UnionTech 联泰
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Uone

3D Printer

User Manual

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1 Basic Information of the Manual

1.1 Importance of this Manual

This Manual briefly describes the working principles and design features of Uone 3D printer (hereinafter referred to as "Uone" or "printer"), introduces in detail the operation procedure and maintenance methods of the printer, and provides safety information and troubleshooting instructions during use. In addition, this Manual also specifies the operation and use of the data preparation software Polydevs and the control software DSCON, the part building process, and part postprocessing methods, etc.

The user must carefully refer to this Manual at the operation and daily maintenance of the printer. In case of building failure or printer damage caused by failure to follow the instructions of this Manual for operation and maintenance, the user shall be solely responsible for the consequences thus incurred, and Shanghai Union Technology Corporation (hereinafter referred to as "UnionTech") and designated agents will not be responsible for such consequences.

UnionTech hereby declares that, all the information provided in this Manual is correct at the time of printing, and the information may be modified due to improvements in performance and quality of the product without prior notice.

As an accessory of the printer, please ensure the integrity of this Manual, and it's prohibited to alter or delete any content of this Manual over its lifetime. In addition, the content of this Manual is strictly confidential; without written authorization of Union Technology, all or part of this Manual cannot be given, leased or copied to others, or else UnionTech will investigate legal responsibilities of relevant disseminators.

1.2 Technical terms in this Manual and descriptions

- **DLP technology**

DLP (Digital Light Processing) is also called digital light processing technology, which is a multidisciplinary integrated technology involving mechanics, optics, photochemistry, software, and electrics, etc. Based on the principle of photopolymerization that photosensitive resin hardens when exposed to UV light, UV light controlled by computer is projected layer by layer to

solidify photosensitive resin in the resin tank, each layer of cured section is obtained through slicing by data preparation software, and finally the physical building part is obtained through accumulation layer by layer.

- **Post curing process**

Post curing process means the "re-curing" process after building of part; the post curing box projects narrow-spectrum light of a certain waveband to continue to fully irradiate and cure the part that is printed, washed and dried, so as to complete polymerization reaction of resin on the surface of the part, and improve the structural stability and final mechanical strength of the part.

- **Polydevs software**

Polydevs software is data preparation software for building model data, which is customized by UnionTech for Uone printers, with such main functions as model facet identification, adaptive slicing, supporting automatic adding, supporting editing, and slicing processing, as well as making of subsequent build plan and projection strategy, and only preprocessed *.utk data files can be imported into the printer for printing.

- **DSCON software**

DSCON software is printer operating control software independently developed by UnionTech for Uone printer, which controls the operation and building process of the printer through computer control system, and it boasts such main functions as control of printer devices, file identification and transfer, motion control, LED calibration, failure alarm and elimination, and so on, with strong user-friendly interaction performance.

- **.stl file**

*.stl file is a file format used to express triangular net in the computer graphic application system, which is a standard file type the most used in rapid prototyping system; it can be obtained through scanner or CAD modeling, and it is the most commonly used file format imported to data preparation software.

- **.cli file**

*.cli file is the file format of *. stl file imported to data preparation software and processed by the software.

➢ **.utk file**

.utk file is a building file format exclusively used for the series printers, which is data file processed by and exported from Polydevs data preparation software; it includes all model data, material printing parameters and building information, and can be directly imported into the printer for printing.

1.3 Description of important marking information in this Manual

Annotation mark: It is used to indicate important annotated information in this Manual, and the information contributes to better operation of the printer.

Attention mark: It is used to indicate operation items to which attention should be paid in this Manual, and the information prompts operators to carefully operate relevant work steps, or else it may cause corresponding danger.

Warning mark: It is used to indicate operation items to which attention must be paid in this Manual, and the information must be executed strictly to prevent damage to the printer and personal injury.

Electric shock mark: It is used to indicate the information of warning electric shock in this Manual, and the information must be executed strictly to prevent personal injury caused by electric shock.

Protective glove mark: It is used to indicate the information that protective gloves must be worn in this Manual, and the information must be executed strictly to prevent personal injury caused by allergy to materials.

Goggle mark: It is used to indicate the information that goggles must be worn in this Manual, and the information must be executed strictly to prevent personal injury caused by direct projection of light from projector into eyes.

Operator mark: It is used to indicate the information restricted to operators in this Manual, and the information must be executed strictly to

prevent damage to the printer and personnel caused by unauthorized operation by unspecified operators.

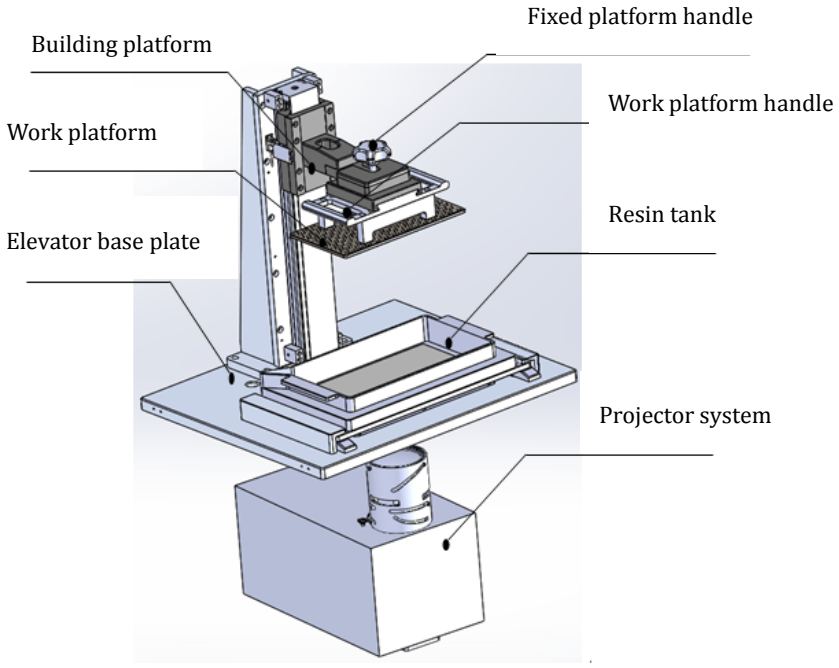
2. Introduction to Uone Printer

2.1 Printer structure description

2.1.1 Brief introduction to modules/components

Uone Printer is mainly composed of the following components: resin tank, projector system, elevator system including the building platform, touch screen, electric system, etc. The resin tank used to hold liquid resin is installed above the projector system; the projection of projector system is controlled by the master controller to solidify the bottom resin to complete single-layer building, and the layer-by-layer printing is realized through lifting of building platform so as to build the whole three-dimensional entity. In the whole building process, the mechanical structure serves as the main actuator to complete lifting of building platform and the peeling between resin tank and work platform (hereinafter referred to as "platform"), and the electric system is used to control the printer and the part building process.

If the user has confirmed the printer and all accessories are intact, please install the printer by itself or with the after-sales service personnel designated by the agent in accordance with the requirements for transportation, storage and installation of the printer by reference to Chapter 3.

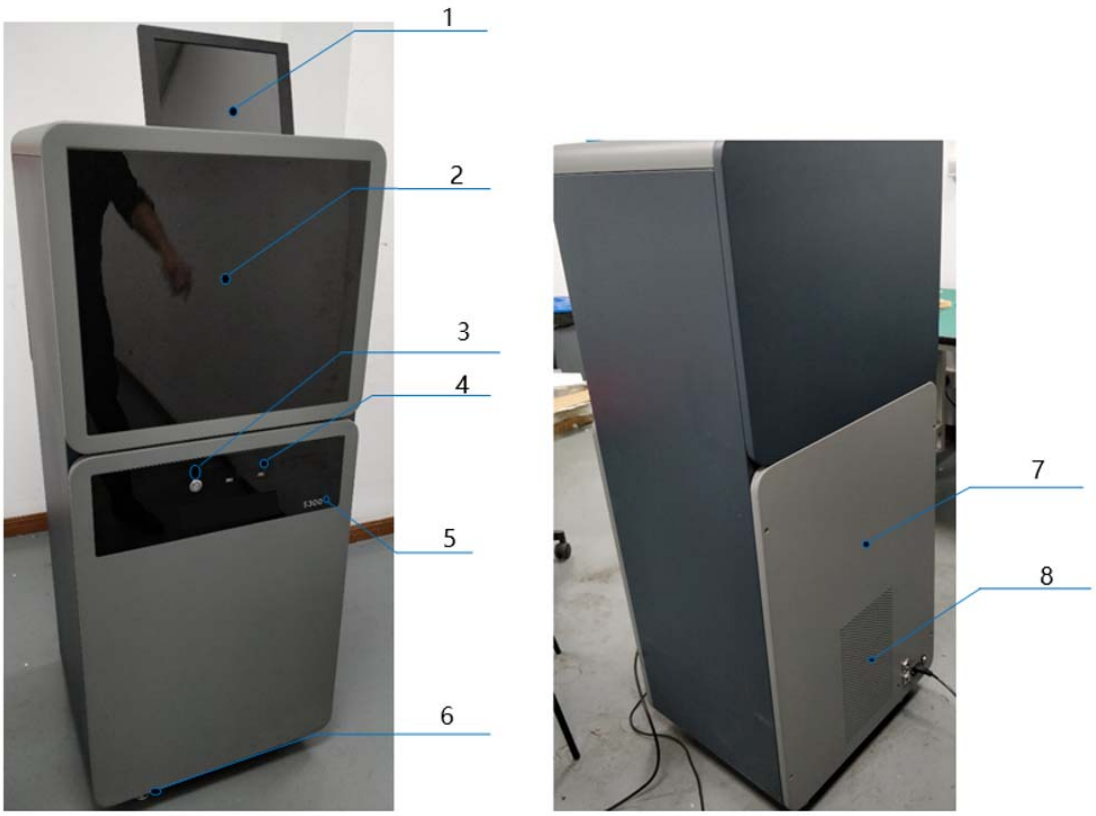


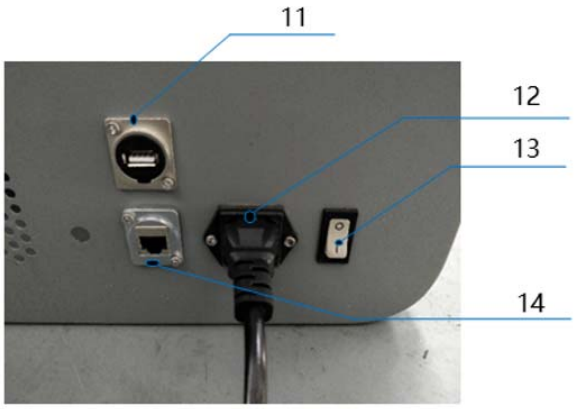
It's recommended that the user should install the printer by itself according to the instruction book or under the remote or field guidance of after-sales service personnel to prevent damage to the printer due to misoperation.

It's strictly prohibited to disassemble printer parts at will without the guidance of the UnionTech's engineer, or else the user shall be responsible for any consequences arising therefrom.

2.1.2 Panel and operating buttons

The front and rear views of the printer are as shown below (the actual specifications are subject to the physical product):





1) 10.1" capacitive touch screen: Display the status of printer and set print parameters to facilitate man-machine interaction;

2) UV light shield: Isolate external disturbing UV light and prevent damage to human eyes caused by direct projection of UV light from projector;

3) Start button and status light: Start and stop the printer and display the ON/OFF status of printer;

4) USB 2.0 interface: Insert U-disk for import of building file;

5) Uone: Printer model;

6) Adjusting foot margin: Support the printer and adjust the height and levelness of printer;

7) The back door of the printer: It can open and maintain the internal circuit, etc.

8) Heat dissipation window: The main heat exchange channel between inside and outside of printer, used to enhance heat dissipation effect;

9) Top shielding window: Isolate the building space from external environment, and prevent parasitic light and dust from entering shielding window;

10) Concealed shielding window handle: Open and close the shielding window of printer;

11) External WiFi antenna jack: It is used to connect an external WiFi antenna to enhance wireless network connection signal of the machine;

12) Single-phase three-wire power cord socket: Insert the power cord to connect with power supply of printer;
13) Power switch: Control the power on/off state of printer ("I" indicates on, "O" indicates off);
14) Network cable socket: Insert network cable to connect with the data preparation computer;

It's strictly prohibited to cover any operating button and mark on the panel of printer to avoid accidents.

It's strictly prohibited to block the heat dissipation window on the back of printer to prevent failure and damage of printer due to poor heat dissipation.

It's strictly prohibited to turn on the power switch of printer before all lines are connected to prevent electric shock.

2.1.3 Safety protection structures

To ensure safe and stable operation of printer, the complete machine is provided with several safety protection structures to prevent damage to the printer and personal injury caused by man-made misoperation and sudden failure.

①Protect glass: Prevent damage to projector lens caused by resin dripping due to breakage of resin tank; the protect glass can be removed by loosening the two clamping screws for clearing of dust on the back of glass;

②Starting switch: The master controller and the projector are powered off after the switch is pressed for 2s;

③Top shielding window: Isolate external UV light, prevent damage to human eyes caused by direct projection of internal UV light, and prevent dust;

④ Power switch: The whole printer is powered off and stops running immediately after the switch is turned off.

It's strictly prohibited to cover safety protection switches or buttons, and the effectiveness of switches and buttons must be tested before formal operation of printer.

It's strictly prohibited to change the position and functioning mechanism of safety protection switches without permission, or else the user shall bear all possible consequences such as damage to the printer and personal injury. After safety protection switches and buttons are pressed down, it must be ensured that all switches are reset before the printer is powered on again.

2.2 Parameters of Uone Printer

Item indexes	Technical parameters
Building size (W×L×H)*	192×108×200mm
Pixel accuracy	50 μm
Projector resolution	3840×2160
Light source type	405nm UV LED
Print layer thickness	0.05 mm
Preprocessing file import format	*.stl, .obj, .off, .ply
Print file import format	*.utk
Data transfer interface	U-disk/Ethernet
Data preparation software	Polydevs ,BPC
Electric parameters	220-240 VAC, 50/60 Hz, 800W
Printer size (W×L×H)	600×510×1450 mm
Preferential ambient temperature	22-26 ℃
Preferential ambient humidity	＜40%
Net weight	122kg

* Building size may vary slightly depending on different equipment.

It's recommended to maintain stable temperature and humidity in the building room to prevent part building failure due to deterioration of resin.

It's strictly prohibited to install vibration sources in the building room, and it's recommended to keep enough distance between the printer and vibration sources (it should be ensured that no slight oscillation occurs on the liquid surface at printing) so as not to cause interference with the printing process.

2.3 List of Uone printer accessories

No.	Name	Specifications	Function	Quantity
1	Uone	600*510*1450	Print dental parts	1 unit

2	Adjusting filler gauge	0.1mm	Check the distance between platform and resin tank	1Pcs
3	Postprocessing	93305	Remove sundries in the resin	1 Pcs
4	Postprocessing scraper	42#	Scrape away residual resin in the resin tank	1 Pcs
5	Postprocessing flat knife	Edge width 15mm	Shovel part from platform	1 Pcs
6	Postprocessing flat knife	D25PJ-W01	Shovel part from platform	1Pcs
7	Postprocessing diagonal pliers	CN-130HGS	Clear away redundant part of building part	1 Pcs
8	internal hexagonal wrench	1.5/2.5/3/4/5#		1Unit
9	Gloves	92-600, 50 pairs/box	Wear at printing and	1 box
10	Postprocessing alcohol sprinkling can	250ml	Fine cleaning of part surface details	1 Pcs
11	Filter mesh	200-mes	Filter resin	1 Pcs
12	Power cord	3-core	Connect device power supply	1 Pcs
13	U-disk	16GB	Copy data	1 Pcs
14	Network Cable	3m, RJ45 connector, NW102-2016		1 Pcs
15	Fuse	Φ5×20 4A		1 pcs
16	Spritlevels	Φ40X10	Indicates levelness of equip ment	1Pcs
17	Replaceable film frame	DLP_192X108	Replace the printing flim	5 set
18	Stripping film	250*460mm		5 Pcs

19	Frosting film	245x155mm		5 Pcs
20	Plate Glass	D27GZ-W04	Adjust the level of the printing plate	1 Pcs
21	User manual	N/A	Guidance on operation and maintenance of equipment	1 set
22	Resin tank	N/A	Contain building resin	1 Pcs
	The actual items are subject to the delivery list			

Please carefully check tools and other accessories after unboxing, and in case of missing or damage of accessories, please timely contact the equipment agent and logistics department.

The attached resin is only for debugging of printer, and the user may contact the equipment agent for purchase of other resin if necessary.

In case of damage to tools or electric accessories, the user must refer to the specifications of original items when replacing them by itself to prevent damage to the printer and operating personnel due to incompatibility or other reasons.

It is strictly forbidden for users to make resin tank without permission or purchase it through a third party company. If equipment damage and personnel injury are caused due to improper adaptation, the corresponding consequences shall be borne by users themselves.

3 Transportation, Storage and Installation of Printer

3.1 Printer packaging information

3.1.1 External packaging information

Packaging information is printed around packing box, which mainly indicates warning signs related to packaging, transportation and storage.

