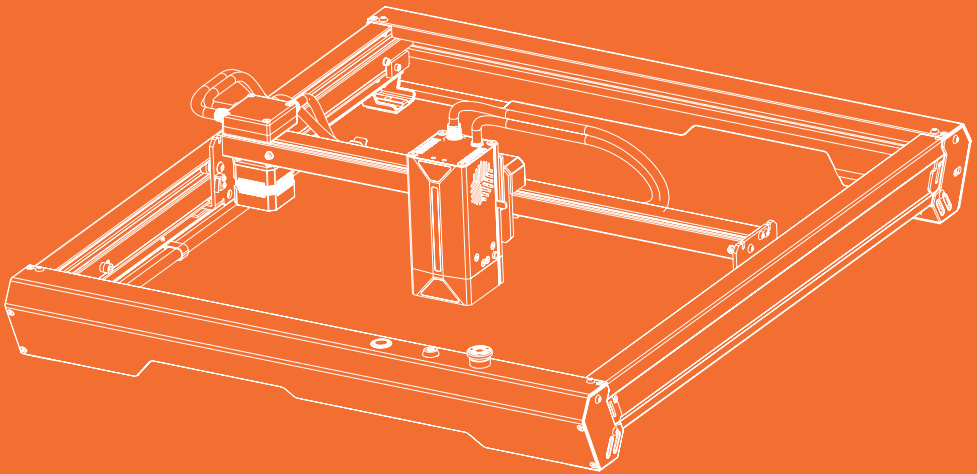


AlgoLaser **Alpha**

QUICK START GUIDE

Laser Engraver



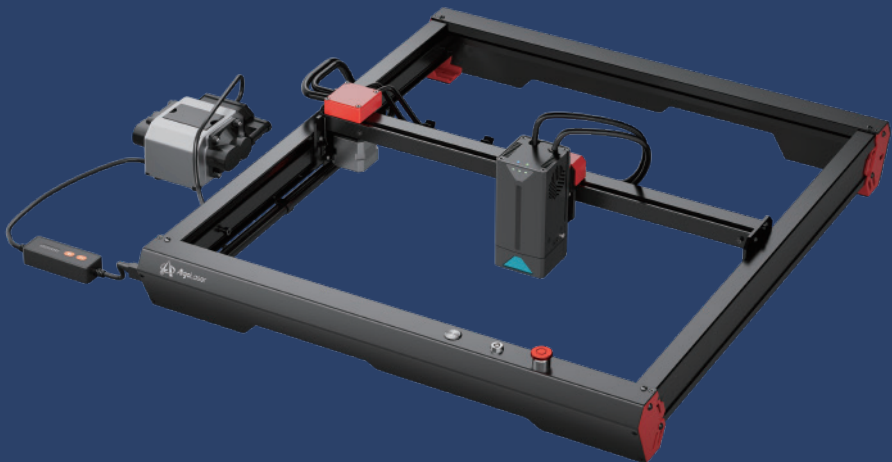
Always read the instructions before you start.

CONTENTS

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 400-445nm(± 5 nm), 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.

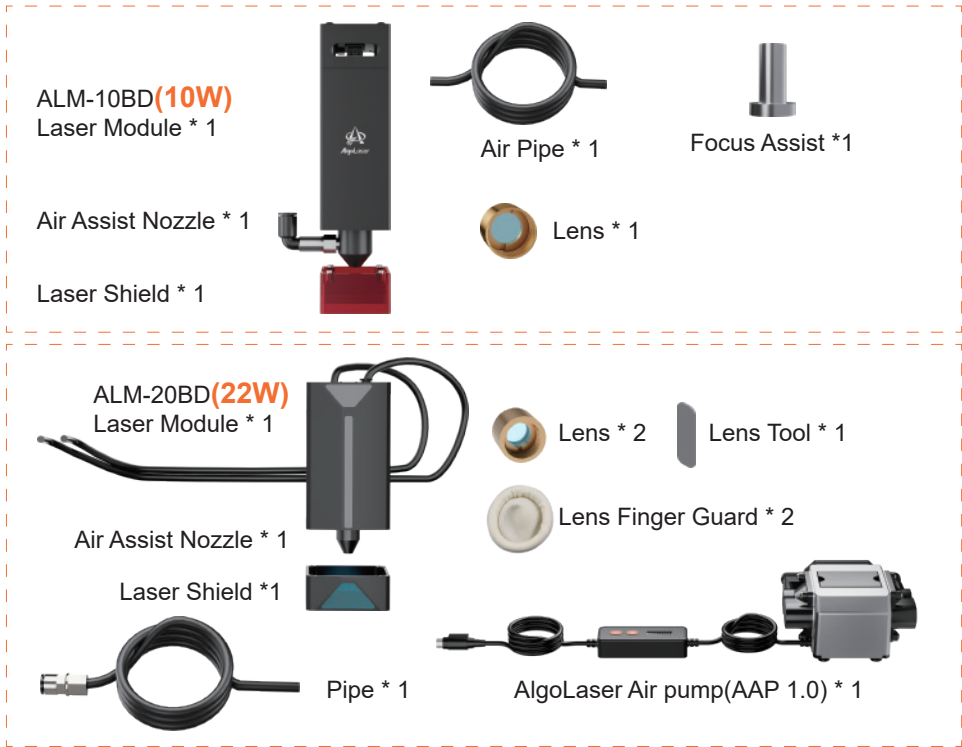


1.2 Parts List

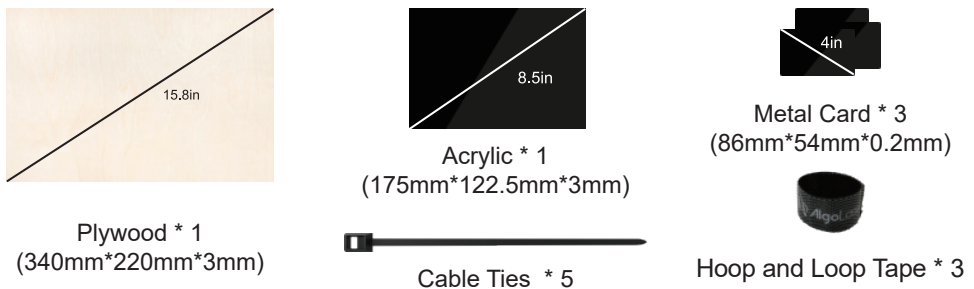
1.2.1 Machine

- 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
-  Wrench * 1

1.2.2 Laser module and Others



1.2.3 Consumable



* The above images are for reference only. Please refer to the actual product.

02

Machine Assembly



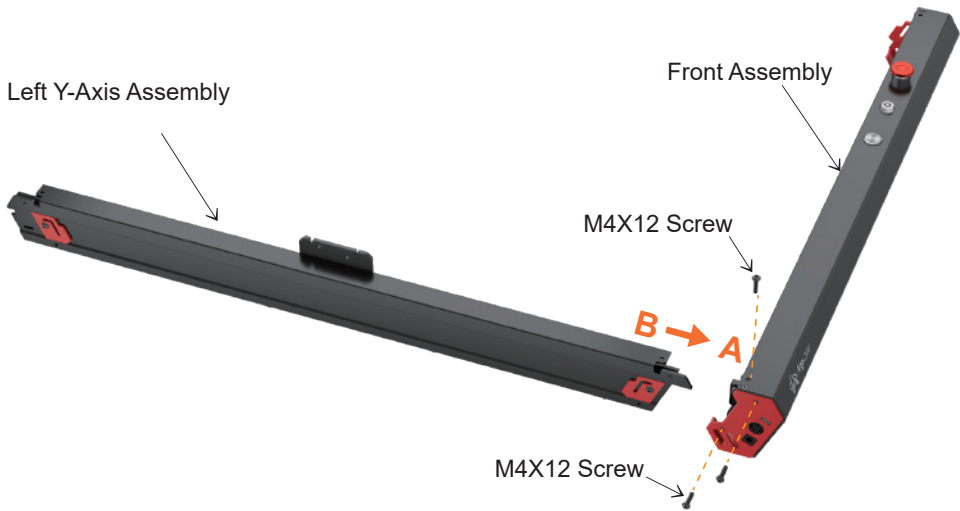


01 / 22

Assemble the Left Y-Axis Assembly



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



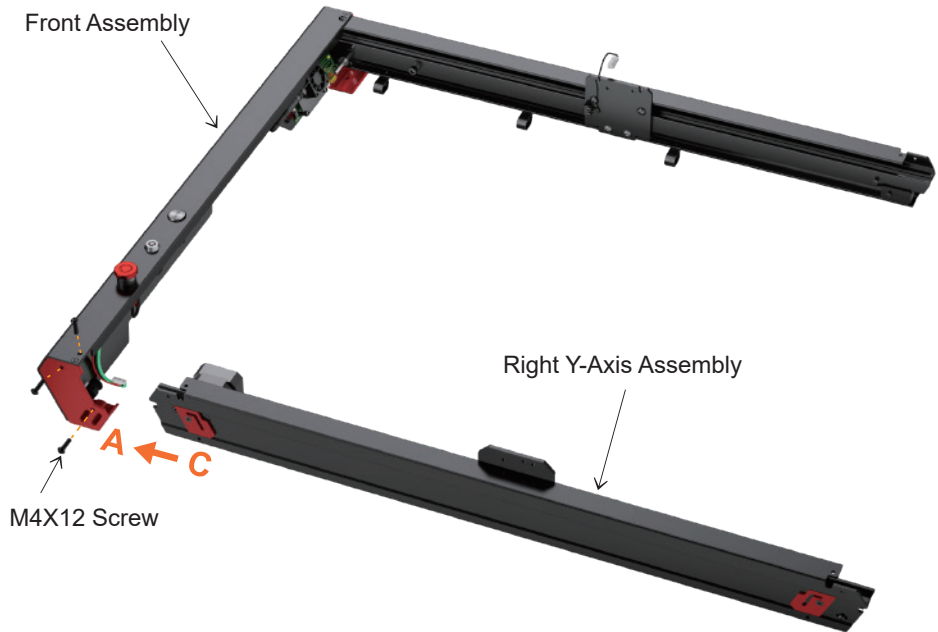
Step 1: Mount B(Left Y-Axis Assembly) on A(Front Assembly) from the side and secure it with 3 screws in total from the top and the side.

