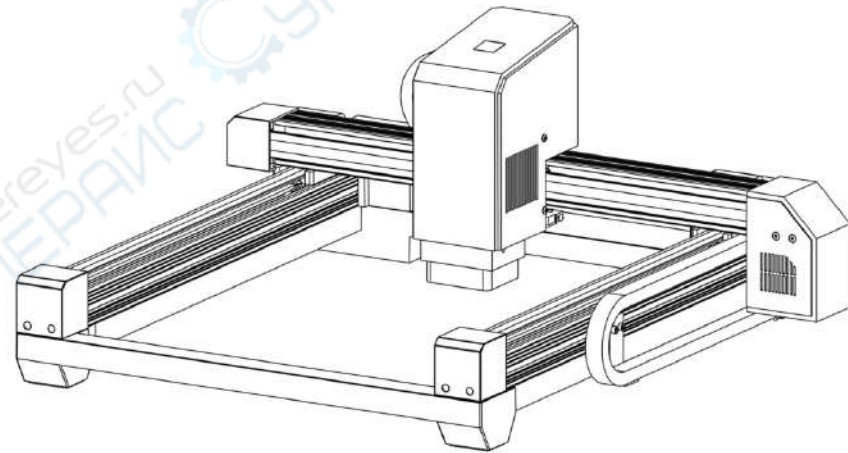


L3
User Manual



L3 Laser Engraving Machine User Manual
Please read this user manual carefully before use

Safety Instructions

Thank you for choosing our laser engraving machine, which is a high-tech optical-electric mechanical equipment. Please read the user manual carefully and follow the instructions for better use and maintenance of the equipment.

Important Statement!

All losses resulting from improper use or failure to follow the manual instructions shall be borne by the user itself. Our company owns the final interpretation right of the user manual as well as the right to modify all the items, data and technical details in this user manual.

Safety Precautions

- ★The operator must read the user manual carefully before use and strictly abide by the operation instructions.
- ★Risks may exist in laser processing and the user should carefully consider whether the object is suitable for laser processing.
- ★The object to be processed and corresponding emissions shall comply with the requirements of local laws and regulations.
- *This machine adopts four types of laser equipment (strong laser radiation), which may cause the consequences as follows:
 - ①Ignite the ambient combustibles;
 - ②Other radiation or toxic and harmful gases may be produced during the laser processing of different objects;
 - ③Direct exposure in laser radiation can cause physical injury. Fire-fighting equipment must be available on the site. It's prohibited to stack flammable and explosive materials on the workbench and around the equipment. At the same time, the site must have good ventilation.
- *The place to use the machine should be dry, free from interference and influences by pollution, vibration, strong electricity and magnetism. Ambient temperature should be 10-35°C and humidity should be 5-95% (no condensing water)
- ★Working voltage: AC100-240V.
- *The engraving machine and other related equipment must be safely grounded before it switched on for operation.
- ★The machine must be fully monitored during the whole operation process. All power must be cut off before personnel departure to prevent abnormal consequences. In case of any accidents, please cut off the power immediately!
- *It's prohibited to place any irrelevant objects with total reflection or diffuse reflection in the machine to prevent the laser from being reflected to human body or flammables.
- *Keep the machine away from electrical equipment which is sensitive to electromagnetic interference, otherwise the electromagnetic interference may occur.
- *Laser machine has high voltage or other potential dangers, it's prohibited to be disassembled by non-professionals.

Safety Instructions

Pay attention!



1. When the laser is turned on, it's prohibited to aim at humans, animals and flammables to avoid skin burns and fire.



2. The laser brightness is harmful to the eyes. Do not look directly at the laser.

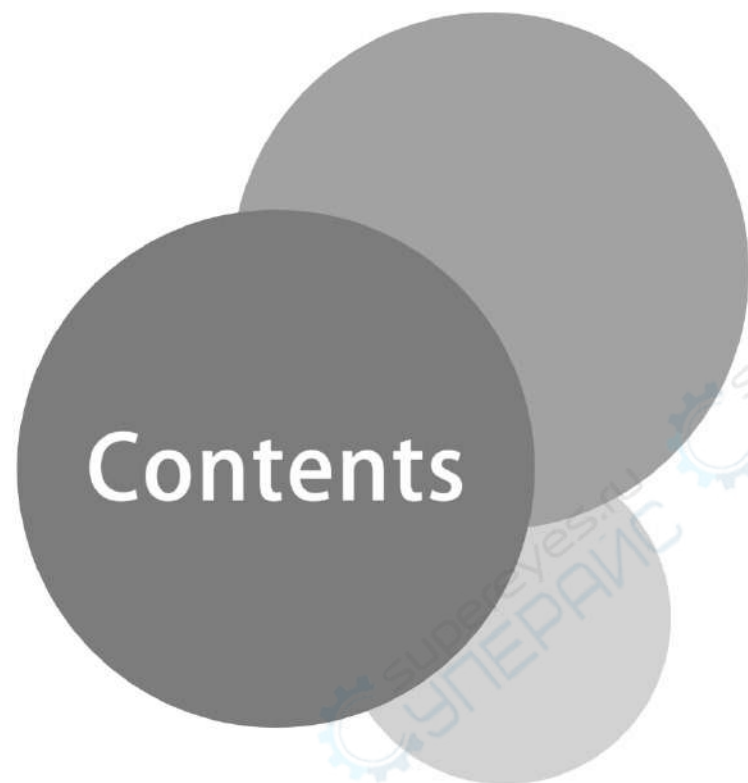


3. Keep hands away from the machine during operation to avoid injury.



4. Turn off the machine when it is not in use to avoid misoperation by third parties.

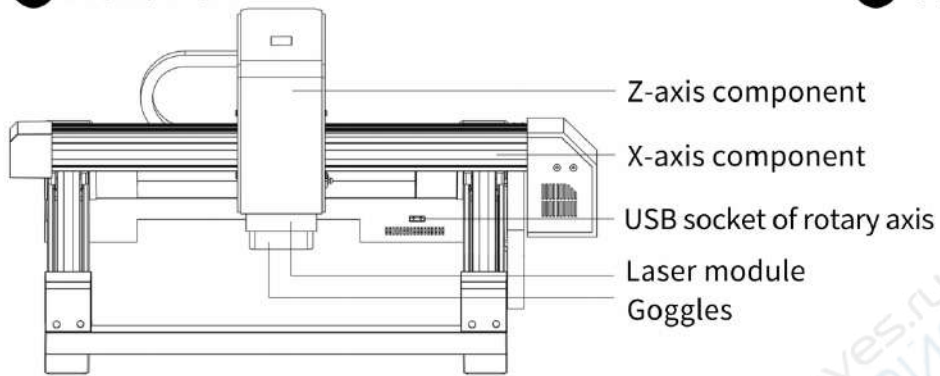
L3 Laser Engraving Machine User Manual



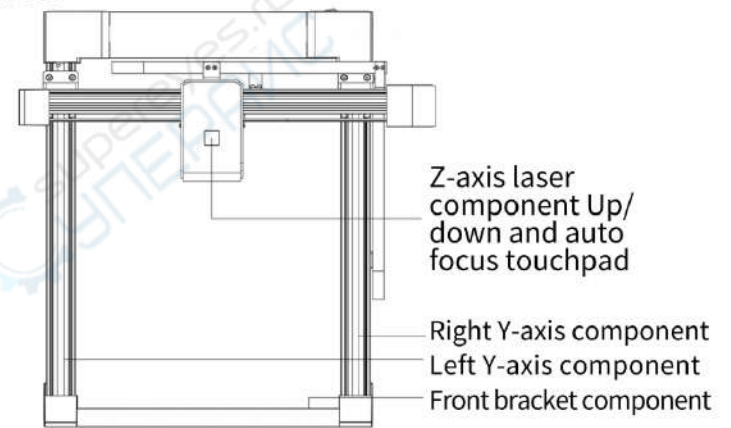
01 Product Structure and Accessories	01
02 Assembly Guide	03
03 Product Parameters	04
04 Function Display and Focus	05
05 Driver Download and Installation on PC	06
06 Driver Installation on PC and Online Operation	07
07 Introduction to Software Application on PC	10
08 Software Download and Online on Mobile Devices	20
09 Introduction to Software Application on Mobile ... Devices	21
10 FAQ	26

