Product Manual

3D Resin Printer Series

RF-3024D

4K	Fast	Stable
RESOLUTION	PRINT SPEED	STRUCTURE

ISO 9001   CE Certified   FDA Compliant
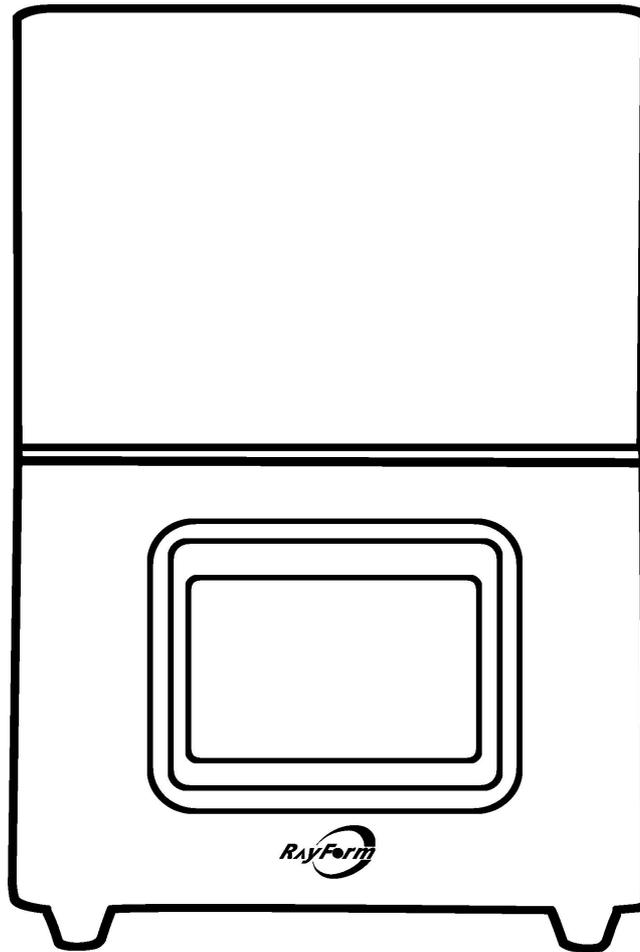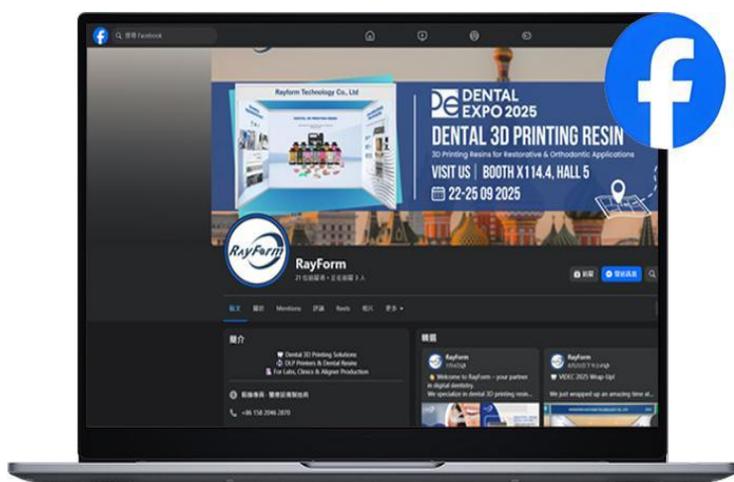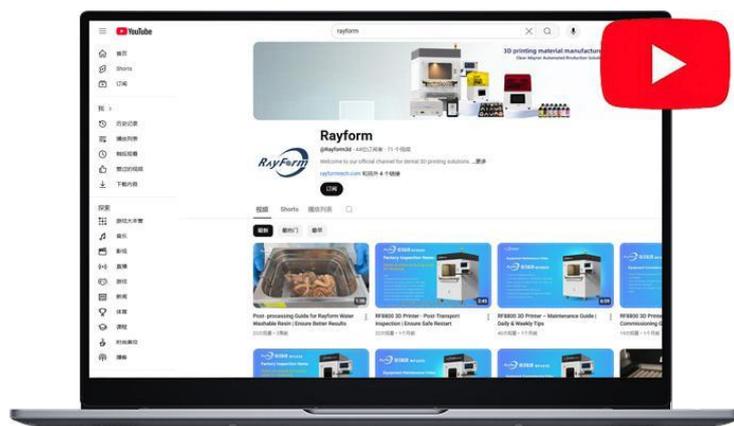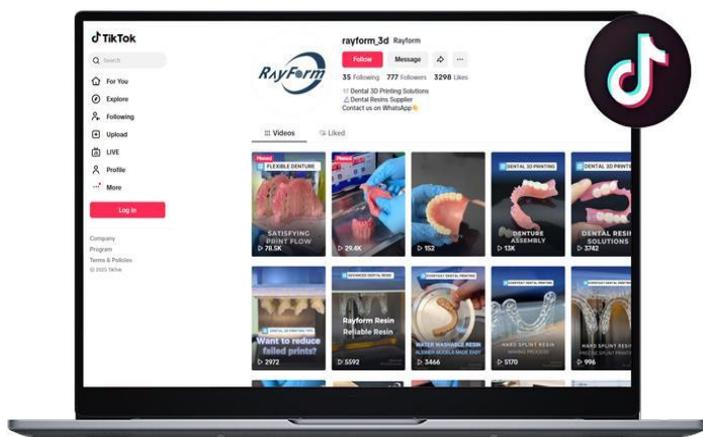
Dear Customer,

