

B1 30W

1. Quick Start

1.1 Introduction to the Laser B1 30W

1.1.1 Product Specification

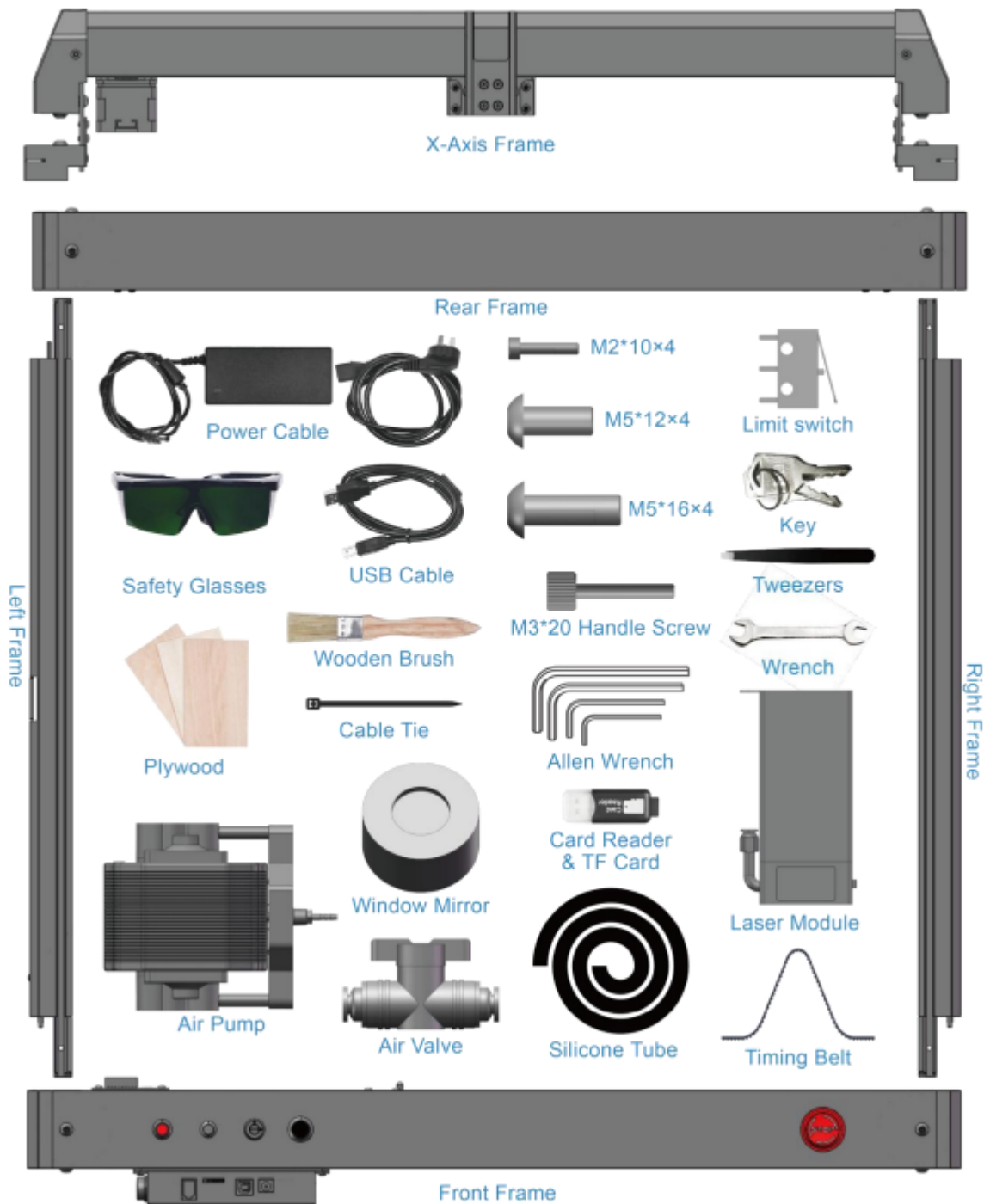
Laser B1 30W	
Working Area	450x440mm(17.72x17.32inch)

Power Adapter Input Voltage (AC)	AC110 - 240V 50/60Hz
Power Adapter Output Voltage (DC)	DC 24V 7.5 A
Power Max Consumption	180W
Packaging Size	742x557x124 mm (29.2x21.9x4.9 in)
Packaging Weight	9.7kg
Machine Size Assembled	727x668x244 mm (28.6x26.3x 9.7 in)
Operating Temperature	-20 – 50℃
Laser Module Model	Laser B1 30W
Laser Technology	Six Diode Laser with FAC
Wavelength	450 - 460 nm
Max Power Input	DC24V 4.5 A
Optical Power Output	33-36W
Focus Type	50mm Fixed Focus
Dot Size at Optimal Focus	0.08 x 0.15mm
Laser Class	FDA Class II, or Class 2 IEC standard
Applicable Material	Engraving: Plywood, Basswood, Hardwood, Pinewood, Acrylic, Kraft paper, Stainless steel, Aluminum alloy, Ceramics, etc. Cutting: Basswood, Acrylic, Bamboo, Kraft paper, etc.
Software	
Software	LaserGRBL (free), LightBurn (paid)
Operating System	LaserGRBL: Windows Lightburn: Windows, MacOS, Linux
Input Image Format	jpg,bmp,png,dxf,svgai,tiff,etc
Connection type	USB cable, Micro SD Card, Wi-Fi

1.1.2 Introduction to Laser B1 30W

[Laser B1 20W 30W user manual V0 20240105.pdf](#) - Google 云端硬盘 

1.1.3 Supplementary instructions for accessories in the box



1.1.4 Quick Start Guide

The machine step-by-step assembly process is described in the document “LASER B1 Quick Start Guide”. Please follow the guide to assemble machine.

- During the machine assembly, if there is any unclear place, please refer to the video “LASER B1 Quick Start Guide”.
- Each unit of the engraving machine has been inspected and tested. Therefore, in some cases, very small traces may be left on the profile and the metal shell. These will not affect the quality. It is normal that it does not affect normal engraving. Thank you very much for your understanding.
- Be cautious during assembly as some parts may have sharp edges.
- If you have any questions after receiving the product, please contact our customer service first.

1.1.5 Laser B1 30W Series FAQ

Question 1: Are there recommended engraving and cutting parameters?

Please refer to the table “LONGER Laser Engraver Material Profiles” which describes the common materials engraving and cutting parameters for LASER B1.

If there is no information you need. Please wait for our updates in the future.

Question 2: The engraved pattern appears vibration, or is not closed?

- Adjust the eccentric nut to make the parts move smoothly without shaking.
- Re-tension the timing belt.
- Adjust the synchronous wheel to prevent the synchronous belt from rubbing against the side of the synchronous wheel during movement.

Question 3: How about the warranty policy?

For LONGER official stores and LONGER designated distributors, LASER B1 has a One-year International Limited Manufacturer warranty from the date of purchase of LASER B1.

Please note the following warranty terms. One-year International Limited Manufacturer Warranty means that LONGER will provide the following free warranty services:

- Diagnostics and Evaluation.
- Technical Support.
- Replacement Parts under Warranty terms.

How to handle a warranty case:

Any warranty case must be submitted to our official support channels (Email: support@longer.net). In case the product was bought from a reseller, contact us first so that we can help you diagnose the problem, then turn to your reseller for spare parts if needed.

Documentation needed for a warranty case:

- . Machine purchase order number and channel, nameplate number on the machine.
- . A brief description of the problem along with the clear evidence of its presence (e.g., photos or videos).
- . On the initial contact for customer support further tests and diagnostic steps might be required to identify the cause of the problem.
- . Some parts of the LASER B1 inevitably “get used up” over time. For these parts, specific conditions apply, unless failure has occurred due to a defect in materials or workmanship.

Part	Warranty Limitation
Motherboard	One-year International Limited Manufacturer Warranty
Motor	One-year International Limited Manufacturer Warranty
LONGER Laser Module	One-year International Limited Manufacturer Warranty
Touch Screen	One-year International Limited Manufacturer Warranty
Power Adapter	One-year International Limited Manufacturer Warranty
Air Pump	One-year International Limited Manufacturer Warranty
Chrome-Plated Rod	Warranty does not apply on normal wear and tear
2020 Profile	Warranty does not apply on normal wear and tear
Coupling	Warranty does not apply on normal wear and tear
Eccentric Nut	Warranty does not apply on normal wear and tear
Bearing	Warranty does not apply on normal wear and tear
L-Shaped Right-Angle Foot Slot	Warranty does not apply on normal wear and tear
Goggles	Warranty does not apply on normal wear and tear
Brush	Warranty does not apply on normal wear and tear
Board\ Acrylic Board\ Stainless Steel Plate	Warranty does not apply on normal wear and tear
Linear Bearing Wheels	Warranty does not apply on normal wear and tear
GT2 Timing Belts	Warranty does not apply on normal wear and tear
Powder-Coated Aluminum Extrusion	Warranty does not apply on normal wear and tear
Cables & Drag Chain	Warranty does not apply on normal wear and tear
Cosmetic Appearance & Logos	Warranty does not apply on normal wear and tear

Note:

- The warranty does not cover normal, expected wear and tear caused by using the LASER B1 for its intended purpose.
- In case we have provided a free replacement part, the warranty does not reset. The original warranty period still applies. This warranty is voided by:
 - Any damages caused by improper assembly of the product.
 - Any damage caused by improper use, maintenance, or operation of the engraver.
 - Any damage caused by long-term lack of maintenance.
 - Using the LASER B1 in improper conditions (temperature, dustiness...).
 - Upgrades, modifications, or add-ons that are not officially supported. Our Technical Support Team is always available to help you out under any circumstances, even if the issue is not covered under warranty.

Question 4: How to maintain LASER B1 laser module?

LASER B1's lasers are carefully designed to resist stains, but after long-term use, there may still be dust and grease on the laser hood, air guide, and even the lens. This will affect the appearance and performance. It is recommended to clean the laser regularly to keep it in good performance. You need to perform the following

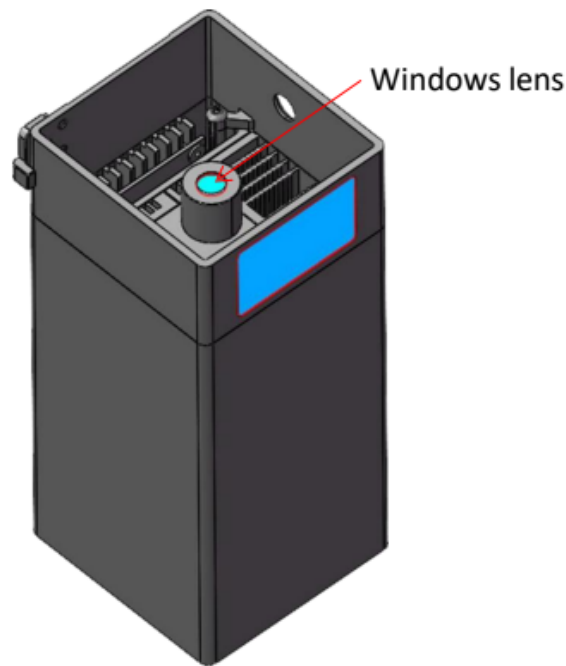
steps to clean the laser.

