LASER TREE LT-80W-F45

LASER TREE LT-80W-F45 10W Laser Module Instruction Manual

For 3018/3018 Pro CNC Machines

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your LASER TREE LT-80W-F45 10W Optical Power Laser Module. Designed for compatibility with 3018 and 3018 Pro CNC machines, this module enhances your engraving and cutting capabilities. Please read this manual thoroughly before use to ensure safe and optimal performance.

2. SAFETY INFORMATION

WARNING: This is a Class 4 laser product. Direct exposure to the laser beam can cause severe eye and skin damage. Always wear appropriate laser safety goggles when operating this device. Ensure the protective cover is in place during operation. Never look directly into the laser beam or at reflections. Operate in a well-ventilated area.

- Always wear certified laser safety goggles (OD6+) when the laser is active.
- Ensure the work area is clear of flammable materials.
- Never leave the laser module operating unattended.
- Keep children and pets away from the operating area.
- Ensure proper ventilation to dissipate fumes and smoke.

3. PACKAGE CONTENTS

Verify that all items listed below are included in your package:

- LASER TREE LT-80W-F45 Laser Module
- Spare protective lens (Φ13*1.1mm)
- Focus fixing plate (x3)
- Eye protection design (protective cover)
- 3PIN Input cable
- Air pipe
- Mounting screws and tools

Dual-LDs with beam compressed technology

- One laser module has two built-in laser diodes. The optical power of each diode is 5W.

- With beam combination technology, our laser module is double powerful and the beam quality is as good as a single diode.
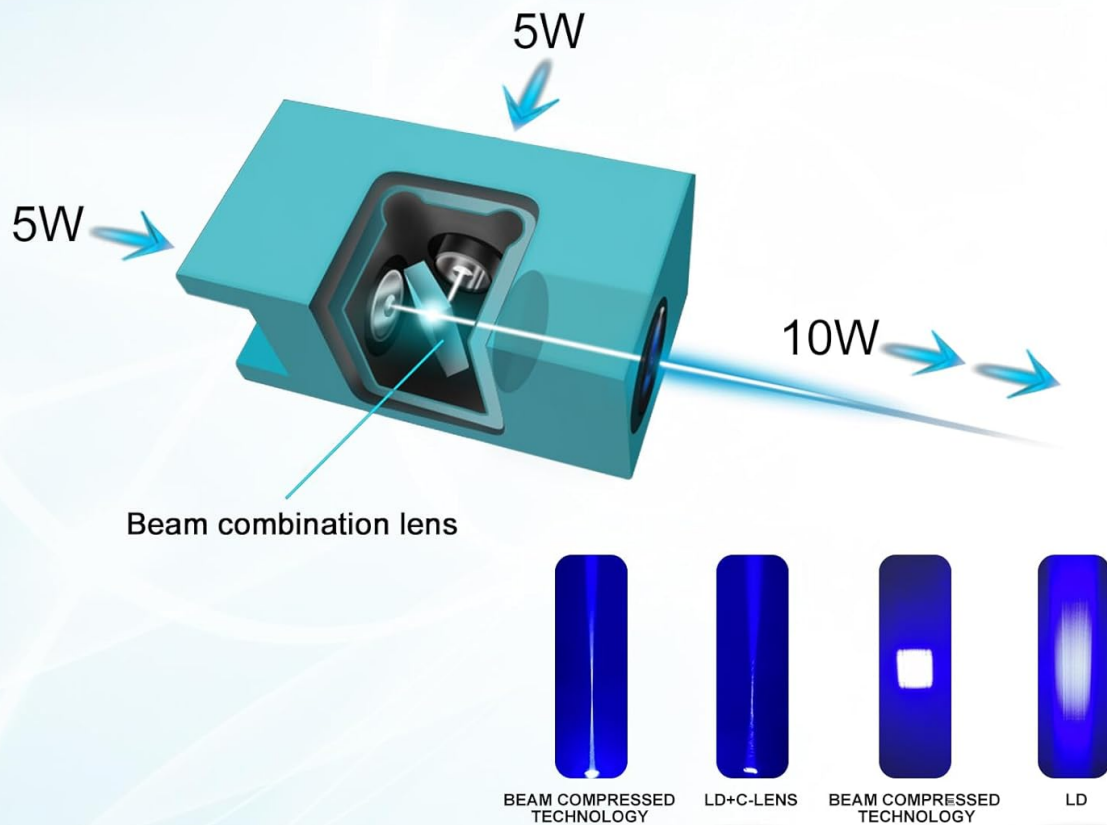
5W

