

ATOMSTACK A24 ULTRA

ATOMSTACK A24 Ultra Laser Engraver User Manual

Model: A24 ULTRA | Brand: ATOMSTACK

PRODUCT OVERVIEW

The ATOMSTACK A24 Ultra is a high-performance laser engraver and cutter machine designed for precision work on a variety of materials. Equipped with a powerful 24000mW diode laser, it is suitable for both engraving and cutting tasks. Its integrated B3 enclosure and camera enhance safety and operational efficiency, making it an ideal choice for home and professional use.

Key Features:

- **24000mW Diode Laser:** Ensures deep cutting and fast, efficient engraving.
- **Integrated Enclosure:** Provides a safer working environment by containing laser emissions and reducing noise.
- **Built-in High-Resolution Camera:** Enhances visualization, allows for batch processing, and supports automatic drawing scanning and pattern extraction.
- **High-Performance Exhaust System:** Effectively filters and exhausts smoke and dust during operation.
- **Class 1 Safety:** Features multiple safety mechanisms including safety lock, position movement detection, limit switches, and 2-layer eye protection.
- **Wide Compatibility:** Supports Windows, APP, and offline board control, compatible with AtomStack APP, LaserGRBL, and LightBurn software.
- **Versatile Material Support:** Engraves and cuts materials such as paper, wood, leather, acrylic, metal, glass, and fabric.

SAFETY GUIDELINES

Operating a laser engraver requires strict adherence to safety protocols to prevent injury and equipment damage. The ATOMSTACK A24 Ultra is designed with multiple safety features, but user vigilance is paramount.

Important Safety Information:

- Always wear the provided laser safety glasses when the machine is in operation, even with the enclosure closed.

- Ensure the enclosure is properly closed and secured before starting any engraving or cutting task. The machine features interlocks that automatically shut off the laser if the cover is open.
- Do not look directly into the laser beam.
- Keep the work area clear of flammable materials.
- Ensure proper ventilation. The integrated exhaust system helps, but additional room ventilation may be necessary depending on the material being processed.
- Position movement detection will trigger an alarm and stop operation if the machine is inclined at 15-20 degrees.
- 4-way X&Y axis limit switches prevent equipment collision with edges.
- Never leave the machine unattended during operation.

SETUP AND ASSEMBLY GUIDE

Follow these steps to correctly assemble your ATOMSTACK A24 Ultra Laser Engraver. Refer to the accompanying video for visual guidance.

Your browser does not support the video tag. Please update your browser or try a different one.

Video: How to install A12 A24 Ultra Laser Engraver. This video demonstrates the complete assembly process for the laser engraver.

Assembly Steps:

1. **Unboxing and Component Identification:** Carefully open the package and remove all components. Verify that all parts listed in the manual are present. The main unit, enclosure panels, laser module, and various accessories should be present.



Image: All components of the ATOMSTACK A24 Ultra Laser Engraver laid out after unboxing.

2. **Install the Slider:** Attach the slider component to the X-axis rail of the main unit. Secure it with the provided screws.
3. **Install the Laser Head:** Mount the laser head onto the slider. Ensure it is firmly attached and aligned correctly.
4. **Install the WiFi Antenna:** Screw the WiFi antenna into its designated port on the main unit.
5. **Install Tubing and X-axis Link Lines:** Connect the tubing and X-axis link lines to their respective ports on the laser head and the main unit. Ensure all connections are secure.
6. **Install Left and Right Enclosure Components:** Attach the left and right transparent enclosure panels to the main unit. Use the specified M4*5 screws (8 pieces) to secure them. Ensure the safety interlock wires are properly connected.
7. **Install Back Enclosure Component:** Attach the back transparent enclosure panel. Use the specified M4*10 screws (6 pieces) to secure it. Tighten the rear screws after installing the back components.

8. **Connect Control Wires:** Connect the control wires from the enclosure panels to the main unit. Ensure the connectors are fully seated.
9. **Install Top Enclosure Component:** Place the top transparent enclosure panel onto the unit. Secure it using 7 M4*10 screws.
10. **Install Front Enclosure Component:** Attach the front black bar component to the top of the enclosure. Secure it using 3 M4*10 screws.
11. **Install Hose Clamp and Exhaust Hoses:** Attach the exhaust fan to the designated port on the enclosure. Secure the flexible exhaust hose to the fan using the provided hose clamp.
12. **Install Silicone Plug:** Insert the silicone plug into the designated opening to manage cables and maintain enclosure integrity.
13. **Connect Power Cord for Switch:** Connect the power cord to the machine's power input and then to the power switch.
14. **Power On:** Insert the safety key and turn it to the 'ON' position. Press the power button to initiate the machine.

