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ATOMSTACK A5 Pro V2

ATOMSTACK A5 Pro V2 Laser Engraving Machine User Manual

Model: A5 Pro V2

1. Introduction

Thank you for choosing the ATOMSTACK A5 Pro V2 Laser Engraving Machine. This manual provides essential information for the safe operation, assembly, maintenance, and troubleshooting of your device. Please read this manual thoroughly before using the machine to ensure proper function and to prevent damage or injury.
The ATOMSTACK A5 Pro V2 is a versatile 5W laser engraver and cutter designed for precision and efficiency. It features a 0.06 x 0.06 mm laser spot, a maximum speed of 400 mm/s, and a working area of 400 x 400 mm, making it suitable for a wide range of materials including wood, acrylic, leather, and certain metals.

Figure 1: ATOMSTACK A5 Pro V2 Laser Engraving Machine.

2. Safety Instructions

WARNING: This product contains a Class 4 laser. Direct exposure to the laser beam can cause severe eye damage and skin burns. Always follow safety precautions.

2.1 General Safety Precautions

- **Eye Protection:** Always wear the provided laser protective goggles when the machine is operating. Ensure anyone in the vicinity also wears appropriate eye protection.
- **Ventilation:** Operate the machine in a well-ventilated area to dissipate fumes and smoke produced during engraving or cutting. Consider using an air purifier or exhaust system.
- **Fire Safety:** Keep a fire extinguisher nearby. Never leave the machine unattended during operation, as some materials can ignite.
- **Work Area:** Ensure the work area is clean, free of flammable materials, and stable.
- **Supervision:** Do not allow children or unauthorized personnel to operate or be near the machine during operation.
- **Material Safety:** Do not engrave or cut unknown materials. Some materials can produce toxic fumes or catch fire easily. Avoid PVC, vinyl, and other chlorine-containing plastics.

- **Emergency Stop:** Familiarize yourself with the location of the power switch for quick shutdown in an emergency.

2.2 Laser Specific Safety

- **Laser Class:** This device uses a Class 4 laser. Avoid direct exposure to the laser beam.
- **Reflective Materials:** Do not engrave or cut highly reflective materials without proper precautions, as the laser beam can reflect and cause harm.
- **Machine Stability:** The machine is equipped with a gyroscope that automatically stops operation if an unexpected tilt of more than 15 degrees occurs.
- **Flame Detection:** The machine includes a flame detector and buzzer alarm to alert users to potential fires.



Figure 2: Safety features including Flame Detector and Gyroscope for operational safety.

3. Package Contents

Please check the package contents upon arrival to ensure all items are present and undamaged. If any items are missing or damaged, contact customer support.

- Control Box
- Installation Tool Kit
- USB Flash Drive & Cleaning Cloth
- Installation Screw Kit
- Laser Module (5W)
- Power Adapter
- Power Cable
- Computer Data Cable (USB-A to USB-B)
- Focus Shims
- Laser Protective Goggles
- Product Manual
- Support Feet (x3)
- Cable Ties for Organizing Wires



Figure 3: All components included in the ATOMSTACK A5 Pro V2 package.

4. Assembly and Setup

The ATOMSTACK A5 Pro V2 is designed for quick and easy assembly. Typically, installation can be completed in a few steps.

4.1 Mechanical Assembly

1. Unpack all components and place them on a clean, flat surface.
2. Assemble the main frame according to the diagrams in the included product manual, securing all screws.
3. Install the laser module onto the gantry. Ensure it is securely fastened.
4. Connect all necessary cables (motor cables, laser module cable) to the control box. Refer to the wiring diagram in the detailed manual.

5. Attach the support feet to the base of the machine.



Figure 4: The machine is designed for quick assembly and offers multiple connection options for direct engraving.

4.2 Software Installation

The ATOMSTACK A5 Pro V2 supports multiple software options:

- **ATOMSTACK Studio:** Exclusive and free software for computer users, simplifying the engraving process with a material library and automatic accessory detection.
- **LightBurn:** A popular, paid laser engraving software known for its advanced features.
- **LaserGRBL:** A free, open-source laser engraving software.
- **AtomStack App:** For smartphone users, the AtomStack app allows control of the A5 Pro V2.

Install your preferred software on your computer or smartphone. Drivers may be required for computer connection, typically found on the provided USB flash drive or the ATOMSTACK official website.

4.3 Initial Connection

Connect the machine to your computer via the provided USB data cable or pair it with your smartphone via the AtomStack app. Power on the machine using the main power switch.

