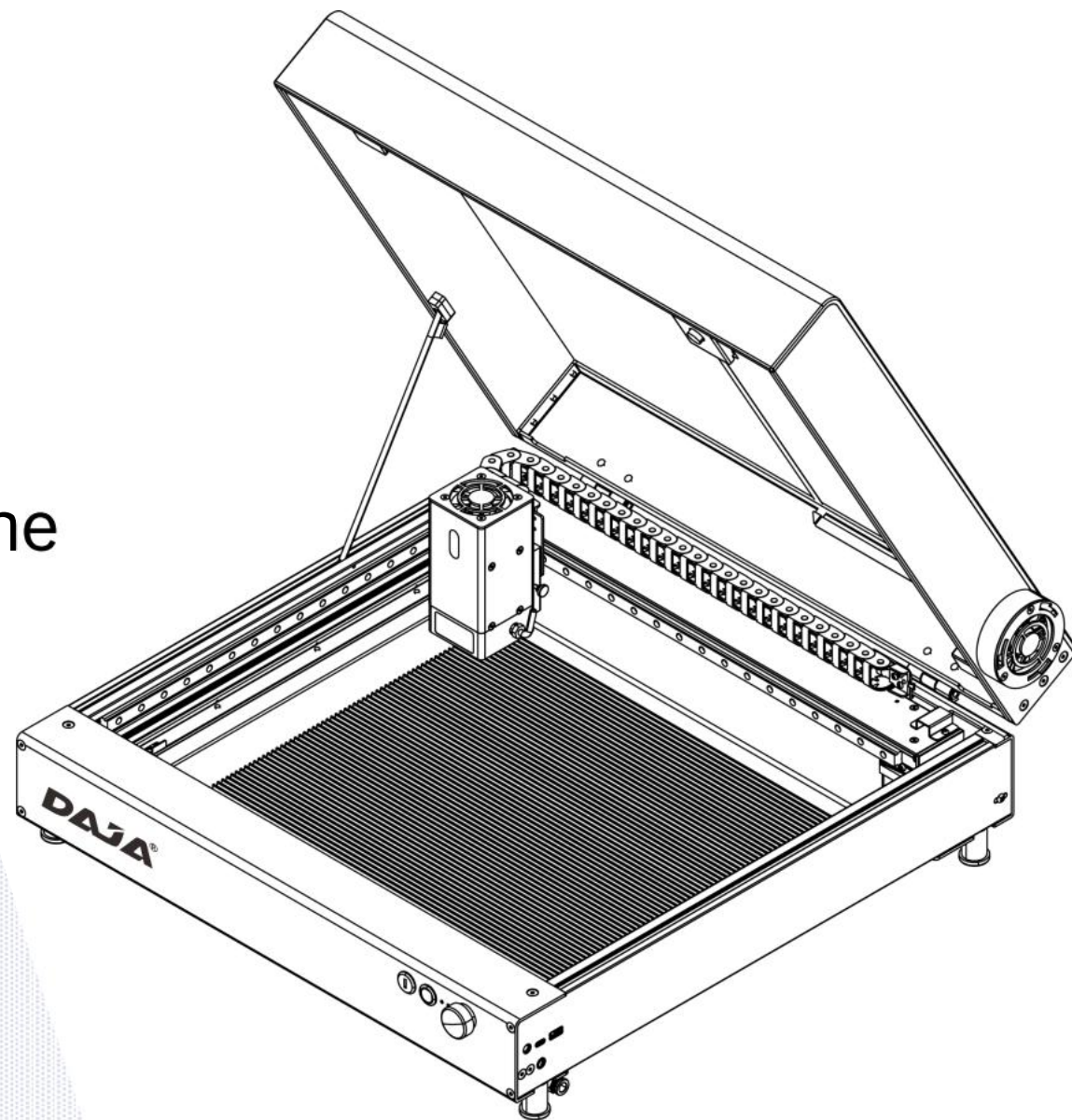




A8 Laser Engraving Machine

User Manual

Please read this instruction manual carefully before using the product and keep it in a safe place.



Model: A8

FCC SDOC

Warning

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC ID:2BHH8-A8

FCC Statement

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

The equipment complies with FCC Radiation exposure limits set forth for uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Catalogs

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Safety Precautions

In order to prevent damage to your personal and property safety, and so that you can use this product safely and correctly, please read the instruction manual carefully and follow the steps in the instruction manual.

Safety Precautions

- ★ Before operating the equipment, the user must read the instruction manual carefully and strictly follow the operating procedures.
- ★ Laser processing can be risky and the user should carefully consider whether the object to be processed is suitable for laser work.
- ★ Processing objects and emissions should comply with local laws and regulations.
- * This equipment uses a Class IV laser (strong laser radiation), which may cause the following conditions:
 - ① Ignition of flammable materials in the vicinity;
 - ② During laser processing, other radiation and toxic and hazardous gases may be generated depending on the object to be processed.;
 - ③ Direct exposure to laser radiation can cause human injury, the use of the place must be equipped with fire-fighting equipment, prohibited in the workbench and equipment around the stacking of flammable, explosive substances, while making sure to maintain good ventilation.
- * The environment where the equipment is located should be dry, no pollution, no vibration, no strong electricity, strong magnetism and other interference and influence. Working environment temperature 10-35 °C, working environment humidity 5-95% (no condensation)
- ★ Equipment working voltage: AC100-240V.
- * The engraving machine and any other equipment associated with it must be safely grounded before it can be turned on and operated.
- ★ When the equipment is on, it needs to be guarded throughout the whole process, and all power must be cut off before the personnel leave to prevent abnormal conditions from occurring, and if it happens, please disconnect the power supply immediately to deal with it!
- * It is strictly prohibited to place any irrelevant fully reflective or diffusely reflective objects in the device to prevent the laser from reflecting on the human body or flammable objects.
- * The equipment should be kept away from electrical equipment that is sensitive to electromagnetic interference and may cause electromagnetic interference to it.
- * There is high pressure or other potential danger inside the laser device, and disassembly by non-professionals is strictly prohibited.
- * Caution use of controls or adjustment of performance of procedures other than those specified herein may result in hazardous radiation exposure

Security instructions



1. The brightness of the laser is harmful to the eyes, so please do not look directly at the laser.



3. When the laser is turned on, it should not be directed at people, animals or flammable objects to avoid skin burns and fires.



2. Hands should not be close to the machine when it is working to avoid injury.



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

Maintenance and upkeep

Laser modules are consumables;

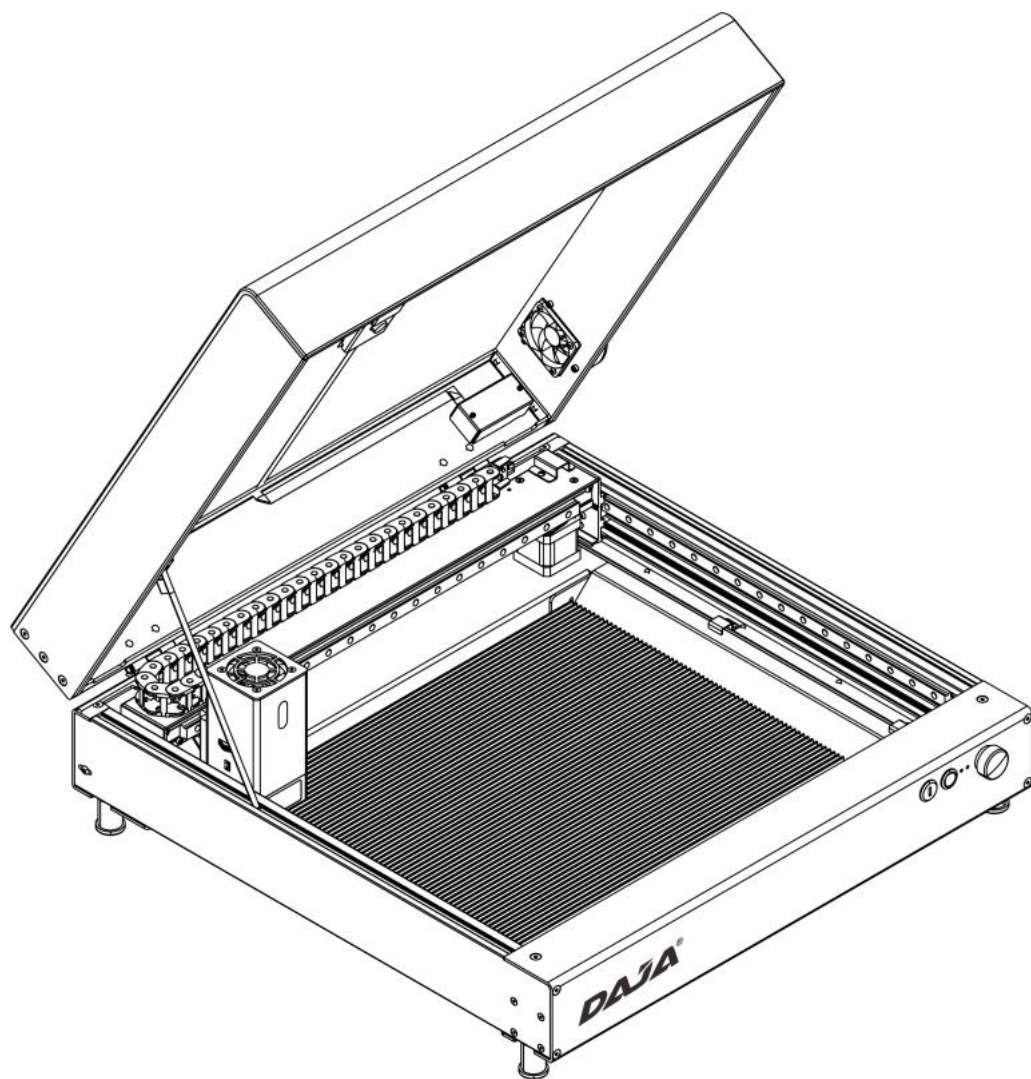
suggestion:

Turn off the machine for 5 minutes after 1 hour of cutting;

Turn off the machine for 5 minutes after 2 hours of engraving..

1. Do not use the machine in humid/high temperature conditions.
2. Do not operate the machine by touching it with wet hands.
- 3, the machine's lens, please regularly wipe with a cotton swab dipped in alcohol, is conducive to the protection of the lens.

Accessory Details



Standard accessories



Power supply



Type-c data cable



Glasses



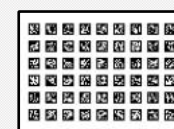
U disk



Hexagonal wrench



User Manual



Camera calibration
paper jam

Optional accessories



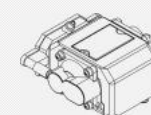
RT5 Roller



Heightening



Air purifier

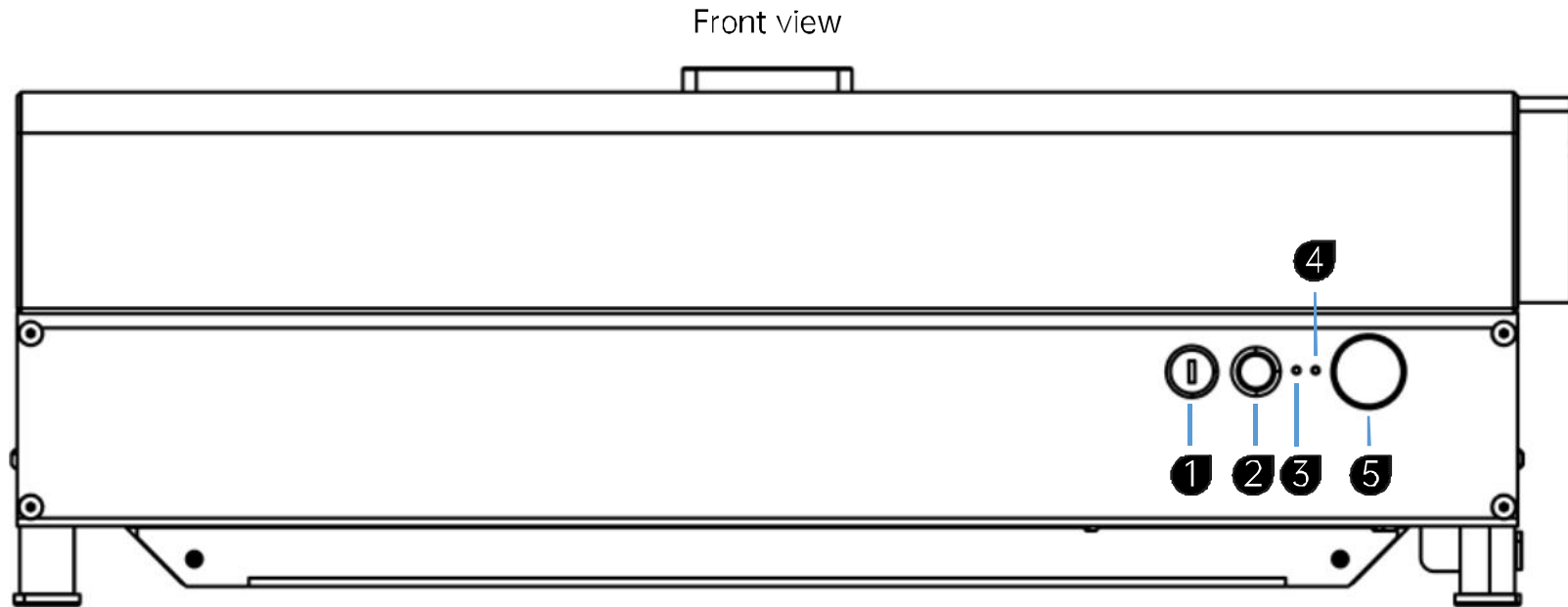


Air pump
module

Product Parameters

Product Model	A8
Main material	ABS+ High Strength Metal
Laser wavelength	450±10nm
Engraving speed	8000mm/min
Laser lifetime	>10000h (at 27°C ambient temperature)
Focus mode	fixed focal length
Engraving area	375*330mm
Engraving precision	±0.1mm
Engravable Materials	can engrave most non-metallic materials, non-transparent materials (paper, wood chips, plastic, leather, fabric, cardboard, leather) Safety door closed, engraved object height limit 11mm
Machine power	≤ 120W
Input Voltage	DC 24V 5A
Data transfer	USB wired transmission, Bluetooth wireless transmission
Cooling method	air cooling
support system	DJLaser software (windows、 macOS、 Android、 IOS) LightBurn software (windows、 macOS)
Supported formats	picture format: JPEG/BMP/JPG/PNG vector format: DXF/PLT
Machine net weight	11KG
Machine Size	577*569*196.5mm (L*W*H)

Products



❶ Key Lock:Security lock

❷ Offline engraving

1. Press it shortly to start preview;

2. Press again to stop preview;

3. Press and hold for 2 seconds to start engraving;

Note: The machine fails after restarting.

❸ Equipment status indicator

1. The blue light is always on: on state;

2. The green light is always on: the software is connected;

3. The green light flashes: the carving work.

4. The red light flashes: alarm status;

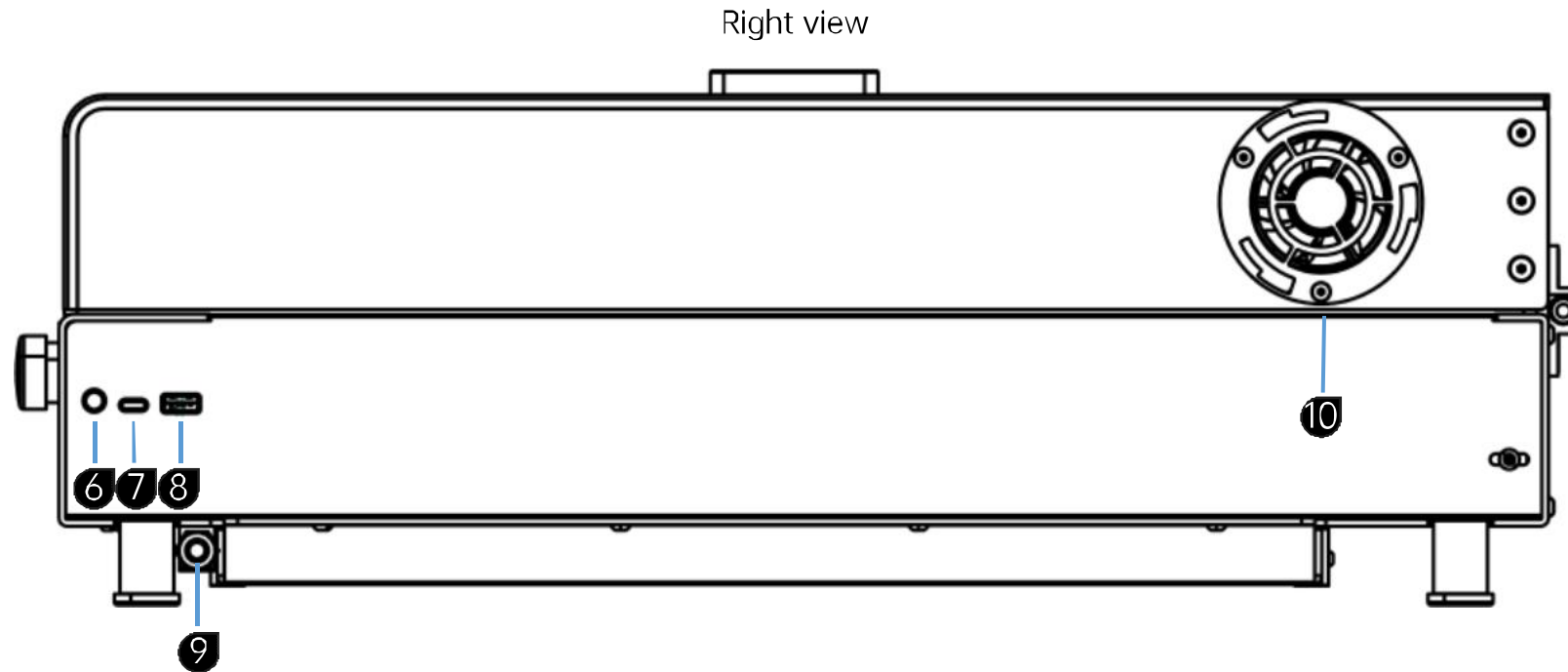
Tip: In the alarm state, the machine cannot preview or engrave operations.

