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› **SCULPFUN S30 Pro Laser Engraver and TS1 Touch Screen User Manual**

## SCULPFUN S30 Pro+TS1

# SCULPFUN S30 Pro Laser Engraver and TS1 Touch Screen User Manual

Model: S30 Pro+TS1

## 1. PRODUCT OVERVIEW

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The SCULPFUN S30 Pro is a high-performance 10W diode laser engraver designed for precision engraving and cutting of various materials. It features an automatic air assist system for enhanced cutting performance and comes bundled with the SCULPFUN TS1 Touch Screen for offline control and Wi-Fi connectivity. This machine is suitable for engraving and cutting wood, MDF, bamboo, cardboard, plastic, leather, PCB board, aluminum oxide, 304 stainless steel, ceramic, and dark stone.

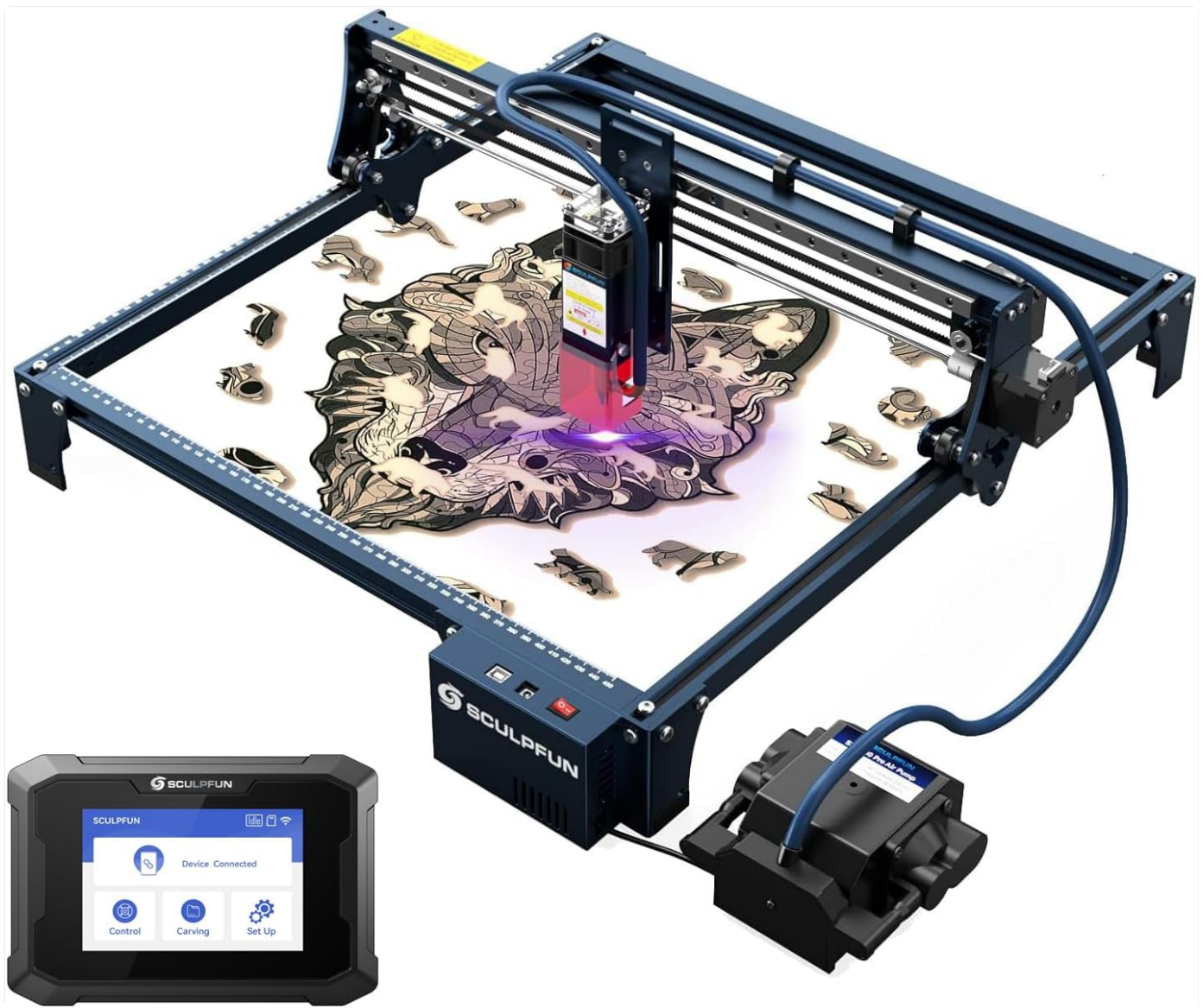


Figure 1: SCULPFUN S30 Pro Laser Engraver with TS1 Touch Screen. This image shows the complete laser engraving system, including the main engraver unit, the external air pump, and the TS1 touch screen.

## Key Features:

- **10W Diode Laser Output:** Capable of cutting 10mm wood or 5mm acrylic in a single pass with a 0.06x0.08mm ultra-fine compression spot for detailed engraving.
- **Automatic Air Assist:** Mainboard-controlled air pump (12V, 30L/min) with an advanced high-pressure metal nozzle, intelligently controlled via LightBurn software (M8 command) to significantly improve cutting speed and performance.
- **SCULPFUN TS1 Touch Screen:** 3.5-inch capacitive touch screen (480x320 resolution) for offline engraving, Wi-Fi connectivity, and real-time slicing via the SCULPFUN mobile app.
- **Expandable Working Area:** Standard 410x400mm engraving area, expandable up to 935x905mm with optional extension kits.
- **Robust Construction:** Features an industrial-grade linear rail for high precision and durability.
- **Eye Protection:** Equipped with a detachable laser protection cover.

## 2. SAFETY INFORMATION

Operating a laser engraver involves potential hazards. Always adhere to the following safety guidelines to prevent injury or damage.

