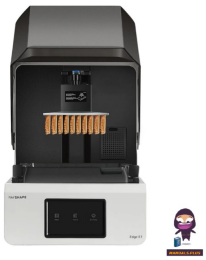
RAYSHAPE
Edge Max 3D Printer



RAYSHAPE Edge Max 3D Printer User Manual

Contents

RAYSHAPE®

RAYSHAPE Edge Max 3D Printer

Information

Instructions

This manual contains technical information, safety guidelines, and detailed operation instructions for Edge series LCD 3D printers. Please keep it properly.

Please read this manual carefully before using the printer. Failure to comply with the safety and operating instructions required by this manual will result in consequences that are the sole responsibility of the user.

All information contained in this manual is up to date at the time of printing but may be subject to change without notice as products are upgraded.

The images used in this manual may differ from your printer due to differences in specific models and specifications.

If you have any improvement or modification opinions on this document and the product, or If there is any error, please inform us in time. Thank you for your valuable comments on our products.

Instructions of mark

- **Warning:** Could result in serious personal injury or equipment damage if it failed to comply with this requirement.
- **Attention:** Could result in minor personal injury or equipment damage if it failed to comply with this requirement.

-  **Important Information:** The normal operation of the device or the quality of printed models would be influenced if it failed to comply with this requirement.
-  **Protection requirements:** Corresponding precautions should be taken as required.
-  **Hazard indication:** Description of specified hazard.

Safety Guidelines

Before operating with the printer, please read the following safety guidelines to identify the potential risks that you may experience during the usage. When using the printer, make sure to comply with the related requirements defined in the manual already and take appropriate precautions in advance.
Any operation that fails to fulfill the requirements defined in the safety guidelines may result in personal injury or equipment damage, and the corresponding consequences should be taken by the users.

The device shall be operated by professional staff
Operators must carefully read and understand the safety guide and operation manual, then operate the device correctly as required.
Keep away from children
Please keep the device, resin material, and other accessories out of the reach of children.
Disassembly or modification is strictly prohibited
It is strictly prohibited to disassemble or modify the device without authorization. Do not use accessories that are not designated by RAYSHAPE officially.
Risk of electric shock

- The specification of power must meet the operating requirements of the device.
- A grounded electrical outlet should be applied.
- Replaced with a new one before usage if it was found that the power cable is aging or damaged.

Risk of UV exposure
Both the printer and post-curing device were designed based on the principle of UV light curing and if there is UV light available inside the device during operation, the risk of UV exposure shall be avoided accordingly.

- When the printer and post-curing device are working, please keep the protective cover/ door closed normally.
- If any operation or maintenance work should proceed while the printer is working, the anti-UV goggles shall be worn accordingly.

Risk of mechanical extrusion
The printing platform will move up and down while the printer is working, there is a risk of mechanical extrusion which was generated by the improper operation.

- Please keep the protective cover/door closed normally when the printer is in service.
- It is strictly forbidden to put hands or other parts of the body into the printing area during the printing.

Risk of sharp-edge cutting
After printing, a shovel blade is used to separate printed models from the printing platform. There is a risk of getting injured by the sharp edge cutting of the shovel blade.

- Cut-resistant gloves should be worn during the operation of separating printed parts from the platform.
- The blade of the shovel should not be orientated to your body during usage.

Risk of scalding
The printer was equipped with a heater, so be warned to avoid scalding if the heater is turned on.
Risk of flammability of cleaning solvent
The printed parts should be cleaned with a cleaning solvent, such as IPA or 95% alcohol.
Please keep good ventilation and keep away from heat and fire sources when storing or using cleaning solvents.
Wear protective gloves

- Please wear disposable medical gloves when operating the devices to avoid direct contact with the resin material.
- Please wear cut-resistant gloves when separating the printed models from the printing platform with a shovel.

Wear goggles

- If any operation or maintenance work is needed to proceed while the printer is working, anti-UV goggles should be worn accordingly.
- Goggles should be worn to avoid the injury caused by the splashing fragment which was generated by the operation of separating printed parts from the printing platform.