❹ Laser status indicator

1. The red light is flashing: laser work;

❺ Emergency Stop Switch

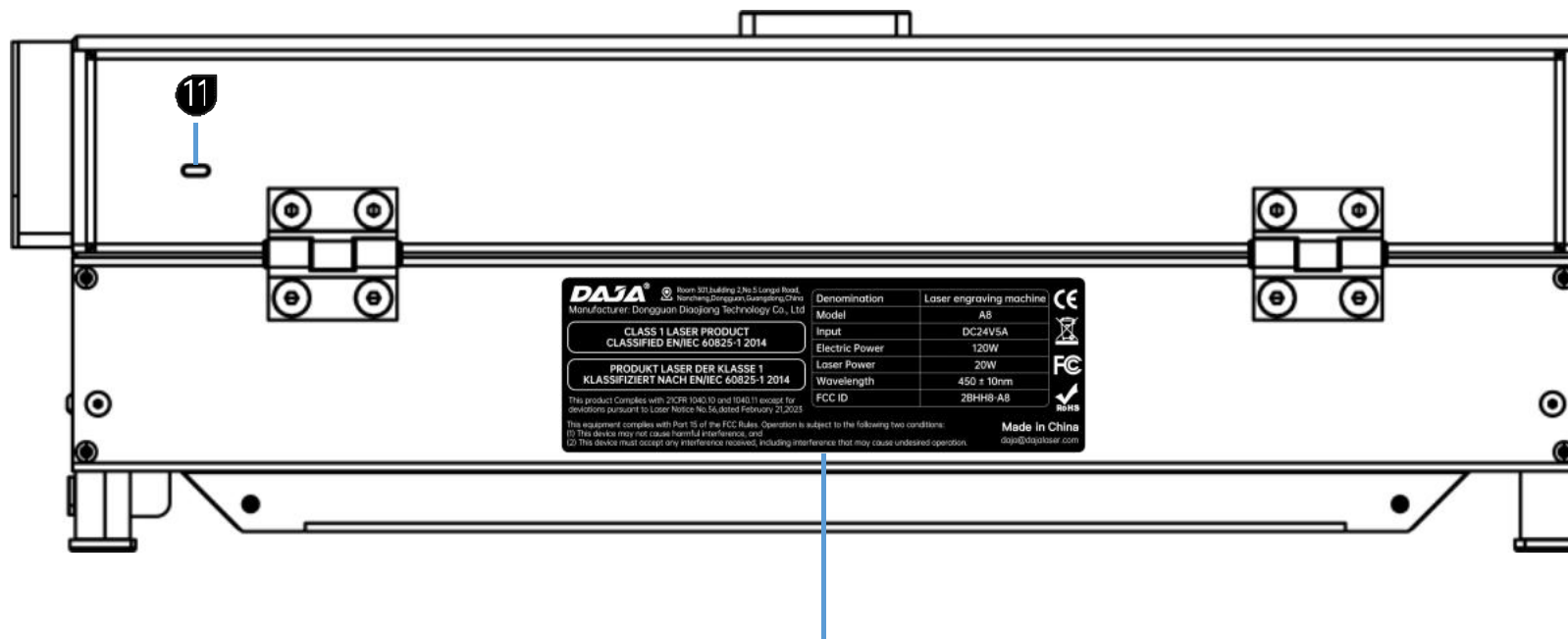
Products



- 6 DC IN: Power input 24V 5A
- 7 PC: Connect to the computer
- 8 Roller: Connect the rotating roller
- 9 Air blowing pump interface
- 10 Exhaust opening, can be connected to air purifier

Products

Rear view



11 Camera-PC: Camera connected to the computer

DAJA® Room 301, building 2, No.5 Longxi Road,
Nancheng, Dongguan, Guangdong, China
Manufacturer: Dongguan Diaojiang Technology Co., Ltd

CLASS 1 LASER PRODUCT
CLASSIFIED EN/IEC 60825-1 2014

PRODUKT LASER DER KLASSE 1
KLASSIFIZIERT NACH EN/IEC 60825-1 2014

This product Complies with 21CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No.56, dated February 21, 2023

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Denomination	Laser engraving machine
Model	A8
Input	DC24V5A
Electric Power	120W
Laser Power	20W
Wavelength	450 ± 10nm
FCC ID	2BHH8-A8

CE
FCC
RoHS

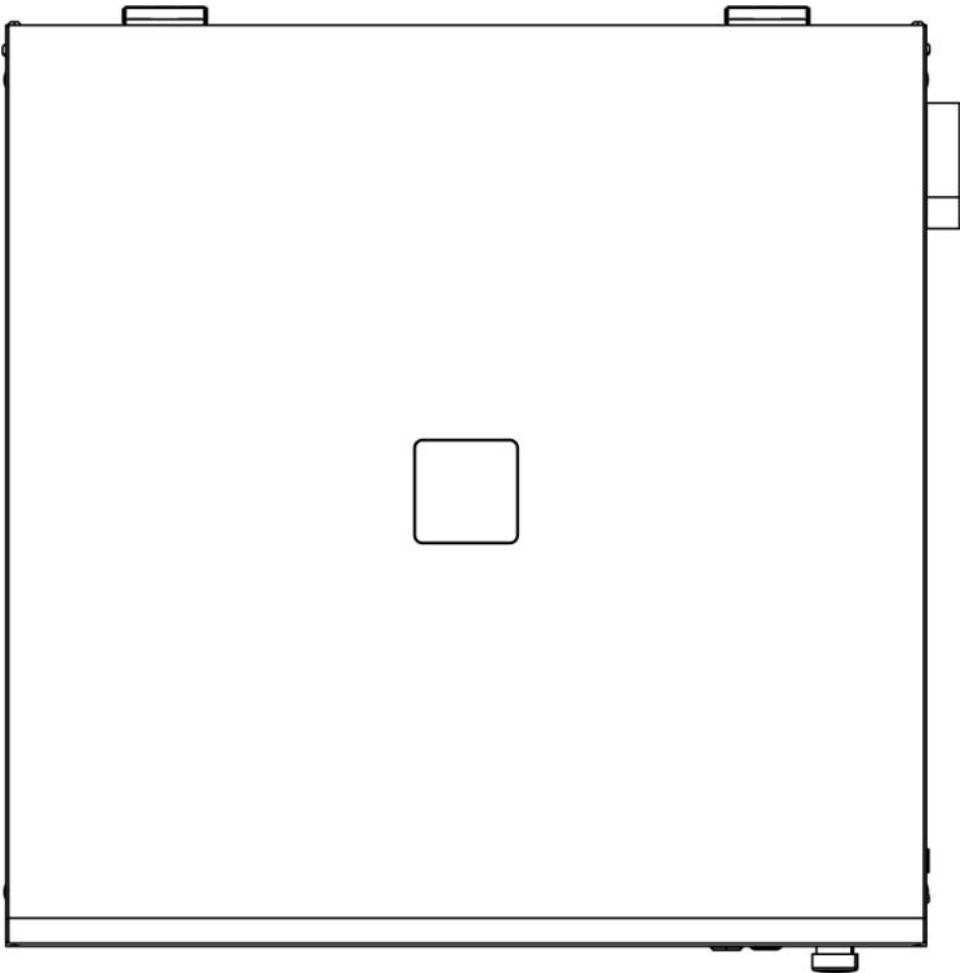
Made in China
daja@dajalaser.com

70 mm

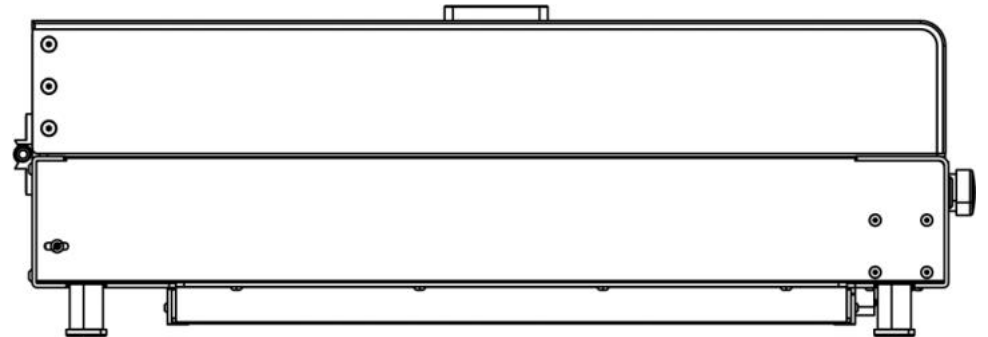
212 mm

Products

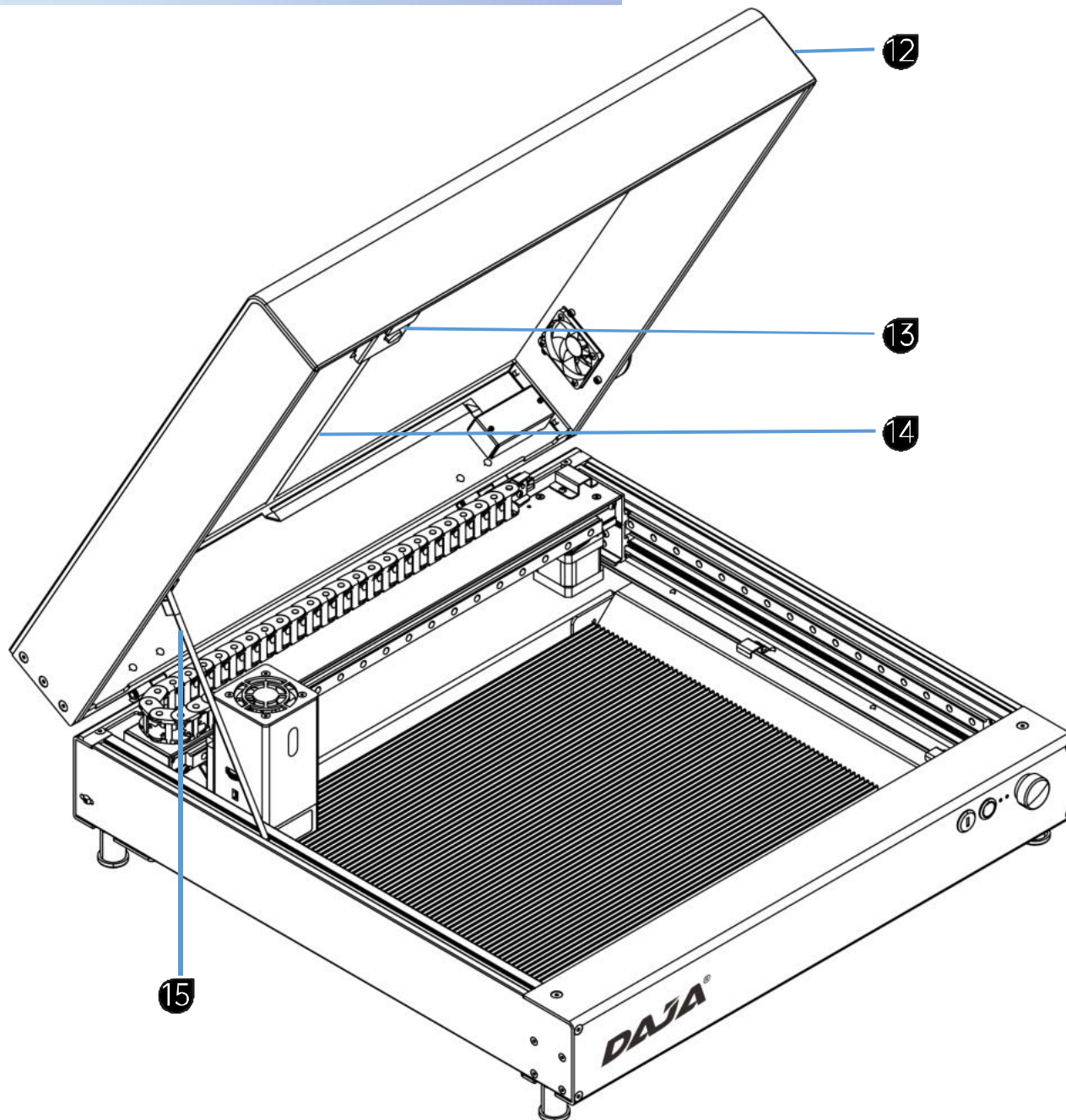
Top view



Left view



Products



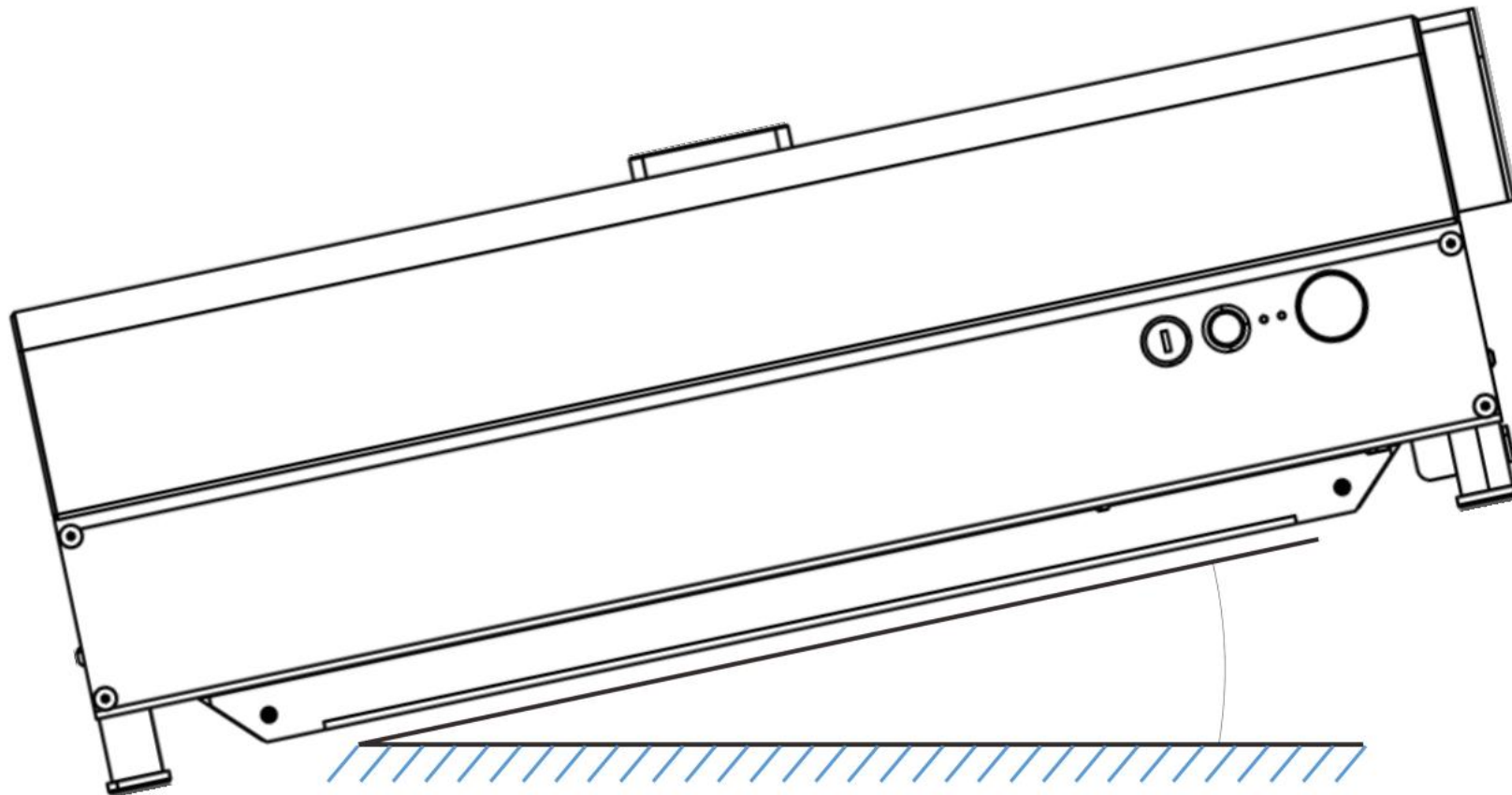
- 12 Safety door
- 13 Camera module
- 14 LED light strip
- 15 Safety door support rod

Safety Protection Functions

【Description of tilt protection function】

After the inclination between the host and the horizontal plane is at a certain angle and the machine will stop running for more than 1s. The laser module will stop the laser output. After entering the protection state, the machine must be horizontal to restore normal function. (This function can be turned off in settings)

Tip: Machine tilts, status indicator flashes red.

