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› ELEGOO Saturn 4 Ultra 12K Resin 3D Printer User Manual

ELEGOO SATURN 4 ULTRA

ELEGOO Saturn 4 Ultra 12K Resin 3D Printer

INSTRUCTION MANUAL

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			Information	Support		

1. Introduction

The ELEGOO Saturn 4 Ultra 12K Resin 3D Printer is an advanced MSLA 3D printer designed for high-resolution resin printing. It features smart automatic leveling, a 10-inch 12K monochrome LCD for exceptional detail, and a rapid printing speed of up to 150mm/h. This manual provides comprehensive instructions for setting up, operating, maintaining, and troubleshooting your printer to ensure optimal performance and longevity.



Figure 1: ELEGOO Saturn 4 Ultra 12K Resin 3D Printer

Key Features:

- **Rapid Tilt Release Technology:** Enables quick model detachment from the release film, significantly reducing print times.
- **Smart Printing Prompt:** Equipped with mechanical sensors for foreign object detection and resin shortage alarms.
- **One-touch Automatic Leveling:** Effortless leveling of the printing platform for consistent results.
- **AI Camera Intelligent Detection:** Provides smart failure detection, real-time monitoring, and time-lapse video recording.
- **Resume Printing & Self-check:** Allows printing to resume after power outages and includes temperature detection alarms and device self-checks.

2. What's in the Box

Please verify that all components are present and in good condition upon unpacking your ELEGOO Saturn 4 Ultra 12K Resin 3D Printer:

- Saturn 4 Ultra 12K 3D Printer Machine
- Wifi Antenna
- Build Platform
- Resin Tank
- AI Camera

- Drip Tray
- U Flash Disk
- Funnel
- Backup Screws
- Adapter
- Tool Kit
- Scraper
- User Manual (this document)



Figure 2: Included Components

3. Setup

The ELEGOO Saturn 4 Ultra is designed for ease of use, allowing you to begin printing almost immediately after unboxing. Follow these steps for initial setup:

3.1 Initial Placement

Place the printer on a stable, level surface in a well-ventilated area, away from direct sunlight and heat sources. Ensure adequate space around the printer for operation and maintenance.

3.2 Power Connection

Connect the power adapter to the printer and then to a suitable power outlet. Turn on the printer using the power switch.

3.3 Automatic Leveling

The Saturn 4 Ultra features one-touch automatic leveling, eliminating the need for manual calibration. Upon first power-on or when prompted, the printer will automatically level the build platform. This ensures the platform is perfectly aligned with the LCD screen for successful prints.

