



[Manuals.plus](#) /

› [ATOMSTACK](#) /

› ATOMSTACK P1 Dual Laser Engraver and Cutter User Manual

ATOMSTACK P1

ATOMSTACK P1 Dual Laser Engraver and Cutter User Manual

Model: P1

1. INTRODUCTION

The ATOMSTACK P1 is a portable, high-precision laser engraver and cutter designed for a wide range of applications. This device integrates a powerful 5W diode laser and a 1.2W infrared laser, offering versatility for both non-metallic and metallic materials. Engineered for intuitive handling, the P1 is suitable for users of all experience levels, from beginners to seasoned crafters. This manual provides essential information for safe operation, setup, maintenance, and troubleshooting to ensure an optimal user experience.



Figure 1: ATOMSTACK P1 Dual Laser Engraver and Cutter.

2. SAFETY INFORMATION

The ATOMSTACK P1 is designed with user safety as a primary concern, complying with Class 1 laser safety certification. It features a fully enclosed structure to minimize exposure to laser radiation.

- **Class 1 Laser Safety:** The P1 is certified as a Class 1 laser product, meaning it is safe for use under all operating conditions without the need for additional protective eyewear.
- **Enclosed Design:** The machine features a completely enclosed structure with an acrylic observation window, providing protection during operation.
- **USB Safety Interlock:** A USB safety key must be inserted to enable processing and related functions, preventing accidental operation.
- **Safety Enclosure Detection:** The device is equipped with a mechanism that automatically stops operation if the enclosure door is not properly closed.
- **Gyroscope Tilt Detection:** An integrated gyroscope detects excessive tilting of the machine and will halt operation to ensure safety.



Figure 2: Diagram illustrating the P1's safety features including USB interlock, door detection, and tilt sensor.

3. PRODUCT OVERVIEW

3.1 Dual Integrated Laser System

The P1 combines two distinct laser modules for enhanced versatility:

- **5W Diode Laser (455 nm):** Ideal for cutting and engraving non-metallic materials such as wood, bamboo, paper, leather, cardboard, cork, stone, and felt. It delivers clear and defined results.
- **1.2W Infrared Laser (1064 nm):** Excels in marking and engraving challenging materials with high precision, including all metals (stainless steel, aluminum, copper, iron, gold, silver, platinum, titanium), plastics, and opaque dark acrylic.

3.2 High Speed and Precision

The P1 features a CoreXY design with dual motors, enabling high-speed operations and precise detailing.

- **Engraving Speed:** Achieves speeds of up to 10,000 mm/min.
- **Laser Spot Size:** The compressed laser spot ensures fine details and precise cuts. The diode laser has a spot size of 0.08 × 0.06 mm, and the infrared laser has a spot size of 0.03 × 0.03 mm.

EFICIENTE Y ESTABLE

Diseño de ejes XY, accionamiento por doble motor

Tamaño del punto láser | Láser de 5 W colimado 0,08 × 0,06 mm
Láser infrarrojo de 1,2 W 0,03 × 0,03 mm

