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› SCULPFUN CAM500 Lightburn Camera Instruction Manual

SCULPFUN CAM500

SCULPFUN CAM500 Lightburn Camera Instruction Manual

Brand: SCULPFUN | Model: CAM500

1. INTRODUCTION

The SCULPFUN CAM500 is an industrial-grade camera specifically designed to integrate with laser engraving machines and LightBurn software. It enhances the precision and efficiency of laser engraving and cutting tasks by providing features such as accurate positioning, image tracing, batch engraving, and HD video recording.

This manual provides detailed instructions for setting up, operating, and maintaining your SCULPFUN CAM500 camera, ensuring optimal performance and longevity.



Figure 1: SCULPFUN CAM500 Lightburn Camera mounted on a laser engraver, illustrating its operational setup and wide field of view.

2. WHAT'S IN THE BOX

Please verify that all components listed below are included in your package:

- SCULPFUN CAM500 Camera Module
- Camera Horizontal Support Assembly
- T-shaped Fixation Clamp
- U-shaped Fixation Clamp
- USB Cable

- Measuring Tape
- A4 Size Calibration Paper (2 sheets)
- M5 Screws (4 pcs)
- M4 Screws (4 pcs)
- M3 Screws (4 pcs)
- Product Assembly Instruction (Printed Manual)



Figure 2: All components included in the SCULPFUN CAM500 package.

3. SETUP AND INSTALLATION

Follow these steps to properly install your SCULPFUN CAM500 camera:

1. Choose the Correct Clamp:

- Use the **T-shaped fixation clamp** for SCULPFUN machine models (S6, S6 Pro, S9, S10, S30/S30 Ultra

series) and most engraving machines with a V-slot structure.

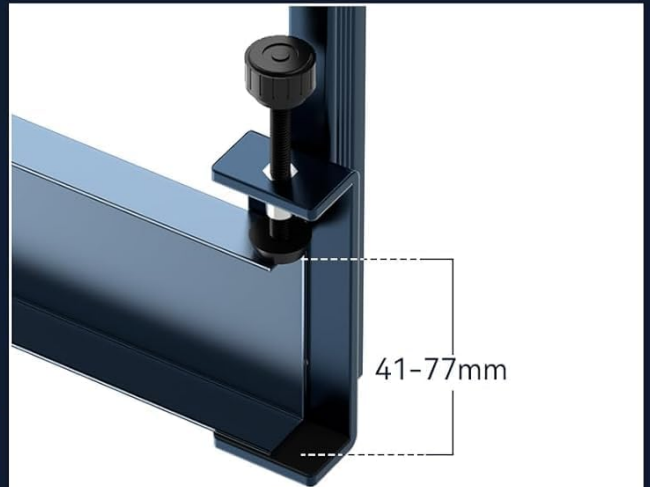
- Use the **U-shaped fixation clamp** for U-shaped beam machines, including models like D1PRO, Falcon2, LM2 PRO S2, 20PRO 20S, 55, and JL3, 3 MAX V2.

High Adaptability Support Structure

Two fixation structures. T-shaped and U-shaped fixation clamp. Meet your multiple needs.



T-shaped Fixing Clamp



U-shaped Fixing Clip

Figure 3: T-shaped and U-shaped fixation clamps for versatile mounting.

2. **Mount the Camera:** Securely attach the camera module to your laser engraver using the appropriate clamp and screws. Ensure the camera is positioned to have a clear view of the entire working area.
3. **Recommended Height:** The recommended height from the camera to the engraving position is 325mm for optimal performance and minimal distortion.
4. **Connect to Computer:** Connect the camera to your computer using the provided USB cable.
5. **LightBurn Software Integration:**
 - Ensure you have LightBurn software installed on your computer.
 - Open LightBurn and navigate to the camera settings.
 - Select the SCULPFUN CAM500 from the list of available cameras.
 - Perform the camera calibration process within LightBurn. This involves placing the provided calibration paper on your laser bed and following the on-screen instructions to accurately map the camera's view to the laser's

working area. Proper calibration is crucial for precise positioning.

