

OMTech FMM-5RW2U1

OMTech 50W Fiber Laser Engraver with Rotary Axis Instruction Manual

Model: FMM-5RW2U1

1. INTRODUCTION AND OVERVIEW

This manual provides essential information for the safe and efficient operation of your OMTech 50W Fiber Laser Engraver with Rotary Axis. This machine is designed for precise marking and etching on various materials, including metals and certain plastics. Please read this manual thoroughly before initial use and retain it for future reference.



Image 1.1: The OMTech 50W Fiber Laser Engraver system, including the laser head, control unit, and rotary axis.

The OMTech 50W Fiber Laser Engraver features a durable solid-state laser source with an average service life exceeding 100,000 hours. Its high-speed galvanometric system ensures rapid scanning and engraving, capable of marking at speeds up to 10,000 mm/s. The compact F-theta field lens provides a 7.9x7.9 inch (200x200 mm) workbed with less than 1% distortion, ensuring high precision for detailed designs.

2. SAFETY INFORMATION

Operating a laser engraver requires strict adherence to safety protocols to prevent injury. This device is a Class 2 laser product (0.874 mW output power). Always prioritize safety.

- **Eye Protection:** Always wear the provided protective eyewear when the laser is in operation. Never look directly into the laser beam or at reflections.
- **Emergency Stop:** Familiarize yourself with the location and function of the emergency stop button. In case of any malfunction or hazard, immediately press this button to cut power to the laser.
- **Work Area:** Ensure the work area is clear of flammable materials. Do not operate the laser near explosive gases or vapors.
- **Ventilation:** Ensure adequate ventilation to dissipate fumes and particles generated during

engraving.

- **Unauthorized Use:** Use the access key to prevent unauthorized operation of the machine.



Image 2.1: The control panel with clearly marked emergency stop button, key switch, and laser activation button for safe operation.

3. PACKAGE CONTENTS

Verify that all components are present and undamaged upon unpacking. If any items are missing or damaged, contact customer support immediately.

- Fiber Laser Engraver Unit (Laser Head and Column)
- Control Unit
- Rotary Axis Attachment
- Protective Eyewear
- Power Cable
- USB Drive with EzCad2 Software
- USB Cable
- Focusing Ruler/Gauge
- User Manual (this document)

4. SETUP INSTRUCTIONS

Follow these steps to set up your OMTECH Fiber Laser Engraver:

1. **Unpacking:** Carefully remove all components from the packaging. Retain packaging for potential future transport or service.
2. **Placement:** Place the laser engraver unit and control unit on a stable, level surface in a well-ventilated area.
3. **Connections:** Connect the laser head to the control unit using the provided cables. Connect the power cable to the control unit and a grounded power outlet. Connect the control unit to your

computer via the USB cable.

4. **Software Installation:** Insert the provided USB drive into your computer. Install the EzCad2 software. Ensure your operating system meets the software requirements.
5. **Rotary Axis (Optional):** If using the rotary axis, connect it to the 4-pin port on the control unit.

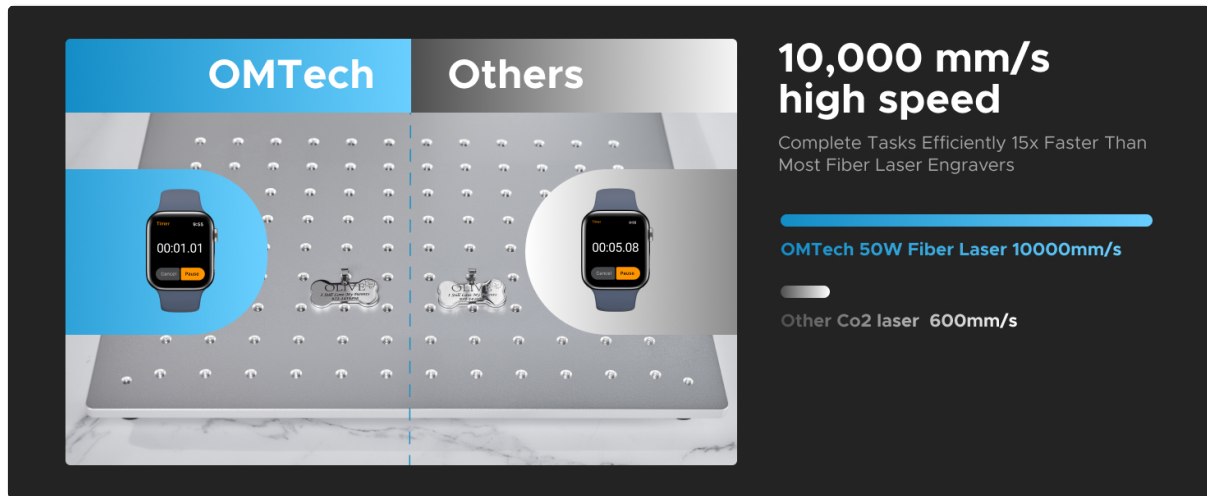


Image 4.1: The height adjustment knob for convenient manual focusing of the laser head.