- **Eye Protection:** Always wear the provided laser safety goggles when the laser is operating. Never look directly at the laser beam.
- **Ventilation:** Operate the machine in a well-ventilated area to dissipate fumes and smoke produced during engraving/cutting. Consider an exhaust system.
- **Fire Hazard:** Laser engraving/cutting can ignite flammable materials. Do not leave the machine unattended during operation. Keep a fire extinguisher nearby.
- **Material Compatibility:** Only engrave or cut materials specified in the product description. Avoid materials that produce toxic fumes or can easily catch fire (e.g., PVC, vinyl).
- **Children and Pets:** Keep children and pets away from the operating area.
- **Electrical Safety:** Ensure the power supply is correctly connected and grounded. Do not operate with wet hands or in damp conditions.
- **Emergency Stop:** Familiarize yourself with the location of the power switch for immediate shutdown in an emergency.

### 3. SETUP AND ASSEMBLY

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Before operating the SCULPFUN S30 Pro, careful assembly is required. Refer to the included "Step 1-6 Installation package" and the physical manual for detailed visual instructions. The following outlines the general steps.

#### 3.1 Unpacking and Inspection

Carefully unpack all components and verify against the packing list:

- 1 x S30 Pro laser
- 1 x Laser repair kit
- 1 x 12V Automatic air pump
- 3 x A4 size 3mm wood board
- 2 x Limit switches
- 1 x 12V 5A Power adapter
- 1 x Power cord
- 1 x USB cable
- 1 x Air pipe
- 1 x Installation toolkit
- 1 x Laser goggles
- 1 x A4 Metal backing plate
- Step 1-6 Installation package
- 1 x Manual
- 1 x X-axis assembly
- 2 x X Profiles
- 2 x Y Profiles
- 1 x Control box assembly
- 3 x Support feet
- 1 x Touch screen (SCULPFUN TS1)
- 1 x Power cord (for TS1)
- 1 x SD card (for TS1)

- 1 x Card reader (for TS1)
- 1 x Manual (for TS1)

### 3.2 Mechanical Assembly

Follow the step-by-step instructions in the provided installation package to assemble the frame, X-axis, Y-axis, and control box. Ensure all screws are tightened securely.



