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ELEGOO Mars 5 Ultra

ELEGOO Mars 5 Ultra Resin 3D Printer User Manual

Model: Mars 5 Ultra | Brand: ELEGOO

1. Introduction & Key Features

The ELEGOO Mars 5 Ultra is a high-performance resin 3D printer designed for precision and speed. It incorporates advanced technologies to streamline the 3D printing process, making it accessible for both enthusiasts and professionals.

- **Innovative Inclined Release Technology:** Significantly reduces release force, speeds up printing to 150mm/h, and increases success rates.
- **9K High Resolution:** Features a 7-inch monochrome LCD screen with 8520x4320 resolution and 18x18µm XY resolution for exceptional detail and clarity.
- **AI Smart Camera:** Monitors the printing process in real-time, detects errors, and supports time-lapse recording for process review.
- **Hands-Free Auto-Leveling:** The build plate automatically levels itself upon descent to the LCD screen, eliminating manual calibration.
- **Intelligent Mechanical Sensor:** Provides residue detection and alerts for insufficient resin or leveling failures, preventing damage and ensuring smooth operation.
- **Overheating Protection:** Printing halts if the LED temperature exceeds 80°C to ensure extended lifespan.

2. Unboxing & Package Contents

Carefully unpack all components from the packaging. Inspect all items for any signs of damage. The package should contain the following items:



Figure 2.1: ELEGOO Mars 5 Ultra 3D Printer and all included accessories.

- Mars 5 Ultra 3D Printer
- Build Platform
- Resin Tank
- AI Camera
- Resin Tray
- USB Disk
- Mask
- Gloves
- Funnel
- Backup Screws
- User Manual
- Adapter
- Tool Kit

- Scraper

For a visual guide on unpacking and initial setup, please refer to the official unboxing video:

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Video 2.1: Official ELEGOO Mars 5 Ultra Unboxing Guide. This video demonstrates the careful unpacking of the printer and its accessories, ensuring all components are accounted for.

3. Setup & Assembly

Follow these steps for the initial setup and assembly of your ELEGOO Mars 5 Ultra 3D Printer:

1. **Remove Packaging Materials:** Gently remove all protective foams and the board from the printer.
2. **Install Resin Tank:** Untighten the screws on the resin tank, remove it, peel off the protective film from the LCD screen, and then reinstall the resin tank, locking the screws.
3. **Prepare Build Plate:** Remove the protective film from the build plate. The quick-release design makes installation simple.
4. **Install WiFi Antenna:** Screw the WiFi antenna into its designated port on the printer's side.
5. **Connect Power:** Plug in the power line and power on the printer.
6. **Screen Protection:** Peel off the protective film from the touch screen.
7. **Initial Self-Test:** The printer will automatically perform a self-test upon startup, including mechanical sensor calibration. This ensures all components are functioning correctly.