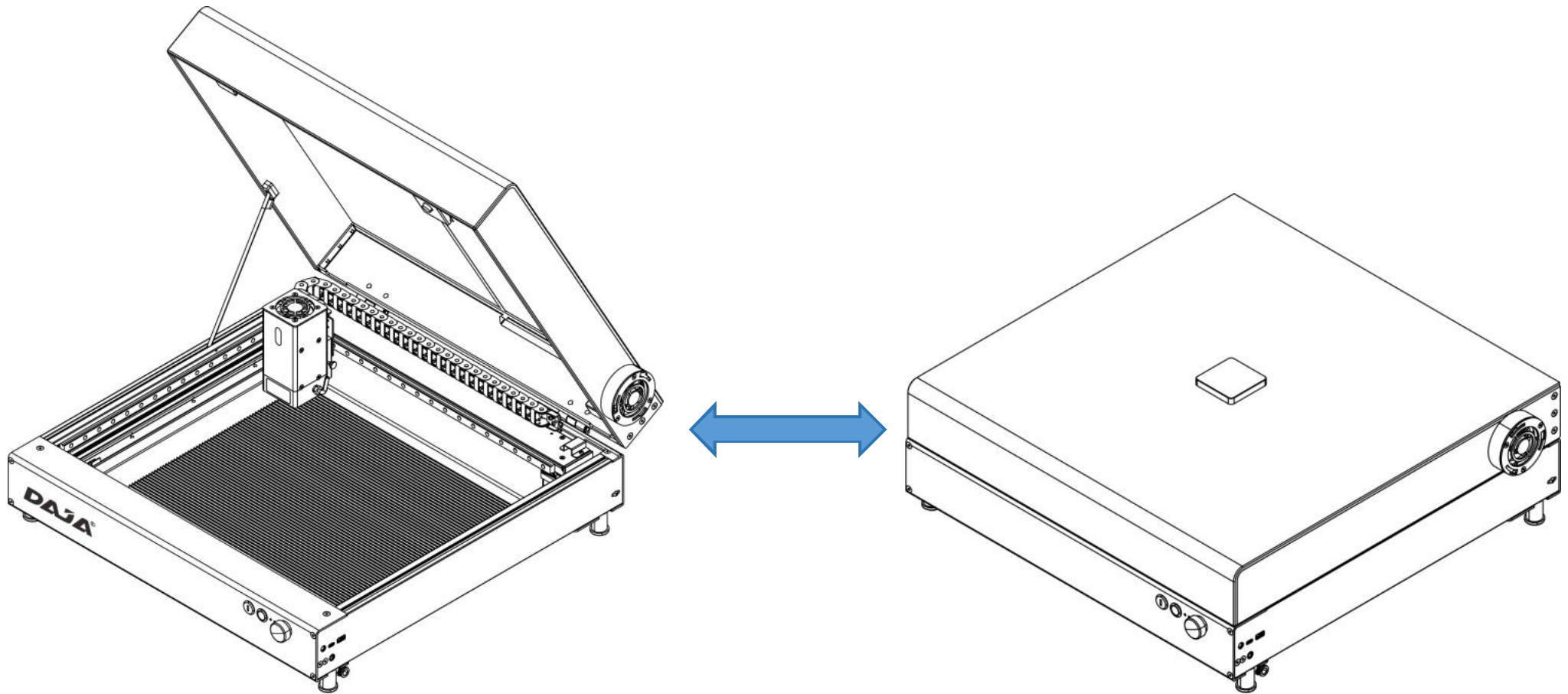


Safety Protection Functions

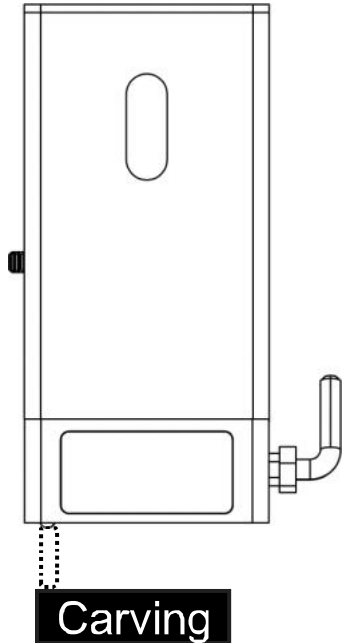
【Functional description of the safety gate】

When operating the machine, be sure to put the light shield down, otherwise the machine will not be controlled; during the engraving process, the lifting of the safety door will cause the laser module to stop outputting the laser immediately. (This function can be turned off in settings)

Tip: Safety door open, status indicator flashes red.



Laser module focusing method



20W blue light laser module

Focusing method: Fixed focal length

Rotate the left roller, lower the focus block and touch the surface of the object as the best focus point

Adjusting the focus is the most important thing:

1. The focus block touches the surface of the object as the best focus point
2. When carving objects of different heights, you must readjust the distance.

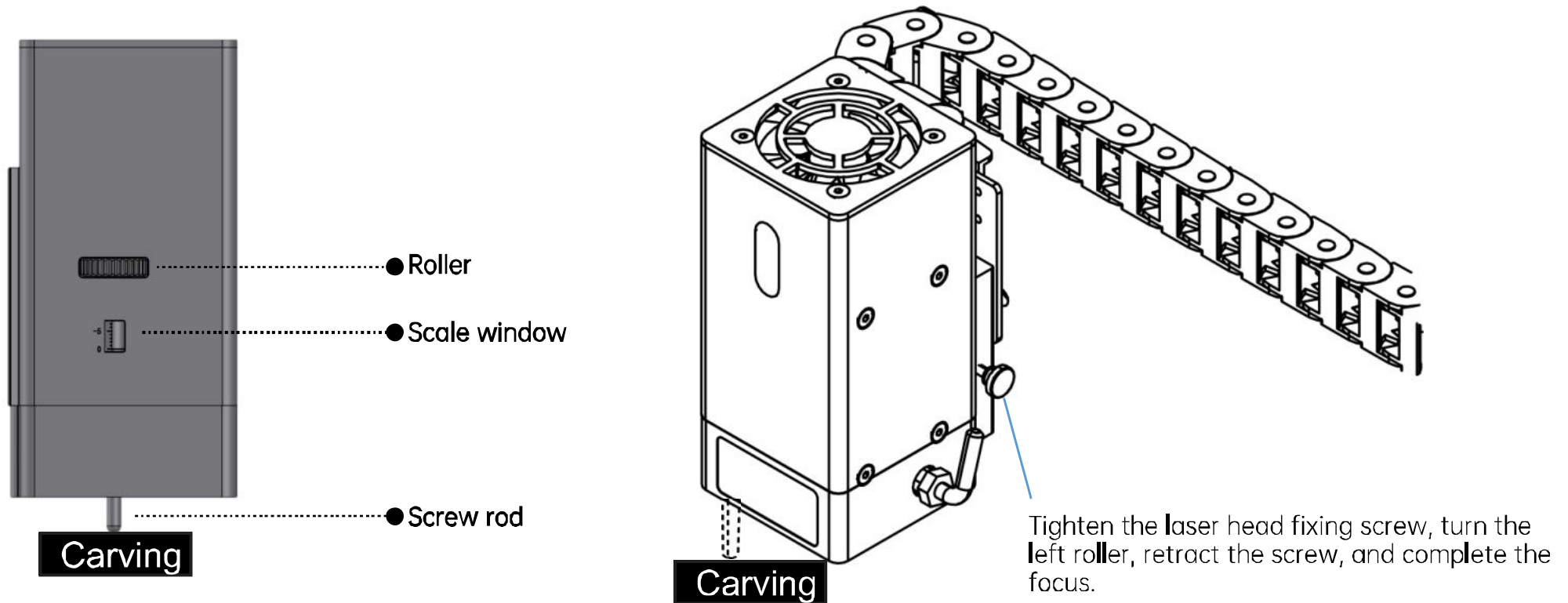
This laser module is equipped with dual safety measures

Flame sensor: When an open flame occurs during working hours, the machine will stop working, and the machine status indicator light flashes red.

Fan fault detection: The fan is working abnormally, avoiding the high temperature of the laser module, the machine will stop working, and the machine status indicator light flashes red.

Note: Laser module is an optional accessory, the actual purchase shall prevail.

Laser module focusing method



Engraving

Scroll the roller and adjust the scale to the "0" position. Then adjust the height of the laser module and the screw holds against the engraving material.

Cut

According to the thickness of the cutting material, adjust 1/2 of the thickness upwards (for example, the thickness is 6mm, and the scale is adjusted to "-3"). Then adjust the height of the laser module and the screw holds against the engraving material.

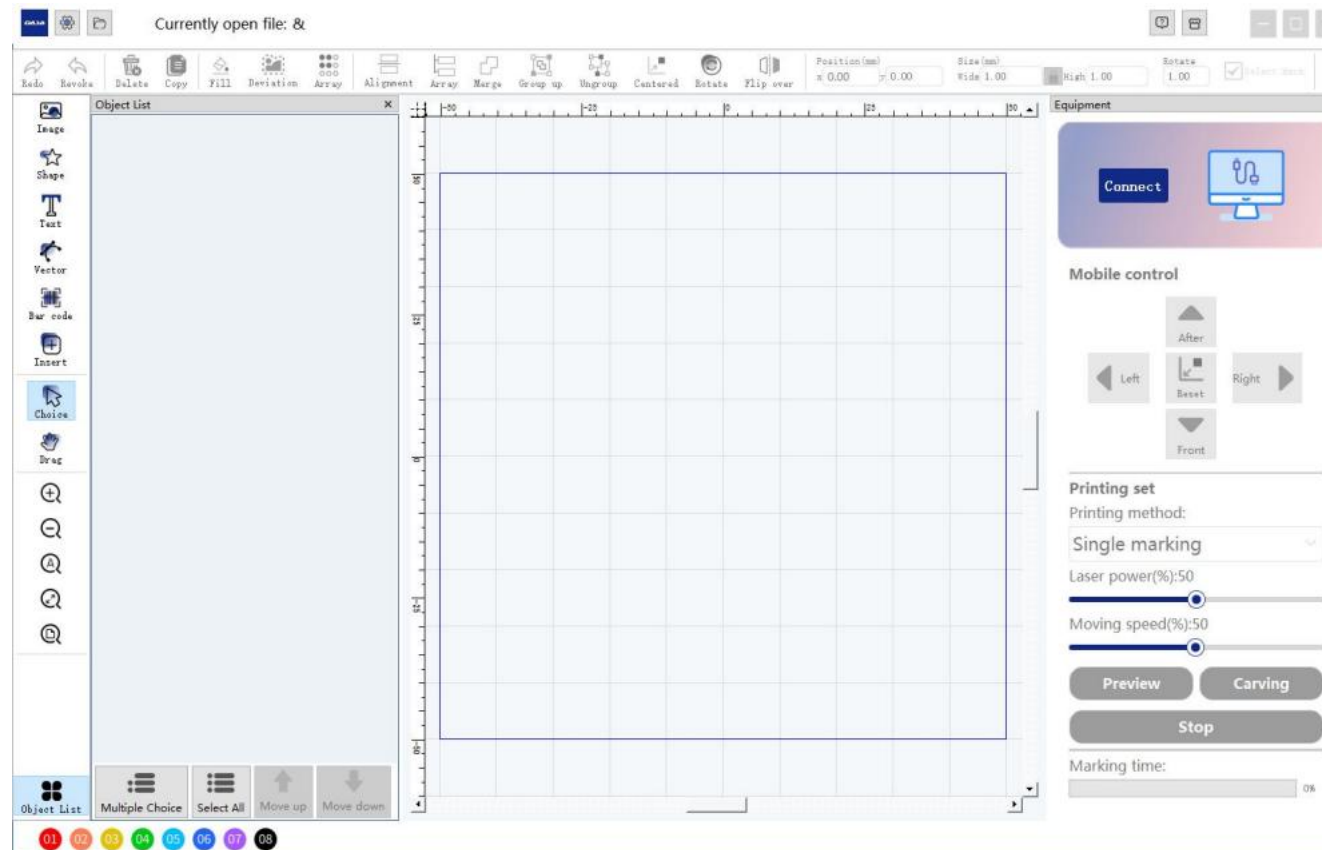
Software Acquisition and Installation

Method 1:

1. Install the U disk drive file "[1 driver](#)" copied to the computer desktop, open the folder, double-click "[dpinst.exe](#)" to install the driver
2. "[2 software](#)" copied to the computer desktop, open the folder, double-click "[DJLaser.exe](#)", after installation to start the software;

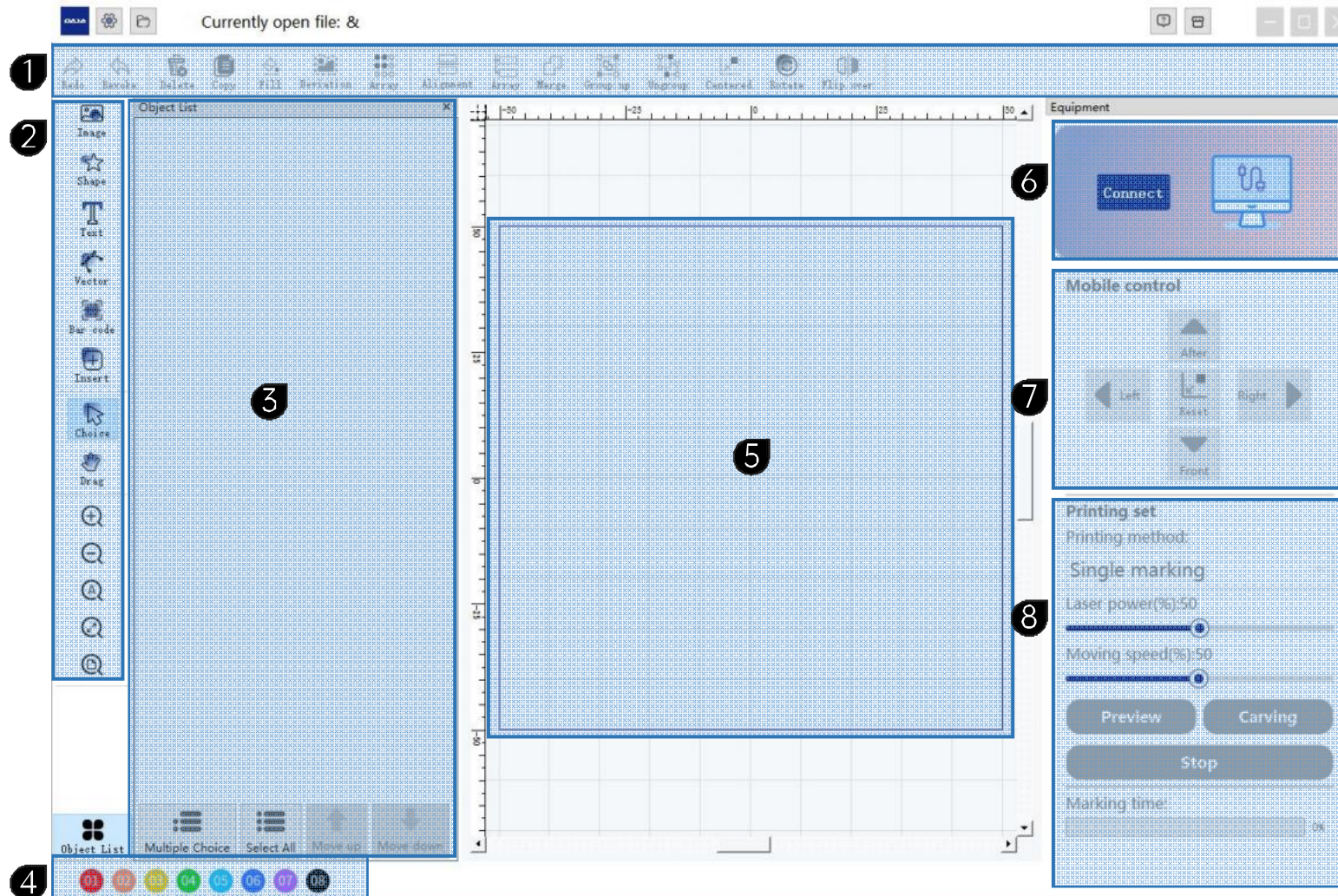
Method 2:

Please go to our website: mr-carve.com/pages/software-and-manual to find the corresponding machine model for download.