Preparation: hex wrench, non-woven fabric, alcohol/isopropanol solution.

Start:

- . Remove the laser hood and air guide
- . Dip a little alcohol/isopropyl alcohol solution with a non-woven fabric
- . Carefully wipe the laser lens with a non-woven fabric
- . Reinstall the laser hood and air guide

Warning: Excess solution may immerse inside the laser and cause damage to the laser.

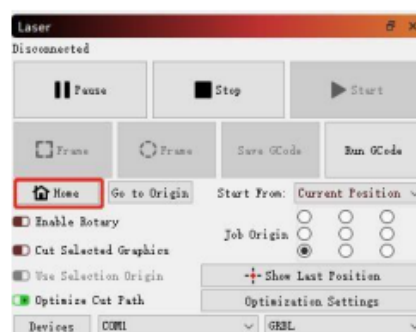


LASER B1 laser module

Question 5: How to solve alarm 2 error or hard limit?

ALARM:2
G-code motion target exceeds machine travel. Machine position safely retained. Alarm may be unlocked. (Right-click the 'Devices' button to reset the connection)
On or near line 2:

It adds two limit switch in LASER B1 laser engraver, the firmware has hard limit and soft limit features to locate the laser module position precisely. The position of the laser module is assumed to be the home position by default when powered on. So the engraver will trigger the alarm 2 or hard limit error if the laser head is moved in the X or Y negative direction at this time. Then it needs to home the engraver as shown in the picture below.



Question 6: How to solve the upload error of the APP?

To use APP for engraving, it needs to insert the SD card into the motherboard firstly to ensure that the data can be received normally; otherwise it will prompt upload error.

Thank you for purchasing LONGER products! Under normal usage and service, the products and its parts have a warranty period up to one year. Our professional after-sale service would respond within 24 hours and help you to solve the issues.

1.1.6 Laser B1 30W Engraver Material Profiles

Parameter Table for B1 30W Laser Engraver							
Material	Action	Thicknes s	Power for Lightburn	Power for LaserGRB	Speed mm/min	Cycles	Cycles
Bamboo	Engraving	-	55%	550%	7000	1	
Cardboard (carton)		-	15%	150%	3000	1	
Hardwood		-	30%	300%	4500	1	
Eraser		-	65%	650%	3000	1	
Ceramic		-	80%	800%	1000	1	
Pine wood		-	45%	450%	7000	1	
Leather		-	30%	300%	6000	1	
Denim		-	20%	200%	6000	1	
Kraft paper		-	5%	50%	1300	1	
Mirror		-	40%	400%	5000	1	
High density foam		-	4%	40%	1000	1	
Powder Coated Metal(black)		-	90%	900%	500	1	
Cobblestone		-	60%	600%	4000	1	
Basswood		-	20%	200%	5000	1	
Electroplated aluminum (purple pink)		-	50%	500%	2000	1	
Stainless Steel		-	80%	800%	1500	1	
Glass		-	30%	300%	1500	1	painted blue
black acrylic		-	25%	250%	4500	1	
Translucent Acrylic (Orange)		-	25%	250%	2500	1	
PCB copper plate		-	60%	600%	4000	1	
MDF		-	17%	170%	4000	1	
Cardboard (carton)	Cutting	3mm	100%	1000%	3000	1	
Acrylic		10mm	100%	1000%	100	1	Defocus 2mm
Acrylic acid		3mm	100%	1000%	360	1	
Non-woven fabric		0.18mm	100%	1000%	3200	1	
Pine wood		15mm	100%	1000%	100	1	Defocus 2mm
Leather		0.5mm	100%	1000%	4000	1	
Paulownia wood		20mm	100%	1000%	120	1	Defocus 2mm
Denim		0.5mm	100%	1000%	2100	1	
Kraft paper		0.1mm	100%	1000%	9000	1	
Basswood		2mm	100%	1000%	1000	1	
Basswood		3mm	100%	1000%	800	1	
Basswood		5mm	100%	1000%	480	1	
Basswood		6mm	100%	1000%	320	1	
Basswood		8mm	100%	1000%	210	1	
Basswood		10mm	100%	1000%	160	1	
Hardwood		11mm	100%	1000%	100	1	
Stainless Steel		0.05mm	100%	1000%	1800	1	
Stainless Steel		0.1mm	100%	1000%	400	1	
MDF		5mm	100%	1000%	360	1	
MDF		8.5mm	100%	1000%	160	3	
MDF		10mm	100%	1000%	320	7	
MDF		12mm	100%	1000%	240	10	
Acrylic		10mm	100%	1000%	140	2	
Acrylic		15mm	100%	1000%	100	3	
Basswood		25mm	100%	1000%	240	10	Defocus 10mm
Acrylic		50mm	100%	1000%	240	25	Defocus 10mm

1.2 Laser Engraver Setup

1.2.1 Machine Operation

(1) Power On

- a) Find the adapter and power cable and connect them. Please Make sure to use DC 24V 5A and 7.5A adapters for 20W and 30W respectively.
- b) Connect the power cord to the power supply and connect the other end of the adapter to the power port of the motherboard.
- c) Connect the computer and the engraving machine through a USB computer (or insert a Micro SD card).
- d) Turn ON your LASER B1 by press the power switch (To Turn OFF your LASER B1 by press the power switch once again.)

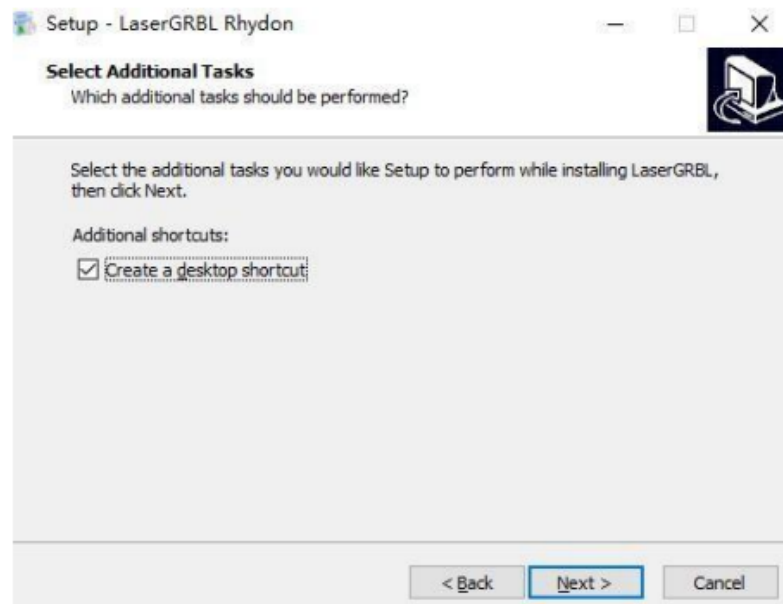
1.2.2 Operation of the laserGRBL software

LaserGRBL is an easy-to-use and fully free software for laser engraver only running on Windows. Download

- a) Find LaserGRBL software in attached SD card(path:/software), Or download from the link:

<https://lasergrbl.com/download/> 

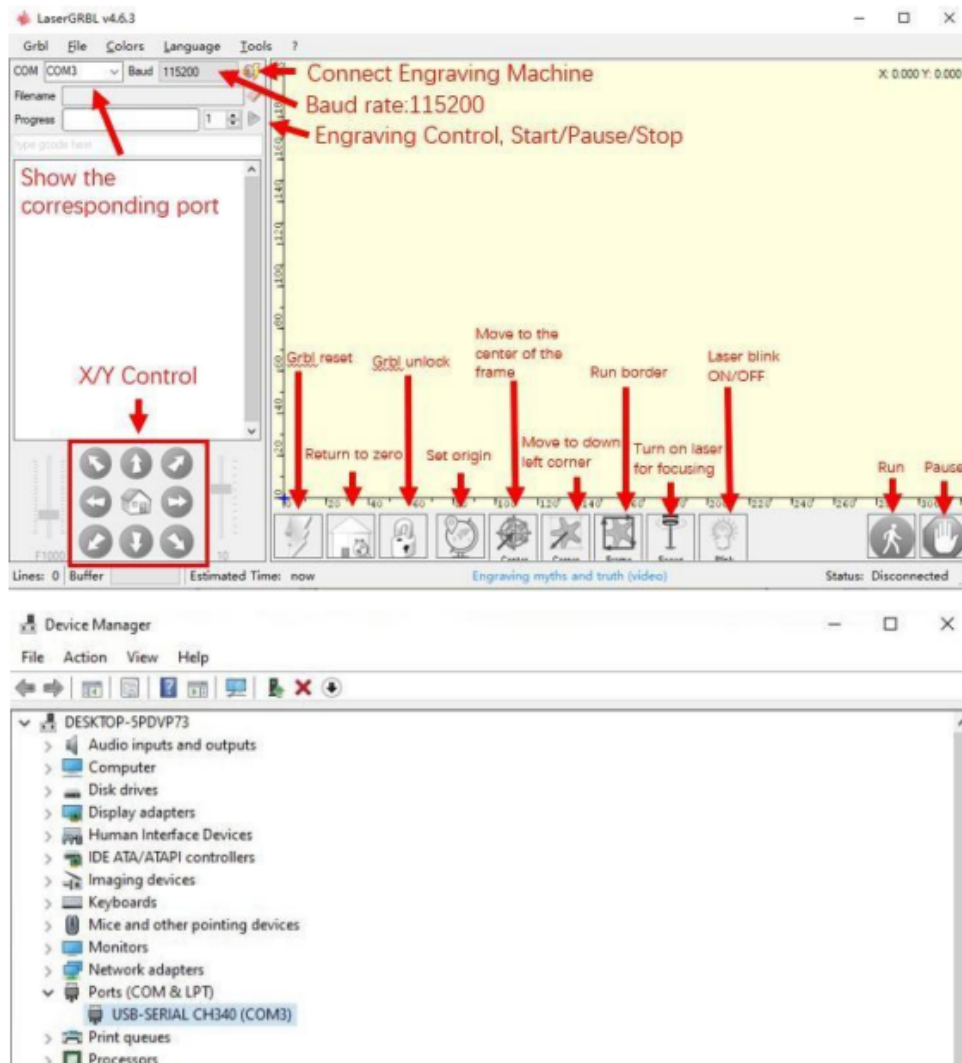
- b) Double-click the software installation package to start the software instalation, and keep clicking Next>until the installation is complete.