5W

10W

Beam combination lens

| BEAM COMPRESSED TECHNOLOGY | LD+C-LENS | BEAM COMPRESSED TECHNOLOGY | LD |

Figure 3.1: Contents of the LASER TREE LT-80W-F45 package, including the laser module, cables, air pipe, and accessories.

4. PRODUCT OVERVIEW

The LASER TREE LT-80W-F45 is a 10W (10000mW) optical power laser module featuring a built-in FAC (Fast Axis Collimation) lens for a double ultra-fine compressed spot (0.08*0.08mm). Its cylindrical housing design is specifically tailored for easy integration with 3018 and 3018 Pro CNC machines. The module includes an air assist port to improve cutting performance and reduce charring.

Figure 4.1: The LASER TREE LT-80W-F45 laser module, designed for CNC engraving and cutting.

Figure 4.2: Key features of the 10W optical power laser module, including built-in laser driver, air assist, eye protection, focus-setting free operation, and capabilities for laser engraving and cutting.

Figure 4.3: Illustration of the dual-LDs with beam compressed technology, showing how two 5W diodes combine to achieve 10W optical power with a fine spot.

Figure 4.4: The integrated eye protective cover, designed to filter blue light during engraving or cutting, enhancing user safety.

5. SETUP AND INSTALLATION

Follow these steps to install the LT-80W-F45 laser module on your CNC 3018 machine:

1. **Disconnect Power:** Before starting, ensure all power to your CNC machine is disconnected.
2. **Remove Existing Spindle:** Loosen the screws on the side of the bracket that holds your existing spindle or laser module. Carefully remove it.
3. **Install LT-80W-F45:** Insert the LASER TREE LT-80W-F45 module into the bracket. The cylindrical design is made to fit securely. Tighten the screws to fix the module in place.
4. **Install Protective Cover:** Ensure the laser protective cover is properly installed over the laser output aperture.
5. **Connect Air Pipe:** Attach the provided air pipe to the air assist port on the module. Connect the other end to an air pump (not included) for optimal cutting performance.
6. **Connect Wiring:** Connect the 3-pin input cable (VCC, GND, PWM) from the laser module to the corresponding ports on your CNC machine's control board. Refer to your CNC machine's manual for specific wiring diagrams if needed.
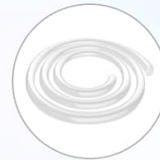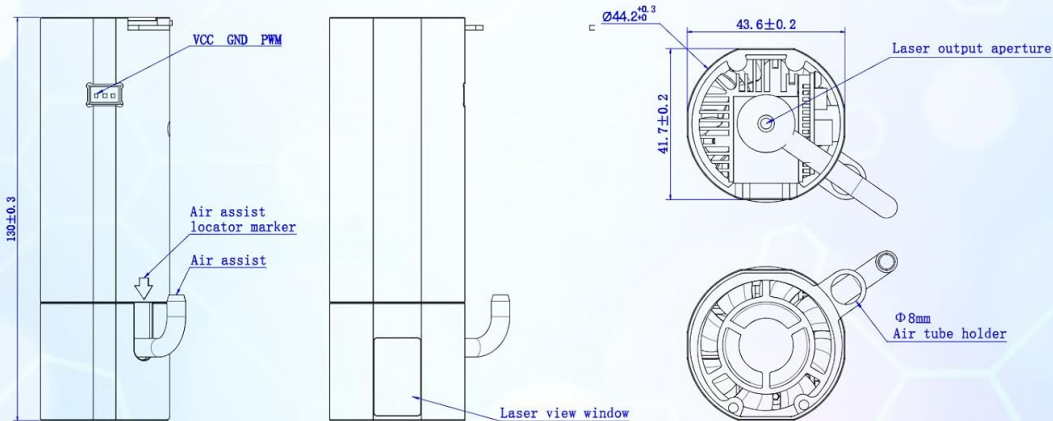
Figure 5.1: Outline dimensions of the LT-80W-F45 module, showing the air assist locator marker and air tube suggestion (Outer diameter: 6mm, Inner diameter: ≥4mm).

