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› OMTech 20W MOPA Fiber Laser Marking Machine User Manual

## OMTech RYGEL-J2RABU

# OMTech 20W MOPA Fiber Laser Marking Machine

MODEL: RYGEL-J2RABU

User Manual

## 1. Product Overview

The OMTech 20W MOPA Fiber Laser Marking Machine is a versatile and high-precision tool designed for marking and engraving various materials. Equipped with LightBurn Galvo software and a 3-jaw rotary axis, it offers enhanced speed, accuracy, and flexibility for your projects. Its adjustable pulse frequency and width enable unique color marking on stainless steel and deep black etching on anodized aluminum.



Figure 1: OMTech 20W MOPA Fiber Laser Marking Machine

## Key Features:

- **20W JPT MOPA Fiber Laser:** Delivers greater speed, precision, and versatility for marking and engraving.
- **LightBurn Galvo Software & Rotary Axis:** Bundled software and a 3-jaw rotary axis for easy use and expanded marking possibilities.
- **Color Marking Capability:** Adjustable pulse frequency and width allow for colorful designs on stainless steel and black etchings on anodized aluminum.
- **Precision Optics:** High-speed galvanometric system ensures exceptional stability for quick scanning and engraving.
- **Generous Work Area:** Features a 6.9 x 6.9 inch (175x175mm) field with a red dot locator for precise calibration and focusing.
- **High Speed Operation:** Capable of working at speeds up to 275.6 ips (7000 mm/s).
- **Software Compatibility:** Includes EzCad2 software, compatible with 32 and 64-bit Windows XP, Vista, 7, 8, and 10.
- **Safety Features:** Comes with protective eyewear for safe operation.

## 2. What's Included

Upon receiving your OMTech 20W MOPA Fiber Laser Marking Machine, please verify that all components listed below are present and in good condition:

- 1 x 20W MOPA Fiber Laser Engraver
- 1 x 80 mm 3-Jaw Rotary Axis (*Ships Separately*)
- 1 x Lightburn Galvo Version License Key (*Sent by Email*)
- 1 x Protective Eyewear
- Instructions & All Necessary Accessories

## 3. Specifications

Detailed technical specifications for the OMTech 20W MOPA Fiber Laser Marking Machine:



Laser Power

**20W**

Marking Area

**6.9×6.9 in.**

Max. Marking Speed

**275.6 ips**

Max. Marking Depth

**0.002 in.**

Laser Frequency

**1–4000 kHz**

Laser Wavelength

**1064 nm**

Pulse Width

**2–500 ns**

Max. Pulse Energy

**0.8 mJ**

Included Software

**LightBurn (Galvo Version), EzCad2**

Compatible Operating Systems

**Windows, MacOS, Linux**

Figure 2: Key Specifications

| Specification      | Value                    |
|--------------------|--------------------------|
| Laser Power        | 20W                      |
| Laser Source       | JPT                      |
| Laser Wavelength   | 1064 nm                  |
| Laser Class        | Class 2                  |
| Output Power       | 0.874 mW                 |
| Marking Area       | 6.9" x 6.9" (175x175 mm) |
| Max. Marking Speed | 275.6 ips (7000 mm/s)    |
| Max. Marking Depth | 0.002 in.                |

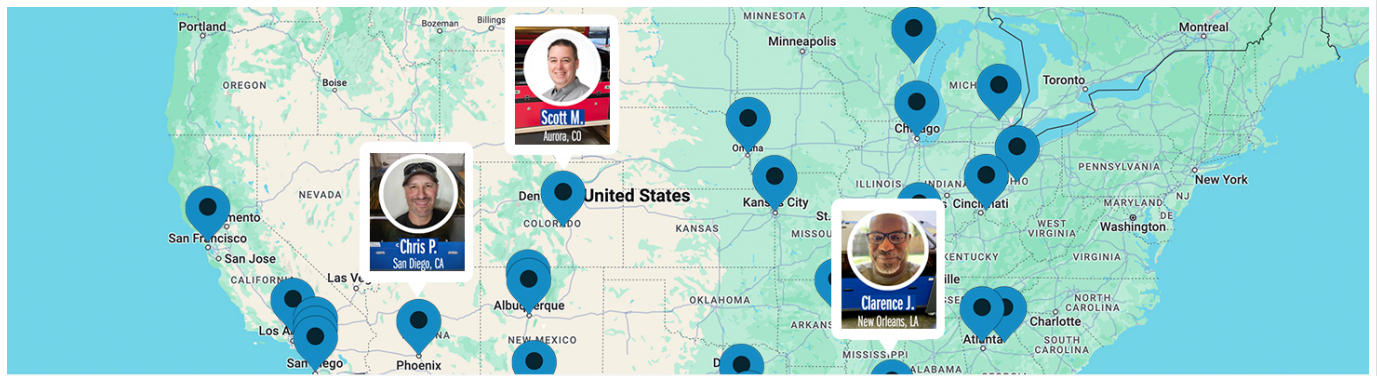
|                                     |                                           |
|-------------------------------------|-------------------------------------------|
| Laser Frequency                     | 1-4000 kHz                                |
| Pulse Width                         | 2-500 ns                                  |
| Max. Pulse Energy                   | 0.8 mJ                                    |
| Estimated Laser Service Life (MTTF) | 100,000 hr.                               |
| Cooling System                      | Air Cooling                               |
| Product Dimensions                  | 17.8 x 22.1 x 27.6 inches                 |
| Item Weight                         | 66.2 pounds (30 kg)                       |
| Included Software                   | LightBurn (Galvo Version), EzCad2         |
| Compatible Operating Systems        | Windows XP, Vista, 7, 8, 10, MacOS, Linux |