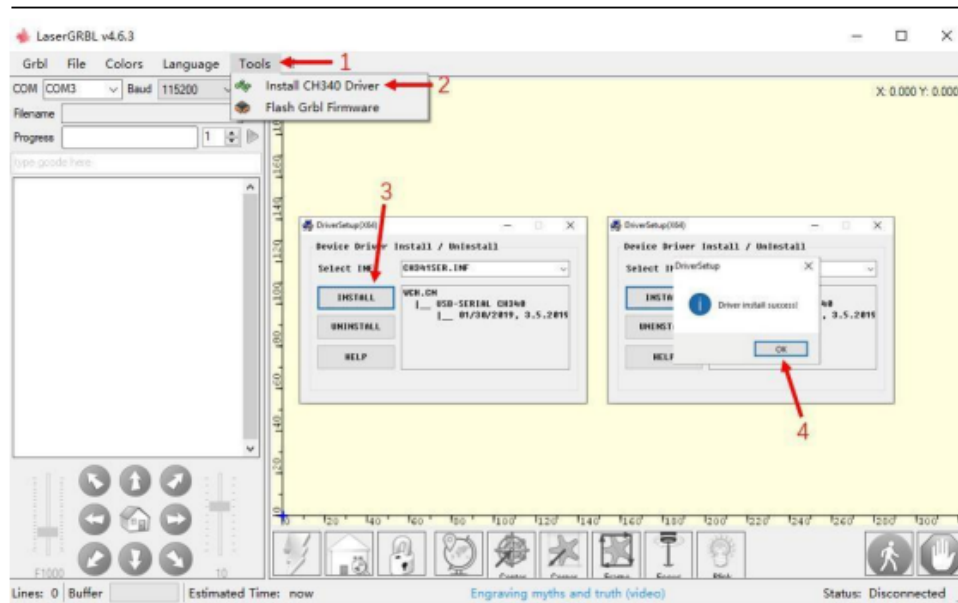
- c) After installing laserGRBL, power up the LASER B1, press the power switch button, and connect the laser engraver and computer via USB cable.

Usage

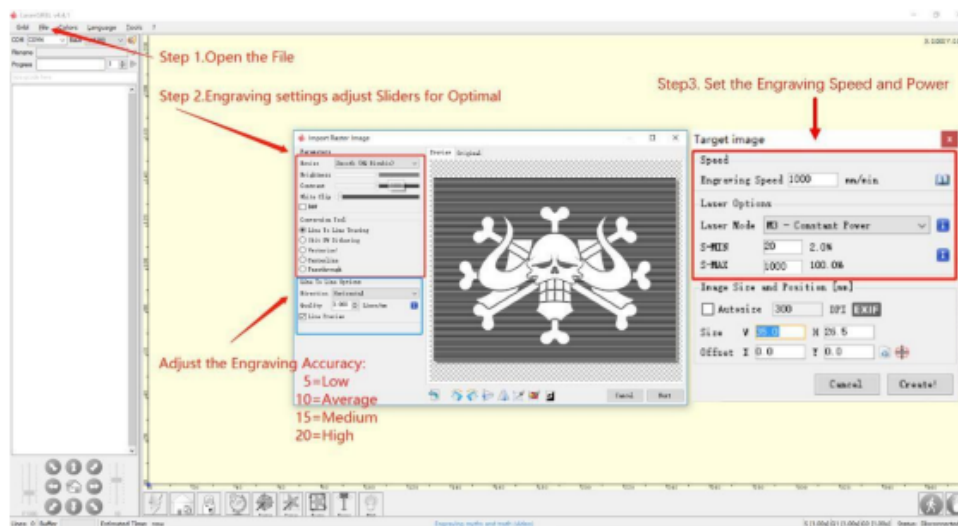
- a) Open LaserGRBL, select correct port(depend on your PC), baud rate: 115200. Then click connect button.



b) If you cannot find correct port, please install CH340 driver manually by click Menu >> Tools >> install CH340 Driver to install the driver, and restart the computer after installation to connect.



c) Open file and set parameters

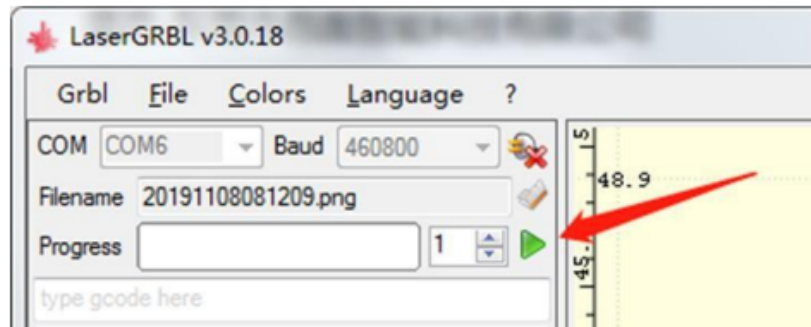


d) Start to engrave

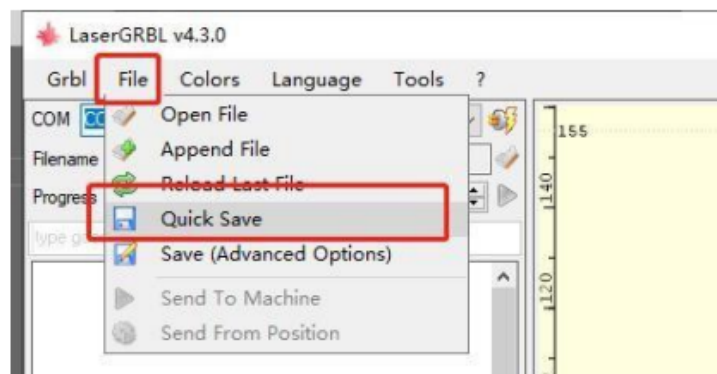
- Place a board under the laser, then calibrate the laser.
- Move the laser head to the place you want.
- Click **“Run frame”** button to check the work frame.



- iv. Click  button to start engraving.



- v. Or you can save gcode file to SD card by click “File” >> “Quick Save” for offline working.



More help information about LaserGRBL, please refer to the link:

<https://lasergbrl.com/usage/0> 

1.2.3 Operation of the lightburn software

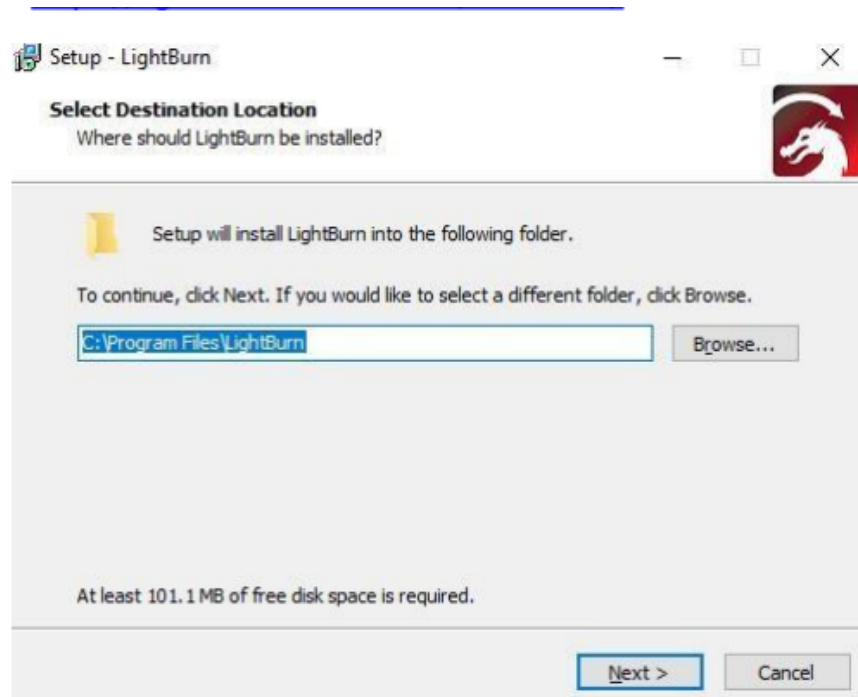
LightBurn is professional software for engraver, a charging software running on Windows, MacOS, and Linux. It provides a trial period.

You could pay for it afterward if you like it.

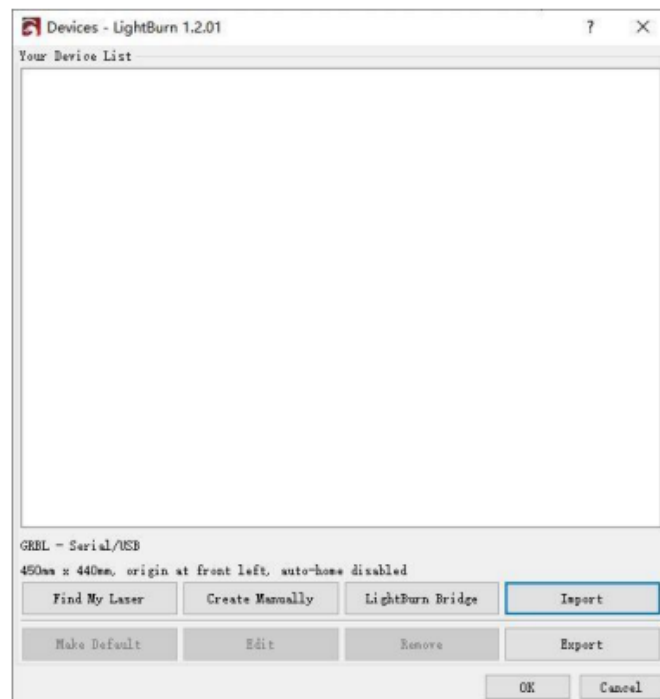
Setup

a) Find Lightburn software in SD card(path:/software) came with the package. Or just download from the link:

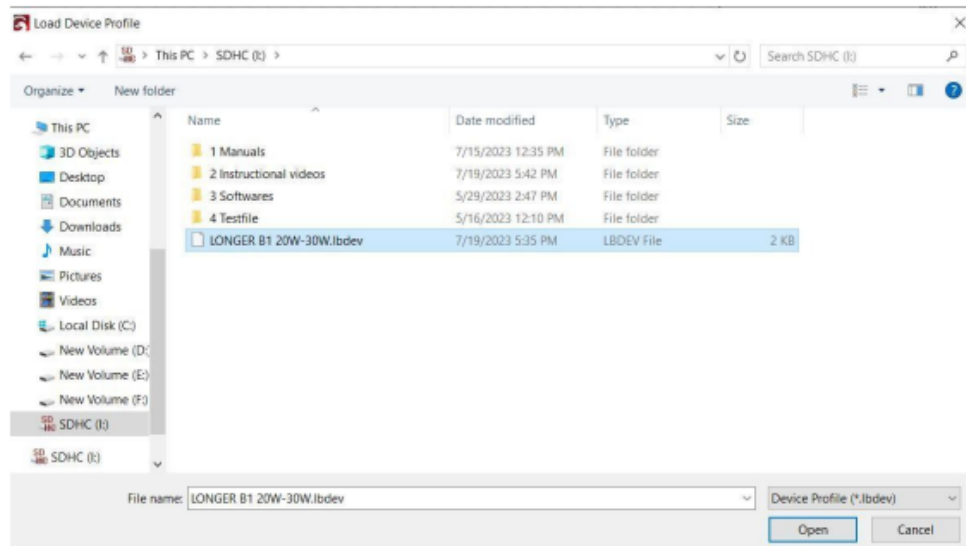
<https://lightburnsoftware.com/download/> 



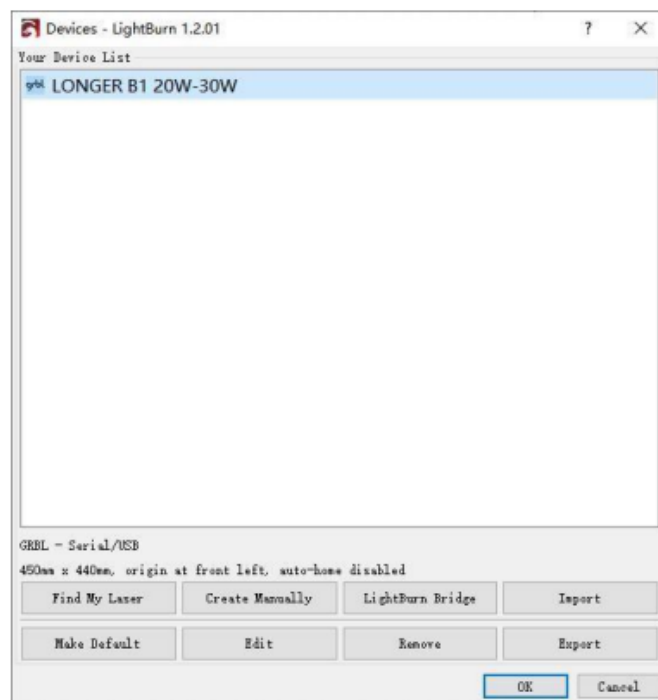
- b) After installing Lightburn, power up the LASER B1, press the Power Switch button, and connect the laser engraver and computer via USB cable.
- c) For the first time launching LightBurn, it will prompt a 'New Device Wizard' for help you setup machine. Click 'Import'.