Video 5.1: This video demonstrates the connection method for the LT-80W-F45 laser module and shows its capability to cut 8mm plywood in a single pass. It provides a visual guide for installation and initial operation.

6. OPERATING INSTRUCTIONS

The LT-80W-F45 module is capable of engraving and cutting a wide range of materials. Always perform small test cuts or engravings on scrap material to determine optimal settings (speed, power, passes) for your specific material.

6.1 Material Compatibility

This laser module can be used on various materials, including but not limited to:

- Wood (plywood, pinewood, bamboo)
- MDF board
- Leather
- Black acrylic
- Stainless steel (engraving without black paint)
- Fabric, Paper, Rock slabs

6.2 Focusing

The LT-80W-F45 features a fixed-focus design. Use the provided focus fixing plates to set the correct focal distance between the laser module and your material. Typically, the optimal focal length is 45mm.

6.3 Air Assist

Utilizing air assist significantly improves cutting and engraving quality by blowing away smoke and debris, preventing charring, and enhancing the cutting effect. It is highly recommended for cutting thicker materials.

Figure 6.1: Comparison of cutting results with and without air assist, demonstrating cleaner edges and reduced smudging when air assist is used.

6.4 Engraving and Cutting Examples

The module offers remarkable cutting and engraving capabilities:

- Cutting through 8mm thickness plywood by one pass at a speed of 1.5mm/s.
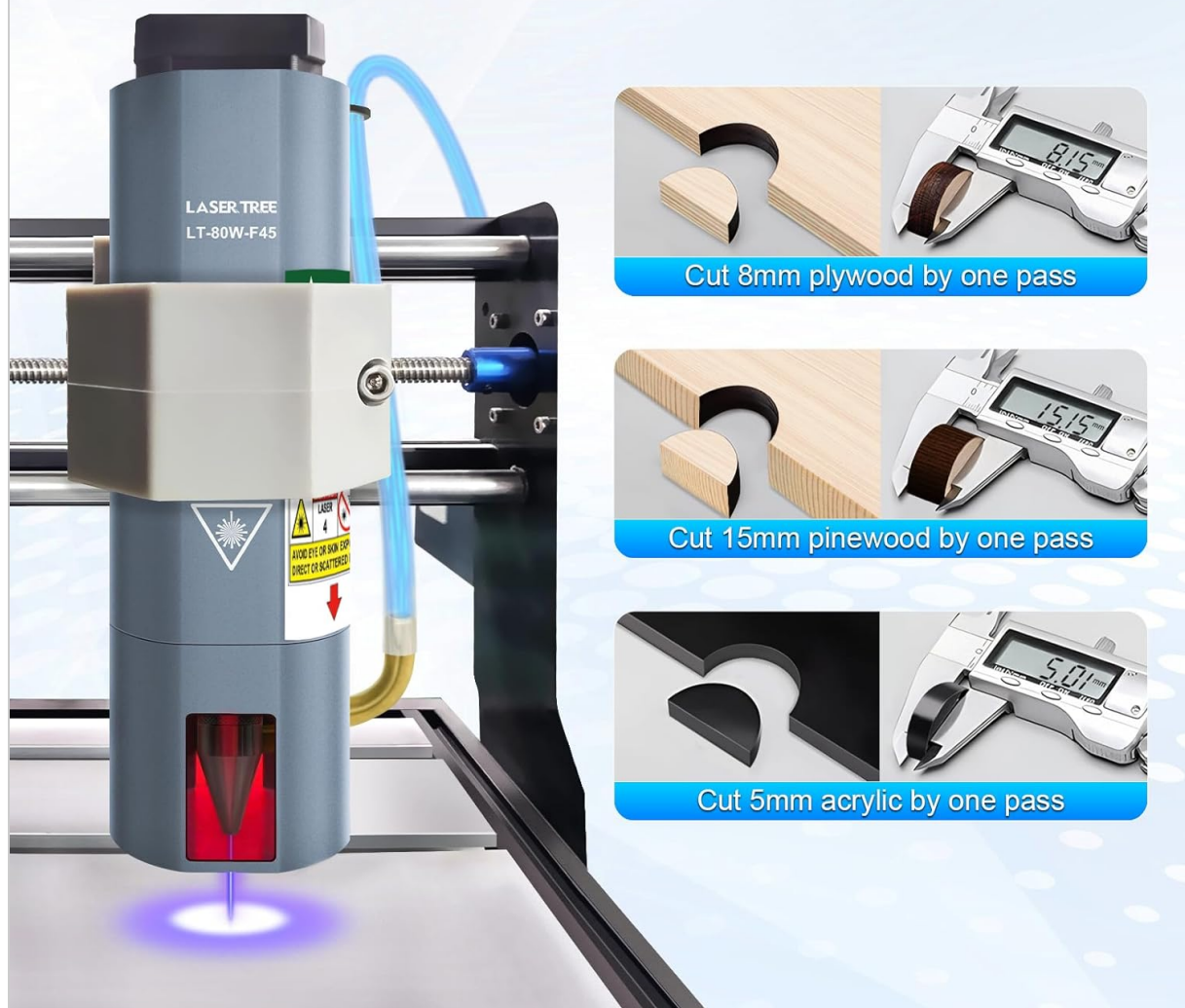- Directly engraving mirror stainless steel without needing to paint it black.