Thank you for choosing RayForm Technology! Specializing in high-precision dental 3D printing systems and materials, we provide end-to-end digital production solutions. We highly recommend reading this manual carefully to ensure proper installation and to fully leverage our HADP™ architecture for your dental lab or clinic.

1 Please visit www.rayformtech.com to contact us.

2 Social Media Platforms

Follow our official accounts for regular updates on dental 3D printing trends.

VISUAL REFERENCE

ⓘ Important Notice

Always follow the safety instructions during assembly and usage to avoid unnecessary damage to the 3D printer or individual injury.

1 Please contact our Customer Service if you have any issues after receiving the products.

2 In case of emergency, please immediately cut off the power of the 3D printer and contact our technical support.

3 UV light is harmful to the eyes; please avoid direct contact. When operating, wear protective equipment such as anti-UV goggles and gloves.

4 RayForm 3D printer includes components that can cause injury. Handle with care.

5 When the Temperature control resin vat heats up for a long time its surface temperature becomes high. Avoid touching the resin vat without protection after heating.

6 Be cautious when using the scraper, and make sure to orient the sharp parts of machine and tool away from people.

7 Keep the RayForm 3D printer and its accessories out of the reach of children.

8 Vapors or fumes may be irritating at operating temperatures. Always use the RayForm 3D printer in an open and well-ventilated area.

9 Do not expose RayForm 3D printer to any water or rain environment.

10 Use RayForm 3D printer in an environment with a temperature of 5°C]40°C and a humidity of 20%]80%. For optimal performance, do not exceed this range. Also, avoid direct sunlight exposure.

11 Do not disassemble RayForm 3D printer, please contact technical support if you have any questions.

AFTER-SALES SERVICE

PROCESS SUPPORT	CUSTOMER SERVICE
support@rayformtech.com	contact@rayformtech.com

—— PRODUCT SPECIFICATIONS / DIAGRAM ——

Contents

The RayForm 3D Resin Printer is engineered for precision and reliability. Please refer to the diagram below for component identification.

1 — Print Platform	4, Z axis
2 — Resin Vat	5, Temperature Control
3 — Touch Screen	

