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› ACMER P3 2-IN-1 Laser Engraver User Manual: 10W Diode & 2W IR Laser Module

ACMER P3 2-IN-1

ACMER P3 2-IN-1 Laser Engraver User Manual

Model: P3 2-IN-1 | Brand: ACMER

1. INTRODUCTION

This manual provides essential information for the safe and effective operation of your ACMER P3 2-IN-1 Laser Engraver. This desktop laser engraving and cutting machine integrates both a 10W Diode laser and a 2W IR laser module, offering versatility for various materials. Please read this manual thoroughly before initial use and retain it for future reference.



Figure 1: ACMER P3 2-IN-1 Laser Engraver with example engraved items.

2. SAFETY INFORMATION

The ACMER P3 2-IN-1 is a Class 1 laser product, designed with multiple safety features. Adherence to these guidelines is crucial for safe operation.

- **Laser Class I Compliance:** This device meets IEC 60825-1 safety standards for Class 1 laser products.
- **Enclosed Design:** The closed engraving chamber reduces smoke pollution and noise during operation.
- **Automatic Fire Detection:** The machine is equipped with a system for automatic fire detection and alarm.
- **Over-Temperature Protection:** Prevents overheating of components.
- **Limit Protection:** Ensures the laser head operates within defined boundaries.
- **Tilt Protection:** Automatically stops operation if the machine is tilted unexpectedly.
- **Flame Detection:** Detects flames and triggers safety protocols.
- **Power Lock:** Secures the device against unauthorized use.
- **Emergency Stop Switch:** Provides an immediate shutdown mechanism in case of an emergency.

- **Air Assist System:** A 30L/min air pump is included to improve work quality, effectively exhaust smoke, and prevent combustion.
- **Eye Protection:** Always wear the provided laser goggles during operation to protect your eyes from laser radiation.



Figure 2: Product safety certifications.

3. PRODUCT OVERVIEW

3.1 Key Features

- **Dual Laser System:** Integrates a 10W Diode laser and a 2W IR laser module, allowing engraving and cutting on over 300 types of materials including wood, bamboo, paper, acrylic, leather, PCB boards, anodized aluminum, and metal.
- **High Precision and Speed:** Features a CoreXY structure with motion compensation for stable high-speed operation. A 0.08mm compressed spot technology achieves an engraving precision of 0.01mm and speeds up to 48,000mm/min.
- **Robust Construction:** Built with an aviation-grade aluminum frame and industrial guides (X-axis industrial, Y-axis linear) for enhanced stability and durability.
- **Large Engraving Area:** Offers a 400x400mm working area.
- **Integrated Camera:** A built-in camera module enables precise material positioning with 2mm accuracy and facilitates batch processing.
- **Efficient Exhaust System:** Includes a 4000 RPM exhaust fan and an air-assisted air pump to manage smoke and debris.

800mm/s

Engraving Speed

Can be freely replaced
or upgraded



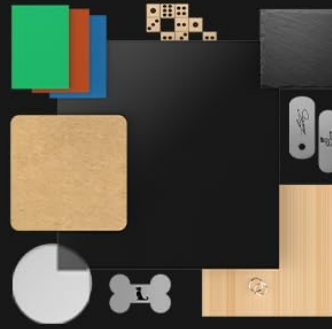
10W+2W IR



24W



48W



300+

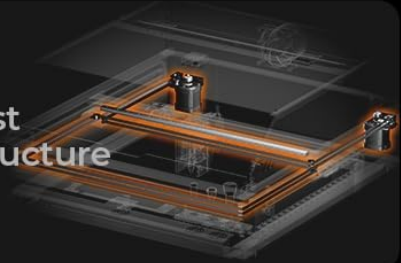
Covers almost all materials



High-definition
visual camera
Auto Focus and
Batch Fill



World's First
Core XY Structure



SGS Class 1
Laser Safety



Wide Working Area

4000 RPM Exhaust Fan

Effectively draws out smoke, fumes & dust



Figure 3: Overview of the ACMER P3's main features.