01 Product Structure and Accessories

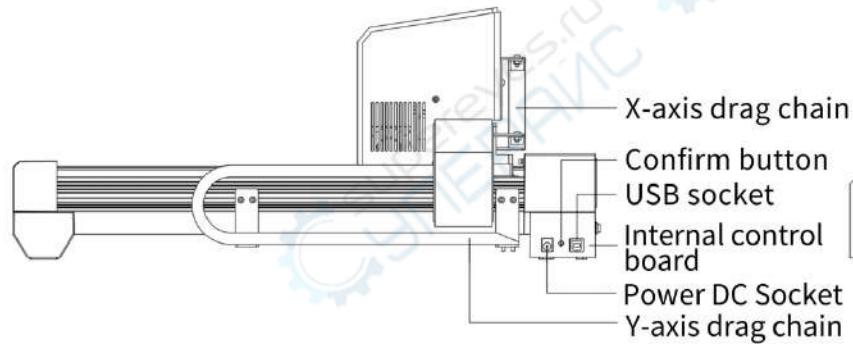
01 Front View



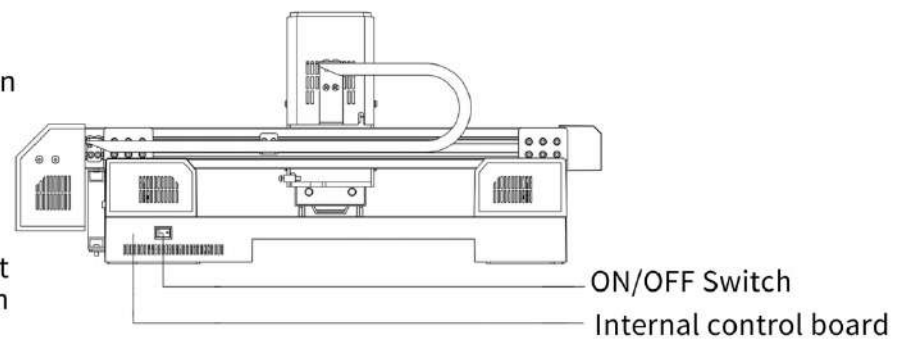
02 Top View



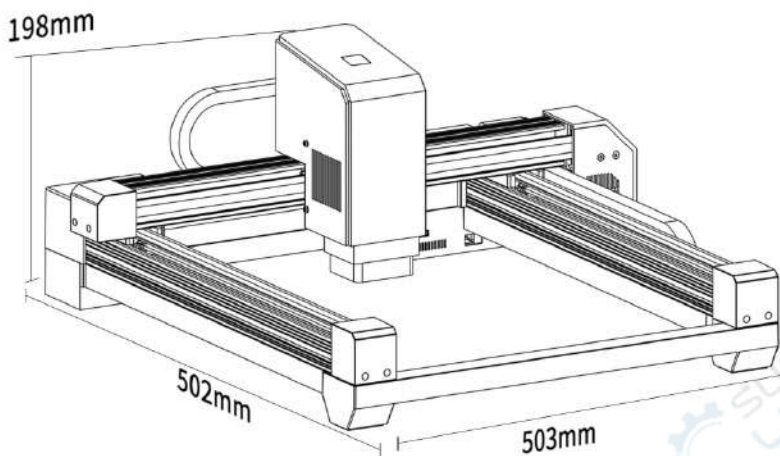
03 Right View



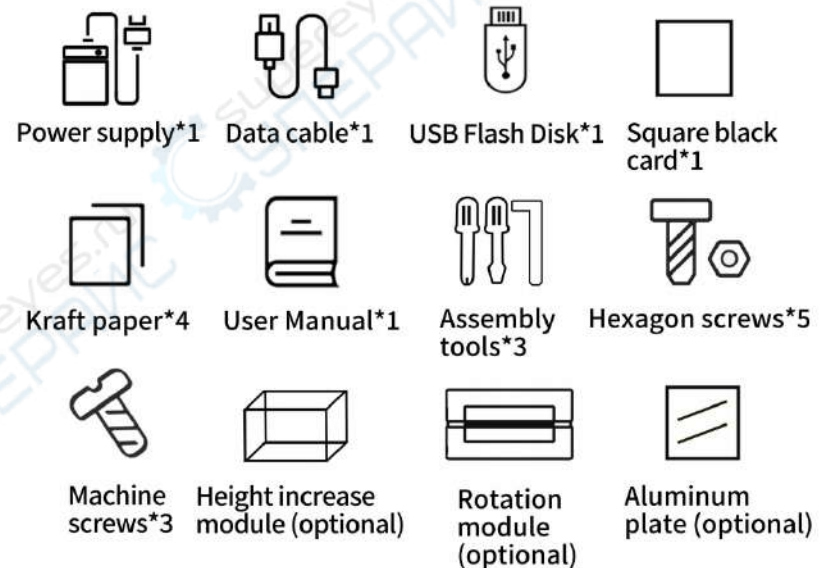
04 Rear View



01 Product Structure and Accessories



Packing List of Accessories

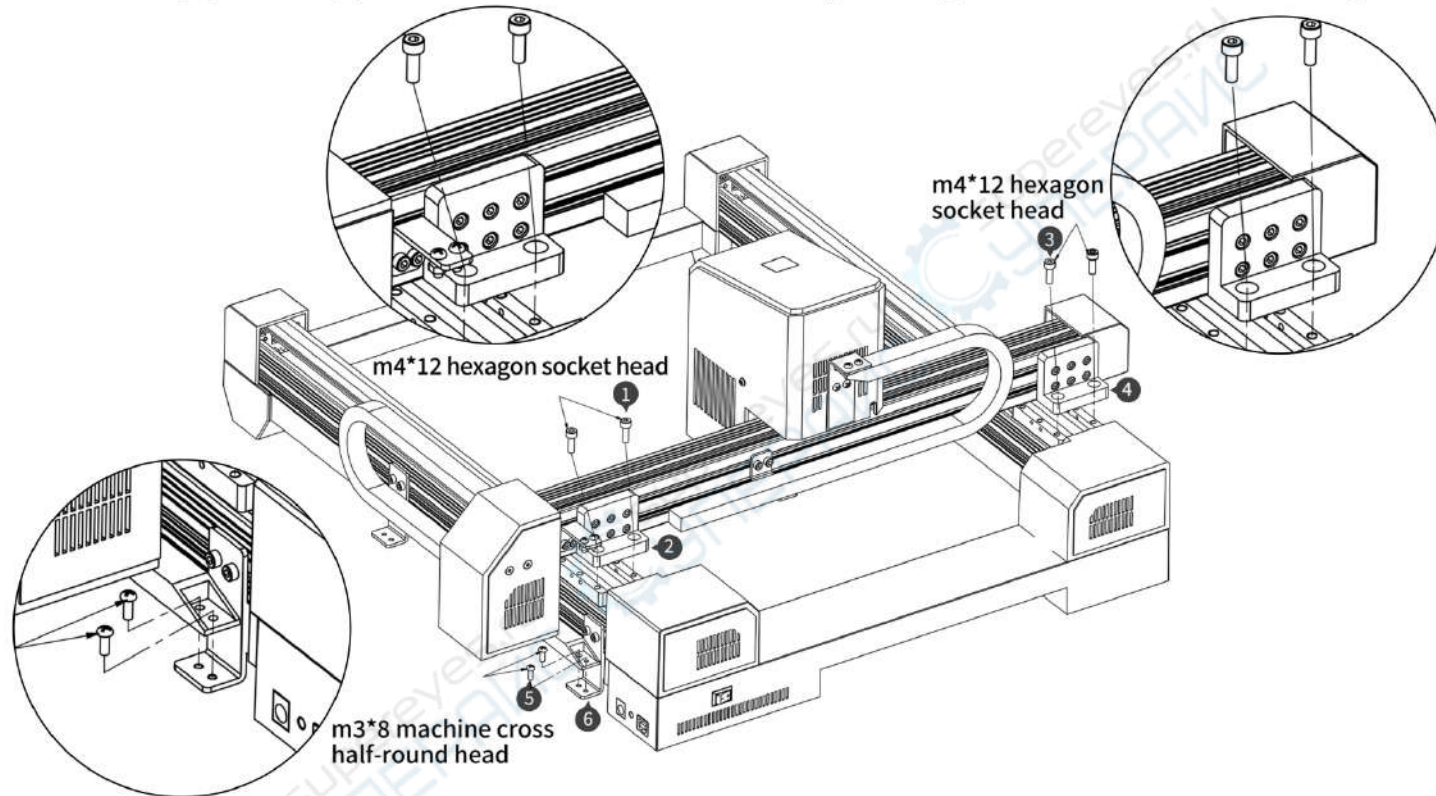


1. Power supply: Supply power for engraving machine
3. USB Flash Disk: Contain driver, software, electronic user manual
5. Kraft paper: Used as engraving test
7. Assembly tools: hexagon wrench, Phillips screwdriver and slotted screwdriver to adjust the distance measuring module
9. Machine screw: for Y-axis drag chain assembly
11. Height increase module: To increase the machine height to engrave thicker objects

2. Data cable: Connect the computer and the machine
4. Square black card: Placed on the object to be engrave so as to watch the point of focus
6. User manual: Introduction to engraving machine and operations
8. Hexagon socket screw: for X-axis assembly
10. Rotation module: to engrave cylindrical objects on the machine, additional USB cable is needed
12. Aluminum plate: For user to protect desktop and locate the engraving

02 Assembly Guide

For the assembly process, please refer to the U Disk Unpacking Guide Video “UnboxingVideo.mp4”