6, USB Port (Support: USB Wireless WiFi, USB Drive)	7, RJ45 Port
Start Button	9, Power Port
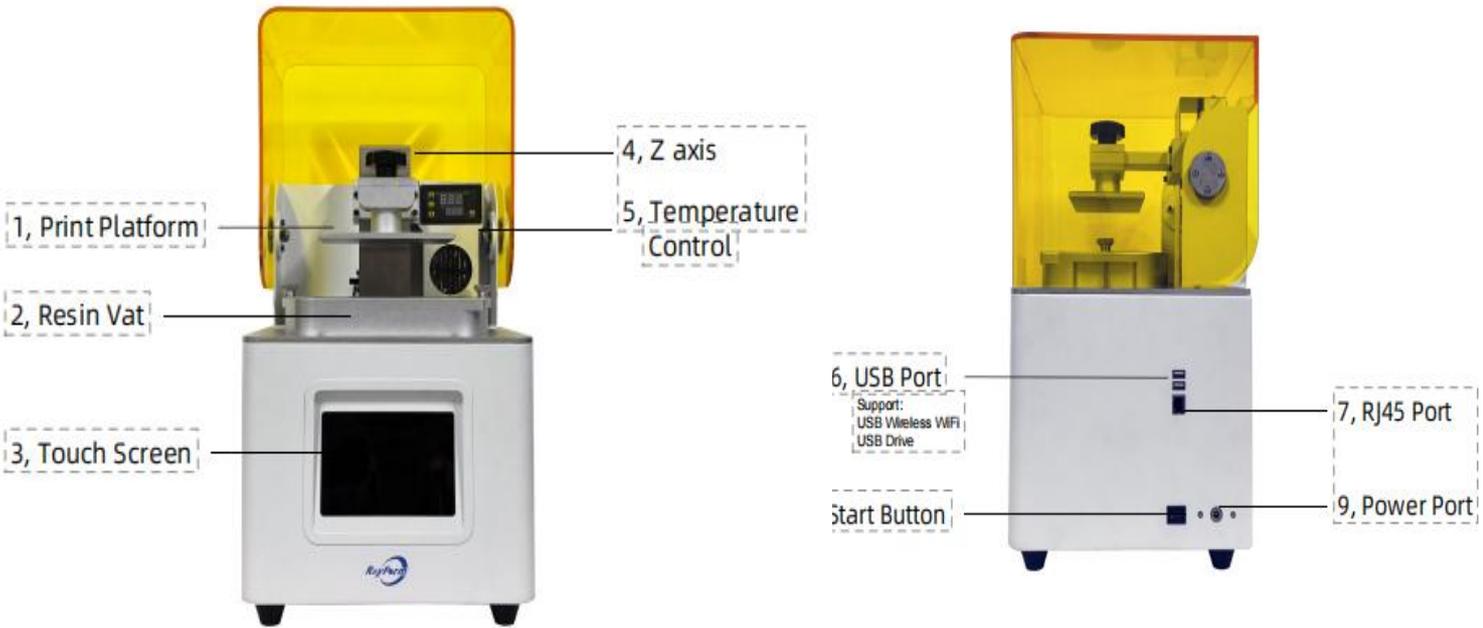
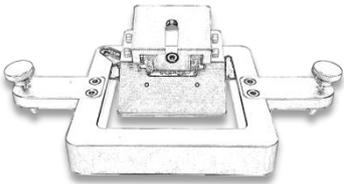|			
1	PrintPlatform	**5**	Touch Screen Control
2	ResinVat	**6**	USB Interface
3	TouchScreen	**7**	RJ45Port
4	Zaxis	**8**	StartButton
9	PowerPort		

The RayForm 3D Resin Printer consists of several precision-engineered modules. Please verify the following components included in your package or system assembly.
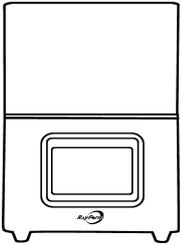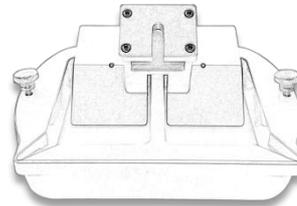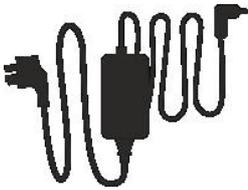
PART NAME 01
RF-3024D
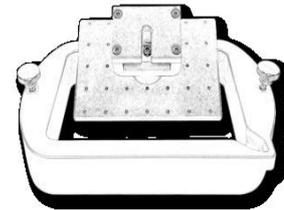
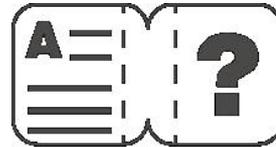**PART NAME 02**
Printplatform
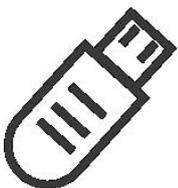
PART NAME 03
Small platform

