Light Burn

Software Manual

(Installation and use)

■ Security Statement

Before starting laser engraving, please read this safety guide carefully. It mentions situations requiring special attention, including warnings of unsafe behaviors that may cause damage to your property or even endanger your personal safety.

■ Laser safety

The laser uses laser products. The power of the laser is very high, which may cause eye injuries and burn the skin.

When using a laser engraving machine, it is still recommended that you wear laser protective glasses.

Avoid skin exposure to laser beams, especially at close range.

Teenagers must have parental supervision in the process of using it.

Do not touch the laser engraving module in the power-on state.

■ Fire safety

Because the substrate will be burned during cutting, the high-intensity laser beam will produce extremely high temperature and generate a lot of heat. Some materials will catch fire during cutting, thus generating gas and smoke inside the equipment.

When the laser beam irradiates the material, a small flame usually appears here. It will move with the laser and will not remain lit when the laser passes by.

Do not leave the machine unattended during carving.

After use, be sure to clean up sundries, debris and flammable materials in the laser cutting machine.

Always keep fire extinguishers that can be used normally nearby.

Safety of smoke or air pollutants

When using laser engraving machines, smoke, vapor and particles will be generated from materials, which may be highly toxic (plastics and other combustible materials). These smog or air pollutants may be harmful to health.

■ Material safety

Do not engrave materials with unknown properties.

Recommended materials:

Wood, bamboo, leather, plastic, fabric, paper, non-transparent acrylic acid, glass, metal with surface treatment (such as electroplating and oxidation).

Material that not recommended:

Metals (such as titanium), precious stones, transparent materials, reflective materials, etc. are very common.

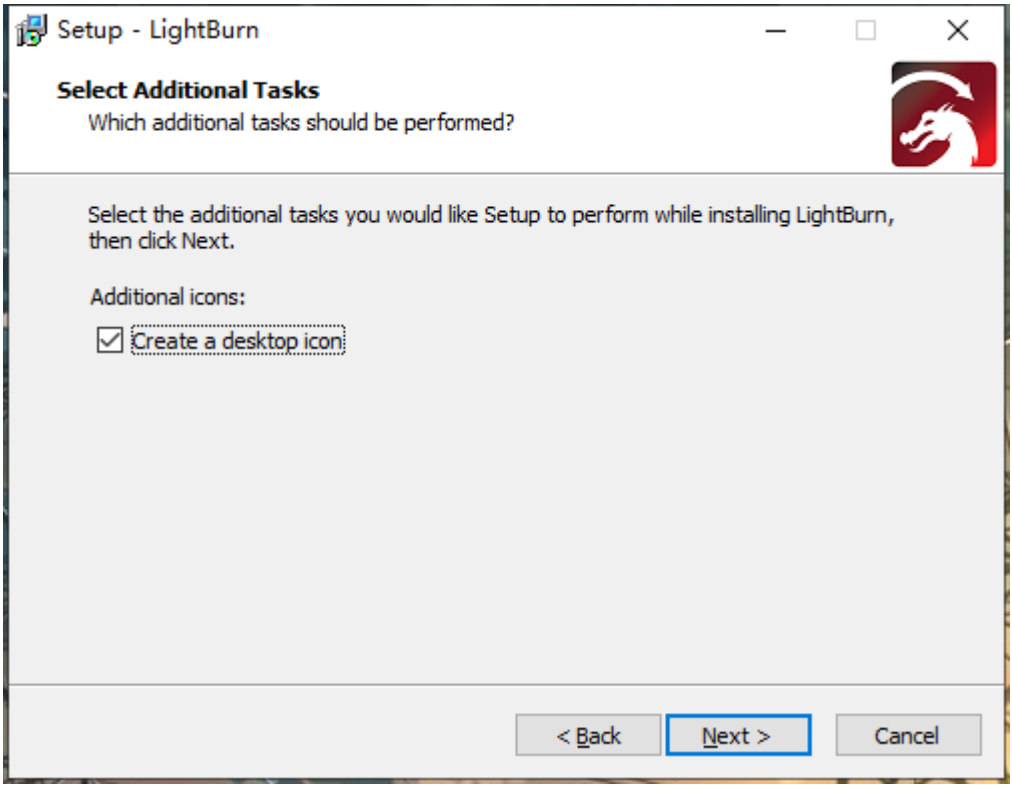
1. Software Download

LightBurn is a paid software with powerful engraving software, which can be downloaded from LightBurn official website https://lightburnsoftware.com/. (The TFC card or U disk attached by the manufacturer also has an installation package)

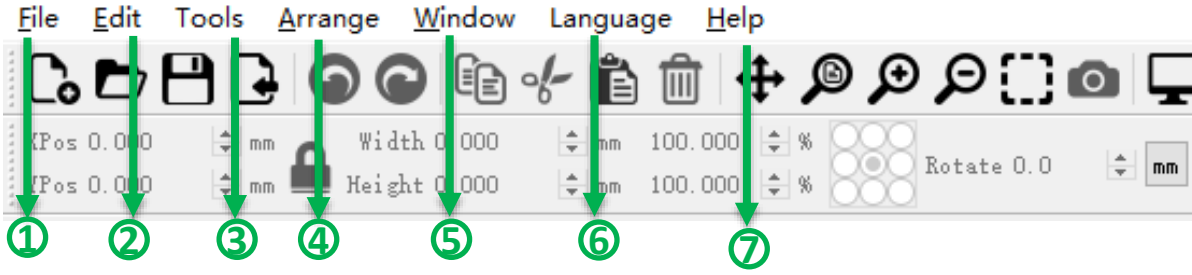
Brief Introduction: LightBurn is a layout, editing and control software for laser engraving machines.
With LightBurn, you can:
-Import artwork in various common vector graphics and image formats (including AI, PDF, SVG, DXF, PLT, PNG, JPG, GIF, BMP)
-Powerful editing function (you can edit the graphics you want to carve)
-LightBurn is a native application written for Windows, Mac OS, and Linux (but requires a key activation for permanent use, with a 30-day trial period)
Note: During the engraving process, the engraving machine needs to keep connected with the computer, and the engraving machine software cannot be turned off.

2. Software Installation

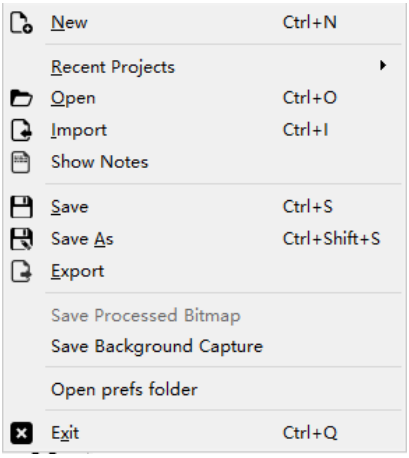
Double-click the software installation package to start the software installation, select the installation directory and enter the next step until the installation is completed.



