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SCULPFUN iCube Ultra 12W

SCULPFUN iCube Ultra 12W Laser Engraver Instruction Manual

Model: iCube Ultra 12W | Brand: SCULPFUN

1. Product Overview

The SCULPFUN iCube Ultra is a compact and portable laser engraver designed for precision engraving and cutting. It features a 12W diode laser, offering efficient performance for various materials. This device is built with Class 1 safety features, making it suitable for use in diverse environments.
Key features include:

- **12W Diode Laser Power:** Utilizes a 12W laser diode with a 0.06mm laser spot for balanced cutting efficiency and detailed carving on materials like wood, leather, bamboo, paper, and stone.
- **Stable Structure & High-speed Engraving:** Equipped with a 32-bit high-speed engraving motherboard, achieving speeds up to 10000mm/min. The linear bearing structure ensures motion accuracy of up to 0.1mm.
- **Large Working Area:** Supports a maximum working area of 150 x 150 mm and a maximum processing height of 80 mm. Its semi-open design allows for engraving objects both inside and on the surface of larger items.
- **Safe and Convenient Operation:** A Class 1 safety laser engraver with a fully enclosed body. Features include door-opening instant stop, an instant stop switch, a temperature sensor, and a USB safety key. It is equipped with a detachable acrylic eye mask and a built-in smoke filter, eliminating the need for external goggles during operation and reducing smoke.
- **Easy Installation & Beginner-Friendly:** Requires no complex assembly and comes with user-friendly software for quick setup and operation.

Product Components

The following image illustrates the main components of the SCULPFUN iCube Ultra 12W Laser Engraver.



Figure 1: SCULPFUN iCube Ultra 12W Laser Engraver with key components labeled. This includes the RGB Indicator Light, Temperature Alarm Sensor, RA mini Rotary Attachment Port, Multi-Function Button, Auto Focus Button, Power Port, Camera Port, Type-C PC Port, and Power Switch. Additional ports for Air Assist Hose, USB Dongle, Automatic Air Pump, and Emergency Stop Switch are also shown.

2. Setup

The SCULPFUN iCube Ultra is designed for quick and easy setup. No complex assembly is required. Follow these general steps to prepare your device for operation:

1. **Unpacking:** Carefully remove all components from the packaging. Verify that all items listed in the package contents are present.
2. **Placement:** Place the engraver on a stable, level surface in a well-ventilated area. Ensure adequate space around the machine for operation and heat dissipation.
3. **Power Connection:** Connect the power adapter to the engraver's power port and then to a suitable power outlet.
4. **USB Connection:** Connect the engraver to your computer using the provided USB cable.
5. **Software Installation:** Install the recommended engraving software (e.g., LightBurn, LaserGRBL, or the

SCULPFUN App) on your computer or mobile device.

6. **Safety Key:** Insert the USB safety key into the designated port to enable operation.

For detailed visual instructions, refer to the official product video below.

Your browser does not support the video tag.

Video 1: Official product overview and setup guide for the SCULPFUN iCube Ultra laser engraver. This video demonstrates the initial setup, material placement, and basic operational features.

3. Operating Instructions

Operating the SCULPFUN iCube Ultra involves preparing your material, setting up the design, and initiating the engraving or cutting process. Always ensure the safety key is inserted and the safety door is closed during operation.

3.1 Material Preparation and Placement

1. **Select Material:** Choose a compatible material such as wood, leather, bamboo, paper, or stone. Ensure the material is clean and flat.
2. **Place Material:** Open the safety door and carefully place your material on the engraving platform. For larger objects, the semi-open structure allows you to position the machine directly over the object.
3. **Close Safety Door:** Close the safety door securely. The machine will not operate if the door is open.



Figure 2: Close-up view of the 12W diode laser module and its precise 0.06mm laser spot, demonstrating its capability for detailed engraving and cutting on various materials.

3.2 Auto-Focus Function

The iCube Ultra features an auto-focus function to ensure optimal laser focus for your material.

