



# ACMER K1



# ACMER K1

## Manual V1.0

Thank you for choosing our product and placing your trust in our brand. We are committed to providing high-quality products and exceptional service to all our customers, and we greatly appreciate your support.

To help you utilize and maintain your product, we offer several support options:

**Social Media Channels:**

Join our Facebook group and follow our Facebook page by scanning the QR code below



Facebook Group:

<https://www.facebook.com/groups/1614455505653986>



Facebook

**Online Video Learning:**

Learn how to operate the laser engraving machine through our official YouTube channel (@acmerlaser)

**Email Support:**

Contact our after-sales team directly through the support email:  
[support@acmer3d.com](mailto:support@acmer3d.com)

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## 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	286*273*190mm
Engraving Size	150*150mm
Machine Weight	2.4Kg
Focal Length	2.5/3.5/7W: 2mm 12W: 4mm
Laser Power	2.5W/3.5W/7W/12W
Laser Wavelength	450±5nm
Power Input	DC 12V
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



Machine\*1



Laser Module\*1



Power Adapter\*1



USB Cable\*1



Goggles\*1



Basswood\*1



Aluminum sheet\*2



Kraft Paper\*1



Tool kit × 1



Engraving pad × 1

## 5. Machine Description

Power Switch

USB Socket

USB Socket

Trachea Wire Hole

Protective Cover

Laser Module

Light

Y-Belt Tensioner





Take out the laser module and insert the module into the sliding slot. When the red protective cover touches the surface of the focal length measurement block, tighten the side knob to fix it and complete the focusing.

Laser protection cover

2/4mm-Focal length measurement sheet

the surface of the engraved object

## Focusing principle.

1. The focal length of the laser module is fixed and cannot be changed.
2. The specific position of the laser focus is 2/4mm directly below the edge of the laser module protective cover.
3. We provide a 2/4mm thick measuring sheet to help find the laser focus.
4. When the laser is focused on the surface of the engraved object, it will exert its maximum engraving effect.

## 6. 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/Win 8/Win 10/Win 11) and macOS. You can download it directly from the official ACMER website at [[www.acmerlaser.com](http://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 (Win XP/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 a free one-month trial for the first installation), and this software also supports Windows systems.

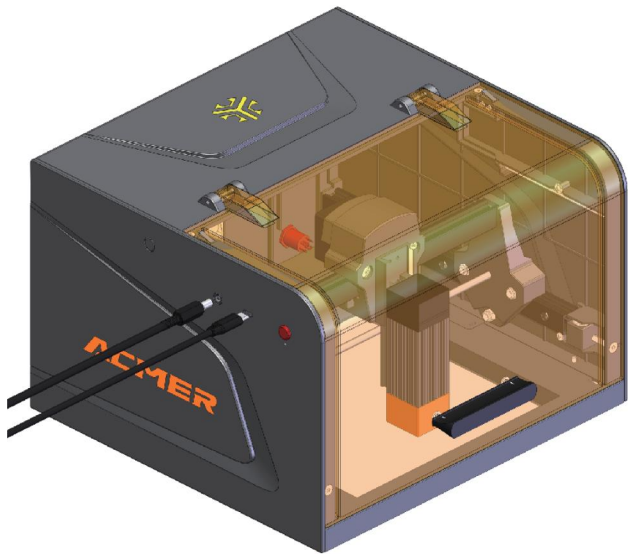
If you want to download and install LaserGRBL, you can visit the official website of LaserGRBL ([www.lasergrbl.com](http://www.lasergrbl.com)) to download; for LightBurn users, you can visit LightBurn official website ([www.lightburnsoftware.com](http://www.lightburnsoftware.com)) to download.

### Note:

If you are using this software for the first time, please download the CH340 driver from our official website at [www.acmerlaser.com](http://www.acmerlaser.com).