## 4. Setup & Installation

Follow these steps to set up your OMTech Fiber Laser Marking Machine and connect it to LightBurn software:

1. **Unpacking:** Carefully remove all components from the packaging. Refer to the 'What's Included' section to ensure all parts are present.
2. **Physical Connection:** Connect the laser engraver to your computer using the provided USB cable. Ensure the machine is powered on.
3. **Software Installation:** Install LightBurn Galvo Version and EzCad2 software on your computer. Ensure your operating system is compatible (Windows XP, Vista, 7, 8, 10, MacOS, Linux).
4. **LightBurn Device Discovery:**
  - Open LightBurn.
  - Navigate to the 'Devices' section.
  - Click 'Find My Laser'.
  - Confirm your device is connected via USB and click 'Next'. LightBurn will scan for connected devices. This process may take a few minutes.
  - Once identified, click 'Add Device'.
  - You may rename the laser (e.g., "OMTech Pronto 40" as shown in the video) for easier identification if you have multiple machines.
  - Click 'Next', select your laser origin (e.g., Front Left, Rear Right), then click 'Finish'.
5. **Rotary Axis Connection:** If using the 80 mm 3-Jaw Rotary Axis, connect it to the machine using the plug-and-play 4-pin connection port.

Video 1: How to connect your OMTech laser engraver to LightBurn software. This video demonstrates the device discovery process within LightBurn, including connecting the machine via USB and adding it as a new device.



## OMTECH DEMO ROOM PROGRAM

We currently have over 60 Demo Room Hosts across the United States and the number is continuously growing!

Figure 3: Software Compatibility Overview

## 5. Operation

The OMTech 20W MOPA Fiber Laser Marking Machine is designed for intuitive operation, allowing for a wide range of engraving and marking applications.

### 5.1. Material Compatibility

This laser engraver is suitable for marking and etching on a variety of materials, including but not limited to:

- Metals: Steel, Aluminum, Brass, Silver, Titanium, Gold, Tungsten
- Non-Metals: Gemstones, Silicon, Brick, Tile, Hard Plastic, Marble

