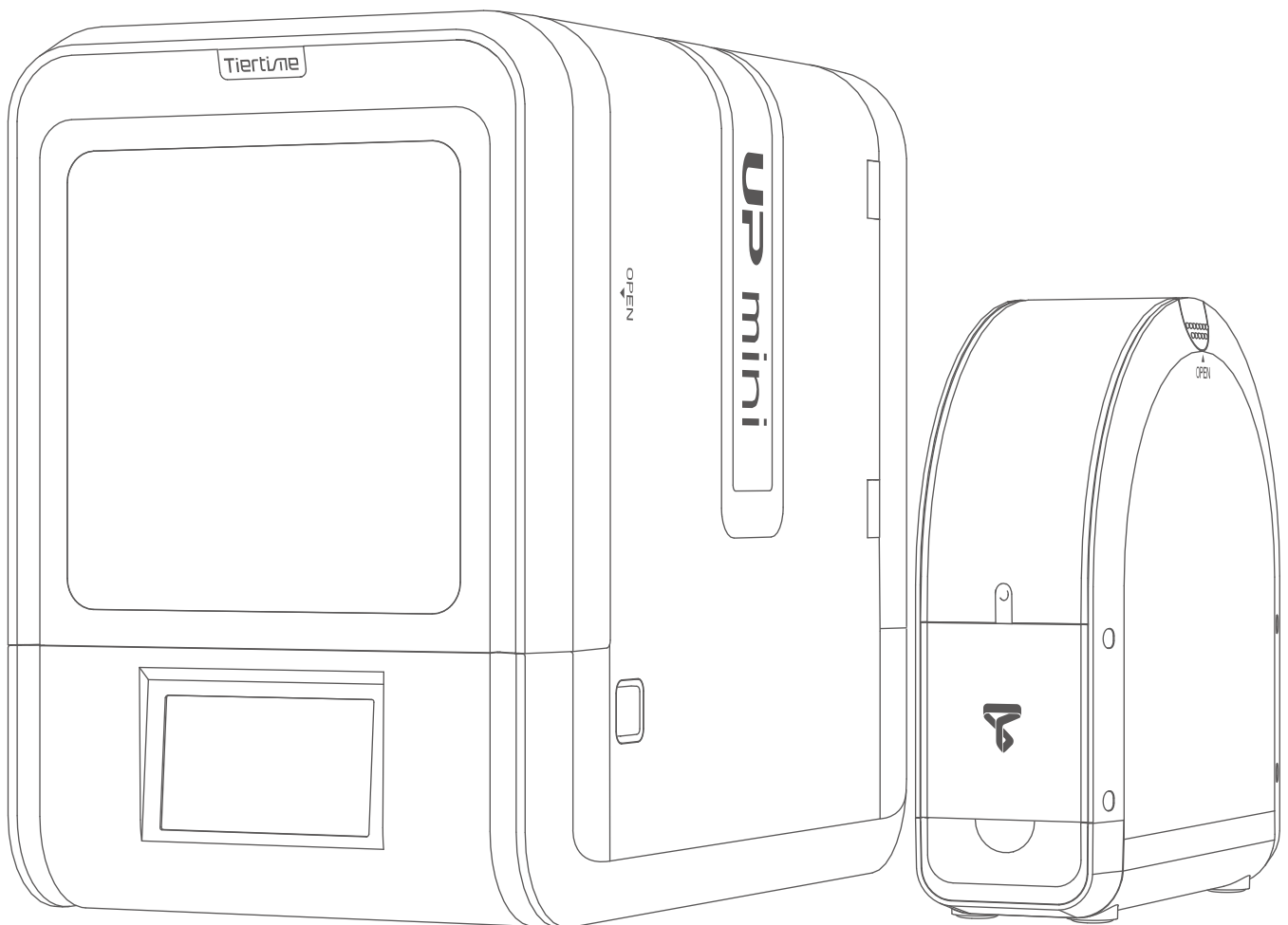


UP mini 2 **ES**

User Manual

3DP-12-4J



Download the full user manual at www.tiertime.com Support Section

Index

Chapter 1 Product Description

Chapter 2 Prepare for Your First 3D Print

Chapter 3 Product Activation

Chapter 4 Machine Settings

Chapter 5 Print Settings

Chapter 6 Calibration and Other Options

Chapter 7 Techniques and Troubleshooting

Safety Precautions

1\ The UP mini 2 ES 3D printer requires the power adapter provided by the original manufacturer, otherwise the machine could be damaged or even cause are hazard. Please also keep the power adapter away from water and out of high temperature environments.

2\ During printing, the nozzle of the printer will reach 260°C and the print platform could reach over 70°C. Please do not touch these parts with your bare hands while they are hot not even with the heat resistant gloves included with the machine as the temperature could damage the gloves and injure your hands.



Warning label:
High Temperature,
do not touch!

3\ During printing, the printhead and other mechanical parts move at high speeds. Touching these parts while they are moving could casue injuries.



Warning Label:
Moving parts, do not
touch!

4\ Please wear goggles when removing the supporting material from models and detaching models from the perf board.

5\ When printing with ABS and PLA, the plastics will create a light odor. Please run the printer in a well ventilated environment. We also suggest you put the printer in an environment with a stable temperature as unwanted cooling could cause adverse effects to the print quality. When printer is exturding lamente, make sure there is enough space between print head nozzle and the platform. Otherwise the nozzle could be blocked.

Printing Environment

As light odor will be produced during printing, please run the printer in a well ventilated environment. The UP mini 2 ES's ideal working enironment is temperature between 15°C and 30°C, relative humidity between 20–50% and altitude below 2000 meters.

Printing at temperatures out of this range could cause adverse effects to the printing process. When using the “Extrude” function, keep at least 50mm between the nozzle and the platform. If too close, the nozzle may get blocked.

One Year Warranty

Beijing Tiertime Technology Limited (Tiertime) and its authorized resellers warrants to the original purchaser that this product is free from defects in material and workmanship. Tiertime or its resellers will for one year, at its option, repair or replace at no charge for parts and labor from the date you purchased the product from Tiertime or a reseller.

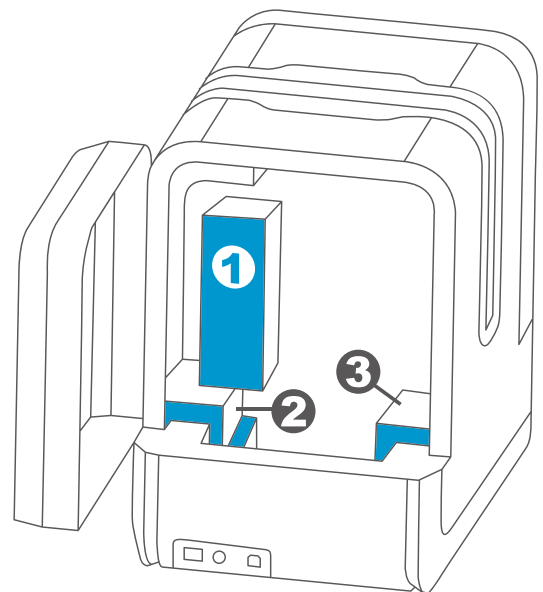
- Tiertime reserves the right to determine the validity of all warranty claims.
- Consumables such as nozzles, build plates, filaments do not have warranty.
- Replacement parts such as Print head, heater module and etc, have warranty of 90 days.
- Warranty is voided if the product serial number has been altered or removed.
- Warranty is voided if the product has been misused or damaged or if evidence is present that the product was altered, modified, or serviced by unauthorized service people.

Compliance

FCC
ROHS
CE

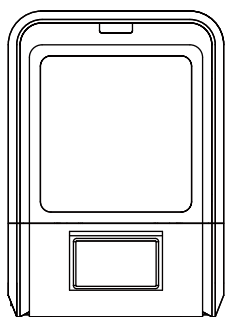
Unpacking

Remove the cushioning foams from the inside of the machine before start using it.

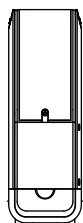


Rear View

Package Content



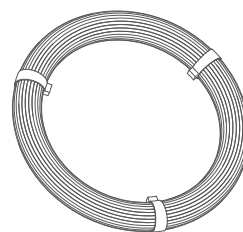
UP mini 2 ES



Spool and Toll Holder



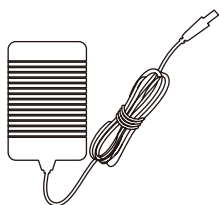
Calibration Card



50g Tester PackX3



Protective Gloves



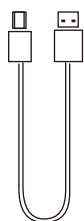
Power Adapter



Power Cable



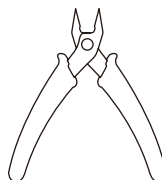
Scraper



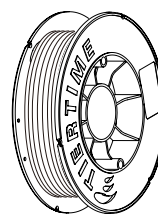
USB Cable



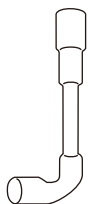
Hex Keys
2.0mm, 2.5mm



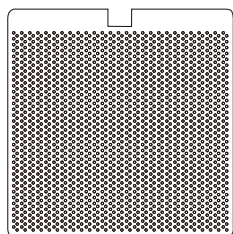
Plier



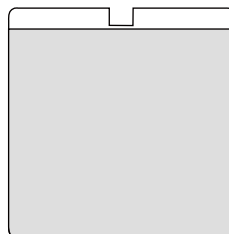
ABS Filament



Nozzle Wrench



Perforated Print Board
(Perf Board)



UP Flex Print
Board

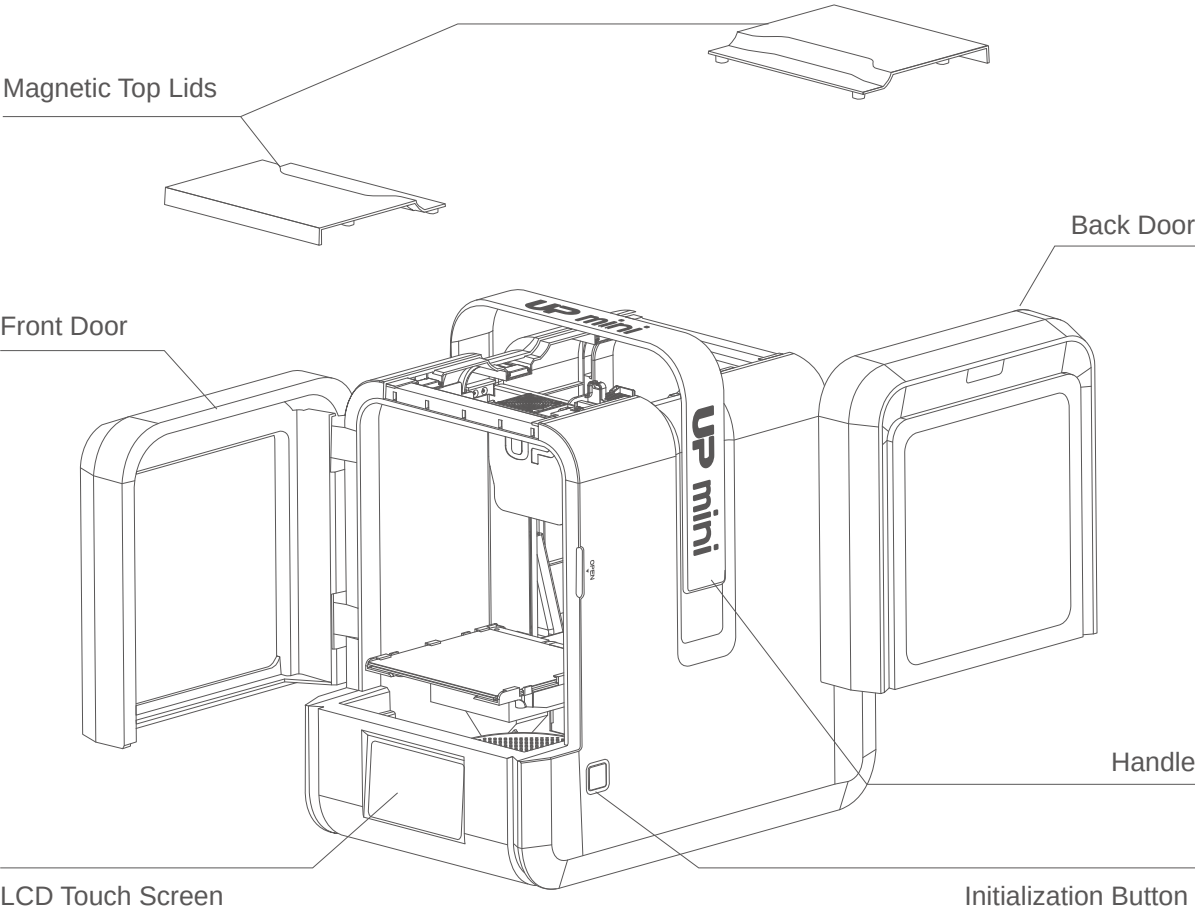


Print Head Nozzle

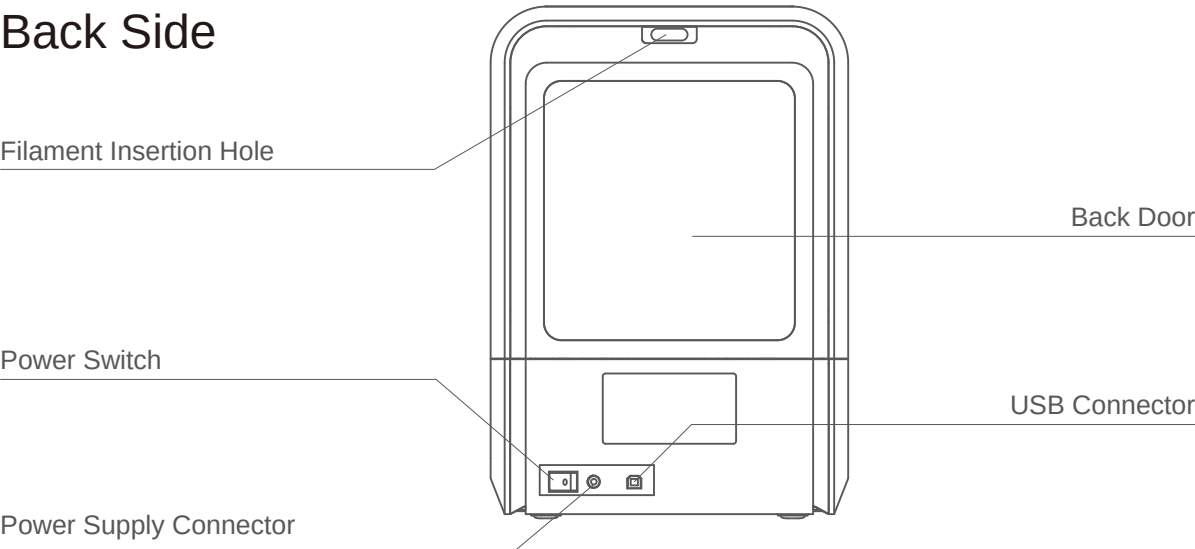
If anything is missing, please contact your local distributor or at support@pp3dp.com