- 1.Lock ❶ two M4*12 hexagon screws with ❷ bracket tightly
- 2.Lock ❸ two M4*12 hexagon screws with ❹ bracket tightly
- 3.Lock ❺ two M3*8 machine screws with ❻ bracket tightly
- 4.Wiring (connect ❷ wires of drag chain to the main board adapter cable)
- 5.Assembly completed

03 Product Parameters

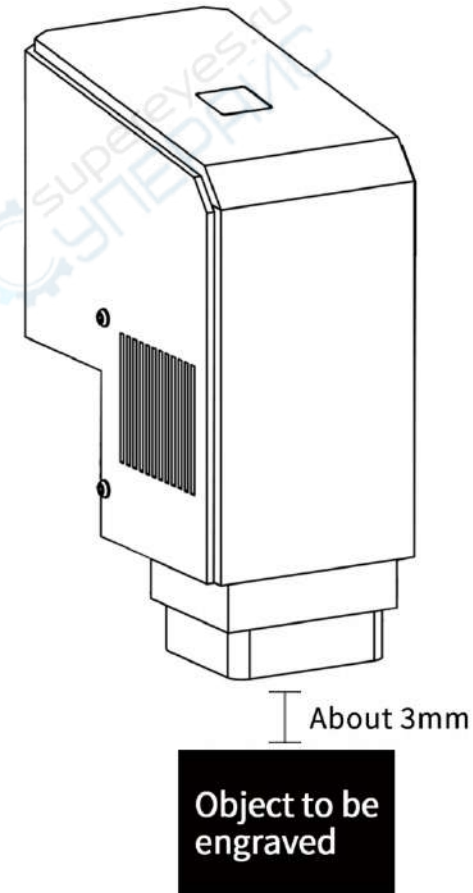
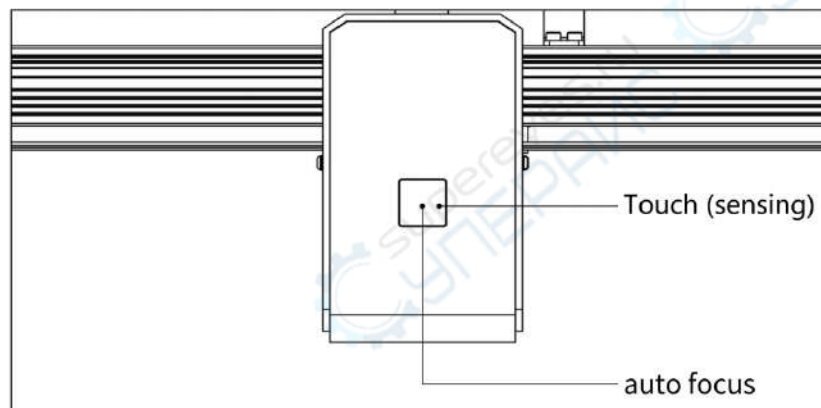
Model	L3
Material	High-strength high-speed aluminum guide rail + ABS engineering plastics
Laser Focus	One-click auto focus
Focus Range	Within 50mm, thicker objects can be accommodated with height increase module
Best Focal Length	3mm, Light Spot <1mm
Power Supply	DC005, DC12V/5A
Data Interface	USB Type-B (Square USB Interface)
Cooling Type	Air Cooling
Power	<60W
Laser Electric Power	JG001 module: 30W; JG002 module: 48W
Laser Electric Power	JG001 module: 4.5W; JG002 module: 8W
Laser Wavelength	455nm
Laser Service Time	>10000H
Spot Shape	Point
Laser Control	High-Speed PWM
Engraving Area	230mm*275mm
Engraving Accuracy	0.05mm
Engraving Speed	up to 170mm/s
Suitable Materials	Cardboard, wood, non-transparent plastic, cloth, leather; stone, glass; stainless steel, iron, aluminum, copper and other common metals which can be engraved
Compatible System	Software Platform: Win7/Win8/Win10/MAC/IOS/Android
Photo Format	JPEG/BMP/GIF/PLT/PNG/DXF/JPG/XJ/HPGL
Product Size	502*503*198mm
Package Size	595*485*270mm
Product Weight	4.48kg
Package Weight	/

04 Function Display and Focus

Instructions to Laser hHad Focus Adjustment:

1. Auto focus: Place the object to be engraved and put the yellow "auto focus cardboard" provided randomly on top of it. Click the auto focus button gently. The auto focus will be completed several seconds later to perform the engraving
2. Manual focus: When auto focus cannot meet the engraving requirements, manual focus can be performed: Put in kraft paper (or other non-reflective material), long press the auto focus button to move the laser head down. When the laser head and the object to be engraved are about 3mm away and the blue light spot becomes the smallest to make best focus, the engraving can be performed

Note: The machine focus has been calibrated before being delivered



05 Driver Download and Installation on PC

Software can be acquired as follows:

Method 1: Acquire the driver, software, photos and other data from the USB flash disc provided (Note: Before the use for the first time, please copy all the data from the USB flash disc to your computer as backup to prevent accidental loss due to improper operation.)

Method 2: Download at the designated website

Windows/MAC Download URL:
www.dkjxz.com/download/L3_Software.zip

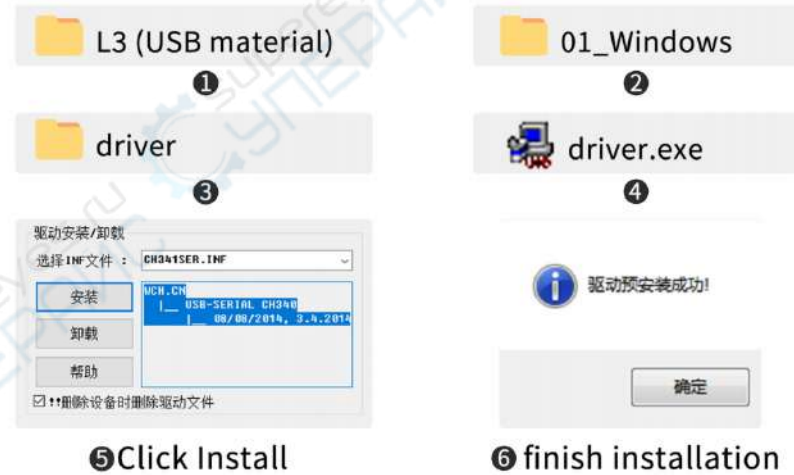
Engraving Machine Download URL:
www.dkjxz.com

URL to Obtain Information:

User Manual Download URL:
www.dkjxz.com/download/L3_User Manual.zip


Video URL:
www.dkjxz.com/download/L3_video.zip

Driver installation in Windows



1.Path to Install Driver:

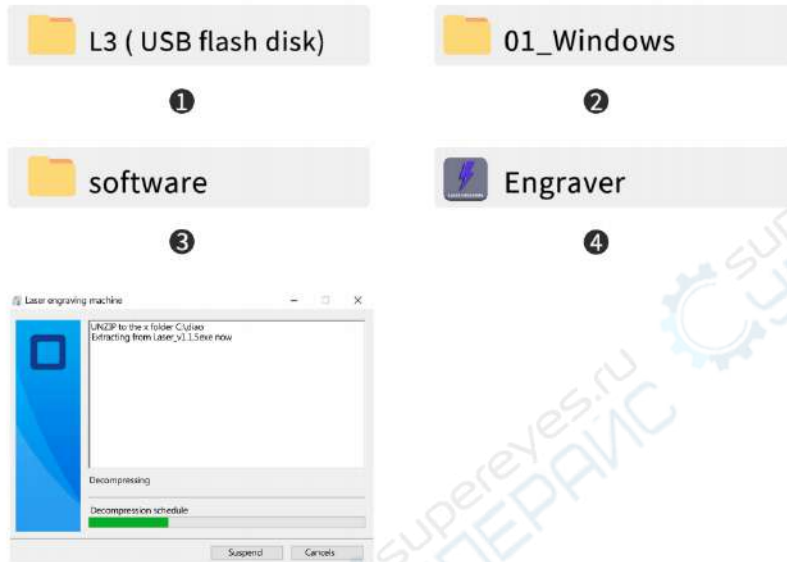
Enter the USB memory disk and double click the folder /01-windows/driver/driver.exe/click Install/ Driver installation completed. Please watch the relevant installation demonstration video in the USB memory disk for detailed installation steps.

 Video of Win driver and software installation

06 Driver Installation on PC and Online Operation

2.Path to Install Software:

Enter the USB flash disk and double click the folder:/windows/software/Engraver/ After the progress bar has done,the installation is completed /Laser.



5 After the progress bar has done, Laser installation is completed.

Tips:

After clicking Engraver, if anti-virus software or PC Manager prompts to warn the risks. Engraverfile is a win system installation package. If it is misjudged as a suspicious file, Please select “allow all operations” to complete the software installation.