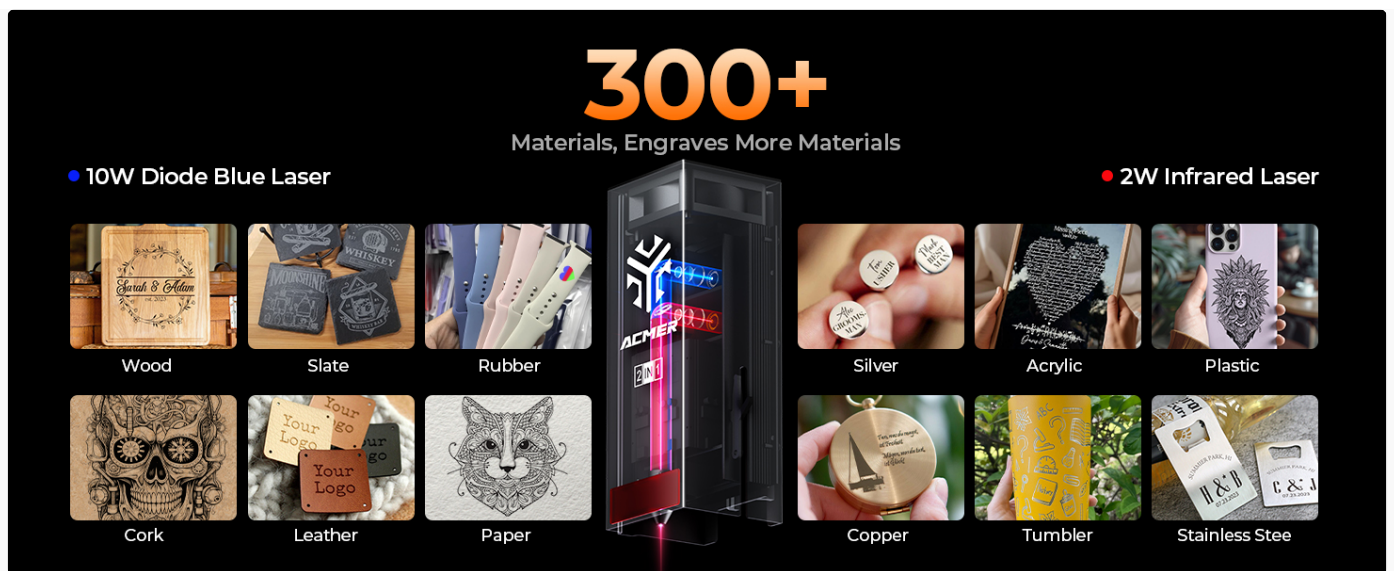


Figure 4: Material compatibility with dual laser modules.

3.2 Dual Laser Module

The P3 2-IN-1 features an innovative design that integrates both infrared (IR) and diode lasers into a single module. This allows for seamless switching between laser types, optimizing performance for different materials and applications.

First Enclosed Dual-Laser Engraver

This innovative design allows for seamless switching between IR and diode lasers, unleashing your creative potential without material limitations.



Figure 5: Dual laser module and engraving accuracy.

3.3 Air Assist System

The integrated air assist system directs a stream of air to the laser's focal point, improving cutting and engraving quality by clearing smoke and debris, and preventing charring.

Air Assist

Built-in micro airflow system for clearer, safer engraving.



With Air Assist



Without Air Assist



Figure 6: Effect of air assist on engraving quality.

3.4 CoreXY Structure

The CoreXY motion system enhances engraving speed and precision by minimizing inertia and ensuring stable movement of the laser head, even at high speeds.

World's First Core XY Structure

Faster speed, higher precision, sharper details!