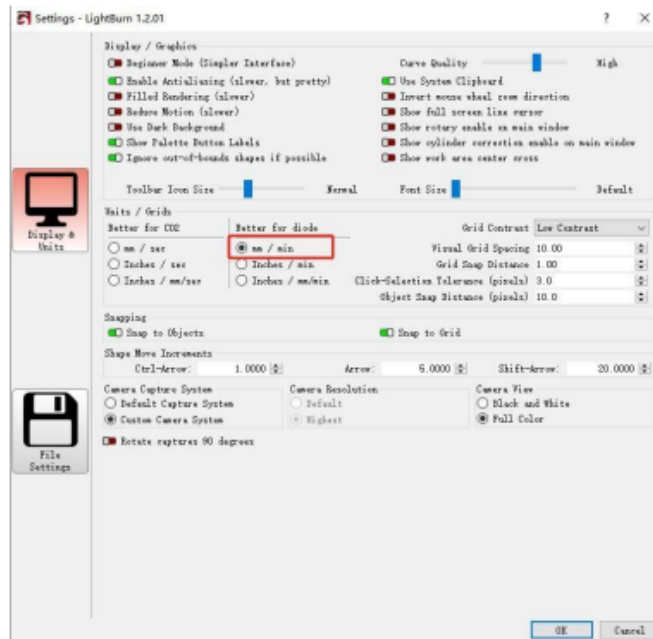
- d) Select the 'LONGER B1 20W-30W.lbdev' file in the sd card and click 'open'.



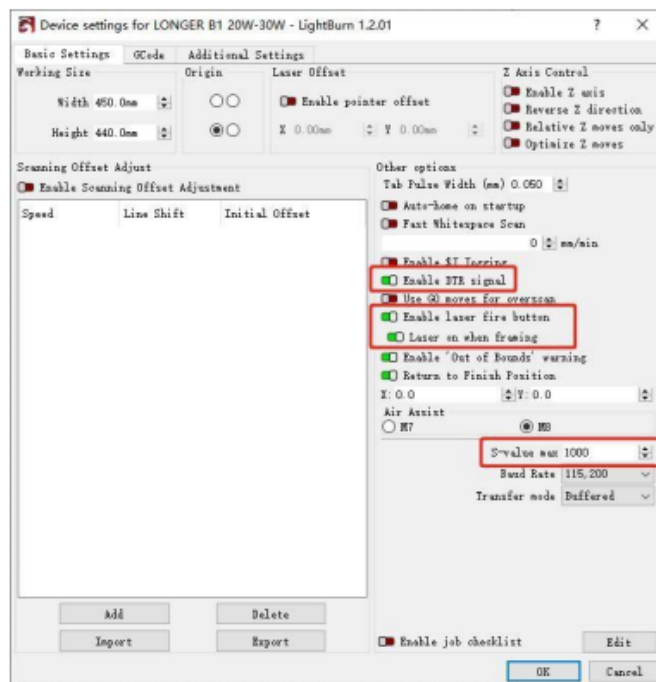
e) Click the 'ok' button.



f) Select 'Edit' on the task bar, select 'Settings', select mm/min as the unit, and click the 'OK' button.

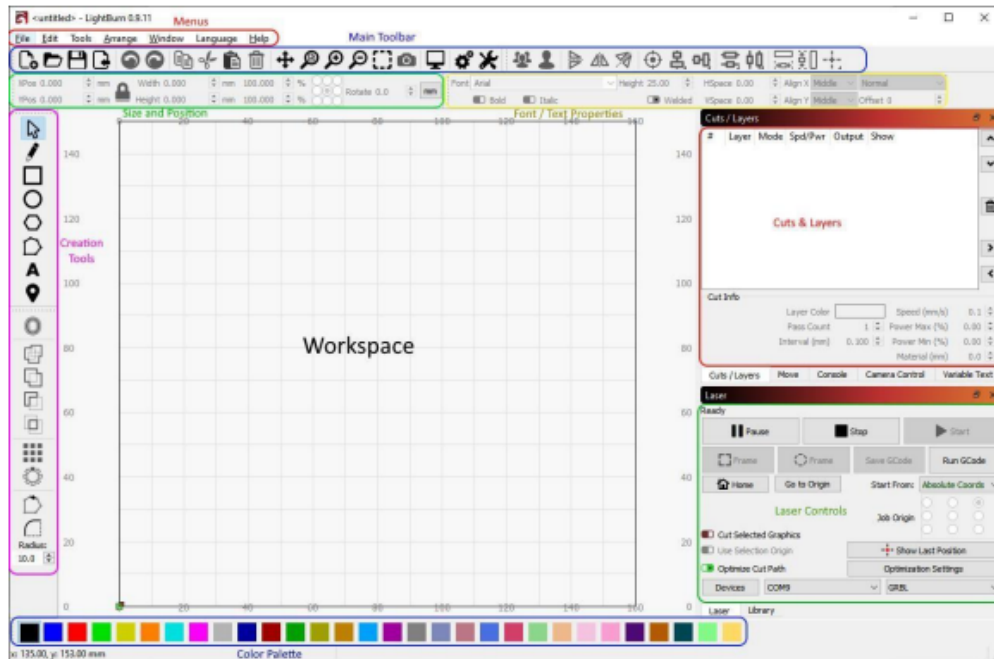


g) Turn on the 'Enable DTR signal', 'Enable laser fire button' and 'Laser on when framing' functions, and set the S-value max to 1000. Click the "ok" button.

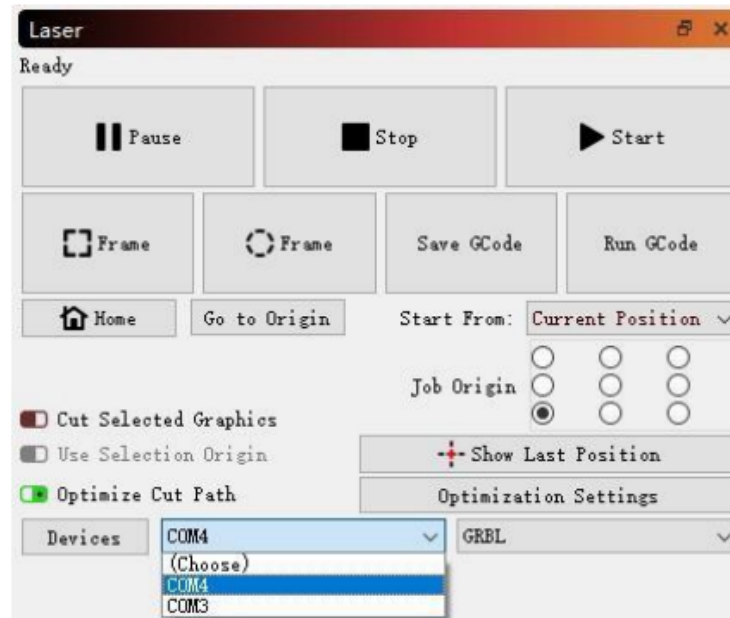


Usage

a) Main interface

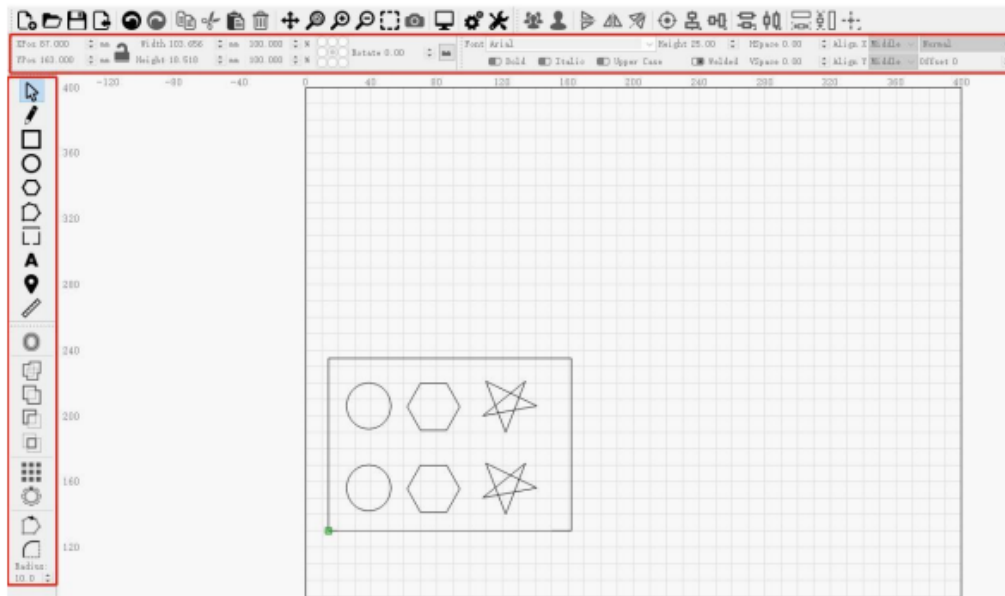


b) Select correct port (depends on your PC), then the LASER B1 is connected to the computer.