Important Notice: This product must be used with a limit switch on your laser engraver for proper functionality and safety.

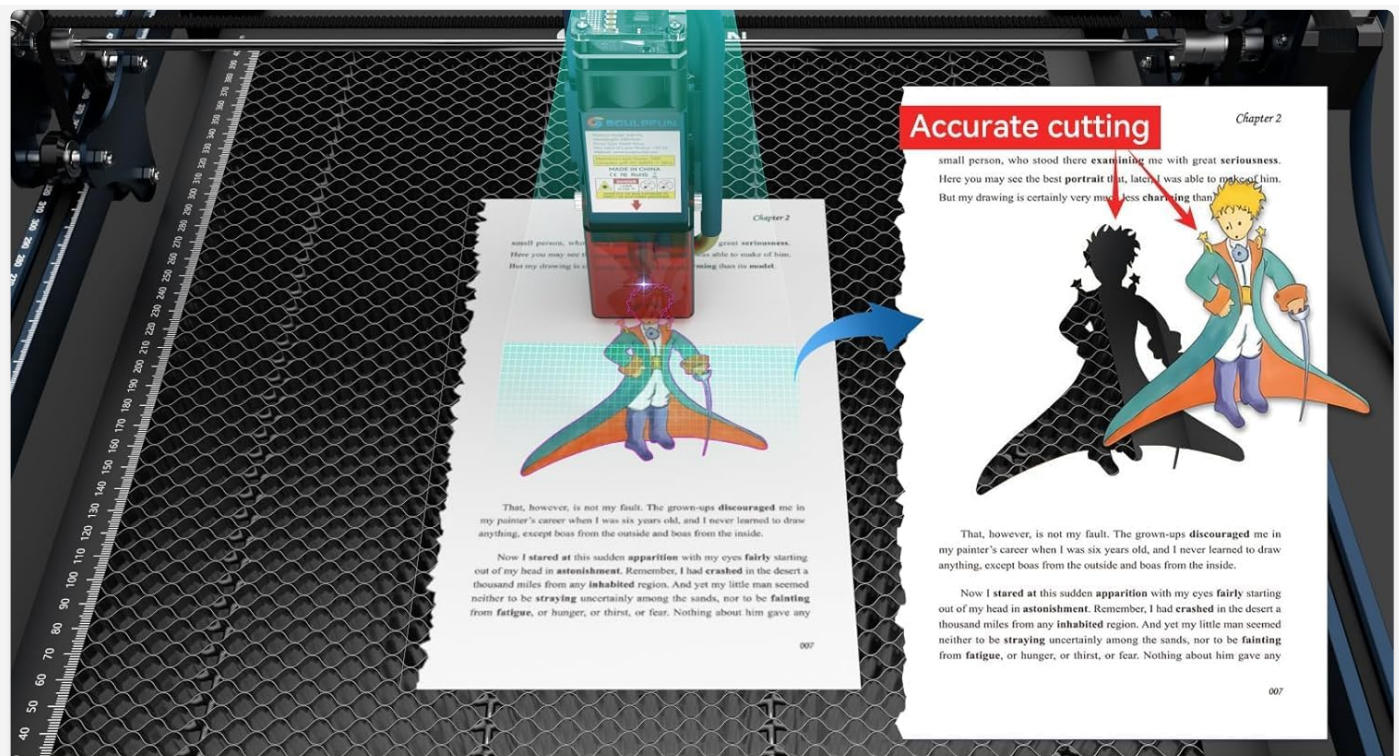
4. OPERATING INSTRUCTIONS

The SCULPFUN CAM500 camera significantly enhances your laser engraving workflow. Here's how to utilize its key features:

4.1 Precise Positioning

The CAM500 camera, when properly calibrated with LightBurn, allows for highly accurate positioning of your designs on the material. The positioning deviation is less than 1mm.

