ACMER



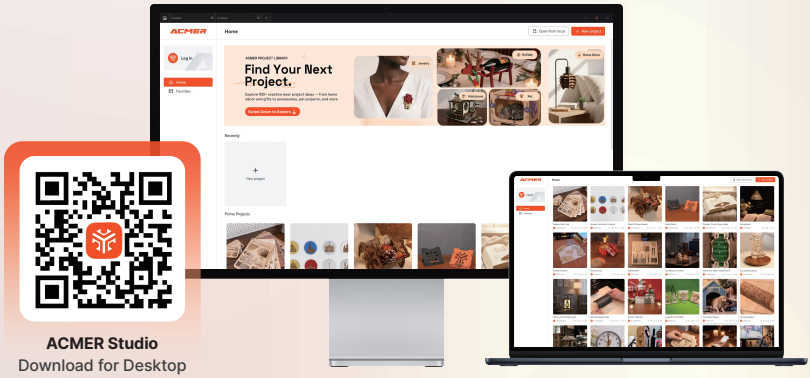
ACMER K1

Manual V1.4

Shenzhen Titan International Development Technology Co., Ltd.

ACMER Studio
Your All-in-One AI Laser Workspace

Empowering Smarter,
More Precise Laser Creation for Every Maker.



ACMER Studio
Download for Desktop

Design & AI tools
Start from templates, assets or AI images

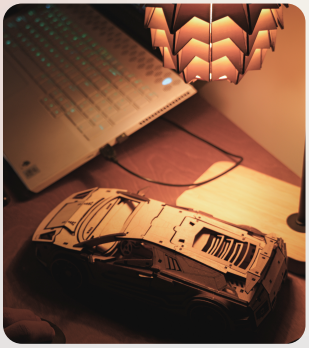
Edit with Pro Control
Vectors, photos and text on one canvas

Material & Alignment
Presets, camera preview and autofocus built in

Built for Production
Batch layout, nesting and path optimization

Explore laser project ideas, only in **ACMER Studio**







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.

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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	Diode 2.5/3.5/7W:2mm 12W:4mm IR 2W: 24mm
Laser Power	Diode:2.5W/3.5W/7W/12W IR:2W
Laser Wavelength	Diode: 450±5nm IR: 1064±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



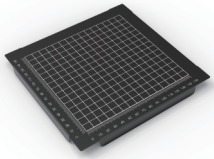
Aluminum sheet*2



Kraft Paper*1



Tool kit × 1



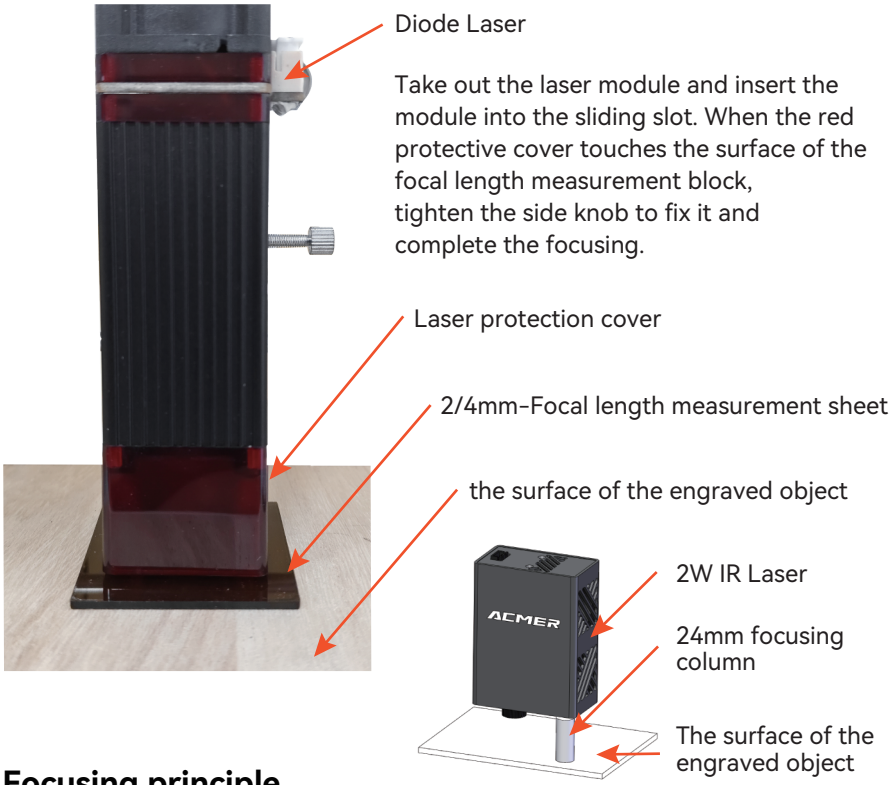
Engraving pad × 1

(*The IR laser set does not include Basswood and Kraft Paper.)