6.1 ACMER STUDIO Tutorials

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



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

COM6

▼

Disconnect

Product Type

ACMER S1

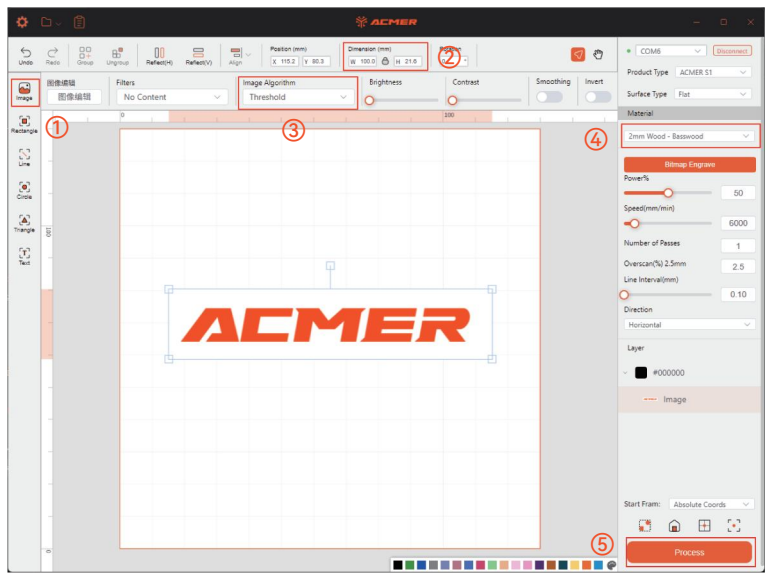
▼

Surface Type

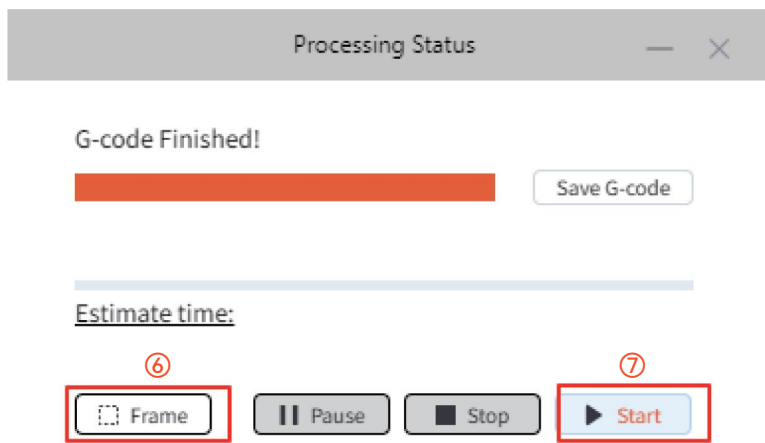
Flat

▼

6.1.3 Start Engraving



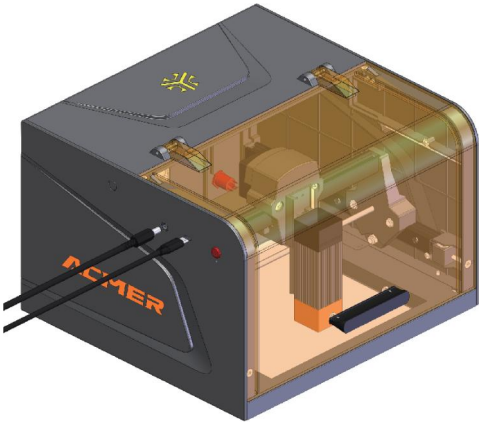
- ① Import image;
- ② Adjust size;
- ③ Select appropriate image algorithm;
- ④ Select material;
- ⑤ Click "Process"



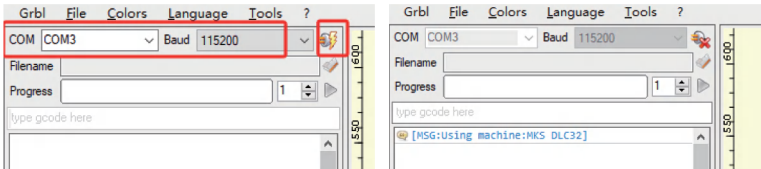
- ⑥ Click "Frame" to preview the engraving area;
- ⑦ Click "Start" to begin engraving.

6.2LaserGRBL Tutorials

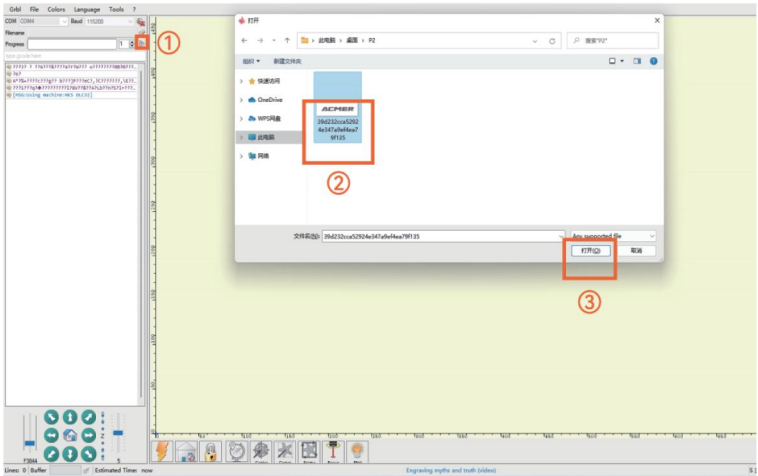
6.2.1 Use the USB cable to connect the computer to the machine and power on the machine.