Figure 2: Overview of SCULPFUN S30 Series components and innovative technologies. This diagram highlights the industrial-grade linear rail, S30 Pro 10W dual-laser, air assist, automatic air assist pump, X&Y axis expansion kit compatibility, replaceable lens, and 32-bit air assist mainboard.

### 3.3 Laser Module Installation

Install the S30 Pro laser module onto the X-axis assembly. Ensure it is securely fastened and the laser protection cover is in place.



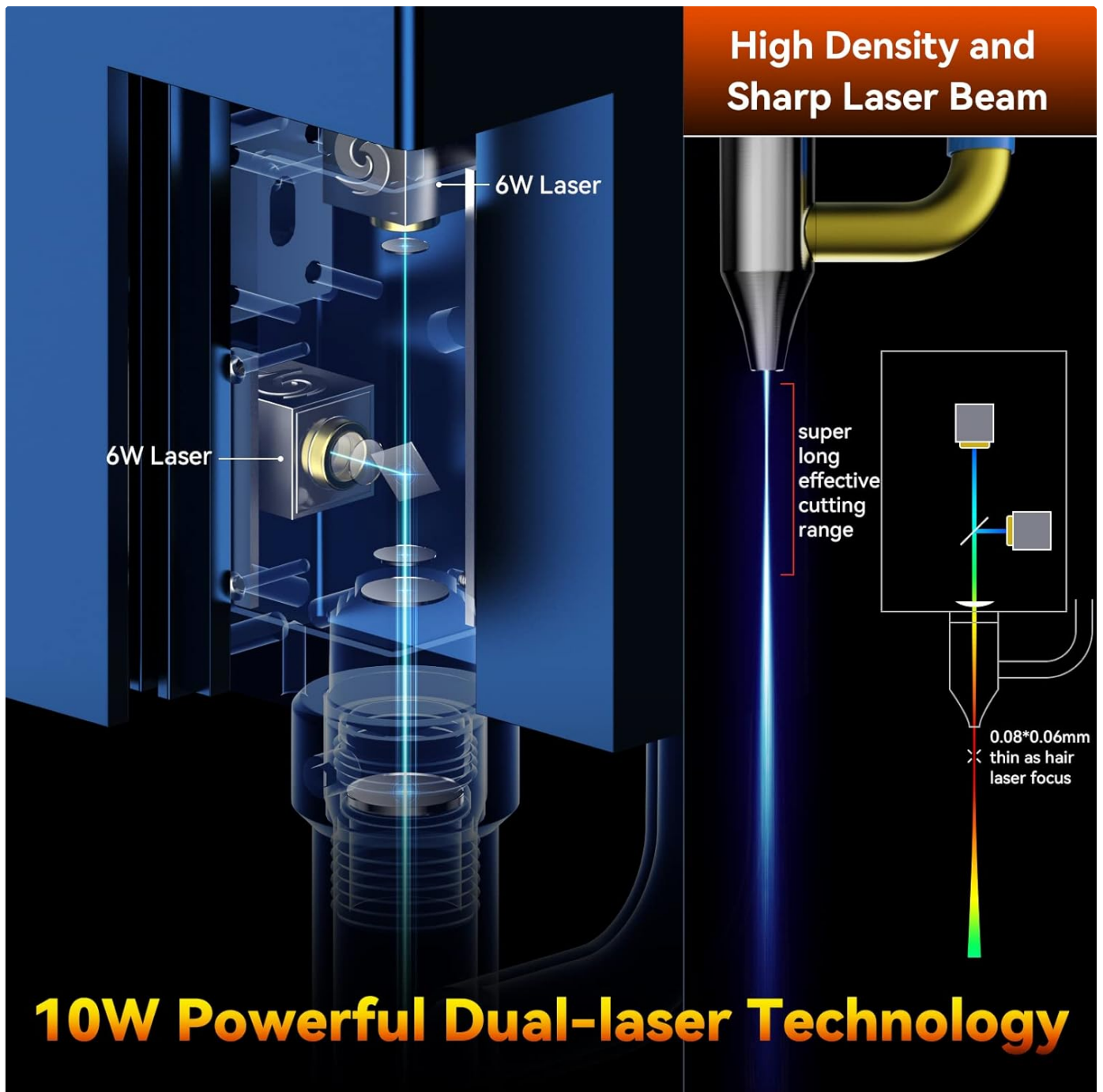


Figure 3: Illustration of the 10W Powerful Dual-laser Technology. This image demonstrates how two 6W lasers are combined to achieve a 10W output with a super long effective cutting range and a fine 0.06x0.08mm laser focus.

