LASER TREE LT-K20 Pro

LASER TREE LT-K20 Pro Laser Module Instruction Manual

Model: LT-K20 Pro | Brand: LASER TREE

1. Introduction

This manual provides essential information for the safe and effective operation of your LASER TREE LT-K20 Pro 20W Diode Laser Module. Please read this manual thoroughly before installation and use to ensure proper function and to prevent injury or damage. This laser module is designed for engraving and cutting various materials such as wood, metal, and acrylic, offering high accuracy and powerful performance.

1.1 Safety Precautions

WARNING: This is a Class 4 laser product. Direct exposure to the laser beam can cause severe eye damage and skin burns. Always wear appropriate laser safety goggles when operating this device. Never look directly into the laser beam. Ensure proper ventilation during operation as some materials may produce harmful fumes.

- Always operate the laser module in a well-ventilated area.
- Keep children and pets away from the operating area.
- Do not leave the laser module unattended during operation.
- Ensure the work area is free of flammable materials.
- Disconnect power before performing any maintenance or adjustments.

2. Product Features

- **20W Optical Output:** The K20 Pro module features a real 20W optical output, utilizing beam compression technology with four 5.5W laser diodes for powerful cutting and engraving.
- **Versatile Material Processing:** Capable of cutting 15mm pinewood, 10mm acrylic, and 12mm plywood in a single pass. It can also engrave over 340 colors on stainless steel.
- **Built-in Airway & Dual Fan Cooling:** An integrated airway enhances cutting performance by reducing air resistance, leading to faster, deeper, and smoother cuts with fewer burn marks. The dual fan cooling system ensures stable operation and extends the laser head's lifespan.
- **High Temperature Warning:** Equipped with a temperature display and an alarm buzzer that activates if the laser head temperature exceeds 55°C (suggested working environmental temperature <35°C), helping to protect the module and prolong its life.
- **User-Friendly Design:**

- Red crosshair positioning for improved accuracy in secondary cutting.
- Focus bar design for easy adjustment of the module's focus.
- Integrated air tube holder and cable holder for organized setup.
- Laser view window with anti-blue light protection for eye safety.

- **Wide Compatibility:** Compatible with TTL/PWM-controlled DIY machines, laser engraver cutters, CNC laser machines, and 3D printers. Includes an adapter board for various popular models (Ortur, Two Trees, Sculpfun, Atomstack) and a sliding plate for machine compatibility.

