Longer Nano Duo User Manual

V:0.3
2025.04.15

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

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 Duo or troubleshoot problems by yourself, no matter what the scenario.
- Longer Nano Duo 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 Duo, be sure to wear goggles at all times.
- Before operating the Longer Nano Duo device, please be sure to read this operating content carefully and strictly abide by the operating procedures.
- 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 pile 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.

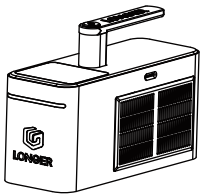
- The operating voltage of the equipment is 24V 5A. An adapter of appropriate specifications should be used for power supply. Operation under overload or unstable voltage is strictly prohibited. And if the ground wire of the power supply (such as a power strip) used in the power plug of this product 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 turned on, laser light will be emitted at the speed of light. Users must avoid direct exposure to the laser beam.
- It is strictly prohibited to place any irrelevant total reflection or diffuse 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.

Disclaimer

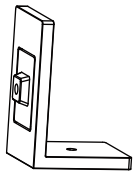
- Thank you for purchasing Longer Nano Duo. The content mentioned in this article is related to your safety and legal rights and responsibilities. Before using this product, please read this article carefully to ensure that you have the correct settings for the product. Failure to comply with the instructions and warnings in this article may cause injury to you and those around you, or cause damage to the Longer Nano Duo 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. Longer Nano Duo 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.

