

A close-up photograph of a silver-colored Ortur laser engraver machine. The machine features a linear rail system and a precision XY stage. A black power supply unit with a hexagonal logo is mounted on the frame. The background is dark.

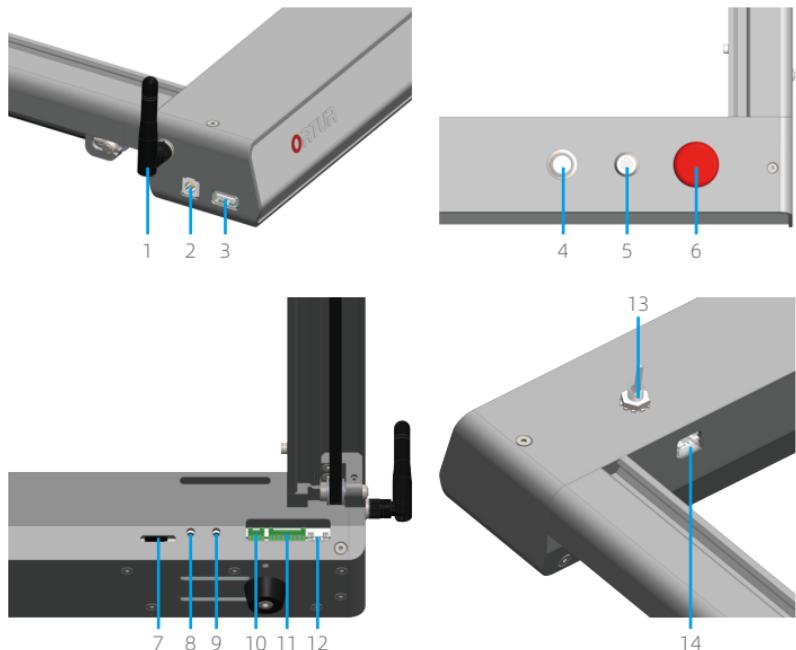
ORTUR

User Manual

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1. Port Description



1. WiFi Aerial

2. Power Input

3. USB Port

4. Main Power Button (Status Light)

5. Key Switch

6. Emergency Stop Button

7. TF-card

8. Restore Button

9. Reset Button

10. Input and Output Ports

11. Harness Interface

12. Y-axis Motor Interface

13. YRR Transfer Switch

14. YRR Motor Wire Port

2. Button function



Main Power Button (Status Light)

Press and hold for 500ms to power on

Press and hold for 500 ms to power off



Key Switch

Right to unlock, left to lock

Different batches may be opposite



Emergency Stop Button

Pressing it will stop the machine from working

The machine cannot be used when the button is pressed



Boot

Restore Button

Users do not need to use.



Reset

Reset Button

To enter the upgrade mode, you need to briefly press the

"Reset" button while pressing the power button for a long time.



YRR Transfer Switch

Hit the left when using YRR, hit the right when using it normally

When using YRR, please connect "YRR Motor Wire" to "YRR Motor Wire Port"

3. Button Operation Instructions

Project	Operation Method	Phenomenon	Result
Boot	Press and hold the POWER button for >500ms in shutdown state	White from dark to light	Open normally, the machine returns to zero
Shutdown	Press and hold the POWER button for more than 500ms in the power-on state	White from light to dark	Normal shutdown, LED off
Enter Upgrade Mode	In shutdown state, press and hold the POWER button while pressing the RESET button for a short time	Red, green and blue flashing alternately	The red, green and blue LEDs flash, and the OrturLaser USB flash drive appears on the computer.
Reset the Motherboard	Short press the RESET button	LED off	Shut down, LED off

Note 1: Before starting the machine, you need to check whether the emergency stop button is turned on, and it cannot be turned on when it is pressed down!

Note 2: The key switch can lock the machine. (Please keep the key safe and lock the machine when not in use)

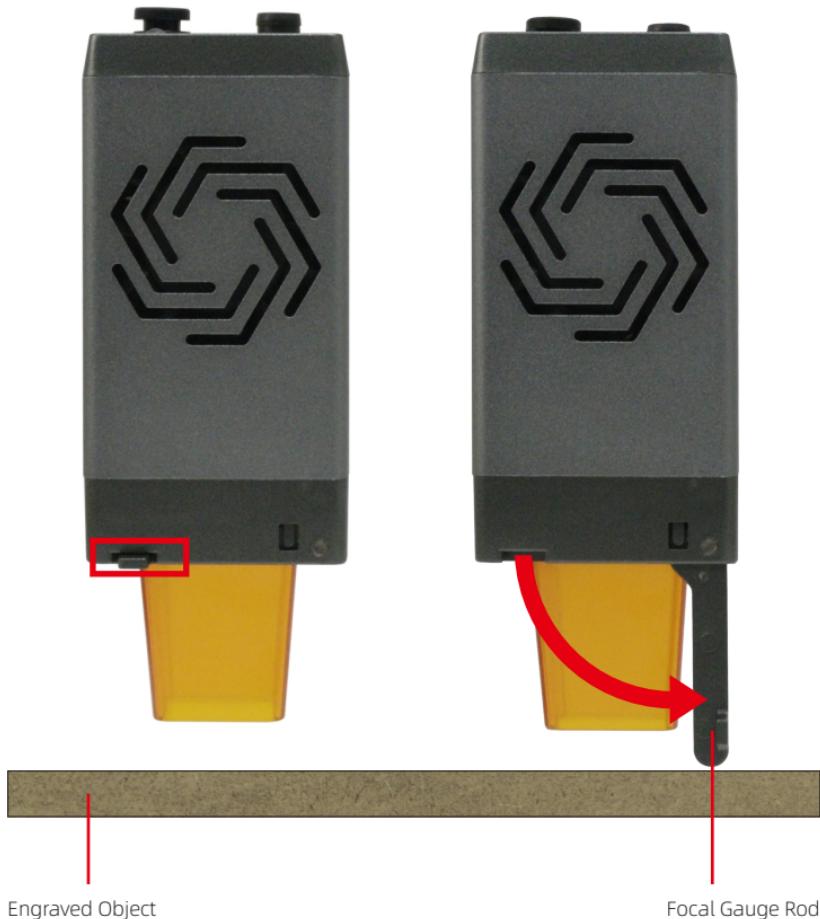
When the key is turned to the left, it is locked, and the right is unlocked. It cannot be turned on in the locked state. (The direction of locking and unlocking may be reversed for different batches of machines)

4. Lighting Description

Indicator main state	Indicator Light Status	Effect	Remark
When Booting		White from dark to light gradient Time 1500ms	Long press >500ms
When Shut Down		White light to dark gradient Time 3000ms	Long press >500ms
Booting Initialization		White Flashing for 250ms	
Upgrade Mode		Red, green and blue flash alternately	
During Upgrade		Red, green and blue flash alternately	
Update Successed		Green Steady on	Automatic restart for 5s
Upgrade Unsuccessful		Red Steady on	Automatic restart for 10s
SmartConfi Mode		7 color gradient	In the power-on state, short press the power button 5 times for 50ms < single click <200ms
Jog Status		Blinking blue for 250ms	
Homing State		Blinking blue for 250ms	
Sleep State		White breathing light Cycle 2s	
Emergency Stop State		Red and yellow flash alternately for 250ms	
Power Lock Status		Red 25% brightness	The power lock is off, no light, and it shows 25% red when the power button is pressed
IDLE Status		Green Steady on	Display sub-status after 5000ms
	WIFI Connection	WIFI STA connecting, orange, blinking, 4 times, 250ms	
	WIFI Success	WIFI STA is connected, orange, on, 1000ms	
	USB Cable Connection	USB connected, light blue, on, 500ms	
	AP Connected Status	WIFI AP connected, purple, bright, 1000ms	Only displayed in IDLE state
RUN State		Green Flashing for 250ms	
HOLD State		Cyan Always on	
Alarm State		Yellow always on	
System Error		Red, always on, sub-errors can be superimposed	Display sub-status after 3000ms
	Motor Drive Error	Yellow - 2 times	Only displayed in error state
	SD-card Initialization Error	Blue - 2 times	Only displayed in error state
	Abnormal Voltage Error	Purple - 2 times	Only displayed in error state

