

Longer RAY5-20W

LONGER RAY5 20W Laser Engraver Instruction Manual

Model: RAY5-20W

1. INTRODUCTION

The LONGER RAY5 20W Laser Engraver is a versatile and powerful tool designed for precision engraving and cutting across a wide range of materials. This manual provides essential information for safe operation, setup, maintenance, and troubleshooting to ensure optimal performance and longevity of your device.



Image 1.1: The LONGER RAY5 20W Laser Engraver, showcasing its overall design and working area.

2. SAFETY INFORMATION

Operating a laser engraver requires strict adherence to safety guidelines to prevent injury and damage. Please read and understand all safety warnings before operating the device.

- **Eye Protection:** Always wear the provided protective glasses during operation. The laser head is equipped with a protective shield that filters 95% of laser light.
- **Motion Protection:** The machine features a move protection design that automatically shuts down if abnormal movement is detected.
- **Thermal Protection:** Equipped with thermal protection, the device will automatically shut down in case of overheating.
- **Emergency Stop:** An Emergency Stop Device is integrated for immediate shutdown in critical situations.
- **Ventilation:** Ensure adequate ventilation in the working area to dissipate fumes and smoke generated during engraving and cutting.
- **Fire Safety:** Keep a fire extinguisher nearby. Do not leave the machine unattended during operation, especially when working with flammable materials.



Image 2.1: Illustration of the eye protection design, emphasizing the importance of safety glasses.

3. SETUP AND ASSEMBLY

The LONGER RAY5 20W laser engraver is designed for easy assembly. Follow the detailed instructions provided in the quick start guide and user manual. Necessary tools and accessories are included.

Your browser does not support the video tag.

Video 3.1: Official assembly guide for the LONGER RAY5 Laser Engraver, demonstrating the step-by-step installation process.

For detailed visual guidance, refer to the official assembly video or the quick start guide included with your product. The quick start guide also contains a test page for initial calibration.

4. COMPONENTS OVERVIEW

Familiarize yourself with the main components of your LONGER RAY5 20W Laser Engraver:

- **Laser Module:** The core component, featuring a 20W optical output diode laser with advanced enhancement technology.
- **3.5-inch Color Touchscreen:** For direct control and monitoring of engraving progress, speed adjustments, and other operations.
- **Control Box:** Houses the upgraded 32-bit chipset motherboard for smoother and more stable operation.
- **X-Axis and Y-Axis Frames:** Provide the movement for the laser module across the working area.
- **Limit Switches:** Ensure precise positioning and prevent the laser module from exceeding the working boundaries.
- **Connectivity Ports:** Includes SD Card slot, USB port, and Wi-Fi module for various connection methods.

