ELEGOO Saturn 4 Ultra, Mercury Plus V3.0

ELEGOO Saturn 4 Ultra 16K Resin 3D Printer and Mercury Plus V3.0 Wash and Cure Station User Manual

Model: Saturn 4 Ultra, Mercury Plus V3.0

Brand: ELEGOO

Introduction | Safety Information | Setup | Operation | Maintenance | Troubleshooting | Specifications | Warranty & Support

1. Introduction

This manual provides comprehensive instructions for the safe and effective use of your ELEGOO Saturn 4 Ultra 16K Resin 3D Printer and ELEGOO Mercury Plus V3.0 Wash and Cure Station. Please read this manual thoroughly before operation to ensure optimal performance and longevity of your devices.



Figure 1.1: ELEGOO Saturn 4 Ultra 16K Resin 3D Printer and Mercury Plus V3.0 Wash and Cure Station. This image displays the complete setup including the 3D printer, the wash and cure station, and a large capacity container.

Product Overview

The ELEGOO Saturn 4 Ultra is a high-precision 16K resin 3D printer designed for detailed additive manufacturing. It features a flip-up lid, smart tank heating to 30°C for improved printing success, and high-speed printing capabilities up to 150mm/h. Its large printing size of 8.33x4.66x8.66 inches (211.52mm x 118.4mm x 220mm) allows for significant build volumes.
The ELEGOO Mercury Plus V3.0 is a versatile 7.5 L large capacity wash and cure station, compatible with various MSLA, LCD, and DLP 3D printers. It offers both washing and curing functionalities in a single unit, providing a streamlined post-processing solution for resin 3D prints.

2. Safety Information

WARNING: Always wear appropriate personal protective equipment (PPE) when handling resin, including gloves and safety glasses. Ensure adequate ventilation in your workspace.

General Safety Precautions

- Keep the devices away from children and pets.
- Do not operate the devices in wet or damp environments.
- Ensure the power supply matches the device's requirements.
- Do not touch moving parts during operation.
- Unplug the devices before cleaning or maintenance.

Resin Handling Safety

- Resin can cause skin and eye irritation. Avoid direct contact.
- If skin contact occurs, wash immediately with soap and water.
- If eye contact occurs, flush with plenty of water for at least 15 minutes and seek medical attention.
- Do not ingest resin. If swallowed, do not induce vomiting; seek medical attention immediately.
- Store resin in a cool, dark place, away from direct sunlight and heat.
- Dispose of uncured resin and contaminated materials according to local regulations.

3. Setup

3.1 ELEGOO Saturn 4 Ultra 16K Resin 3D Printer Setup

1. **Unpacking:** Carefully remove the printer and all accessories from the packaging. Inspect for any damage during transit.
2. **Power Connection:** Connect the power adapter to the printer and then to a grounded electrical outlet.
3. **Build Plate Installation:** Install the build plate onto the Z-axis arm and tighten the securing knob.
4. **Leveling the Build Plate:**
   - Loosen the two screws on the build plate.
   - Place a leveling card (or a piece of A4 paper) on the LCD screen.
   - Lower the build plate until it presses firmly against the leveling card.
   - Gently press down on the build plate to ensure it is flat against the screen, then tighten the two screws.
   - Raise the build plate and remove the leveling card.
5. **Resin Tank Installation:** Place the resin tank onto the LCD screen, ensuring it is properly seated and secured.



Figure 3.1: The ELEGOO Saturn 4 Ultra 16K Resin 3D Printer. This image shows the printer with its transparent lid and a finished 3D printed model next to it, illustrating its capability.

3.2 ELEGOO Mercury Plus V3.0 Wash and Cure Station Setup

1. **Unpacking:** Remove the wash and cure station and its accessories from the packaging.
2. **Power Connection:** Connect the power adapter to the station and then to a grounded electrical outlet.
3. **Washing Container Preparation:** Fill the included washing container with an appropriate cleaning solution (e.g., isopropyl alcohol). Ensure the liquid level does not exceed the MAX line.
4. **Curing Platform:** Place the curing platform onto the station when performing curing operations.



Figure 3.2: The ELEGOO Mercury Plus V3.0 Wash and Cure Station. This image shows the wash and cure station alongside its 7.5L washing container, ready for post-processing of 3D prints.

4. Operation

4.1 ELEGOO Saturn 4 Ultra 16K Resin 3D Printer Operation

1. **Software Preparation:** Use a compatible slicing software (e.g., Chitubox) to prepare your 3D model. Import the model, adjust settings (layer height, exposure time, supports), and slice it into a .ctb file.
2. **Resin Filling:** Pour the desired resin into the resin tank. Ensure the resin level is between the MIN and MAX marks.
3. **File Transfer:** Transfer the sliced .ctb file to the printer via USB.
4. **Starting a Print:** Select the file on the printer's touchscreen interface and initiate the print. The printer will automatically begin the printing process, including smart tank heating to maintain an optimal resin temperature of 30°C.
5. **Monitoring:** The Saturn 4 Ultra features an AI Camera with light, allowing you to monitor your print progress remotely, day or night.