Product Description

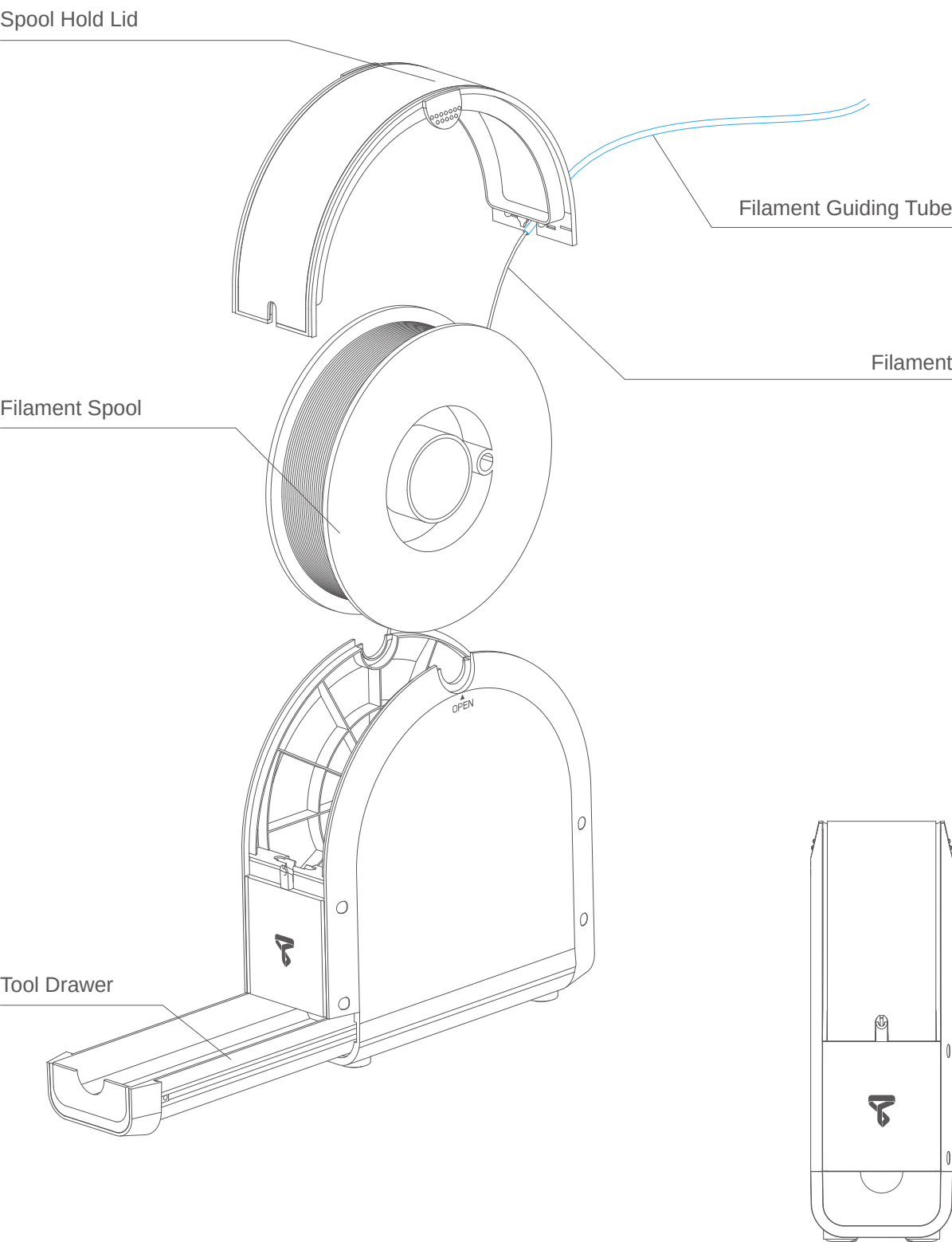
Front Side



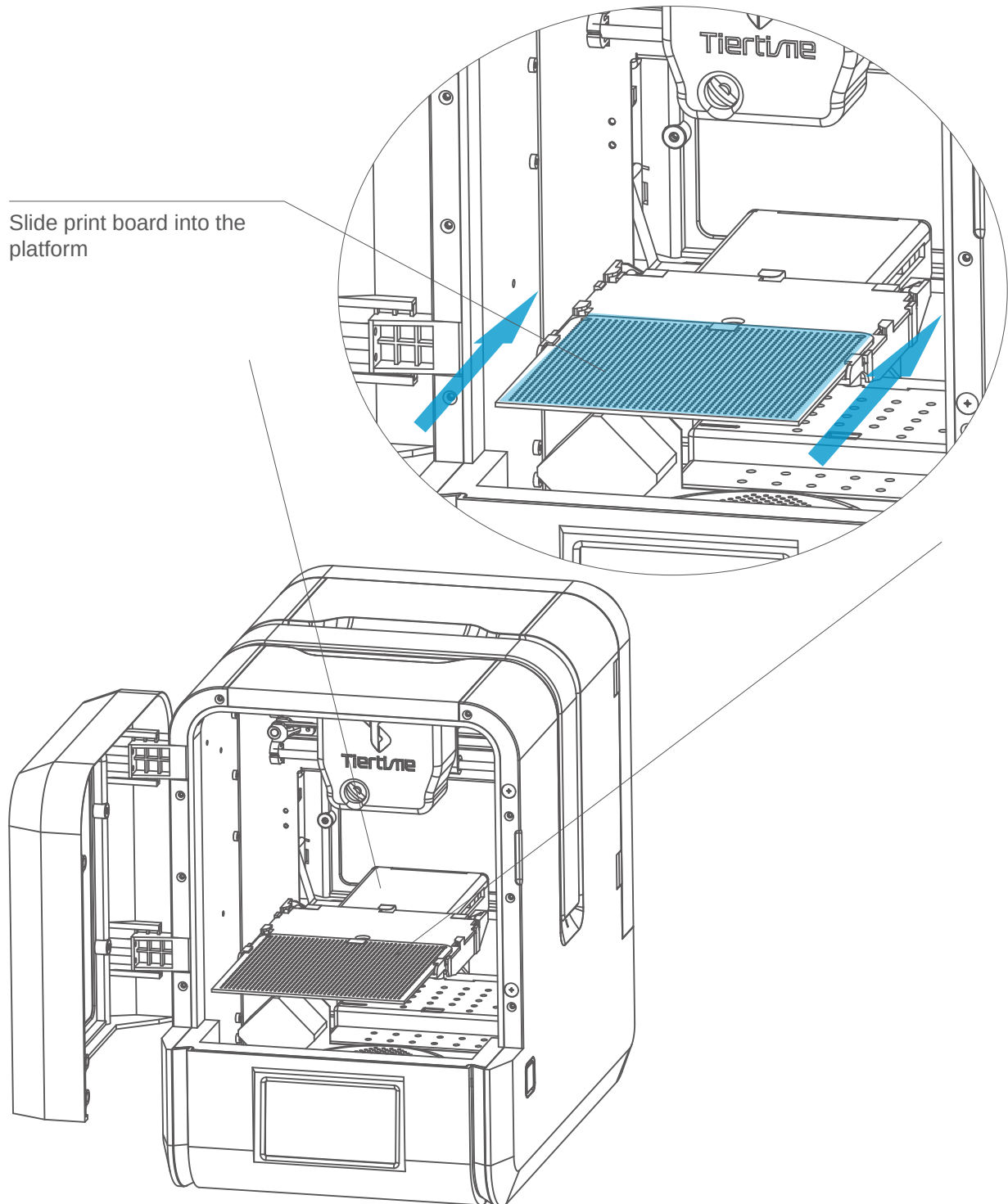
Back Side

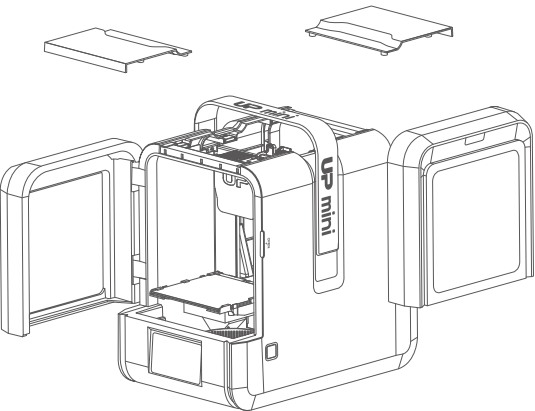


Filament Spool Holder

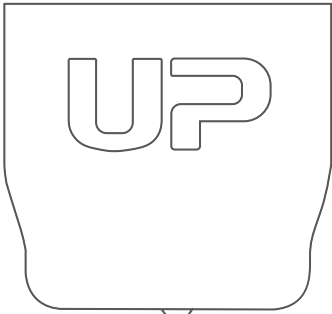
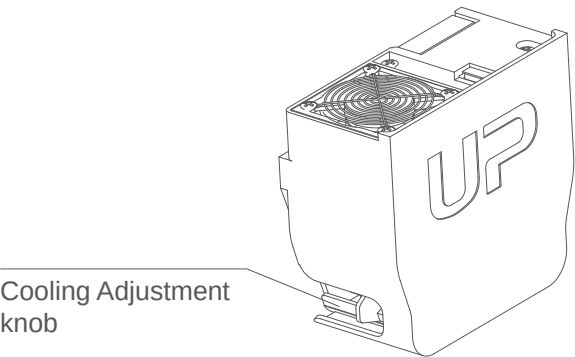


Installation of Print Board

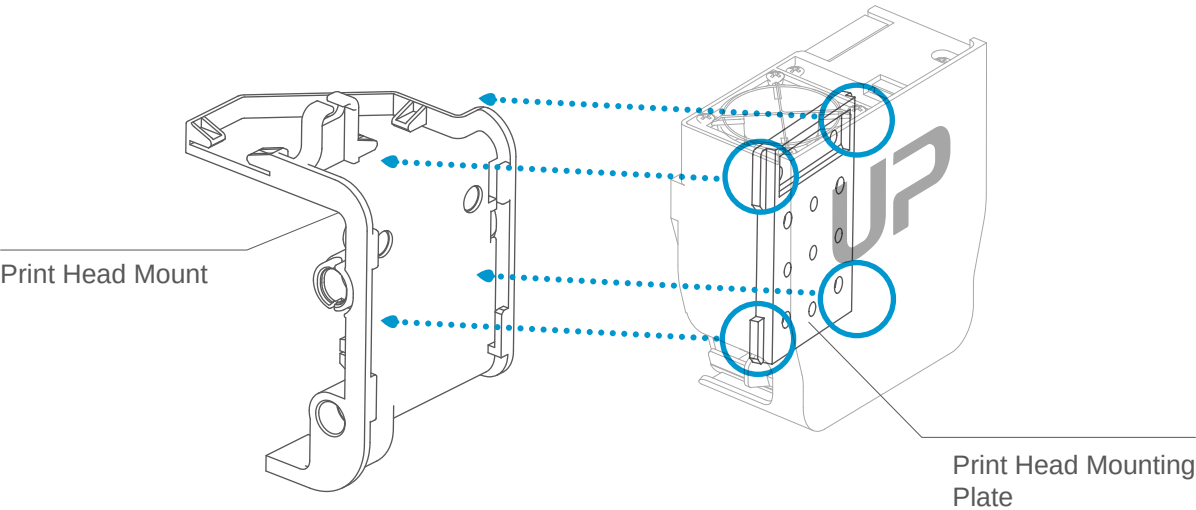


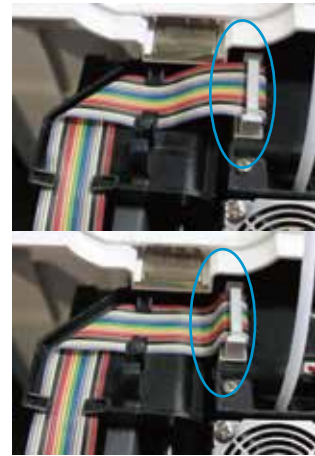
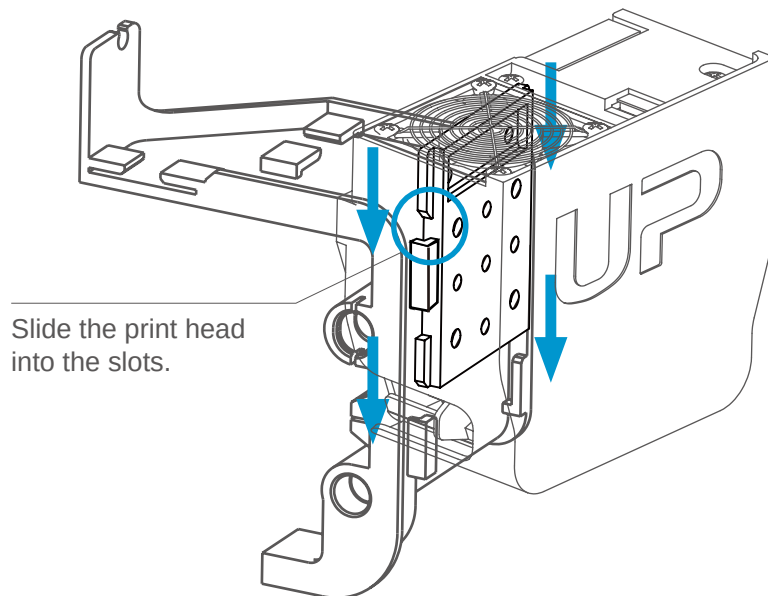


Open front door, back door
and top covers

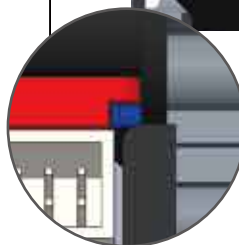
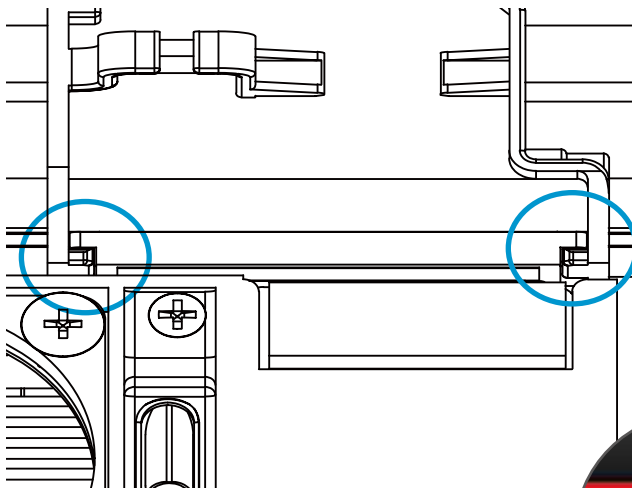


Nozzle





The Correct Installation about Printhead FFC cable for UP mini 2.



The print head must be pushed to the bottom of the mount.

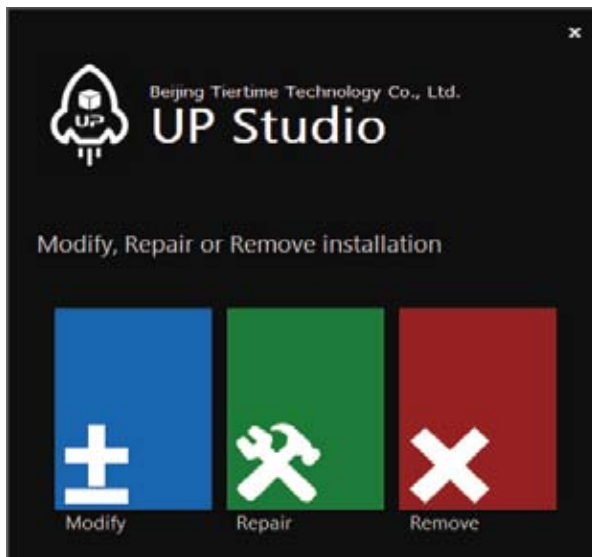
Notice: when installed correctly, the red and the blue parts should be at the same level.

Download and Install UP Studio

Two ways to obtain UP Studio

1. From the Micro SD card included in the package (using the microSD reader).
2. Download the latest version from www.up3d.com.

Double click the installation file, following simple instructions, the installation will be finished swiftly.

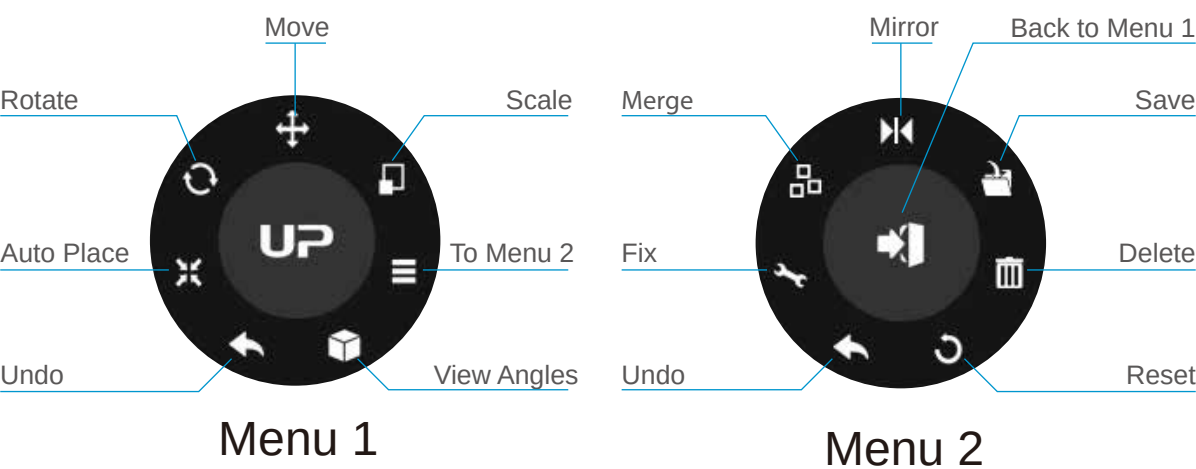
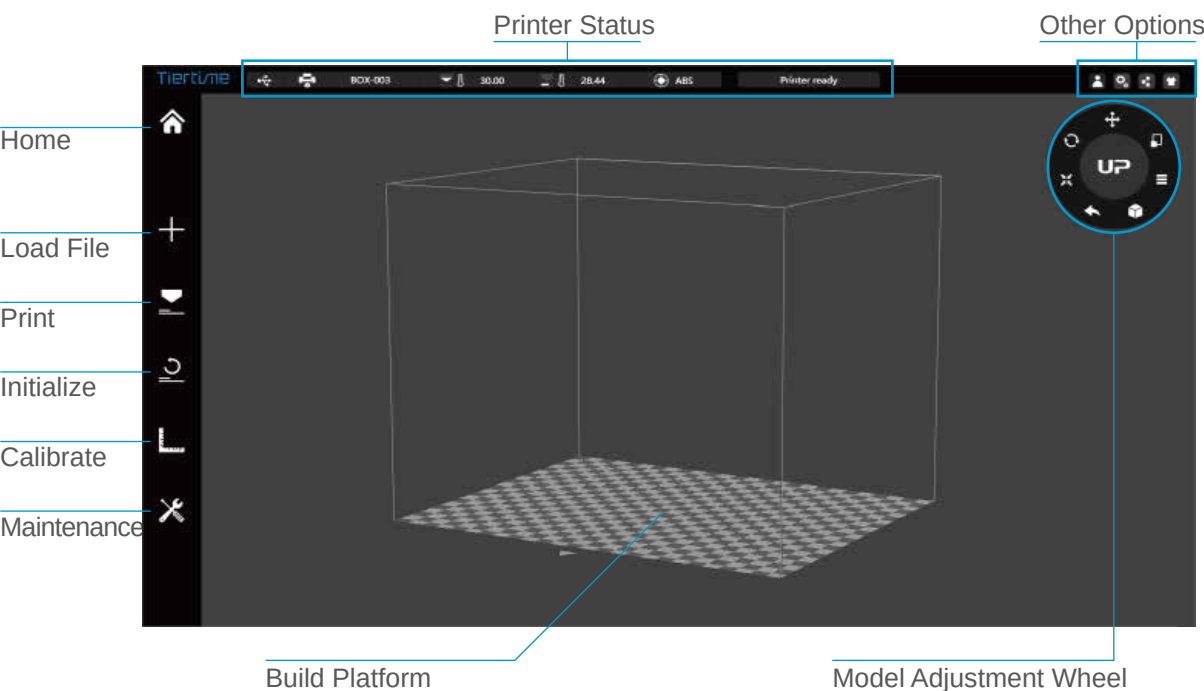


Minimum hardware requirements

Intel Pentium 4 or better CPU 4GB RAM
Display card support OpenGL 2.0



Software Interface



Initialization of Printer

Initialization is required for every time the machine is switched on. During initialization, the print head and print platform move slowly and hit the endstops of the XYZ axes. This is essential as the printer needs to find the end-point of each axis. Many software options will light up and become available for use only after initialization.