- **Initiate Auto-Focus:** Press the dedicated Auto Focus button on the device or activate it through the software. The laser module will automatically adjust its height to find the correct focal point on your material.

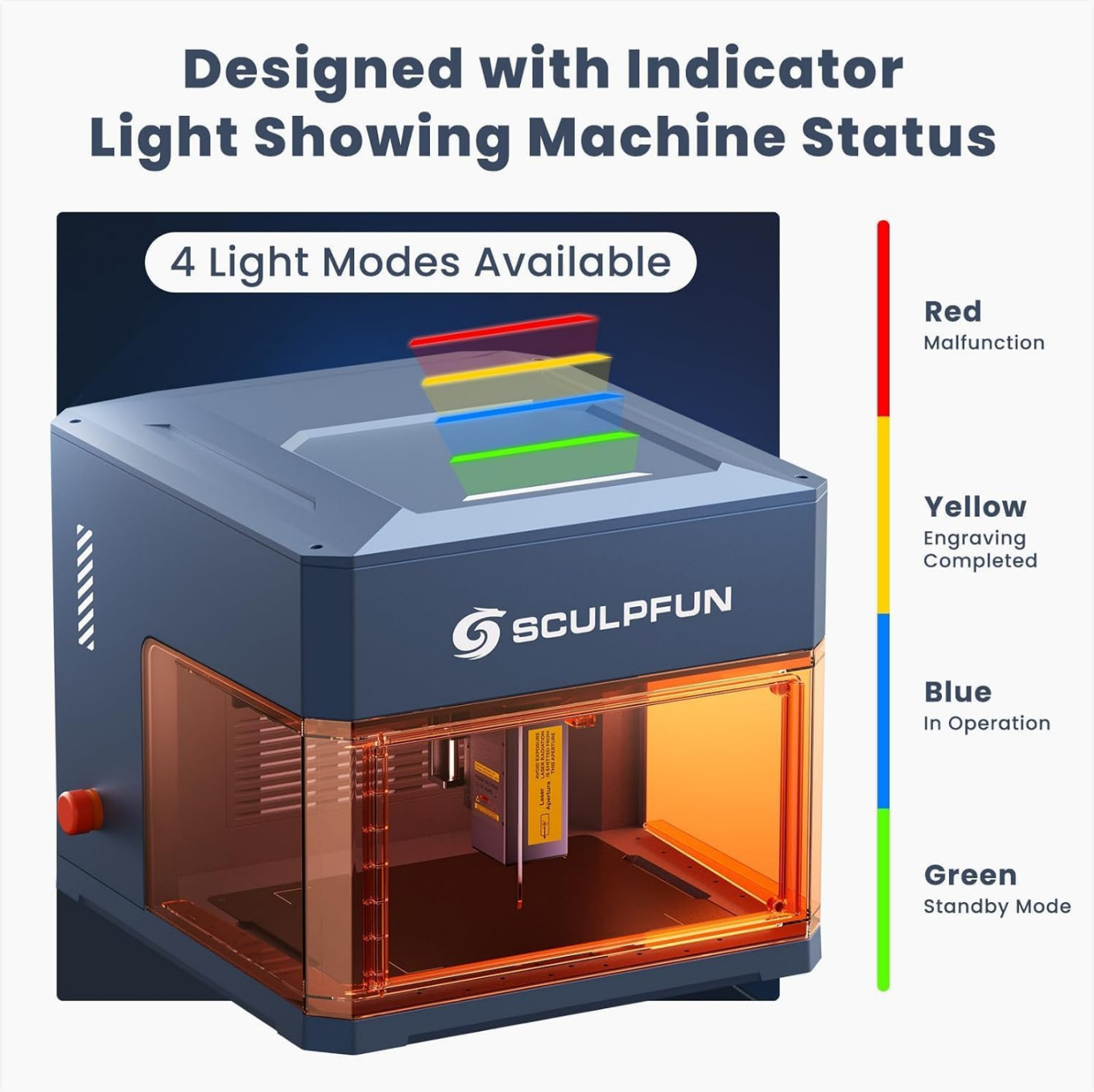


Figure 3: The SCULPFUN iCube Ultra demonstrating its laser auto-focus function, which eliminates the need for manual adjustments, ensuring precise engraving.