5. Machine Description







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. The IR laser does not have a laser protective cover, and the focal point is approximately 24mm away from the bottom of the housing.

3. We provide a 2/4mm thick measuring sheet to help find the laser focus. The IR laser uses a 24mm focusing column.

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].

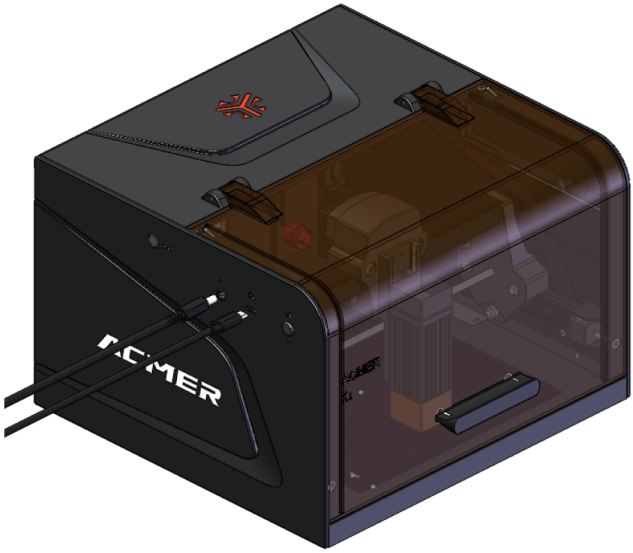
LaserGRBL is an open source, easy to use and powerful software that is perfect for novice users to use, but LaserGRBL only supports Windows systems (Win XP/Win 7/Win 8/ Win 10/Win 11). For Mac users, you can choose to operate LightBurn, which is also an excellent engraving software, and this software 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.

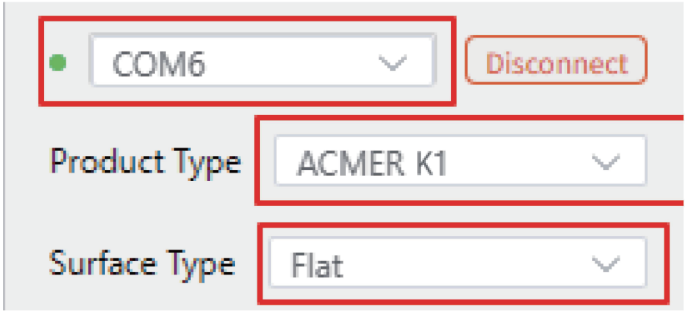
Note:
If you are using this software for the first time, please download the CH340 driver from our official website at www.acmerlaser.com.

6.1 ACMER STUDIO Tutorials

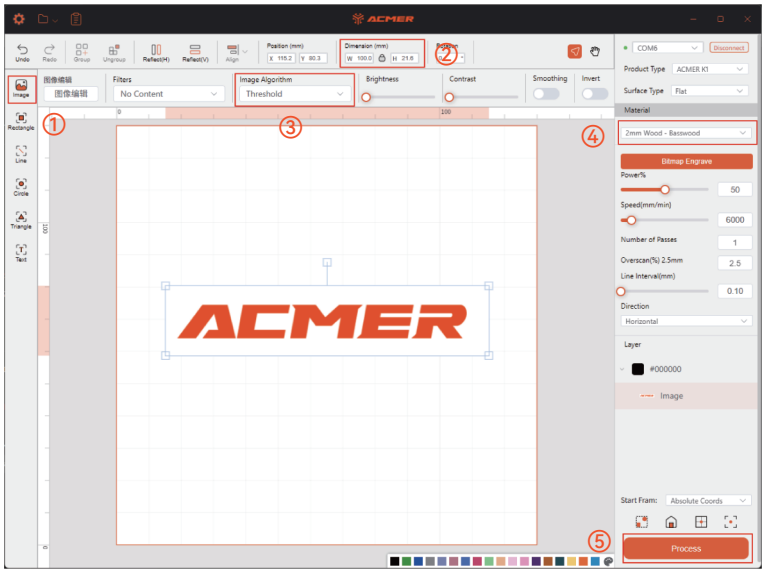
6.1.1 Use the USB cable to connect the computer to the machine and power on the machine.