PART NAME 04
Dual Platforms

PART NAME 05
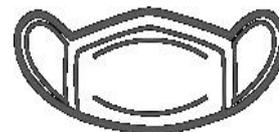PowerSupply

PART NAME 06
Manual

PART NAME 07
USBdrive

PART NAME 08
Metalshovel
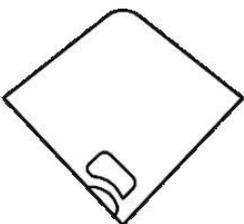
PART NAME 09
Funnel

PART NAME 10
Protectivemask
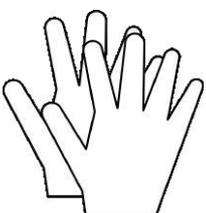
PART NAME 11
Protective equipment
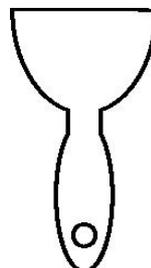
PART NAME 12
Plastic shovel

Technical Specification

RayForm

HIGH ACCURACY • HIGH STABILITY

System & Connectivity

OPERATING SYSTEM	RayForm 3D Printer System
OPERATION SCREEN	5-inch Capacitive Touchscreen
SLICER SOFTWARE	CHITUBOX LSupports .ctb file)
CONNECTIVITY	USB Drive, WLAN Interface: RJ45 100M / WiFi 2.4Ghz

Printing Specifications

LCD SCREEN	6.6 inch 4K L4098*2560M
LIGHT SOURCE	COB Light
XY RESOLUTION	0.01 mm
Z-AXIS ACCURACY	LRefer to layer thickness parameters)
SUGGESTED LAYER THICKNESS	0.01 ~ 0.15mm
POWER SUPPLY	24V - 3A

Physical Parameters

MACHINE DIMENSIONS	300LLM * 280LWM * 430LH) mm
BUILD VOLUME	A: 143LLM * 90LWM * 80LH) mm B: 85LLM * 85LWM * 80LH) mm
NET WEIGHT	13 kg

1 You can choose to install the slicing software provided in the USB drive or download it from the official website (www.chitubox.com) and install it on your computer.

2 Since the RF—3024D is an innovative three-platform integrated 3D printer, when using CHITUBOX Basic, additional device information and print platform parameter settings are required. LTwo different platform parameter settings).

3 Import the 3D model into CHITUBOX Basic, and perform operations such as repair, shell removal, hole drilling and adding supports. The software installation package and operation guide can be found at: https://docs.chitubox.com/en-US/chitubox-basic/latest/ui-and-features/configure-print-parameters

4 Setting the printing parameters in the software, you can modify the required parameter groups in the resin options. USB drive also have three types of resin models slice files: orthodontic tooth molds, elastic bases, and temporary crowns. Select the appropriate file for printing based on your actual needs.

5 After completing the settings, perform the slicing operation and save the sliced file in the .ctb format. Then, import it into the USB drive.

