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› AlgoLaser Alpha MK2 20W Laser Engraver Machine User Manual

AlgoLaser Algolaser Laser Engraver

AlgoLaser Alpha MK2 20W Laser Engraver Machine User Manual

Model: Algolaser Laser Engraver | Brand: AlgoLaser

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your AlgoLaser Alpha MK2 20W Laser Engraver Machine. Please read this manual thoroughly before operating the device to ensure proper usage, optimal performance, and longevity of the machine. The AlgoLaser Alpha MK2 is a versatile laser engraving and cutting machine designed for various materials including wood, metal, acrylic, leather, and glass.



Figure 1: AlgoLaser Alpha MK2 20W Laser Engraver Machine and included components.

2. SETUP

Before first use, assemble the AlgoLaser Alpha MK2 according to the provided assembly guide. Ensure all components are securely connected. Place the machine on a stable, level surface in a well-ventilated area, away from flammable materials.

2.1 Initial Assembly

Follow the step-by-step instructions in the separate assembly guide to connect the frame, laser module, and other components. Verify all screws are tightened and cables are properly routed.



Class1
Laser Safety

3-Step Operation
Simple Operation for Beginners

20W
Diode Laser Output

Extension Kit
Extension Kit 15.7" x 33.5"

300+ Materials
with Preset Parameters

AlgoOS With Algo Graphics Engine

AlgoLaser App, LightBurn, LaserGRBL

Powerful Engraving & Cutting

WiFi

Easier WiFi Connection with Software

Smart Air Assist

Figure 2: Overview of AlgoLaser Alpha MK2 features, including the AlgoOS system and Smart Air Assist, which are crucial for setup and operation.

2.2 Power Connection

Connect the power adapter to the machine's power interface and then to a suitable power outlet. Ensure the emergency stop button is accessible and functional.

2.3 Software Installation (Optional)

While the AlgoOS system allows for direct operation via the touchscreen, you can also connect the engraver to your computer for advanced control. Download and install the AlgoLaser App, LightBurn, or LaserGRBL software as per your preference from the official AlgoLaser website. Ensure your computer or smartphone is connected to the same Wi-Fi network as the engraver for wireless control.

3. OPERATING INSTRUCTIONS

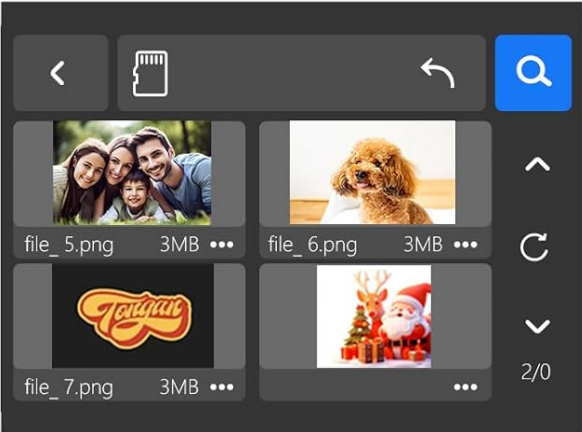
The AlgoLaser Alpha MK2 features a user-friendly AlgoOS system with a 3.5" Smart Touchscreen for intuitive operation. This section details the steps for engraving and cutting.

3.1 Basic 3-Step Operation via Touchscreen

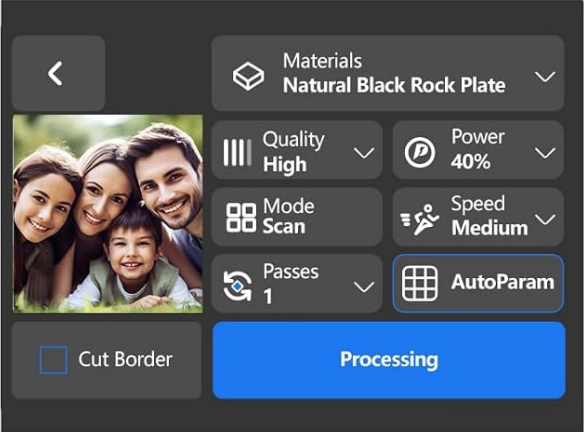
1. **Select/Download an Image:** Use the touchscreen to browse and select an image from internal storage, SD card, or USB disk. You can also download images directly.
2. **Set the Parameters:** Adjust engraving/cutting parameters such as material type, quality (e.g., Highest), power (e.g., 40%), speed (e.g., Medium), and number of passes. The AlgoOS system offers auto-parameter suggestions for various materials.
3. **Tap "Start":** Once parameters are set and the material is positioned, tap "Start" to begin the engraving or cutting process.

