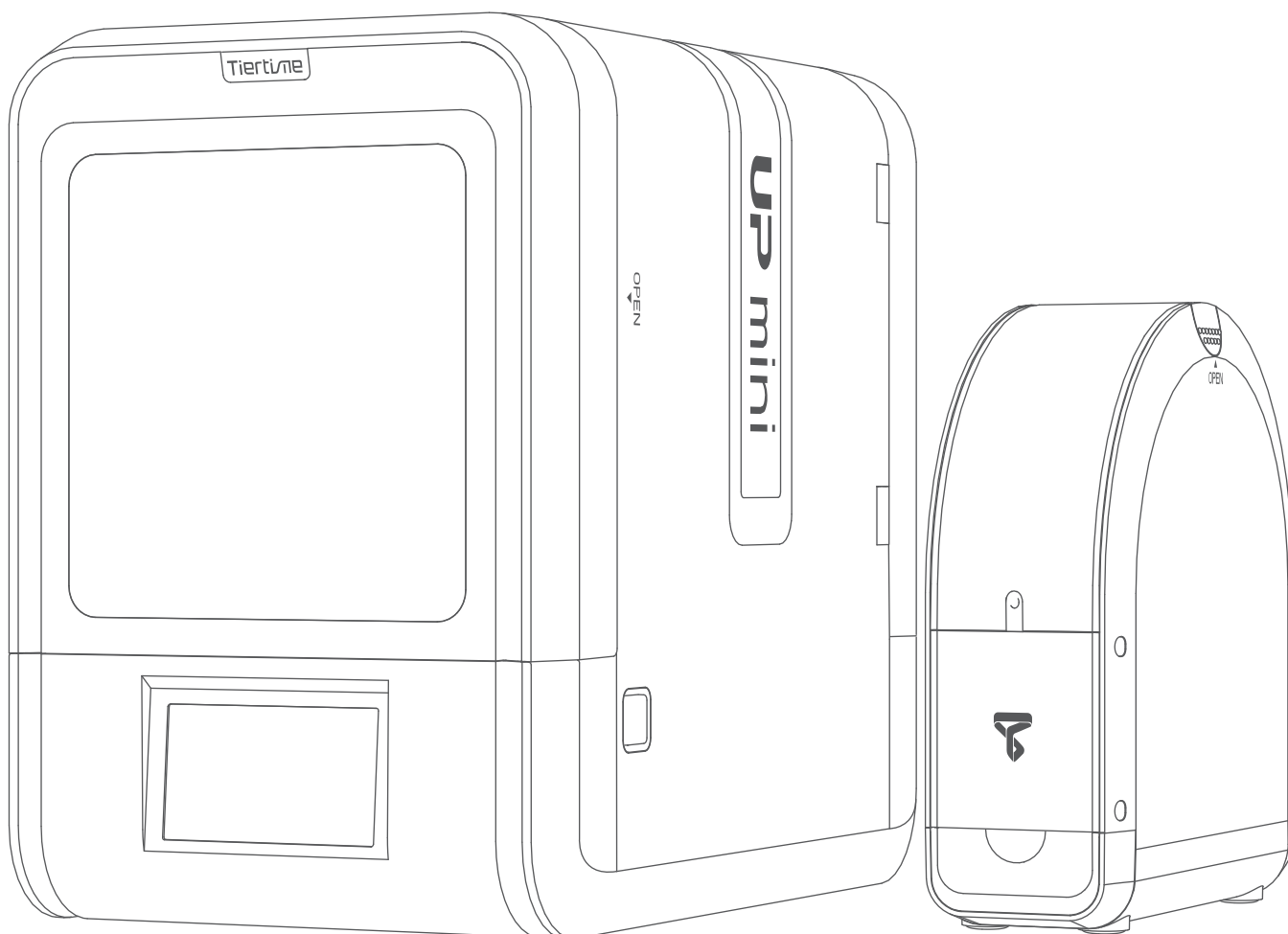


UP mini 2 **ES**

User Manual

V 0.1



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 lament, 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.