10000mm/min

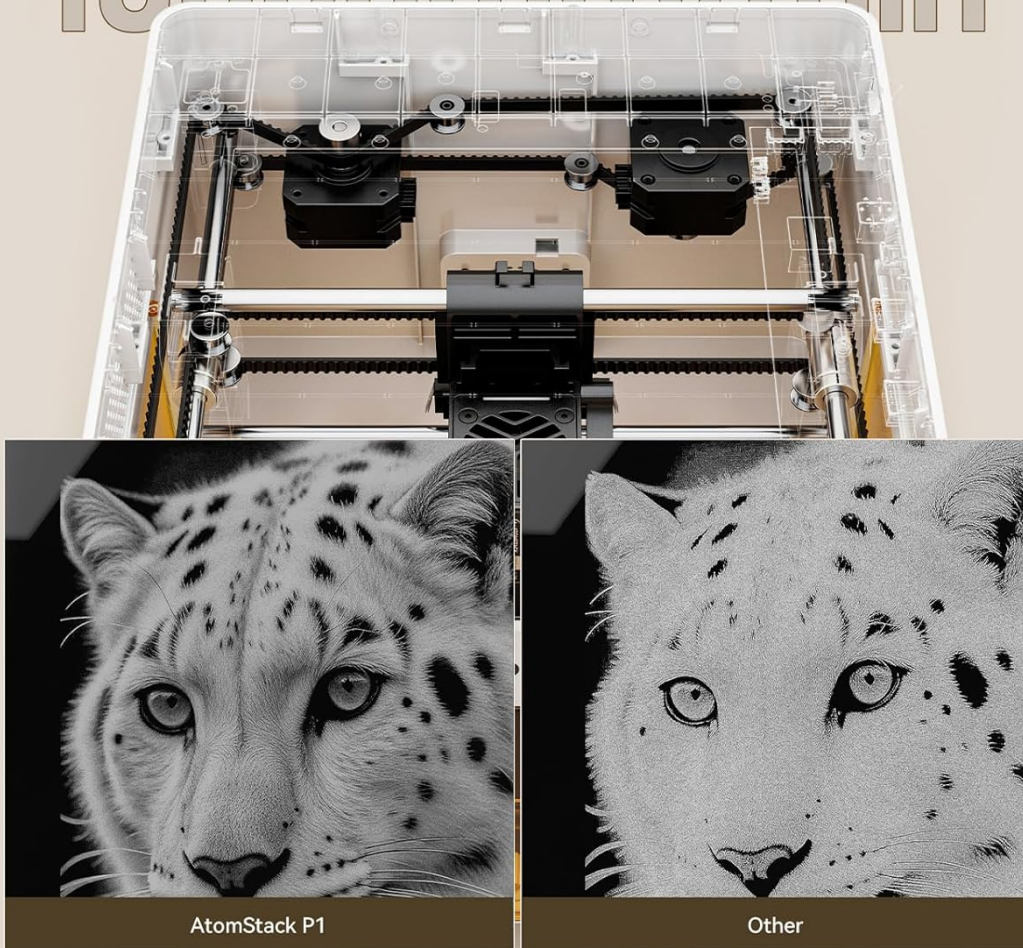


Figure 3: Illustration of the P1's high speed and precision capabilities.

3.3 Material Compatibility

The ATOMSTACK P1 is compatible with over 300 different materials, making it suitable for a wide range of creative and professional projects. This includes various types of wood, leather, paper, acrylic, coated metals, and plastics.

Grabado de Precisión Apto para Más de 300 Materiales

Láser de Diodo de 5 W

Madera, Bambú, Papel, Cuero, Cartón, Corcho, Roca, Fielto, Tejidos, Tableros de Fibra de Densidad Media (MDF), Metales Recubiertos, Acrílico Opaco Oscuro Parcial...



Madera



Bambú

Láser Infrarrojo de 1,2 W

Acero Inoxidable, Aluminio, Latón, Hierro, Oro, Plata, Platino, Titanio, Acrílico Negro, Plástico...



Acero inoxidable



Aleación de aluminio



Cuero



Piedra



Oro



Latón



Cerámica



Papel



Plástico



Acrílico

*Nota: Compatible con más de 300 materiales (solo en la versión con doble láser).

Figure 4: Examples of precision engraving on various materials using the P1.

3.4 Portability and Dimensions

The P1 is designed to be compact and portable, with a net weight of approximately 3 kg (6.7 lbs). Its dimensions are 265 mm x 303 mm x 185 mm (10.43" x 11.93" x 7.28"), making it easy to transport and set up in various workspaces.

PEQUEÑO Y PORTÁTIL LISTO PARA USAR

Peso neto: 3 kg

Área de grabado:

Láser de diodo: 110 × 110 mm

Láser infrarrojo: 105 × 100 mm



Figure 5: The compact design and dimensions of the ATOMSTACK P1.

4. SETUP

The ATOMSTACK P1 comes largely pre-assembled, simplifying the initial setup process. Follow these steps to prepare your device for operation:

1. **Unpacking:** Carefully remove the engraver and all accessories from the packaging.
2. **Placement:** Place the engraver on a stable, level surface in a well-ventilated area. Ensure there is sufficient space around the machine for safe operation and material handling.
3. **Power Connection:** Connect the power adapter to the engraver and then to a suitable power outlet.
4. **USB Safety Key:** Insert the provided USB safety key into its designated port on the machine. This key is essential for unlocking the device's processing functions.
5. **Focus Adjustment:** Use the manual focus adjustment tool to set the correct focal length for your material. This is crucial for achieving optimal engraving and cutting results. The tool helps ensure the laser is precisely focused on the material surface.



Figure 6: Steps for quick laser module replacement and focus adjustment.

5. OPERATING INSTRUCTIONS

Operating the ATOMSTACK P1 involves preparing your design, connecting to the machine, and initiating the engraving or cutting process.

5.1 Software Compatibility

The P1 is compatible with popular laser control software:

- **LightBurn:** A powerful layout, editing, and control software for laser cutters.
- **LaserGRBL:** A free, open-source software for controlling GRBL-based laser engravers.
- **AtomStack Studio App:** A dedicated application for Windows, macOS, Android, and iOS, offering a user-friendly interface for design and control.

Área de grabado

<p>Mini y portátil</p>	<p>Listo para usar Nada más sacarlo de la caja</p>	<p>Peso neto 3 kg (6,7 lb)</p>
<p>Láser de diodo de 5 W 110 x 110 mm 4,33« x 4,33»</p>	<p>Láser infrarrojo de 1,2 W 105 x 100 mm 4,13« x 3,94»</p>	
<p>*Los accesorios que aparecen en la imagen deben adquirirse por separado.</p>		
<p>Mandril giratorio R8</p>	<p>Rodillo giratorio R6</p>	

265mm (10.43")
303mm (11.93")
185mm (7.28")

Láser de diodo de 5 W
110 x 110 mm
4,33« x 4,33»

Láser infrarrojo de 1,2 W
105 x 100 mm
4,13« x 3,94»

Mandril giratorio R8

Figure 7: The AtomStack Studio app and software compatibility across various platforms.