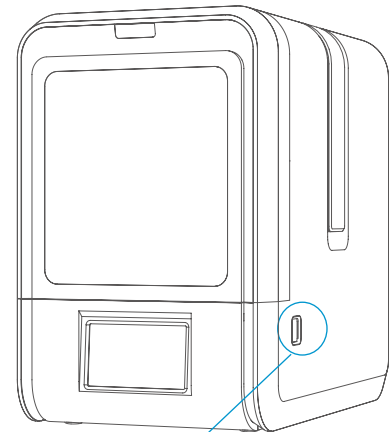
There are three ways to initialize your printer:

1. Hold the initialization button on the printer.
2. Clicking the "Initialize" option in the software menu (shown above).
3. When the printer is idle, press the initialize button on touch screen.

Other functions of Initialization Button:

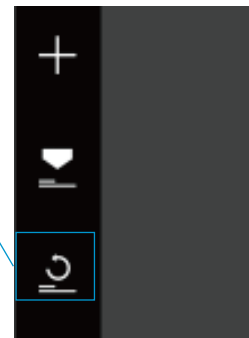
Stop the current print job:

1. During a print, press and hold the button.
2. Reprint the last job: Double click the button.
3. Turn on/off internal lighting: Single click the button.



Initialization button

Initialization Button



PC client



Touch Screen

Printer Activation

Activation will lift the restriction of the number of prints, and provide value-added services for the users.

1\ Click the “Account” button at the main menu to Sign Up.



Login

Username or e-mail

Password

Sign In

Sign Up

Remember me

Forgot Password?

2\ If already registered, skip to step 5. Fill in the form.

Sign Up

Username(3-20 characters, and start with a letter)

Email(please enter a email)

Password (6~32 characters)

Confirm password(Please input password again)

Registered user you agree with Terms of Service

Sign Up

3\ Go to your registered mail box, and activate your account through the activation email.

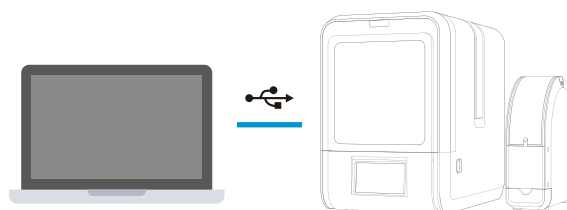
Registration successfully

Congratulations! [jason.watson@tiertime.com](#)

Registration successfully. activation code has been sent to your email box. please click here to activate

Activate

4\ Connect UP mini 2 ES to your computer.



5\ Go to Account section and sign in.

Login

Username or e-mail

Password

Sign In

Sign Up

Remember me

Forgot Password?

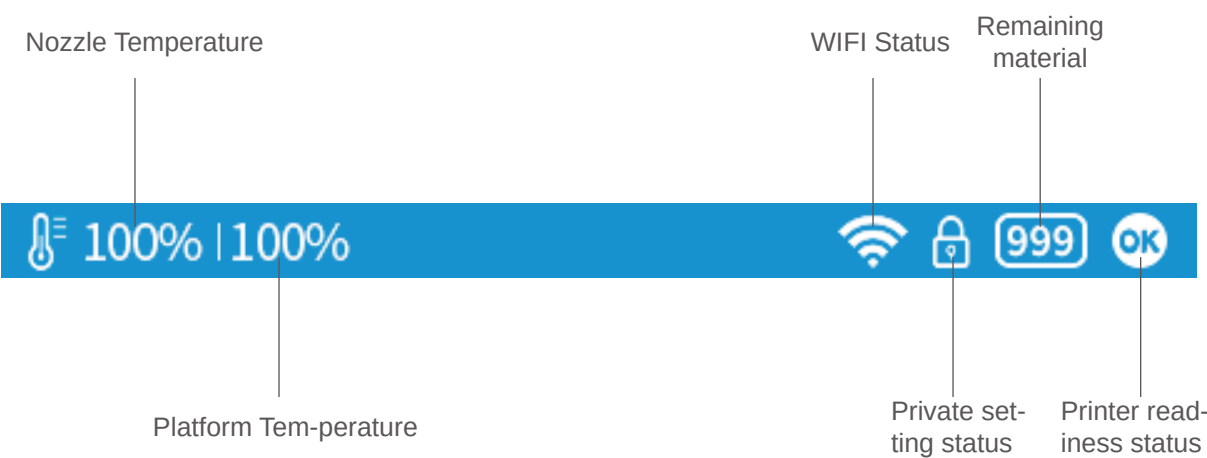
6\ You will see a list of connected printers. Click “Activate” to finish the activation. User could also choose bind or unbind option in the user account under the “Bind Status”.

Printer management

My printers	Printer name	Activation status	Bind status
		Activate	Unbind

7\ Restart the printer after the activation.

Touch Screen Control



Prepare for Printing - Update Nozzle Height

The printer was calibrated before leaving the factory, but users are recommend to update the nozzle height value using the automatic nozzle height detection function on the touch screen before the first print.

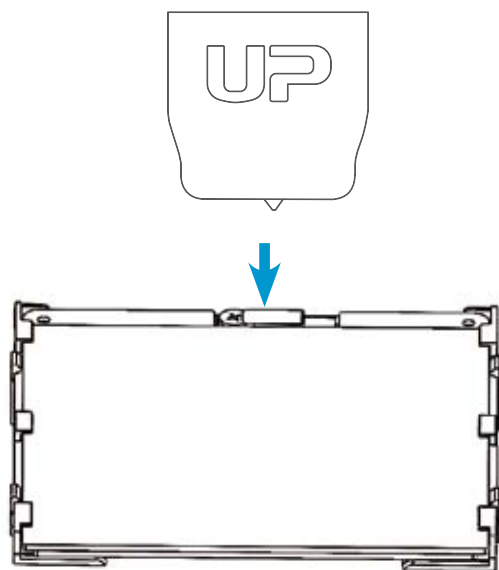
Press “Calibrate” button to enter Nozzle Height setup page.



Press the “Auto” button to start the automatic process.

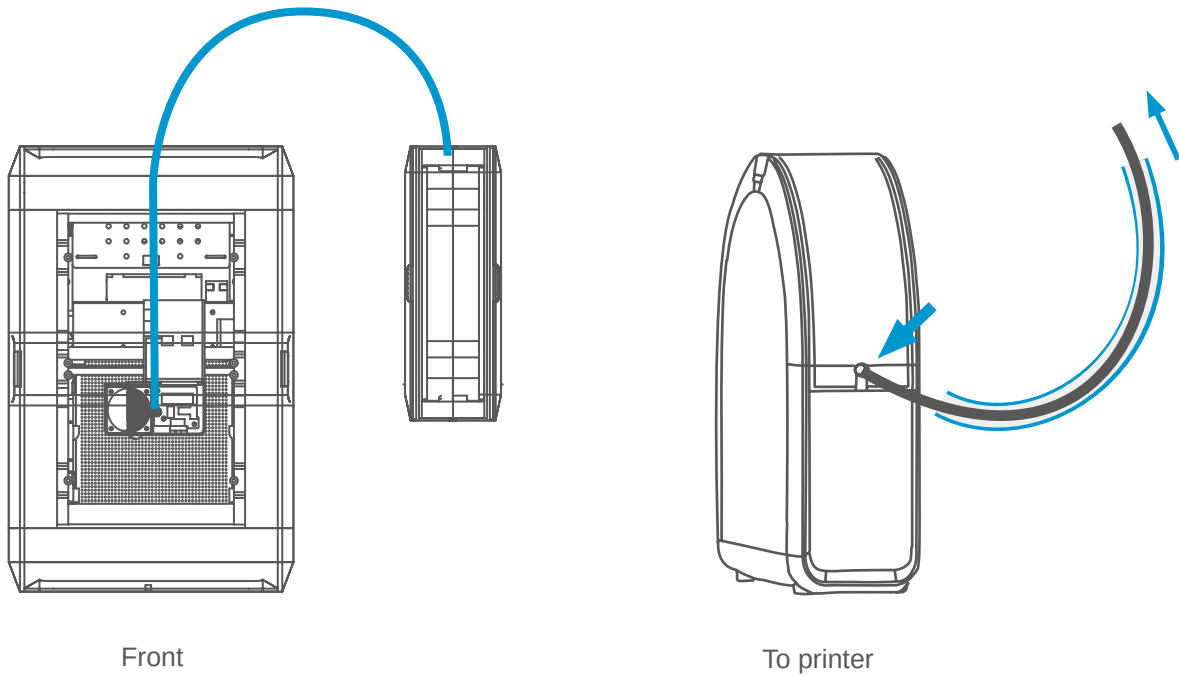


During nozzle height detection, the print head nozzle will touch the nozzle detector to make measurement.

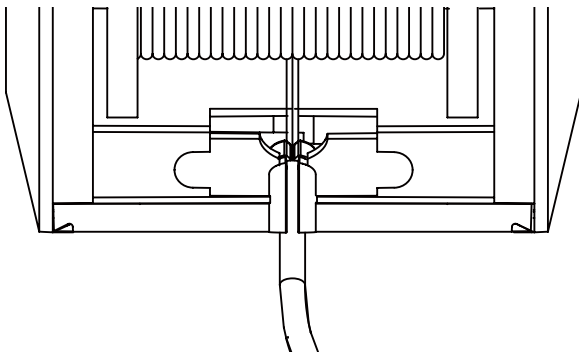


Prepare for Printing - Load Filament 2-1

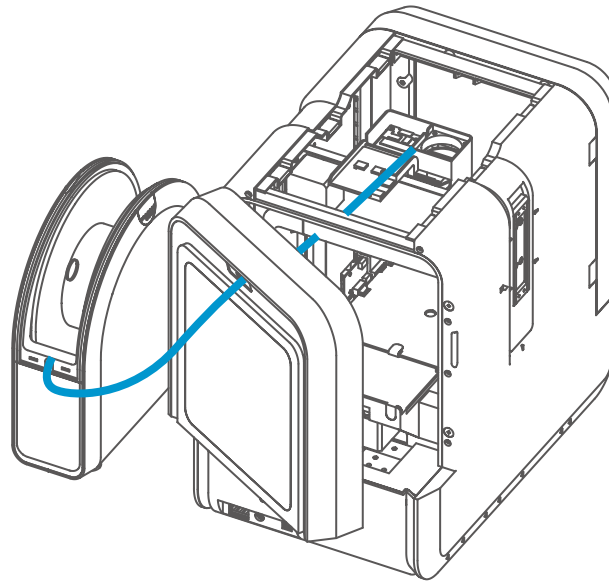
install the filament and guiding tube shown in blue.



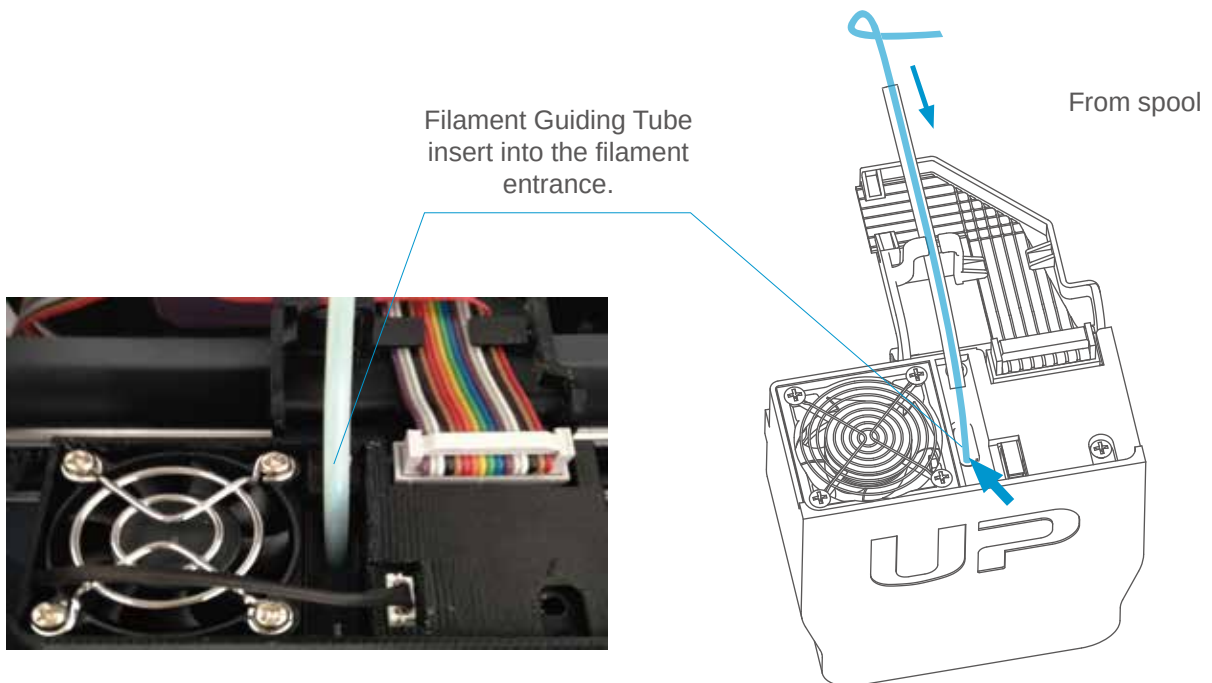
Push the guiding tube into the rubber ring as shown above.



Prepare for Printing - Load Filament 2-2

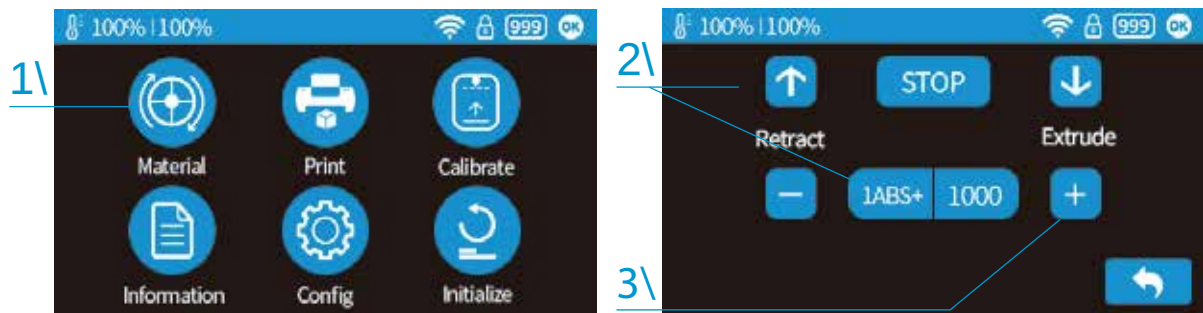


Back Side



Prepare for Printing - Load Filament

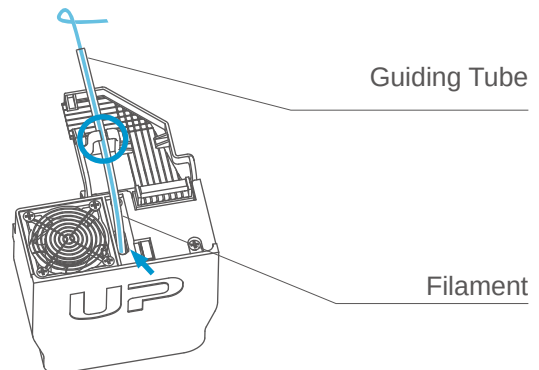
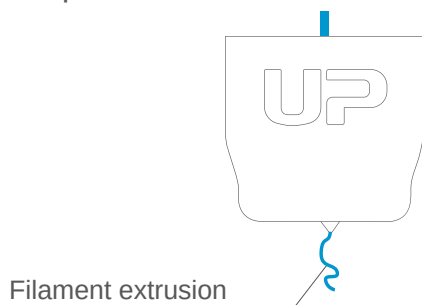
1\ Insert the filament from the spool into guiding tube, arrange the guiding tube as shown in previous page. Press the Material button on the touch screen.



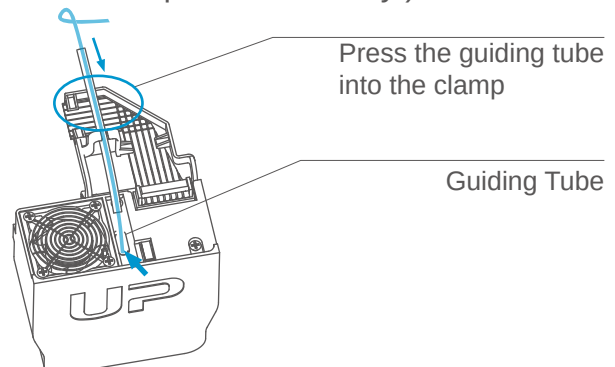
2\ Choose the printing material as ABS by press the Wheel button to switch between different materials input the filament weight by using the +/- buttons.

3\ Click "Extrude." The print head will start to heat up, within 3 minutes. Its temperature will reach 260°C, then the printer will buzz and the print head will start to extrude.

4\ Gently insert the filament into the small hole on the print head. The filament will be fed into the print head automatically when it reaches the extruder gear inside the print head.

