ACMER

ACMER S2 PRO

Manual V1.1

Shenzhen Titan International Development Technology Co., Ltd.

Thank you for choosing our product and placing your trust in our brand. We are committed to offering top-tier quality products and unparalleled customer service. Your support is invaluable to us.

To ensure you get the most out of your product, we offer a range of support solutions:

Your ACMER machine arrives with an in-depth manual, but we also understand the value of visual learning. Scan the QR code below to access video and document tutorials tailored to your specific machine model. Stay connected with ACMER for expert guidance:

For ongoing updates and insights, don't hesitate to engage with us directly or follow our social media channels. Stay informed about the latest news, expert advice, and engaging events.

Email Support:

For personalized assistance, our after-sales service team is just an email away. Reach out to us at support@acmerlaser.com for any queries or concerns you may have.

We're here to help you make the most of your ACMER experience. Thank you again for your trust and support.

1. CONTENTS

2. Disclaimer And Safety Guidelines

1. Laser engraving machine will produce laser light, it is strictly prohibited to point the laser at any living body.

2. When using the laser engraving machine, the operator and the personnel in its vicinity must wear laser safety glasses, please do not operate the laser without wearing protective glasses (laser goggles)!

3. Minors (especially children over 14 years old) must use the machine under the supervision of an adult throughout!

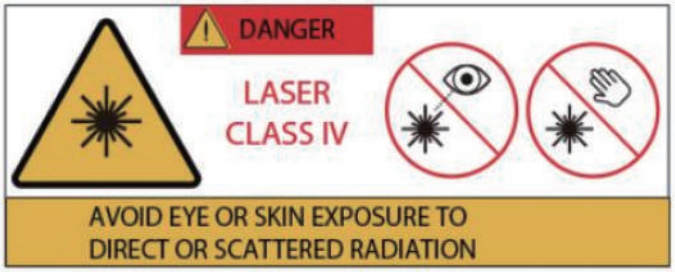
4. Engraving machine work will produce a lot of smoke, please place the machine in a ventilated environment before work, and ensure that there is no other flammable materials near the engraving machine, it is recommended to place a metal mat under the machine.

5. When the machine is running, please do not touch the laser beam to avoid personal injury.

6. During the engraving and cutting process, please ensure that the machine is within the visual range of the operator.

7.Do not engrave highly reflective materials to avoid laser damage.

8. This machine is not recommended for commercial use.



3.Machine Parameters

Machine Size	625*665*198mm
Engraving Size	400*400mm
Machine Weight	7.5kg
Focal Length	36W：5mm/48W：8mm
Laser Power	36W/48W
Laser Wavelength	450±5nm
Power Input	DC 24V
Communication Method	USB
Compatible Software	ACMER Studio/ LaserGRBL / Lightburn
Compatible Systems	MAC, Windows
Engraving Material	Wood, Bamboo, Paper, Plastic, Leather, PCB board,Aluminium oxide, Non-reflective coating and Lacquered metal, Ceramic, Glass
Engraving File Format	NC, DXF, BMP, JPG, PNG, etc