Good ventilation
Areas for printer installation and post-processing should be well-ventilated.

Technical Specification

Edge MAX

Build volume	290×160×190 mm
Pixel size	46μm
Technology	LCD Technology
Dynamic layer thickness	0.05~0.1mm
Printing speed	Up to 36 mm / 1 hour (Depending on the resin type andslicer settings)
Materials	
Available materials	ShapeMaterials Dental Series
Hardware	

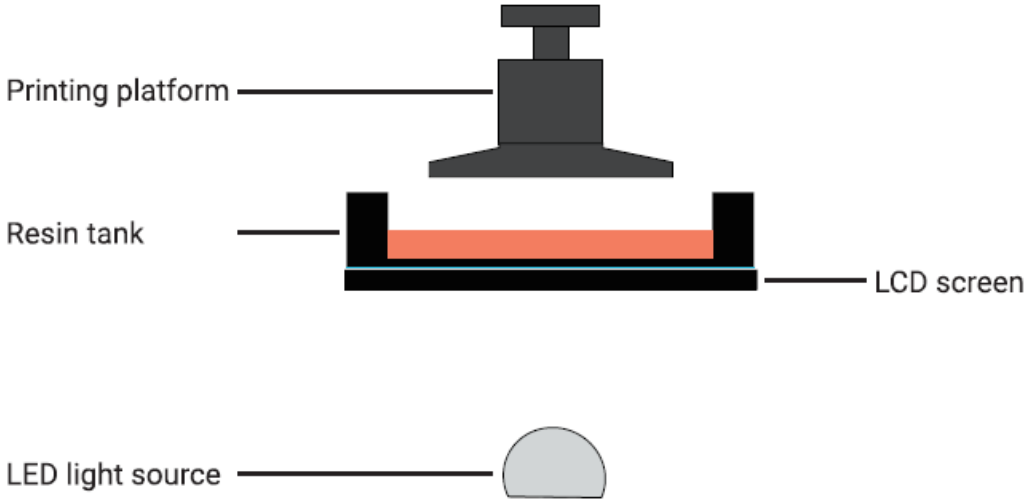
LCD screen	13.6" 7K monochrome
Light source	screen 405nm LED
Resolution	6480 × 3600 pixels
Door control	Printing will be paused automatically if the cover is opened (Optional)
Heating module	Automatic heating building platform
Air filtration	Built-in air filter in building chamber
Touch screen	10" color touch screen
Connectivity	USB2.0, Wireless network (2.4GHz/5.8GHz), Ethernet
Input	100~240VAC, 50/60Hz
Rated power	500 W
Software	
Control system	Self-developed Master.OS
Language	Chinese, English
Slicing software	Shape Panel
Operating system	Windows 7/8/10/11
File format(input)	.stl, .obj
File	.rs
Advanced	Support editing, automatic repair, model cutting, hollowing, perforating, labeling
Wireless printing	Deliver printing tasks to specified printer in LAN environment via "One Click" operation
Cluster management	Manage the printing tasks of multiple devices in LAN environment
Dimension & Weight	
Device dimension	480 × 500 × 650 mm
Net weight	39 kg

Technical Principle

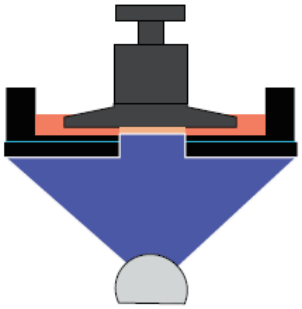
Principle of LCD photocuring 3D printing technology

The core mechanism of light-curing 3D printing technology is the light-curing chemical reaction that photosensitive resin will undergo light-curing reaction and instantly change from liquid to solid when it encounters 405 nm blue light.

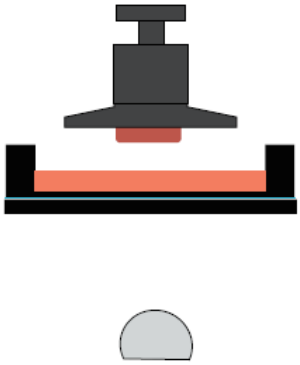
RAYSHAPE Edge series 3D printer uses mature monochrome LCD technology to make the reaction process controllable.