Table of contents

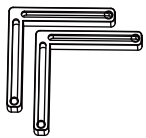
Product accessories list



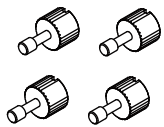
Laser unit



Leveling bracket



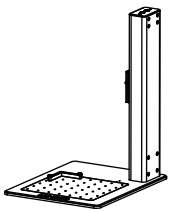
L-shaped material clamp



Thumb screws

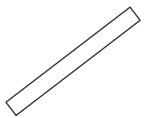
Angle adjusting nut

TF card

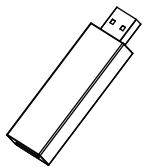


Electric lifting bracket

Angle adjusting thumb screw

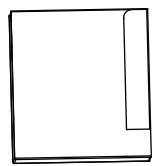


Ruler

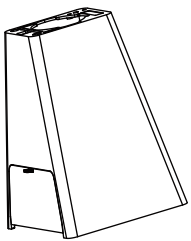


Card reader

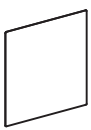
Allen wrench



Material pack

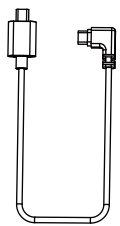


Protective shield

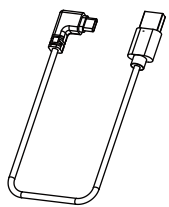


Glasses cloth

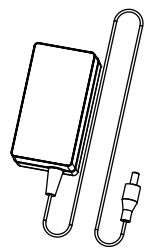
Goggles



Double type-c cable



Data cable

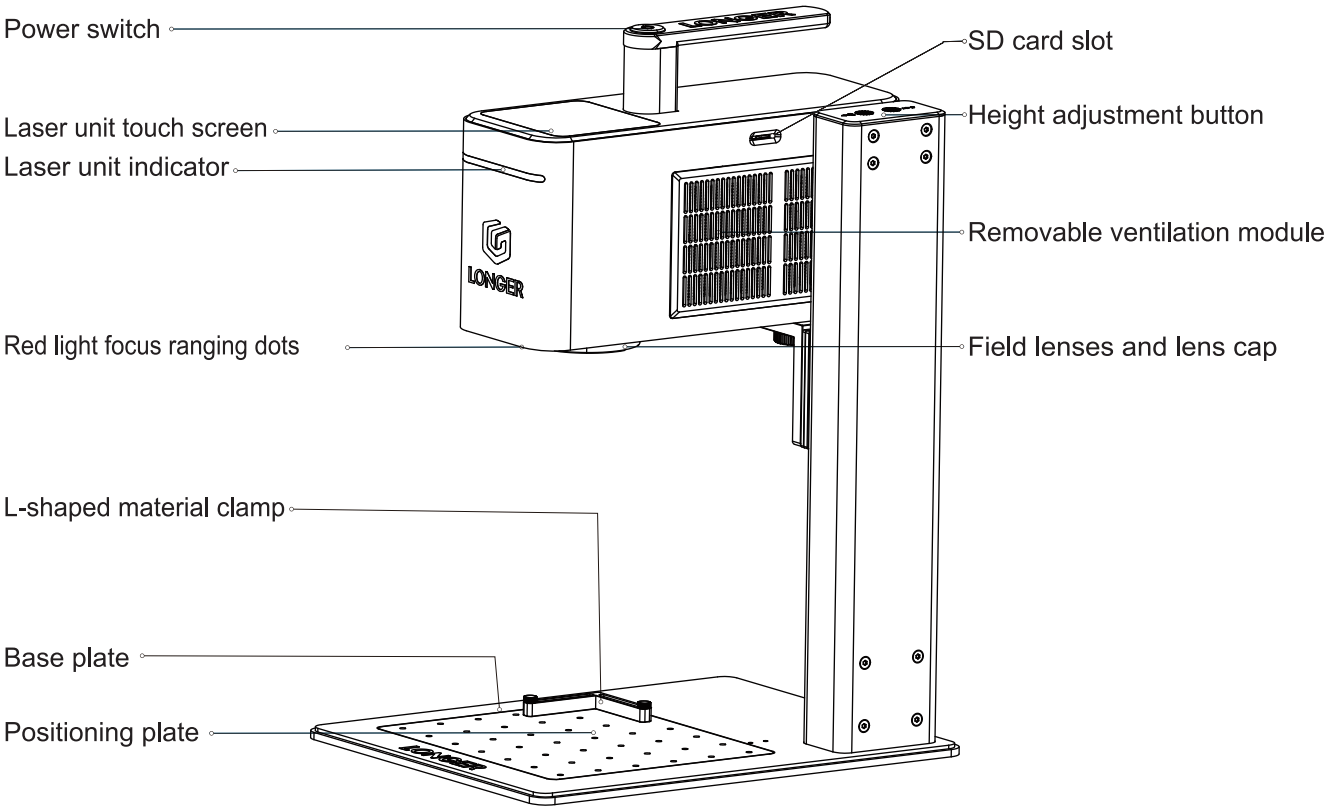


AC cord/Power adapter

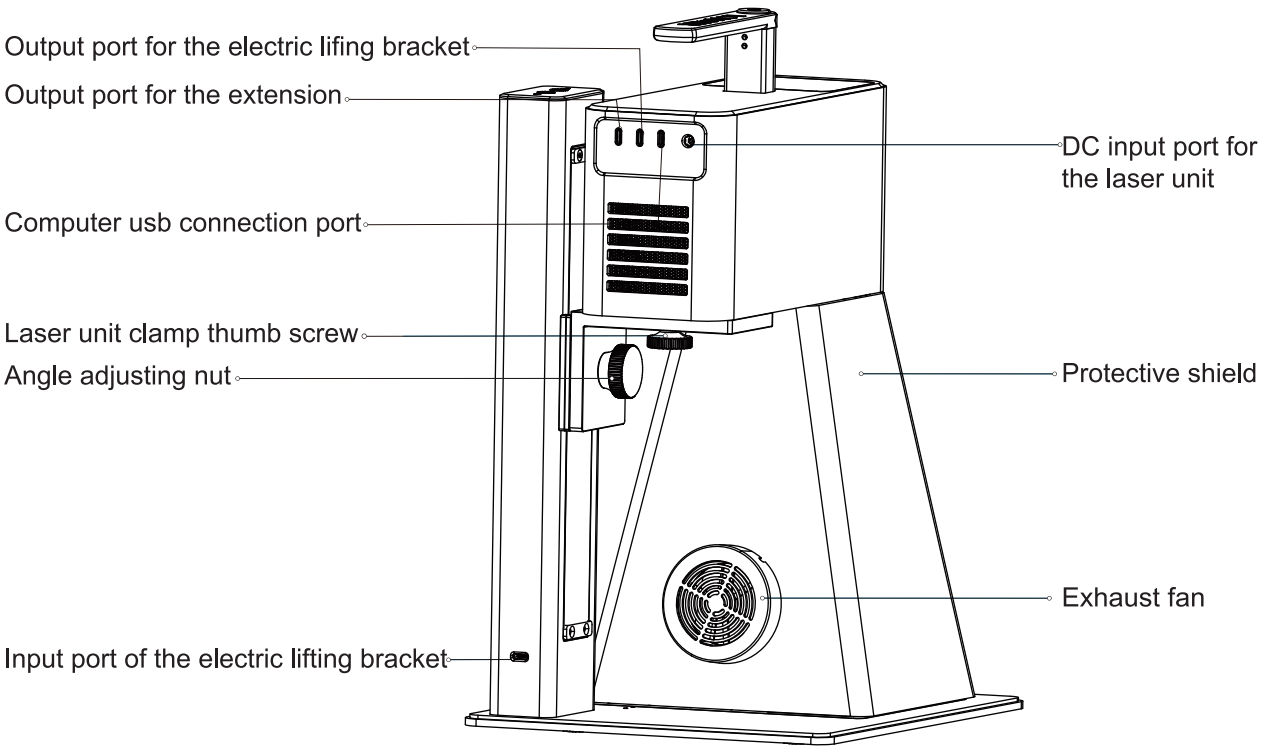
Product specification

Features	Longer Nano Duo
Model	Nano Duo
Power	20W(450nm)&2W(1064nm)
Laser Wavelength	450nm&1064nm
Laser Source	Four diode lasers with FAC /fiber infrared laser
Engraving Precision	0.0019mm
Cutting Depth	16 mm poplar board，8 mm Dark Opague Acrylic
Applicable Materials	Suitable for engraving or cutting on wood, acrylic, leather, cloth, metal, ceramics and other materials
Working Area	160*140mm
Resolution	4K
Preview Mode	Outline Preview, Contour Preview
Preview Speed	32000mm/s
Engraving Speed	10000mm/s
Net Weight	4.961kg
Gross Weight	7.495kg
Product Volume	Laser unit:243.3*162.5*145；Electric lifting bracket:357*282.5*227；Engraver:405.5*282.5*227
Engraving Angle	0~360°
Connection	WIFI, USB, APP
Support Format	jpg, bmp, png, dxf, svg, ai, tiff, etc
Support Systems	Windows ； Macos ； Linux
Input Power	AC Input 110-240V 50/60Hz 1.7A DC Output 24V 5A 120W
Warranty Period	One year
Continuous Working Hours	More than 7 hours
Lifespan	10000+H
Material of Machine	Aluminum alloy
Safety Certifications	CE; FDA; FCC; RoHS
Support Languages	German; Japanese; French; English; Italian; Russian

Product instruction



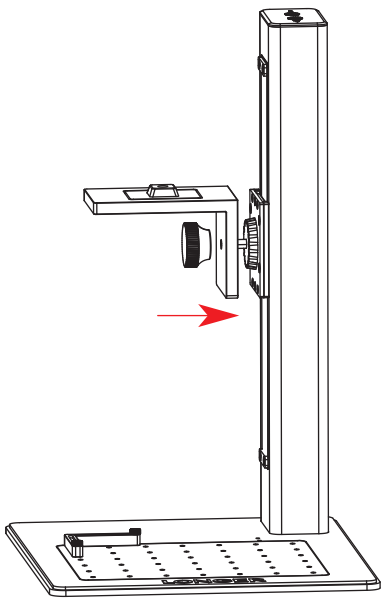
Product instruction



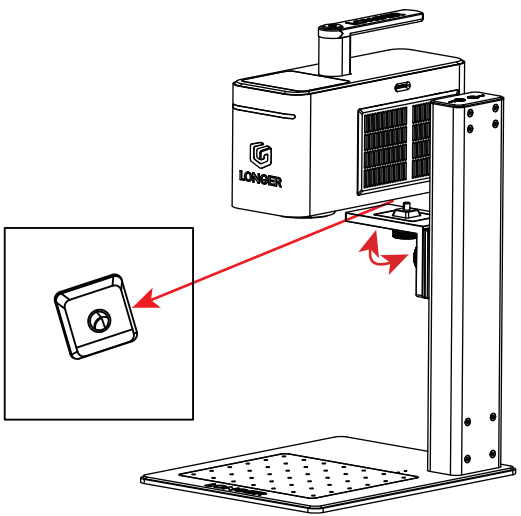
Quick installation

Install the laser unit and protective shield

1) Fix the leveling bracket with the angle adjusting nut.



2) Fix the laser unit with the angle laser unit clamp thumb screw.

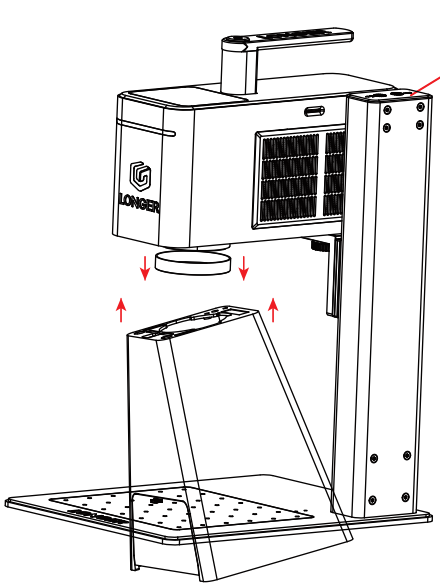


- Align the laser unit with the leveling bracket, and tighten the laser unit clamp thumb screw clockwise to fix the laser unit.

Quick installation

Install the laser unit and protective shield

3) Fix the protective shield on the laser unit

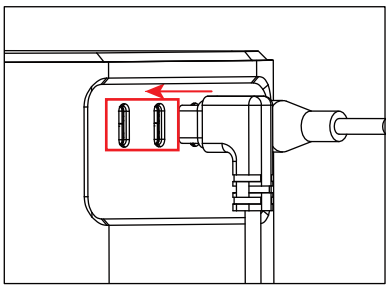


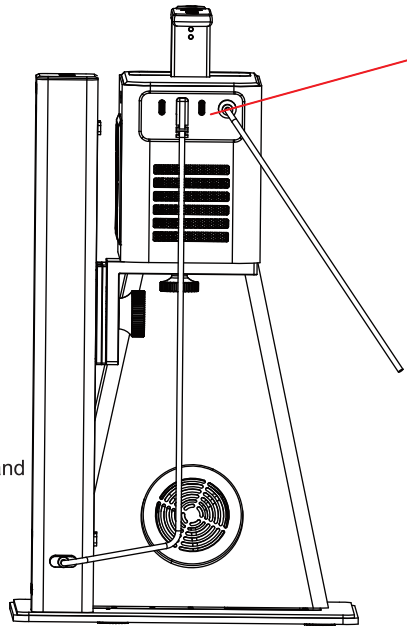
Note: If the height is not enough to install the protective shield, please adjust height

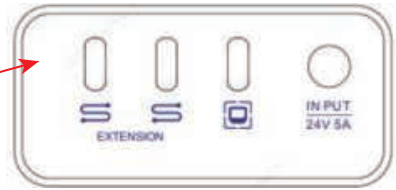
Note: Remove the lens cap first and then install the protective shield. Make sure of exhaust fan is toward rear.

