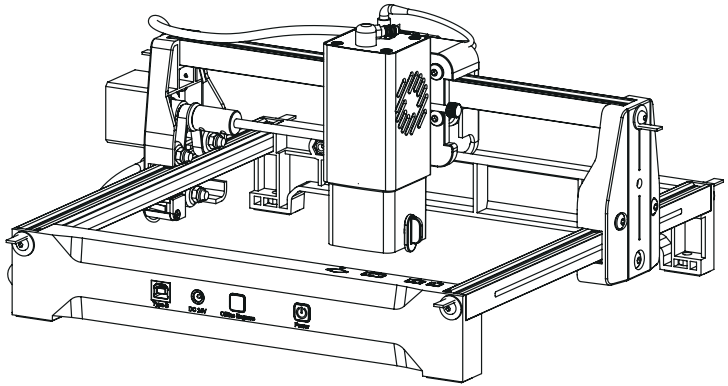
WAINLUX

X2
User Manual



Please read this instruction manual carefully before use
Please use the laser engraving machine correctly and safely

FCC WARNING

Warning

To assure continued compliance, any changes or modifications not expressly approved by the party.Responsible for compliance could void the user's authority to operate this equipment.

FCC Statement

This equipment 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:

The equipment complies with FCC Radiation exposure limits set forth for uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

SAFETY INSTRUCTIONS

Thank you for purchasing the laser engraving machine. In order to better use and maintain this equipment, please read this manual carefully and follow the steps in the manual.

Important Statement!

All losses caused by improper use or failure to follow the steps in the manual shall be borne by the individual. The final right of interpretation of the manual belongs to our company, which also reserves the right to modify all information, data, technical details, etc. in this manual.

Safety Precautions

★Before operating the equipment, users must carefully read the manual and strictly follow the operating procedures.

★Laser processing may be risky, and users should carefully consider whether the object being processed is suitable for laser operation.

★The processing object and emissions should comply with local laws and regulations.

★The laser radiation may cause the following situations:

① Ignition of surrounding flammable materials;

② During laser processing, other radiation and toxic and harmful gases may be generated due to different processing objects;

③ Direct exposure to laser radiation can cause human harm. Firefighting equipment must be equipped in the use site. It is prohibited to stack flammable and explosive items around the workbench and equipment. At the same time, it must be well ventilated.

★The environment where the equipment is located should be dry, free of pollution, vibration, strong electricity, strong magnetism and other interference and influence. The working environment temperature is 5~30℃, and the working environment humidity is 30-65% rh (no condensation)

★Equipment operating voltage: AC100-240V.

★The engraving machine and other related equipment must be safely grounded before they can be turned on and operated.

★When the equipment is turned on, it is necessary to be on duty throughout the process. All power supplies must be cut off before leaving to prevent abnormal conditions. If any abnormal conditions occur, please turn off the power immediately!

★It is strictly forbidden to place any irrelevant total reflection or diffuse reflection objects in the equipment to prevent the laser from reflecting on the human body or flammable items.

★The equipment should be kept away from electrical equipment that is sensitive to electromagnetic interference, which may cause electromagnetic interference to it.

★There is high voltage or other potential dangers inside the laser equipment, and non-professionals are strictly prohibited from disassembling it.

⚠ Warning:

When you purchase only the bare device, the device level is: Class IV laser device. Please wear laser protective glasses during use! ! !

When you purchase a device with a cover, the device level is: Class I laser device, which can prevent you from being harmed.

Notice!

1. After the laser is turned on, it is strictly forbidden to aim at people, animals and flammable objects to avoid skin burns and fire.
2. The brightness of the laser is harmful to the eyes. Please do not look directly at the laser.
3. Keep your hands away from the machine when it is working to avoid injury
4. Turn off the power of the machine when it is not in use to avoid misoperation by a third party

Maintenance and Care

The laser module is a consumable. It is recommended to turn off the machine power for 10 minutes after 4 hours of engraving and 1 hour of cutting.