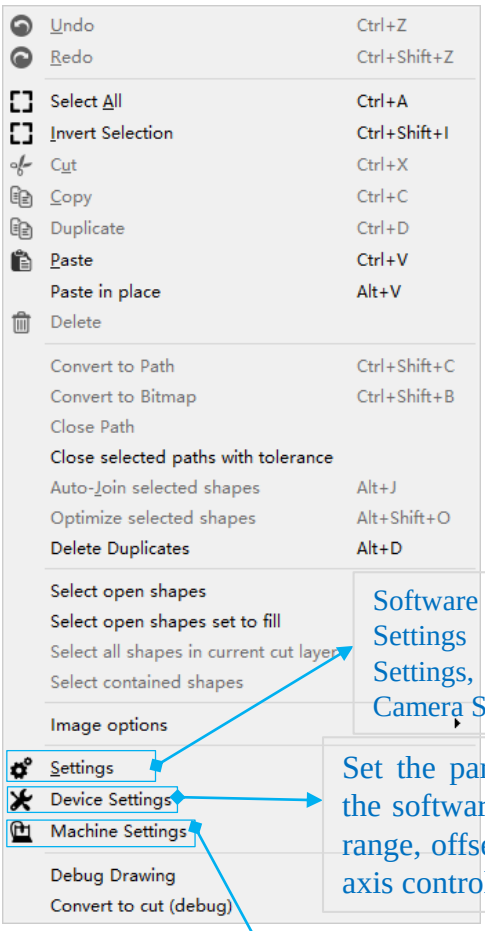
3. Introduction to Menu



① New, Import Picture, Save



② Setup of machine and software, copy and paste of pictures

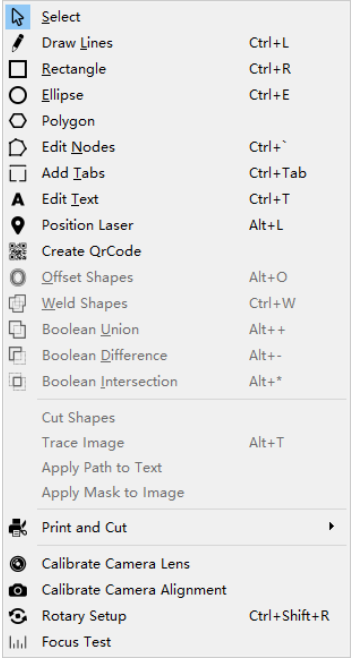


Software Operation Settings (Display Settings, Capture and Camera Settings)

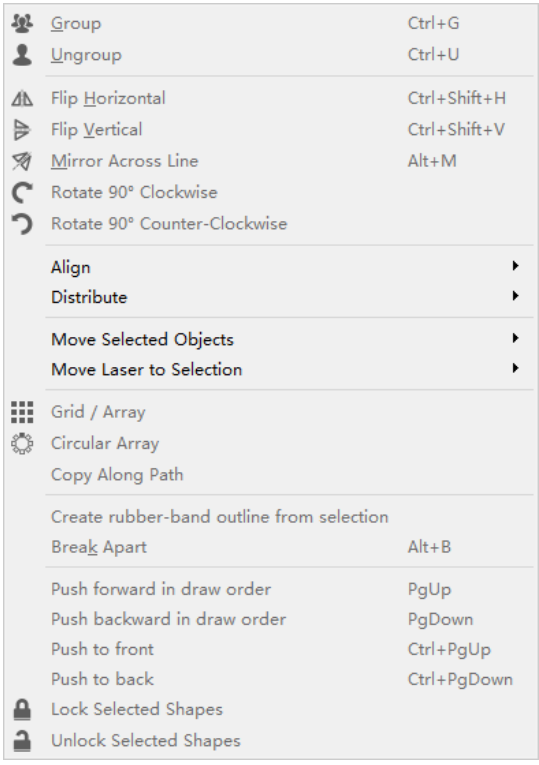
Set the parameters of the software (working range, offset value, Z-axis control)

Configure machine firmware parameters
(Motor speed, direction, acceleration, etc.)