Screw type: M4X12 Screw

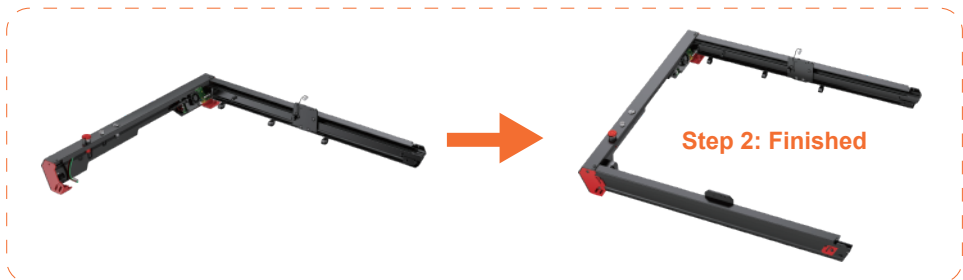


02 / 22

Assemble the Right Y-Axis Assembly



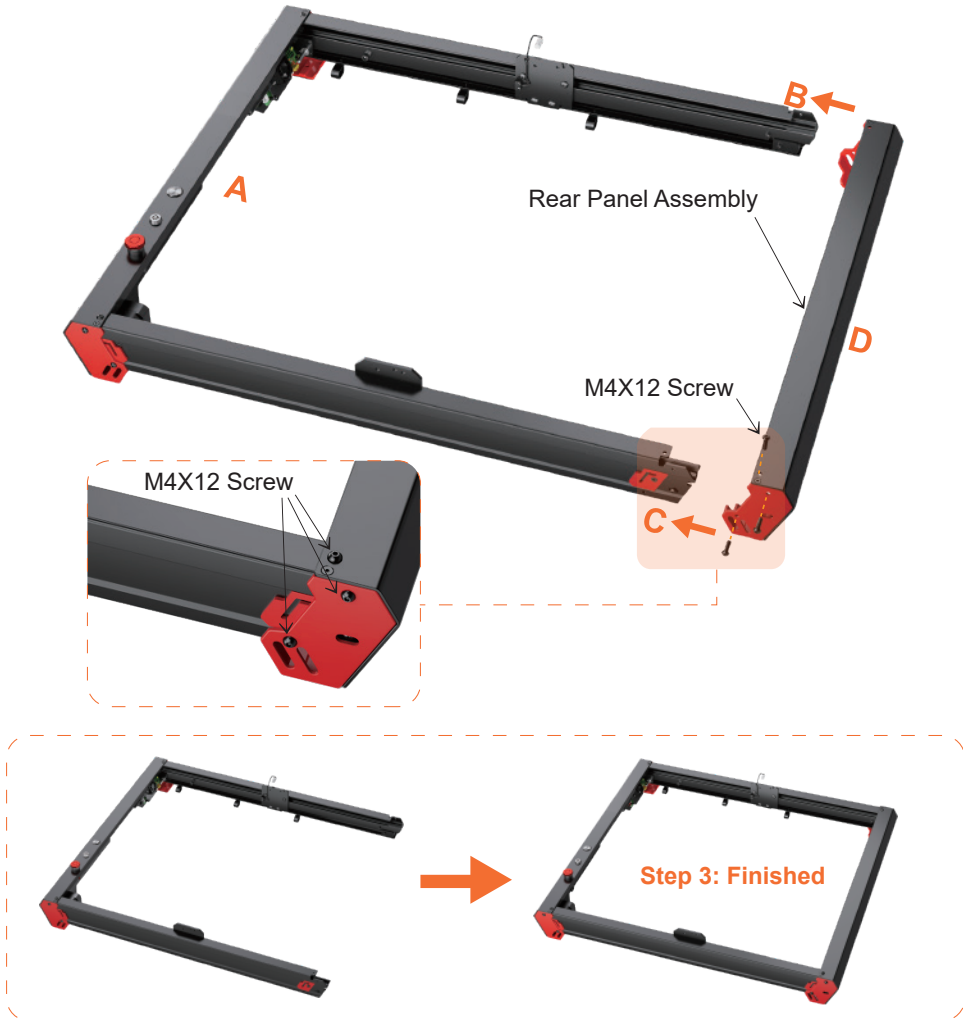
Step 2: Mount C(Right Y-Axis Assembly) on A(Front Assembly) from the side and secure it with 3 screws in total from the top and the side.
Screw type: M4X12 Screw





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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.

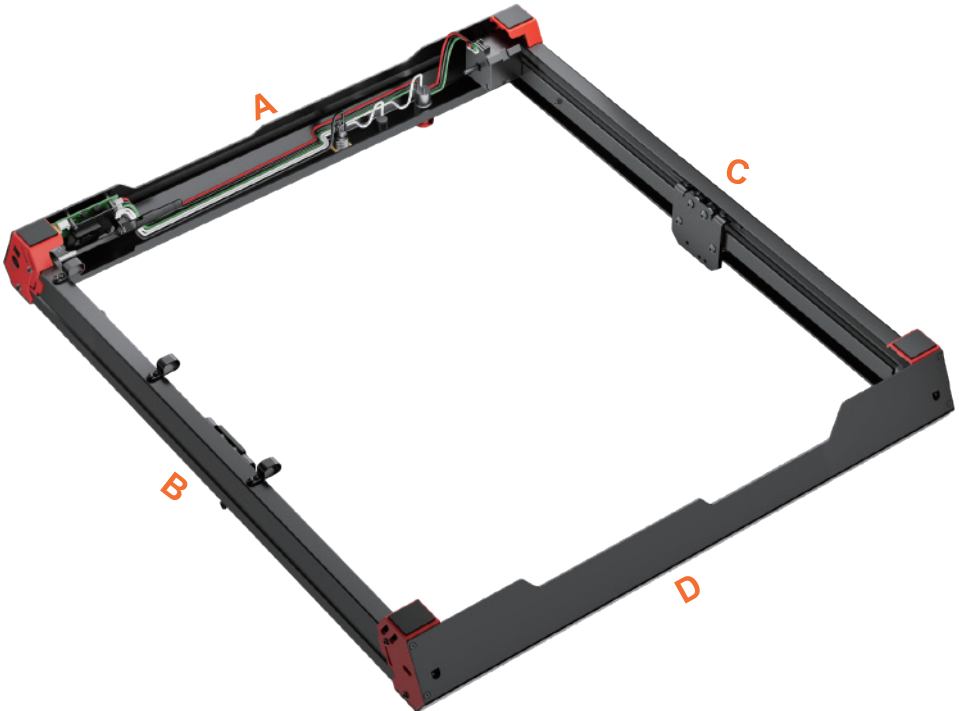
Screw type: M4X12 Screw



04 / 22

Flip the Machine

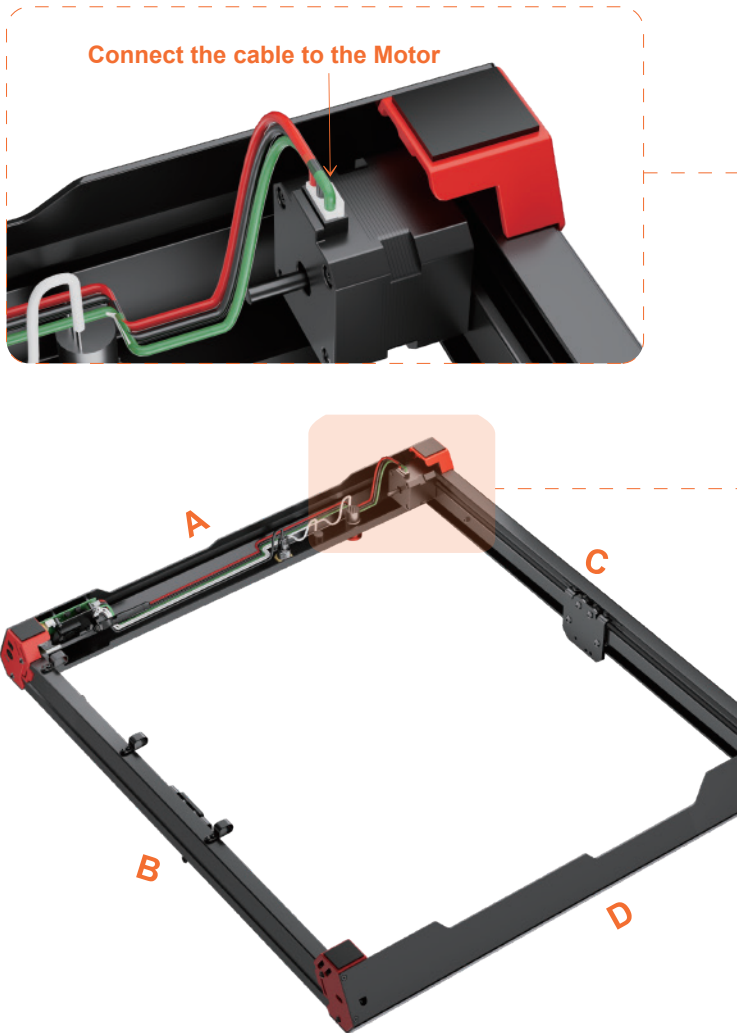
Flip the machine upside down, with its bottom facing up.