Quick installation

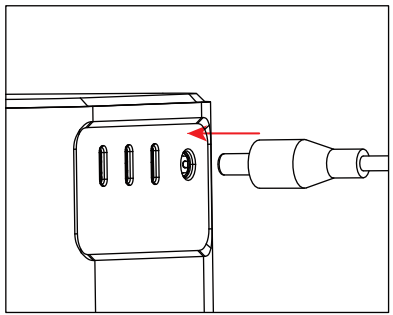
Wiring







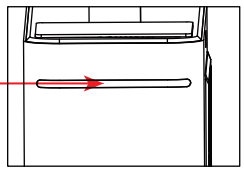
Output port for the electric lifting bracket;
Power port;
Computer connection port;



Connect power adapter to the laser unit

EXTENSION Connect to electric lifting bracket and Extension with the double type-c cable

Laser unit indicator



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

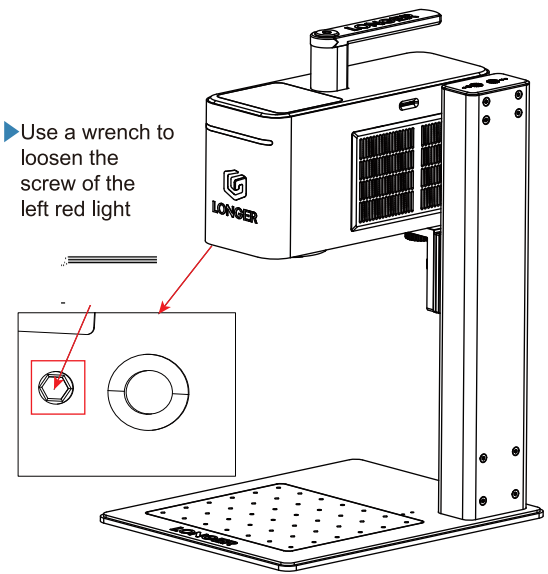
Red light module adjustment

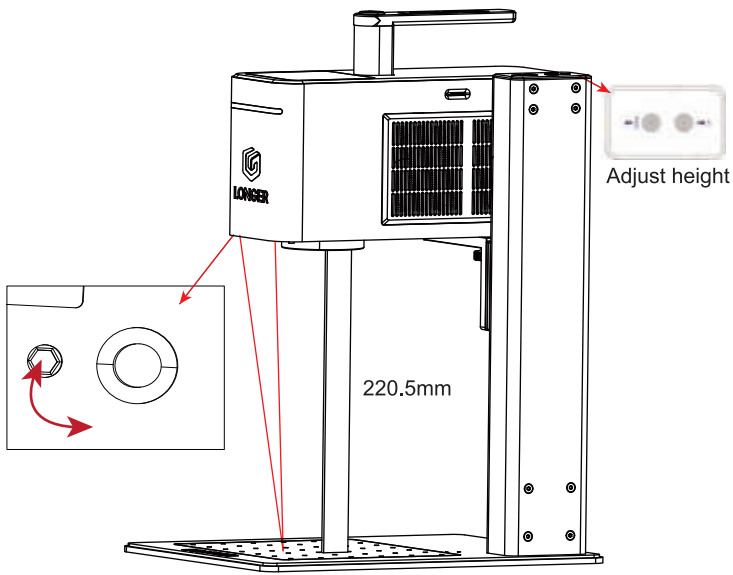
Red light module adjustment

1) If the two red light spots cannot overlap at the focal length, you can adjust it manually.

2) Move the laser unit up and down to the focal position (use a ruler to confirm), rotate the red light module by hand to find the overlapping point, and finally tighten the screws.

Use a wrench to loosen the screw of the left red light



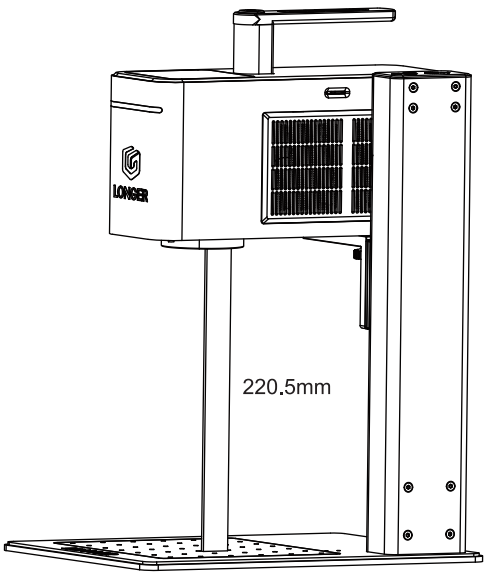


Manual focus setting

Adjust focus

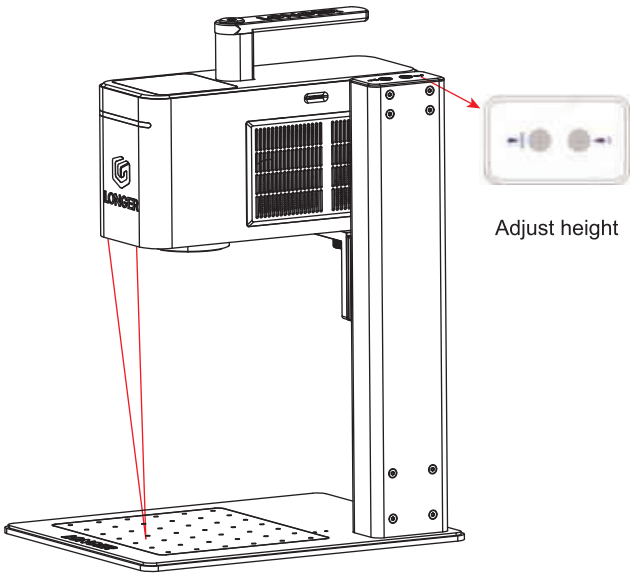
1) Focus by ruler

Adjust the height of the laser module by touching the button of the electric lifting bracket until the bottom of the field lenses is 220.5mm away from the surface of the engraved object.



2) Focus assist by red light

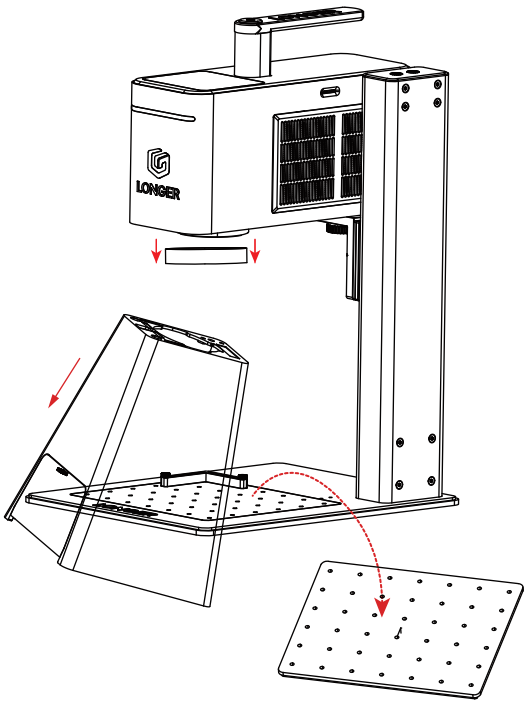
You can turn on the red light through the path of Setting→Laser focus→Manual on the screen and adjust the height of the bracket. When the two laser points coincide with each other, the focus is completed .



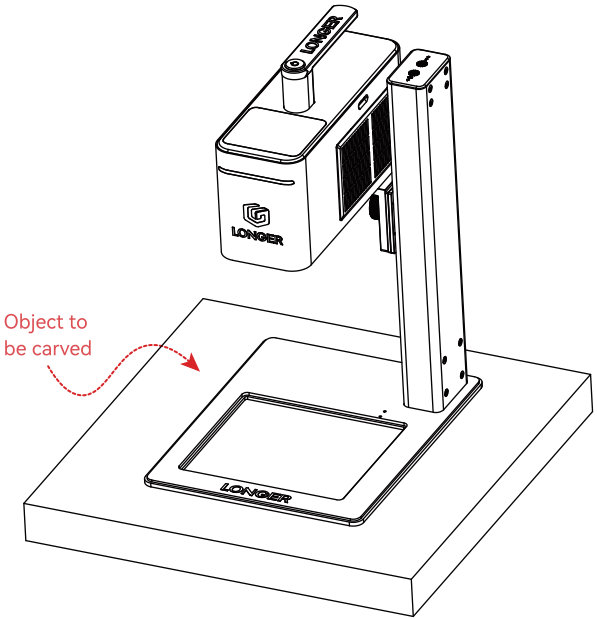
Manual focus setting

Process large-sized materials

1) Adjust the height first,remove the protective shield and then take out the positioning plate.