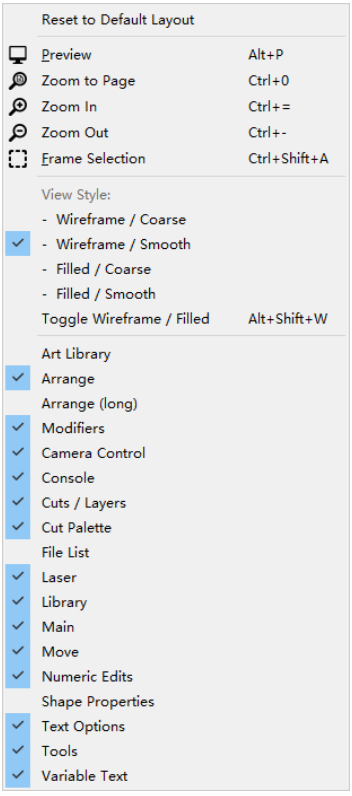
③ Drawing Tools



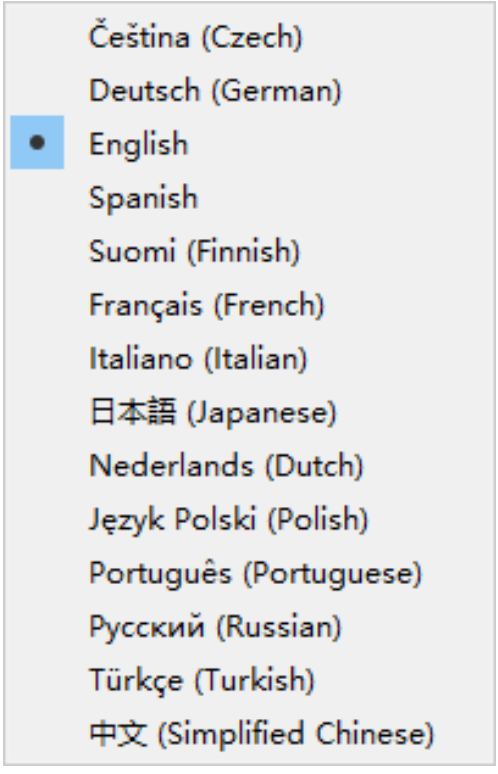
④ Picture tool, laser head movement



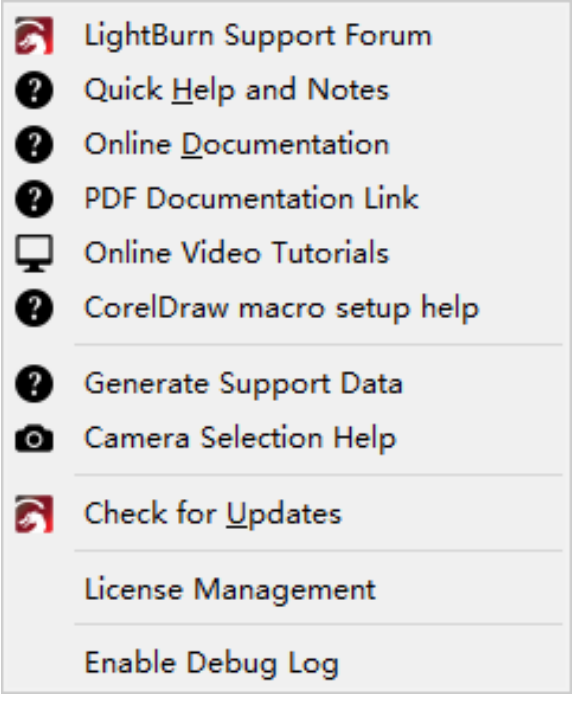
⑤ Operating tools, toolbar display



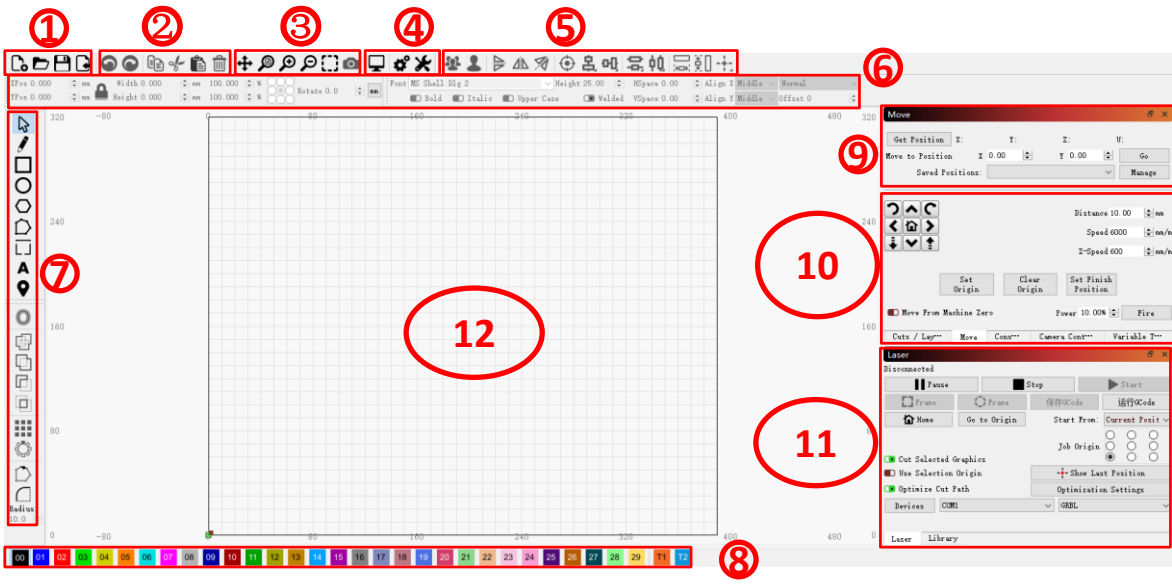
⑥ Software Language Setting



⑦ Software Forum, Tutorial



4. Interface Introduction



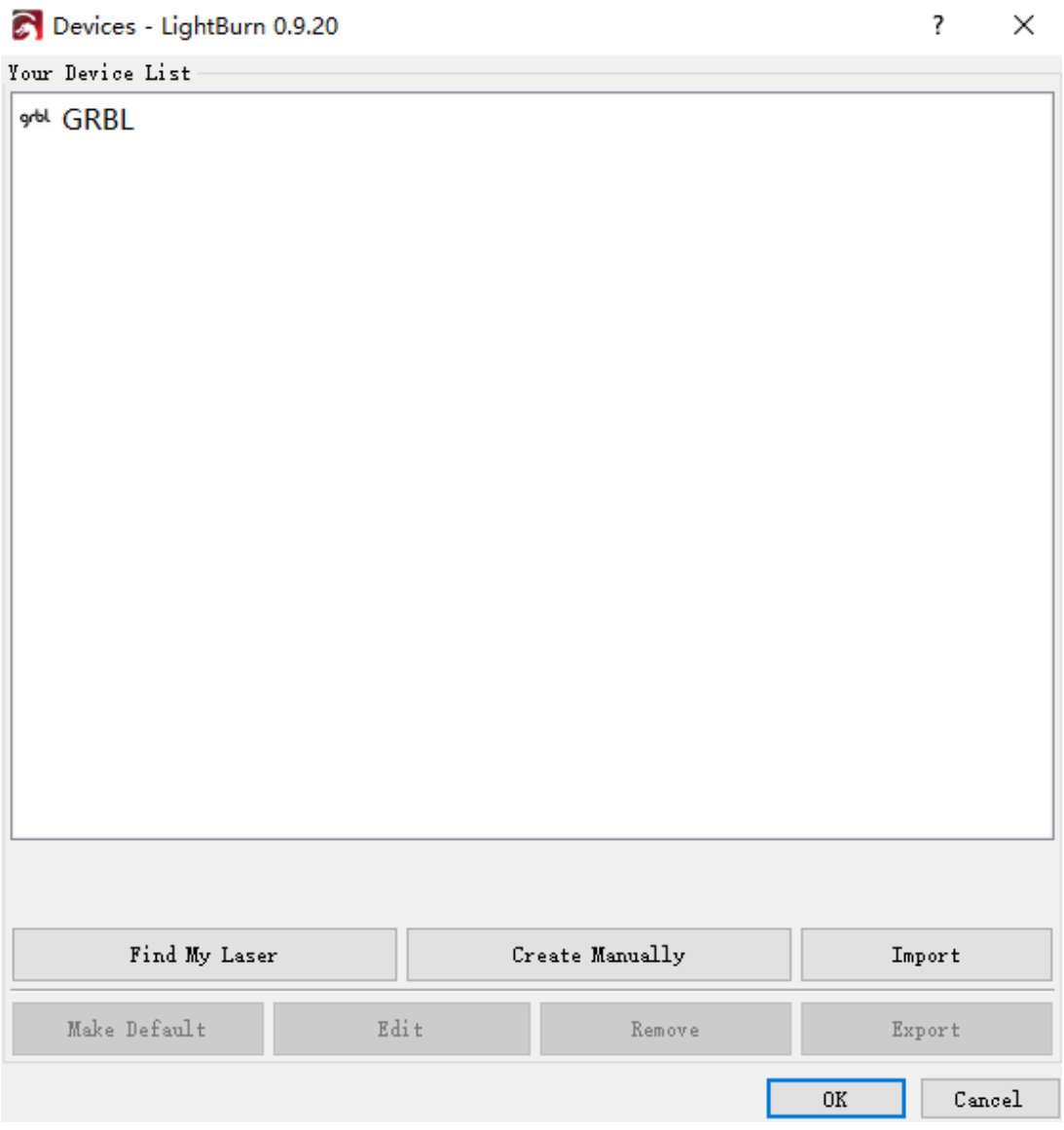
LightBurn User Interface

1. Create new project/import project, open/save picture
2. File Control: Cancel/Redo, Copy/Cut/Paste/Delete the file
3. Control Work Area Setting: You can zoom in and out of the work area, and set the zoom to the box selection area
4. Software, machine setting parameter adjustment, engraving effect preview interface
5. Carving pattern adjustment operation: the pattern can be vertically and horizontally centered and stretched
6. Display XY position, height coordinate value, pattern origin position setting and font setting
7. Pattern Editing Toolbar: Create and edit graphics
8. Pattern color setting: You can select the required color pattern, but the software displays the pattern color carving effect color and will not change
9. Origin Coordinate Display: Get the origin coordinates and move to the set coordinates
10. Moving operation: Set the moving speed to control the laser head to move back and forth, left and right, turn on and off the laser (it needs to be turned on in the setting) and set the laser power percentage
11. Laser operation: start/stop engraving, perform boundary/elastic stroke, reset and return to the origin operation, set the starting position (set coordinates as origin engraving, set origin start engraving, current position of laser head engraving), and set the connection of engraving machine