5. Operation Guide

5.1 Material Preparation

- Place the material to be engraved or cut flat on the working surface.
- Ensure the material is stable and will not move during operation. Clamps can be used for this purpose.

5.2 Focusing the Laser

Proper focusing is crucial for optimal engraving and cutting results. Use the provided focus shims:

1. Place a focus shim on top of your material.
2. Lower the laser module until its nozzle lightly touches the focus shim.
3. Tighten the laser module's locking screw.
4. Remove the focus shim. The laser is now at the correct focal distance.

5.3 Engraving and Cutting Process

1. **Design:** Create or import your design in your chosen software.
2. **Settings:** Adjust laser power, speed, and passes according to the material type and desired effect. Refer to material settings guides within your software or online resources. The A5 Pro V2 offers high precision with a 0.06 x 0.06 mm laser spot and speeds up to 400 mm/s.
3. **Positioning:** Use the software to position your design on the material. You can often use a 'frame' function to preview the laser's path without firing.
4. **Start Operation:** Ensure all safety precautions are in place (goggles on, ventilation active). Start the engraving/cutting process from the software.
5. **Monitor:** Supervise the machine throughout the entire process.



Figure 5: The A5 Pro V2 achieves 0.01mm precision with a 0.06x0.06mm laser spot, offering superior detail compared to other models.



Figure 6: The A5 Pro V2 operates at a maximum speed of 400mm/s, significantly faster than many conventional models.

Figure 7: The 5W laser can cut 5mm thick paulownia wood and 3mm thick black acrylic in a single pass.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your ATOMSTACK A5 Pro V2.

- **Clean the Laser Lens:** Periodically clean the laser lens with a soft, lint-free cloth and lens cleaning solution (e.g., isopropyl alcohol). Ensure the machine is off and unplugged before cleaning.
- **Clean the Rails and Wheels:** Keep the X and Y axis rails and wheels free of dust and debris. Use a soft brush or cloth. Lubricate the rails if recommended by the manufacturer (refer to the detailed manual).
- **Check Connections:** Periodically check all electrical connections to ensure they are secure.
- **Keep Clean:** Keep the entire machine clean and free of dust and material residue.

7. Troubleshooting

Here are some common issues and their potential solutions:

Problem	Possible Cause	Solution
Laser not firing	Power cable loose, laser module cable loose, software settings incorrect, laser module faulty.	Check all power and data connections. Verify laser power settings in software. Contact support if issue persists.
Poor engraving/cutting quality	Incorrect focus, wrong power/speed settings, dirty lens, material issues.	Re-focus the laser. Adjust power/speed settings. Clean the laser lens. Test on a scrap piece of material.
Machine not connecting to computer/app	USB cable faulty, drivers not installed, software not recognizing port.	Try a different USB cable/port. Install/reinstall drivers. Restart computer/app.
Machine stops unexpectedly	Overheating, limit switch triggered, power interruption, gyroscope activation.	Check for obstructions. Ensure proper ventilation. Verify power supply. The machine has a resume engraving function after power outages.

8. Technical Specifications

Feature	Specification
Model	A5 Pro V2
Laser Output Power	5000 mW (5W)
Laser Spot Size	0.06 x 0.06 mm

Feature	Specification
Engraving Speed	Max 400 mm/s
Working Area	400 x 400 mm
Cutting Capability	5mm Paulownia wood, 3mm Black Acrylic (single pass)
Supported Materials	Leather, Ceramic, Dark Acrylic, Coated Metal, Stainless Steel, Wood, Paper, Fabric, etc.
Product Dimensions	10.22 x 7.09 x 23.23 inches (approx. 260 x 180 x 590 mm)
Item Weight	12.67 pounds (approx. 5.75 kg)
Power Source	AC/DC Adapter
Safety Features	Flame Detector, Gyroscope (tilt protection), Limit Switches

Figure 8: Dimensions of the ATOMSTACK A5 Pro V2 and its large working area (410mm x 380mm).

9. Warranty and Support

ATOMSTACK products come with a manufacturer's warranty. Please refer to the warranty card included in your package or visit the official ATOMSTACK website for detailed warranty terms and conditions.
For technical support, troubleshooting assistance, or any inquiries regarding your ATOMSTACK A5 Pro V2, please contact ATOMSTACK customer service. You can find contact information on the official ATOMSTACK website or through your purchase platform.
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