### 3.4 Air Assist System Connection

Connect the air pipe from the 12V automatic air pump to the air assist nozzle on the laser module. Ensure the air pump is connected to the mainboard's designated port.

## Built-in High Pressure Air Assist Nozzle

S30 Pro nozzle has an advanced fluid mechanics design to better utilize the air pressure. When using the same air compressor, the S30 series sprays airflow faster.

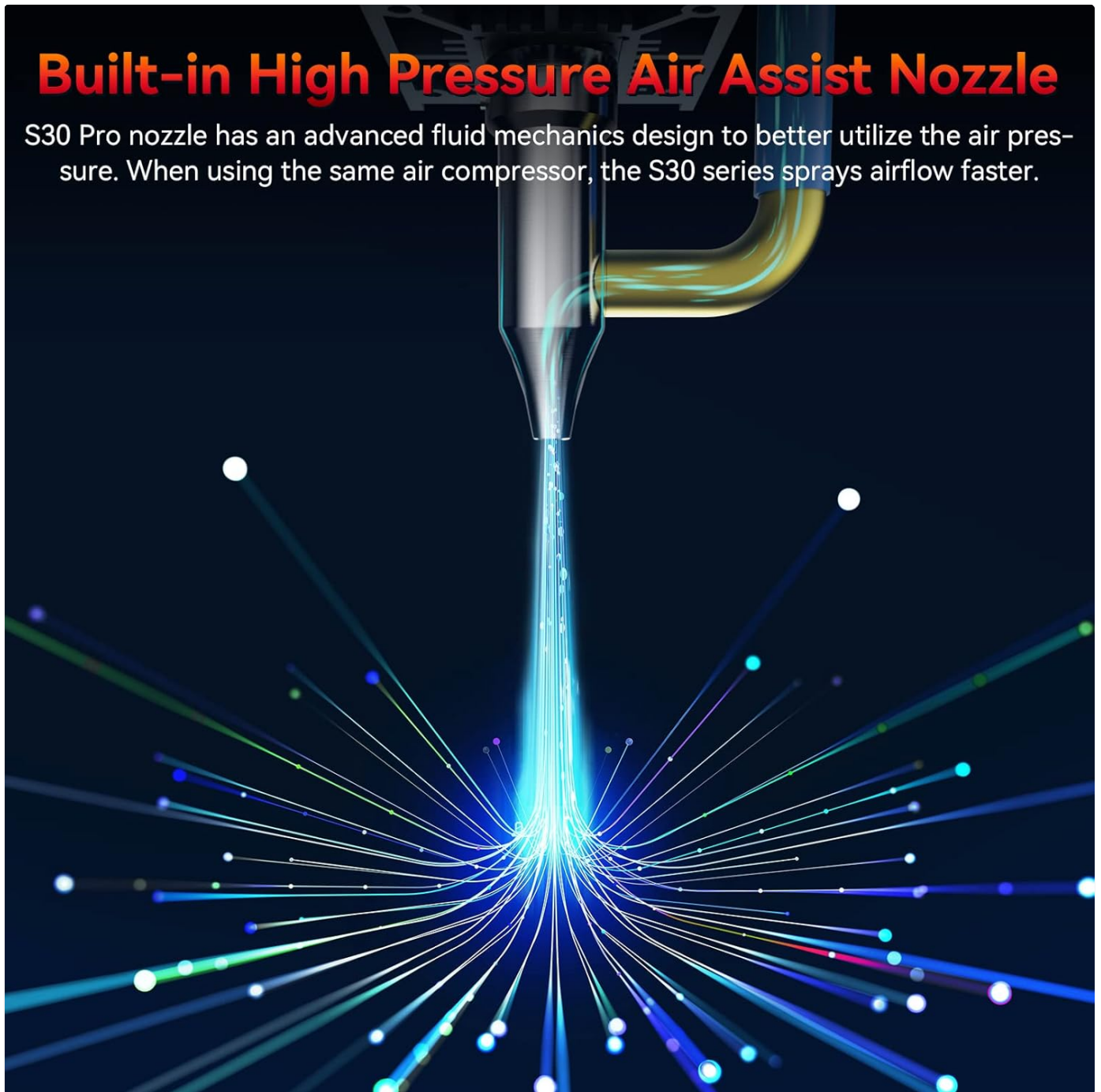


Figure 4: Close-up of the Built-in High Pressure Air Assist Nozzle. This image illustrates the advanced fluid mechanics design of the S30 Pro nozzle, which enhances airflow for improved cutting performance.

### 3.5 SCULPFUN TS1 Touch Screen Connection

Connect the SCULPFUN TS1 touch screen to the laser engraver using the provided USB cable. Power on the TS1 using its dedicated power cord.



Figure 5: SCULPFUN TS1 Touch Screen for Laser Engravers. This image highlights the TS1's WiFi function, 3.5-inch capacitive screen, and wide compatibility with S30 series machines.





## WiFi Function

Empower your laser engraving machine with WiFi functionality, connect to SCULPFUN's mobile phone APP for the wirelessly control and create engraving files on the phone

Figure 6: SCULPFUN TS1 WiFi Functionality. This image shows the TS1 connected to the engraver and interacting with the SCULPFUN mobile phone app for wireless control and file creation.

### 3.6 Software Installation

The S30 Pro supports various operating software:

- LightBurn (recommended, with air assist function M8)
- LaserGRBL
- Benbox
- GrblController
- LiteFire

These software packages support Windows and MAC systems. Supported file formats include NC, BMP, JPG, PNG, DXF, and other image formats. Install your preferred software and configure it for the S30 Pro.

## 4. OPERATING INSTRUCTIONS



## 4.1 Preparing for Engraving/Cutting

1. **Material Placement:** Place the material to be engraved or cut on the metal backing plate. Ensure it is flat and securely positioned within the working area.
2. **Focus Adjustment:** Adjust the laser focus using the fixed focus column and sliding device to achieve the optimal focal point for your material.
3. **Software Setup:** Open your chosen engraving software (e.g., LightBurn). Import or create your design.