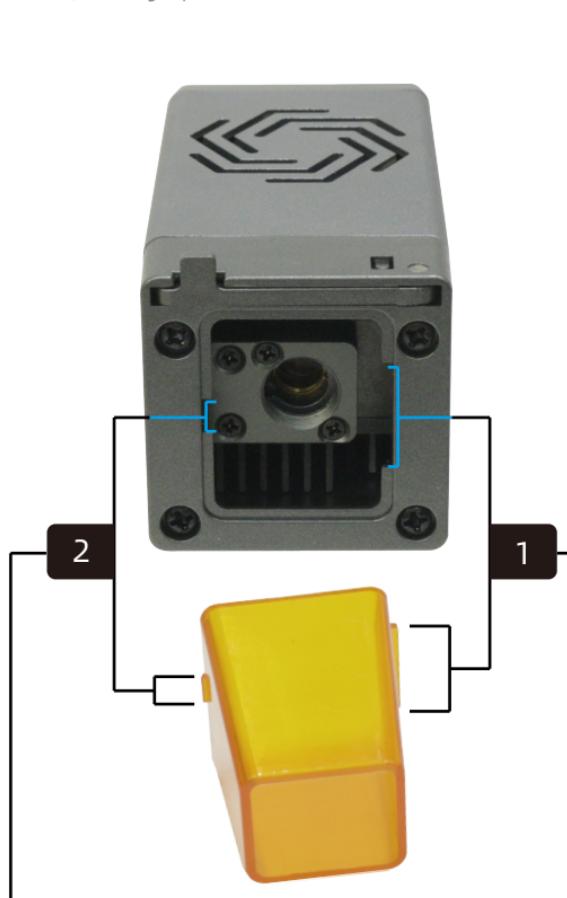
5. Laser Module Instructions

5.1 Focal Gauge Rod



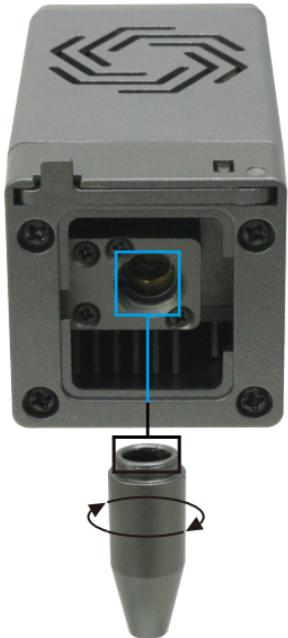
5.2 Laser Shield

To install the laser shield, the long clip must be inserted into the wide card slot first.



After installing the long clip, firmly press one side of the short clip to let the short clip enter the narrow card slot.

5.3 Air Assist



Please remove the laser shield before installing the air assist, and reinstall the laser shield after installing the air assist.

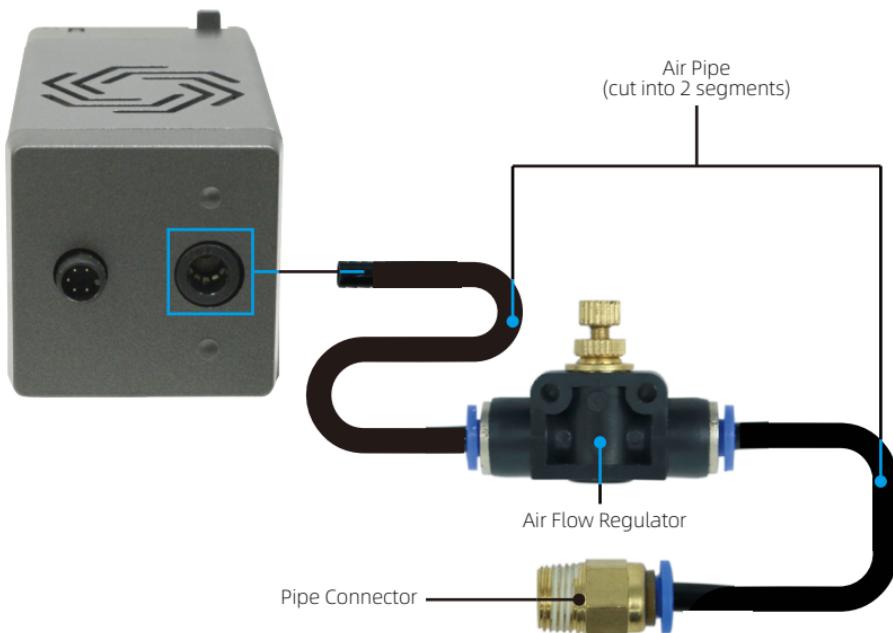
Note: No need to install air assist when not using an air compressor!



You only need to remove the rubber plug when air assist is used. Please install the rubber plug when air assist is not used.



The trachea needed to be cut into 3 sections , and the length of each section needs to be adjusted according yourself.



The pipe joint is connected to the air compressor
(it is recommended to use an air compressor
with an air flow of 40L/min)

6. Control software introduction and download method

6.1 Laser Explorer

Laser Explorer is a free and professional mobile software that supports Android Phone, Tablets, iPhone and iPad.

Download Link:



Laser Explorer



Android-Google Play



IOS-App Store

6.2 LaserGRBL

LaserGRBL is a free and open source software that supports Windows computers.

Download Link: <https://lasergrbl.com/>

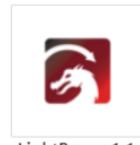


install.exe

6.3 LaserBurn

LaserBurn is a paid professional software that supports MAC / Linux / Windows computers.

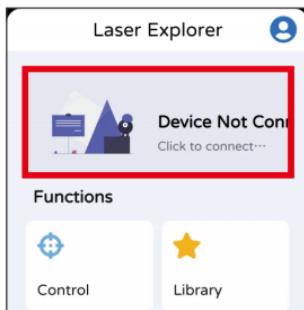
Download Link: <https://lightburnsoftware.com/>



LightBurn-v1.1.04.exe

7. How to connect Laser Master 3 to your wifi router

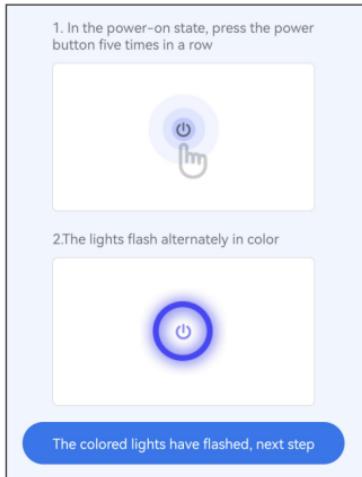
7.1 Use APP to connect to the network
(currently only supports OLM3 and subsequent new devices)
(Connect to router Wifi, it must be 2.4GWiFi!)



1. Click the position of the red box.

2. Click the device to be connected.

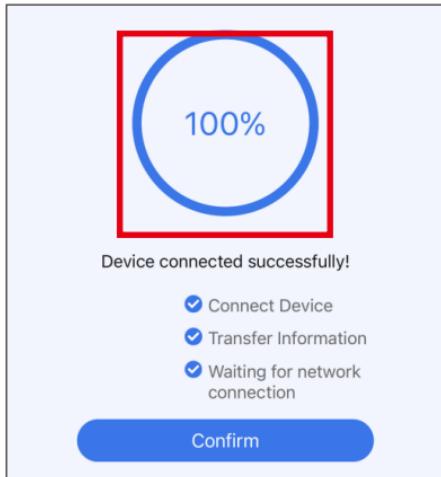
3. Just fill in the WiFi password.



4. In the power-on state, short press the power button continuously, after the device enters the network distribution mode, the light changes in color, and then click Next.

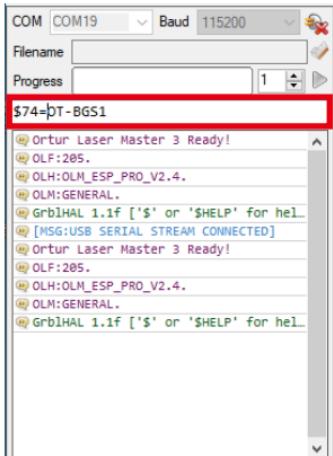
Note 1: The dual-band WiFi function of the mobile phone must be turned off to avoid connection failure!

Note 2: Keep the distance between the APP device and the machine within 5 meters, the closer the distance, the better the signal!

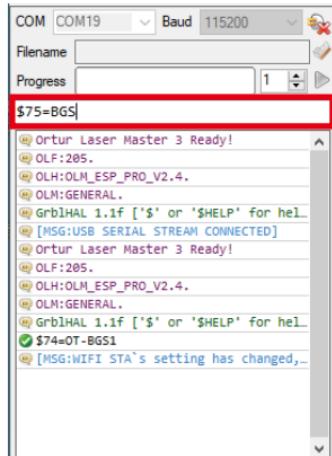


5. Please wait patiently, and click OK after success.
(device as close to the router as possible)

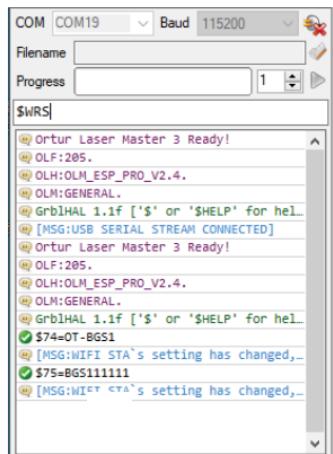
7.2 Connect to WiFi (mobile phone and machine are in the same local area network) (LaserGRBL)



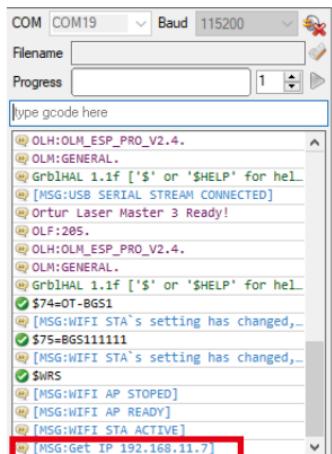
1. Connect the machine to LaserGRBL, enter "\$74=WiFi name" in the red box, and then click Enter.