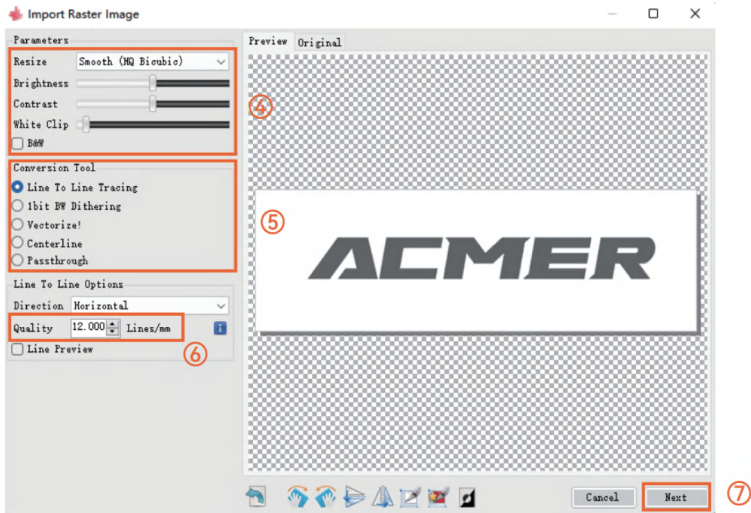
6.2.2 Select the correct COM and Baud, then click "Connect".



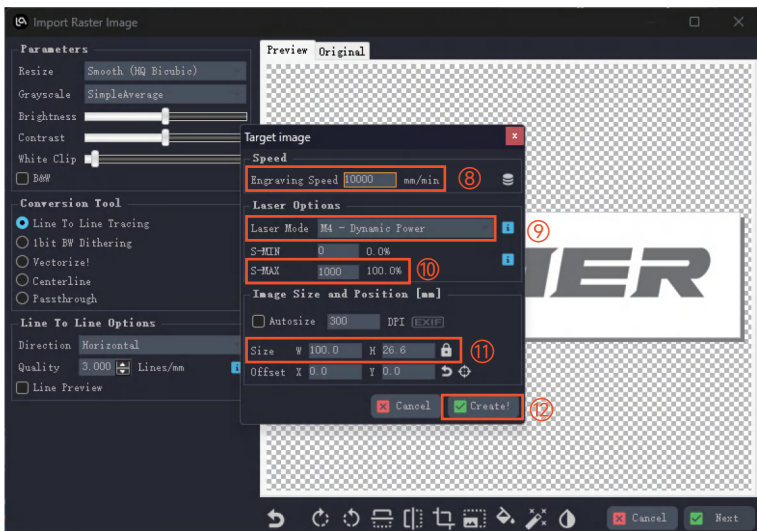
6.2.3 Start engraving



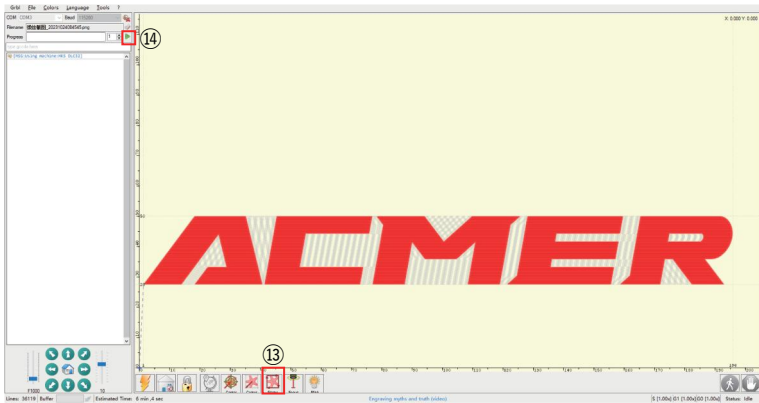
- ① Click the "Open File" button.
- ② Select the engraving file.
- ③ Click "OPEN".



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



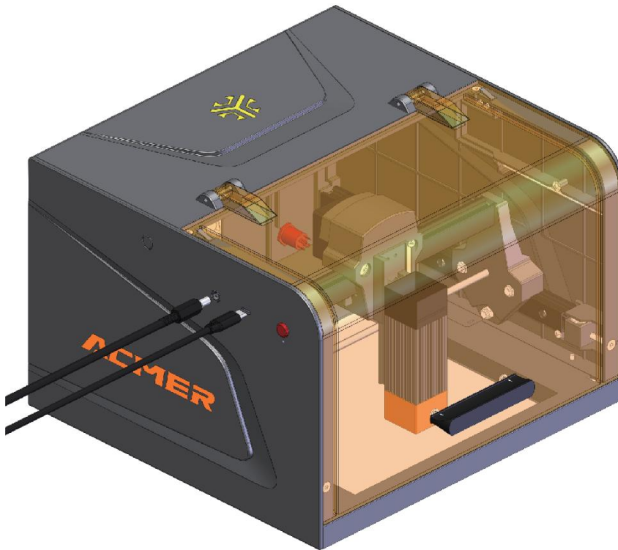
- ⑧ Select the engraving speed.  
(suggest to refer to the engraving parameter table).
- ⑨ Select "Laser Mode", "M4" for engraving and "M3" for cutting.
- ⑩ Set the engraving power, 1000 is the maximum power.
- ⑪ Set the engraving size.
- ⑫ Click "Create".