12. Preview of Work Area: Pattern editing and picture display can be carried out in the area

5. Add equipment parameters (USB is required to connect to engraving machine)

Found in laser settings

Clicking the device button then appear



You need to add the laser head to the LightBurn software (the computer is connected to the engraving machine, and this setting parameter setting box will pop up when the software is started). Click Find My Laser to automatically add the corresponding GRBL parameter value

If the corresponding parameter value cannot be found, the parameter value can be created manually

① Select GRBL and click Next (Figure 5.1)

② Select USB connection (Figure 5.2)

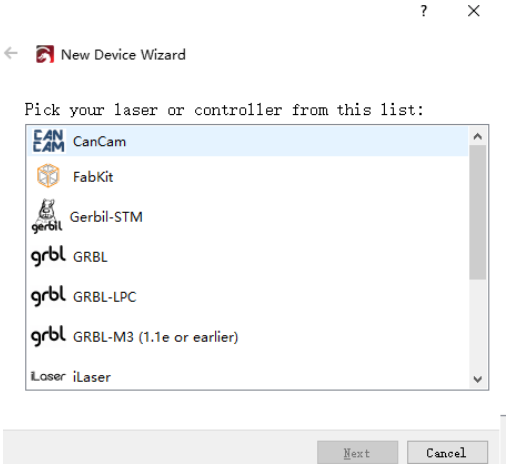


Figure 5.1, New Device Adding

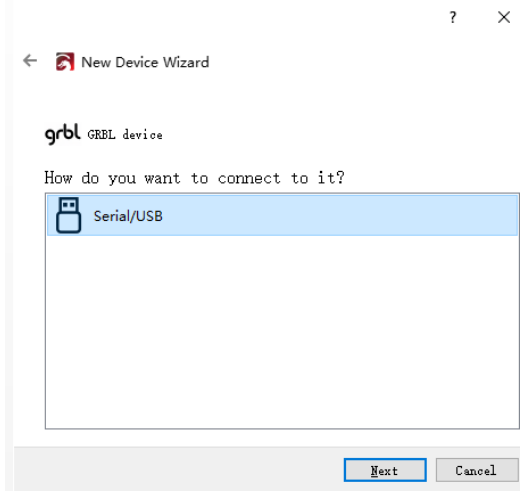


Figure 5.2. Device Connection Mode

(3) Set the equipment name as the distinguishing engraving machine, and set the working area size of the engraving machine (Fig. 5.3)

④ Set the laser origin position (which can be modified later) and whether the startup is automatically reset (Figure 5.4)

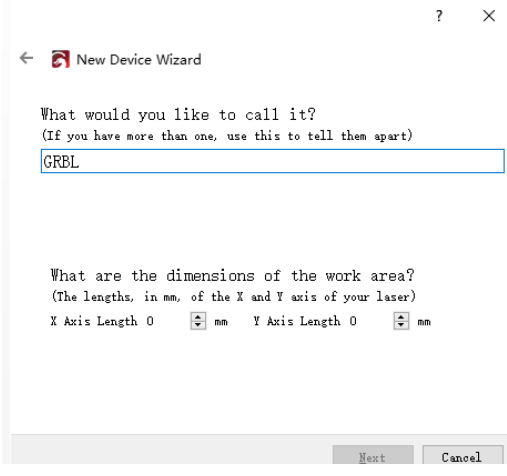


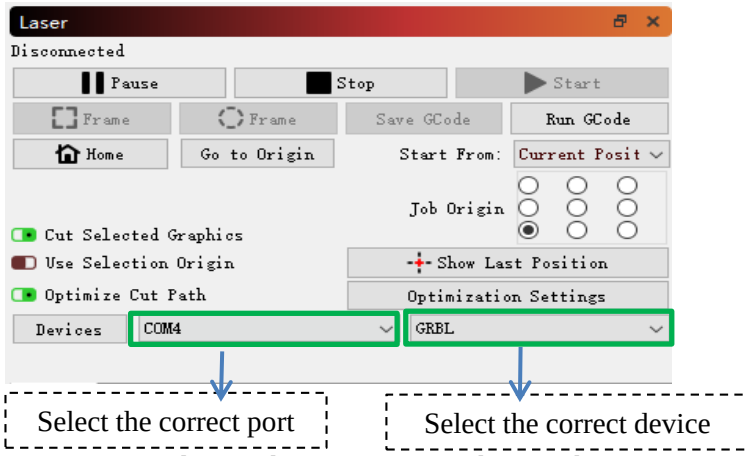
Figure 5.3. Device Name Size Setting

Figure 5.4. Setting the Laser Origin Position

Device creation complete

6. Software Connection Device Settings (USB Connection Engraving Machine Required)

Select the serial number connecting the engraving machine in the laser and select the set equipment name



1. Find the serial port corresponding to the engraving machine in the equipment management

(After the computer is connected to the engraving machine, it does not show that the serial port needs to copy the "CH340SER. EXE" file in the TFC card (U disk) to the computer and install it (Figure 6.1)