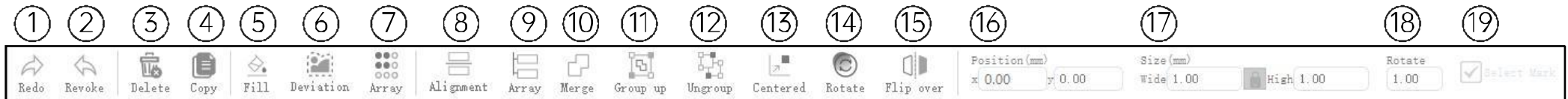
software interface

PC software function introduction



PC software function introduction

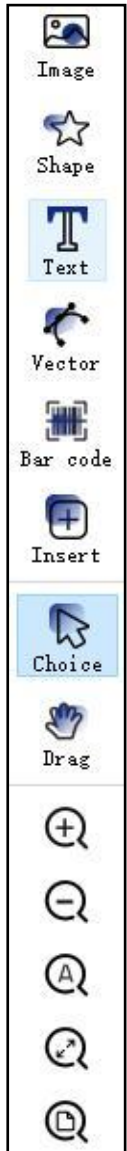
1 System Toolbar



- | | |
|---|---|
| ① Redo | ⑪ Grouping: combining multiple objects |
| ② Revocation | ⑫ Ungroup: Dissolve the group |
| ③ delete | ⑬ Center: Center the selected object in the engraving area |
| ④ copy | ⑭ Rotation |
| ⑤ Fill: Support text or vector graphics in dxf and plt formats | ⑮ Flip: Mirror horizontally or vertically |
| ⑥ Offset: offset the contour line. This function is suitable for cutting. | ⑯ Position: The coordinates of the object in the engraving area |
| ⑦ Array | ⑰ Size: Object engraving size |
| ⑧ Alignment: Multiple contents can be aligned | ⑱ Rotation Angle |
| ⑨ arrangement | ⑲ Select Marking |
| ⑩ merge | |

PC software function introduction

2 Drawing Toolbar

- 
- The Drawing Toolbar contains 13 icons for various drawing and editing functions. The icons are arranged vertically and labeled as follows:
- Image
 - Shape
 - Text
 - Vector
 - Bar code
 - Insert
 - Choice
 - Drag
 - Enlarge
 - Reduce
 - Show All Objects
 - View Selected Objects
 - Show Engraving Area
- ① Importing image files
 - ② Draw a shape
 - ③ Draw Text
 - ④ Importing vector files
 - ⑤ Draw QR code and barcode
 - ⑥ Insert library material
 - ⑦ Select content
 - ⑧ Drag the engraving area
 - ⑨ Enlarge the engraving area
 - ⑩ Reduce the engraving area
 - ⑪ Show All Objects
 - ⑫ View Selected Objects
 - ⑬ Show Engraving Area

3 Object list area

Display **all** objects in the engraving area.

4 Layer Selection Area

Different **layers** can set different engraving parameters, which can realize engraving and cutting.

5 Engraving workspace

The engraving content is displayed. The engraving object should not exceed the **blue boundary line**. The **blue boundary line** is the engraving area of the machine.

6 Connection Status Area

After the device is connected, the device model and picture will be displayed.

7 Mobile Control Area

The **laser head** position can be moved and the machine reset.

8 Engraving control area

You can select **roller engraving**, adjust **laser power** and speed, preview the frame and start engraving.



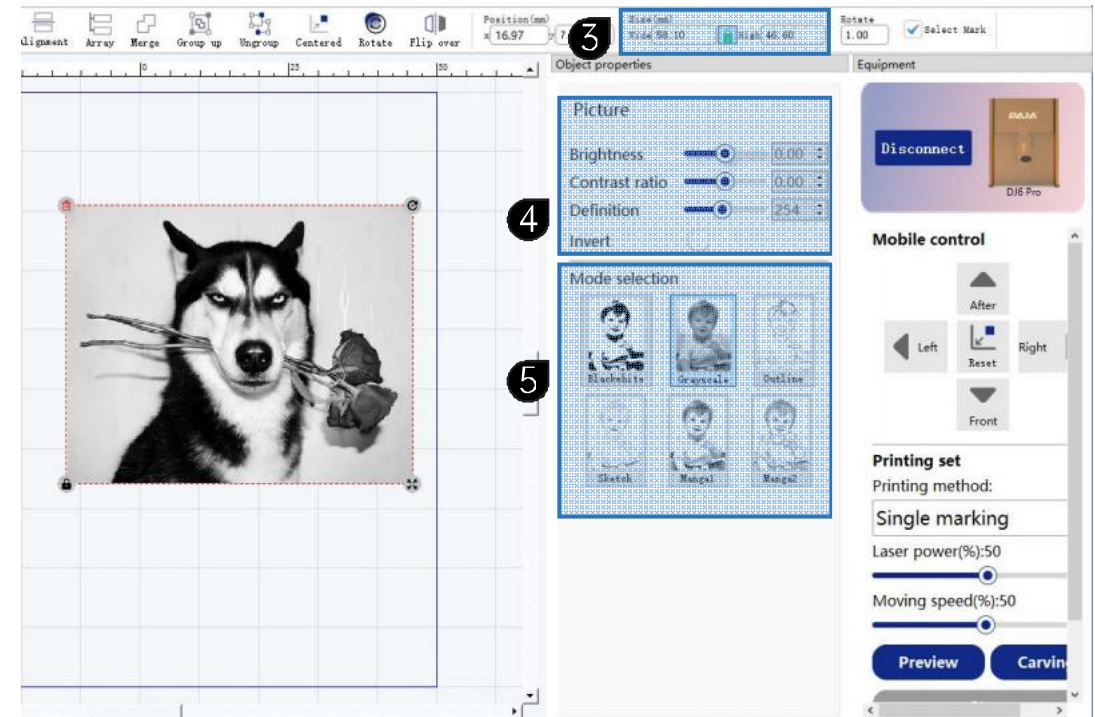
set

Language selection, after connecting the device, you can turn on or off: anti-tilt and cover opening emergency stop functions.

Note: The cover opening emergency stop function is only available on devices with safety doors.

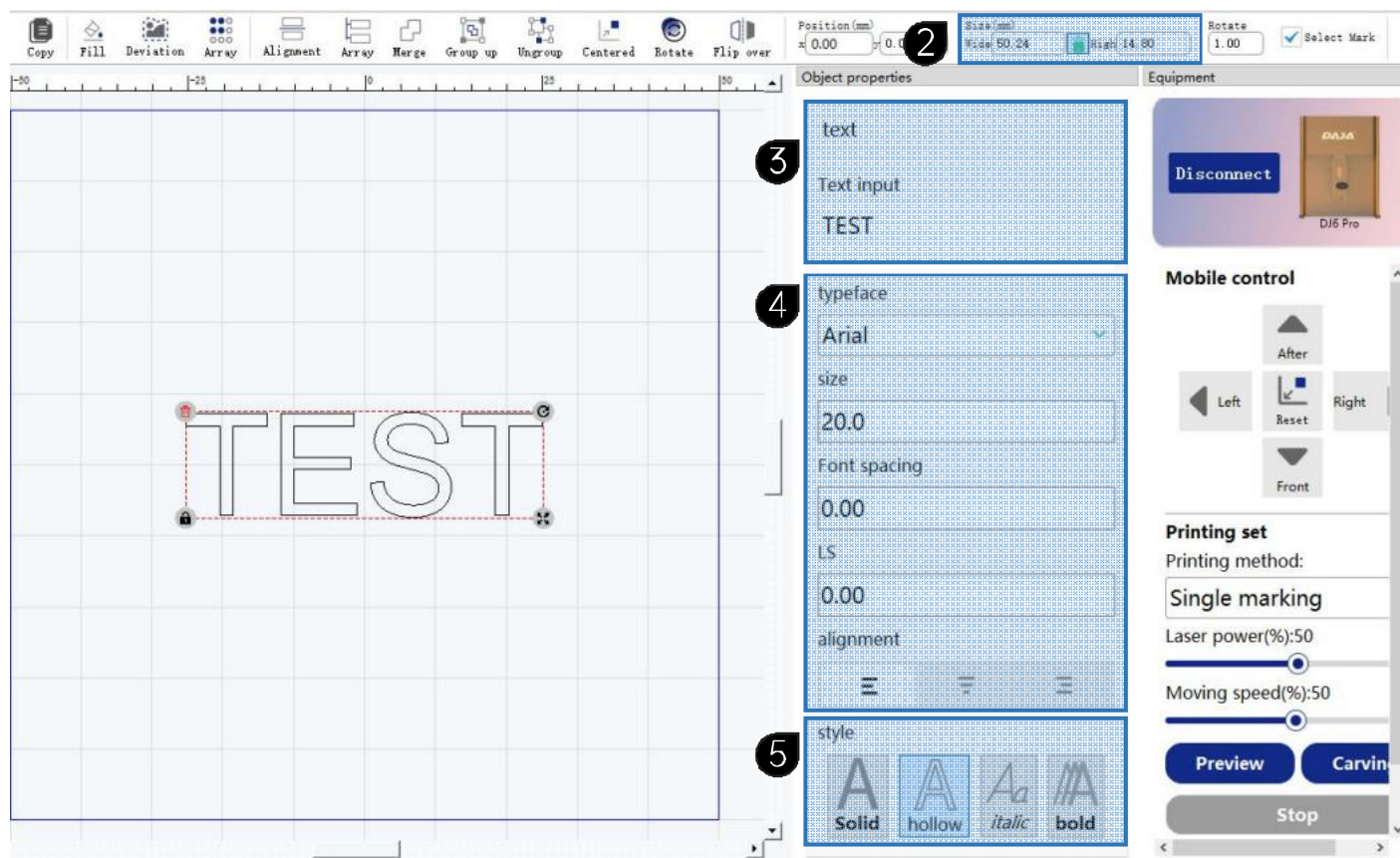
Image Editing

- 1 Plug in the machine and turn it on, connect the data cable to the computer, open the software, and click Connect Device.
- 2 Click "Image" on the drawing toolbar to import the image file to be engraved.
- 3 Select the object and adjust the engraving size.
- 4 Adjust the image's brightness, contrast, sharpness, and inversion as needed.
- 5 Mode selection:
 Black and white: black and white processing of pictures
 Engraving character photos: grayscale, sketch, cartoon 1-2 modes available
 Contour: Contour cutting mode



Text Editing

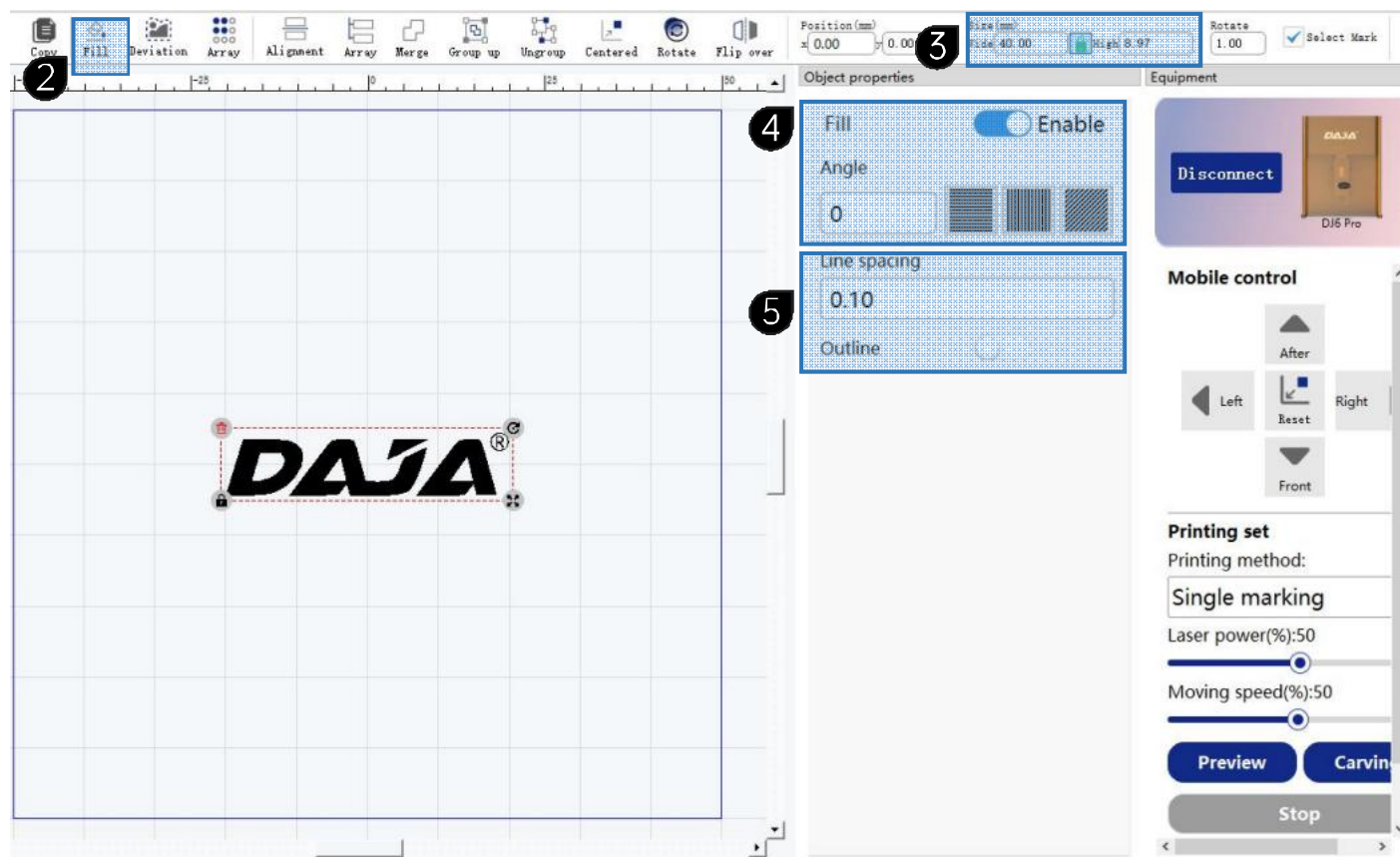
- 1 Click "Text" on the drawing toolbar and enter text.
- 2 Select the object and modify the engraving size.
- 3 The text content can be modified twice.



- 4 You can modify the font, size, spacing, leading, and alignment.
- 5 Solid: Fill carving mode.
Hollow: Contour cutting mode
Italic
Bold

Vector Graphics Editing

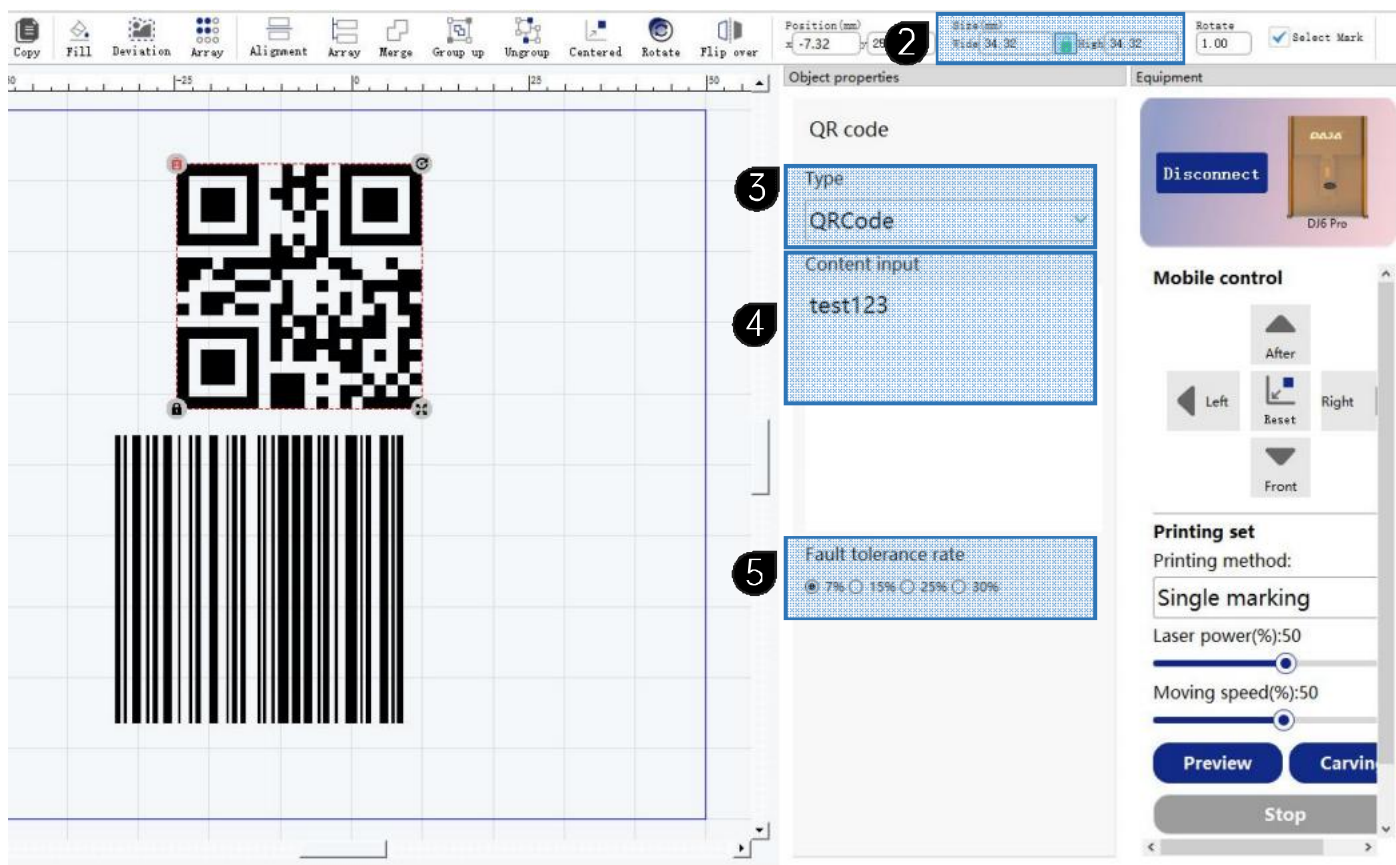
- 1 Click "Vector" on the drawing toolbar to import vector files, supporting DXF and PLT formats.
- 2 Click Fill, if not filled it is outline mode.
- 3 Select the object and modify the engraving size.



- 4 Enable fill, and modify fill type and angle.
- 5 Line spacing: The default value is 0.1. The smaller the value, the higher the accuracy and the slower the speed.