- Place your material on the laser bed.
- In LightBurn, the camera view will show the live feed of your material.
- Drag and drop your design onto the material in the LightBurn interface. The camera feed allows you to visually align the design with the physical object.
- Once aligned, the laser will engrave the pattern at the exact position you've set.



Precise Positioning

The CAM500 is perfectly compatible with LightBurn, with a calibrated positioning deviation of less than 1mm, it's very high accuracy.

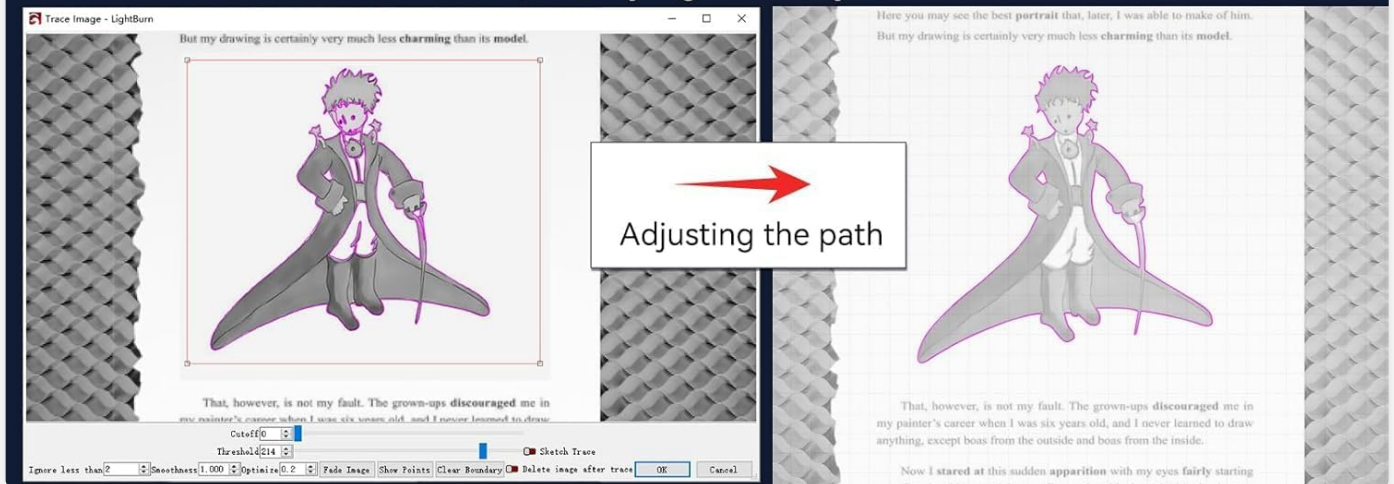


Figure 4: Precise positioning of designs using the CAM500 camera in LightBurn.

4.2 Image Tracing

The CAM500 can identify and extract patterns from the surface of objects, converting them into vector lines for engraving or cutting.

- Place the object with the pattern you wish to trace on the laser bed.
- In LightBurn, use the "Trace Image" function. The camera will capture the image, and the software will help you define and extract the contours.
- Once traced, these vector lines can be used directly for engraving or cutting.