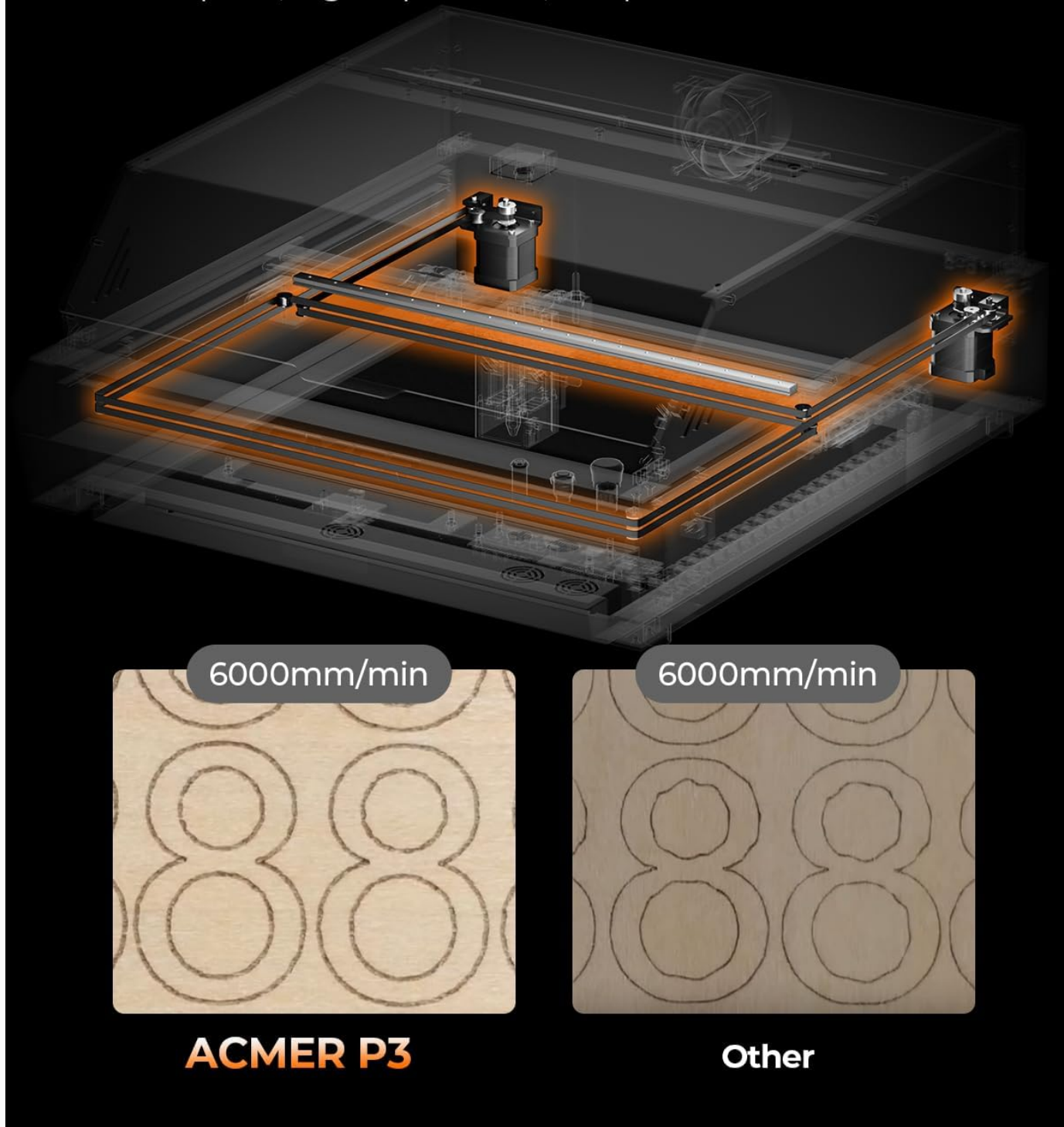
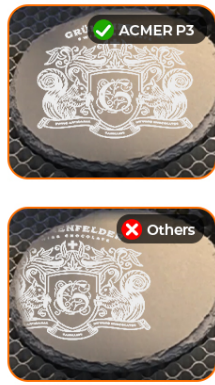


Figure 7: CoreXY structure for enhanced performance.

3.5 HD Smart Camera

The integrated high-definition camera allows for precise visual positioning of materials, simplifying job setup and enabling accurate batch engraving.

HD Smart Camera



Camera
Get What U See

VS

No Camera
Get What U Guess



HD Camera Makes Positioning Easier & More Intuitive

Figure 8: HD Smart Camera for precise material placement.

4. SETUP

The ACMER P3 2-IN-1 laser engraver is designed for quick setup. Most components are pre-assembled. Follow the detailed instructions provided in the included user manual for complete assembly.