2. Enter "\$75=WiFi password" in the red box, then click Enter.



3. Enter "\$WRS" in the red box, then click Enter.



4. The IP of the machine in the LAN.

7.3 Connect to WiFi (mobile phone and machine are in the same local area network) (LightBurn)

Console

```
[DRIVER VERSION:220327]  
[DRIVER OPTIONS:GIT-NOTFOUND]  
[BOARD:Ortur Laser Master 3]  
[WIFI MAC:84:F7:03:F8:6A:38]  
[IP:192.168.11.16]  
[PLUGIN:Power Detector v1.0]  
[PLUGIN:Power Control v1.0]  
[PLUGIN:gyroscope sensor v1.0]  
[PLUGIN:Trinamic v0.09]  
[PLUGIN:SDCARD v1.05]  
[PLUGIN:ESP32 WebUI v0.03]  
[PLUGIN:GADGET v1.00]  
ok
```

\$74=OT-BGS1|

Macro0

Console

```
[WIFI MAC:84:F7:03:F8:6A:38]  
[IP:192.168.11.16]  
[PLUGIN:Power Detector v1.0]  
[PLUGIN:Power Control v1.0]  
[PLUGIN:gyroscope sensor v1.0]  
[PLUGIN:Trinamic v0.09]  
[PLUGIN:SDCARD v1.05]  
[PLUGIN:ESP32 WebUI v0.03]  
[PLUGIN:GADGET v1.00]  
ok  
$74=OT-BGS1  
ok  
[MSG:WIFI STA's setting has changed,reboot or $WRS to apply.]
```

\$75=12345678|

Macro0

Macro1

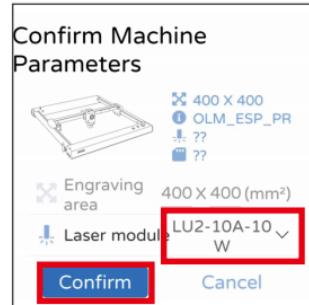
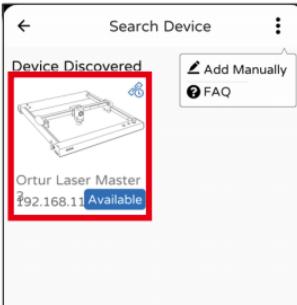
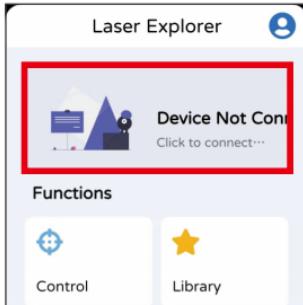
1. Connect the machine to LightBurn, enter "\$74=WiFi name" in the red box, and then hit enter.

```
$WRS  
ok  
[MSG:WIFI AP STOPED]  
[MSG:WIFI AP READY]  
[MSG:WIFI STA ACTIVE]  
[MSG:Get IP 192.168.11.16]
```

2. Enter "\$75=WiFi password" in the red box, and then click Enter.

3. Then enter "\$WRS", and then click Enter, you will get the IP of the machine in the LAN.

7.4 Connecting the machine

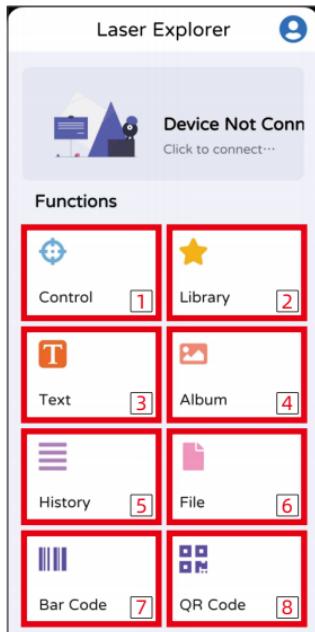


Click the options in the red box in order from left to right.

Note 1: The correct laser module must be selected!

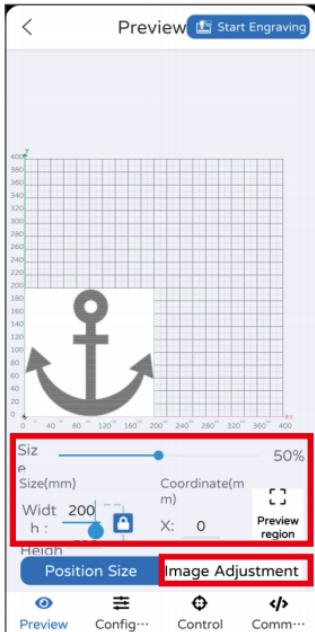
Note 2: The phone and the machine must be connected to the same WiFi!

8. How to Engrave and Cut Using Laser Explorer



Choose an image arbitrarily.

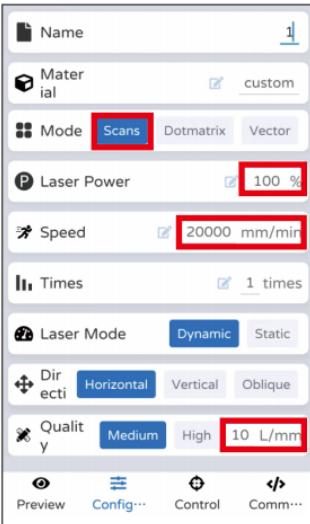
1. Control (Control the movement of the machine)
2. Library (software comes with images to choose from)
3. Text (software comes with a text editor)
4. Album (can view and select images in the phone album)
5. History (used data can be called directly)
6. File (can read engraving file)
7. Bar Code (software comes with barcode editor)
8. QR Code (the software comes with a QR code editor)



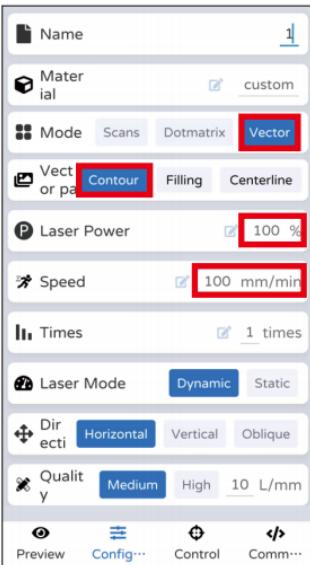
1. By modifying the parameters in the red box, you can change the size and position of the image, as well as the engraving range of the preview image.

2. Modify the parameters in the red box to change the brightness, contrast and black and white limits of the image.

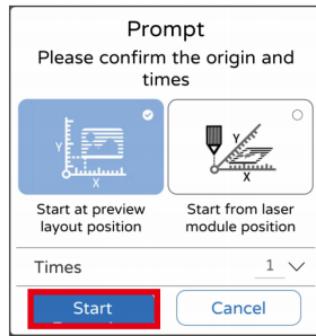
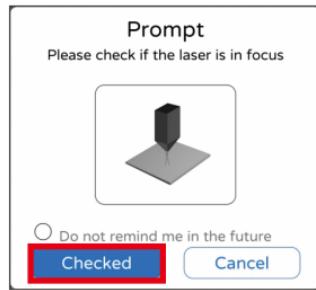
Note: The parameters are for learning reference only, and the actual use will be affected by factors such as material and thickness! Please do more tests according to the actual situation!



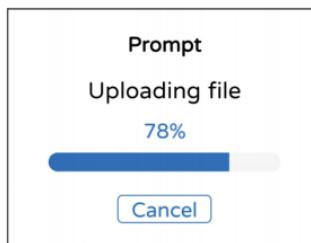
Parameter settings for engraving (reference)



Parameter settings for cutting (reference)



1. Click the options in the red box in order from left to right.



Please wait patiently until the file is loaded.



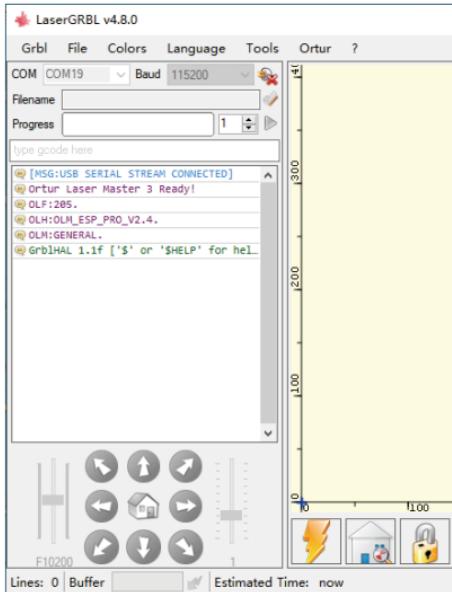
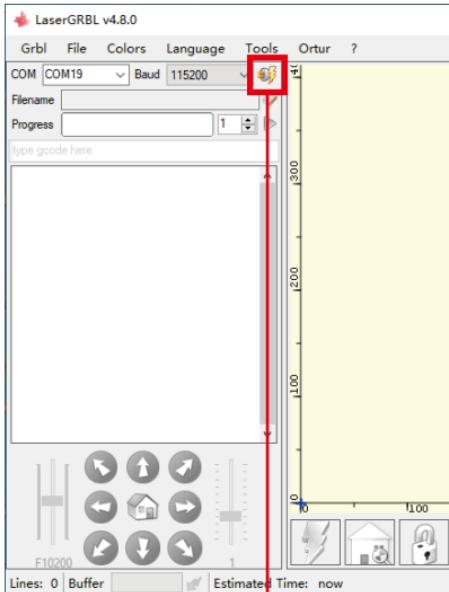
2. Click "Run" to start engraving or cutting.



