

ACMER

ACMER S1 Laser Engraver User Manual

Model: S1 3500mW

1. INTRODUCTION AND SAFETY INFORMATION

This manual provides essential information for the safe and effective operation of your ACMER S1 Laser Engraver. Please read this manual thoroughly before operating the device and retain it for future reference.

1.1 Important Safety Warnings

- **Laser Radiation:** This product contains a Class 4 laser. Avoid direct exposure to the laser beam. The laser beam can cause severe eye injury and skin burns.
- **Eye Protection:** Always wear the provided laser safety goggles when operating the engraver. Ensure anyone in the vicinity also wears appropriate eye protection.
- **Ventilation:** Operate the laser engraver in a well-ventilated area to disperse fumes and smoke generated during engraving. Some materials may produce hazardous fumes.
- **Fire Hazard:** Laser engraving can ignite flammable materials. Do not leave the machine unattended during operation. Keep a fire extinguisher nearby.
- **Material Compatibility:** Only engrave materials specified as safe for laser engraving. Avoid PVC, vinyl, or other chlorine-containing plastics as they produce corrosive and toxic gases.
- **Children and Pets:** Keep children and pets away from the laser engraver during operation.

2. WHAT'S IN THE BOX

Upon opening your ACMER S1 Laser Engraver package, verify that all components are present and undamaged. The machine is designed for ease of use with minimal assembly required.



Image: The ACMER S1 Laser Engraver unit shown with various sample materials like wood, leather, and plastic items that can be engraved.

2.1 Package Contents

- ACMER S1 Laser Engraver Unit (Pre-assembled base)
- Laser Module (3500mW)
- Power Adapter
- USB-C Data Cable
- Laser Safety Goggles
- 2mm Focal Length Measuring Sheet
- Sample Materials (e.g., wood, cardboard, metal blanks)
- Cleaning Cloth
- Tools (wrenches, Allen keys)
- User Manual (this document)

2.2 Unboxing and Initial Inspection

The unit is securely packaged in foam to prevent damage during transit. The main engraver unit is largely pre-assembled, requiring only the laser module to be installed.

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Video: An unboxing video demonstrating the contents and initial setup of the ACMER S1 Laser Engraver. This video shows the careful packaging and the main components included.

3. SETUP GUIDE

The ACMER S1 is designed for quick setup, making it ideal for beginners. Follow these steps to get your engraver ready for use.

3.1 Laser Module Installation

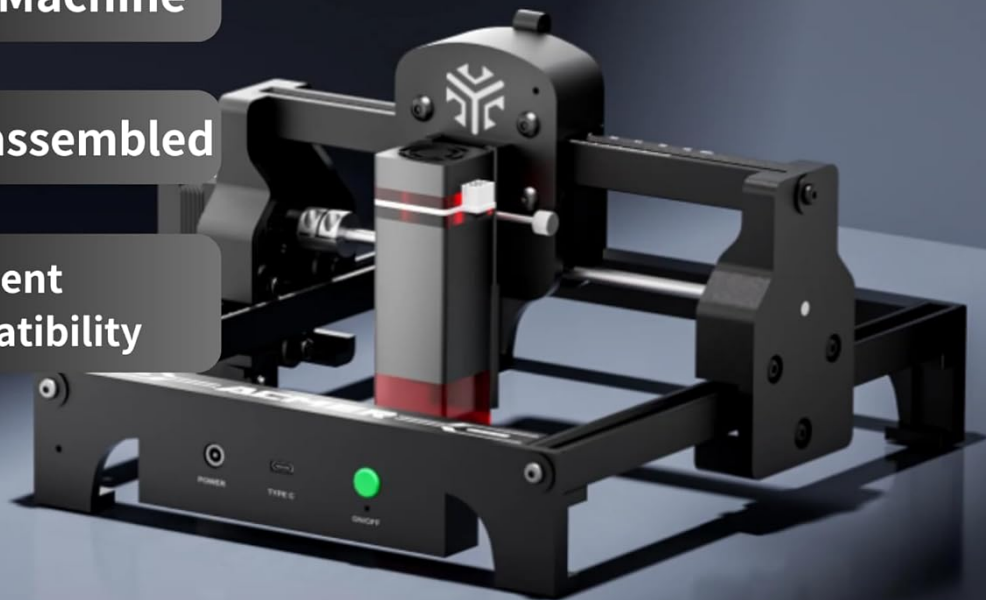
1. Locate the laser module and the main engraver unit.
2. Gently slide the laser module into the designated slot on the gantry.
3. Secure the module by tightening the thumbscrew on the side.
4. Connect the data cable from the laser module to the main unit.