3.3 Software and Design

Use the compatible software to create or import your designs and configure engraving parameters.

- **Design Creation:** Use LightBurn, LaserGRBL, or the SCULPFUN App to prepare your engraving or cutting design.
- **Camera Positioning (Optional):** The device supports camera positioning for precise alignment of your design on the material.
- **Parameter Settings:** Adjust laser power, speed, and passes according to your material and desired outcome.
- **Wireless Connection:** The SCULPFUN App allows for wireless connection and control of the engraver.

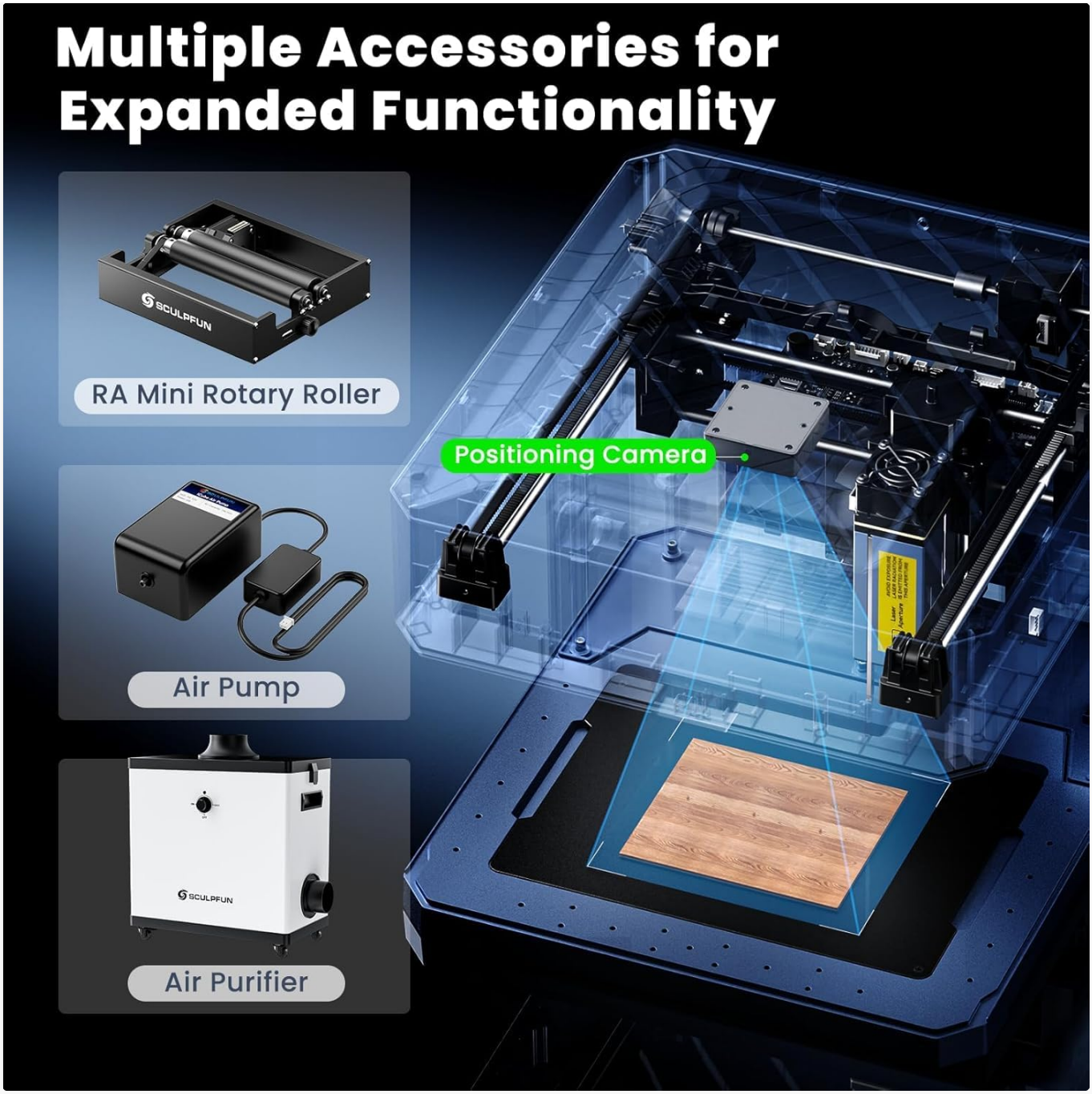


Figure 4: The SCULPFUN iCube Ultra demonstrating compatibility with LightBurn software on a laptop and the SCULPFUN mobile application, highlighting multi-software options for design and control.

3.4 Initiating Engraving/Cutting

- **Start Process:** Once your design and parameters are set, initiate the engraving or cutting process through the software.
- **Monitor Status:** The RGB indicator light on the device will show the current operation status (Green for Standby, Blue for In Operation, Yellow for Engraving Completed, Red for Malfunction).



Figure 5: The SCULPFUN iCube Ultra featuring an indicator light system that displays the machine's status with different colors: Red for malfunction, Yellow for engraving completed, Blue for in operation, and Green for standby mode.

4. Safety Features

The SCULPFUN iCube Ultra is designed with multiple safety features to ensure user protection during operation.