4.1 Unpacking and Component Check

Carefully unpack all components and verify against the packing list. Ensure all items are present and undamaged.

Figure 9: Included accessories and components.

4.2 Initial Assembly and Connections

1. Place the engraver on a stable, level surface.
2. Connect the power adapter to the machine and a suitable power outlet.
3. Connect the air assist pump to the designated port on the engraver.
4. If using the smoke exhaust pipe, connect it to the exhaust port and direct it to a ventilated area.
5. For initial setup, connect the machine to your computer via the provided USB cable, or configure Wi-Fi connectivity.

5. OPERATING INSTRUCTIONS

5.1 Software Installation and Compatibility

The ACMER P3 2-IN-1 is compatible with several professional engraving software options:

- **LaserGRBL:** Free software for laser engraving.
- **LightBurn:** Paid professional engraving software, compatible with Windows and MacOS.
- **ACMER APP:** Mobile application for convenient control and design, compatible with iOS and Android.

Install your preferred software on your computer or mobile device. Refer to the software's documentation for detailed usage instructions.

Multiple Options, Excellent Compatibility.

Supports using ACMER APP, lightburn and laser GRBL, USB /TF to connect to laser machines. Systems: Windows/MacOS/Linux/iOS/Android. Image Format: JPG, PNG, BMP, GIF, SVG, AI, etc.

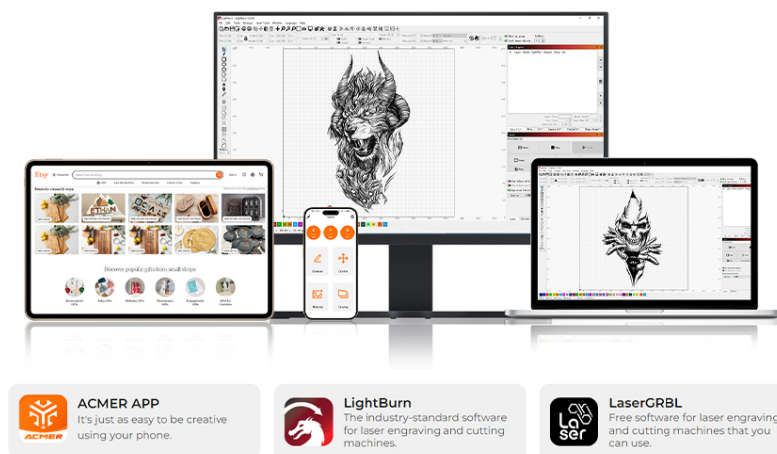


Figure 10: Software compatibility and connectivity options.

5.2 Data Transfer

You can transfer engraving data to the machine via:

- **Wi-Fi:** For wireless connectivity and control.
- **USB Cable:** Direct connection to a computer.
- **TF Card:** For offline operation, load design files onto a TF card and insert it into the machine.

5.3 Engraving Process

1. Prepare your material and place it securely on the honeycomb plate within the engraving area.
2. Use the built-in camera or software interface to precisely position your design on the material.
3. Select the appropriate laser module (10W Diode or 2W IR) and adjust power, speed, and passes based on the material type and desired effect. Refer to the specifications table for general guidelines.
4. Ensure all safety precautions are in place, including wearing laser goggles and confirming the enclosure lid is closed.
5. Initiate the engraving or cutting process through the software.
6. Monitor the process. In case of any issue, use the emergency stop switch immediately.

6. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your ACMER P3 2-IN-1 laser engraver.

- **Cleaning the Waste Drawer:** Periodically empty and clean the waste drawer located beneath the engraving area to remove debris and dust.
- **Honeycomb Plate Cleaning:** Clean the honeycomb plate regularly to prevent residue buildup that could affect engraving quality.
- **Lens Cleaning:** Gently clean the laser lens with a specialized lens cleaning solution and cloth to maintain laser beam clarity.
- **General Inspection:** Routinely inspect cables, connections, and moving parts for any signs of wear or damage.