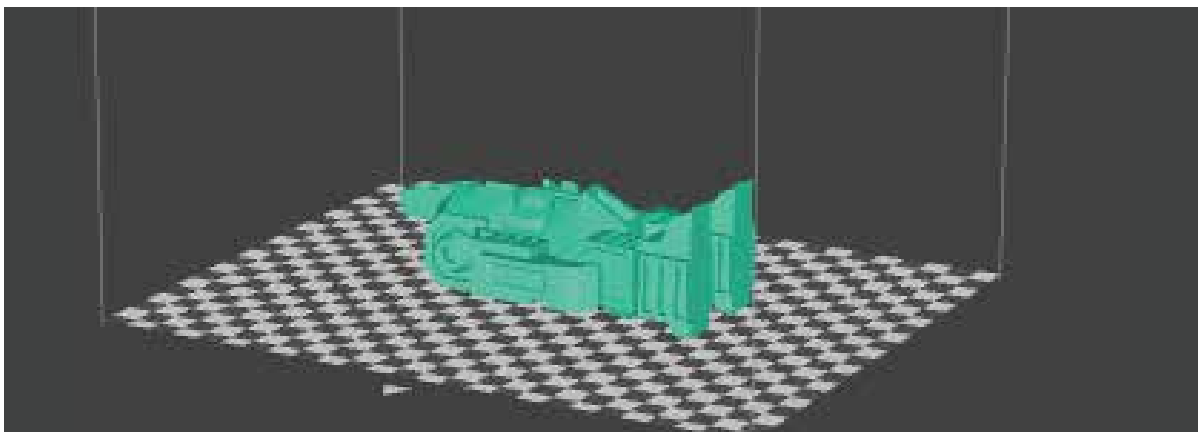
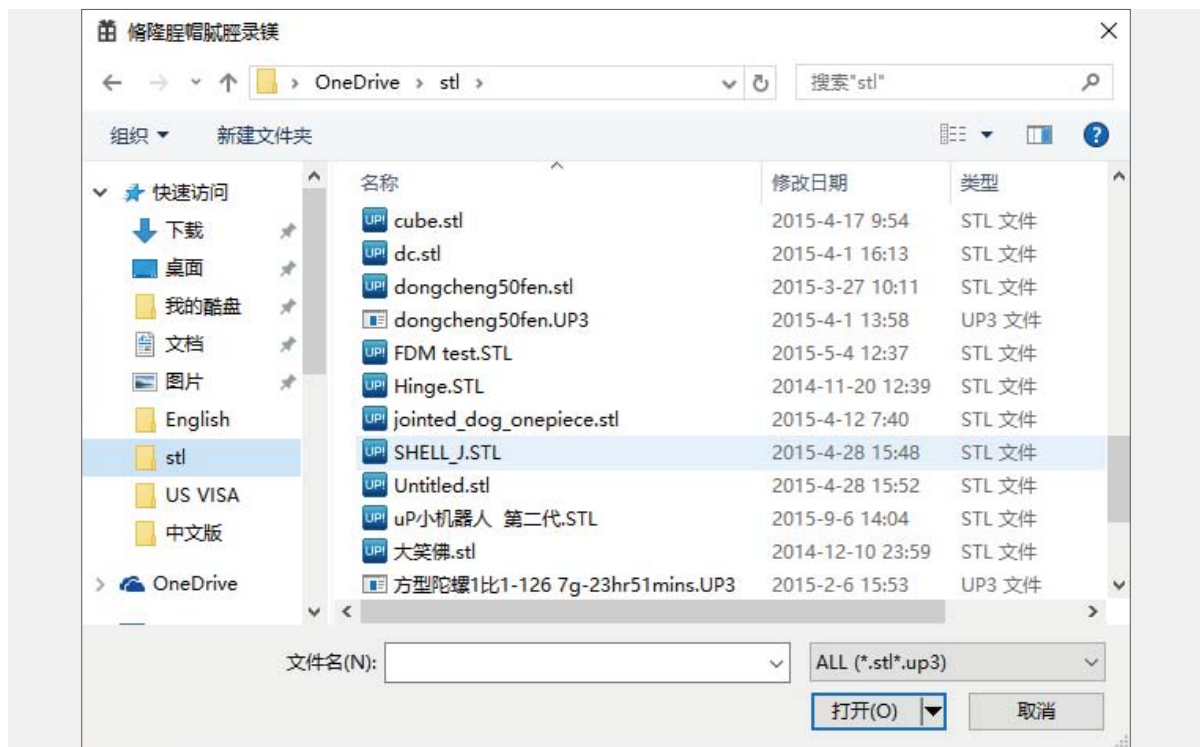


5\ Check the nozzle for plastic extrusion. If plastic is coming out from the nozzle, that means the filament is loading correctly and the printer is ready for printing. (The extrusion will stop automatically.)



6\ Finally insert the guiding the tube in to the filament entrance and press the tube into the holding clip on the print head mount.

Loading a 3D Model



Print a Model

Make sure printer is connected to computer through USB or WIFI (go to page 25 for details about WIFI setting)and loaded a model.

Printer Setting

Normal

Layer Thickness0.2mm

Fill

QualityNormal

OptionPreference

Preview

Print

Reprint

Click print button to open the print interface

Set Layer Thickness

Select Infill Type

Select Print Quality/Speed

Advanced Options

Shell: No infill, normal wall.	Surface: No top and bottom layers, no infill, single perimeter.	Hollow	Big Hole	Loose Fill	Solid Fill

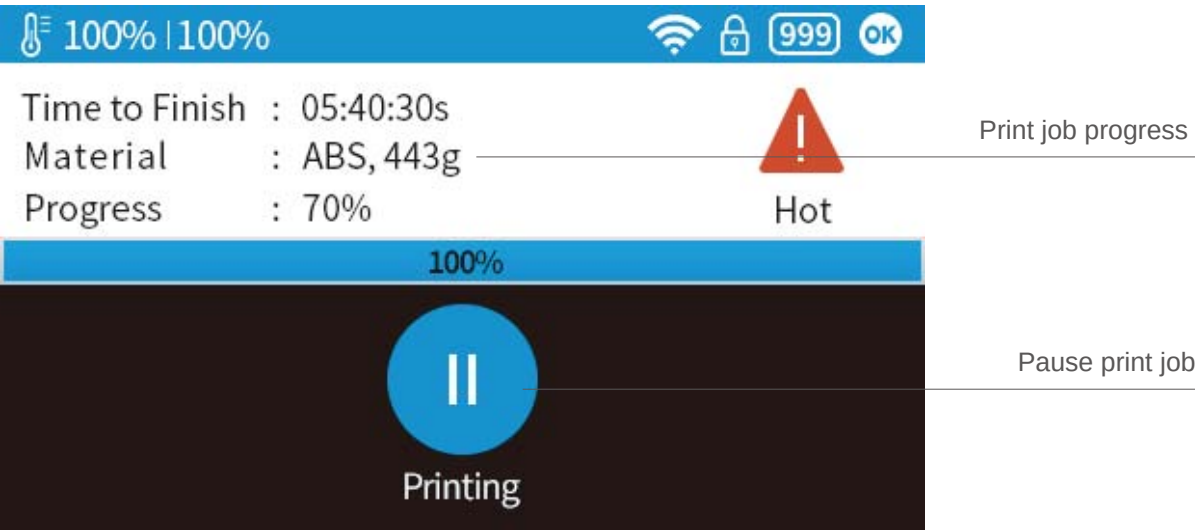
ABS

Printer ready

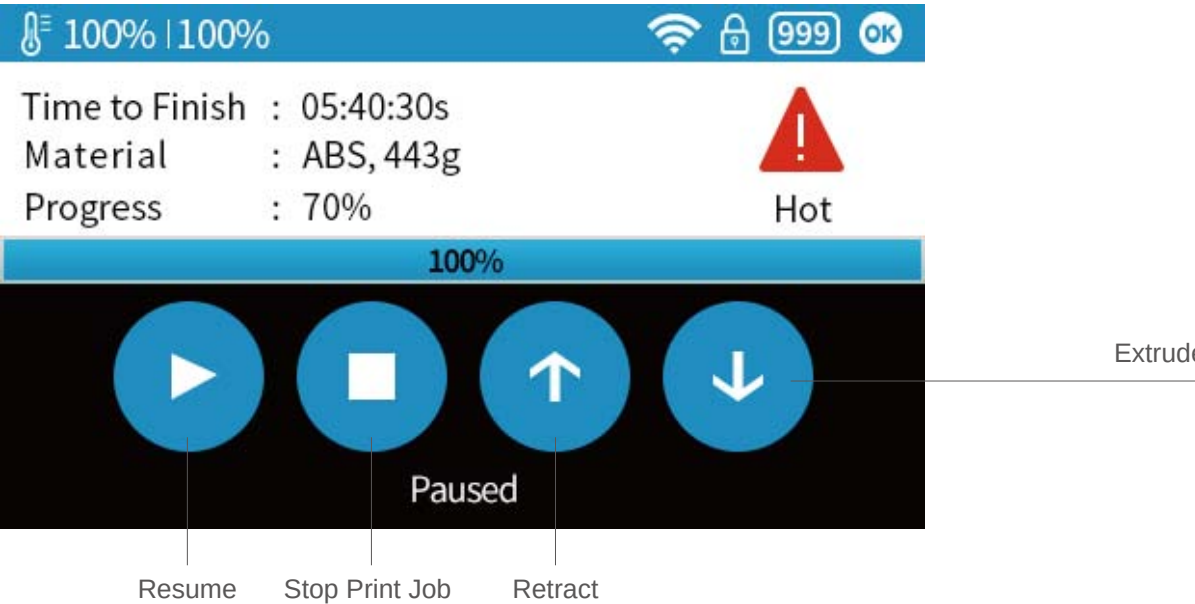
slicing 90/226

When the UP software is slicing or sending data to the printer progress displayed on the status bar on top of the software interface do not unplug the USB cable as this will disrupt the data transfer and result in a print failure. The USB cable can be unplugged after the data transfer is finished.

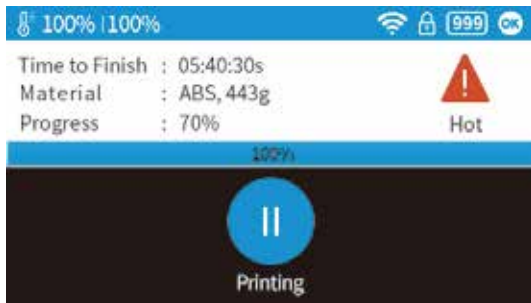
Printing Progress



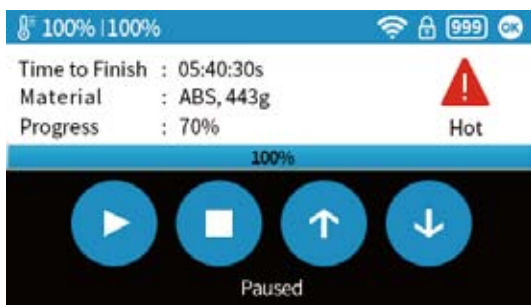
After pressing the pause button, the nozzle will be paused but temperature is maintained at printing temperature. During pausing, the following control buttons will appear to allow users to resume, stop or change filament. Please note the stopping is irreversible, the current print job can only be restarted from beginning.



Change Filament During Printing



1\ During printing process the “Pause” button, the printing job will be paused.



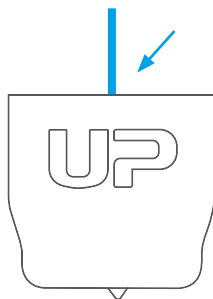
2\ When print head stopped moving and platform lowered. Press the “Retract” button to remove filament.



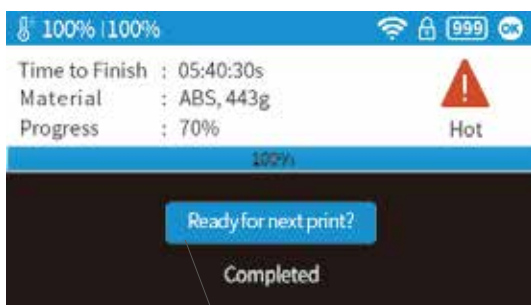
Press the “Extrude button” to load the new filament



Press the “resume” button to resume printing.



After filament was removed, insert new filament to the print head as described in page 16.



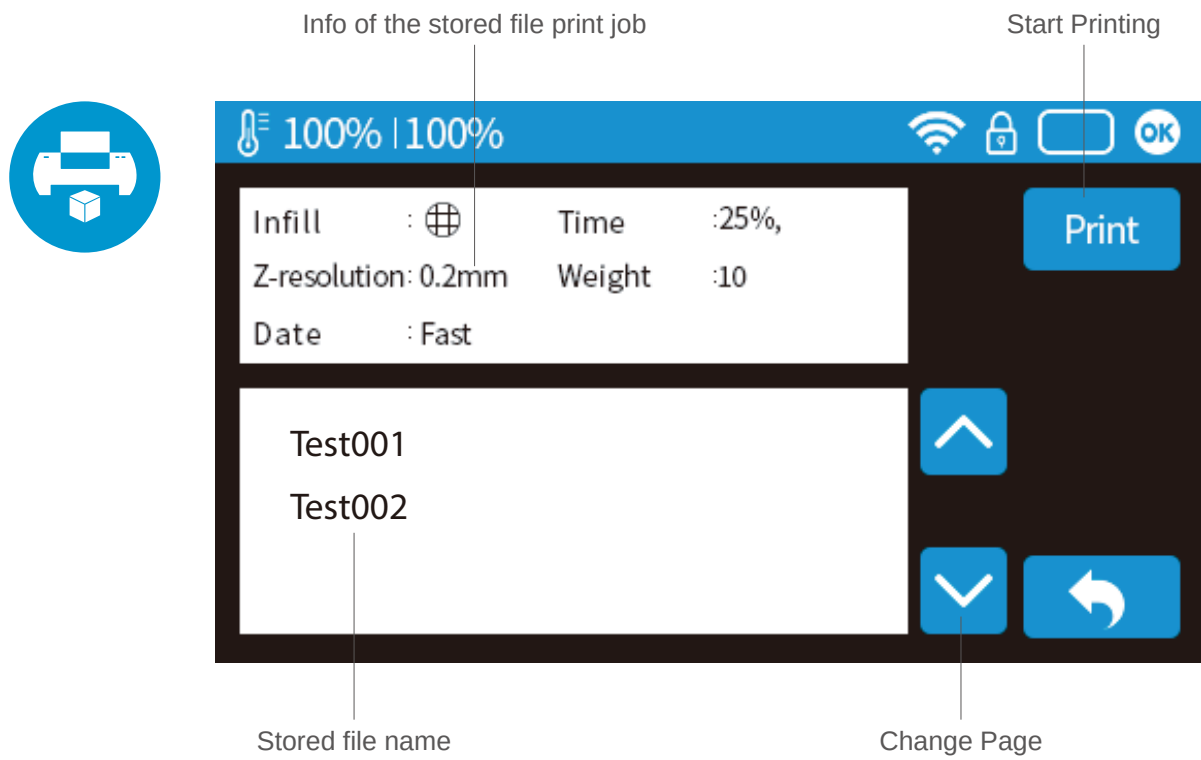
Confirmation button

Print Job Finished

Printer ready confirmation:

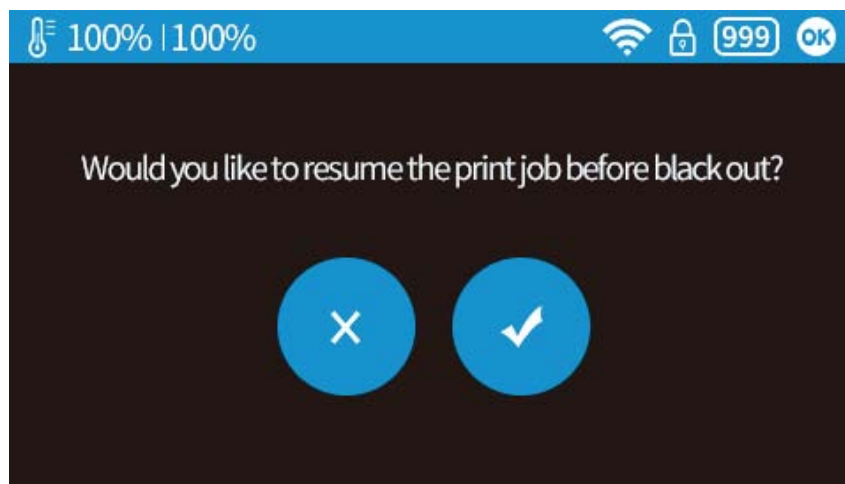
After the print job was finished, the user need to press the “Ready for next print?” button to confirm the printer is ready. User should make sure the previous print job is removed from the platform before pressing the button. The printer cannot start a new print job if they did not confirm the status.

Reprint or Printing Stored Print Jobs

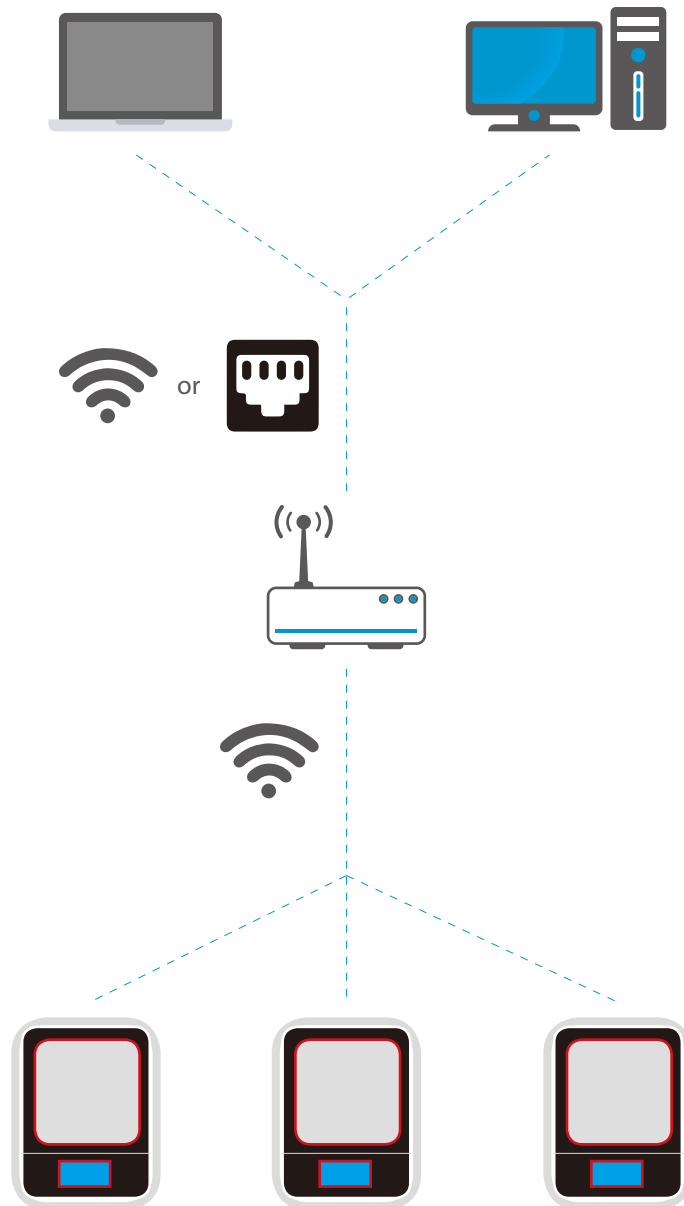


Black Out Recovery

If electricity was cut off during printing, the print job can be continued after resuming power supply. Do not remove the print job from the platform after the black out. When the machine was turn on again, initialize the printer. The printer will ask whether user would like to recover interrupted print job.