SOFTWARE CONFIGURATION & INTERFACE
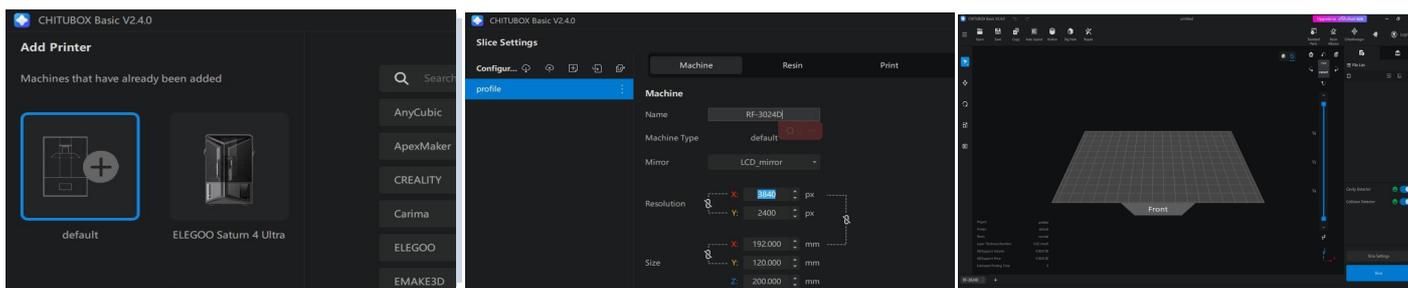
Platform	Name	Resolution		Size		
		X	Y	X	Y	Z
	Normal	4098	2560	143	90	80
	Small			85	85	80
	Dual			143	90	80
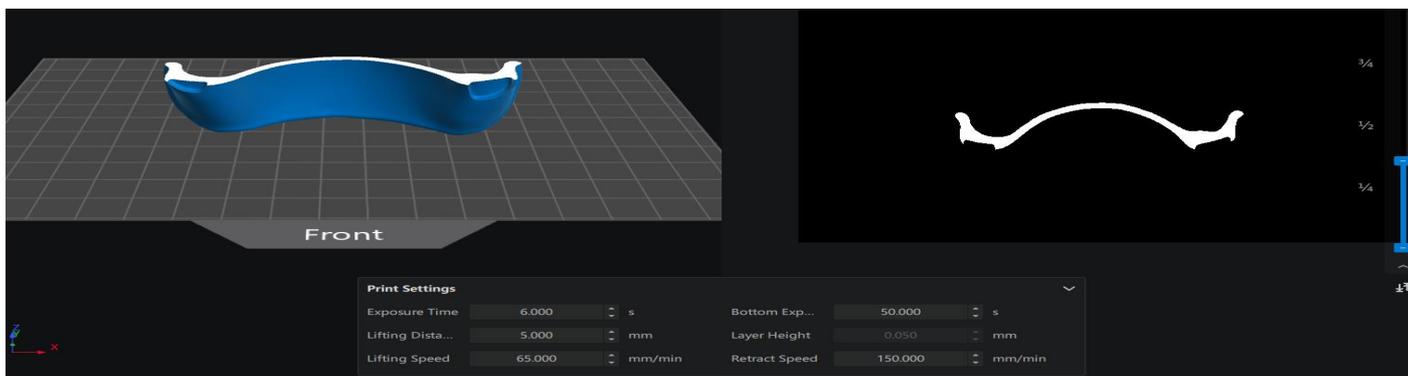
Recommended Print Parameters

RayForm

3D RESIN PRINTER

Parameters Group	Dental Model Resin	Invisible Denture Base Resin	TEMP C&B Resin
Layer Thickness	0.05 mm	0.05 mm	0.05
Exposure Time	3.5 s	6.5 s	3.7 s
Rest Time After Retract	1.5 s	0 s	0 s
Bottom Exposure Time	20 s	30 s	35 s
Bottom Layers	3	4	4
Lifting Distance	7 mm	8 mm	7 mm
Retract Distance	7 mm	8 mm	7 mm
Lifting Speed	120 mm/min	60 mm/min	90 mm/min
Anti-alias	2		

NOTICE

● RF 3024D is suitable for many dental cases. The above data are for reference only, and the specific effect is subject to the actual environment.

● All RayForm production resins can adapt to the use of equipment, more printing parameters and Settings can visit the official website or consult us.

● The ambient temperature of resin printing is recommended to be 20° C]30° CL68° F]86° FM. If the ambient temperature is too low, the temperature controller can be opened to adjust the temperature of the printing room. Set the PV temperature higher than the SV temperature, greater than 2° C, and the heater will automatically start working.

● For the first use, please test according to our parameters, do not modify at will. If you need to improve the printing speed, please contact us first.

● The use of ACF release film can print 45000 layers normally. If you need to replace it, please use the same type.

--The data above root in RayForm lab, only for reference.

1 **Environment Setup**

Place the equipment on a stable work table, in a well-ventilated environment. Avoid strong ultraviolet light to prevent abnormal curing.

2 **Material Preparation**

Choose the appropriate platform and vat. Turn on power, press boot key, and pour resin.

> Note: Shake colored resin for 2—3 mins before pouring.

3 **System Configuration**

Select language in Settings, then run the exposure detection pattern to ensure the screen functions correctly.

4 **File Import**

Import the slice file into the USB flash drive, then insert the drive into the USB interface on the right side.

IMPORTANT: U-DISK USAGE GUIDE

● **Recommended Media**

Use the provided USB drive. If using others, ensure capacity is < 4GB and format is FAT/FAT32.

● **File Storage**

Place print files in the Root Directory only. Folders may cause reading errors.