- **Class 1 Safety:** The device is a high-performance entry-level Class 1 safety laser engraving machine, complying with FDA/Class 1 laser safety standards.
- **Fully Enclosed Body:** The enclosed design minimizes laser exposure.
- **Door-Opening Instant Stop:** The laser automatically stops when the safety door is opened.
- **Instant Stop Switch:** An emergency stop switch is provided for immediate shutdown.
- **Temperature Sensor:** Alarms and stops operation if the internal temperature becomes too high.
- **USB Safety Key:** A physical key is required to enable machine operation, providing an additional layer of security.
- **Acrylic Eye Mask:** A detachable, fully wrapped acrylic eye mask is included, and the built-in design means goggles are not required during normal operation.



Figure 6: Overview of the SCULPFUN iCube Ultra's Class 1 safety features, including the temperature sensor, USB security key, safety door with instant stop, and auto-focus function.

5. Maintenance

Regular maintenance ensures optimal performance and longevity of your SCULPFUN iCube Ultra laser engraver.

5.1 Smoke Filtration System

The iCube Ultra features a built-in smoke filter system to manage fumes generated during engraving. For heavy cutting operations, an external air purifier can be connected for enhanced filtration.

- **Filter Cleaning/Replacement:** Periodically check and clean or replace the smoke filter to maintain effective air filtration. Refer to the detailed user manual for specific instructions on filter maintenance.
- **External Exhaust:** If using an external exhaust system, ensure it is properly connected and maintained according to its own instructions.

