

## ATOMSTACK A12 Pro

# ATOMSTACK A12 Pro Laser Engraving Machine User Manual

Brand: ATOMSTACK | Model: A12 Pro

## 1. INTRODUCTION

This manual provides detailed instructions for the safe and efficient operation of your ATOMSTACK A12 Pro Laser Engraving Machine. Please read this manual thoroughly before use to ensure proper setup, operation, and maintenance. Keep this manual for future reference.

### Safety Warnings:

- Always wear UV-filtering eye protection when operating the laser engraver.
- Ensure proper ventilation to dissipate fumes and smoke generated during engraving/cutting.
- Do not leave the machine unattended during operation.
- Keep flammable materials away from the working area.
- Familiarize yourself with the emergency stop button location.

## 2. PACKAGE CONTENTS

Verify that all items listed below are included in your package:



Figure 2.1: ATOMSTACK A12 Pro Laser Engraving Machine and included accessories.

- ATOMSTACK A12 Pro Laser Engraving Machine (Unibody Frame)
- Laser Head
- Power Adapter (24V, 5A)
- Power Cable
- USB Cable (Type-C)
- Goggles (UV-filtering eye protection)
- Fixed Focus Lens
- User Manual
- Tools (H3 hexagon L-shaped wrench, M4 thumb screws)
- Flash Drive
- WiFi Antenna
- Silicone Hose (air hose)
- Wire Anchor
- Cable Clamp
- 100\*30 lint free cloth

- Slider
- Switch Key

### 3. SETUP GUIDE

The ATOMSTACK A12 Pro features an unibody design for minimal assembly. Follow these steps to get started:

1. **Unboxing:** Carefully remove the machine and all accessories from the packaging. The machine is pre-calibrated and shipped as a single unit.



Figure 3.1: The ATOMSTACK A12 Pro is ready to use right out of the box with its unibody design.

2. **Install the Slider:** Attach the slider component to the designated rail on the machine. Secure it with the provided screws.
3. **Install the Laser Head:** Mount the laser head onto the slider. Ensure it is firmly attached.
4. **Install the WiFi Antenna:** Screw the WiFi antenna into its port on the machine's side.
5. **Install Tubing and X-axis Link Lines:** Connect the tubing and X-axis link lines as shown in the diagram to ensure proper cable management and operation.
6. **Connect Power and USB:** Plug the power adapter into the machine and a power outlet. Connect the USB cable from the machine to your computer.

7. **Power On:** Insert the switch key and turn it to the ON position. The machine is now ready for software setup.

Your browser does not support the video tag.

Video 3.1: A detailed guide on how to install and set up the ATOMSTACK laser engraver.

## 4. OPERATING INSTRUCTIONS

### 4.1 Software Control

The ATOMSTACK A12 Pro supports multiple control methods:

- **ATOMSTACK PC Software:** Exclusive software for simplified operation, ideal for beginners.
- **LightBurn & LaserGRBL:** Traditional PC software for advanced users.
- **ATOMSTACK Mobile APP:** Available on Android and Apple App Stores for WiFi control via smartphone.



## DIVERSE CONTROL METHODS

<p>✓ <b>Computer Control</b> Self-developed PC Software</p> 	<p>✓ <b>Smartphone Control</b> WiFi Connection and Mobile APP</p> <p>ATOMSTACK</p> <p>App store downloadable</p> 	<p>✓ <b>Computer Control</b> LaserGRBL / LightBurn Software</p> 
---	--	--

Figure 4.1: Overview of the various software and app control options for the laser engraver.

## 4.2 Engraving Process

1. **Material Placement:** Place your material flat on the engraving bed.
2. **Focus Adjustment:** Use the fixed-focus design for rapid and precise focusing in approximately 10 seconds.
3. **Cross Positioning:** Utilize the newly added cross laser positioning feature for clear visibility of the laser's location, ensuring perfect alignment for engraving and easy horizontal adjustment.



Figure 4.2: The cross positioning system helps align objects and lock to edges for precise horizontal carving.

4. **Software Settings:** Adjust engraving parameters (speed, power, passes) in your chosen software based on the material.
5. **Start Engraving:** Initiate the engraving process from the software.

## 5. FEATURES & CAPABILITIES

- **Unibody Design:** Sturdy all-aluminum unibody design, installation-free and pre-calibrated.
- **High Speed & Precision:** New dual-axis linear guide rail structure and high-speed motherboard allow engraving speeds up to 600mm/s, 3-6 times faster than traditional frame machines. Accuracy within 0.004 inches.



Figure 5.1: Comparison showing the significantly faster engraving speed of the A12 Pro.

- **Powerful Laser:** 12000mW diode laser (Laser Class 4) with 50W machine power and a 0.05\*0.06mm ultra-fine laser spot focus.
- **Thicker Cuts:** Can cut through 8mm wood, 5mm black acrylic, and 0.02mm stainless steel in a single pass.

# AMAZING WORKING SPEED

The maximum engraving speed can reach **600mm/s**  
which is **3-6** times that of traditional frame machines



\* Requires engraving on MDF board

Figure 5.2: Demonstrates the maximum cutting thickness for various materials with the A12 Pro.

- **Diverse Material Compatibility:** Engraves and cuts a wide range of materials including wood, acrylic, metal, glass, ceramics, leather, paper, cardboard, and more.