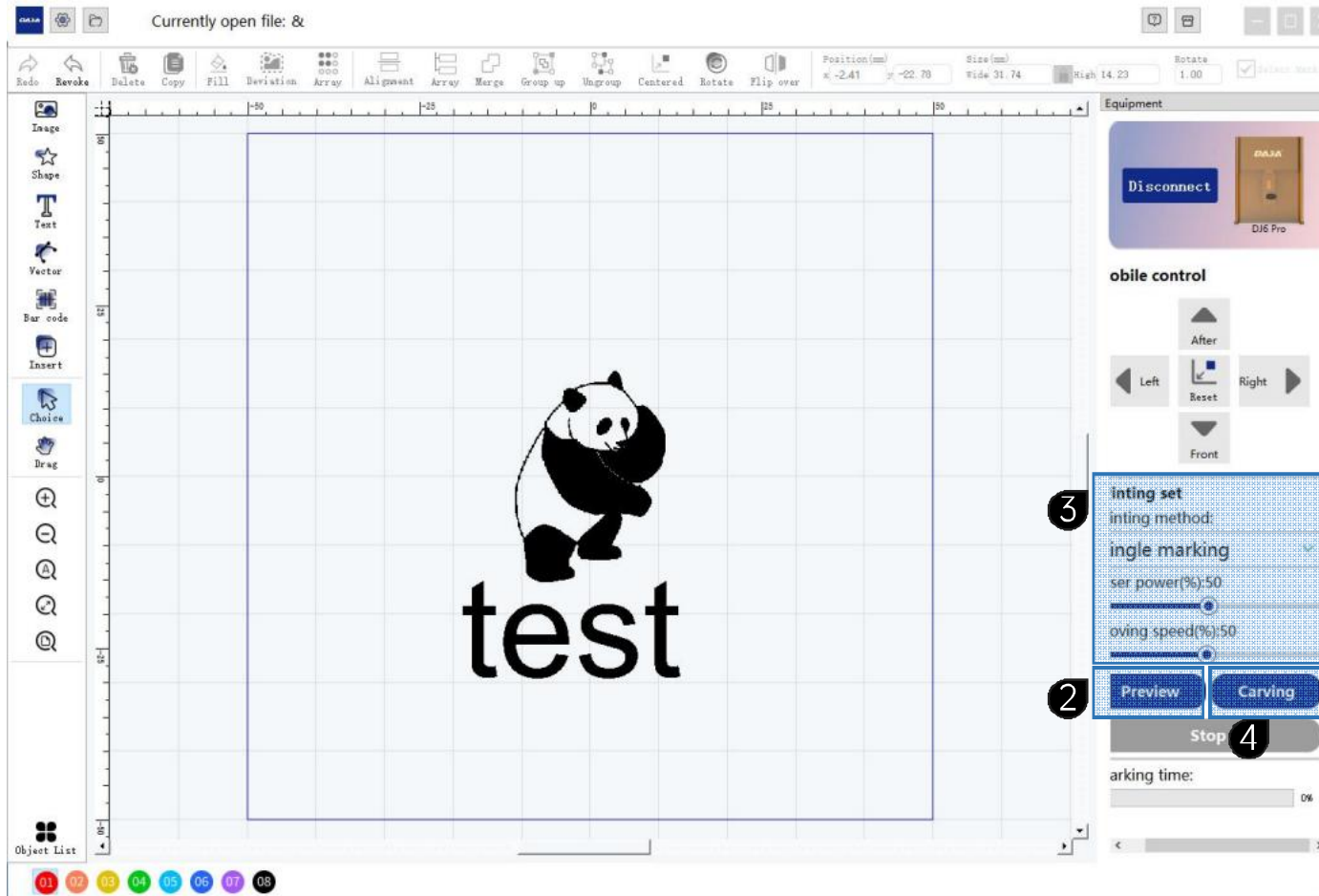
Barcode Editing

- 1 Click "Bar code" on the drawing toolbar and select "QR Code" or "Bar code".
- 2 Select the object and modify the engraving size.
- 3 The encoding type can be modified.



- 4 The content can be edited again.
- 5 The error tolerance rate refers to the ability of a QR code to be scanned normally after a part of it is blocked. The higher the error tolerance rate, the larger the part of the QR code image can be blocked.

Preview and Mark



- 1 Fix the engraving focal length. Refer to page P14 for "[Laser module focusing method](#)".
- 2 Preview the frame and position the object for engraving.
- 3 Laser power: control the power output of the laser head;
Movement speed: control the engraving speed;
The faster the movement speed, the lighter the color of the engraving will be.
The slower the movement speed, the darker the color of the engraving will be.
- 4 Start carving

Tips: Please read the "[Safety Precautions](#)" on page 4 carefully before starting to carve.

Mobile APP download and connection

1、Scan the following QR code to download the mobile app



google play



IOS

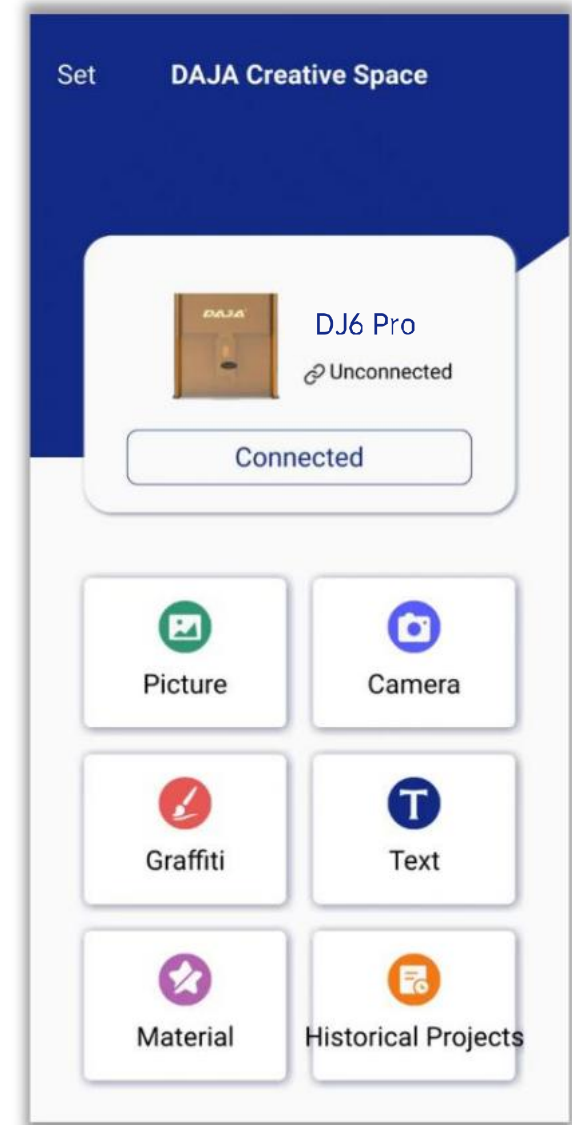


DJLaser

System requirements: Android:7.0+, IOS:13.0+

Note:

- 1, Android phones need to use the **mobile** browser to scan the QR code to **download**;
- 2, after successful **installation** you need to give **relative** permissions;

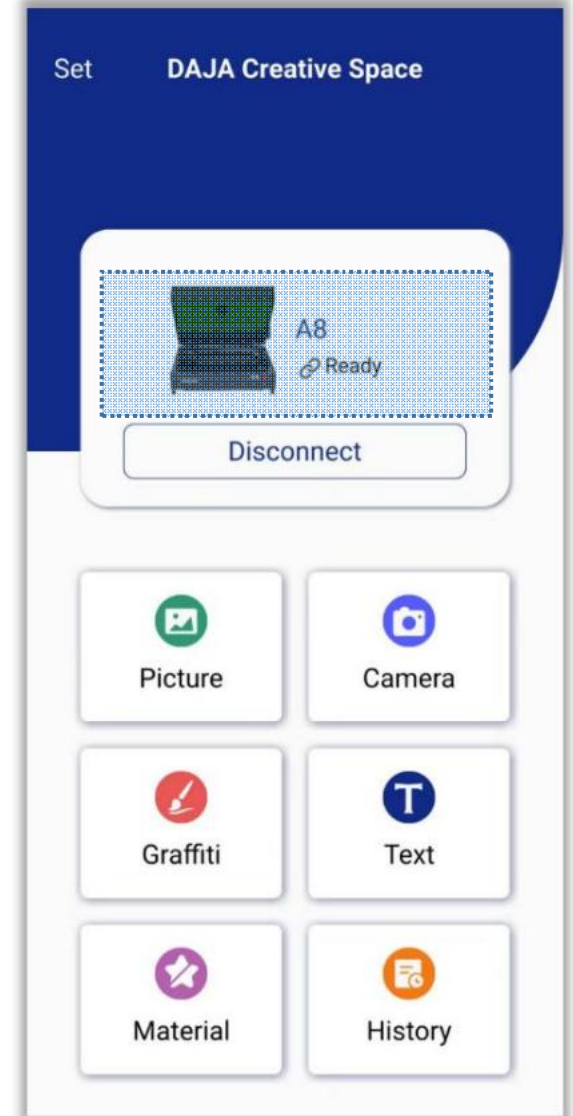
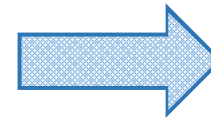
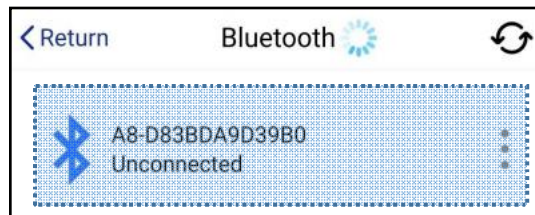
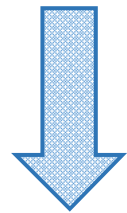


app interface

1. Plug the machine into the power supply and turn on the Bluetooth function on your phone.

2. Click [Connected] and find A8_xxx in the Bluetooth list; click Connect;

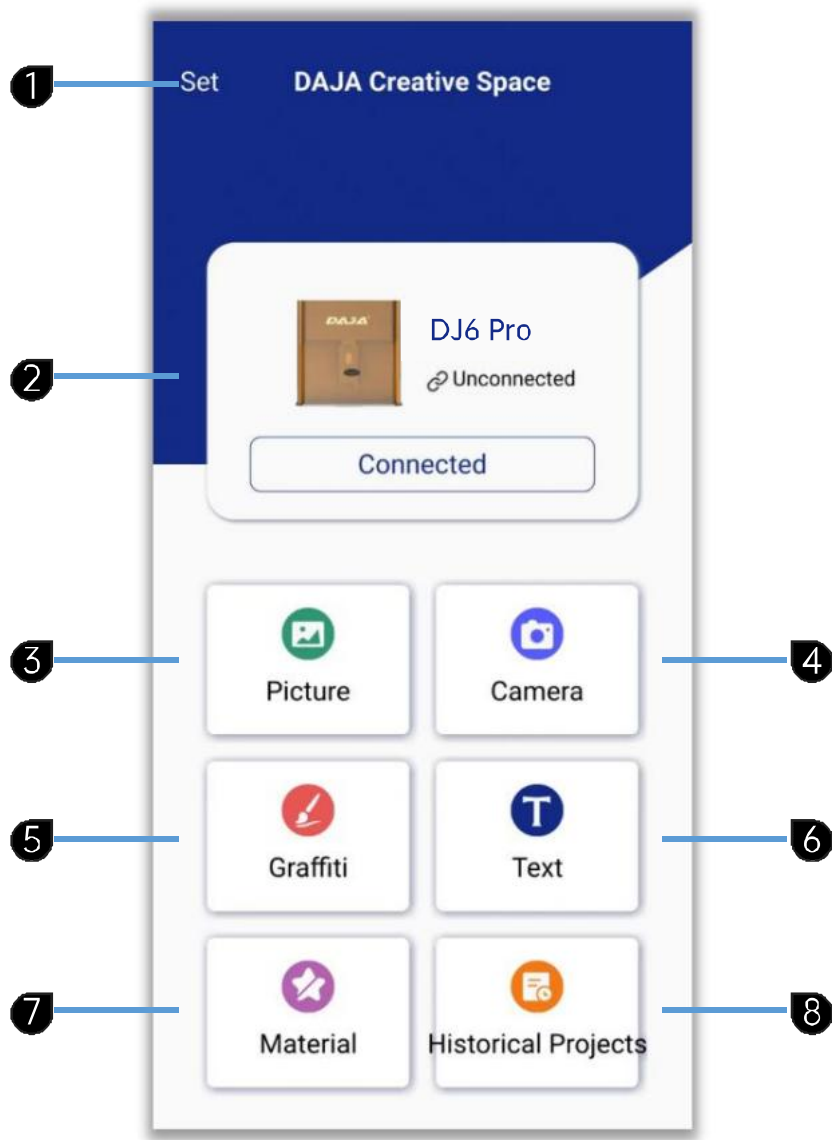
3. After successful connection, the device appearance picture and connection status will be displayed.



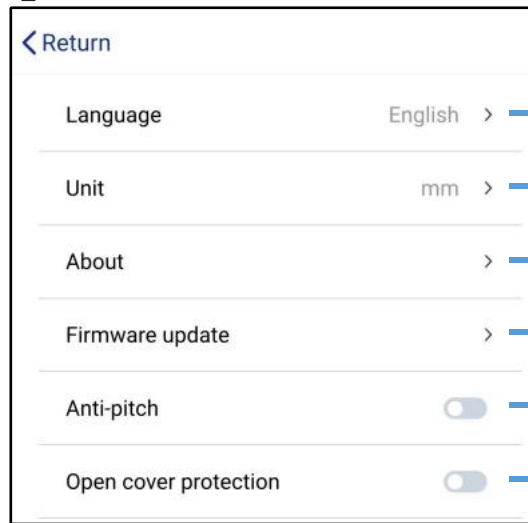
Note:

After the app is connected, the phone please do not rest the screen, answer the phone call, switch the app to the background of the phone, if any of the above operations to do will lead to the connection is not responsive, if the operation is not responsive, please exit the cell phone app completely, and then repeat the steps 1-3 to re-try to connect.

Mobile APP Function Introduction



1 Set



Language Switching

Unit Switching

Check the firmware version

Firmware Update

Anti-tilt switch

Safety door switch

Tip: This option will not be displayed when a device without a safety door is connected.

2 Device connection status

3 Import album image files

4 Take a photo and import the image file

5 Hand-painted brushes

6 Text Editing Engraving

7 Sculpture Library

8 View Historic Engraving Project

Image Editing

- 1 Click "Picture" to select a picture file.
- 2 After importing the picture, enter the photo editing interface to crop and erase the picture content.
- 3 Next step enter the editing interface

