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› LONGER RAY5 20W Laser Engraver User Manual

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Model: Ray5 20W | Brand: Longer

1. INTRODUCTION

The LONGER RAY5 20W Laser Engraver is a high-precision CNC laser cutting and engraving machine designed for a wide range of creative and professional applications. Featuring a powerful 20W output laser module, a 3.5-inch color touchscreen, and multiple connectivity options, this machine offers unparalleled cutting ability and detailed multi-color engraving. This manual provides essential information for the safe and effective operation of your device.



Figure 1: LONGER RAY5 20W Laser Engraver Overview

2. PRODUCT FEATURES

- Unparalleled Cutting Ability:** Equipped with a powerful 20W output laser module, capable of cutting through 0.59" (15mm) pine wood, 0.002" (0.05mm) stainless steel, and 0.31" (8mm) acrylic in a single pass. Achieves cuts up to 25mm wood and 35mm acrylic with multiple passes.
- Detailed Multi-Color Engraving:** Features a newly upgraded 32-bit motherboard and an advanced built-in 256-bit color palette. Combined with an ultra-fine 0.06 * 0.06mm compressed spot, it produces incredibly detailed and multi-color engravings with high-contrast effects.
- 3.5" Color Touchscreen & Multiple Connection Methods:** Built-in 3.5-inch color touchscreen allows for quick and easy checking of engraving progress, adjusting speed, and performing other operations directly. Supports USB, TF card, WiFi, and APP connections, compatible with professional engraving software like LaserGRBL and LightBurn.
- Multiple Machine Control:** Ideal for commercial use, allowing control of multiple machines from a single computer to improve production efficiency. Designed for 24/7 continuous engraving.
- Simple Installation & Reliable Support:** Comes with all necessary tools and accessories, along with detailed installation and user guides. 24/7 customer support is available for professional assistance.