4. **Parameter Settings:** Set the appropriate laser power, speed, and passes based on the material type and desired outcome. Refer to material test guides for optimal settings.
5. **Air Assist Control:** For cutting operations, ensure the automatic air assist is enabled in your software (e.g., M8 command in LightBurn). For engraving, air assist may be turned off for finer details or specific material requirements.



Figure 7: Automatic Controlled Air Assist in LightBurn. This image demonstrates how the air assist can be intelligently controlled (ON/OFF) via the LightBurn software's M8 button, showing its effect on cutting and engraving.

# Why Automatic Air Assist is Necessary?

Sometimes air assist needs to be open and sometimes close

Turned OFF to Engraving

Turned ON to Cutting



Traditional air assist by hand is too complicated, automatic air assist is more efficient

Select the engraving pattern and turn OFF the air pump by hand

Engraving completed

Turn ON air pump by hand, select cutting pattern

Cut completed

Select the engraving pattern and turn OFF the air pump by hand

Engraving completed



Repeat the above actions.....

If you make a mistake you have to start the whole process all over again

LightBurn						
#	Layer	Mode	Spd/Pwr	Output	Show	Air
Pattern00	00	Fill	30.0 / 20.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pattern01	01	Line	5.0 / 80.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pattern02	02	Fill	30.0 / 20.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pattern03	03	Line	5.0 / 80.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pattern04	04	Fill	30.0 / 20.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pattern05	05	Line	5.0 / 80.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pattern06	06	Fill	30.0 / 20.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pattern07	07	Line	5.0 / 80.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



Automatic air assist will accurately perform various air assist actions ON or OFF, by no hands, save a lot of time and never make mistakes

Traditional Manual Air Pump

SCULPFUN Automatic Air Pump

Figure 8: Comparison of Manual vs. Automatic Air Assist. This image illustrates the difference in results (clean edge vs. burnt edge) when air assist is ON or OFF for cutting and engraving, emphasizing the efficiency of automatic control.