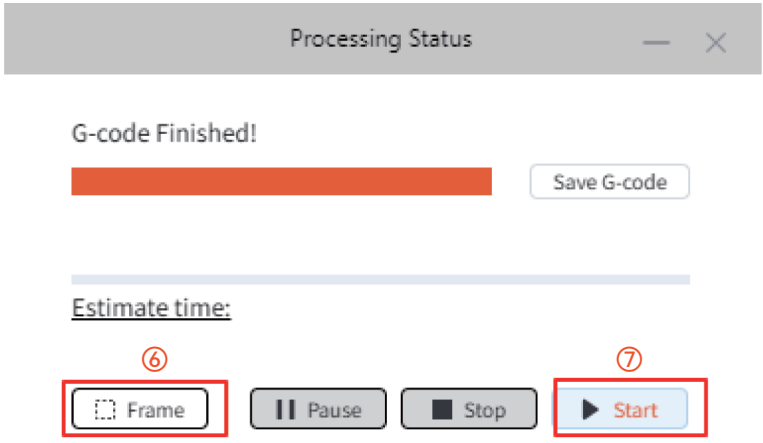
6.1.2 Select the COM port, machine model, and surface type.



6.1.3 Start Engraving



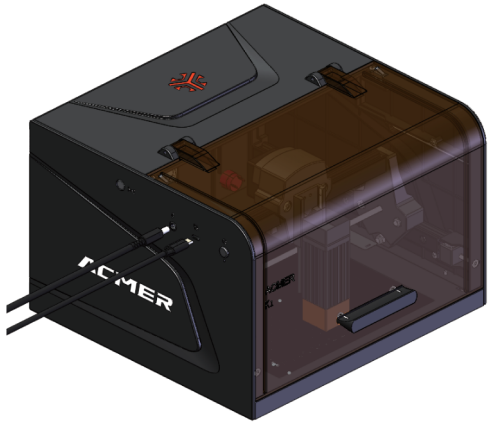
① Import image;
② Adjust size;
③ Select appropriate image algorithm;
④ Select material;
⑤ Click "Process"



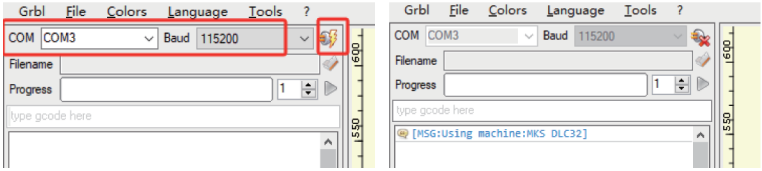
⑥ Click "Frame" to preview the engraving area;
⑦ Click "Start" to begin engraving.

6.2LaserGRBL Tutorials

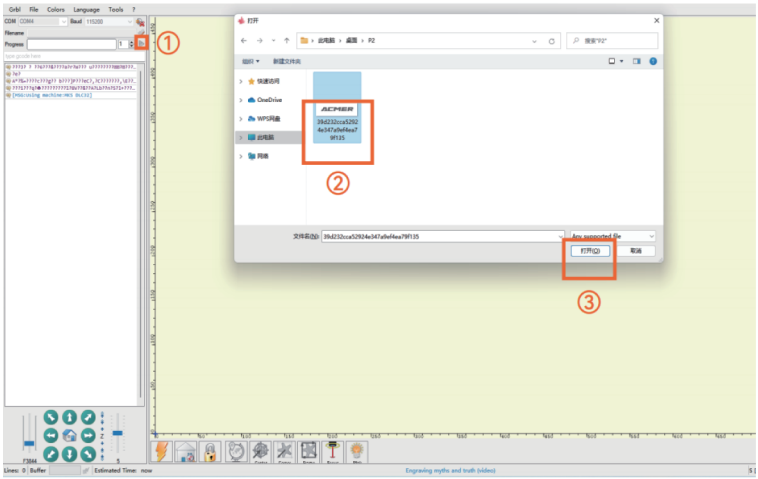
6.2.1 Use the USB cable to connect the computer to the machine and power on the machine.