Step 1: ShapeWare 3D printing software will process the STL file you need to print into a slicing file.
Step 2: Additive manufacturing: the above figure is the structural schematic diagram of the Edge series 3D printer. The resin tank contains photosensitive resin. In the first stage of printing, the printing platform that can move up and down on the Z axis is close to the bottom of the resin tank. The LCD screen projects a slice image of the model to be printed. The image is imaged at the bottom of the resin tank and bonded to the printing platform. After one layer is cured, the printing platform in the second stage is lifted up to a certain height, Separate the printed first layer from the bottom. In this cycle, press it down to a certain distance from the bottom, and then the LCD screen projection solidifies the next layer until all the slices are printed.



Stage 1: Printing platform descend and LED on



Stage 2: Printing platform rise and separate from the bottomon

Installation requirement

To obtain the best printing quality, stability, and safety, before the installation and use of the RAYSHAPE 3D printer, please be sure to understand the best service environment of the device, and the requirements are described as follows:
Electrical requirements

- **Rated voltage:** 100~240VAC,50/60Hz

(Before using, please confirm the power requirements on the nameplate and use the power that meets the requirements.)

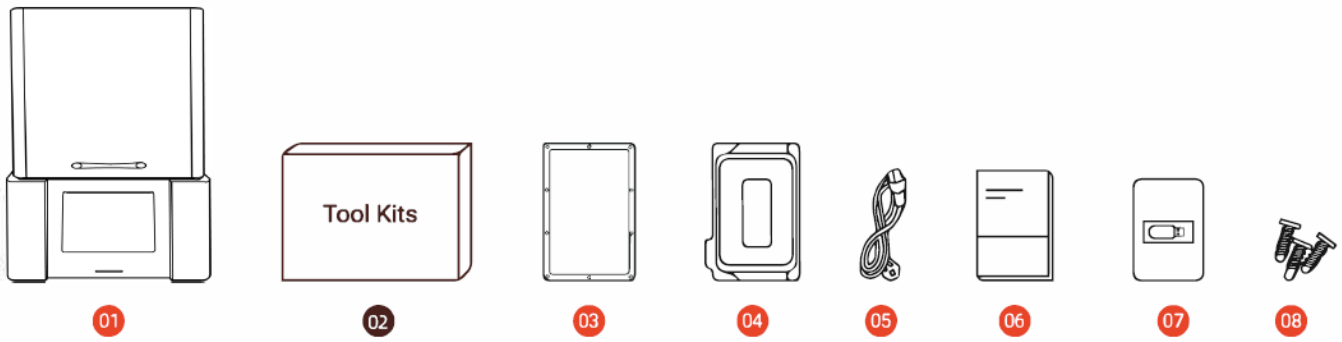
- **Rated power:** 500W

- The power plug is a two-pole grounded plug, and the device shall be reliably grounded.

Operating ambient temperature, humidity, ventilation, and light
The best operating ambient temperature of Edge MAX is 25-30°(, the humidity is below 60%, the environment should be well-ventilated (non-confined space), and the device installation location should avoid direct sunlight.
No dust pollution
Edge MAX contains precision optical components inside the machine body, so the user should ensure that there is no dust pollution in the service environment, otherwise it will affect the normal operation of the optical devices.
Level and stable platform, away from fire, heat, and vibration sources
A level and stable platform is required for Edge MAX, away from fire, heat, and vibration sources.
Keep the cover closed during printing
During the printing process, please try not to open the cover for a long time, to avoid the drastic change of the resin temperature due to the fluctuation of the temperature inside the printer case, which affects the stability of the light-curing chemical reaction, causing printing failure or poor printing quality.
Use official materials
All official RAYSHAPE materials have been extensively tested and optimized for superior performance, and we can not guarantee that you can get the same or similar printing performance when using non-designated materials. Please note that you are responsible for the loss of printing performance or printer damage caused by the use of non-designated materials.
Ensure the speed and stability of the wireless network
If your device is connected to the router via a wireless network, we recommend that you place the wireless router and your Rayshape 3D printer as close as possible to ensure high signal strength and data transmission speed. The router should not be blocked by walls.
Note: Connect your printer to the local network with an Ethernet cable to ensure the best data transmission speed and network connection stability. Make sure to connect your slicing computer and printer to the same router to enable the data network transmission function.