It's recommended to keep packing box properly after unboxing for later

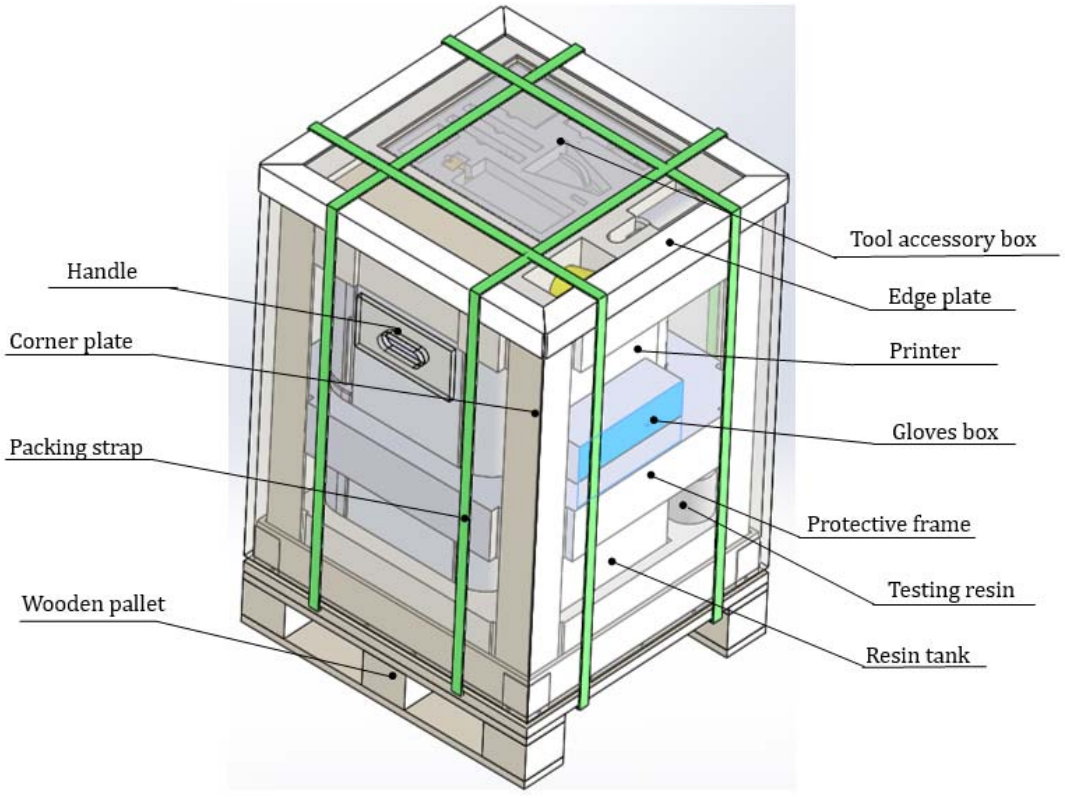
storage of printer or packing of printer for whole machine repair.

Please read carefully packaging information and adopt suitable means of transportation, and strictly follow the warning signs on the packing box during transportation and storage.

The user should carefully check the vibration and inversion prevention indicators attached on the packing box, and in case of red warning given by the indicators, please contact the equipment agent and logistics department immediately.

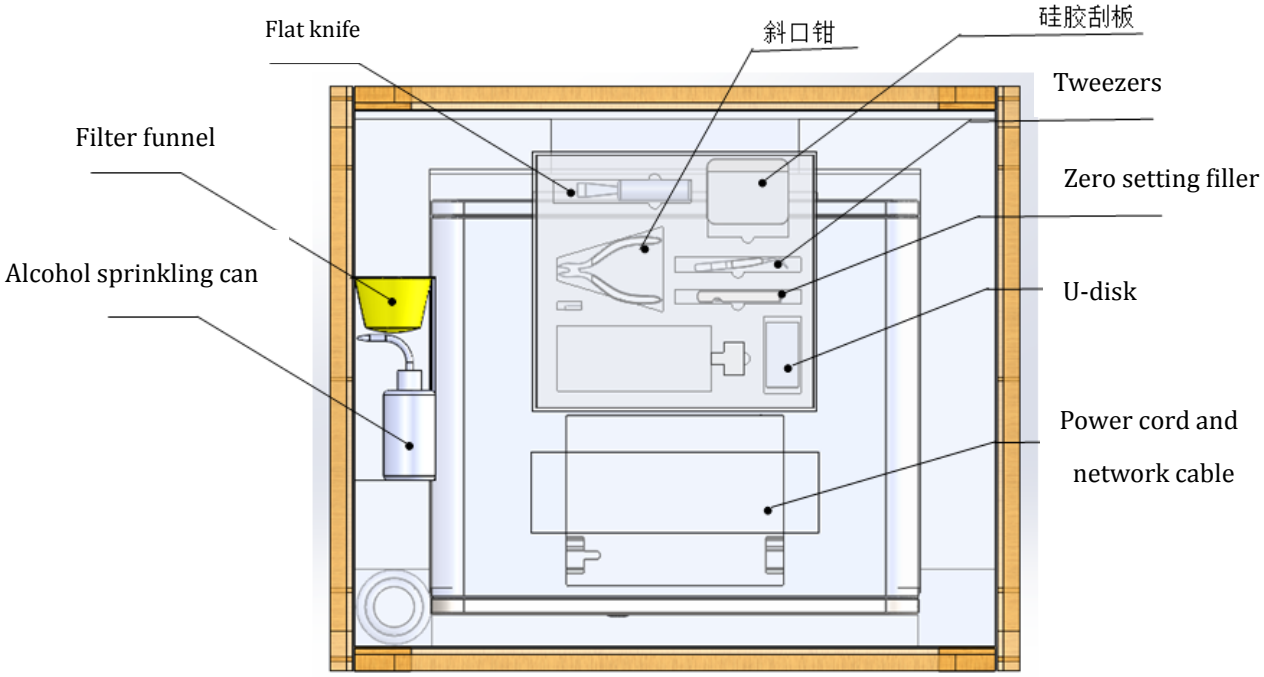
3.1.2 Packaging of complete machine and accessories

The machine is transported integrally, so it needn't be taken apart before transportation, and the whole machine is packaged with wooden or other packing case. The machine is fixed with batten and foam board or otherwise in the packing case to prevent its movement during transportation. The machine in wooden case is wrapped with wrapping film to prevent scratching of machine casing due to friction during transportation.



The articles inside packing case are as follows:

Diagonal pliers Silicone scraper

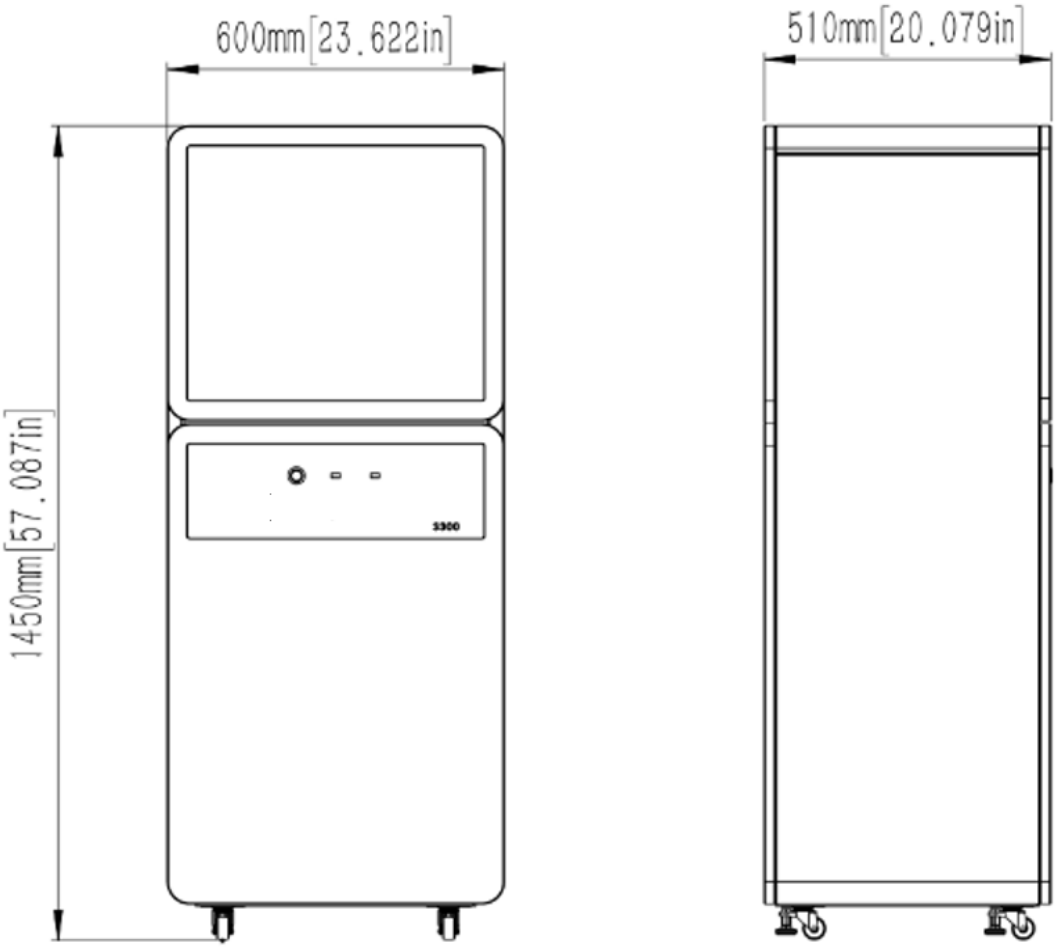


The accessories attached to the printer are placed in two packing boxes, in which the tool accessory box mainly contains printer power detection head, postprocessing tools, power cord and other spares of vulnerable parts, and the resin tank box mainly contains resin tank and resin tank cover, and the attached testing resin is packed with the printer as a whole; see the list of accessories in Section 2.3 for details.

Please carefully check tools and other accessories after unboxing, and in case of missing or damage of accessories, please timely contact the equipment agent and logistics department.

3.2 Transportation and storage of printer

3.2.1 Equipment size



Dimensions of Uone (mm）

3.2.2 Transportation of printer

In case of steps or other obstacles on the road, proper measures should be taken, e.g. using such transportation tools as forklift or pallet jack. Forklift or pallet jack should be considered for transportation on level road, or directly lift the foot margins of equipment and handle the equipment with its casters.

Attention

When using forklift or pallet jack for transportation, be sure to support the middle part of the machine with forklift or pallet jack to avoid tilt of machine when it's lifted; when pushing the machine, be sure to pull from the front and push from the back, and support but not push the machine hard at both sides so as not to push the machine over; lay the machine down slowly so as not to impact the ground at fast speed and thus cause damage to internal precise in struments

and parts due to vibration;

During transportation, support the machine at two sides but not push it hard, and try not to stand at two sides in case the machine topples over and hurt people;

The printer must be kept away from heat source, water source and vibration source during transportation to prevent accidental damage of printer.

The printer must be transported prudently to prevent accidental damage of printer due to collision or falling.

Equipment transportation and installation personnel.

3.2.3 Storage of printer

The printer may be directly installed or stored at designated place after arrival at the customer's site, and please pay attention to the following matters during storage:

- To avoid damage to precision components due to direct exposure of printer to external environment, it's recommended to keep the original packaging intact during storage.
- To avoid structural damage to the printer, it's strictly prohibited to place the printer upside down or in stacks, and suitable storage distance shall be kept from other printers.
- To avoid damage to precision instruments of the printer, it must be kept away from heat source, water source and vibration source.
- To ensure normal service of the printer, it must be ensured the ambient temperature is 0~50℃ and the ambient humidity is no more than 75% during storage.

Equipment warehousing personnel.

3.3 Installation of printer

3.3.1 Environmental requirements for installation of printer

- To avoid part building failure or quality reduction caused by deterioration of resin, it's recommended to control the indoor ambient temperature at

22~26℃ and the ambient humidity no more than 40%;

- To avoid damage to precision components of the printer, the printer must be kept away from heat source and vibration source;
- To avoid reduction of part building quality or accuracy error, it's recommended the lighting system in the building room adopts yellow fluorescent lamp, and shade curtain should be used to avoid external illumination. In addition, the shielding window of printer shall be in normally-closed state, and the resin tank shall be covered completely to prevent direct exposure of building resin to external light;
- To avoid electric shock hazard to operators, it must be ensured the printer is earthed safely, and the printer should not share wiring board with large-current machines. Please prepare voltage stabilizer if the voltage is instable;
- To avoid quality problems in the part building process, it's strictly prohibited to place water and volatile solvents like alcohol in the building room.
- To avoid inhalation of diffused resin by operators, regular ventilation should be guaranteed in the building room. Meanwhile, it shall be avoided to keep the printer directly opposite to indoor air-conditioning to prevent damage to part;
- The user should prepare wiring board with the specifications given below (Different adapter standards for equipment are established in different countries or regions, e.g.: only 110V voltage is available in the U.S., and only 220V voltage is available in China):
-

Items	Specifications	Remarks
Voltage	110/220V	—
Frequency	50/60 Hz	
Power required	＞2500W	
Socket	Three-core socket	Three-core socket

3.3.2 Space requirements for installation of printer

- To ensure the required operating space, the printer shall be kept at least 62cm (2 feet) from the wall on the right and at least 31cm (1 feet) on the left. To ensure the requirements for heat dissipation or installation of cable plugs,

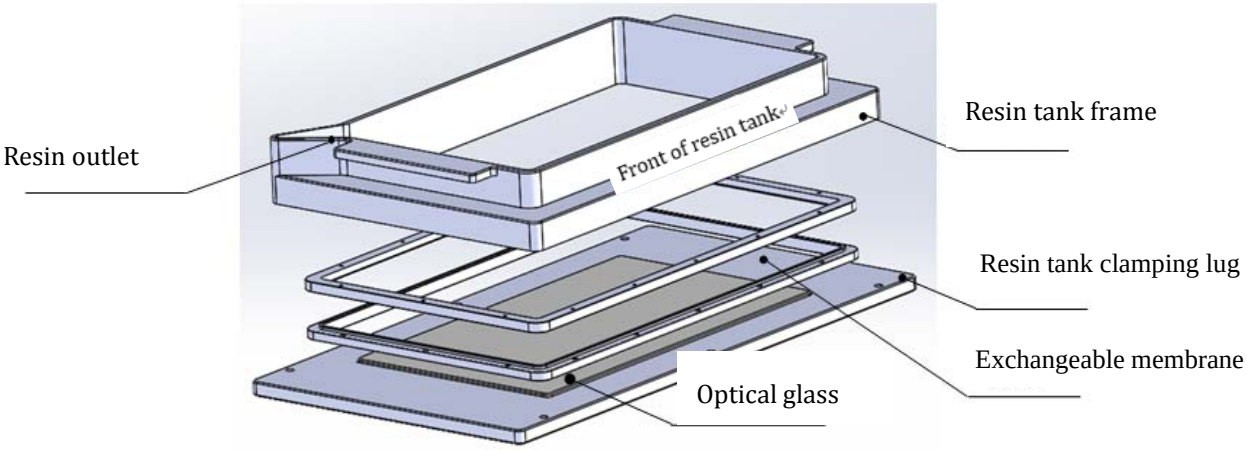
the printer shall be kept at least 46.5cm (1.5 feet) from the wall on the back;

- The printer installation platform must be stable, and it is strictly prohibited to install other vibration equipment on the platform;

3.3.4 Installation of printer resin tank

3.3.4.1 Structure and function of resin tank

The resin tank is used to hold resin; in the printing process, UV light projected by projector radiates and solidifies a certain layer thickness of photosensitive resin in the bottom of resin tank, and then the platform is peeled to complete single-layer building. The structure of resin tank is as shown below:



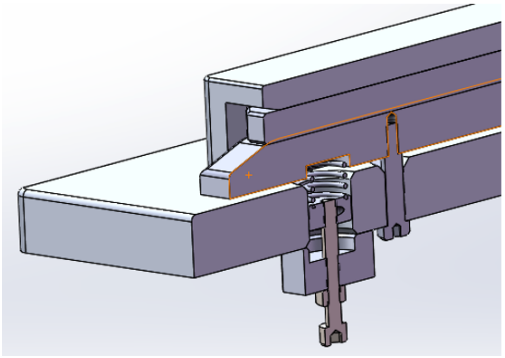
The resin tank of Uone printer is mainly composed of the following parts: Black frame, optical glass, and release layer. With good appearance, quality and performance, the resin tank is optional for customers, and it is easy to replace, with long service life. In addition, the user can also select resin tank cover separately (when the printer is not in use, cover the resin tank to protect resin in the tank from erosion of UV light and water vapor, etc.), and the resin tank cover is not included in the resin tank.

3.3.4.2 Initial installation of resin tank

Correct removal/installation of resin tank can guarantee building quality and prolong the service life of resin tank. Spots and scratches on the surface of resin tank may lead to vertical stripes and other defects on the surface of building part, and may cause part-falling off. Once the bottom surface of resin tank is scratched seriously, it must be replaced ahead of time, so it must be handled and operated with care during use.

Please refer to the following procedure for initial installation of resin tank:

1) Adjust the pressing structure of resin tank to ensure that the resin tank does not shake in printing after inserting;



2) Take out the resin tank from the resin tank accessory box, carefully check the bottom of resin tank for scratch, dirt or damage, and check the optical glass on the installation base for cleanliness;
3) If both the resin tank and the installation base have no problem, push the resin tank into the innermost end along guide slots (push the resin tank inside until it stops to ensure no gap inside guide slots), as shown below:

Protective gloves must be worn during operation.

During printing, it's strictly prohibited to use resin tank cover so as not to prevent the platform from descending, resulting in damage to the resin tank or printer.

At the installation of resin tank, it must be ensured that the whole resin tank is pushed in place along guide slots without gap in guide slots to avoid interference between resin tank frame and platform. In addition, cam handles must be tightened to ensure secure installation of resin tank.

When placing the resin tank on desk top or other places not inside the machine, a layer of clean soft paper must be put under the tank to prevent scratching of resin bottom during placement.