3. Click "Confirm".

9. How to Engrave and Cut with LaserGRBL

9.1 Connect the machine



Click the button in the red box to connect the software to the machine.

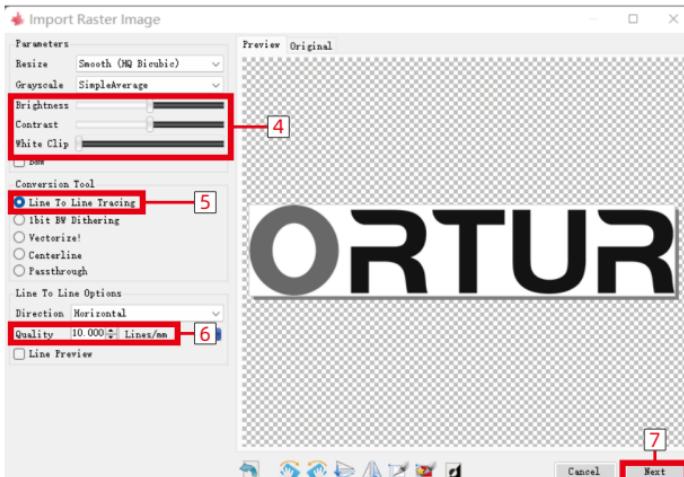
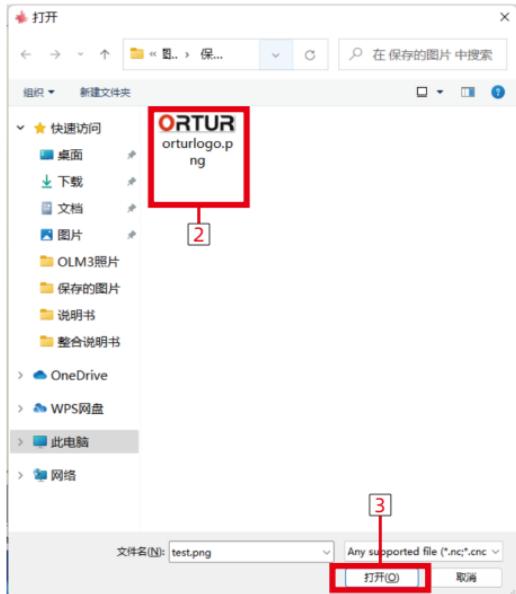
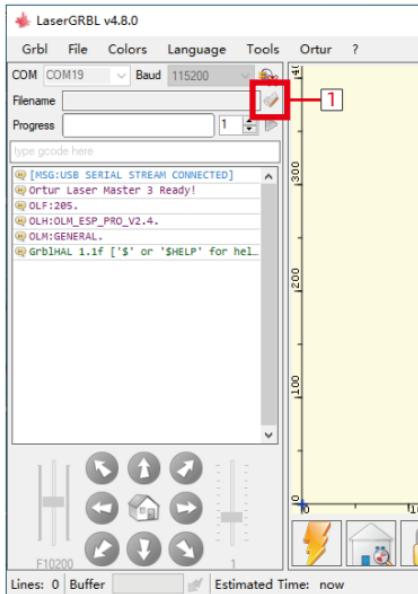
9.2 Unlock Buttons

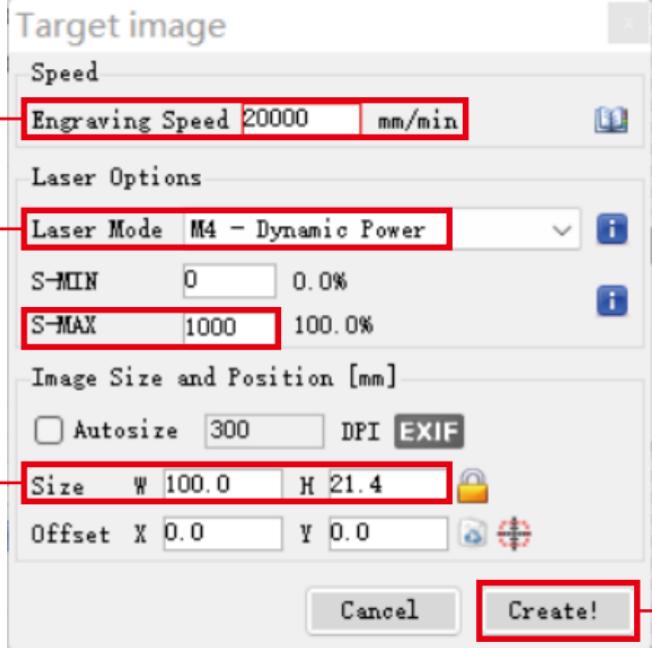


Click the button in the red box to unlock the grey buttons.



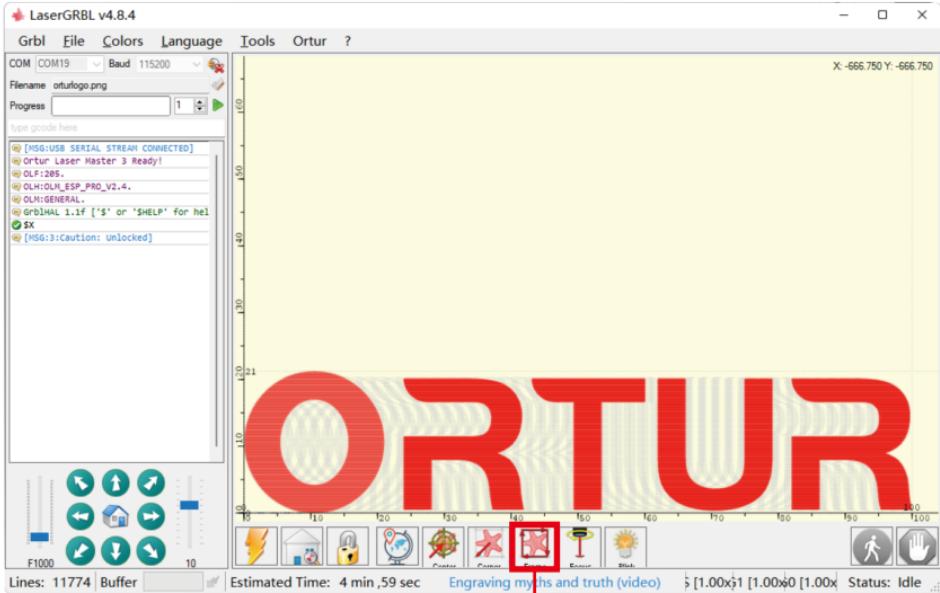
9.3 Engraving



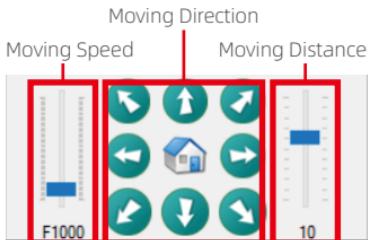


1. Click the "Import" button
2. Select the engraving image
3. Click "Open"
4. Brightness, contrast, black and white limit adjustment
5. Select "Line to Line Trace"
6. The quality is modified to 10Lines/mm
7. Click "Next"
8. The Engraving Speed is modified to 20000mm/min
9. Select "M4-Dynamic Power" for laser mode
10. S-MAX 1000
11. The size can be modified according to your needs
12. Click "Create"

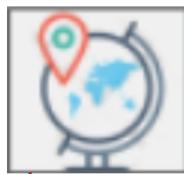
Note: The engraving parameters are only for learning and reference, and the actual use will be affected by factors such as materials and engraving images!



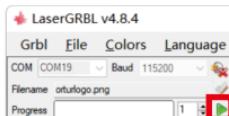
Click the button in the red box to view the engraving range, and then adjust the position according to the engraving range.



Use the moving direction buttons to adjust the engraving starting point.