OPERATING YOUR LASER ENGRAVER

The ATOMSTACK A24 Ultra is designed for user-friendly operation with various connectivity options and software compatibility.

Software and Connectivity:

The engraver supports multiple operating systems including Windows, Linux, and macOS. You can control the machine using the AtomStack APP, LaserGRBL, or LightBurn software. Connectivity options include Wi-Fi, USB, and APP control.

Supported Materials and Capabilities:

The A24 Ultra can engrave and cut a wide range of materials, offering high precision and speed.

24W DIODE LASER

The Highest & Fast Power
cuts with Ultra Accurate

ATOMSTACK
DESIGNED BY ATOM STUDIO

AtomStack

Others

Cutting

Sculpture

0.06X0.06

Cutting

Sculpture

0.1X0.1

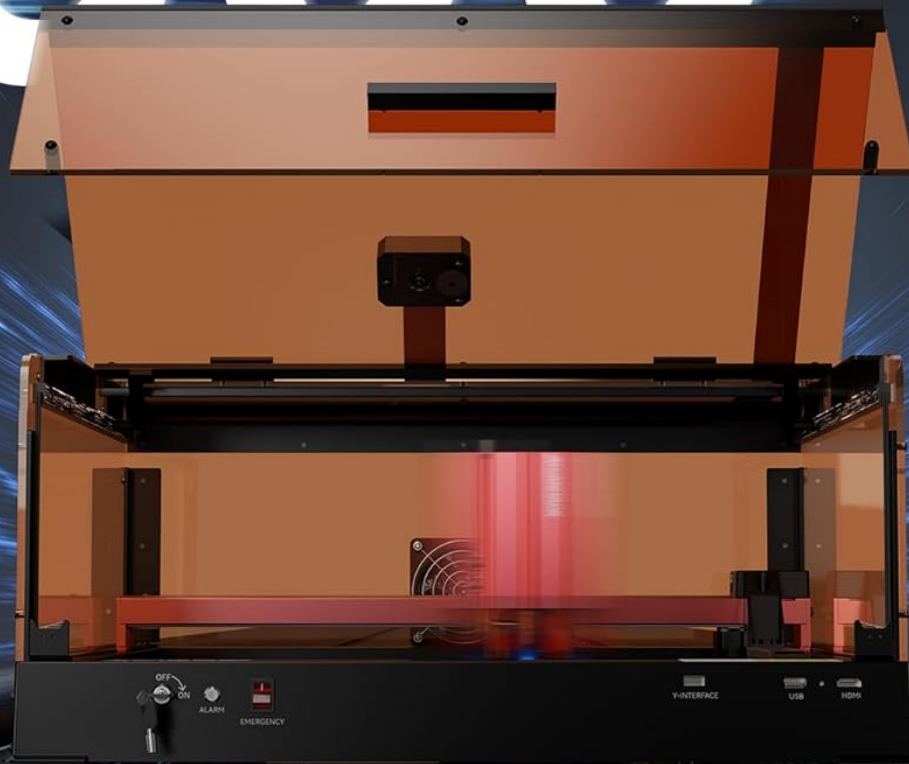
Image: Illustration of the 24W diode laser's cutting depth and fine sculpting capabilities compared to other lasers.

- **Cutting:** Capable of cutting through 15mm wood and 10mm black acrylic in a single pass.
- **Engraving:** Achieves a super-fine 0.06*0.06mm laser spot focus for accuracy within 0.004 inches. Excels in vibrant multi-color engraving on metal surfaces.
- **Routing Speed:** Features a routing speed of 600 mm/s for high productivity.

Engraving Speed of 600mm/s

Faster speed, higher productivity

600mm/s



A24 ULTRA



A24 Ultra

Others

13min35s

Others



41min07s

Image: Visual comparison highlighting the 600mm/s engraving speed of the A24 Ultra against other models.

Camera Functionality:

The built-in high-resolution camera enhances visualization of all operations. It can improve efficiency by working in batches for both engraving and cutting, requiring connection to PC software. Additionally, the camera enables automatic drawing scanning and intelligent pattern extraction from the surface of desired objects, eliminating the need for design software.

Smarter Camera, Easier Operations

Built-in high-resolution camera, which makes all operations visualized and easier
It can even work in batches to improve your work efficiency.