Packing List

The weight of the whole package is about 60 kg, and it needs two people to operate at the same time when handling it.



No.		List	Quantity
1		Edge series print er	1
2		Tool kits	2
3		Release film	1
4		Resin tank lid	2
5		Power cord	1
6		User manual	1
7		USB drive	1
8		Spare screws	6

The packing box includes 1 top foam, 1 bottom foam, 4 side protection foam, 1 Platform protection foam, and 1 set of car’ton. Please keep it properly for transportation.

Tool kits

No. List Quantity

1. Plastic box 2
2. Plastic nippers 1
3. Scraper 1
4. Shovel blade 1
5. Disposable filter (80 mesh) 10
6. Tweezers 1
7. Spray bottle 1
8. Brush 1
9. Disposable gloves 2
10. Dust-free wipes 8
11. Allen wrench 4
12. Ethernet cable 1
13. Hammer 1
14. Tray 1

After unpacking, please check the type and quantity of the attached accessories according to the packing list above, and in case of any missing parts, please contact the dealer in time,

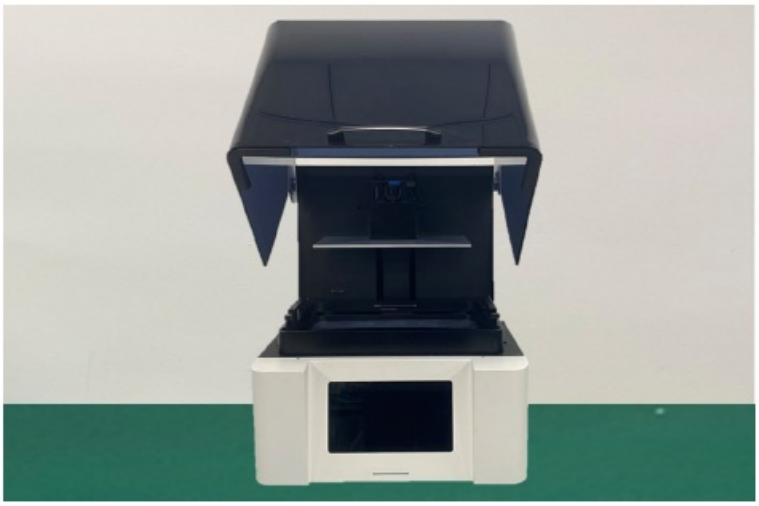
Equipment

No.	Item	No.	Item
01	Cover	**07**	Power interface
02	Printing platform	**08**	Ethernet interface
03	Resin tank	**09**	Fan port
04	Touch screen		
05	USB port		
06	Power switch		

Installation and Connection

Platform
The platform that is used to place the device shall be more than 50cm in width, more than 65cm in depth, and there shall be more than 80cm in space above. The load-bearing capacity shall be more than 60kg. The back of the device should be kept at a distance of more than 20cm from the wall to make sure that the cover can be fully opened. The table should be flat and stable, and avoid direct sunlight to the printer.

The installation environment shall meet the requirements of the manual, otherwise, it may lead to a low printing success rate and print quality problems.



