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ELEGOO Saturn 4 Ultra

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

Model: Saturn 4 Ultra | Brand: ELEGOO

1. Product Overview

The ELEGOO Saturn 4 Ultra is a high-performance MSLA resin 3D printer designed for precision and speed. It incorporates advanced features such as intelligent sensors, AI camera monitoring, and efficient networking capabilities to streamline your 3D printing workflow.



Figure 1: The ELEGOO Saturn 4 Ultra 12K MSLA Resin 3D Printer, showcasing its sleek design and large build volume.

2. Key Features

- **Ultra-Fast Printing:** Features Tilt Release Innovation for speeds up to 150mm/h, supporting fast/slow mode switching and resin calibration.



Figure 2: Illustration of the Tilt Release Technology enabling ultra-fast printing speeds.

- **12K Mono LCD Ultra High Resolution:** Equipped with a 12K LCD (11520x5120) and 19x24μm XY resolution. Features 9H tempered glass and COB light source for high precision.



Figure 3: Visual representation of the 12K resolution capabilities, highlighting fine details on a printed model.

- **Intelligent Mechanical Sensor:** Built-in smart sensor for one-click calibration. Detects low resin, foreign objects, or high light board temperature, and supports print resumption.

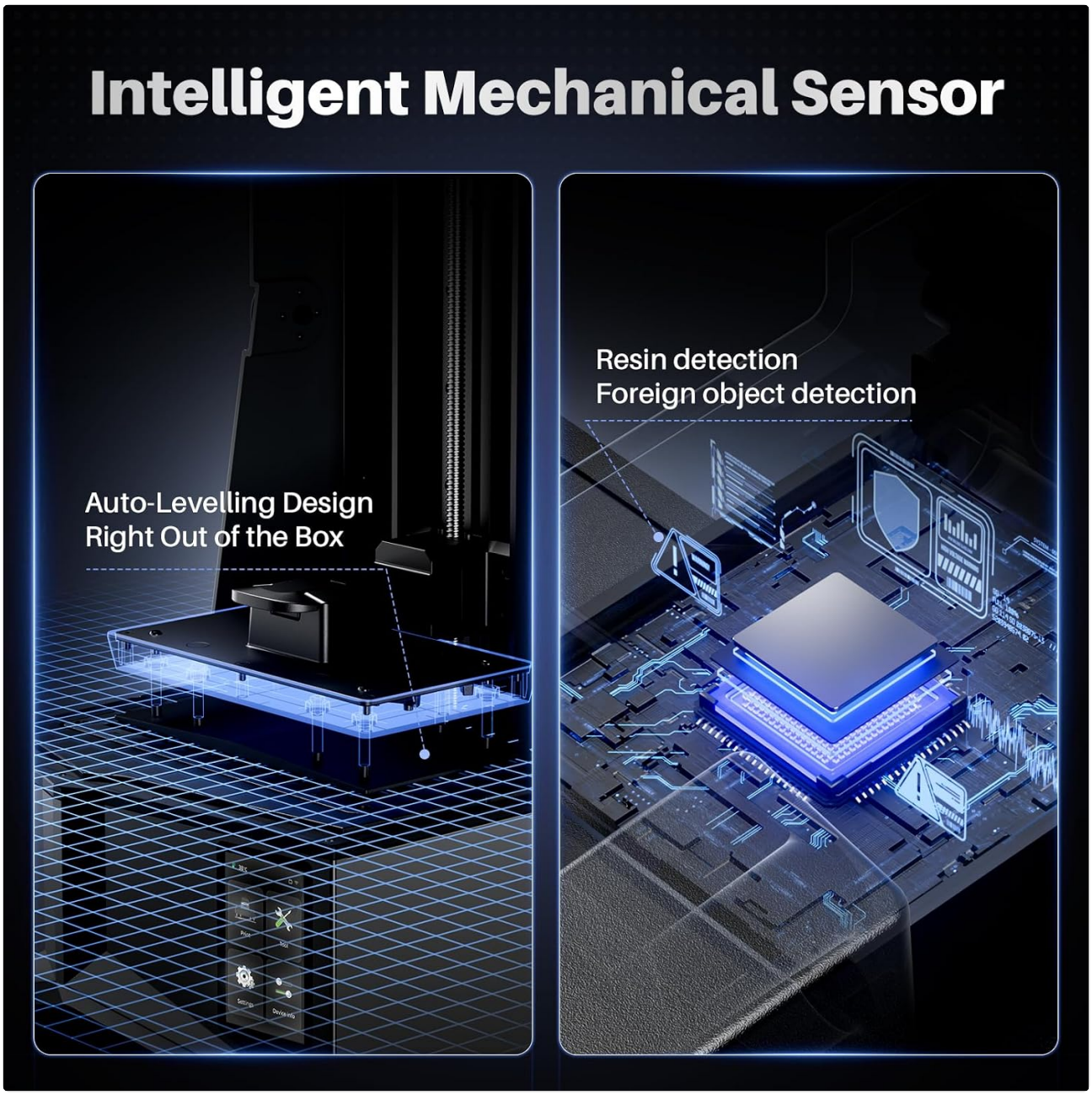


Figure 4: Diagram illustrating the intelligent mechanical sensor's auto-leveling and detection functionalities.

- **Built-in AI Camera:** Monitors printing in real-time, detects issues like empty build plates or model warping, and offers time-lapse recording.



Figure 5: Close-up of the integrated AI camera, showing its monitoring interface during a print.

- **WiFi Cluster Printing:** Supports wireless file transfer (6-10Mbps), 2.4G/5G networks, multi-printer control on LAN, remote control, and OTA firmware updates.



Figure 6: Diagram illustrating a network setup for WiFi cluster printing with multiple units.

- **User-Friendly Design:** Features one-touch build plate lock, replaceable resin tank screw, dual pour spouts, laser engraving platform, capacitive touch screen, vertical interface, and 12 language support.

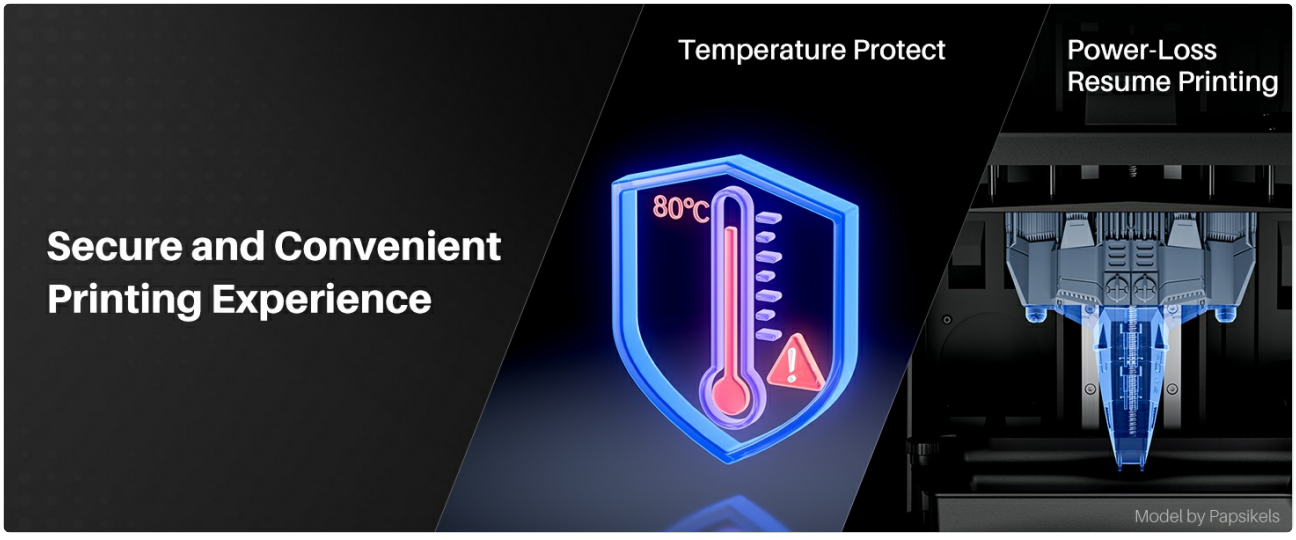


Figure 7: Visual breakdown of user-friendly design elements, including quick-release, replaceable parts, and pour spouts.