Figure 4.1: The 16K LCD Screen of the ELEGOO Saturn 4 Ultra. This image highlights the high resolution (15120px x 6230px) LCD screen, crucial for enhanced resin 3D printing accuracy.



Figure 4.2: Smart Tank Heating in the ELEGOO Saturn 4 Ultra. This image illustrates the resin tank being continuously heated to 30°C, a feature designed to improve the printing success rate.



Figure 4.3: The New AI Camera with Light in the ELEGOO Saturn 4 Ultra. This image shows the integrated camera, allowing users to monitor their printing process at any time, day or night.

4.2 ELEGOO Mercury Plus V3.0 Wash and Cure Station Operation

1. **Washing Process:**
   - After printing, remove the build plate with the printed model.
   - For washing with the build plate, place the entire build plate into the washing basket. For washing without the build plate, remove the model and place it directly into the basket.
   - Place the washing basket into the container filled with cleaning solution.
   - Select the desired washing time and start the process. The station offers dual cleaning options for thorough cleaning.
2. **Curing Process:**
   - After washing, remove the model from the basket and dry it.
   - Place the model on the curing platform.
   - Cover the station with the anti-UV cover.

- Select the desired curing time and start the 360° all-round curing process.



Figure 4.4: Key Features of the ELEGOO Mercury Plus V3.0. This image highlights the station's capabilities including Wash and Cure 2-in-1, larger capacity, dual cleaning options, 360° all-round curing, ease of use, and an anti-UV cover.



Figure 4.5: Washing Size Capabilities of Mercury Plus V3.0. This image illustrates the maximum washing dimensions both with and without the build plate, showing the flexibility for different print sizes.

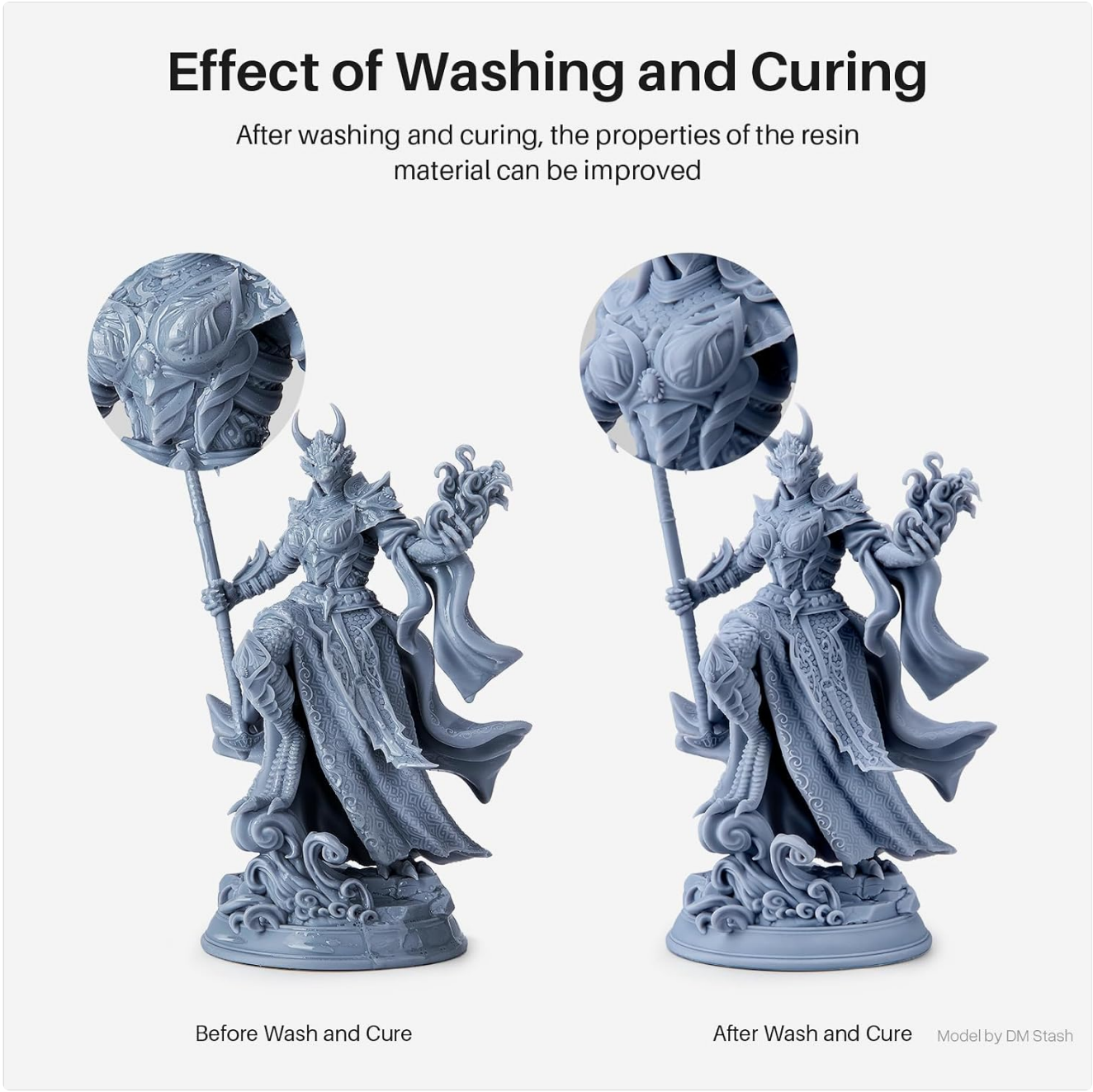


Figure 4.6: Visualizing the Effect of Washing and Curing. This image demonstrates the improved properties and finish of a resin print after undergoing the washing and curing process, compared to its state before.