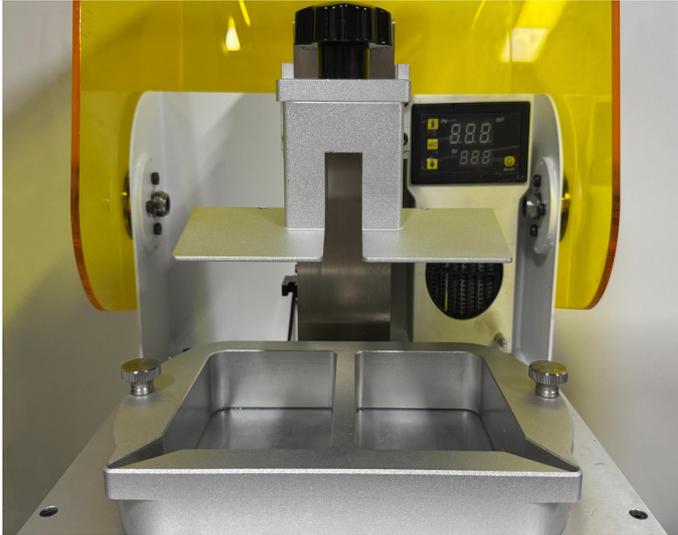** Data based on RayForm laboratory tests, for reference only.*