QUICK USE INSTRUCTIONAL VIDEOS

LightBurn

RECO

First Time LightBurn Connection Instructional Video

How to use MD19 Rotary Module in LightBurn

LaserGRBL

FREE

First time connecting LaserGRBL using video

CutLabX

FREE

First time to connect CutLabX using video

How to connect to the machine using a cell phone (default WiFi)

How to connect to the machine using y our cell phone (configure your home network)

How to use MD19 rotary module in CutLabX

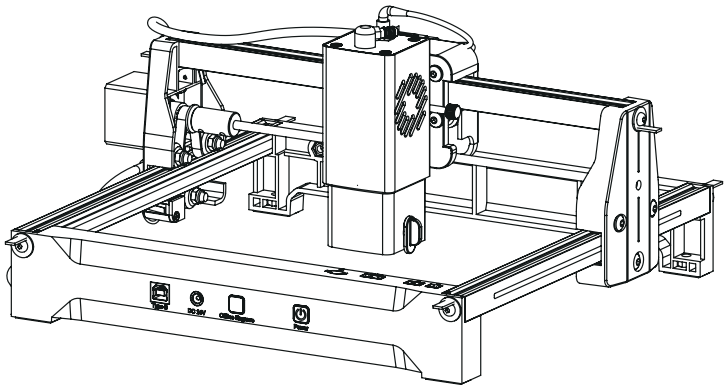
User Guide

For further assistance,
email service@wainlux.com or visit our Help Center.

Youtube

Facebook

01 PRODUCT PARAMETERS

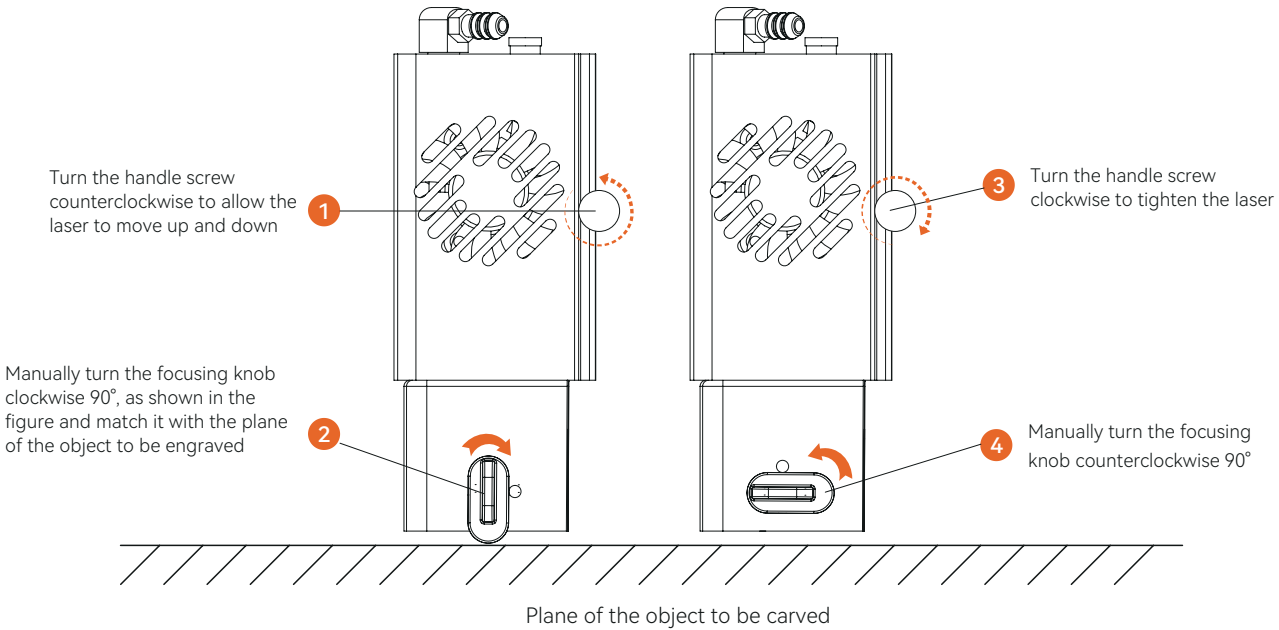


Product Model	X2
Laser Wavelength	455nm/1064nm
Engraving Speed	7000mm/min
Laser Life	>10000h(at 27℃ ring temperature)
Engraving Area	150x200mm
Engraving Height	<60mm
Power	<60W
Data Transmission	USB wired transmission, WiFi wireless transmission
Cooling Mode	Air-cooled