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

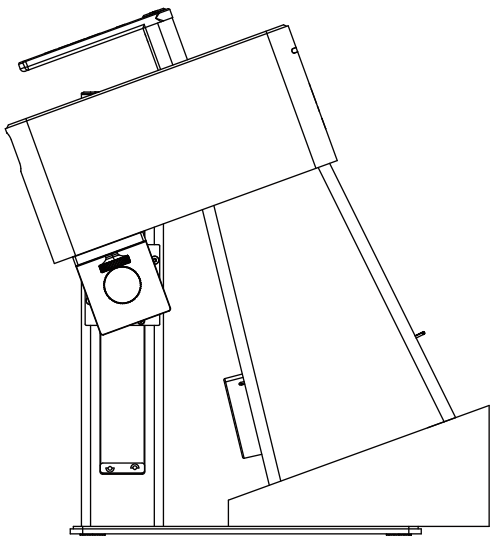


Note:The focal length needs to be readjusted according to the actual situation.

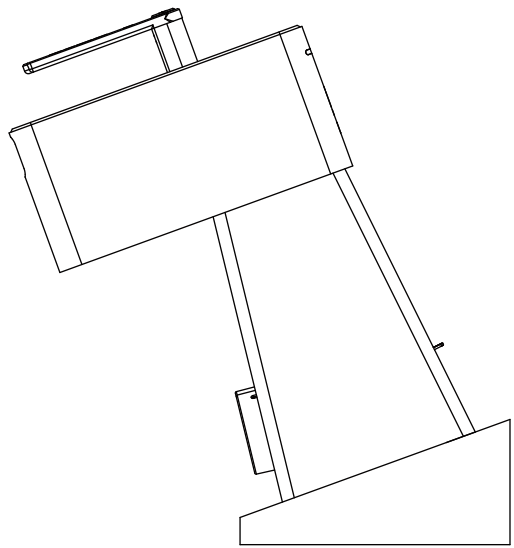
Multiple application Scenarios

Process materials with slopes

1) Oblique engraving
Turn the angle adjustment nut counterclockwise to loosen it, adjust the angle of the leveling bracket, and after the adjust-ment is completed, it will mesh with the gear, then turn the angle adjust-ment nut cockwise to lock it and adjust focus.



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

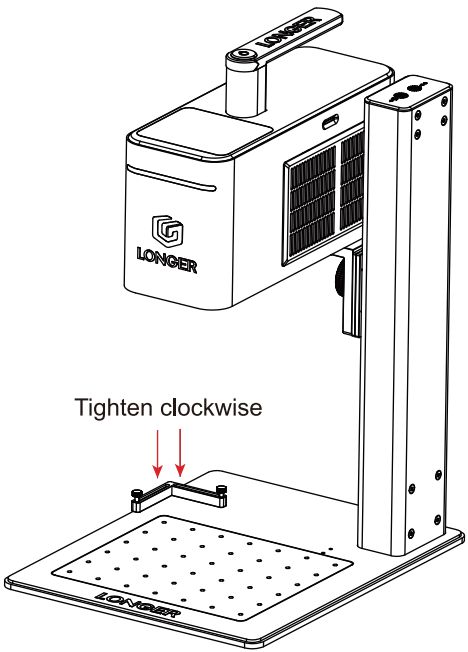


Note:The laser head can only be rotated at 18°intervals.

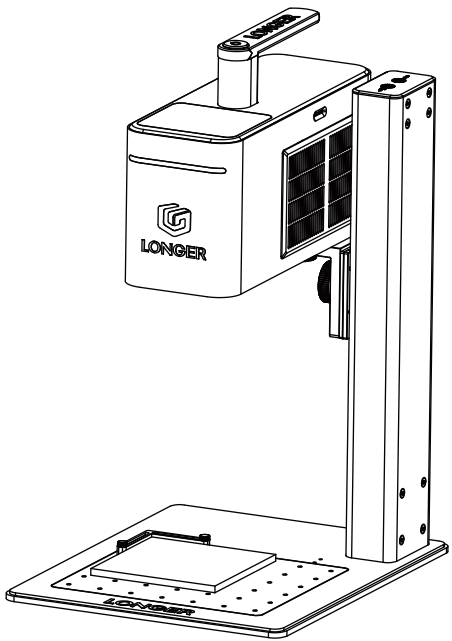
Batch engraving

Batch engraving

1) Place the base plate and tighten the two M4X10 thumb screw.



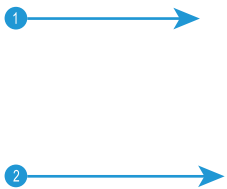
2) Place carving materials.



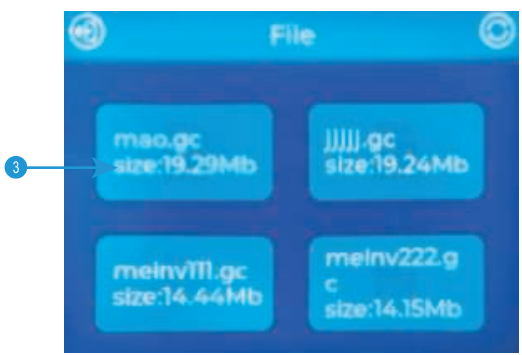
SD card offline engraving

Usage

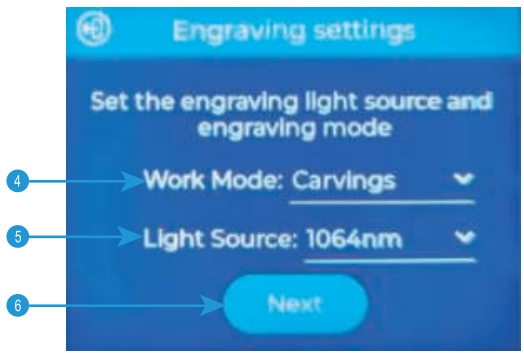
a) Insert the SD card on the side of the machine. When an upward arrow appears next to SD on the screen, the reading is complete. Click File Scan to choose the file.



b) Select the file you want to engrave.



c) Select carving in work mode, choose 450nm or 1064nm from light source, click next.

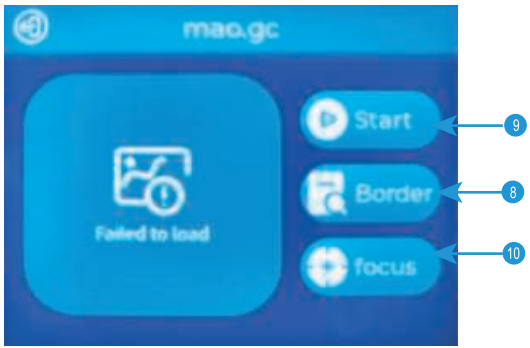


d) After confirmation, click confirm.

SD card offline engraving

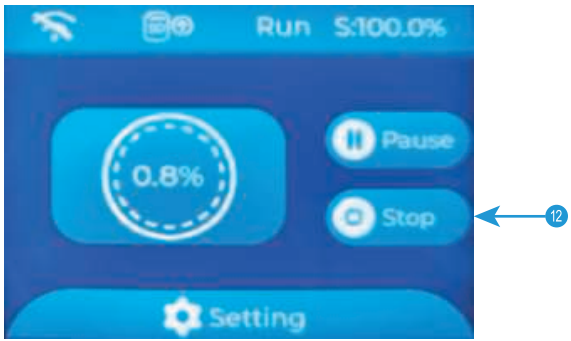
Usage

e) Click Border to confirm the engraving position. After confirmation, click start engraving.



f) Click Confirm.

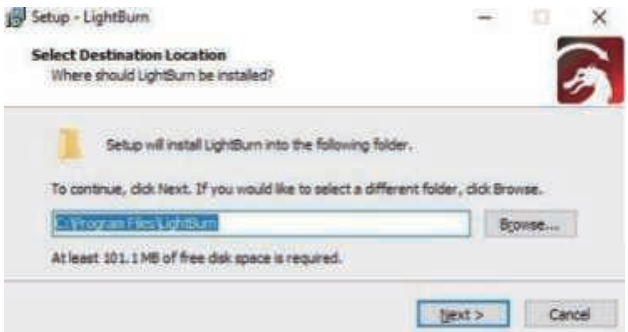
g) Click Stop when engraving is complete.