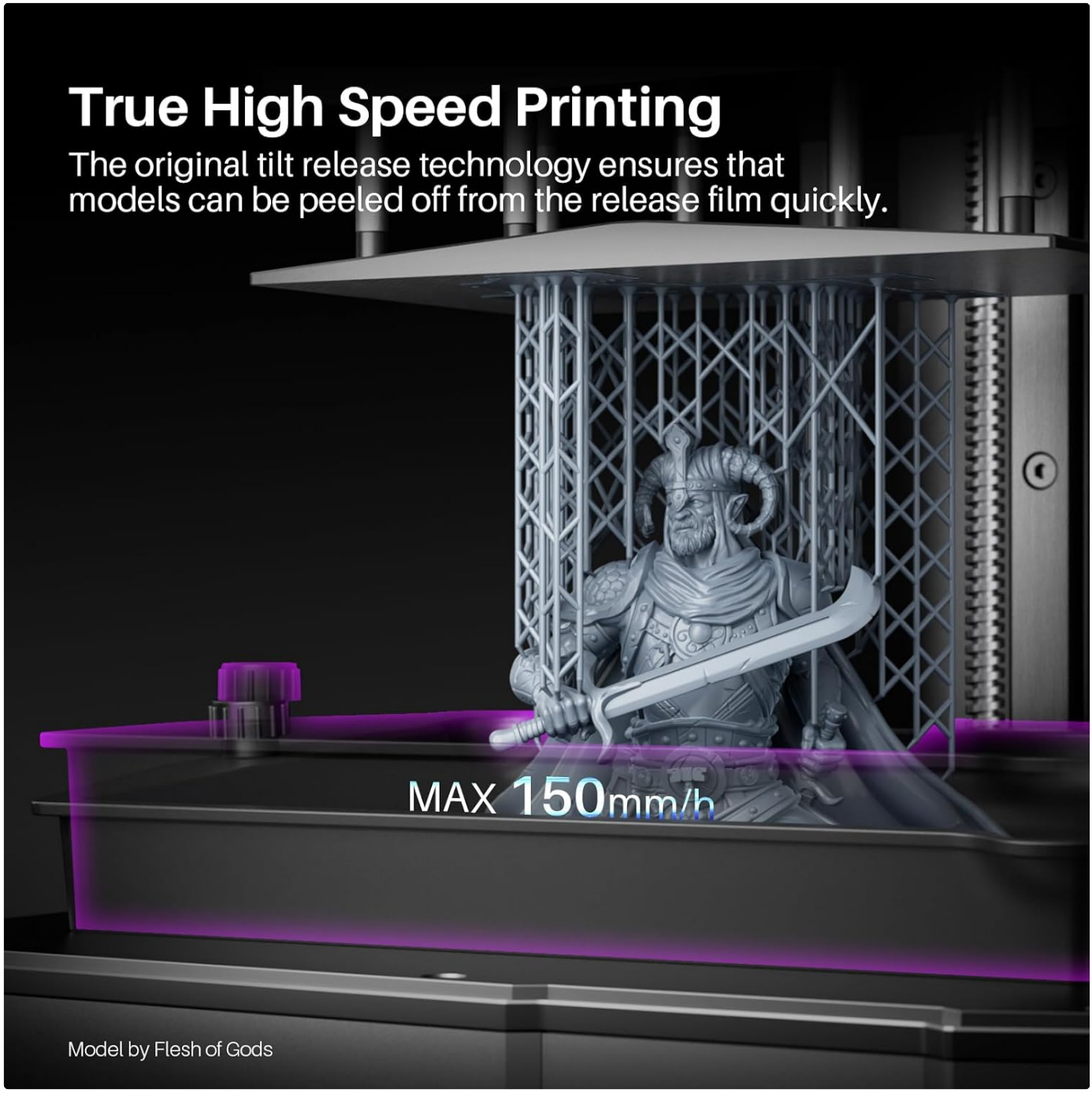


Figure 3.1: The ELEGOO Mars 5 Ultra with its build plate and resin tank ready for operation.

For a comprehensive guide on the printing process, including slicing software usage, refer to the following video:

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Video 3.1: Learn more about ELEGOO Mars 5 Ultra. This video provides an overview of the printer's features and demonstrates the printing workflow from slicing to finished print.

4. Operating Instructions

Operating the ELEGOO Mars 5 Ultra involves preparing your 3D model, slicing it, and initiating the print process.

1. **Model Preparation & Slicing:**
    - Open the ELEGOO Slicing Software (e.g., Chitubox or SatelLite 3D Slicer).
    - Choose the correct printer model (Mars 5 Ultra) in the settings.

- Adjust appropriate print settings (layer height, exposure time, etc.).
- Slice your 3D model and save the file (.goo format) onto the provided USB drive.