It's strictly prohibited to touch the bottom glass of resin tank with fingers to prevent oil contamination, affecting projection of projector.

It's strictly prohibited to contact sharp objects with the bottom surface of resin tank to prevent breakage of surface coating film.

Equipment operators.

3.3.5 Removal/installation of platform

As a plate to which the whole part adheres, the kinematic accuracy of platform in elevator direction directly determines the building accuracy of single layer and further determines the building quality of entire part. The installation accuracy of platform also has impact on part building, so the following operation procedure must be followed during removal/installation:

Removal:

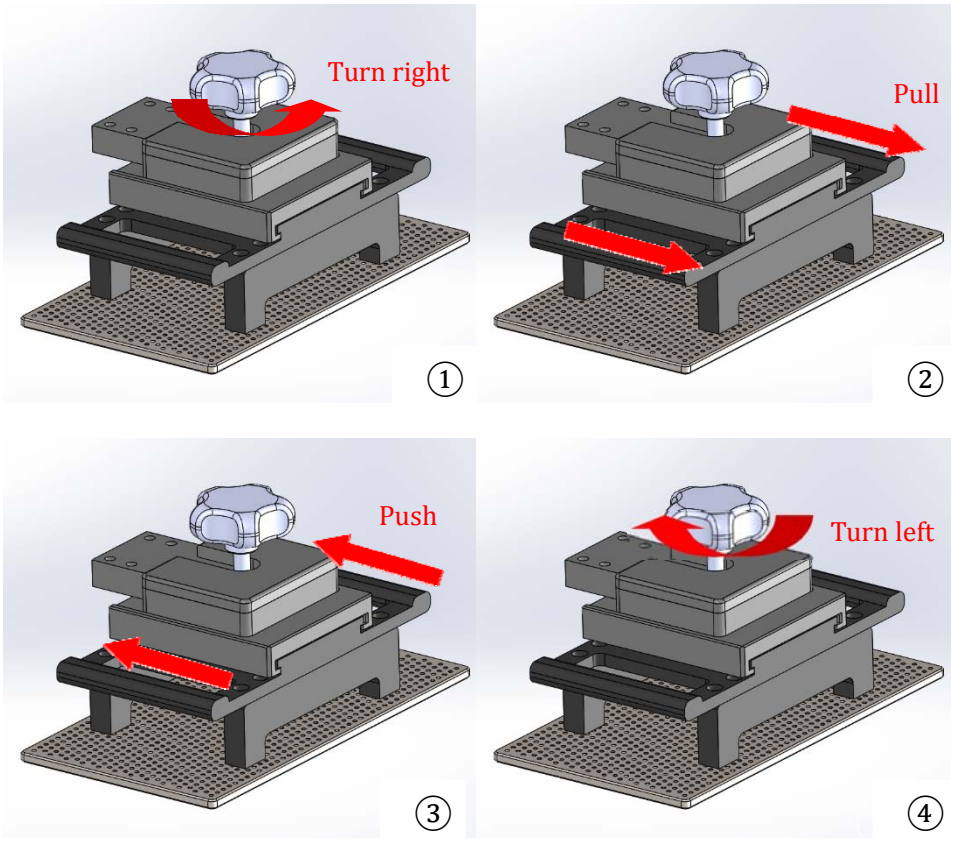
1) Unscrew the fastening knob of platform clockwise (from top to bottom);

2) Hold the left and right handle of platform tightly and slowly pull out the platform along guide slots;

Installation:

3) Hold the left and right handle of platform tightly and push the platform completely into the slot of building platform along guide slots;

4) Tighten up the fastening knob of platform anticlockwise to ensure stable position of platform.



Protective gloves must be worn during operation.

When fastening the platform, it must be ensured the whole platform is installed in place without any part hanging so as not to interfere with resin tank. In addition, the fastening knob must be tightened up to ensure firm installation of platform.

Please install the resin tank prior to platform to prevent resin on the platform from dripping onto the protective glass. Be sure to carefully check whether there is residual cured resin on the undersurface of platform before installation of platform each time to prevent crushing of resin tank and bottom protective glass when the platform descends, resulting in damage to the printer.

Equipment operators.

3.4 Printer hardware connection

Please place the printer on the designated installation table, and make sure installation conditions meet the requirements specified in Section 3.3.It must be ensured all cables are connected properly before debugging and operation of the printer, and the specific connection steps are as follows.

1) Please take out standard network cable from the accessories, and connect it to the cable sockets of the data preparation computer and the printer (This step is omitted if the user selects wireless network connection);
2) Make sure the power switch of printer is in off state ("O");
3) Insert the secondary plug of power cord in the power socket of printer, and insert the primary plug into a suitable wiring board with applicable specifications;

To ensure no power failure in the building process of printer, be sure to carefully check and ensure all plugs are inserted tightly before turning on the power switch.

Before all cables are connected in good condition, it's prohibited to turn on the power switch to prevent electric shock.

3.5 Startup & shutdown of printer

It's simple to start up and shut down the Uone printer, which is provided with relatively perfect protective measures.

3.5.1 Startup of printer

1) Confirm power cord and other cables are connected safely without such hidden troubles as looseness and outage;
2) Confirm all start switches and safety switches of the printer are reset

completely;

3) Confirm all power sources connected are grounded completely;

4) Turn on the power switch ("O" indicates power off, "I" indicates power on); the touch screen is energized;

5) Long press the power button below the touch screen for 2 seconds; the built-in computer and the projector are energized, and the white LED ring light on the button goes on ;

6) The printer is started up normally;

3.5.2 Shutdown of printer

1) Click the in the “Options” page of DSCON software to shut down the DSCON control software, display screen and the power button below the printer;

2) Besides the method given in Step 1), if a problem occurs to the hardware of system, a prompt box will pop up as shown above, and now the main controller and projector can be powered off by pressing the power button below the touch screen for 3 seconds; then the DSCON control software and the display screen shut down automatically, and the white LED ring light on the button goes off;

3) Turn off the power switch at the back of machine after completion of Step 1) or 2);

4) It's recommended to unplug power cord and other cables if the printer is not used for a long time.

Be sure to check the conditions of power cord and other cables before switching on the power, and timely replace broken or aged cables if any to prevent electric shock hazard.

Equipment operators.

3.6 Printer network connection

Uone printer connects to the network through network cable, and then realizes the transmission of *. UTK data file. When transferring *. UTK print files over the network, make sure that they are in the same LAN, and that the network connection status is normal and the network speed is stable.

4 Operation and Use of DSCON Control Software

4.1 Introduction to control software

Now the control software installed at the Uone printer is DSCON V4.0.2 of free-of-installation version, and the control software is DLP 3D printer control software developed and designed independently by UnionTech.

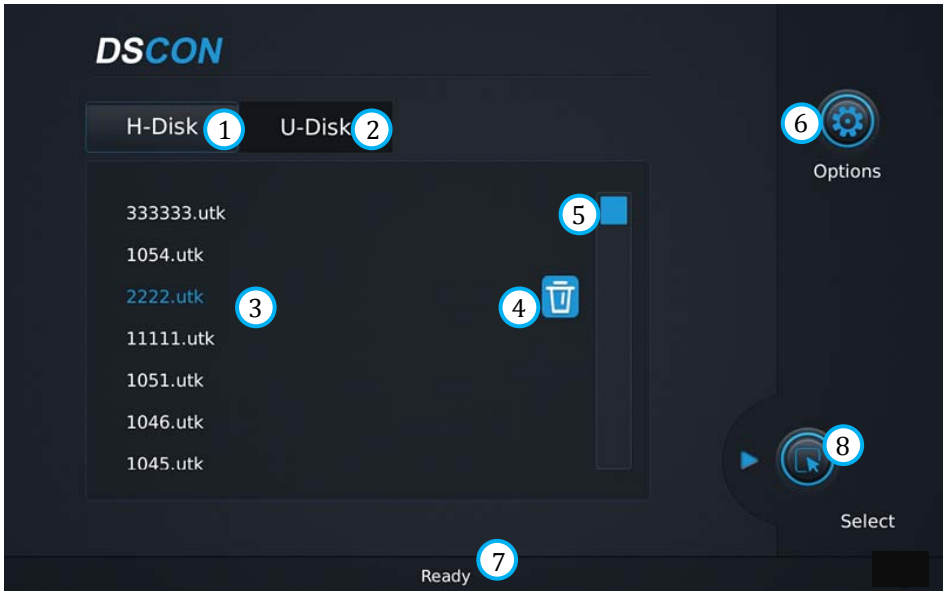
4.1.1 Startup interface

After you start the printer according to 3.5 Startup & shutdown of printer, 10.1" color touch screen will light up automatically, and you can operate the software with fingers after entering the print interface.

4.2 Introduction to the main interface of software

The main interface of DSCON V4.0.2 control software contains: file storage/reading area (H-disk or U-disk), print file information display area, function option module, printer network connection status, print file selection button, and printer status bar, etc.

The function option area mainly contains printer hardware control, daily maintenance of printer, failure message clearing, network, language, and home position setup of printer, engineer mode, printer motion and running status record, failure message record, DSCON software version, and contact information of equipment manufacturer, etc.



Functional icons or buttons in the main interface are introduced in detail below:

① **File H-disk storage area:** It displays *.utk files stored in the printer's H-disk; when you send *.utk files from data preparation computer to the printer via network cable or WiFi connection, these *.utk files will be automatically stored in the printer's H-disk; you can click and select a file and print it after confirmation;

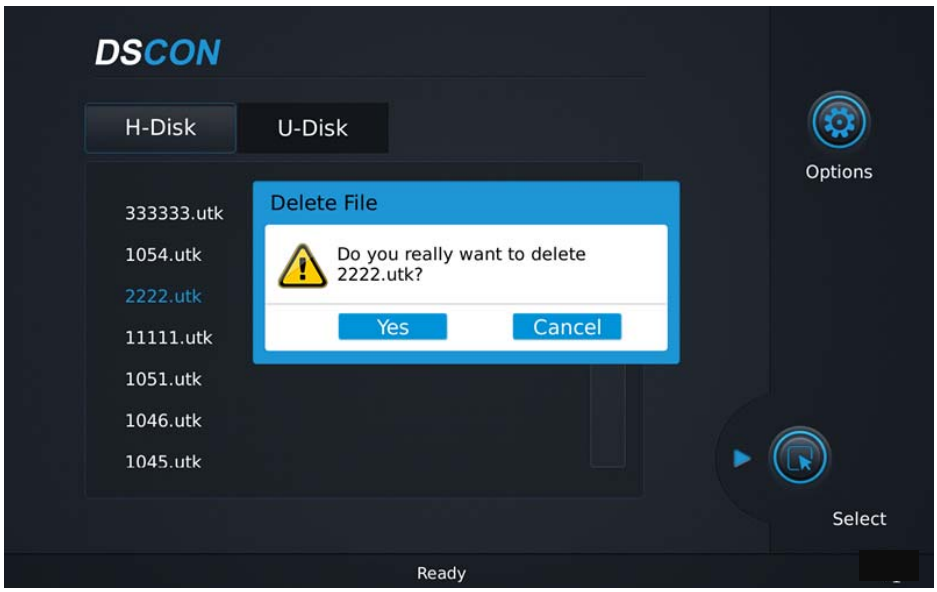
② **U-disk file importing area:** Select .utk files to be printed from a U-disk directory.

After a U-disk containing *.utk files is inserted in the USB interface below the display screen, the DSCON software will automatically search and load all the *.utk files stored in the U-disk. After you click and select a utk file and the print file information confirmation interface appears, the *.utk file has been automatically read into the printer's computer H-disk storage area. Now even if the U-disk is unplugged or the USB interface is of poor contact, the normal printing of printer is not affected;

③ **Printable file selection area:** Display printable files automatically scanned from H/U-disk;

④ **Manual deletion button:** In the "H-disk" tab of main page, after a file is selected, the "Delete" button appears on the right, and after the button is clicked, the selected file can be deleted by confirming deletion in the confirmation dialog box;

Auto deletion: The system allows the storage of 100 *.utk files at most in the H-disk, and the files are sorted in the unprinted-printed and reverse chronological order; when the number of files exceeds 100, the files on the foot will be deleted automatically; the H-disk file list only displays the first 50 files;



⑤ **Drag slider up/down:** Drag the slider up/down to view and select different files;

⑥ **Button of function option area:** Click the button to enter the following five function modules: Shutdown button, control, Setting, Info, and About Us. Section 5.4 (Introduction to function option module) explains these modules in detail;

⑦ **Printer status display area:** Display the current status of printer;

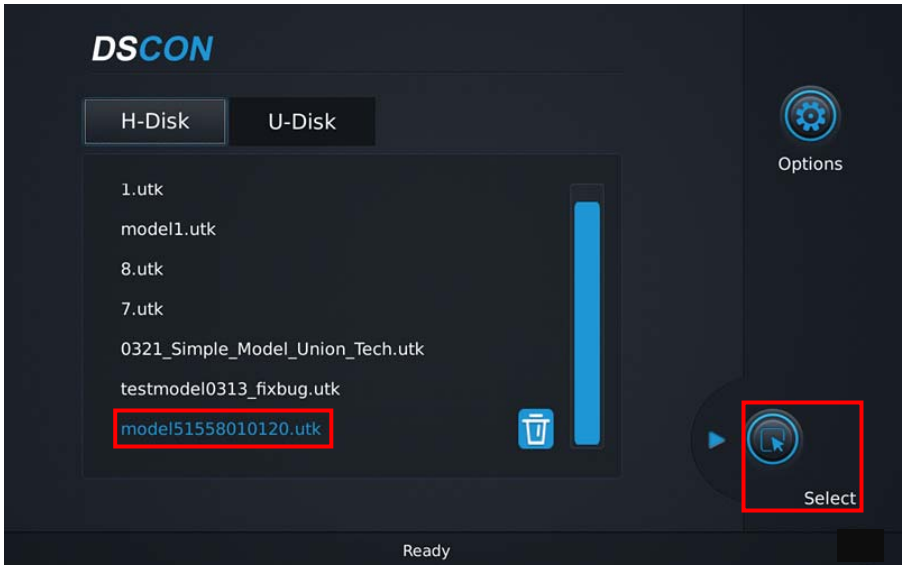
⑧ **File selection button:** Click it to select files from file dialog box and process data;

If files that are sent to the printer via network or other ways are not displayed in the H-disk area, please click the "U-Disk" button and then the "H-Disk" button, and then the imported files will be displayed, and vice versa.

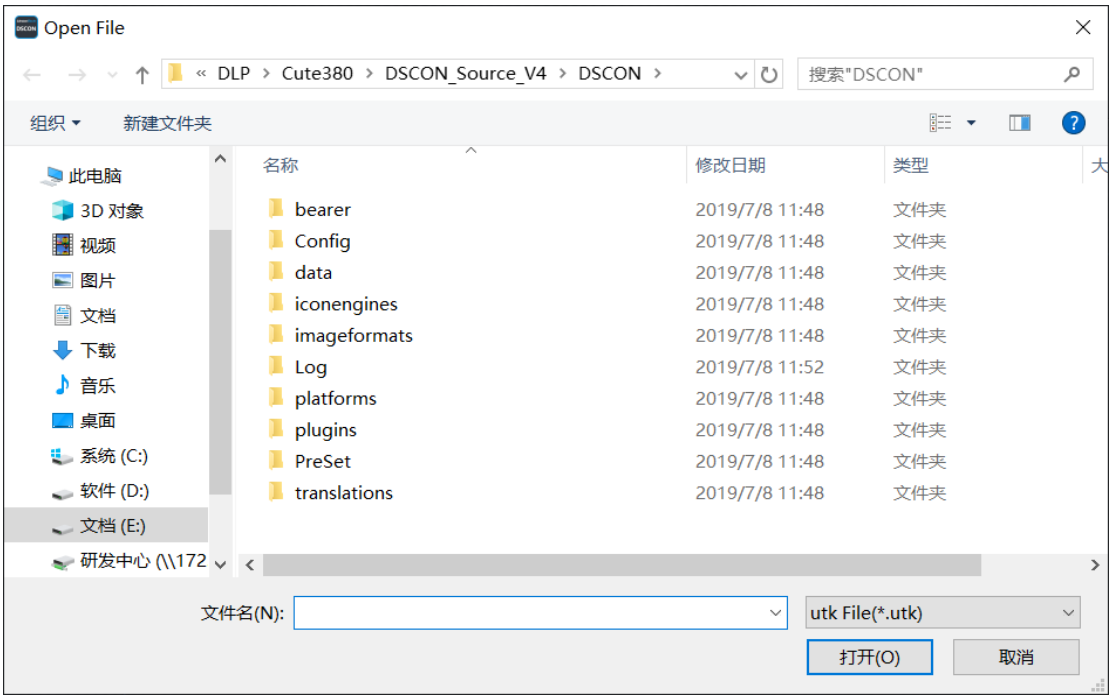
4.3 Introduction to the print interface of software

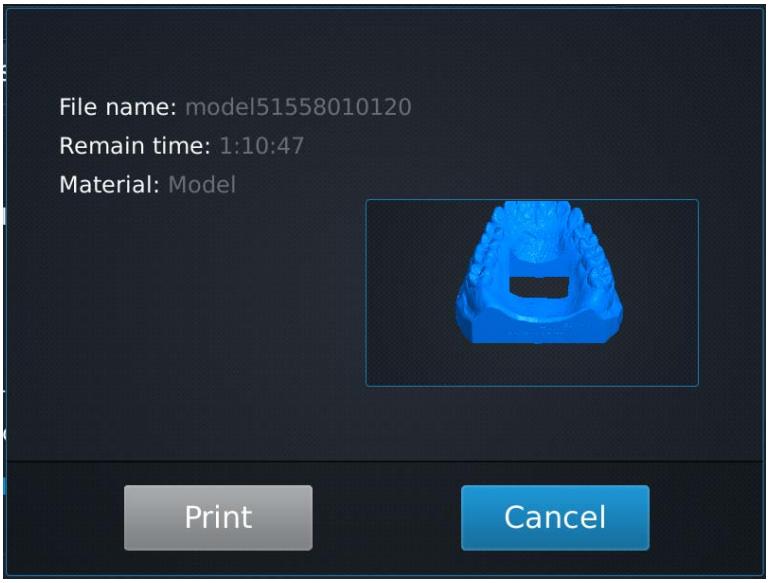
4.3.1 Select *.utk file to be printed

Open the desktop DSCON shortcut key and wait for the initialization to finish. Select the utk file to print under the hard disk H-Disk or the inserted U-Disk. （Note: The system only finds utk files within three levels of directories in the U-disk.）

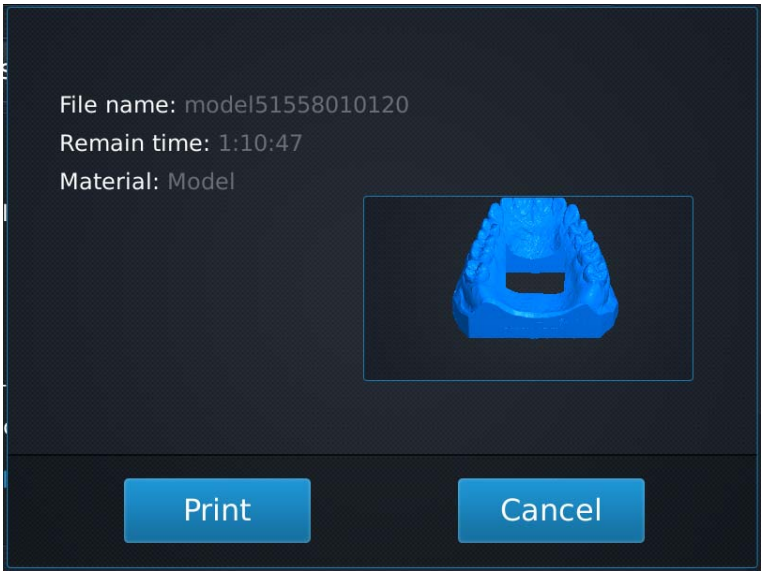


If a file in the list has been selected, click the Select button to pop up the preview. If no files in the list are selected, click on the "Select button", then the Select File dialog box pops up first, after selecting the files, then the preview map pops up.