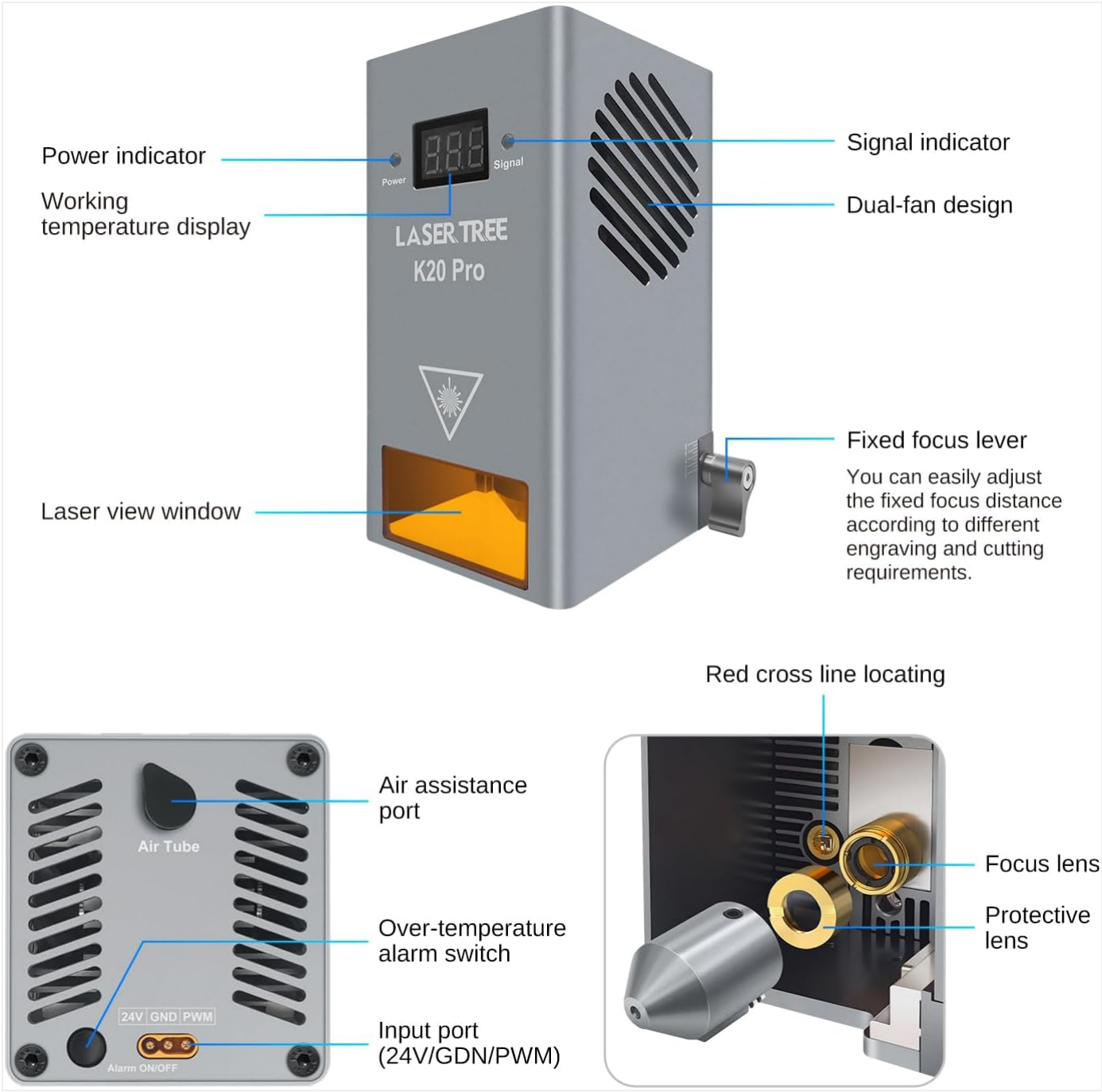

Image: Illustration of the 4-Beam Compressed Technology, showing four 5W laser diodes combining to achieve 20W output.

Image: Diagram illustrating the internal dual-fan cooling system and built-in air assist for efficient heat dissipation and clean cuts.

Image: Close-up of the laser module highlighting the anti-blue light laser view window for eye protection during operation.

3. Package Contents

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact LASER TREE customer support.

- Laser module *1 (LASER TREE K20 Pro)
- Input cable *1
- Driver adapter *1
- Sliding plate *1
- Power supply *1
- 1.5m Air tube *1
- 2mm L-wrench *1
- Spare protective lens *1
- Accessories for sliding plate (screws, nuts)

Image: Visual representation of all components included in the LASER TREE LT-K20 Pro laser module package.

4. Setup

Follow these steps to set up your LASER TREE LT-K20 Pro laser module with your compatible machine.

1. **Mounting the Module:** Securely attach the LT-K20 Pro laser module to your engraving/cutting machine's gantry using the provided sliding plate and accessories. Ensure it is firmly in place to prevent movement during operation.
2. **Connecting the Driver Adapter:** Connect the driver adapter board to your machine's control board. Refer to your machine's manual for specific connection points (TTL/PWM).
3. **Connecting the Laser Module:** Connect the input cable from the laser module to the driver adapter board.
4. **Power Connection:** Connect the power supply to the driver adapter board, and then plug the power supply into a suitable electrical outlet.
5. **Air Tube Connection:** If using air assist, connect the 1.5m air tube to the air assistance port on the laser module. Connect the other end to an external air pump (not included).
6. **Focus Adjustment:** Use the focus bar design to set the correct focus distance for your material. The module has a fixed

focus lever for easy adjustment.