2. **Resin Loading:**
   - Shake your resin bottle thoroughly before pouring.
   - Carefully pour the resin into the resin tank. **DO NOT exceed the MAX liquid level indicated on the tank.**
3. **Initiate Printing:**
   - Plug the USB drive into the printer's USB port.
   - On the touch screen, navigate to "Print" and select "USB file".
   - Find your sliced model file and press "Print".
   - The printer will perform an automatic leveling and resin detection before starting the print.
   - Close the printer cover during printing to protect from UV light.



Figure 4.1: The AI Smart Camera actively monitors the printing process, detecting potential issues.

For a comprehensive guide on the printing process, including slicing software usage, refer to the following video:

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Video 4.1: Learn more about ELEGOO Mars 5 Ultra. This video provides an overview of the printer's features and demonstrates the printing workflow from slicing to finished print.

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your ELEGOO Mars 5 Ultra. Always wear gloves and a mask when handling resin or cleaning components.

5.1. Onboard Memory Files Clearance

To clear old print files from the printer's internal memory:

- On the touch screen, navigate to "Print" -> "Local file".
- Long press on a file to select it, or click "Select All" to choose all files.
- Click "Delete" and confirm.

Alternatively, you can format the local drive:

- Go to "Settings" -> "App Settings" -> "Format the files" -> "Local Formatting".
- Confirm the format. The printer will reboot and clear all onboard memory files.

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Video 5.1: Mars 5 Ultra: Onboard Memory Files Clearance. This video demonstrates two methods for clearing files from the printer's internal storage.

5.2. WiFi Antenna Assembly Replacement

If your WiFi antenna needs replacement, follow these steps:

1. Turn off the printer and unplug the power cord.
2. Use a 2.0mm Allen wrench to loosen the 7 screws securing the printer's back cover. Remove the back cover.
3. Use a 2.5mm Allen wrench to loosen the three screws securing the top of the printer's right side cover.
4. Use a 2.0mm Allen wrench to loosen the three screws securing the bottom of the printer's right side cover.
5. Gently open the right side cover. Disconnect the WiFi ribbon cable port from the mainboard. Remove the right side cover.
6. Secure the antenna mounting bracket nuts using needle-nose pliers. Loosen the antenna mounting bracket with an 8mm open-end wrench.
7. Remove the nut and the washer beneath it. Take out the old antenna base and remove the washer from it.
8. Install the new antenna base, placing the washer beneath the nut. Tighten the antenna mounting bracket with an 8mm open-end wrench.
9. Reconnect the WiFi ribbon cable to the mainboard port.
10. Align the screw holes and button holes, and place the right cover in the installation position.
11. Reattach the printer's back cover and tighten the 7 screws.

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Video 5.2: Mars 5 Ultra: WIFI Antenna Assembly Replacement. This video provides a detailed guide on replacing the WiFi antenna.

5.3. Release Film Replacement

The release film is a consumable part that may need replacement over time. Always wear gloves when performing this task.

1. Use a 3.0mm Allen wrench to loosen the four set screws at the bottom of the resin tank.
2. Use a 2.5mm Allen wrench to loosen the 14 screws securing the release film kit at the bottom of the resin tank.
3. Remove the old release film kit.
4. Wipe off any residual resin on the surface of the upper and lower bracket of the release film using paper towels.
5. Take out the new release film. Tear off the protective film on both sides.
6. Align the four edges of the build plate and place the release film in its installation position. Try to leave an equal distance from the four edges of the build plate.
7. Cover the upper bracket. Use a 2.0mm hex wrench to tighten the 18 fixing screws on the upper and lower bracket of the release film. Use the diagonal screw tightening method.
8. After all the screws are secured, tighten the remaining one-third of all screws.
9. Take away the sponge under the release film kit.
10. Use a utility knife to cut off the excess release film around the edges of the release film kit.
11. Use a 3.0mm hex wrench to tighten the four set screws at the bottom of the resin tank.

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Video 5.3: Mars 5 Ultra: Release Film Replacement. This video demonstrates the process of replacing the release film in the resin tank.