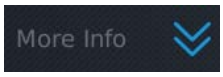


Waiting for the "print" button to turn grey to blue; if you click the "cancel" button at this time, you can cancel the printing task; the name of the print file, the estimated time required for printing, the material name and the model preview are displayed in this interface;

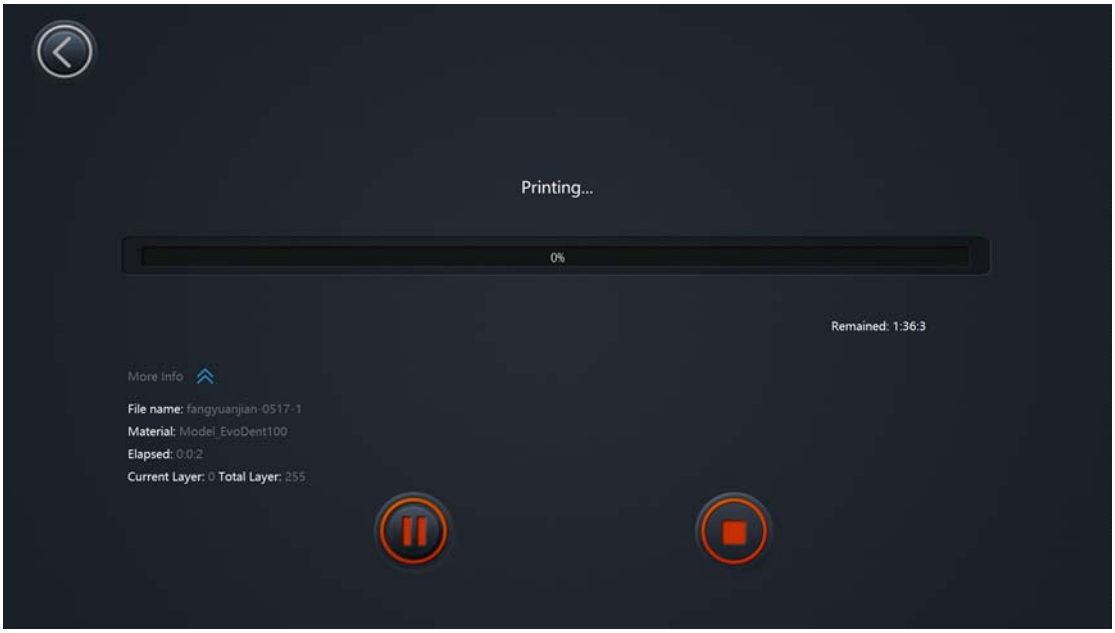


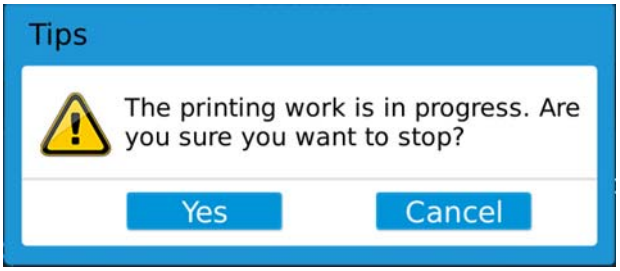
4.3.2 Print interface

After the "Print" button is clicked, the printer begins to print, and the print interface of DSCON software is as shown below:

More information can be viewed or closed by clicking the "More Info" text or icon 

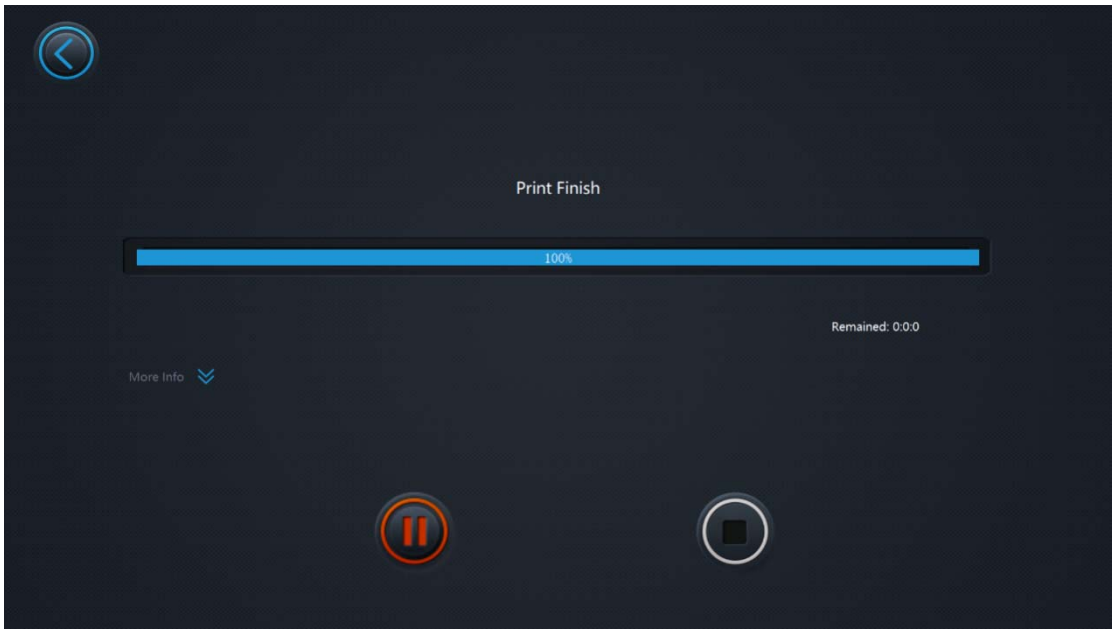
The "Stop" button can be clicked at any time during print, and the interface below appears to ask the user to confirm whether to stop print immediately. If clicking "Yes", the tray will move upward after the printing of current layer is completed. Clicking “Pause” button Pause printing after printing the current layer.





4.3.3 Print finish interface

After the printing finishes, the interface of DSCON software is as shown below; Click the "Back" button on the left upper corner to return to the main page.

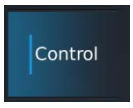


4.4 Introduction to function option module

Click the “Options” button on the upper right corner in the interface of DSCON control software to enter the function option module, as shown below:

The function option module includes: ① Return button (return to the previous page); ② Motion control and function (including motion control and function options) button; ③ Setting button (including printer name, Network connection, language, and restore default settings); ④ Minimization button (program minimized to an icon on the taskbar); ⑤Information button (including printer motion and running status record, and failure message record, etc.);⑥ Shutdown button;⑦About Us button (including software version and manufacturer's information).

4.4.1 Control interface

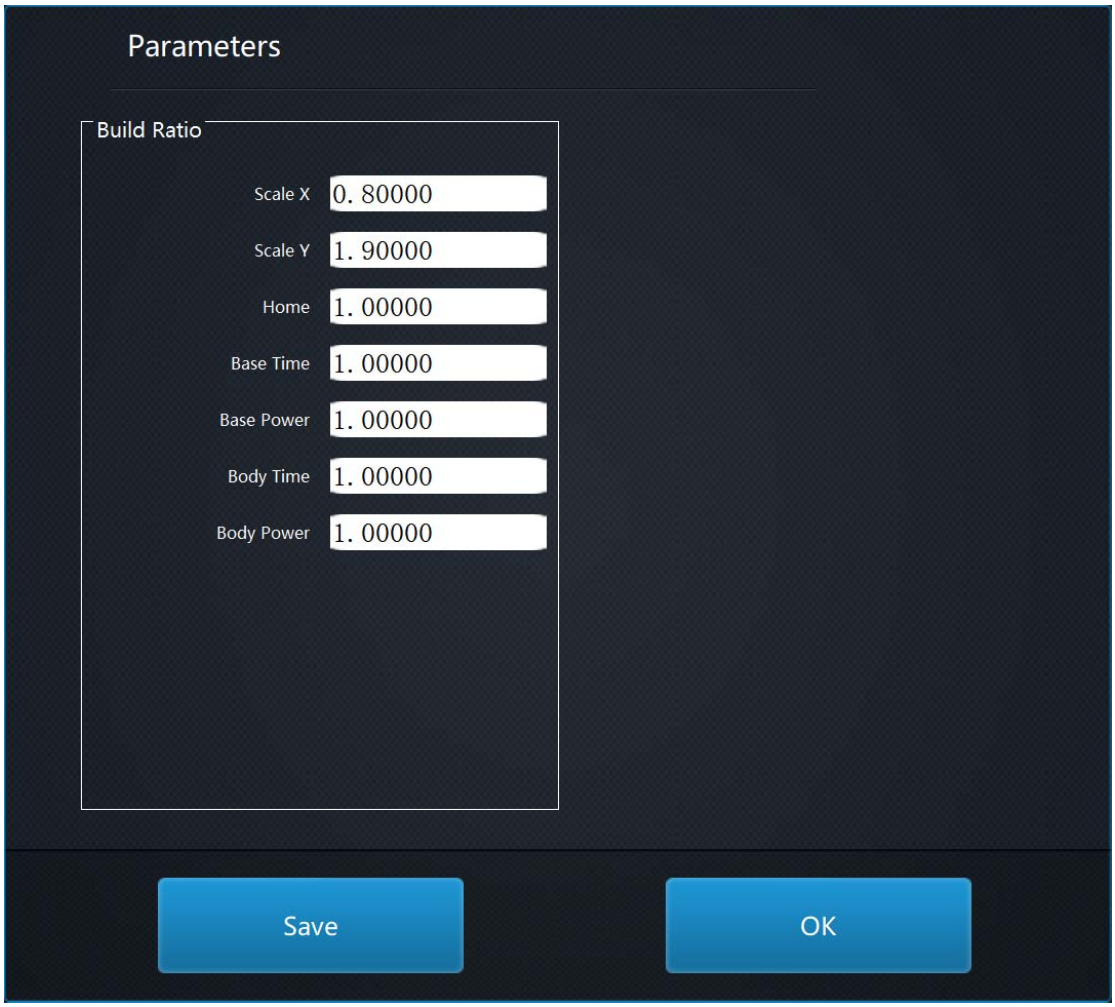
Click on the control button 

of the Options Page to enter the "Motion Control and Function Page". If the motor does not return to zero after power-on, the upward motion button will be grey (unavailable state), and turn blue (available) after one return to zero.

If there is no system communication port settings or wiring problems after power-on, all buttons except the "parameters" button are unavailable.

4.4.1.1 Parameters Setting

Clicking the “Parameters” button ; as shown below:



- Scale X/Scale Y: zoom the printed parts in the X/Y direction. The actual size of the printed parts is multiplied by the actual value at the time of printing.
- Home: When the plate returns to zero, the motor's return torque multiplied by this coefficient, and it can adjust the pressing distance of the plate.
- Base Time: When building parts, the exposure time of the base layer is multiplied by this coefficient.
- Base Power: When building parts, the exposure power of the base layer is multiplied by this coefficient.
- Body Time: When building parts, the exposure time of the body layer is multiplied by this coefficient.
- Body Power: When building parts, the exposure power of the body layer is multiplied by this coefficient.

  Notes: The value of the content of the input box takes effect after clicking the "Save" button. The "OK" button is only used to close the dialog box.

4.4.1.2 Home Pos

Click the "Home Pos" button , the pallet will first move up to the top and then down to the starting position of the work piece.

4.4.1.3 Top Pos

Click the "Home Pos" button , the pallet will move up to the top.

4.4.1.4 Stop Moving

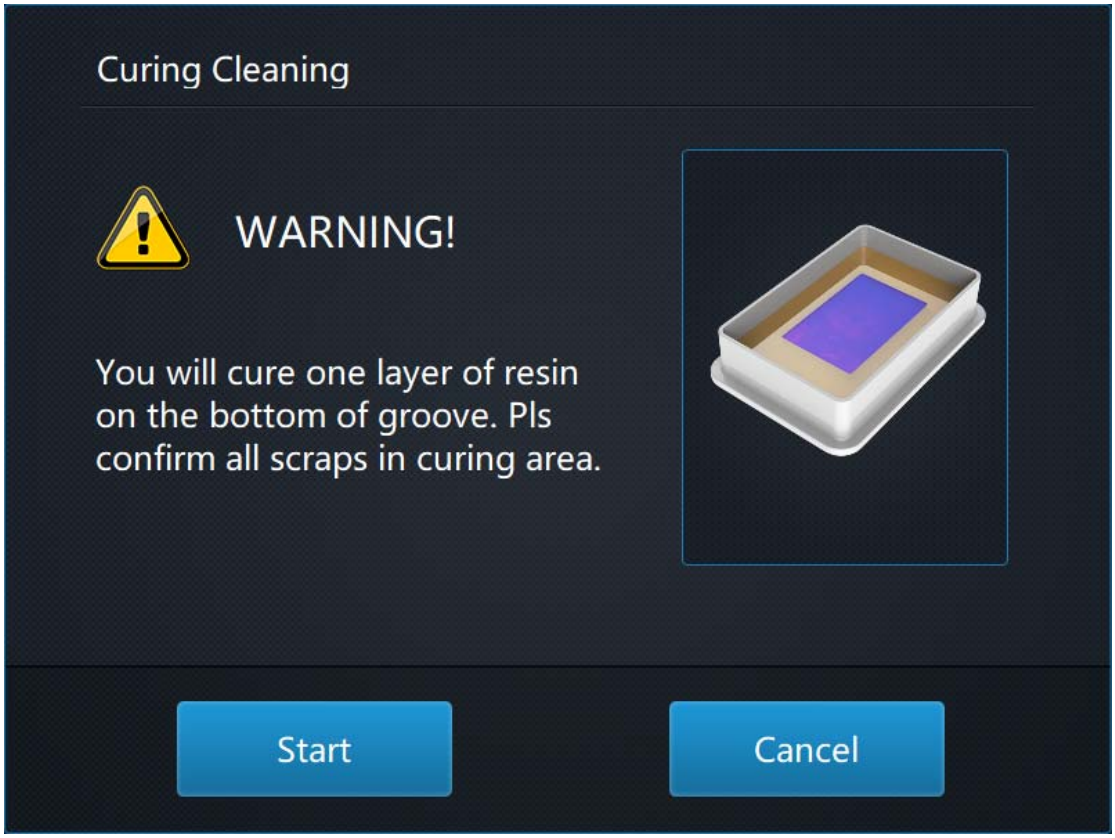
Click the "Stop Moving" button , all motors will stop the current movement.

4.4.1.5 Clear fault

Click on the "Clear fault" button to clear system fault, and if the platform is moving, it will stop moving.