05 / 22

Link Y-Axis Motor to Motherboard

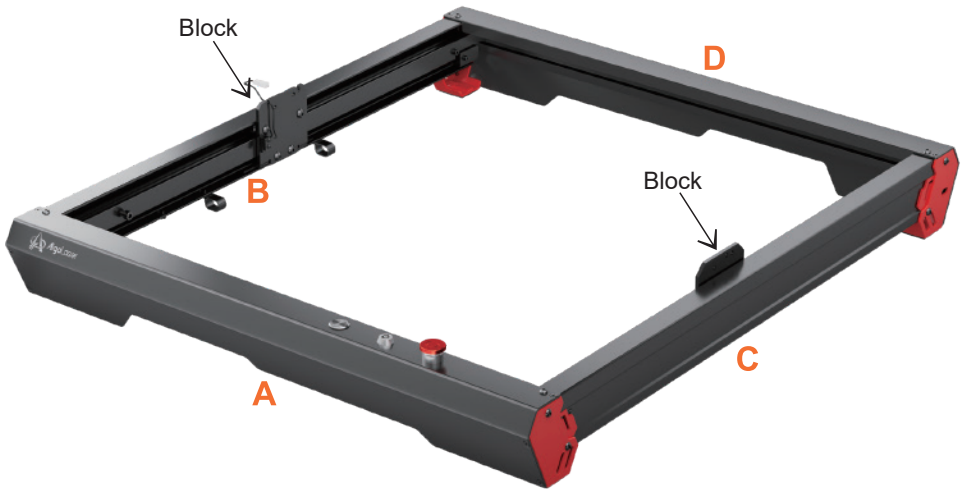
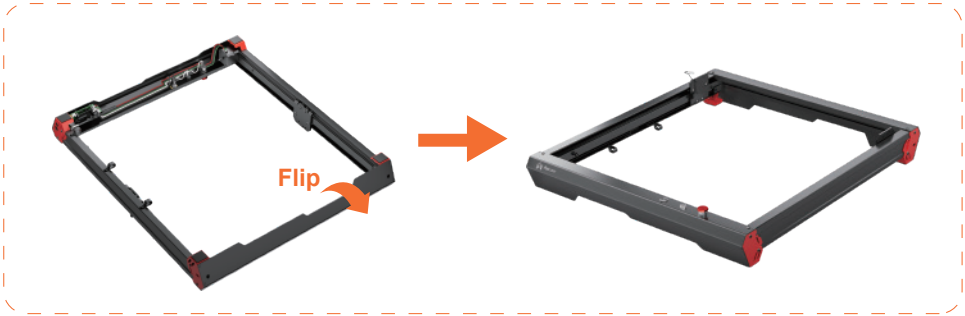


Step 5: Insert the cable into the port of the Y-Axis Motor.



06 / 22

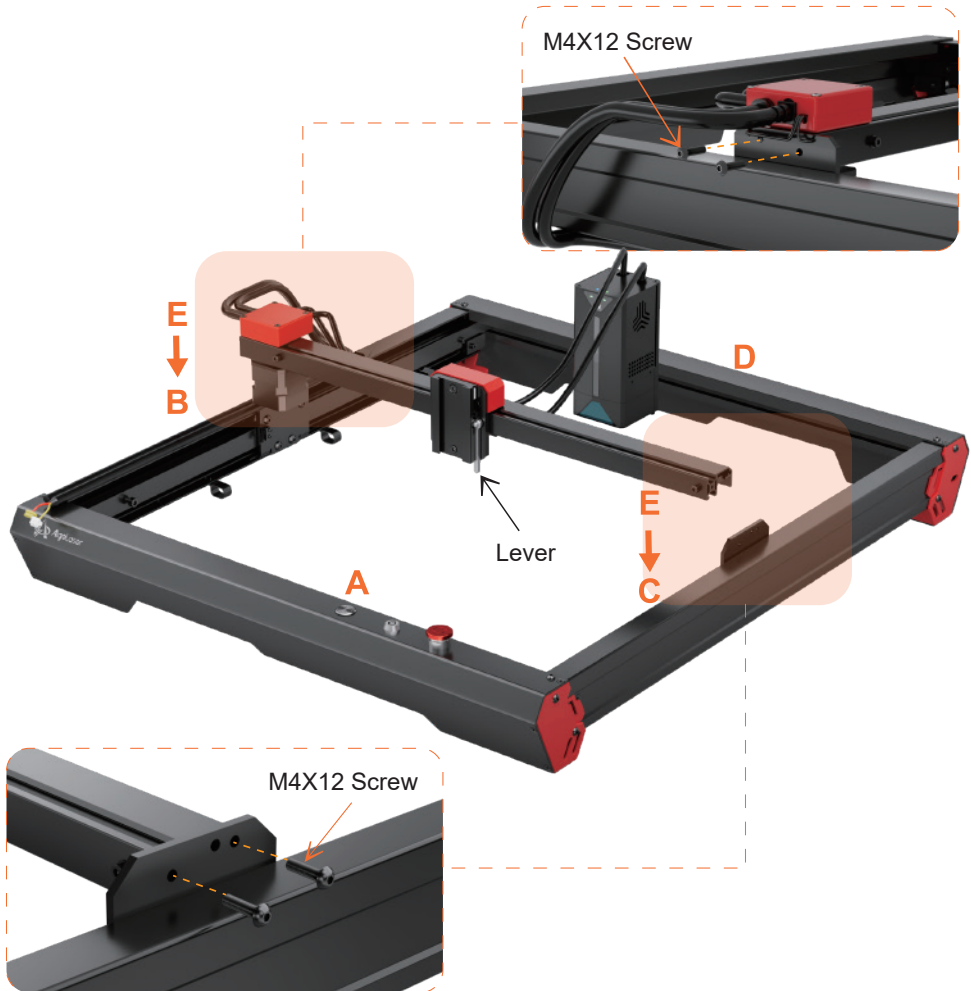
Flip the Machine Again





07 / 22

Assemble the X-Axis Assembly



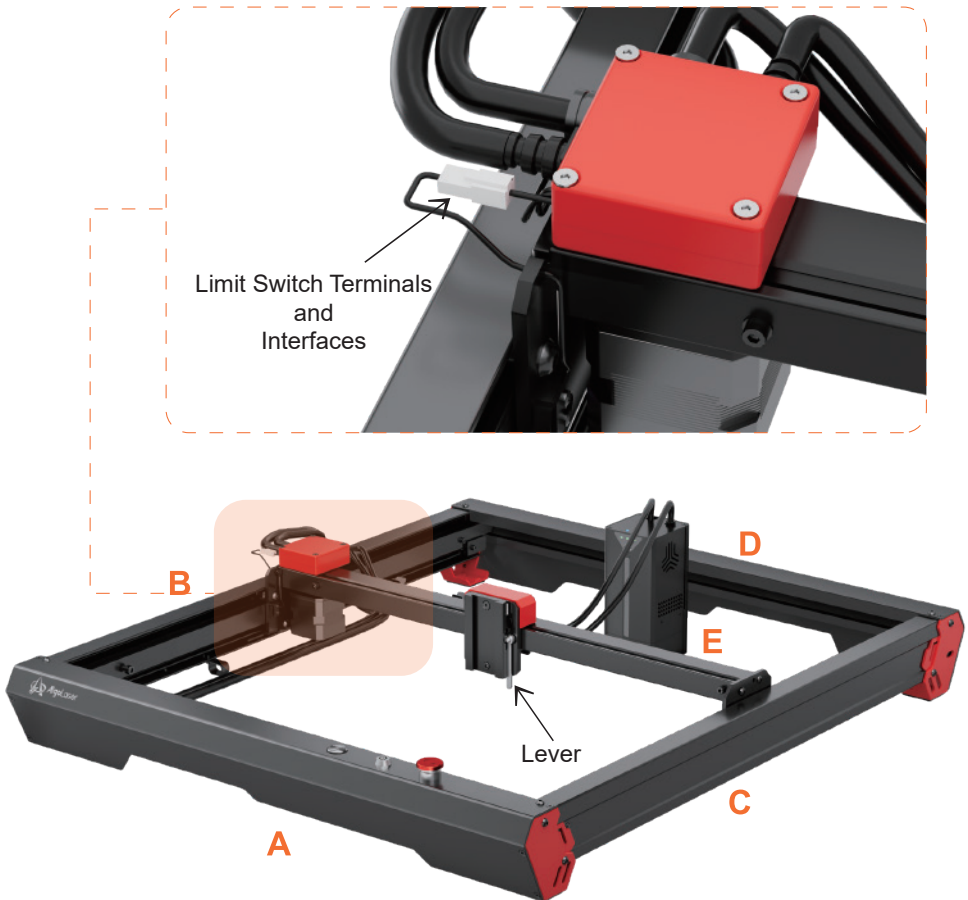
Step 7: Place E(X-Axis Assembly) on the top of the machine. NOTE: E(X-Axis Assembly) with the end of the Cable Box should face B(Left Y-Axis Assembly). Then install the end with Cable Box of E(X-Axis Assembly) on the Block of B(Left Y-Axis Assembly) with 2 screws. Install the other end of the E(X-Axis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

Screw type: M4X12 Screw.