LightBurn software operation

Setup

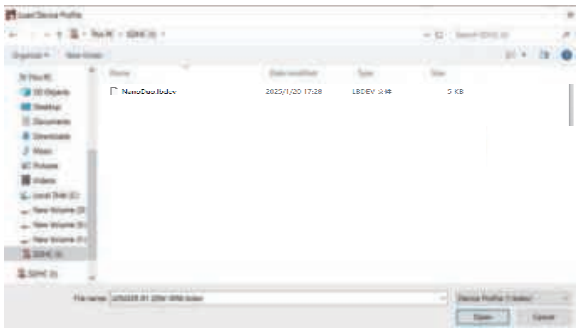
a) Find Lightburn software in SD card(path:/software)-came with the package. Or just download from the link:https://lightburnsoftware.com/download/



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

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

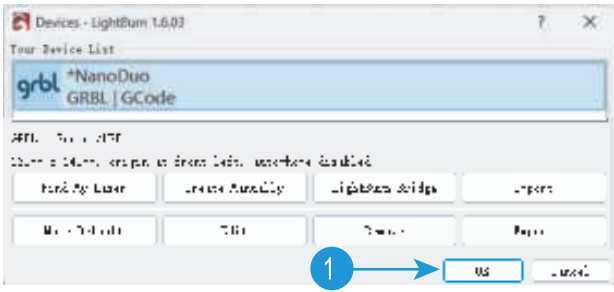
d) Select the 'LONGER Nano Duo.lbdev' file in the sd card and click 'open'.



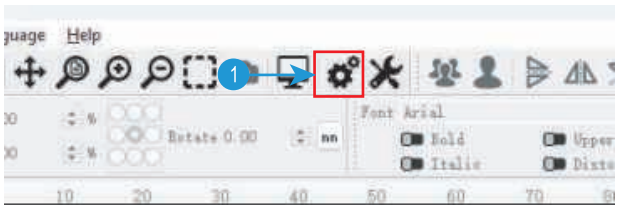
LightBurn software operation

Setup

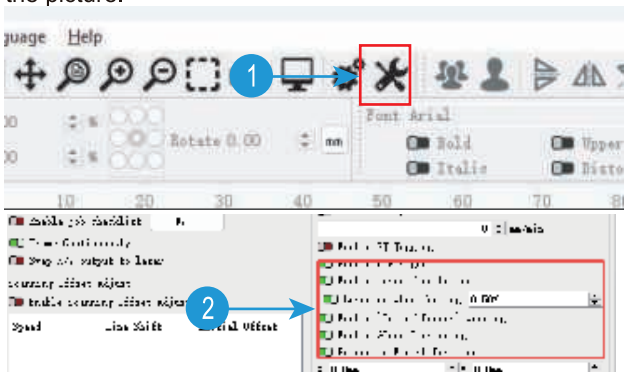
e) Click the 'ok' button.



f) Select ‘Edit’ on the taskbar, select ‘Settings’, or click the icon, select mm/min as the unit, confirm that the other settings are consistent with the figure, and click the ‘OK’ button.



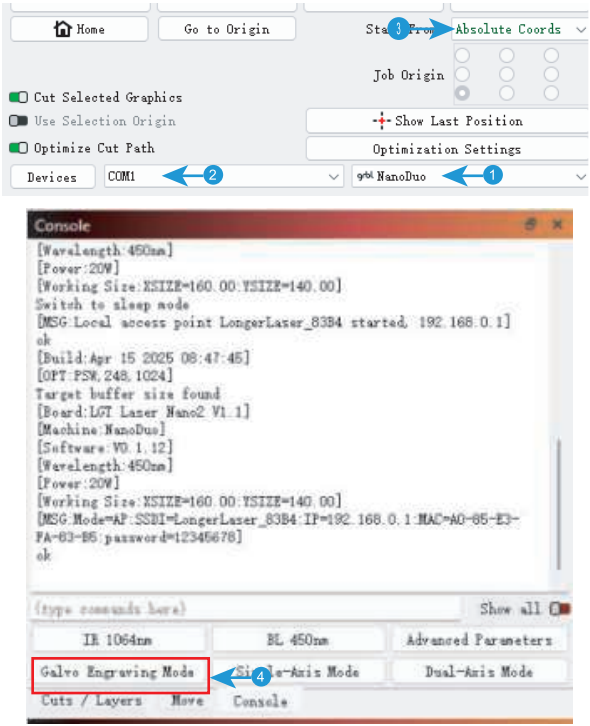
g) Select ‘Edit’ on the taskbar, select ‘Device Setting’, or click the icon position to enable the function consistent with the picture.



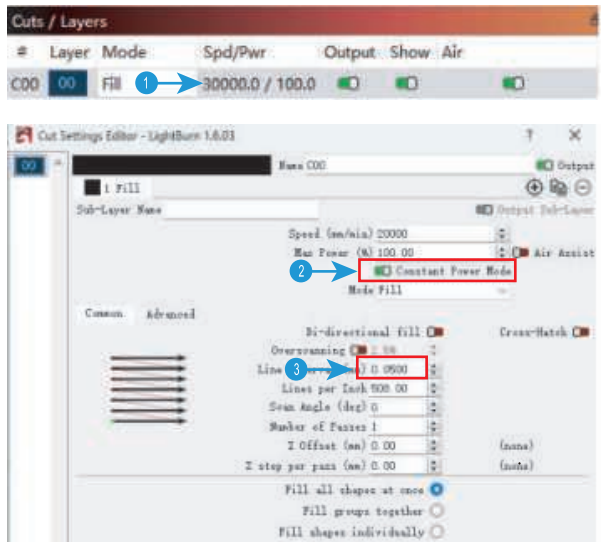
LightBurn software operation

Usage

a) Select correct port (depends on your PC), then the Longe NanoDuo is connected to the computer. Note: You need to click "Galvo Engraving Mode" before engraving.



b) Click Menu “File” >> “Import image from disk.” Or just use draw tool on left column to design your own pattern.

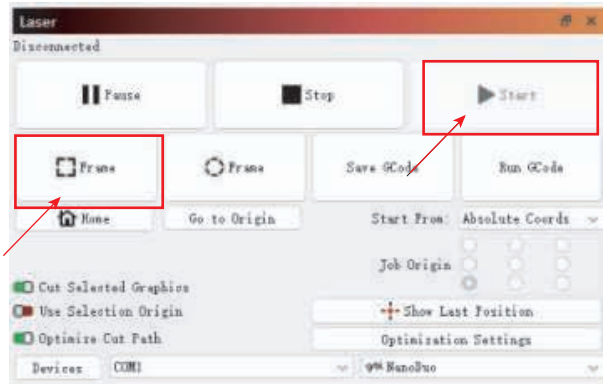


c) Set the name, speed, maximum power, mode, and other parameters in the cutting/layer; (engraving function and cutting function are only different in speed, power. Normally, the cutting speed parameter is slower), note: click constant power mode and the line interval of infrared laser and blue laser is 0.05mm

LightBurn software operation

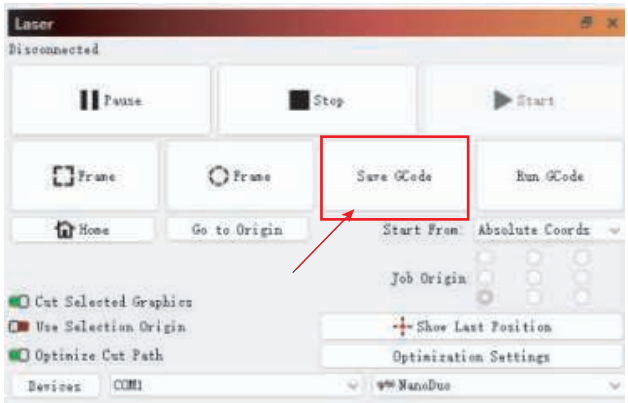
Usage

d) After placing the engraving material, click Frame to check the laser path whether is completely inside of the engraving material. Click “start” to engrave.



e) Or you can save gcode file to SD card by click “Save GCode” button in Laser panel for offline engeaving. Note: If the infrared laser bitmap engraving has obvious color depth differences, it is recommended for offline engraving via SD card.