2. Select the correct baud rate (115200) connection (Figure 6.2)

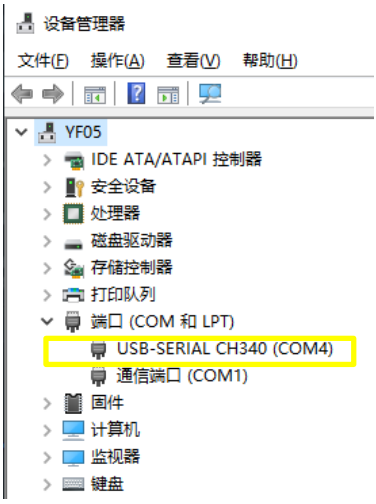


Figure 6.1, Device Manager

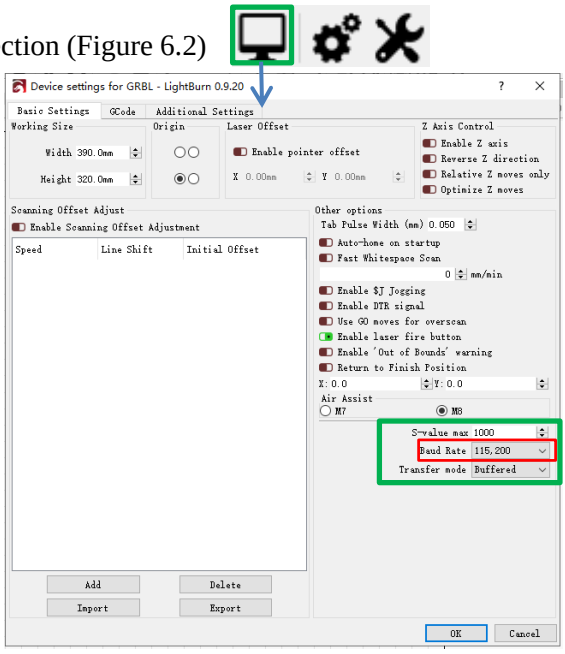


Figure 6.2, Baud Rate Selection

Ready will be displayed after successful connection

You can check whether the connection is successful by moving direction

7. Load the engraving file

7.1. You can engrave in the work area by drawing your own graphics, or you can engrave by loading pictures (Figure 7.1)

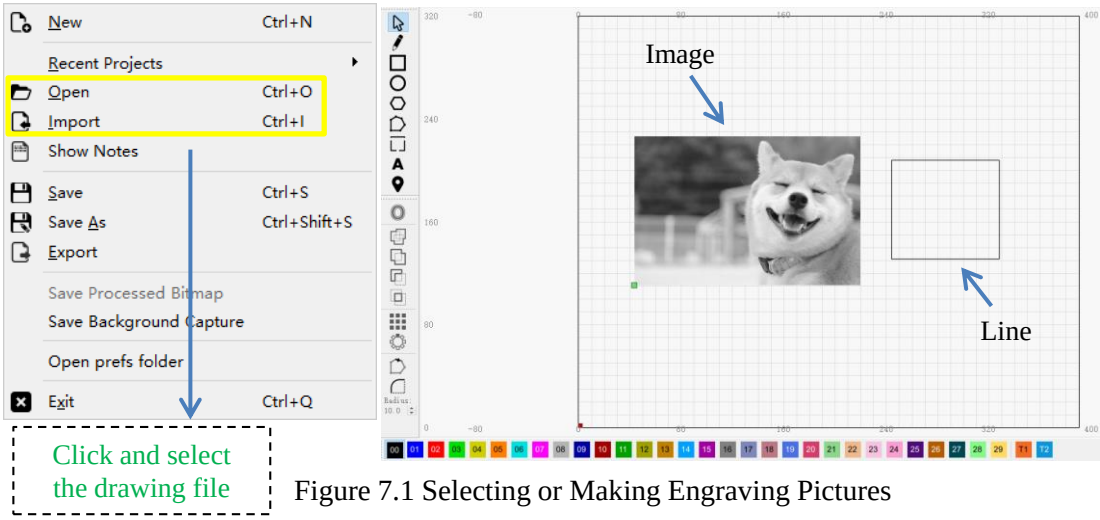


Figure 7.1 Selecting or Making Engraving Pictures

7.2. After adding pictures, the parameter value setting will appear in the cutting/layer setting [Different patterns can be set (parameter values set for different materials are different)]. (Figure 7.2)

