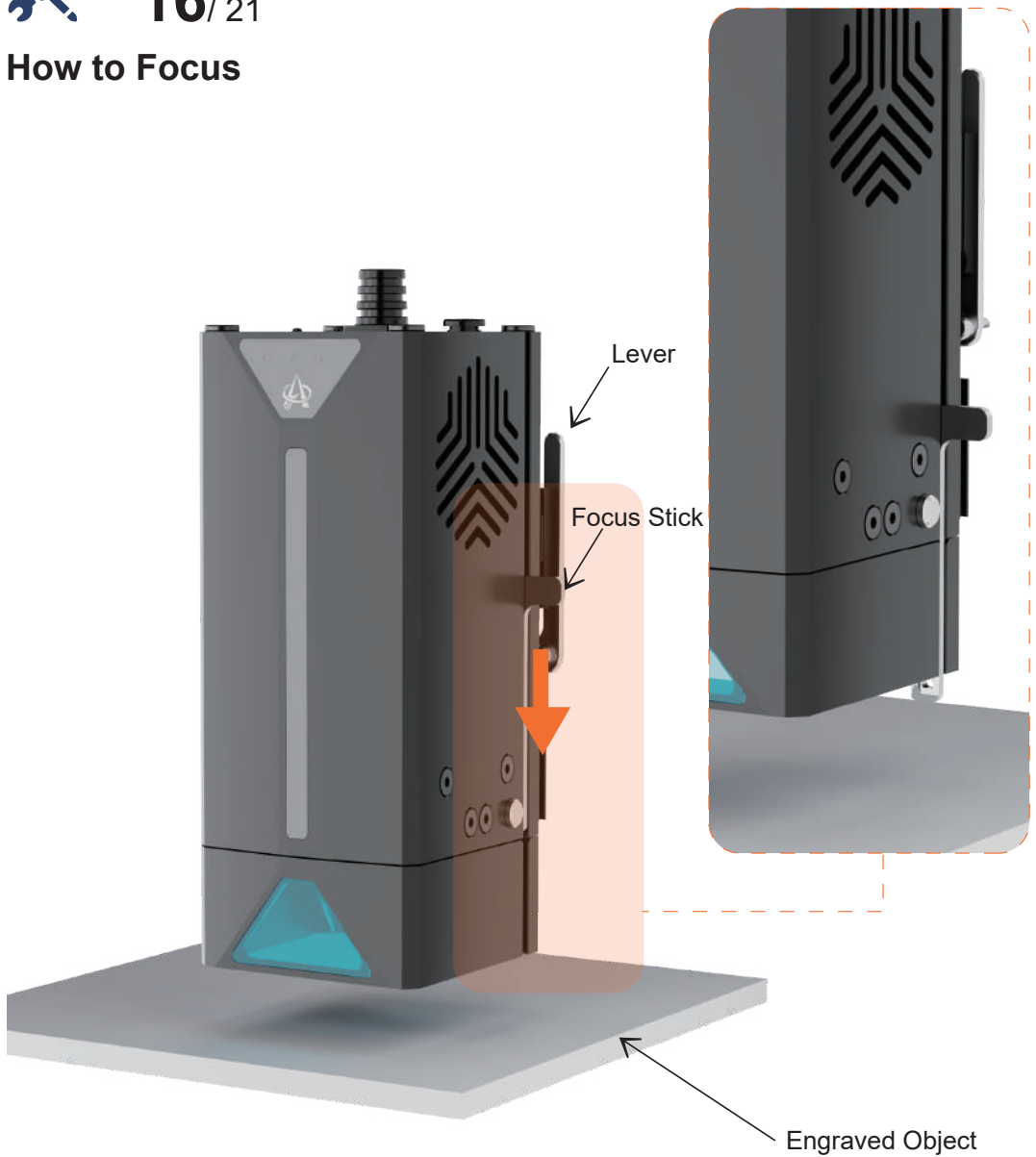
Install the Laser Shield



Step 15: Align the orientation of the hood with the surrounding surface of the laser module;
Let the hood be attracted by the upper and lower magnets, and connect the hood with the laser module.



How to Focus



Step 16: Place the engraving object and push the Focus Stick down to fix.



How to Focus



Step 17: Pull down the lever, let the laser module move down until the Focus Stick is against the engraved object, and then lift up the lever to fix the laser module.