3.Online Operation:

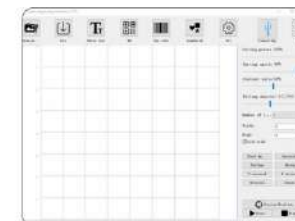
Connect the machine to the computer with data cable Double click the software icon — click the “connect device” icon — the icon turns blue to complete the online connection



1 Double click the software icon



2 Click the “connect device” icon

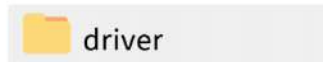


3 The icon turns blue to complete the online connection



06 Driver Installation on PC and Online Operation

Mac Driver Installation



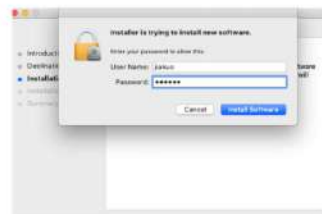
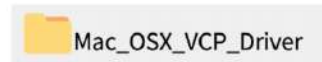
4 Click to continue



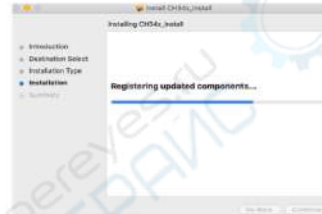
6 Click to continue the installation



8 Complete the installation



5 Enter the computer password




7 Continue the installation

1.Path to Install Driver:

Path to Install Driver: Enter the USB flash disk and double click the folder: 02_MAC/driver/Mac_OSX_VCP_Driver/Installation introduction/installation type/installation/installation completed

Note: The software can be installed after the driver has been installed, please watch the video for detailed operation.

 Video of MAC driver and software installation

06 Driver Installation on PC and Online Operation

Mac software installation and online Introduction



1



2



3



4 Double click the software icon



5 Left click the icon and drag into the Applications folder in the right



6 Complete installation

2. Path to Install Software:

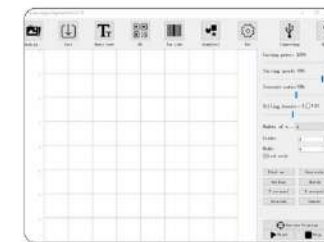
Enter USB flash disk and double click the folder: 02_MAC /software/Engraver/move software icon to the right/ complete installation

3. Online operation:

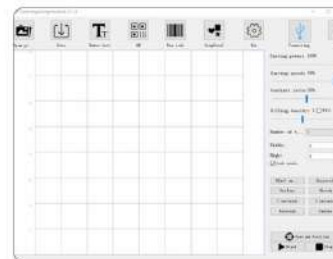
Connect the machine to the computer through data cable Double click the software icon — click “connect device” icon — the icon turns blue to complete the online connection



1 Double click the software icon



2 Click “connect device” icon

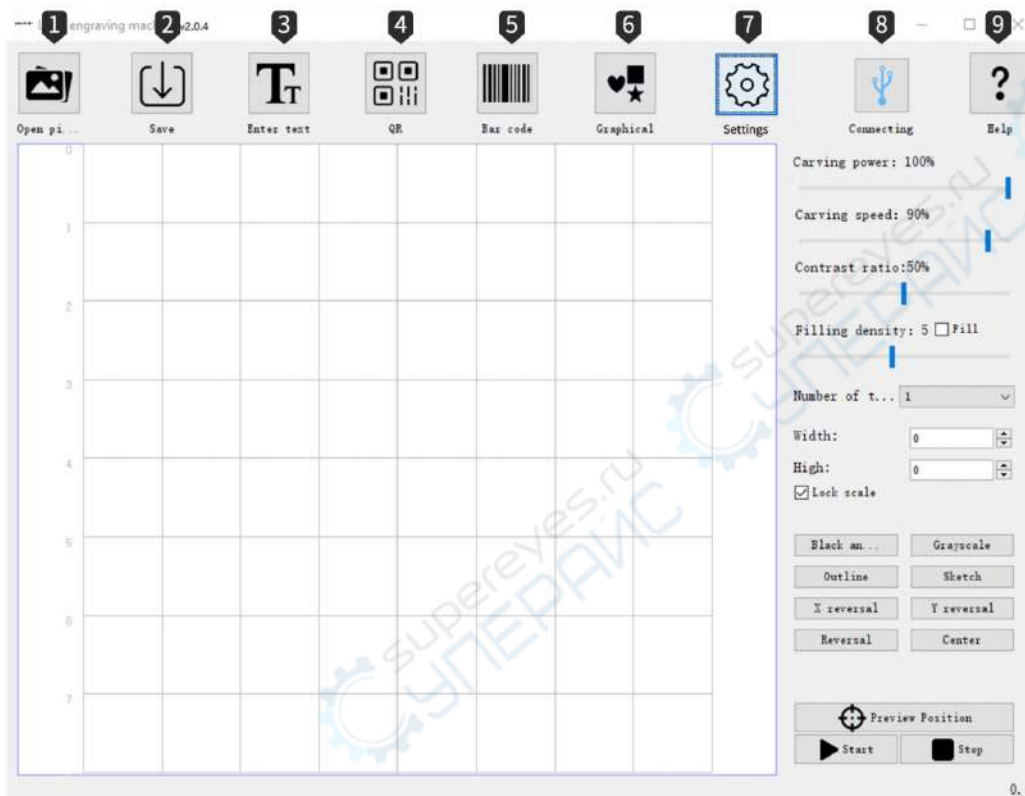




3 The icon turns blue to complete the online connection



07 Introduction to Software Application on PC

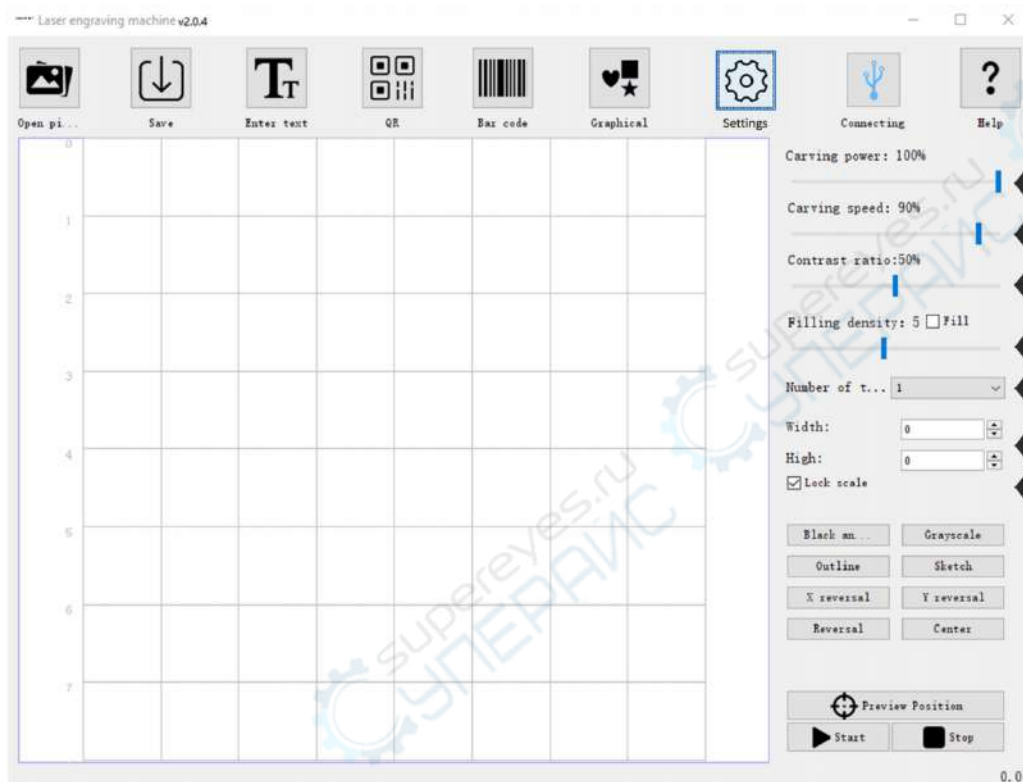
Introduction to Icon Functions in Software Interface:



- 1 Open**
Load photos from computer
- 2 Save**
Save the edited texts and photos
- 3 Input Text**
Import text, font, size, horizontal, vertical, vectorization Editing function
- 4 QR code**
Create QR code
- 5 Bar Code**
Create Bar code
- 6 Graphics**
Round-square-heart-pentagon, quick creation
- 7 Settings**
Set the parameters of low light power; set whether to activate the roller

- 8 Connect to device**
The icon turns blue after the connection is done 
- 9 Help**
Open the link; watch the demo video and refer to the FAQ

07 Introduction to Software Application on PC

Setting of Software Parameters:



1 Engraving Power

Adjust the power level to engrave different materials

2 Engraving Speed

Set the engraving speed, the engraving speed of determines the engraving depth

3 Contrast

Drag the slider to adjust the contrast of text and photo



4 Filling Density; Filling

The filling effect can only be effective for vector graphics, select vectorization, Click Fill on the text photo, drag the fill slider to adjust the filling density