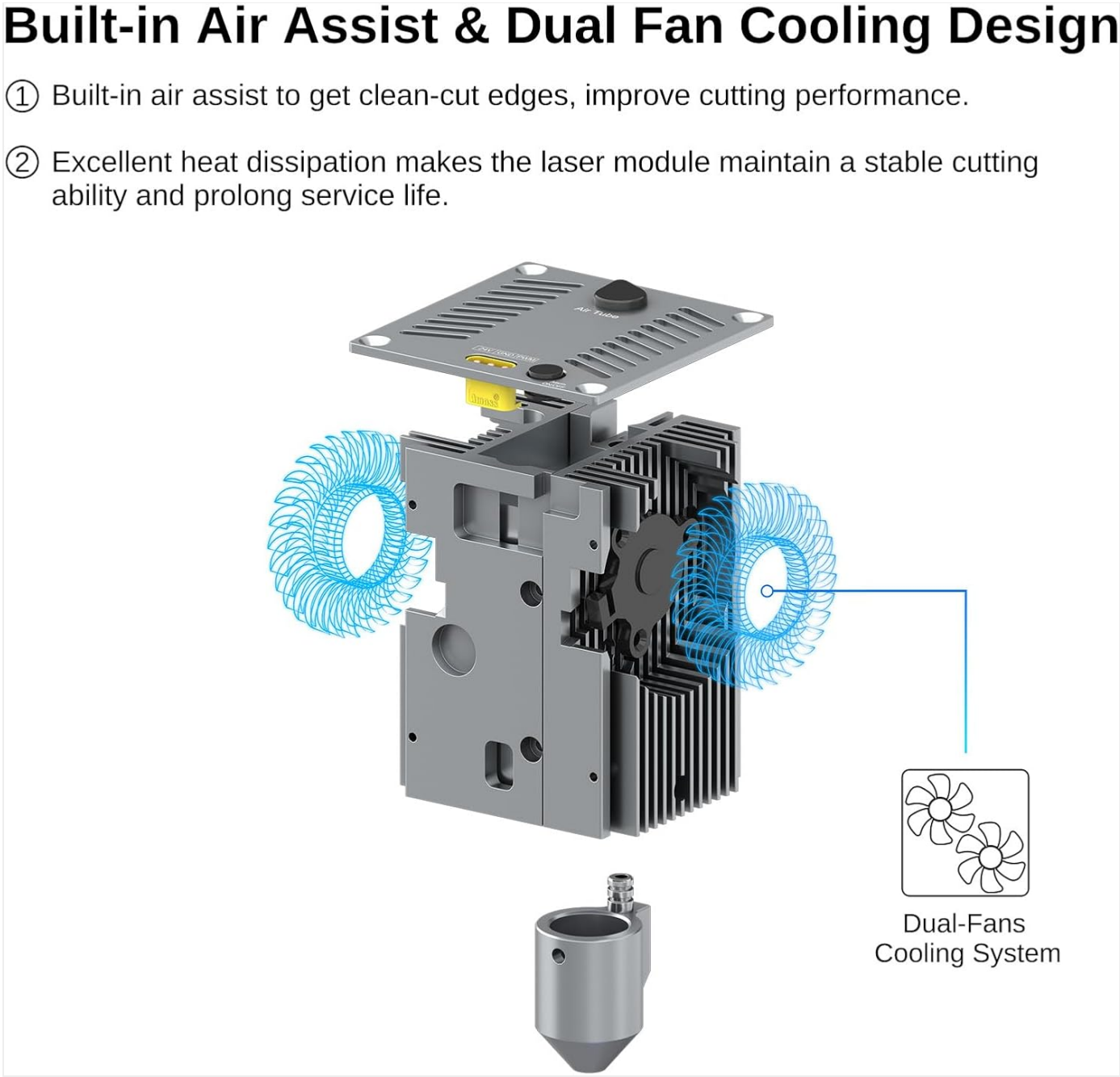

Image: Detailed view of the laser head, showing the power indicator, signal indicator, working temperature display, dual-fan design, fixed focus lever, laser view window, air assistance port, over-temperature alarm switch, and input port.