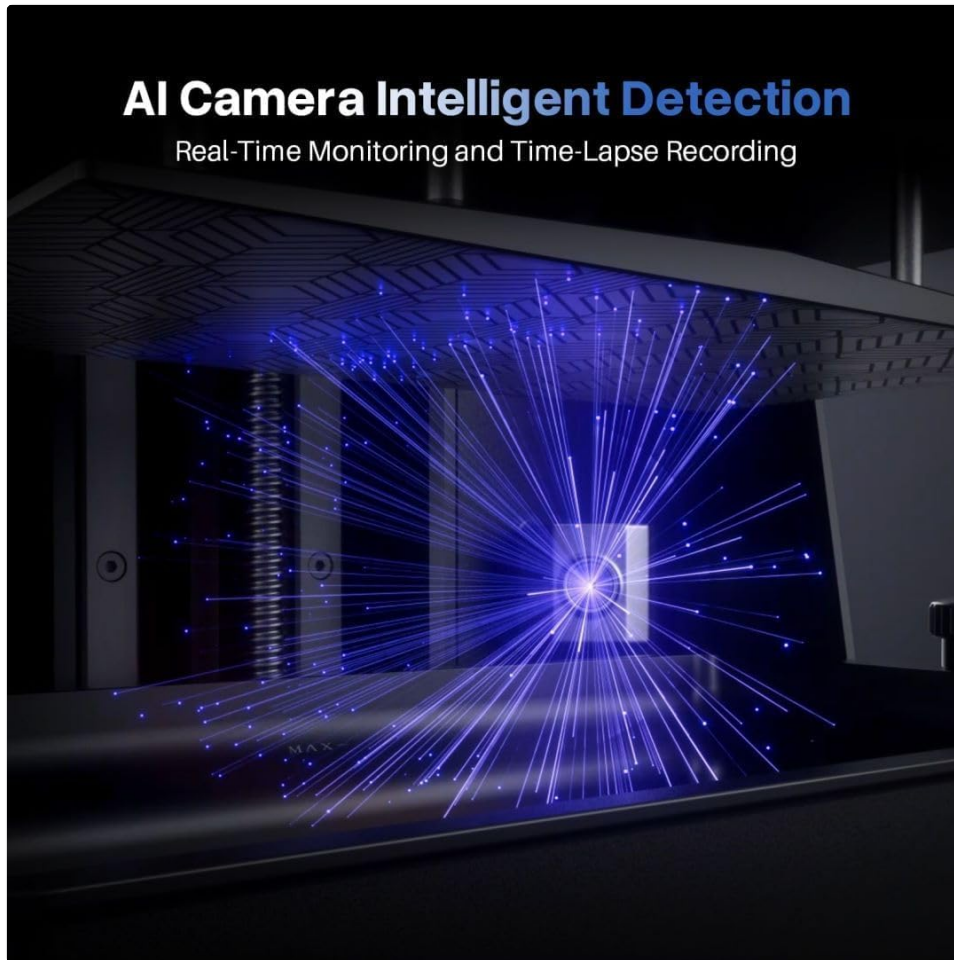


Figure 3: Self-Check & Automatic Leveling

3.4 Resin Tank Installation

Carefully place the resin tank onto the LCD screen, ensuring it is seated correctly and securely. The tank features a quick-release design for easy installation and removal.

3.5 Wi-Fi Antenna Installation

Screw the provided Wi-Fi antenna into its designated port on the printer. This enables wireless file transfer and firmware updates.

4. Operating the Printer

This section details the primary functions and advanced features of your Saturn 4 Ultra 3D printer.

4.1 Basic Printing Process

1. Prepare your 3D model using a compatible slicing software (e.g., Chitubox). Ensure print settings are optimized for your resin type.
2. Save the sliced file to the provided U Flash Disk.
3. Pour resin into the resin tank, ensuring it does not exceed the maximum fill line.
4. Insert the U Flash Disk into the printer's USB port.

5. Select your file from the printer's touchscreen interface and initiate the print.

4.2 Rapid Tilt Release Technology

The printer utilizes an innovative tilt release mechanism within the resin tank. This technology allows the printed layer to quickly detach from the FEP film by tilting the tank, significantly speeding up the printing process and reducing peeling forces.



Figure 4: Tilt Release Technology

4.3 12K Monochrome LCD

The 10-inch 12K monochrome LCD screen provides an impressive resolution of 11520x5120 pixels, enabling the creation of highly detailed and precise 3D models with exceptional clarity.



Figure 5: 12K Mono LCD for High Quality Printing

4.4 AI Camera Intelligent Detection

The integrated AI camera offers smart failure detection and real-time monitoring of your print progress. You can observe the printing status and capture time-lapse videos of your creations directly from the printer's interface or a connected device.