5 Engraving Times

Set the number of engraving times

6 Width; Height

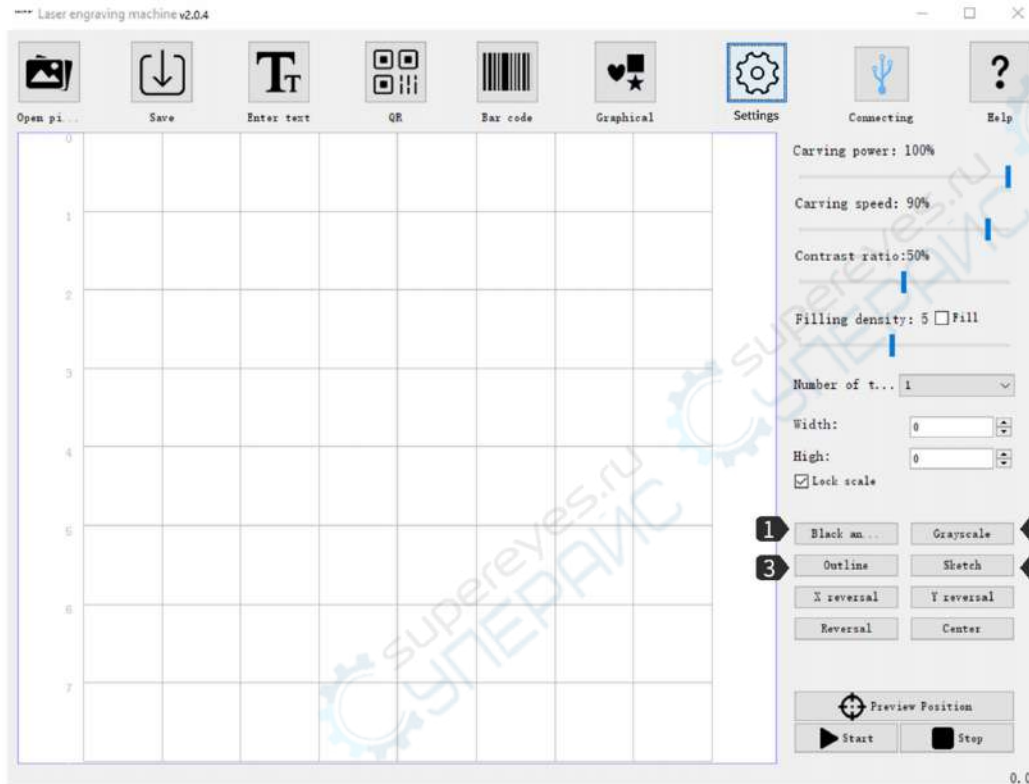
Adjust the width and height of text photo separately at will

7 Proportional Zoom

Lock photo text to proportionally zoom in/out

07 Introduction to Software Application on PC

Setting of Software Parameters:



1 Black and White

To process photos to black and white

2 Grayscale

Grayscale mode, adopt the function for engraving photos to adjust photo grayscale

3 Contour

Cutting mode for wireframe cutting of engraving machine

4 Sketch

Sketch mode, enhance the 3D effect of photo outline



Black and White



Grayscale



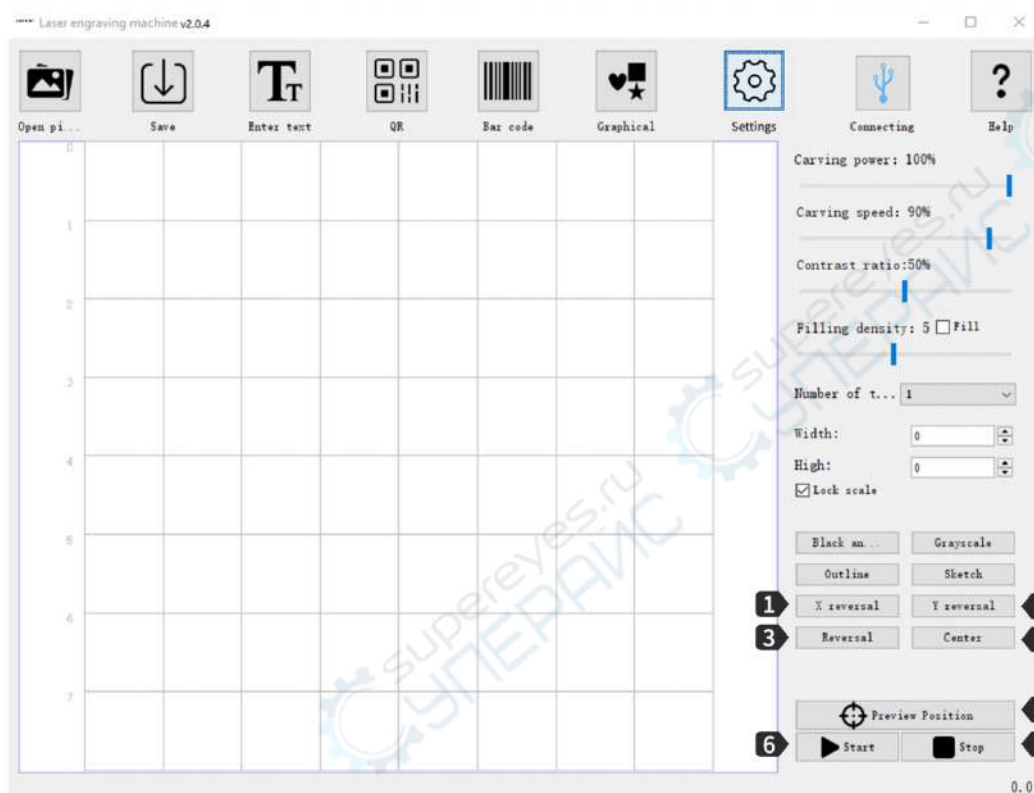
Contour



Sketch

07 Introduction to Software Application on PC

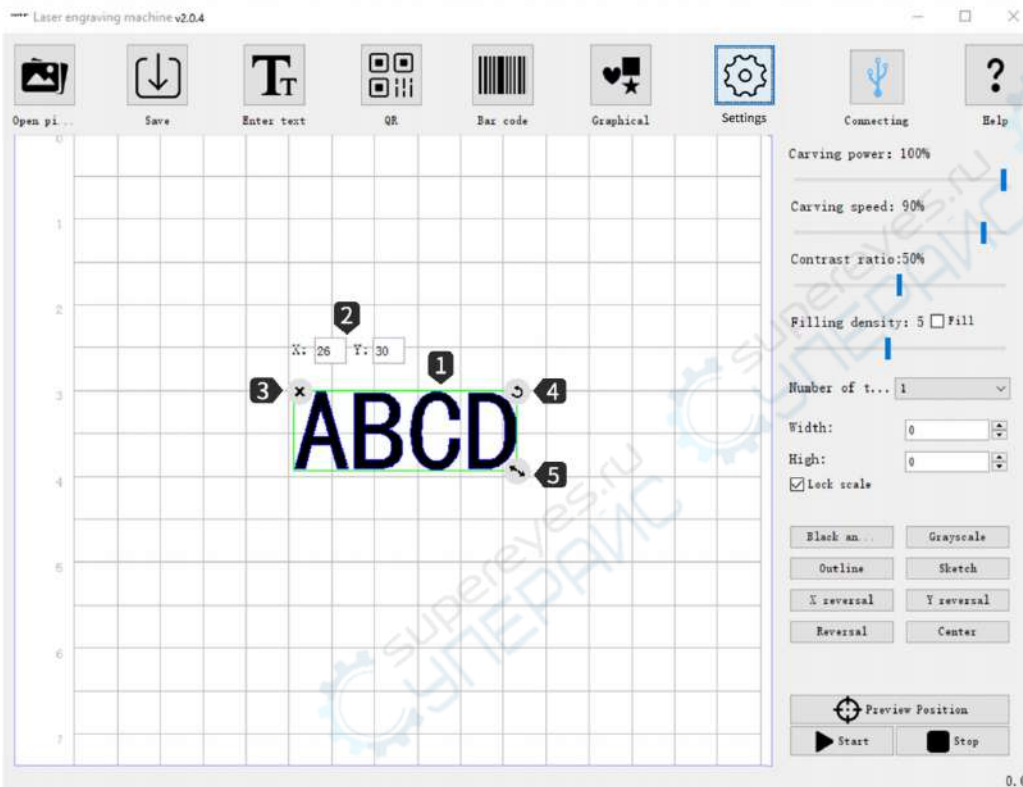
Setting of Software Parameters:



- 1 **X Mirror**
Horizontal Rotation Effect
- 2 **Y Mirror**
Vertical Rotation Effect
- 3 **Reverse Color**
Reverse background color of text and photo
- 4 **Center**
One click to center the text and photo in preview area
- 5 **Preview Location**
Preview to confirm engraving position
- 6 **Start**
Start engraving
- 7 **Stop**
Stop engraving

07 Introduction to Software Application on PC

Introduction to Interface Loading Content:

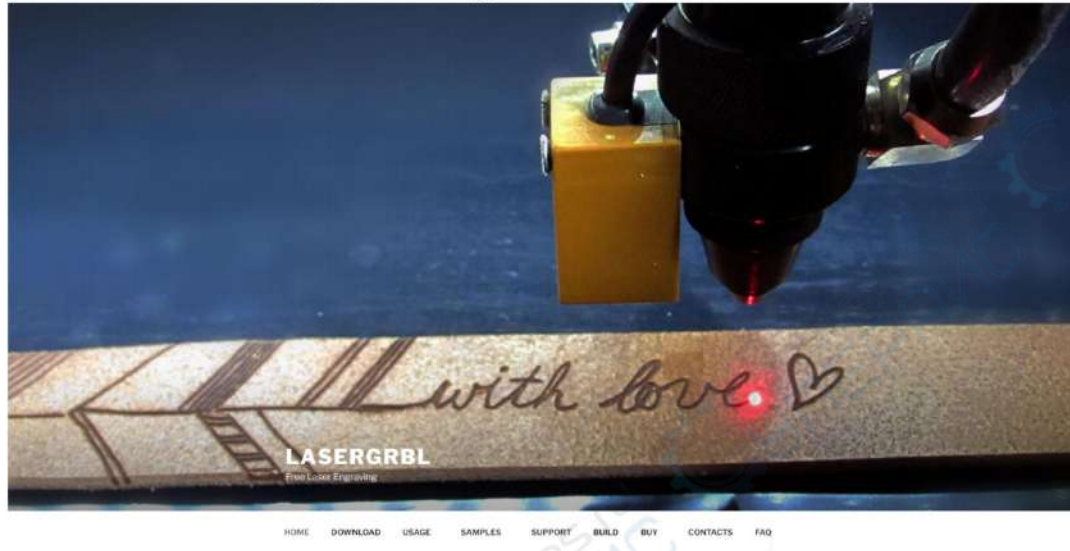


- 1 After loading the text and photo, left click the mouse to move the position of the text and photo, right click the mouse to move the drawing board horizontally, roll mouse wheel to zoom in/out the drawing board.
- 2 X:26 Y:30 only indicate the position coordinates where the text and photo stay; when move the text and photo, the coordinates will change based on different positions.
- 3 ✕ Clear the text and photo on the drawing board
- 4 ↻ Left click the mouse to rotate the text and photo 360°
- 5 🖱️ Left click the mouse and drag to zoom in/out the text and photo

07 Introduction to Software Application on PC

Laser GRBL

GRBL website: <https://lasergrbl.com/>



Notice!

The product can support GRBL open source software by updating GRBL firmware. Once GRBL firmware is updated, this product will not support phone software, original PC software and the roller components any longer

Path to install GRBL:

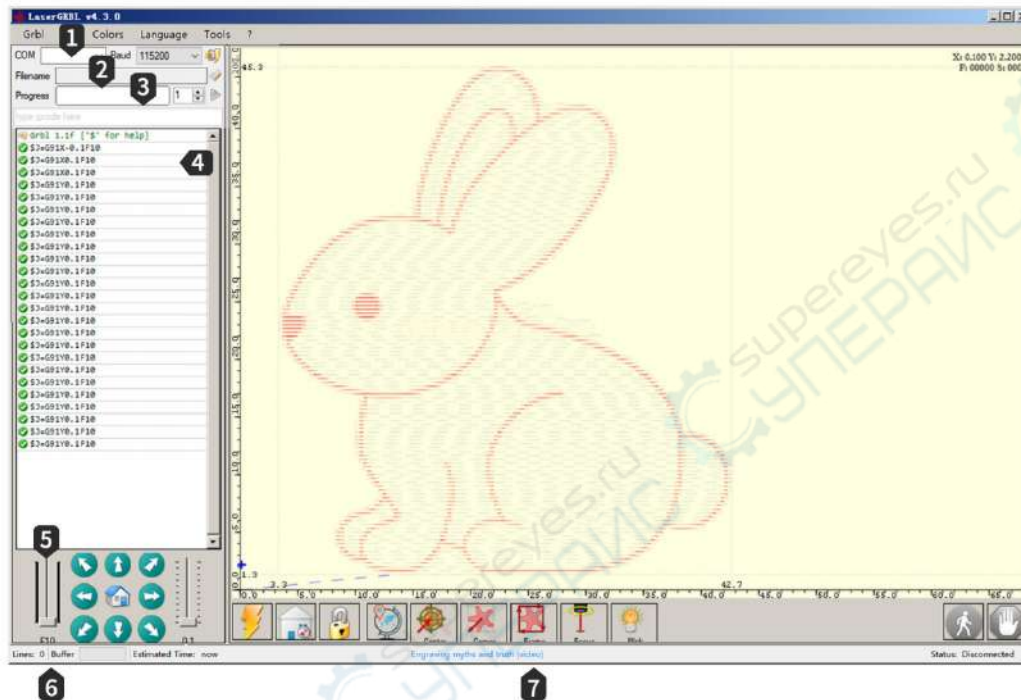
Double click the USB memory disk to open folder /FirmwareUpdate/L3GRBL_Firmware/For detailed steps, please watch the demo video in USB memory disk



GRBL_FirmwareUpdate

07 Introduction to Software Application on PC

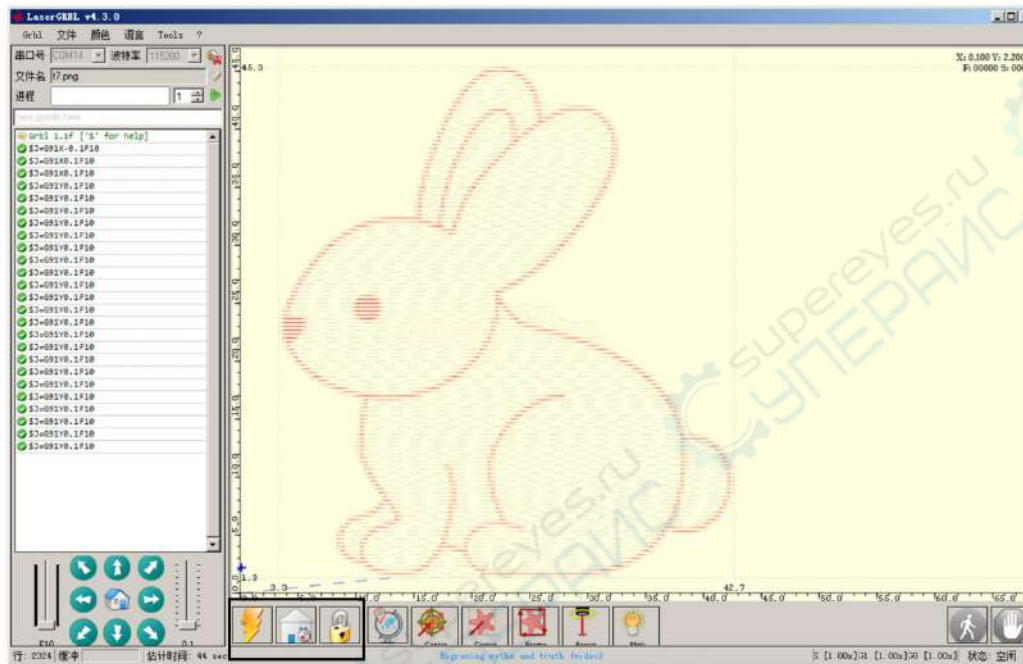
Introduction to LaserGRBL software interface icon functions:



- 1 Connection settings:**
Select serial port and appropriate connection baud rate according to the grbl firmware configuration
- 2 File control:**
Display the loaded file name and the engraving process. Green "Play" button will start to execute the program
- 3 Manual command:**
You can enter any G code line here then press the "input" button, the command will be placed in the queue
- 4 Command log and command return code:**
Display the commands in queue as well as the execution status and errors
- 5 Step control:**
Allow manual laser positioning. The vertical slider on the left can control the speed of movement, while the slider on the right can control the step length
- 6 Prediction of line number and time:**
LaserGRBL can estimate the program execution time based on actual speed and work progress
- 7 Engraving preview:**
The final work will be previewed in this zone. During the engraving process, a small blue cross will display the current laser position during the machine operation