## 4.2 Starting an Operation (PC/Mac Connected)

1. Ensure the engraver is connected to your computer via USB.
2. In your software, click the "Start" or "Run" button to begin the laser operation.
3. Monitor the process closely.

## 4.3 Offline Operation (SCULPFUN TS1 Touch Screen)

The TS1 touch screen enables engraving without a direct computer connection.

1. **Prepare File:** Save your engraving file (e.g., G-code) to the SD card provided with the TS1.
2. **Insert SD Card:** Insert the SD card into the TS1 touch screen.
3. **Select File:** On the TS1 interface, navigate to the "Carving" or "Files" section and select your desired file.



4. **Start Engraving:** Follow the on-screen prompts to initiate the engraving process.

## 4.4 Wi-Fi Connectivity (SCULPFUN TS1 and Mobile App)

For advanced control and real-time slicing, connect the TS1 to Wi-Fi and use the SCULPFUN mobile app.

1. **Connect TS1 to Wi-Fi:** On the TS1, go to "Set Up" and configure Wi-Fi settings to connect to your local network.
2. **Download App:** Download the SCULPFUN mobile app on your smartphone.
3. **Pair Device:** Open the app and follow instructions to pair with your TS1.
4. **Control and Slice:** Use the app for wireless control, file management, and real-time slicing functions.

## 5. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your SCULPFUN S30 Pro.

- **Clean Laser Lens:** Periodically clean the laser lens using a soft, lint-free cloth and lens cleaning solution. A dirty lens can reduce laser power and engraving quality.
- **Clean Air Assist Nozzle:** Ensure the air assist nozzle is free from debris and residue to maintain optimal airflow.
- **Lubricate Linear Rails:** Apply a small amount of lubricant to the industrial-grade linear rails occasionally to ensure smooth movement of the laser module.
- **Clean Machine Frame:** Wipe down the machine frame to remove dust and debris.
- **Check Connections:** Periodically inspect all electrical and air pipe connections for looseness or damage.
- **Laser Repair Kit:** Utilize the provided laser repair kit for minor maintenance or replacement of specific laser components as instructed in the detailed manual.

## 6. TROUBLESHOOTING

This section addresses common issues you might encounter.

Problem	Possible Cause	Solution
Laser not firing or weak output	Dirty laser lens; Incorrect focus; Low power setting; Loose connection.	Clean the laser lens; Adjust focus; Increase laser power in software; Check all cable connections.
Engraving/Cutting quality is poor	Incorrect speed/power settings; Material not flat; Air assist not optimized; Dirty lens.	Adjust speed and power settings; Ensure material is flat; Verify air assist is ON for cutting and OFF for engraving if needed; Clean lens.
Machine not responding to software	USB cable disconnected; Driver issue; Incorrect COM port selected.	Check USB connection; Reinstall drivers; Select correct COM port in software.
Air assist not working	Air pump not connected; Air pipe kinked/blocked; M8 command not sent.	Check air pump connection to mainboard; Inspect air pipe for blockages; Ensure M8 command is enabled in LightBurn.



Problem	Possible Cause	Solution
TS1 Touch Screen not connecting to engraver	USB cable loose; TS1 not powered on.	Ensure USB cable is firmly connected between TS1 and engraver; Verify TS1 is powered on.

