

## LASER TREE LT-80W-LE-Mini

# LASER TREE LT-80W-LE-Mini Laser Module User Manual

Model: LT-80W-LE-Mini | Brand: LASER TREE

## 1. INTRODUCTION

This manual provides essential information for the safe and effective operation of your LASER TREE LT-80W-LE-Mini Laser Module. This high-power laser module features 10W optical output, double ultra-fine compressed spot technology, and is designed for engraving and cutting various materials. Please read this manual thoroughly before use.

## 2. SAFETY INFORMATION

**WARNING:** This product contains a high-power laser. Improper use can cause serious injury, including permanent eye damage and skin burns. Always adhere to the following safety precautions:

- **Eye Protection:** Always wear ANSI-certified laser safety goggles with appropriate Optical Density (OD) ratings for 450nm blue laser light. The integrated protective cover filters blue and ultraviolet light, but dedicated safety goggles are highly recommended for maximum protection.
- **Skin Protection:** Avoid direct exposure of skin to the laser beam.
- **Ventilation:** Ensure adequate ventilation in the work area to dissipate fumes and smoke generated during engraving or cutting.
- **Fire Hazard:** Laser processing can ignite flammable materials. Always supervise the laser module during operation and have fire suppression equipment readily available.
- **Children and Pets:** Keep children and pets away from the laser module and the work area during operation.
- **Power Disconnection:** Disconnect power to the laser module when not in use or during maintenance.
- **Material Safety:** Be aware of the materials you are processing. Some materials can produce toxic fumes when laser-cut or engraved.





Figure 2.1: LASER TREE LT-80W-LE-Mini Laser Module. Always prioritize safety when operating this device.

### 3. SETUP AND INSTALLATION

The LT-80W-LE-Mini laser module is designed for easy integration with various DIY engraving machines, three-axis engraving machines, CNC milling machines, laser cutting machines, and 3D printers.

#### 3.1 Package Contents

Verify that all components are present in your package:

- LASER TREE LT-80W-LE-Mini Laser Module
- Connection Cable (XH2.54-3P socket)
- Mounting accessories (screws, wrenches, etc.)
- Protective cover (pre-installed)

## LT-80W-LE-MINI INPUT: 3PIN 12V

Cutting Through **8mm** Plywood **By One Pass**



Figure 3.1: The LT-80W-LE-Mini module showing its 3-pin 12V input, internal drive circuit, cooling fan, eye protective cover, and excellent heat dissipation design.

#### 3.2 Electrical Connection

The laser module requires a DC 12V power supply (3.2A to 3.5A recommended). It supports 5V PWM modulation for

power control. Connect the XH2.54-3P socket to your engraving machine's control board. Ensure correct polarity before powering on.

### 3.3 Mounting

Mount the laser module securely onto your machine's gantry. The fixed focus design simplifies setup. Ensure the laser is perpendicular to your work surface for optimal performance.



Figure 3.2: The laser module installed on a compatible DIY engraving machine, ready for operation.

### 3.4 Software Compatibility

The laser module is compatible with most laser engraver brands and mature engraving software such as LaserGRBL and LightBurn.



Figure 3.3: Compatibility chart showing various laser machine models compatible with LASER TREE modules. Always verify compatibility with your specific machine.

## 4. OPERATING INSTRUCTIONS

The LT-80W-LE-Mini module features a 10W optical power output and double ultra-fine compressed spot technology for enhanced performance.

### 4.1 Focusing

This laser module has a fixed focus. For optimal cutting and engraving, use the provided focus fixing plate to set the correct distance between the laser and the material. The recommended focus length is 45mm.