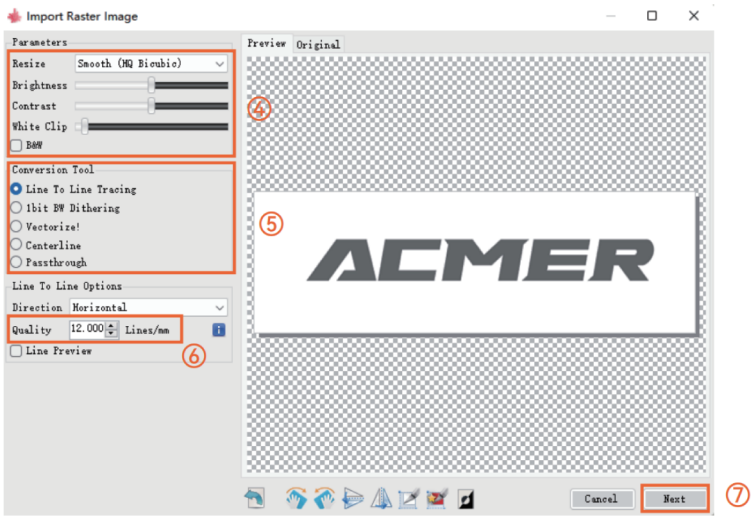
6.2.2 Select the correct COM and Baud, then click "Connect".



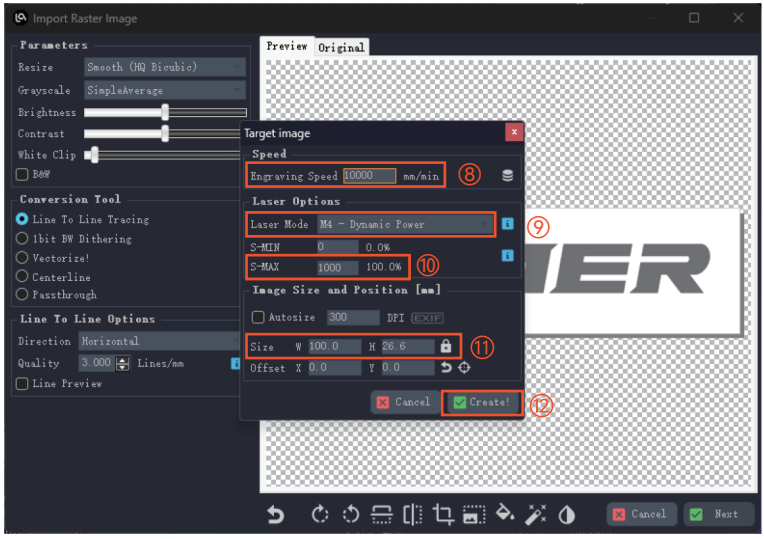
6.2.3 Start engraving



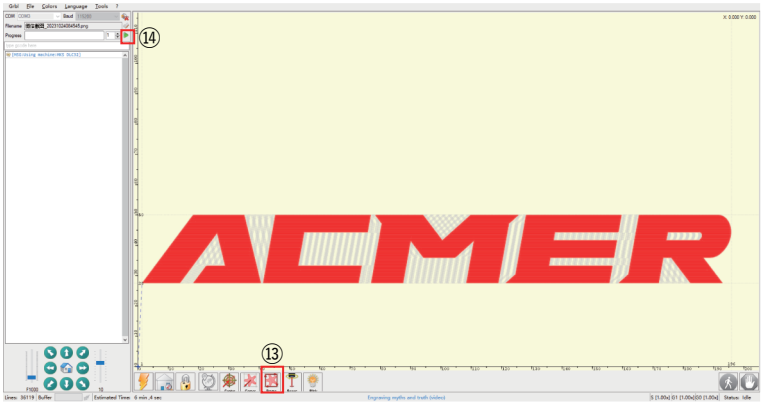
① Click the "Open File" button.
② Select the engraving file.
③ Click "OPEN".



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".

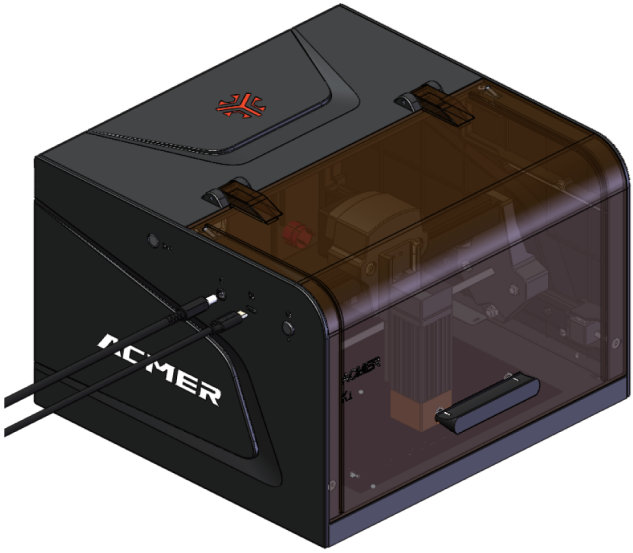


⑬ Click "Frame" to preview the engraving boundary.