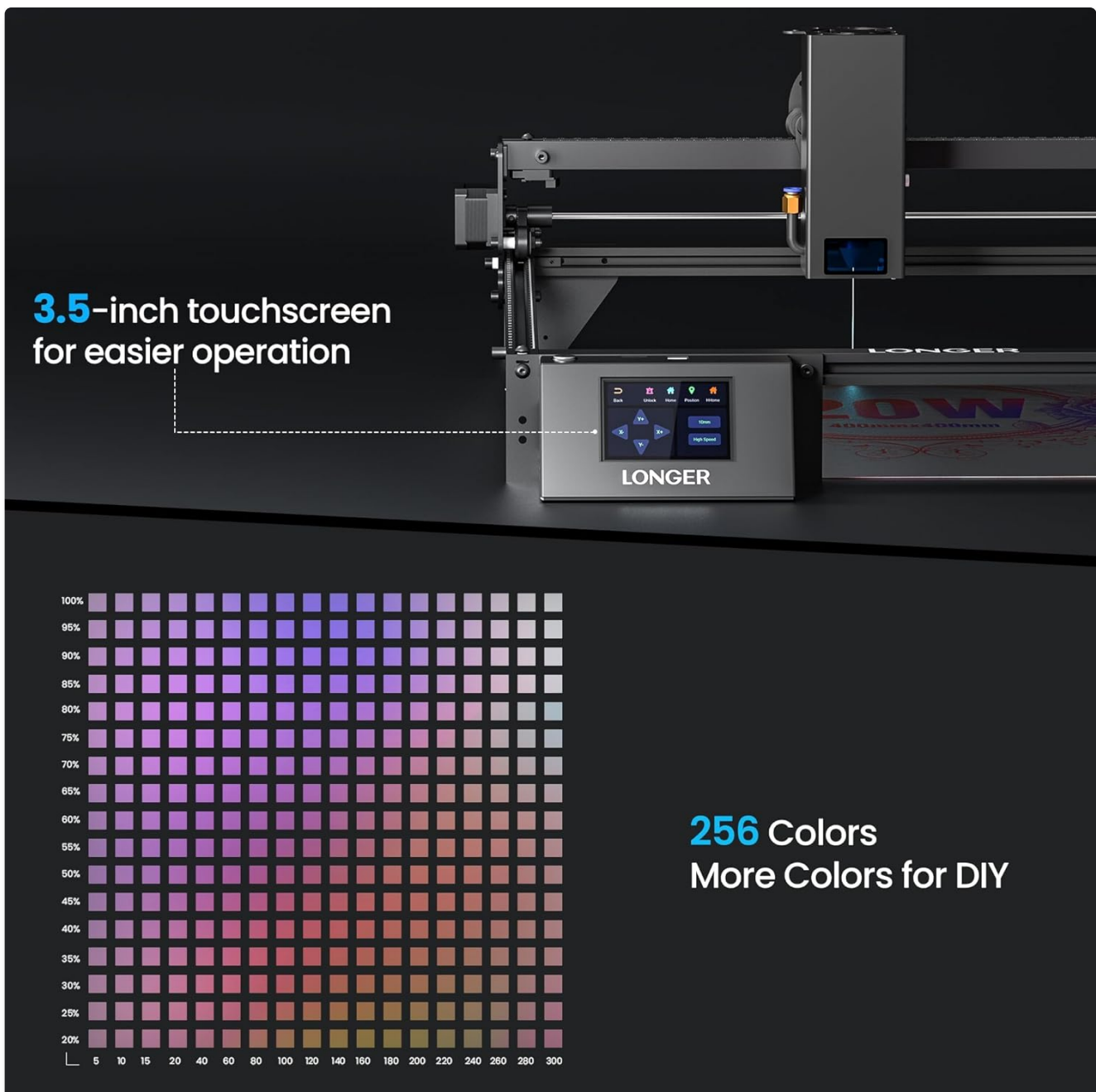


Image 4.1: Close-up of the 3.5-inch color touchscreen, highlighting its user-friendly interface.

5. OPERATING INSTRUCTIONS

5.1. Cutting and Engraving Capabilities

The RAY5 20W offers strong cutting and detailed engraving capabilities:

- **Cutting:** Can cut 0.59" (15mm) pine wood and 0.31" (8mm) acrylic in a single pass. Up to 25mm wood and 35mm acrylic with multiple passes. Precisely cuts 0.002" (0.05mm) stainless steel.
- **Engraving:** Achieves a finer engraving result and higher contrast effect with a 0.08 * 0.1mm ultra-fine laser focus area and 256-bit color scale. Supports engraving on over 200 materials.

24W

Achieving a **0.01mm** engraving precision



30mm Pine



25mm Acrylic



0.05mm stainless Steel

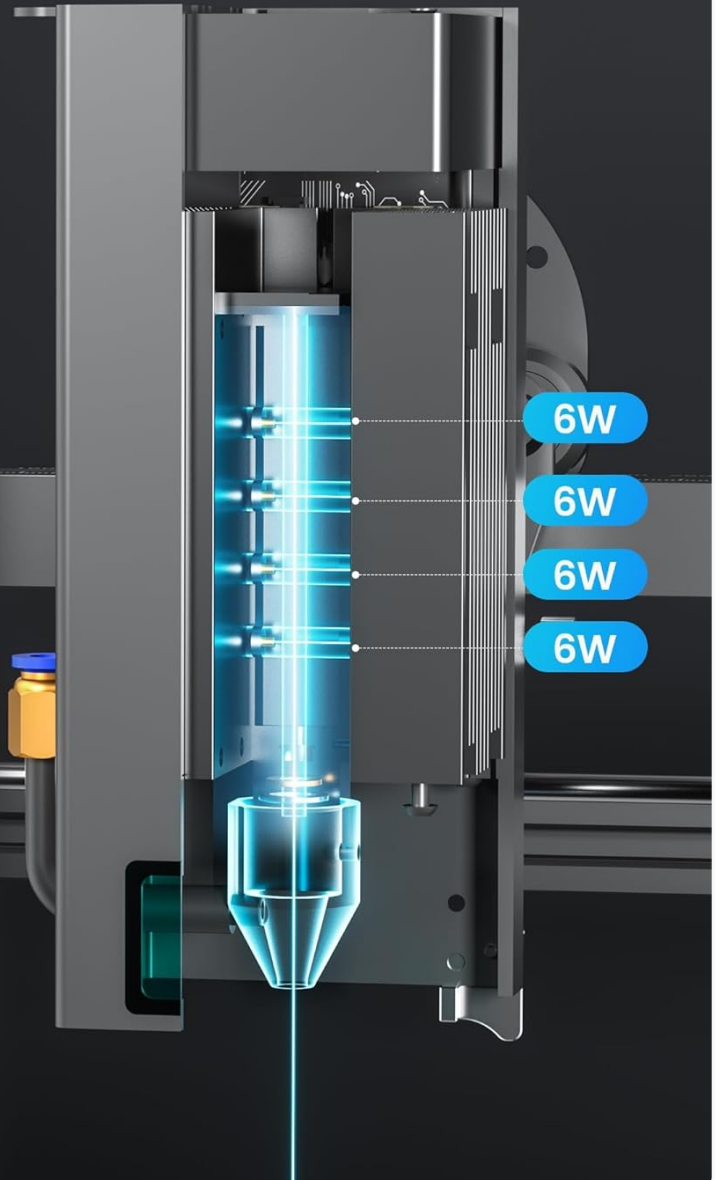


Image 5.1: Visual representation of the cutting depth capabilities for various materials.