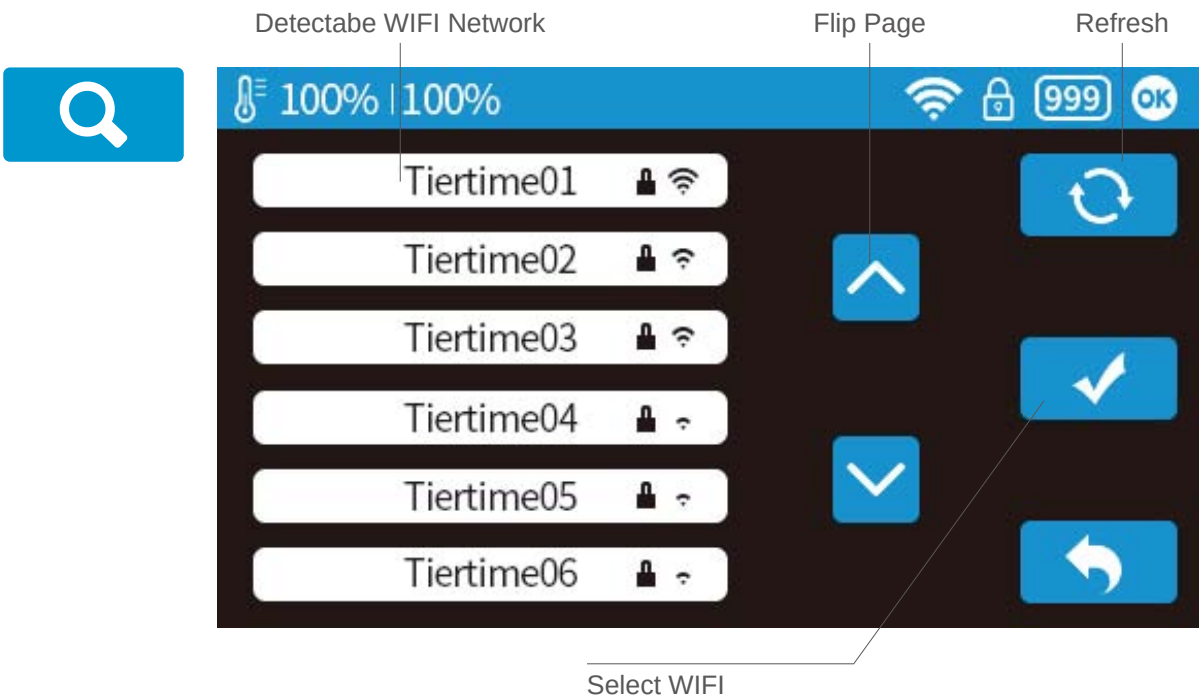
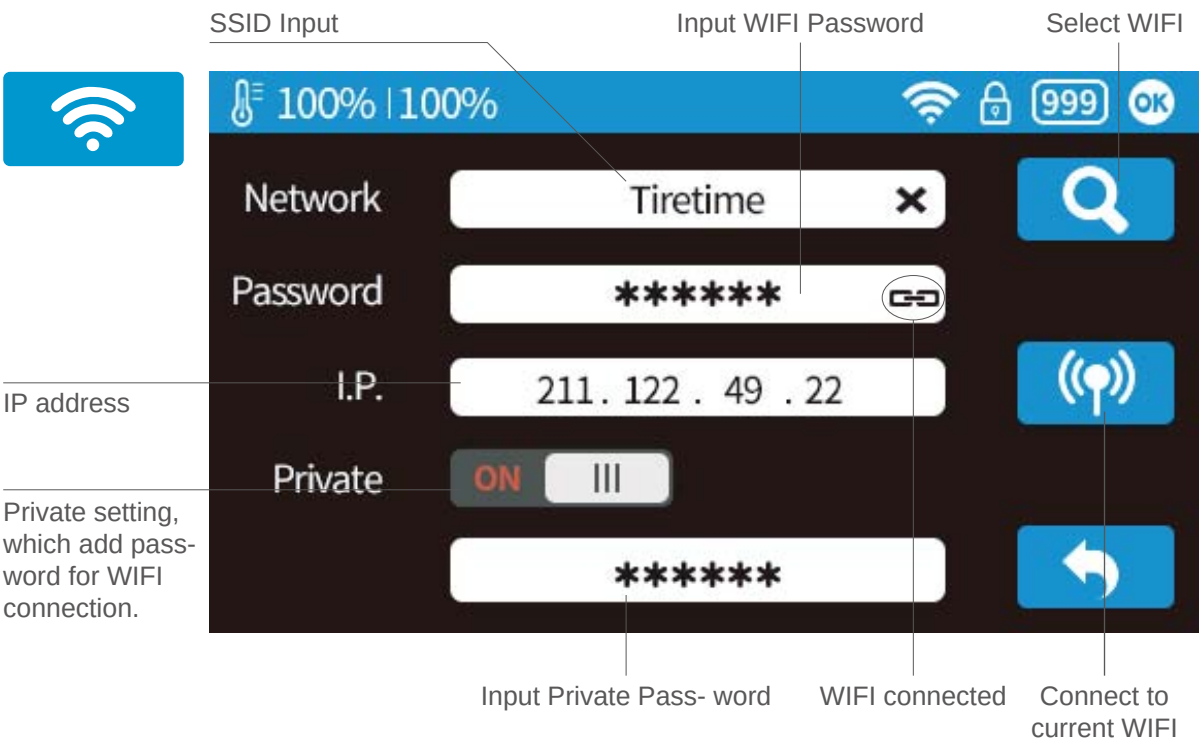
Machine Settings - WIFI Connection



Connecting to the UP mini 2 ES through WIFI requires a Wireless Local Area Network (WLAN). Computer and printers must connect to the same WIFI network (same SSID) before able to communicate.

In order to achieve stable WIFI connection, users are recommended to connect under a capacious WIFI environment. A crowded network or an area with a large number different networks are known to cause interruption during data transfer.

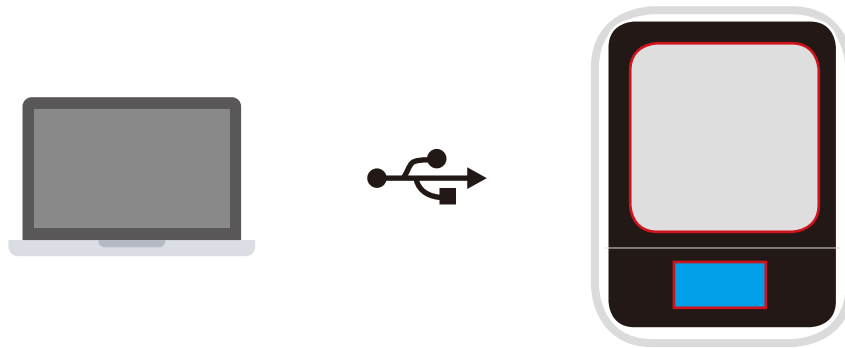
WIFI Setup through Touch Screen.



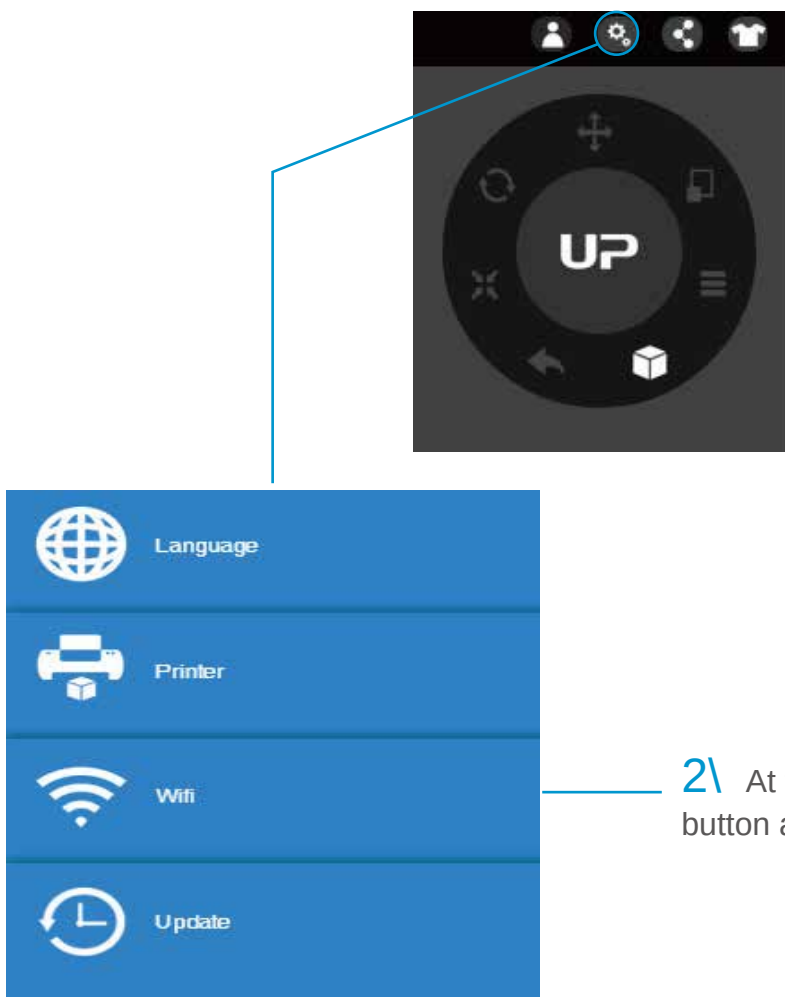
Setup Private WIFI Access



If user switch on the private function in WIFI setting, a password field will appear to allow password setup. This is password that will be required for WIFI connection to the printer to prevent unauthorized usage through WIFI. Please note this is a weak protection that anyone who can access to the printer through USB or touch screen could change the private password.



1\ Connect UP mini 2 ES to computer through USB.



2\ At top right corner click the setting button and then click WIFI tab.

WIFI Setup (UP Studio)

3-2

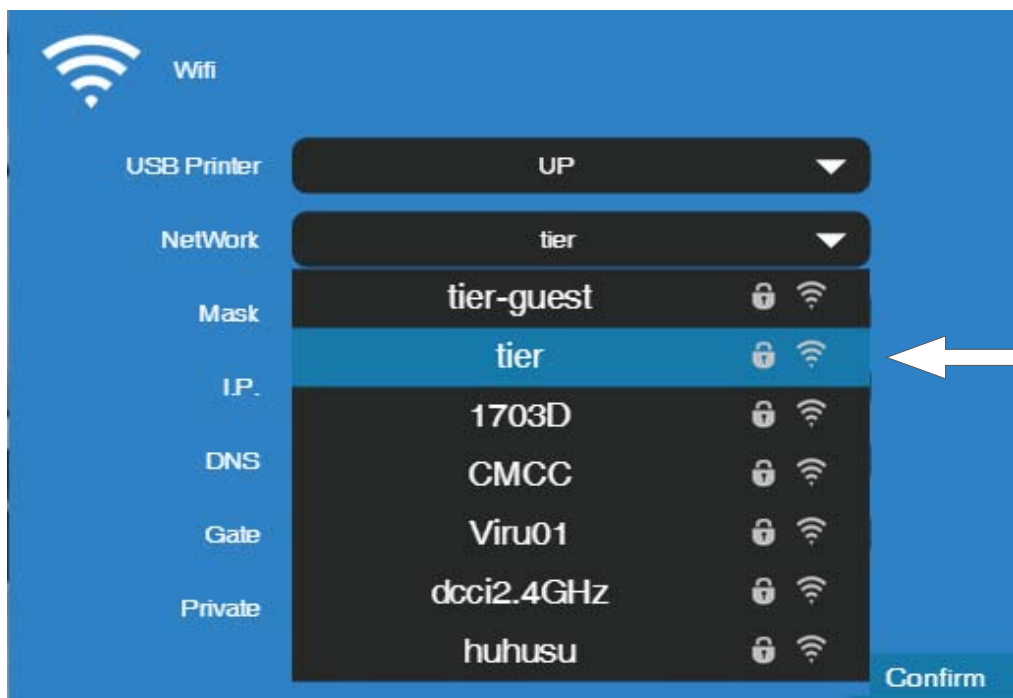
3\ Click network to choose an available network (user can also use touch screen panel to setup WIFI connection).



The screenshot shows the 'Wifi' setup screen with a blue background and a white Wi-Fi icon at the top left. The fields are as follows:

Field	Value
USB Printer	UP Plus 2(A) - 20001043
NetWork	tier
Mask	255.255.255.0
I.P.	192.168.5.155
DNS	0.0.0.0
Gate	192.168.5.1
Private	OFF

A 'Confirm' button is located at the bottom right.



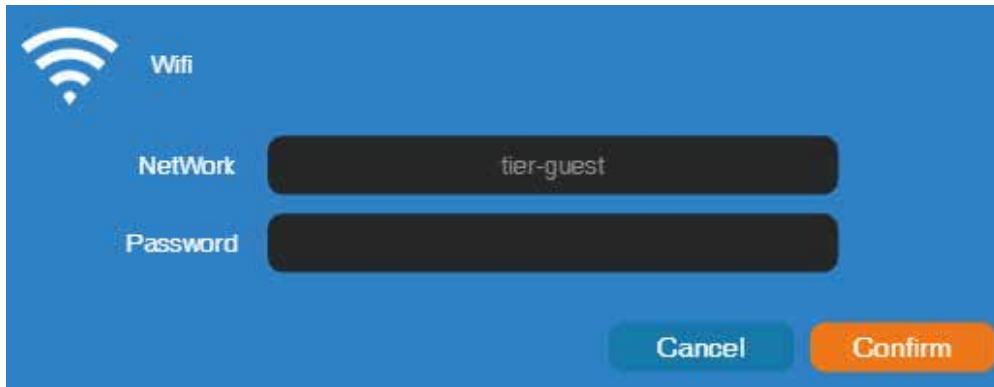
The screenshot shows the 'Wifi' setup screen with the 'NetWork' dropdown menu open. A white arrow points to the 'tier' option in the list.

Field	Value
USB Printer	UP
NetWork	tier
Mask	tier-guest
I.P.	tier
DNS	1703D
Gate	CMCC
Private	Viru01
	dcci2.4GHz
	huhusu

A 'Confirm' button is located at the bottom right.

Choose your network from the drop down list.

4\ Input the password for the WIFI network.



The image shows a blue screen titled "Wifi" with a Wi-Fi icon. It has two input fields: "NetWork" with the text "tier-guest" and "Password" which is empty. At the bottom right are "Cancel" and "Confirm" buttons.

5\ If "Private" is set to ON, a private password could be optionally added to limit printer WIFI access to trusted users. Please note that the password is a weak protection that can be accessed and changed by anyone who can connect the machine through USB.



The image shows a blue screen with a "Private" toggle switch set to "ON" and a "Password" input field.