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

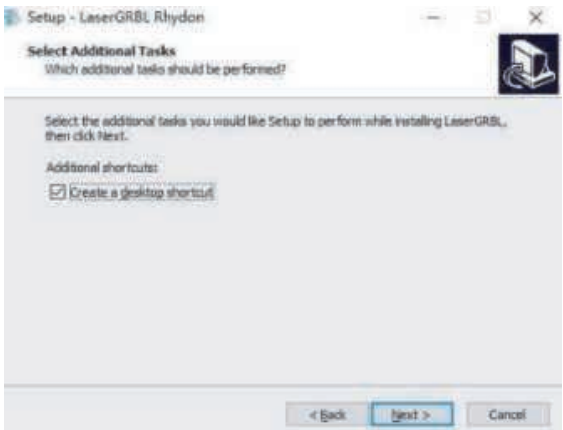


LaserGRBL software operation

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 tostart the software instalation, and keep clicking Next until the installation is completed.



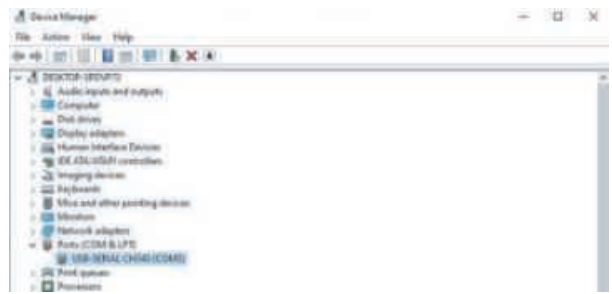
c) After installing LaserGRBL, power up the Longer Nano Duo, press the power switch button, and connect the laser engraver to computer via usb data cable.

Import configuration

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

LaserGRBL_NanoDuo.zbn file is stored in the softwares directory of the SD card.

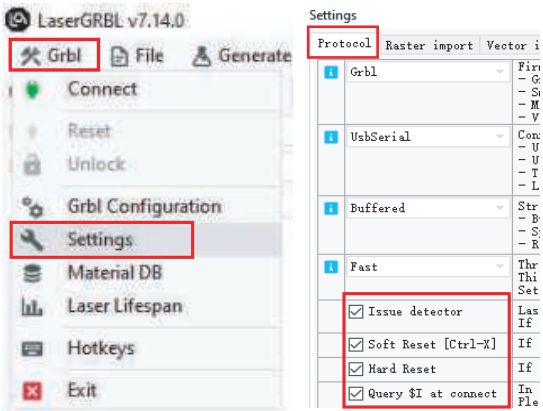
b) If you cannot find correct port, please install CH340 driver manually by click Menu >Tools >install CH340 Driver to install the driver, and restart the computer after installation is completed.



LaserGRBL software operation

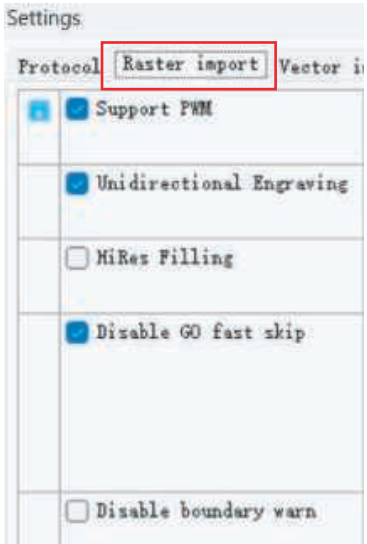
Setting

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

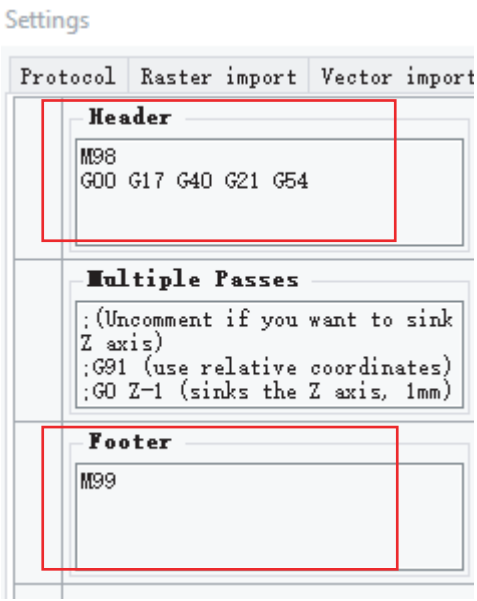
Setting

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.

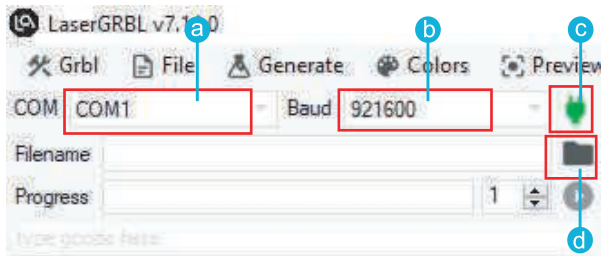


Usage

a) Select correct port

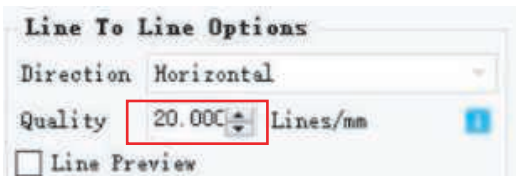
b) Set baud to 921600

c) Connect to Nano Duo



d) Select engraving file
When Nano Duo is connected successfully, click the icon and select the file you want to engrave.

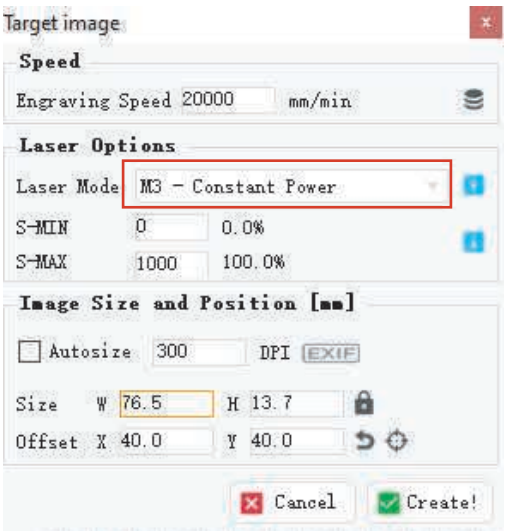
e) After selecting the file to be engraved, change the Quality in Line To Line Options to 20 Lines/mm



LaserGRBL software operation

Usage

f) 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.



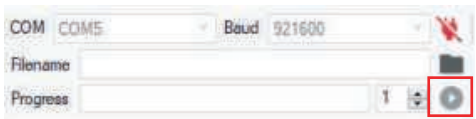
Usage

a) Click the NanoDuo icon before starting engraving.

b) Choose 1064 nm IR (infrared laser) or 450 nm BL (blue laser) for engraving.

c) Click the Nano Frame icon to scan the edges to determine the engraving position.

d) When the above steps are completed, click the run button to start engraving.



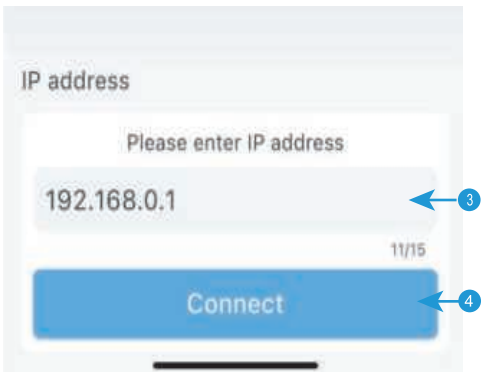
More help information about LaserGRBL, please check the 'Nano Pro User Manual' file in the SD card.

LaserBurn Software Operation

Connect to WIFI in AP mode

a) Search the wifi signal on your mobile phone, select and connect to the WIFI of LongerLaser_xxx, the pass -word is 12345678.

b) Click not connected,enter 192.168.0.1,Click connect to complete the connection.