How to Focus



Step 18: After focusing, please press the small button to reset the Focus Stick to prevent it from being damaged.



Air Assist

Install the lens into the module, make sure it is tightend.



- ▶ **Attention:** The module should operate with an working Air Pump. Make sure the air pump is running while the module is working .



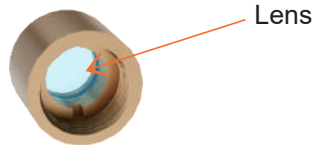


Maintenance

- ▶ please clean the lens after every 30 hours of use of the machine or after a long period of inactivity to prevent the laser from being intercepted by the dust attached to the lens.
- ▶ Remove the Lens from the Air Assist.
- ▶ Use a medical swab and alcohol to wipe the lens.



Air Assist



Lens

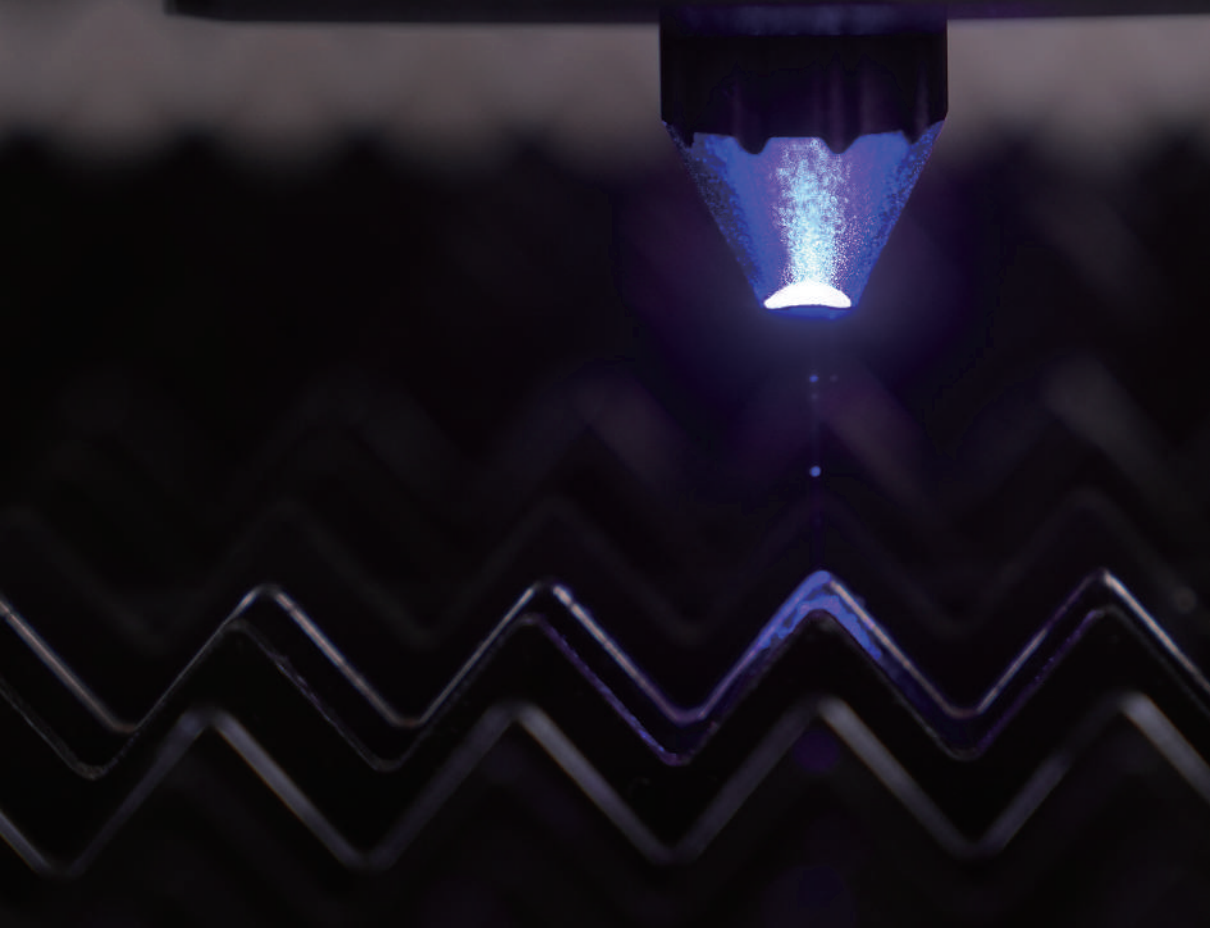


Complete



03

How to Use




3.1 Machine Status Explanation

Status	Action	LED Indicator Descriptions	Result
Power on	Power button short press <0.5s	The white LED gradually brightens	Power on Machine quickly seeks Machine powers on and for machine zero point
Power off	Power button long press >1.5s	The white LED gradually dims	Power off Machine shuts down Machine powers off and stops all operations
Enter upgrade mode	Press and hold the power button while simultaneously pressing the RESET button on the control board when the machine is in the power-off state	The red, green, and blue LEDs flash alternately	Power off Machine shuts down Machine powers off and stops all operations
Enter network configuration	Power button continuous short press 5 times	The lights transition into a colorful gradient	The machine can configure network information through the APP
Control board reset	Press the RESET button briefly	The lights transition into a colorful gradient	The machine can configure network information through the APP
Standby	When the machine is powered on and idle	The white light breathes in and out	The machine is in idle standby state