08 / 22

Link the Limit Switch

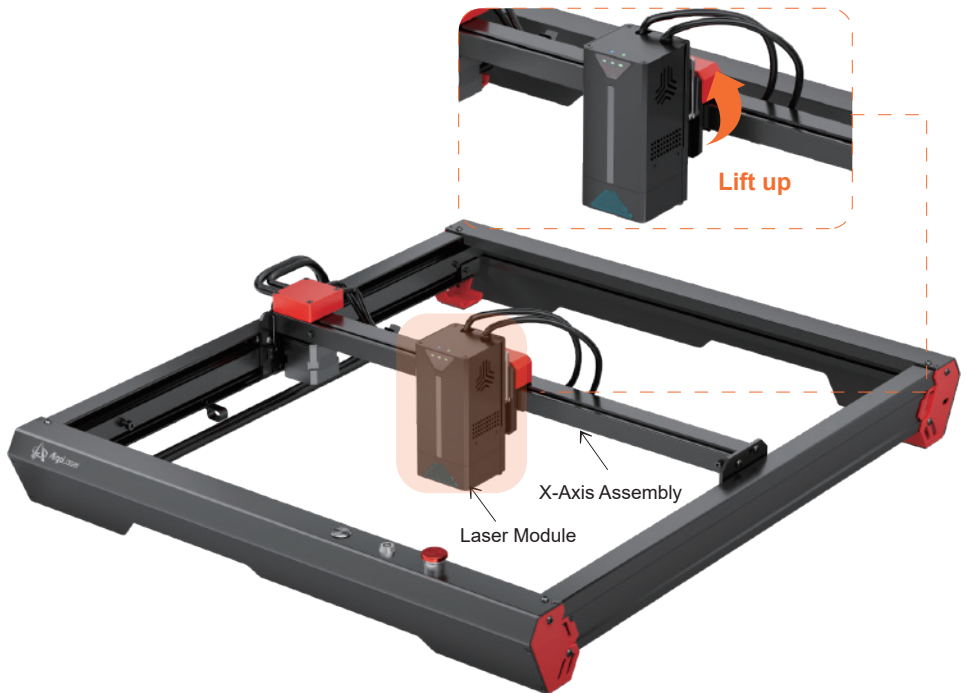


Step 8: Insert the Y-Axis Limit Switch Terminal here into the Interface out of the cable box.



09 / 22

Assemble the **ALM-20BD(22W)** Laser Module

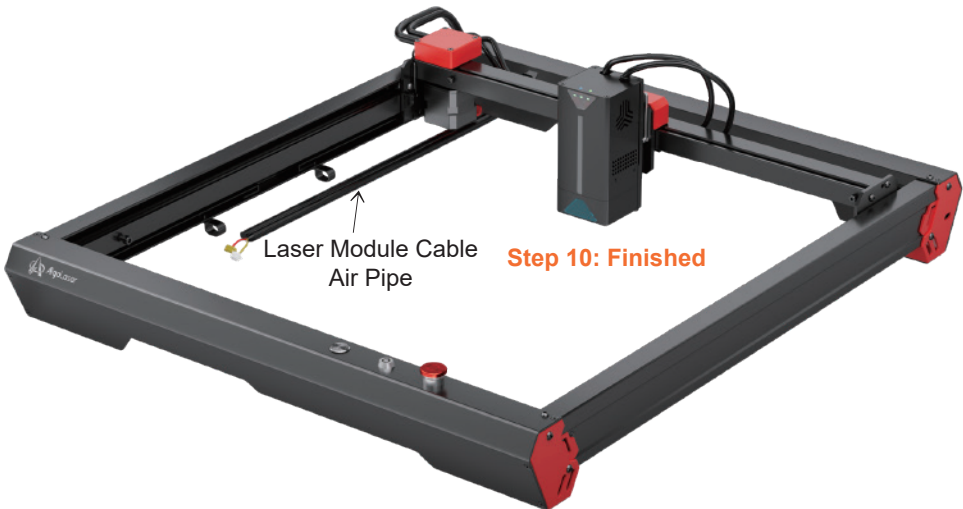
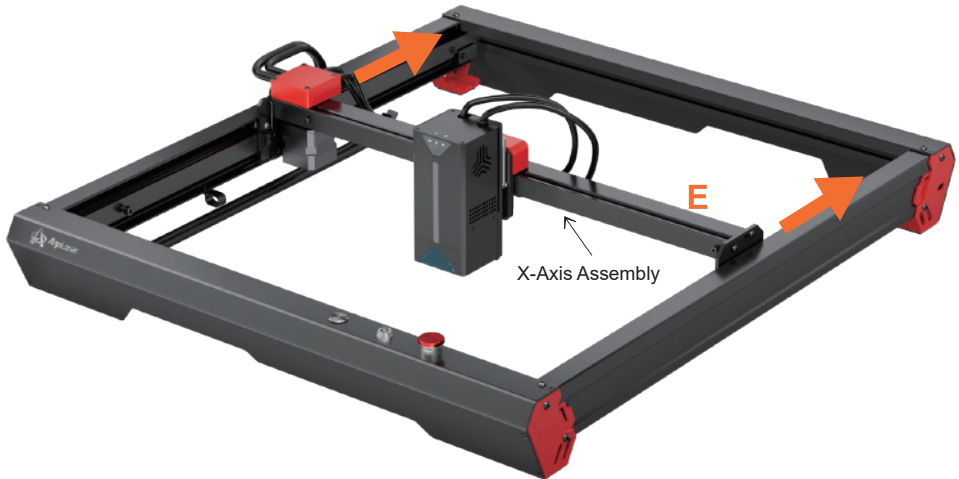


Step 9: Pull down the Lever, and install the Laser Module on the Fixture, and then lift up the Lever to secure it in place.



10 / 22

Push the X-Axis Assembly and Hold





11 / 22

Connect the Main Cable to the Mainboard

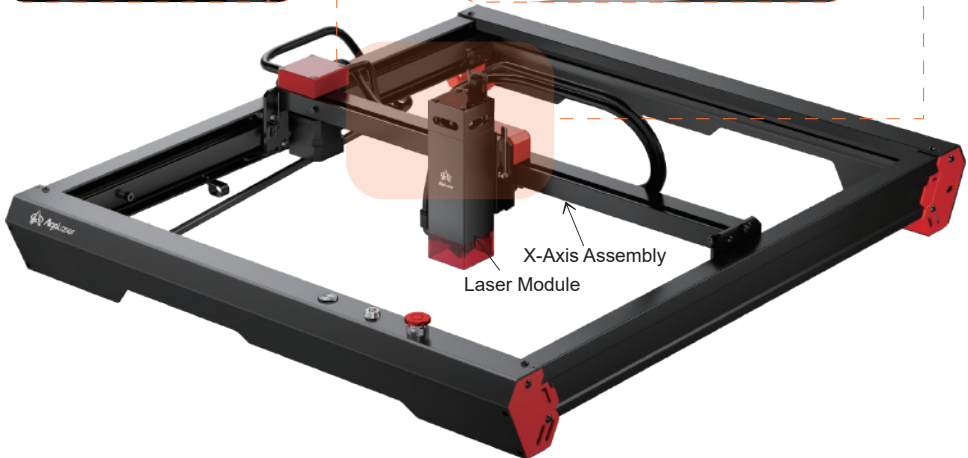
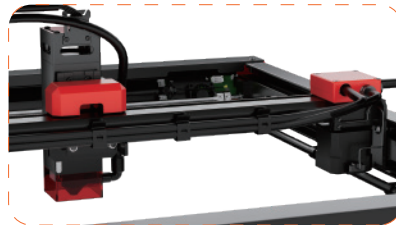


Step 11: Put the air pipe and main cable through the hole under the Y-axis, Insert the cable into the port of the mainboard that matches the color of the cable.



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Assemble the **ALM-10BD(10W)** Laser Module



Step 12: Pull down the Lever, and install the Laser Module on the Fixture, and then lift up the Lever to secure it in place.



13 / 22

Connect the Main Cable to the Mainboard



Step 13: 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.