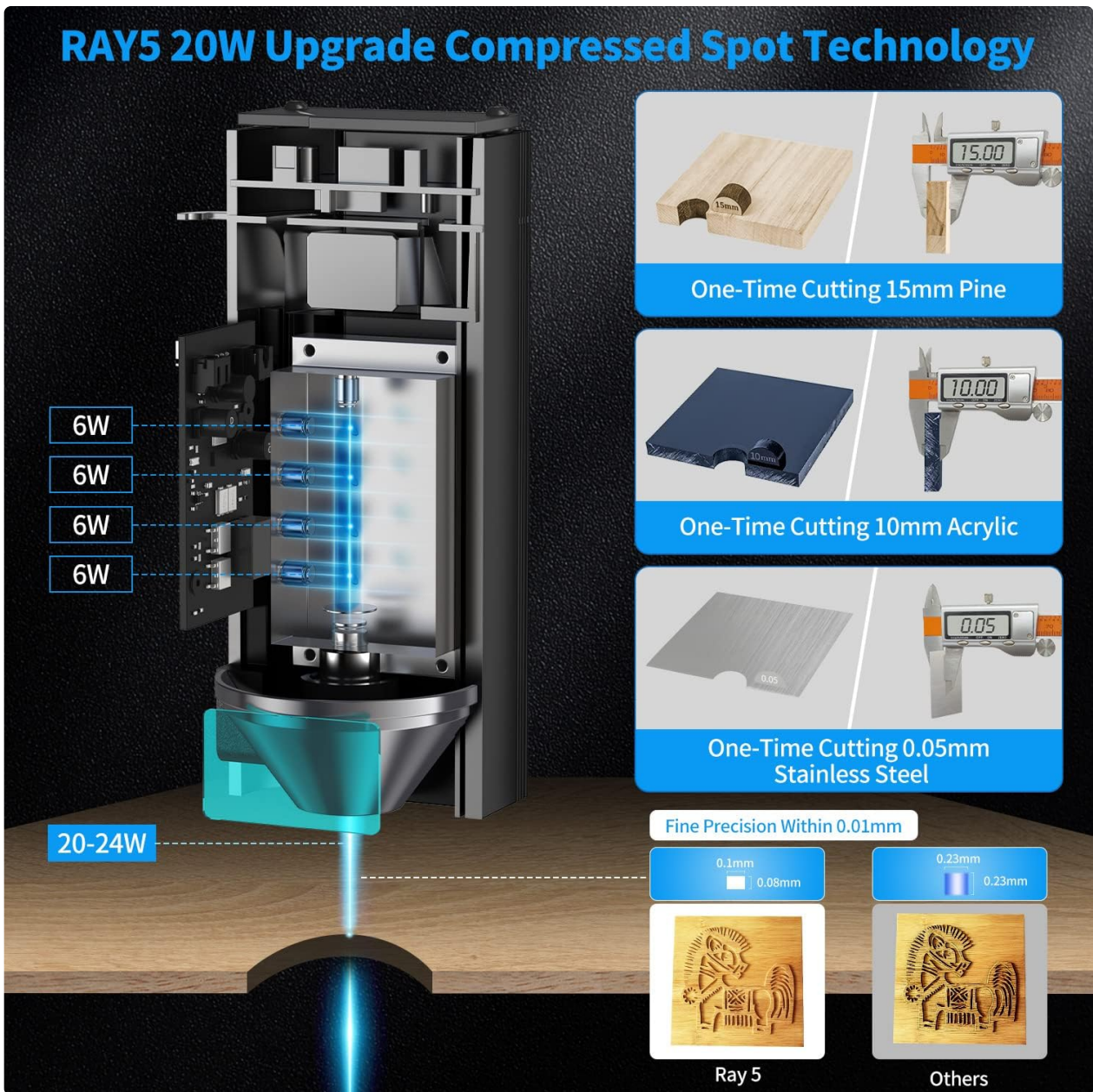


Figure 2: Ray5 20W Compressed Spot Technology and Cutting Depth

3. SETUP AND INSTALLATION

Follow these steps to assemble your LONGER RAY5 20W Laser Engraver. Refer to the included installation manual for detailed diagrams.

3.1 Unboxing and Component Check

Carefully unpack all components from the box. Verify that all parts listed in the packing list are present and undamaged. The main components include the frame profiles, X-axis assembly, control box, laser module, power adapter, USB cable, safety glasses, and various screws and tools.

Built-in 256-Bit Color Palette Super Upgrade, New Experience

Travel Together to a More
Colorful Engraving World
with Longer Ray 5 20W

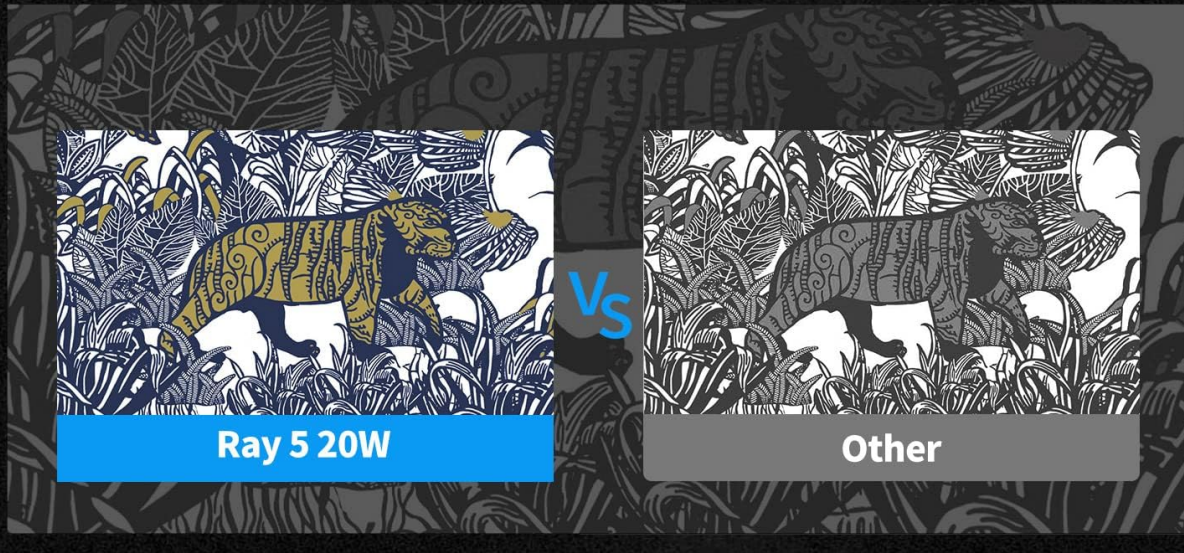
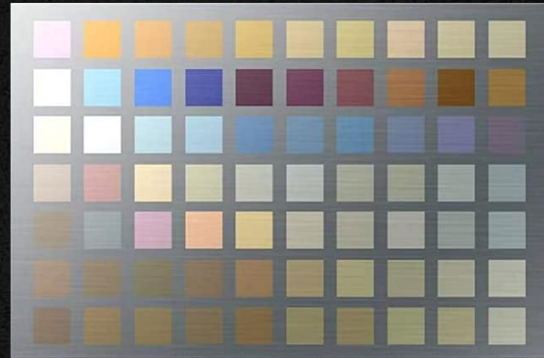