3-Step Operation Simple for Everyone

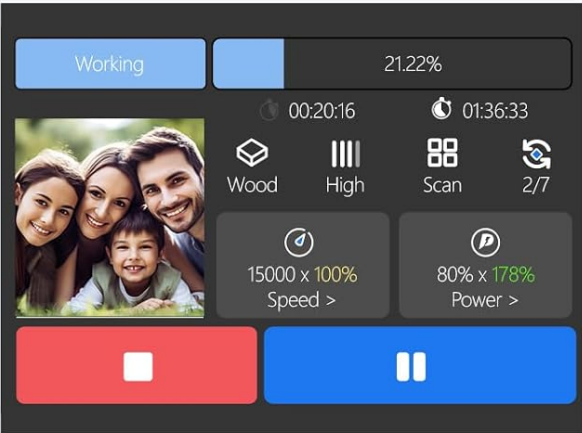
Smart screen control, simple and fast.
Complete your engraving / cutting in three steps



1 Select/download an image



2 Set the Parameters



3 Tap "Start"



😊 Get your work done!

Figure 3: Visual guide to the 3-step operation process on the AlgoLaser Alpha MK2's smart touchscreen.

3.2 Material Compatibility and Performance

The Alpha MK2 is capable of engraving and cutting a wide range of materials. Its 20,000mW COS laser module provides powerful cutting capabilities and fine engraving precision.

- **Cutting:** Clean cuts up to 15 mm in wood, 25 mm in acrylic, and 0.03 mm in stainless steel.
- **Engraving:** Achieves professional-level precision of 0.15*0.12mm.
- **Speed:** Engraving speeds up to 20,000 mm/min.

20W Powerful Cutting, Accurate Engraving

With the 20W laser module using advanced compression technology, you can cut thicker materials with ease and engrave even the most intricate details for professional-level precision of 0.15*0.12mm.

