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AlgoLaser Alpha-MK2-20W

AlgoLaser Alpha MK2 20W Laser Engraver Machine

USER MANUAL

Setup	Operation	Maintenance	Troubleshooting	Specifications	Safety	Warranty & Support
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Introduction

This manual provides essential instructions for the safe and efficient operation of your AlgoLaser Alpha MK2 20W Laser Engraver Machine. Please read this manual thoroughly before initial use and retain it for future reference.



Figure 1: AlgoLaser Alpha MK2 20W Laser Engraver Machine with example projects.

Setup

1. Unpacking and Initial Assembly

Carefully remove all components from the packaging. Ensure all parts are present according to the packing list. Follow the included quick start guide for physical assembly of the machine frame and laser module.

2. Power Connection

1. Connect the power adapter to the machine's power interface.
2. Plug the power adapter into a suitable electrical outlet.

More Surprise with Rich Interfaces

Alpha MK2 features dual USB ports for easy connection to USB drives and PCs, plus an expansion port for accessories. Connect the Smart Hub to enable third-party compatibility.

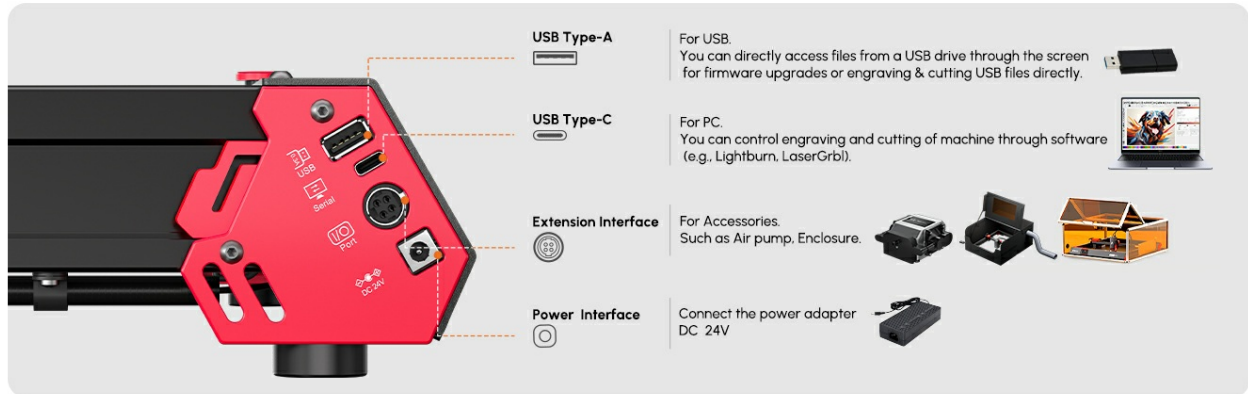


Figure 2: Rear panel interfaces, including power and USB ports.

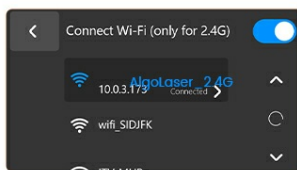
3. WiFi Wireless Control Setup

The Alpha MK2 supports WiFi connectivity for wireless control. Follow these steps to connect:

1. On the built-in touchscreen, navigate to the WiFi settings.
2. Select your 2.4GHz WiFi network and enter the password.
3. Ensure your computer or smartphone is connected to the same WiFi network.
4. Pair the Alpha MK2 with the AlgoLaser App or compatible software (LightBurn, LaserGRBL).

Simple WiFi Wireless Control

Connecting the Alpha MK2 to Wi-Fi is effortless—no cables or codes are needed. Simply touch the screen to connect and pair, and you'll be ready to start.



Step 1: Connect the Alpha MK2 to Wi-Fi using the built-in screen.



Step 2: Ensure your computer or smartphone is connected to the same Wi-Fi network.



Step 3: Pair the Alpha MK2 with AlgoLaser App or software.

Note: Supports only 2.4G networks. Make sure both your device and the machine are on the same network before starting.

Figure 3: Steps for establishing WiFi connection.

Operation

1. Basic Engraving/Cutting Process (3-Step Operation)

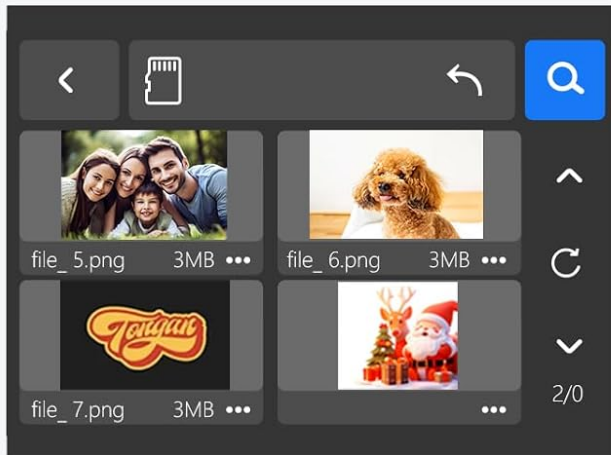
The AlgoOS system simplifies the engraving and cutting process through its intuitive touchscreen interface.