4.Accessories

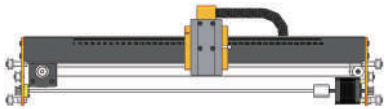
Front profile X1

Rear profile X1

Left profile (with scale) X1

Right profile X1

Controller assembly X1



X-axis assembly X1

Laser module X1

Drag chain bracket X1

Wood board X2

Foot X3

Air pump x1

Protective glasses X1

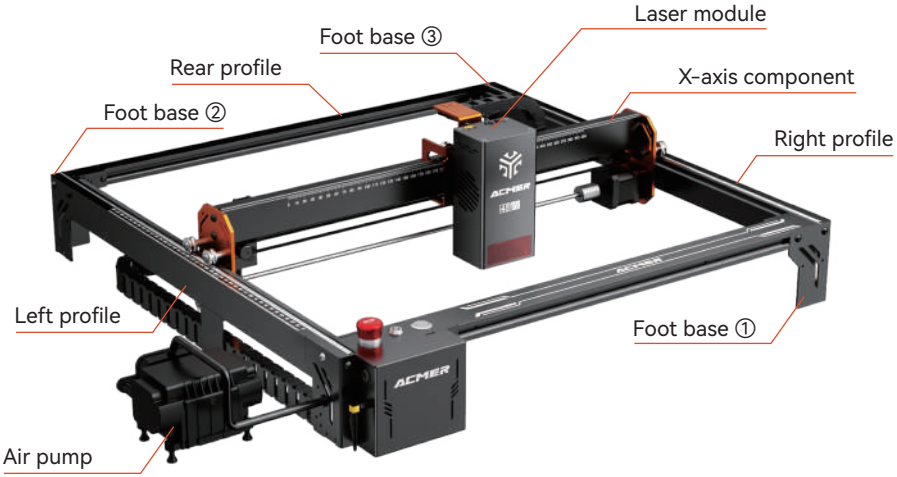
Power supply X1

USB data cable x1

Tool Kit X1

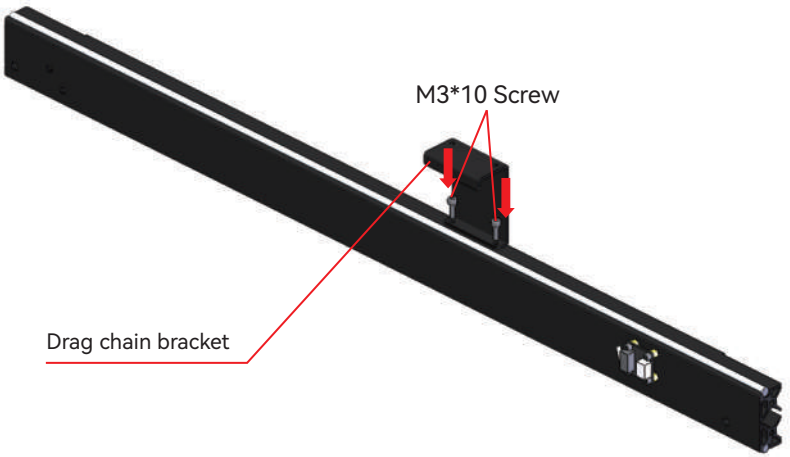
Accessory bag x1

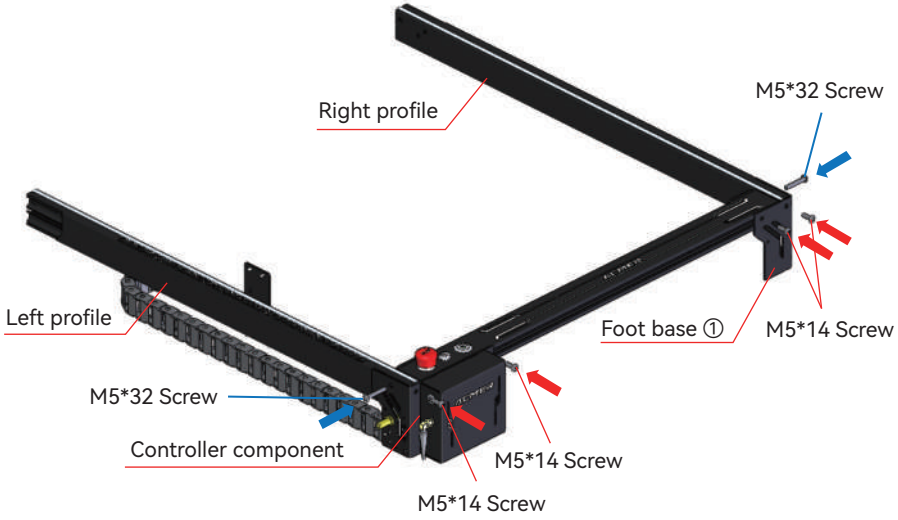
5. Machine Introduction



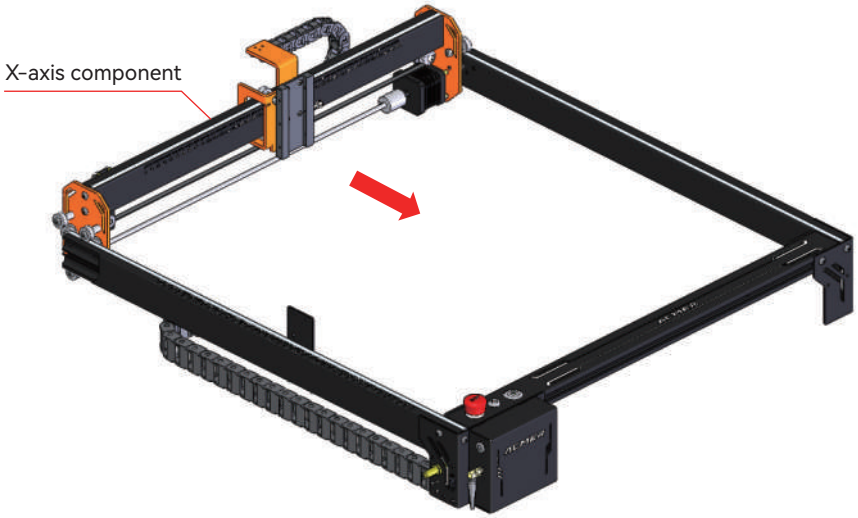
6. Assembly Steps

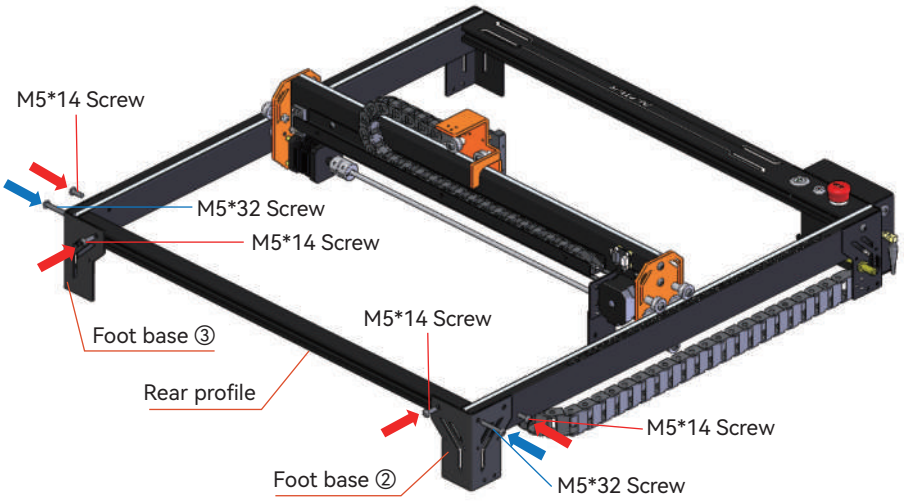
STEP 1. Assemble the Gantry



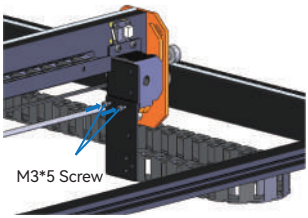


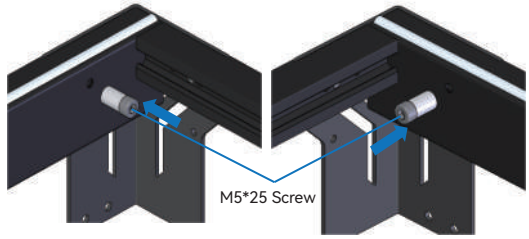
STEP 2. Assemble the frame





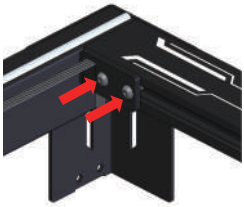
STEP 3. Install the drag chain and limit column



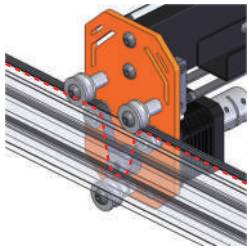


STEP 4. Install the belt and calibrate the X axis

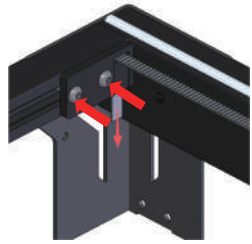
Note: Both left and right sliders need to follow the same steps to install the belt!



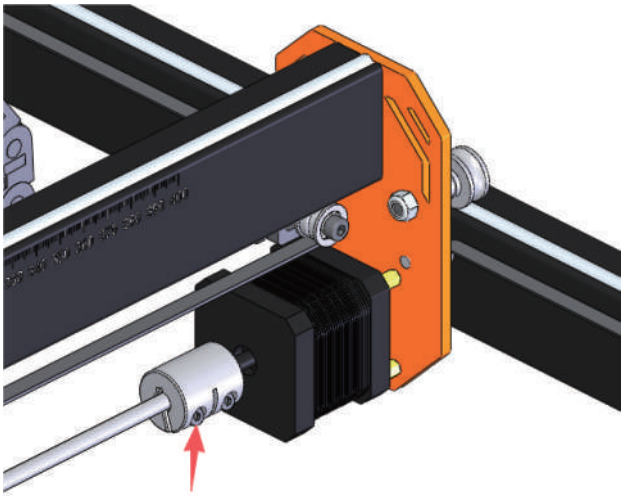
① Secure one end of the belt to the front profile.
Note: The toothed side of the belt should face upwards!

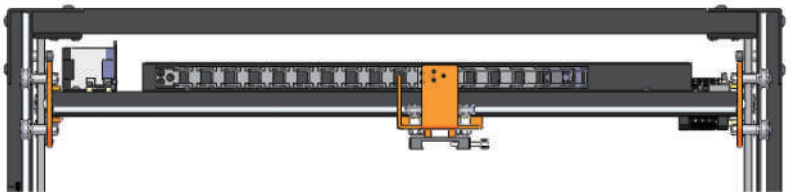


②Rotate the other end of the belt around the rollers as shown in the figure.



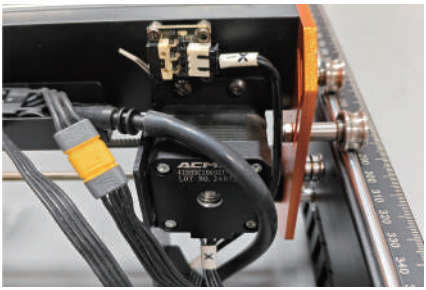
③Tighten the other end of the belt and secure it to the rear profile.



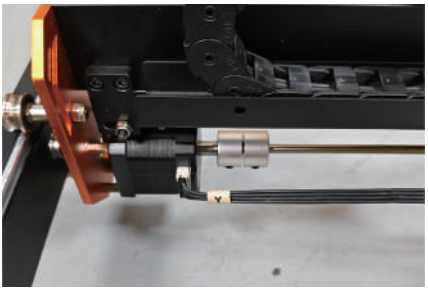


④ Loosen the coupling screws, move the X-axis assembly to the rear of the machine, and ensure that the left and right sliders contact the Y-axis limit posts. Then tighten the coupling screws. X-axis calibration is now complete.