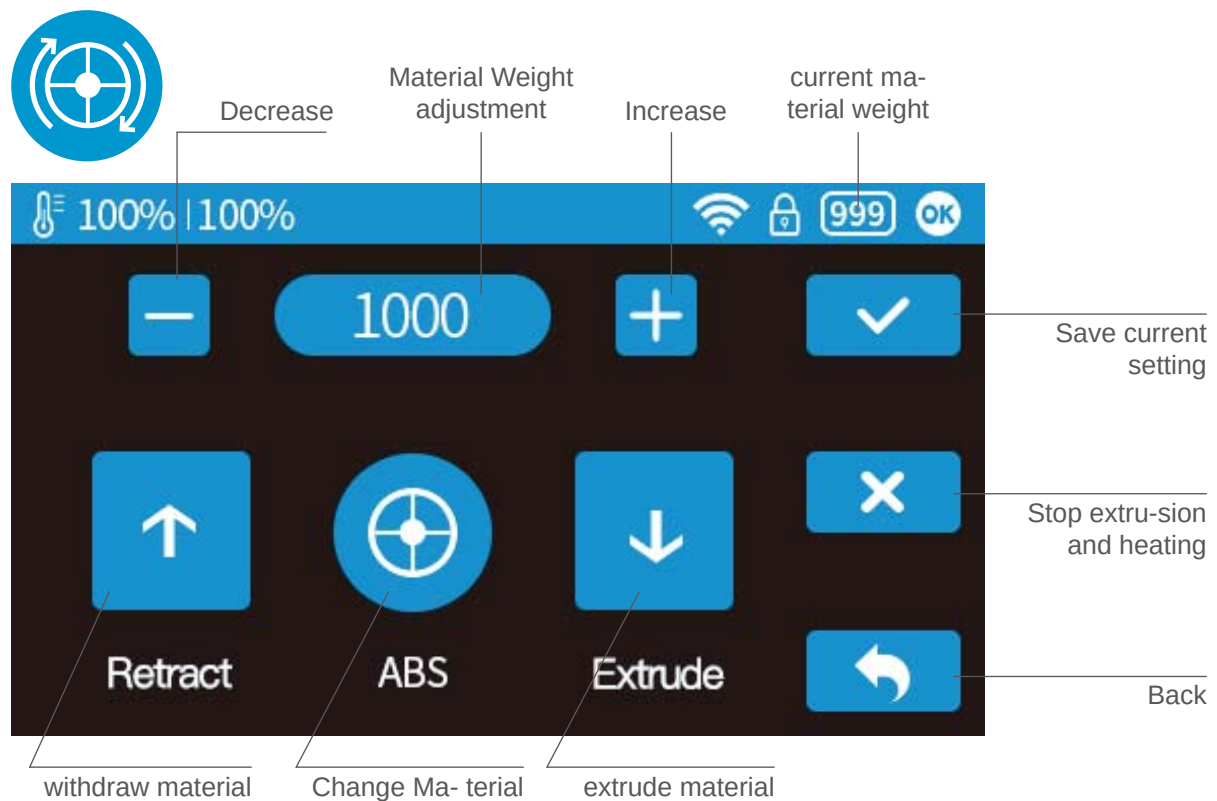
6\ Printer Tab



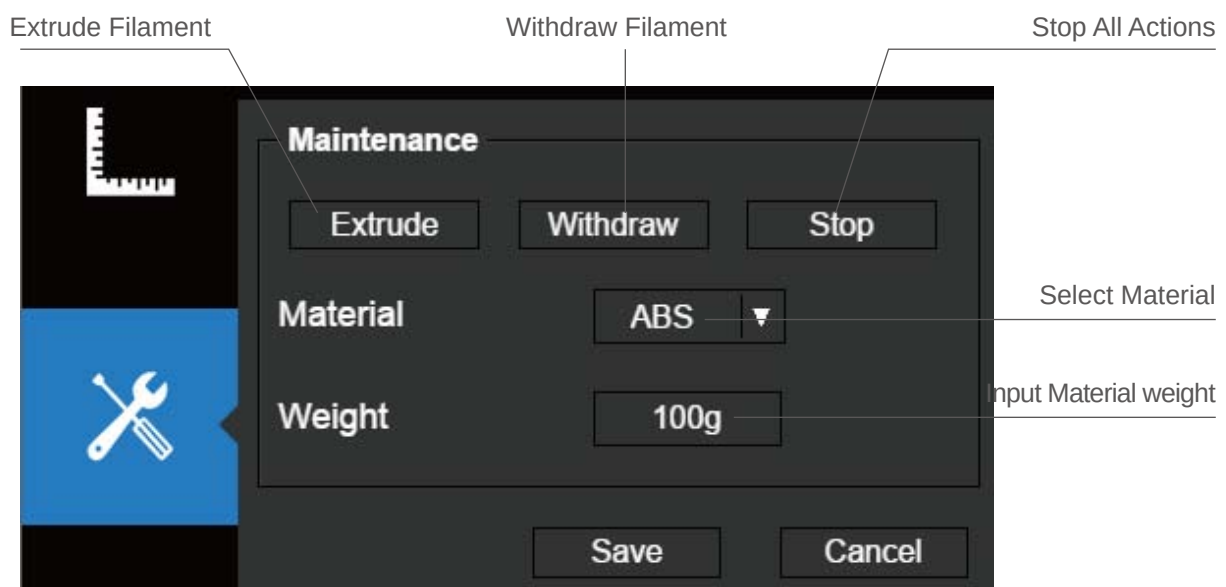
The image shows a blue screen titled "Printer" with a printer icon and a refresh icon. It displays three printer options: a generic printer icon, "UP Plus 2(A) -" with a red checkmark, and another "UP Plus 2(A) -".

Disconnect USB and choose available printers on the network to operate through WIFI.

Set Materials (Touch Screen)

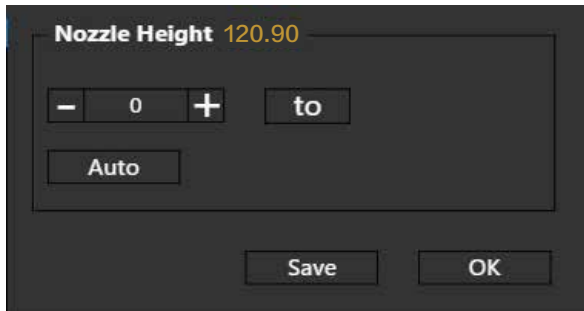


Set Materials (UP Studio)



Set Nozzle Height (UP Studio)

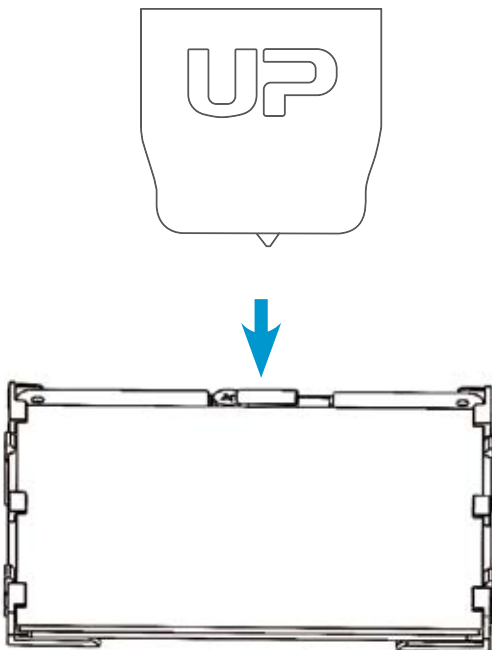
For setting nozzle height with touch screen please refer to page 16.



Open the Calibration panel

At the Nozzle Height section, click “Auto” will initiate the automatic nozzle height detection process.

Clicking +/- button will move the platform up and down, or user could input a specific value at the text field and click “To” button the move the platform to a specific height. Click save will replace nozzle height value with current platform height.



During nozzle height detection, the print head nozzle will touch the thin metal sheet on the detector to make measurement.

Machine Configuration



WIFI switch, if switched off the WIFI setting button will not appear.

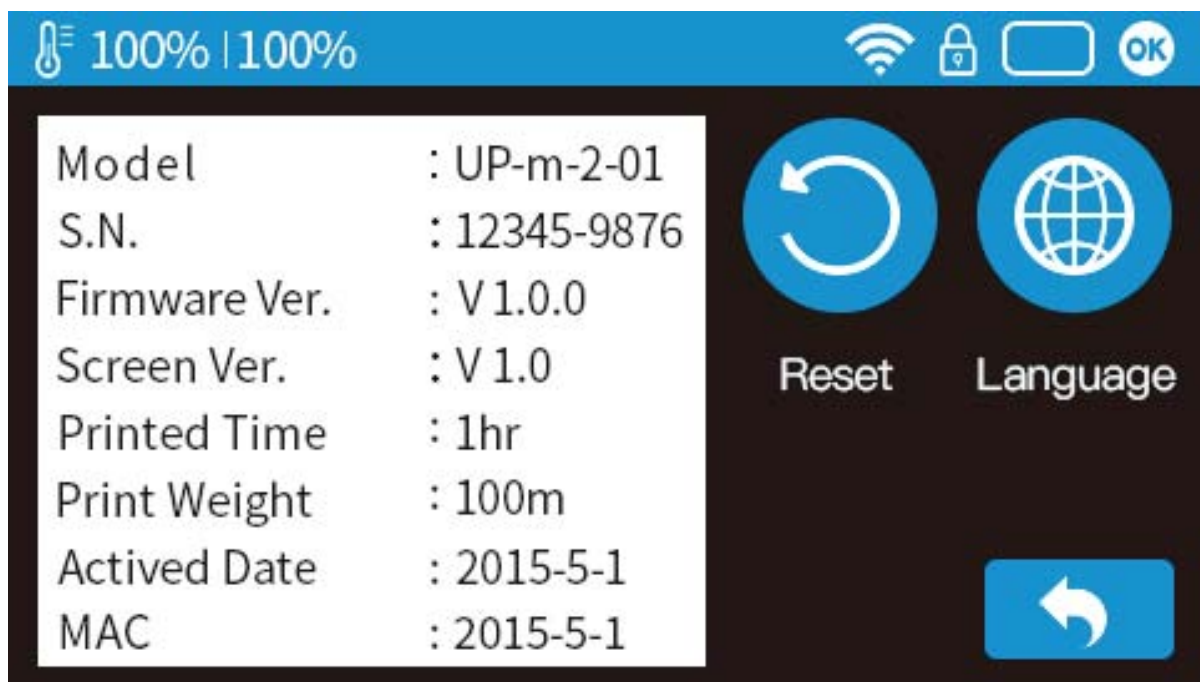
internal lighting switch

WIFI setting button



Peheat switch, when turned on, for every print job, the printer will first preheat 15min before proceed to printing.

Language and Factory Reset



Model: current machine model

S.N.: machine serial number

Firmware Ver: shows current firmware version **Print Time:** total print time count

Print Weight: total print weight count

Activated Date: the date of printer activation **MAC:** mac address of printer

Reset: revert to factory setting. This will change some machine setting to default; remove total printed time and weight data.

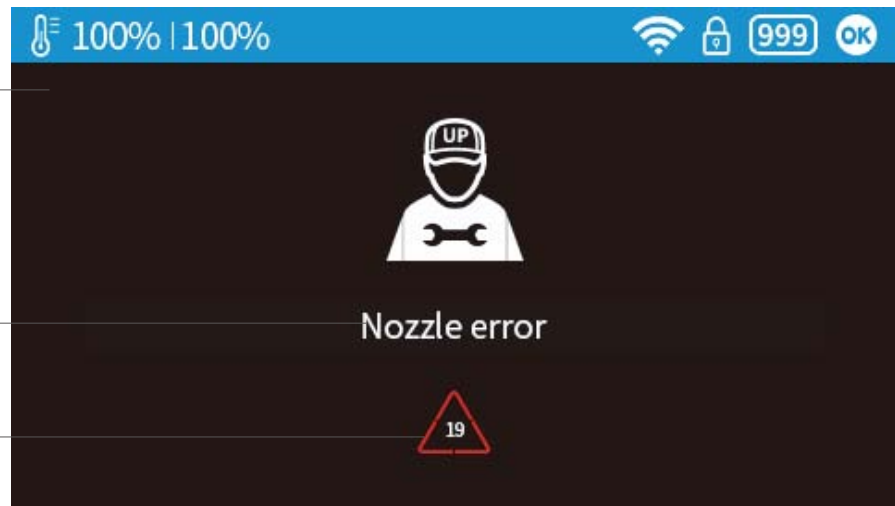
Language: choose language. Current available language: Chinese simplified, Chinese Traditional, Korean, Japanese, French, Germany, English

Error Prompts

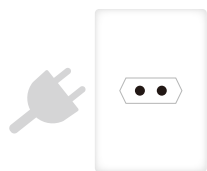
Suggested solution,
in this case:
Contact support

Error Message

Error code



Other possible error prompt:



Unplug printer and restart



reinitialize the printer

Rotating Models (UP Studio)

Choose the model and Click rotate button.

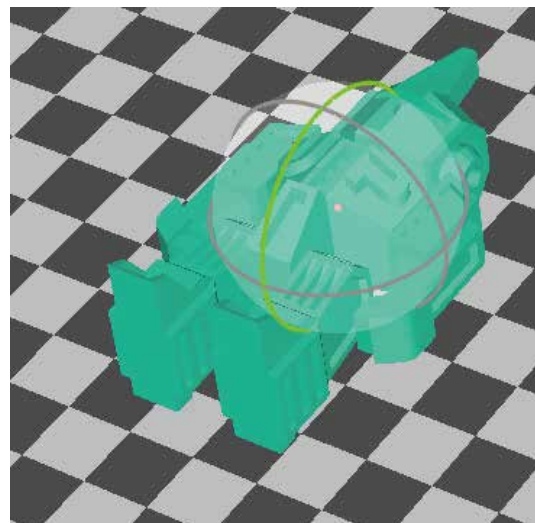


Choose rotation axis

User could input a specific value or choose a preset value for rotation.



Alternatively, user could use the rotation guide to rotate model in real time by hold and drag with mouse.



Scaling Models (UP Studio)



Choose the model and Click rotate button.

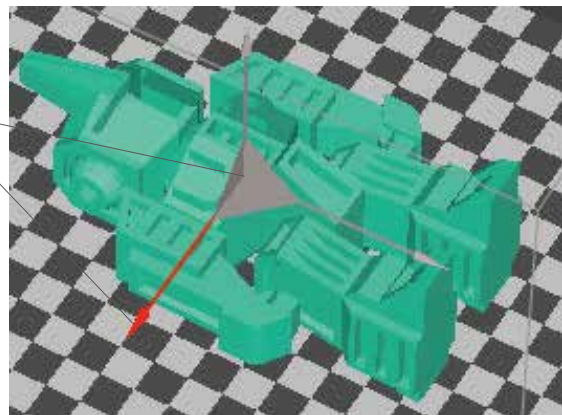
By default the scaling is in all axes.
User could also choose a specific axis for scaling.

User could input a specific scaling
factor or choose a preset value



Click MM or INCH to convert models to
sizes of corresponding units.

Alternatively, user could use the scaling guide
on the model. User could scale
in a specific axis or scale in all directions
by hold and drag with mouse.



Move Model (UP Studio)



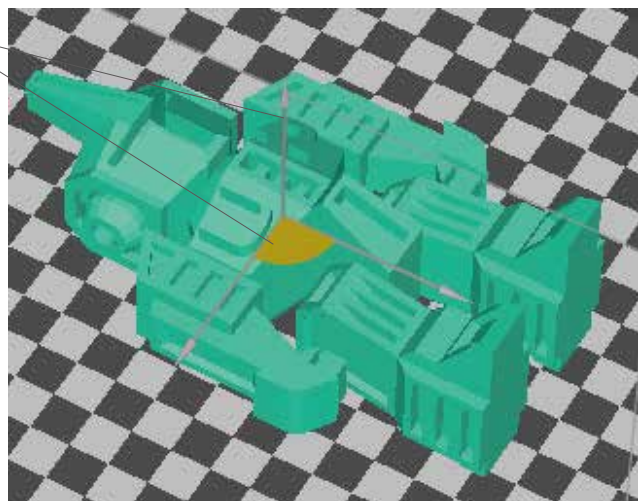
Choose the model and click the Move button.

Choose the the direction of movement

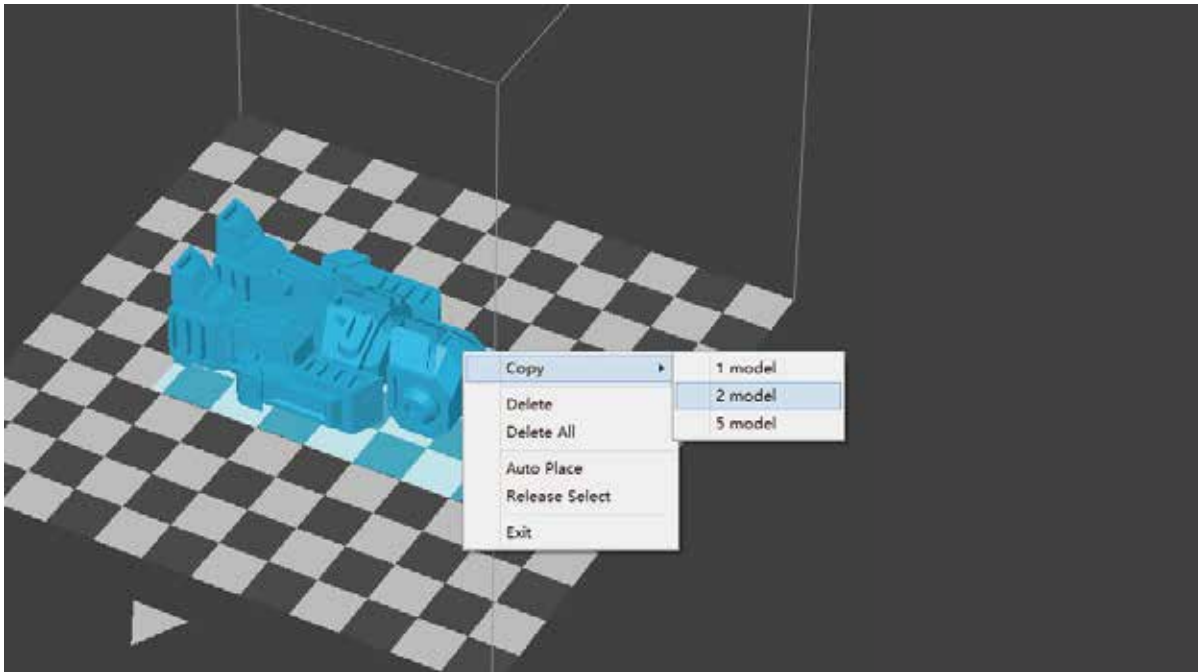
User could input a specific value or choose a preset value for distance of movement.



Alternatively, user could use the translational guide on the model to move on the X-Y plane or a single direction by hold and drag with mouse.



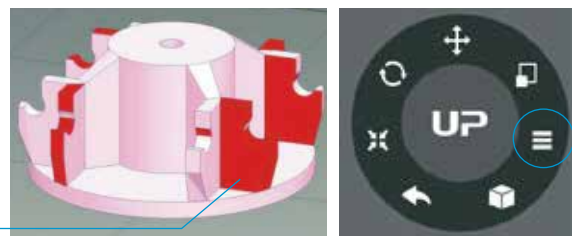
Make Copies



Choose the model by clicking it (highlighted), the right-click to bring up the menu and select copy number.