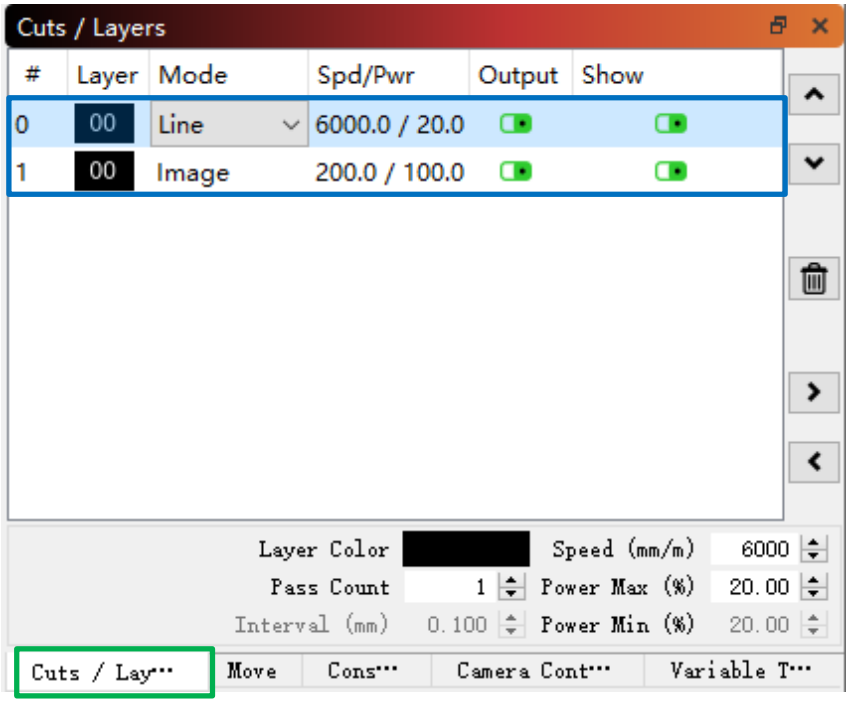


Figure 7.2 Cut/Layer Settings

7.3. Double-click the parameter value to set the image. (Figure 7.3)

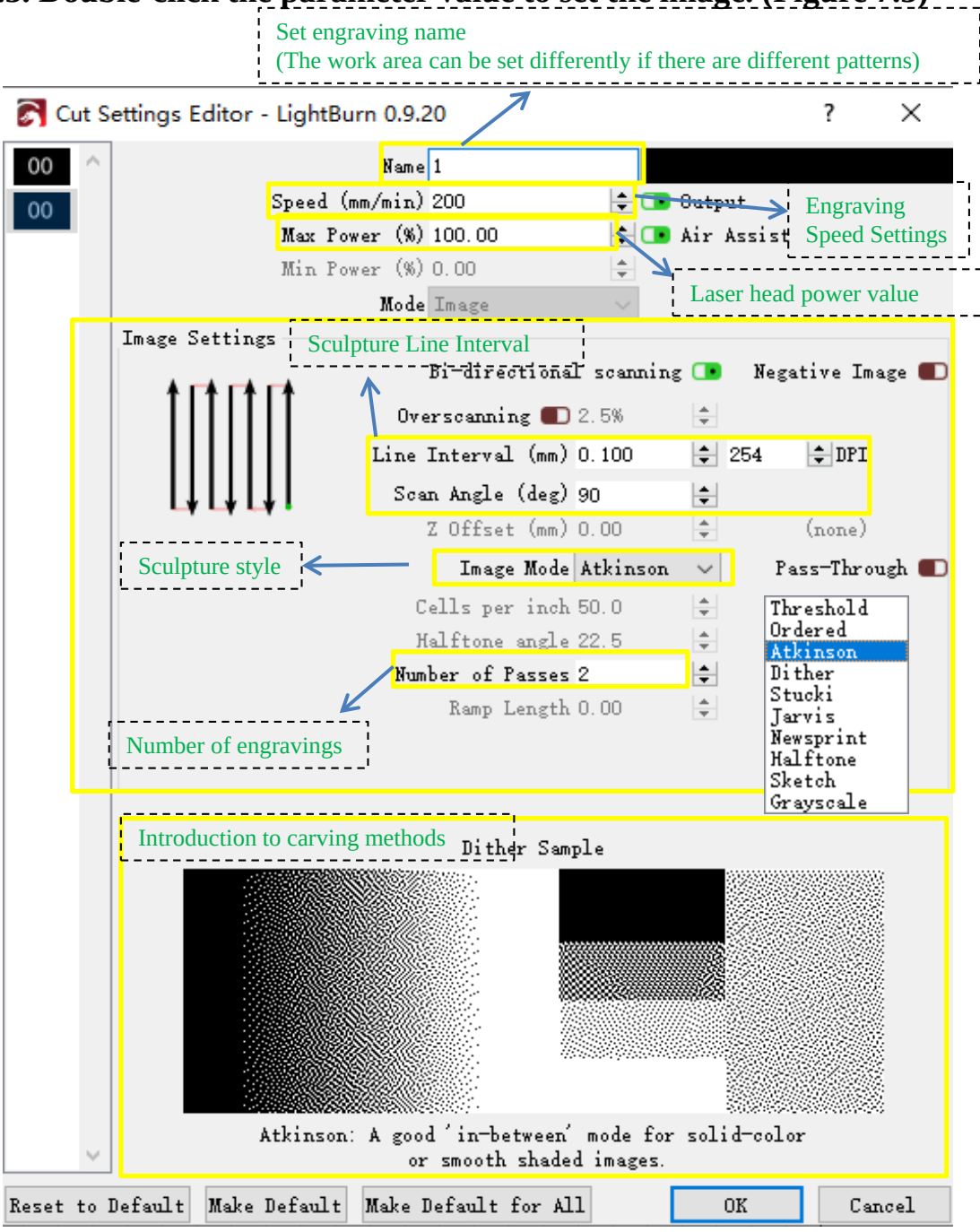
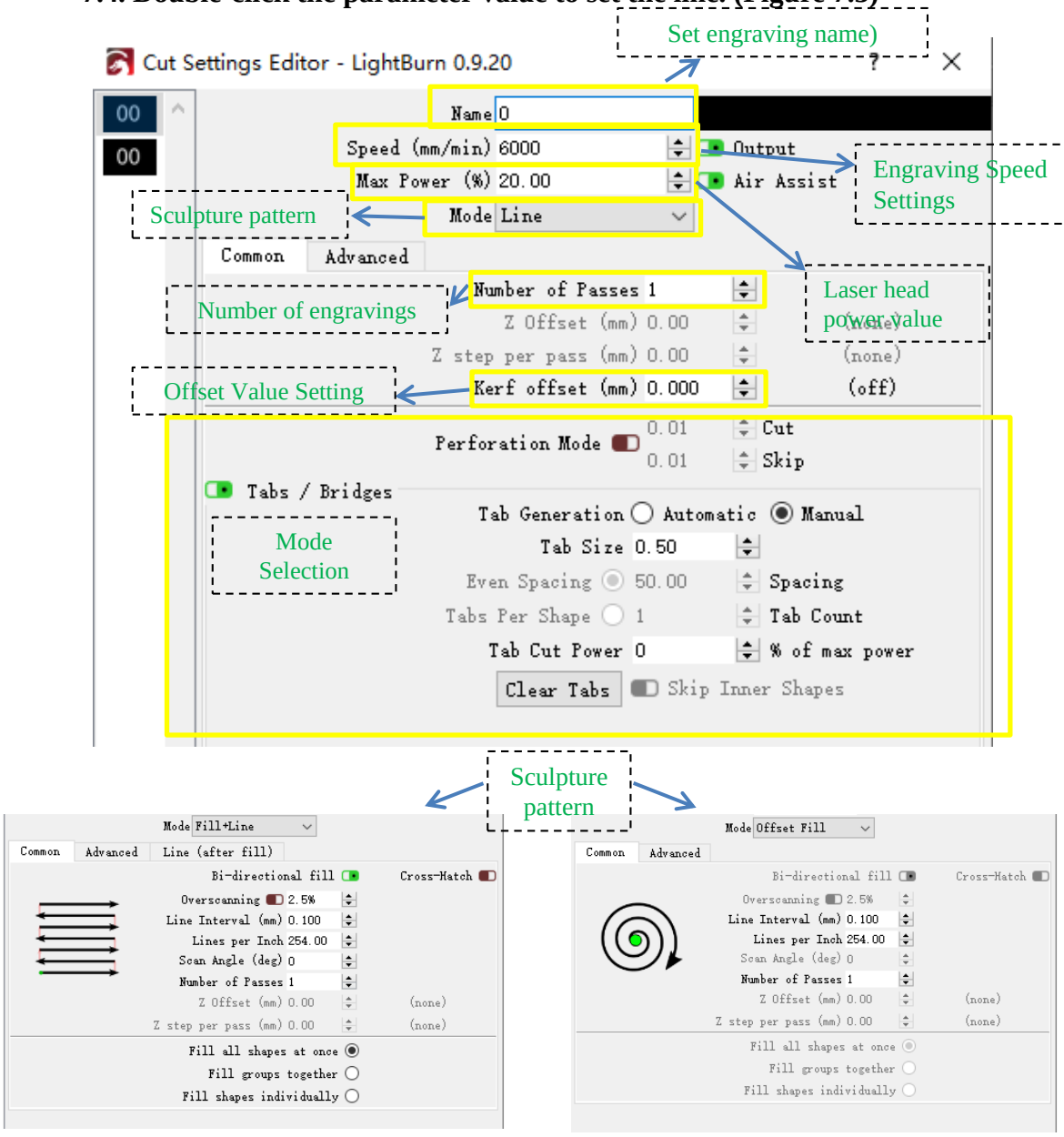


Figure 7.3 Image Engraving Settings Editing

7.3. 1 Setting name can better distinguish different settings of corresponding graphics
7.3. 2. Engraving speed setting: This value can be increased/decreased as required. Faster speed will save engraving time, but may bring about a decrease in engraving effect, while slower speed is the opposite.
7.3. 3 Power value of laser head: select different power values according to different materials
7.3. 4. Engraving line interval: setting the interval distance can make the picture engraving detailed/rough
7.3. 5. Engraving methods: There is high-frequency vibration, and 6 engraving methods such as sequence, width value and Atkinson engraving are selected. The engraving effects brought by different engraving methods are different. After selection, the introduction of the current engraving method will appear below, and the change of the picture can also be observed through preview