5. Maintenance

5.1 ELEGOO Saturn 4 Ultra Maintenance

- **Cleaning the LCD Screen:** Use a soft, lint-free cloth and a small amount of isopropyl alcohol to gently clean the LCD screen after each print, especially if resin spills occur. Avoid scratching the screen.
- **Cleaning the Resin Tank (Vat):** After emptying the resin, clean the tank with isopropyl alcohol. Inspect the FEP film for any damage or cloudiness. Replace if necessary.
- **Build Plate Cleaning:** Clean the build plate with isopropyl alcohol and a scraper to remove any cured resin residue.
- **Z-axis Lubrication:** Periodically apply a small amount of lithium grease to the Z-axis lead screw to ensure smooth operation.

5.2 ELEGOO Mercury Plus V3.0 Maintenance

- **Cleaning the Washing Container:** Regularly clean the washing container and replace the cleaning solution when it becomes cloudy or heavily contaminated with resin.
- **UV Lamp Cleaning:** Gently wipe the UV lamps and reflective surfaces with a soft cloth to ensure optimal curing performance.
- **General Cleaning:** Wipe down the exterior of the station with a damp cloth.

Resin Disposal

Never pour liquid resin down the drain. Cure any leftover liquid resin under UV light until it solidifies, then dispose of it as solid plastic waste according to local regulations. Contaminated cleaning solution should also be cured or disposed of responsibly.

6. Troubleshooting

6.1 Common Printing Issues (Saturn 4 Ultra)

- **Print Fails to Adhere to Build Plate:**
  - Ensure the build plate is properly leveled.
  - Increase bottom exposure time in slicing software.
  - Roughen the build plate surface slightly with fine-grit sandpaper.
  - Verify resin temperature is optimal (30°C with smart tank heating).
- **Partial Prints or Missing Layers:**
  - Check for debris or cured resin on the FEP film or LCD screen.
  - Increase normal exposure time.
  - Ensure resin is well-mixed and not expired.
  - Check USB drive for corruption.
- **Warping or Deformed Prints:**
  - Add more supports, especially to overhangs.
  - Hollow large models and add drain holes.
  - Ensure proper post-curing.

6.2 Common Wash and Cure Station Issues (Mercury Plus V3.0)

- **Prints Still Sticky After Washing/Curing:**
  - Ensure cleaning solution is fresh and not oversaturated with resin.
  - Increase washing time.
  - Increase curing time.
  - Ensure UV lamps are clean and functioning.
- **Station Not Turning On:**
  - Check power connection and outlet.
  - Ensure the lid/cover is properly closed for safety interlocks.

7. Specifications

7.1 ELEGOO Saturn 4 Ultra 16K Resin 3D Printer

Feature	Specification
Printing Technology	MSLA (LCD-based Stereolithography)
LCD Resolution	16K (15120px x 6230px)
Build Volume (L⊗W⊗H)	211.52mm x 118.4mm x 220mm (8.33x4.66x8.66 inches)
Printing Speed	Up to 150mm/h
Connectivity	USB
Material Compatibility	UV Curing Resin
Special Features	Flip-up Lid, Smart Tank Heating (30°C), AI Camera with Light
Supported File Format	CTB

7.2 ELEGOO Mercury Plus V3.0 Wash and Cure Station

Feature	Specification
Function	Wash & Cure 2-in-1
Washing Container Capacity	7.5 Liters
Maximum Washing Size (with build plate)	214mm (L) ⊗ 135mm (W) ⊗ 180mm (H)
Maximum Washing Size (without build plate)	230mm (L) ⊗ 135mm (W) ⊗ 260mm (H)
Curing Method	360° All-Round Curing with UV LEDs
UV Wavelength	405nm (typical for resin curing)
Safety Feature	Anti-UV Cover

8. Warranty and Support

Warranty Information

ELEGOO products typically come with a limited warranty covering manufacturing defects. The specific warranty period and terms may vary by region and product. Please refer to the warranty card included with your product or visit the official ELEGOO website for detailed warranty information.

Customer Support

For technical assistance, troubleshooting, or warranty claims, please contact ELEGOO customer support through their official website or the contact information provided in your product packaging. When contacting support, please have your product model number (Saturn 4 Ultra, Mercury Plus V3.0) and purchase information ready.
Official ELEGOO Website: www.elegoo.com

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