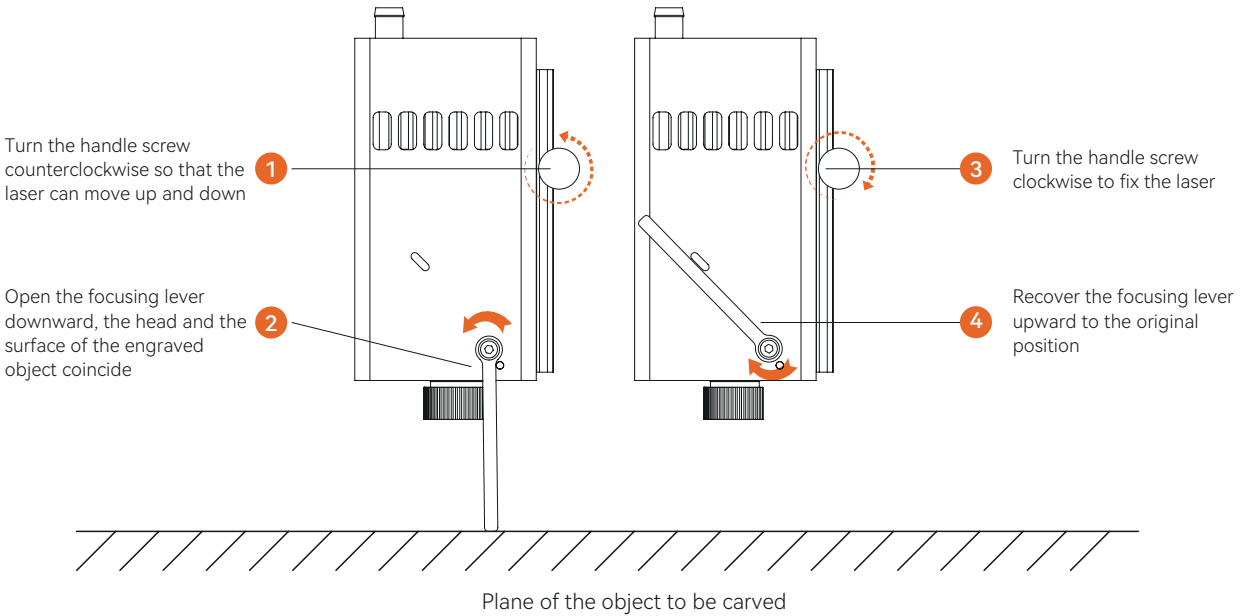
Input Voltage	DC 24V 2500mA
Systems	CutLabX (windowsOS、macOS、Android、iOS) LightBurn(windowsOS、macOS)/ LaserGRBL(windowsOS)
Standard List	TF card + card reader + power supply + Type-B cable + pen brush +Marker +Goggles +User's Manual +Paper +Board
Optional	Air Pump / Camera Module / Height Enhancement Module / Honeycomb Panel / Air Cleaner / Rotary Module / Shield