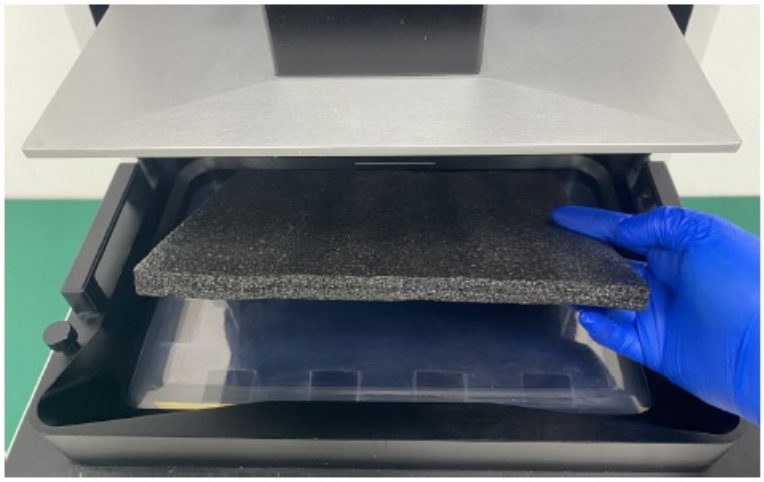
Connection of cables
Connection of the power cord
The power interface is located on the back of the device. After connecting to the power supply, click the start button and the indicator light will turn on; click again and the indicator light will turn off.

Make sure that a grounded power outlet is applied.

Connection of Ethernet cable
You can choose to use an Ethernet cable or Wi-Fi to connect your 3D printer with the Ethernet. Please connect one end of the network cable to the Ethernet port located on the rear surface of the device and the other end to the Ethernet port on site.

The computer that was used to prepare the printing task with ShapeWare and the corresponding printer must be placed within the same LAN to achieve the wireless delivery of the printing task. Whether the LAN is connected to the external network does not affect network transmission

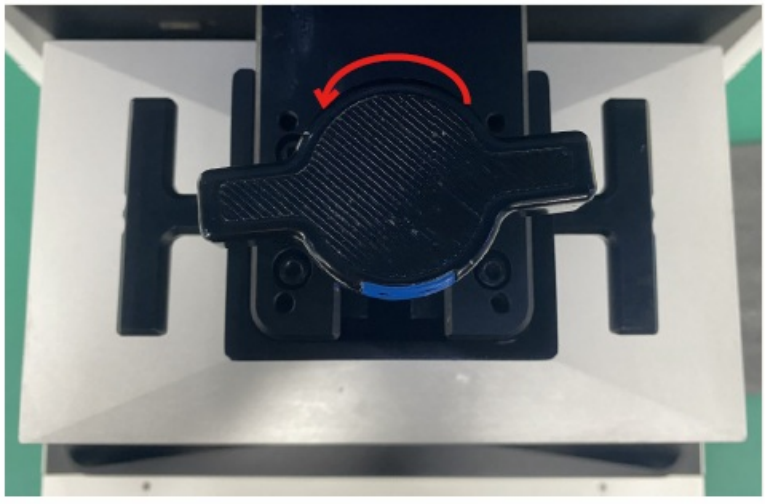
Initialize platform
Click on ” TOOLS”-“Z-AXIS OFFSET “-“MOVE TO TOP”. The printing platform will move up to the initial position of the z-axis. Remove protection foam from the resin tank.