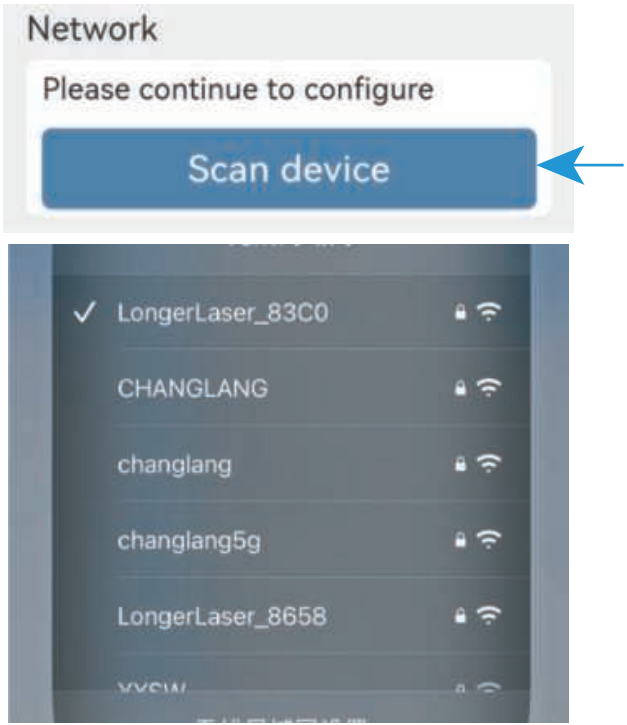
LaserBurn Software Operation

Connect to WIFI in STA mode

a) Run the APP and click not connected

b) click Add.

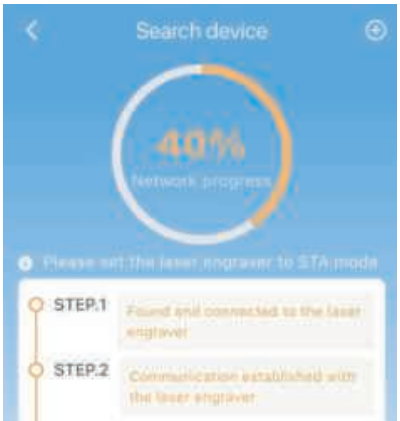
c) Click scan device and connect to the WIFI of Longer Laser_xxx, the passwork is 12345678



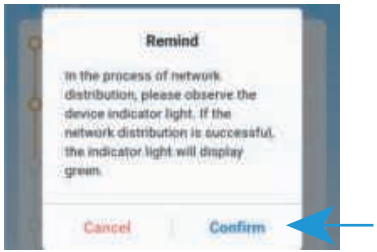
LaserBurn Software Operation

connect to WIFI in STA mode

d) Connect WIFI (only support 2.4G).



e) click Confirm,Wait for the engraving machine to respond three times.



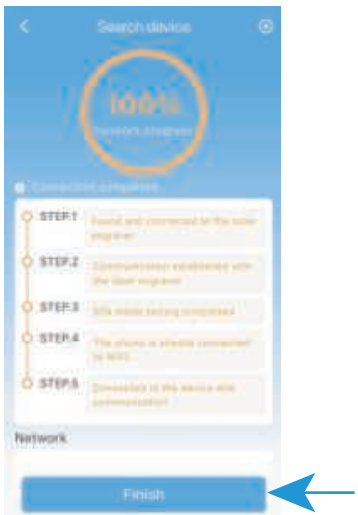
f) click Connect network.

LaserBurn Software Operation

connect to WIFI in STA mode

g) Connect WIFI (only support 2.4G), keep the same as the first connected.

h) Connection completed.



LaserBurn Software Operation

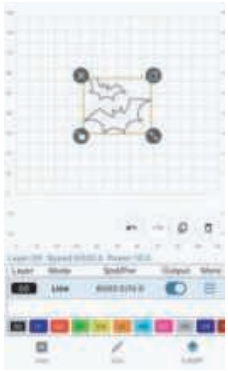
Setup

a) Create, or engrave SD card files, or search past historical records for engraving, or select engraving from the existing material library.

b) Enter creation and create the patterns you like (text, QR codes, pictures, photos, materials).

c) Adjust the size and position of a graphic.

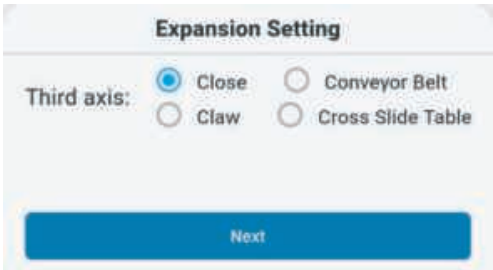
d) Set engraving parameters.



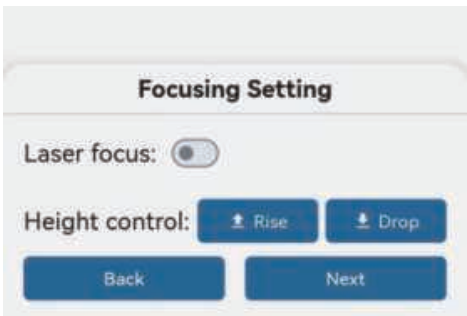
LaserBurn Software Operation

Setup

e) Set close for engraving without the third axis, click next.



f) Click laser focus, after completing the focus, click next.



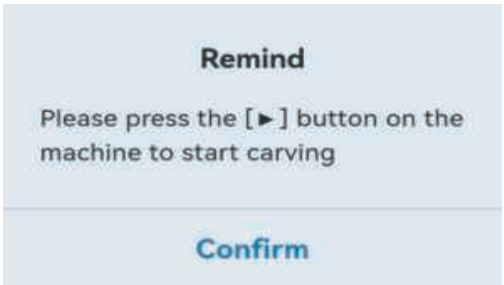
g) Preview the engraving to see if the engraving position is correct and click start.

h) Click confirm.

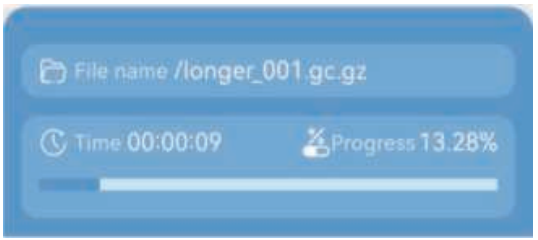
LaserBurn Software Operation

Setup

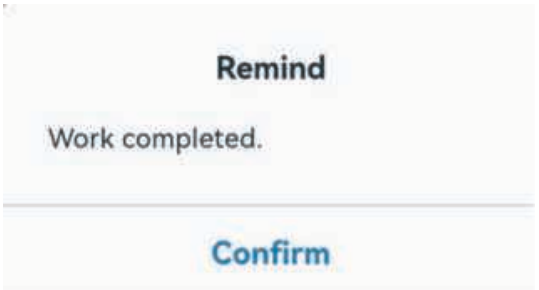
i) Click confirm and Click on the screen to start engraving



j) The APP will display the task progress



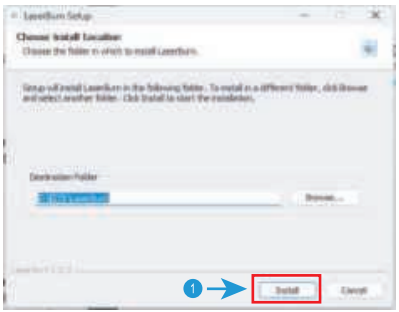
k) When task is completed, there will be a 'Work completed' prompt. Click confirm to return to home page

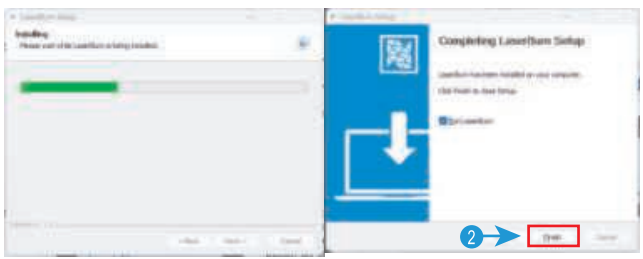


LaserBurn Software Operation

Setup for Windows

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





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

Setup for MacOS

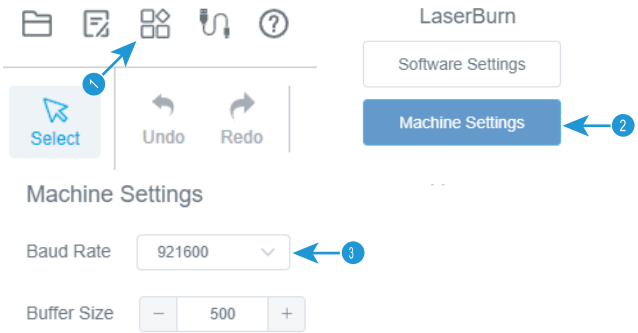
a) Find laserburn software in https://www.longer3d.com/pages/download-software.