Figure 3: Unboxed Components

3.2 Frame Assembly

Assemble the main frame using the provided aluminum profiles and corner slots. Ensure all connections are secure and the frame is square. Use the M5*20 screws and M5 spring washers to fasten the profiles.

Your browser does not support the video tag.

Video 1: Longer Ray5 Laser Cutter Installation Guide (Seller)

This video provides a comprehensive guide to the assembly process, including frame construction, X-axis installation, and cable management.

3.3 X-Axis and Control Box Installation

Install the X-axis assembly onto the frame. Ensure smooth movement and adjust the eccentric nuts for appropriate tightness. Attach the engraving machine control box to the frame using M5*8 and M5*16 screws with M5 spring washers. Install the support feet with M5*16 screws and M5 spring washers.

3.4 Laser Module and Cable Management

Fix the laser module to the X-axis assembly using M3*6 screws. Secure the belt with the square nuts. Route

and secure all cables using the provided cable ties, ensuring the laser module can move freely to its farthest distance without cable tension.

3.5 Initial Adjustments

Adjust the eccentric nut on the X-axis frame for optimal tightness. Align the timing pulley with the belt. Before engraving, adjust the height of the laser head using the focusing column to ensure proper focus on your material.

4. OPERATING INSTRUCTIONS

The LONGER RAY5 20W offers versatile operation modes for your convenience.

4.1 Power On and Connectivity

Connect the power adapter to the machine and a suitable power outlet. Turn on the machine. You can connect to the engraver via:

- **USB Cable:** For direct connection to a computer running LaserGRBL or LightBurn.
- **TF Card:** Load G-code files directly onto a TF card and insert it into the control box for offline engraving.
- **Wi-Fi / APP:** Connect wirelessly via Wi-Fi and use the dedicated mobile application for control and file transfer.



Figure 4: Multiple Connection Methods

4.2 Material Compatibility

The LONGER RAY5 20W is compatible with over 200 engraving materials, including but not limited to:

- Wood (Pine, Hardwood, Basswood, Bamboo)
- Plywood
- Acrylic
- Metal (for colorizing/markings)
- Leather
- Kraft Paper
- Stainless Steel
- Ceramics
- Glass
- Brass