3. Setup Guide

1. **Unpacking:** Carefully remove the printer and all accessories from the packaging. Inspect for any damage.
2. **Placement:** Place the printer on a stable, level surface in a well-ventilated area, away from direct sunlight and heat sources.
3. **Power Connection:** Connect the power adapter to the printer and a suitable power outlet.
4. **WiFi Antenna Installation:** Attach the provided WiFi antenna to the designated port on the printer.
5. **Resin Tank and Build Plate:** Ensure the resin tank is securely in place. Install the build plate by aligning it with the Z-axis arm and locking it with the one-touch mechanism.
6. **Initial Calibration:** The Saturn 4 Ultra features automatic leveling. Follow the on-screen prompts for initial calibration, which typically involves a one-click process.

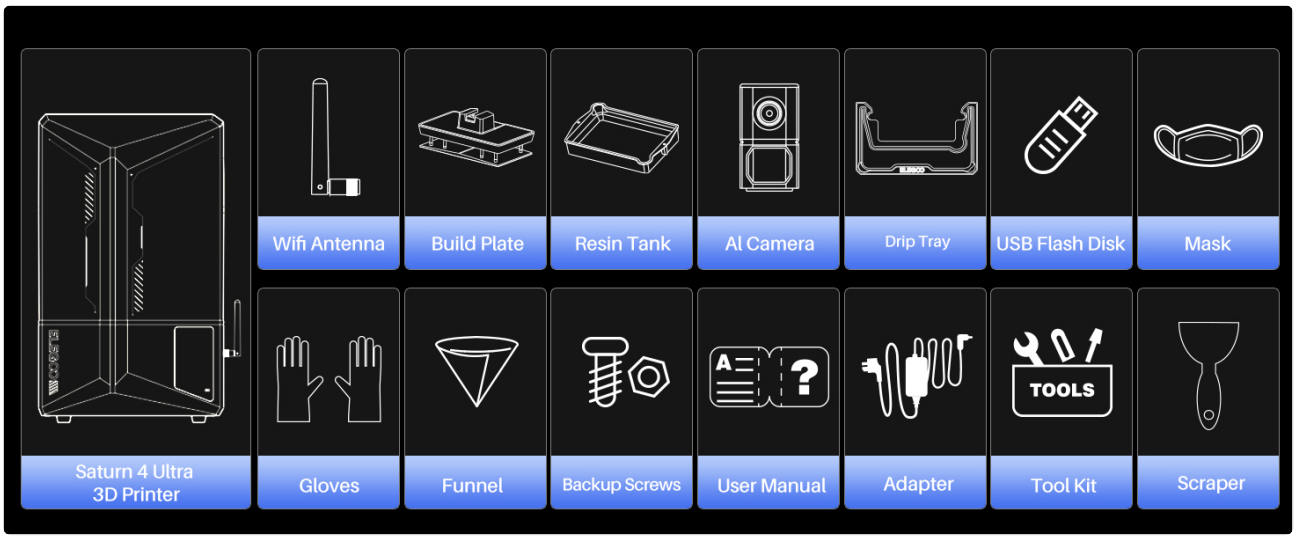


Figure 8: Depiction of the automatic leveling process, ensuring precise print bed alignment.

7. **Resin Loading:** Pour resin into the resin tank, ensuring it does not exceed the maximum fill line. Always wear appropriate personal protective equipment (PPE) such as gloves and a mask when handling resin.

4. Operating Instructions

4.1 Preparing Your Model

- Use a compatible slicing software (e.g., Chitubox) to prepare your 3D model.
- Adjust print parameters such as layer height, exposure time, and support structures.
- Utilize the resin calibration feature in the software to optimize settings for your specific resin.

4.2 Starting a Print

- Transfer the sliced file to the printer via USB or WiFi.
- Select the desired file from the printer's capacitive touch screen.

- Initiate the print. The AI camera will provide real-time monitoring.