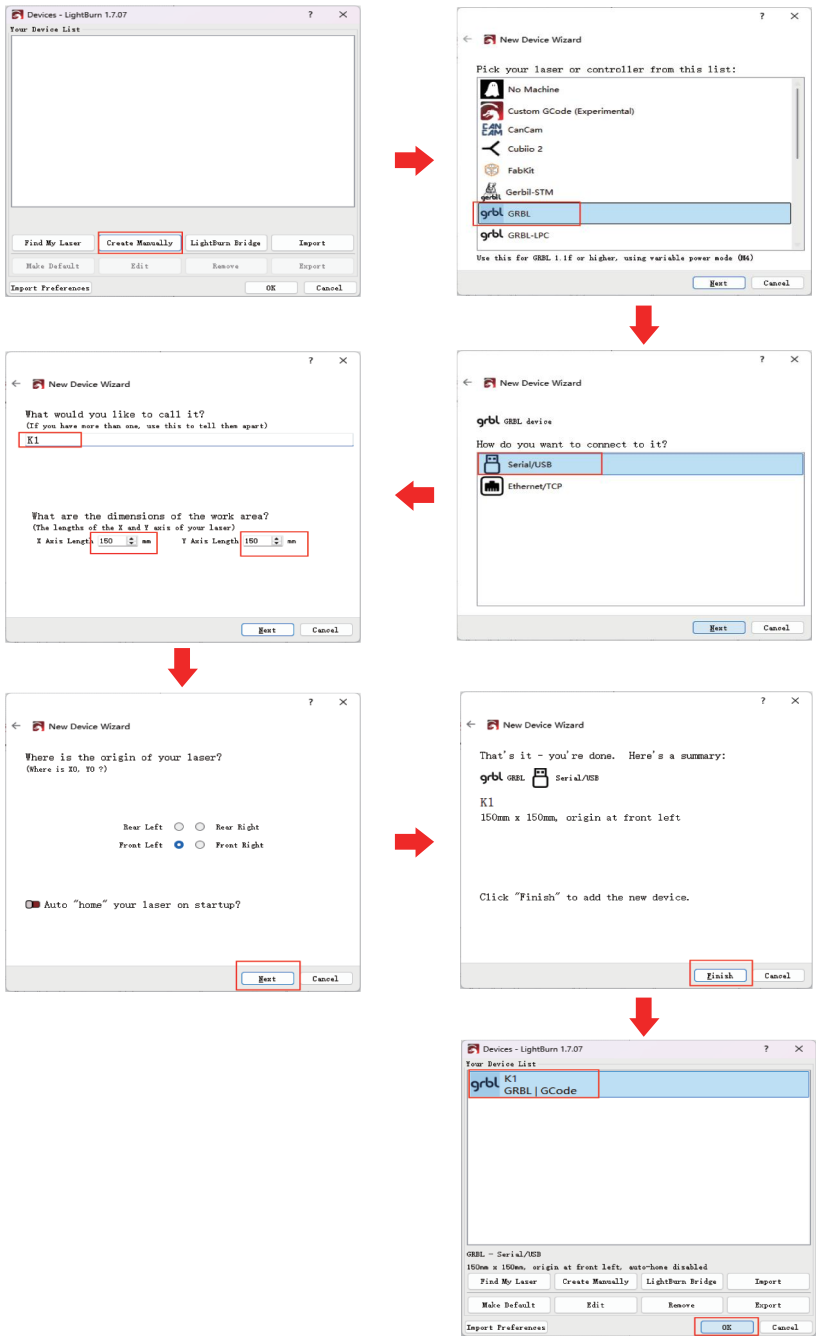
- ⑬ Click "Frame" to preview the engraving boundary.
- ⑭ Click "Run Program" to start engraving.