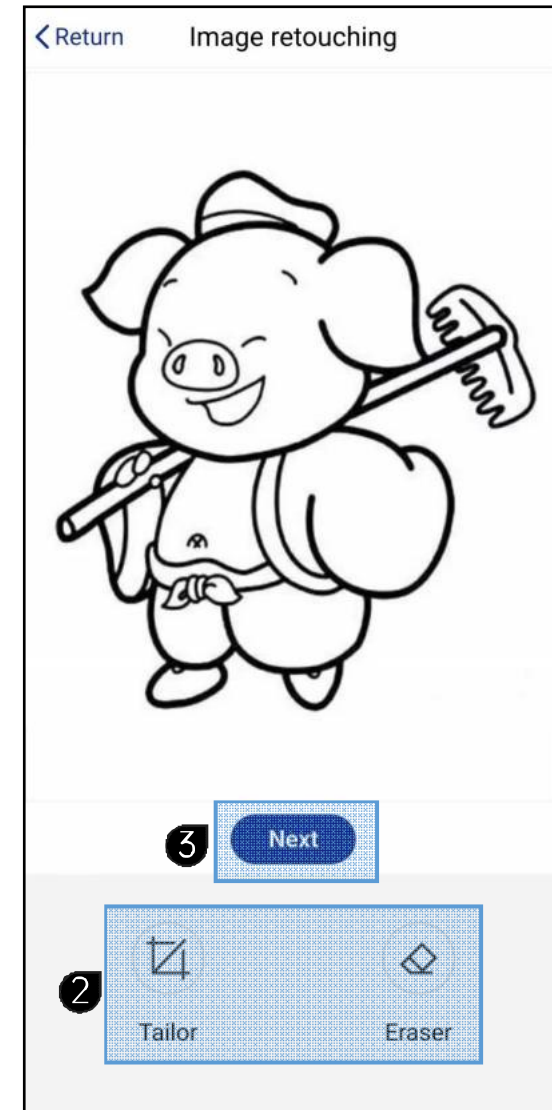


Image Editing

- 1  Revocation
-  Redo
-  delete
-  1:1 display
-  Maximize Display

2 Working area: Do not exceed the engraving area.

- 3  delete
-  Rotation
-  Lock ratio
-  Drag to zoom in and out

4 Adjustment of contrast and brightness.

5 Mode selection: For portrait photos, choose grayscale or sketch.

6 Mirror and invert images.

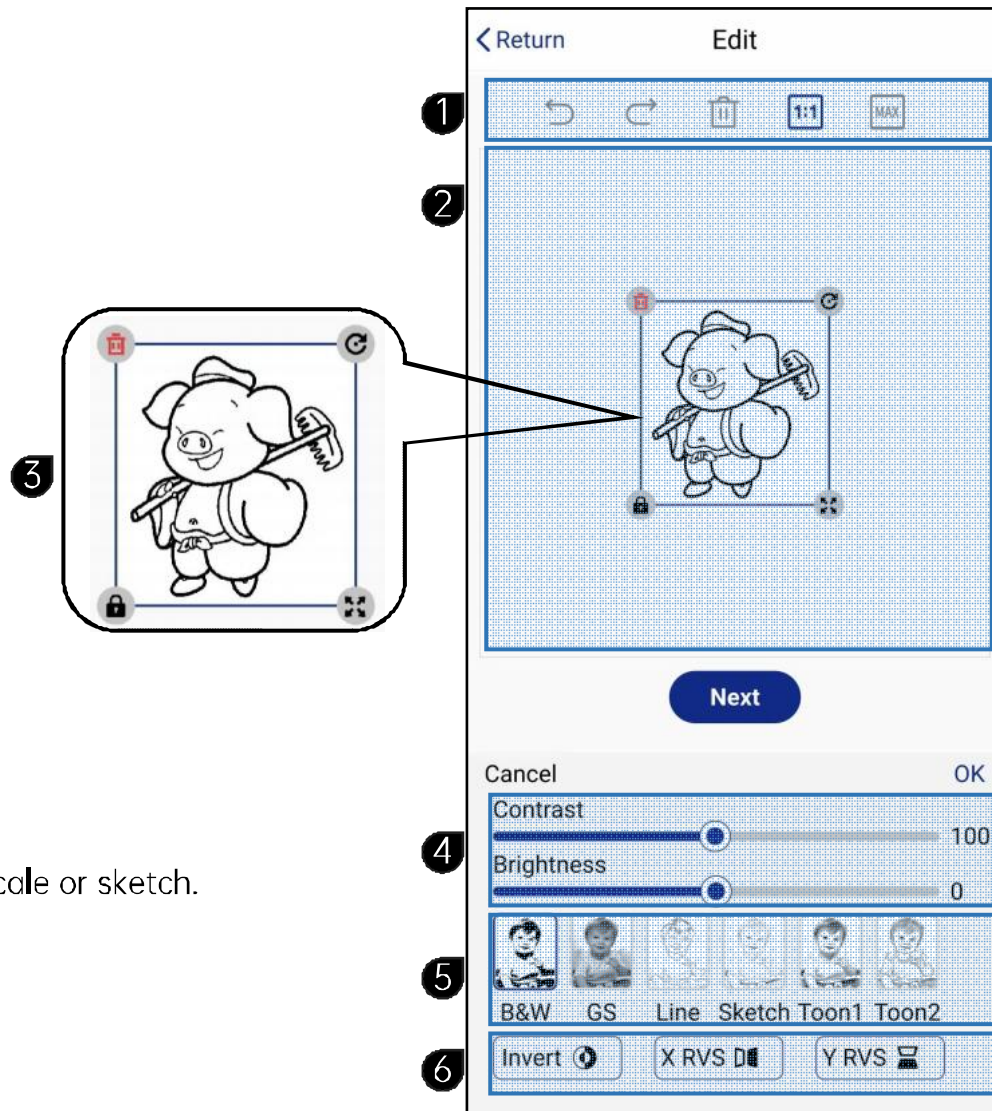


Image Editing

- 1 Multiple content engraving can be added.
- 2  Add a picture
-  Add text
-  Add stock images
-  Add a QR code or barcode.
-  Add DXF and PLT format vector files

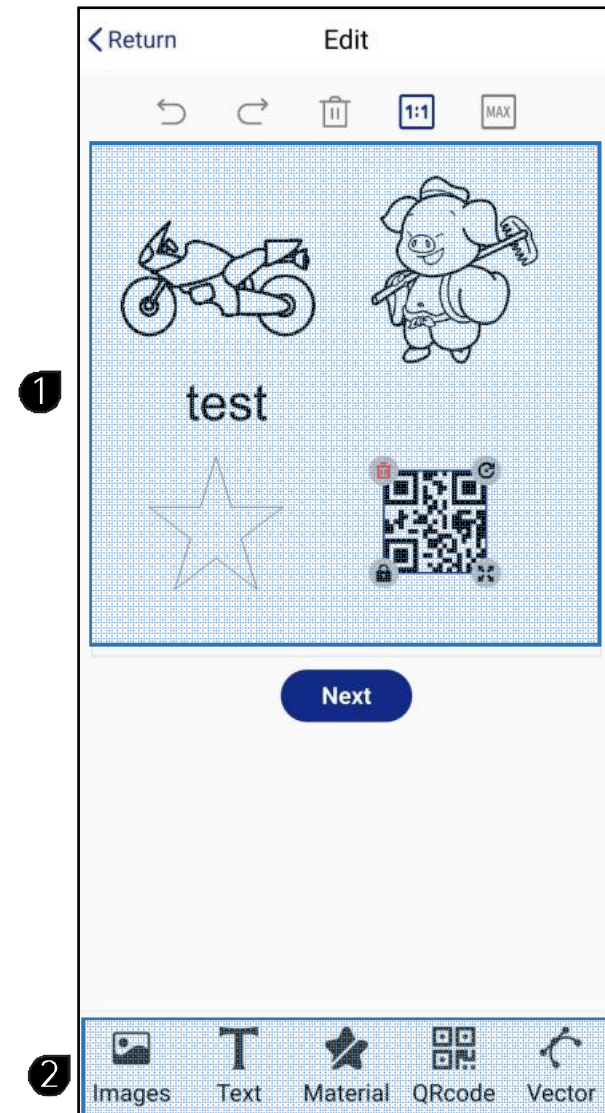
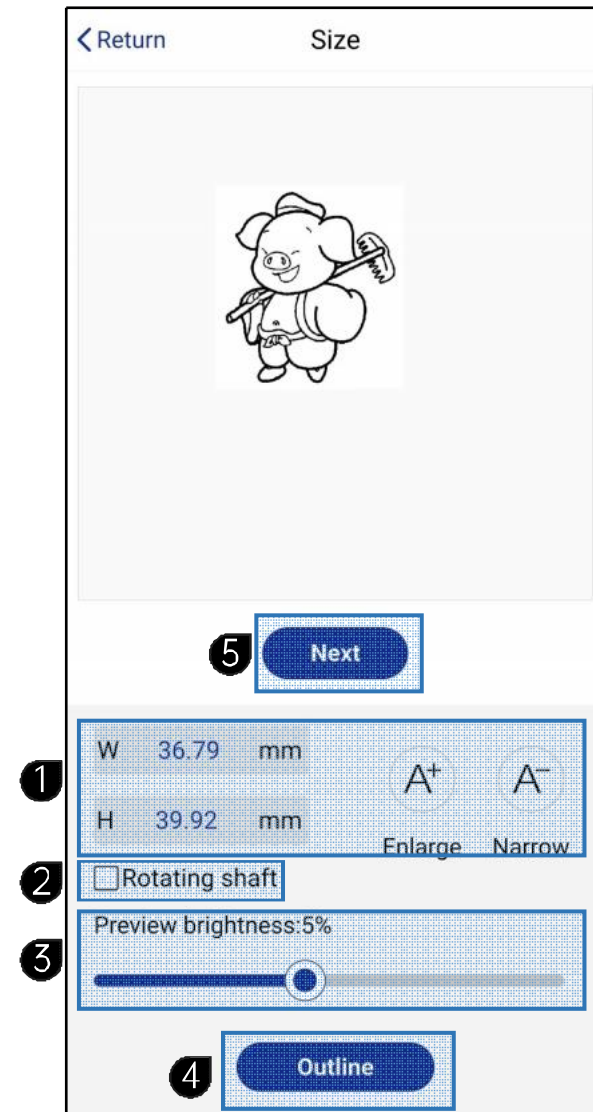


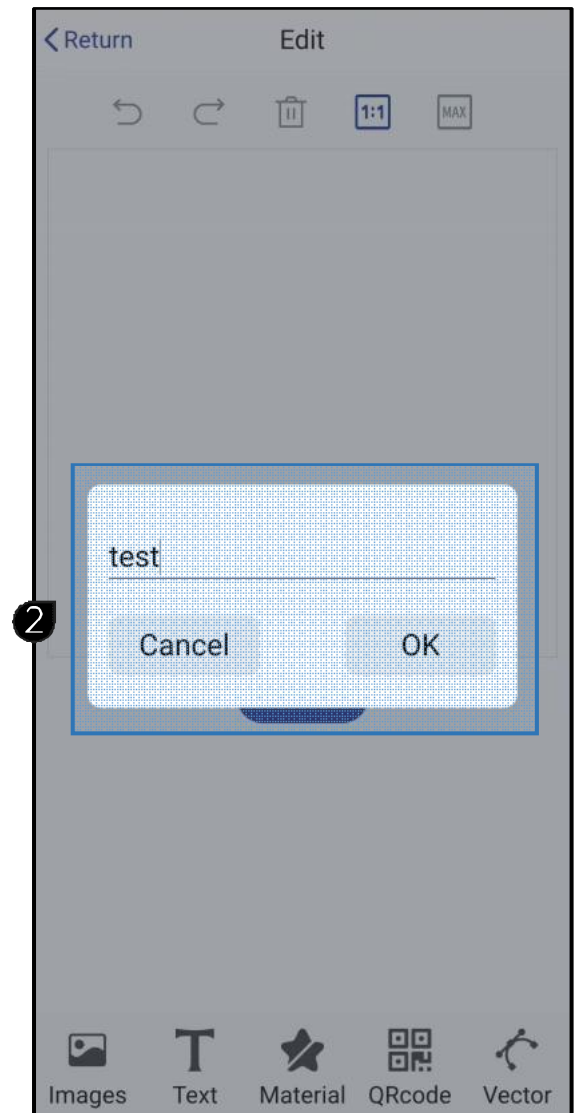
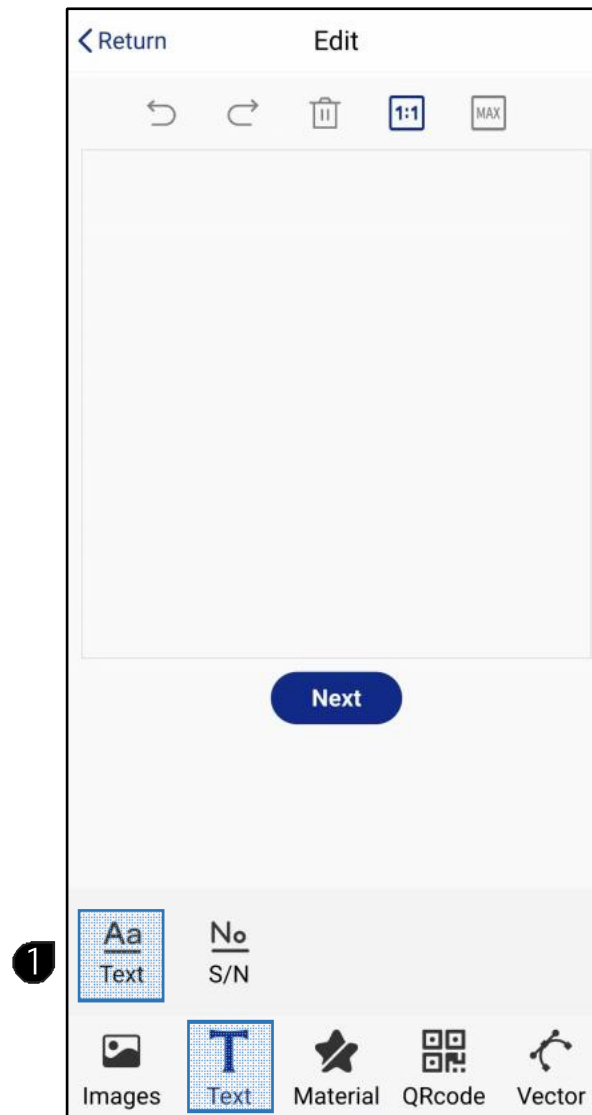
Image Editing

- 1 Resize the carving
- 2 If a rotating roller is connected, please check "Rotating axis engraving"
- 3 Preview laser intensity: Default is 5%, if it is too bright, reduce it appropriately, otherwise increase it
- 4 Border preview positioning
- 5 Next step enter the engraving interface



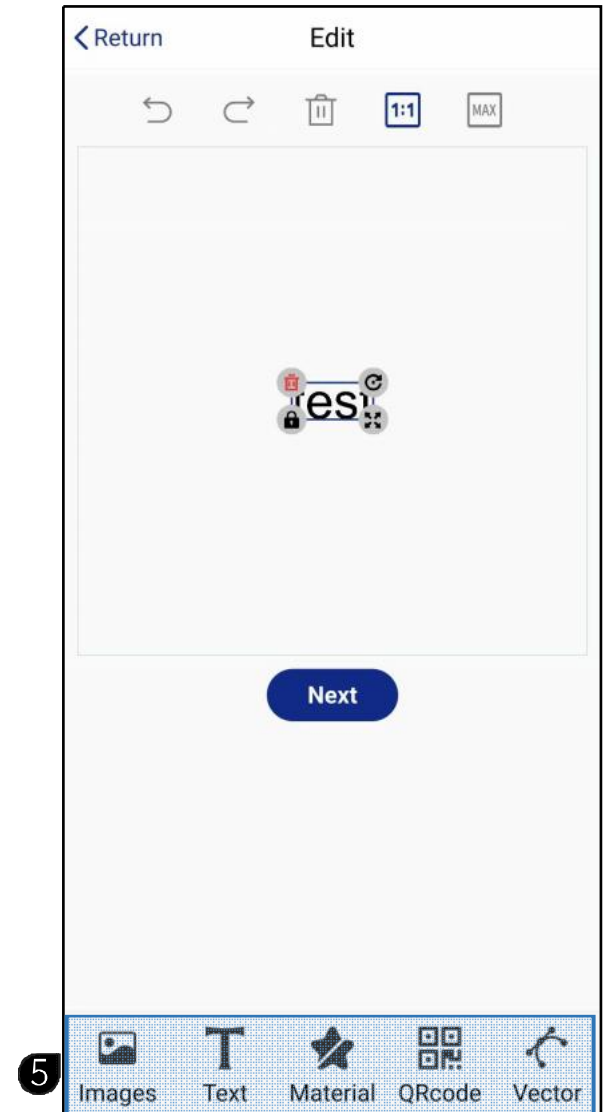
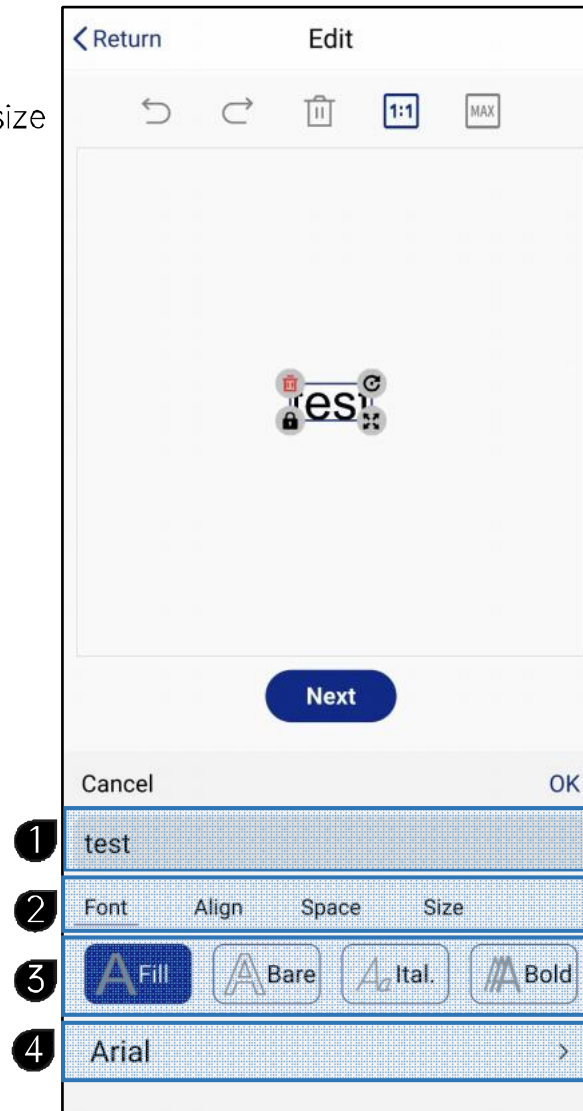
Text Editing