7. TROUBLESHOOTING

- If you encounter issues with your ACMER P3 2-IN-1, consider the following basic troubleshooting steps:
- **No Power:** Check all power connections and ensure the power switch is on. Verify the power outlet is functional.
 - **Laser Not Firing:** Ensure the laser module is correctly installed and connected. Check software settings for laser power and enable status. Verify all safety interlocks (e.g., lid closed) are engaged.
 - **Poor Engraving Quality:** Adjust laser power, speed, and focus settings. Clean the laser lens. Ensure the material is flat and properly secured.
 - **Connection Issues:** For USB, try a different port or cable. For Wi-Fi, ensure the machine is within range of your router and correctly configured in the software.
 - **Software Errors:** Restart the software and the machine. Ensure your software is up to date.

For persistent problems or issues not covered here, please contact ACMER customer support.

8. SPECIFICATIONS

Feature	Specification
Model	P3 2-IN-1
Laser Power	10W Diode & 2W IR
Engraving Area	400 x 400 mm
Engraving Speed	Up to 48,000 mm/min (800 mm/s)
Engraving Precision	0.01 mm
Compressed Spot	0.08 mm
Product Dimensions	29.92 x 26.38 x 14.57 inches
Item Weight	56.9 pounds
Connectivity	Wi-Fi, USB, TF Card
Software Compatibility	LaserGRBL, LightBurn, ACMER APP
OS Compatibility	Windows, MacOS (LightBurn), Mobile (iOS, Android)
Supported Image Formats	JPG, PNG, BMP, GIF, SVG, AI
Manufacturer	ACMER
Date First Available	January 14, 2025

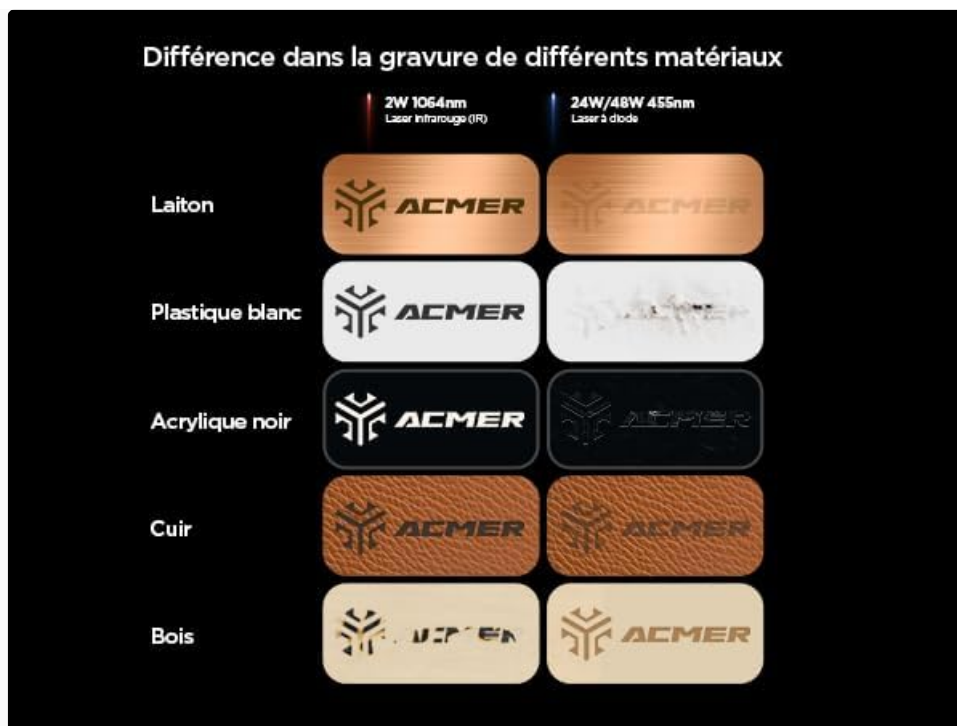


Figure 11: Comparative specifications table for ACMER P3 models.

9. WARRANTY AND SUPPORT

Your ACMER P3 2-IN-1 Laser Engraver comes with a **12-month warranty** from the date of purchase, covering manufacturing defects and malfunctions under normal use.

ACMER provides **24/7 customer support** to assist you with any questions, technical issues, or concerns you may have. Please refer to the contact information provided in your product packaging or on the official ACMER website for support.



Figure 12: ACMER 24/7 Online Support.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

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.

Submit question

Open the live page

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