14 / 22

Air Pipe Connection **ALM-10BD(10W)**

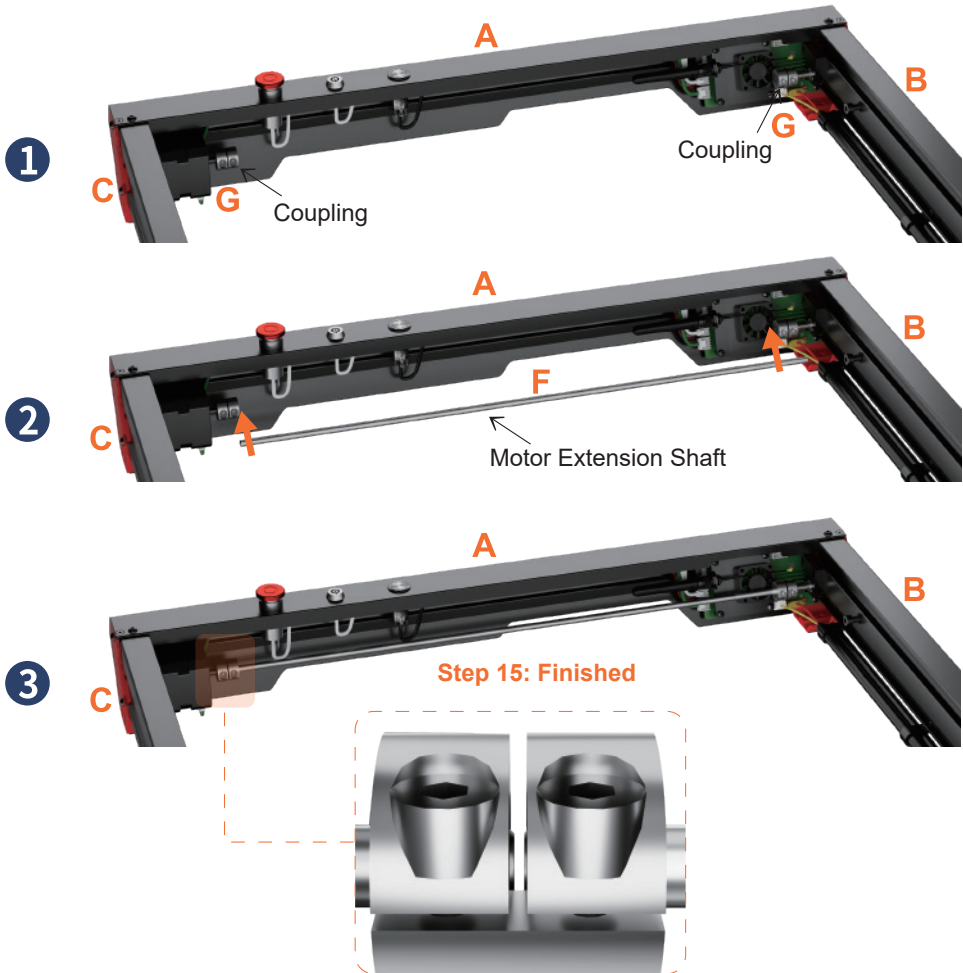


- ▶ Please note the 10W laser module is sold without an air pump. And we suggest to utilize it with an Air Pump for safe and optimal performance.
If you do not use an air pump, please remove the air nozzle before using the laser to extend the service life of your laser.



15 / 22

Assemble the Motor Extension Shaft



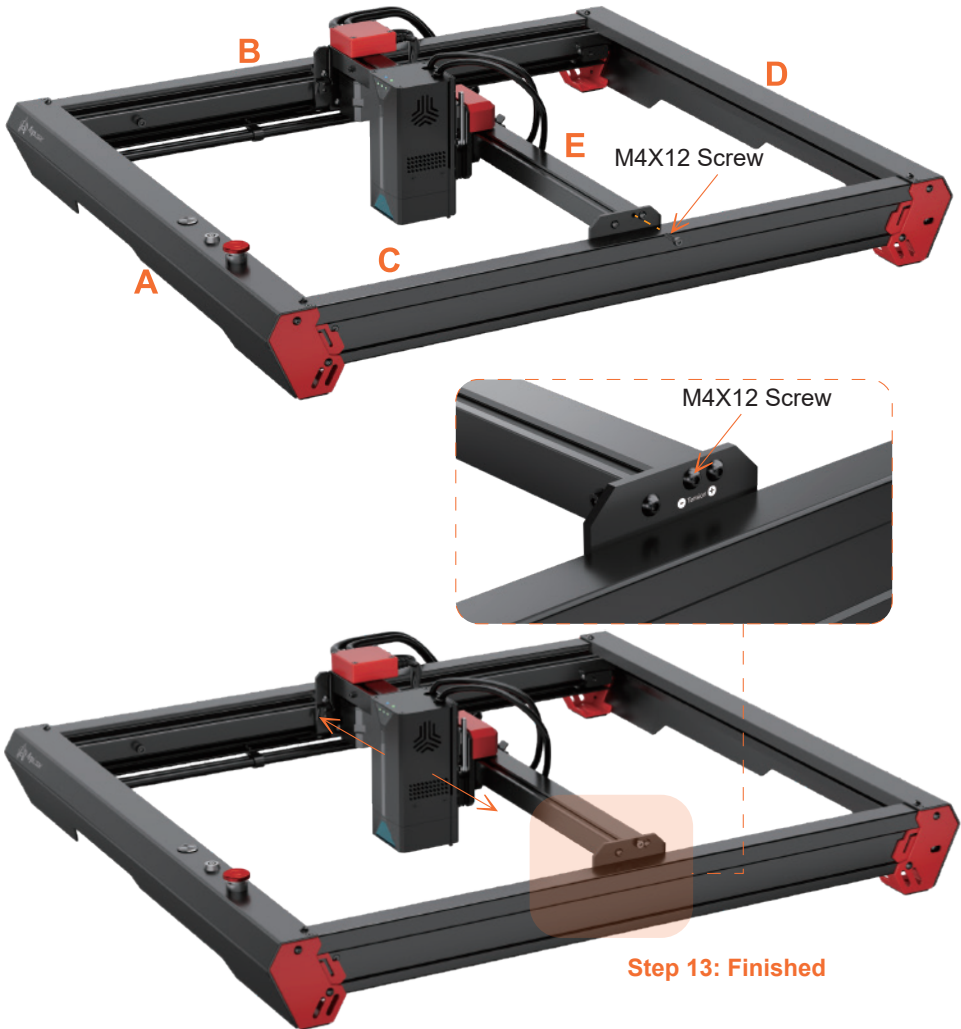
Step 15: Let the short stick go through G(Coupling), do not tighten the screws. Then fit F(Motor Extension Shaft) into the Extension Shat of A(Front Assembly). Finally tighten the screws on G(Coupling).

Note: Ensure that the gap in the coupling and the connection point of the left and right motor extension shaft are aligned.



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Tighten the Belt



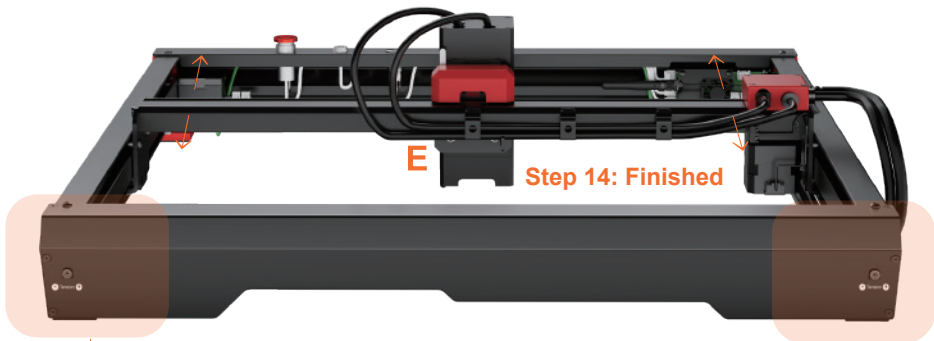
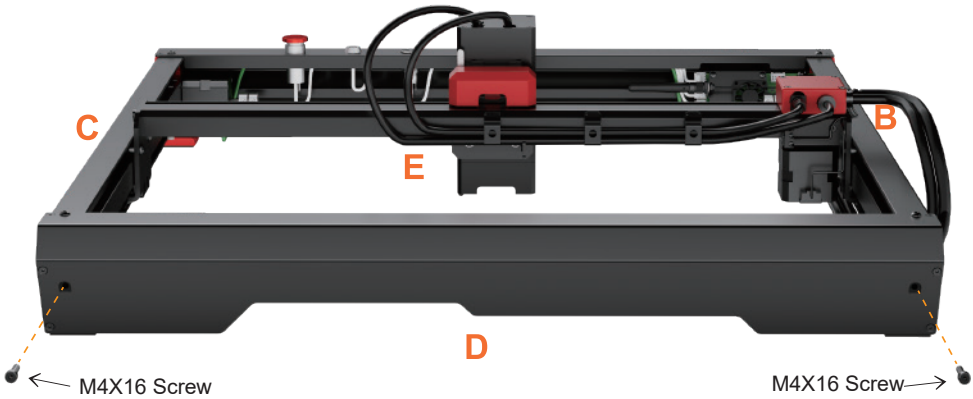
Step 16: Install a screw on E (X-Axis Assembly), tighten the screw until the belt is properly tightened (this means the laser module can move smoothly).

Screw type: M4X12 Screw



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Tighten the Belt

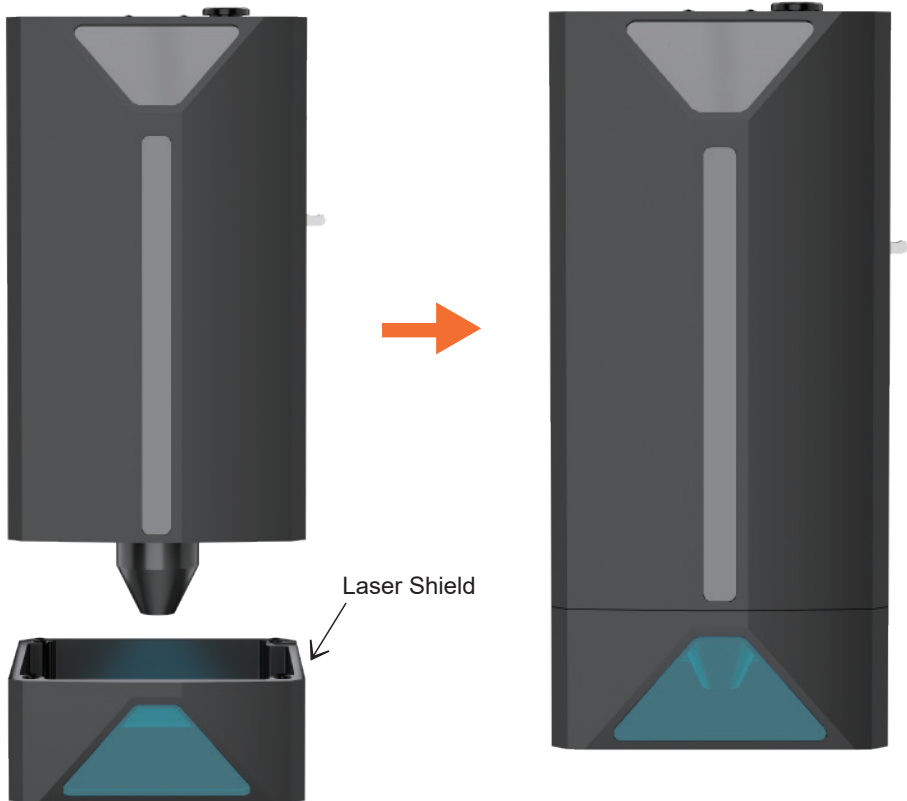


Step 17: Install two screws on D, tighten the screws until the belt of each side is properly tightened (this means the E (X-Axis Assembly) can move smoothly).
Screw type: M4X16 Screw