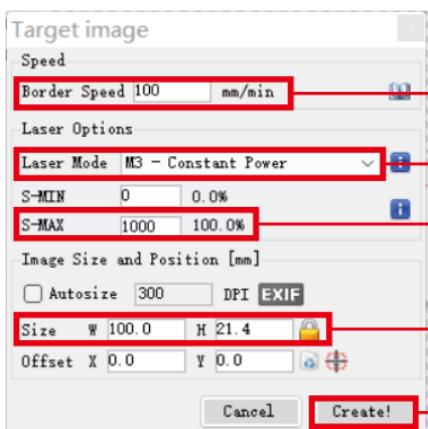
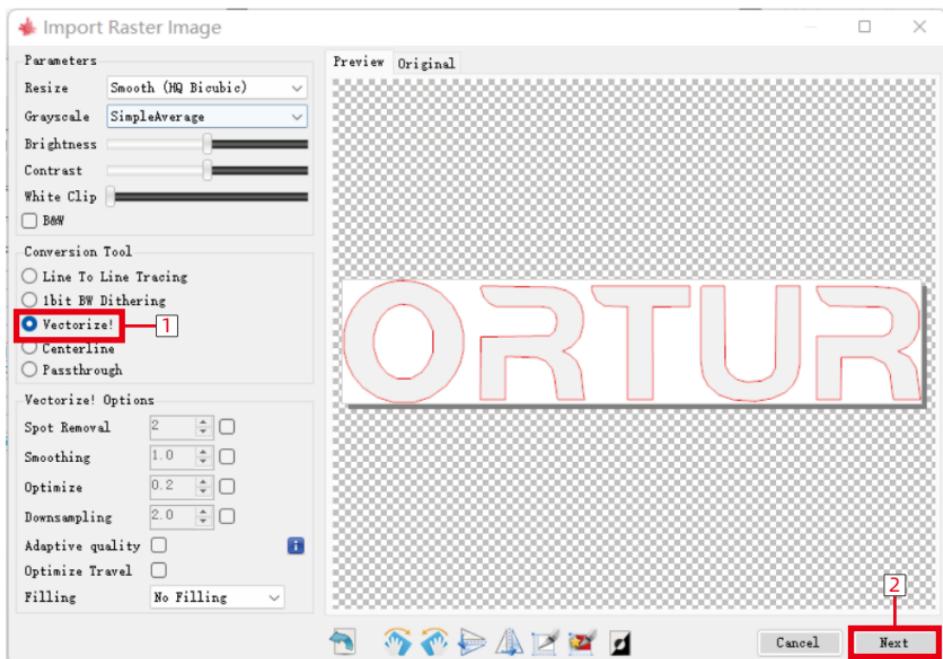


After adjusting the engraving starting point, you must click this button to record the position, otherwise the movement will be invalid!



Click the button in the red box to start engraving.

9.4 Cutting



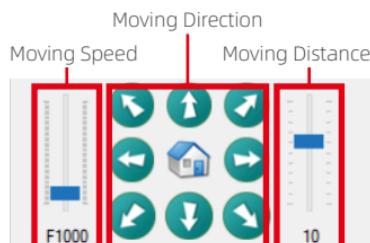
1. Select "Vectorize"
2. Click "Next"
3. The Border Speed is modified to 100mm/min
4. Select "M3-Constant Power" for laser mode
5. S-MAX 1000
6. The size can be modified according to your needs
7. Click "Create"

Note 1: The cutting parameters are for learning and reference only, and the actual use will be affected by factors such as material and thickness!

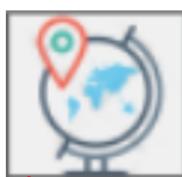
Note 2: The same material, such as wood, will have different effects due to different tree ages and resins. In order to achieve the best results, multiple attempts are required!



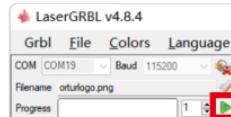
Click the button in the red box to view the engraving range, and then adjust the position according to the engraving range.



Use the moving direction buttons to adjust the engraving starting point.



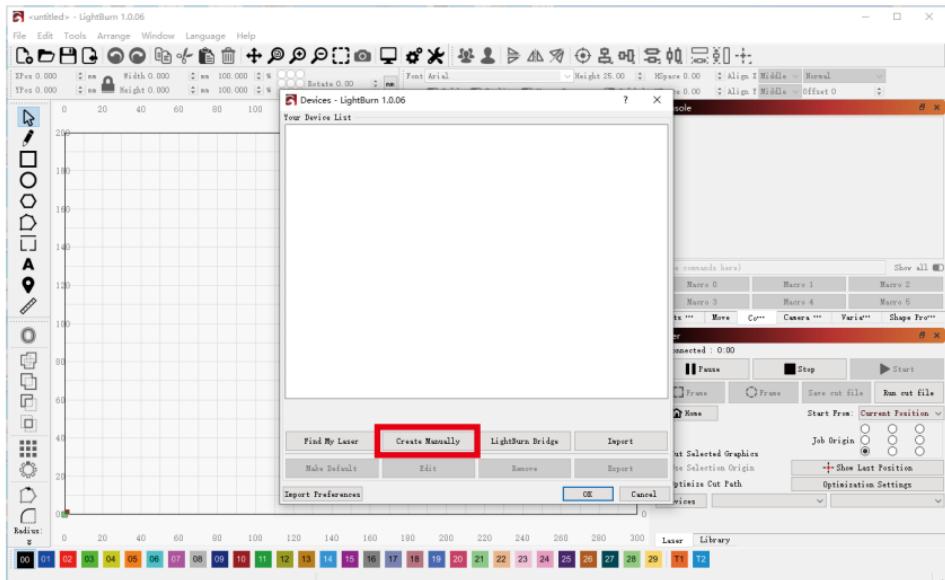
After adjusting the engraving starting point, you must click this button to record the position, otherwise the movement will be invalid!



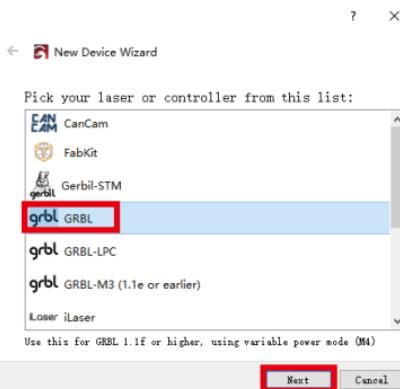
Click the button in the red box to start cutting.

10. How to Engrave and Cut with LightBurn

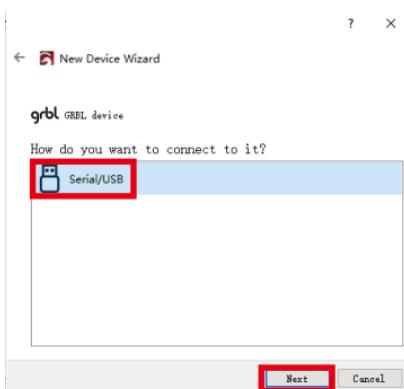
10.1 Connect the machine



1. Click the "Create Manually"



2. Click the "GRBL", then click "Next".



3. Click the "Serial/USB", then click "Next".

← New Device Wizard

What would you like to call it?
(If you have more than one, use this to tell them apart)

GRBL

What are the dimensions of the work area?
(The lengths, in mm, of the X and Y axis of your laser)

X Axis Length 400 [+] mm Y Axis Length 400 [+] mm

4. Modify "X Axis Length" and "Y Axis Length" to 400mm.

← New Device Wizard

Where is the origin of your laser?
(Where is X0, Y0 ?)

Rear Left Rear Right
 Front Left Front Right

Auto "home" your laser on startup?

5. Select the origin "Front Left", turn off auto-homing, then click "Next".

← New Device Wizard

That's it - you're done. Here's a summary:

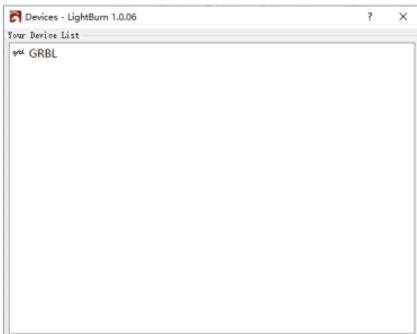
grbl GRBL Serial/USB

GRBL

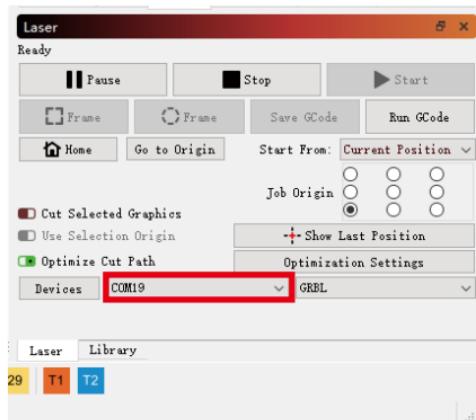
400mm x 400mm, origin at front left

Click "Finish" to add the new device.

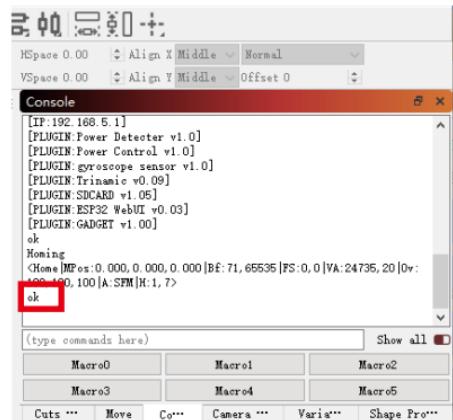
6. Click the "Finish".