07 Introduction to Software Application on PC

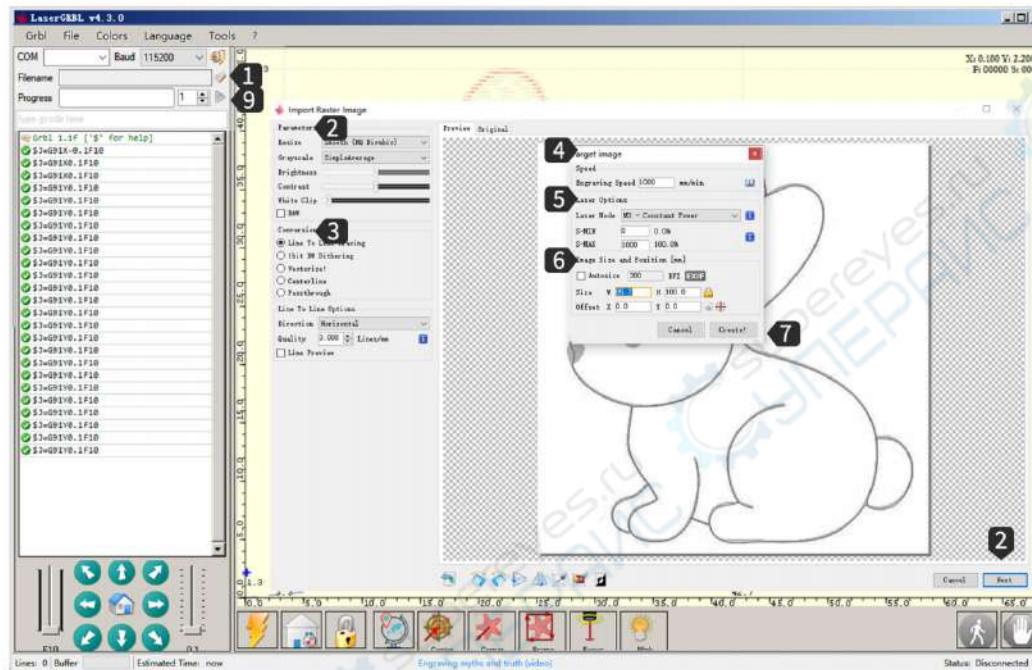
Introduction to LaserGRBL software interface icon functions:



- 1 Grbl reset/home/unlock:**
These buttons submit soft reset, home and-unlock commands to the grbl board. On the right side of the unlock button, you can add some user customized buttons
- 2 Move to the lower left corner:**
Move the coordinate to the lower left corner of the frame
- 3 Preview of engraving position:**
After the photo is loaded, click this icon to preview the engraving position
- 4 Activate laser focus:**
Active the laser and focus as required
- 5 Laser:**
Click the button according to actual needs such as laser test
- 6 Coverage status control:**
Display and change the actual speed and power coverage. Overrides is a new feature of grbl v1.1 which cannot be supported in the old version
- 7 Pause and resume:**
Press the button to pause and resume program execution, send Pause or Resume commands to the grbl board.

07 Introduction to Software Application on PC

Introduction to LaserGRBL software interface:



- 1 Open:**
Click the icon "Open" or drag the file directly to the software interface;
- 2 Parameters:**
Adjust engraving parameters
- 3 Conversion tools:**
Select engraving mode: line-to-line tracking, lbit BW jitter, vectorization, Centerline, Passthrough
- 4 Speed:**
Set the engraving speed
- 5 Laser:**
Set laser parameters
- 6 Image size and position:**
Adjust image size and engraving position.
- 7 Create**
After settings have been completed, click Create.
- 8 Preview**
Click the "Preview" button to confirm the preview location;
- 9 Engraving:**
Click "engraving" button to start engraving.

07 Introduction to Software Application on PC


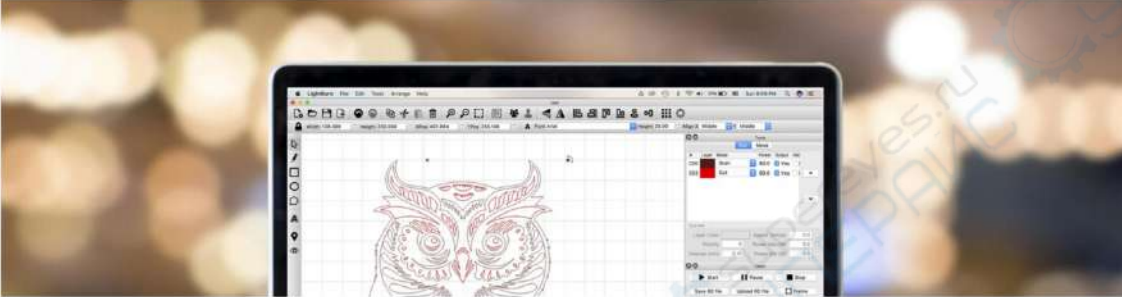
LightBurn

LightBurn Website: <https://lightburnsoftware.com/>

We will have limited support staffing from Thursday November 25th through Sunday November 28th for Thanksgiving weekend. Support responses will resume on Monday, November 29th.

LIGHTBURN
BETTER SOFTWARE FOR LASER CUTTERS

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Support Forum Currency



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If you're new here, we want to be sure that LightBurn will work for you, so to give you a chance to really use it, we offer a 30-day trial period, with [no restrictions](#). Make some things on us. Have fun - this is the full deal, no watermarks, no limits.

If you decide to buy it, we'll send you a license key that unlocks it permanently, allows installation on up to two machines, and gives you access to free updates for a year. [You can read more about the license here](#) and [find prices here](#).

Please note that at this time, the MacOS version of LightBurn is not digitally signed. You will need to tell Mac OS that you trust the application and wish to run it anyway.

The links below will let you download the different versions of LightBurn V1.0.04:

[Windows 64-bit version](#)

[Windows 32-bit version](#)

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07 Software Download and Online on Mobile Devices

1. Software Download and Installation:

Method 1: APP download URL:

www.dkjxz.com/download/L3_APP.zip

Method 2: Scan the QR code to download.



URL to Obtain Information:

User Manual Download URL:

www.dkjxz.com/download/L3_User Manual.zip

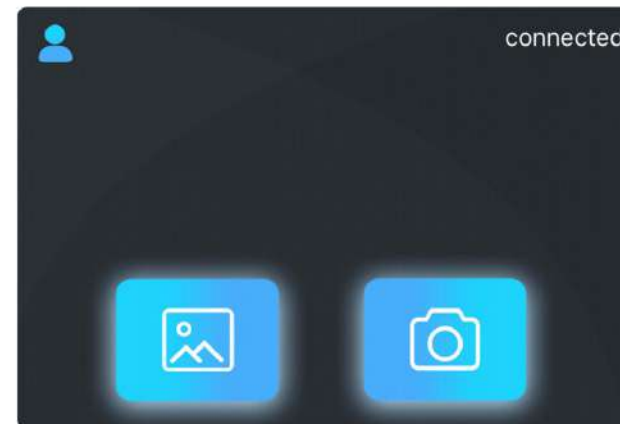
Video URL:

www.dkjxz.com/download/L3_video.zip

- Note:**
1. For Android system, open the browser to scan the QR code to download;
 2. Corresponding authority should be permitted after successful installation;

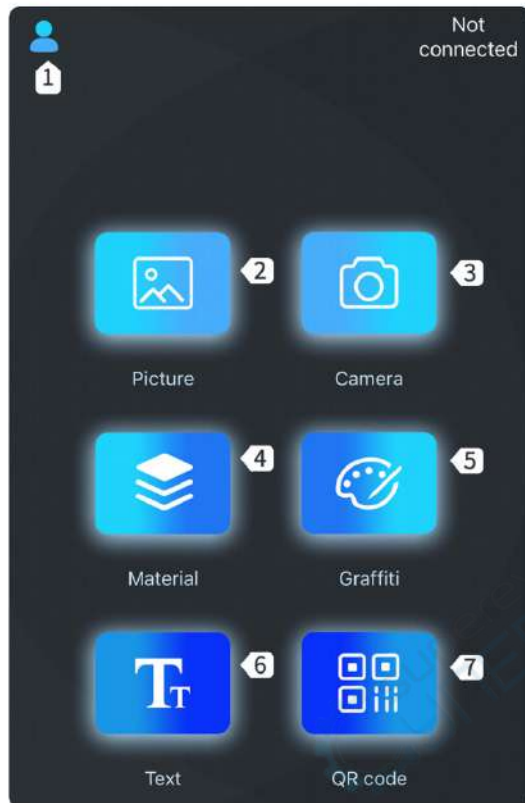
2. Connect APP with Machine

- 1 Connect the machine to power supply;
- 2 Activate Bluetooth function in the mobile phone;
- 3 Open engraving software in the phone, click "No Connection" in the upper right corner to automatically search for the device;
- 4 Then click "Engraver-000###";
Note: "000###" represents the serial number of the machine.
- 5 Wait for 1~2 seconds till "Connected" displayed in the upper right corner, which indicates that the APP has successfully connected to the machine, then continue with the next step.