4.4.1.6 Clean curing

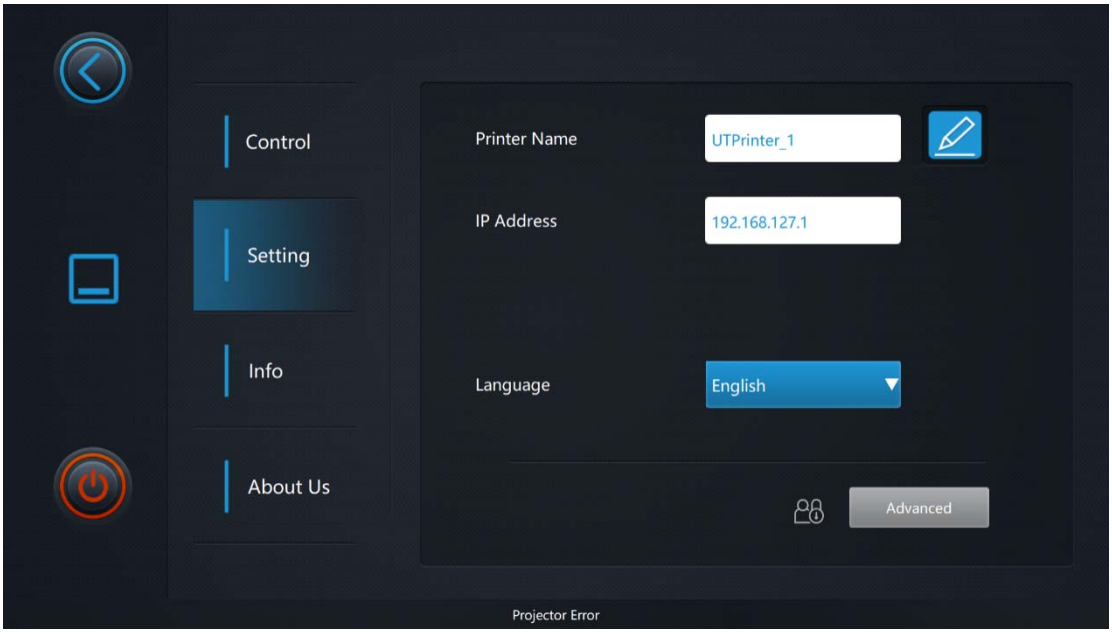
Click on the "Clean curing" button , the operation box shown in the following figure. .



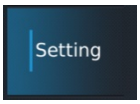
Click on the "Start" button to clean curing.

4.4.2 Setting interface

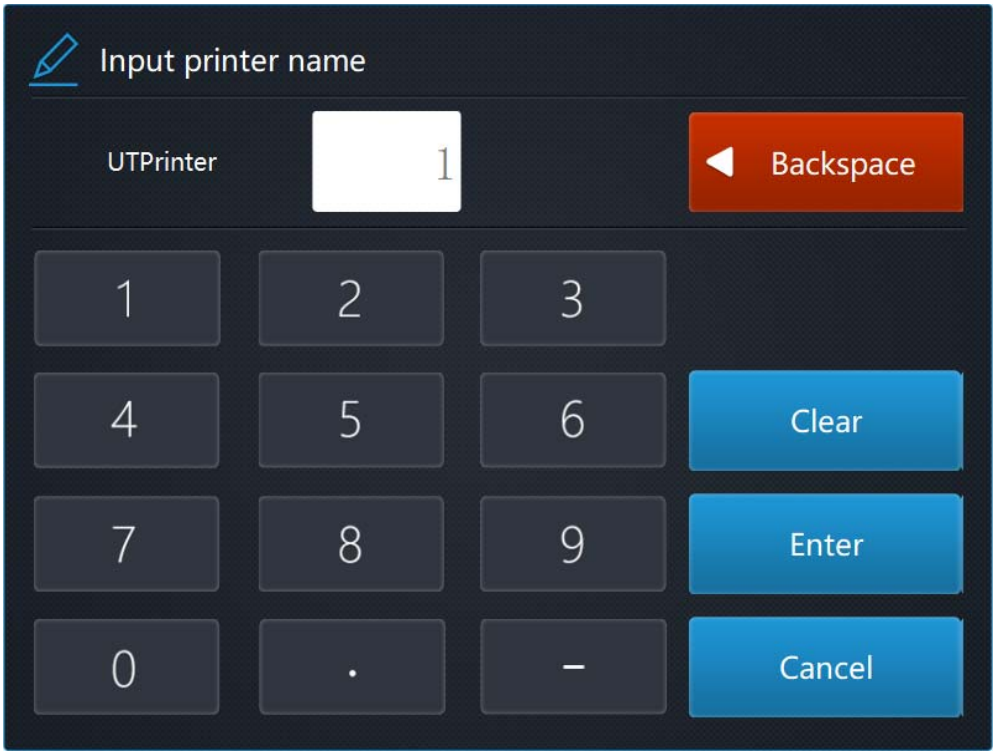
The setting interface contains printer name, IP address, language setting, and advanced, etc.



4.4.2.1 Printer name

Click the "Settings" button 

on the left, and click the "Modify the Printer Name" button . Pop up the operation box shown in the figure below, modify the name of the printer and click "Confirm".



4.4.2.2 IP address

When the printer is connected to the network via wired or wireless connection, an IP address is allocated automatically to the printer;

4.4.2.3 Language option

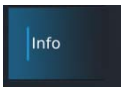
The default language of DSCON software for domestic users is Chinese. In addition, English option is available, and the user may change language in the language setting;

4.4.2.4 Advanced engineer mode

"Advanced" setting is the "Engineer mode", and in the engineer mode, a series of operations such as "parameters operation" and "update program". "Parameters operation" include "set default", "restore default", "export paras" and "import paras". In general, users do not need to enter this mode.

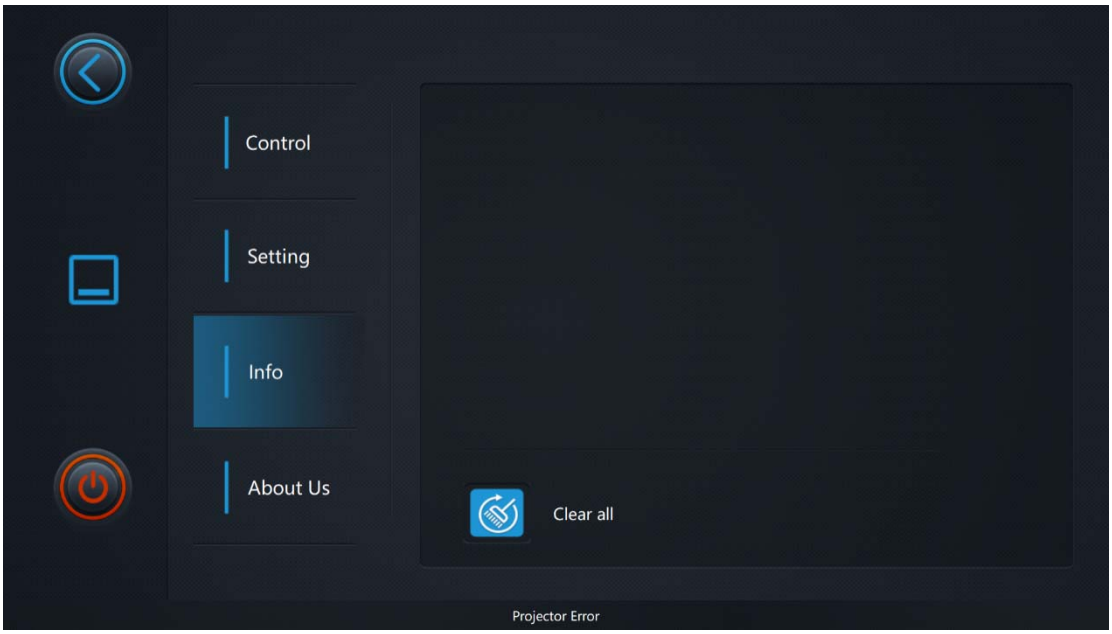
Advanced options belong to the engineer mode, and can be operated with designated password entered and it's prohibited for users to modify the parameters without authorization.

4.4.3 Equipment working information interface

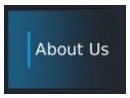
Click on the "Information" button 

on the left to view the working information and fault information of the device.

Click the "Clear" button
to clear the list of device work information and fault information (as shown below).



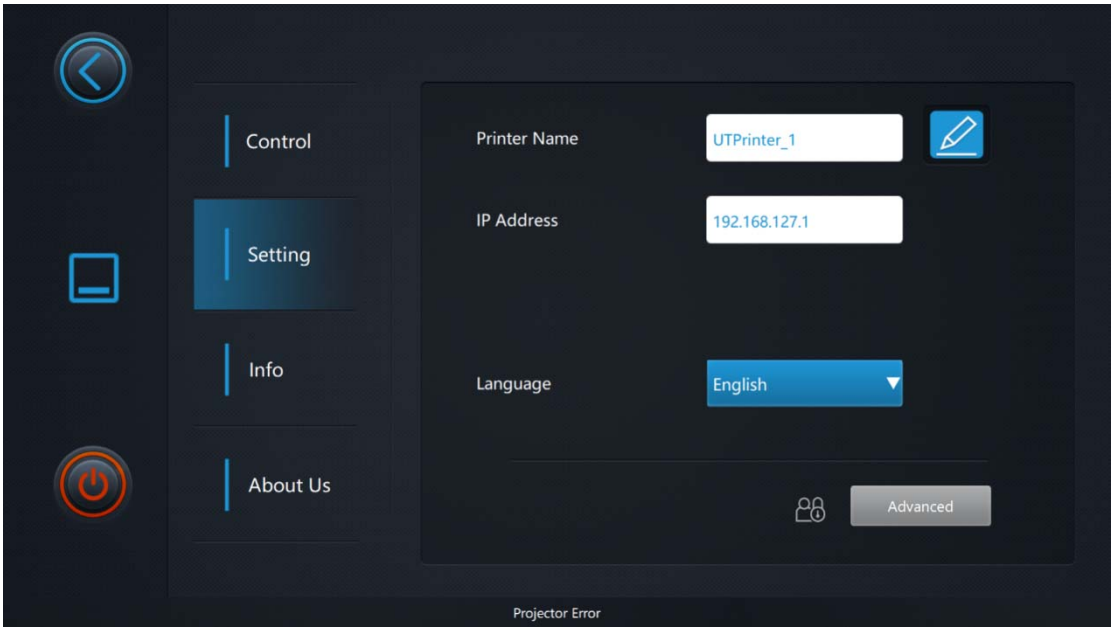
4.4.4 About interface

Click on the "About" button 

on the left to view the equipment supplier information.

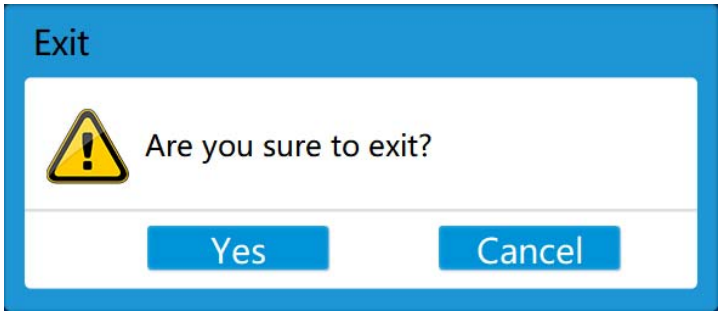
4.4.5 Minimization Program

Click the "Minimize" button and the program will be minimized to an icon on the taskbar.



4.4.6 Shutdown button

Click the "Shutdown" button , a prompt page of confirming shutdown pops up, and after clicking "Yes", the DSCON control software will shut down automatically.



5 Printer Operation, Part Building and Postprocessing

5.1 Overview of building operation procedure

1) Power on the printer and turn on the switches in proper order to start the printer, and then connect the printer to the network;
2) Export .stl file from 3D modeling software/scanner/dental design software;
3) Import *.STL files into Polydevs data preparation software for slicing processing, and export .utk file;
4) Import .utk file into the printer by any of such ways as U-disk, network cable;
5) Close the protective door, select a *utk print file, and press button to start printing;
6) The pallet automatically rises to the Z-axis limit, after part building is finished;
7) Shovel the part down, and carry out such postprocessing operations as cleaning, drying, post-curing, removal of supports, and grinding and polishing;

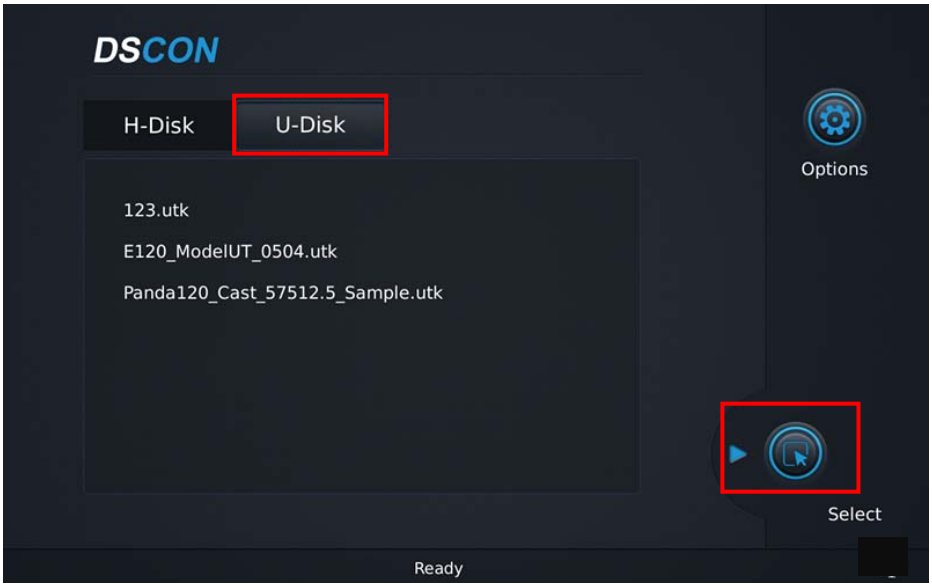
5.2 Import of *.utk print data file

*.utk print file obtained from data preparation software is mainly imported into printer by such ways as U-disk or H-disk. A U-disk containing *.utk file can be directly inserted into the USB jack below the display screen of printer for printing, and the latter is to select the file to be printed under the H-disk.

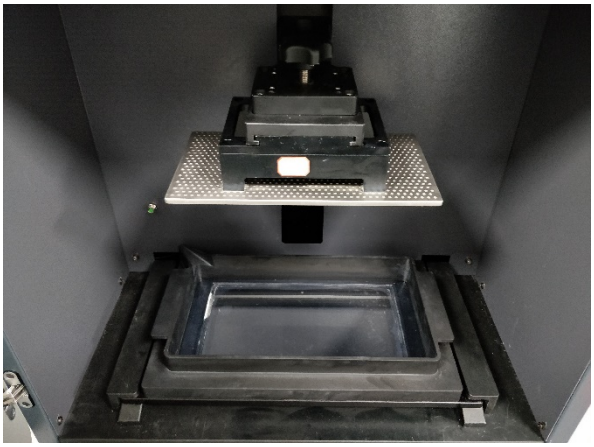
5.2.1 Insert U-disk for printing

Copy the *.utk files obtained through the data preparation software Polydevs after processing into a U-disk, and insert it to the USB interface of printer, then the DSCON software automatically finds and loads all the *.utk files stored in the U-disk (To speed up the searching speed, DSCON software only finds *.utk files in the directories of three levels at most by default: U-disk→Folder 1→Folder 2→*.utk files), so it's recommended for the user to directly copy *.utk files in the root directory or the first-level directory of U-disk. The time for the printer system to identify the U disk is about 3~5S. After you click and select a *.utk file and the print file information confirmation interface appears, the *.utk file has been automatically read into the printer's computer H-disk storage area. Now even if the U-disk is unplugged, the normal printing of printer is not affected.

After the printing of part finishes, the *.utk print file copied from U-disk to the H-disk area will be deleted automatically.



5.3 Check the installation of resin tank and platform



The user installs the resin tank and building platform in strict accordance with Chapter 3; the user must, before pouring liquid resin, recheck and confirm whether the resin tank, platform and other accessories of printer are installed properly and washed clean. If the platform and resin tank should be washed or replaced, the user must do it in strict accordance with the cleaning and replacement procedure.

5.3.1 Removal/installation and cleaning of platform

If the user only purchases one resin tank, when needing to use a new type of printing material, the user must wash the platform clean with clean alcohol with the purity ≥96% and then dry it. If the user has several platforms, the user may directly replace the platform with a new one for printing, and keep the old platform in dark and sealed place. Usually, the platform must be taken off before removal of resin tank to prevent resin on the platform from dripping onto the protective optical glass of projector, affecting printing effect.