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

LaserBurn Software Operation

Usage

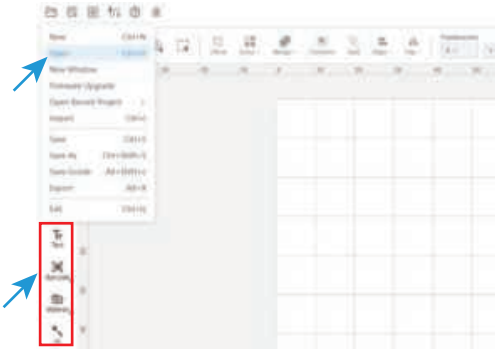
a) Select the settings icon, you can set the Laserburn interface and machine settings, baud rate is 921600.



b) Select device, click connect (depends on your PC), then the Longer Nano Duo is connected to the computer.

c) The machine is connected successfully

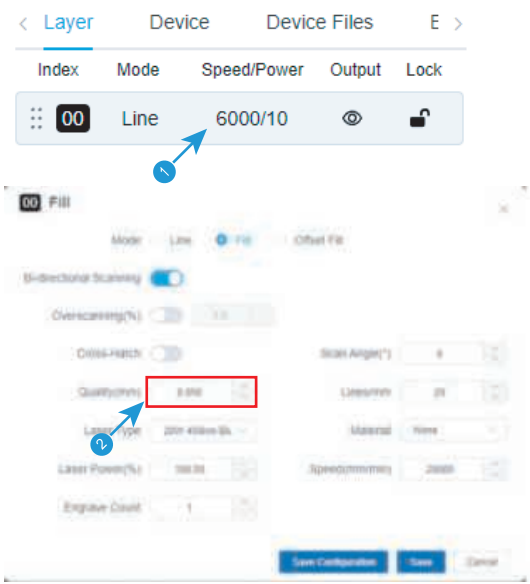
d) Click Menu “File” >> “Import image from disk.” Or just use AI to design the pattern you want to engrave.



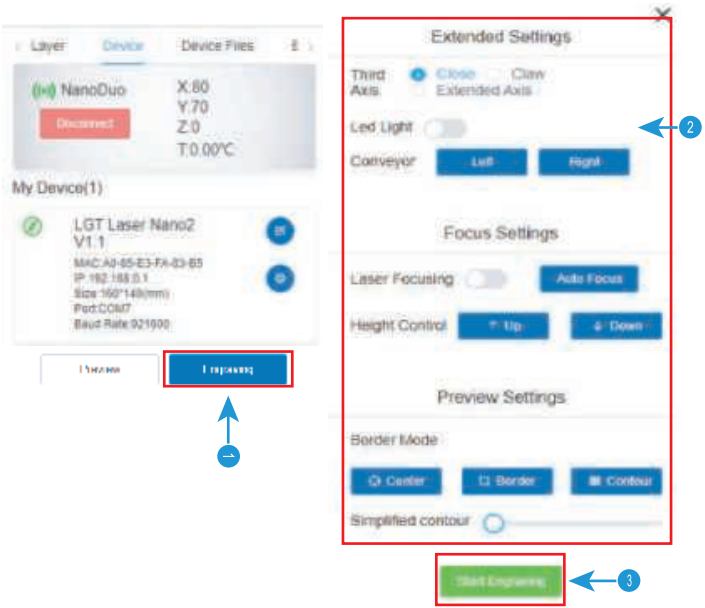
LaserBurn Software Operation

Usage

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



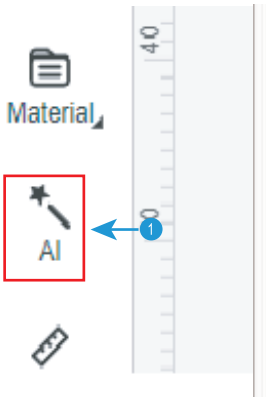
f) Set according to your needs, and you can start engraving after the settings are completed.



AI Creation

Usage

a) Choose AI for creation and register an account.

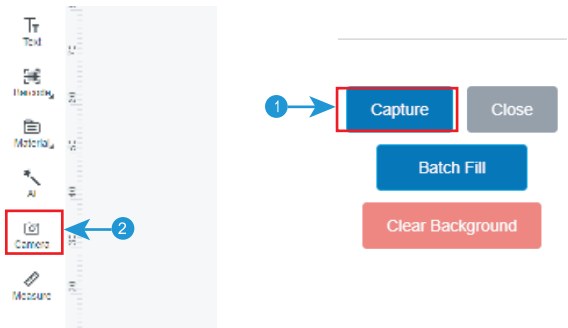


b) Enter what you want to engrave
c) Choose image style
d) Choose image ratio

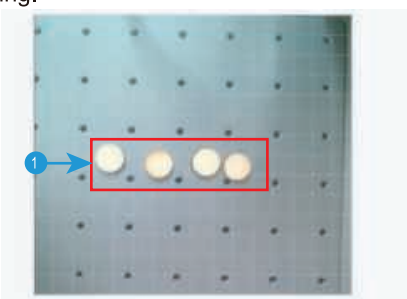
Camera usage

Usage

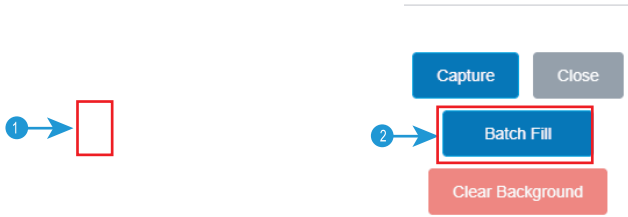
a) Turn on the camera and capture the engraved object on the base plate.



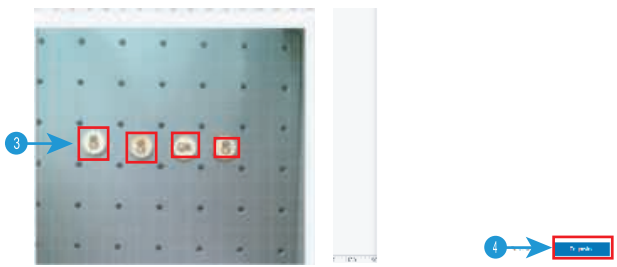
b) Place the pattern you want to carve within the range of the object to be carved, set the parameters and you can start carving.



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



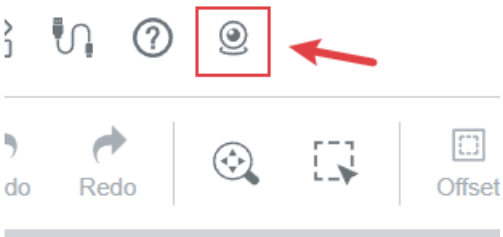
d) Click the Batch Fill option, and the engraved pattern will be automatically placed in the same position as the first object pattern.



Camera Calibration

Usage

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)

Warranty

- 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.
- During the maintenance process, such as replacing parts or updating the product software version, the data will be lost during the maintenance process. Longer Technology does not provide data backup or the integrity of related data and settings.
- 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.
- Processing quality is highly related to user operation, processing materials, and processing environment, and is not covered by the warranty.

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We support global online technical support services for this product. If you encounter any problems during use, please contact us.