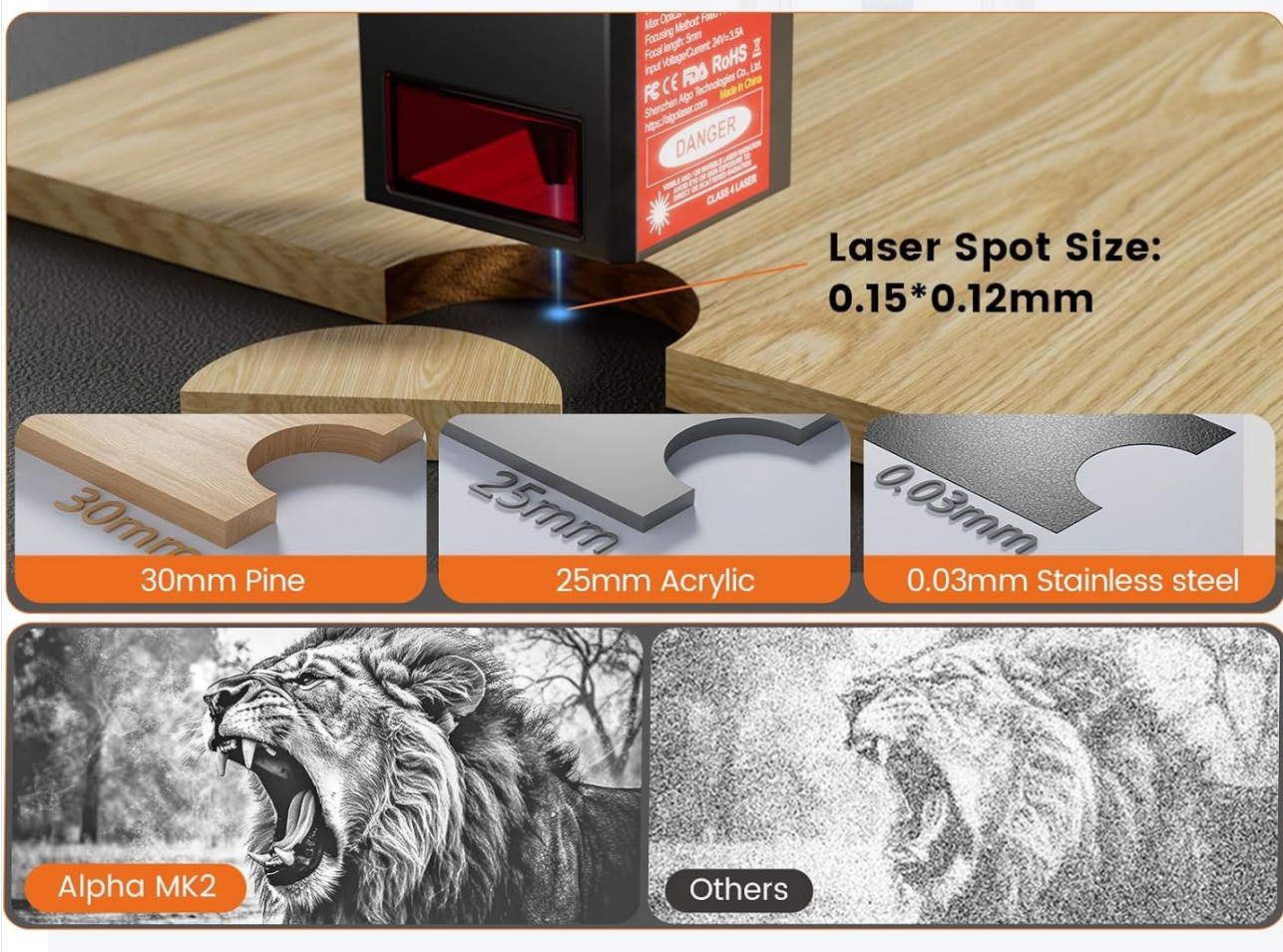


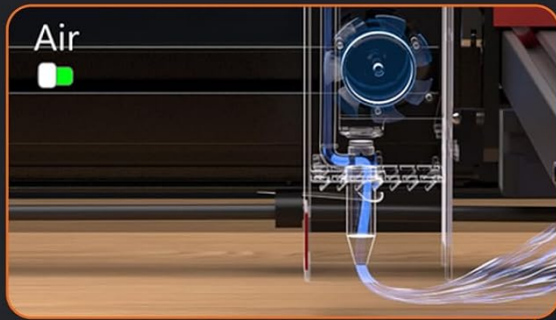
Figure 4: Examples of cutting and engraving capabilities on various materials with the 20W laser module.

3.3 Smart Air Assist System

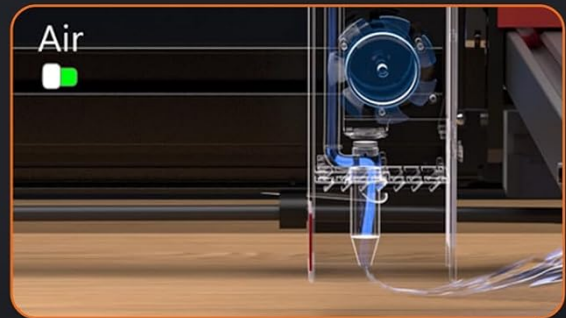
The integrated smart air pump and advanced internal smoke exhaust form a dual air system. This system automatically adjusts airflow to match engraving or cutting modes, reducing smoke, clearing odors, and keeping the laser beam path clean for consistent precision. This also helps cool materials and prolong laser life.

Smart Air Assist for Flawless Results

Equipped with a built-in smart air pump, the system automatically adjusts airflow to match engraving or cutting modes. Say goodbye to burn marks and achieve a clean, polished finish on every project.



100% Airflow for Cutting



30% Airflow for Engraving



Figure 5: Smart Air Assist in action, optimizing airflow for different operations.

3.4 Software Compatibility and Connectivity

The Alpha MK2 supports various software for design and control, including the AlgoLaser App, LightBurn, and LaserGRBL. It also supports offline batch cutting, G-code, and Graphtec-01 EMI formats. Connectivity options include Wi-Fi and dual USB ports (Type-A for USB drives, Type-C for PC connection).

Multi-Software Support

For beginners: AlgoLaser app is a priority for simple logo and photo engraving.

For pro users: Use Lightburn and LaserGRBL for more delicate works.



Algolaser APP
Get started quickly with a user-friendly App.



Lightburn
The mature engraving software for common laser software



LaserGRBL
The best Windows software for image Laser Engraving.

Figure 6: The AlgoLaser Alpha MK2 supports multiple software platforms for versatile control.

Save and Reuse Projects with USB Storage

Easily engrave or cut images saved on your USB drive.

With on-screen image previews, you can quickly locate and select the exact design you want to bring to life.