Working	When the machine is powered on and in operation	The cyan-blue light remains steady	The machine is in motion processing state
Fault indicator	When the machine encounters a malfunction and cannot perform engraving movement	The yellow light slowly flashes and accompanied by a “di, du” sound	The machine cannot engrave there is a malfunction

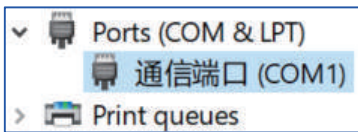
3.2 How to connect the machine to a PC

- Install the driver: Before installing the computer driver, please power on the machine and connect it to the PC using a USB cable. Then, choose the appropriate driver file based on your computer system and proceed with the installation.

Operating System	Operation	Phenomenon
WIN 7/WIN 8	 zadig-2.5.exe	To install the driver, make sure the machine is powered on and connected to the computer via USB. The installation process can only be carried out when the machine is in the powered-on state and connected to the computer.
WIN 10/WIN 11	No installation required	
Mac	No installation required	

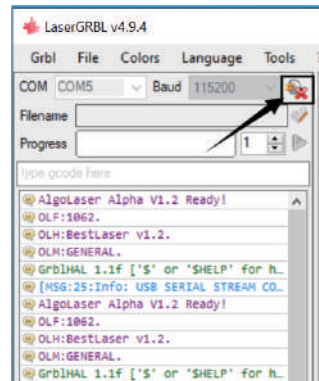
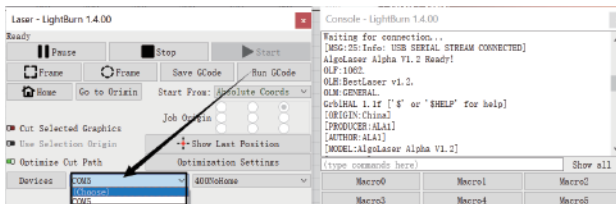
- To check the driver installation, follow these steps:

- ① Find the Device Manager on your computer.
- ② Navigate to the Ports section.
- ③ Disconnect the USB cable from the computer.
- ④ Observe that the new serial port disappears from the Ports section.
- ⑤ Reconnect the USB cable.
- ⑥ Verify that a new serial port appears, indicating successful driver installation.



- Connecting the machine

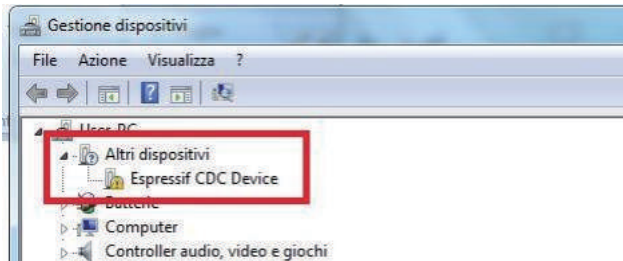
- ① Launch the LaserGRBL / LightBurn software.
- ② Select the COM port that corresponds to the one identified in step two of the installation process.
- ③ Click on the “Connect” button.
- ④ If a welcome message appears in the command box, it indicates a successful connection.