5. Operating Instructions

The LASER TREE LT-K20 Pro is designed for precision engraving and cutting. Always ensure proper safety measures are in place before beginning any operation.

5.1 Material Preparation

- Place the material to be processed on a flat, stable surface.
- Ensure the material is clean and free of obstructions.
- For optimal results, use a honeycomb workbed to allow smoke and debris to escape, especially during cutting.

5.2 Focusing the Laser

Accurate focusing is crucial for achieving precise results. Use the integrated focus bar or lever to set the correct focal distance for your material. The red cross line locating feature helps in precise material placement.

Image: Comparison showing the benefit of the red cross line for accurate material positioning before and after alignment.

5.3 Engraving and Cutting

The LT-K20 Pro excels in both engraving and cutting tasks. Adjust power and speed settings in your laser control software according to the material and desired outcome. The module's temperature display helps monitor its operating condition.

Image: Examples of the module's cutting capabilities, including 15mm pine wood, 5mm MDF, 12mm black acrylic, and 12mm plywood, with measurements.

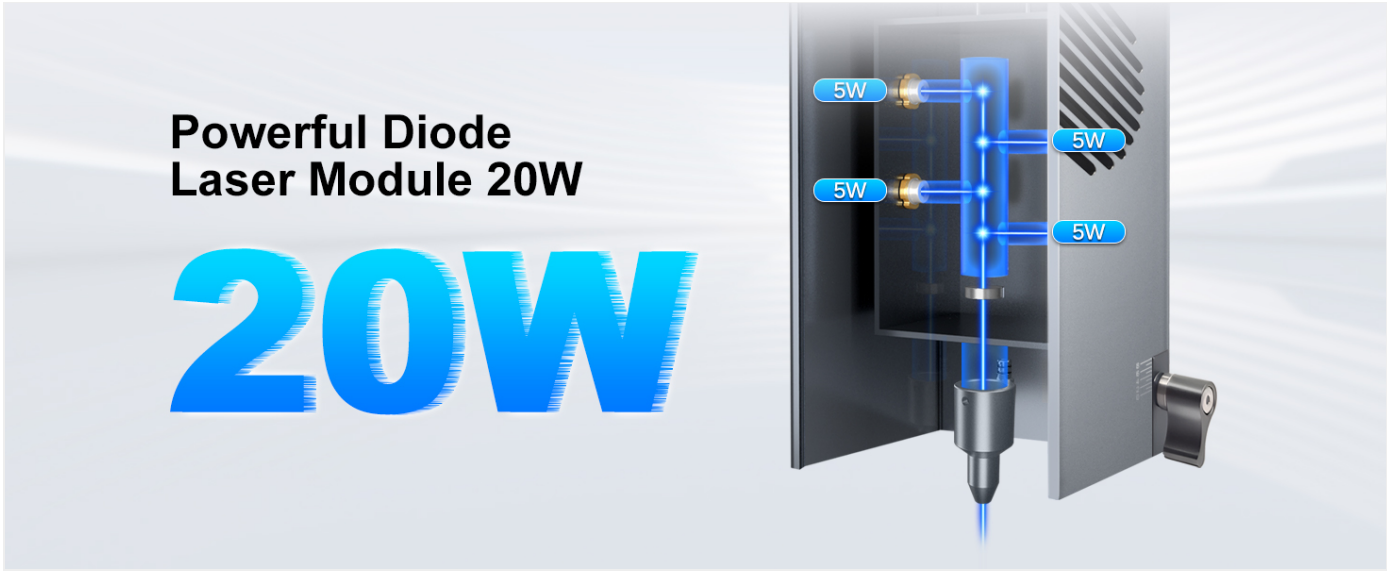

Image: Visual examples of cutting various materials like pine wood, plywood, MDF, and acrylic with specified speeds for a single pass.