Figure 6.2: Demonstrations of the module's cutting capabilities on various materials: 8mm plywood, 15mm pinewood, and 5mm acrylic, all achieved in a single pass.

Video 6.1: This video showcases the real-world performance of the 10W laser module on a CNC 3018/3018 Pro machine, demonstrating its versatility across different materials and applications.

7. MAINTENANCE

Proper maintenance ensures the longevity and consistent performance of your laser module.

- **Clean Protective Lens:** Regularly inspect and clean the protective window glass. Fingerprints or debris on the lens can significantly affect cutting ability and decrease power output. Use a soft, lint-free cloth and lens cleaning solution.
- **Keep Fan Clear:** Ensure the built-in cooling fan (10000 rpm) is free from dust and obstructions to maintain optimal heat dissipation.
- **Check Connections:** Periodically check all electrical and air assist connections to ensure they are secure.

8. TROUBLESHOOTING

If you encounter issues with your laser module, consider the following common problems and solutions:

- **No Laser Output:**

  - Check all power and signal connections (VCC, GND, PWM).
  - Ensure the CNC control board is supplying the correct voltage (DC 12V) and PWM signal (5V PWM modulation).
  - Verify that the laser is enabled in your software.

- **Weak Laser Power/Poor Cutting:**

  - Clean the protective lens as described in Section 7.
  - Verify the focal distance is correctly set (45mm).
  - Check if the air assist is functioning correctly and providing sufficient airflow.
  - Adjust power and speed settings in your engraving software.

- **Module Overheating:**

  - Ensure the cooling fan is operating and not obstructed.
  - Operate in a well-ventilated environment.

- **Compatibility Issues with CNC Board:**

  - Some CNC motherboards may require an interface adapter board if they do not supply sufficient wattage or have different pin configurations (e.g., 2-pin vs. 3-pin).
  - Always cross-reference your CNC board's pinout with the laser module's requirements.

If problems persist, please contact LASER TREE customer support for assistance.