- 1 Select text
- 2 Enter text content



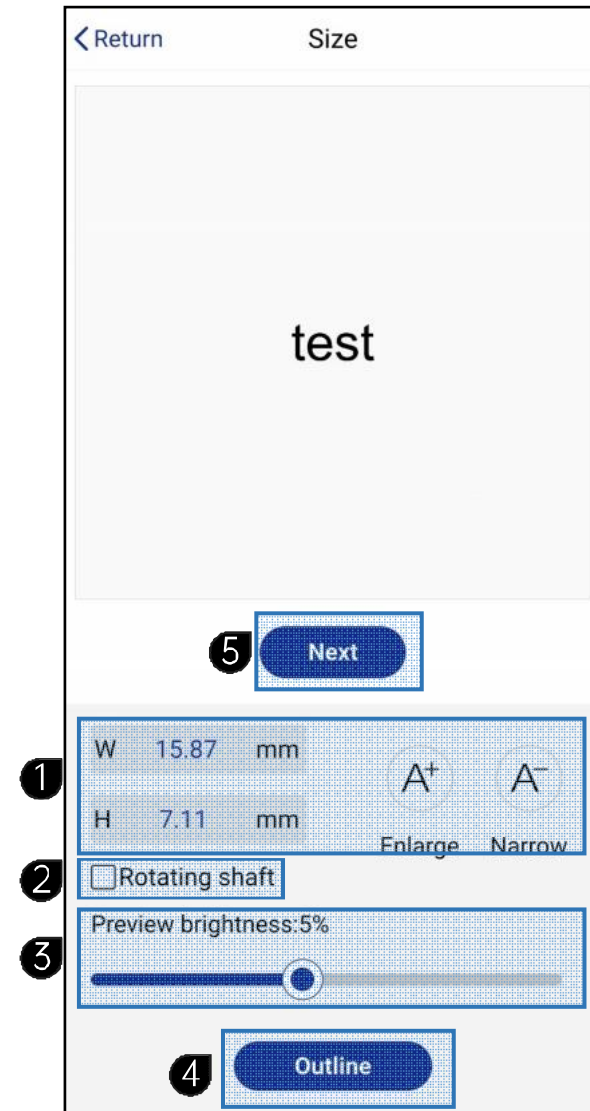
Text Editing

- 1 Click to edit the text again
- 2 You can modify the font, alignment, spacing, and size
- 3 Solid: Fill mode
Hollow Out: Outline Edge Mode
Italic
Bold
- 4 Font Selection
- 5 Multiple content engraving can be added.
 -  Add a picture
 -  Add text
 -  Add stock images
 -  Add a QR code or barcode.
 -  Add DXF and PLT format vector files



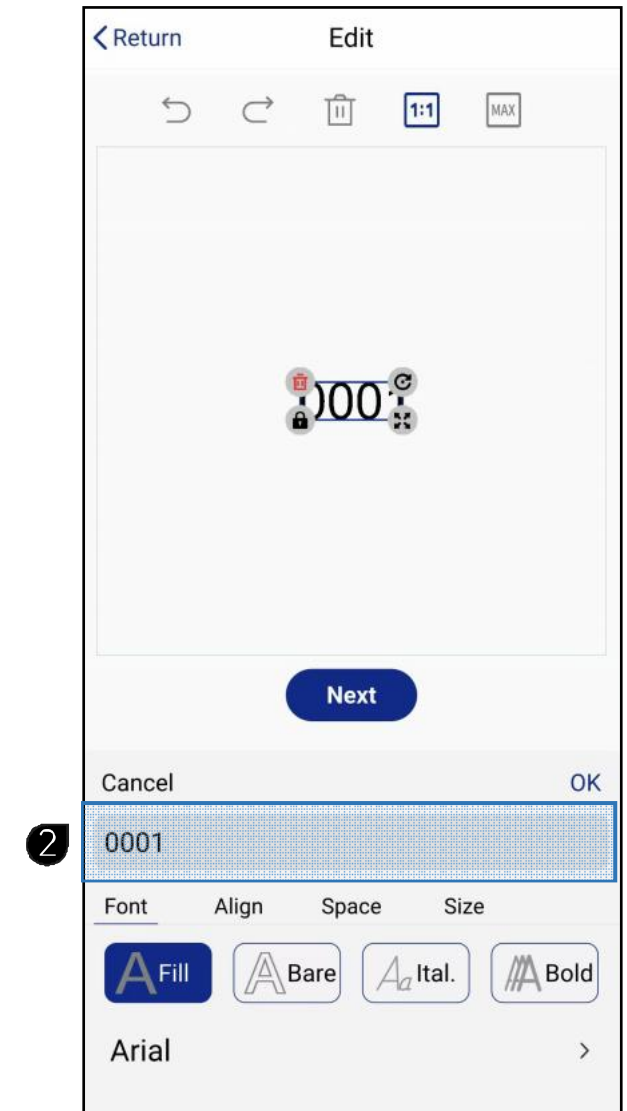
Text Editing

- 1 Resize the carving
- 2 If a rotating roller is connected, please check "Rotating axis engraving"
- 3 Preview laser intensity: Default is 5%, if it is too bright, reduce it appropriately, otherwise increase it
- 4 Border preview positioning
- 5 Next step enter the engraving interface



Serial number edit

- 1 Select Serial Number
- 2 Click Edit Serial Number



Serial number edit

3 Edit the serial number content as required and click OK to save.

4 Multiple content engraving can be added.

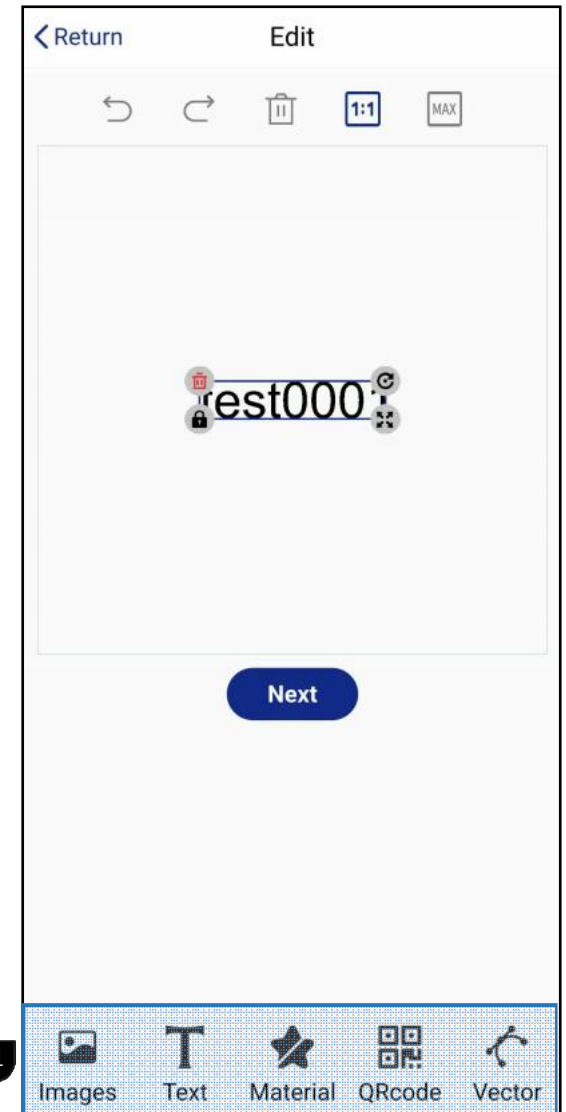
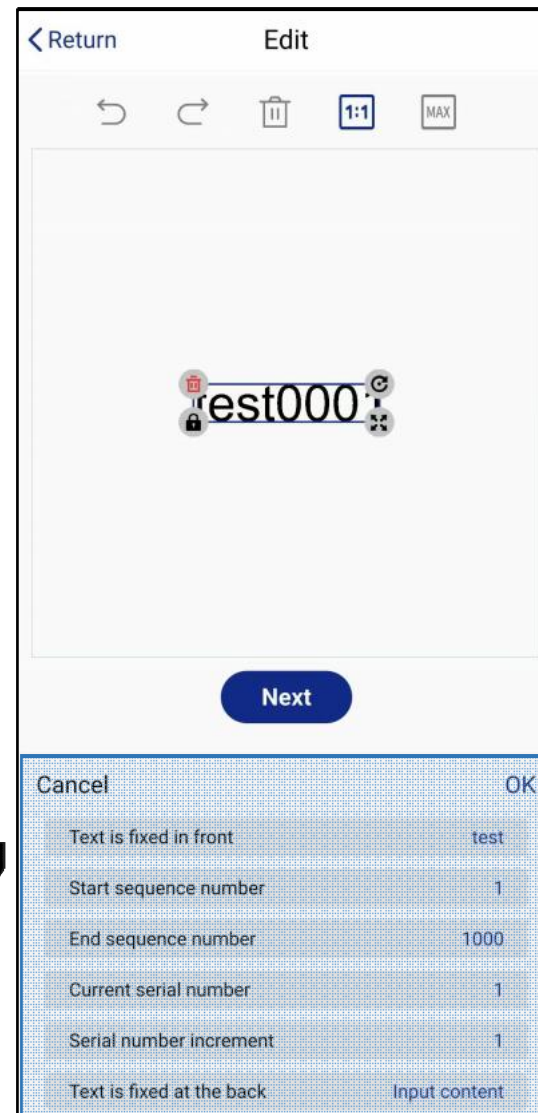
 Add a picture

 Add text

 Add stock images

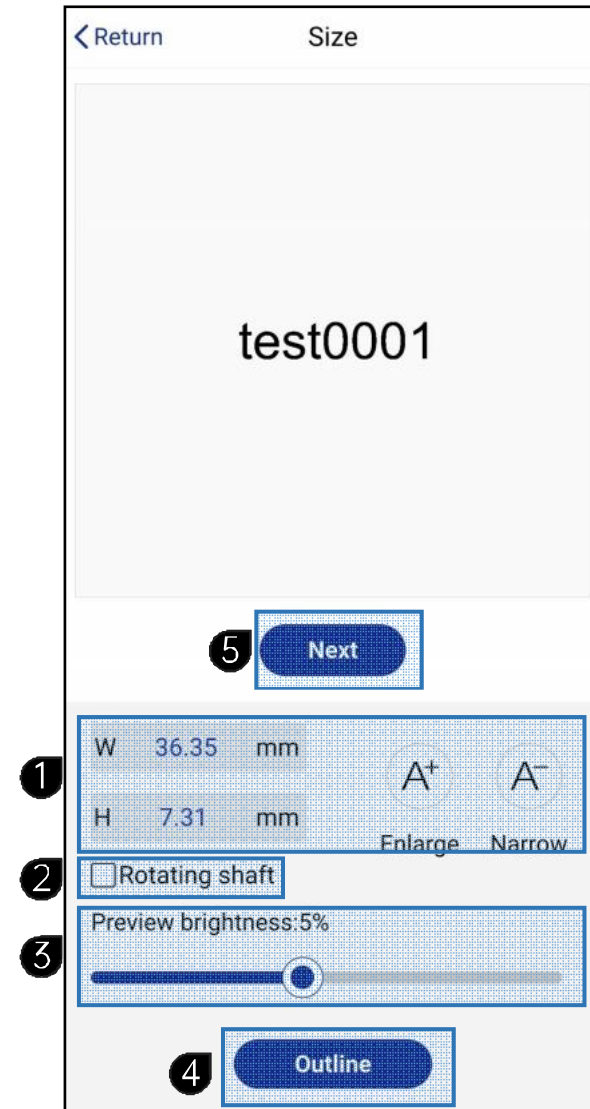
 Add a QR code or barcode.

 Add DXF and PLT format vector files



Serial number edit

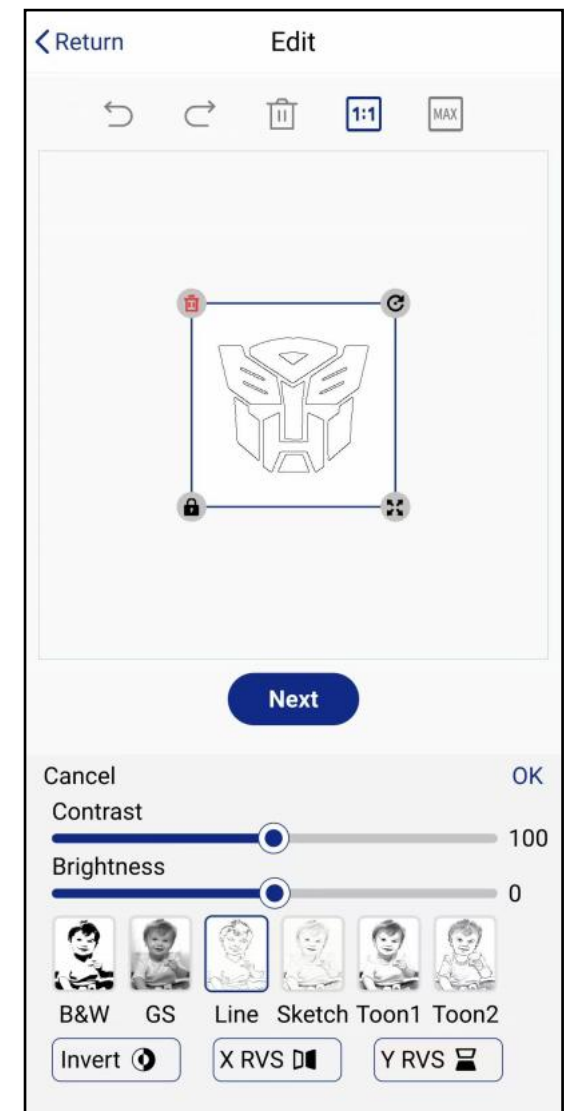
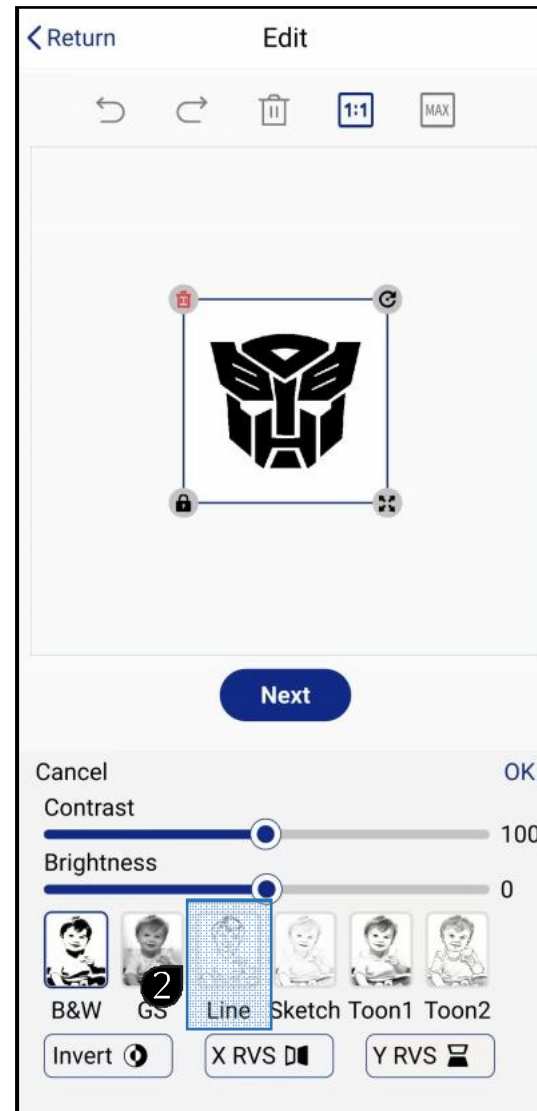
- 1 Resize the carving
- 2 If a rotating roller is connected, please check "Rotating axis engraving"
- 3 Preview laser intensity: Default is 5%, if it is too bright, reduce it appropriately, otherwise increase it
- 4 Border preview positioning
- 5 Next step enter the engraving interface



Contour Engraving and Cutting

Tips: 5w-10w blue laser head can cut 1-2mm thick wood, paper, bamboo; multiple cuts may be required. Transparent materials cannot be cut, and red laser head cannot cut.

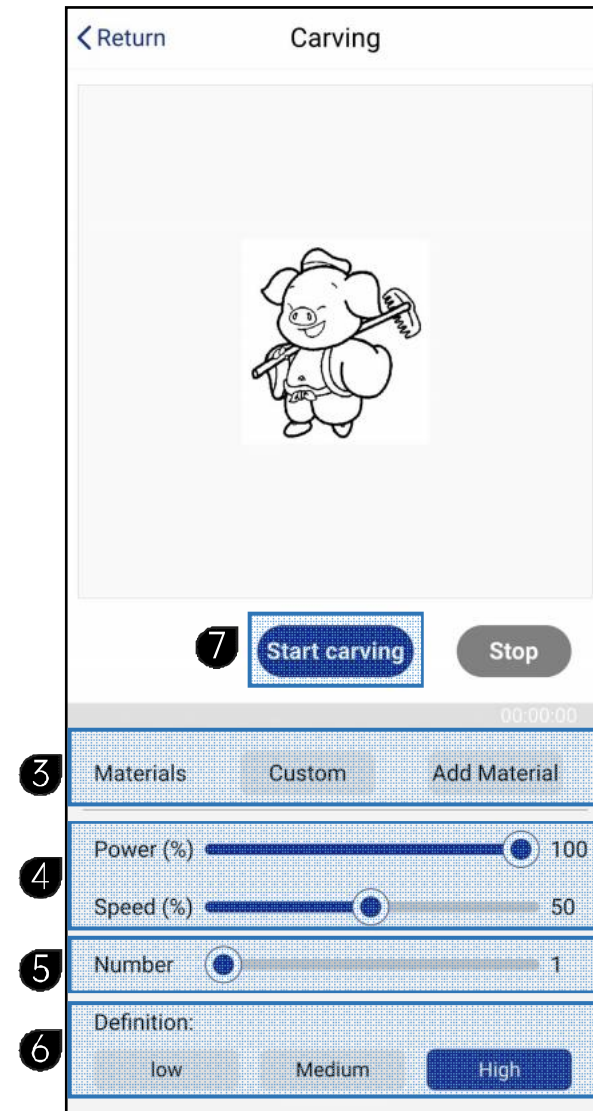
- 1 You can use pictures or vector graphics files in DXF or PLT format.
- 2 Select Outline Mode
- 3 For cutting, you need to adjust the laser power to 100 and the engraving speed to below 10.