Compatible with Multiple Software and 4 Connection Modes

Supported Operating Systems:



Input Image Formats:



Supported Connections:



Image 5.3: Overview of supported operating systems, input image formats, and connection methods.

5.4. Software Compatibility

The LONGER RAY5 20W is compatible with popular laser engraving software:

- LaserGRBL (Windows)
- LightBurn (Windows, macOS, Linux)

5.5. Multi-Machine Control

For commercial or high-volume use, one computer can control multiple LONGER RAY5 20W laser engravers simultaneously, allowing for parallel operation and improved production efficiency.

Powerful Continuous Working Capacity—One Computer Controls Multiple Machines

Continuous Working—7*24H Continuous Engraving



Image 5.4: Depiction of one computer controlling multiple engravers for enhanced productivity.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your laser engraver.

- **Cleaning:** Regularly clean the laser lens and the working area to prevent debris buildup, which can affect laser performance and accuracy. Use a soft, lint-free cloth and appropriate cleaning solutions.
- **Lubrication:** Periodically lubricate the moving parts, such as the guide rails and lead screws, according to the manufacturer's recommendations to ensure smooth operation.
- **Firmware Updates:** Check the official Longer website for any available firmware updates to ensure your device has the latest features and bug fixes.
- **Air-Assisted Interface:** The device has an air-assisted interface. If using an external air pump, ensure it is properly maintained for clean surfaces during operation.

7. TROUBLESHOOTING

If you encounter issues with your LONGER RAY5 20W Laser Engraver, refer to the following common troubleshooting tips:

- **Engraving/Cutting Quality Issues:** Verify laser focus, power settings, and speed. Ensure the material is flat and properly secured. Refer to the test page for optimal settings for different materials.
- **Connection Problems:** Check USB cable connections, Wi-Fi network stability, and ensure the SD card is properly inserted and formatted.
- **Machine Not Responding:** Ensure the power supply is connected and the emergency stop button is not engaged. Restart the machine.
- **Abnormal Movement/Shutdown:** The safety features (motion protection, thermal protection) may have been triggered. Check for obstructions, overheating, or unusual vibrations.

For more complex issues, please contact Longer customer support.




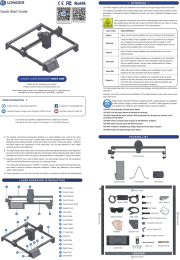
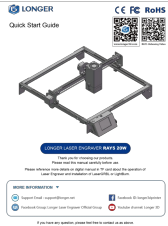
8. SPECIFICATIONS

Feature	Specification
Product Dimensions	23.07 x 22.95 x 6.95 inches
Item Model Number	RAY5-20W
Item Weight	11.43 pounds
Manufacturer	LONGER
Laser Output Power	20W (Optical Output)
Laser Focus Area	0.08 * 0.1mm
Motherboard	Upgraded 32-bit chipset
Touchscreen	3.5-inch Color Touchscreen
Connection Modes	SD Card, USB, APP, Wi-Fi
Software Compatibility	LaserGRBL, LightBurn
Supported OS	Windows 7+, macOS, Linux

9. WARRANTY AND SUPPORT

LONGER provides lifetime technical support and 24-hour professional customer service. If you have any questions or require assistance, please feel free to contact the Longer customer support team.
For contact information and further details, please visit the official Longer website or refer to the documentation included with your product.

Related Documents - RAY5-20W

	<p>LONGER RAY5 Laser Cutter & Engraver: Material Settings Guide</p> <p>Comprehensive material settings for LONGER RAY5 series laser cutters and engravers, including models 5W, 10W, and 20W. This guide provides recommended engraving and cutting parameters such as thickness, power, and cycles for a wide range of materials.</p>
	<p>LONGER RAY5 20W Laser Engraver Quick Start Guide and Installation</p> <p>Comprehensive quick start guide for the LONGER RAY5 20W laser engraver, covering safety precautions, packing list, introduction to components, and step-by-step installation instructions.</p>
	<p>LONGER RAY5 20W Laser Engraver User Manual</p> <p>Comprehensive user manual for the LONGER RAY5 20W Laser Engraver, detailing safety, specifications, operation, software, and troubleshooting.</p>
	<p>LONGER RAY5 20W Laser Engraver Quick Start Guide</p> <p>This quick start guide provides essential information for setting up and safely operating the LONGER RAY5 20W laser engraver. Learn about laser safety, assembly steps, packing contents, and initial adjustments.</p>
	<p>LONGER RAY5 20W Laser Engraver Quick Start Guide</p> <p>This Quick Start Guide provides essential information for setting up and operating the LONGER RAY5 20W Laser Engraver, including safety precautions, product specifications, assembly, and software usage.</p>
	<p>LONGER RAY5 5W/10W Quick Install Limit Switch Instructions</p> <p>A concise guide for installing limit switches on the LONGER RAY5 5W/10W laser engraver, including a packing list, step-by-step installation, and firmware upgrade instructions.</p>