For resolving driver issues on Windows 7/8, you can follow these steps

Resolution for Driver issues on ESP MCU Espressif CDC Device Error

(Applicable to WINDOWS 7/8)



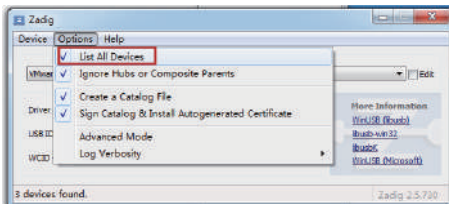
- Click on the download link to download the file: [Zadig-2.5.exe](https://zadig.akeo.ie/)



Zadig-2.5.exe

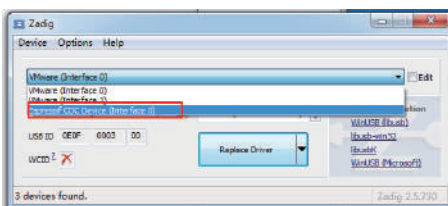
Download:<https://zadig.akeo.ie/>

- Once download is complete, please run the application with Administrator Rights.
- Once open select List All Devices from the menu Options.

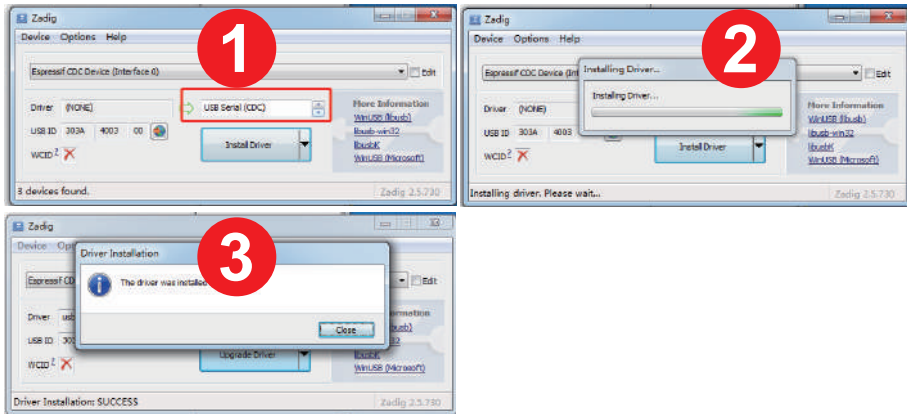


Wait for the refresh

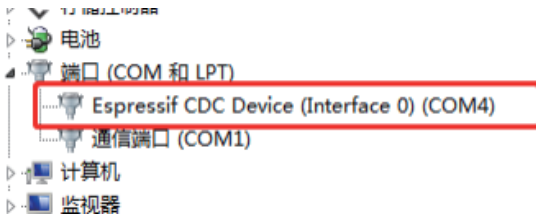
- Select Espressif CDC Device (Interface 0) from the drop-down list.



- Select USB Serial (CDC) from the list of drivers available, click the Install Driver button, and wait for the installation to complete.

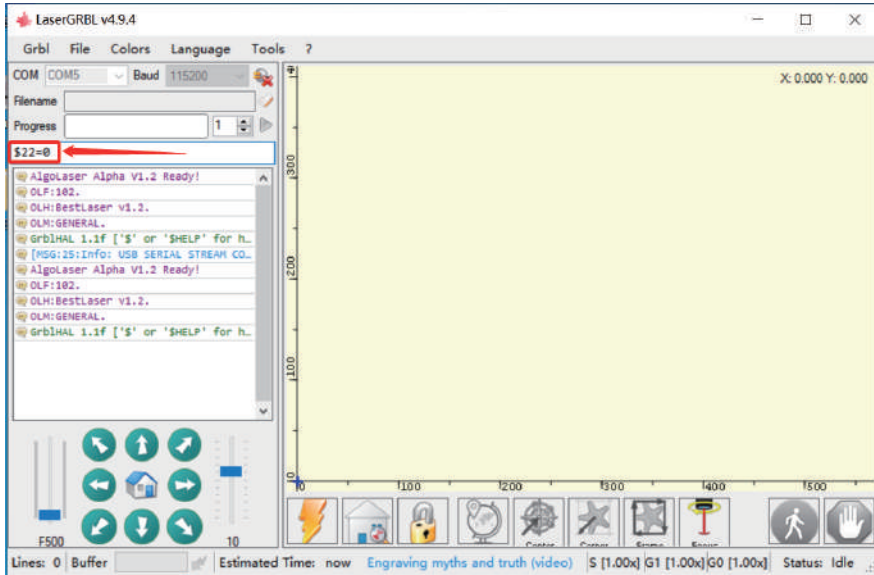


- When you're done, you can close the Zadig software.
- The New Espressif CDC Device (Interface 0)(COM X) port in Device Manager. Note the COM number might be different in your machine.