Figure 7: USB storage allows for easy saving and reuse of projects directly from the machine.

3.5 Product Usage Video

For a visual demonstration of the AlgoLaser Alpha MK2 in use, please refer to the official product usage video below. This video illustrates the engraving process and highlights key features.

Your browser does not support the video tag.

Video 1: Official product usage video demonstrating the AlgoLaser Alpha MK2's engraving capabilities on a stone plaque.

4. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your AlgoLaser Alpha MK2. Always power off and unplug the machine before performing any maintenance.

- **Cleaning the Laser Lens:** Periodically clean the laser lens with a soft, lint-free cloth and lens cleaning solution to ensure clear laser output and prevent residue buildup.

- **Cleaning the Air Assist Nozzle:** Inspect and clean the air assist nozzle regularly to ensure proper airflow and prevent blockages from smoke and debris.
- **Lubrication:** Apply a small amount of appropriate lubricant to the guide rails and moving parts as recommended in the detailed maintenance guide (available on the AlgoLaser website) to ensure smooth operation.
- **Dust Removal:** Use a soft brush or compressed air to remove dust and debris from the machine's interior and exterior, especially around the laser module and ventilation areas.

5. TROUBLESHOOTING

This section addresses common issues you might encounter with your AlgoLaser Alpha MK2.

Problem	Possible Cause	Solution
Laser not firing or weak output.	Dirty laser lens; incorrect power settings; laser module malfunction.	Clean the laser lens. Verify power settings in software/touchscreen. Contact customer support if issue persists.
Engraving/cutting results are inconsistent or blurry.	Material not flat; incorrect focus; loose belts/components; dirty air assist nozzle.	Ensure material is flat and secured. Adjust laser focus. Check and tighten belts. Clean air assist nozzle.
Machine not connecting to Wi-Fi or software.	Incorrect Wi-Fi password; machine and device on different networks; software firewall.	Double-check Wi-Fi password. Ensure both devices are on the same 2.4GHz network. Temporarily disable firewall.
Emergency stop activated unexpectedly.	Flame detection triggered; machine tilt/offset detected; accidental button press.	Check for flames or excessive smoke. Ensure machine is stable. Reset emergency stop button.

For further assistance, please refer to the comprehensive troubleshooting guide on the AlgoLaser website or contact customer support.

6. SAFETY INFORMATION

Operating a laser engraver requires strict adherence to safety protocols. The AlgoLaser Alpha MK2 is equipped with 7 major safety features to ensure user safety during operation.

- **Laser Emission Protection:** Designed to prevent accidental laser exposure.
- **Emergency Stop Button:** Immediately cuts power to the machine in case of an emergency.
- **Flame Detection:** Automatically stops operation if flames are detected.
- **Machine Offset Detection:** Stops operation if the machine is moved unexpectedly during work.
- **Machine Tilt Detection:** Stops operation if the machine is tilted beyond a safe angle.
- **USB Disconnection Detection:** Stops operation if the USB connection is lost during work.
- **Current and Voltage Detection:** Monitors power supply for anomalies and stops operation if unsafe conditions

are detected.

Always wear appropriate laser safety goggles when the machine is in operation. Never look directly into the laser beam. Ensure proper ventilation to dissipate fumes and smoke. Consider using a Class 1 laser safety enclosure for a sealed workspace, which protects against smoke and harmful laser exposure.

7. SPECIFICATIONS

Feature	Detail
Product Dimensions	27.24 x 23.03 x 7.87 inches
Item Model Number	Algolaser Laser Engraver
Item Weight	19.21 pounds
Laser Module Power	20,000mW (20W) COS Laser
Engraving Speed	Up to 20,000 mm/min
Engraving Precision	0.15*0.12mm
Engraving Work Area	15.7"x16" (expandable to 15.7"x33.35" with optional extension kit)
Operating System	AlgoOS System
Connectivity	Wi-Fi, Dual USB (Type-A, Type-C)
Manufacturer	Shenzhen aofeinuo Technology Co., LTD

8. WARRANTY AND SUPPORT

AlgoLaser provides comprehensive customer support for the Alpha MK2 laser engraver.

- **Warranty:** A full 1-year warranty is provided from the date of purchase.
- **Technical Support:** Lifetime technical support is available to ensure your laser cutting machine runs smoothly.
- **Availability:** Expert support team is available 24/7 for installation, troubleshooting, or design consultation.

For support, please visit the official AlgoLaser website or contact their customer service directly.