FIG 1. PLACEMENT

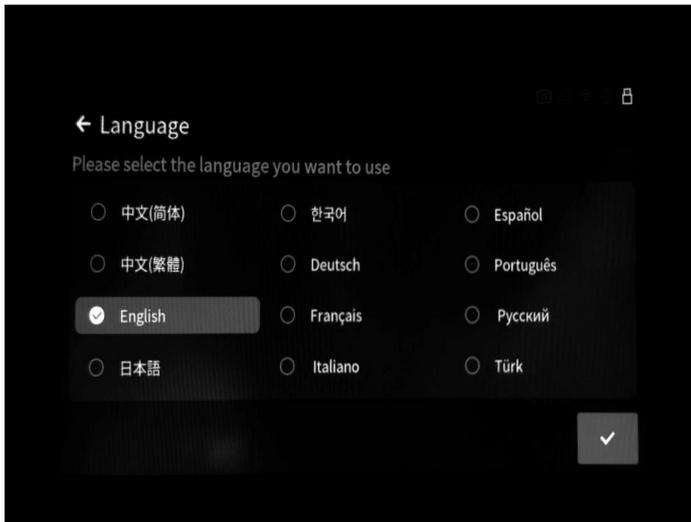## FIG 2. RESIN FILLING

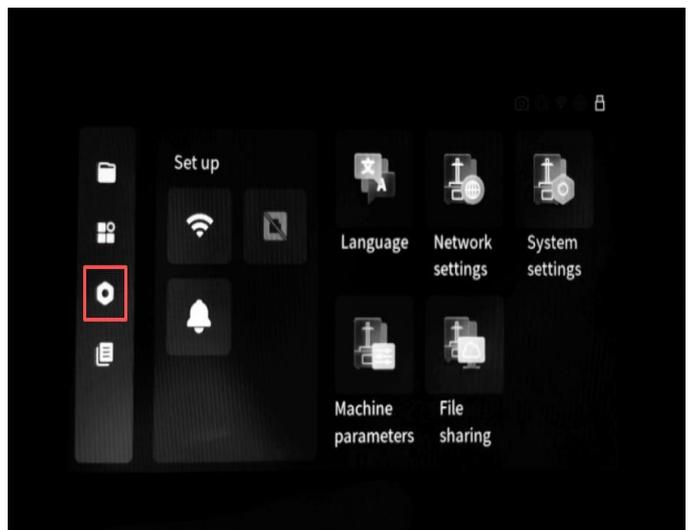## FIG 3. Select language

FIG 4. Page Setup

FIG 5. EXPOSURE TEST
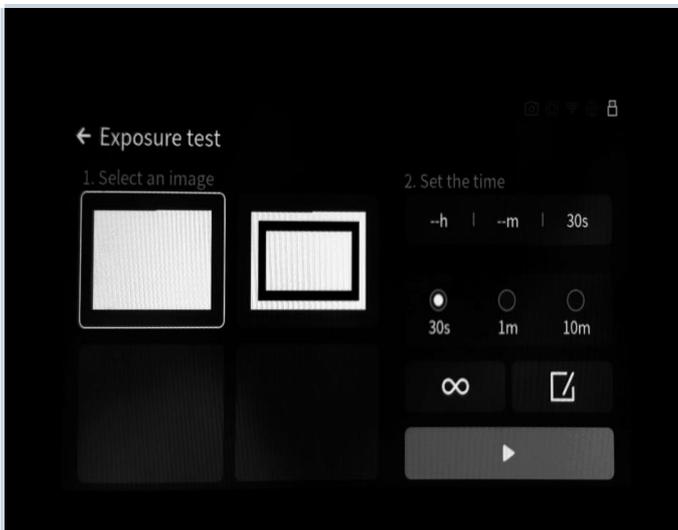
FIG 6. USB INSERTION

■ **Select the model file to be printed on the printer touch screen and enter the detail page.**

- The U disk file can be copied to internal storage, and the next printing can be initiated directly on the device.

- Select the files that need to be printed, and then click "Confirm Print".

- Print completed and lifted to the top: After the printing is finished, the printing platform automatically rises to the top of the Z-axis.

OPERATION INTERFACE REFERENCE
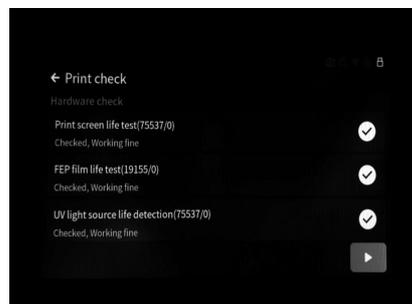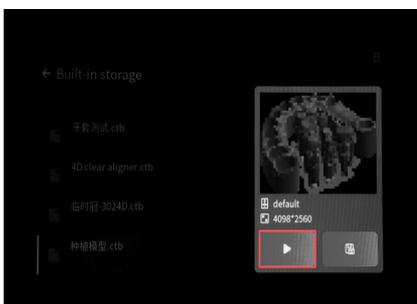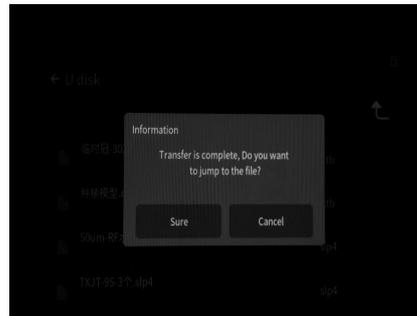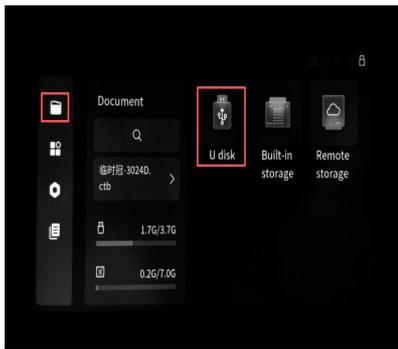
■ **Intelligent Monitoring:** Before printing, printer will conduct an intelligent monitoring to ensure that the printing process can proceed normally. If any error situation are detected during the monitoring process, the machine will automatically report an error, please handle it according to the tips.

1. After the printing is completed, wait until the remaining resin on the platform no longer drips. Then remove the platform. Next, use a metal spatula to remove the model and rinse the residual liquid resin on the model surface with 95% alcohol (or other cleaning agents). After cleaning and drying, perform other post-processing steps such as post-curing on the model.

2. When there is some solidified resin in the material box, plastic shovels can be used to clean the material box. Failure to clean in time will affect the subsequent printing process and may even cause damage to the release film and the exposure screen.

3. Remove the material box, pour out the remaining resin from the inclined opening of the box, and filter the resin using a filter screen and funnel. The funnel model file is provided in the complimentary USB drive. If needed, you can print and use it.

CLEANING & FILTERING REFERENCE
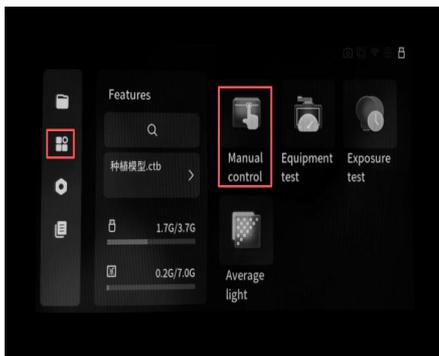
If the machine is not used for a long time, thoroughly clean the material box and store the resin in a light-proof and sealed container to prevent any deterioration that could affect its next use.