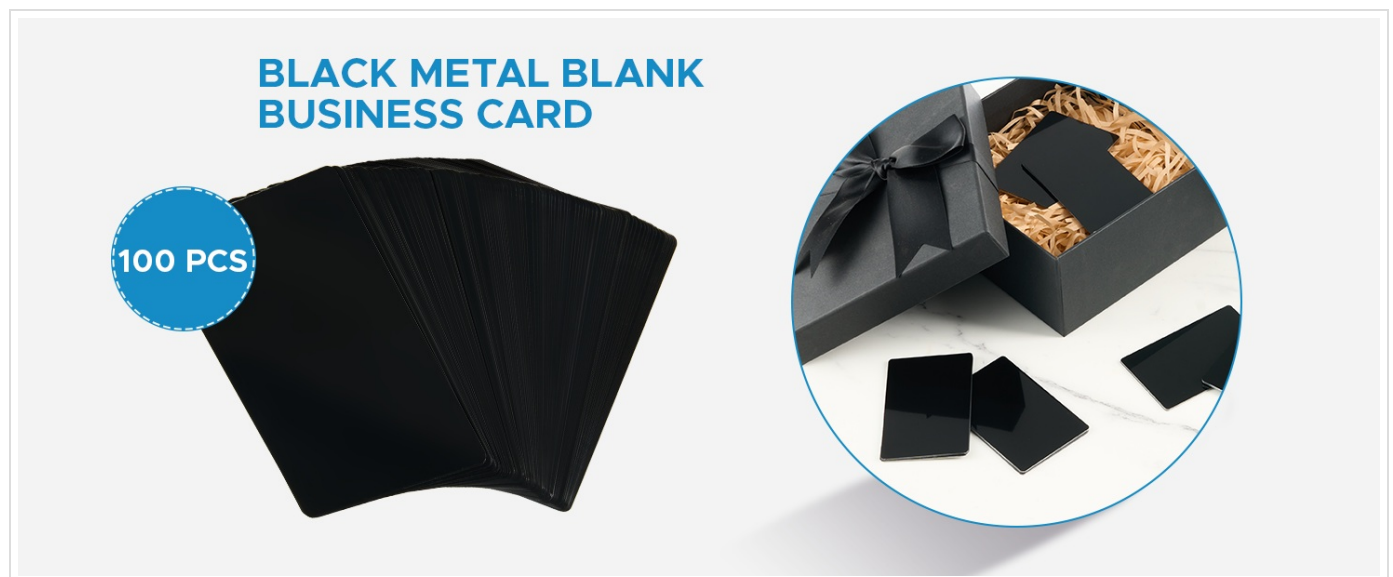


Figure 4: Engravable Materials

### 5.2. Color Marking on Stainless Steel

Utilize the MOPA laser's adjustable pulse frequency and width to create vibrant color markings on stainless steel. Experiment with different settings to achieve a spectrum of hues.

# COLOR MARKING LASER

Create Colorful Designs on Stainless Steel  
with Adjustable Pulse Frequency and Width



OMTECH

|               |               |               |               |               |               |
|---------------|---------------|---------------|---------------|---------------|---------------|
| Hatch:0.003   | Hatch:0.003   | Hatch:0.003   | Hatch:0.003   | Hatch:0.0015  | Hatch:0.002   |
| Speed:900     | Speed:900     | Speed:1150    | Speed:2000    | Speed:900     | Speed:1200    |
| Power%:58     | Power%:20     | Power%:92     | Power%:80     | Power%:25     | Power%:73     |
| Frequency:390 | Frequency:380 | Frequency:180 | Frequency:200 | Frequency:300 | Frequency:150 |
| Q Pulse:55    | Q Pulse:20    | Q Pulse:9     | Q Pulse:6     | Q Pulse:25    | Q Pulse:12    |

Figure 5: Examples of Color Marking on Stainless Steel

## 5.3. Using the Rotary Axis

The included 80 mm 3-Jaw Rotary Axis allows for 360-degree engraving on cylindrical surfaces such as rings, bracelets, pens, bottles, and tubes. Connect it via the dedicated 4-pin port for seamless integration.

# 80 mm 3-JAW ROTARY AXIS

Enjoy 360° Rotary Engraving & Plug-and-Play Installation  
to Customize Your Rings, Bracelets, or Other Jewelry



Figure 6: 80 mm 3-Jaw Rotary Axis

## 5.4. High Accuracy and Speed

The machine's high-speed galvanometric system ensures outstanding accuracy, achieving details down to 0.01 mm and marking speeds up to 7000 mm/s (275.6 ips). This allows for rapid production while maintaining intricate design quality.

# FAST & ACCURATE MARKING

Outstanding Accuracy & Marking up to 275.6 ips  
Thanks to Our Sino-Galvo Galvanometric System



Figure 7: Fast & Accurate Marking Capabilities

## 6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your laser marking machine. Always disconnect power before performing any maintenance.

- **Lens Cleaning:** Periodically clean the F-Theta field lenses with a soft, lint-free cloth and appropriate lens cleaning solution to maintain optical clarity.
- **Work Area Cleanup:** Keep the 175x175mm work area free of debris and dust to prevent interference with laser operations.
- **Ventilation:** Ensure proper ventilation around the machine to prevent overheating, as it uses air cooling.
- **Software Updates:** Keep your LightBurn and EzCad2 software updated to the latest versions for improved features

and stability.

## 7. Troubleshooting

This section provides general guidance for common issues. For complex problems, please contact customer support.

- **Laser Not Connecting to Software:**

- Ensure the USB cable is securely connected to both the machine and the computer.
- Verify the machine is powered on.
- Restart LightBurn software and attempt device discovery again.
- Check your computer's device manager for proper driver installation.

- **Poor Marking Quality:**

- Ensure the material is properly focused using the red dot locator.
- Clean the laser lens for any dust or residue.
- Adjust laser parameters (power, speed, frequency, pulse width) according to the material type.

- **Rotary Axis Not Functioning:**

- Verify the 4-pin connection is secure.
- Ensure the rotary axis is correctly enabled and configured in your software settings.

## 8. Warranty & Support

OMTech stands by the quality of its products. Your OMTech 20W MOPA Fiber Laser Marking Machine comes with a strong **2-year support** period.

For any questions, technical assistance, or warranty claims, please contact OMTech customer service and tech support. They offer fast US-based shipping and helpful support.



Figure 8: OMTech Customer Support Information

You can also visit the official OMTech store for more information and resources:[OMTech Store on Amazon](#)

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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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