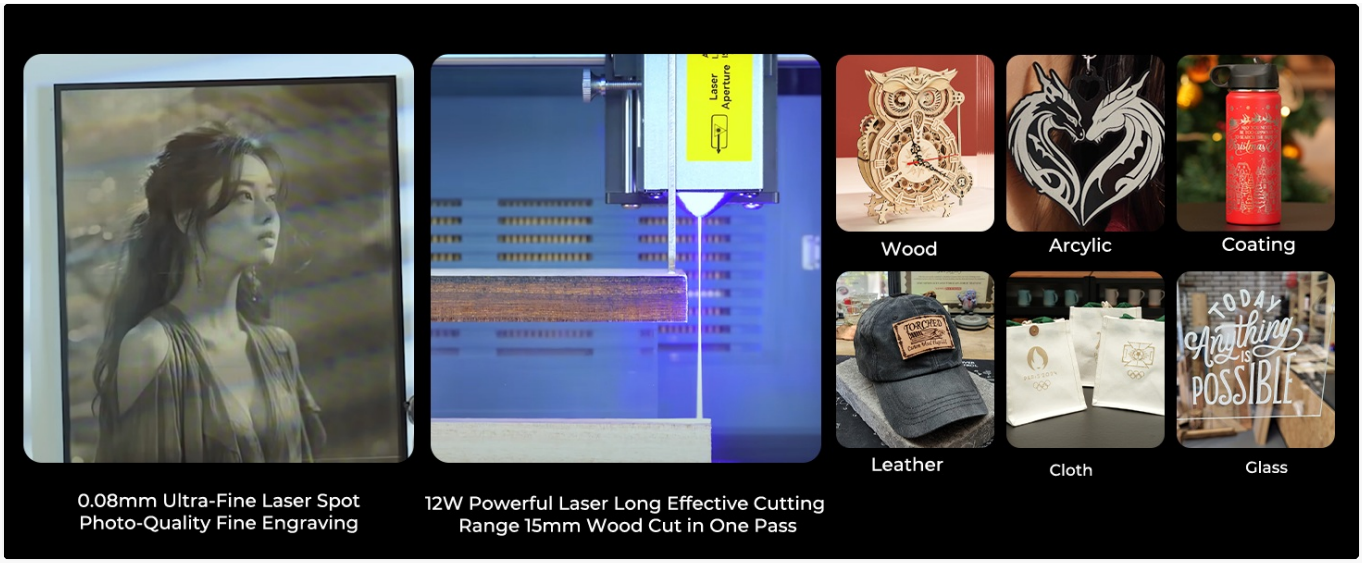


Figure 7: Diagram illustrating the built-in smoke filter system of the SCULPFUN iCube Ultra, showing the strong suction fan, smoke dust filter, and activated carbon smell filter components.

5.2 General Cleaning

- **Laser Lens:** Gently clean the laser lens regularly with a soft, lint-free cloth and appropriate lens cleaning solution to ensure optimal laser performance.
- **Engraving Platform:** Keep the engraving platform clean from debris and residue.
- **Exterior:** Wipe the exterior of the machine with a soft, dry cloth.

6. Troubleshooting

This section provides solutions to common issues you might encounter with your SCULPFUN iCube Ultra laser engraver.

Problem	Possible Cause	Solution
Device not powering on.	Power cable not connected, power outlet issue, safety key not inserted.	Check power connections. Ensure the USB safety key is fully inserted. Try a different power outlet.
Laser not firing or weak output.	Safety door open, laser lens dirty, incorrect focus, low power setting.	Ensure safety door is closed. Clean the laser lens. Perform auto-focus. Increase laser power setting in software.
Engraving is inaccurate or distorted.	Material not secured, loose belts/components, incorrect software settings.	Ensure material is firmly placed. Check for any loose mechanical parts. Verify design and speed settings in the software.
Smoke/odor not adequately filtered.	Clogged internal filter, insufficient ventilation.	Clean or replace the internal smoke filter. Ensure the device is in a well-ventilated area. Consider connecting an external exhaust system.

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

7. Specifications

Feature	Detail
Brand	SCULPFUN
Model Number	iCube Ultra 12W
Laser Power	12W Diode Laser (0.06mm spot)
Engraving Speed	Up to 10000mm/min
Working Area	150 x 150 mm
Max Processing Height	80 mm
Safety Class	Class 1
Filtration System	Built-in smoke filter
Connectivity	USB, Wireless (via SCULPFUN App)
Compatibility	LightBurn, LaserGRBL, SCULPFUN App (Windows, MacOS, Android, iOS)

8. Warranty and Support

Manufacturer Warranty: The SCULPFUN iCube Ultra 12W Laser Engraver comes with a 1-year manufacturer warranty.
For technical support, warranty claims, or any other inquiries, please contact SCULPFUN customer service through their official website or the retailer where the product was purchased.

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