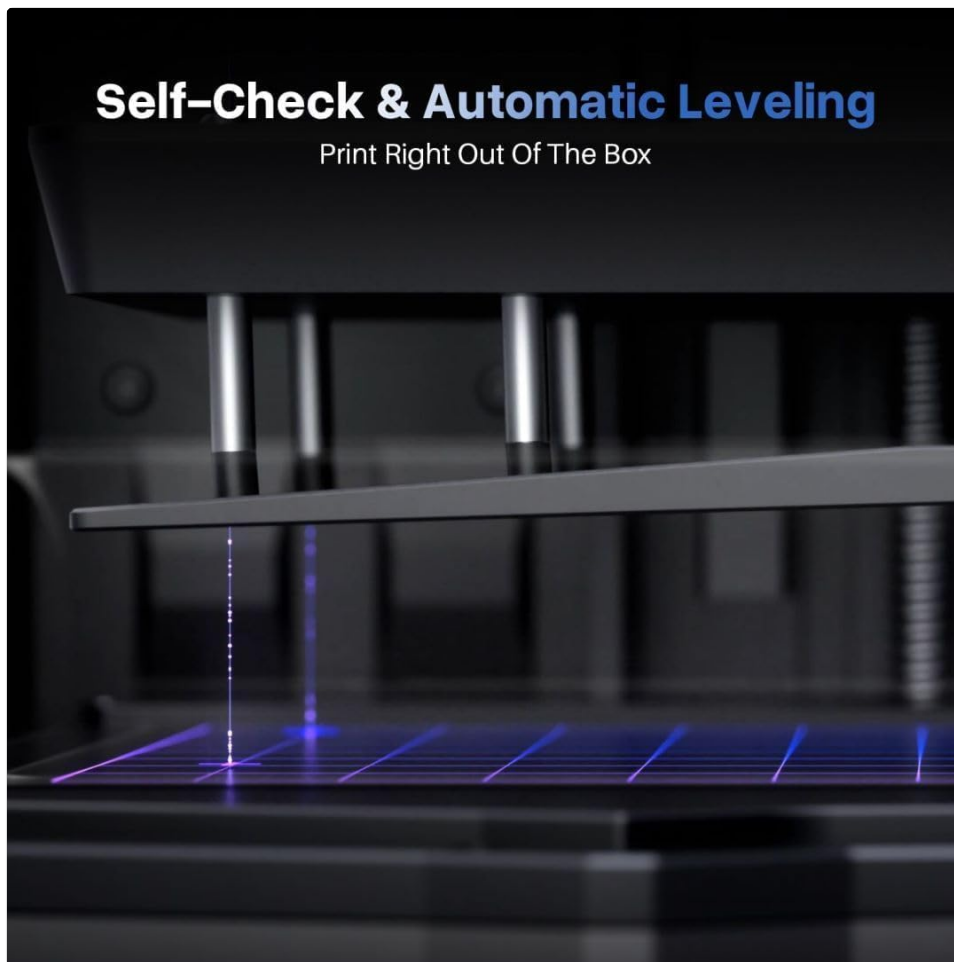


Figure 6: AI Camera Intelligent Detection

4.5 Resume Printing Function

In the event of a power outage, the Saturn 4 Ultra is capable of resuming printing from where it left off. This feature prevents print failures due to unexpected power interruptions, saving both time and resin.



Figure 7: Resume Printing Feature

4.6 Smart Mechanical Sensors

The printer incorporates smart mechanical sensors that provide critical alerts, including:

- **Resin Shortage Alarm:** Notifies you when resin levels are low, preventing failed prints.
- **Residue Detection Alarm:** Detects foreign objects or cured resin on the LCD screen to prevent damage.
- **Leveling Failure Alarm:** Alerts you if the automatic leveling process encounters an issue.



Figure 8: Smart Mechanical Sensor System

4.7 Wi-Fi Cluster Printing

For users with multiple printers, the Wi-Fi cluster printing feature allows for efficient management of several Saturn 4 Ultra units from a single device, streamlining your workflow.

