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OMTech RYGELAMZ-FMM175SUS

OMTECH 50W Fiber Marking Machine with Rotary Axis User Manual

Model: RYGELAMZ-FMM175SUS

1. INTRODUCTION

This manual provides essential instructions for the safe and efficient operation, maintenance, and troubleshooting of your OMTECH 50W Fiber Marking Machine with Rotary Axis. Please read this manual thoroughly before operating the machine to ensure proper usage and to prevent injury or damage.

2. SAFETY INSTRUCTIONS

WARNING: This is a Class 2 laser product with an output power of 0.874 mW. Always wear appropriate laser safety eyewear during operation. Failure to do so can result in severe eye injury.

- **Eye Protection:** Always wear certified laser safety glasses that block the 1064nm wavelength during machine operation.
- **Ventilation:** Ensure adequate ventilation in the work area to dissipate fumes and particles generated during marking.
- **Material Safety:** Only engrave materials suitable for fiber lasers. Avoid highly reflective materials or those that produce toxic fumes.
- **Emergency Stop:** Familiarize yourself with the location and operation of the emergency stop button.
- **Supervision:** Never leave the machine unattended during operation.
- **Proposition 65 Warning:** This product may expose you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

3. PRODUCT OVERVIEW

3.1 Key Features

- **50W JPT Laser Source:** Provides stable and dependable operation with an impressive 100,000-hour service life.

- **Automatic Focusing:** The workbed adjusts automatically, and the preinstalled autofocus feature finds the correct focal distance, eliminating manual adjustments.
- **Built-in Camera:** Monitor the work process in real-time and pair with LightBurn for effortless image extraction.
- **Lightning-Fast Marking Speed:** Equipped with the G3pro-Vision galvanometer, offering a marking speed of 275.6 ips (7000 mm/s).
- **6.9" x 6.9" Work Area:** Provides ample space for various engraving projects.
- **LightBurn & EZCad 2.0 Compatible:** Supports both software for versatile design and control.
- **Rotary Axis Compatible:** Expand capabilities to engrave cylindrical or irregularly shaped objects.
- **Durable Construction:** Heavy-duty metal casing, 30% heavier than comparable models, minimizes jittering for stable performance.

3.2 Components

The OMTECH 50W Fiber Marking Machine consists of the main laser unit, a control box, and a rotary axis attachment. Key components include the laser head, work platform, control panel, and safety features.



Figure 1: Overview of the OMTECH 50W Fiber Marking Machine highlighting its 50W laser power, automatic focusing, 1064NM wavelength, 100,000+ hours lifespan, built-in camera, 10000 MM/S max marking speed, 6.9"x6.9" work area, LightBurn compatibility, and JPT Laser Source.