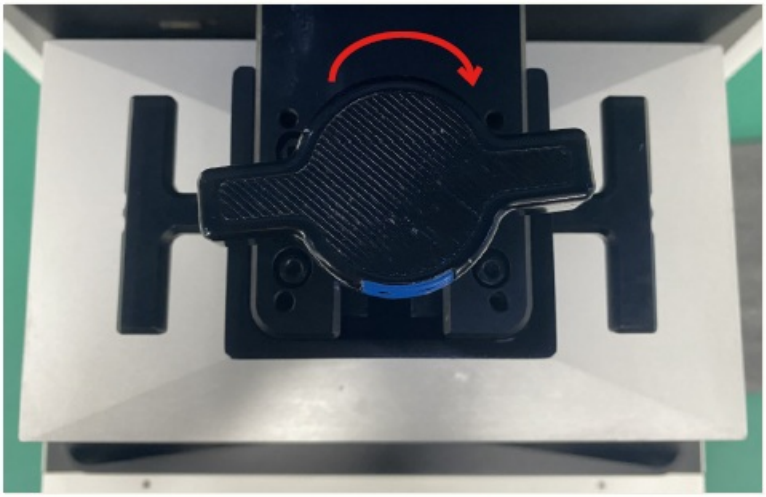
Preparation and Setup

Remove /Install printing platform

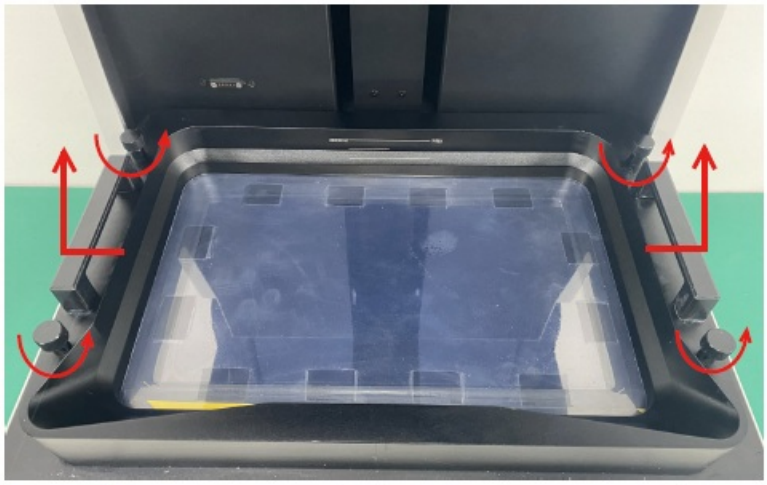
- Please hold the printing platform with one hand and rotate the hand wheel counterclockwise with the other hand until the blue sign is back to the operator to make the platform separate from the bayonet, then take away the platform outward.
- Please align the printing platform with the cantilever bayonet and slide inward horizontally to the end when the platform is installed.
- Hold the printing platform with one hand and rotate the hand wheel clockwise with the other hand until the blue sign faces to operator.

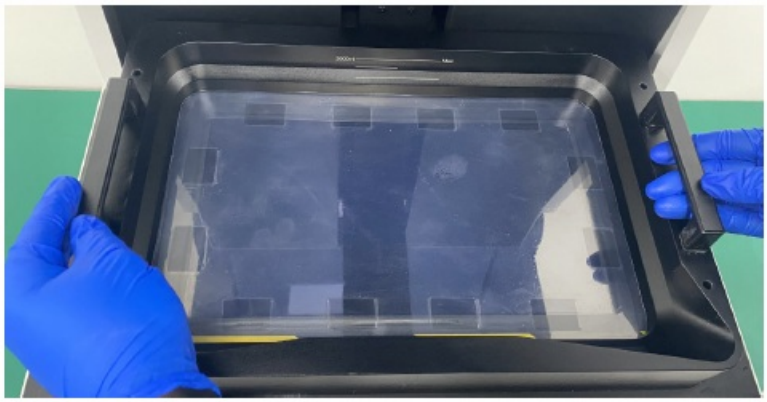


- It was recommended to tighten the rotation wheel until the printing platform does not wobble anymore.



Remove resin tank
Release knobs on both sides of the resin tank outwards.





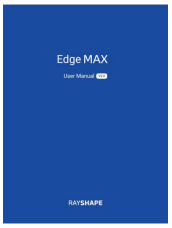
- Remove the resin tank by lifting it with both of your hands for a certain distance and take it away from the printing chamber.
- Please place the resin tank on the clean top surface of a & resin tank lid or a clean A4 paper to avoid the risk of being contaminated and damaged for the release film.

Screen Preparation
The screen shall be kept clean without damage, scratches, and other abnormalities. The screen is pasted with protective film. Please check and clean it regularly. If needed, please replace it with a new protective film.

Screen test
Place a piece of A4 paper on the screen, close the cover, and click “Mono Screen Test”, the screen will project a square array, Check if the projected image is clear and stable.

If the projected image is flickering, blurred, or with other abnormal conditions, please contact the after-sales service

Documents / Resources

	RAYSHAPE Edge Max 3D Printer [pdf] User Manual 2A6ZN-EDGEMAX, 2A6ZNEDGEMAX, Edge Max 3D Printer, Edge, Edge 3D Printer, Max 3D Printer, 3D Printer, Edge Max, Printer

References

- User Manual