5. OPERATING INSTRUCTIONS

This section outlines the basic steps for operating your laser engraver.

5.1. Focusing the Laser

Accurate focusing is crucial for optimal engraving results.

1. Place your material on the workbed.
2. Activate the red dot pointer (usually via software or a dedicated button).
3. Adjust the height of the laser head using the manual focus knob until the two red dots from the pointer converge into a single, sharp dot on the material surface.
4. The red dot guidance also provides an outline or pattern preview on the workpiece, aiding in precise positioning.

RED DOT GUIDANCE

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Visible Laser Pointers Provide Easy Focusing & Clear Preview



Image 5.1: Red dot guidance system showing outline and pattern preview on a workpiece for precise alignment.

5.2. Using EzCad2 Software

The EzCad2 software is used to create and control your engraving projects. The device is also compatible with LightBurn software.

- Launch EzCad2 on your computer.
- Import or create your design. The software supports various image formats.
- Adjust laser parameters such as power, speed, frequency, and number of passes according to your material and desired effect.
- Use the preview function to verify the engraving area and pattern.
- Ensure protective eyewear is worn, then initiate the engraving process.



EZCAD2 INCLUDED

Our EzCad2-Based Device Works with LightBurn
for Easy Creation of Stunning Patterns & Images

Image 5.2: EzCad2 software interface on a computer, demonstrating design capabilities and LightBurn compatibility.

5.3. Rotary Axis Operation

The included rotary axis allows for engraving on curved or cylindrical surfaces.

1. Attach the rotary axis to the laser engraver unit and connect it to the control unit.
2. Secure the cylindrical object (e.g., ring, bracelet, cup) firmly in the rotary chuck.
3. Adjust the height and position of the rotary axis and laser head to ensure proper focus and alignment with the object.
4. Configure the rotary axis settings within the EzCad2 software for cylindrical engraving.
5. Proceed with engraving as described in Section 5.2.

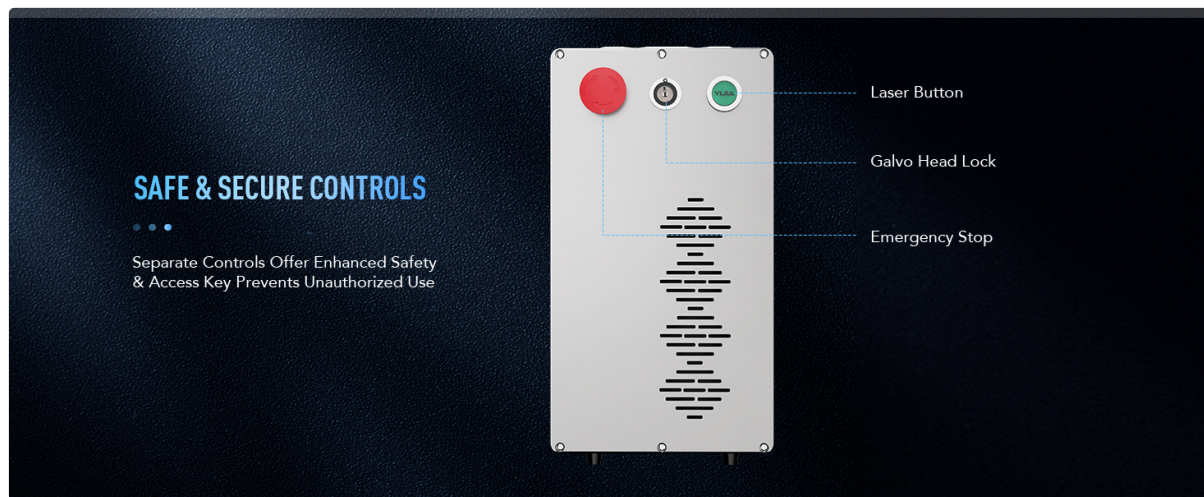


Image 5.3: Examples of cylindrical objects being engraved using the rotary axis, demonstrating its capability for curved surfaces.