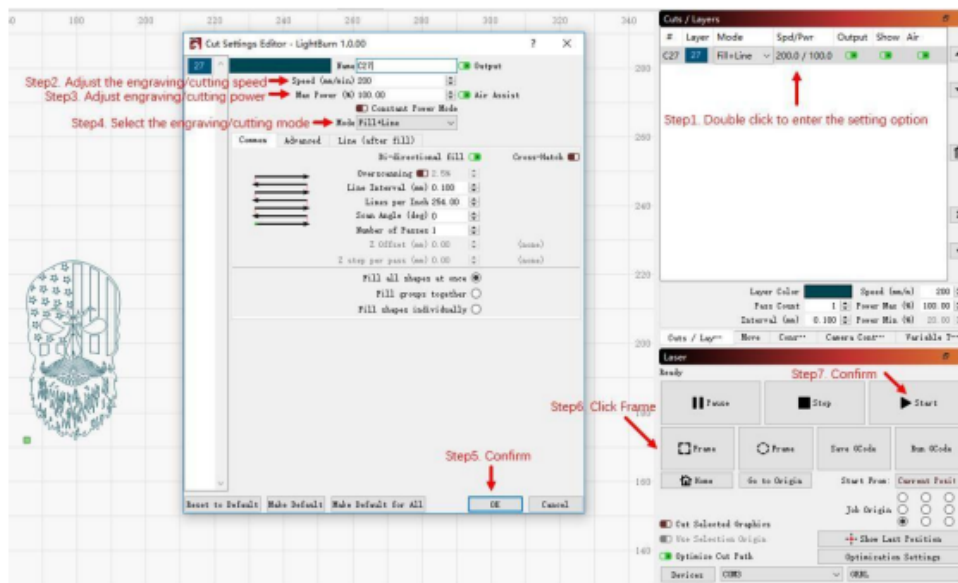


c) Click Menu "File" >> "Import image from disk." Or just use draw tool on left column to design your own

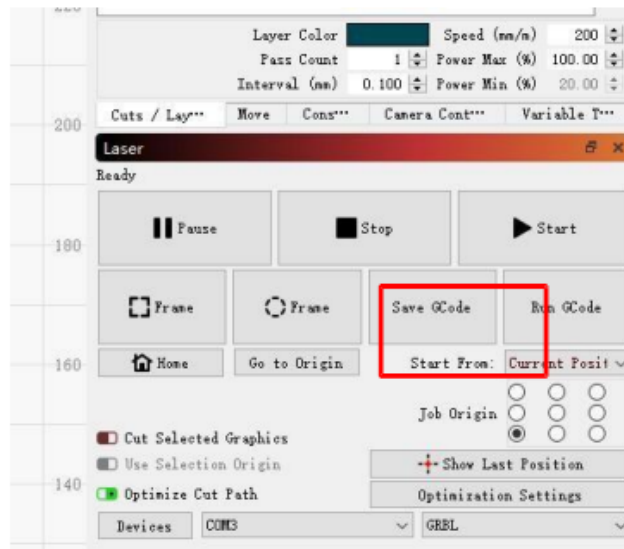
pattern.



- d) Set the name, speed, maximum power, mode, and other parameters in the cutting/layer; (engraving function and cutting function are only different in speed, power. Normally, the cutting speed parameter is slower).
- e) After placing the board under the laser, click Frame to check the laser path whether is completely inside of the board.
- f) Click “Start” to start to work.



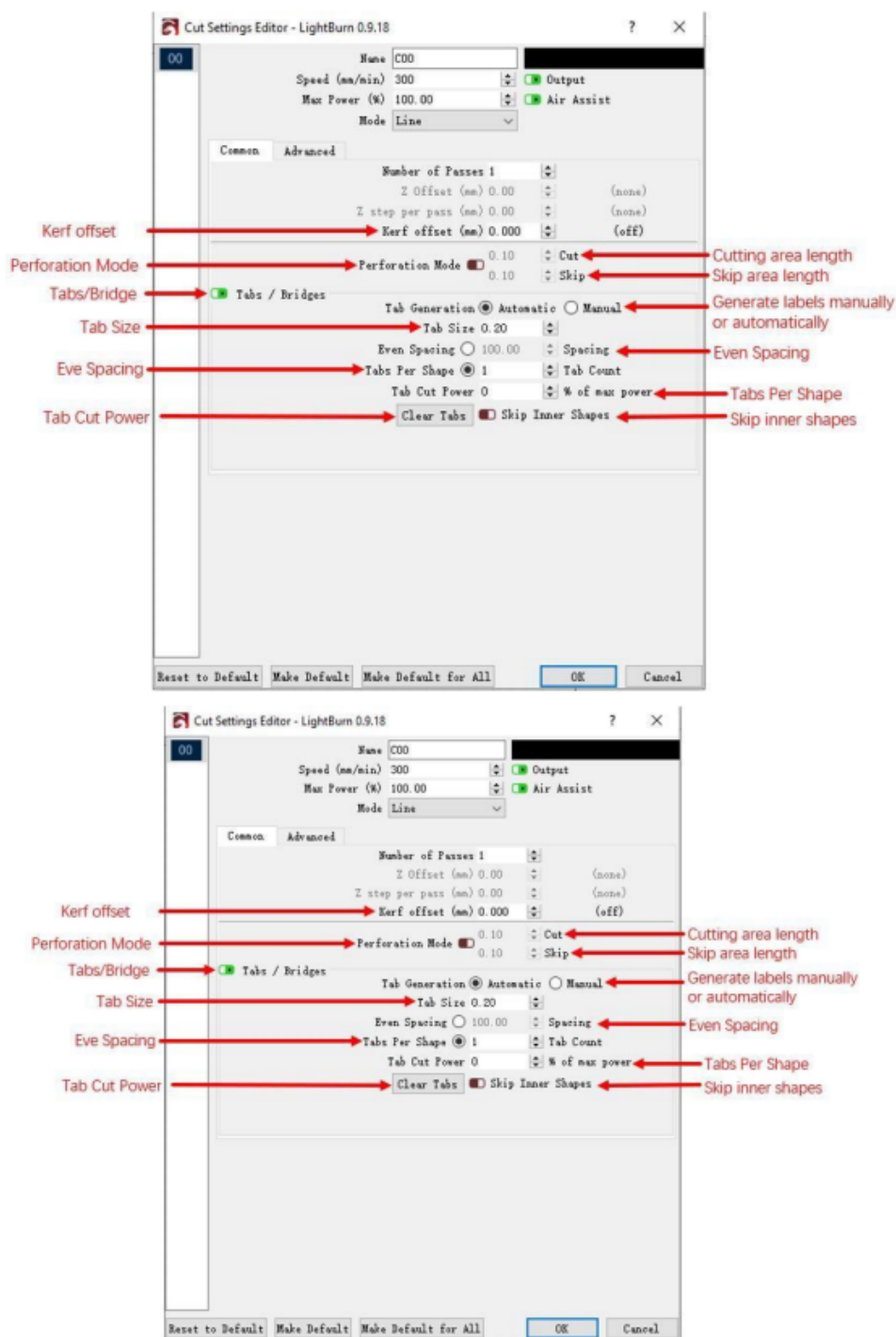
- g) Or you can save gcode file to SD card by click “Save GCode” button in Laser panel for offline working



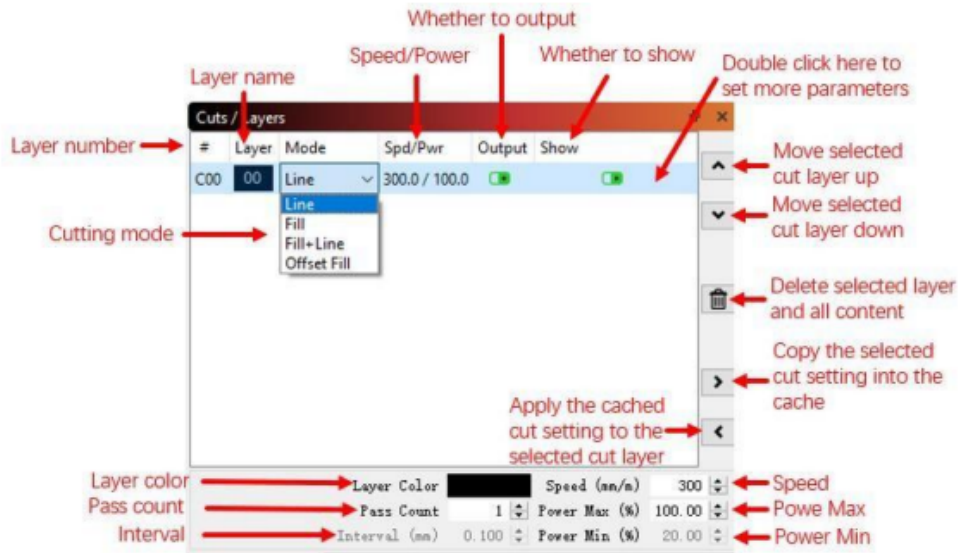
More help information about LightBurn, please refer to the link: <https://lightburnsoftware.com/pages/tutorials> 

h) Function description

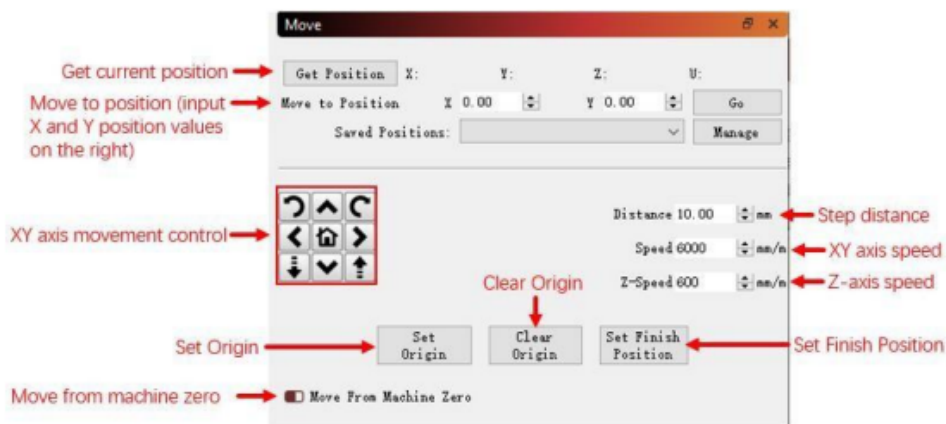
Cut Setting Editor



Cuts/Layers



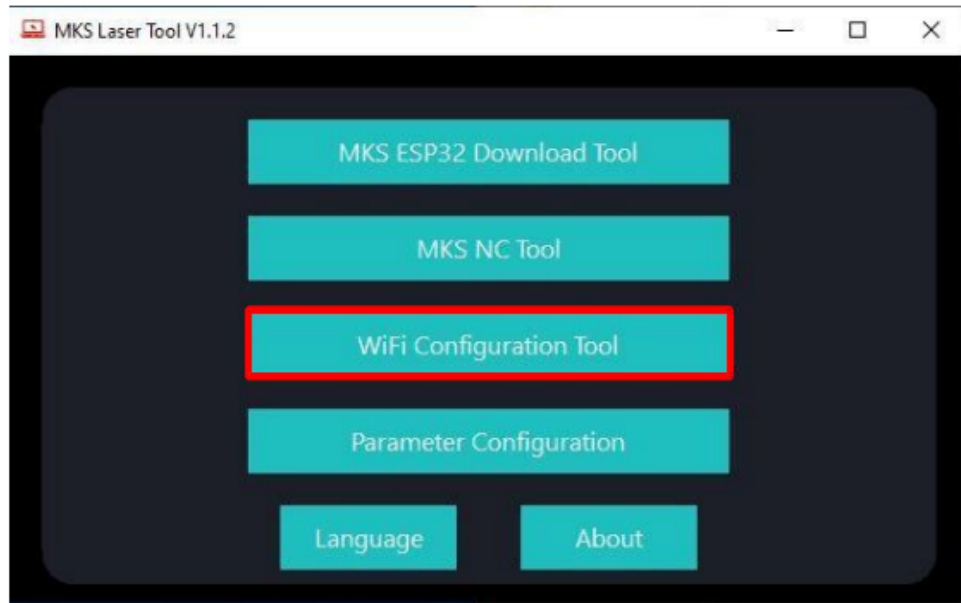
Move



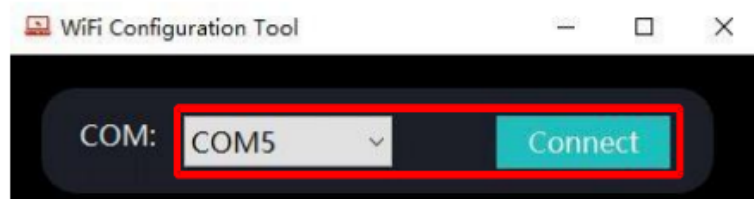
1.2.4 APP Operation

LASER B1 can be controlled or engraved through MKSLaser APP when the engraver and APP are connected to the same WIFI. Open the MKSLaserTool file. Click on the WiFi configuration tool.

