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Twotrees TTS-55 Pro (400x400 TT)

Twotrees TTS-55 Pro Laser Engraving Machine User Manual

Model: TTS-55 Pro (400x400 TT)

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1. PRODUCT OVERVIEW

The Twotrees TTS-55 Pro is a versatile laser engraving and cutting machine designed for precision work across various materials. It features a powerful 5500 mW (5.5W) laser module, enhanced with a metal air-assisted nozzle and a red laser shield for improved cutting performance and safety.

This machine offers a generous 300x300mm working area, making it suitable for a wide range of projects. It is capable of engraving and cutting materials such as wood, leather, acrylic, paper, and stainless steel. The advanced compression laser technology, utilizing LD+FAC+C-Lens, provides a super fine spot focus of 0.08*0.46mm, enabling high-precision engraving with up to 0.1mm accuracy.

Equipped with a fast dual-core 32-bit MCU control board, the TTS-55 Pro achieves engraving speeds of up to 30,000mm/min. It supports both online and TF card offline engraving, along with built-in Wi-Fi for convenient control via mobile applications or computer web interfaces.

Software compatibility includes LaserGRBL (for Windows XP/7/8/10) and LightBurn (for Windows, macOS, and Linux), offering flexible and powerful tools for design and operation.



Image: The Twotrees TTS-55 Pro Laser Engraving Machine, featuring its open-frame design and laser module. A CNC router is visible in the background.

2. SETUP GUIDE

2.1 Unpacking and Component Check

Carefully unpack all components from the packaging. Verify that all parts listed in the packing list are present and undamaged. Keep the packaging materials for future storage or transport.

2.2 Assembly Instructions

Follow the detailed assembly instructions provided in the included quick start guide or the manufacturer's official documentation. Typically, this involves:

1. Attaching the gantry to the base frame.
2. Mounting the laser module onto the gantry.
3. Connecting all necessary cables (motor, limit switches, laser module).
4. Ensuring all screws and fasteners are securely tightened.

2.3 Software Installation

The TTS-55 Pro is compatible with LaserGRBL and LightBurn software. Download the latest version of your preferred software from the official websites:

- [LaserGRBL Official Website](#) (Windows)
- [LightBurn Official Website](#) (Windows, macOS, Linux)

Install the software following the on-screen prompts. Ensure any required drivers are also installed during this process.

2.4 Initial Connection

1. Connect the machine to a power source using the provided power adapter.
2. Connect the machine to your computer via USB cable or configure Wi-Fi connectivity as per the software's instructions.
3. Power on the machine.

3. OPERATING INSTRUCTIONS

3.1 Safety Precautions

- **Always wear protective eyewear** designed for laser operation.
- Ensure proper ventilation to dissipate fumes and smoke.
- Never leave the machine unattended during operation.
- Keep a fire extinguisher nearby.
- Avoid direct exposure to the laser beam.

3.2 Material Preparation

Place the material to be engraved or cut securely on the working surface. Ensure it is flat and properly aligned. Use clamps if necessary to prevent movement during operation.

3.3 Software Workflow (General)

1. **Load Design:** Open your chosen software (LaserGRBL or LightBurn) and load your desired image or vector file.
2. **Adjust Parameters:** Set the laser power, engraving/cutting speed, number of passes, and line interval according to the material type and desired effect. Refer to material settings guides for recommendations.
3. **Position Material:** Use the software's framing function to preview the laser path and ensure the design is correctly positioned on your material.
4. **Focus Laser:** Adjust the laser module's height to achieve optimal focus on the material surface. This is crucial for precision and effectiveness.
5. **Start Operation:** Initiate the engraving or cutting process from the software. Monitor the machine closely throughout the operation.

4. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your TTS-55 Pro laser engraver.

4.1 Cleaning the Laser Lens

The laser lens should be cleaned periodically to prevent dust and debris from affecting laser performance. Use a soft, lint-free cloth and a small amount of isopropyl alcohol or specialized lens cleaner. **Ensure the machine is powered off before cleaning.**

4.2 Cleaning the Machine Frame and Rails

Wipe down the machine frame and linear rails with a clean cloth to remove dust and residue. For the linear rails, ensure they are free of any obstructions that could impede smooth movement.

4.3 Lubrication of Moving Parts

Apply a small amount of appropriate lubricant (e.g., lithium grease or machine oil) to the linear rails and lead screws every few months, or as needed, to ensure smooth and quiet operation of the gantry.

4.4 Checking Electrical Connections

Periodically inspect all electrical connections to ensure they are secure. Loose connections can lead to intermittent operation or component damage. **Always disconnect power before checking connections.**

5. TROUBLESHOOTING GUIDE

This section addresses common issues you might encounter with your TTS-55 Pro laser engraver.

Problem	Possible Cause	Solution
Laser not firing or weak output	Loose cable connection, dirty lens, incorrect power setting, laser module failure.	Check laser module cable, clean laser lens, verify power settings in software, contact support if module is faulty.
Poor engraving/cutting quality	Incorrect focus, wrong speed/power settings, material not flat, dirty lens.	Adjust laser focus, optimize speed/power for material, ensure material is flat and secure, clean lens.
Machine not connecting to computer	USB cable issue, driver not installed, incorrect COM port selected, software conflict.	Try a different USB cable/port, reinstall drivers, select correct COM port in software, restart computer and machine.
Motors not moving or erratic movement	Loose motor cables, power supply issue, obstructed rails, software command error.	Check motor cable connections, verify power supply, clear any obstructions on rails, restart software and machine.
Air assist not functioning	Air pump not connected/powered, hose kinked/blocked, nozzle obstruction.	Ensure air pump is connected and powered, check air hose for kinks or blockages, clean air assist nozzle.

6. PRODUCT SPECIFICATIONS

Feature	Detail
Product Dimensions	15.75 x 15.75 x 0.79 inches

Feature	Detail
Item Model Number	400x400 TT
Item Weight	3.79 pounds
Manufacturer	Twotrees
Laser Power	5500 mW (5.5W) (Class II)
Spot Focus	0.08*0.46mm
Engraving Accuracy	Up to 0.1mm
Working Area	300x300mm
Control Board	Dual-core 32-bit MCU
Engraving Speed	Up to 30,000mm/min
Connectivity	USB, TF card (offline), Wi-Fi (mobile app/web control)
Software Compatibility	LaserGRBL (Windows), LightBurn (Windows, macOS, Linux)

7. WARRANTY INFORMATION

Warranty details for the Twotrees TTS-55 Pro Laser Engraving Machine are typically provided with the product packaging or available on the official Twotrees website. Please refer to these sources for comprehensive terms, conditions, and duration of the warranty.

8. CUSTOMER SUPPORT

For any assistance with installation, operation, maintenance, or technical issues, Twotrees offers 24/7 customer support. You can find contact information, including email and online resources, on the official Twotrees website or through the platform where you purchased the product.