LONGER

Nano Ruby Quick Start Guide

Shenzhen Longer Technology Co., Ltd.

APP application download

① Please scan the QR code below or search for Laserburn on Google or Apple store to download the APP

Note: After downloading and installing the APP, please read the warnings and precautions in the APP carefully to ensure that you can use this product normally.

② Download the PC client from the link below. LightBurn is suitable for Windows and MAC systems, and LaserGRBL is suitable for Windows systems.

LightBurn
https://LightBurnsoftware.com/pages/download-trial

LaserGRBL
https://lasergrbl.com/download/

For complex grayscale engraving, it is recommended to transfer the image to the mobile phone album and import it into the APP for engraving, which will have a better effect.

After-sales service

Technical servie for this product is available globally. Please contact us if you have any problem and we will get back to you as soon as possible.

Shenzhen Longer Technology CO., Ltd.

Add: FL 10, Building 2B, Intelligent Park, 76

BaoHe Ave, Longgang, Shenzhen, China

Service Hotline: (+1) 888-575-9099

Mon-Fri: 9:00am-6:00pm (EST, UTC-5)

Sun-Thu: 8:30pm-7:00am (EST, UTC-5)

Email: support@longer.net

Facebook ID: Longer Global

Facebook Group: Longer Nano Official Group

Youtube Channel: Longer Official

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Safety Precautions

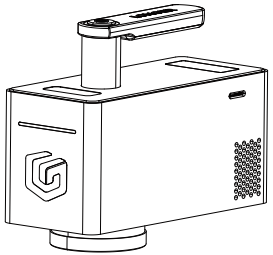
- Please read the [Safety Guidelines for Use] in detail and remember all the contents to ensure standardized operation.
- This product does not contain any user-replaceable components. Please do not attempt to disassemble Longer Nano Ruby or troubleshoot problems by yourself, no matter what the scenario.
- Longer Nano Ruby will emit laser when it is working, and the beam may cause burns to the human skin. especially to the human body or animals (pets).The damage to the eyes is extremely serious, in addition, the damage to the screens of electronic products such as mobile phones and Pads is also extremely serious. Properly use and maintain this product, which is extremely important for the safe operation of this product, Regarding the operation and maintenance specifications of this product, please strictly follow the instructions in this manual.
- When operating Longer Nano Ruby, be sure to wear goggles at all times.
- Before operating the Longer Nano Ruby device, please be sure to read this operaing content carefully and strictly abide by the operating procedures
- Caution – Use of controls or adjustments or performance of procedures otherthan those specified herein may result in hazardous radiation exposure
- This equipment uses Class IV lasers (strong laser radiation). This laser radiation may cause the following accidents. 1) Ignite surrounding flammable materials, 2) During the laser operation, other radiation and harmful gases, poisonous gases or smelly gases. 3) Direct exposure to laser radiation can cause harm to the human body. Therefore, operators must keep a distance from the equipment and wear protective equipment (such as goggles, protective covers, protective clothing or fire-fighting equipment, etc.). it is strictly prohibited to place flammable and explosive items around the workbench and equipment. At the same time. the working environment must be maintained good ventilate.
- There may be risks in the laser working process. Users should carefully consider whether the material of the object to be engraved is suitable for laser operations.
- The operating voltage of the equipment is 24V 2.5A. An adapter of appropriate specifications should be used for power supply. Operation under overload or unstable voltage is strictly prohibited. And if the ground wire of the power supply such as a power strip) used in the power plug of this product does not effectively function, the power supply cannot be plugged in, otherwise there will be a very dangerous risk of electric shock.

- This product is equipped with a very precise and dangerous laser source component. it is strictly prohibited to place the device near electrical appliances with strong electromagnetic interference, as this may cause electromagnetic interference. When the laser source is tured on, laser light will be emited at the speed of light. Users must avoid direci exposure to the laser beam.
- It is strictly prohibited to place any irrelevant total reflection or difuse reflection objects in the device to prevent the laser from being reflected on the human body or flammable objects.
- Before using this product to engrave objects, please ensure that the emissions produced by laser irradiation of the object to be engraved comply with local laws and regulations.
- During the working of the engraver, an adult must be on duty and cannot leave, otherwise Longer Technology will not be responsible for the losses caused.
- Minors are prohibited from using the engraver alone without adult supervision.
- For more safety precautions, please refer to the user manual.

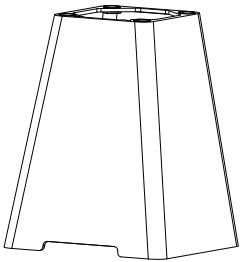
Disclaimer

- Thank you for purchasing Longer Nano Ruby. The content mentioned in this article is related to your safety and legal rights and responsibilities. Before using this product, please read this article carefully to ensure that you have the correct settings for the product. Failure to comply with the instructions and warnings in this article may cause injury to you and those around you, or cause damage to the Longer Nano Ruby or other surrounding items. Once you use this product, you are deemed to have carefully read the disclaimer and warning information, and understood, recognized and accepted all the terms and contents of this statement. You promise to take full responsibility for the use of this product and the possible consequences. You promise to use this product only for normal purposes and agree to these terms and any relevant regulations, policies and guidelines formulated by Longer Technology. Longer Technology is not responsible for any damage, injury or any legal liability caused directly or indirectly by the use of this product. Users should follow all safety guidelines including, but not limited to, those mentioned in this article.