# Reference settings for cutting

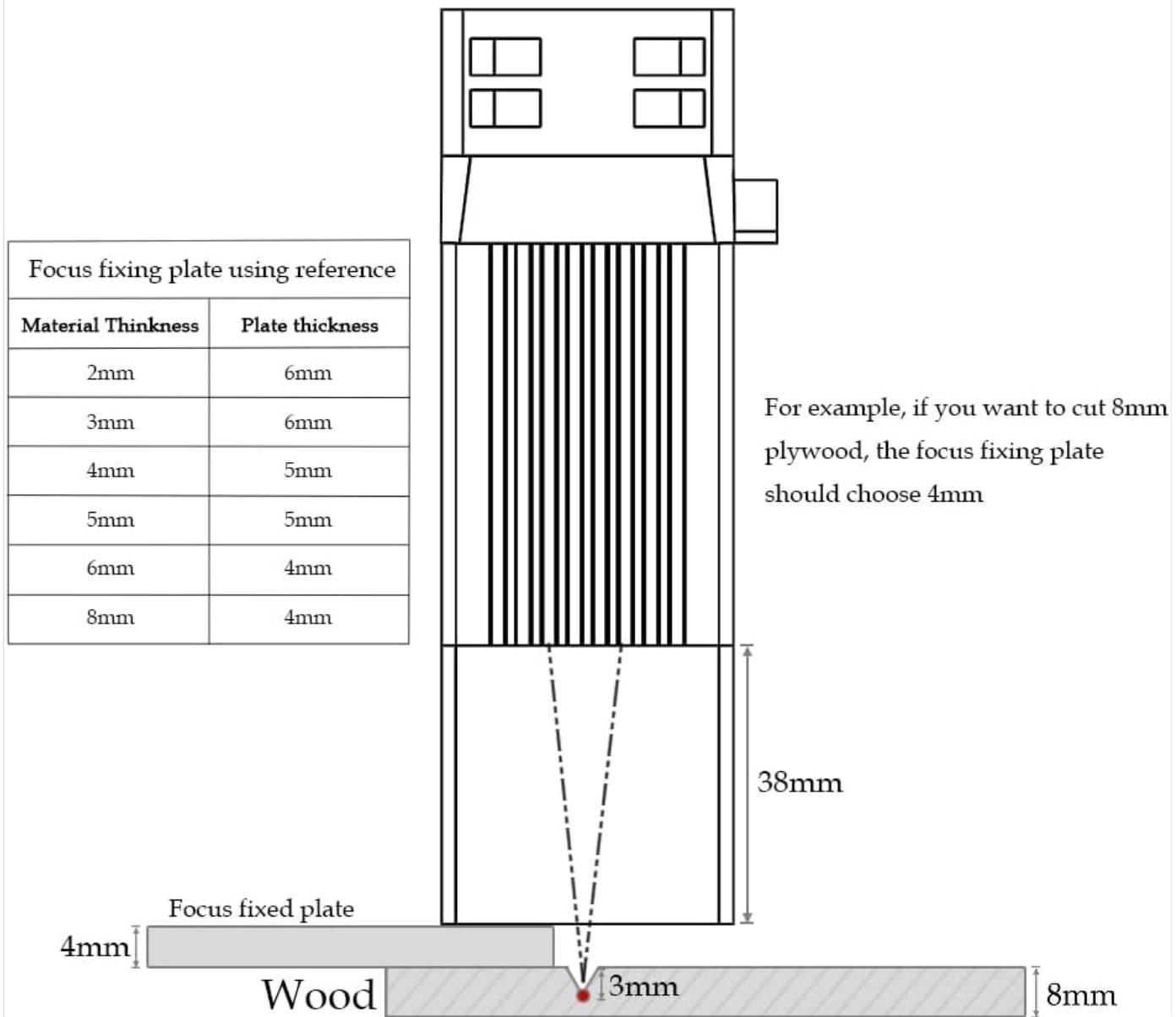


Figure 4.1: Guide for using the focus fixing plate to achieve optimal laser focus based on material thickness.

## 4.2 Engraving and Cutting Capabilities

The module can directly engrave mirror stainless steel without needing to paint it black. It offers super fast engraving speeds, up to 500mm/s for 304 stainless steel. Its cutting ability is remarkable, capable of cutting through 8mm thick plywood in a single pass at a speed of 1.5mm/s.

# Dual-LDs with beam compressed technology

- One laser module has two built-in laser diodes. The optical power of each diode with built-in **FAC** lens is 5W.
- With beam combination technology, our laser module is double powerful and the beam quality is as good as a single diode.

