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ELEGOO Saturn 4 Ultra 16K

ELEGOO Saturn 4 Ultra 16K 3D Resin Printer User Manual

Model: Saturn 4 Ultra 16K

1. Safety Information

Please read all safety instructions carefully before operating the ELEGOO Saturn 4 Ultra 16K 3D Resin Printer. Failure to follow these instructions may result in injury or damage to the printer.

- **Personal Protective Equipment (PPE):** Always wear nitrile gloves, safety glasses, and a respirator mask when handling liquid resin or uncured prints. Resin can cause skin irritation and allergic reactions.
- **Ventilation:** Operate the printer in a well-ventilated area to avoid inhaling resin fumes.
- **Resin Handling:** Keep resin away from direct sunlight, heat sources, and open flames. Store resin in its original, opaque container in a cool, dark place. Do not ingest resin. In case of accidental ingestion, seek medical attention immediately.
- **Disposal:** Dispose of uncured resin and resin-contaminated materials (gloves, paper towels) according to local regulations. Cured resin can be disposed of as regular plastic waste. Never pour liquid resin down drains.
- **Electrical Safety:** Ensure the printer is connected to a grounded power outlet. Do not operate the printer with wet hands or in wet conditions. Unplug the printer before performing any maintenance or cleaning.
- **Children and Pets:** Keep the printer and all associated materials out of reach of children and pets.
- **Printer Placement:** Place the printer on a stable, level surface. Ensure there is adequate space around the printer for ventilation and operation.

2. Package Contents

Carefully unpack the box and check that all items are present and in good condition. If any items are missing or damaged, please contact ELEGOO customer support.



Image: ELEGOO Saturn 4 Ultra 16K Printer and its components laid out.

- ELEGOO Saturn 4 Ultra 16K 3D Resin Printer
- Build Platform
- Resin Vat
- Power Adapter and Cable
- USB Drive
- Metal Scraper
- Plastic Scraper
- Funnel
- Gloves
- Mask
- User Manual (this document)

3. Printer Overview

Familiarize yourself with the main components of your ELEGOO Saturn 4 Ultra 16K printer.



Image: Front view of the ELEGOO Saturn 4 Ultra 16K 3D Resin Printer, showcasing its sleek design and transparent cover.

1. **Flip-Up Cover:** Protects the printing area and blocks UV light.
2. **Build Platform:** Where your 3D models are printed.
3. **Resin Vat:** Holds the liquid resin during printing. Features intelligent heating.
4. **LCD Screen:** High-resolution 16K monochrome LCD for curing resin layers.
5. **Z-Axis Rail:** Guides the build platform up and down.
6. **Touchscreen Interface:** For controlling printer functions and settings.
7. **USB Port:** For transferring print files.
8. **Power Port:** For connecting the power adapter.
9. **AI Camera:** For real-time print monitoring and alerts.

4. Setup

4.1 Unboxing and Placement

1. Remove the printer and all accessories from the packaging.
2. Place the printer on a stable, level, and well-ventilated surface. Ensure it is away from direct sunlight and heat sources.
3. Remove any protective films or packing materials from the printer.

4.2 Power Connection

1. Connect the power adapter to the power port on the back of the printer.
2. Plug the power cable into a grounded electrical outlet.
3. Turn on the printer using the power switch (usually located near the power port).

4.3 Build Platform Installation

1. Loosen the knob on the build platform.
2. Hook the build platform onto the Z-axis arm and tighten the knob securely.

4.4 Resin Vat Installation

1. Carefully place the resin vat into the designated slot on the printer base.
2. Ensure the vat is seated correctly and secure it using the locking screws on the sides of the vat.

4.5 Automatic Leveling

The ELEGOO Saturn 4 Ultra 16K features automatic leveling, simplifying the setup process.

1. On the touchscreen, navigate to the 'Tools' or 'Settings' menu.
2. Select the 'Level' or 'Auto-Level' option.
3. The printer will automatically perform the leveling procedure. Follow any on-screen prompts.
4. Once leveling is complete, the printer is ready for resin.

5. Operating Instructions

5.1 Software Setup (Slicer)

The ELEGOO Saturn 4 Ultra 16K uses the ELEGOO Satellite 3D Slicer software to prepare your 3D models for printing.