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✓ Mini Machine

✓ Pre-assembled

✓ Excellent compatibility



laser spot size

out of the box

FINEST

No installation required

Image: The pre-assembled ACMER S1 unit, highlighting its compact design and readiness for quick setup.

3.2 Focus Adjustment

Accurate focus is crucial for optimal engraving results. Use the provided 2mm focal length measuring sheet:

1. Place the material to be engraved on the working area.
2. Place the 2mm measuring sheet on top of your material.
3. Loosen the thumbscrew on the laser module.
4. Lower the laser module until its bottom edge gently touches the measuring sheet.
5. Tighten the thumbscrew to secure the laser module in place.
6. Remove the measuring sheet. Your laser is now focused.

3.3 Software Installation (LaserGRBL)

The ACMER S1 is compatible with professional carving software like LaserGRBL and LightBurn. For beginners, LaserGRBL is a popular open-source option.

1. Visit the official LaserGRBL website (lasergrbl.com/download) to download the latest stable version.
2. Run the installer and follow the on-screen prompts.
3. During installation, ensure you select to install the necessary CH340 driver if prompted.
4. Once installed, launch LaserGRBL. Connect your engraver to your computer using the USB-C data cable and power it on.
5. In LaserGRBL, select the correct COM port and Baud rate (typically 115200) and click "Connect".

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Video: Detailed operating instructions for using the ACMER S1 with compatible software, including steps for installing LaserGRBL and connecting the device.



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Compatible with Various Engraving Software

			
LightBurn	LaserGRBL	macOS	Windows

Image: Illustrates the software compatibility of the ACMER S1, showing icons for LightBurn, LaserGRBL, macOS, and Windows.

4. OPERATING INSTRUCTIONS

Once your engraver is set up and connected to the software, you can begin your engraving projects.

4.1 Material Preparation and Placement

Ensure your material is flat and securely placed within the 5.1 x 5.1 inch (130 x 130 mm) working area. For thin materials, consider placing a sacrificial base layer underneath to protect your work surface.

The infographic for the ACMER S1 engraver features a dark background with a gold-colored top banner containing the brand name 'ACMER' in white. On the left side, four white rounded rectangular boxes list technical specifications: '10,000 mm/min Engraving Speed' with a red laser head icon, '0.04x0.04 mm finest Laser Spot Size' with a red laser head icon, '130x130 mm Working Area' with a grid icon showing a heart-shaped engraving, and '100+ Materials Can be engraved' with an icon of various materials. On the right side, there are two images of the engraver: a top view showing the laser head and a circular inset of the work area, and a bottom view showing the base with 'POWER', 'TYPE B', and 'ON/OFF' buttons and a green indicator light. The text 'Lightweight, Everyway Engraving' is positioned between the two images.

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10,000mm/min
Engraving Speed

0.04x0.04mm
finest Laser Spot Size

130x130mm
Working Area

100+
Materials
Can be engraved

**Lightweight,
Everyway
Engraving**

Image: Highlights the technical capabilities of the ACMER S1, including its engraving speed, fine spot size, and working area dimensions.