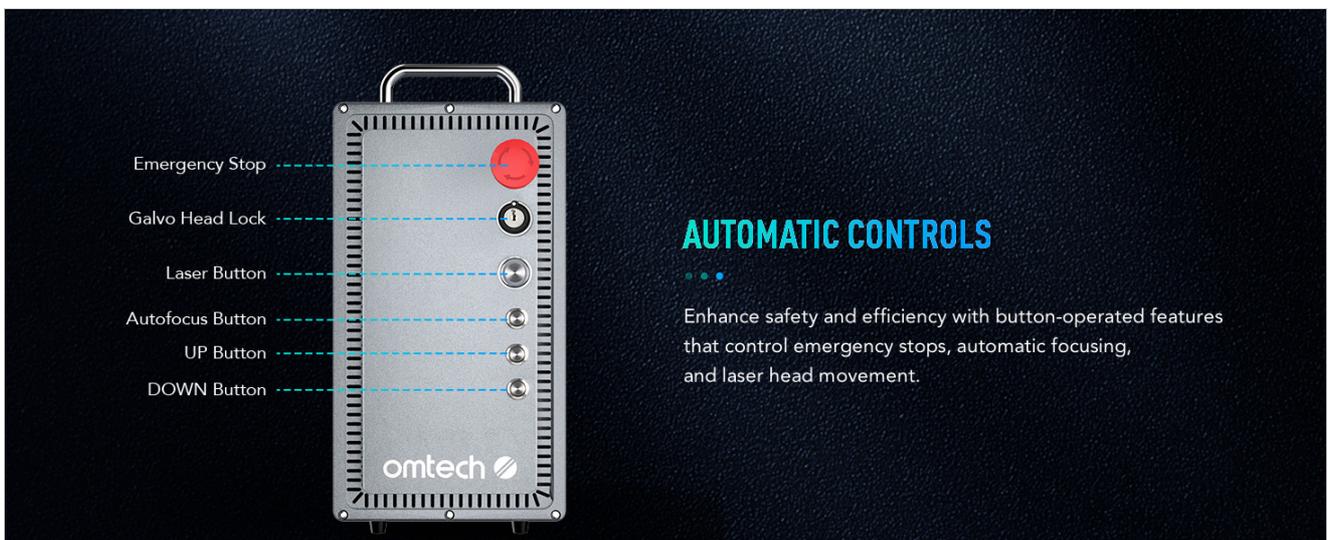


Figure 2: The control panel features an Emergency Stop button, Galvo Head Lock, Laser Button, Autofocus Button, UP Button, and DOWN Button for enhanced safety and efficiency.

4. SETUP

1. **Unboxing and Placement:** Carefully remove the machine from its packaging. Place it on a stable, level surface in a well-ventilated area, away from flammable materials.
2. **Power Connection:** Connect the power cable to the machine and a grounded electrical outlet.
3. **Software Installation:** Install the provided EZCad 2.0 software or LightBurn on your computer. Follow the on-screen instructions for installation and driver setup.
4. **Rotary Axis (Optional):** If using the rotary axis, connect it according to the separate rotary axis manual.
5. **Initial Focus Check:** Power on the machine. Use the autofocus function or manually adjust the laser head height until the red dot pointers converge, indicating proper focus.

5. OPERATING INSTRUCTIONS

5.1 Basic Marking Process

1. **Prepare Design:** Create or import your design into EZCad 2.0 or LightBurn software.
2. **Place Material:** Position your material on the work platform. For cylindrical objects, secure them in the rotary axis.
3. **Set Focus:** Activate the autofocus feature by pressing the dedicated button on the control panel, or manually adjust the Z-axis until the laser's red guide dots align.
4. **Preview Marking Area:** Use the software's preview function to ensure the design is correctly positioned on your material.
5. **Start Marking:** Press the Laser Button on the control panel or initiate the job from the software. Monitor the process using the built-in camera.
6. **Completion:** Once marking is complete, safely remove the engraved material.

Video 1: Demonstration of engraving with the rotary axis, showcasing its functionality for marking curved surfaces.

Video 2: Illustrates the ultra-high engraving speed of the OMTECH fiber laser, highlighting its efficiency.

Video 3: Short clip showing the OMTECH fiber laser engraver in action, demonstrating its operational process.