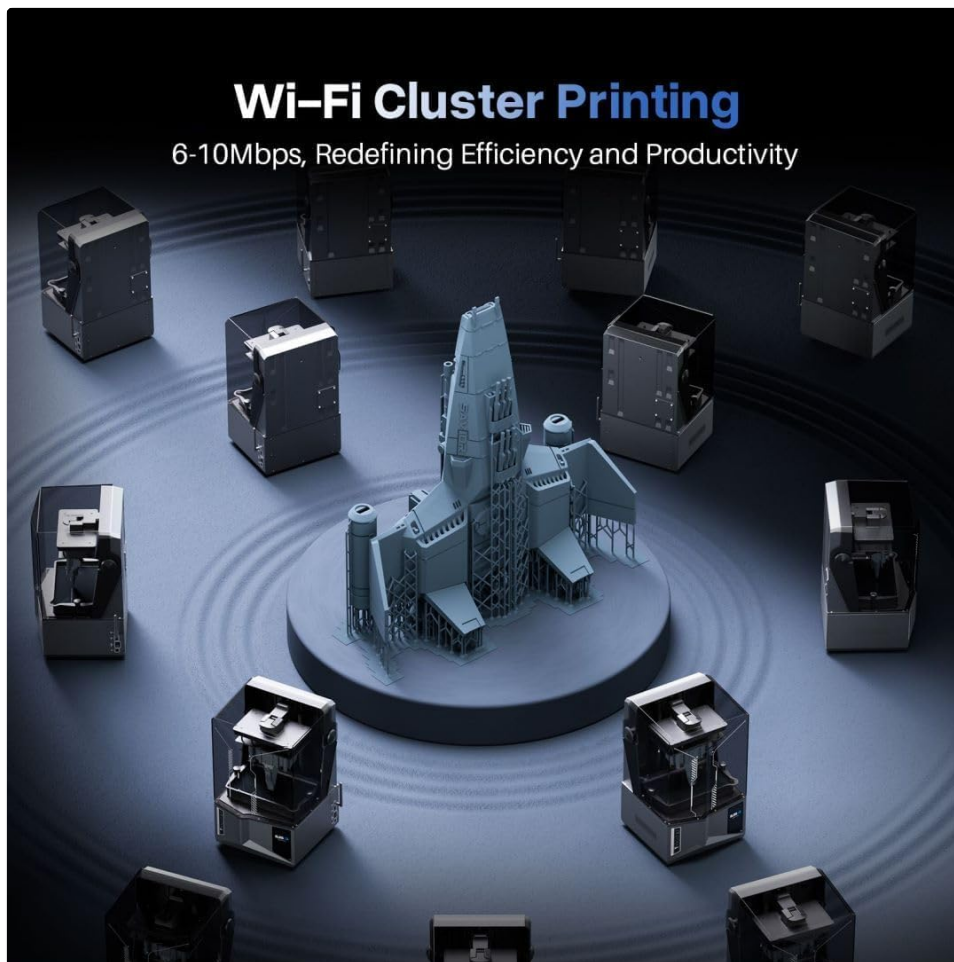


Figure 9: Wi-Fi Cluster Printing Capability

4.8 Firmware Updates

Keep your printer's firmware up-to-date to ensure optimal performance and access to new features. Firmware updates can often be performed wirelessly (OTA).

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Video 1: Saturn 4 Ultra: OTA firmware update. This video demonstrates the process of updating the printer's firmware wirelessly.

5. Maintenance

Regular maintenance is crucial for the longevity and consistent performance of your ELEGOO Saturn 4 Ultra. Always wear appropriate personal protective equipment (PPE) such as gloves and safety glasses when handling resin or cleaning the printer.

5.1 Cleaning the Printer

- After each print, clean the build platform and resin tank.
- Use isopropyl alcohol (IPA) and soft cloths to clean resin spills.
- Never use sharp objects to scrape cured resin from the FEP film or LCD screen.

5.2 Air Filtration System

The Saturn 4 Ultra features a built-in high-density activated carbon filter to absorb resin odors, with a purification efficiency of up to 95% for TVOC. Ensure the filter is clean and replace it periodically as needed to maintain effective odor reduction.



Figure 10: Integrated Air Filtration

5.3 Component Replacement Guides

For specific component maintenance or replacement, refer to the following official video guides:

- Your browser does not support the video tag.

Video 2: Saturn 4 Ultra: Mini Heater Installation Guide. This video provides instructions for installing the optional mini heater.
- Your browser does not support the video tag.

Video 3: Saturn 4 Ultra: How to replace the LCD screen. This video details the steps for replacing the printer's LCD screen.
- Your browser does not support the video tag.

Video 4: Saturn 4 Ultra: X-axis Limit Switch Replacement. This video guides you through replacing the X-axis limit switch.
- Your browser does not support the video tag.

Video 5: Saturn 4 Ultra: X-axis Motor Replacement. This video provides instructions for replacing the X-axis motor.
- Your browser does not support the video tag.

Video 6: Saturn 4 Ultra: cooling fan replacement. This video demonstrates how to replace the cooling fan.
- Your browser does not support the video tag.