Product Accessories List

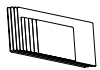


Laser unit

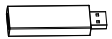


Protective cover

TF card

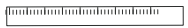


Consumables



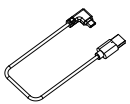
Card reader

Allen wrench

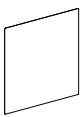


Ruler

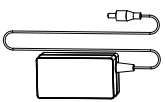
Goggles



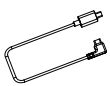
Data cable



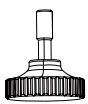
Glasses cloth



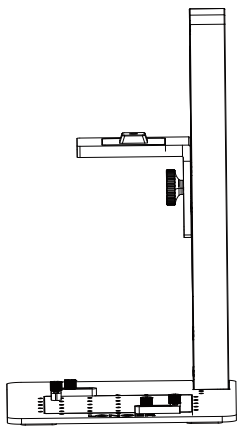
Power adapter



Double type-c cable



Angle adjusting knob

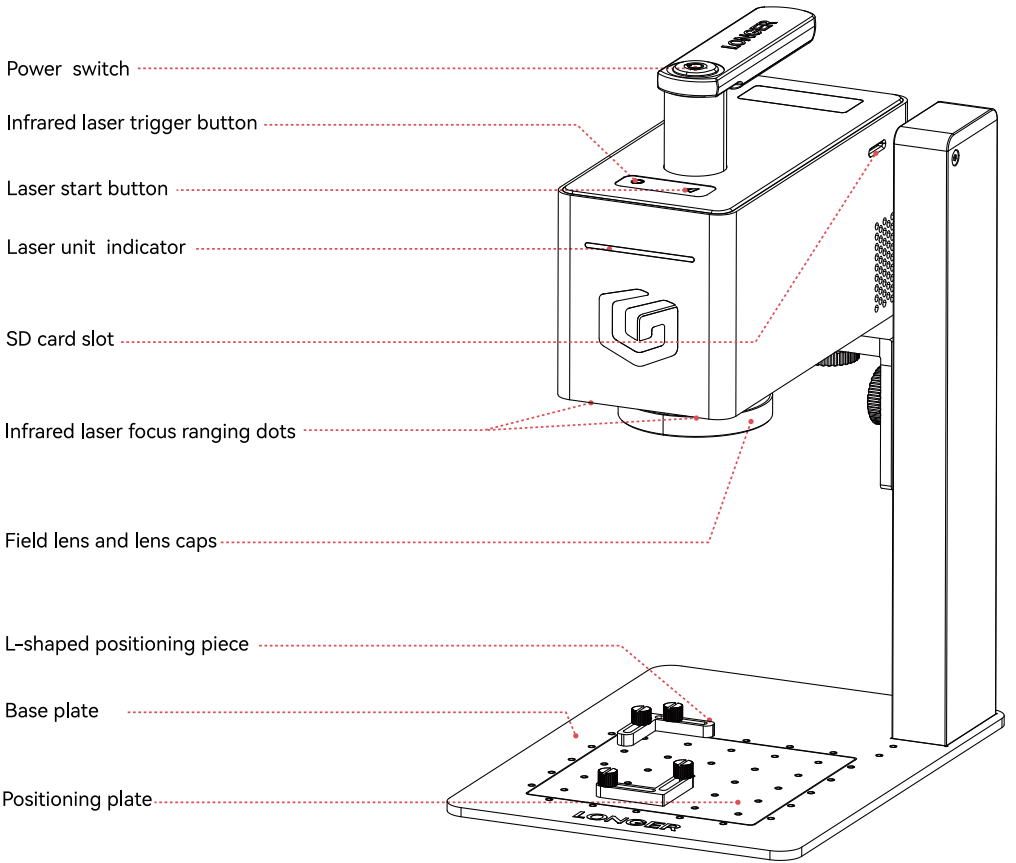


Base plate and Electric lifting bracket

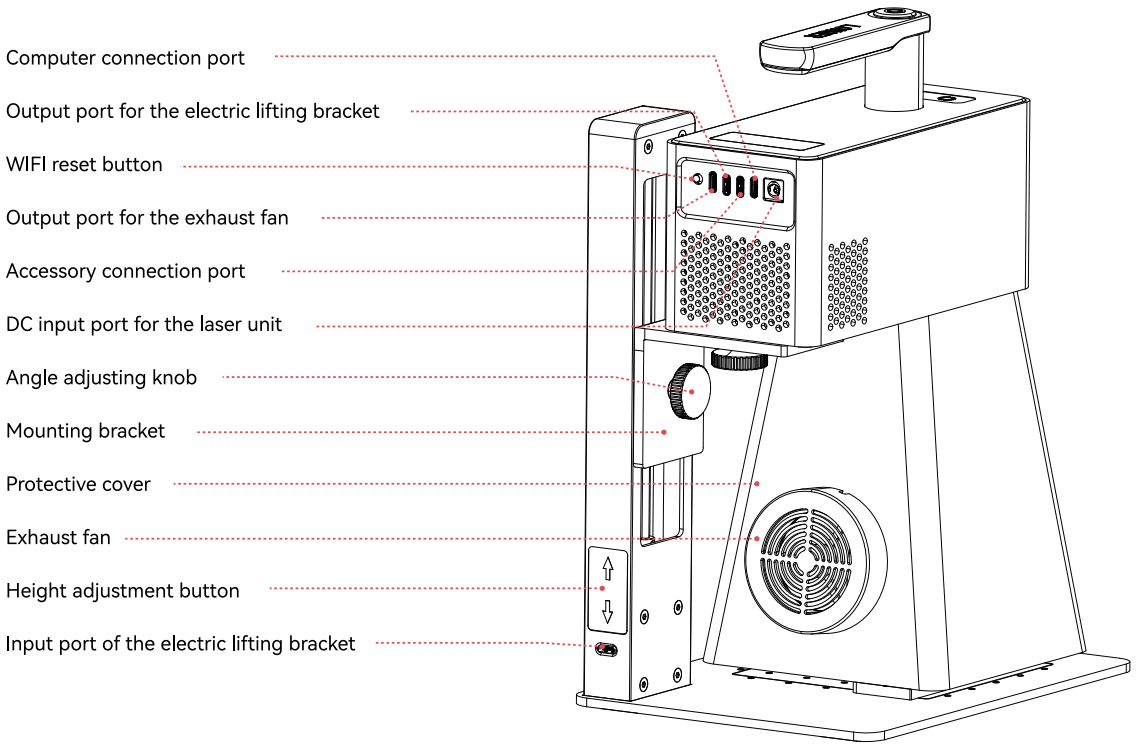
Product Specification

Model	Nano Ruby	Laser Power	2W
Laser Technology	Galvanometer+F-theta field lens	Laser Wavelength	1064nm
Working Area	80*80mm	Continuous Working Hours	More than 7 hours
Resolution	3.3K	Engraving Precision	0.02mm
Engraving Speed	5000mm/s	Preview Speed	32000mm/s
Support Format	jpg, bmp, png, dxf, svg, ai, tiff, etc	Lifespan	10000+H
Warranty Period	One year	Preview Mode	Outline preview
Engraving Angle	0~360°	Material of Machine	Aluminum alloy
Connection	WIFI, USB, APP	Safety Certifications	CE; FCC; FDA; RoHS
Support Systems	Windows; MAC; Linux	Product Volume	220mm*162mm*304.5mm
Gross Weight	4.13kg	Net Weight	2.60kg
Power Adapter	AC Input 100-240V 50/60Hz 1.7A DC Output 24V-2.5A 60W		
Applicable Materials	Engraving or cutting on wood, acrylic, leather, cloth, metal, ceramics, etc		
Support Languages	German; Portuguese; French; English; Italian; Spanish; Japanese		

Product Instruction



Product Instruction

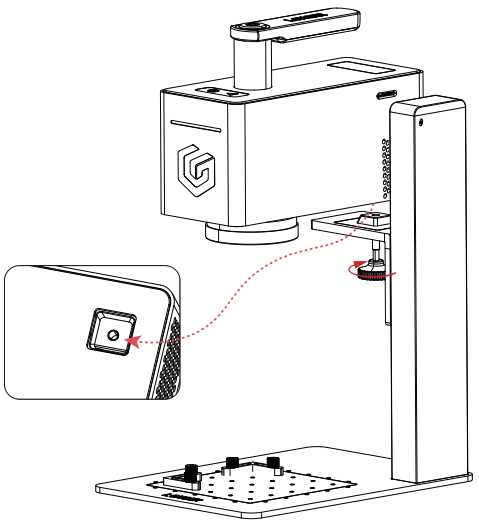


Quick Installation

Install the laser unit and protective cover

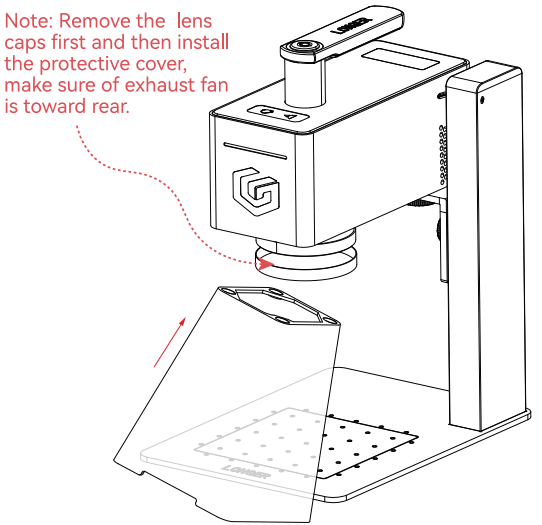
a) Fix the laser unit on the electric lifting bracket. For the laser unit leveling method, please refer to the corresponding video from the LONGER official website

https://www.longer3d.com/pages/download.



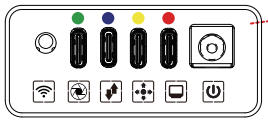
Align the laser unit with the mounting bracket, and tighten the angle adjustment knob clockwise to fix the laser unit.

b) Fix the protective cover on the laser unit

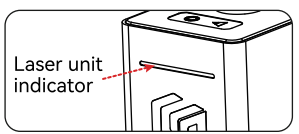


Quick Installation

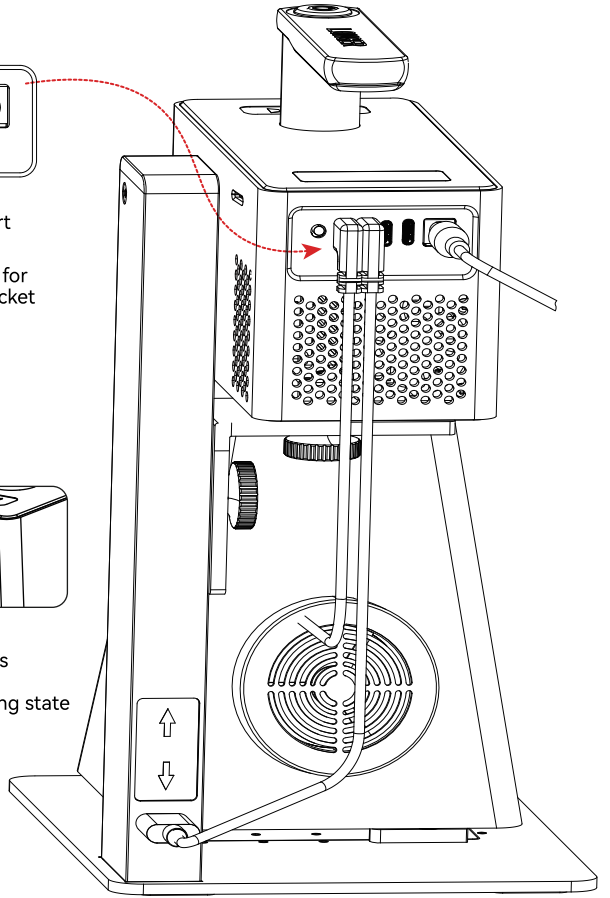
Wiring

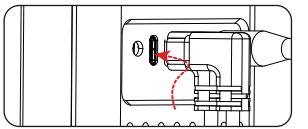


- Green line: output port for the exhaust fan
- Blue line: output port for the electric lifting bracket
- Yellow line: accessory connection port
- Red line: computer connection port

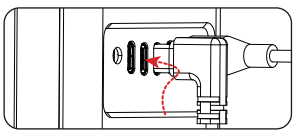


Colorful light: idle state
Blue light: working status
Red light: alarm status
Yellow light: pause/waiting state

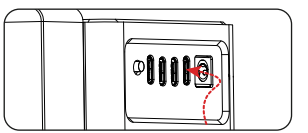




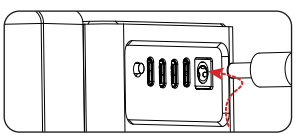
Connect to exhaust fan with green Type C cable



Connect to electric lifting bracket with the blue double Type C cable



Connet to computer with red data cable



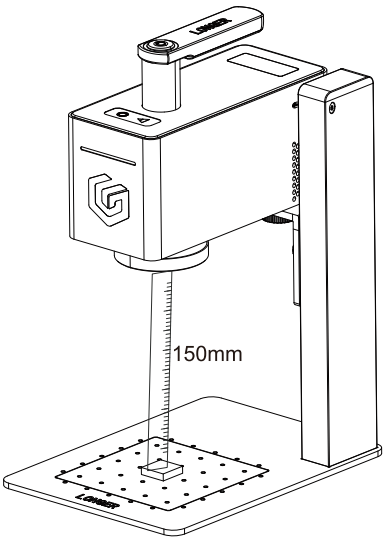
Connect to power supply with the power adapter

Manual Focus Setting

Adjust focus

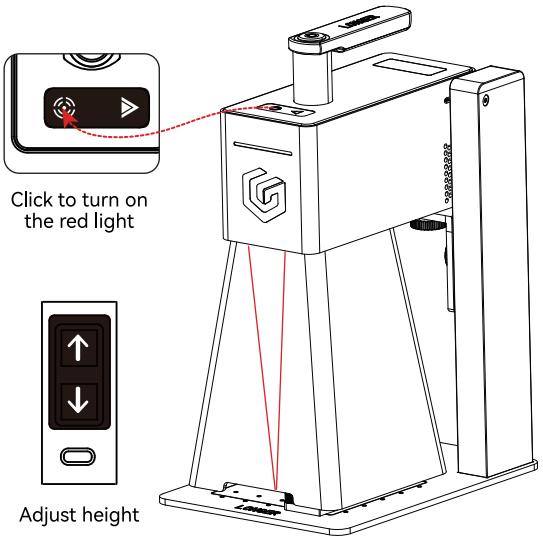
a) Focus by ruler

Adjust the height of the laser module by touching the button of the lifting bracket until the bottom of the laser unit is 150mm away from the surface of the engraved object.



b) Focus assist by infrared laser

1) Press the infrared laser button and adjust the height of the bracket. When the two laser points overlap into one point, the focus is completed and you can start engraving.