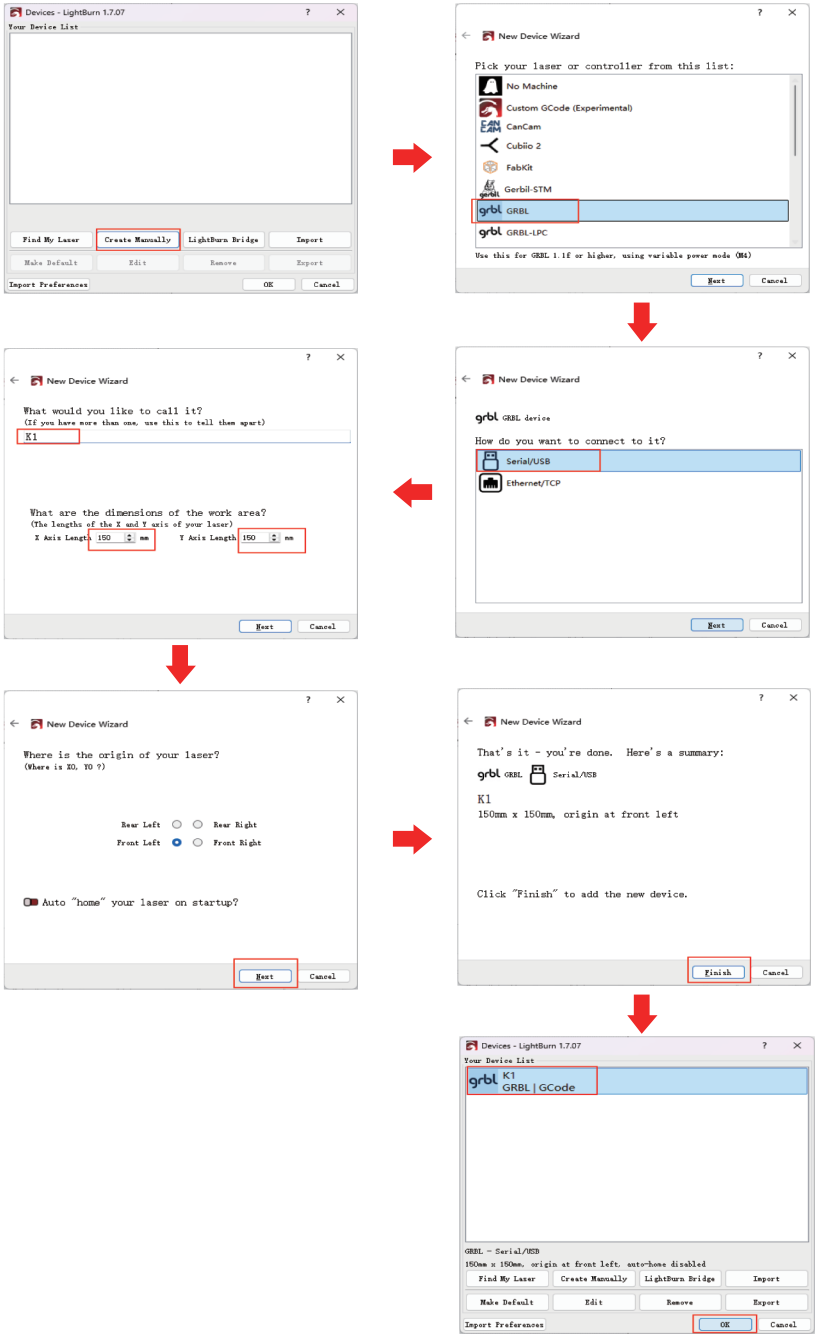
⑭ Click "Run Program" to start engraving.