18 / 22

Install the Laser Shield

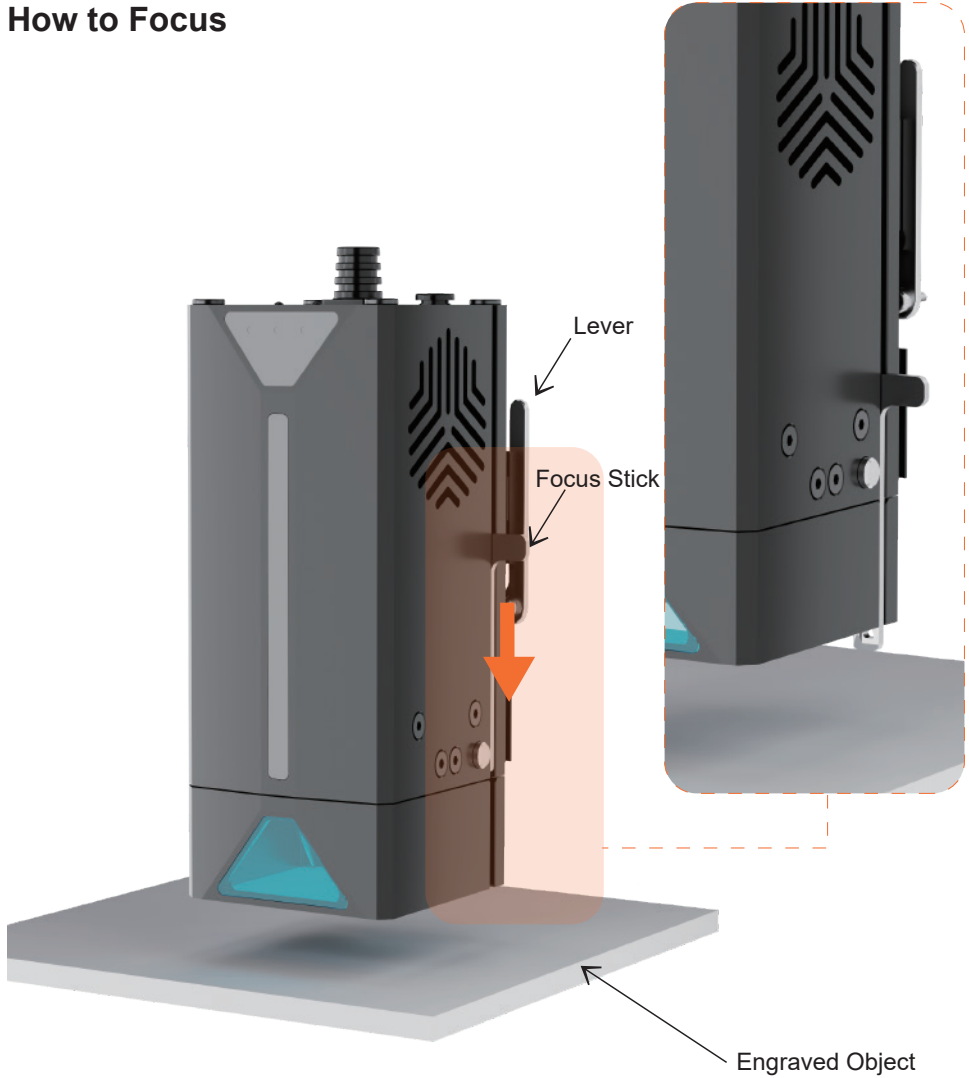


Step 18: Align the orientation of the hood with the surrounding surface of the laser module; Let the hood be attracted by the upper and lower magnets, and connect the hood with the laser module.



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How to Focus



Step 19: Place the engraving object and push the Focus Stick down to fix.



20/22

How to Focus



Step 20: 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.



21 / 22

How to Focus



Step 21: After focusing, please press the small button to reset the Focus Stick to prevent it from being damaged.



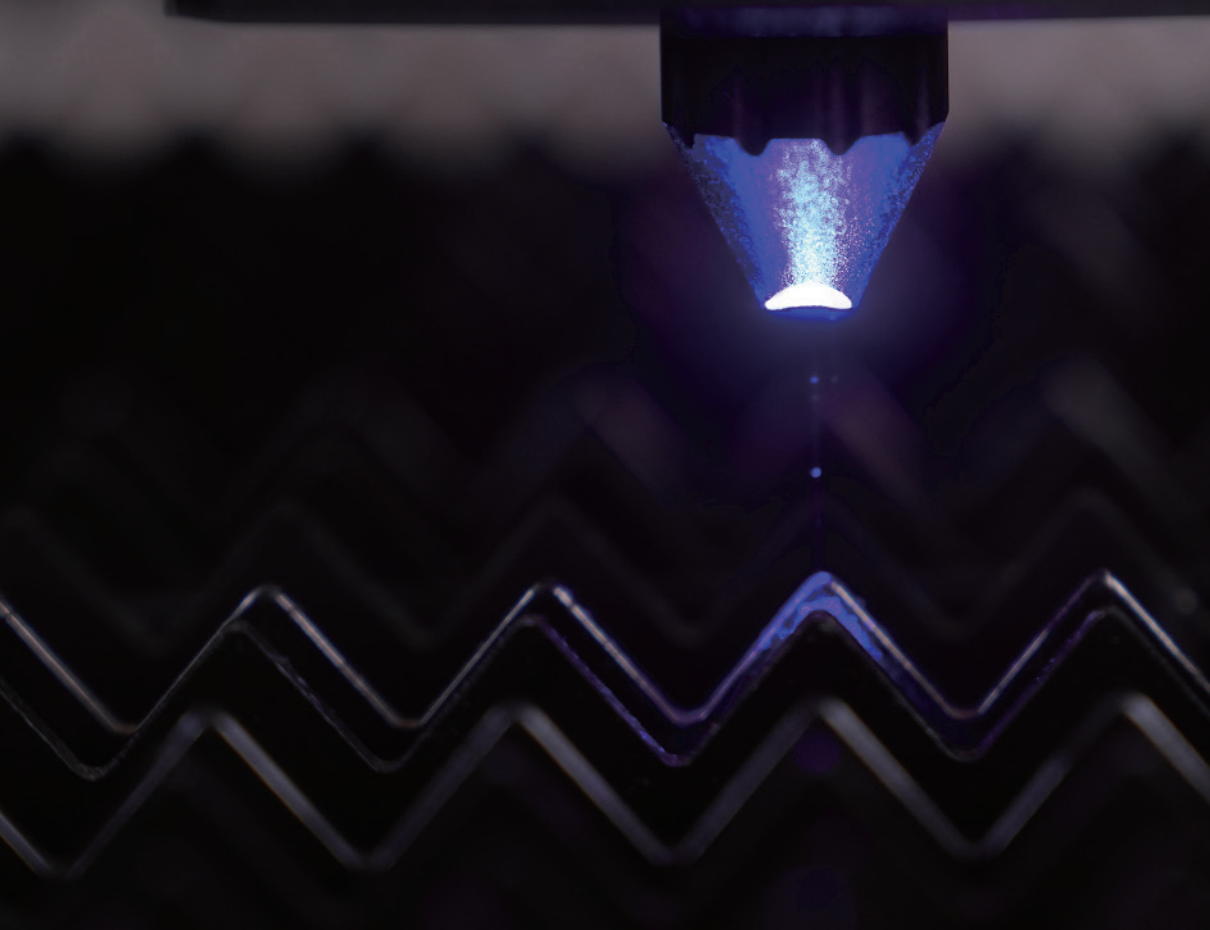
Mount the Air Assist

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



03

How to Use




3.1 Machine Status Explanation

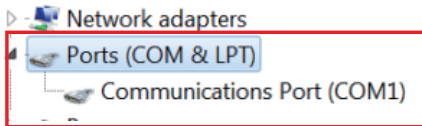
Status	Action	LED Indicator Descriptions	Result
Power on	Power button short press <0.5s	The white LED gradually brightens	Power on Machine quickly seeks Machine powers on and for machine zero point
Power off	Power button long press >1.5s	The white LED gradually dims	Power off Machine shuts down Machine 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	Updating: red, green and blue blink rapidly;The upgrade is successful: the green is always on and the machine is restarted; Upgrade failed: steady red and the upgrade is turned off
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 LED immediately turns off, and the machine stops moving	The machine shuts down and the whole machine stops running
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

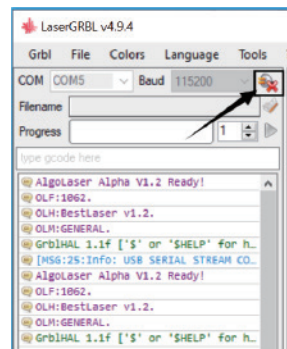
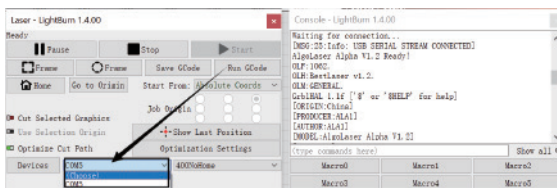
- Install the driver: Before installing the computer driver, please power on the machine and connect it to the PC using a USB cable. Then, choose the appropriate driver file based on your computer system and proceed with the installation.