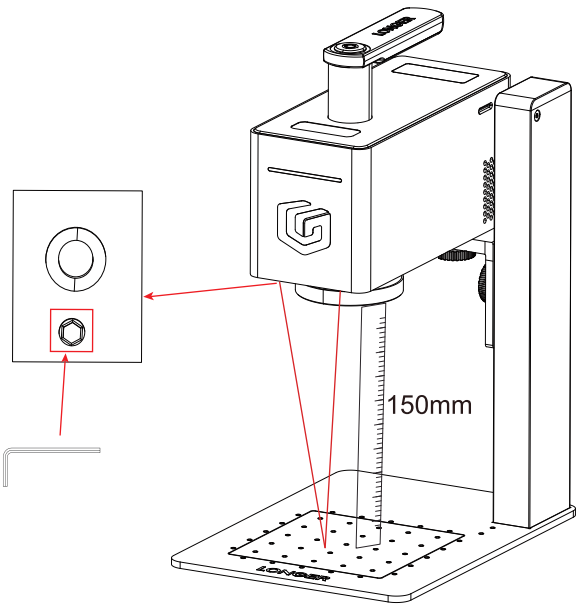
Note:The red dot is not the engraving center point, it is only used for focus reference

Manual Focus Setting

Adjust focus

a) Focus assist by infrared laser

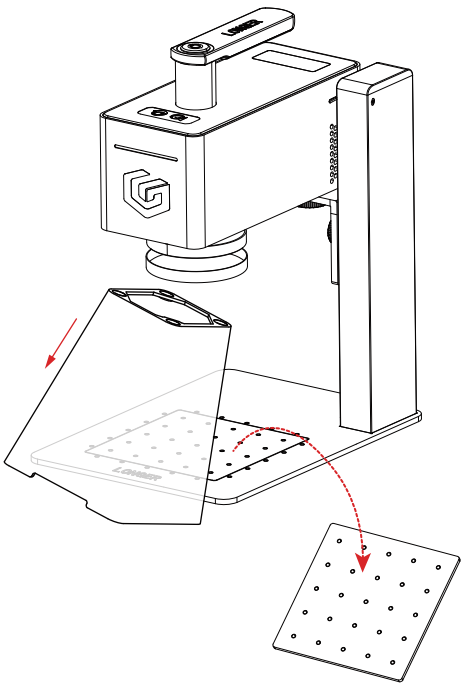
b) If the two red laser points cannot overlap at the focal length, you can adjust it manually. Use a ruler to align the focal length to 150mm, then use a hexagonal wrench to loosen the screw next to the laser point, manually adjust the laser point so that the two points merge into one point, and then tighten the screw.



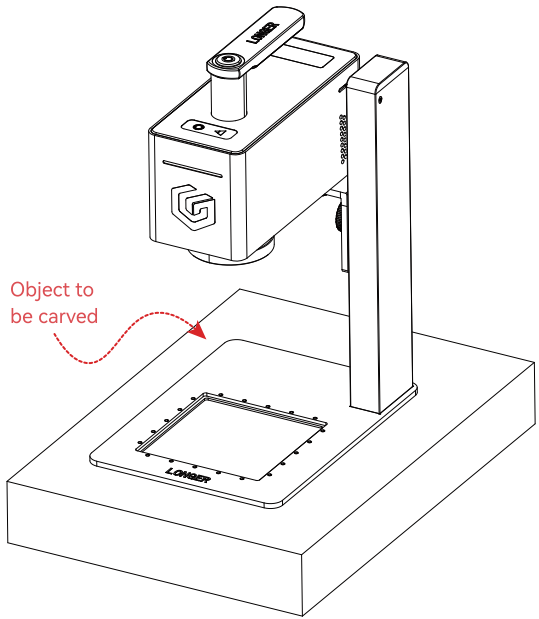
Manual Focus Setting

Process large-sized materials

a) Adjust the height first, remove the protective cover and then take out the positioning plate.



b) Place the engraving machine steadily on the surface of the object to be engraved.



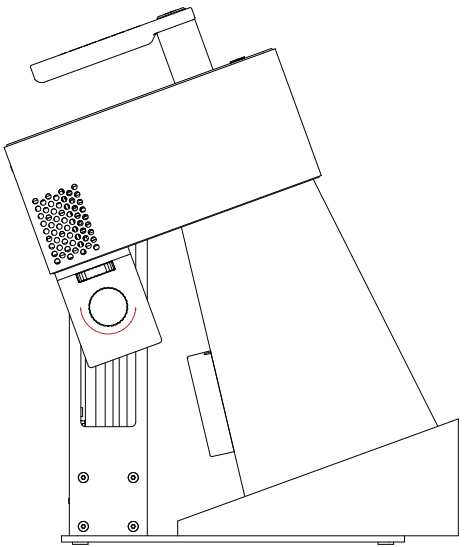
Note:The focal length needs to be readjusted according to the actual situation.

Multiple Application Scenarios

Process materials with slopes

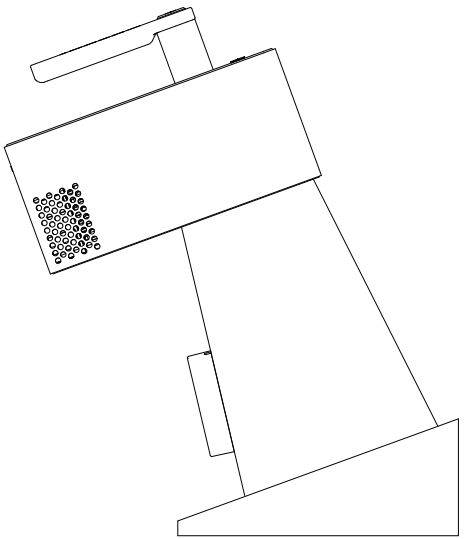
a) Oblique engraving

Turn the angle adjustment knob counterclockwise to loosen it, adjust the angle of the mounting bracket, and after the adjustment is completed, it will mesh with the gear, then turn the angle adjustment knob clockwise to lock it and adjust focus.



b) Handheld engraving

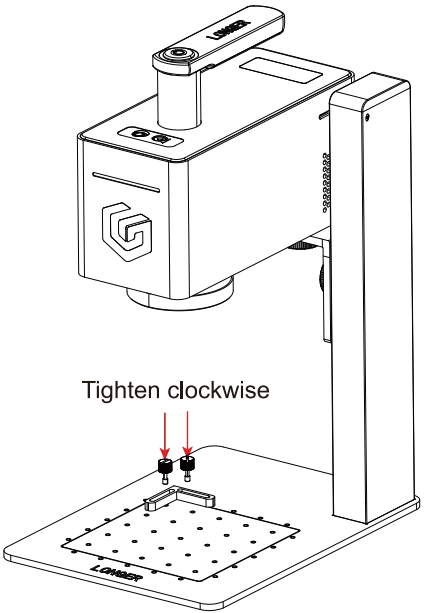
Hold the handle and place the protective cover against the surface of the object to be engraved, and you can engrave.



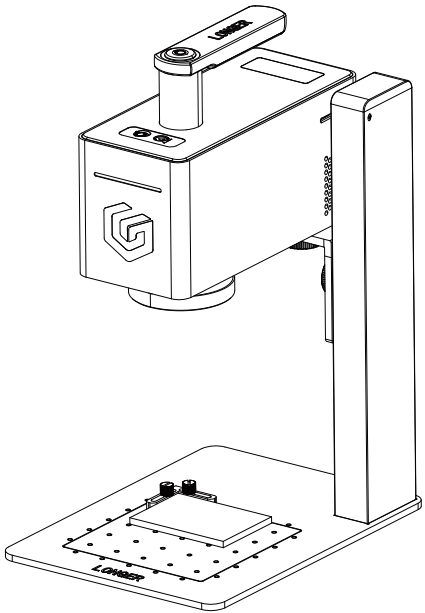
Note: The laser head can only be rotated at 20° intervals.

Multiple Application Scenarios

a) Place the base plate and tighten the two M3X8 thumb screw.



b) Place carving materials.

