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## SCULPFUN S30 Ultra-33W Upgrade Kit

# SCULPFUN S9 to S30 Ultra-33W Laser Engraving Machine Upgrade Kit

Instruction Manual

Brand: SCULPFUN | Model: S30 Ultra-33W Upgrade Kit

## 1. INTRODUCTION

This manual provides detailed instructions for upgrading your SCULPFUN S6, S6 Pro, S9, S30, S30 Pro, or S30 Pro Max laser engraving machine to the S30 Ultra-33W model. The upgrade kit includes a powerful 33W laser module, an advanced 32-bit main control board with automatic air assist control and Bluetooth connectivity, and a limit switch for enhanced precision.

The SCULPFUN S30 Ultra-33W Laser Engraving Machine Upgrade Kit significantly enhances cutting and engraving capabilities, allowing for deeper cuts and more stable performance. Please read this manual carefully before proceeding with the installation and operation.



Image 1: Overview of the SCULPFUN S9 to S30 Ultra-33W Laser Engraving Machine Upgrade Kit components.

## 2. SAFETY INFORMATION

**WARNING: This product contains a Class IV laser. Improper use can result in serious injury, including eye damage and skin burns. Always follow safety guidelines.**

- Always wear appropriate laser safety goggles when operating the machine.

- Never look directly into the laser beam or at its reflection.
- Ensure the work area is well-ventilated to dissipate fumes and smoke.
- Keep children and pets away from the operating machine.
- Do not leave the machine unattended during operation.
- Ensure the machine is placed on a stable, non-flammable surface.
- Familiarize yourself with emergency shutdown procedures.

### 3. PACKAGE CONTENTS

The SCULPFUN S9 to S30 Ultra-33W Upgrade Kit includes the following components:

- SCULPFUN S30 Ultra 33W Laser Module
- S30 Ultra Motherboard (32-bit)
- S30 Ultra Air Pump
- Air Hose
- Limit Switch (for X and Y axes)
- S30 Ultra Power Supply
- Connection Cables (including X-motor extension cable)
- Screw Packs and Tools (Allen wrenches, tweezers, cleaning brushes)
- Laser Maintenance Kit (spare lenses, cleaning cloth)



Image 2: All components included in the upgrade kit.

### 4. SETUP AND INSTALLATION

Follow these steps to install your SCULPFUN S9 to S30 Ultra-33W Upgrade Kit. For a visual guide, please

refer to the official installation video below.

Video 1: Official installation tutorial for the SCULPFUN S9 to S30 Ultra 22W/33W Upgrade Kit. This video guides you through unpacking, installation, and initial setup.

#### 4.1. Step 1: Remove Existing Components

- Remove the existing S9 laser module. (Refer to Video 1, 0:59)
- Disconnect and remove the terminal cable. (Refer to Video 1, 1:04)
- Remove the old motherboard from its housing. (Refer to Video 1, 1:06)
- Retain screws for backup. (Refer to Video 1, 1:20)

#### 4.2. Step 2: Install the New Motherboard

- Install the new 32-bit S30 Ultra motherboard into the housing. (Refer to Video 1, 1:50)
- Connect the terminal cables to the motherboard, matching colors and shapes. Pay attention to the blue interface connected to the white cable. (Refer to Video 1, 2:25)
- Connect the Bluetooth antenna to the motherboard chip. (Refer to Video 1, 2:52)
- Secure the motherboard housing to the machine frame. Do not fully tighten screws until all are in place to allow for adjustment. (Refer to Video 1, 3:05)



Image 3: Close-up of the 32-bit Air Assist Mainboard.

#### 4.3. Step 3: Install Terminal Cable

- Route the terminal cable through the machine frame. For machines upgraded with linear guides, an X-motor extension cable is provided. (Refer to Video 1, 3:57)
- If necessary, disassemble the gantry to properly route the cable, then reassemble. (Refer to Video 1, 4:24)
- Ensure the belt is properly tensioned before tightening the screws. (Refer to Video 1, 5:34)

#### 4.4. Step 4: Install Laser Head, Air Pump, and Limit Switch

- Install the 33W laser module onto the gantry. (Refer to Video 1, 5:57)
- Connect the air pump to the laser module and the motherboard. (Refer to Video 1, 6:09)
- Install the limit switch on the X and Y axes. Align the tail at the 16mm position. (Refer to Video 1, 6:45)



Image 4: Proper installation and alignment of the limit switch.

## 5. OPERATING INSTRUCTIONS

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### 5.1. Connecting to the Machine

You can connect to the laser engraving machine via USB data cable or wirelessly via Bluetooth for longer transmission distances.

#### 5.1.1. How to Connect to Bluetooth

- Start the engraving machine. (Refer to Video 1, 7:23)
- On your computer, search for "Bluetooth" settings.
- Turn on Bluetooth and add a new device.
- Find and select "Sculpfun S30 Ultra" from the list of available devices. (Refer to Video 1, 7:26)

### 5.2. Software Settings (LightBurn)

After connecting, configure LightBurn software for optimal performance:

- **Reset Working Area:** The new laser and limit switch may reduce the working area. Reset the working area in LightBurn to Width: 375mm and Height: 380mm. (Refer to Video 1, 7:53)
- **Limit Switch Function:** If using the limit switch, change the "Job Origin" to "Absolute Coords" in LightBurn. (Refer to Video 1, 8:03)
- **Preview Working Range:** Always preview the working range to ensure the laser head does not collide with the engraving machine. (Refer to Video 1, 8:41)

## 6. MAINTENANCE

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### 6.1. Lens Cleaning and Replacement

Regular cleaning of the laser lens is crucial for maintaining engraving quality. Use alcohol and the provided cleaning cloth to clean the lenses. If lenses are damaged, replace them with spares from the maintenance kit. Additional lenses can be purchased from the official SCULPFUN website.



Image 5: Steps for cleaning and replacing the laser lens. (Refer to Video 1, 9:01)

### 6.2. Air Nozzle Cleaning

Over time, the air nozzle may become blocked. Use the provided air brush to clean it. Ensure vertical installation of the nozzle downwards to avoid displacement of the sealing ring. No need to overtighten, just ensure contact with the sealing ring.

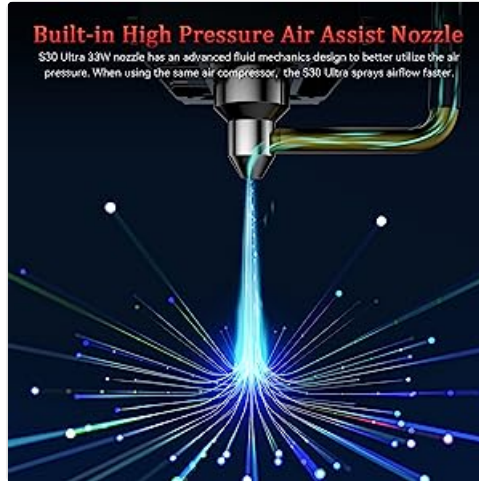


Image 6: Cleaning the built-in high-pressure air assist nozzle. (Refer to Video 1, 9:44)

## 7. SPECIFICATIONS

Feature	Description
Laser Output Power	33,000mW (33W)
Laser Type	6 improved 6W diodes
Laser Class	Class IV
Motherboard	Upgraded 32-bit with automatic air assist control and wireless Bluetooth
Cutting Capability (Balsa Wood)	Up to 20mm in one pass
Cutting Capability (Plywood)	Up to 15mm in one pass
Air Assist Speed	13.5m/s (high speed)
Limit Switch	XY Axis Limit Switch for homing and positioning