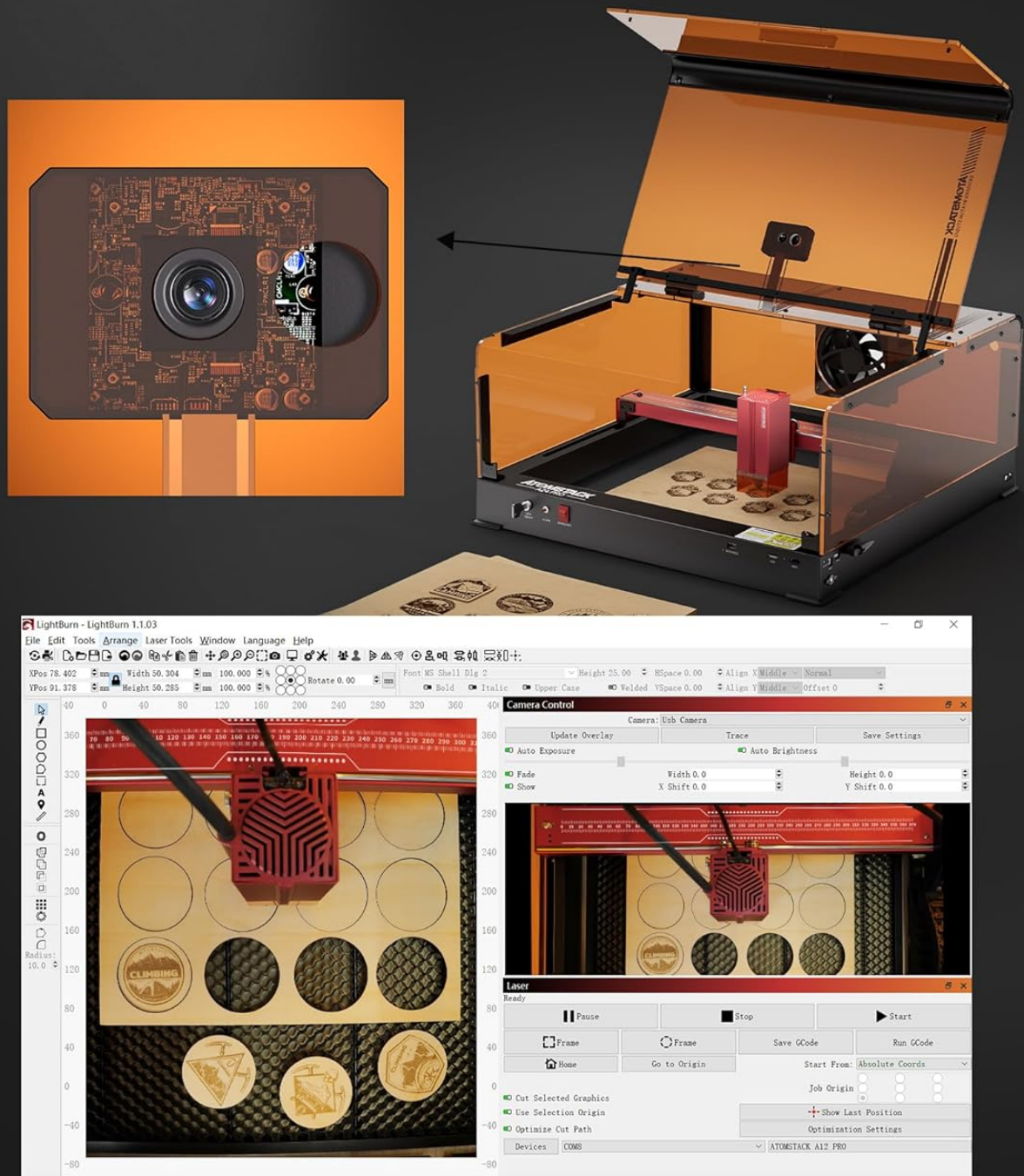


Image: Depicts the integrated camera and its interface for visualizing and simplifying engraving operations.

MAINTENANCE AND CARE

Regular maintenance ensures the longevity and optimal performance of your ATOMSTACK A24 Ultra Laser Engraver.

- **Cleaning:** Regularly clean the laser lens and the work area to prevent debris buildup, which can affect laser performance and accuracy. Use a soft, lint-free cloth and appropriate cleaning solutions.
- **Belt Tension:** Periodically check and adjust the belt tension to maintain precise movement of the laser

module. Refer to the assembly section for guidance on belt tension adjustment.

- **Exhaust System:** Ensure the exhaust hose is clear and free of obstructions to allow for efficient smoke and dust removal. Clean the exhaust fan as needed.
- **General Inspection:** Routinely inspect all cables, connections, and moving parts for any signs of wear or damage. Address any issues promptly.

TROUBLESHOOTING COMMON ISSUES

This section provides solutions to common problems you might encounter with your laser engraver.