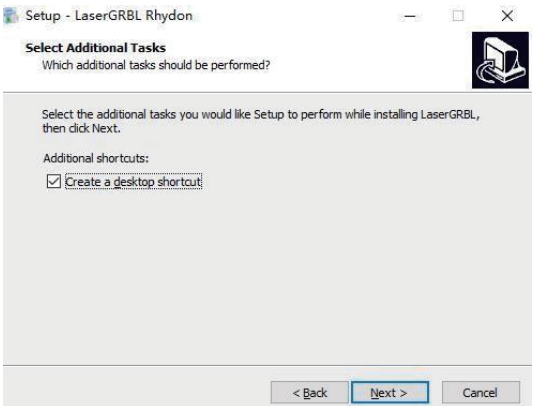


LaserGRBL Software Operation

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 completed.

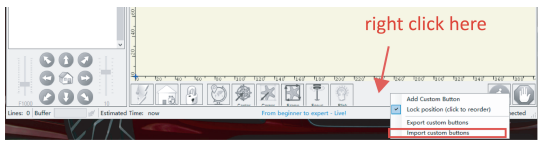


c) After installing LaserGRBL, power up the Longer Nano Ruby, press the power switch button, and connect the laser engraver to computer via red data cable.

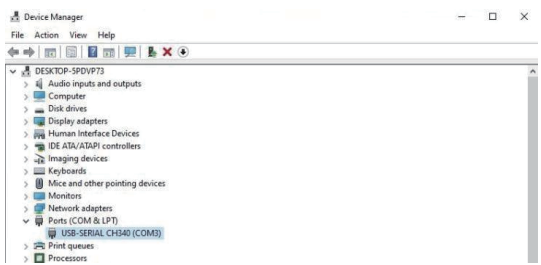
Import configuration

a) In order to meet the use of Nano Ruby in Laser-GRBL, it must to import custom buttons. Right-click in the blank area at the bottom and select Import custom buttons, open nano ruby.zbn file to import, click YES to confirm, then there are new Nano Ruby, Slide, Rotary icons etc.

nano ruby.zbn file is stored in the softwares directory of the SD cards



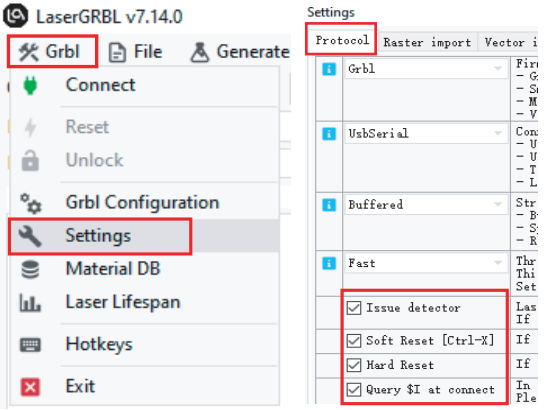
b) If you cannot find correct port, please install CH340 driver manually by click Menu > Tools > install CH340 Driver to install the driver, and restart the computer after installation is completed.



LaserGRBL Software Operation

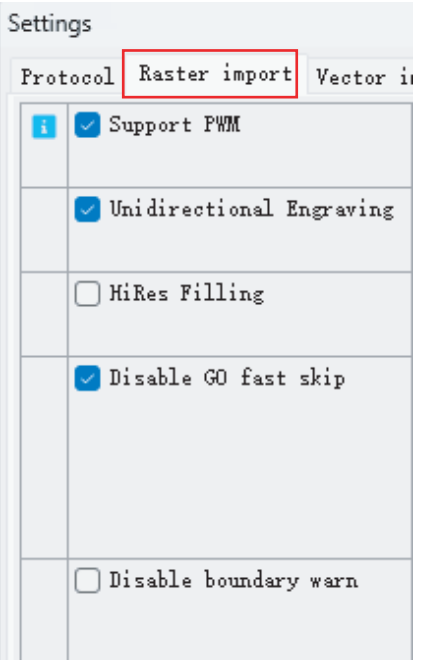
Setting

a) Click Grbl in the menu bar and select Settings.



b) As shown in the picture, select Grbl, UsbSerial, Buffered, Fast in the Protcal interface and stlect the four options below.

c) In the Raster import interface, enable the Support PWM, Unidirectional Engraving, Disable G0 fast skip options.



LaserGRBL Software Operation

Setting

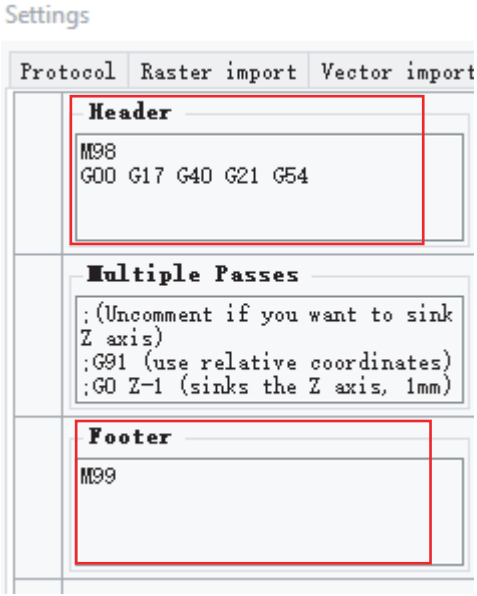
d) Fill in the following content in the Gcode interface:

Header: M98

G00 G17 G40 G21 G54

Footer: M99

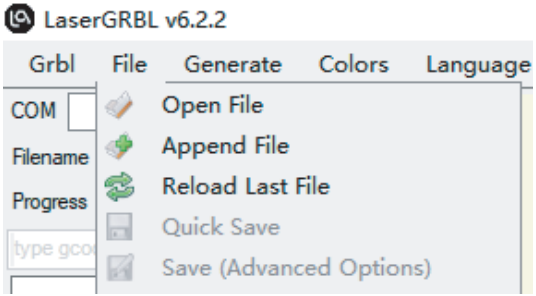
When all settings are completed, click the Save button.



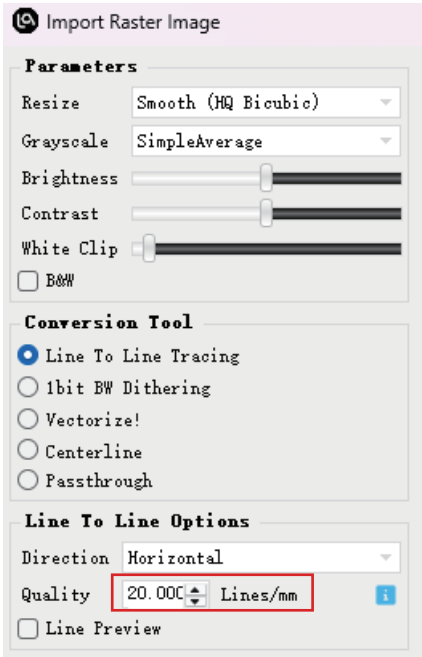
LaserGRBL Software Operation

Usage

Click the 'File' button first and click the 'Open File' button to select the file that needs to be carved.



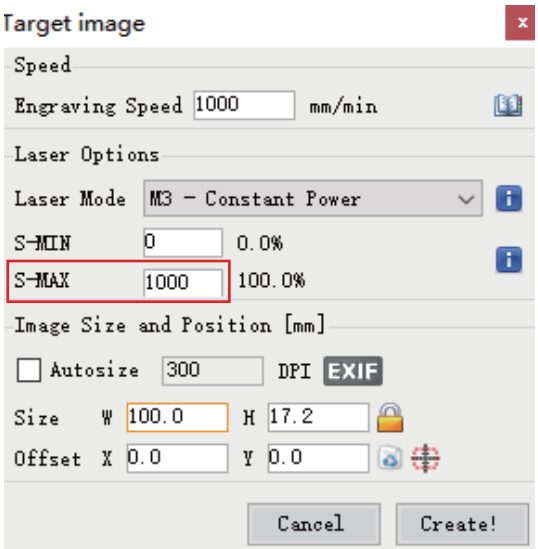
After opening, set the Quality value to 20Lines/mm.



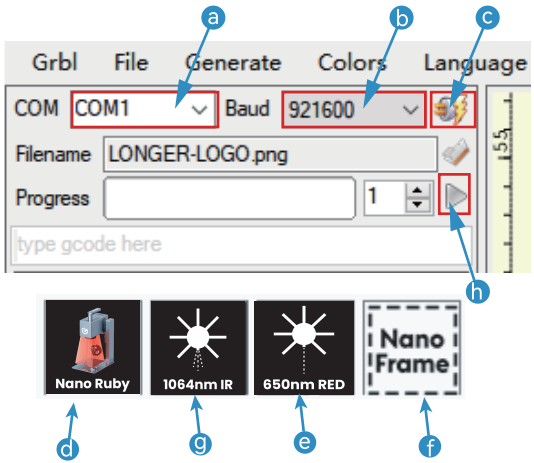
LaserGRBL Software Operation

Usage

After clicking the Next button, adjust the speed and power value in this window.
The value of S-MAX is ten times the actual power, click Create.



a) Select correct port b) Set baud to 921600
c) Connect to Nano Ruby d) Click Nano Ruby icon
e) Click 650nm RED (Aiming IR) icon to switch the red light for scan edge
f) Click Nano Frame icon to scan edge of engraving
g) Click 1064nm IR icon to switching the laser for engrave
h) Click the Start button



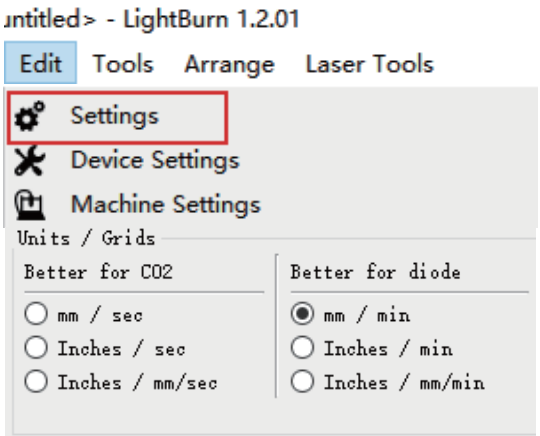
More help information about LaserGRBL, please check the 'Nano Ruby User Manual' file in the SD card and refer to the link: https://lasergrbl.com/usage/0

LightBurn Software Operation

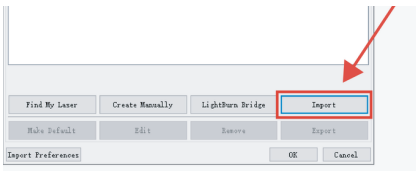
Setup

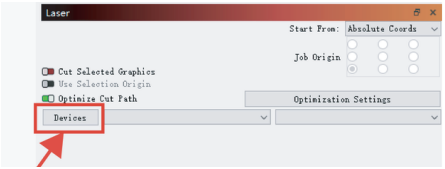
a) Find Lightburn in software folder in SD card or download from https://lightburnsoftware.com/download/, double click to install it.

b) Click Settings, change unit to mm/min.