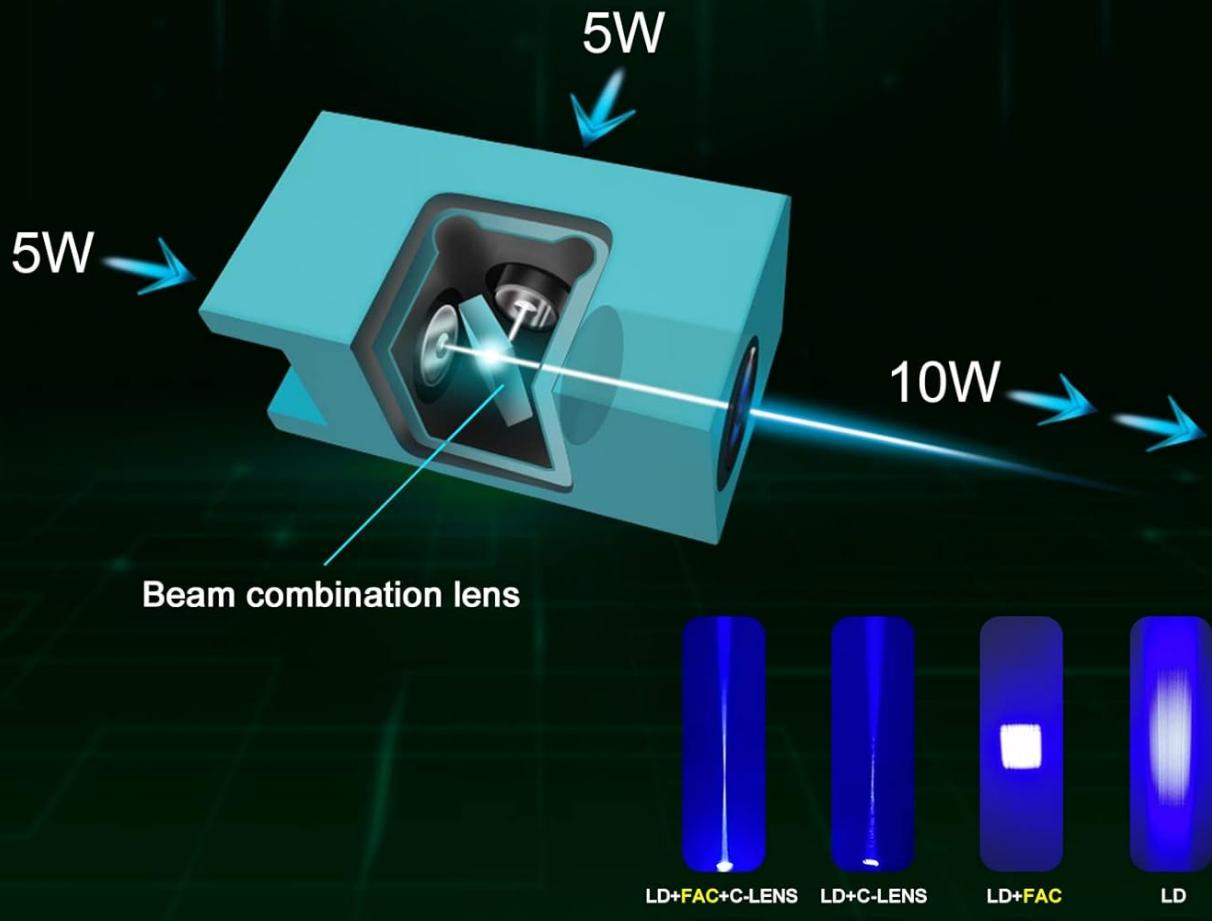


Figure 4.2: Illustration of the dual-LDs with beam compressed technology, combining two 5W diodes for a 10W output with a smaller, more precise spot.

## 4.3 Recommended Settings for Cutting

Refer to the table below for recommended cutting parameters for plywood:

Thickness	Passes	Speed	Plywood Edge (Example)
2mm	1	7.5mm/s	
3mm	1	6mm/s	
4mm	1	4.5mm/s	

Thickness	Passes	Speed	Plywood Edge (Example)
5mm	1	3.5mm/s	
6mm	1	3mm/s	
8mm	1	1.5mm/s	