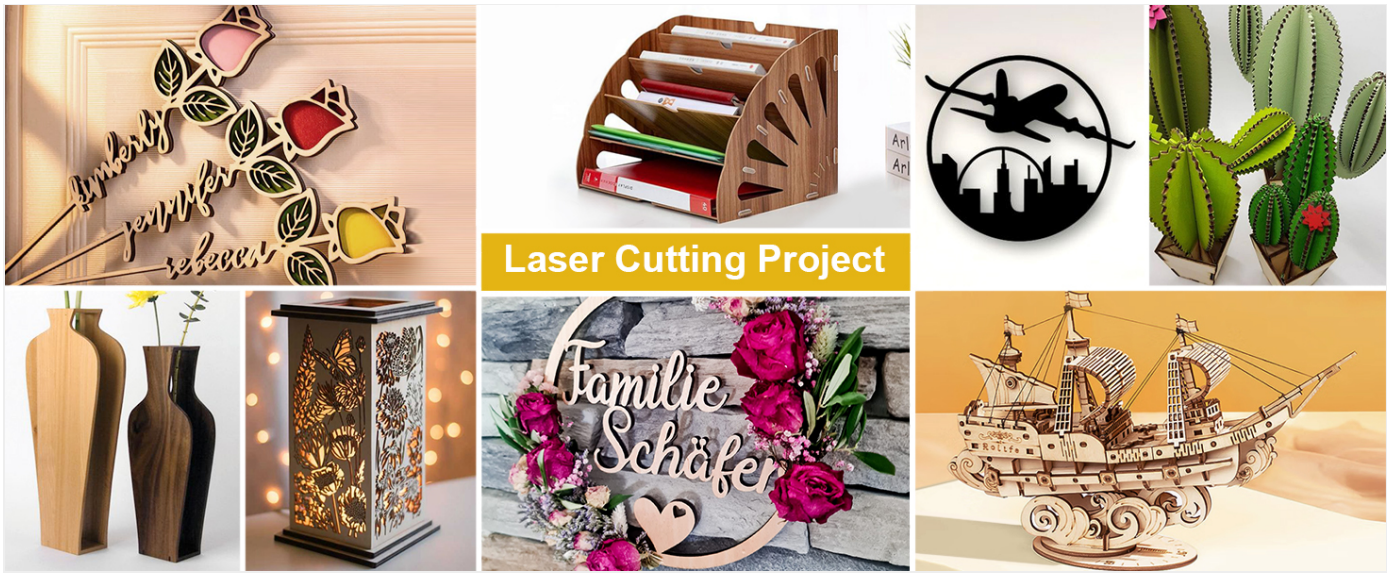

Image: A collage of various items successfully engraved with the laser module, including wood coasters, tumblers, metal tags, and rolling pins.