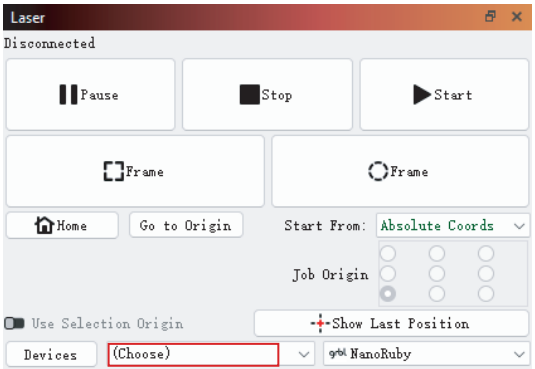


c) For the first time launching LightBurn, it will prompt a 'NewDevice Wizard' for help you setup machine. Click 'Import'.





d) Select the 'Nano Ruby.lbdev' file in the software directory of the SD card and click 'open'.

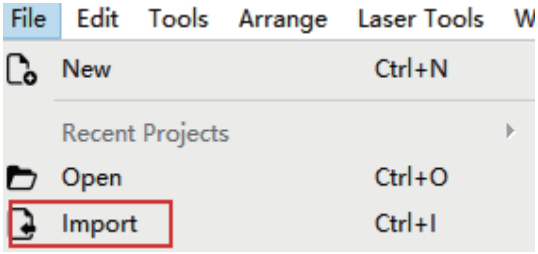


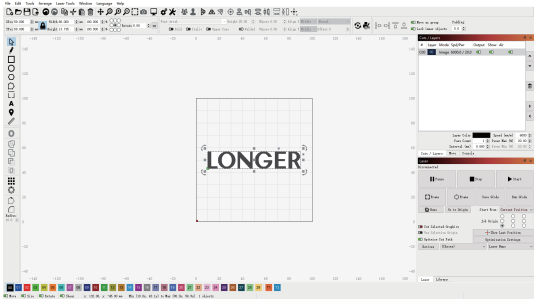
e) If no ports are listed in the drop-down, it means that no engravers were found, which could mean that it is not plugged in correctly, isn't powered, or the PC is missing a driver. It needs to download and install CH340 driver.

LightBurn Software Operation

Import graphic

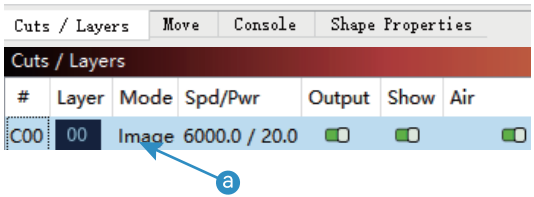
a) Click the File > Import
b) Open the project you want to carve

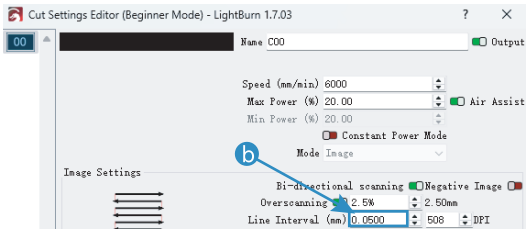




Setting parameters

a) Double click the layer.
b) Modify the laser power and speed accoring to the parameter table, set 'Interval' to 0.05mm.
Enable Constant Power Mode.

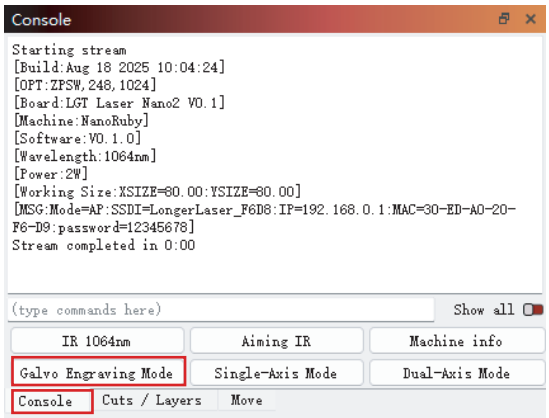




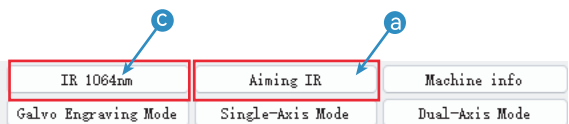
LightBurn Software Operation

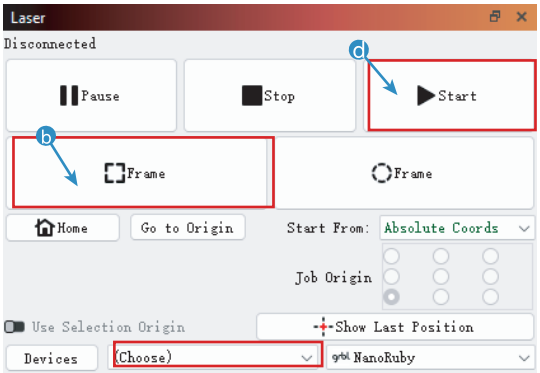
Prepare to engrave

a) Click the 'Console' button first and click the 'Galvo Engraving Mode' button.



b) Select the correct port connection to click 'Aiming IR' first, then click 'Frame' , confirm the carving position and then click 'IR 1064nm', finally click 'Start' to carve.



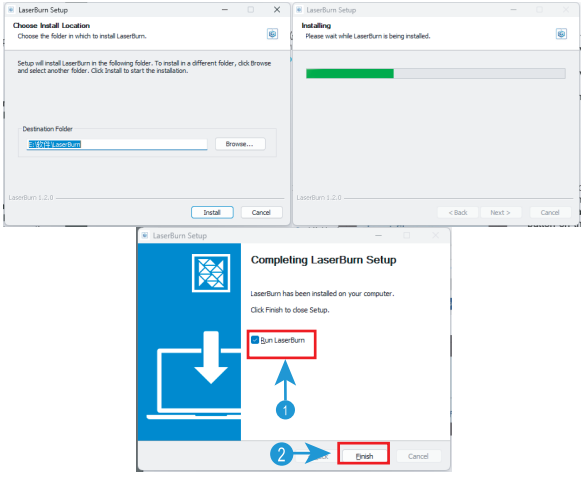


More help information about LightBurn, please check the 'Nano Ruby User Manual' file in the SD card and refer to the link: https://lightburnsoftware.com/pages/tutorials

LaserBurn Software Operation

Setup for Windows

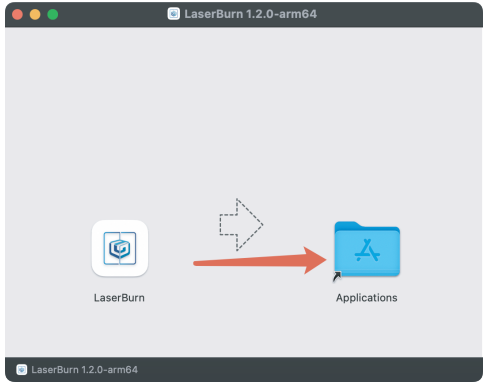
a) Find laserburn software in https://www.longer3d.com/pages/download-software.



b) After installing Laserburn, power up the Longer Nano Ruby, press the power switch button, and connect the laser engraver with computer via USB cable.

Setup for MacOS

a) Find laserburn software in https://www.longer3d.com/pages/download-software.

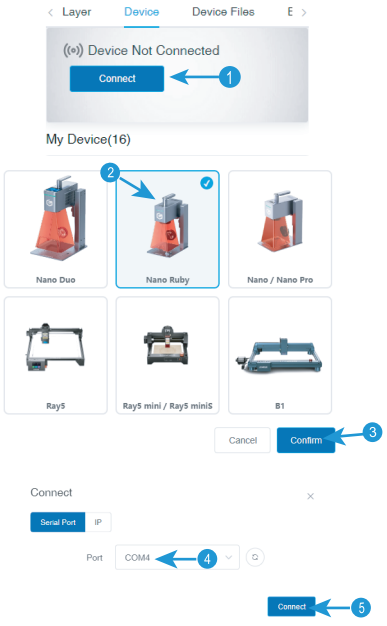


b) After installing Laserburn, power up the Longer Nano Ruby, press the power pwitch button, and connect the laser engraver with computer via USB cable.