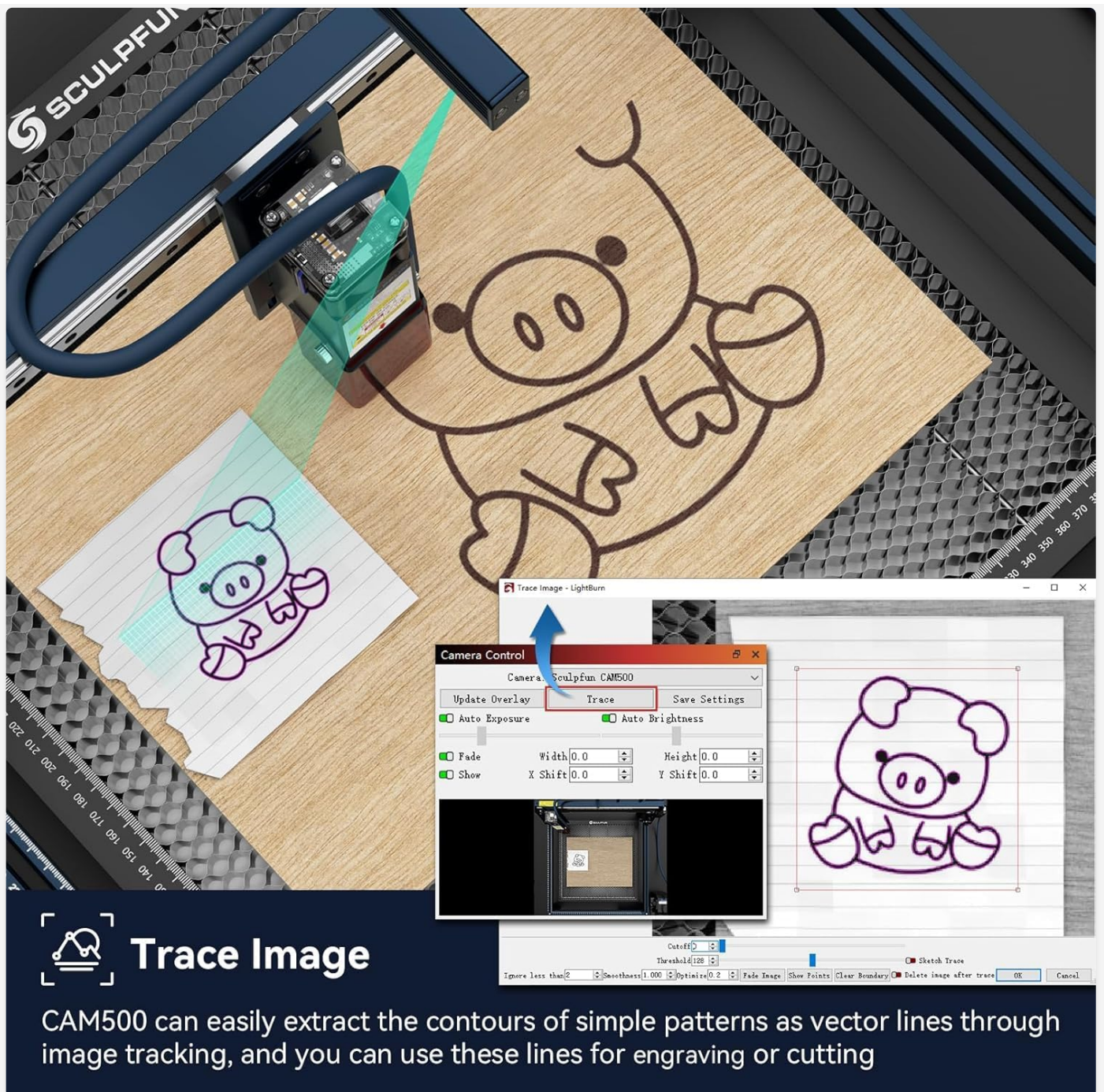


Figure 5: Image tracing functionality for converting physical patterns into digital designs.

4.3 Batch Engraving

Improve efficiency by engraving multiple objects in a single job without manual repositioning for each piece.

- Place multiple engraving materials on the laser bed.
- In LightBurn, the CAM500 will identify the positions of each object.
- Assign different designs to different objects within the software.
- The laser will automatically find and process each object sequentially, saving time and effort.



Batch Engraving

CAM500 can simultaneously locate the positions of multiple workpieces, and after placing drawings, they can be processed together, reducing workflow and improving efficiency.

Figure 6: Batch engraving multiple items simultaneously.