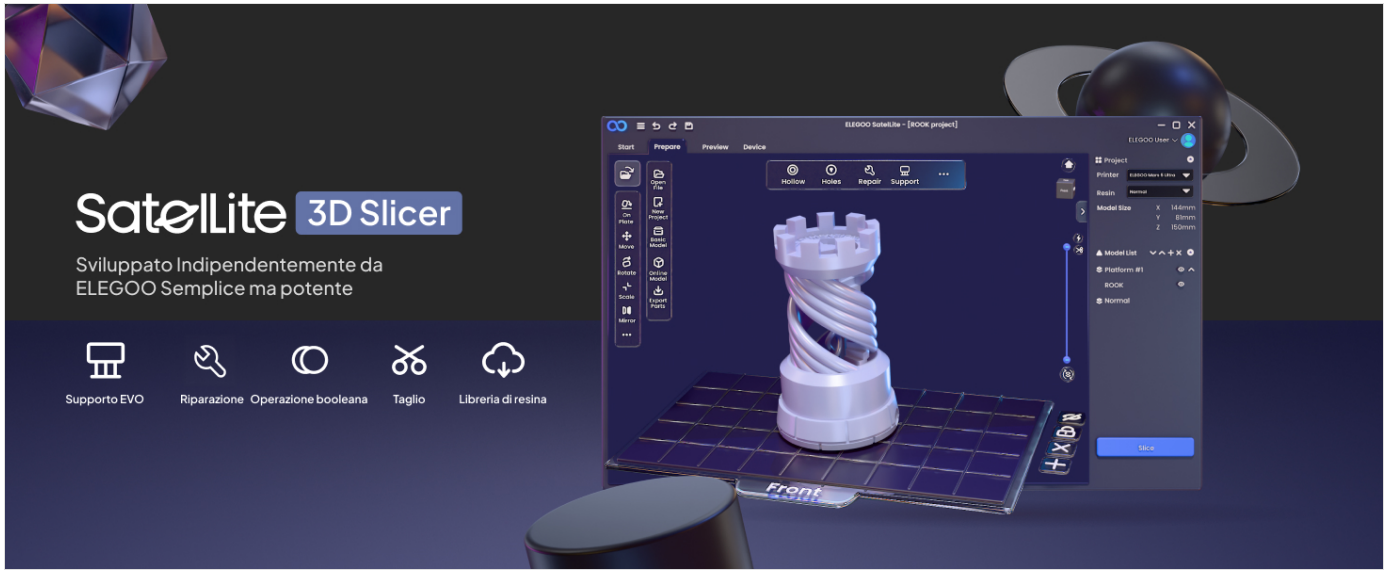


Image: Screenshot of the ELEGOO Satellite 3D Slicer software interface, showing a 3D model ready for slicing.

1. Install the ELEGOO Satellite 3D Slicer software from the provided USB drive or download it from the official ELEGOO website.
2. Launch the software and select 'ELEGOO Saturn 4 Ultra 16K' as your printer model.
3. Import your 3D model (STL, OBJ, etc.).
4. Adjust model orientation, size, and add supports as needed.
5. Configure print settings (layer height, exposure time, lift speed, etc.). Refer to resin manufacturer guidelines for optimal settings.
6. Slice the model and save the generated file (typically .goo or .ctb format) to your USB drive.

5.2 Adding Resin

Always wear gloves and safety glasses when handling resin.

1. Gently shake the resin bottle before opening.
2. Carefully pour the liquid resin into the resin vat, ensuring it does not exceed the maximum fill line.
3. Close the resin bottle tightly after use.

5.3 Starting a Print

1. Insert the USB drive containing your sliced print file into the printer's USB port.
2. On the touchscreen, navigate to the 'Print' menu.
3. Select your print file from the list.
4. Confirm the print settings and press 'Start' to begin printing.
5. The printer will automatically heat the resin vat to 30°C for optimal printing conditions.