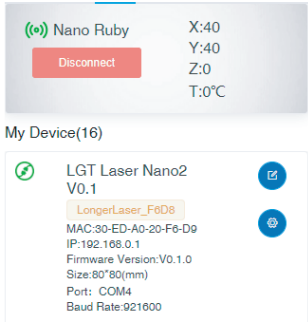
LaserBurn Software Operation

Usage

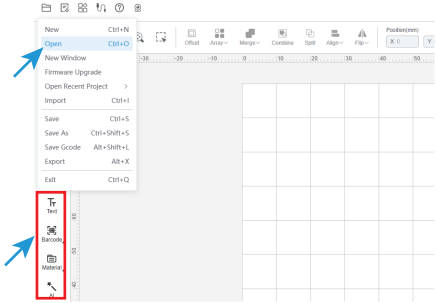
a) Select the device, click Connect, select the corresponding model in the pop-up window and click Confirm, then select the serial port and click Connect.



b) The machine is connected successfully



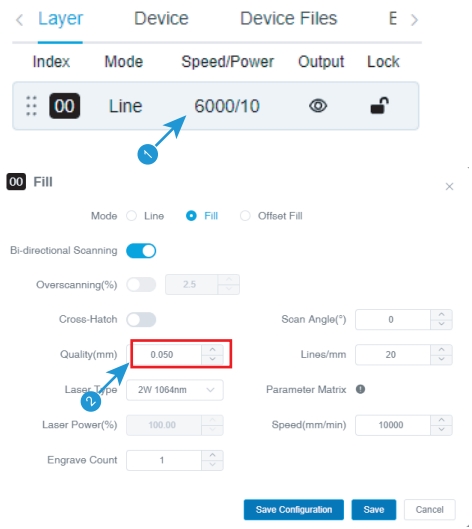
c) Click Menu “File” >> “Import image from disk.” Or just use AI to design the pattern you want to engrave.



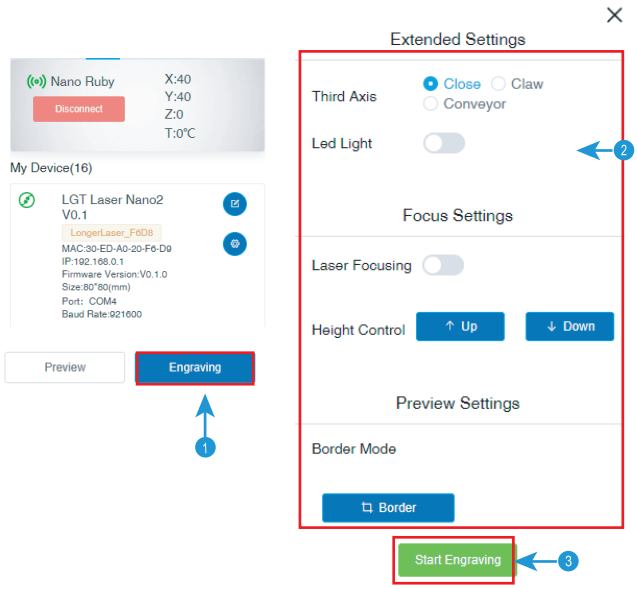
LaserBurn Software Operation

Usage

e) Click the layer to set basic parameters such as speed, power, laser type switching, etc. Note: infrared laser engraving quality is set to 0.05mm.



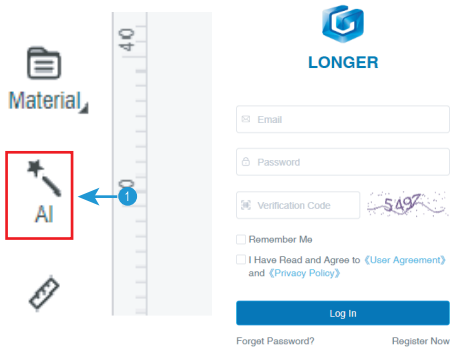
f) Set according to your needs, and you can start engraving after the settings are completed.



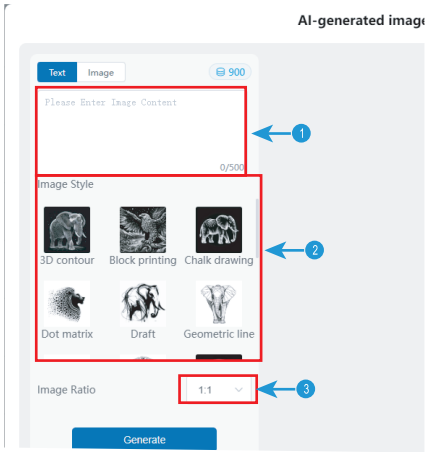
LaserBurn Software Operation

AI Creation

a) Choose AI for creation and register an account.



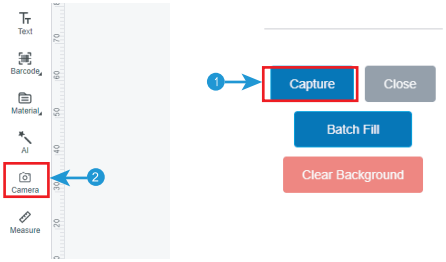
b) Enter what you want to engrave
c) Choose image style
d) Choose image ratio



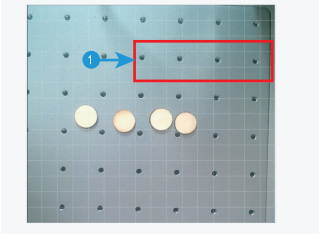
LaserBurn Software Operation

Camera usage

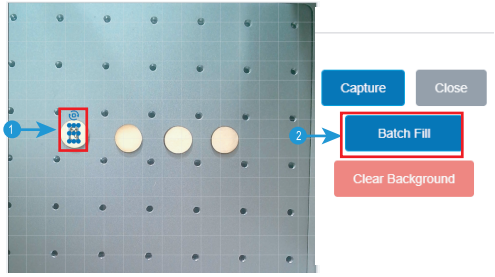
a) Turn on the camera and capture the engraved object on the base plate.



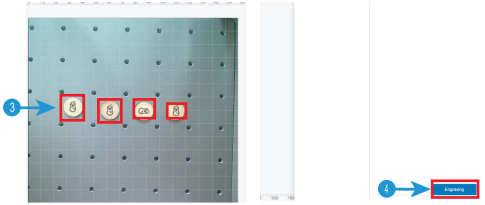
b) Place the pattern you want to carve within the range of the object to be carved, set the parameters and you can start carving.



c) If you have multiple identical objects, you can fill them in batches.



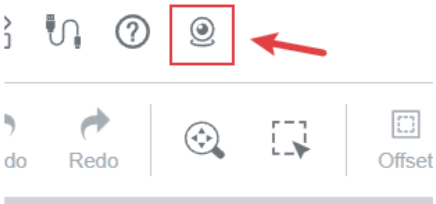
d) Click the Batch Fill option, and the engraved pattern will be automatically placed in the same position as the first object pattern.



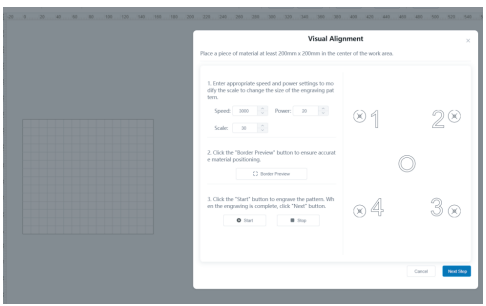
LaserBurn Software Operation

Camera Calibration

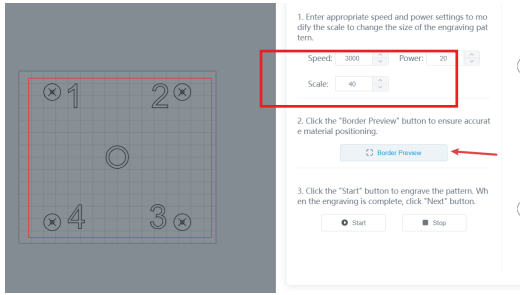
a) Click the camera in menu bar



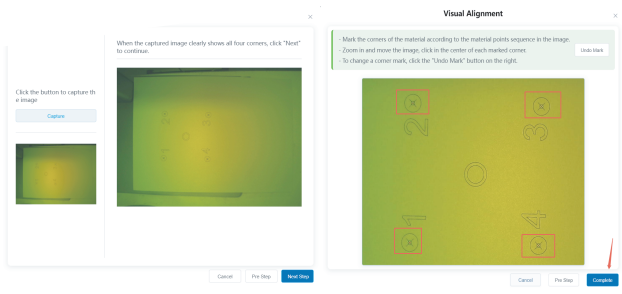
b) Before entering the Vision Correction page, please zoom in and move the canvas to the side so that the canvas can be seen properly after the Vision Correction page is opened.



c) Set the power and speed, click the border preview button, and the mark pattern will be displayed on the canvas without exceeding the canvas size.