STEP 5. Connect the wires and air pipes

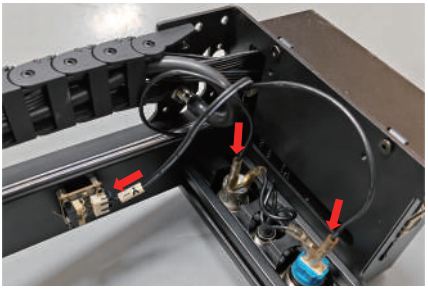


① Connect the X-axis sensor (-X), X-axis motor (X), laser power cable, and air pipe.



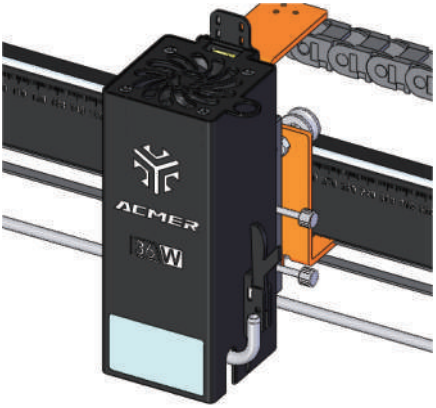
②Connect the Y-axis motor (Y).

③Use cable ties to secure the wires from steps ① and ②.

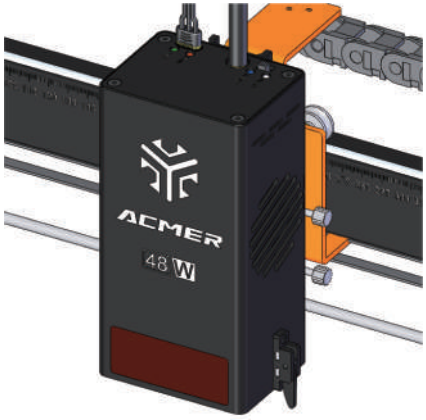


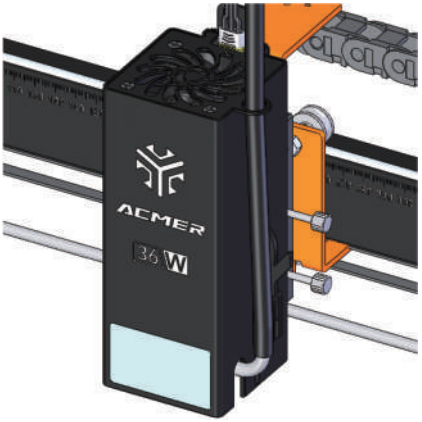
④ Connect the Y-axis sensor (-Y) and power switch cable.

STEP 6. Install laser module and wire



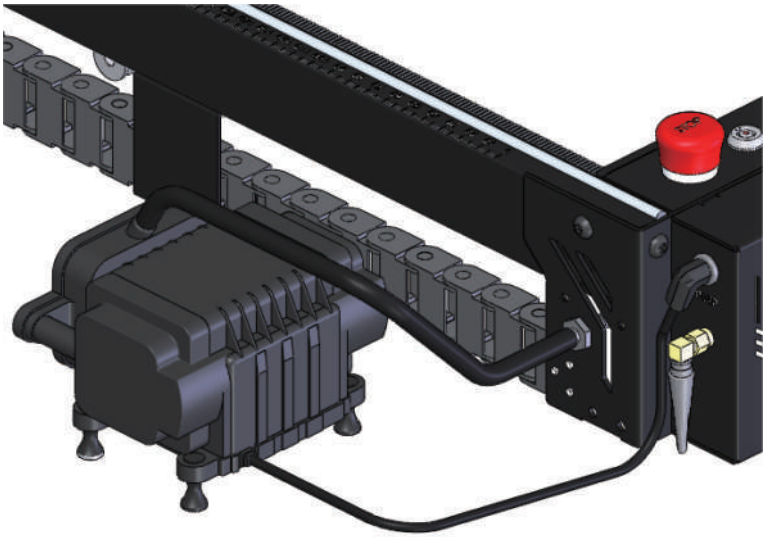
Loosen the knob screw, slide the laser down the slide slot, and tighten the knob screw to fix the laser.



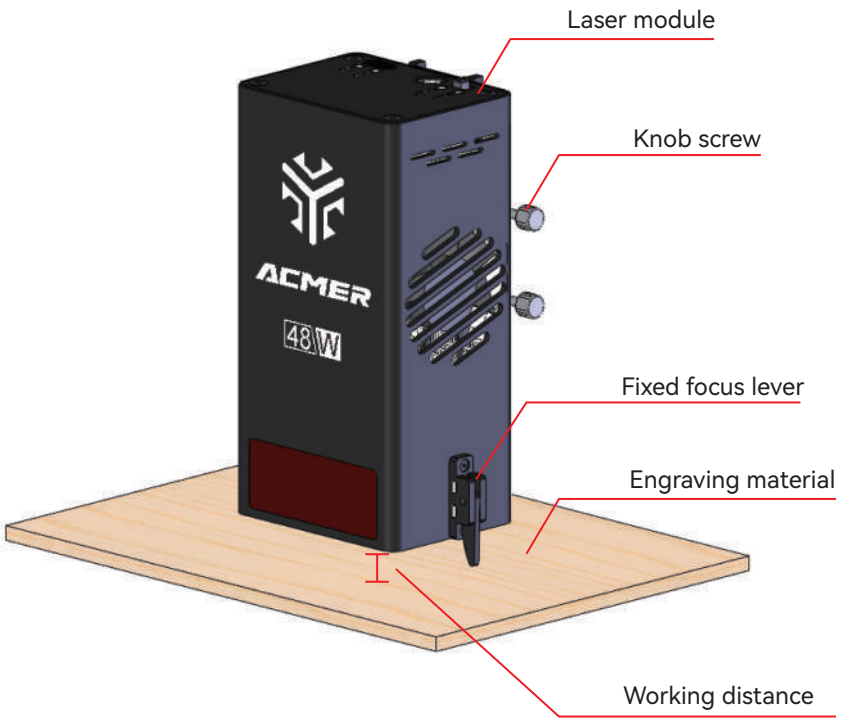


Follow the laser cable and gas tube.

STEP 7. Install the air pump



7. Focus Adjustment



Focus Adjustment Steps:

1. Loosen the knob screw to ensure the laser module can slide up and down.

2. Lower the focus lever and slide the laser module until it contacts the surface of the engraving material.

3. Tighten the knob screw to secure the laser module and move the focus lever upward.

4. Focus adjustment is complete.

Note: The working distance for the 36W laser module is 5mm. The working distance for the 48W laser module is 8mm.

8.Software Tutorials

ACMER laser engravers can operate seamlessly with ACMER Studio, while also supporting mainstream laser software such as LaserGRBL and Lightburn.

ACMER Studio is a dedicated software designed for ACMER laser engraving equipment. It integrates various functions including device connection, engraving mode selection, graphic editing, and laser parameter settings, enabling users to conveniently complete the entire laser engraving process from design creation to execution. It is compatible with Windows systems (Win XP/Win 7/in 8/Win10/Win 11) and macOS. You can download it directly from the official ACMER website at [www.acmerlaser.com].