02 PRODUCT STRUCTURE AND ASSEMBLY

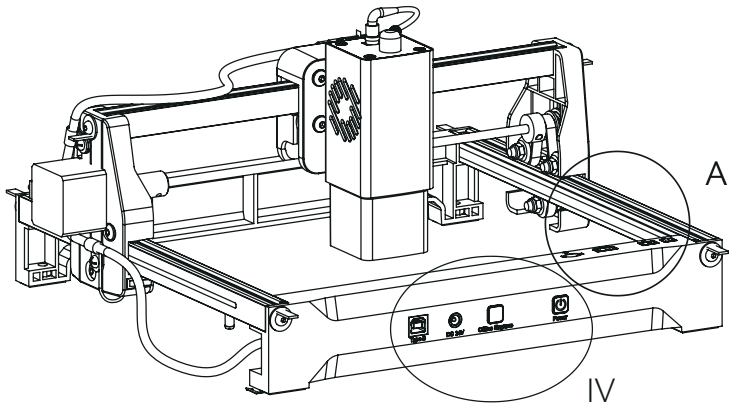
【 Focusing method for 455nm laser 】

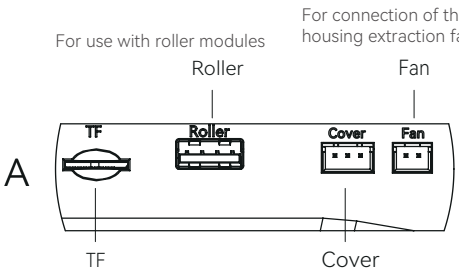


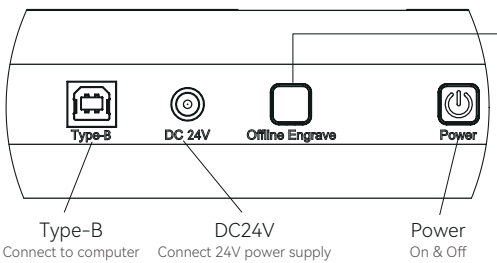
【 Focusing method for 1064nm laser 】



【 Functional Description 】







Offline Engraving

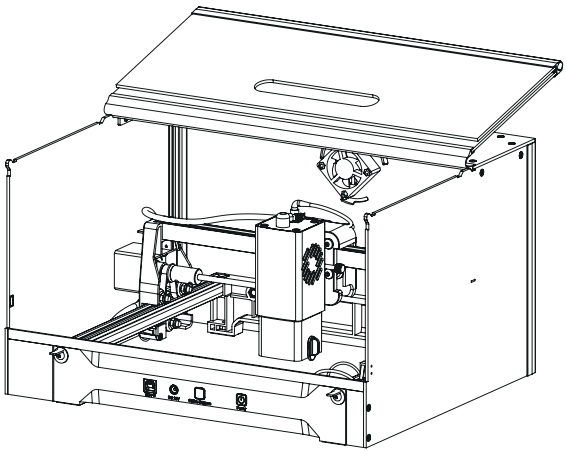
1. Generate the engraving or cutting file (gcode) through LightBurn software and save it to the root directory of TF card, save the name as: 001.nc
2. Insert the TF card into the machine before powering on, then use the matching power adapter and power cord to connect to the controller panel, and finally turn on the power switch on the right side of the control panel.
3. Press the "Offline Engraving" button:
   a. Press the button and the machine will automatically reset and preview.
   b. Press and hold the button for more than 3S to enter the engraving.
   c. Short press again to pause
   d. Short press again to continue
   e.Press and hold again for more than 3S to cancel the engraving.

02 PRODUCT STRUCTURE AND ASSEMBLY

【 Function Description 】

When the light shield is opened, the laser module will immediately stop laser output.

Uncovered protection

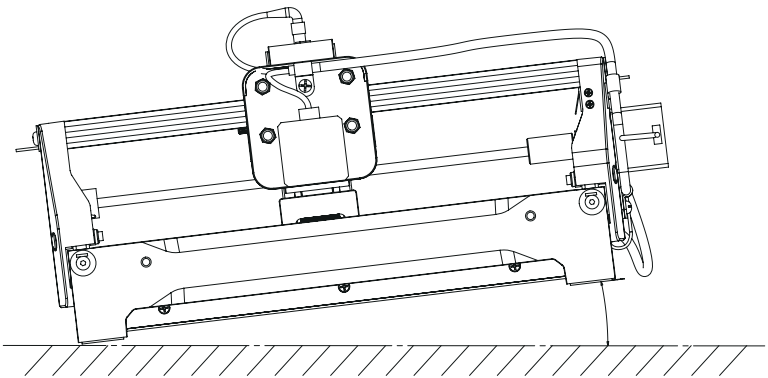


【 Function Description 】

The host is tilted with the horizontal plane, and keeps 1S, the machine stops running immediately, and the laser module stops the laser output.

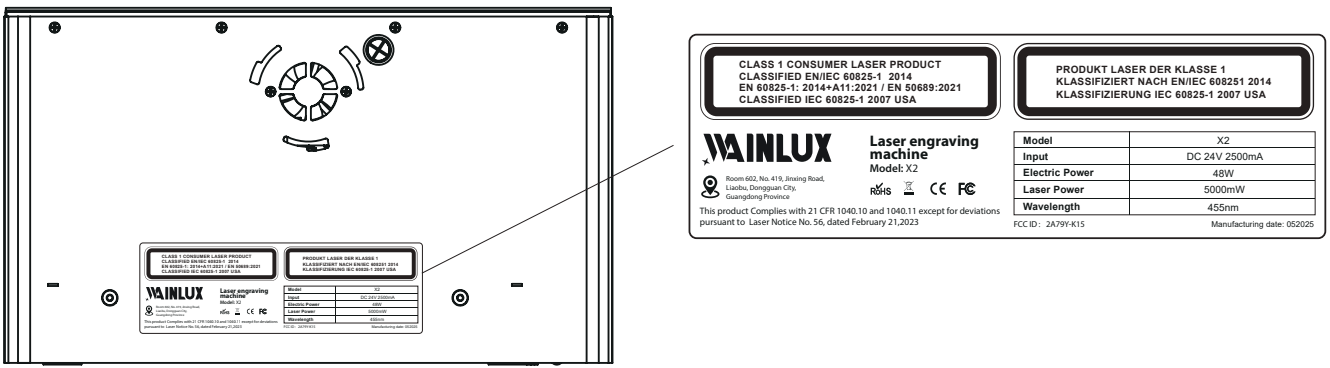
After entering the protection state, the machine must be restored to restore the normal function.