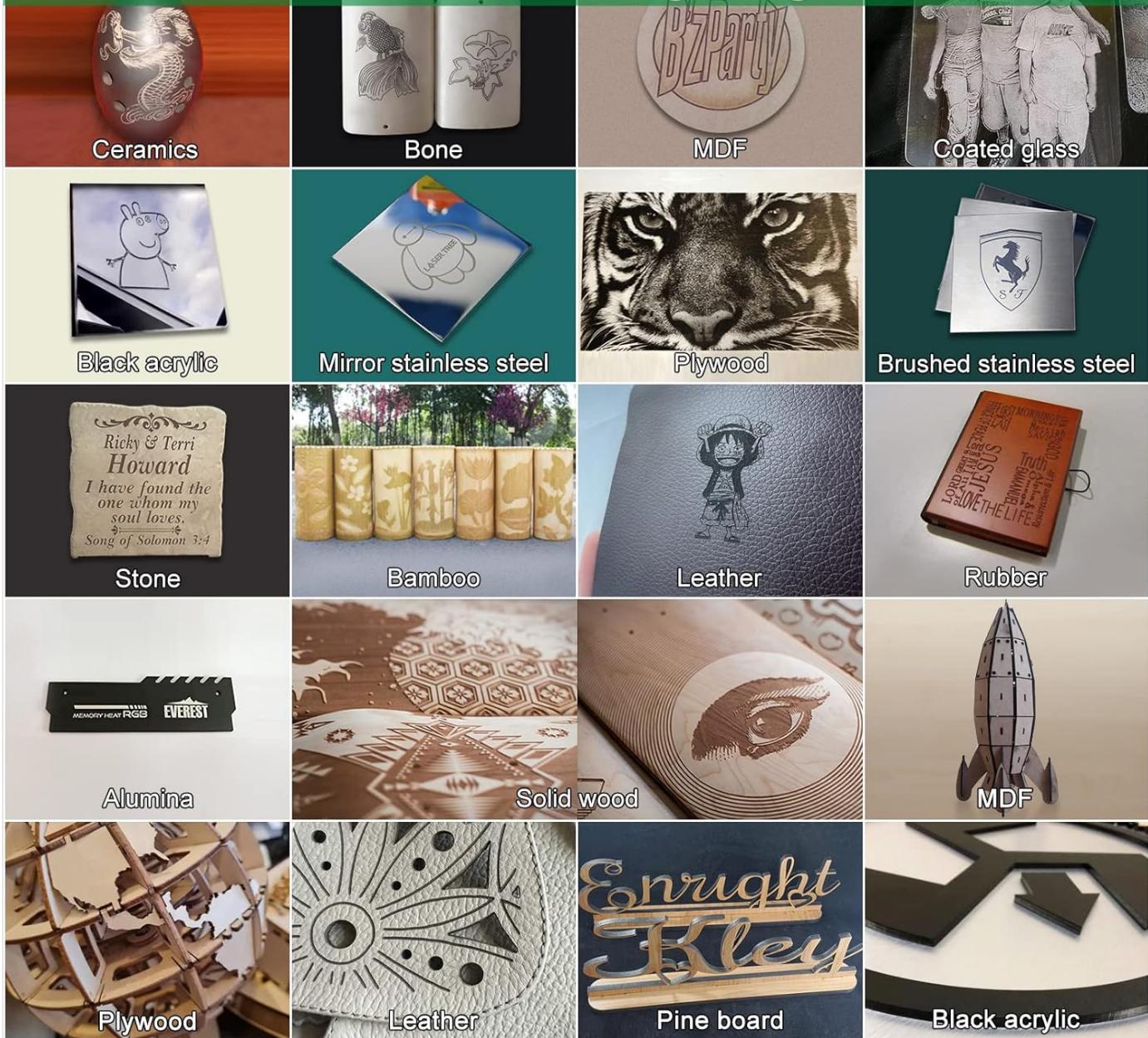
*Note: The image in the table is a composite from the product page showing various plywood edge cuts.*

#### 4.4 Compatible Materials

The laser module can engrave materials such as MDF, rubber, wood, paper, plastic, plywood, PCB board, aluminum, stainless steel, ceramic, and stone. For cutting, it is suitable for wood, acrylic, bamboo, and MDF.

**Important:** The laser module is unable to engrave blue, purple, white, or transparent materials, or aluminum without an oxide layer.

## Multi-Material Creation for DIY Engraving Items Showcase



P.S. ⚠ Unable to engrave: blue/purple/white/transparent material, aluminum without oxide layer.

Figure 4.3: Showcase of various materials that can be engraved or cut with the laser module, including ceramics, bone, MDF, coated glass, black acrylic, mirror stainless steel, plywood, brushed stainless steel, leather, rubber, stone, bamboo, solid wood, alumina, pine board, and more.



Figure 4.4: Examples of intricate models created using the laser module for cutting wood and other materials.

## 4.5 Performance Demonstration

Watch this video demonstrating the cutting capability of the LASER TREE LT-80W-LE-Mini laser module, specifically cutting through 8mm plywood in a single pass.

Your browser does not support the video tag.

Video 4.1: Demonstration of the LASER TREE 80W-Upgrade Laser Engraving Module cutting through 8mm plywood in one pass. The video shows the process and the resulting clean cut.

## 5. MAINTENANCE

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

### 5.1 Lens Cleaning

The laser module features a "Wind Gathering Hood" design which helps prevent smoke from damaging the focus lens, making it largely maintenance-free in this regard. However, if the lens becomes dirty or obscured, carefully clean it with a soft, lint-free cloth and a suitable optical cleaning solution. Avoid touching the lens directly with bare hands.