Operating System	Operation	Phenomenon
WIN 7/WIN 8	 zadig-2.8.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.

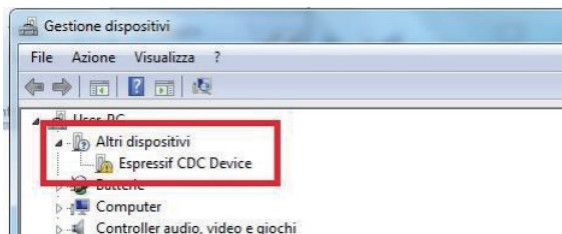


- Connecting the machine
 - ① Launch the LaserGRBL / LightBurn software.
 - ② Select the COM port that corresponds to the one identified in step two of the installation process.
 - ③ Click on the "Connect" button.
 - ④ If a welcome message appears in the command box, it indicates a successful connection.

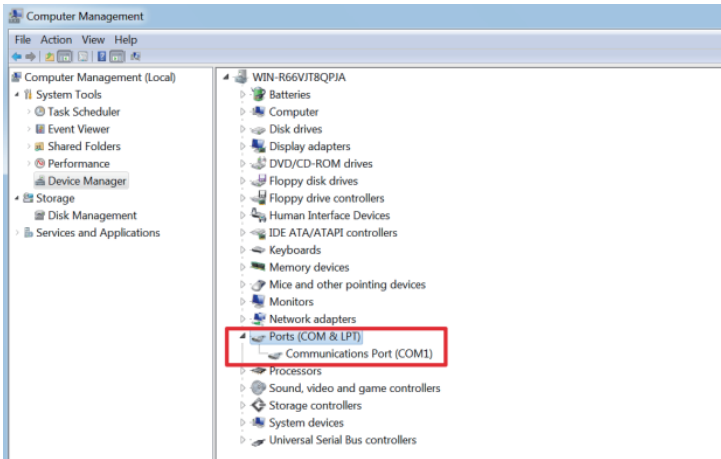


Win7 & Win8 Driver Installation Tutorial

Resolution for Driver issues on ESP MCU Espressif CDC Device Error



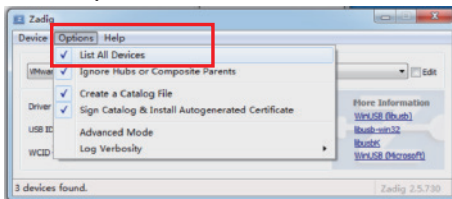
Or the corresponding driver cannot be detected



- Visit <https://zadig.akeo.ie/>
Navigate lower on the page and click The download button

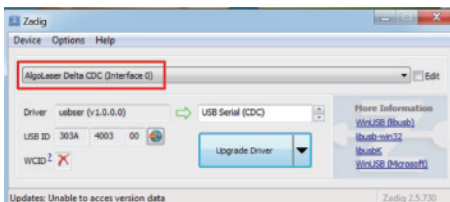


- Once download is complete,
please run the application with Administrator Rights.
- Once open select List All Devices from the menu Options.

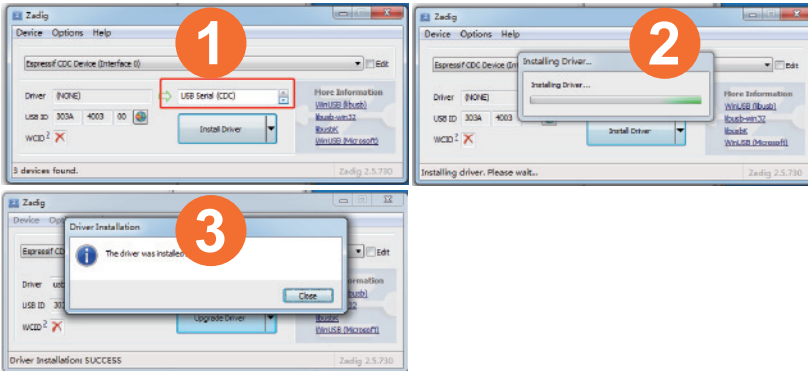


Wait for the refresh

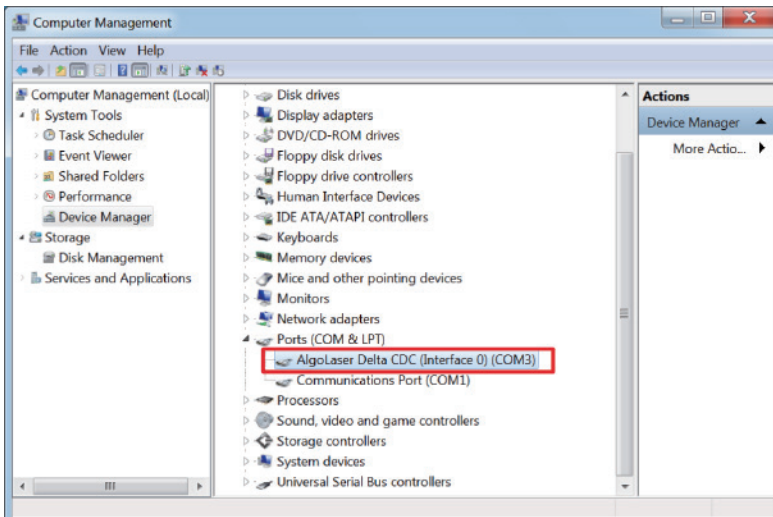
- Select devices starting with “Algo” from the drop-down list .



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

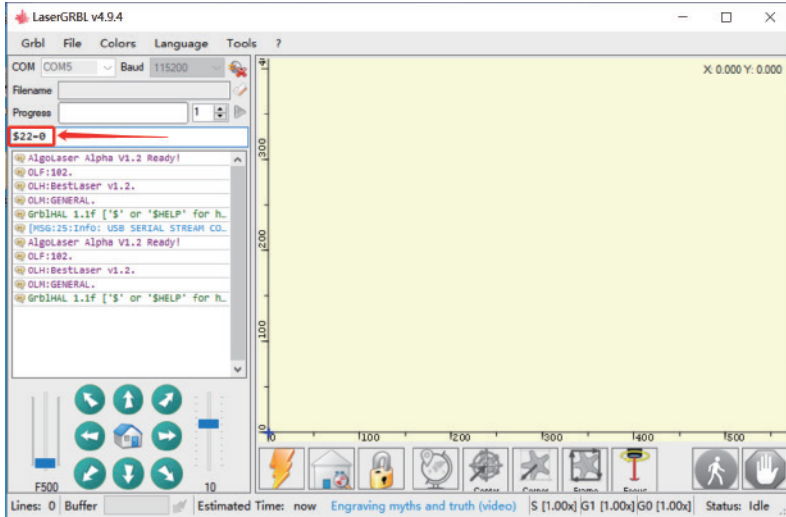


- When you're done, you can close the Zadig software.
- The New AlgoLaser X CDC (Interface 0) (COMX) port in Device Manager. Note the COM number might be different in your machine

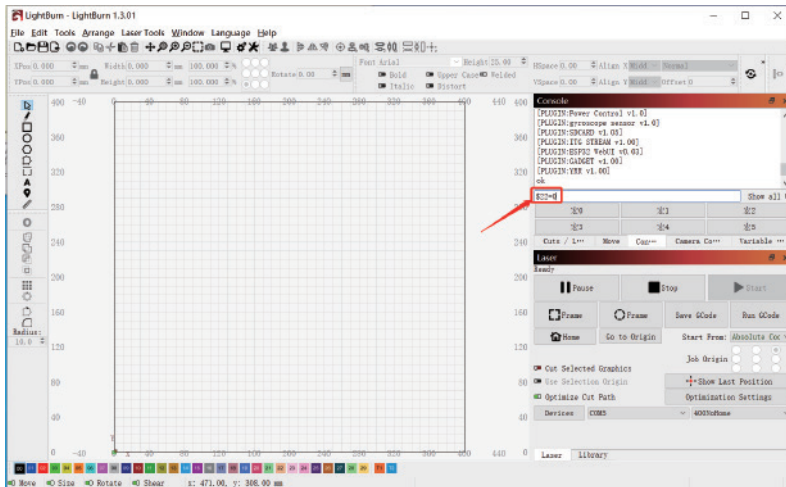


3.3 RR2/ARC Connection -- Operation Description

- Connection: Unplug the Y-axis motor wire from the Y-axis motor and connect it to the corresponding motor jack of RR2/ARC.
- Connect the control terminal: Use USB or other methods to connect the computer.
- LaserGRBL: Send "\$22=0" in the "Type gcode here" field.

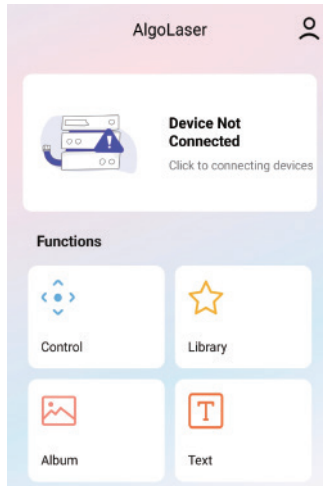


- LightBurn: Send the command "\$22=0" in the "(Type Commands here)" field.