4.4 HD Video Recording

The CAM500 can record the entire engraving process in high definition, allowing you to document your work or create time-lapse videos.

- Access the video recording function within LightBurn or a compatible third-party application.
- Start recording before initiating the engraving process.
- The camera will capture the entire creation process.

Video Recording

SCULPFUN CAM500 can be used as a computer camera to record the engraving process, making it convenient for you to share your creative process with friends

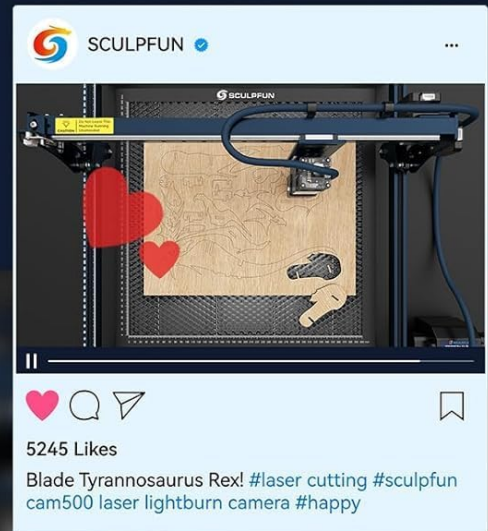


Figure 7: HD video recording of the engraving process.

Your browser does not support the video tag.

Video 1: Demonstration of the SCULPFUN CAM500 camera's video recording capabilities during a laser engraving operation.

4.5 Work Preview

The CAM500 provides a real-time observation window in LightBurn, allowing you to monitor the engraving progress without manual identification of the position.

- The live camera feed acts as a visual preview of your work area.
- You can see the laser's path and the material in real-time, ensuring everything is proceeding as expected.



Work Preview

Preview the work area in the LightBurn software, no need to identify the position manually. Provide a real-time observation window to allow you to monitor the engraving progress.

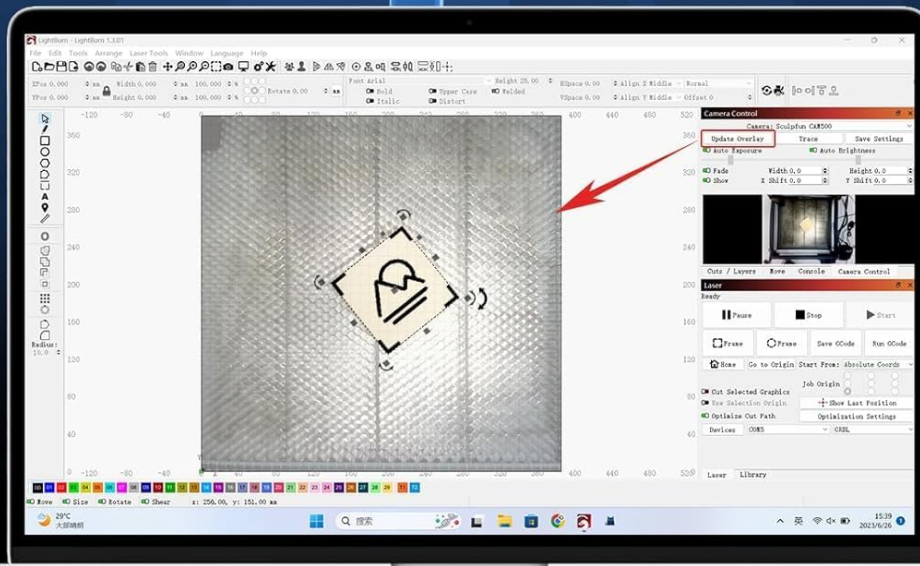


Figure 8: Real-time work preview in LightBurn using the CAM500 camera.