LaserGRBL is an open source, easy to use and powerful software that is perfect for novice users to use, but LaserGRBL only supports Windows systems (WinX-P/Win 7/Win 8/ Win 10/Win 11). For Mac users, you can choose to operate LightBurn, which is also an excellent engraving software, but it costs $60 (with afree one-month trial for the first installation), and this software also supports Windows systems.

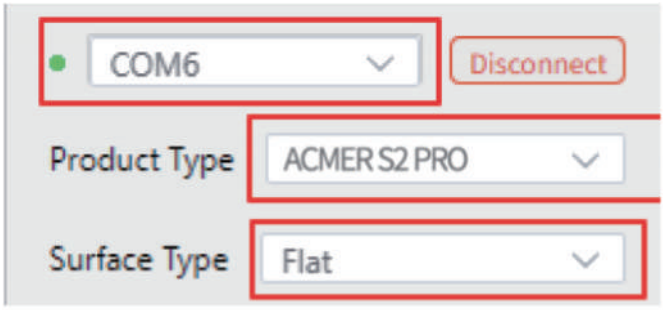
If you want to download and install LaserGRBL, you can visit the official website of LaserGRBL (www.lasergrbl.com) to download; for LightBurn users, you can visit LightBurn official website (www.lightburnsoftware.com) to download.

Note:If you are using this software for the first time, please download the CH340 driver from our official website at www.acmerlaser.com.

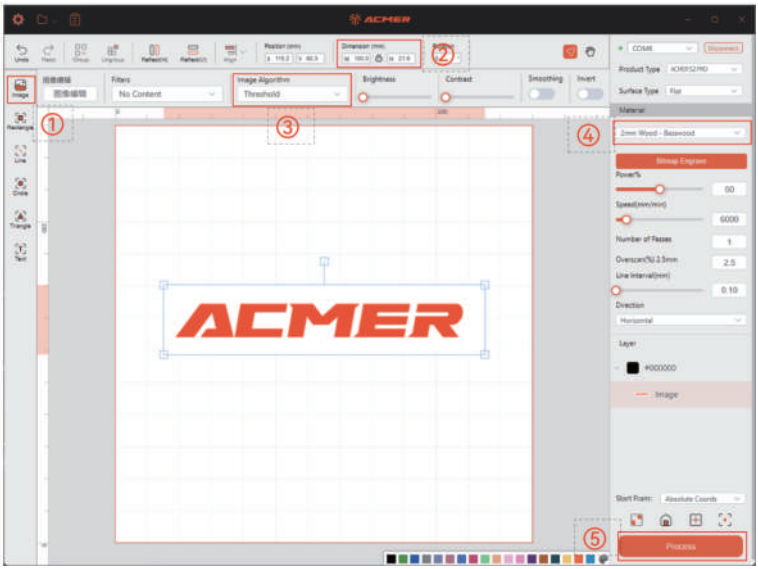
8.1 ACMER Studio Tutorials

8.1.1 Use the USB cable to connect the computer to the machine and power on the machine.

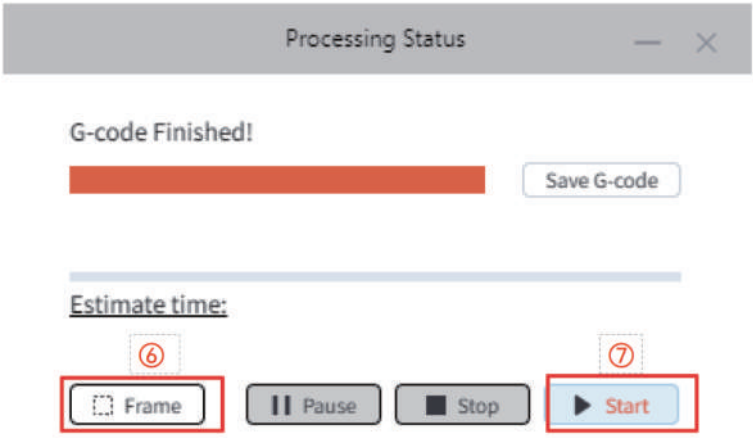
8.1.2 Select the COM port, machine model, and surface type.



8.1.3 Start Engraving.



① Impor image;
② Adjust size;
③ Select appropriate image algorithm;
④ Select material;
⑤ Click "Process".

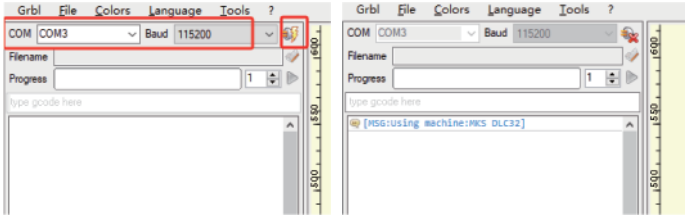


⑥ Click "Frame" to preview the engraving area;
⑦ Click "Star" to begin engraving.

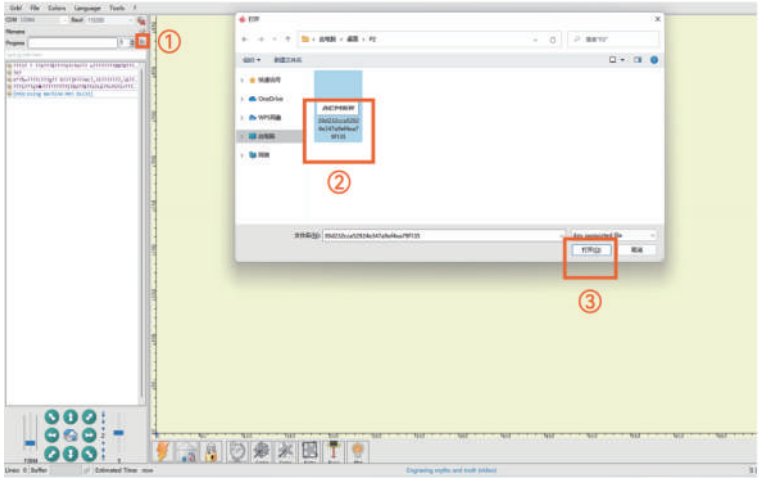
8.2 LaserGRBL Tutorials

8.2.1 Use the USB cable to connect the computer to the machine and power on the machine.

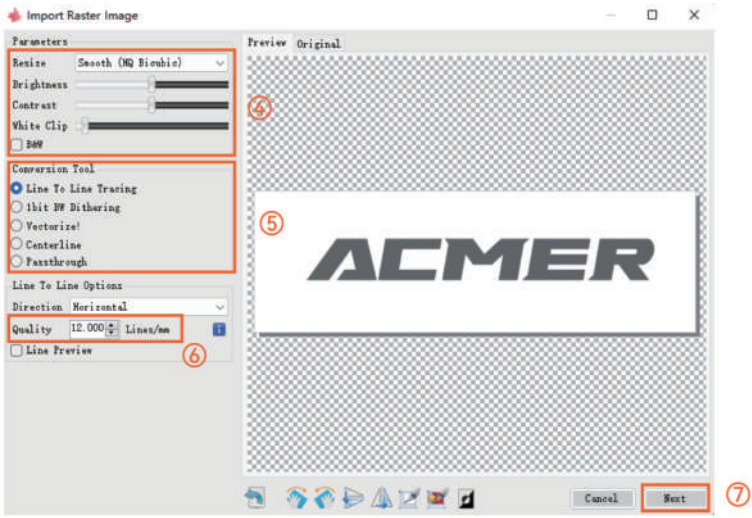
8.2.2 Select the correct COM and Baud, then click "Connect".