7.4. Double-click the parameter value to set the line. (Figure 7.3)

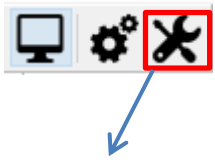


7.4. 1 Setting name can better distinguish different settings of corresponding graphics
7.4. 2. Engraving speed setting: This value can be increased/decreased as required. Faster speed will save engraving time, but may bring about a decrease in engraving effect, while slower speed is the opposite.
7.4. 3. Power value of laser head: select different power values according to different materials
7.4. 4. Sculpture mode selection: There are four modes: line, fill, line + fill and offset fill
7.4. 5 Setting of offset value: the offset number of cutting the closed shape according to the thickness
7.4. 6. Mode selection: punching mode and label mode (Tabs/Bridges)

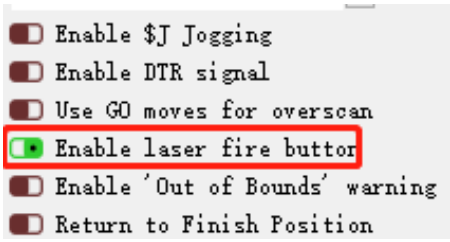
7.5. After setting, you can click Preview to see if the setting is appropriate.

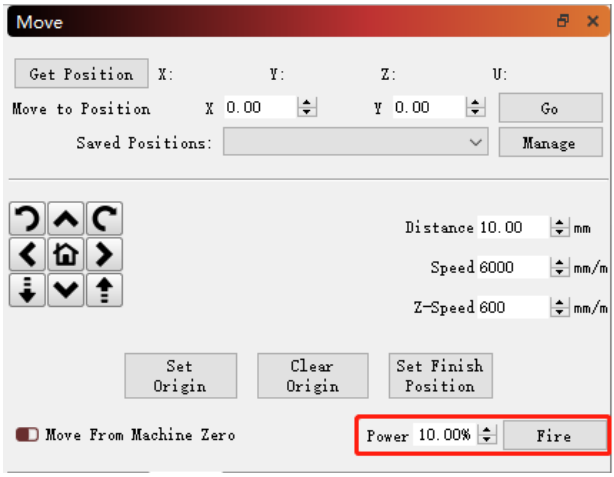
8. Laser focal length adjustment

① Turn on the laser ignition button in the software



② Select the appropriate power value and click the light (Be careful of high temperature of laser head)





The effect of engraving or cutting depends to a large extent on whether the laser is focused and the spot energy is concentrated;
At present, there are two different lasers, zoom laser and fixed focus laser (different models)
Zoom laser-focal length adjustment method: adjust the height of the light spot by rotating the knob at the bottom of the laser, and observe whether the light spot is focused (wearing protective glasses) while rotating; If the focal length is correct and the energy at the light spot is concentrated, the change of the light spot can be observed; (Figure 8.1)
Fixed focus laser-focal length adjustment method: if the fixed focus of the laser is 20mm, it is necessary to adjust the distance of the engraved object from the bottom of the laser by 20mm, and the distance can be adjusted by the fixed focus block and the transmission device; (Figure 8.2)

Figure 8.1

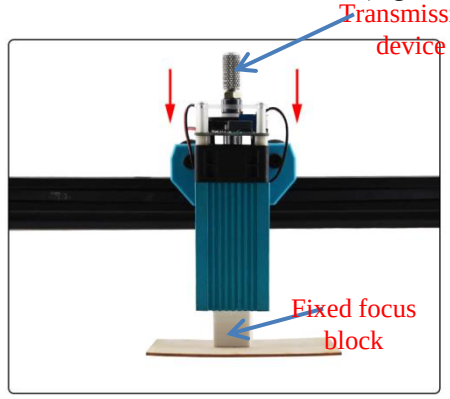


Figure 8.2

9. Positioning (setting the starting position of engraving)

The purpose of positioning: to enable the carved pattern to be carved at the correct position on the carved object.

9.1. By clicking the direction button (Operation 9.1), move the X\ Y axis and position the laser to the appropriate position of the adjusted object.
9.2. Obtain the position coordinate point, and then set the obtained position coordinate point as the origin (Figure 9.1/2)
9.3. Click the "Border" button (Operation 9.3), and the machine will start to patrol the edge according to the picture size you set to observe whether the current origin position and picture size are appropriate; If it is not suitable, move the laser head again and reset the origin until it is suitable. (Figure 9.3)