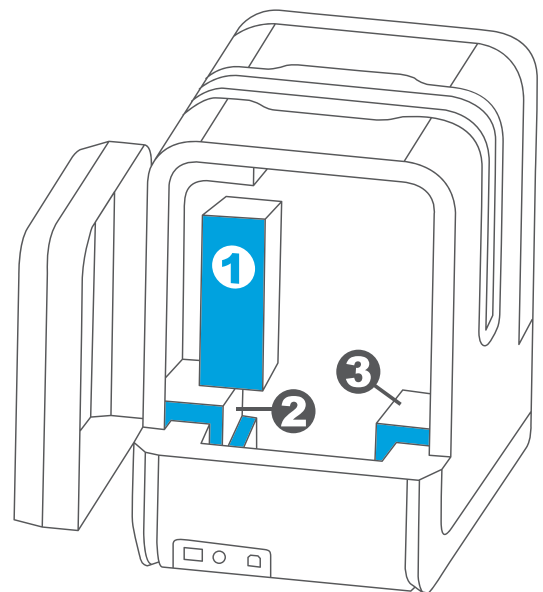
- Tiertime reserves the right to determine the validity of all warranty claims.
- Consumables such as nozzles, build plates, filaments do not have warranty.
- Replacement parts such as Print head, heater module and etc, have warranty of 90 days.
- Warranty is voided if the product serial number has been 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

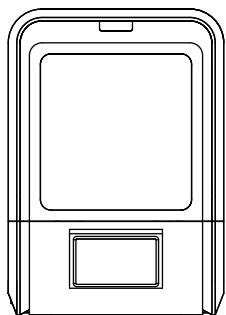
Unpacking

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

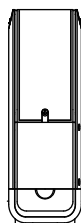


Rear View

Package Content



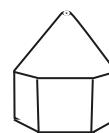
UP mini 2 ES



Spool and Toll Holder



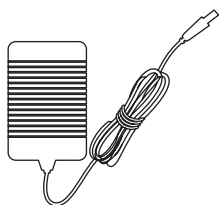
Calibration Card



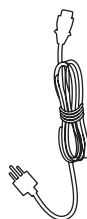
Nozzle



Protective Gloves



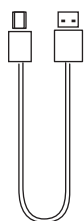
Power Adapter



Power Cable



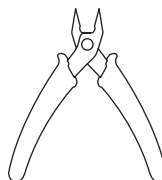
Scraper



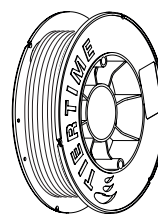
USB Cable



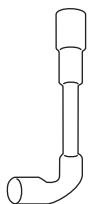
Hex Keys
2.0mm, 2.5mm



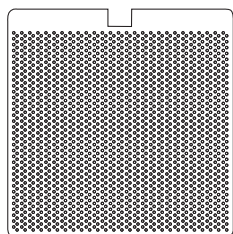
Pliers



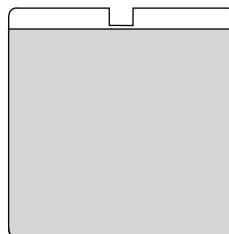
ABS Filament



Nozzle Wrench



Perforated Print Board
(Perf Board)

