

LASER TREE LT-K30

LASER TREE K30 Laser Module User Manual

Model: LT-K30 | Brand: LASER TREE

30000 mW (30W) Optical Output Laser Module

1. INTRODUCTION

The LASER TREE K30 is an ultra-high power diode laser module designed for advanced laser cutting and engraving applications. Featuring a true 30W+ (30000mW) optical output, this module incorporates beam compression technology with six 5.5W laser diodes to deliver exceptional performance. It is capable of cutting thick materials like 30mm pinewood, 15mm acrylic, and 15mm plywood in a single pass, and can engrave over 380 colors on stainless steel, enabling vibrant artistic creations. The K30 module is classified as a Class 1 laser product.

30W+ Laser Module - K30

Ultra-strong Optical Power Laser Module



Figure 1: Key features of the LASER TREE K30 Laser Module, including 30W+ laser power, 6-beam compressed technology, 0.16*0.19mm spot size, built-in laser driver, red cross-positioning light, air assist, focus-setting free design, eye protection, and temperature display.

Equipped with a built-in airway and dual-fan cooling system, the K30 module ensures improved cutting performance by reducing air resistance and minimizing burn marks. This design also enhances heat dissipation, contributing to the laser head's stability and extended service life. A high-temperature warning function alerts users if the module's internal temperature exceeds 55°C (suggested working environmental temperature <35°C), helping to preserve the laser head's longevity.

2. SAFETY GUIDELINES

WARNING: This is a Class 1 laser product. Always follow safety precautions to prevent injury.

- Always wear appropriate laser safety glasses when operating the laser module.
- Never look directly into the laser beam or at reflections.
- Ensure the work area is well-ventilated to dissipate fumes and smoke generated during operation.
- Keep flammable materials away from the laser's path.

- Do not leave the laser module operating unattended.
- Familiarize yourself with the emergency stop procedures of your laser engraving machine.
- Keep children and pets away from the operating area.
- Ensure proper grounding of all equipment.

3. PACKAGE CONTENTS

Upon opening your LASER TREE K30 package, please verify that all components listed below are present and in good condition:



Figure 2: The complete package contents of the LASER TREE K30 Laser Module, including the laser module, driver adapter board, 24V 5A power adapter, mounting bracket, air tube, signal cables, and accessories for the sliding plate.

- 1 x LASER TREE K30 Laser Module (30W+ Optical Output)
- 1 x Driver Adapter Board
- 1 x 24V 5A Power Adapter
- 1 x Mounting Bracket

- 1 x Air Tube
- Signal Cables (various, including 8-pin to 3-pin adapter)
- Accessories for Sliding Plate (screws, etc.)
- 1 x Replaceable Protective Window Glass

4. SPECIFICATIONS

Feature	Specification
Model Number	LT-K30
Optical Output Power	30W+ (30000mW)
Laser Diodes	6 x 5.5W (Built-in)
Beam Compression Technology	Yes
Product Dimensions	2.48 x 2.48 x 5.68 inches
Item Weight	4.53 pounds
Cooling System	Dual Fan Cooling
Air Assist	Built-in Airway
Temperature Warning	Buzzer alarm if > 55°C
Compatibility	TTL/PWM-controlled DIY machines, laser engravers, CNC laser machines, 3D printers (12V/24V)
Laser Level	Class 1

5. SETUP AND INSTALLATION

This section provides detailed instructions for installing the LASER TREE K30 laser module, particularly focusing on compatibility with XTool D1 (non-pro) machines. The module is designed for wide compatibility with various 12V and 24V DIY cutting and engraving machines that support digital modulation (TTL/PWM).

5.1 Compatibility Overview

Compatible With Xt**I D1/Xt**I D1 Pro Machines

LASER TREE MODEL	XT**L D1	XT**L D1 PRO
LT-4LDS-V2	Driver Adapter + 24v Power Adapter + 8 Pin Adapter Cable + Dedicated mounting bracket	Driver Adapter + 24v Power Adapter + 9 Pin Adapter Cable
LT-K20		
LT-K30		
LT-K40		
LT-K60		

The module kit includes Driver Adapter + 24v Power Adapter, but the XT-specific accessories 8/9 Pin Adapter Cable and Dedicated mounting bracket are not included in the module kit. You can b*y it at LASER TREE. ASIN: B0CZDDSM9

Figure 3: Compatibility chart showing required adapters and cables for LASER TREE modules (LT-4LDS-V2, LT-K20, LT-K30, LT-K40, LT-K60) when used with XTool D1 and XTool D1 Pro machines.