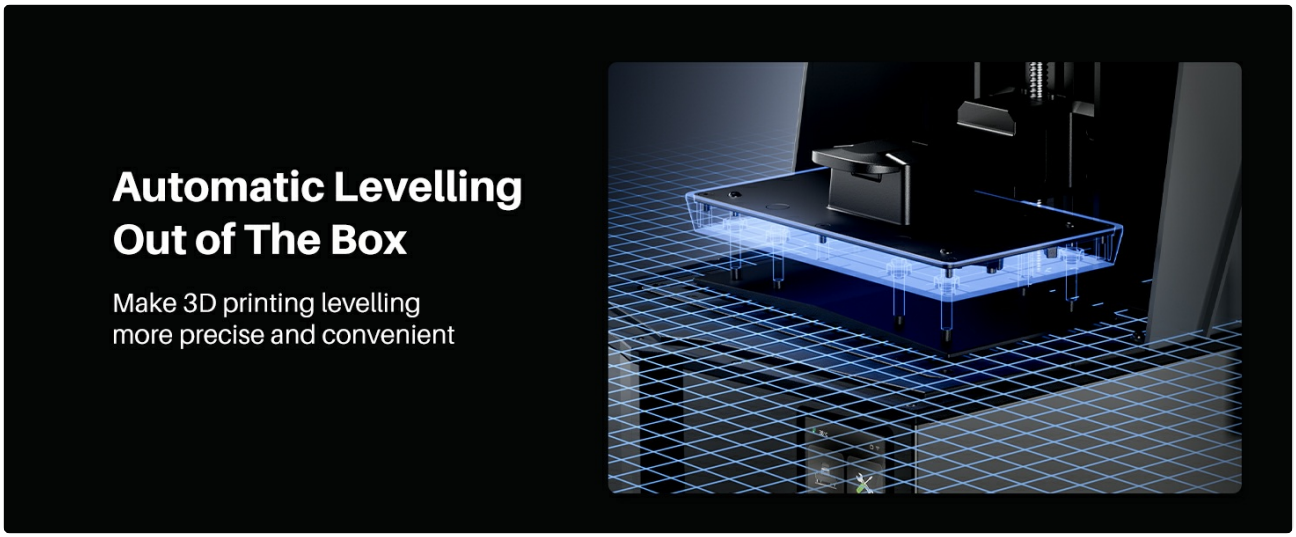


Figure 9: The AI camera actively monitoring the print process, detecting potential issues.

- Monitor print progress and status through the printer's interface or remotely via WiFi.

4.3 Post-Printing

- Once printing is complete, carefully remove the build plate.
- Use the provided scraper to detach the printed model from the build plate.
- Clean the model using isopropyl alcohol (IPA) or a dedicated resin cleaner.
- Cure the model using a UV curing station or natural sunlight to fully harden the resin.

5. Maintenance

- **Resin Tank Cleaning:** After each print, inspect the resin tank for cured resin bits. Use a plastic scraper to gently remove them. The dual pour spouts facilitate easy resin drainage.
- **Build Plate Cleaning:** Clean the build plate with IPA after each use to prevent resin buildup.
- **LCD Screen Protection:** The 9H tempered glass protects the LCD. Clean it gently with a microfiber cloth and IPA if necessary.
- **Z-axis Maintenance:** Periodically lubricate the Z-axis lead screw to ensure smooth operation.
- **Firmware Updates:** Regularly check for and install OTA firmware updates to ensure optimal performance and access new features.

6. Troubleshooting

- **Print Failures (Adhesion Issues):** Ensure the build plate is properly leveled using the one-click calibration. Verify resin temperature is within recommended range. Clean the build plate thoroughly.
- **Incomplete Prints:** Check resin levels in the tank. The intelligent mechanical sensor will detect low resin. Ensure

the sliced file is not corrupted.

- **Model Warping/Deformation:** The AI camera can detect model warping. Adjust exposure times and support structures in your slicing software. Ensure proper curing after printing.
- **Printer Not Responding:** Check power connections. Restart the printer. If issues persist, refer to the official ELEGOO support resources.
- **Network Connectivity Issues:** Verify WiFi connection (2.4G/5G). Ensure the printer is within range of your router. Restart both the printer and router if needed.

7. Specifications

Attribute	Value
Brand	ELEGOO
Model Number	Saturn 4 Ultra
Printing Technology	MSLA (Masked Stereolithography)
LCD Resolution	12K (11520x5120)
XY Resolution	19x24μm
Max Printing Speed	Up to 150mm/h
Build Volume (LWH)	218.88mm x 122.88mm x 220mm
Product Dimensions	26.1 x 17.83 x 17.95 inches
Item Weight	40.5 pounds (18.43 Kilograms)
Material	Metal
Connectivity	WiFi (2.4G/5G), USB
Special Features	Tilt Release Innovation, Intelligent Mechanical Sensor, Built-in AI Camera, WiFi Cluster Printing, Automatic Leveling, Flip-Up Cover Design

8. Warranty and Support

For detailed warranty information and technical support, please refer to the official ELEGOO website or the

documentation included with your product. You can also find FAQs and community forums for additional assistance. For further assistance, please visit the ELEGOO Store on Amazon.

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