If the stored resin has not been used for a long time, it is necessary to shake it for 2]3 minutes before the next use to prevent the precipitation of pigments and other organic substances, which may affect the printing results.

Machine Maintenance

MATERIAL BOX MAINTENANCE

- Remove the resin remaining on the release film: Use the tray cleaning function. For the final step, use a plastic spatula to scrape off the solidified resin layer by layer; do not use sharp objects.

- Replace the release film: Users can view the cumulative number of printing layers on the device's self-check interface and replace the release film in a timely manner.

- If not used within 48 hours, please filter the resin and store it in a light-proof and sealed container.

- If resin gets on the tray, please wipe it clean immediately.

CLEANING & REPLACEMENT GUIDE
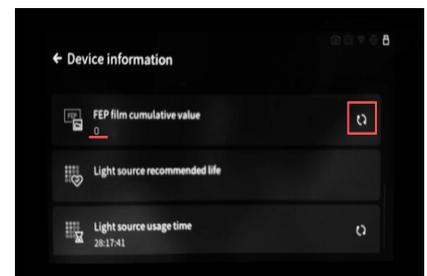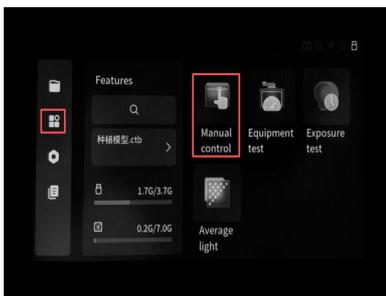
Z-AXIS MAINTENANCE

If there is a frictional noise during the Z-axis operation, please apply an appropriate amount of lubricating grease to the Z-axis screw rod.

Firmware upgrade

- Local upgrade

  Download the latest firmware from the official website and copy it to the USB drive. Be sure to delete any previous versions of the firmware on the USB drive. Then insert the USB drive into the printer and complete the upgrade.

Machine cleaning

- Clean the printing platform

  Wipe it clean directly with a tissue or clean it with alcohol.

- Protect the hardened surface

  If there is any resin adhering to the scratch-resistant film, please replace the scratch-resistant film immediately.

- Clean the body

  Wipe it clean with alcohol.

Complete the initial problem investigation by referring to the following solutions, or contact the after-sales support for additional assistance.

PRINTING

1. Model does not stick to the platform

- The exposure time at the bottom is insufficient. Please increase the exposure time.
- The contact area between the model's bottom and the platform is small. A bottom valve needs to be added.

2. Model fracture of the layer

- The machine shakes during the printing process.
- The release film becomes loose after long-term use and needs to be replaced.
- The printing platform or the material box is not tightened.
- The lifting speed is too fast.
- The shell model has not been drilled.

3. The model has layering patterns and deformations

- Check if there is insufficient support.
- Reduce the lifting speed.

4. There are tufts of something resembling kelp attached to the tray or the model

- Excessive exposure has occurred. Therefore, the exposure time at the bottom and the normal exposure time need to be reduced.

NETWORK CONNECTION

1. WLAN connection failed

- The WLAN name or password is incorrect. Reset the network and try reconnecting.
- The WLAN signal is poor or there is no network. Ensure that the current network environment is normal, then reset the network and reconnect.

2. Cannot add printer

- Check "Server Location". For the Chinese mainland region, please select "China"; for other countries and regions, select "Global".

PROCESSING OF ELECTRONIC COMPONENTS

This sign indicates that this equipment must not be disposed of together with household garbage. When the equipment reaches the end of its lifespan, please handle it in accordance with local environmental protection regulations. It can be recycled at the electrical and electronic waste recycling points. By properly disposing of the equipment, the improper handling of electronic waste can be avoided, which would cause harm to the environment and health. Recycling also helps to protect natural resources. Do not discard this product together with unclassified household garbage.

Thank you for choosing RayForm products!

We offer a maximum one-year warranty for the products (and accessories). If you encounter any problems, please log in to the RayForm official website (https://www.rayformtech.com/) to inquire about solutions or contact the corresponding store customer service. Our professional after-sales technical team will be dedicated to serving you.