The module kit includes a Driver Adapter and a 24V power adapter. For XTool-specific accessories like 8/9 Pin Adapter Cables and dedicated mounting brackets, these may need to be acquired separately (e.g., ASIN: B0CZDDSM9).

5.2 Installation Steps (XTool D1 Example)

For a visual guide on installing the LASER TREE K30 on an XTool D1 (non-pro) machine, please refer to the video below. Key steps include:



Video 1: Detailed guide on installing the LASER TREE K30 laser module onto an XTool D1 (non-pro) machine, covering removal of the old module, wiring the driver adapter board, mounting the new module, and connecting the power supply. (Duration: 4:36)

- 1. Remove Old Laser Module:** Carefully detach the existing laser module from your machine's gantry. Be cautious with the wires connected to the module, as they can be fragile.
- 2. Install Driver Adapter Board:**
 - Locate the XTool motherboard and the cable coming from it.
 - Connect the 8-pin cable from your XTool machine to the appropriate input (e.g., Input C for 3-wire connection) on the supplied Driver Adapter Board.
 - Mount the Driver Adapter Board securely to the machine frame. Double-sided foam tape can be used for this purpose.



Figure 4: Left: Detail of the 8-pin to 3-pin adapter cable. Right: The driver adapter board attached to the XTool frame, showing the connection points for the machine's cable and the laser module's output.

3. Mount Laser Module:

- Attach the provided mounting bracket to your machine's gantry. Ensure it is aligned correctly.
- Slide the LASER TREE K30 module into the mounting bracket.

- Secure the module using the side screws, which also allow for Z-height adjustment for focusing.



Figure 5: Left: The mounting bracket being positioned on the XTool gantry. Right: The K30 laser module inserted into the mounting bracket, ready for securing and height adjustment.

4. **Connect Power and Signal:**

- Connect the signal cable from the Driver Adapter Board's output to the top of the LASER TREE K30 module.
- Plug the supplied 24V power adapter into the Driver Adapter Board.
- Turn on your XTool machine. The power indicator on the K30 module should light up.

5. **Air Assist Connection (Optional):** If using air assist, connect your air pump to the air assist port on the top of the K30 module.

6. OPERATING THE K30 LASER MODULE

The LASER TREE K30 module offers powerful capabilities for both engraving and cutting a wide range of materials. Proper operation ensures optimal results and extends the lifespan of your module.

6.1 Focusing and Positioning

The K30 features a fixed focus design with a focus bar for easy adjustment. The red crosshair positioning light helps in accurately setting the working frame and improving convenience for secondary cutting.

40MM Fixed Focus Laser Module

- ① Anti-blue light view window with optical glass material.
- ② Equipped with fixed focus lever.



Figure 6: The K30 module highlighting its fixed focus lever for easy height adjustment and the anti-blue light view window for eye protection.

Temperature Display & Alarm Function

The buzzer will sound an alarm when the operating temperature of the laser head is higher than 55°C.