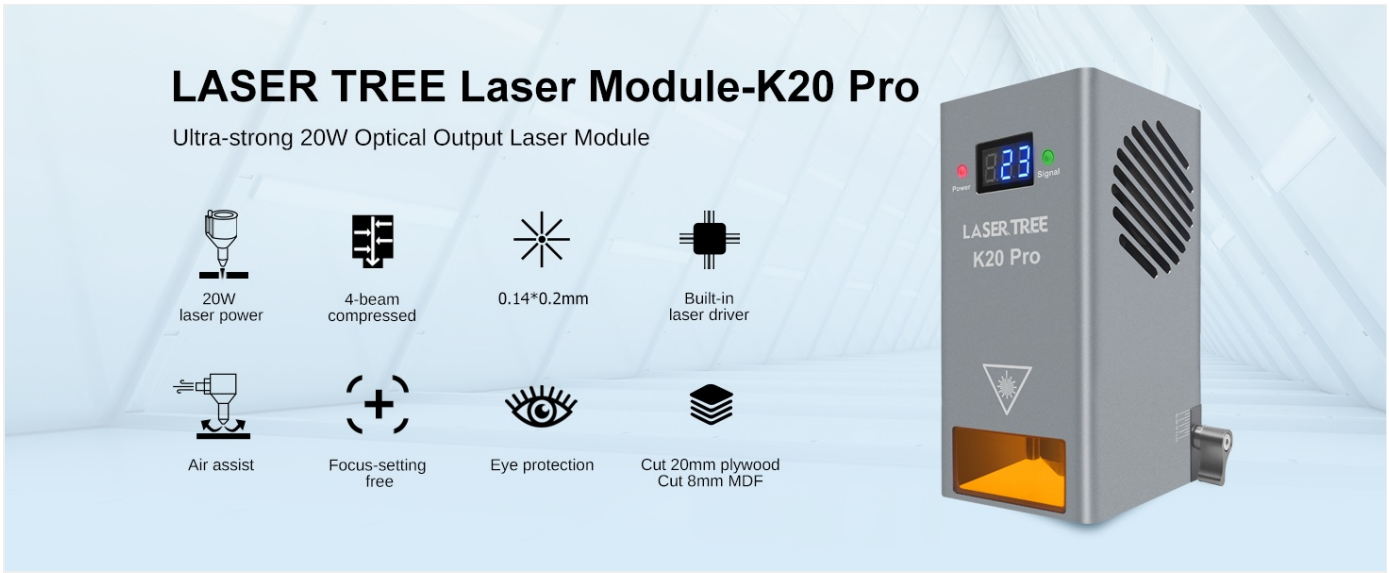

Image: A collage showcasing various items successfully cut with the laser module, such as decorative wood pieces, organizers, and 3D models.

5.4 Official Product Videos

20W laser module stainless steel plywood engraving test data

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Video: This video demonstrates the LASER TREE K20 Pro laser module performing engraving tests on stainless steel and plywood, showcasing its precision and capability to create detailed patterns and text on different materials. It highlights the module's performance in generating various shades and textures on metal and wood surfaces.

LASER TREE K20 pro 20W laser module Cutting 20mm pinewood and 12mm plywood

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Video: This video showcases the cutting power of the LASER TREE K20 Pro 20W laser module. It demonstrates the module's ability to cleanly cut through thick materials, specifically 20mm pinewood and 12mm plywood, highlighting its efficiency and precision in demanding cutting tasks.

6. Maintenance

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

- **Lens Cleaning:** Periodically inspect and clean the laser lens. Use a soft, lint-free cloth and lens cleaning solution specifically designed for optical components. Avoid abrasive materials that could scratch the lens.
- **Protective Window Replacement:** The module features an easy-to-change protection window. If the window becomes contaminated or dusty and cannot be cleaned effectively, replace it with the spare protective lens provided.
- **Dust Removal:** Keep the module and surrounding area free of dust and debris. Use compressed air to gently clear vents and cooling fins.
- **Temperature Monitoring:** Pay attention to the built-in temperature display. If the buzzer sounds an alarm (temperature > 55°C), allow the module to cool down before resuming operation. Ensure adequate airflow around the module.