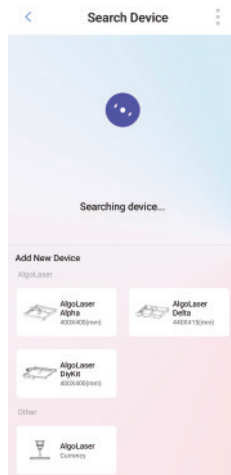


3.4 How to Connect Alpha to App via WiFi

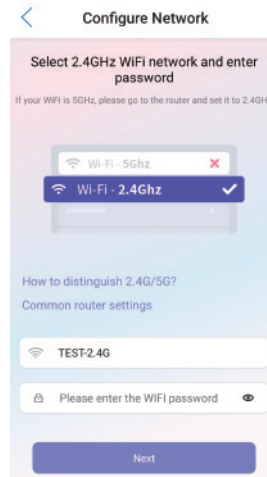
- ① Before using the app to control the machine in distribution mode, connect your phone to the 2.4Ghz band Wi-Fi network.
- ② Open Algolaser's mobile app and go to the app homepage.



- ③ Click "Device Not Connected" to "Searching Device" page.
- ④ Select and click the corresponding machine model "Algolaser Alpha" to enter the "Configure Network" page. Enter the WiFi password and click Next.

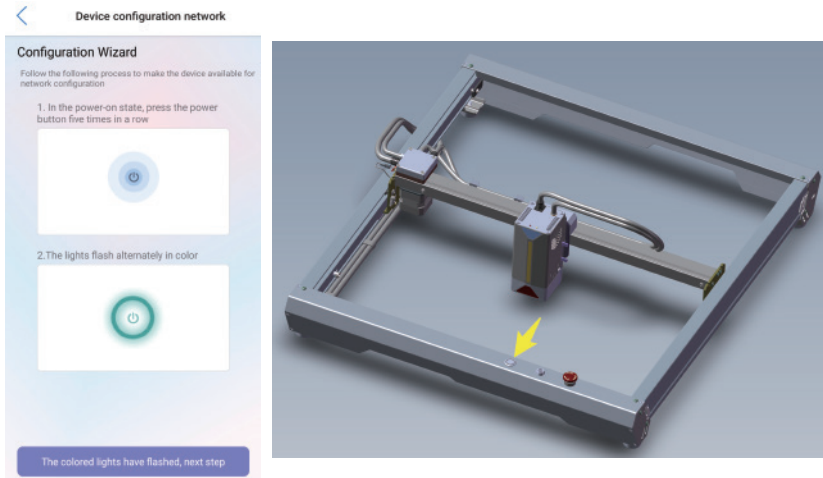


③

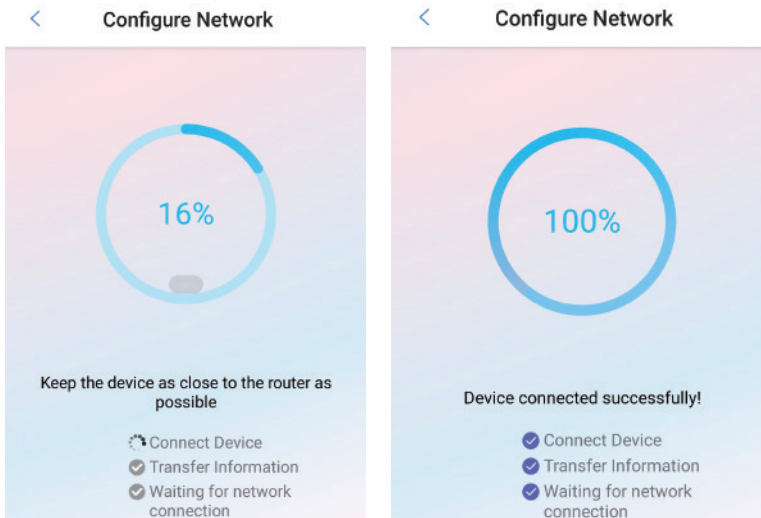


④

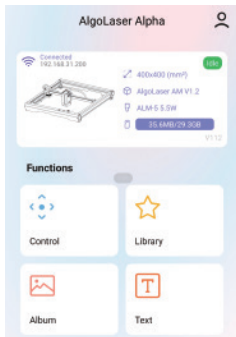
- ⑤ Ensure the machine is powered on. Press the power button five times in a row following the on-screen instructions. Once the Status light shows a consistent, flashing, multi-color gradient, the machine will enter network configuration mode. Click "Next" to proceed



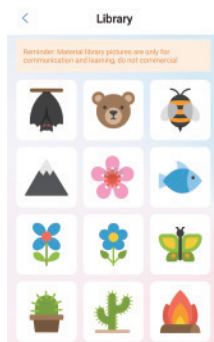
- ⑥ Wait for the APP and the machine to connect.



- After a successful connection, the app will redirect to the home page displaying relevant machine information.



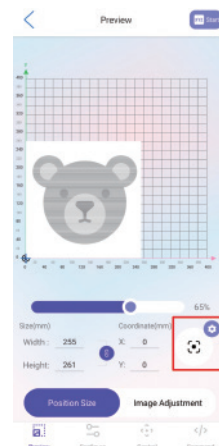
- Let's import an image to try a full engraving.
- Click the "Library" to access the app's Library page. Select the pattern that you want to engrave.
- Enter the picture editing page, first-time users, directly skip and click NEXT for the next step.
- After accessing this page, adjust the image size for engraving. Select the boxed button in the figure and allow the machine to move slightly, determining the appropriate imaging size and location of the engraving trajectory.
- Click "Configure" and access to the configuration page.



9

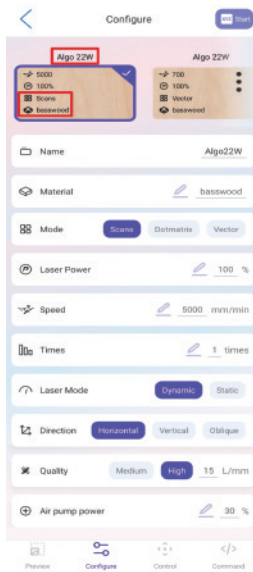


10

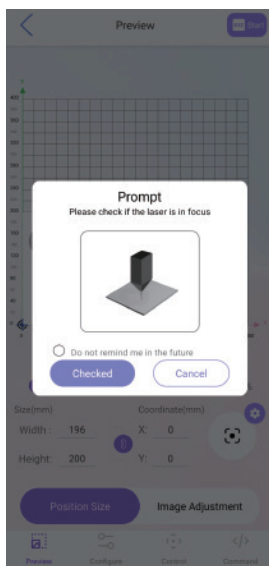


11

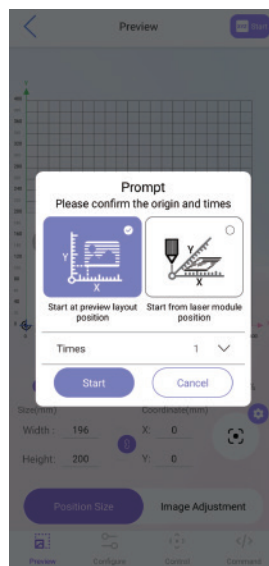
- 13 Set the parameters for engraving on the “Configure” page. There are plenty of pre-set parameters available for the AlgoLaser. Simply locate the appropriate preset and click to select it.
 - a. “Algo 22W” boxed in red.
 - a) Indicates a 22W laser module.
 - b. “Scans”, “basswood” boxed in red.
 - a) For engraving, choose the “Scans” mode.
 - b) “Basswood”, choose the appropriate wood based on the specific situation, whether it be basswood or another suitable option.
 (Note: If there is a discrepancy between the engraving parameters and the desired effect, adjust the parameters accordingly.)
- 14 Click “Start” in the upper right corner to proceed. Check if the laser module is focused. If not, refer to the manual for instructions on focusing. If already in focus, click “Checked” to the next step.
- 15 Prompt for selecting the starting point of the laser module engraving: click “Start” for the next step the first time.



13

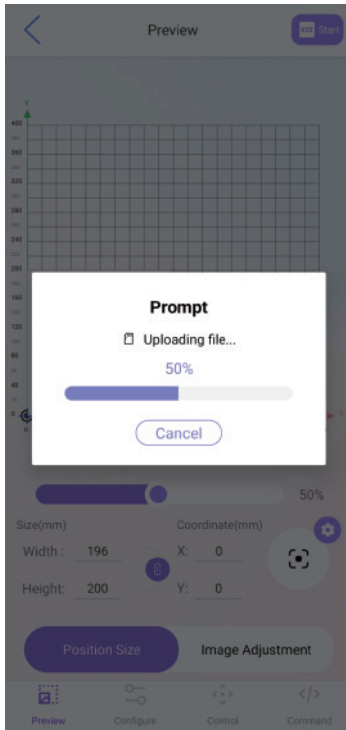


14

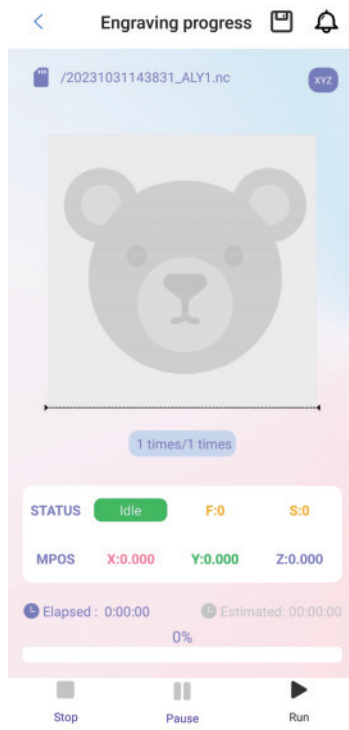


15

- ⑩ Wait for the image conversion to finish.
- ⑪ Click the "Run" button to start engraving.



⑩



⑪

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.

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.



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