## Paper



## Rubber



Figure 5.3: Examples of various materials that can be engraved or cut by the machine.

- **Automatic Power Failure Recovery:** Memorizes engraving position and swiftly resumes from the paused point, ensuring uninterrupted production and material saving.
- **Enhanced Security:** Equipped with 4-way limit switches, UV-filtering eye protection, a tilt detector with a 15-degree alarm, and an emergency stop button.

## 6. MAINTENANCE

- **Lens Cleaning:** Regularly clean the laser lens with the provided lint-free cloth to maintain optimal performance and prevent residue buildup.
- **Rail Lubrication:** Periodically apply a small amount of lubricant to the guide rails to ensure smooth movement of the laser head.
- **Debris Removal:** Keep the engraving bed and surrounding area free of debris and dust. Use an air compressor or brush to clear away small particles.
- **Firmware Updates:** Check the official ATOMSTACK website periodically for firmware updates to ensure your machine has the latest features and bug fixes.

## 7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Machine not powering on	Power cable loose; Emergency stop engaged; Key not turned.	Check power connections; Disengage emergency stop; Turn key to ON.
Laser not firing/weak output	Lens dirty; Incorrect focus; Low power setting in software.	Clean laser lens; Adjust focus; Increase power setting.
Engraving is distorted/inaccurate	Loose belts/rails; Material shifting; Incorrect software settings.	Check and tighten belts/rails; Secure material; Verify software settings.
Software not connecting to machine	USB cable issue; Driver not installed; Incorrect COM port.	Try different USB port/cable; Install drivers; Select correct COM port in software.

## 8. SPECIFICATIONS


- **Product Dimensions:** 23.22 x 23.22 x 7.08 inches
- **Item Weight:** 18.74 pounds
- **Laser Output Power:** 12000mW (12W)
- **Machine Power:** 50W
- **Laser Spot Size:** 0.05\*0.06mm
- **Engraving Speed:** Up to 600mm/s
- **Accuracy:** Within 0.004 inches
- **Connectivity:** USB, WiFi (via Mobile APP)
- **Supported Software:** ATOMSTACK PC Software, LightBurn, LaserGRBL
- **Manufacturer:** Shenzhen AtomStack Technologies Co., Ltd.
- **Country of Origin:** China


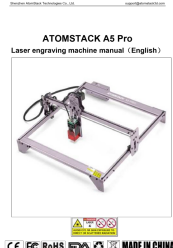
## 9. WARRANTY AND SUPPORT

Your ATOMSTACK A12 Pro Laser Engraving Machine comes with a standard manufacturer's warranty. For detailed warranty information, technical support, or service inquiries, please refer to the warranty card included in your package or visit the official ATOMSTACK website.

Our professional technical and support teams are available 24/7 to answer any questions or concerns you may have.

### Related Documents - A12 Pro

	<p><a href="#">AtomStack Studio Software User Manual</a></p> <p>A comprehensive user manual for AtomStack Studio software, covering download, installation, device connection, settings, project design, engraving parameter settings, material plans, laser movement, engraving area preview, starting engraving, completing projects, camera calibration, and material testing.</p>
---	---

 <p>ATOMSTACK P7 Series Laser Engraving Machine</p> <p>CE FCC RoHS PDS MADE IN CHINA</p>	<p><a href="#">ATOMSTACK P7 Series Laser Engraver Installation Manual</a></p> <p>Comprehensive installation manual for the ATOMSTACK P7 Series Laser Engraver, detailing safety precautions, assembly steps, and product usage guidelines. Learn how to safely set up and operate your laser engraving machine.</p>
 <p>ATOMSTACK Swift Laser Engraving Machine</p>	<p><a href="#">AtomStack Swift User Manual: Setup, Installation, and Software Guide</a></p> <p>Comprehensive user manual for the AtomStack Swift laser engraver, covering parts list, installation, software setup with AtomStack Studio and LightBurn, and user guide. Includes troubleshooting and contact information.</p>
 <p>ATOMSTACK A5/A10/A20 PRO V2 Manuel d'utilisation du graveur laser</p> <p>CE FCC RoHS PDS MADE IN CHINA</p>	<p><a href="#">ATOMSTACK A5/A10/A20 PRO V2 Laser Engraver User Manual</a></p> <p>Comprehensive user manual for the ATOMSTACK A5, A10, and A20 PRO V2 laser engravers, covering safety, assembly instructions, software setup (LightBurn, LaserGRBL), operation, maintenance, and troubleshooting.</p>
 <p>ATOMSTACK A5 Pro Laser engraving machine manual (English)</p> <p>CE FCC RoHS PDS MADE IN CHINA</p>	<p><a href="#">ATOMSTACK A5 Pro Laser Engraving Machine Manual</a></p> <p>Comprehensive user manual for the ATOMSTACK A5 Pro laser engraving machine, covering safety, software installation (LaserGRBL and LightBurn), operation, and troubleshooting.</p>
 <p>ATOMSTACK Air Assist Kit User Manual</p> <p>MADE IN CHINA</p>	<p><a href="#">ATOMSTACK Air Assist Kit User Manual</a></p> <p>User manual for the ATOMSTACK Air Assist Kit, providing installation, usage, and precautions for ATOMSTACK laser engraving machines.</p>