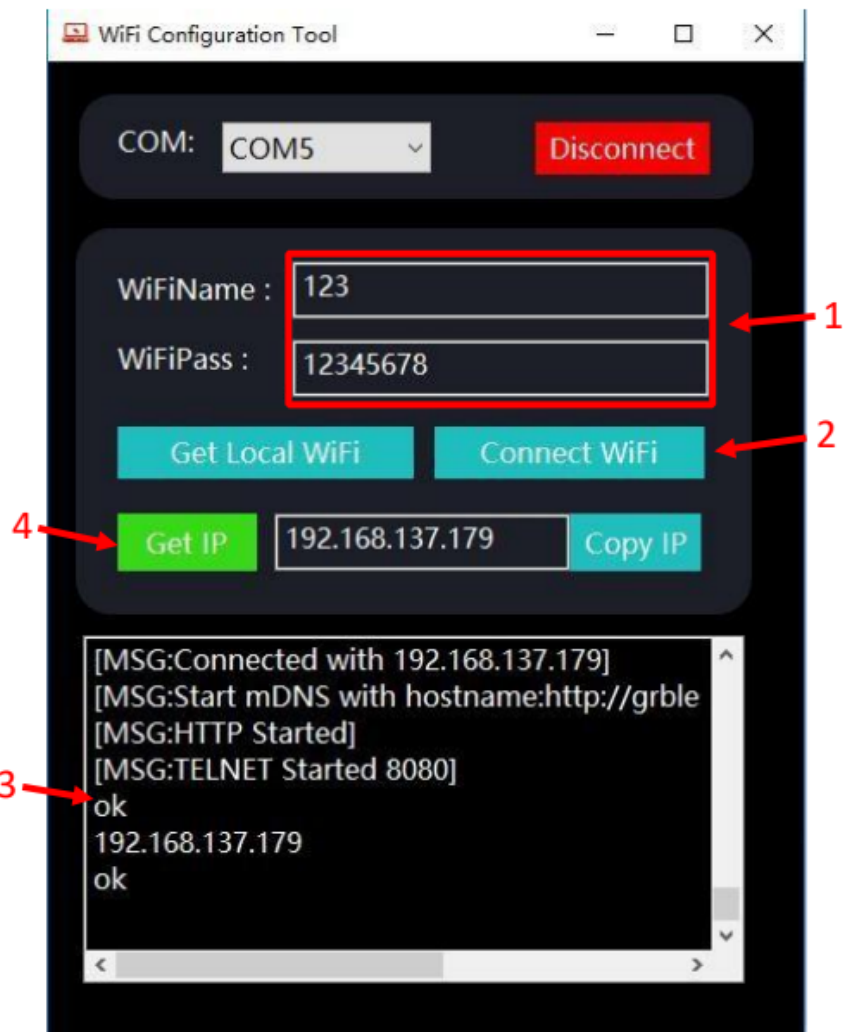
Open the MKSLaserTool file. Click on the WiFi configuration tool.



Select the correct port. Click connect.



Click Connect and enter the WiFi account and password. Click Connect WiFi. Wait for the word 'ok' to appear in the log below, and click Get IP.



a) How to download the MKSLaser APP

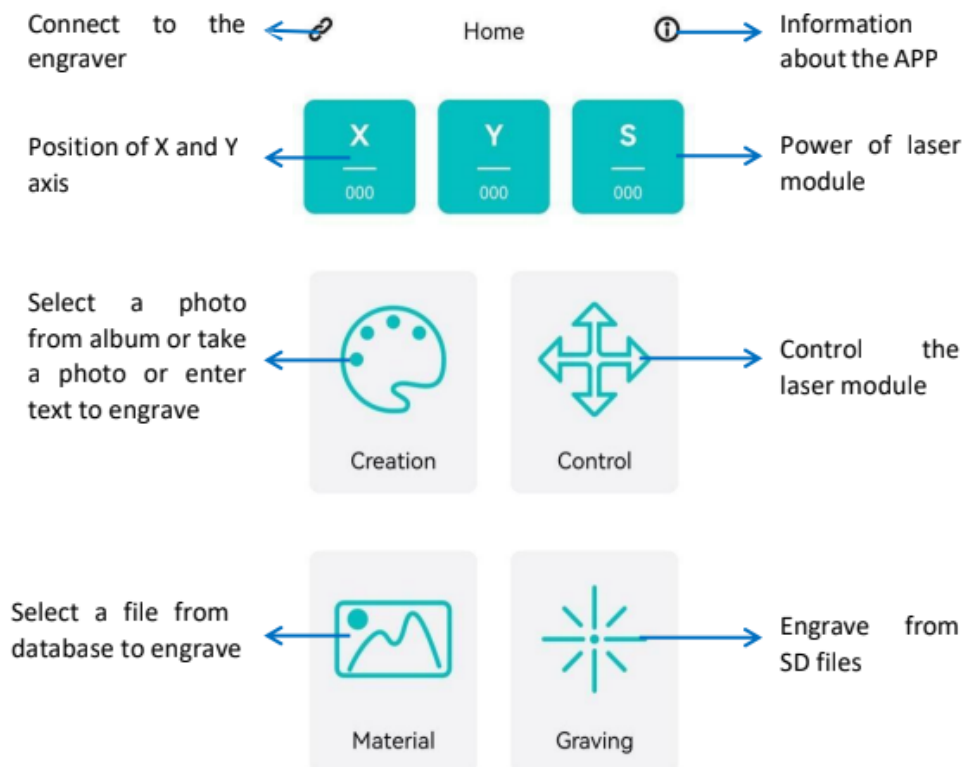
Please search for "MKSLaser" in Google play or app store or visit the address below to download Android system

<https://play.google.com/store/apps/details?id=makerbase.com.mkslaser> 

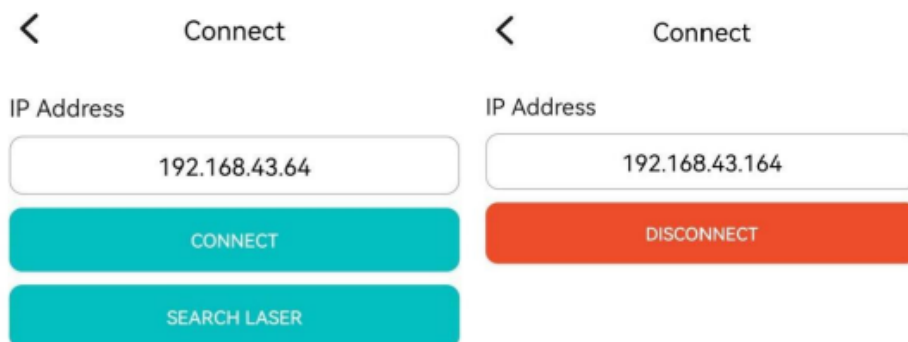
Please search for "MKSLaser" in the app store or visit the address below to download

<https://apps.apple.com/us/app/mkslaser/id1542756280?uo=4&at=11l6hc&app=itunes&ct=fndforApplesystem> 

b) Home page about the APP

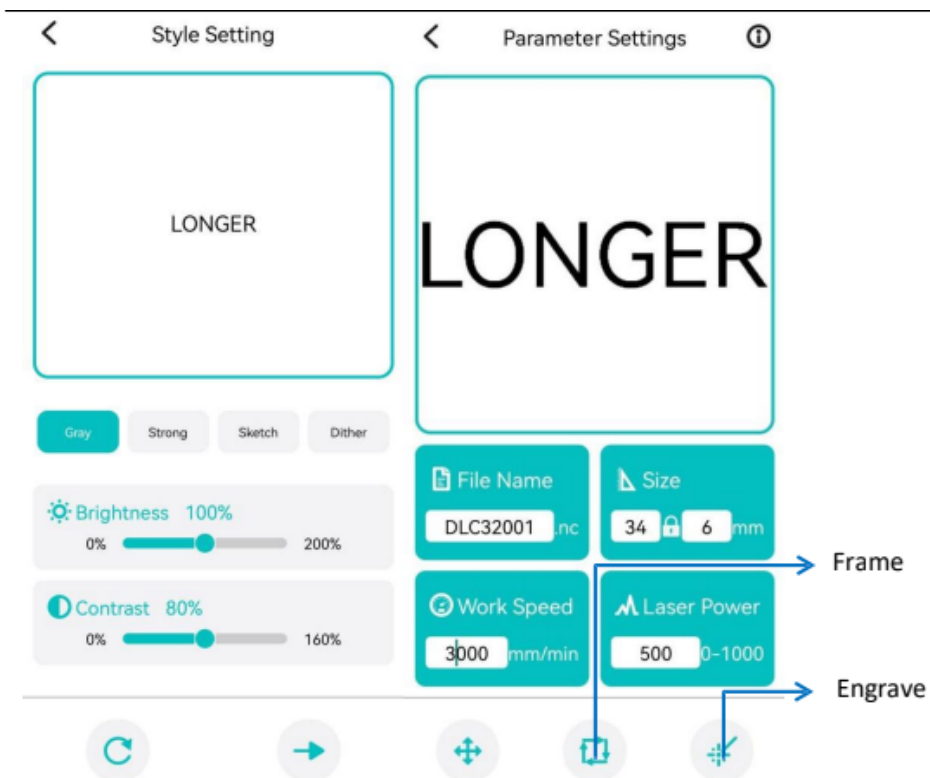
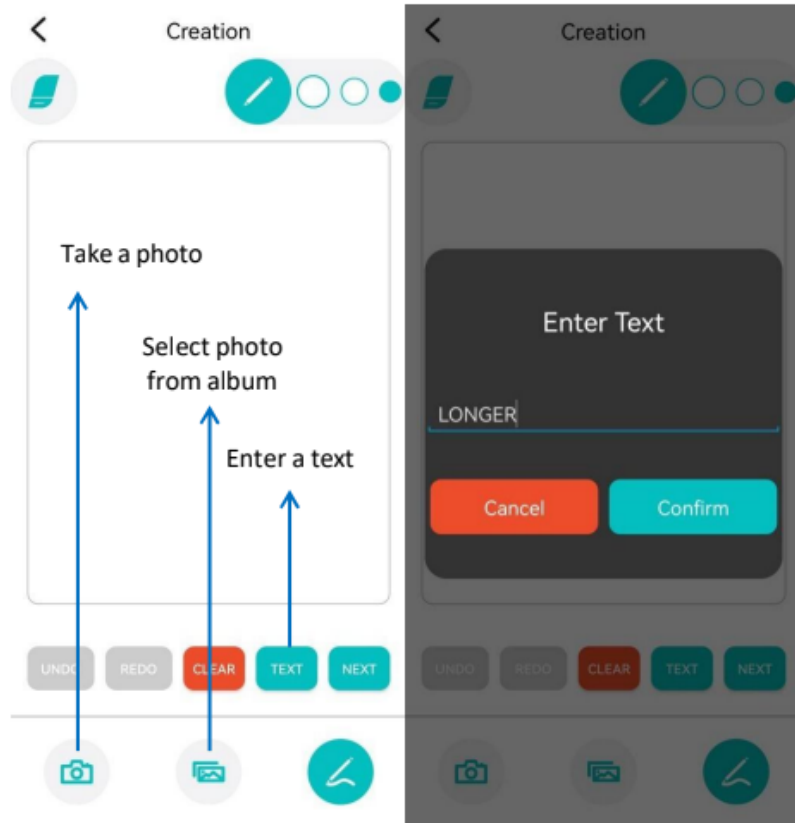