### 6.3 Lightburn Tutorials

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

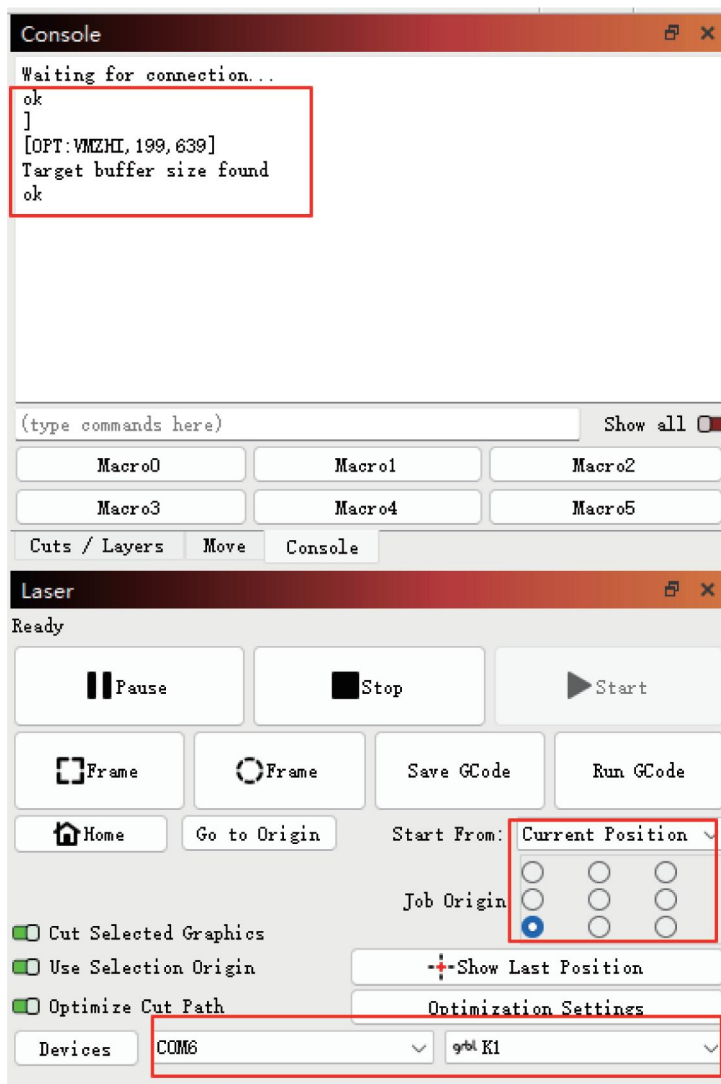


6.3.2 Importing Devices

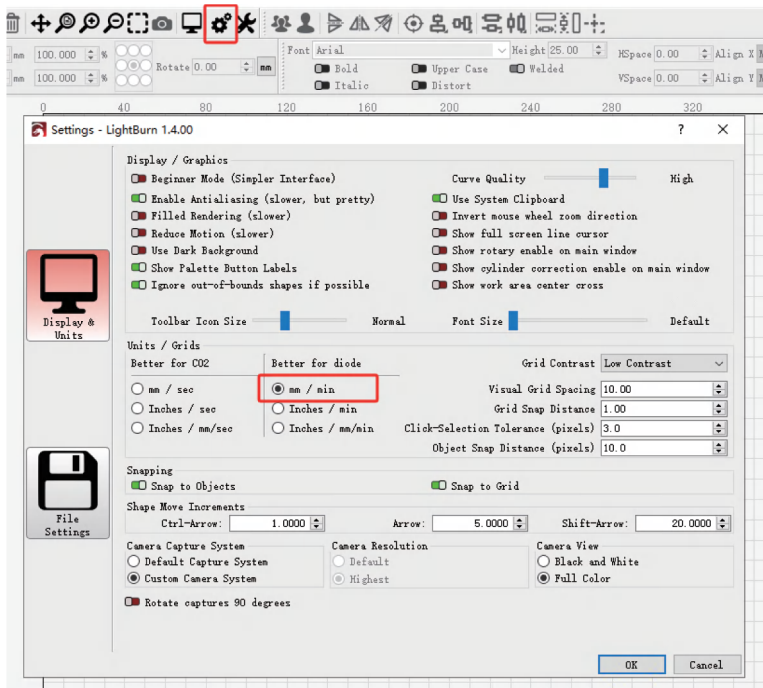


### 6.3.3 Connecting the machine

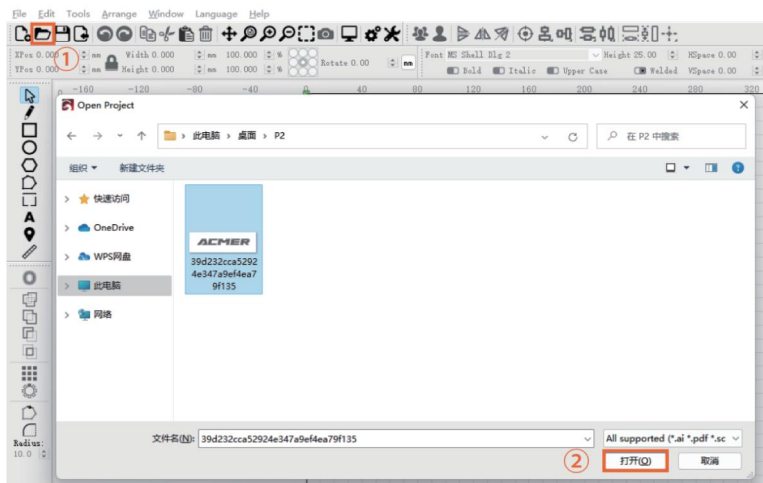
Note: Job Origin needs to be set to lower left