7. Click the "OK".

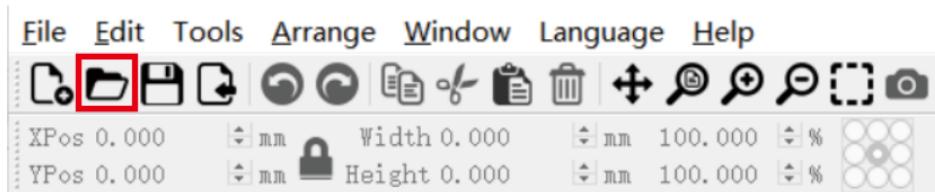


8. Select "COM19".



9. Connection succeeded.

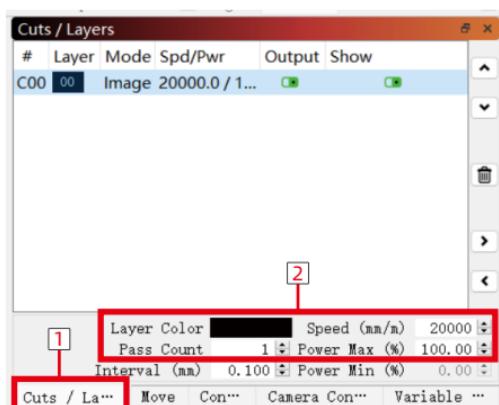
10.2 Engraving



1. Click the "Open" button



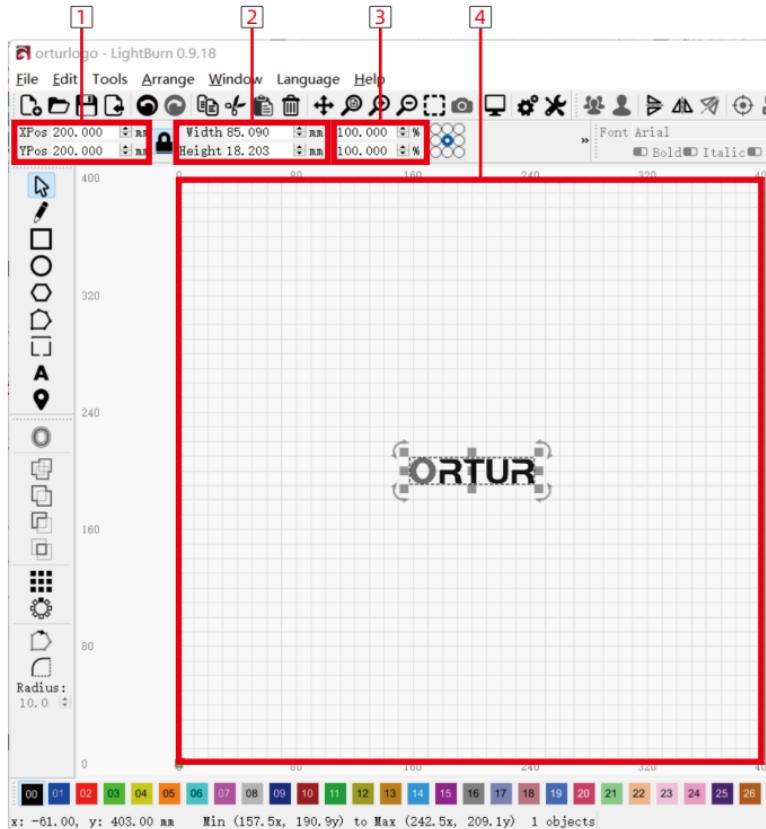
2. Select the engraving image, then click "Open".



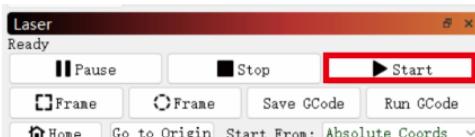
1. Click the "Cuts / Layers".

2. Modify the speed to 20000, "Pass Count" to 1, and "Power Max" to 100.
(Note that the unit is mm/m)

Note: The engraving parameters are only for learning and reference, and the actual use will be affected by factors such as materials and engraving images!

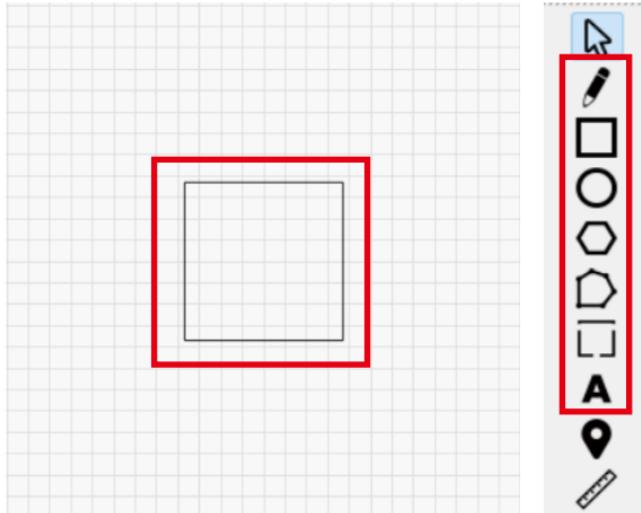


1. The coordinates of the center point of the engraving range
2. Engraving image size
3. Engraving image size ratio
4. The effective engraving range of the machine



Click the button in the red box to start cutting.

10.3 Cutting



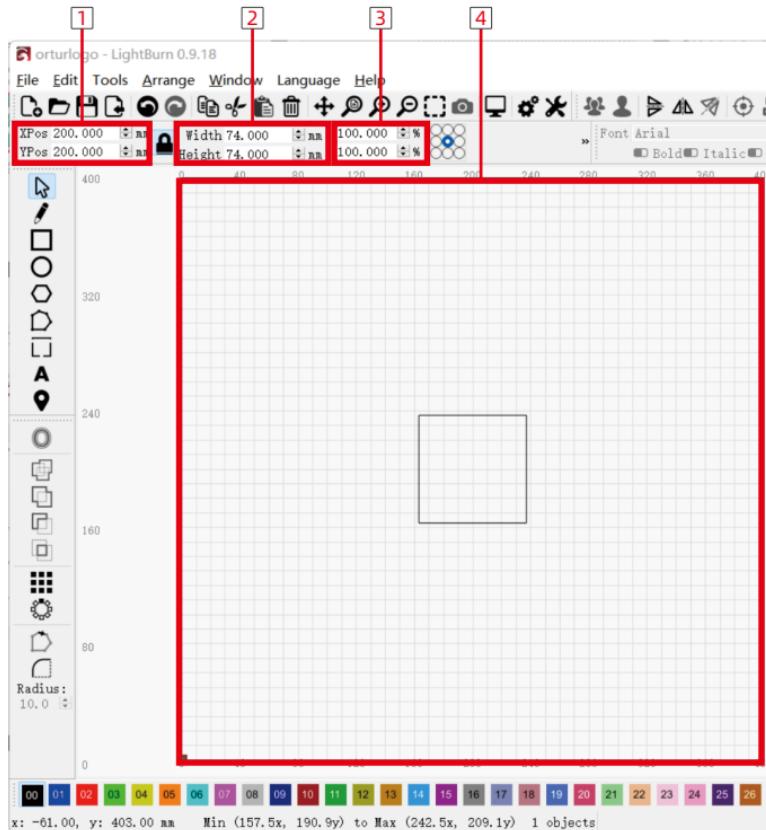
You can draw lines using the tools included with the software, or import an existing line file.

The cut image must be lines!

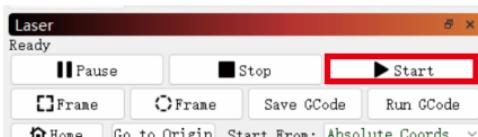
#	Layer	Mode	Spd/Pwr	Output	Show	Air
C00	00	Line	100.0 / 100.0	■	■	■

Layer Color: Black Speed (mm/m): 100
Pass Count: 1 Power Max (%): 100.00
Interval (mm): 0.100

Modify the speed to 100, "Pass Count" to 1, and "Power Max" to 100.
(Note that the unit is mm/m)



1. The coordinates of the center point of the engraving range
2. Engraving image size
3. Engraving image size ratio
4. The effective engraving range of the machine



11. How to Engrave and Cut Using the Web Controller

11.1 The machine is connected to the network (the mobile phone and the machine are in the same local area network) (LaserGRBL)

COM COM19 Baud 115200
Filename Progress
\$74=OT-BGS1
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...
[MSG:USB SERIAL STREAM CONNECTED]
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...

1. Connect the machine to LaserGRBL, enter "\$74=WiFi name" in the red box, and then click Enter.

COM COM19 Baud 115200
Filename Progress
\$75=BGS
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...
[MSG:USB SERIAL STREAM CONNECTED]
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...
✓ \$74=OT-BGS1
[MSG:WIFI STA's setting has changed,...