The installation accuracy of platform also has impact on part building, so the following operation procedure must be followed during removal/installation:

1) Unscrew the fastening knob of platform anticlockwise;

2) Hold the left and right handle of platform tightly and slowly pull out the platform along guide slots;

3) Shovel the part with shovel blade, use clean alcohol to carefully wash the surface and meshes of platform, and use non-woven fabrics or brush to carefully scrub the surface and meshes of platform;

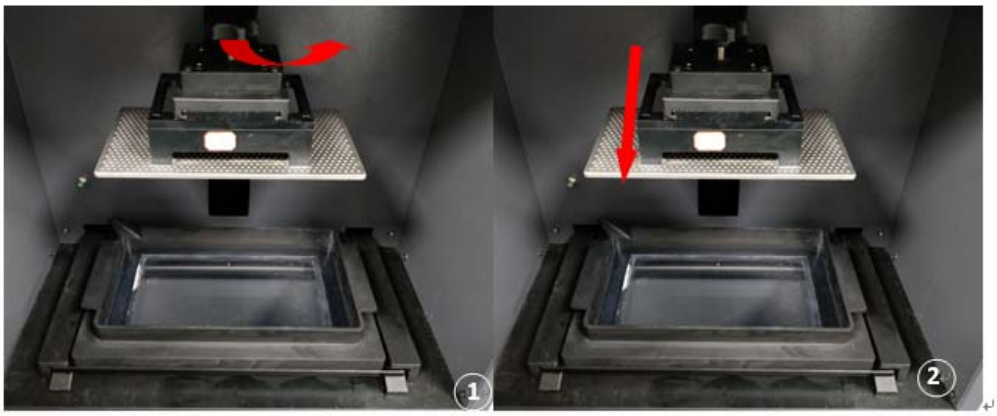
4) Blow off the alcohol on the surface and in the meshes of the building platform

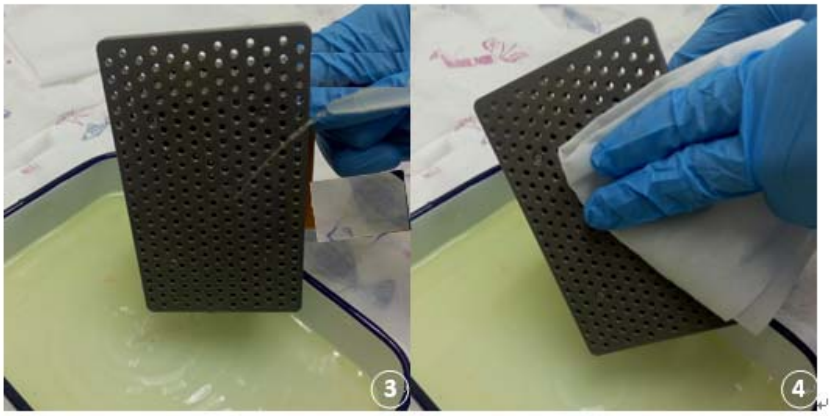
with air gun repeatedly;

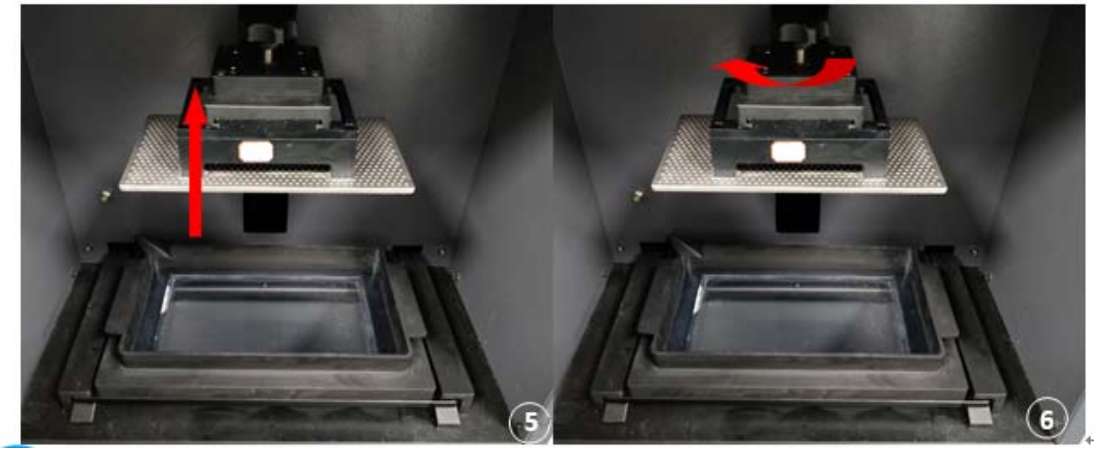
5) Carefully check and confirm whether the whole building platform is clean after drying;

6) Hold the front handle of platform tightly and install the platform completely in the slot of building platform along guide slots;

7) Tighten up the fastening knob of platform clockwise to ensure stable position of platform.







Protective gloves must be worn during operation.

When shoveling the part with shovel blade, be sure to carefully shovel the part down as a whole along the edge of part, and it's strictly prohibited to directly contact the bottom surface of platform with sharp angle to prevent scratching of platform.

Be sure to pay attention to the dripping of resin during operation, and in case of resin dripping or spilling, please wipe it off with tissue or towel.

When fastening the platform, it must be ensured the whole platform is installed in place without any part hanging so as not to interfere with resin tank. In addition, the fastening knob must be tightened up to ensure firm installation of platform.

The front end of shovel blade is sharp, so the user should use it carefully during operation to prevent scratching.

Please install the resin tank prior to platform to prevent resin on the platform from dripping onto the protective glass. Be sure to carefully check whether there is residual cured resin on the undersurface of platform before installation of platform each time to prevent crushing of resin tank and bottom protective glass when the platform descends, resulting in damage to the printer.

Equipment operators.

5.3.2 Cleaning and replacement of resin tank

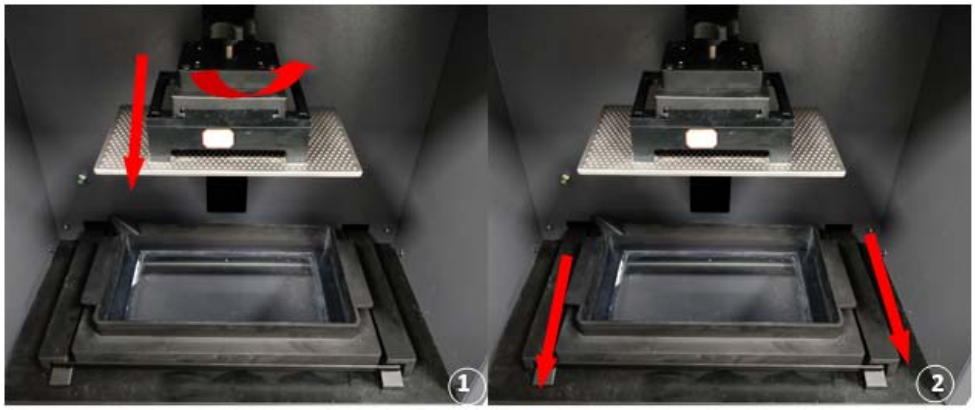
If the user has only one resin tank, when needing to use a new resin material for printing, the user must follow the following cleaning and replacement procedure. If the user has several resin tanks, the user may directly replace the resin tank with a new one for printing, and cover the old tank and keep it in dark and sealed place.

Correct removal/installation of resin tank can guarantee building quality and prolong the service life of resin tank. Spots and scratches on the surface of

resin tank may lead to vertical stripes and other defects on the surface of building part, and may cause part-falling off. Once the bottom surface of resin tank is scratched seriously, it must be replaced ahead of time, so it must be handled and operated with care during use. Please refer to the following procedure for replacement of resin tank.

1) Loosen the fastening knob of platform, and take down the platform along guide slots;
2) Loosen the cam handles of resin tank at both sides, and slide the resin tank out along guide slots and take it down;
3) Pour existing resin down a corner of the resin tank to the designated container (non-transparent, light-tight and sealable);

4) Use scraper to scrape residual resin in the bottom of resin tank and pour it completely into the designated container (ignore 3) and 4) in case of no resin in the resin tank);
5) Carefully wipe the bottom and wall of resin tank with soft non-woven fabrics to make sure the inside of resin tank is clean;
6) Wash the bottom of resin tank repeatedly with clean alcohol with the purity ≥96%, and it's recommended to dry the resin tank repeatedly with low-volume of air compressor gun;
7) Pour the new type of resin (or the filtered original resin) into the cleaned resin tank;
8) Push the resin tank in along guide slots tightly.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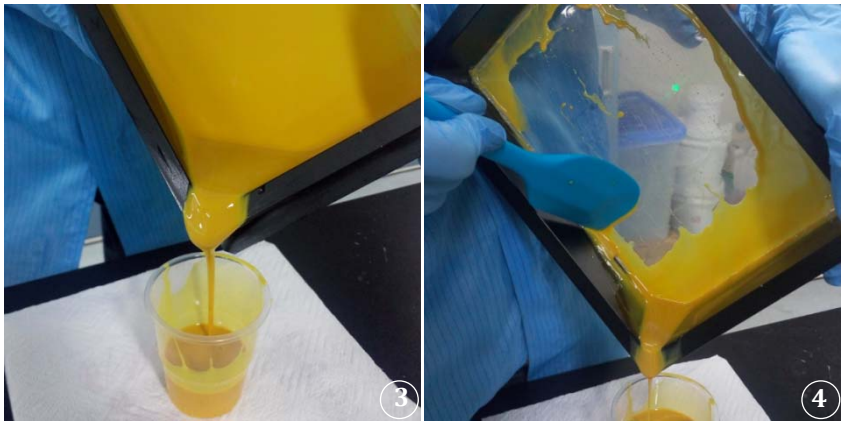
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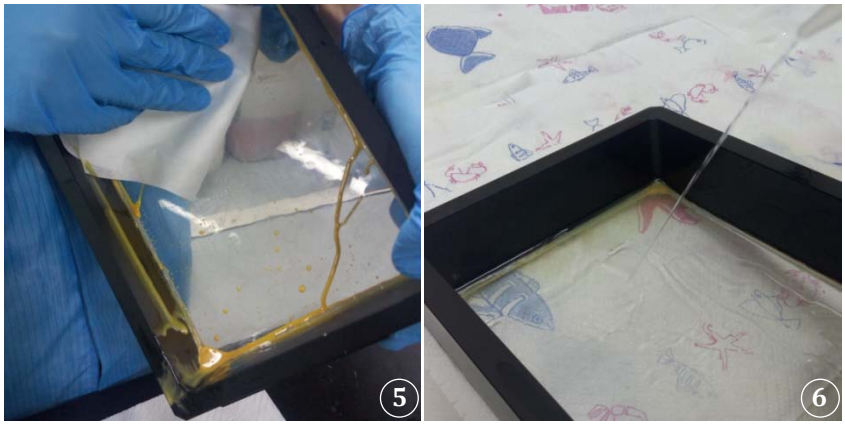
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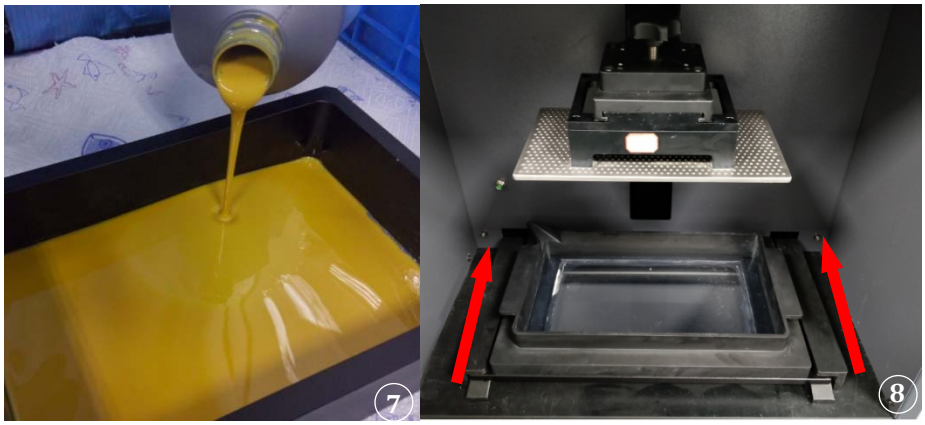
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Protective gloves must be worn during operation.

When the resin tank is installed in the printer, it's strictly prohibited to use resin tank cover so as not to damage the cover plate and building platform when the platform descends.

During the operation of part and resin, it's recommended to cover the resin tank to avoid direct radiation of sunlight to resin to prevent quality reduction of building part due to deterioration of resin.

When operating the resin tank, a layer of clean soft paper must be put under the tank to prevent scratching of resin bottom during placement.

It's strictly prohibited to contact sharp objects with the bottom surface of resin tank to prevent breakage of surface coating film.

Be sure to pay attention to the dripping of resin during operation, and in case of resin dripping or spilling, please wipe it off with tissue or towel.

Waste resin must be poured into designated container and treated in a centralized manner to prevent influence on the environment.

Equipment operators.

5.4 Operation of building resin

5.4.1 Resin operating instructions

Building resin used for Uone printer is specially used for printing of dental mold, and the following matters must be noted during operation:

- The user must, before each printing, check the bottom of resin tank for residues with silicone scraper, and must use the "Clean curing" function to remove the residues if any;
- Please do not apply building resin used for the printer for purposes other than dental operations;
- Be sure to shake the resin bottle for about 5min before use of resin material. If resin is not shaken well, it may cause color deviation and building quality reduction;
- It's strictly prohibited to mix up two kinds of building resin with different composition for use, and directly add resin material that has been long in storage into new resin for use;
- Please be sure to complete printing in clean environmental conditions, and dirty printing environment may cause building quality reduction and even printing failure;
- Resin material is strongly irritant to eyes, skin and respiratory tract, and easily lead to blindness, allergy or respiratory tract injury, so please be sure to operate it with care, and immediately wash with plenty of warm water and see the doctor in case of emergencies;
- Once clothes are stained by resin material, it's very difficult to remove and clean, so it's recommended to wear work clothes during operation;
- It's recommended to operate resin in ventilated conditions, and be sure to wear protective gloves during operation, and wash hands carefully with warm water and liquid soap after operation (even protective gloves are worn);
- Resin must be sealed up in packaging after each use, and do not expose it directly to UV light and humid environment;
- Resin material should be stored in its original packaging in dry and dark environment at room temperature, and the ambient temperature is recommended not to exceed 25℃;
- To avoid accidental fire, please keep resin material far away heat source and

combustion source;

- Resin material shall not be dumped at will or directly abandoned in the environment, but must be properly treated before abandoned;

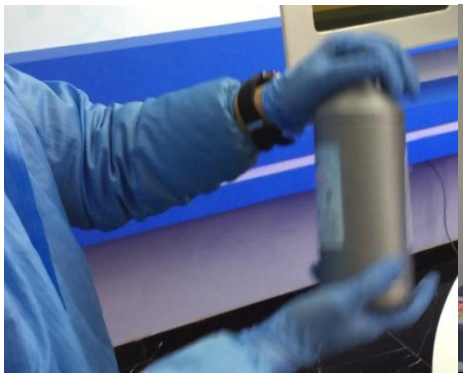
Protective gloves must be worn during operation.

Equipment operators.

5.4.2 Shake up liquid resin

Before liquid resin is poured into resin tank, the material Base should be shaken violently in the original packing bottle for 2h, and other materials such as Model, Cast, SG, Tray, C&B, and Gingiva Mask should be shaken for only 5min.

All printing materials used by Uone are liquid light-sensitive resin materials, these liquid chemical materials may be statically stratified after placed for a long time, resulting in nonuniform quality of material in upper and lower layers, and if they are poured into resin tank for printing without shaking and mixing uniformly, it may cause color deviation, building quality reduction and other major defects to building parts, resulting in printing failure. Therefore, some resin materials like Base should be shaken violently in their original packing bottle for 2h before use to make sure the resin in the bottle is mixed evenly.



5.4.3 Stir resin in the resin tank before printing

(1) This step can be skipped if the user pours resin that is just shaken evenly into a clean and new resin tank;

(2) If resin is kept still in the resin tank for some time before printing, the resin must be stirred evenly before further printing;

(3) If there is an amount of resin in the resin tank, and the user pours some resin into the existing resin, the resin must also be stirred evenly before printing;

It's strictly prohibited to mix up two kinds of building resin with different composition for use, and directly add resin material that has been long in storage (for two weeks or more) into new resin for use.

5.4.4 Clean curing

The user must, before each printing, check the bottom of resin tank with scraper for tiny scraps or residues attached, and may use the "Clean Curing" function in the DSCON control software, if any, to cast full-width light on the bottom of resin tank to cure several layers of resin, and remove the cured layers entirely. Please refer to Section 5.4.1.2 Clean curing for detailed operation.

5.4.5 Addition and recovery of resin

- Shake resin material heavily in the original package bottle for about 5min to make sure resin in the bottle is mixed evenly;
- The resin tank must be clean before adding resin, and no liquid (existing resin, alcohol and water solution, etc.), visible dust and other residues are allowed in the tank;
- Pour new resin into the resin tank slowly, and the amount of poured resin is determined by the amount estimated by data preparation software and the actual print demand (the amount of poured resin must be more than the amount estimated by data preparation software, the recommended dosage range is 1/4~1/3 of the depth of resin tank by reference to the scale line of resin tank, which can avoid waste of material and basically meet general print requirements);
- When recycling resin, pour building resin down a corner of resin tank to the designated container;
- Use scraper to scrape residual resin in the bottom of resin tank and pour it completely into the designated container;
- Carefully wipe the bottom and wall of resin tank with soft non-woven fabrics to make sure the inside of resin tank is clean;
- Wash the bottom of resin tank repeatedly with clean alcohol solution with the purity of 96% and above, and it's recommended to dry the resin tank repeatedly with low-volume air compressor gun;
- Abandoned resin must be poured into transparent container and completely cured in the post curing box, and then disposed as unrecyclable waste in a

centralized manner.

Protective gloves must be worn during operation.

In the building process, it's strictly prohibited to open the shielding window to add resin, and it's recommended to add enough resin before printing.

Be sure to pay attention to the dripping of resin during operation, and in case of resin dripping or spilling, please wipe it off with tissue or towel.

During the operation of part and resin, it's recommended to cover the resin tank to avoid direct radiation of sunlight to resin to prevent quality reduction of building part due to deterioration of resin.

It's strictly prohibited to mix up different types of resin for use, and it must be confirmed the original resin is cleared completely before adding new resin.

It's strictly prohibited to directly pour liquid resin into sewer to prevent pollution to the environment.

Equipment operators.