6.3Lightburn Tutorials

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

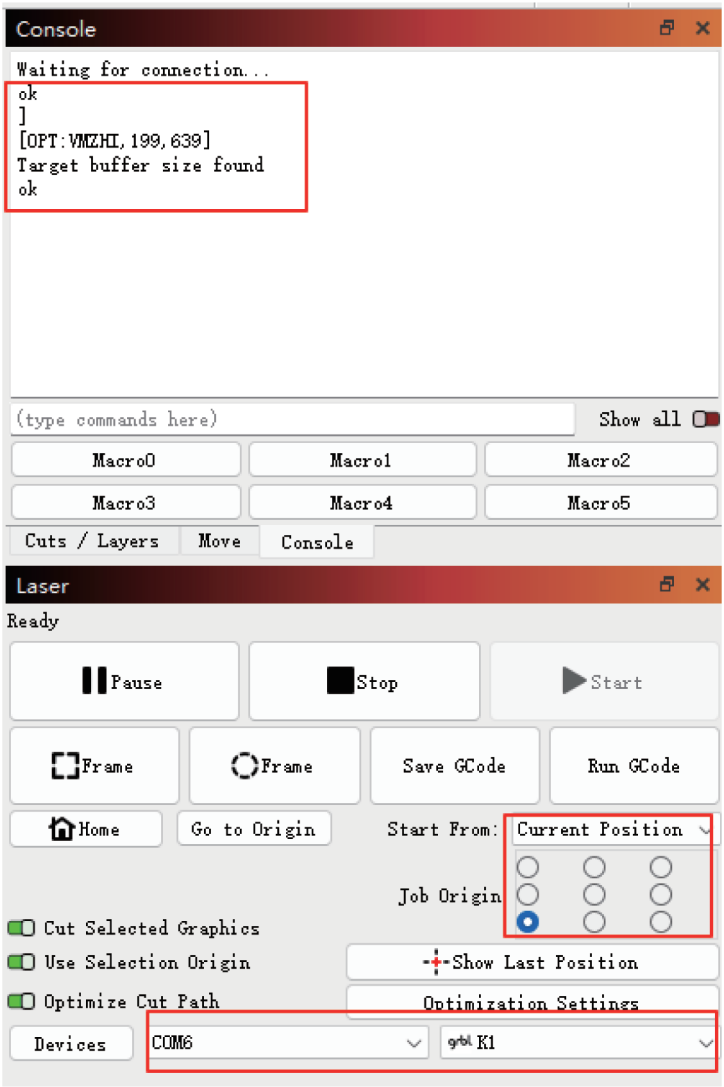


6.3.2 Importing Devices

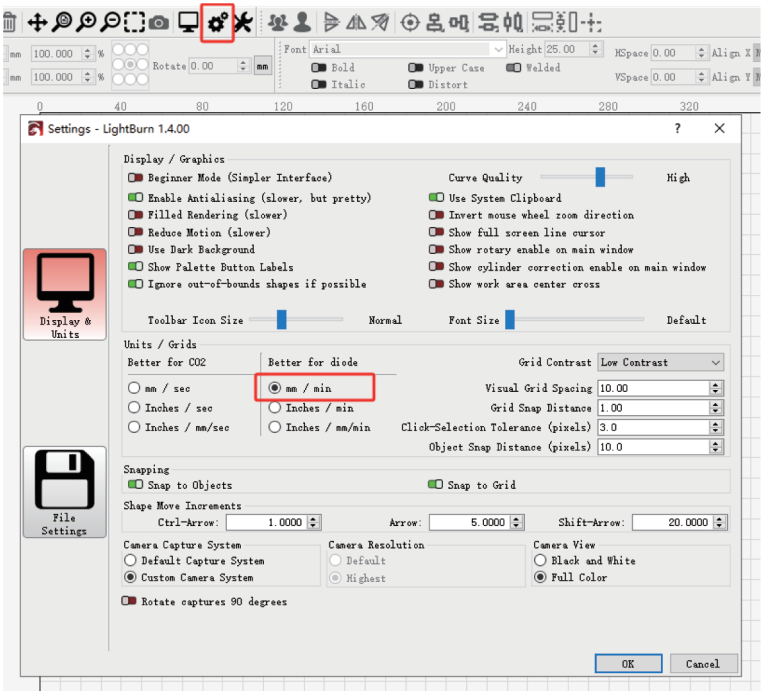


6.3.3 Connecting the machine

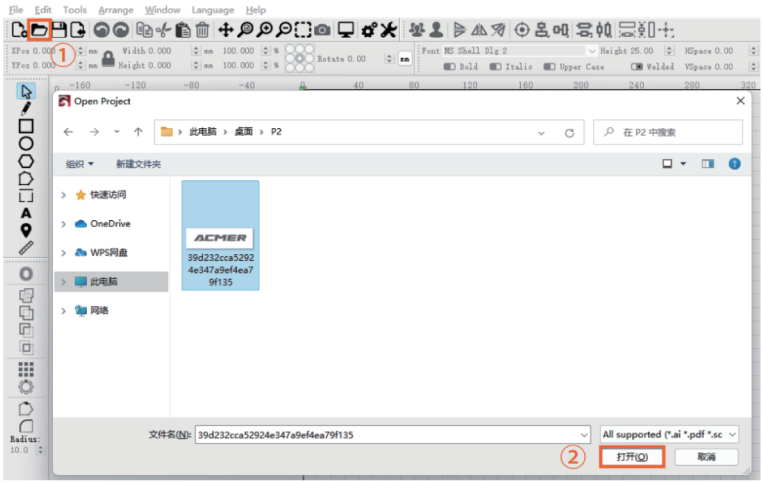
Note: Job Origin needs to be set to lower left