2. Enter "\$75=WiFi password" in the red box, then click Enter.

COM COM19 Baud 115200
Filename Progress
\$WRS
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...
[MSG:USB SERIAL STREAM CONNECTED]
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...
✓ \$74=OT-BGS1
[MSG:WIFI STA's setting has changed,...
✓ \$75=BGS111111
[MSG:WIFI STA's setting has changed,...
✓ \$WRS
[MSG:WIFI AP STOPED]
[MSG:WIFI AP READY]
[MSG:WIFI STA ACTIVE]

3. Enter "\$WRS" in the red box, then click Enter.

COM COM19 Baud 115200
Filename Progress
Type gcode here
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...
[MSG:USB SERIAL STREAM CONNECTED]
Ortur Laser Master 3 Ready!
OLF:205.
OLH:OLM_ESP_PRO_V2.4.
OLM:GENERAL.
GrblHAL 1.1f ['\$' or '\$HELP' for hel...
✓ \$74=OT-BGS1
[MSG:WIFI STA's setting has changed,...
✓ \$75=BGS111111
[MSG:WIFI STA's setting has changed,...
✓ \$WRS
[MSG:WIFI AP STOPED]
[MSG:WIFI AP READY]
[MSG:WIFI STA ACTIVE]
✓ [MSG:Get IP 192.168.11.7]

4. The IP of the machine in the LAN.

11.2 Connect the machine

(the mobile phone and the machine are in the same local area network) (LightBurn)

Console

```
[DRIVER VERSION:220327]  
[DRIVER OPTIONS:GIT-NOTFOUND]  
[BOARD:Ortur Laser Master 3]  
[WIFI MAC:64:F7:03:F8:6A:38]  
[IP:192.168.11.16]  
[PLUGIN:Power Detector v1.0]  
[PLUGIN:Power Control v1.0]  
[PLUGIN:gyroscope sensor v1.0]  
[PLUGIN:Trinamic v0.09]  
[PLUGIN:SDCARD v1.05]  
[PLUGIN:ESP32 WebUI v0.03]  
[PLUGIN:GADGET v1.00]  
ok
```

\$74=OT-BGS1|

Macro0

1. Connect the machine to LightBurn, enter "\$74=WiFi name" in the red box, and then hit enter.

```
$WRS  
ok  
[MSG:WIFI AP STOPED]  
[MSG:WIFI AP READY]  
[MSG:WIFI STA ACTIVE]  
[MSG:Get IP 192.168.11.16]
```

Console

```
[WIFI MAC:64:F7:03:F8:6A:38]  
[IP:192.168.11.16]  
[PLUGIN:Power Detector v1.0]  
[PLUGIN:Power Control v1.0]  
[PLUGIN:gyroscope sensor v1.0]  
[PLUGIN:Trinamic v0.09]  
[PLUGIN:SDCARD v1.05]  
[PLUGIN:ESP32 WebUI v0.03]  
[PLUGIN:GADGET v1.00]  
ok  
$74=OT-BGS1  
ok  
[MSG:WIFI STA's setting has changed,reboot or $WRS to apply.]
```

\$75=12345678|

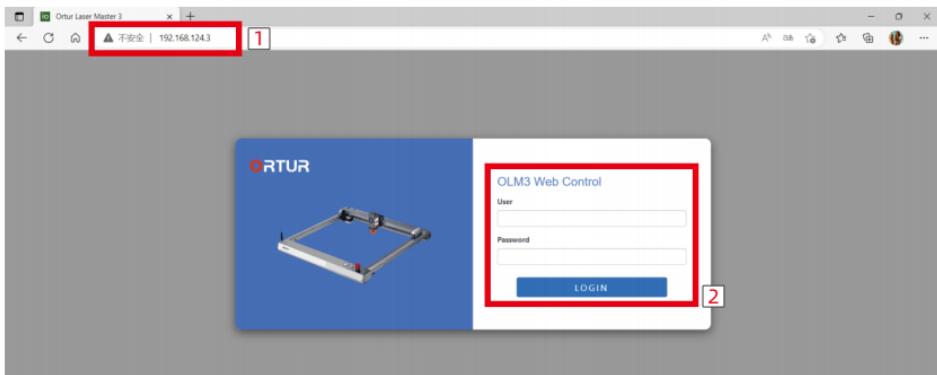
Macro0

Macro1

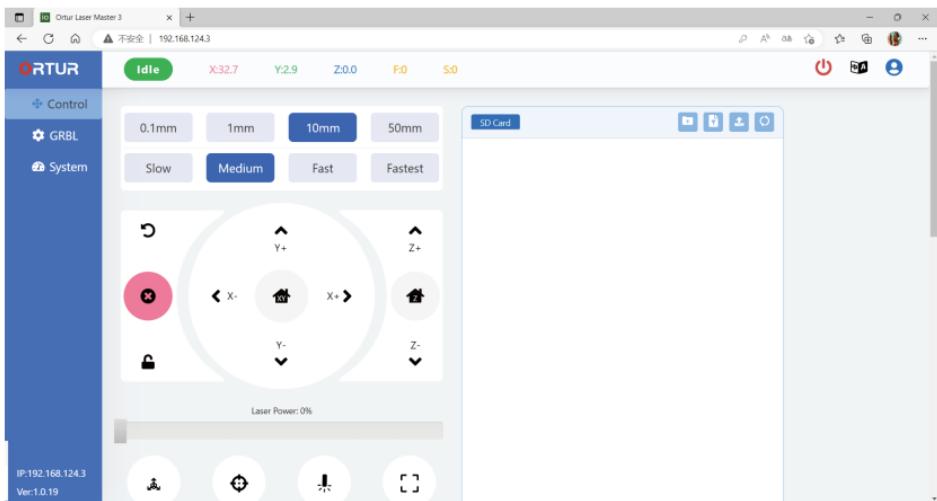
2. Enter "\$75=WiFi password" in the red box, and then click Enter.

3. Then enter "\$WRS", and then click Enter, you will get the IP of the machine in the LAN.

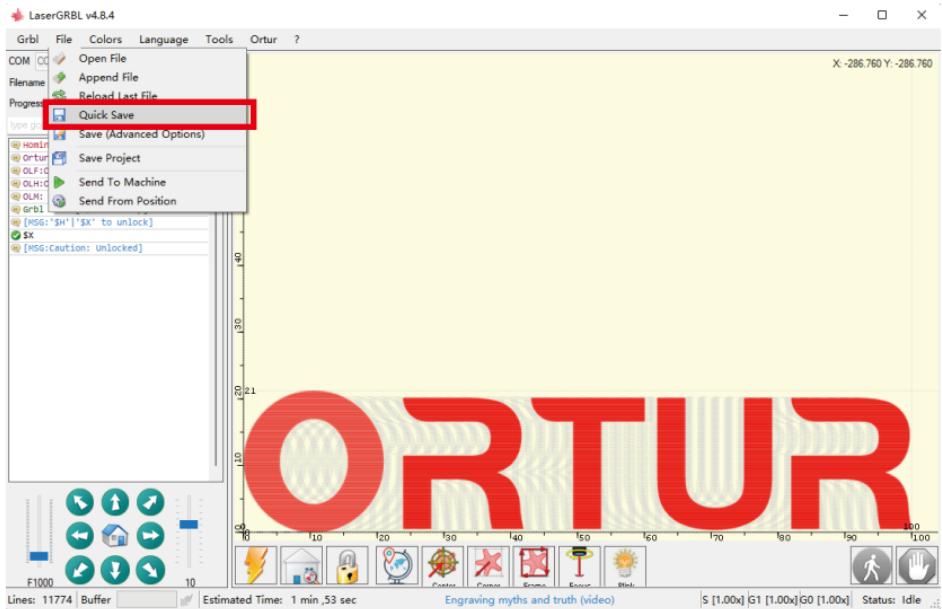
11.3 Computer connected to the machine



1. Open a browser, enter the IP address of the machine, and hit enter.
2. Enter "admin" for the user and password to enter the operation interface.