Start carving

- 1 Fix the engraving focal length, refer to page P14 "[Laser module focusing method](#)"
- 2 Preview the frame and position the object for engraving.
- 3 Material selection: You can add laser power and engraving speed for different materials yourself, which is convenient for later selection.
- 4 Laser power: control the power output of the laser head;
Engraving speed: control the engraving speed;
The faster the engraving speed, the lighter the engraved color will be.
The slower the engraving speed, the darker the engraved color will be.
- 5 Number of engraving times: 1 by default, can be modified as needed.
- 6 Clarity: The higher the value, the clearer the engraving effect will be, but the engraving time will be slightly longer.
- 7 Start carving

Tip: Before you start engraving, please read the "[Safety Precautions](#)" on page P4 carefully.





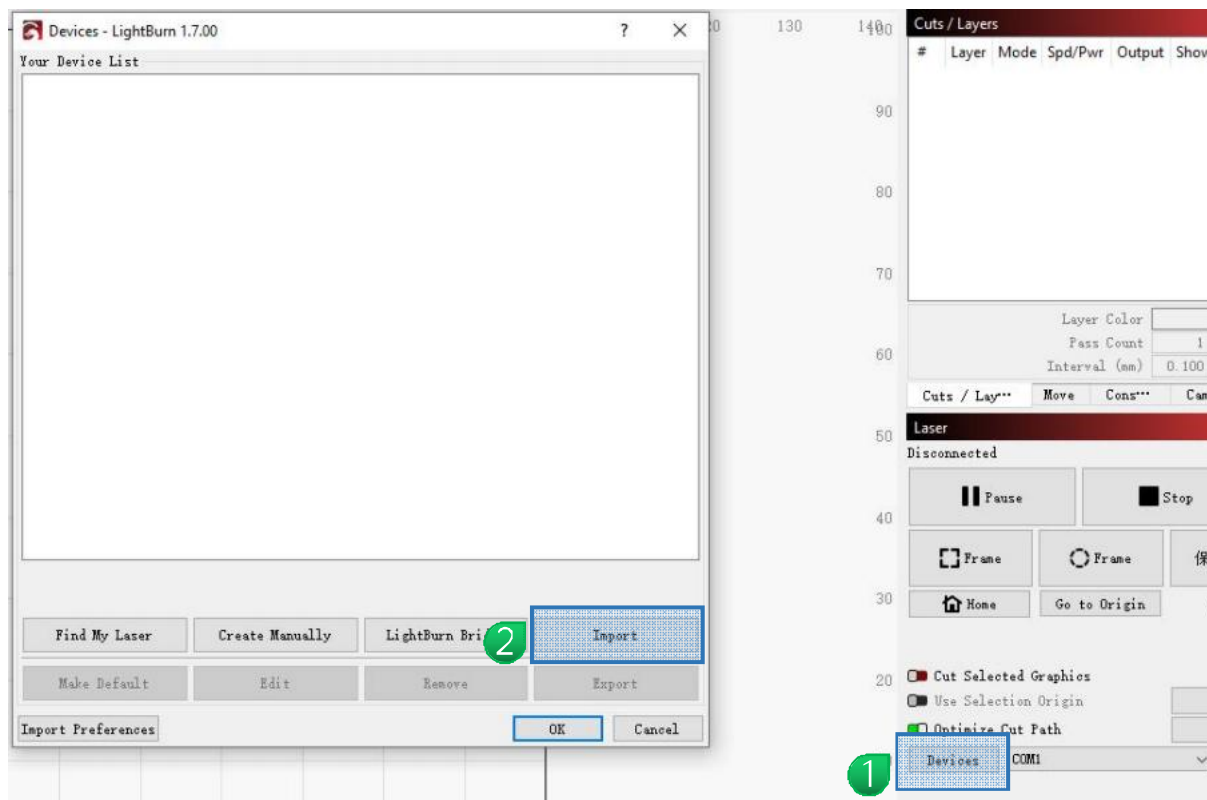
LightBurn Software connectivity

Note: This document **only** provides tutorials for connecting the machine to LightBurn, it does not provide tutorials for the software or its use;

LightBurn software can be purchased and downloaded at lightburnsoftware.com;

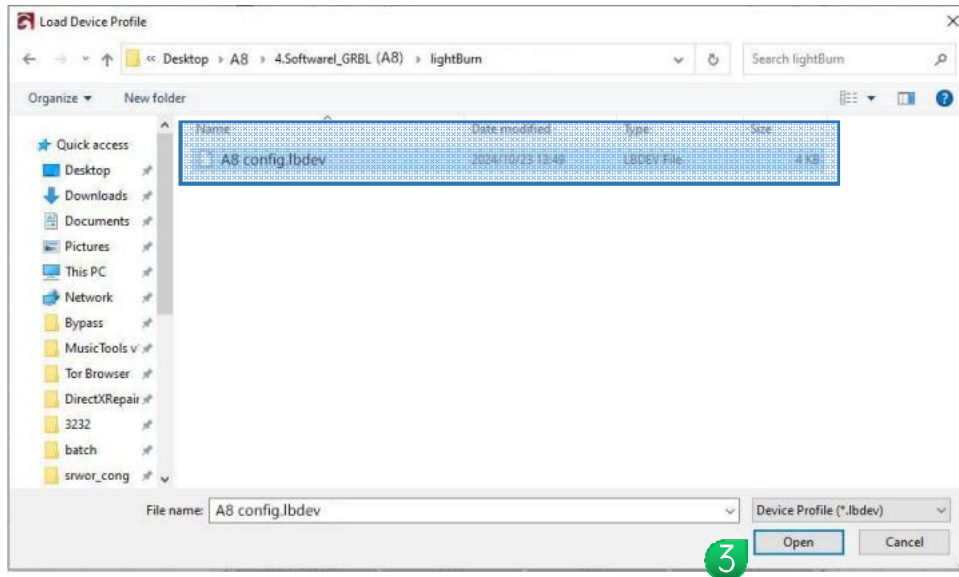
For tutorials on how to use the LightBurn software, please search the web yourself.

1, the machine is plugged into the power cord and data cable to turn on the machine.



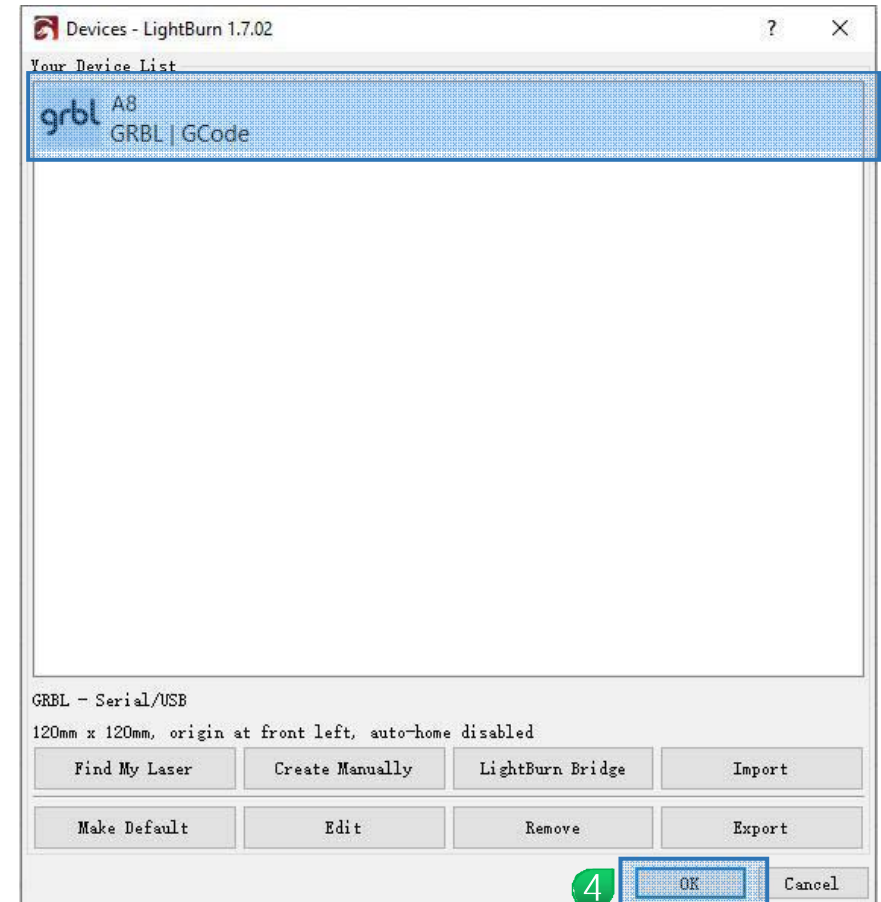
1 Click on "Devices"

2 Click on "Import"

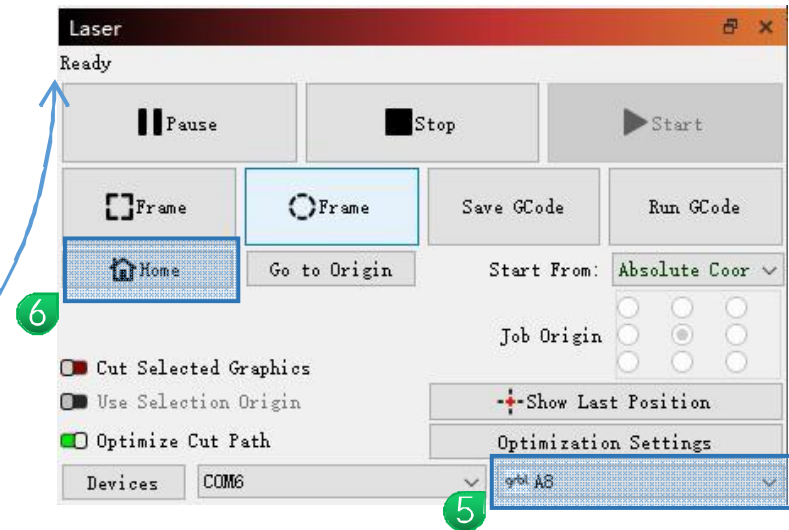
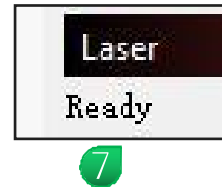


- 3 Import configuration file "[A8 config.lbdev](#)"
file path "[A8\4.Software\GRBL \(A8\)\lightBurn](#)".

- 4 Click on "OK"

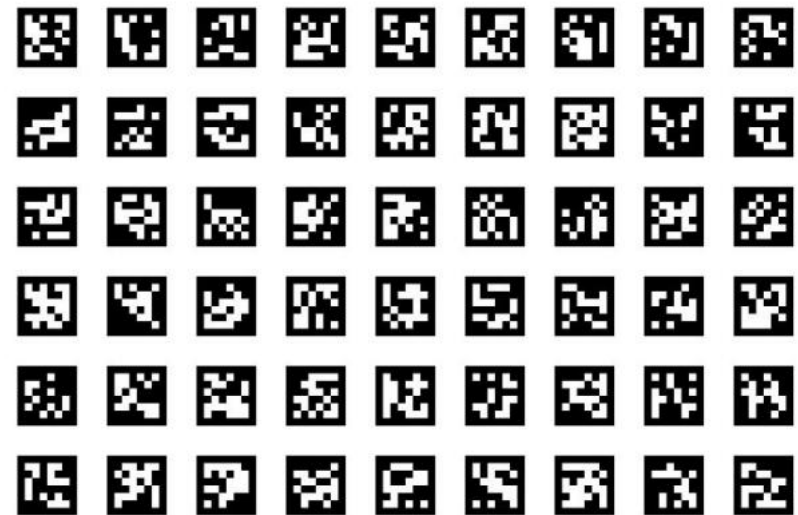


- 5 Select the newly added device
- 6 Click on "Home" The device will reset
- 7 The display of "Laser Reay" indicates a successful connection.

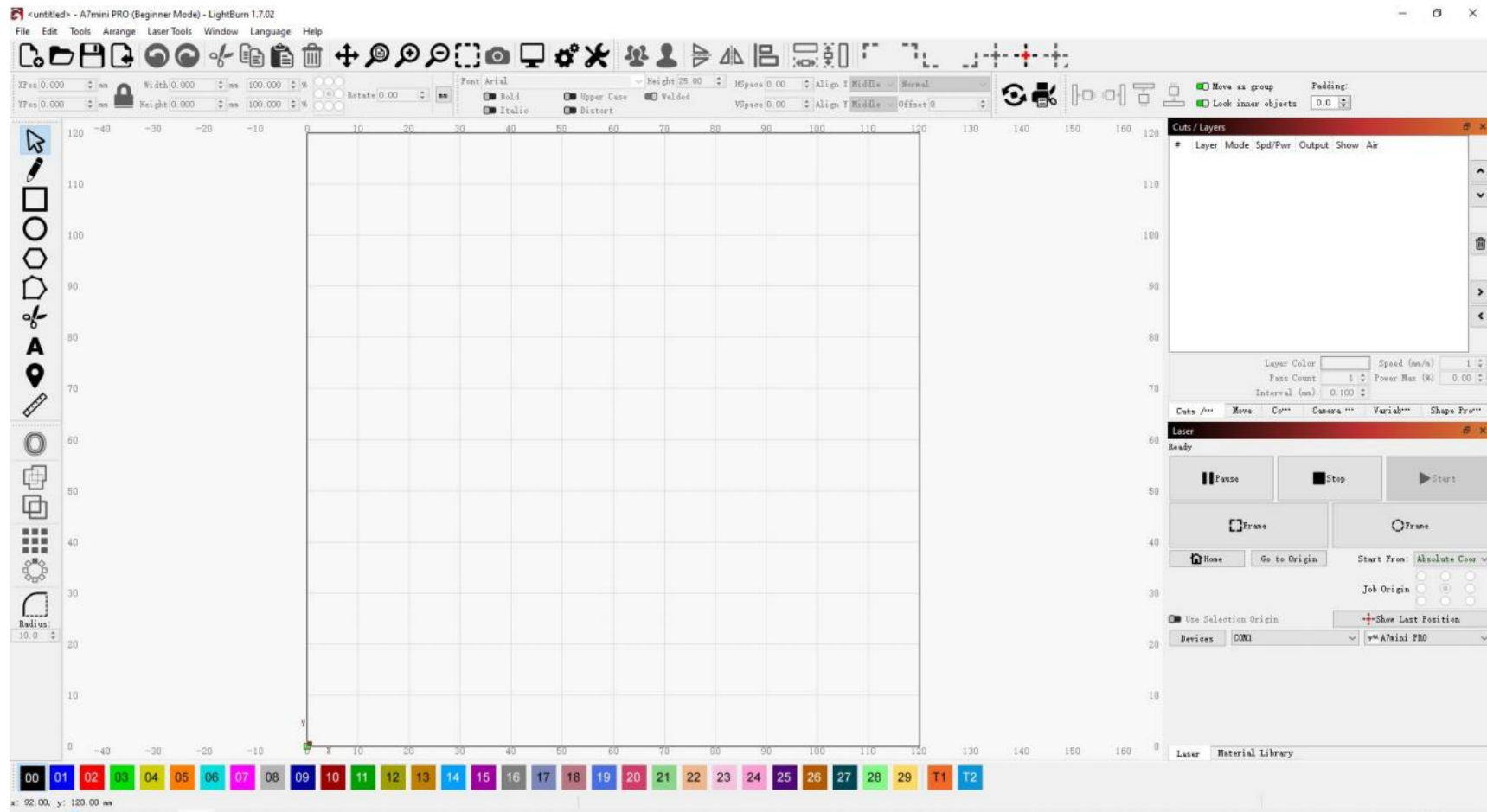


How to camcorder with LightBurn

Please scan the QR code to view the official calibration document of the camera LightBurn.



Calibration patterns are recommended



LightBurn Software Interface

FAQ

A8 FAQ

►The machine does not respond when powered on

1. Not powered on: Check the sockets, switches, body power sockets, etc. to make sure they are plugged in and powered on normally; check whether the power switch is turned on.

►Cannot connect to computer

1. The USB cable is not connected: Check the computer end of the USB data cable and the machine interface to ensure that it is plugged in place. The USB interface on the front panel of some desktop computers is invalid and needs to be connected to the socket on the rear of the fuselage.

2. The driver is not installed normally: Complete the driver installation according to the operating instructions. After the installation is completed, the computer recognizes the device as a serial port, indicating that the hardware connection is OK.

3. Other special circumstances: Unplug the USB data cable and power supply, completely power off the device for 5 seconds, and then reconnect.

4. This device will conflict with the printer device port. It is recommended to remove the printer data cable before operating.

5. To prevent false alarms from anti-virus software that may lead to unsuccessful driver or software installation, please manually close the anti-virus software before installation.

►The engraving effect is very light or has no traces

1. Inaccurate focus: Read the focus section of the user manual to get accurate focus.

2. Engraving speed: too fast, caused by the burning time being too short. Read the engraving parameter section of the user manual to readjust the parameters.

3. The picture is too light: The imported picture must be clear. The lines are too thin and the color is too light, which will directly affect the engraving effect.

4. Place the object to be engraved: If the object to be engraved is placed at an angle, the focal length of the laser is fixed, so the object to be engraved must be placed flat and parallel to the fuselage. Otherwise, the focus will be inaccurate, resulting in abnormal engraving effects.

5. Engraving deformation and ghosting: Check whether the screw connection position of the machine is loose. Reset the machine. If the machine is elevated, please observe whether the elevation is stable.



All content on this material has been carefully checked. If there are any printing errors or misunderstandings, please contact the company. Note: If there are any technical improvements to the product, they will be enhanced in the new version of the manual without prior notice. If the appearance and color of the product are changed, the actual object shall prevail.