5.4.6 Resin filtering

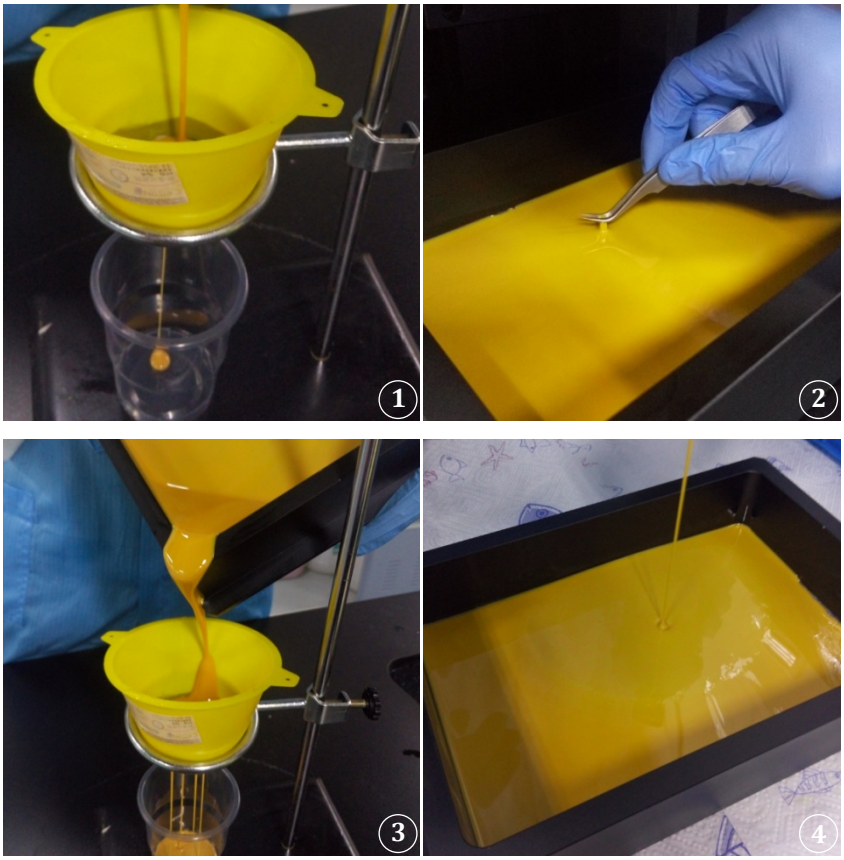
During use of resin, over-cured debris of building part and visible residues/particles coming from outside may mix in liquid resin, resulting in large impact on the accuracy and quality of building part and even part-falling off. Now these debris and residues cannot be removed completely by using the "Clean Curing" function, and the resin material must be filtered by following the procedure below.

1) Place a clean container below the filter funnel and keep a certain height;
2) Pour the resin to be filtered slowly down a corner of resin tank into the filter funnel, and take care to prevent spilling and dripping of resin;
3) Use scraper to scrape residual resin in the bottom of resin tank and pour it

completely into the designated container;

4) Use silicon scraper to carefully check the resin tank for residues or debris;

5) Pour the filtered resin material back to the cleaned resin tank for use.



Protective gloves must be worn during operation.

During the operation of part and resin, it's recommended to cover the resin tank to avoid direct radiation of sunlight to resin to prevent quality reduction of building part due to deterioration of resin.

To avoid cross contamination of resin, it's recommended to use disposable filter funnel for resin filtering, and it's strictly prohibited to use glass rod to directly stir resin in the funnel to accelerate filtering process during filtering to prevent incomplete filtration.

It's strictly prohibited to contact the bottom of resin tank directly with sharp ends of tweezers but with the back of tweezers to prevent scratching of film of resin tank.

Be sure to pay attention to the dripping of resin during operation, and in case of resin dripping or spilling, please wipe it off with tissue or towel.

Equipment operators.

5.5 DSCON Software operation and printing

5.5.1 Check the current conditions of printer

Check the current conditions of printer, mainly the following items:

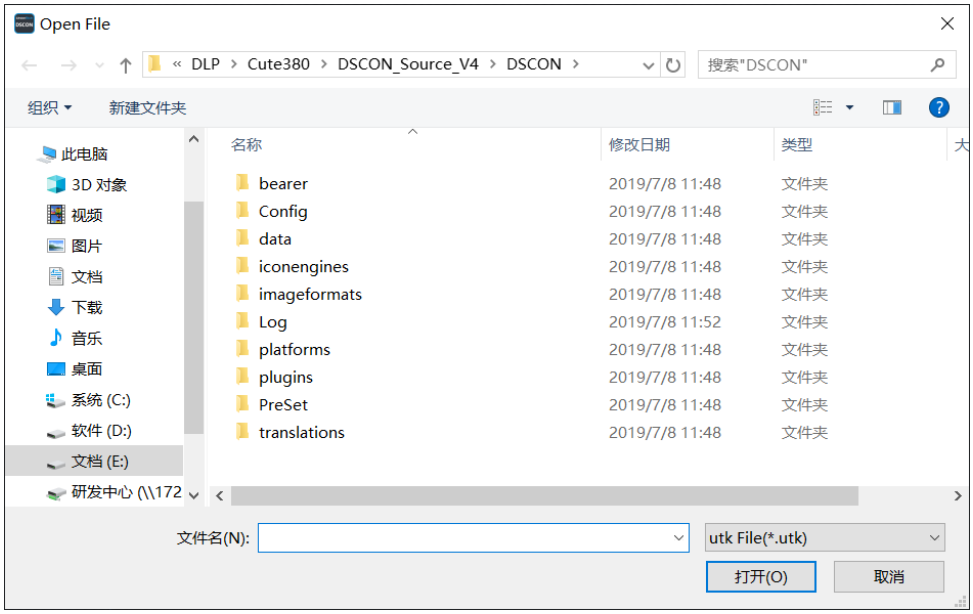
- Plugs of power cord and other cables as well as U-disk are plugged tightly;
- If *.utk files are transferred via network or WiFi, please confirm the files have been transferred to the printer's H-disk storage area;
- The platform is installed in place and fastened, of which the undersurface is clean without foreign matter;
- All safety switches of printer are reset;
- The machine and software are in normal state;
- The shielding window is closed tightly;

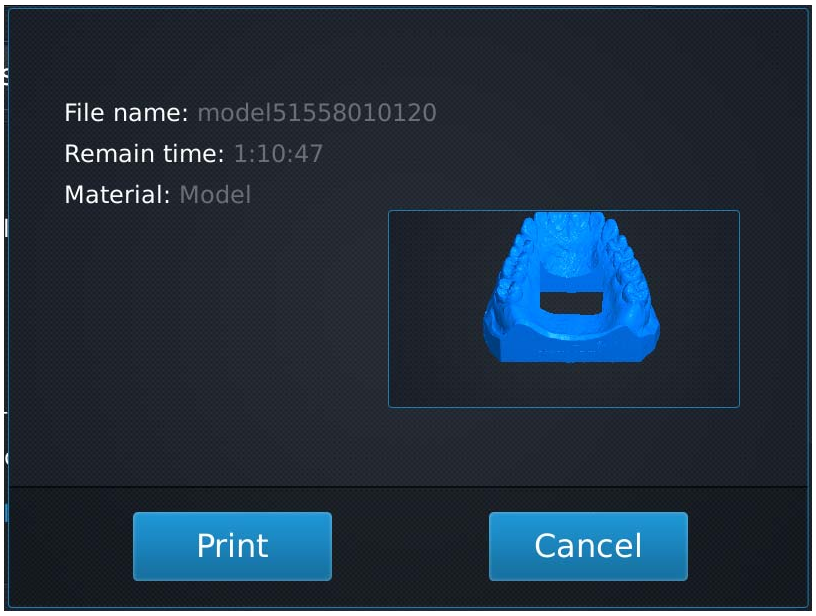
5.5.2 Software operation

DSCON V4.0.2 control software is easy to operate; only a simple import procedure is needed to start printing, and the simplest procedure of operating the control software is as follows:

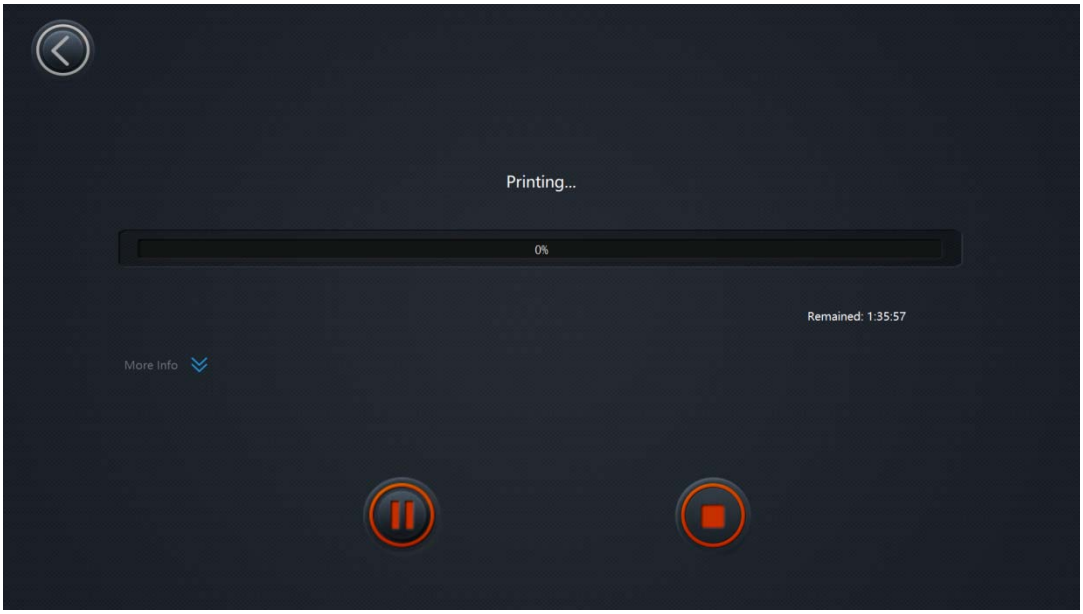
1) Send *.utk files to printer H-disk through data preparation software or import files from U-disk, see Section 6.2 for details;

2) Click and select the *.utk file to be printed in the H-disk or U-disk area, and click "Select" to select the print file, and confirm the information of print file, see Section 5.3 for details;





3) Click the "Print" button in the DSCON V4.0.2 control software to enter the print interface, and start printing, see Section 5.3 for details;

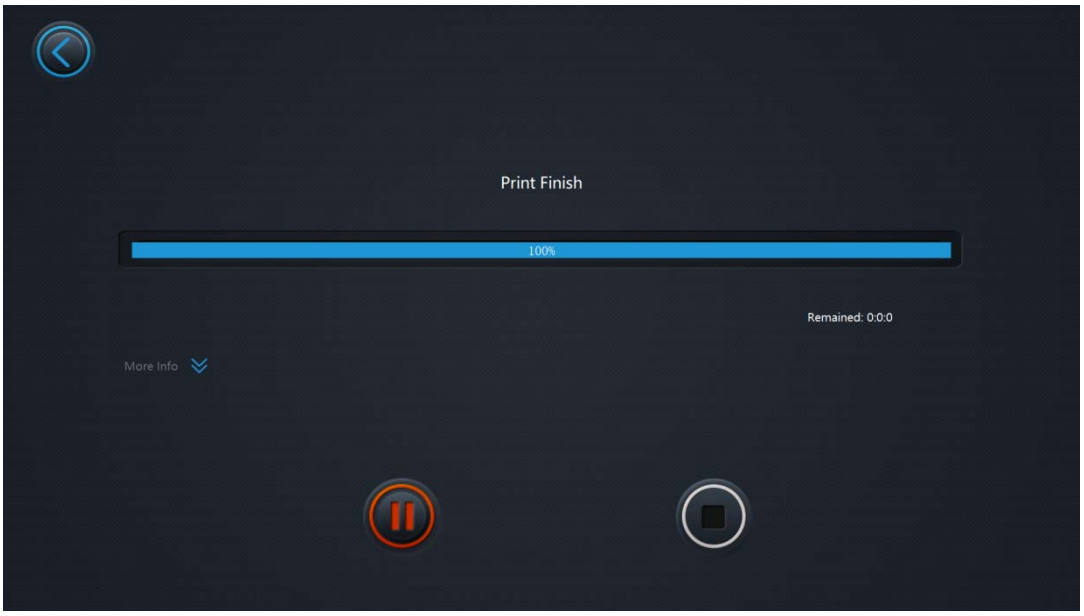


To avoid printing failure, damage of printer and injury of operators, be sure to go through and check the current status of printer before building.

Equipment operators.

5.5.3 Print finish

After the completion of part printing, the part stuck to the platform automatically rises to the upper limit position, waiting for the user to carry out shoveling of part and other operations.



5.6 Shoveling of part

After the printing is finished, the user is requested to carry out the shovel operation in time. The parts are shoveled up with the shovel blade. The parts are carefully removed from the forming room and put into the special cleaning container. Attention should be paid to preventing resin from dripping onto guideways and clothing. Close the forming room door.

Protective gloves must be worn during operation.

The front end of shovel blade is sharp, so the user should use it carefully during operation to prevent scratching.

5.7 Part cleaning

After the part is shoveled off, place the part in clean alcohol with the purity ≥96% and clean it with hand. The concrete steps are washing with alcohol first, then drying with air gun of air compressor, two or three times back and forth.

Protective gloves must be worn during operation, and it's strictly prohibited to fish for the part with bare hand.

The side wall of part before post curing is soft, so please do not hold the part body heavily to prevent deformation or damage of the part during cleaning

and processing.

The flow velocity of alcohol must be controlled properly when washing the part, and it's strictly prohibited to directly spray side wall of the part with alcohol sprinkling can to prevent deformation or damage of part.

During blow-drying, it's strictly prohibited to directly blow fine or thin-wall sections of the part with air gun to prevent damage of the part, and protective gloves should be kept clean so far as possible when blow-drying the alcohol on the surface.

Equipment operators.

5.8 Post curing

Polymerization reaction occurs to resin under the irradiation of UV light in the building process, but the resin is polymerized partially, some liquid-state resin in the part is not cured or fully cured, the side wall of part is soft, and its mechanical properties haven't reached the standard yet. Therefore, post curing treatment is necessary to complete polymerization of resin inside the part, further solidify side wall of the part, and improve the final mechanical strength of the part. It's recommended to adopt curing box matched with the printer, and the post curing procedure of building part is as follows.

1) Place the sample of drying surface alcohol in the post-curing box of PCUA and close the door. Adjust the curing time for 10 minutes, press the startup switch of the curing box;
2) After post curing is finished, the switch of curing box turns off automatically; open the door of curing box, take the part out;
3) Post-cured building part should be stored far away from light source, heat source, combustion source and vibration source, and it's recommended to keep the ambient temperature and humidity within the range of normal room temperature and humidity.

Protective gloves must be worn during operation.

It's strictly prohibited to open the door of curing box during curing of the part to prevent damage to human eyes caused by direct projection of UV light.

The power supply of curing box should be kept in normally-off state, and the power must be turned off when putting/taking parts, glass beakers and bearing tray.

5.9 Postprocessing of part supports

As shown below, after the curing of parts added with supports, clippers, grinding machine and polishing machine should be used for removal of pillar supports or extended edge and grinding & polishing.

Take special care when grinding and removing part supports so as not to damage the body of part.

6. Daily Maintenance of Printer and Accessories

6.1 Risk and warning

During operation and maintenance of the printer, risks cannot be avoided completely, so the user must, in the whole process of using the printer, strictly refer to the contents provided in this Manual, enhance the safety awareness of operators, comply with safety specifications, and keep alert to danger. Matters needing attention and foreseeable risks during the use of printer are listed as follows:

Operation preparation

- It must be ensured there is no other irrelevant stuff in the operating platform

of printer before building operation;

- It must be ensured the resin tank is clean and free of residual resin, alcohol or water solution before pouring of new resin;
- It's strictly prohibited for building resin to be directly exposed to external sun light, and the resin tank shall be covered when resin is not used in short time;
- Before power-on of the printer, it must be ensured the power supply connected has been earthed safely;
- Protective gloves must be prepared for any resin-related operations;
- Before building operation, it must be ensured all status lights and operating buttons are in good condition;
- Resin tank and platform must be installed to the designated position and then fastened after confirmation;

Operational process

- In the building process, it's strictly prohibited to open/close the door of printer frequently;
- In the building process, goggles must be worn when opening the door;
- In the building process, it's strictly prohibited to push or strike the printer artificially;
- It's strictly prohibited to disable any safety gear by forcible separation, elimination or disconnection.
- When a fault occurs to the printer, the printer can be restarted only after the fault is eliminated completely and all safety gears are reset;
- In the building process, it's strictly prohibited to change building parameters in the DSCON software at will;
- In the building process, it's recommended to observe building situation through shielding window regularly to prevent accidents;

Postprocessing operation

- In the postprocessing process, protective gloves must be worn, and it's recommended to wear work clothes;
- In case of dripping or spilling of resin, wipe it off with tissue or towel;
- When washing the part, the purity of alcohol must be ensured, and abandoned alcohol must be re-distilled for further use;
- It's strictly prohibited to use large-flow spray gun to wash against building

part so as not to destroy surface and detail structure;

- The post curing time must be guaranteed, and it shall be operated in strict accordance with the post curing procedure;
- Postprocessing operation must be performed in a processing room with good ventilation conditions, and protected from irritation of UV light;

In case of any fault occurring to the printer, please contact the equipment agent or manufacturer immediately, and it's strictly prohibited for any individual or organization to dismount modules/components of the printer without authorization.

In case of printer damage or personal injury caused by misoperation or illegal operation, the user shall undertake related liabilities by itself, and the equipment agent bears no liability for it.