Tilt to stop



02 PRODUCT STRUCTURE AND ASSEMBLY

【 Tag Location 】



03 COMMON MATERIALS AND RECOMMENDED PARAMETERS

455nm 10W Engraving Material Parameters

Material	Power	Speed	Interval(mm)
Kraft Paper	50%	5000mm/min	0.10
Plywood	60%	5000mm/min	0.10
Solid Wood	70%	6000mm/min	0.10
Bamboo	70%	5000mm/min	0.10
Cork	30%	5000mm/min	0.10
Acrylic (Blackened)	30%	5000mm/min	0.10
Glass (Blackened)	30%	5000mm/min	0.10
Leather Blackened White	30%	5000mm/min	0.10
Silicone	50%	5000mm/min	0.10
Pebble	30%	5000mm/min	0.10
Ceramic (Blackened)	90%	6000mm/min	0.10
Aluminum (Blackened)	30%	5000mm/min	0.10
Stainless Steel	100%	5000mm/min	0.10
White Felt (Blackened)	50%	5000mm/min	0.10

455nm 10W Cutting Material Parameters

Material	Power	Speed	Cutting Times
Plywood 3mm	100%	500mm/min	1 time
Plywood 5mm	100%	250mm/min	1 time
Plywood 8mm	100%	120mm/min	1 time
Plywood 10mm	100%	200mm/min	5 time
Solid Wood 5mm	100%	200mm/min	1 time
Solid Wood 12mm	100%	70mm/min	1 time
Black Acrylic 10mm	100%	100mm/min	5 time
Black Acrylic 15mm	100%	100mm/min	9 time
Felt (Blackened) 3.5mm	100%	100mm/min	9 time
Leather 1mm	100%	2000mm/min	1 time
Medium MDF 4.3mm	100%	200mm/min	3 time

03 COMMON MATERIALS AND RECOMMENDED PARAMETERS

455nm 5W Engraving Material Parameters

Material	Power	Speed	Interval(mm)
Kraft Paper	80%	5000mm/min	0.12
Plywood	80%	5000mm/min	0.10
Solid Wood	80%	6000mm/min	0.10
Bamboo	80%	5000mm/min	0.10
Cork	50%	5000mm/min	0.10
Acrylic (Blackened)	30%	5000mm/min	0.10
Glass (Blackened)	40%	5000mm/min	0.10
Leather Blackened White	40%	5000mm/min	0.10
Silicone	70%	5000mm/min	0.10
Pebble	40%	5000mm/min	0.10
Ceramic (Blackened)	100%	3000mm/min	0.10
Aluminum (Blackened)	40%	5000mm/min	0.10
Stainless Steel	100%	2000mm/min	0.10
White Felt (Blackened)	70%	5000mm/min	0.10

455nm 5W Cutting Material Parameters

Material	Power	Speed	Cutting Times
Plywood 3mm	100%	250mm/min	1 time
Plywood 5mm	100%	120mm/min	1 time
Plywood 8mm	100%	200mm/min	6 time
Plywood 10mm	100%	100mm/min	1 time
Solid Wood 5mm	100%	100mm/min	3 time
Solid Wood 12mm	100%	100mm/min	4 time
Black Acrylic 10mm	100%	100mm/min	12 time
Black Acrylic 15mm	100%	100mm/min	15 time
Felt (Blackened) 3.5mm	100%	100mm/min	20 time
Leather 1mm	100%	1000mm/min	1 time
Medium MDF 4.3mm	100%	200mm/min	6 time

03 COMMON MATERIALS AND RECOMMENDED PARAMETERS

455nm 3W Engraving Material Parameters

(Not recommended for cutting)

Material	Power	Speed	Interval(mm)
Kraft Paper	100%	3000mm/min	0.12
Plywood	100%	3000mm/min	0.10
Solid Wood	100%	3000mm/min	0.10
Bamboo	100%	3000mm/min	0.10
Cork	100%	4000mm/min	0.10
Acrylic (Blackened)	100%	5000mm/min	0.10
Glass (Blackened)	100%	5000mm/min	0.10
Leather Blackened White	100%	5000mm/min	0.10
Silicone	100%	3000mm/min	0.10
Pebble	100%	5000mm/min	0.10
Ceramic (Blackened)	100%	1500mm/min	0.10
Aluminum (Blackened)	100%	5000mm/min	0.10
Stainless Steel	100%	600mm/min	0.10
White Felt (Blackened)	100%	2500mm/min	0.10