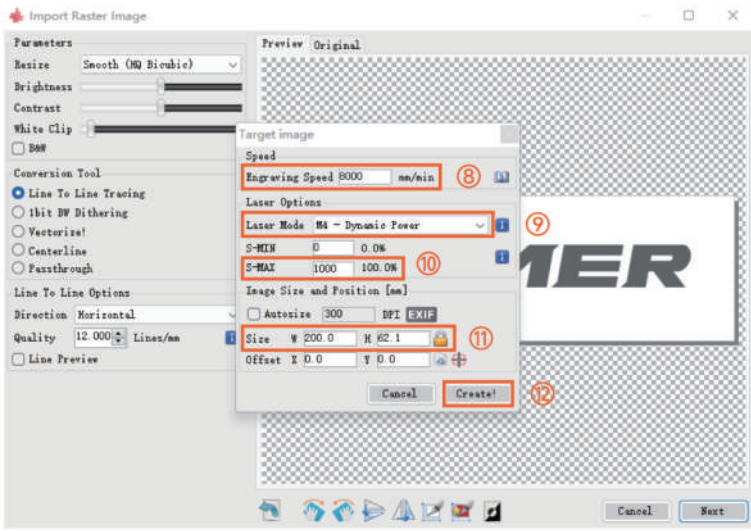
8.2.3 Start engraving



① Click the "Open File" button.
② Select the engraving file.
③ Click "OPEN".



④ Brightness, contrast, black and white limit adjustment.
⑤ Select the engraving mode.
⑥ Adjust the engraving quality
⑦ Click "NEXT".



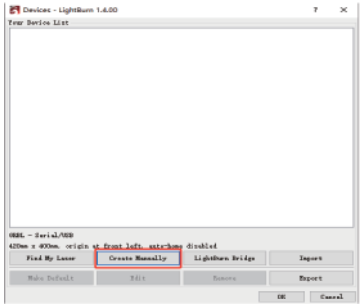
⑧ Select the engraving speed.
(suggest to refer to the engraving parameter table).
⑨ Select "Laser Mode", "M4" for engraving and "M3" for cutting.
⑩ Set the engraving power, 1000 is the maximum power.
⑪ Set the engraving size.
⑫ Click "Create".

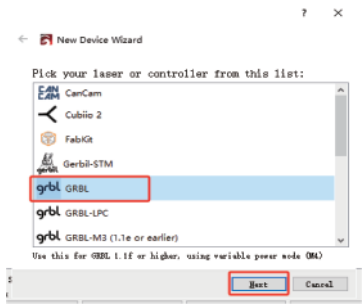
⑬ Click "Frame" to preview the engraving boundary.
⑭ Click "Run Program" to start engraving.

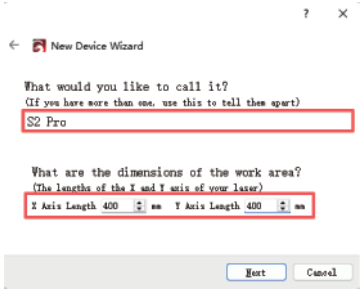
8.3Lightburn Tutorials

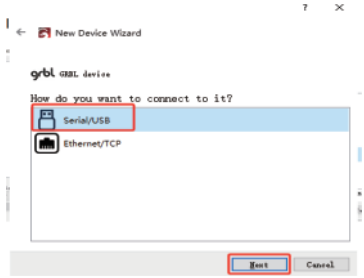
8.3.1 Use the USB cable to connect the computer to the machine and power on the machine.

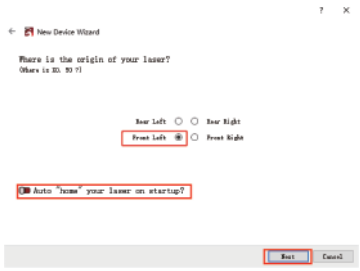
8.3.2 Importing Devices

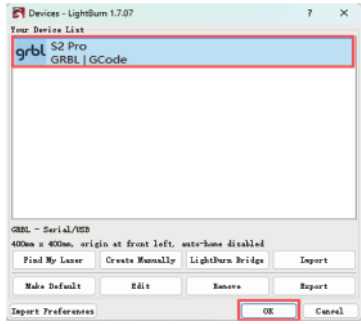






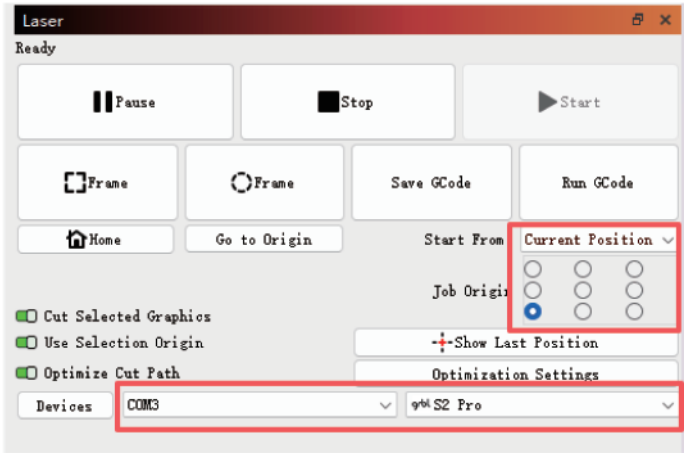




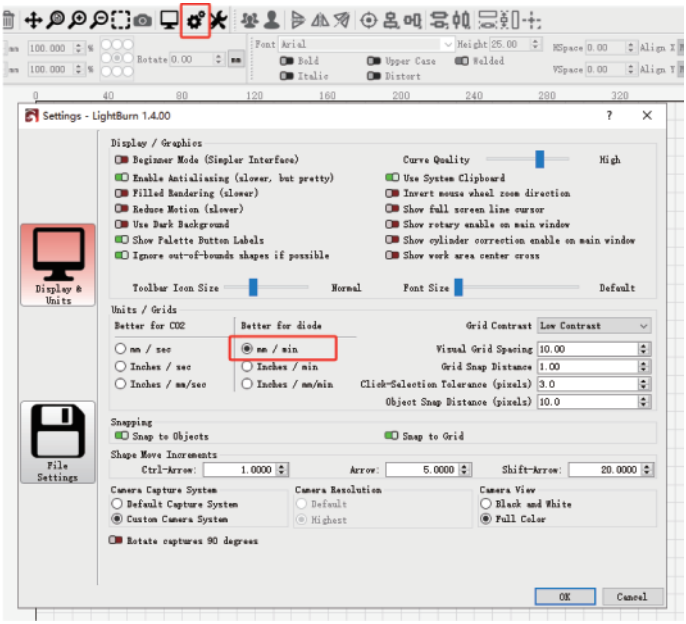


8.3.3 Connecting the machine

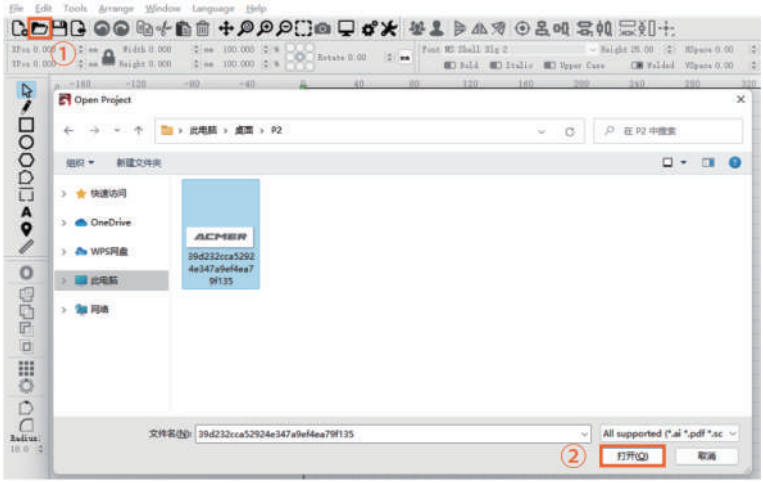
Note: Job Origin needs to be set to lower left