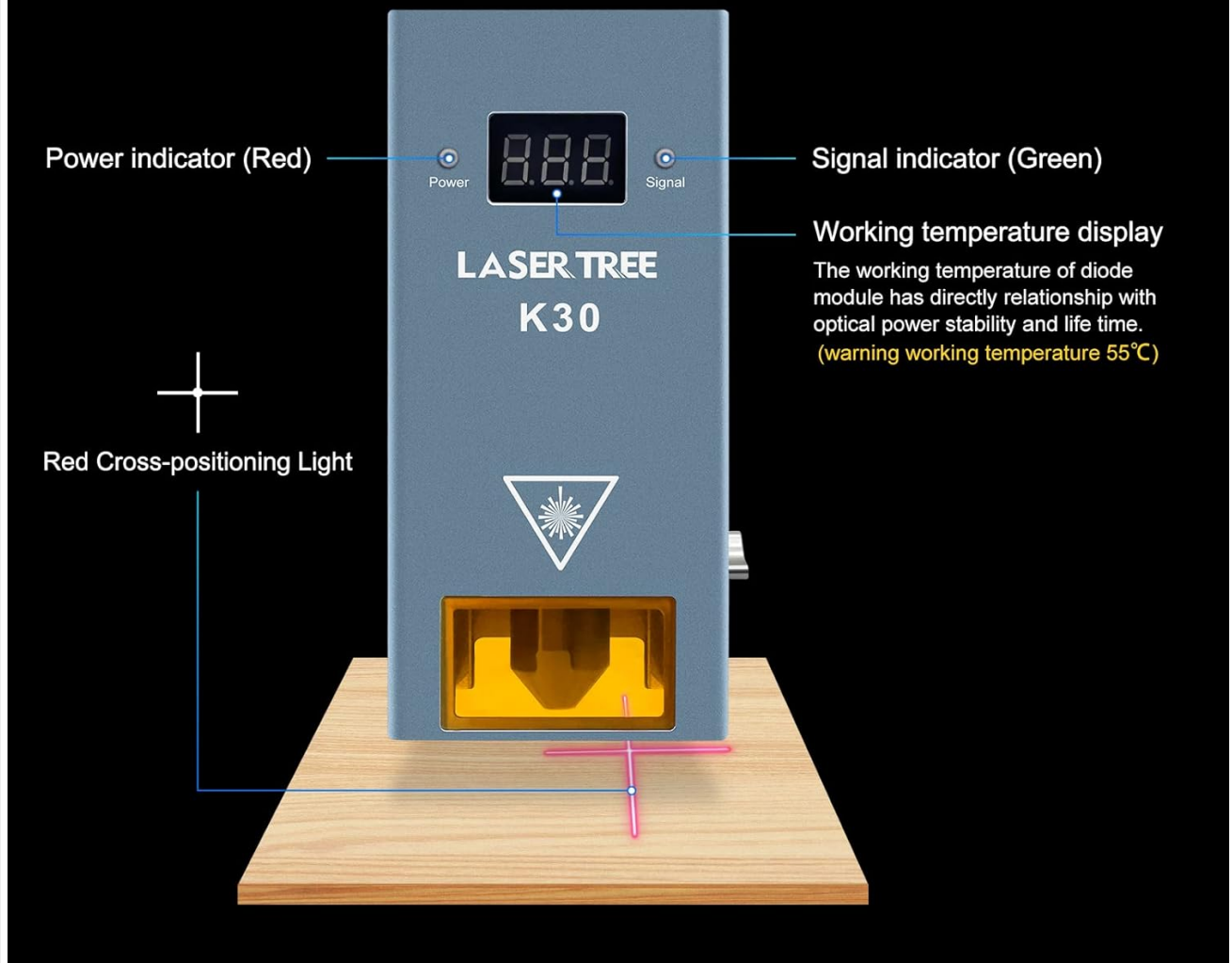


Figure 7: The K30 module's temperature display (showing 88.8 for illustration) and the red cross-positioning light projected onto the material surface for precise alignment.

6.2 Engraving Capabilities

The K30 module excels at engraving intricate designs with high accuracy. It can achieve colorful patterns on metal stainless steel, producing over 380 distinct colors.

K30W Metal Engraving

Super powerful laser beam oxidizes the metallic surface in an instant, bringing vivid colors to the engraved metal.