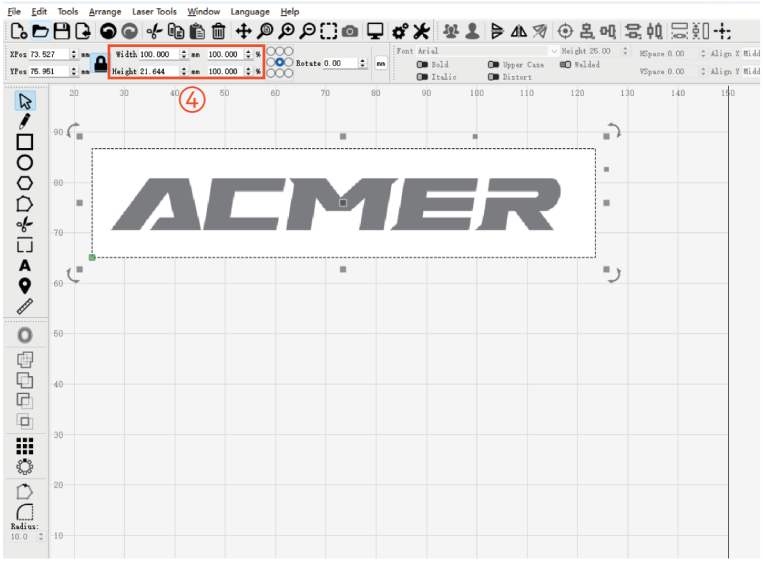
6.3.4 Software Settings



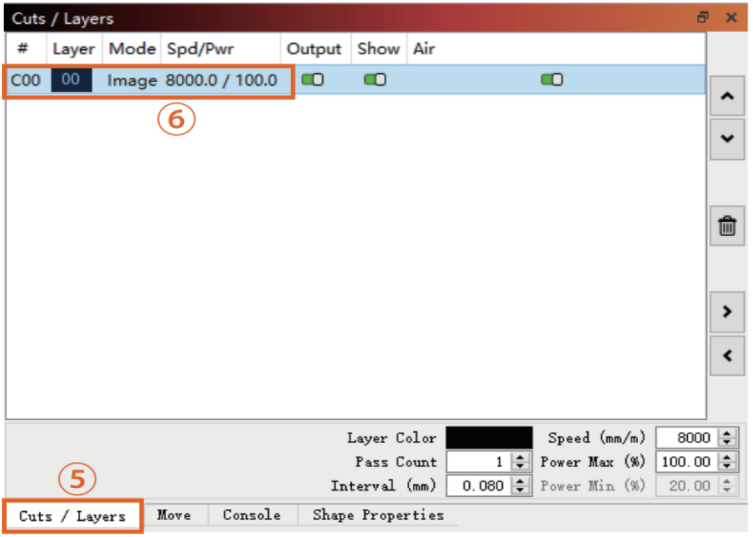
6.3.5 Start engraving



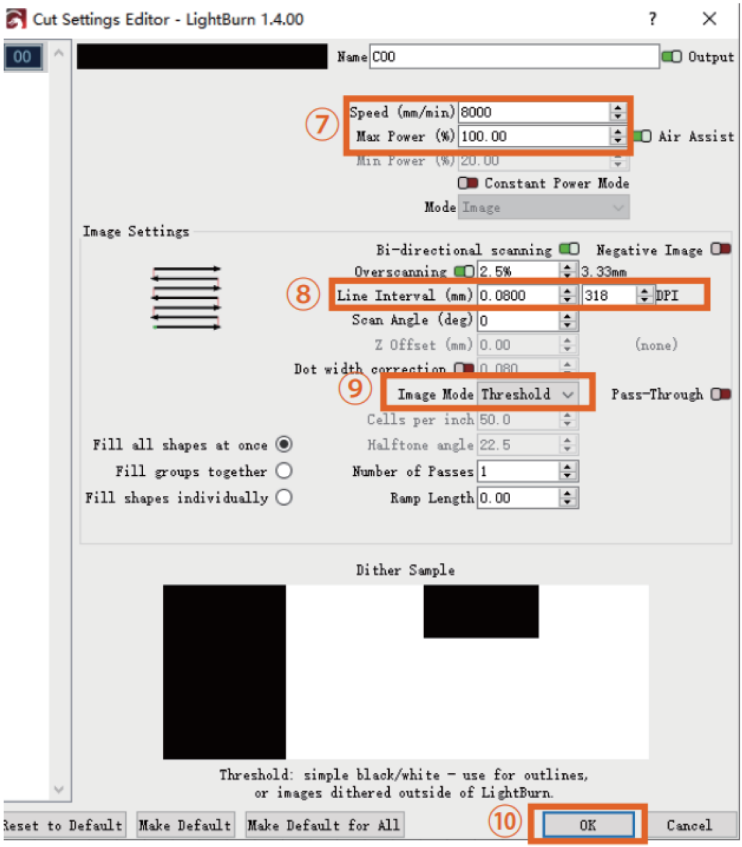
① Click "OPEN" to select the engraving file.
② Click "Open".