Problem	Possible Cause	Solution
Laser not firing or weak output	Loose connection, dirty lens, incorrect power settings, laser module issue.	Check all cable connections. Clean the laser lens. Verify power settings in software. Contact customer support if the issue persists.
Machine not connecting to computer/APP	Incorrect drivers, Wi-Fi/USB connection issues, software firewall.	Ensure correct drivers are installed. Check Wi-Fi signal or USB cable connection. Temporarily disable firewall. Restart machine and computer.
Engraving/Cutting is inaccurate or distorted	Loose belts, unstable work surface, incorrect focus, material movement.	Adjust belt tension. Ensure machine is on a stable surface. Verify laser focus. Secure material to prevent shifting during operation.
Excessive smoke or odor	Blocked exhaust, insufficient ventilation, incorrect power settings.	Check exhaust hose for blockages. Ensure adequate room ventilation. Adjust laser power/speed settings for the material.

TECHNICAL SPECIFICATIONS

Specification	Value
Product Model	A24 Ultra
Laser Class	Class 1
Laser Module Output Power	24000mW
Input Voltage	100-240V AC, 50/60HZ
Output Voltage	24V 5A
Laser Wavelength	455 ± 5 nm
Laser Spot Size	0.06*0.08mm
Routing Speed	600 mm/s
Max. Workpiece Height	55 mm (2.17 inches)
Working Area	365 * 305 mm (14.4*12 inches)
Operating Systems	Windows / Linux / macOS
Control Software	AtomStack APP, LaserGRBL, LightBurn

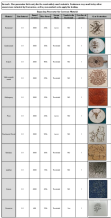
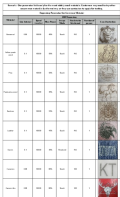

Specification	Value
Supported File Types	JPG, JPEG, SVG, PNG, BMP, PDF, G-Code, DXF
Connection / Transmission	Wi-Fi, USB, APP
Product Dimensions	23.23 x 23.23 x 14.96 inches
Item Weight	37 pounds


Warranty and Customer Support

ATOMSTACK provides comprehensive support for your A24 Ultra Laser Engraver.

- Warranty:** The product comes with a 1-year manufacturer's warranty.
- Technical Support:** Permanent professional technical customer service is available.
- Contact:** For any issues or inquiries, please feel free to contact ATOMSTACK customer service.

Related Documents - A24 ULTRA

	<p>Laser Engraving and Cutting Parameters for Common Materials</p> <p>A comprehensive guide detailing optimal laser engraving and cutting parameters for a wide range of materials, including wood, leather, acrylic, glass, metal, and more. Parameters cover line interval, speed, power, image mode, and passes, with visual examples.</p>
	<p>ATOMSTACK K40 MAX-20W Laser Engraving and Cutting Parameter Guide</p> <p>A comprehensive guide detailing engraving and cutting parameters for the ATOMSTACK K40 MAX-20W laser module across a variety of common materials. Includes settings for speed, power, line interval, and image modes.</p>
	<p>P7 M30 Laser Engraving and Cutting Parameters</p> <p>Comprehensive parameter tables for AtomStack P7 M30 laser engraver and cutter, detailing settings for various materials like Basswood, Hardwood, Bamboo, Acrylic, Kraft Paper, Mirrors, and Leather for both engraving and cutting operations.</p>

<div><p>A5 Pro engraving parameter table</p><table><tr><th>Material</th><th>Speed</th><th>S-Max</th><th>Pass</th><th>Engraving</th><th>Cutting</th></tr><tr><td>Basswood</td><td>1</td><td>100</td><td>100</td><td>10</td><td>1</td></tr><tr><td>Hardwood</td><td>1</td><td>100</td><td>100</td><td>10</td><td>1</td></tr><tr><td>Bamboo</td><td>1</td><td>100</td><td>100</td><td>10</td><td>1</td></tr><tr><td>Acrylic</td><td>1</td><td>100</td><td>100</td><td>10</td><td>1</td></tr></table></div>	Material	Speed	S-Max	Pass	Engraving	Cutting	Basswood	1	100	100	10	1	Hardwood	1	100	100	10	1	Bamboo	1	100	100	10	1	Acrylic	1	100	100	10	1	<div><h3>Atomstack A5 Pro Laser Engraving and Cutting Parameters</h3><p>Detailed parameter tables for the Atomstack A5 Pro laser engraver and cutter, covering engraving and cutting settings for various materials including Basswood, Hardwood, Bamboo, Acrylic, Kraft Paper, Mirrors, Leather, and Stainless Steel. Includes recommended Speed, S-Max, and pass settings.</p></div>																								
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