Video 7: Saturn 4 Ultra: constant current board replacement. This video provides guidance on replacing the constant current board.

6. Troubleshooting

This section addresses common issues you might encounter with your ELEGOO Saturn 4 Ultra and provides potential solutions.

6.1 Print Failures (e.g., incomplete prints, detached models)

- **Check Resin Level:** Ensure there is sufficient resin in the tank. The smart sensor should alert you, but always verify.
- **Re-level Build Platform:** Although automatic, ensure the platform is clean and properly seated. If issues persist, re-run the automatic leveling process.
- **Inspect FEP Film:** Check the FEP film in the resin tank for damage, cloudiness, or cured resin stuck to it. Replace if necessary.
- **Slicing Settings:** Verify that your exposure times, lift speeds, and support structures are appropriate for the resin and model.
- **Resin Temperature:** Ensure the resin is at an optimal temperature (typically 20-25°C or 68-77°F) for best results.

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Video 8: Saturn 4 Ultra: Fine Tuning of Automatic Leveling. This video provides guidance on fine-tuning the automatic leveling

system if needed.

6.2 Printer Not Responding / Screen Issues

- **Power Cycle:** Turn off the printer, unplug it, wait 30 seconds, then plug it back in and restart.
- **USB Drive Issues:** Ensure the U Flash Disk is properly formatted (FAT32) and not corrupted. Try a different USB drive.
- **Firmware:** Ensure your firmware is up to date. If an update failed, attempt to re-flash it following official instructions.

6.3 Unusual Noises

- **Z-axis Movement:** Check the Z-axis lead screw for any obstructions or debris. Lubricate if necessary.
- **Fan Noise:** Some fan noise is normal. If it's excessively loud or unusual, refer to the cooling fan replacement guide in the Maintenance section.

7. Specifications

Feature	Detail
Brand	ELEGOO
Model Number	SATURN 4 ULTRA
Product Dimensions	12.87"D x 12.95"W x 21.57"H (32.7 x 32.9 x 54.8 cm)
Item Weight	40 Pounds (18.14 kg)
Material	ABS, Aluminum, Polycarbonate
Color	Black
LCD Screen	10-inch 12K Monochrome LCD
LCD Resolution	11520 x 5120 pixels
Max Printing Speed	150mm/h
Printing Size	8.62 x 4.84 x 8.66 inches (21.9 x 12.3 x 22 cm)
Connectivity	USB, Wi-Fi
Special Features	Automatic Leveling, AI Camera, Resume Printing, Tilt Release Technology, Smart Sensors

8. Safety Information

Operating a resin 3D printer involves handling chemicals and UV light. Adhere to the following safety guidelines to prevent injury and ensure safe operation:

- **Personal Protective Equipment (PPE):** Always wear nitrile gloves and safety glasses when handling liquid resin, cleaning the printer, or post-processing prints.

- **Ventilation:** Operate the printer in a well-ventilated area to minimize exposure to resin fumes.
- **Resin Handling:** Avoid direct skin contact with liquid resin. If contact occurs, wash thoroughly with soap and water. Do not ingest resin.
- **Storage:** Store resin in its original opaque bottle, away from direct sunlight and heat, and out of reach of children and pets.
- **Disposal:** Dispose of uncured resin and contaminated materials (e.g., paper towels, gloves) according to local regulations. Cured resin can typically be disposed of as regular plastic waste.
- **UV Light:** Do not look directly at the UV light source during operation. The printer's cover is designed to block harmful UV light.
- **Electrical Safety:** Ensure the printer is properly grounded and do not operate with damaged power cords or plugs. Keep liquids away from electrical components.

9. Warranty and Support

For warranty information, technical support, or service inquiries regarding your ELEGOO Saturn 4 Ultra 12K Resin 3D Printer, please contact ELEGOO Official US directly. You can find contact details and additional resources on the official ELEGOO website or through your purchase platform.

Online Resources:

- Visit the [ELEGOO Official Store on Amazon](#) for product information and accessories.
- Check the ELEGOO website for FAQs, firmware updates, and community forums.

Please have your product model number (SATURN 4 ULTRA) and purchase details ready when contacting support.

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