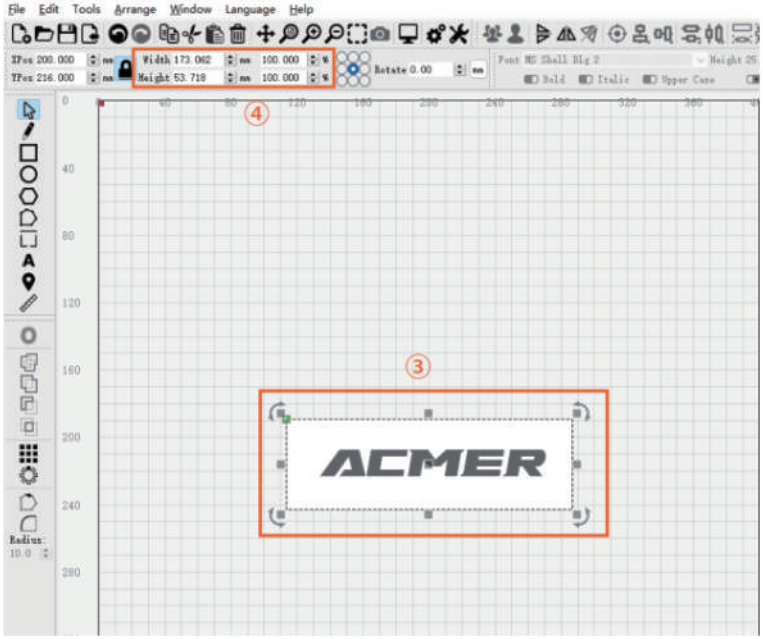
8.3.4 Software Settings



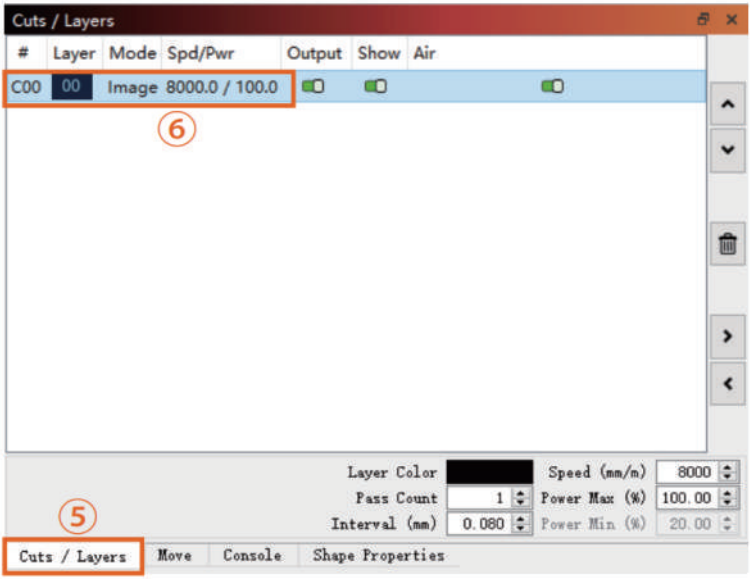
8.3.5 Start engraving



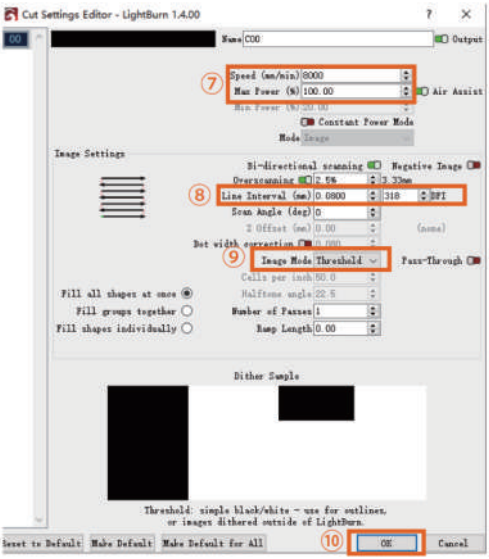
① Click "OPEN" to select the engraving file.
② Click "Open".



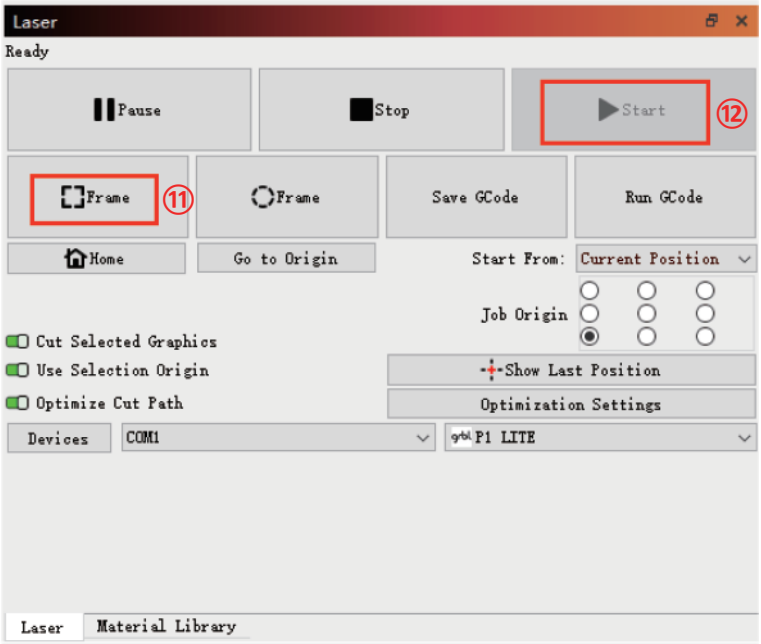
③ Click on the picture area.
④ Adjust the engraving size.



⑤ Select "Cuts/Layers".
⑥ Double-click the red box area.



⑦ Adjust the carving speed and carving power (suggest to refer to the carving parameter table).
⑧ Set the engraving quality.
⑨ Set the engraving mode.
⑩ Click "OK".



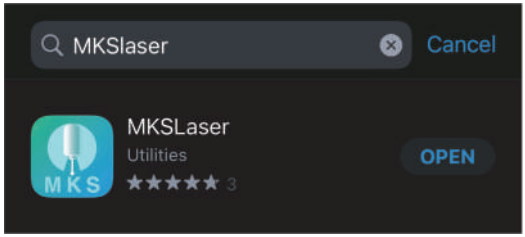
⑪ Click "Frame" to preview the engraving area.
⑫ Click "Start" to start engraving.