5.4. Touch Screen Replacement

If the touch screen needs replacement, follow these steps:

1. Turn off the printer and unplug the power cord.
2. Use a 2.0mm Allen wrench to loosen the 7 screws securing the printer's back cover. Remove the back cover.
3. Use a 2.5mm Allen wrench to loosen the three screws securing the top of the printer's right side cover.
4. Use a 2.0mm Allen wrench to loosen the three screws securing the bottom of the printer's right side cover.
5. Gently open the right side cover. Disconnect the touch screen ribbon cable port from the mainboard. Remove the right side cover.
6. Remove the old touch screen.
7. Install the new touch screen.
8. Align the screw holes and button holes, and place the right cover in the installation position.
9. Reattach the printer's back cover and tighten the 7 screws.

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Video 5.4: ELEGOO Mars 5 Ultra: Touch Screen Replacement. This video guides you through the process of replacing the printer's touch screen.

6. Troubleshooting

This section provides solutions to common issues you might encounter with your ELEGOO Mars 5 Ultra 3D Printer.

6.1. Common Printing Issues

- **Prints not sticking to the build plate:** Ensure the build plate is clean and properly leveled. Adjust bottom exposure time in your slicer settings. Check resin temperature (20-30°C recommended).
- **Lines appearing on prints or LCD:** This could indicate a damaged LCD screen. Run the "Screen exposure" test in the "Tool" menu to check for dead pixels or display issues.
- **Resin shortage or residue detection alarms:** The intelligent mechanical sensor will alert you. Add more resin if needed, or clean the resin tank if residue is detected.
- **Overheating:** The printer will automatically pause if the LED temperature exceeds 80°C. Ensure proper ventilation around

the printer.

6.2. Resin Calibration

To optimize print quality for different resins, perform a resin calibration test:

- On the touch screen, go to "Tool" -> swipe left -> "Resin calibration".
- This function performs a partitioned exposure test print on a single model. After cleaning and curing, select the optimal exposure parameters.
- Click on each section to enter the corresponding exposure time to be tested (enter times in descending order).

7. Specifications

Feature	Detail
Product Dimensions	13.78 x 14.96 x 22.04 inches (350 x 380 x 560 mm)
Item Weight	19.36 pounds (8.8 kg)
Model Number	Mars 5 Ultra
LCD Screen Size	7-inch Monochrome LCD
Resolution	9K (8520x4320)
XY Resolution	18x18μm
Max Printing Speed	150mm/h
Connectivity	WiFi, USB
Build Volume (LWH)	6.04 x 3.06 x 6.49 inches (153.36 x 77.76 x 164.99 mm)
Material	Metal

8. Warranty & Support

ELEGOO provides comprehensive customer support and warranty services for the Mars 5 Ultra 3D Printer. For detailed warranty information, including coverage period and terms, please refer to the warranty card included in your package or visit the official ELEGOO website.

For technical assistance, troubleshooting, or spare parts, please contact ELEGOO customer service through their official website or the contact information provided in the user manual.

Official ELEGOO Store: Visit the ELEGOO Store on Amazon

9. Important Safety Information

Please read all safety warnings and instructions carefully before using the ELEGOO Mars 5 Ultra 3D Printer to prevent injury or damage to the device.

- **Power Consumption:** The on-mode power consumption is 72 watts. Ensure your power supply meets the requirements.
- **Resin Handling:** Always wear protective gloves and a mask when handling resin. Work in a well-ventilated area. Avoid direct skin contact and eye exposure to resin.
- **Resin Level:** The resin level in the tank cannot exceed the MAX line. Overfilling may cause leaks and damage to the machine.
- **Temperature:** Maintain a resin temperature between 20-30°C for optimal printing results.
- **Overheating Protection:** The printer is equipped with overheating protection. Printing will halt if the LED temperature exceeds 80°C.
- **Electrical Safety:** Do not open the printer casing unless instructed by qualified personnel. Risk of electric shock.

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