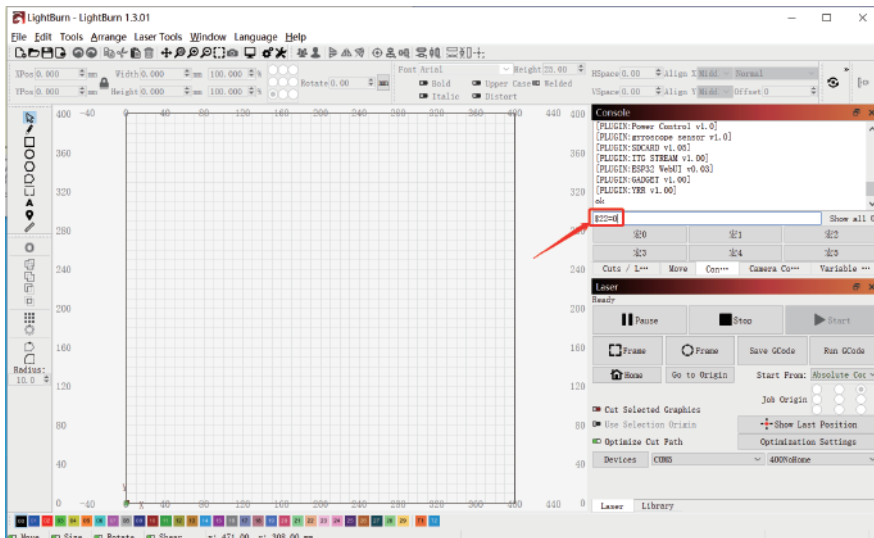


3.3 YRR/YRC Connection -- Operation description

- Connection: Unplug the Y-axis motor wire from the Y-axis motor and connect it to the corresponding motor jack of YRR/YRC.
- Connect the control terminal: Use USB or other methods to connect the computer.
- LaserGRBL: Envíe "\$22=0" en el campo "Escriba aquí el gcode".



- LightBurn: Send the command "\$22=0" in the "(Type Commands here)" field.



3.4 FAQ

No response from the machine when being powered on.

- No power supply: Please check the socket and switch as well as the machine power socket to ensure that they have been correctly plugged with normal power supply.

It cannot be connected to computer.

- USB cable not connected: Please check the USB data cable interface on the machine and computer to ensure it's correctly plugged. The USB interface on the front panel of some desktop computers is invalid, it's better to connect to the interface on the back.
- Driver not properly installed: Install the driver according to the instructions. After the installation is done, the computer will recognize the device as a serial port, which means the hardware connection is OK.
- Other special problems: Pull out the USB data cable and power cable, keep the machine power off for 5 seconds and then try the connection once again.

No response from the phone APP when being connected to the machine.

- Wrong Bluetooth connection: Make sure it's connected to the Bluetooth released by the machine. Please read "App Connection" in the User Manual for details.
- Incompatibility: In the case of abnormal connection due to incompatibility of newly-released phone or upgraded system, please contact our customer service with the screenshot of phone configuration so as to get technical support as soon as possible.

Shallow engraving effect or no traces.

- Inaccurate focus: Refer to the "Focus Adjustment" in the User Manual to make the correct focus.
- Engraving speed: Too fast speed is due to short burning time. Please read the "Engraving Parameters" in the Manual to readjust the parameters.
- Photo color is too light: The photo added should be clear. If the line is too thin or the color is too light, the engraving effect will be directly influenced.
- Position of object to be engraved: If the object is placed obliquely, the focal length of laser is fixed, so the object should be placed horizontally in parallel to the machine; otherwise, the inaccurate focal length will result in bad engraving effect.

Offline engraving unexpectedly stops

- The photo is not completely downloaded when being connected to computer, please download the photo once again.



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FCC Compliance Statements

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.

Caution: 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.

ISED Compliance Statements

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé.

RF Exposure Compliance

This equipment complies with FCC/IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20cm entre le radiateur et votre corps. Cet émetteur ne doit pas être colocalisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.