6. MAINTENANCE

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

- **Cleaning:** Regularly clean the workbed and surrounding areas to remove debris and dust. Use a soft, lint-free cloth.
- **Lens Care:** The F-theta scanning lens is a critical component. Clean it gently with lens cleaning solution and a specialized lens cloth only when necessary, following manufacturer guidelines. Avoid touching the lens surface with bare hands.
- **Cable Inspection:** Periodically inspect all cables for signs of wear or damage. Replace any damaged cables immediately.
- **Software Updates:** Keep your EzCad2 or LightBurn software updated to the latest version for improved performance and features.

7. TROUBLESHOOTING

This section addresses common issues you might encounter.

- **No Laser Output:**
 - Ensure the machine is powered on and the key switch is in the 'ON' position.
 - Check if the emergency stop button is disengaged.
 - Verify all cables are securely connected.
 - Confirm the laser is enabled in the software.
- **Poor Engraving Quality:**
 - Check laser focus. Re-focus the laser as described in Section 5.1.
 - Adjust laser parameters (power, speed, frequency) for the specific material.
 - Ensure the material surface is clean and free of obstructions.

- Inspect the lens for dirt or damage.

- **Software Not Connecting:**

- Ensure the USB cable is properly connected to both the control unit and the computer.
- Restart both the laser engraver and the computer.
- Check device drivers on your computer.

If you encounter issues not covered here or require further assistance, please contact OMTech customer support.