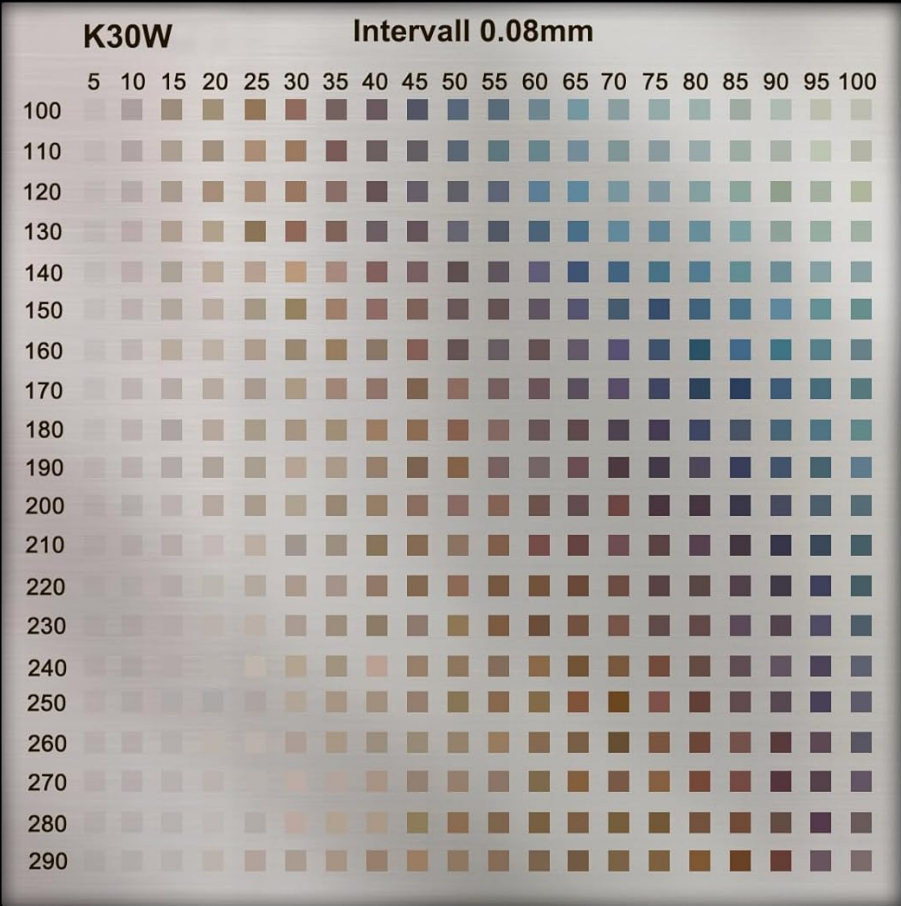


Figure 8: A color chart demonstrating the K30W's ability to oxidize metallic surfaces, creating a wide spectrum of colors on stainless steel.



Video 2: Demonstration of the K30 Laser module engraving a colorful bird design onto titanium, showcasing its ability to create vibrant patterns. (Duration: 0:40)



Video 3: A short video demonstrating the K30 30W laser module performing engraving on a craft material, highlighting the detail and precision. (Duration: 0:14)



Video 4: Showcasing the stainless steel engraving effect achieved with the LASER TREE K30 laser module, demonstrating its capability for detailed metal marking. (Duration: 0:18)

6.3 Cutting Performance

The K30 module's high optical output allows for efficient cutting of various materials in a single pass. The built-in airway significantly improves cutting performance by reducing air resistance and minimizing burn marks, leading to cleaner, faster, and deeper cuts.

With Air Assist **VS** No Air Assist



Figure 9: Visual comparison demonstrating the cleaner cut edges achieved when using the built-in air assist feature of the LASER TREE K30 module versus cutting without air assist.

Built-in Air Assist & Dual Fan Cooling Design

- ① Built-in air assist to get clean-cut edges, improve cutting performance.
- ② Excellent heat dissipation makes the laser module maintain a stable cutting ability and prolong service life.