09 Introduction to Software Application on Mobile Devices

Introduction to Software Interface (Load Content):



- 1 Settings**
New User Guide/Feedback/User Agreement and Privacy Clauses/Equipment/Language Setting
- 2 Load Photos for Engraving**
Add photos from Album, Add photos from Gallery
- 3 Take photos via camera**
- 4 Software Built-in Graphics**
- 5 Add Graffiti**
Self-draw Text/Photo
- 6 Edit Text**
- 7 Add QR code**
QR Code, Barcode

Roller Settings



- 1 Standby laser power**
Set the laser power in standby
- 2 Roller mode**
Activate/inactive the roller mode. When it is activated, it can rotate 360° to engrave

09 Introduction to Software Application on Mobile Devices

Introduction to Software Interface (Load Content):



- ① **Cutting**
 - Customized Cutting
 - Round Cutting
 - Square Cutting

- ② **Photo or Text**
(Content can be overlapped)

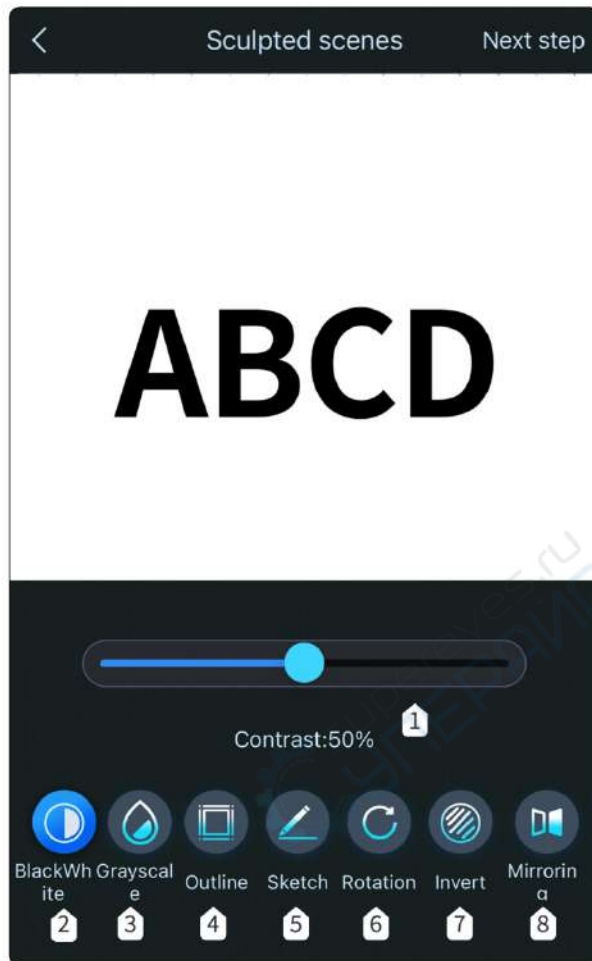


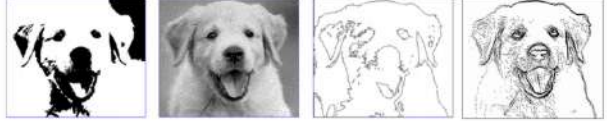
- Input Text
- Load Photos from Album
- Shoot via Camera
- Add Photo from Material Library

- ③ **Eraser**
 - Modify the photo with erase

09 Introduction to Software Application on Mobile Devices

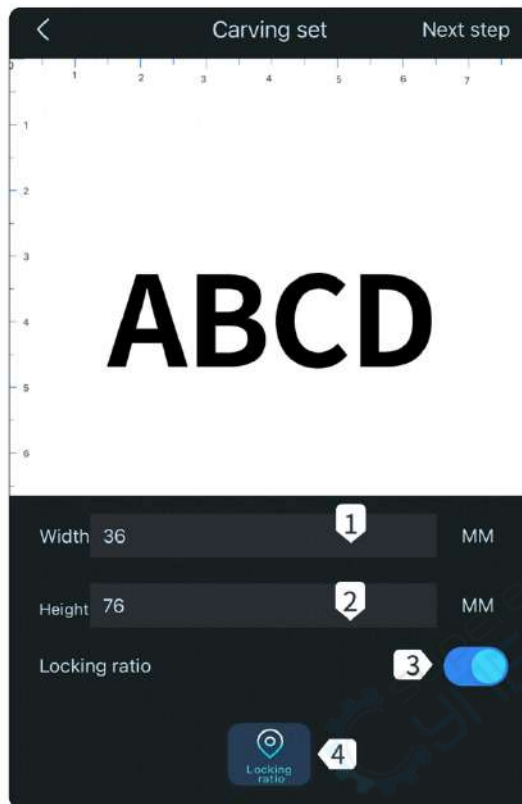
Introduction to software interface (Loading content) :



- 1 Contrast**
Drag the slider to adjust the contrast of text and photo
ABCD Contrast 16 ABCD Contrast 50 ABCD Contrast 80
- 2 Black and White**
To process photos to black and white
- 3 Grayscale**
Grayscale mode, adopt the function for engraving photos to adjust photo grayscale
- 4 Contour**
Cutting mode for wireframe cutting of engraving machine
- 5 Sketch**
Sketch mode, enhance the 3D effect of photo outline

Black and White Grayscale Contour Sketch
- 6 Whirling**
Can rotate 90 degrees, 180 degrees or 360 degrees
- 7 Reverse Color**
Reverse background color of text and photo
- 8 Mirroring**
Horizontal Rotation Effect, Vertical Rotation Effect

09 Introduction to Software Application on Mobile Devices

Introduction to Software Interface (Load Content):



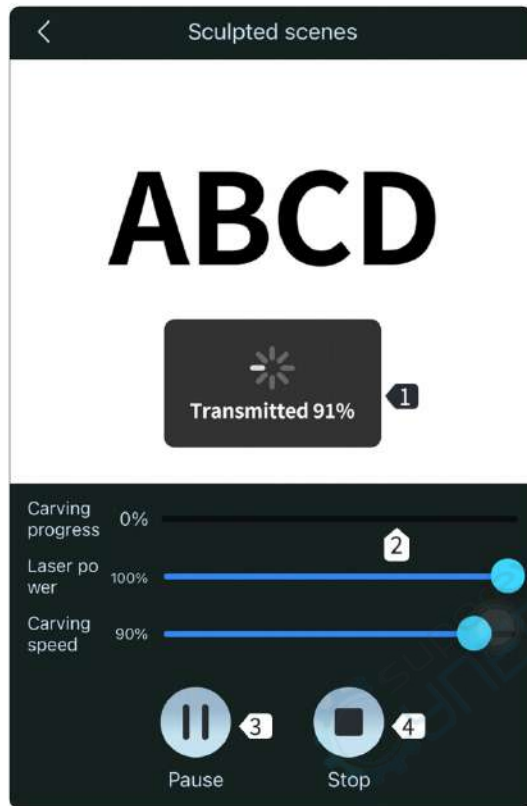
- ① Width
Set engraving width
- ② Height
Set engraving height
- ③ Lock Ratio
Scale engraving size proportionally
- ④ Region Positioning
Preview Engraving Position Determine Engraving Position



- ① Material Selection
App built-in materials, which can be directly selected based on the materials to be engraved
- ② Add Materials
Add and set materials, material name/laser power/engraving speed
- ③ Laser Power
Adjust power level to engrave different materials
- ④ Engraving Speed
Engraving speed setting, engraving speed determines the engraving depth
- ⑤ Repetition Times
It represents the number of engraving times

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Introduction to Software Interface (Load Content):



- 1 **Uploading content**
When the transfer progress has been 100% completed, the engraving can be started.
- 2 **Carves Progress**
Show me the progress of the sculpture
- 3 **Suspend**
Suspend engraving
- 3 **Stop**
Stop engraving



- 1 **Save**
Save the current engraving content and view in the phone album
- 2 **Engraving Completed**
Current content has been engraved

10 FAQ

L3 FAQ

一、 No response from the machine when being powered on.

1. No power supply: Please check the socket and switch as well as the machine power socket to ensure that they have been correctly plugged with normal power supply.

二、 It cannot be connected to computer

1. USB cable not connected: Please check the USB data cable interface on the machine and computer to ensure it's correctly plugged. The USB interface on the front panel of some desktop computers is invalid, it's better to connect to the interface on the back.
2. Driver not properly installed: Install the driver according to the instructions. After the installation is done, the computer will recognize the device as a serial port, which means the hardware connection is OK.
3. Other special problems: Pull out the USB data cable and power cable, keep the machine power off for 5 seconds and then try the connection once again.

三、 No response from the phone APP when being connected to the machine.

1. Wrong Bluetooth connection: Make sure it's connected to the Bluetooth released by the machine. Please read "App Connection" in the User Manual for details.
2. Incompatibility: In the case of abnormal connection due to incompatibility of newly-released phone or upgraded system, please contact our customer service with the screenshot of phone configuration so as to get technical support as soon as possible.

四、 Shallow engraving effect or no traces.

1. Inaccurate focus: Refer to the "Focus Adjustment" in the User Manual to make the correct focus.
2. Engraving speed: Too fast speed is due to short burning time. Please read the "Engraving Parameters" in the User Manual to readjust the parameters.

10 FAQ

3. Photo color is too light: The photo added should be clear. If the line is too thin or the color is too light, the engraving effect will be directly influenced.
4. Position of object to be engraved: If the object is placed obliquely, the focal length of laser is fixed, so the object should be placed horizontally in parallel to the machine; otherwise, the inaccurate focal length will result in bad engraving effect.

五、Offline engraving unexpectedly stops

1. The photo is not completely downloaded when being connected to computer, please download the photo once again.

六、Inaccurate focus

1. Read the “Focus” in the User Manual. Please use the yellow focus plate provided with the camera to make the focus. If the focus plate is missing, a thin and rough yellow or white cardboard can be used as the substitution to make the focus once again. Please contact the online customer service for relevant information.