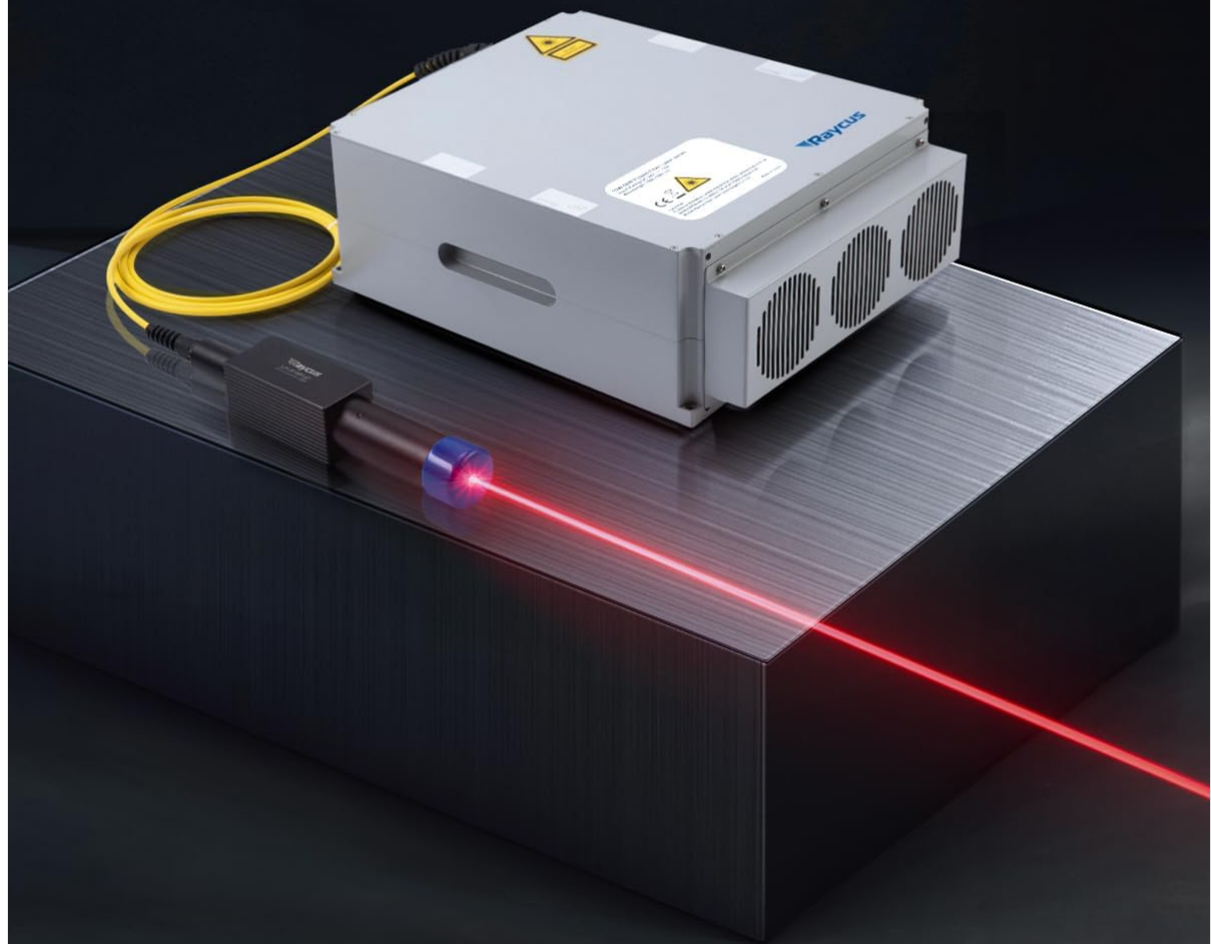
8. SPECIFICATIONS

Feature	Specification
Model Number	FMM-5RW2U1
Laser Power	50W
Laser Type	Solid-State Fiber Laser
Work Area	7.9" x 7.9" (200 x 200 mm)
Engraving Speed	Up to 10,000 mm/s
Engraving Precision	0.01 mm
Laser Source Service Life	Over 100,000 hours
Software Compatibility	EzCad2 (included), LightBurn (compatible)
Rotary Axis	Included

50W SOLID-STATE LASER



Perfect for Anything Requiring Extreme Precision



Superior Efficiency · Stability · Durability

Image 8.1: The 50W solid-state fiber laser source, a key component of the engraver.

0.01 mm Precision & 100,000 Hr Lifespan

Sharper & Clearer Details with Every Pass,
Perform Reliably for Years of Consistent Results



Image 8.2: Visual representation of the 7.9" x 7.9" work area and material capacity.

9. WARRANTY AND SUPPORT

OMTech provides customer support for their products. For warranty information, technical assistance, or service inquiries, please contact OMTech directly.

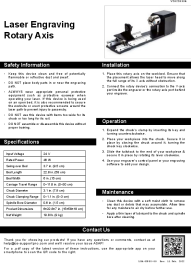

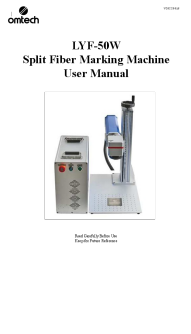
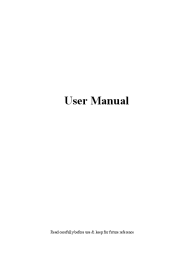


- **Phone:** +1 (949) 438-4949
- **Email Support:** SUPPORT@OMTECHLASER.COM
- **Email Tech Support:** TECHSUPPORT@OMTLASER.COM

BLACK METAL BLANK BUSINESS CARD

100 PCS



Image 9.1: OMTech customer support contact details for assistance.

 <p>Laser Engraving Rotary Axis</p>	<p>OMTech Laser Engraving Rotary Axis (LRA-KP58-00) - Specifications and Operation</p> <p>Detailed specifications, safety guidelines, installation, operation, and maintenance instructions for the OMTech Laser Engraving Rotary Axis (Model LRA-KP58-00).</p>
 <p>POLAR 350 50W DESKTOP LASER ENGRAVER OWNER'S MANUAL</p>	<p>OMTech Polar 350 50W Desktop Laser Engraver Owner's Manual and Guide</p> <p>This comprehensive owner's manual provides detailed instructions for the installation, operation, safety, and maintenance of the OMTech Polar 350 50W Desktop Laser Engraver. Learn about its features, specifications, and best practices for use.</p>
 <p>LYF-50W Split Fiber Marking Machine User Manual</p>	<p>OMTech LYF-50W Split Fiber Marking Machine User Manual</p> <p>Comprehensive user manual for the OMTech LYF-50W Split Fiber Marking Machine, covering installation, operation, safety, maintenance, and troubleshooting.</p>
 <p>User Manual</p>	<p>OMTech 3020 Laser Engraver User Manual</p> <p>Comprehensive user manual for the OMTech 3020 laser engraver, covering installation, operation, maintenance, and troubleshooting for professional use. Includes detailed instructions and safety guidelines.</p>
 <p>Solis Duo Dual Laser Engraver User Manual</p>	<p>OMTech Solis Duo Dual Laser Engraver User Manual</p> <p>Comprehensive user manual for the OMTech Solis Duo Dual Laser Engraver, covering safety, specifications, package contents, components, assembly, software installation, operation, maintenance, and additional applications. Learn how to safely and effectively use your laser engraver.</p>
 <p>USB1006c Cabinet Laser Engraver User Manual</p>	<p>OMTech USB1006c Cabinet Laser Engraver User Manual</p> <p>Comprehensive user manual for the OMTech USB1006c Cabinet Laser Engraver. Covers essential safety guidelines, detailed installation procedures, operational instructions, and maintenance procedures for optimal performance and longevity of your CO2 laser engraving machine.</p>