11.4 Make Gcode files needed for web controller engraving or cutting(LaserGRBL)

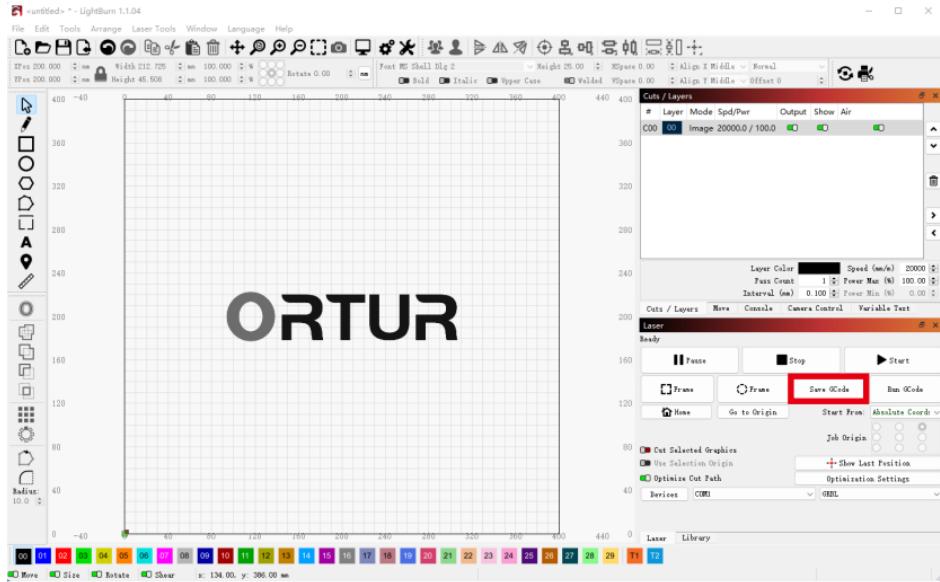


1. After setting the parameters in the software, click "File" → "Quick Save".



2. Click "Save".

11.5 Make Gcode files required for web controller engraving or cutting(LightBurn)

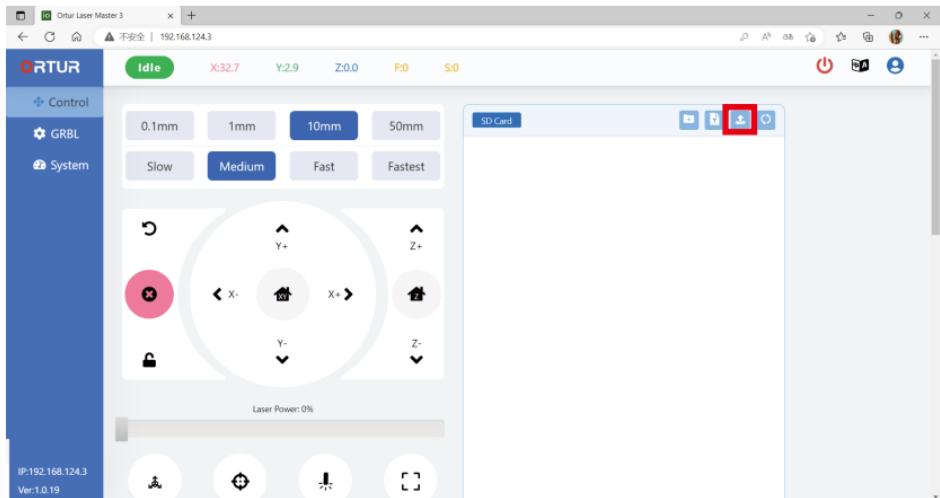


1. After setting the parameters in the software, click "File" → "Quick Save".

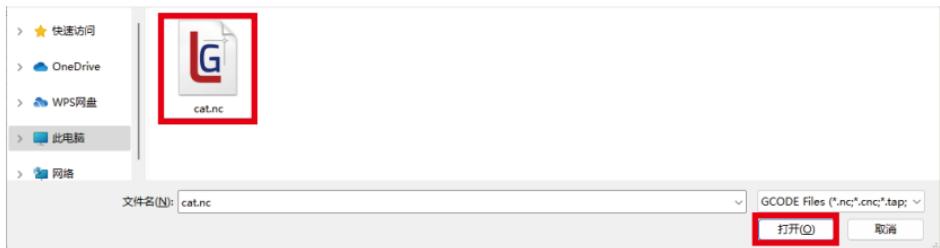


2. Click "Save".

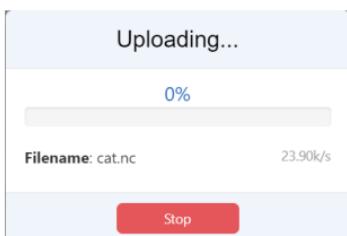
11.6 Engraving or cutting



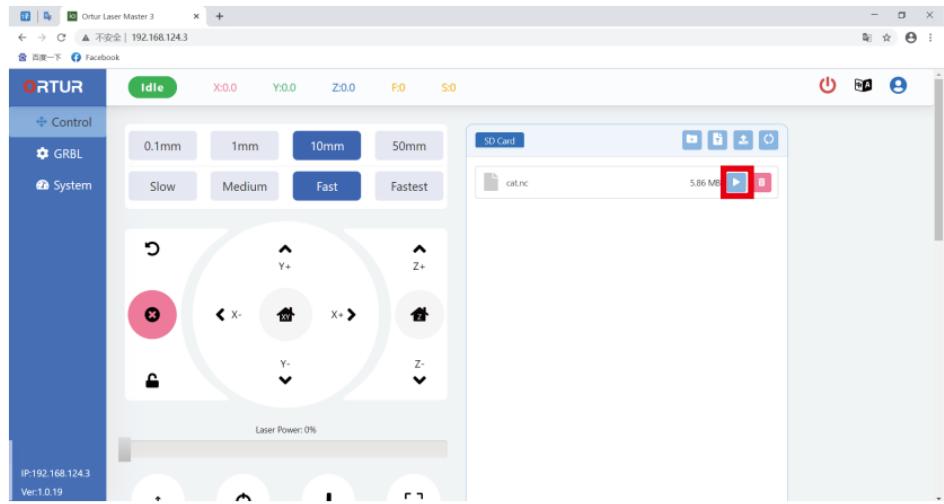
1. Click the button inside the red box to open the saved Gcode file.



2. Click "Open".



Please wait patiently until the file is loaded.



3. Click the button inside the red box to start engraving or cutting.

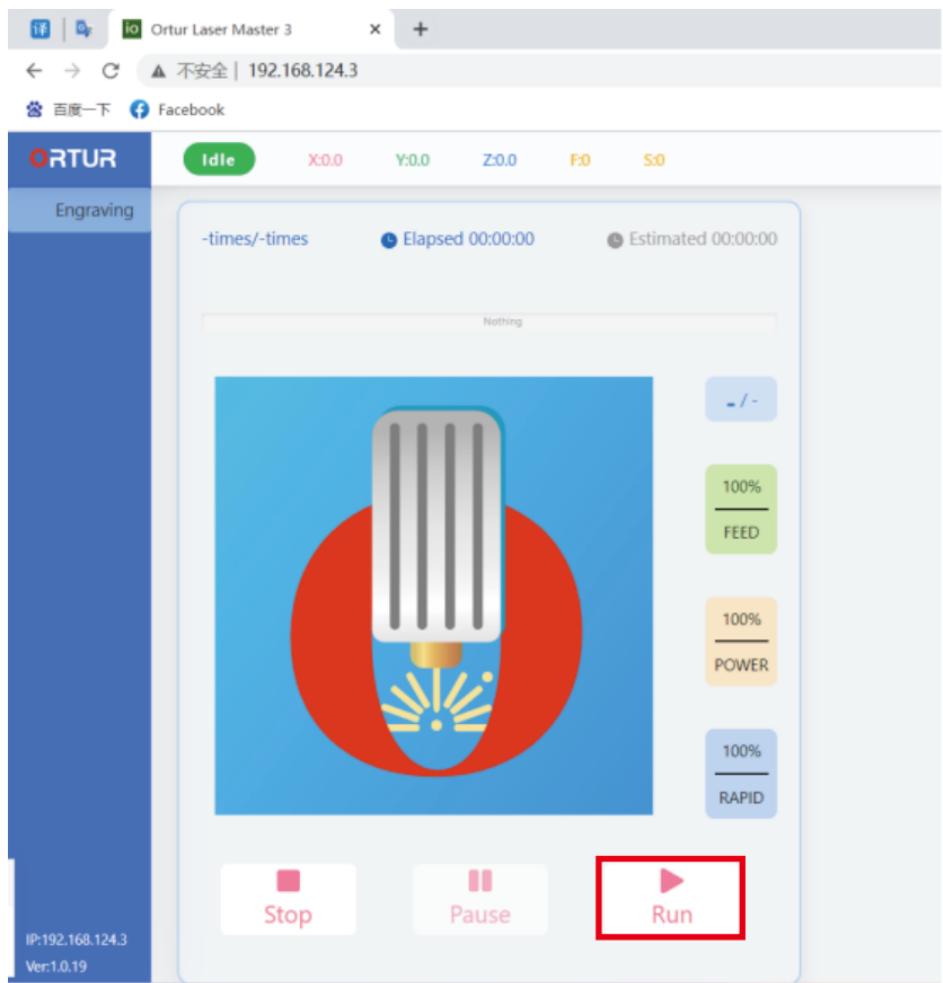
The image displays three separate 'Confirm' dialog boxes:

- Confirm**: A dialog asking to check if the laser is focused. It features a drawing of a funnel-like lens icon, a 'Z+' button, a 'Z-' button, a 'step' input set to '0.01', and a checkbox for 'Don't remind me'. A red box highlights the 'Checked' button at the bottom left.
- Confirm**: A dialog asking to set the engraving starting point and range. It includes a 'Y+' button, an 'X-' button, a 'Z+' button, a 'Z-' button, a 'step' input set to '10', and a checkbox for 'Don't remind me'. A red box highlights the 'Next' button at the bottom left.
- Confirm**: A dialog asking to set the engraving times. It features a circular arrow icon with a diamond, a '1' input field, an 'engraving times' input field set to '1', and a plus and minus button. A red box highlights the 'Start' button at the bottom left.

4. Click "Checked".

5. Click "Next".

6. Click "Start".



7. Click "Run".

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