9. SPECIFICATIONS

Feature	Specification
Optical Power Output	10W (10000mW)
Laser Wavelength	450nm
Spot Size	0.08*0.08mm (Double Ultra-Fine Compressed Spot with FAC)
Input Voltage	DC 12V
Input Current	3.2A
Input Interface	XH2.54-3P socket (VCC, GND, PWM)
PWM Modulation	Supports 5V PWM modulation
Focus Type	Fixed-focus (45mm)
Cooling System	Built-in fan (10000 rpm)
Laser Class	Class 4
Lifetime	Up to 20,000 hours
Product Dimensions	1.69 x 1.69 x 5.12 inches
Item Weight	1.25 pounds

10. WARRANTY AND SUPPORT

LASER TREE is committed to providing high-quality products and customer satisfaction. If you require pre-sale consultation or encounter any problems with your LT-80W-F45 laser module, please feel free to contact us directly. Our professional engineering team is available to troubleshoot and resolve issues for you.

For support, please visit the LASER TREE Store on Amazon or contact us through the platform where you purchased the product.

Related Documents - LT-80W-F45

LT-80W-F45 USER MANUAL	**LASER TREE LT-80W-F45 Laser Module User Manual - Specifications & Operation** Comprehensive user manual for the LASER TREE LT-80W-F45 10W laser module. Includes specifications, connection guides, reference settings for cutting and engraving, and maintenance tips.
	Laser Tree Laser Module FAQ and Compatibility Guide Frequently asked questions and compatibility information for Laser Tree laser engraving modules, covering materials, power output, and machine connections.
LT-4LDS-V2 USER MANUAL	**LASER TREE LT-4LDS-V2 Laser Module User Manual	Specifications, Setup & Maintenance** Comprehensive user manual for the LASER TREE LT-4LDS-V2 laser module. Includes detailed specifications, connection diagrams, focus settings for engraving and cutting, safety precautions, and maintenance guide.
LT-80W-AA PRO USER MANUAL	**Laser Tree LT-80W-AA-PRO User Manual: Specifications, Connection, and Operation** Explore the LASER TREE LT-80W-AA-PRO laser module with this comprehensive user manual. Learn about its technical specifications, connection diagrams, optimal settings for cutting and engraving, and essential safety and maintenance guidelines.

	[LASER TREE LT-80W-AA-PRO Laser Module User Manual for Engraving and Cutting](#) Comprehensive user manual for the LASER TREE LT-80W-AA-PRO laser module, detailing specifications, connection procedures, cutting and engraving reference settings, and essential maintenance guidelines for optimal performance and safety.
LT-80W-AA-PRO **USER MANUAL**	
LT-40W-F23 **USER MANUAL**	[Laser Tree LT-40W-F23 User Manual: Specifications, Connection, and Maintenance](#) Comprehensive user manual for the Laser Tree LT-40W-F23 laser module. Includes technical specifications, detailed connection instructions, driver adapter guide, cutting and engraving settings, and maintenance tips.

Documents - LASER TREE – LT-80W-F45

LT-80W-F45
MANUALE D'USO

[pdf]

Pic 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16f Package by d ffoutput temp task 58b4 temp0 jpg temp1 temp2 temp3 temp4 temp5 temp6 temp7 temp8 temp9 Ezone laser tree lt 80w f45 Individuare la porta PWM GND e VCC sulla scheda principale della macchina per incisione Collegare quindi il modulo alla B1m3b d3DwL m media amazon images I |||

...

lang: score:11 filesize: 2.26 M page_count: 16 document date: 2023-11-07

LT-80W-F45
MANUEL DE L'UTILISATEUR

[pdf]

Pic 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16f Package by d ffoutput temp task 69b0 temp0 jpg temp1 temp2 temp3 temp4 temp5 temp6 temp7 temp8 temp9 Ezone laser tree lt 80w f45LASER TREE LT 80W F45   ueur de focalisation 450nm 10nm 45mm Modulation 250g Application LASER Gravure pneumatique 43 6±0 Laser ouverture B1Et3Hj2DHLm media amazon images I B1Et3Hj2DHL |||

...

lang: score:11 filesize: 2.26 M page_count: 16 document date: 2023-11-07