Repair A Model

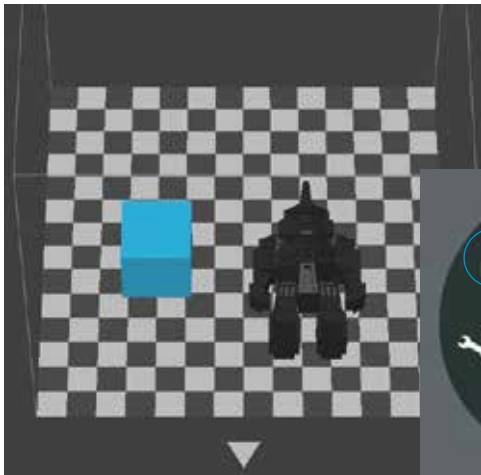
1\ If the model contains defective surfaces, the software will highlight the surfaces in red. Click the "more" button to reach second level menu



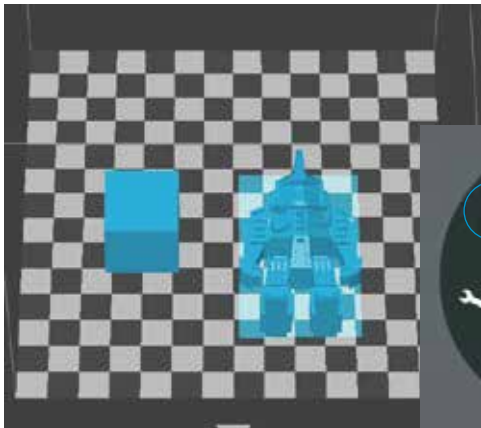
2\ Click the x button the repair the model. The red defective surfaces will resume a normal color when repaired.



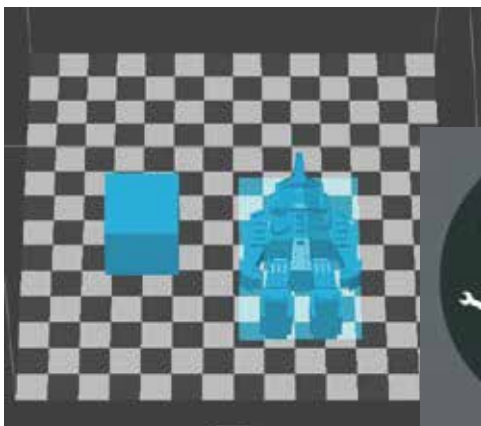
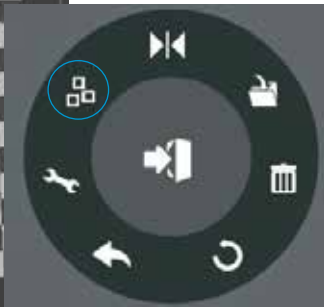
Merge and Save Models



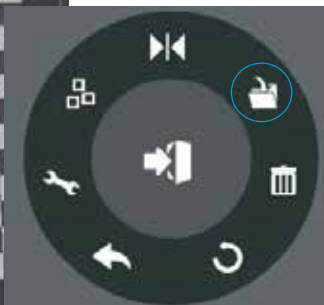
1\ Ctrl/CMD click all the models on the build plate.

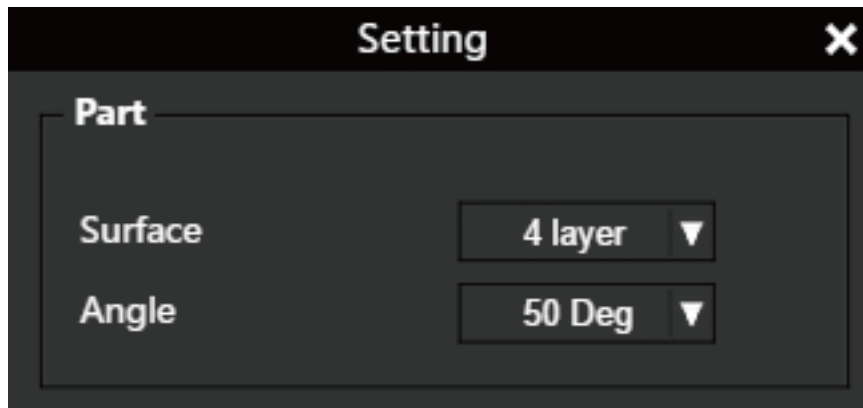


2\ The Merge button on the second level of the adjustment wheel will become available, click to merge the models.



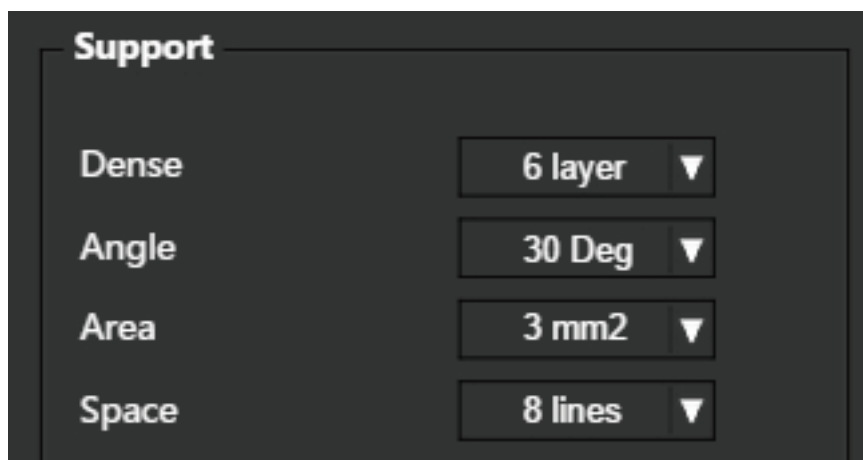
3\ Click the save button to save the merged models to computer.





Surface: the number layers at the sealing the top and the bottom of the printed object.

Angle: This determine at which angle the Surface layers start to be printed.



Dense: Choose the number of dense layers between support and supported surfaces.

Angle: Determine the angle which support and dense layer to generated.

Area: Determine the minimal area of surface that will be supported, area less than this vaule will not be supported.

Space: Determine how desne the support will be, the larger the value the less dense of the support.

No Raft	☐
No Support	☐
Stable Support	☐

No Raft: print without raft.

No Support: print without support

Stable Support: Support structure will be stronger but less easy to be removed.

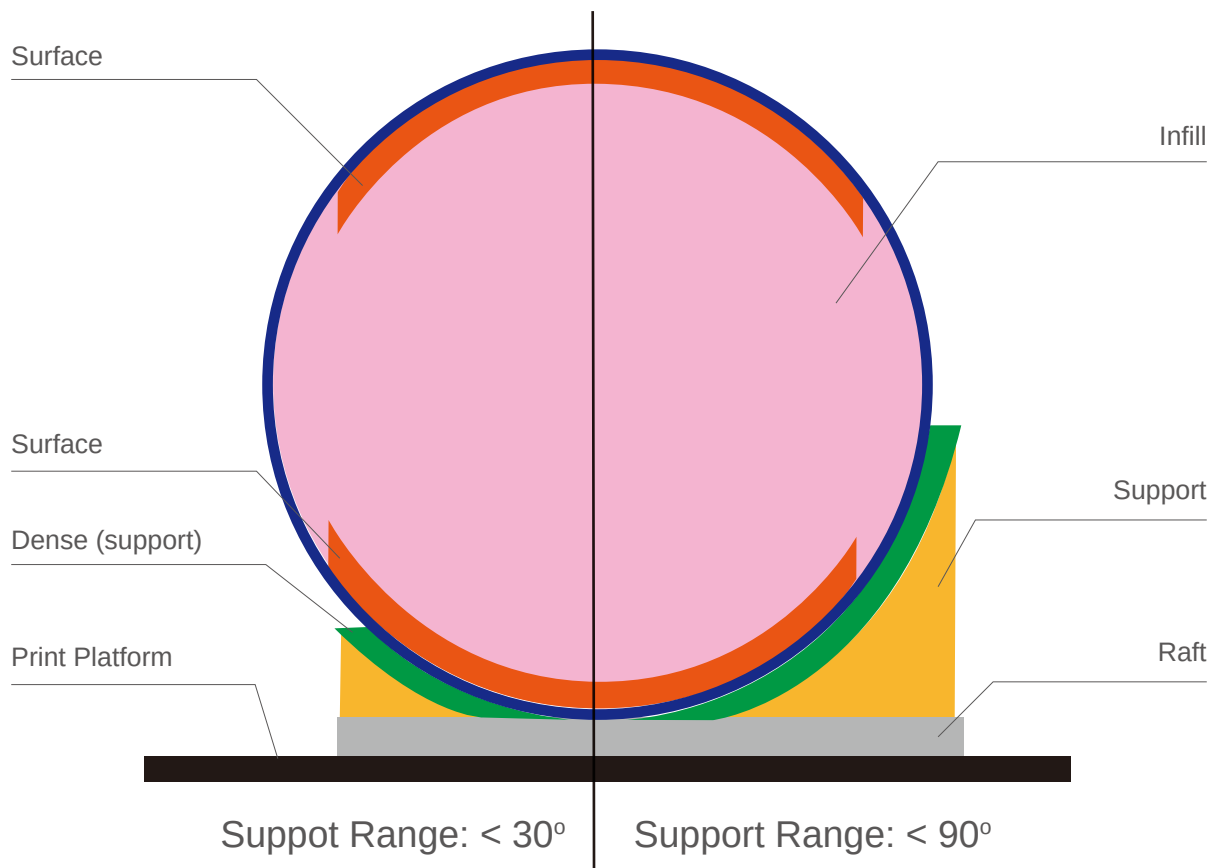
Others	
Unsolid Model	☐
Thin Wall	☐
Keep Heating	☐

Unsolide Model: The software will autofix nonsolid models

Thin Wall: The Software will detect wall thickness that is too thin to print and expand the feature to a printable size.

Keep Heating: The platform will be heated after print job is completed.

Printing Parameters



Dense: Solid support structure ensures that the surface being supported retains its shape and surface finish.

Infill: The inner structure of the printed object. The density of the infill can be adjusted.

Raft: The thick structure that assists with the adhesion of the object to the platform.

Surface: The top and bottom layers of the printed object.

Manual Calibration

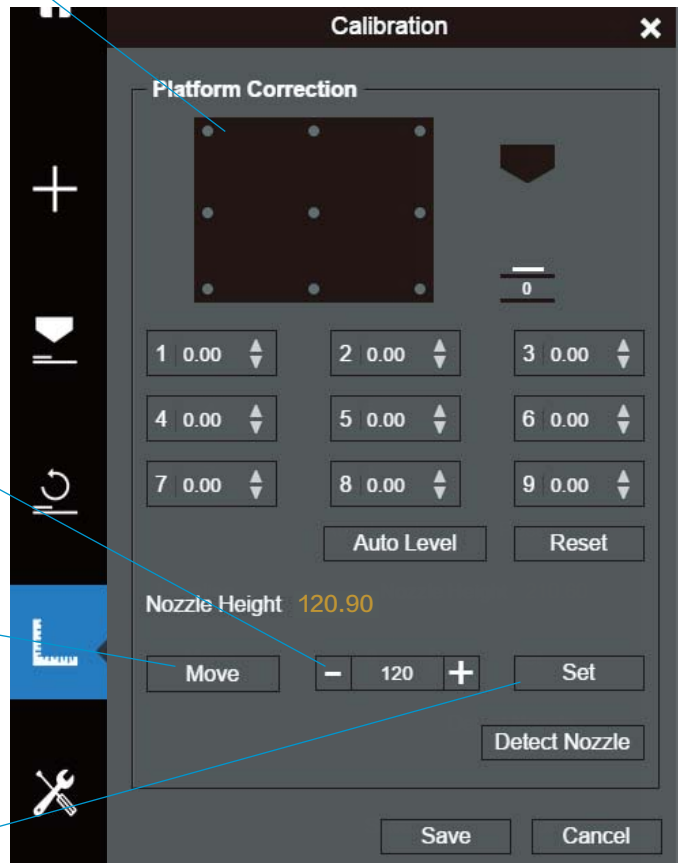
The 9 buttons represent platform calibration point.

The dropdown menu beside the button is for setting the leveling compensation values. After checking the leveling check box and clicking these buttons, the nozzle will move to the corresponding positions and move up based on the compensation value.

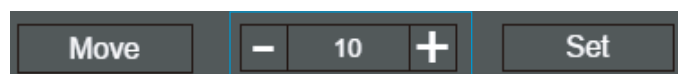
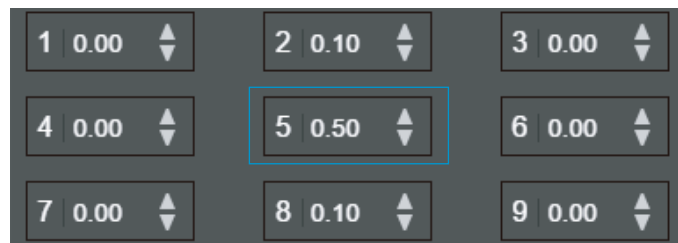
Moves the platform up/down: click the +/- buttons to move the platform up and down.

For sending the platform to a specific height, input the value in the text field between + and - and then click "Move" button.

Click "Set" button user want to save currently platform height as nozzle height.



So if user click the 9 buttons, the printhead will move to corresponding position and platform will move to a height that equal to "value in the text field" + the "compensation value"





1\ Initialize the printer

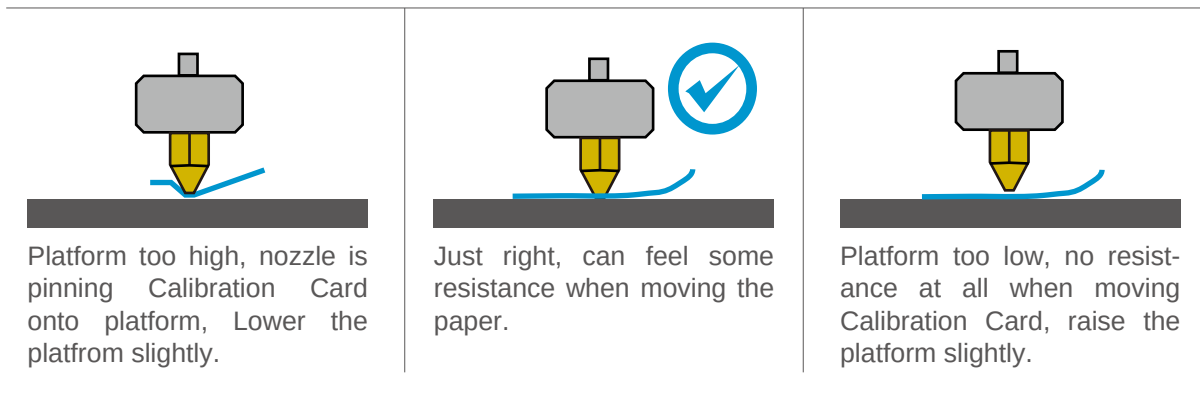
2\ Put a Calibration Card on the platform.



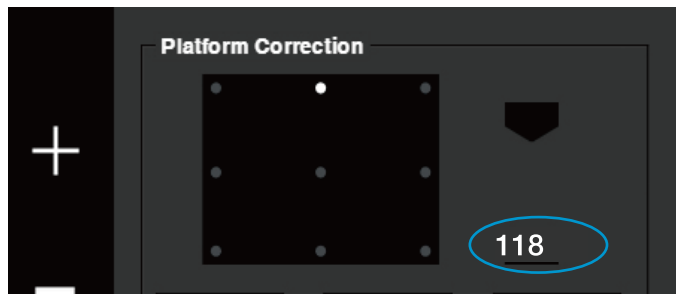
3\ Move print head to the middle of the platform by click 5.



4\ Raise the platform until it is just touching the nozzle. Move the Calibration Card between the nozzle and the platform to see if there is any resistance.



5\ When the ideal platform height is obtained, record the platform height value. Repeat steps 1–6 for all of the other eight positions and note their platform height values.



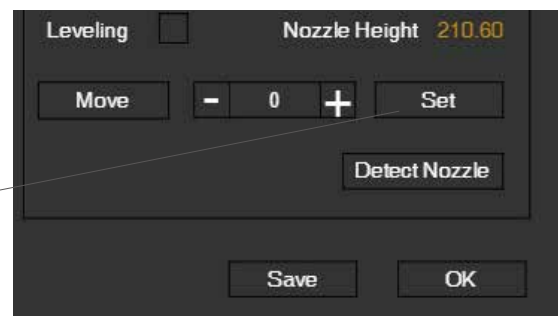
6\ When you have obtained the platform height values for all nine positions, find the **lowest value** among all the values.

In this example, the first calibration point has the lowest value and is thus the highest point on the platform. (The highest point of the platform require minimum amount of travel to reach the nozzle).

Platform Values at 9 calibration points (hypothetical):

1: 118	2: 118.5	3: 118.7
4: 118.6	5: 118.9	6: 119
7: 118.8	8: 118.9	9: 118.8

7\ Move the platform to the position with lowest platform height value as determined in Step 7 and click the "Set" button. This will set this point as the "Nozzle Height".



Printer Info



Printer info will be displayed by clicking the small button on the top left hand corner of the connected printer icon. Information including printer type, serial number and firm-ware version will be displayed. User could also set a custom name for the printer at the name field.

Software Version and Update



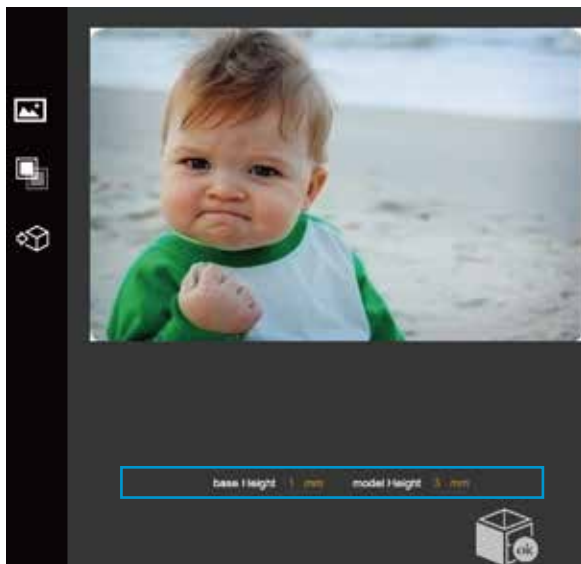
Check Auto Update to allow the software to inform user the latest version.