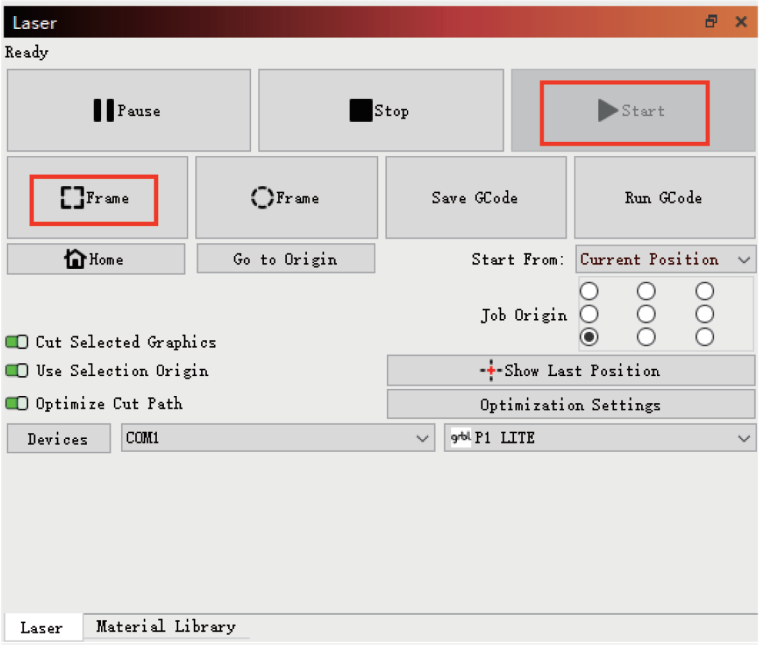
③ Click on the picture area.
④ Adjust the engraving size.



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 suiface)	YES	90%	150	1	M4	10
17	Non-reflective Stainless steel(smooth suiface)	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

	7W Compressed Spot						
	Material	**Engraved**	**Power**	**Speed (mm/min)**	**Times /Pass count**	**Laser options**	**Quality (lines/mm)**
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 suiface)	YES	90%	200	1	M4	10
17	Non-reflective Stainless steel(smooth suiface)	YES	90%	150	2	M4	10

	12W Compressed Spot						
	Material	**Engraved**	**Power**	**Speed (mm/min)**	**Times /Pass count**	**Laser options**	**Quality (lines/mm)**
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 suiface)	YES	90%	2000	1	M4	10
17	Non-reflective Stainless steel(smooth suiface)	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

	2W-1064nm INFRARED LASER MODULE Engraving Parameters						
	Material	**Engraved**	**Power**	**Speed (mm/min)**	**Times /Pass count**	**Laser options**	**Quality (lines/mm)**
1	Yellow Copper	YES	100%	1000	1	M4	10
2	Iron	YES	100%	1500	1	M4	10
3	Galvanized Sheet	YES	100%	3000	1	M4	10
4	Natural Color Alumina	YES	100%	2000	1	M4	10
5	Coated Alumina	YES	100%	3000	1	M4	10
6	Brushed Stainless Steel	YES	100%	2000	1	M4	10
7	Mirror Stainless Steel	YES	100%	2000	1	M4	10
8	Black Acrylic	YES	100%	1000	1	M4	10
9	ABS	YES	100%	4000	1	M4	10
10	Artificial Leather	YES	100%	1500	1	M4	10
11	Black Tile	YES	100%	500	1	M4	10
12	Bakelite	YES	100%	500	1	M4	10
13	PCB	YES	100%	800	1	M4	10
14	Spray-painted wooden board	YES	100%	500	1	M4	10

8. 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.





https://acmerlaser.com

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