1. **Select/Download an Image:** Choose a design from internal storage, USB, or download via WiFi.
2. **Set Parameters:** Adjust material type, quality, power, mode (scan/cut), and speed settings.
3. **Tap "Start":** Initiate the engraving or cutting process.

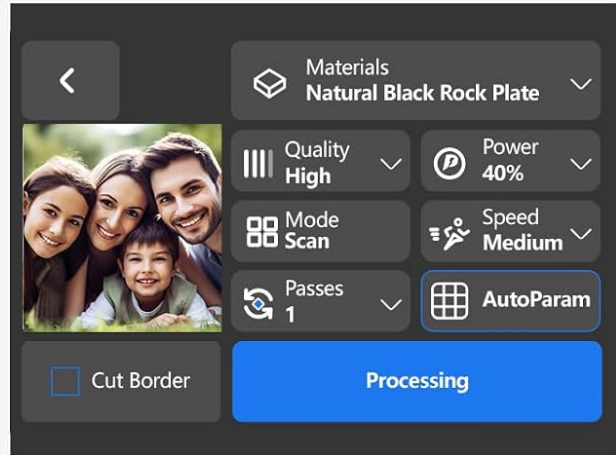
3-Step Operation Simple for Everyone

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 4: The 3-step process for engraving or cutting.

2. Software Compatibility

The Alpha MK2 supports multiple software options for design and control:

- **AlgoLaser App:** Recommended for beginners for simple logo and photo engraving.
- **LightBurn:** A mature engraving software for advanced users.
- **LaserGRBL:** A popular Windows software for image laser engraving.

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 5: Software options for controlling the Alpha MK2.

3. Material Compatibility

The Alpha MK2 is capable of engraving and cutting a wide range of materials, including:

- Wood (up to 15mm cutting depth)
- Metal
- Acrylic (up to 25mm cutting depth)
- Leather
- Glass
- Stone

Stunning Works Using the Alpha MK2

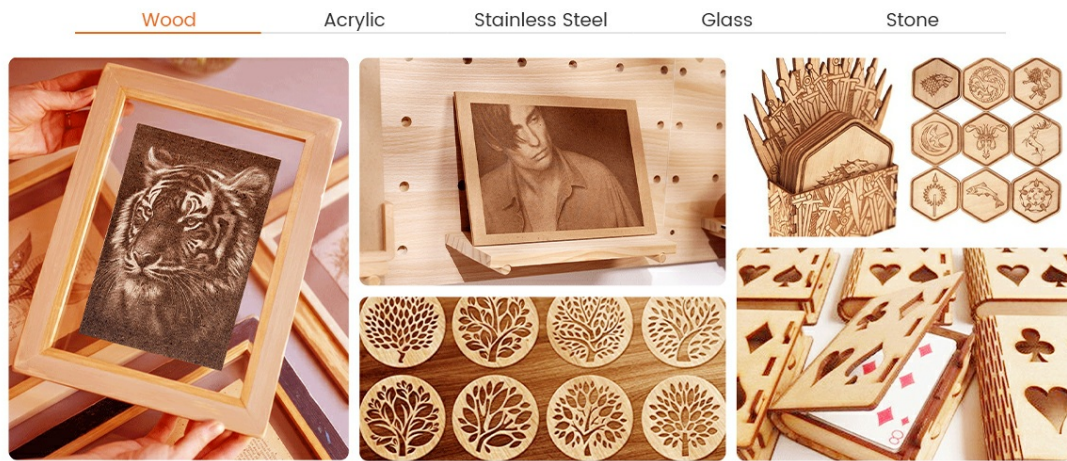


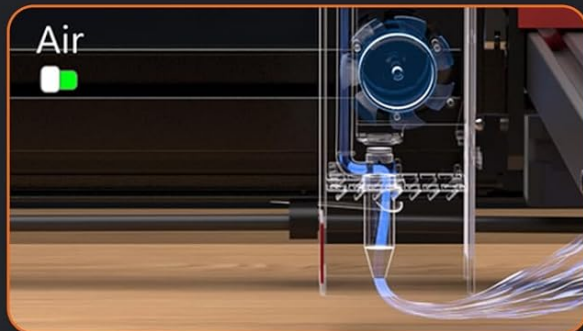
Figure 6: Examples of wood engraving and cutting.