## 7. SPECIFICATIONS

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### 7.1 SCULPFUN S30 Pro Laser Engraving Machine

- **Product Model:** SCULPFUN S30 Pro
- **Diode Laser Output Power:** 10W (light energy)
- **Laser Focus:** 0.06x0.08mm
- **Laser Wavelength:** 455±5nm
- **Focusing Method:** Fixed focus column + sliding device
- **Laser Protection Cover:** Detachable, adjustable
- **Power Input:** 100-240V AC, 50/60Hz
- **Power Output:** 12V 7A
- **Engraving Accuracy:** 0.005mm
- **Engraving Area Size:** Standard 410x400mm (expandable to 935x400mm or 935x905mm)
- **Machine Electric Power:** Approximately 60W
- **Air Pump Type:** Mainboard-controlled, 12V, flow 30L/min
- **Air Hose Inner Diameter:** 7.5mm
- **Mainboard:** 32-bit air-assisted, reserved for Bluetooth and SD card offline control (upgrade package sold separately)
- **Operating Software:** LightBurn (M8 air assist), LaserGRBL, LightBurn, Benbox, GrblController, LiteFire
- **Supported OS:** Windows, MAC
- **Supported File Formats:** NC, BMP, JPG, PNG, DXF, etc.
- **Data Transmission:** USB connection or Bluetooth wireless connection
- **Product Dimensions:** 18.11 x 18.11 x 6.69 inches
- **Package Weight:** 6.85kg
- **Certifications:** CE, FCC, RoHS, FDA, ICE

### 7.2 SCULPFUN TS1 Touch Screen

- **Product Material:** ABS+PC
- **Screen Size:** 3.5 inches
- **Screen Material:** Capacitive Touch Screen
- **Screen Resolution:** 480x320
- **Product Size:** 126x89x25mm
- **Product Weight:** 130g

## 8. WARRANTY AND SUPPORT

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

**Manufacturer:** SCULPFUN


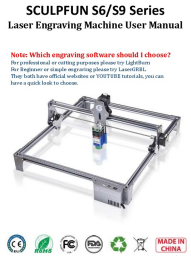
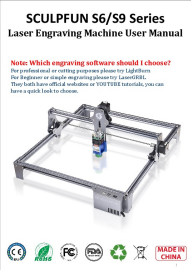

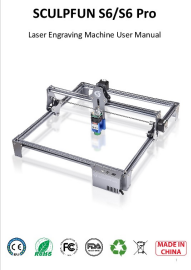

**Date First Available:** September 3, 2024

For further assistance, visit the [SCULPFUN Store on Amazon](#).



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**Related Documents - S30 Pro+TS1**

	<p><a href="#">SCULPFUN S30 Laser Engraver Assembly Instructions and Guide</a></p> <p>Comprehensive assembly instructions for the SCULPFUN S30 Laser Engraver. Learn how to build your laser engraver step-by-step, including belt tensioning and focusing tips. Includes software and support information.</p>
	<p><a href="#">SCULPFUN S6/S9 Series Laser Engraving Machine User Manual</a></p> <p>A comprehensive user manual for the SCULPFUN S6 and S9 series laser engraving machines, covering software installation (LaserGRBL and LightBurn), connection, preparation, engraving settings, material recommendations, troubleshooting, and maintenance.</p>
	<p><a href="#">SCULPFUN S6/S9 Series Laser Engraving Machine User Manual</a></p> <p>User manual for the SCULPFUN S6/S9 Series Laser Engraving Machine, covering software installation (LaserGRBL, LightBurn), connection, engraving preparation, operation, material suggestions, troubleshooting, and maintenance.</p>
	<p><a href="#">Sculpfun iCube Laser Engraving Machine User Manual</a></p> <p>User manual for the Sculpfun iCube series of desktop laser engraving machines, covering product structure, focusing, software installation and connection, app interface, PC software, filter replacement, and FAQs.</p>
	<p><a href="#">SCULPFUN S6/S6 Pro Laser Engraving Machine User Manual</a></p> <p>User manual for the SCULPFUN S6/S6 Pro laser engraving machine, detailing setup, operation, safety guidelines, software configuration (LaserGRBL, LightBurn), material parameter recommendations, troubleshooting common issues, and maintenance tips.</p>
	<p><a href="#">SCULPFUN TS1 Touch Screen User Manual   Laser Engraving Machine Control</a></p> <p>Comprehensive user manual for the SCULPFUN TS1 touch screen, detailing installation, interface navigation, control functions, settings, and computer usage for your laser engraving machine.</p>