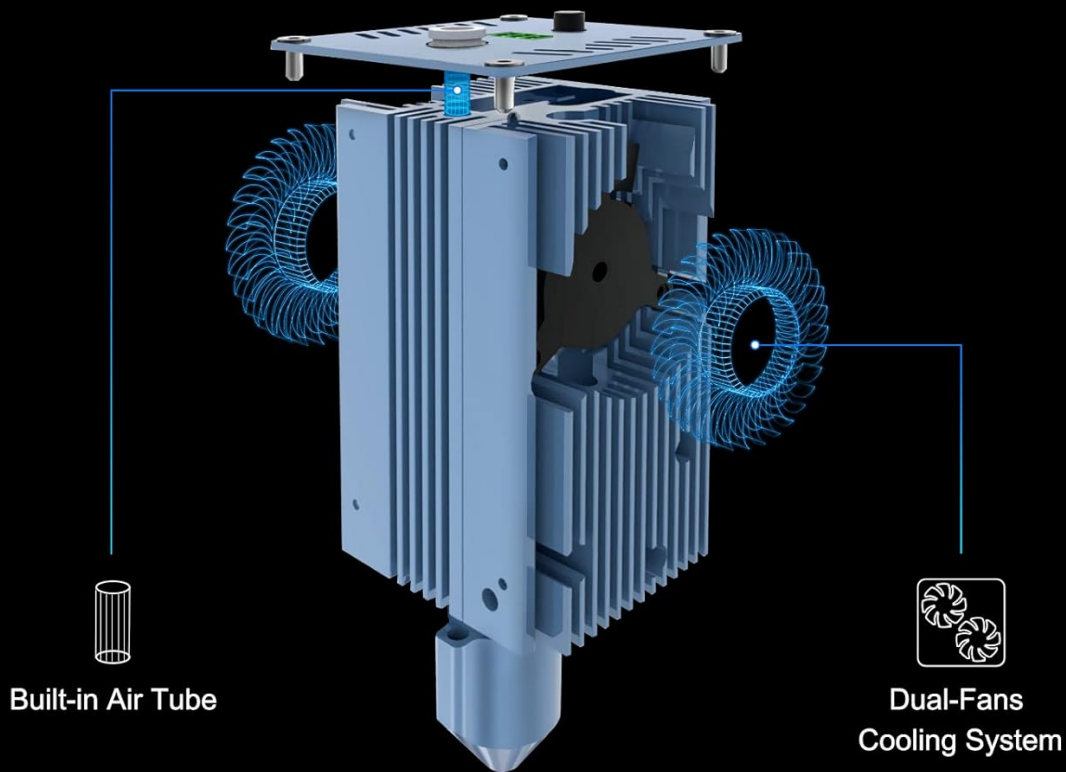


Figure 10: An internal view illustrating the integrated air tube and dual-fan cooling system within the K30 module, designed for efficient heat dissipation and improved cutting performance.

Video 5: The LT-K30 laser module cutting through 15mm plywood in a single pass, demonstrating its powerful cutting capability.
(Duration: 0:41)

Video 6: The LT-K30 30W+ output laser module cutting through 30mm acrylic, showcasing its ability to handle thick acrylic materials.
(Duration: 0:55)

7. MAINTENANCE

Regular maintenance is crucial for ensuring the longevity and optimal performance of your LASER TREE K30 laser module.

- **Lens Cleaning:** Periodically inspect and clean the laser lens using a lint-free cloth and lens cleaning solution. Dust and debris can significantly reduce laser power and quality.
- **Fan and Heat Sink Cleaning:** Ensure the dual cooling fans and heat sink fins are free from dust and debris.

Blocked airflow can lead to overheating and reduced module lifespan. Use compressed air to clear vents.

- **Air Assist Nozzle:** If using air assist, regularly check the nozzle for any blockages or residue buildup, which can impede airflow and cutting efficiency.
- **Temperature Monitoring:** Pay attention to the module's temperature display. If the buzzer alarm sounds (indicating temperature above 55°C), stop operation and allow the module to cool down. Operating within the suggested environmental temperature (<35°C) is recommended.
- **Cable Inspection:** Routinely check all power and signal cables for any signs of wear, damage, or loose connections.

8. TROUBLESHOOTING

This section addresses common issues you might encounter with your LASER TREE K30 laser module. For more complex problems, refer to the official user guide or contact customer support.

- **No Laser Output / Weak Laser:**

- Check all cable connections (power, signal, adapter board) to ensure they are secure.
- Verify the power adapter is correctly plugged in and receiving power.
- Ensure the laser module's temperature is within operating limits (check display).
- Clean the laser lens and ensure no obstructions are blocking the beam path.
- Confirm that the PWM signal is correctly configured in your software (e.g., LightBurn).

- **Poor Cutting/Engraving Quality:**

- **Focus:** Ensure the laser is properly focused on the material surface. Use the fixed focus lever to adjust Z-height.
- **Speed/Power Settings:** Adjust your engraving/cutting speed and power settings in your software. Different materials require different parameters. Refer to material test results for optimal settings.
- **Air Assist:** Ensure air assist is properly connected and functioning, especially for cutting, to prevent charring and improve cut quality.
- **Material:** Verify the material is flat and securely held to prevent movement during operation.
- **Lens Cleanliness:** A dirty lens can significantly degrade performance. Clean as per maintenance instructions.

- **Overheating Alarm:**

- If the temperature display shows high readings (above 55°C) and the buzzer sounds, immediately pause or stop the operation.
- Check if the cooling fans are operating correctly and are not obstructed.
- Ensure adequate ventilation in your workspace.
- Allow the module to cool down before resuming operation.

- **Module Not Recognized by Machine:**

- Double-check all wiring connections, especially between the machine's motherboard, the driver adapter board, and the laser module.
- Ensure the driver adapter board's power switch is set to the correct external power setting if using the supplied power adapter.
- Consult your machine's manual for specific module recognition procedures.

9. WARRANTY AND SUPPORT

For detailed warranty information, technical support, and further assistance, please refer to the official User Guide PDF provided by LASER TREE or visit the manufacturer's official website.

Official User Guide (PDF):

<https://manuals.plus/m/e7d3e6b70a8fdc924436056b36bf7d87b2a205fef27ab45c536d547d9107cd9>

For direct support, you may also visit the LASER TREE Store on Amazon: [LASER TREE Store](#)