c) Connect APP to WIFI



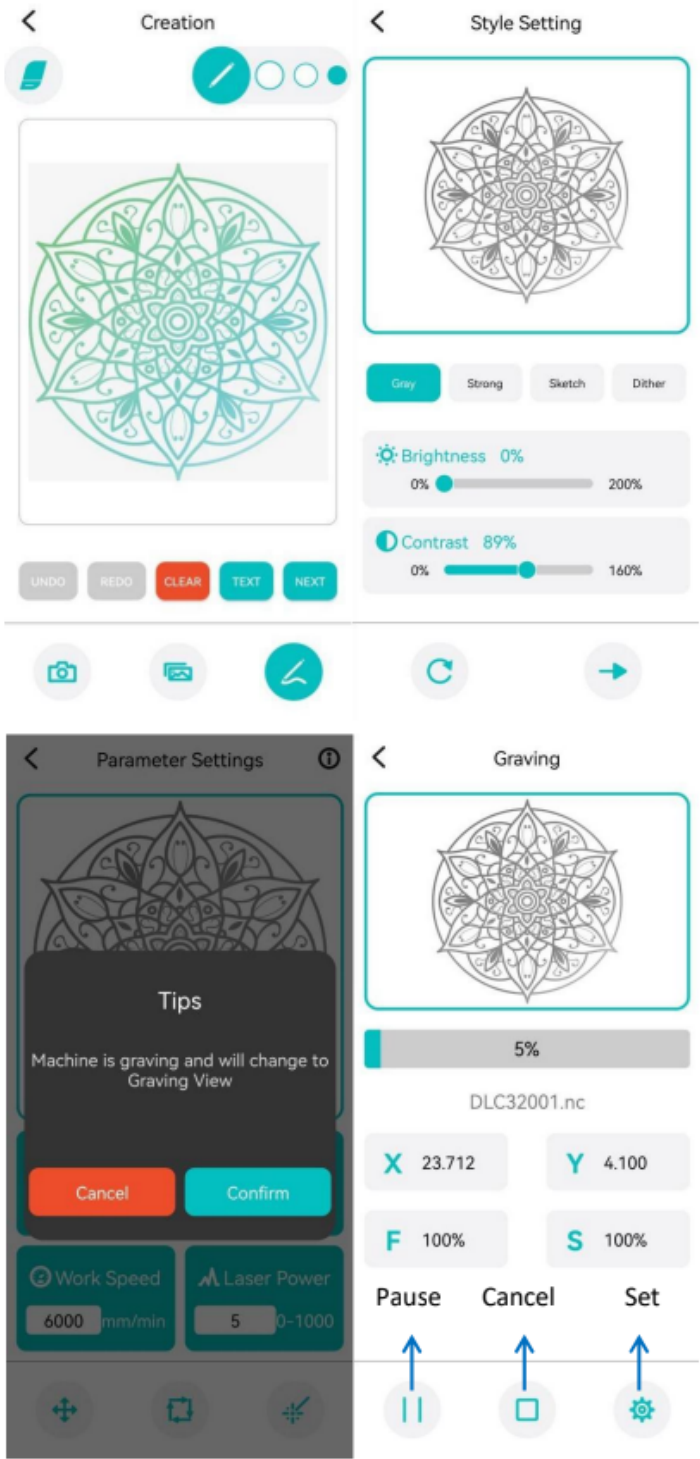
When the LASER B1 engraver is connected to wifi, we will get an IP address, click the connect button in the upper left corner of the APP, enter the IP address, and click CONNECT.

d) Enter text or take a photo to engrave

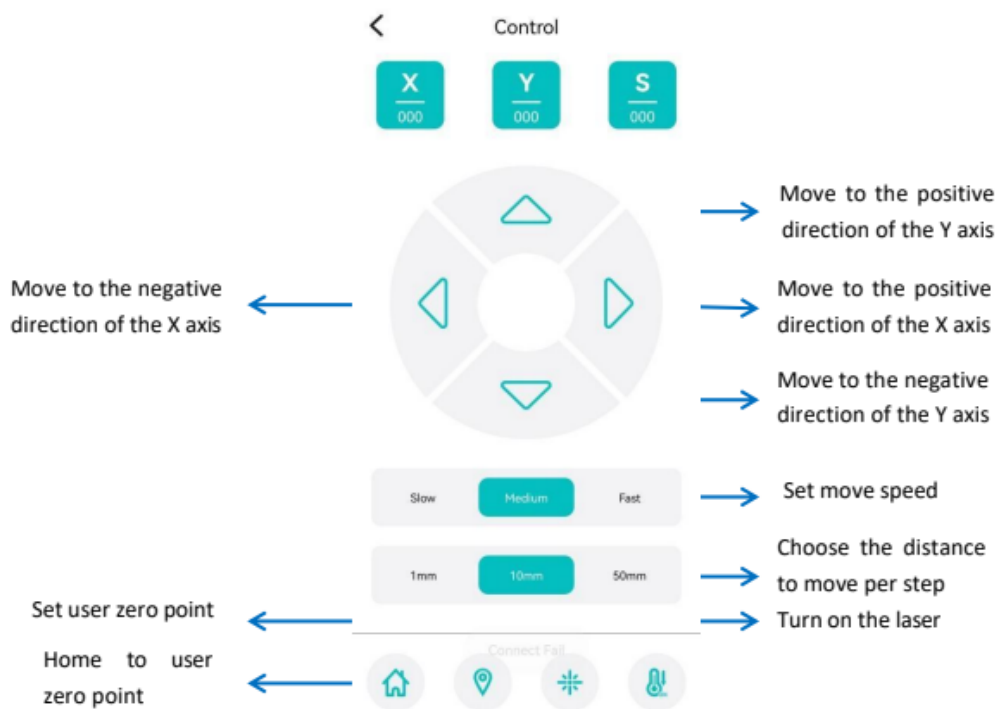


Click Creation, choose free drawing or input text, click Next, adjust the brightness and contrast, click Next, set the size, engraving speed, laser power (such as input 1000 for 100% power, and so on), click Frame to confirm the engraving range, click Engrave for working. For picture, it can click Creation, choose camera or album to take or select a photo, click Next, adjust the brightness and contrast, click Next, set the size, engraving speed, laser power (such as input 1000 for 100% power, and so on), click Frame to confirm the engraving range, click Engrave for working. After engraving, click Confirm to enter the Graving View to

check the engraving progress, adjust parameters, pause or cancel the engraving process.



e) Control the engraver from APP

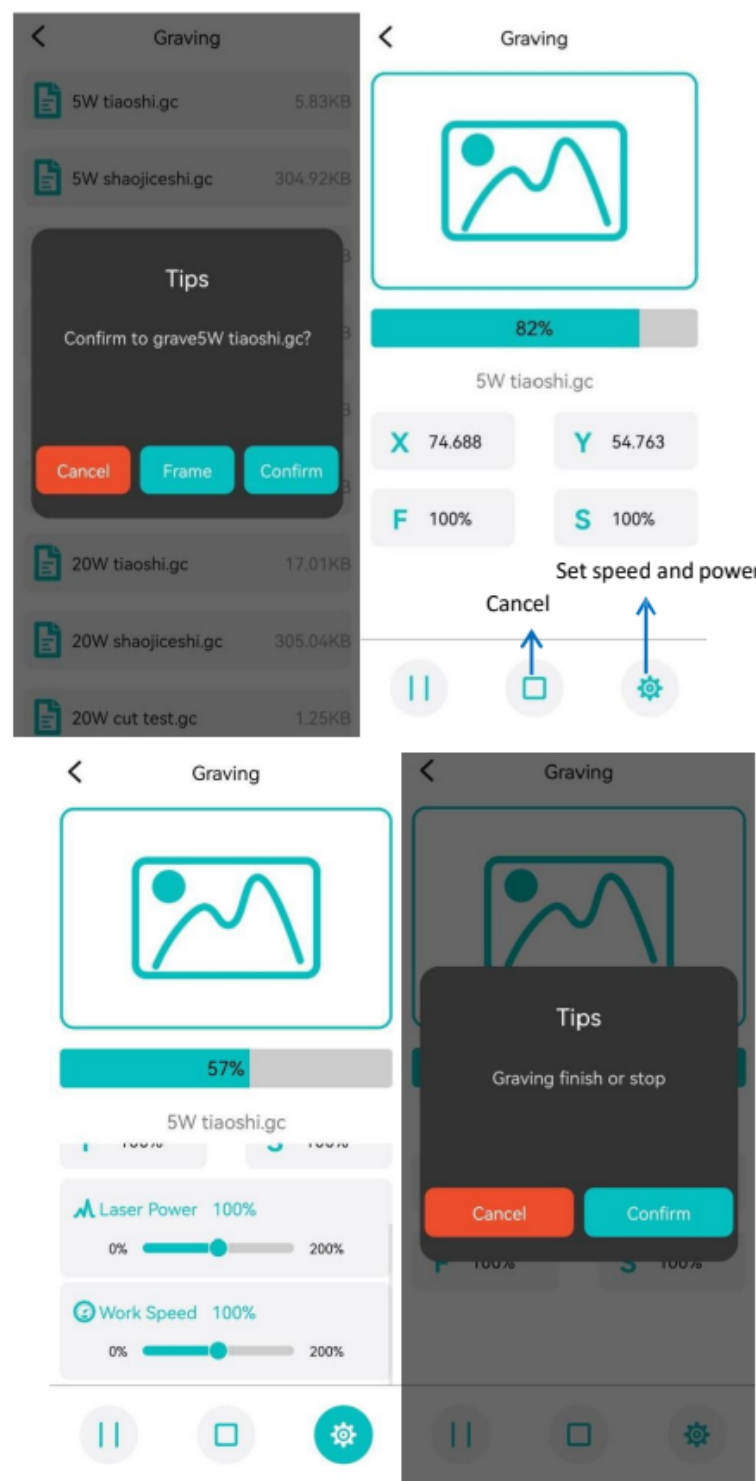


f) Engrave from SD files

Click Graving on the home UI, the APP will read the engraving file in the SD card, select the engraving file, click Frame to determine the engraving range, and click Confirm to start engraving.