5.4 Monitoring and AI Camera Features

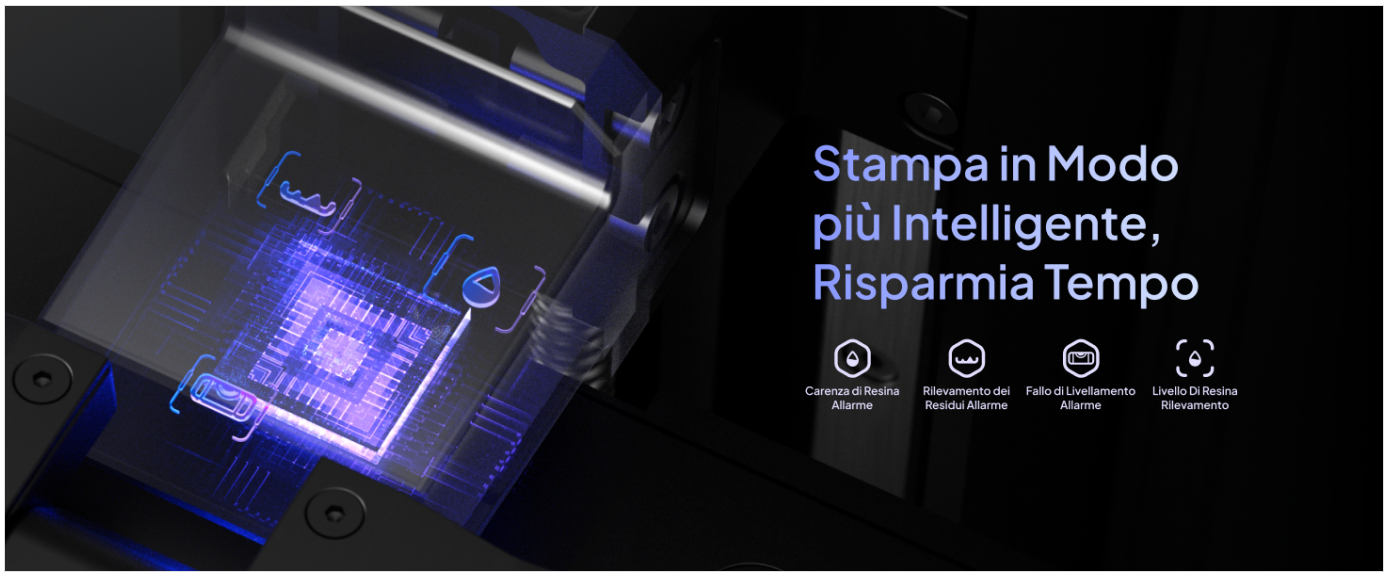


Image: Display showing smart printing features, including AI camera monitoring and various alerts.

- The built-in AI camera provides real-time monitoring of your print progress. You can view the live feed on the printer's screen or a connected device (if supported).
- The AI camera can detect common issues such as empty build plates or deformed models and will alert you.
- Use the time-lapse function to record your print process.

5.5 Post-Processing

1. Once printing is complete, wait for the build platform to fully retract.
2. Remove the build platform from the printer.
3. Using the metal scraper, carefully detach the printed model from the build platform.
4. Wash the printed model in isopropyl alcohol (IPA) for a few minutes to remove uncured resin. Use a soft brush for intricate details.
5. Allow the model to air dry completely.
6. Cure the model under a UV light source (e.g., a UV curing station or sunlight) until it is fully hardened.

6. Maintenance

Regular maintenance ensures optimal performance and longevity of your printer.

6.1 Cleaning the Build Platform

- After each print, use a plastic scraper to remove any resin residue.
- Clean the build platform with IPA and a soft cloth. Ensure it is completely dry before the next print.

6.2 Cleaning the Resin Vat and FEP Film

- If you are changing resin types or storing the printer, empty the resin vat. Use a funnel with a filter to pour unused resin back into its bottle.
- Carefully clean the resin vat and FEP film with IPA and a soft, lint-free cloth. Avoid using sharp objects that could scratch the FEP film.
- Inspect the FEP film for any damage (scratches, punctures). Replace the FEP film if damaged to prevent resin leaks onto the LCD screen.

6.3 Cleaning the LCD Screen

- If resin spills onto the LCD screen, immediately clean it with IPA and a soft microfiber cloth.
- Never use abrasive materials or sharp objects on the LCD screen.

6.4 General Printer Cleaning

- Wipe down the exterior of the printer with a soft, dry cloth.
- Keep the Z-axis lead screw clean and lightly lubricated (if recommended by ELEGOO).

6.5 Resin Handling and Storage

- Store resin in its original, opaque bottle in a cool, dark place, away from direct sunlight and heat.
- Ensure the bottle cap is tightly sealed to prevent air exposure and moisture contamination.

7. Troubleshooting

This section addresses common issues you might encounter.

Problem	Possible Cause	Solution
Print fails to adhere to build platform	Build platform not clean; insufficient bottom exposure time; cold resin; leveling issue	Clean build platform thoroughly; increase bottom exposure time in slicer; ensure resin is at 30°C (printer does this automatically); re-level if necessary
Model detaches from supports or has layer shifts	Insufficient supports; over-exposure; print speed too high; FEP film wear	Add more/thicker supports; reduce exposure time; reduce lift speed; check FEP film for damage
Print has visible layer lines or poor detail	Incorrect exposure time; dirty resin; worn FEP film	Adjust exposure time (calibrate); filter resin for debris; replace FEP film
Resin leaks from vat	FEP film damaged; vat not properly secured	Immediately stop printing, clean up spill, replace FEP film; ensure vat screws are tightened
Printer not turning on	Power cable loose; power adapter faulty; power switch off	Check all power connections; try a different outlet; contact support if issue persists

8. Specifications

Feature	Detail
Model	Saturn 4 Ultra 16K
Technology	MSLA (Masked Stereolithography)
LCD Resolution	16K (15120 x 6230 pixels)
Build Volume (LWH)	211.68 × 118.37 × 220 mm^3
Layer Thickness	0.01-0.2 mm
Printing Speed	Up to 150 mm/h

Feature	Detail
Resin Vat Heating	Intelligent heating to 30°C
Leveling	Automatic Leveling
Connectivity	USB, Wi-Fi
AI Camera	Real-time monitoring, alerts, time-lapse
Printer Dimensions	32.92 x 54.8 x 32.74 cm
Printer Weight	16.1 kg
Material	Aluminum
Color	Black

9. Warranty and Support

For warranty information, technical support, and service inquiries, please refer to the official ELEGOO website or the warranty card included with your product. You can also contact ELEGOO customer service directly through their website or the contact information provided in your purchase documentation.
Official ELEGOO Website: www.elegoo.com

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