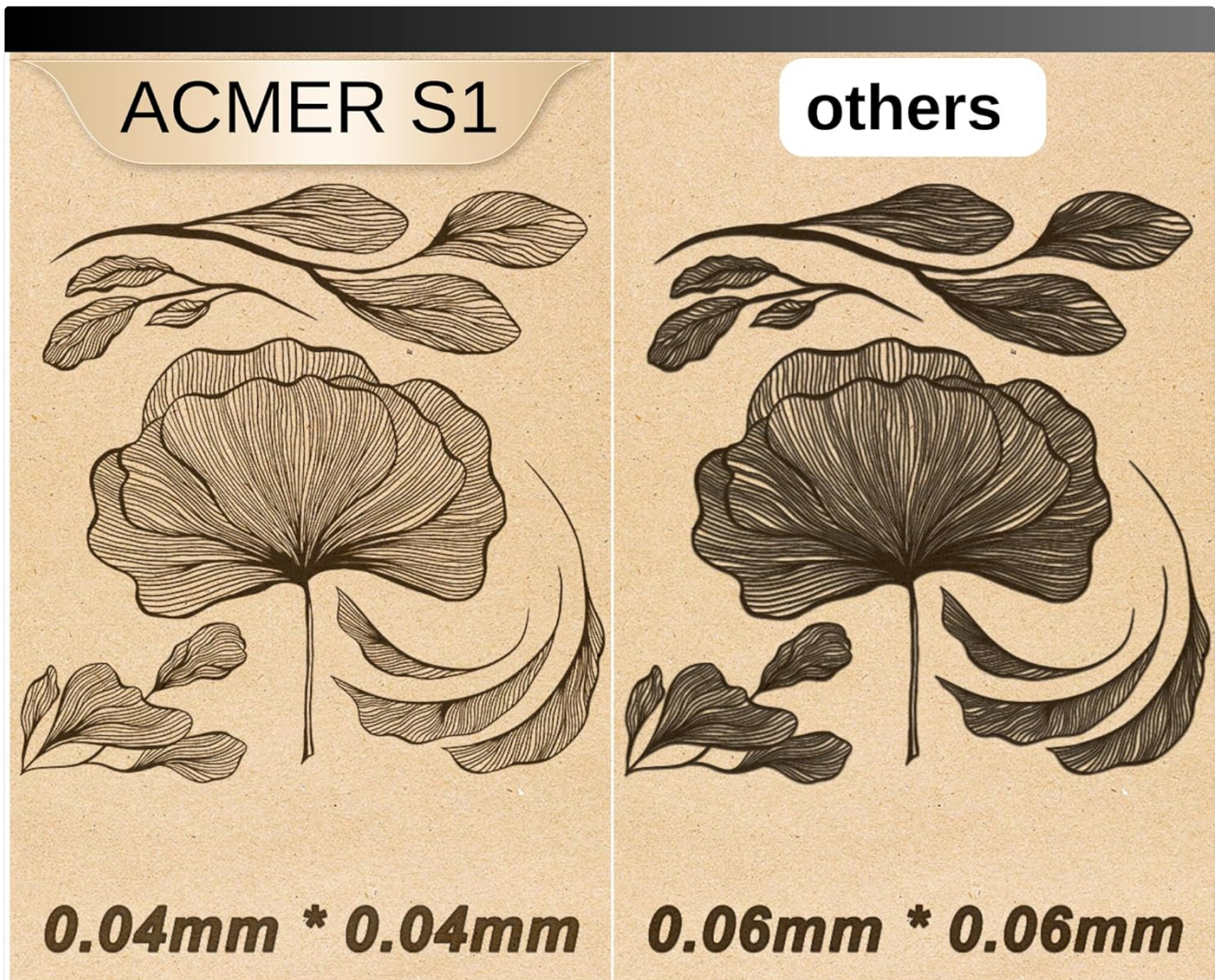
4.2 Engraving Process

1. **Load Image:** In your chosen software (e.g., LaserGRBL), import your desired image or design.
2. **Adjust Settings:** Set engraving parameters such as speed, power, and line density based on your material. Refer to recommended settings for common materials (often found in software documentation or online communities).
3. **Preview and Position:** Use the software's preview function to ensure the design is correctly positioned on your material. You can often "frame" the design with the laser (without engraving) to check alignment.
4. **Start Engraving:** Once satisfied with the settings and positioning, wear your safety goggles and initiate the

engraving process.