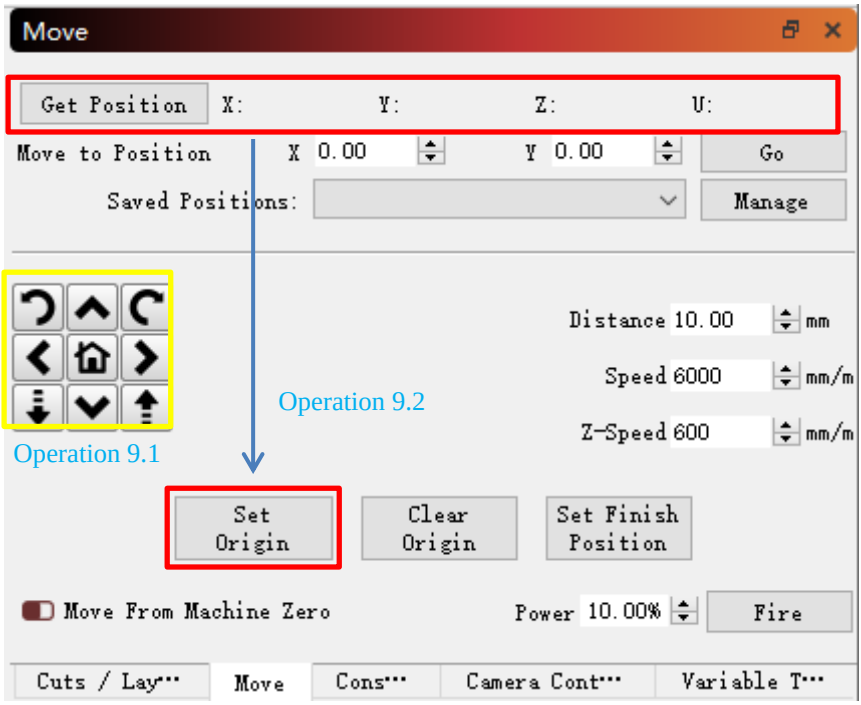


Figure 9.1/2

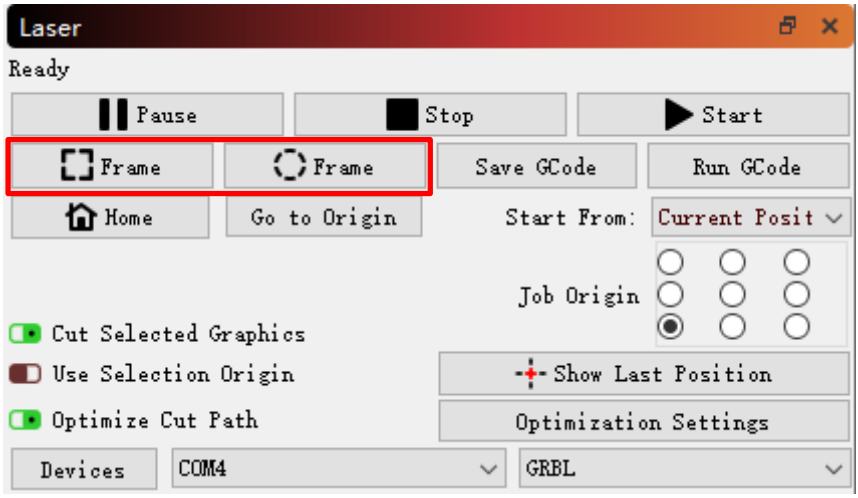


Figure 9.3

10. Start, Stop, Reset, Pause

10.1. Set the starting position: You can select the current position, user origin and absolute coordinate value to select the starting point of engraving, and you can also select 9 points in the engraving pattern as the starting point

10.2. Optimize setting: adjust the carving running route, appropriate direction and sort the carving sequence according to requirements

10.3. Select cut graphics: If there are multiple images in the working area, only carving and selecting graphics can be carried out

10.4. Control procedure: start/pause and stop engraving procedure.

10.5. If you need to pause, please click the "Pause" hand button in the lower right corner of the software interface. If you need to continue carving after pause, please click the "Run" running button.

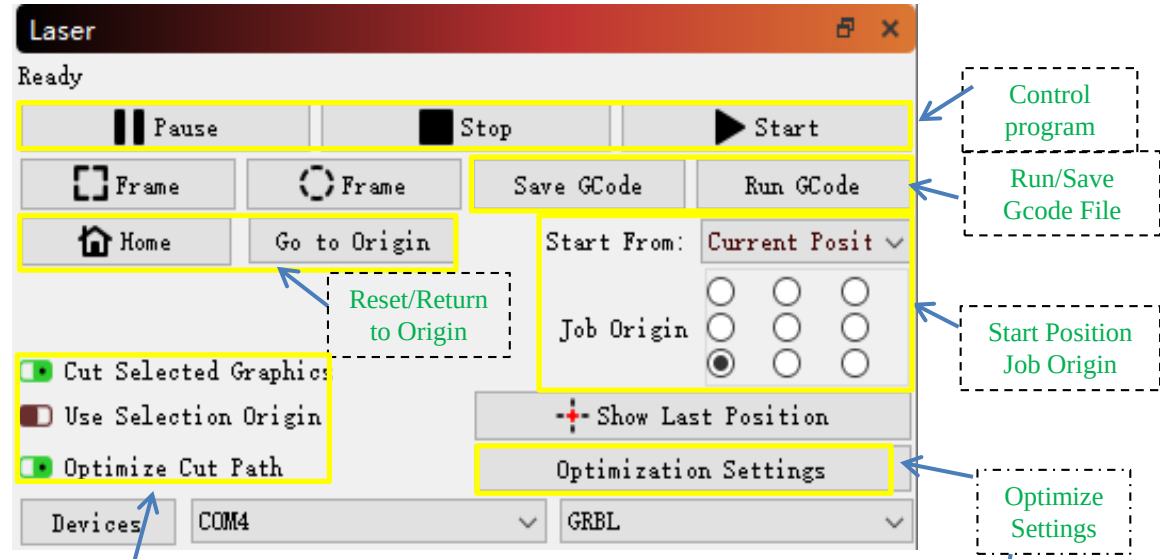
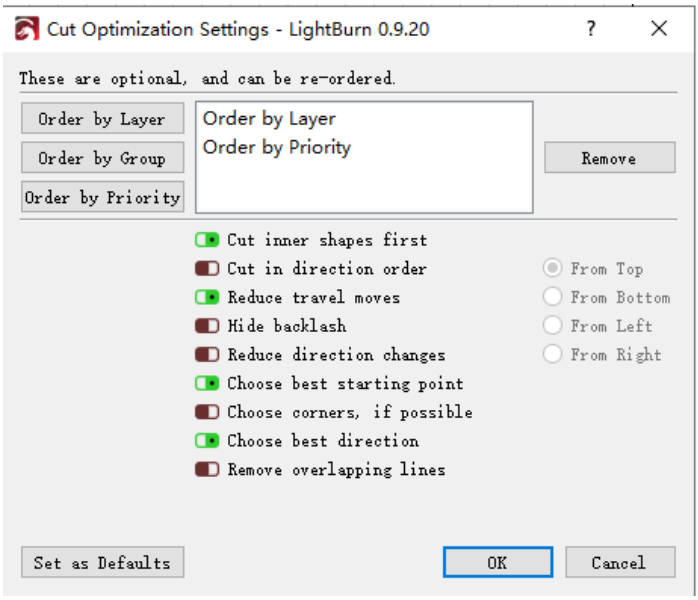


Figure 10.1

Cut the selected graph



12. Frequently Asked Questions and Solutions (FAQ)

Frequently Asked Questions	Possible cause	Resolve
LightBurn software cannot connect to the laser engraver	1. Repeatedly open multiple LightBurn software at the same time (the port is occupied)	Turn off other repeatedly opened LightBurn software
	2. At the same time, other 3D printer software is opened, such as cura, etc. (port is occupied)	Turn off other software
	3. Port selection error	Reselect the correct port
	4. Baud rate selection error	Baud rate selection: 115200
	5. Whether the data line is connected or damaged	Check the reliability of the data cable
	6. Computer USB Port Problem	Test with a different USB port
	7. The driver on the computer is not installed correctly	Refer to the software instructions and reinstall the driver
	8. The firmware setting of the control board is incorrect	Brush firmware again
The laser does not emit light	1. Control panel port connection error	Check that the installation is correct by referring to the installation instructions
	2. The connection line is damaged	Check whether the terminals fall off or are damaged
	3. The firmware of the control board is abnormal	Brush firmware again
The carving effect is not obvious	1. The power setting value in LightBurn software is too small	Look at the $30 item in "Machine Settings" and what is the maximum spindle speed value.
	2. The focal length is wrong	Refocus
	3. The carving speed is too fast	Decrease engraving speed
Carving straight line is not straight, double image, staggered layer	1. The belt of each shaft is not tensioned	Retensioning belt
	2. Fasteners (screws, etc.) are not tightened	Check the condition of fasteners
	3. The transmission parts are stuck or loose and shaking	Adjust drive position peripheral eccentric nut
	4. The laser is not fixed tightly and shakes	Check laser
	5. Inappropriate motor drive voltage	Adjust motor drive voltage 0.8-1.4 V