4. Smart Air Assist System

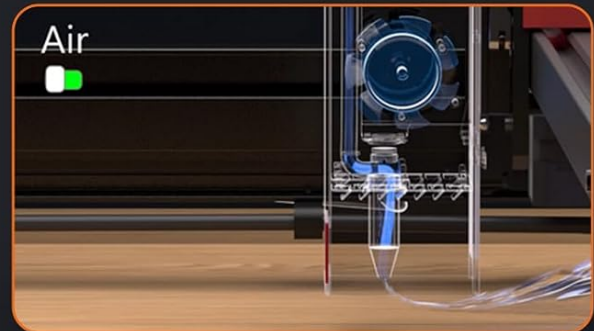
The integrated smart air pump automatically adjusts airflow based on the engraving or cutting mode, reducing burn marks and ensuring a clean finish. This system also helps clear smoke and odors, prolonging laser life.

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 7: Smart Air Assist operation for cutting and engraving.

5. USB Storage and Project Management

The Alpha MK2 features USB ports for saving and reusing projects. You can easily access files from a USB drive directly through the touchscreen, allowing for quick selection and execution of designs.

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 8: Using USB storage for project management.

Maintenance

1. Cleaning and Care

- Regularly clean the laser lens and protective window with a soft, lint-free cloth and appropriate lens cleaning solution.
- Keep the machine free from dust and debris, especially around moving parts and ventilation areas.
- Inspect cables and connections periodically for any signs of wear or damage.

2. Laser Module Longevity

The integrated air assist system contributes to the longevity of the laser module by keeping the laser beam path clean and cooling materials during operation. Ensure the air assist system is functioning correctly for optimal performance and extended laser life.

Troubleshooting

This section addresses common issues you might encounter. For more complex problems, please contact customer support.

Problem	Possible Cause	Solution
Machine does not power on	Power cable disconnected, faulty outlet	Check power connections, try a different outlet.
Laser not firing/engraving	Laser module not connected, safety features engaged, incorrect parameters	Ensure laser module is properly seated. Check for safety warnings on screen. Verify power and speed settings.
Poor engraving/cutting quality	Incorrect focus, dirty lens, unsuitable parameters, material issues	Adjust laser focus. Clean the laser lens. Optimize power and speed settings for the material. Ensure material is flat.
WiFi connection issues	Incorrect password, network interference, 5GHz network	Verify password. Ensure machine and control device are on the same 2.4GHz network. Move closer to router.
Machine stops unexpectedly	Safety feature triggered (e.g., flame detection, tilt detection), power interruption	Check for safety warnings on screen. Inspect for flames or machine movement. Restore power if interrupted.

Specifications

Feature	Detail
Model Number	Alpha-MK2-20W
Laser Module Power	20,000mW (20W) COS Laser
Laser Spot Size	0.15 * 0.12mm
Engraving Speed	Up to 20,000 mm/min
Control System	AlgoOS with 3.5" Smart Touchscreen
Connectivity	WiFi (2.4GHz), USB Type-A, USB Type-C
Internal Memory	32 GB
Air Assist	Integrated Smart Air Pump
Supported Software	AlgoLaser App, LightBurn, LaserGRBL
Package Dimensions	27.24 x 9.25 x 8.58 inches
Item Weight	19.18 pounds

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.