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Video: A short demonstration of the ACMER S1 engraving a design, showcasing its operational capabilities.



FINEST LASER SPOT SIZE

Maintaining ultra-fine laser output allows you to engrave more finely and lifelike on each work.

Image: Demonstrates the precision of the ACMER S1's 0.04mm x 0.04mm laser spot size compared to a larger spot size, resulting in finer and more lifelike engravings.

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Equilibrium of Engraving and Cutting Capabilities

Working speed: 10000mm/min

Working accuracy: 0.04mm*0.04mm

Laser output: 3500mW



laser spot size

FINEST

100+ Materials

Can be engraved

Image: Details the engraving and cutting capabilities of the ACMER S1, emphasizing its 3500mW laser output and ultra-fine spot size for various materials.

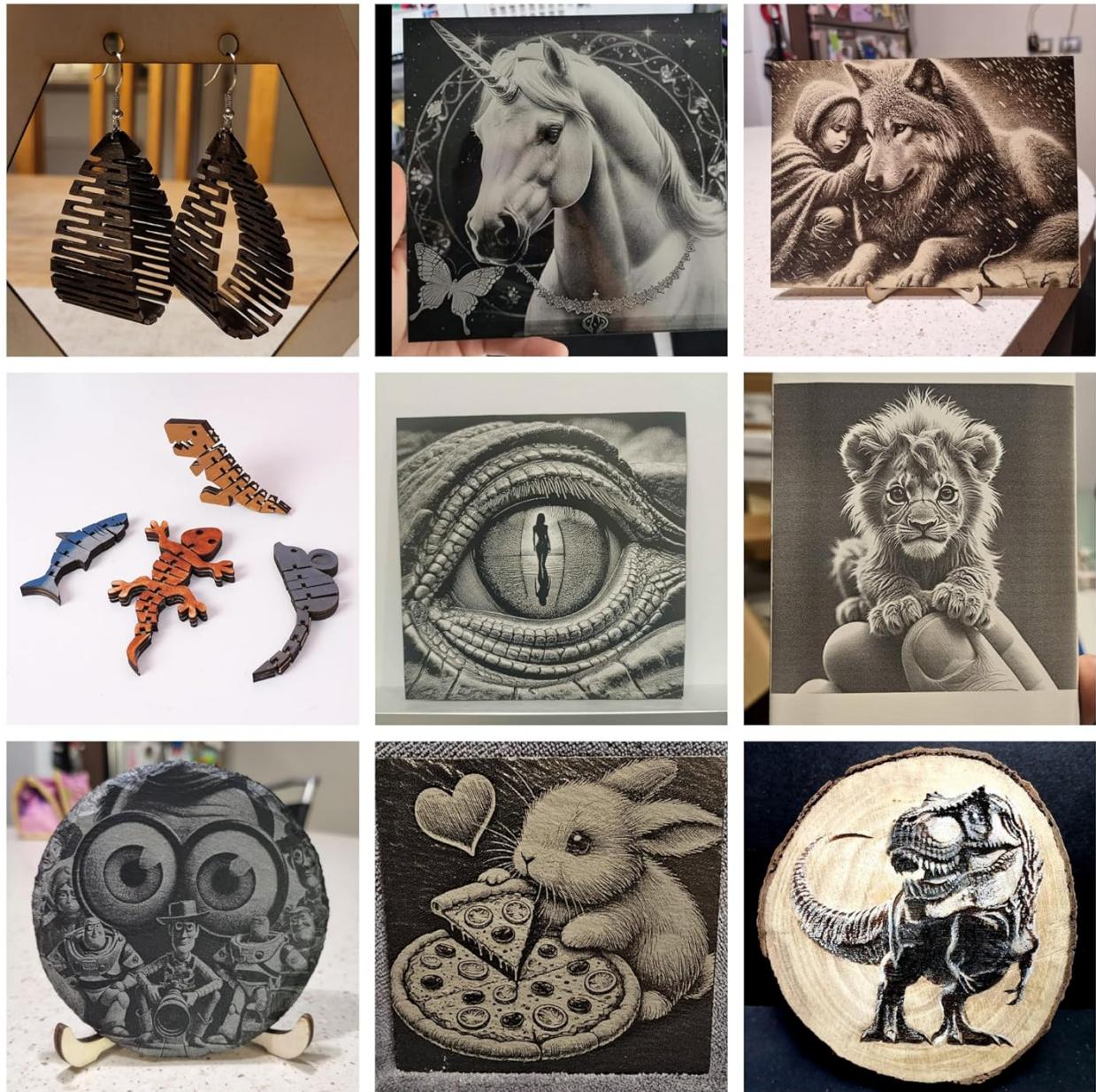


Image: Displays a collage of finished products, showcasing the detailed and intricate designs achievable with the ACMER S1 on different materials.

5. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your ACMER S1 Laser Engraver.

5.1 Cleaning

- **Laser Lens:** Periodically clean the laser lens with the provided cleaning cloth or a lint-free cloth and lens cleaning solution. A dirty lens can reduce laser power and engraving quality.
- **Working Area:** Remove any debris, dust, or small material scraps from the working area after each use.
- **Rails and Belts:** Keep the guide rails and drive belts free from dust and debris to ensure smooth movement of the laser module.

5.2 Storage

Store the laser engraver in a dry, dust-free environment when not in use. Protect the laser module from direct sunlight and physical impact.

6. TROUBLESHOOTING

If you encounter issues with your ACMER S1, refer to the common problems and solutions below.

Problem	Possible Cause	Solution