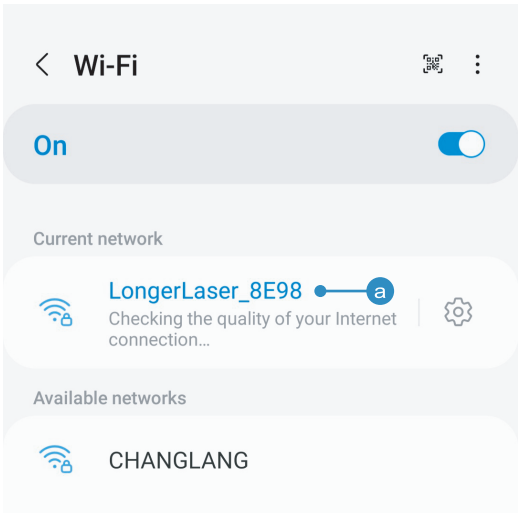
d) Select the center of the circle at engraving positions 1, 2, 3, and 4 in sequence to complete the calibration.(The mouse wheel controls the image zoom, and the space bar controls the movement)



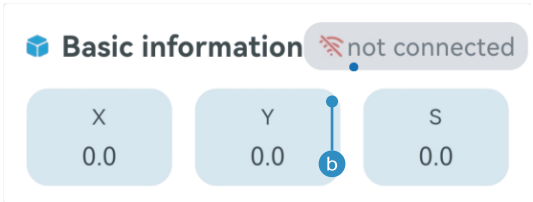
LaserBurn APP Operation

Connect to WIFI in AP mode

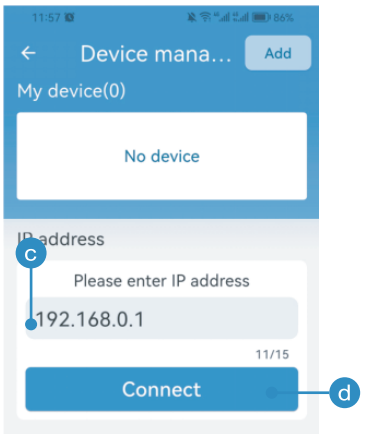
a) Open the WLAN settings on your phone, search for the WIFI starting with LongerLaser_XXXX and input password 12345678 to connect the wifi of Nano Ruby. If WIFI of LongerLaser_XXXX can not be found, please long press the WIFI reset button on the back of the Nano Ruby until you can hear three buzzers to reset the WIFI, then search the WIFI list again.



b) Return to LaserBurn and enter the Home page, click not connected icon.



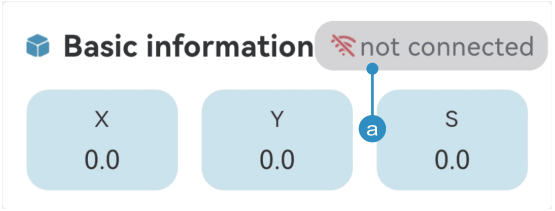
c) Enter the IP address 192.168.0.1
d) Click Connect. There will be a remind 'connection succeeded' when connect successful.



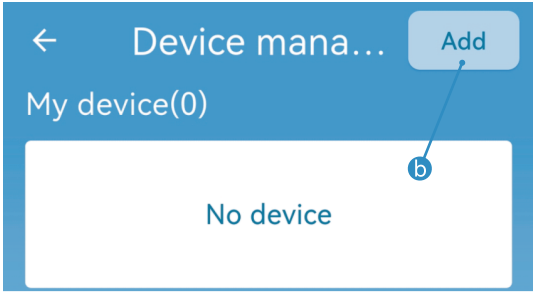
LaserBurn APP Operation

Connect to WIFI in STA mode

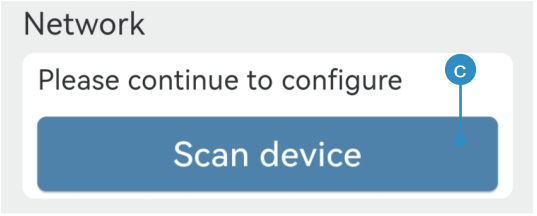
a) Open the WLAN settings on your phone. Run LaserBurn and enter the Home page, click not connected icon.



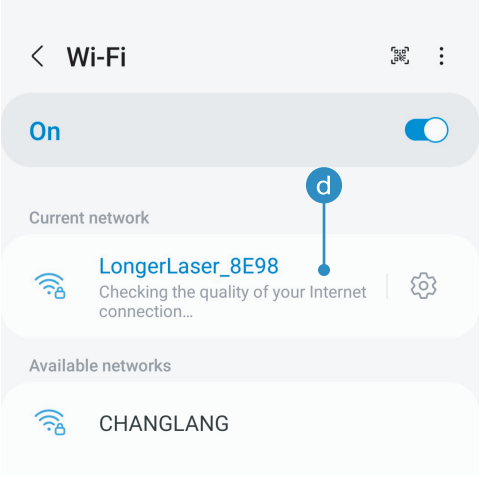
b) Enter the network configuration page, click Add in the upper right corner.



c) Click Scan device.



d) Search for the WIFI starting with LongerLaser_XXXX and input password 12345678 to connect the WIFI of Nano Ruby.

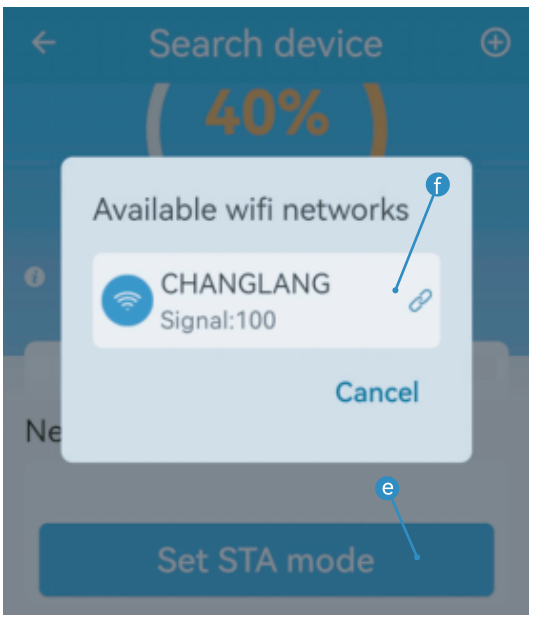


LaserBurn APP Operation

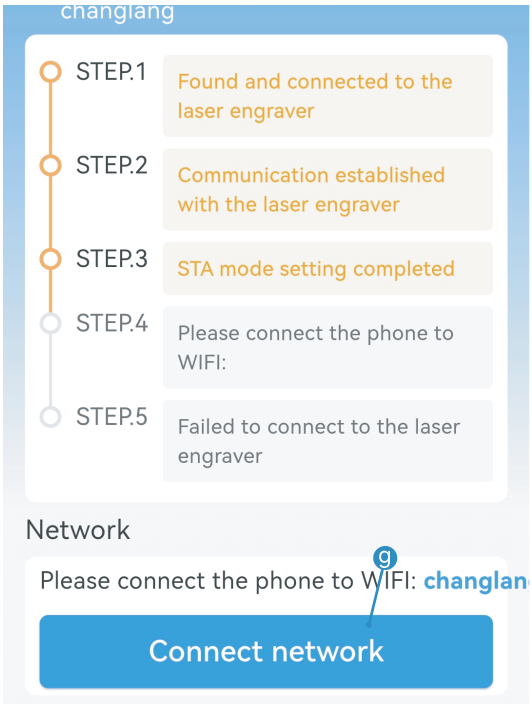
Connect to WIFI in STA mode

e) After the connection is successful, return to LaserBurn, select Set STA mode.

f) Connect WIFI of router (only supports 2.4G), and enter the password. The indicator light in front of Nano will switch to orange breathing light during connecting, then will turn green if the connection is successful.



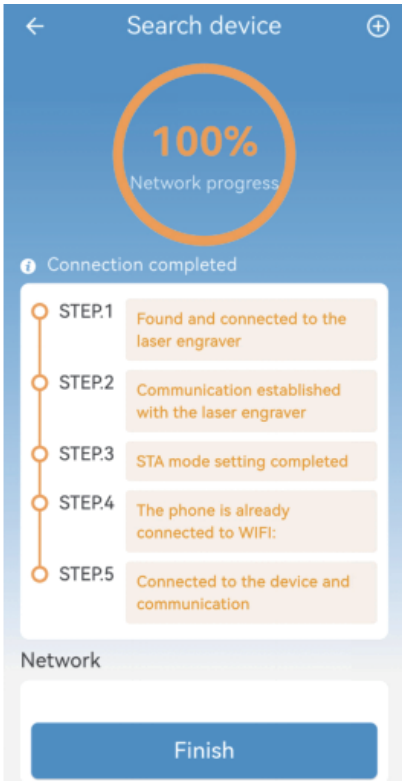
g) Back to LaserBurn, click Connect network at the bottom of the page, connect the phone to the same WIFI as the STA mode in the previous step, wait for network configuration.



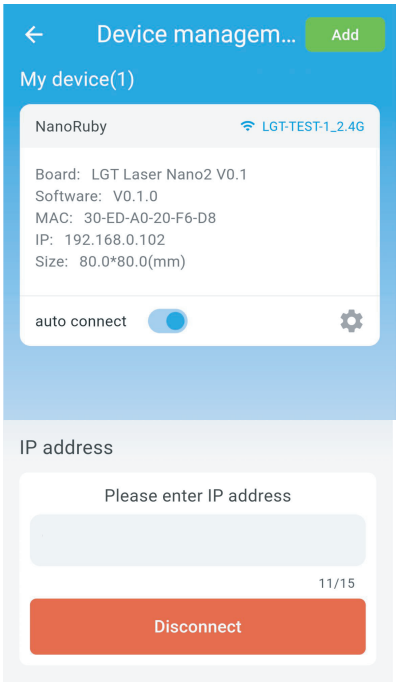
LaserBurn APP Operation

Connect to WIFI in STA mode

h) When the connection is successful and the network process reaches 100%.