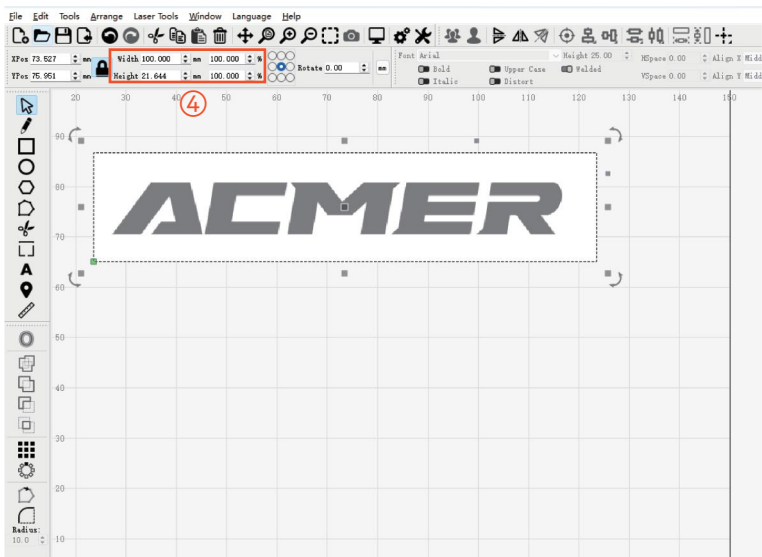
6.3.4 Software Settings



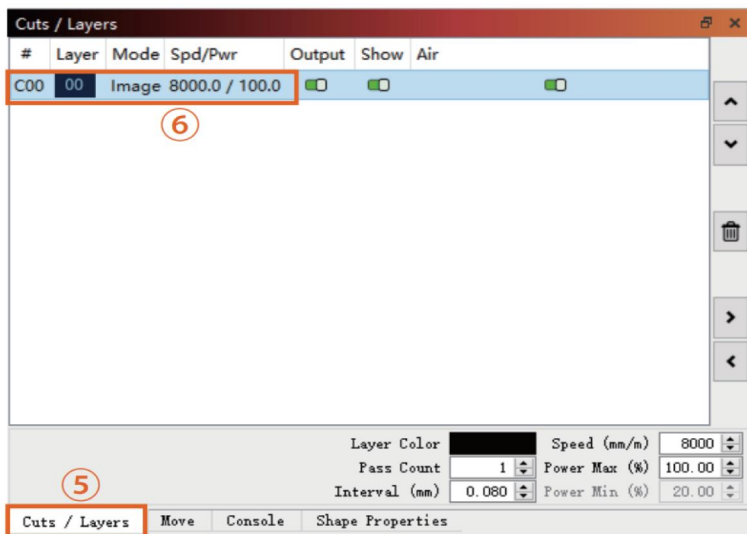
6.3.5 Start engraving



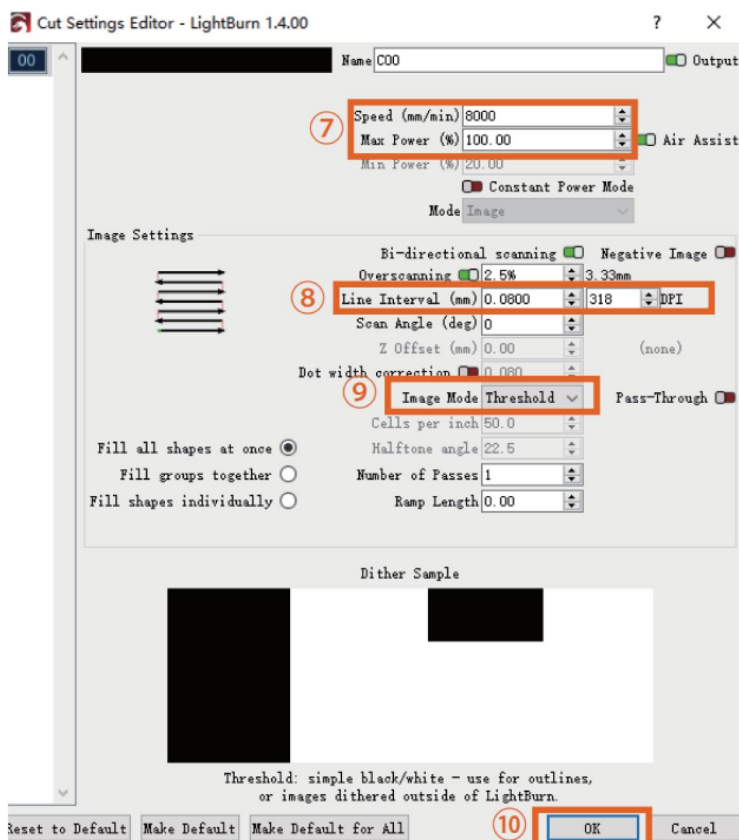
- ① Click "OPEN" to select the engraving file.
- ② Click "Open".