9. Mobile App Installation and Usage Guide

9.1 Download and Install the App

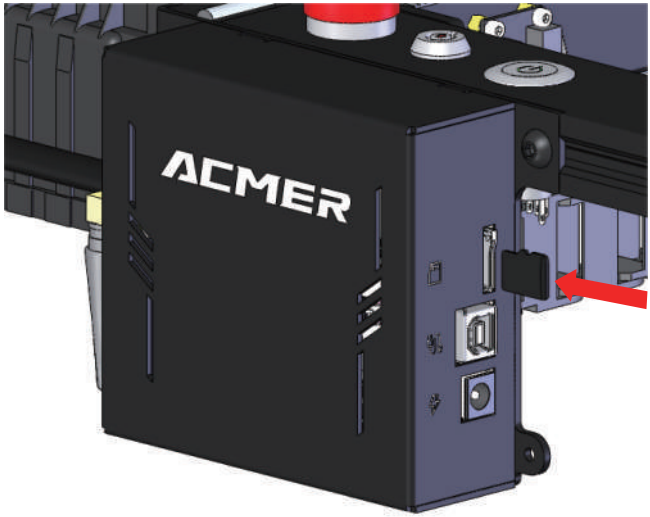
9.1.1 Android users can scan the QR code below to download and install the app.

9.1.2 iOS users can search for "MKSLaser" in the app store to download and install the app.



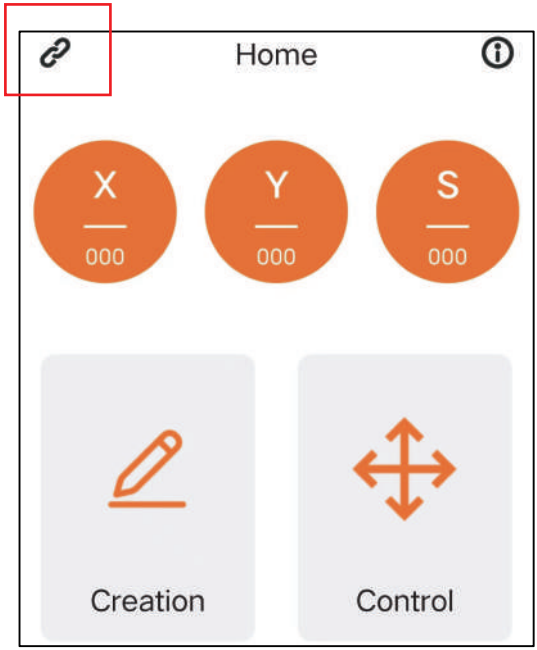
9.2 App Connection Guide

9.2.1 Insert the TF card into the card slot on the back of the front frame of the machine.

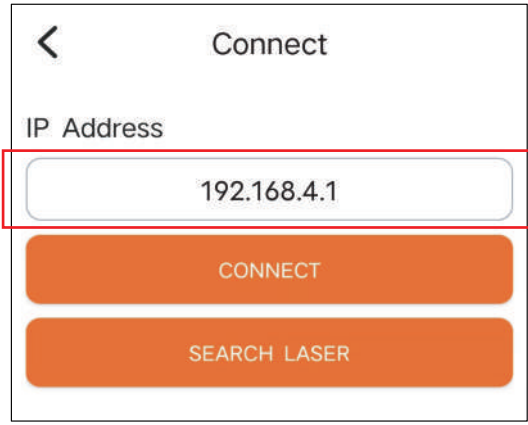


9.2.2 After powering on the machine, use your phone's WIFI function to search for the network name "ACMER_S2 Pro_XXXXX" and enter the password to connect. The initial password is: 12345678

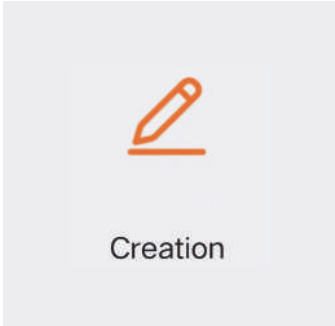
9.2.3 Open the mobile app and click the icon in the top left corner.



9.2.4 Enter the IP address (the default IP address is "192.168.4.1"), then click "CONNECT" to connect.



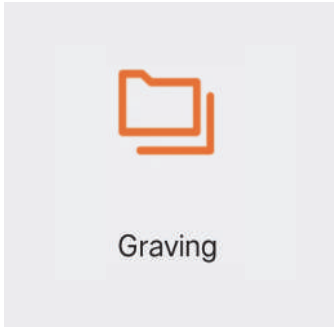
9.3 Functional Introduction



You can use this function for self-creation, such as doodling and writing. You can also access your phone's photo album or take photos for engraving.

This function can be used to control the motion of the laser and also to return the laser to the origin.

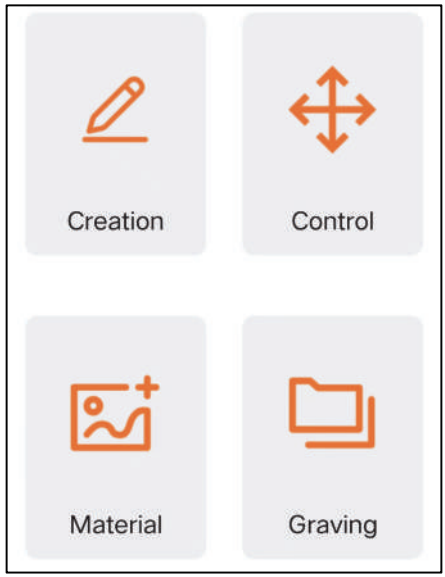
You can select the engraving files prepared for you by ACMER.



You can store the programs generated by the computer software on the TF card and access the files on the TF card for offline engraving through this function.

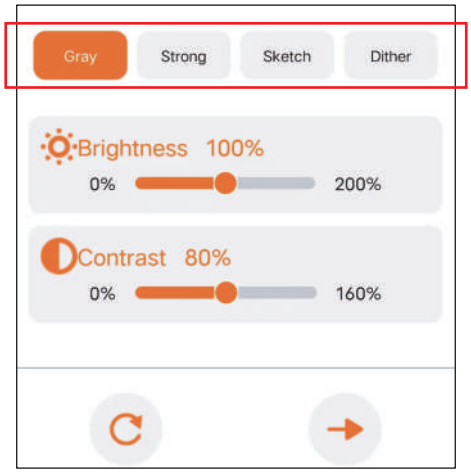
9.4 Usage Guide

9.4.1 Click "Material"

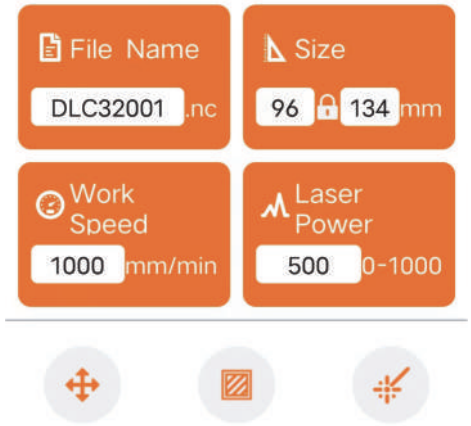


9.4.2 Select the material you want to engrave;

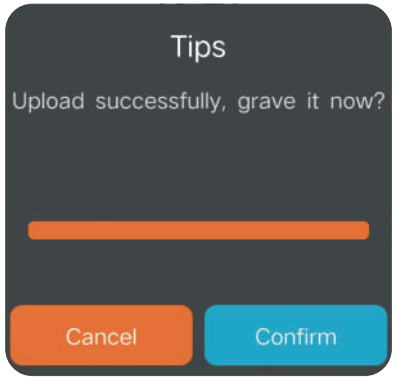
9.4.3 Select the engraving effect you want;