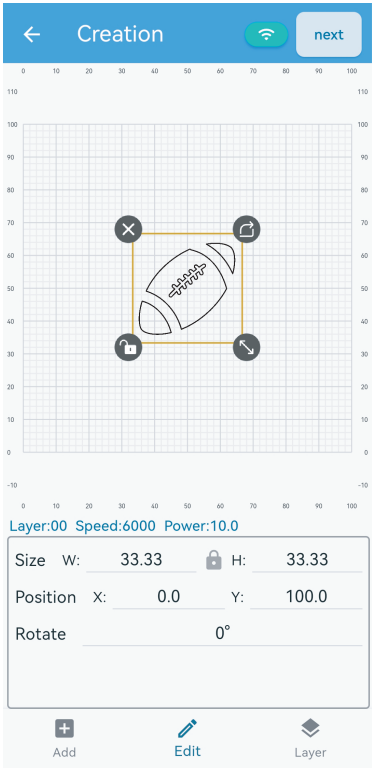
i) Click FINISH at the bottom to return to the device list interface.



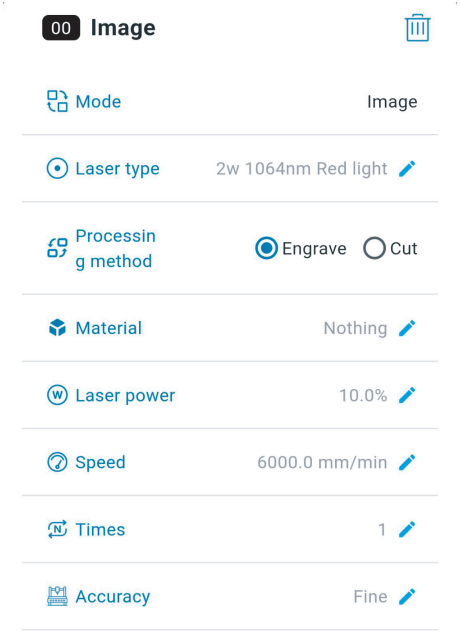
LaserBurn APP Operation

Make a project

a) Run LaserBurn app and connect the APP to Nano Ruby, add a graphic, click Edit to set size and position.



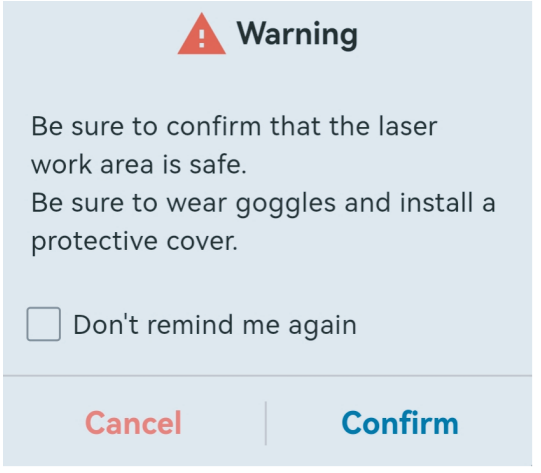
b) Click Layer to set the parameter of the graphic, then click next in the upper right corner. Accuracy has four values options, Ultra fine, Fine, Fast and Ultra fast.



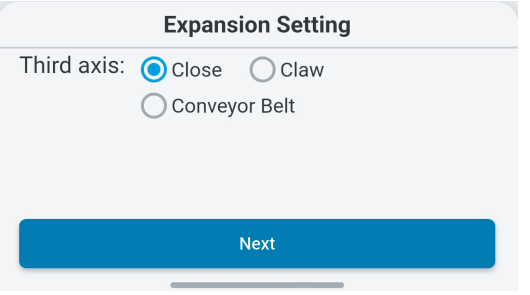
LaserBurn APP Operation

Make a project

c) There will be a warning window, make sure the work area is safe, wear goggles and protective cover is installed , click Confirm.



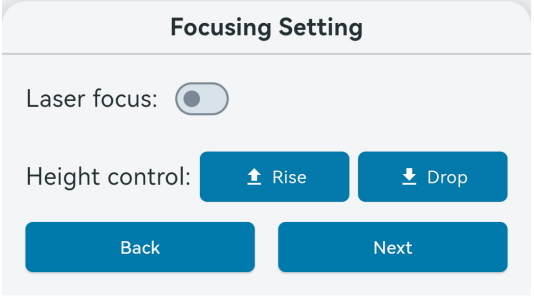
d) Set the third axis option, select close for the Nano Ruby, click Next.



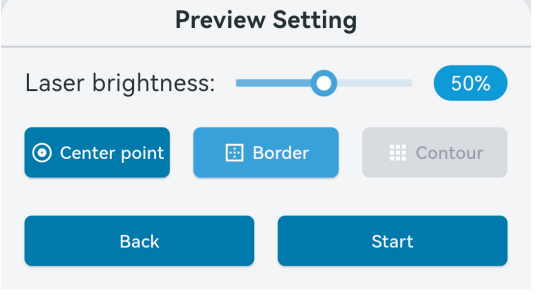
LaserBurn APP Operation

Make a project

e) Set the focus, enable the Laser focus, the infrared laser will be turn on, click Rise or Drop to adjust the height until two infrared dots coincide with each other, click Next.



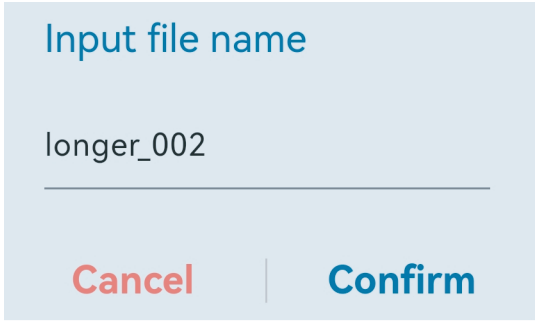
f) Click Border to preview the work position of the graphic to confirm the position of material is correct. If you cannot see the blue light clearly during preview, you can increase the blue light power appropriately, but be careful to avoid burning the engraving material, click Start.



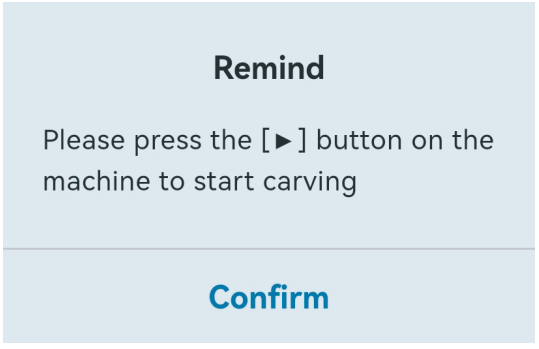
LaserBurn APP Operation

Make a project

g) After confirming that the focus is adjusted normally and the goggles are worn, click Confirm to make sure the file name, and then the file starts to upload to the Nano Ruby.



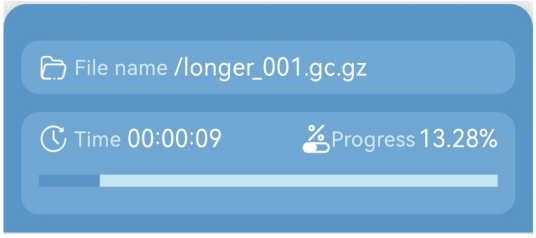
h) After the upload is completed, click Confirm and press the start button on the laser module to start the engraving task.



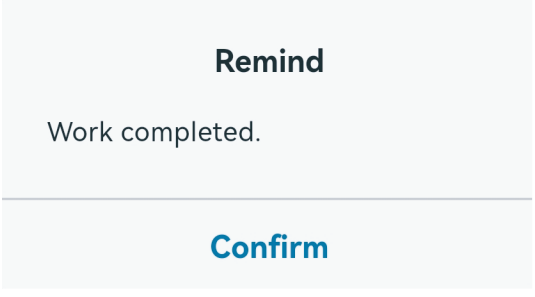
LaserBurn APP Operation

Make a project

i) The APP will display the task progress.



j) When task is completed, there will be a ‘Work completed’ prompt. Click confirm to return to Home page.



For detailed operation, please check the 'Nano Ruby User Manual' file in the SD card

Warranty

Batch engraving

- To the extent permitted by law, this warranty is exclusive and in lieu of all other warranties, express or implied or statutory, including but not limited to fitness for a particular purpose, statutory provisions or any other circumstances. any liability arising therefrom. In addition, Longer Technology will not be responsible for any incidental, special, indirect or consequential damages (which may arise from use, misuse, incompetence or product defects).
- When consumers apply for warranty service, they are obliged to back up all important personal data in advance.
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- Longer provides different warranty periods for the laser unit, consumables, and wearing parts. Please refer to the link for details https://www.longer3d.com/pages/warranty-policy. However, if the following situations occur, the product will not be covered by the warranty:

  1) Failure or damage is caused by incorrect or improper use, maintenance, or storage, such as improper handling; use of the product not for the reasonable intended purpose; improper plugging or unplugging of external devices; drops or improper external crash; contact with or exposure to improper temperatures, solvents, acids, alkalis, water intrusion, etc.; infestation of insects and rodents or intrusion of foreign objects resulting in the breakage, dust, damage of the product or parts (such as housing, components, wiring, etc.);

  2) Failure or damage is caused by any installation, repair, alteration, addition, or disassembly by agencies or personnel who are not authorized by LONGER;

  3) Modification, alteration or removal of the original identification information of the product or components.
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