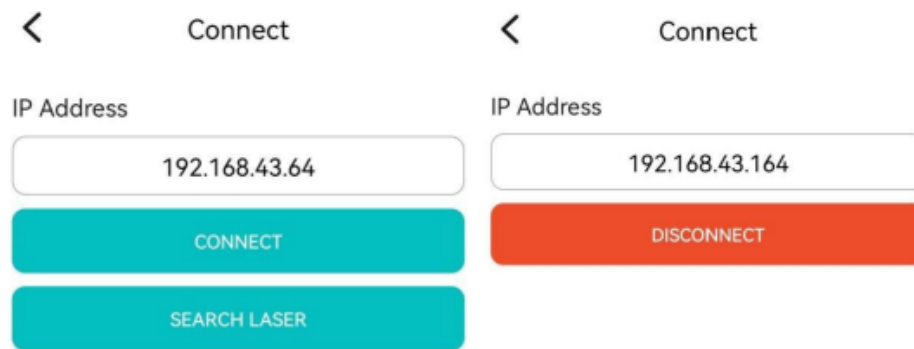
In the Graving View UI, it can check the engraving progress, adjust speed and laser power, pause or cancel

the engraving process.



Note: To use APP for engraving, it needs to insert the SD card into the motherboard firstly to ensure that the data can be received normally; otherwise it will prompt upload error. g) Control the engraving machine

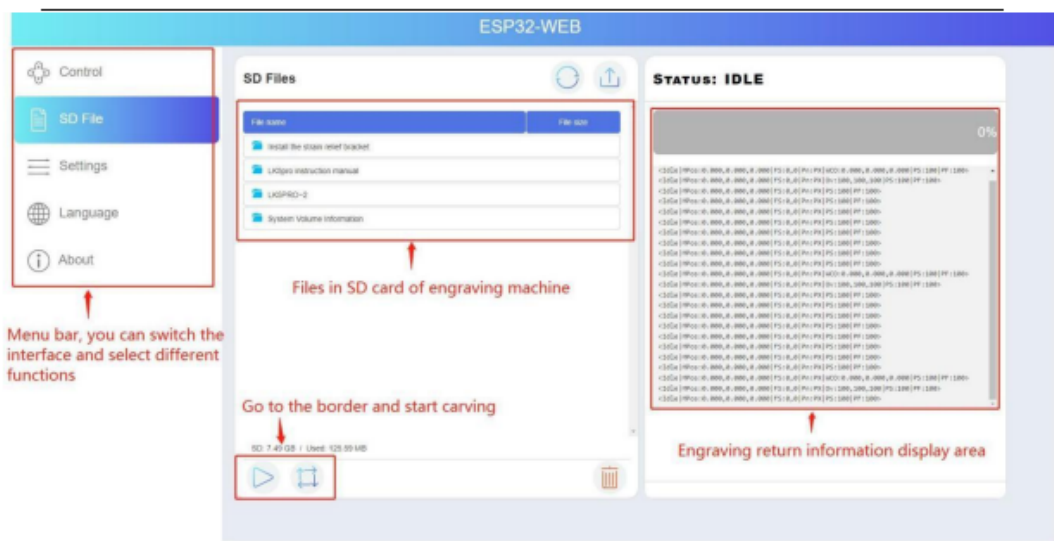
through the web page



When the LASER B1 engraver is connected to wifi, we will get an IP address, click the connect button in the upper left corner of the APP, enter the IP address, and click CONNECT.



Enter the IP address in the browser of mobile phone or computer, then the control interface will pop up.



Click SD File tag, it will change to SD file page. Upload “.gcode/.nc” files generated by “LaserGRBL” or “LightBurn” software.

2. Laser Engraver Features:

In the Laser Engraver Features section, you can find detailed guides related to various features available on the Laser B1 series Laser Engraver.

2.1 Laser B1 Touch Screen Instructions

<https://www.youtube.com/watch?v=pV4-2mpRy5U> 

2.2 Download of network firmware

Air pump adapter board without air pump

https://drive.google.com/file/d/1IWGTzVqP_I5h3MWpM-aTw-ZwQfYCsYpM/view 

Adapter plate-mounted firmware

https://drive.google.com/file/d/1SOmAf92gD7WQwJgm8CBfith_LNBSiwF2/view 

Configuration file

https://drive.google.com/file/d/1yIJmB0o0EbtZdxNmcAtwTnEp-o_NzyDH/view 

2.3 Upgrade firmware

3. Operation Guide

Laser B1 Series Beginner TutorialLaser B1

https://www.youtube.com/watch?v=hd_UWaXOqcc&list=PLLz1z_0pXsW0L_I_KY3fwcfZtsvPamCPV&index=12 

4. Troubleshooting & Solutions:

In the Troubleshooting & Solutions section, you can find guides related to the Laser B1 Series where potential issues are listed with solutions on how to solve them.

4.1 Troubleshooting

4.1.1 Overlapping engraving patterns, wobbly lines, and unclosed circles?

1. Adjust the eccentric nut to ensure smooth and stable movement of the parts.
2. Re-tighten the timing belt.
3. Adjust the position of the timing pulley to prevent friction between the timing belt and the pulley.
4. Check for loose screws on the X-axis timing pulley, as well as the couplings and pulleys on the Y-axis.
5. Ensure that the timing belt is aligned properly on both the upper and lower sides.

4.1.2 The engraving machine cannot be powered on?

1. Check if the emergency stop switch is in the released position and if the safety lock is in the open position (red indicates the safety lock is open, which prevents the machine from powering on; green indicates it is closed).

2. Check if the power adapter shows a green light. If not, please contact customer support via email to request replacement parts.
3. If the power adapter is on but the buzzer is not sounding, try rotating the adapter plug and check if the power cable on the motherboard is loose. Also, ensure the motherboard has a blue light; if not, reconnect the cables.

4.1.3 The computer cannot connect to the engraving machine, and the computer does not display the COM port?

1. Try using a different USB cable.
2. Avoid other software occupying the port; close any other programs that may be using it.
3. Download and install the CH340 driver. Make sure to download the appropriate driver for your computer's operating system. Here is the link: <https://sparks.gogo.co.nz/ch340.html> 

4.1.4 The laser module is not emitting light?

1. Check if the power adapter shows a green light and ensure it is making proper contact (the normal indication is a steady green light). The motherboard should also have its indicator light on.
If the adapter does not light up, it may be faulty; if the adapter is lit, check if the motherboard light is on. If the motherboard is not lit, check if the power cable on the motherboard is loose, and then power off the machine and check if the power switch cable is loose.
2. If the laser module fan is running but the module is not emitting light, check if the signal wire connecting the laser module to the motherboard is loose. If it is secure, you will need to contact customer support for a replacement laser module.

4.1.5 The machine fails to return to zero and keeps colliding with the material?

1. Check if the limit switch cable and the port on the motherboard where the limit switch is connected are loose.
2. Perform cross-testing of the XY limit switches to confirm whether one of the limit switches is damaged.

4.1.6 The engraving machine cannot cut through the wooden board?

1. For 3-5mm thick wood, first ensure that the focusing is set correctly. Go to Lightburn - Edit -Device Setting, and check if the S-value MAX is set to 1000. Then adjust the cutting parameters to 100% power and a speed of 450-800 mm/min.
2. If the wood is thicker, reduce the focal distance by 1-3mm before cutting.
3. Check if the lens window of the laser head is contaminated. If it is, clean the lens with a lint-free cloth dampened with alcohol or replace the window lens directly. If the issue persists, request a replacement of the laser head module within the warranty period.

4.1.7 The laser module emits light automatically after powering on?

1. Check if the TTL interface on the motherboard is loose.
2. Contact customer support to request a motherboard replacement.

4.1.8 The engraving machine cannot connect to Wi-Fi?

1. Check if the computer and the engraving machine are connected to the same Wi-Fi network.

2. Ensure that the Wi-Fi name does not contain any special characters.
3. Connect to a Wi-Fi network with a better signal strength.

4.1.9 The laser module fan makes noise after using the engraving machine for a while?

1. After turning off the power, manually rotate the fan to check for any resistance. Ensure that the fan is not scraping against the laser module housing; you can loosen the fan mounting screws if needed.
2. If the fan bearings are damaged, contact customer support to request a replacement fan.

4.1.10 The surface of the wood board turns yellow or becomes carbonized during cutting?

1. If the cutting surface is yellow, install the laser air nozzle and ensure the air pump is turned on.
2. If the cutting surface is carbonized, reduce the laser power or increase the cutting speed.

4.1.11 Why is the air pump not working or unable to turn off?

1. Check if the air pump is properly connected to the machine and ensure that the air pump valve is in the open position.
2. In the LightBurn software settings, go to Device Settings under Basic Settings and set Air Assist to "M8" to turn it on. You can also type "M8" in the console to turn it on and "M9" to turn it off.
3. Open LightBurn, select the correct COM port to connect to the engraving machine, then go to Edit - Device Settings - Air Assist, select M8, and use the console to type "M8" to turn on the air pump or "M9" to turn it off. If the air pump keeps running, the mainboard may need to be replaced; if the air pump is not working, the pump may need to be replaced.

4.1.12 If LightBurn displays an "Alarm 2" error

click on "Home" to reset the engraving machine to its zero position. This should resolve the error and allow the machine to operate normally.

4.2 Remote diagnosis

4.2.1 How to create a new work order?

4.2.2 How to upload the log files of the engraving machine to the existing work order?

4.2.3 Export logs

5. Maintenance Guide

In this section, you can find the recommended maintenance guidelines for the X1 series printers, which are designed to ensure smooth operation and a longer service life of the products.

5.1 Regular Maintenance Recommendation for Laser B1:

6. Parts Replacement Guide:

In this section, you can find a step-by-step guide which shows the process of disassembling and installing various parts of the laserB1 series engraving machine.

6.1 How to replace the Laser B1 laser module fan

https://www.youtube.com/watch?v=AArtBq5QYBc&list=PLLz1z_0pXsW0L_I_KY3fwcfZtsvPamCPV 

6.2 Laser B1 Laser Engraver Enclosure Installation Video

https://www.youtube.com/watch?v=wBb3EQxz-pE&list=PLLz1z_0pXsW0L_I_KY3fwcfZtsvPamCPV&index=3 

6.3 How to clean and replace Laser B1 laser lens

https://www.youtube.com/watch?v=3HPbCb0w_Mw&list=PLLz1z_0pXsW0L_I_KY3fwcfZtsvPamCPV&index=5 

6.4 Laser engraver camera installation video is suitable for all laser engraver of the LONGER brand

https://www.youtube.com/watch?v=QXMmZZc_7L8&list=PLLz1z_0pXsW0L_I_KY3fwcfZtsvPamCPV&index=9 