1064nm 1W Engraving Material Parameters

(Not recommended for cutting)

Material	Power	Speed	Interval(mm)
Kraft Paper	100%	300mm/min	0.10
Acrylic (Blackened)	40%	7000mm/min	0.10
Glass (Blackened)	30%	7000mm/min	0.10
Leather (Blackened)	100%	5000mm/min	0.10
Silicone	100%	2000mm/min	0.10
Pebble	100%	3000mm/min	0.10
Ceramic	100%	3000mm/min	0.10
Aluminum Plate	50%	7000mm/min	0.10
Stainless Steel	70%	7000mm/min	0.10
White Felt(Blackened)	100%	1000mm/min	0.10
Black Acrylic	100%	6000mm/min	0.10
Copper Plate	80%	7000mm/min	0.10
Cork	100%	300mm/min	0.10

FAQ-Engraving/Cutting Related Questions

Why can't the pattern be engraved at all (or engraved very lightly)?

Imported images should be clear and the color should not be too light; Before engraving, please make sure that the focus is correct and the power, speed and time are set appropriately.

Why can't I start engraving when I press the button on the main unit during offline engraving?

Make sure there are engraving files in the root directory of the TF card and the TF card is inserted.
Note: a. The machine reads the engraving file with the name 001.nc in the root directory of the TF card by default. It is recommended to delete other irrelevant files in the root directory.
b. The file can be generated by LaserGRBL, LightBurn, CutLabX software, the compatible format is NC, if GC is generated by default, please manually modify the file suffix to NC.

Why can't I use the phone after the machine is turned on?

Please follow the instructions to use the phone. If the connection is abnormal due to the incompatibility of the newly released cell phone or system upgrade.
Please provide a screenshot of the phone configuration and contact our customer service to get technical support as soon as possible.

Why can't I connect to the computer after the machine is turned on?

a. Reinstall the driver, the driver shows installed, which means the driver is normal.
When the driver display is pre-installed, you need to check if it is the original wiring or not connected to the machine. Please use other ports on the computer.
b. Is the port selection correct? Some computers are connected with 2 ports.
Please ignore COM1 and select another COM port. (MAC port numbers must begin with Wchusbserial to work properly)
c. Disable other software that occupies the COM port.
When connecting with Lasergrbl, you cannot connect when CutLabX is turned on. You need to close Lasergrbl for it to work properly.
d. If you purchase the whole machine with the shield accessory, you need to close the shield in order to use it normally, this way is to protect you and your family's safety, please use the equipment as required, otherwise it will not be able to connect.
*Note: In Lightburn, the machine can store the information of more than one machine, please select the appropriate configuration information according to the model.

FAQ-Engraving/Cutting Related Questions

Why is the machine not responding when turned on?

a. Check that the power plug at the machine end is in place. b. Check the electrical status of the power outlet. c. Check that the power switch and light shield on the machine are turned off.

What non-transparent materials can the X2 Laser Engraver engrave or cut?

455nm laser: Can engrave paper, wood chips, plastic, leather, fabric, cardboard, leather, stone, ceramic, stainless steel, coated metal, and most other non-transparent materials.
455nm laser: 5W laser power can cut 3-5mm plywood, 5-7mm pine board.
10W laser power can cut 5-7mm plywood, 7-10mm pine board.
1064nm laser: can engrave all metal materials, plastic, leather and other materials.
1064nm laser: non-cuttable

Can you engrave on reflective/transparent materials such as ceramics/glass?

Yes, but before engraving, you need to apply anti-reflective material on the surface of the material (e.g. laser color paper, black marker) to ensure the engraving effect and prevent the reflected light from damaging the laser module.

What software is supported by the X2 Laser Engraver?

LaserGRBL (free) - real-time LightBurn (paid) - real-time/offline 30-day trial CutLabX (free) - real time / offline / mobile
Real-time engraving, pay attention to the computer does not crash, and do not enter standby mode (do not lock the screen), so as not to affect the engraving.

05 MAINTENANCE AND CARE

X/Y axis eccentric nut loosening and tightening adjustment

When the machine engraving finished graphics can not achieve the initial effect, please adjust according to the video

Laser Maintenance

If you find that your laser is having trouble cutting or engraving materials that you have not had problems with before, please follow this video for maintenance.

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