Help Your Dreams Come True Support for Over 200+ Engraving Materials

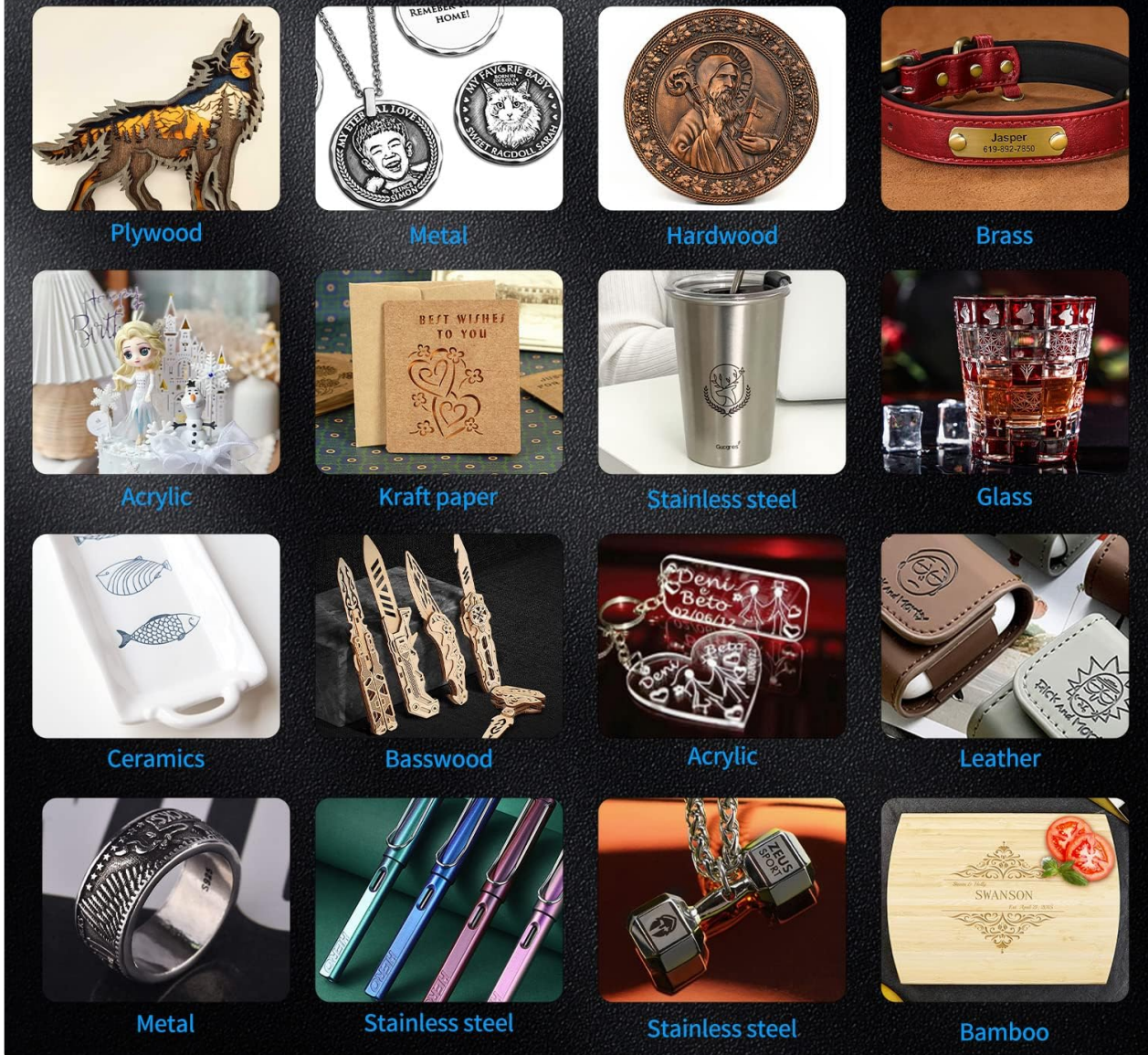


Figure 5: Engraving and Cutting on Various Materials

4.3 Engraving and Cutting Process

1. **Prepare Material:** Place your material securely on the engraving bed.
2. **Adjust Focus:** Use the focusing column to set the correct laser height for your material.
3. **Load Design:** Transfer your G-code file via USB, TF card, or Wi-Fi/APP.
4. **Set Parameters:** Adjust engraving/cutting parameters (speed, power, passes) based on your material and desired outcome.
5. **Start Operation:** Initiate the engraving or cutting process via the touchscreen or connected software.