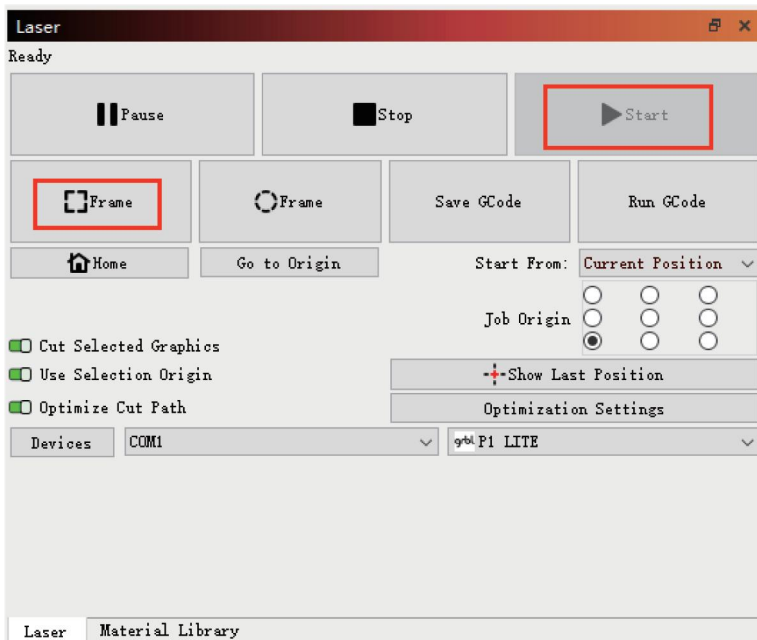
- ③ Click on the picture area.
- ④ Adjust the engraving size.



- 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.

## 7. Recommended parameters for common materials

	2.5W Compressed Spot						
	Material	Engraved	Power	Speed (mm/min)	Times /Pass count	Laser options	Quality (lines/mm)
1	Kraft paper	YES	80%	3000	1	M4	10
2	Plywood	YES	90%	1500	1	M4	10
3	Solid wood	YES	90%	1000	1	M4	10
4	Bamboo	YES	90%	1000	1	M4	10
5	Cork	YES	90%	1000	1	M4	10
6	Leather	YES	60%	1500	1	M4	10
7	Silica gel	YES	80%	1000	1	M4	10
8	Dark Felt	YES	60%	1500	1	M4	10
9	Tin plate	YES	80%	2500	1	M4	10

	3.5W Compressed Spot						
	Material	Engraved	Power	Speed (mm/min)	Times /Pass count	Laser options	Quality (lines/mm)
1	Kraft paper	YES	60%	7000	1	M4	10
2	Plywood	YES	60%	5000	1	M4	10
3	Solid wood	YES	80%	2000	1	M4	10
4	Bamboo	YES	80%	4500	1	M4	10
5	Cork	YES	60%	4000	1	M4	10
6	Transparent Acrylic (need blacking)	YES	60%	3000	1	M4	10
7	Glass(need blacking)	YES	100%	1000	1	M4	10
8	Light-colored Felt	YES	70%	8000	1	M4	10
9	Dark Felt	YES	70%	8000	1	M4	10
10	Leather	YES	70%	8000	1	M4	10
11	Silica gel	YES	50%	1000	1	M4	10
12	Cobblestone	YES	90%	80	1	M4	10
13	Ceramics	YES	100%	1000	1	M4	10
14	Black alumina	YES	80%	5000	1	M4	10
15	Tin plate	YES	90%	1600	1	M4	10
16	Non-reflective Stainless steel(Matte surface)	YES	90%	150	1	M4	10
17	Non-reflective Stainless steel(smooth surface)	YES	90%	100	2	M4	10

### 3.5W Compressed Spot

	Material	Cut	Power	Speed (mm/min)	Times /Pass count	Laser options
1	Kraft paper(0.5mm)	YES	95%	800	1	M3
2	Kraft paper(1.0mm)	YES	95%	500	1	M3
3	Kraft paper(2.0mm)	YES	95%	200	1	M3
4	Plywood(2.0mm)	YES	100%	150	1	M3
5	Solid wood(2.0mm)	YES	95%	60	2	M3
6	Bamboo(2.0mm)	YES	95%	80	1	M3
7	Red Acrylic(1.0mm)	YES	100%	110	1	M3
8	Red Acrylic(2.0mm)	YES	100%	80	1	M3
9	Black Acrylic(1mm)	YES	100%	110	1	M3
10	Black Acrylic(2mm)	YES	100%	80	1	M3
11	Light-colored Felt(1mm)	YES	80%	1000	1	M3

### 7W Compressed Spot

	Material	Cut	Power	Speed (mm/min)	Times /Pass count	Laser options
1	Kraft paper(0.5mm)	YES	100%	1500	1	M3
2	Kraft paper(1.0mm)	YES	100%	1000	1	M3
3	Kraft paper(2.0mm)	YES	100%	300	1	M3
4	Plywood(2.0mm)	YES	100%	200	1	M3
5	Solid wood(2.0mm)	YES	95%	200	2	M3
6	Bamboo(2.0mm)	YES	95%	150	1	M3
7	Red Acrylic(1.0mm)	YES	100%	150	1	M3
8	Red Acrylic(2.0mm)	YES	100%	100	1	M3
9	Black Acrylic(1mm)	YES	100%	150	1	M3
10	Black Acrylic(2mm)	YES	100%	100	1	M3
11	Light-colored Felt(1mm)	YES	80%	1500	1	M3