 <b>LT-80W-LE-Mini</b>		Module size	40*40*125mm	Material	Aluminum alloy
		Application	Laser engraving machine	Driver protection	Surge protection overvoltage protection
Effect output power	80W	Cable	3PIN 80cm	Fan speed	10000rpm
Electric power	12V 3.2A(3A-3.5A)	Function	Engraving/Cutting	Operating temperature	0~70°C
Output optical power	10W	Focus length	45mm	Power adjustable	Support 5V PWM modulation
Wavelength	450nm	Interface	XH2.54-3P socket	Net weight	188g

Figure 5.1: Comparison illustrating how the Wind Gathering Hood design protects the focus lens from smoke and debris, reducing the need for frequent cleaning compared to designs without air assistance.

## 5.2 General Care

- Keep the laser module free from dust and debris.
- Ensure proper airflow around the module to facilitate heat dissipation.
- Store the module in a dry, clean environment when not in use.

## 6. TROUBLESHOOTING

This section addresses common issues you might encounter with your laser module.

Problem	Possible Cause	Solution
Laser not firing or weak output.	Incorrect power supply; loose connections; dirty lens; software settings.	Verify 12V 3.2A-3.5A power supply. Check all cable connections. Clean the laser lens. Ensure software power settings are correct.
Laser always on at full power, no PWM control.	Incompatibility with control board; incorrect wiring of PWM signal.	Verify your machine's control board is compatible with 5V PWM modulation. Check the wiring of the PWM signal line (often the third pin on the XH2.54-3P connector). Consult your machine's manual for specific wiring diagrams.
Poor engraving/cutting quality.	Incorrect focus; incorrect speed/power settings; material not suitable.	Ensure the laser is properly focused using the focus fixing plate. Adjust speed and power settings according to the material (refer to Section 4.3). Confirm the material is compatible (refer to Section 4.4).

Problem	Possible Cause	Solution
Module overheating.	Insufficient airflow; prolonged high-power operation.	Ensure the cooling fan is unobstructed and functioning. Allow the module to cool down between long operations.

If you encounter issues not listed here or require further assistance, please contact LASER TREE customer support.

## 7. SPECIFICATIONS

Feature	Specification
Model	LT-80W-LE-Mini
Optical Output Power	10W
Effect Output Power	80W
Wavelength	450nm (Blue Laser)
Input Voltage	DC 12V
Input Current	3.2A (3A-3.5A)
Power Adjustable	Support 5V PWM modulation
Input Port	XH2.54-3P socket
Focus Length	45mm (Fixed Focus)
Module Size	40x40x125mm
Material	Aluminum alloy
Item Weight	9.1 ounces (258g)
Operating Temperature	0~70°C
Diode Lifespan	20,000 hours

# Compatible With All O\*\*\*R/AT\*\*\*\*CK Machines

BRAND	LASER MACHINE MODEL			LASER TREE 80W	LT-80W-3D
O***R	O***r Laser Master	3pin	12V 3A	LT-80W LT-80W-AA 12V LT-80W-Mini 12V LT-80W-LE 12V (12V 5A adapter)	X
	O***r Laser Master 2 Pro	3pin	24V 2A	LT-80W-AA 24V LT-80W-LE-24V	X
	O***r Laser Master 2	3pin	12V 3A	LT-80W LT-80W-AA 12V LT-80W-Mini 12V LT-80W-LE 12V (12V 5A adapter)	X
AT****CK	AT****CK A5 20W Laser Engraving Machines	3pin	12V 5A	LT-80W LT-80W-AA 12V LT-80W-Mini 12V LT-80W-LE 12V	X
	AT****CK A5Pro 40W Laser Engraver	3pin	12V 5A		X
	A5 10W laser engraver	3pin	12V 5A		X



If you are not sure if it is compatible, please send us a picture of your machine's control board. We will provide you with the appropriate connection.

Figure 7.1: Comprehensive specifications for the LASER TREE LT-80W-LE-Mini laser module.

## 8. WARRANTY AND SUPPORT

LASER TREE is committed to providing high-quality products and customer satisfaction. For warranty claims, technical support, or any inquiries regarding your laser module, please contact LASER TREE customer service through the official channels provided at the point of purchase or on the manufacturer's website. Please have your product model and purchase details ready when contacting support.

For additional resources, you may refer to the official user guides available:

- [Instructions for Use \(IFU\) \(PDF\)](#)
- [User Guide \(PDF\)](#)

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### Related Documents - LT-80W-LE-Mini



LASER TREE



K30  
USER MANUAL (V1.0)

### [LASER TREE K30 User Manual: 30W Laser Module for Engraving and Cutting](#)

Comprehensive user manual for the LASER TREE K30 30W laser module. Covers product specifications, connection, focus settings, precautions, and maintenance for DIY engraving and cutting applications.