9.4.4 Set your engraving size and set your engraving parameters based on your engraving material.



9.4.5 Click upload and wait for the upload in image one; click "Confirm" to start engraving after the upload is successful in image two;



9.4.6 Wait for the engraving to complete.

S2 Pro -36W Engraving Parameter

Material \ Parameter	Speed (mm/min)	Max Power(%)	Min Power(%)	Line Interval	TIP
Basswood Plywood	15000	60	0	0.12	
MDF	20000	60	0	0.12	
Bamboo	18000	60	0	0.12	
Paulownia Wood	20000	60	0	0.12	
Cork	20000	50	0	0.12	
Kraft Paper	20000	65	0	0.12	
Black Acrylic	15000	70	0	0.12	
Black Alumina	15000	70	0	0.1	
Stainless Steel	10000	90	0	0.1	
Black Rubber	15000	60	0	0.1	
ROCK	15000	80	0	0.1	
Ceramics	1000	100	0	0.1	
Light-colored felt	3000	50	0	0.12	
Dark-colored felt	12000	20	0	0.12	

Notice:

1. Please note the above units of speed and power and convert them in Lightburn and LaserGRBL by yourself.
2. For some materials with low burning point, it is not recommended to set the cutting speed below 100mm/min, otherwise there may be a risk of burning!
3. Even for the same material, the effect will be different for different surface treatment or different colors, so you need to adjust the speed and power according to different objects. In addition, please adjust the focal length to the best, to have better effect.
4. Can't engrave or cut directly on glossy metal plates, transparent materials, reflective materials, some white or translucent materials, etc. You need to blacken it with a marker or use the color paper to cover the surface to carve.

S2 Pro -36W Cutting Parameter

Material \ Parameter	Thickness	Speed (mm/min)	Max Power(%)	Pass Count
Basswood Plywood	3mm	1000	100	1
Basswood Plywood	4mm	900	100	1
Basswood Plywood	6mm	500	100	1
Basswood Plywood	8mm	400	100	1
Basswood Plywood	10mm	200	100	1
Basswood Plywood	12mm	150	100	1
MDF	3mm	750	100	1
MDF	5mm	350	100	1
Bamboo	2mm	1000	100	1
Bamboo	4mm	600	100	1
Bamboo	6mm	450	100	1
Cork	6mm	1000	100	1
Kraft Paper	1mm	3000	100	1
Kraft Paper	2mm	1500	100	1
Black Acrylic	5mm	300	100	1
Black Acrylic	6mm	200	100	2
Black Acrylic	8mm	150	100	2
EPE Foam Board	10mm	1500	50	1

Notice:
1. Please note the above units of speed and power and convert them in Lightburn and LaserGRBL by yourself.
2. For some materials with low burning point, it is not recommended to set the cutting speed below 100mm/min, otherwise there may be a risk of burning!
3. Even for the same material, the effect will be different for different surface treatment or different colors, so you need to adjust the speed and power according to different objects. In addition, please adjust the focal length to the best, to have better effect.
4. Can't engrave or cut directly on glossy metal plates, transparent materials, reflective materials, some white or translucent materials, etc. You need to blacken it with a marker or use the color paper to cover the surface to carve.

S2 Pro-48W Engraving Parameter

Material \ Parameter	Laser Mode	Speed (mm/min)	Max Power(%)	Min Power(%)	Line Interval	TIP
Basswood Plywood	Precise	15000	80	0	0.12	
MDF	Precise	15000	80	0	0.12	
Bamboo	Precise	14000	80	0	0.12	
Cork	Precise	13000	60	0	0.12	
Paulownia Wood	Precise	15000	60	0	0.12	
Black Alumina	Precise	10000	80	0	0.10	
Stainless Steel	Precise	9000	80	0	0.10	
Kraft Paper	Precise	12000	60	0	0.12	
Black Acrylic	Precise	12000	80	0	0.12	
ROCK	Precise	12000	80	0	0.10	
Black Rubber	Precise	15000	80	0	0.12	
PU Leather	Precise	15000	50	0	0.12	
Basswood Plywood	Normal	15000	60	0	0.12	
MDF	Normal	15000	60	0	0.12	
Bamboo	Normal	13000	70	0	0.12	
Cork	Normal	15000	50	0	0.12	
Paulownia Wood	Normal	13000	50	0	0.12	
Black Alumina	Normal	12000	70	0	0.10	
Stainless Steel	Normal	14000	60	0	0.10	
Kraft Paper	Normal	14000	40	0	0.12	
Black Acrylic	Normal	14000	70	0	0.12	
ROCK	Normal	15000	50	0	0.10	
Black Rubber	Normal	14000	50	0	0.12	
PU Leather	Normal	12000	30	0	0.12	

Notice:

1. Please note the above units of speed and power and convert them in Lightburn and LaserGRBL by yourself.
2. For some materials with low burning point, it is not recommended to set the cutting speed below 100mm/min, otherwise there may be a risk of burning!
3. Even for the same material, the effect will be different for different surface treatment or different colors, so you need to adjust the speed and power according to different objects. In addition, please adjust the focal length to the best, to have better effect.
4. Can't engrave or cut directly on glossy metal plates, transparent materials, reflective materials, some white or translucent materials, etc. You need to blacken it with a marker or use the color paper to cover the surface to carve.

S2 Pro-48W Cutting Parameter

Material \ Parameter	Thickness	Laser Mode	Speed (mm/min)	Max Power(%)	Pass Count
Basswood Plywood	2mm	Normal	1400	100	1
Basswood Plywood	3mm	Normal	900	100	1
Basswood Plywood	4mm	Normal	800	100	1
Basswood Plywood	6mm	Normal	600	100	1
Basswood Plywood	8mm	Normal	300	100	1
Basswood Plywood	10mm	Normal	200	100	1
MDF	3mm	Normal	900	100	1
MDF	5mm	Normal	400	100	1
Bamboo	2mm	Normal	1100	100	1
Bamboo	4mm	Normal	700	100	1
Cork	5mm	Normal	1400	100	1
Kraft Paper	1mm	Normal	3500	100	1
Kraft Paper	2mm	Normal	1600	100	1
Black Acrylic	3mm	Normal	500	100	1
Black Acrylic	5mm	Normal	300	100	1
Black Acrylic	6mm	Normal	200	100	2
Black Acrylic	8mm	Normal	150	100	2
EPE Foam Board	10mm	Normal	10000	100	1
PU Leather	1mm	Normal	5500	100	1

Notice:

1. Please note the above units of speed and power and convert them in Lightburn and LaserGRBL by yourself.
2. For some materials with low burning point, it is not recommended to set the cutting speed below 100mm/min, otherwise there may be a risk of burning!
3. Even for the same material, the effect will be different for different surface treatment or different colors, so you need to adjust the speed and power according to different objects. In addition, please adjust the focal length to the best, to have better effect.
4. Can't engrave or cut directly on glossy metal plates, transparent materials, reflective materials, some white or translucent materials, etc. You need to blacken it with a marker or use the color paper to cover the surface to carve.

10. After Sale

To ensure high-quality after-sales support, we recommend visiting ourofficial website (acmerlaser.com) for detailed information onafter-sales and warranty.

Additionally, our Frequently Asked Questions (FAQs) page provides answers to common questions to help you better utilize the product.

If you have any questions or need further assistance, please feel free to contact us via email at support@acmerlaser.com. Our support team will provide you with prompt assistance to ensure timely resolution of your issues.

US

https://acmerlaser.com

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