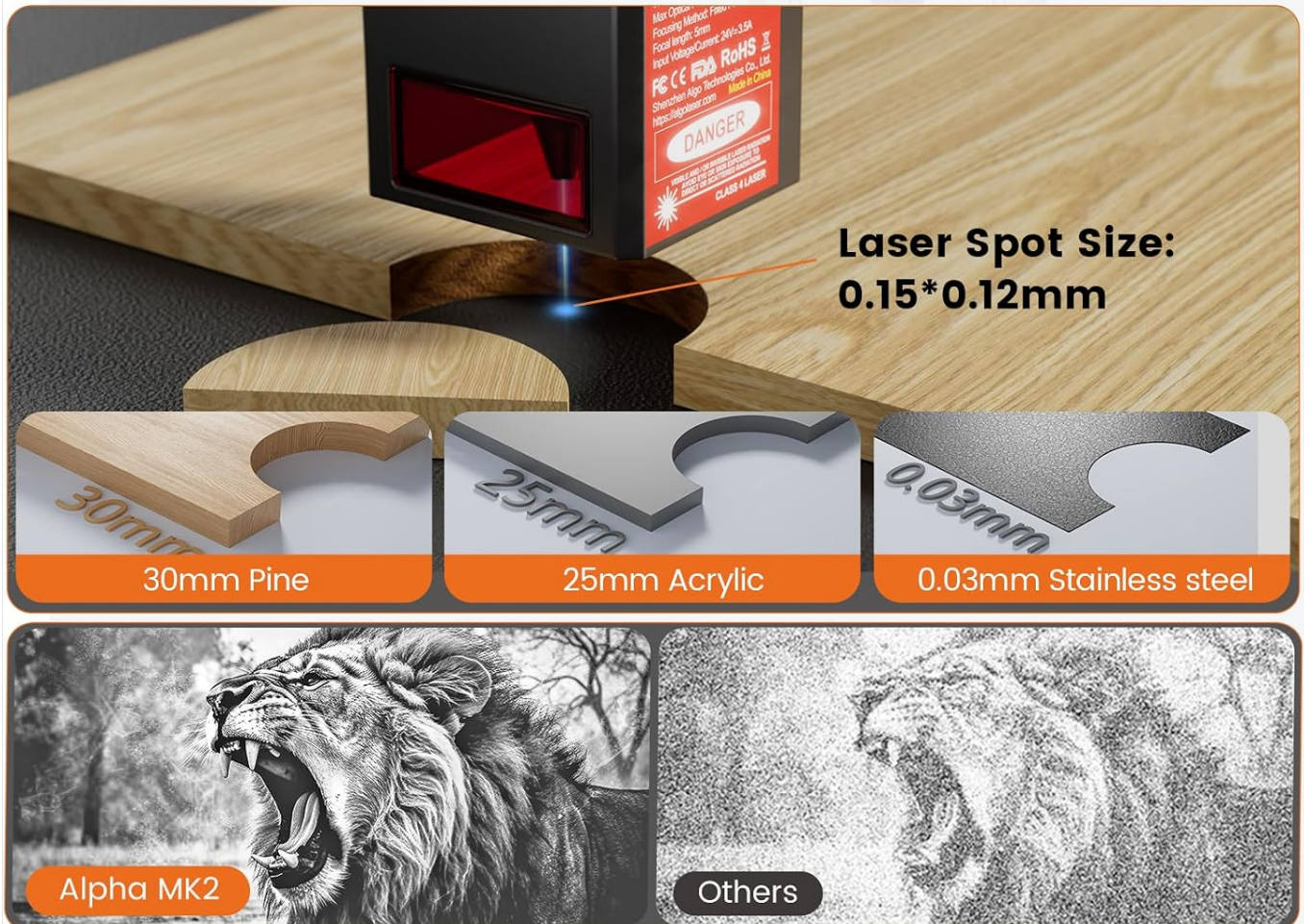


Figure 9: Laser module capabilities and material cutting depths.

Safety Information

WARNING: This is a Class 4 laser product. Always wear appropriate laser safety glasses during operation. Never look directly into the laser beam.

Integrated Safety Features

The AlgoLaser Alpha MK2 is equipped with 7 major safety features to ensure user protection:

- **Laser Emission Protection:** Prevents unintended laser firing.
- **USB Disconnection Detection:** Halts operation if USB connection is lost.
- **Child Lock:** Prevents unauthorized use.
- **Current and Voltage Detection:** Monitors power supply for anomalies.
- **Emergency Stop Button:** Immediately cuts power in emergencies.

- **Machine Offset Detection:** Stops operation if the machine moves unexpectedly.
- **Machine Tilt Detection:** Halts operation if the machine is tilted.

Your Safety, Well Ensured

Equipped with 7 major safety features to ensure your safety during operation.



Figure 10: Overview of Alpha MK2 safety features.

Optional Safety Enclosure

For enhanced safety and a sealed workspace, consider adding the AlgoLaser Safety Enclosure 2.0 (sold separately). This enclosure protects against smoke and harmful laser exposure, meeting Class 1 laser safety standards.

Safety Comes First

Class 1 Laser Safety

Add the Safety Enclosure 2.0 for a sealed workspace that protects against smoke and harmful laser exposure, meeting Class 1 laser safety standards



Figure 11: The optional safety enclosure for Class 1 laser safety.

Warranty & Support

Warranty Information

The AlgoLaser Alpha MK2 comes with a full 1-year warranty from the date of purchase. This warranty covers manufacturing defects and ensures reliable operation under normal use conditions.

Customer Support

AlgoLaser provides lifetime technical support for the Alpha MK2. Our expert support team is available 24/7 to assist with installation, troubleshooting, and any operational queries. For assistance, please visit the official AlgoLaser website or contact our support channels.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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