5.2 Using Autofocus and Camera

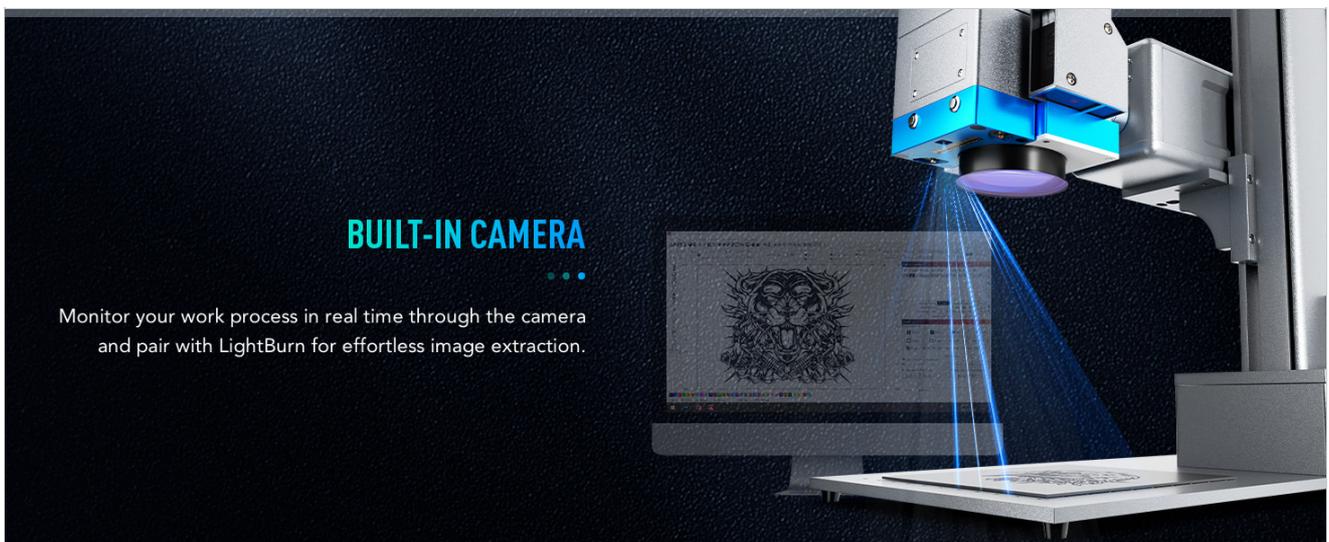
The machine's autofocus system simplifies setup by automatically finding the optimal focal distance. The integrated camera allows for precise alignment of designs and real-time monitoring of the engraving process, ensuring accuracy and reducing material waste.



RAPID AUTOFOCUS

Correct the focus automatically at the touch of a button
—No more manual testing and adjustment.

Figure 3: The automatic focusing system ensures precise laser focus with minimal user intervention.



BUILT-IN CAMERA

Monitor your work process in real time through the camera and pair with LightBurn for effortless image extraction.

Figure 4: The built-in camera provides a visual feed of the work area for accurate placement and monitoring.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your fiber marking machine.

- **Lens Cleaning:** Periodically clean the laser lens with a specialized lens cleaning solution and cloth to maintain beam quality.
- **Work Area Cleaning:** Keep the work platform and surrounding area free of debris and dust.
- **Cable and Connection Check:** Regularly inspect all cables and connections for wear or damage.
- **Laser Source Lifespan:** The JPT laser source has an impressive lifespan of over 100,000 hours, requiring minimal maintenance.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No laser output	Emergency stop engaged, power off, software error	Release emergency stop, check power, restart software/machine.

Problem	Possible Cause	Solution
Poor engraving quality	Incorrect focus, wrong parameters, dirty lens, material issues	Re-focus, adjust power/speed settings, clean lens, test on scrap material.
Machine not connecting to computer	USB cable issue, driver not installed, software conflict	Check USB connection, reinstall drivers, try different USB port, restart computer.
Rotary axis not functioning	Incorrect connection, software settings, motor issue	Verify connection, check software settings for rotary mode, consult support.

8. SPECIFICATIONS

- **Model Number:** RYGELAMZ-FMM175SUS
- **Laser Power:** 50W
- **Laser Source:** JPT
- **Laser Wavelength:** 1064 nm
- **Work Area:** 6.9" x 6.9" (175mm x 175mm)
- **Max. Marking Speed:** 7000 mm/s (275.6 ips)
- **Laser Class:** 2
- **Output Power:** 0.874 mW
- **Laser Source Lifespan:** 100,000+ Hours
- **Software Compatibility:** EZCad 2.0, LightBurn
- **Net Weight:** Approximately 94.8 lb
- **Dimensions (Approximate):** 27.6" (Height) x 15.2" (Width)

9. WARRANTY AND SUPPORT

OMTech provides comprehensive customer service and support for your fiber marking machine.

- **Warranty:** A 2-year support period is provided for this product.
- **Customer Service:** A 24-hour service team is available in the U.S., the Philippines, and China.
- **Technical Support:** Professional pre-sales and after-sales technical support are offered.
- **Demo Room Program:** Over 60 demo room hosts are available in the U.S. for on-site experience by appointment.

For assistance, please refer to the contact information provided with your product documentation or visit the official OMTech website.