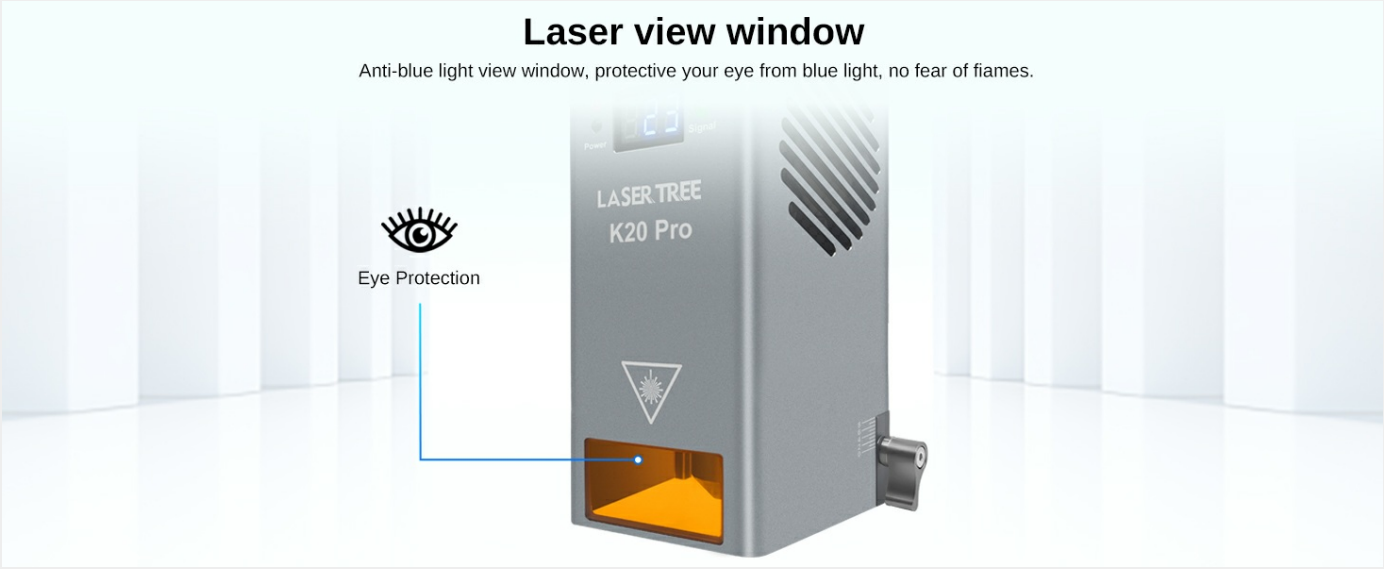

Image: Diagram illustrating the easy-to-change design of the protective lens, allowing for simple cleaning or replacement when contaminated.

7. Troubleshooting

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

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Laser not firing or weak output	◦ Loose cable connection ◦ Incorrect power/PWM settings ◦ Dirty or damaged lens ◦ Module overheating	◦ Check all cable connections. ◦ Verify power and PWM settings in your software. ◦ Clean or replace the protective lens. ◦ Allow module to cool down; ensure proper ventilation.
Poor engraving/cutting quality	◦ Incorrect focus ◦ Incorrect speed/power settings for material ◦ Material not flat ◦ No air assist or insufficient airflow	◦ Re-focus the laser module. ◦ Adjust speed and power settings based on material type and thickness. ◦ Ensure material is completely flat on the work surface. ◦ Verify air assist connection and air pump operation.
Over-temperature alarm (buzzer sounds)	◦ Prolonged high-power operation ◦ Insufficient cooling (blocked fans, poor ventilation)	◦ Pause operation and allow the module to cool down. ◦ Check if cooling fans are obstructed or dirty. ◦ Ensure adequate room ventilation and ambient temperature is below 35°C.

8. Specifications

Detailed technical specifications for the LASER TREE LT-K20 Pro laser module.

Feature	Specification
Model	K20 Pro
Brand	LASER TREE
Output Optical Power	18W-22W (Real 20W)
Electric Power	24V 4A
Wavelength	450nm (±10nm)
Power Adjustable	TTL/PWM
Focus Length	40mm
Interface	2EDG-3.81
Cable	3PIN 80cm
Driver Design	Built-in
Fan Speed	6000rpm

Feature	Specification
Module Size	64x66x134mm
Material	Aluminum & Copper
Application	Engraving/Cutting
Module Weight	587g
Product Dimensions	2.59 x 2.59 x 5.29 inches
Item Weight	2.2 pounds

Image: A table summarizing the key technical specifications of the K20 Pro laser module, including power, dimensions, and material.

9. Warranty and Support

LASER TREE is committed to providing high-quality products and excellent customer service. For any questions, technical assistance, or warranty inquiries regarding your LT-K20 Pro laser module, please contact LASER TREE customer support through

the platform where you purchased the product or visit the official LASER TREE store.
LASER TREE Store: Visit the LASER TREE Store on Amazon
Please retain your proof of purchase for warranty purposes.

Related Documents - LT-K20 Pro

	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.
	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.
	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.
	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.

	[Laser Tree K20 Pro Laser Module User Manual] Comprehensive user manual for the Laser Tree K20 Pro laser module, detailing its specifications, connection procedures, focus settings for cutting and engraving, and maintenance guidelines.
	[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.