5.2 Connectivity

Connect the P1 to your computer or mobile device using either USB or Wi-Fi for seamless control.

5.3 General Workflow

1. **Design Creation:** Create or import your design using your preferred software (e.g., LightBurn, AtomStack Studio).

2. **Material Placement:** Place the material to be engraved or cut onto the work area, ensuring it is flat and secure.
3. **Parameter Settings:** Adjust laser power, speed, and other settings in the software according to the material type and desired effect. Refer to the software's guidelines and online tutorials for recommended settings.
4. **Preview and Start:** Use the software's preview function to verify the design placement. Once confirmed, initiate the engraving or cutting process.
5. **Monitoring:** Monitor the process through the observation window. Ensure the safety door remains closed during operation.

Video 1: A general demonstration of product usage and experience. This video provides an overview of the laser engraver in action, showcasing its capabilities and ease of use.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your ATOMSTACK P1. Always power off and unplug the device before performing any maintenance.

- **Clean the Laser Lens:** Periodically clean the laser lens with a soft, lint-free cloth and a specialized lens cleaning solution to maintain laser precision.
- **Clear the Work Area:** Remove any debris, dust, or material scraps from the engraving area after each use to prevent interference with laser operation and ensure proper ventilation.
- **Check for Loose Connections:** Regularly inspect all cables and connections to ensure they are secure.
- **Ventilation:** Ensure the machine's ventilation ports are clear and unobstructed to prevent overheating.

7. TROUBLESHOOTING

If you encounter issues with your ATOMSTACK P1, refer to the following common troubleshooting steps:

- **Device Not Powering On:**
 - Check if the power cable is securely connected to both the engraver and the power outlet.
 - Ensure the power outlet is functional.
- **Laser Not Firing:**
 - Verify that the USB safety key is fully inserted.
 - Ensure the safety enclosure door is completely closed.
 - Check laser power settings in the software; ensure they are not set to zero.
 - Restart the software and the engraver.
- **Poor Engraving/Cutting Quality:**
 - Adjust the focus of the laser module. Incorrect focus is a common cause of poor quality.
 - Experiment with different power and speed settings for your specific material.
 - Clean the laser lens as described in the Maintenance section.
 - Ensure the material is flat and securely placed on the work surface.
- **Connection Issues (USB/Wi-Fi):**
 - For USB, try a different USB port or cable.
 - For Wi-Fi, ensure the engraver is within range of your Wi-Fi network and connected correctly. Restart your router if necessary.
 - Ensure your computer's firewall is not blocking the software's connection.
- **Unusual Noises During Operation:**
 - Check for any obstructions in the movement path of the laser module.
 - Ensure all screws and components are tightened.

If these steps do not resolve the issue, please contact ATOMSTACK technical support for further assistance.

8. SPECIFICATIONS

Feature	Specification
Brand	ATOMSTACK
Model Number	21419311
Material	Metal, Plastic
Style	5W+1.2W (Diode + Infrared)
Product Weight	10.91 lbs (approx. 4.95 kg)
Operation Mode	Manual
Country of Origin	China
Included Items	Adapter, USB Safety Lock, Accessory Bag & Test Board, Power Cable (American Standard), Engraving Tool
Diode Laser Wavelength	455 nm
Infrared Laser Wavelength	1064 nm
Diode Laser Spot Size	0.08 x 0.06 mm
Infrared Laser Spot Size	0.03 x 0.03 mm
Working Area (Diode Laser)	110 x 110 mm (4.33 x 4.33 inches)
Working Area (Infrared Laser)	105 x 100 mm (4.13 x 3.94 inches)
Maximum Working Speed	10,000 mm/min
Movement Precision	0.1 mm
Focus Mode	Manual Focus
Maximum Cutting Capacity	3 mm Willow Wood (5W diode laser, single pass)
Maximum Processing Height	50 mm
Pre-assembled	Yes
Machine Dimensions (L x W x H)	265 x 303 x 185 mm (10.43" x 11.93" x 7.28")

9. WARRANTY AND SUPPORT

ATOMSTACK is committed to providing high-quality products and excellent customer service.

- **Quality Assurance:** All ATOMSTACK products undergo strict quality control procedures to ensure reliability and performance.
- **Spare Parts:** Availability of spare parts is maintained to support the longevity of your device.
- **Technical Assistance:** Technical support is available to assist with any operational questions or issues you may encounter.

- **Tutorials and Support:** Access detailed video tutorials and additional technical support resources through Amazon or the official ATOMSTACK website.

For specific warranty terms and conditions, please refer to the documentation included with your product or visit the official ATOMSTACK website.