5. MAINTENANCE

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

- **Clean the Lens:** Regularly clean the laser lens with a soft, lint-free cloth and lens cleaning solution to maintain laser power and precision.
- **Lubricate Moving Parts:** Apply a small amount of lubricant to the guide rails and lead screws periodically

to ensure smooth movement of the X and Y axes.

- **Check Belts:** Inspect the belts for any signs of wear or looseness. Adjust tension if necessary to prevent skipping or inaccurate engraving.
- **Clear Debris:** After each use, remove any debris, dust, or material scraps from the engraving area and the machine's components.

6. TROUBLESHOOTING

Here are some common issues and their potential solutions:

Issue	Possible Cause	Solution
Laser not firing or weak output	Dirty lens, incorrect focus, low power setting, faulty laser module.	Clean laser lens, adjust focus, increase power setting, contact support if module is faulty.
Engraving/Cutting is inaccurate or distorted	Loose belts, loose eccentric nuts, unstable machine, incorrect software settings.	Check and tighten belts/nuts, ensure machine is on a stable surface, verify software parameters.
Machine not connecting to computer/APP	Incorrect drivers, faulty USB cable, Wi-Fi issues, software conflicts.	Install correct drivers, try a different USB cable, check Wi-Fi connection, restart software/computer.
Machine stops unexpectedly	Overheating, material obstruction, emergency stop triggered, power interruption.	Ensure proper ventilation, clear obstructions, check emergency stop button, verify power supply.

7. SAFETY GUIDELINES

WARNING: Laser radiation can be dangerous. Always follow safety precautions.

- **Wear Safety Glasses:** Always wear the provided laser safety glasses when the machine is operating.
- **Ventilation:** Ensure adequate ventilation in your workspace to dissipate fumes and smoke produced during engraving/cutting.
- **Supervision:** Never leave the machine unattended during operation.
- **Emergency Stop:** Familiarize yourself with the emergency stop button and its location.
- **Material Safety:** Only engrave/cut materials that are safe for laser processing. Avoid highly reflective or flammable materials without proper precautions.
- **Flame Detection:** The machine features flame detection. If a flame is detected, the machine will stop automatically.
- **Tilt Protection:** The machine will stop if tilted beyond a safe angle.
- **Data Connection Interruption:** The machine will stop if the data connection is lost.
- **Laser Head Freezing:** If the laser head freezes for more than 15 seconds, the machine will automatically stop.

IDEAL FOR COMMERCIAL USE

1. Special Function-one computer controls multiple machines
2. Superb Reliability-7*24H continuous engraving



Figure 6: Control Panel and Safety Features

8. SPECIFICATIONS

Feature	Detail
Brand	Longer
Model Number	Ray5 20W
Laser Output Power	20W
Power Source	Corded Electric
Voltage	240 Volts
Item Weight	9.92 Pounds (4.5 kg)
Product Dimensions	24.5 x 14 x 5.51 inches (62.2 x 35.6 x 14 cm)
Spot Size	0.06 x 0.06mm
Motherboard	32-bit
Color Palette	256-bit
Connectivity	USB, TF Card, Wi-Fi, APP
Compatible Software	LaserGRBL, LightBurn

9. WARRANTY AND SUPPORT

Longer is committed to providing high-quality products and excellent customer service. Your LONGER RAY5 20W Laser Engraver comes with a standard manufacturer's warranty. For specific warranty details, please refer to the warranty card included in your product packaging or visit the official Longer website.

If you encounter any issues or have questions regarding the setup, operation, or maintenance of your device, our dedicated customer support team is available 24/7 to provide professional assistance and technical support. Please refer to the contact information provided in your product documentation.

You can also find additional resources and support on the official Longer website: www.longer3d.com

For the official User Manual (PDF), please visit: [User Manual PDF](#)

For the official Installation Manual (PDF), please visit: [Installation Manual PDF](#)