Laser not firing or weak output	Incorrect focus, dirty lens, low power setting, loose connection.	Re-adjust focus (Section 3.2), clean laser lens (Section 5.1), increase power setting in software, check all cable connections.
Engraving is blurry or inconsistent	Incorrect focus, material not flat, loose belts/rails.	Re-adjust focus (Section 3.2), ensure material is flat and secured, check and tighten belts/rails if necessary.
Machine not connecting to computer	Incorrect COM port, missing/corrupt driver, faulty USB cable.	Verify COM port and Baud rate in software, re-install CH340 driver (Section 3.3), try a different USB cable.
Machine not moving or making grinding noises	Obstruction on rails, loose motor connections, software error.	Clear obstructions, check motor cable connections, restart software and machine.

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Video: A guide on circuit testing for the laser engraver, useful for diagnosing electrical issues.

7. SPECIFICATIONS

Feature	Detail
Brand	ACMER
Model Number	Laser Engraver S1
Laser Output Power	3500mW
Laser Class	Class 4
Finest Laser Spot Size	0.04 x 0.04mm
Maximum Engraving Speed	Up to 10000mm/min

Feature	Detail
Working Area	5.1 x 5.1 inches (130 x 130 mm)
Compatible Materials	Wood, Acrylic, Leather, Paper, Plastic, Rock, Cork, Glass (engraving/cutting capabilities vary by material and laser power)
Connectivity	USB-C
Compatible Software	LightBurn, LaserGRBL
Item Weight	4.18 pounds
Product Dimensions	6.3 x 9.84 x 9.84 inches
Power Source	AC/DC

8. WARRANTY AND SUPPORT

Your ACMER S1 Laser Engraver comes with a **1 Year Warranty** from the manufacturer.

For any issues or questions not covered in this manual, please contact ACMER customer support. You can often find support contact information on the product packaging, the official ACMER website, or through your purchase platform.

Additional resources and community forums may also provide helpful tips and solutions from other users.