5. MAINTENANCE

To ensure the longevity and optimal performance of your SCULPFUN CAM500 camera, follow these maintenance guidelines:

- **Lens Cleaning:** Regularly clean the camera lens with a soft, lint-free cloth. For stubborn smudges, use a lens cleaning solution specifically designed for optical lenses. Avoid abrasive materials or harsh chemicals.
- **Dust Removal:** Keep the camera and its mounting area free from dust and debris, especially in a laser engraving environment where particles can accumulate. Use compressed air or a soft brush to gently remove dust.
- **Cable Inspection:** Periodically inspect the USB cable for any signs of wear, fraying, or damage. Replace the cable if necessary to ensure a stable connection.
- **Secure Mounting:** Ensure the camera remains securely mounted to your laser engraver. Vibrations during

operation can loosen screws over time. Check and tighten all mounting screws as needed.

- **Software Updates:** Keep your LightBurn software updated to the latest version. Software updates often include performance improvements, bug fixes, and enhanced compatibility with accessories like the CAM500.

6. TROUBLESHOOTING

Here are some common issues and their potential solutions:

Problem	Possible Cause	Solution
Camera image is blurry or unclear.	Insufficient lighting in the work area; dirty lens; incorrect focus.	Ensure the laser bed is very brightly lit. Clean the camera lens. The CAM500 has a fixed focus, ensure the recommended height (325mm) is maintained.
Precise positioning is inaccurate (deviation > 1mm).	Improper camera calibration; camera or laser moved after calibration; material not flat.	Recalibrate the camera in LightBurn using the provided calibration paper. Ensure the laser and camera are stable and not moved after calibration. Ensure the material is flat on the laser bed.
Camera not detected by LightBurn.	Loose USB connection; faulty USB cable; driver issue; camera not powered.	Check USB cable connection at both ends. Try a different USB port or cable. Restart LightBurn and your computer. Ensure the camera is receiving power (if applicable).
Image tracing is not accurate.	Poor image quality; complex pattern; insufficient contrast.	Ensure the object is well-lit and has good contrast. Simplify the pattern if possible. Adjust tracing settings in LightBurn.

7. SPECIFICATIONS

Detailed technical specifications for the SCULPFUN CAM500 camera:

Feature	Detail
Brand	SCULPFUN
Model	CAM500
Color Image Sensor	1/4-inch CMOS
Maximum Resolution	2592*1944 (5MP)
Pixel Size	1.4um*1.4um
Focus Mode	Fixed Focus
Interface	USB 2.0
Application Area	400*400mm (Working Range)
Perspective Breadth	120°
Product Dimensions	15.8 x 0.6 x 0.8 inches

Feature	Detail
Item Weight	1.95 pounds
Manufacturer	SCULPFUN



The image displays the SCULPFUN CAM500 5MP Camera Module. At the top, a blue and black camera unit is shown with the SCULPFUN logo and 'Sculpfun CAM500' text. Below this, the product name 'SCULPFUN CAM500' and '5MP Camera Module' are prominently displayed. A list of specifications follows, including brand, model, sensor type, resolution, pixel size, focus mode, interface, application area, and perspective breadth. A note at the bottom states that the product must be used with a limit switch. To the right, a vertical view of the camera module's internal components is shown, including the lens, sensor, and various electronic components.

SCULPFUN CAM500
5MP Camera Module

Brand: Sculpfun
Model: CAM500
Color Image Sensor: 1/4-inch CMOS
Maximum Resolution: 2592*1944 Resolution
Pixel Size: 1.4um*1.4um
Focus Mode: Fixed Focus
Interface: USB 2.0
Application area: 400*400mm
Perspective breadth: 120°

i This product must be used with a limit switch

Figure 9: SCULPFUN CAM500 5MP Camera Module specifications.

8. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official SCULPFUN website or contact their customer service directly. Keep your purchase receipt as proof of purchase for any warranty claims.

SCULPFUN Official Website: www.sculpfun.com

For additional assistance, you may also refer to the LightBurn software documentation and community forums, as the CAM500 is designed for seamless integration with LightBurn.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question