Convert Picture Into 3D Model

2-1

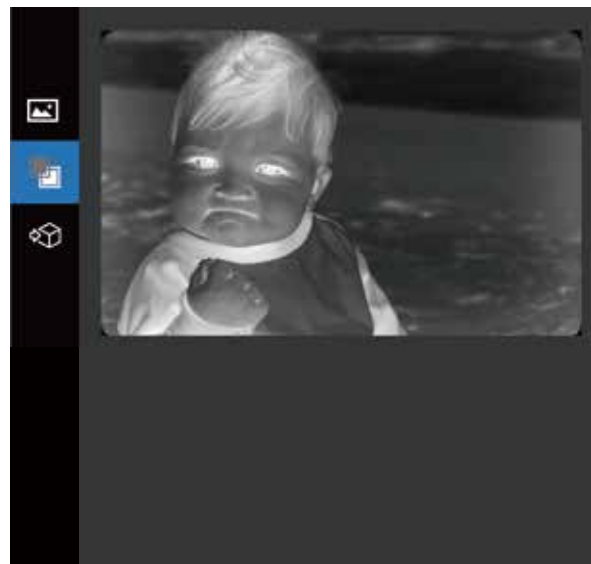


Click add picture button and select a picture.

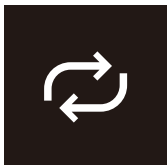


The Base height determine the thickness of a flat layer that will hold the picture.

Model Height determine the contrast of the finally print.



The convert negative button will reverse the pixel intensity so that user could choose the picture to be protruding from or sunken into the base.



Update 3D model button. This button will convert the modified picture on the left to a 3D rendering on the right.



OK button send the 3D rendering to the 3D printing interface for printing.

Printing Techniques

1. Ensure accurate nozzle height. If the nozzle height value is too low, it will cause warping; if it is too high, it will crash the nozzle into the platform, causing damage and clogging. You can manually fine-tune the nozzle height value in the "Calibration" panels. You can try to adjust the nozzle height value plus or minus 0.1–0.2mm from the base on previous results.

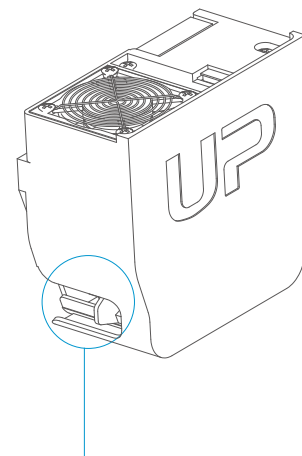
2. Calibrate the printing platform well. An unlevelled platform usually causes warping. Allow enough time for sufficient preheating. Please use the 3D Print–Preheat function. A well preheated platform is essential for printing large objects without warping.

3. The airflow on print head is adjustable, slide the air flow adjustment knob to change the amount of cooling of printed object. Generally the more cooling provided, the better the print quality. Cooling also helps separate from support and raft. However, cooling also encourages warping, especially for ABS.

To generalize, PLA can take strong cooling without problem, while ABS should avoid cooling or give little cooling. For ABS+ medium cooling is recommended.

4. Printing with no raft. It is highly recommended to use raft for normal printing as it improves adhesion and is required for leveling compensation. It is turned on by default, but you can turn it off in the "Print Preference" panel.

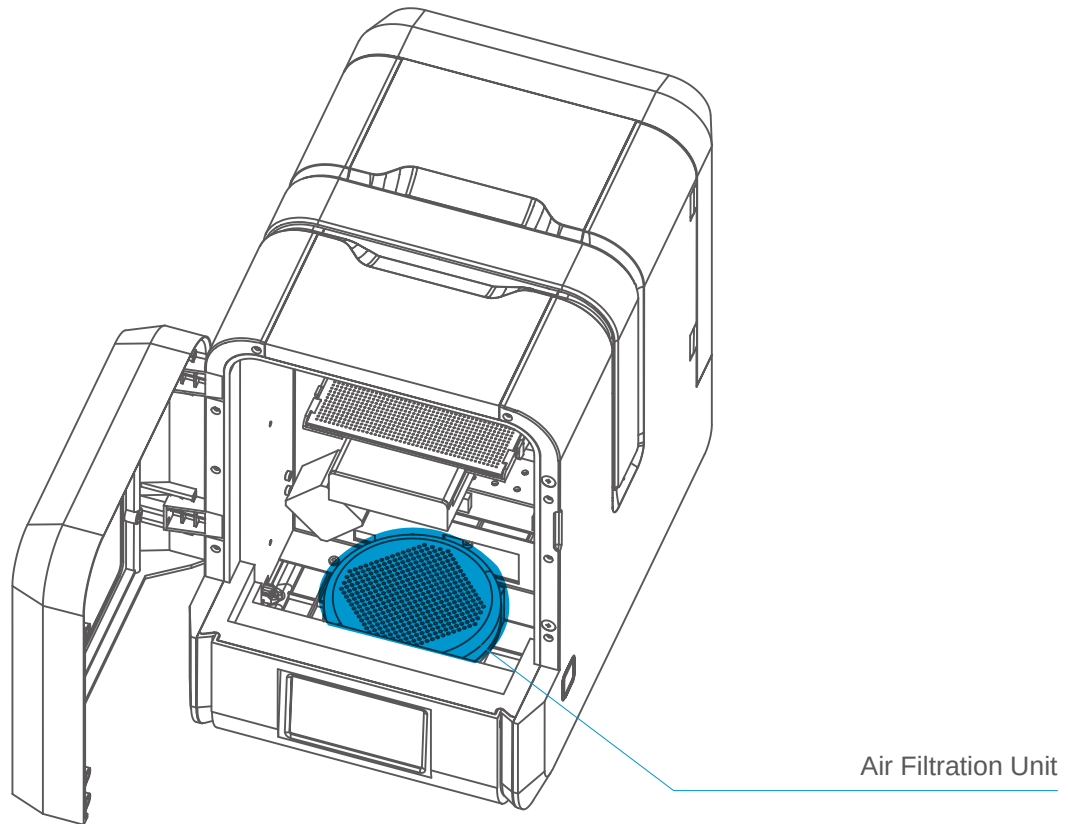
5. Printing with no support. It is possible to print without supporting structures. You can turn off support by choosing "No Support" in the "print" setting panel.



Air Flow Adjustment knob

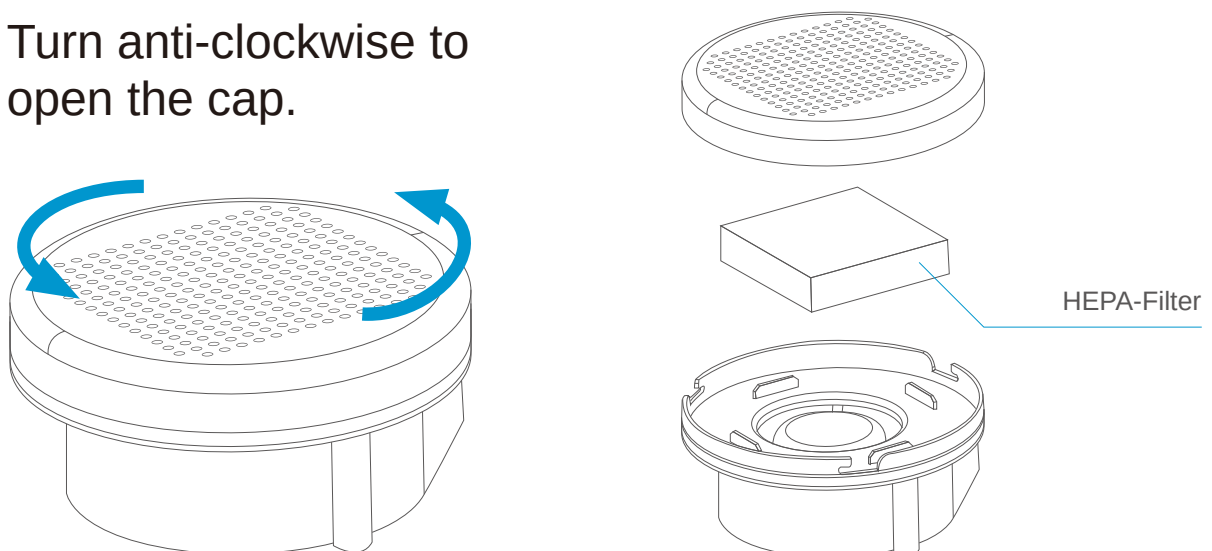
Printer Maintenance - Air Filter Replacement

Change air filter for air filtration unit. It is recommended to change the filter for every 300 hours of usage or 6 months.

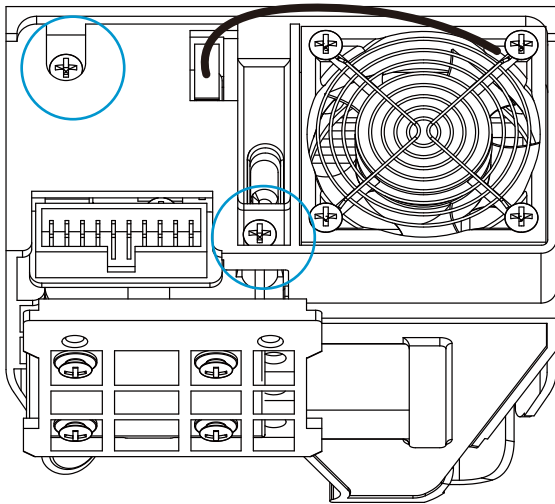


Front View

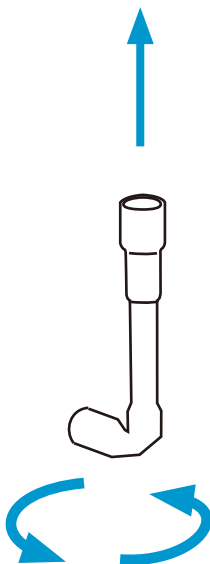
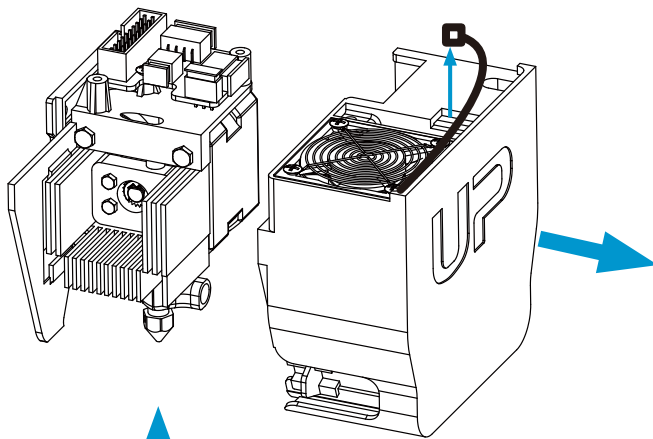
Turn anti-clockwise to open the cap.



Print Head Maintenance



The printhead cover could be removed after unscrew 2 bolts.

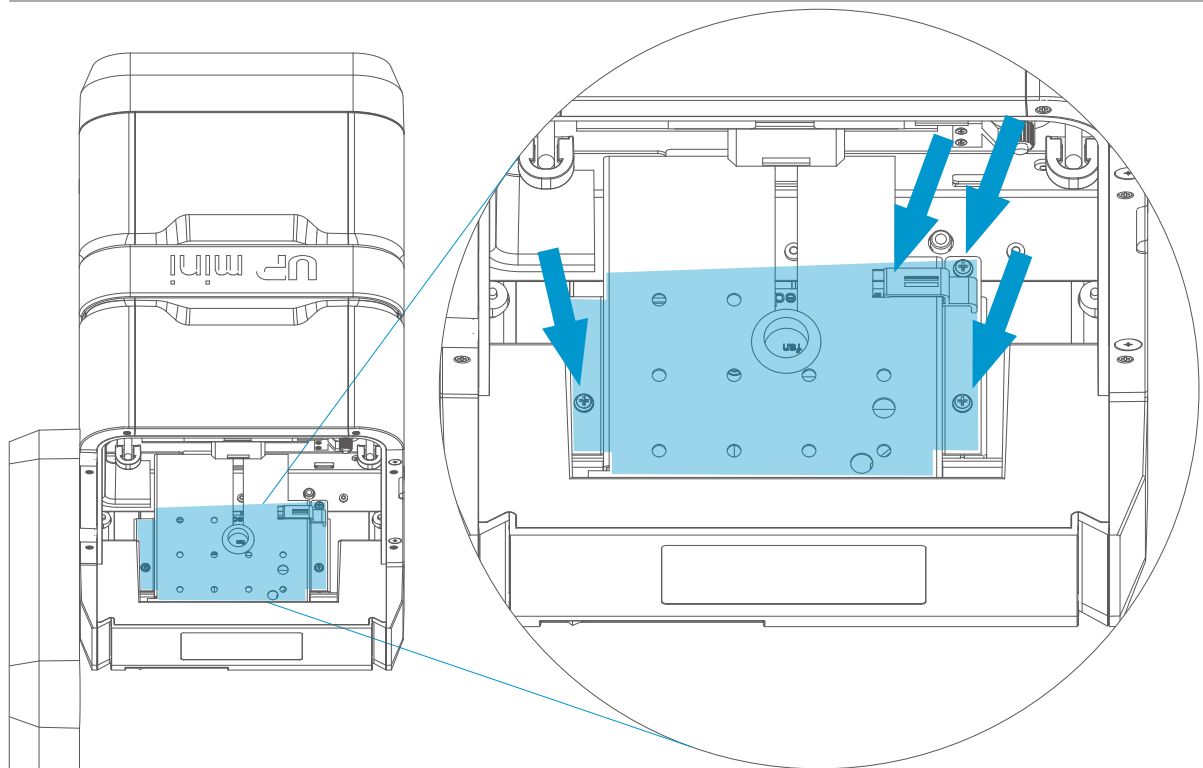


Heat up the nozzle to printing temperature by using the extrude function in maintenance interface.

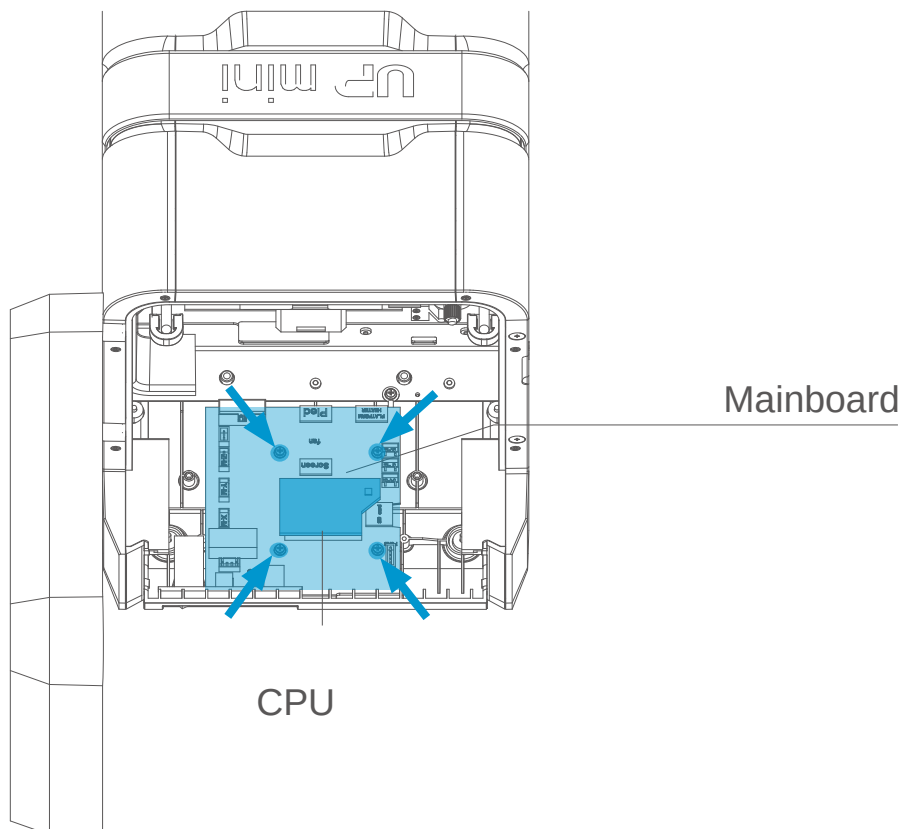
Nozzle could be removed by using the nozzle wrench provided.

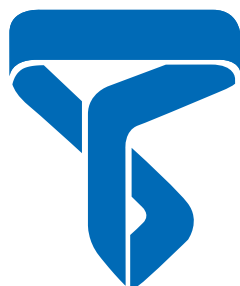
User does not need to remove printhead cover in order to remove nozzle.

Printer Maintenance - remove motherboard cover



Remove the 3 screws and FFC cable clip on the mainboard cover.





Tiertime

Beijing Tiertime Technology Co., Ltd

[youtube.com/c/UP3DPrinters](https://www.youtube.com/c/UP3DPrinters)

[facebook.com/up3dp/](https://www.facebook.com/up3dp/)

[instagram.com/up3dprinter/](https://www.instagram.com/up3dprinter/)

twitter.com/UP3DP

Support Email: support@pp3dp.com Web: www.tiertime.com

US Support Hotline: (888) 288-6124

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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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.

The device has been evaluated to meet general RF exposure requirement.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.