Printer transportation, warehousing and installation personnel, printer operators, and after-sales technical personnel.

6.2 Wearing accessories of printer

See Chapter 2.3.

6.3 Operation and maintenance of the printer

Uone printer has been strictly debugged and examined before delivery to guarantee a very low failure rate, and by reading over this Manual or through after-sales training organized by equipment agents, the user can master the operation and maintenance of the printer as well as basic repair skills; the printer operating procedure and related matters needing attention have been specified above, so it's not repeated here.

Please refer to the following procedure for daily maintenance of the printer:

1) Confirm all switches are in off state and unplug all cables connected to the printer;
2) Wipe the whole building platform of printer with clean non-woven fabrics wetted with a little alcohol to clear off residual resin;
3) Check all fasteners for looseness and breakage, etc.
4) Check the functionality of all safety gears, and make sure they are kept in reset state;

5) Check all sockets for their integrity and the trace of overcurrent burn off;
6) Check the sealing condition of door to prevent print failure and the influence of light leak on resin quality;
7) Check all cables and adapters for integrity and applicability, and in case of breakage or aging, immediately replace them with cables of the same type;
8) Check all standards parts in the building platform (e.g. screw and nut, etc.), and immediately replace damaged parts with parts of the same type if any.

Except all kinds of standard parts, once the accessories (e.g. platform and resin tank, etc.) attached to the printer are damaged, please contact the equipment purchasing agent immediately.

It's strictly prohibited for any individual or organization to dismount the modules/components of the printer without permission, and UnionTech and equipment agents are not responsible for printer damage or personal injury caused by individual misoperation.

Precautions for daily operation and use:

- It's strictly prohibited to dismount modules/components of the printer or adjust components of the upper actuator without authorization;
- It shall be ensured that all exposed wiring connections are sheathed with protective cover to prevent the danger of electric shock in case of aging failure;
- Cable joints, panel indicators and buttons must be inspected regularly to confirm they are in good condition;
- It's strictly prohibited to tear up, alter and move the nameplate and warning signs of the printer without permission;
- Mechanisms of the printer must be inspected regularly for missing, lose or damaged parts;
- Safety gears of the printer must be inspected regularly to ensure their functionality and stability;
- The printer must be installed far away from combustion source, water source, heat source, and vibration source, etc.;
- The printer must be cleaned regularly, and the building room shall be kept

sanitary and low-dust;

- After completion of each production, solid residual resin on the platform shall be cleared off, and blocked holes shall be unchoked timely;
- Foreign matters on the blade shall be cleared off timely if any;
- The guide rail and lead screw at Z axis should be cleaned regularly to remove debris and oiled every six months;
- In daily use, please do not carve on the surface of equipment with sharp objects so as to avoid damage to outer coating;
- Please do not knock the equipment with blunt so as to avoid deformation of equipment.

6.4 Operation and maintenance of resin tank

The resin tank attached to Uone printer is consumable (of which the service life depends on the standardization of the operator's operation), and please pay attention to the following matters during operation and storage:

1) It's strictly prohibited to contact sharp objects such as tweezers, blade, finger nail and printed part with the inner & outer bottom surfaces of resin tank during operation to prevent breakage of surface coating film;
2) The user must, before each printing, check the bottom of resin tank with scraper for tiny scraps or residues attached, and may use the "Clean Curing" function in the DSCON control software, if any, to cast full-width light on the bottom of resin tank to cure several layers of resin, and remove the cured layers entirely. Please refer to Section 5.4.1.2 Clean curing for detailed operation.
3) During use of resin, over-cured debris of building part and visible residues/particles coming from outside may mix in liquid resin, resulting in large impact on the accuracy and quality of building part and even part-falling off. Now these debris and residues cannot be removed completely by using the "Clean Curing" function, and the resin material must be filtered, or else these debris or residues would damage the release film in the bottom of resin tank during printing;
4) The resin tank must be slid in/out along guide slots during removal/installation to avoid direct contact between the bottom of resin tank

and the lower plane; the resin tank must be installed along guide slots;

5) When pouring out or replacing resin, the resin tank must be washed with alcohol with the purity ≥96% repeatedly and then blow-dried with small-flow air compressor gun repeatedly before resin material is poured into it. It's recommended for the user to filter resin and clean the resin tank at regular intervals;

6) Before the resin tank is taken out of the printer and placed on such places as table top, the table top must be flat and smooth, and a layer of kitchen paper or other soft paper (or soft cloth) must be put underneath the resin tank to prevent scratching of outer bottom surface of resin tank;

7) The resin tank must be washed with alcohol but not water or other things, and the resin tank must be blow-dried with air gun after cleaning with alcohol;

8) The resin tank cover must be taken off before printing so as not to prevent the printing platform from descending, resulting in damage to the resin tank or platform.

9) The resin tank not in use must be placed in the packing box and kept properly far away from heat source and vibration source to prevent accidental damage.

6.5 Use and storage of resin

6.5.1 Instructions for use of resin

The resin provided with Uone printer is mainly used for the user to carry out trial printing or other operations, and the user must pay attention to the following matters during use:

- Please do not apply building resin used for Uone printer for purposes other than dental operations;
- It's strictly prohibited to mix up two kinds of building resin with different composition for use, and directly add resin material that has been long in storage into new resin for use;
- Please be sure to complete printing in clean environmental conditions, and dirty printing environment may cause building quality reduction and even printing failure.
- Resin material is strongly irritant to eyes, skin and respiratory tract, and easily lead to blindness, allergy or respiratory tract injury, so please be sure to operate it with care, and immediately wash with plenty of warm water and

see the doctor in case of emergencies;

- Once clothes are stained by resin material, it's very difficult to remove and clean, so it's recommended to wear work clothes and protective gloves during operation;
- It's recommended to operate resin in ventilated conditions, and be sure to wear protective gloves during operation, and wash hands carefully with warm water and liquid soap after operation;
- To avoid accidental fire, please keep resin material far away heat source and combustion source;
- Resin material shall not be dumped at will or directly abandoned in the environment, but must be properly treated and then disposed as plastic waste;

Protective gloves must be worn during operation.

Equipment operators.

6.5.2 Instructions for storage of resin

A suitable amount of resin must be prepared before building by the printer, the rest of resin must be stored properly, and the following matters shall be noted for storage of resin:

- It's strictly prohibited to pour remaining resin material used for printing back to the original packing bottle, and such resin shall be stored separately;
- Resin must be sealed up in package after each use, and do not expose it directly to UV light and humid environment;
- Resin material should be stored in its original package in dry and dark environment at room temperature, and the ambient temperature is recommended not to exceed 25℃;
- Building resin in the resin tank not used for a long time must be poured into a designated container immediately for centralized treatment;
- To avoid accidental fire, please keep resin material far away heat source and combustion source;
- Resin material must be placed out of the reach of children;

Resin that has been long in storage must be shaken heavily before use to

make it fully mixed.

6.6 Emergency treatment

Resin-induced injuries

Most of building resin used for the Evodent series printers has passed relevant medical certifications, but long-term direct exposure to uncured resin materials may still threaten the health of operators, and the harm caused by liquid resin to human body cannot be avoided completely due to chemical properties of the material. Some treatment measures for resin-induced injuries are given below, and please refer to the following treatment schemes in case of dangerous accidents:

- The smell of building resin material is irritant to respiratory system, and too high concentration of resin in the air may cause respiratory irritation, dizziness, headache and anesthesia. Once this happens, move the patient immediately to a place with fresh air and good ventilation, help the patient take off tight clothes to keep smooth breath, take first aid measures such as artificial respiration and cardiac resuscitation when necessary, and then send the patient to the hospital at once;
- Building resin material is irritant to the skin, which may cause allergy to the skin or eyes in contact with resin, and repeated or long-term exposure to the resin may cause dermatitis or other diseases. In case of allergic reaction, immediately wash the affected skin with clean water and liquid soap for at least 15min, and then send the patient to the hospital at once;
- Building resin material has low oral toxicity, and accidental injection of the resin may cause gastrointestinal irritation, resulting in relevant complications. Once this happens, immediately rinse the mouth with clean water, and drink a plenty of liquid like fresh water, milk, and egg white. In severe cases, it's recommended to vomit the patient immediately until his/her stomach content is vomited out completely, and then send the patient to the hospital immediately;

Mechanical injuries

In case of mechanical injuries from blunt tools or pointed tools like tweezers, please immediately wash the wound with clean water and take measures for hemostatis, dress the wound with clean gauze or towel, and then send the patient to the hospital timely.

Electric shock injury

In case of electric shock, disconnect the power immediately first, and then check the victim for breathing and heartbeat quickly, take first-aid measures on the spot, timely conduct artificial respiration and closed cardiac massage, and immediately send the patient to the hospital for emergency treatment with the first aid uninterrupted.

Electric fire

If electric fire occurs to the printer, disconnect the power immediately first, and then use dry powder extinguisher or carbon dioxide extinguisher allocated on the spot for firefighting; it's strictly prohibited to use conductive extinguishing agents (e.g. water and foam extinguisher, etc.) to put out the fire, and meanwhile firefighting personnel shall keep all parts of their body a certain safe distance from electrified bodies, and shall call the fire telephone in case of severe fire.

The basic principle of treating chemical material poisoning is timeliness and accuracy; try to find out the cause of poisoning as soon as possible at the same time as first treatment, immediately stop contacting with poisonous substance, prevent it from continuing to attack human body, and make it excreted or decomposed as soon as possible.

6.7 Troubleshooting of printer

6.7.1 Troubleshooting of printer

Fault phenomena	Possible causes	Solutions
The equipment cannot start up normally	The power plug of printer is not inserted to the specified position	Readjust the position of power plug to ensure tight and stable connection
	The main power switch on the back of printer is not turned on	Turn the power switch on the back to "I"
	The fuse system of printer blows out	Replace the fuse and restart the printer
	Program startup failed to find optical machine	Check the connecting cable of the optical scanner
	No power on or misconfiguration of CAN port	Check the connecting cable of the motor and CAN
The lifting of building platform is stuck	The building platform reaches the limitation of limit switch	Rest the Elevator position and lift it again
	Another process is controlling the lifting of platform	Close the process and lift it again
	The lifting is stuck by other foreign bodies near the platform	Clear away all foreign bodies near the platform in advance
The building process is interrupted suddenly	Power failure or poor contact of the printer	Insert all cable plugs again and print again
	DSCON control software failure	Restart the control software and print again
	The building platform reaches the limitation of limit switch	Rest the Elevator position and print again
The bottom surface of resin tank is damaged	The descending distance of platform is too large during zeroing	Adjust the descending distance of platform appropriately during zeroing
	There are foreign matters on the contact surface during zeroing	Clear away all redundant residues in advance
	Resin tank and platform are not mounted to the specified position	Install zeroing components properly in advance

	Exposure time is set improperly, resulting in over-curing	Adjust the exposure time and other parameters
	It is scratched by sharp objects when clearing impurities in resin	Use matched soft tools
Part-falling off during building	Building parameters like exposure time are set improperly	Set building parameters again and carry out trial print
	Zeroing fails to reach the standard, resulting in uneven layer thickness	Conduct zeroing again and carry out trial print
	The levelness of printer is not adjusted to reach the standard	Readjust the overall levelness of printer
	There is a large defective area at the bottom of resin tank	Replace the resin tank and conduct zeroing and print again
	There are impurities like debris in building resin	Filter resin material and print again
	Faults of preprocessed files, e.g. insufficient support	Preprocess source files and print again
	The light projection path is blocked or other light path faults	Check the light project route of projector and print again
	The lifting distance of platform is not enough, and the liquid level doesn't fall back	Adjust the lifting distance of platform and related parameters
	The surface and meshes of platform are not cleaned up	Take down and clean the platform, and print again
	The amount of resin in the tank is too little and partial curing occurs	Add a suitable amount of resin and print again

6.7.2 Troubleshooting of building part

Fault phenomena	Possible causes	Solutions
Missing details of building part	Data are lost during preprocessing of models	Restart the preparation software and load the STL file
	Building resin is dampened, resulting in soft details	Replace resin and control ambient humidity
	The bottom of resin tank is scratched or broken	Replace the resin tank and conduct zeroing and print again
	Details are lost due to impact of strong flow at postprocessing	Wash the part with alcohol gently and slowly
	Faults of preprocessed files, e.g. insufficient support	Preprocess source files and print again
	Body part is cleared away in the postprocessing process	Carry out postprocessing operation prudently
	Building is affected by vibration source near the printer	Move away the vibration source near the printer
	The adjusting foot margin of printer are unstable	Adjust the foot margin appropriately and print again
Softened structure of building part	Building resin is dampened, resulting in soft details	Replace resin and control ambient humidity
	The post curing time or light intensity is not enough	Adjust post curing-related parameters
	Light projection parameters are incorrect, and resin is not cured completely	Adjust light projection parameters and print again
	Scratches at the bottom of resin tank block light path	Clean or replace the resin tank and print again
	The temperature changes largely in the building process	Strictly control the temperature in the building process
	Preprocessing support is not set reasonably	Redo preprocessing and add support
	There are impurities like debris in building resin	Filter resin material and print again
Horizontal/vertical	There are foreign matters or broken	Replace the resin tank and print

stripes on building part	points in the resin tank	again
	Single-pass exposure parameters are set wrongly	Adjust the exposure time, light intensity and other parameters
	The single-layer lifting distance of Z axis is not consistent	Retest and adjust lifting distance of Z axis
	Loss or modification of data occurs during preprocessing	Redo preprocessing and carry out trial print
	The printer is vibrated or impacted during building	Be sure to ensure the stabilization of printer during building
Fins on building part	Single-pass exposure parameters are set wrongly	Adjust the exposure time, light intensity and other parameters
	There are impurities like debris in building resin	Filter resin material and print again
	The part is cured without complete cleaning	Clean the building part with care repeatedly
	The resin tank is badly broken, resulting in light scattering	Replace the resin tank and print again

If printer faults, part building failure or building quality problems involve the level of technology, please contact the equipment agent immediately. It's strictly prohibited for any organization and individual to dismount modules/components of printer without authorization, or else the warranty for printer will be cancelled immediately, and the user shall bear all other consequences arising therefrom.

7 Relevant Instructions

7.1 Software installation and activation

The software attached to Uone printer includes Polydevs data preparation software and DSCON control software. They are the data preparation software and printer control software independently developed by UnionTech, and see Chapters 4 and 5 for specific functions.

The Polydevs data preparation software will be installed by the user in the computer with suitable configuration provided by the user according to this User Manual or under the guidance of after-sales technical engineer, and the software is activated by the user according to this User Manual or with the remote assistance of technical engineer, which is permanently valid once installed.

DSCON control software is directly installed at the Uone printer at delivery, and the user needn't install it repeatedly. In case of boot failure of software caused by computer faults or misoperation, the user can directly contact equipment agents or technical personnel of UnionTech for remote or field solution.

The system of Uone printer is open, the data preparation software can receive and process .stl files exported from various kinds of scanners or software, but all files must be preprocessed using Polydevs software, and only .utk files exported from this software can be printed by Uone printer.

Uone printer doesn't support third-party data preparation software and control software.

7.2 After-sales commitments

UnionTech undertakes to provide one-year warranty and life-time technical support for Uone printer, the warranty period is counted from the installation date of printer and software, and the following points shall be noted here:

- The warranty is only limited to the Uone printer itself, and the accessories attached to the printer are defined as consumables, which are not covered under warranty;
- The warranty is only limited to data preparation software and control software attached to the printer, excluding any third-party software;
- Any damage of the printer or related accessories caused by operators' failure to comply with this User Manual and personal misoperation is not covered

under warranty;

- Any damage of the printer or related accessories caused by operators' disassembly of printer without permission is not covered under warranty, and the warranty period expires immediately in such cases;
- It's strictly prohibited for any organization or individual to pass on any data of Uone printer to other organizations or individuals without written authorization of UnionTech, and relevant personnel shall be investigated for legal responsibility according to law once verified;

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7.3 Purchasing of accessories

As previously mentioned, all accessories attached to the printer are defined as consumables, after they are used over a period of time, tool or electric accessories may be broken or aged, and now the user may purchase accessories of the same type or specification/size by itself or contact the equipment agent for purchasing.

The user may purchase building resin supplied by our company by itself or contact the equipment agent for purchasing. The platform, resin tank and resin tank cover are part of the printer and must be compatible with the printer, so it's strictly prohibited to self-make them or purchase them from other third-party companies.

The user must purchase accessories that are damaged by reference to the type, specification and size given in the list of printer accessories, or contact the equipment agent for purchasing; in case of printer damage and personal injury caused by incompatibility of accessories that the user purchases without following the instructions, the user shall bear all consequences arising therefrom by itself.

Regarding to all accessories and building resin that the user purchases from third-party companies but not from the agents designated by UnionTech,

the user and such third-party companies shall be responsible for all consequences arising therefrom but not from the printer.

It's strictly prohibited for the user to disclose any technical data relating to the Uone printer to other third-party companies at purchasing, or else UnionTech will investigate relevant organizations or personnel for legal responsibilities according to law.

7.4 Equipment delivery

Before the printer is delivered formally, the buyer/user should arrange the internal environment of building room and prepare corresponding means of transportation, computer and other accessories according to Chapter 3 and Chapter 4.After delivery, the user should carefully check the outer packing of machine for damage during transportation upon the receipt of the machine, and in case of any damage, must timely take photos as record and immediately contact the equipment agent or sales or technical personnel of UnionTech. The user should unpack and install the printer by careful reference to Chapter 3 of this User Manual or under the remote or field guidance of equipment agent or after-sales service personnel.

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or

television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.