	<b>7W Compressed Spot</b>						
	<b>Material</b>	<b>Engraved</b>	<b>Power</b>	<b>Speed (mm/min)</b>	<b>Times /Pass count</b>	<b>Laser options</b>	<b>Quality (lines/mm)</b>
1	Kraft paper	YES	50%	8000	1	M4	10
2	Plywood	YES	50%	6000	1	M4	10
3	Solid wood	YES	80%	3500	1	M4	10
4	Bamboo	YES	80%	4500	1	M4	10
5	Cork	YES	60%	5000	1	M4	10
6	Transparent Acrylic (need blacking)	YES	70%	6000	1	M4	10
7	Glass(need blacking)	YES	100%	2000	1	M4	10
8	Light-colored Felt	YES	50%	8000	1	M4	10
9	Dark Felt	YES	50%	8000	1	M4	10
10	Leather	YES	50%	8000	1	M4	10
11	Silica gel	YES	50%	2000	1	M4	10
12	Cobblestone	YES	90%	80	1	M4	10
13	Ceramics	YES	100%	2000	1	M4	10
14	Black alumina	YES	80%	7000	1	M4	10
15	Tin plate	YES	90%	3000	1	M4	10
16	Non-reflective Stainless steel(Matte surface)	YES	90%	200	1	M4	10
17	Non-reflective Stainless steel(smooth surface)	YES	90%	150	2	M4	10

	<b>12W Compressed Spot</b>						
	<b>Material</b>	<b>Engraved</b>	<b>Power</b>	<b>Speed (mm/min)</b>	<b>Times /Pass count</b>	<b>Laser options</b>	<b>Quality (lines/mm)</b>
1	Kraft paper	YES	60%	8000	1	M4	10
2	Plywood	YES	70%	8000	1	M4	10
3	Solid wood	YES	60%	8000	1	M4	10
4	Bamboo	YES	60%	8000	1	M4	10
5	Cork	YES	70%	10000	1	M4	10
6	Transparent Acrylic (need blacking)	YES	80%	4000	1	M4	10
7	Glass(need blacking)	YES	80%	1500	1	M4	10
8	Light-colored Felt	YES	60%	10000	1	M4	10
9	Dark Felt	YES	60%	8000	1	M4	10
10	Leather	YES	50%	7000	1	M4	10
11	Silica gel	YES	50%	5000	1	M4	10
12	Cobblestone	YES	90%	200	1	M4	10
13	Ceramics	YES	90%	300	1	M4	10
14	Black alumina	YES	90%	4000	1	M4	10
15	Tin plate	YES	70%	8000	1	M4	10
16	Non-reflective Stainless steel(Matte surface)	YES	90%	2000	1	M4	10
17	Non-reflective Stainless steel(smooth surface)	YES	90%	1500	1	M4	10

## 12W Compressed Spot

	Material	Cut	Power	Speed (mm/min)	Times /Pass count	Laser options
1	Kraft paper(1.0mm)	YES	80%	600	1	M3
2	Kraft paper(2.0mm)	YES	80%	400	1	M3
3	Plywood(3mm)	YES	95%	240	1	M3
4	Plywood(5mm)	YES	95%	100	1	M3
5	Plywood(8mm)	YES	95%	50	3	M3
6	Solid wood(5mm)	YES	95%	120	1	M3
7	Solid wood(8mm)	YES	95%	50	2	M3
8	MDF board(3.0mm)	YES	95%	150	1	M3
9	MDF board(5.0mm)	YES	95%	100	1	M3
10	Bamboo(2.0mm)	YES	95%	200	1	M3
11	Bamboo(5.0mm)	YES	95%	100	1	M3
12	Red Acrylic(2.0mm)	YES	95%	100	1	M3
13	Black Acrylic(3mm)	YES	95%	120	1	M3
14	Black Acrylic(5mm)	YES	95%	60	1	M3
15	Light-colored Felt(1mm)	YES	50%	500	1	M3
16	Dark Felt(2mm)	YES	50%	300	1	M3
17	Leather(0.5mm)	YES	80%	1600	1	M3

## 8. After Sale

To ensure high-quality after-sales support, we recommend visiting our official website ([acmerlaser.com](https://acmerlaser.com)) for detailed information on after-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](mailto:support@acmerlaser.com). Our support team will provide you with prompt assistance to ensure timely resolution of your issues.



<https://acmerlaser.com>

Shenzhen Titan International Development Technology Co., Ltd.  
ADD: 501, Building 1, No. 6 Zhongyuguan Road, Yousong Community,  
Longhua Street, Longhua District, Shenzhen, Guangdong, China



CONTACT US

This device 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. 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.ct.

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.