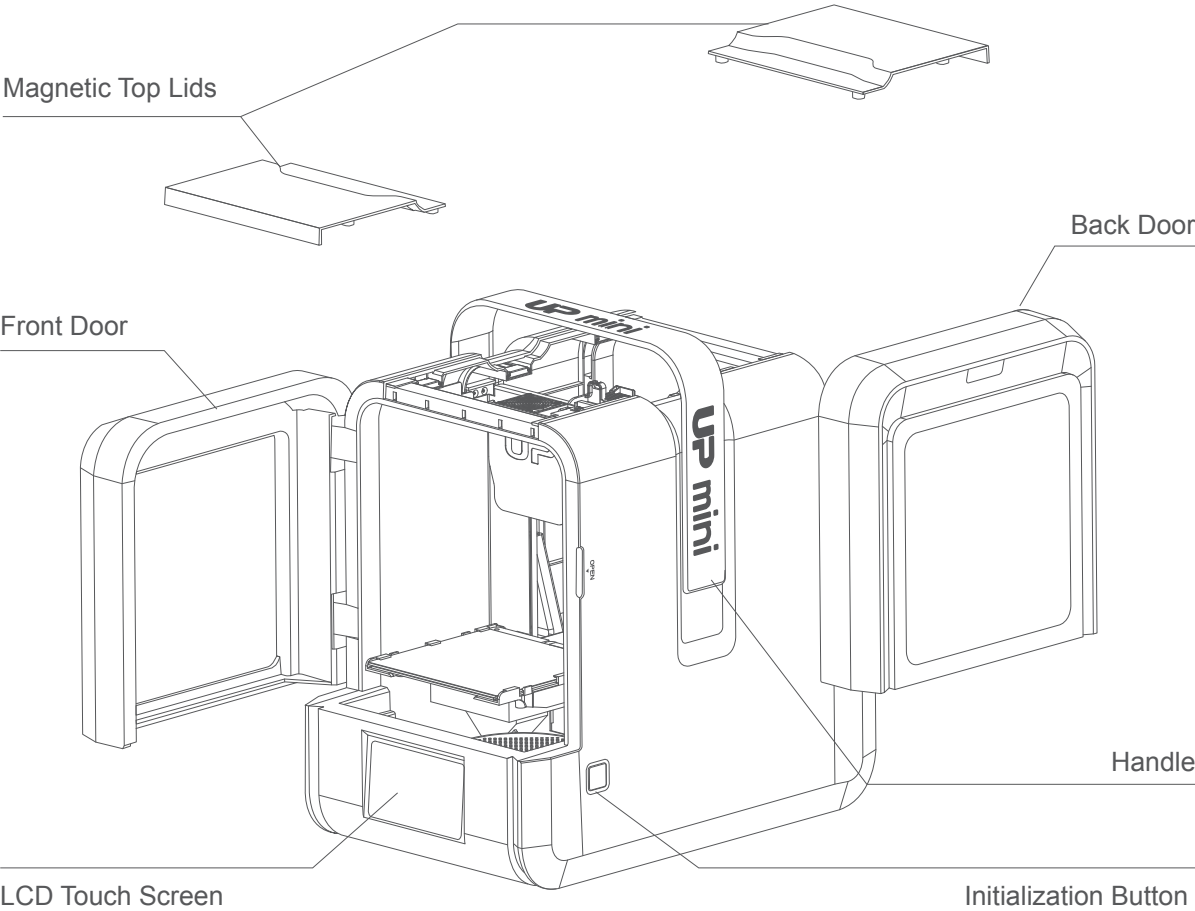


UP Flex Print
Board

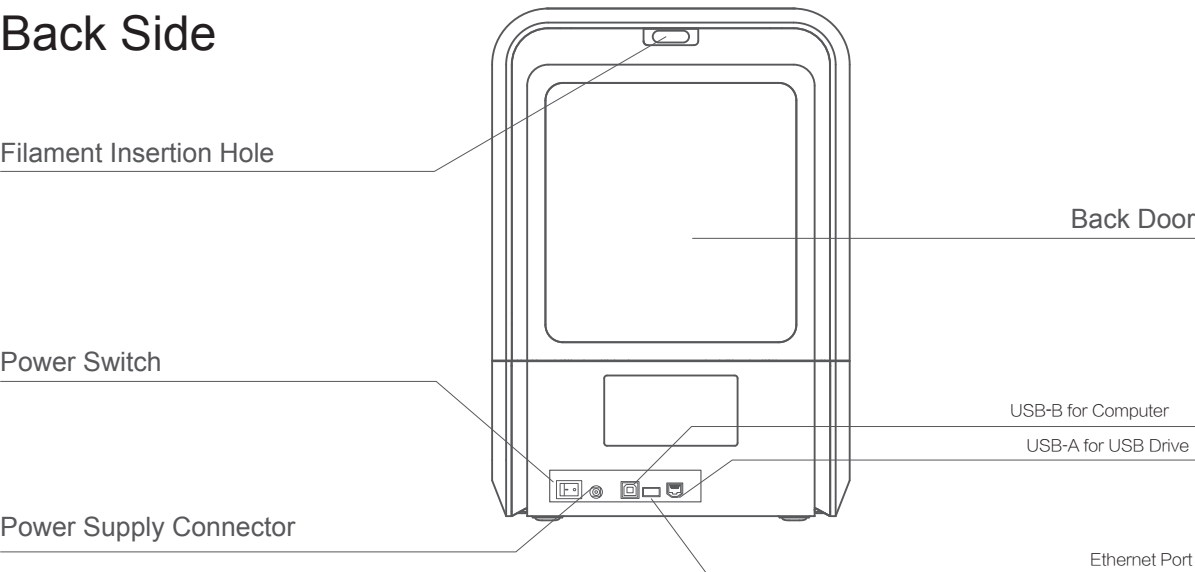
If anything is missing, please contact your local distributor or at support@tiertime.com

Product Description

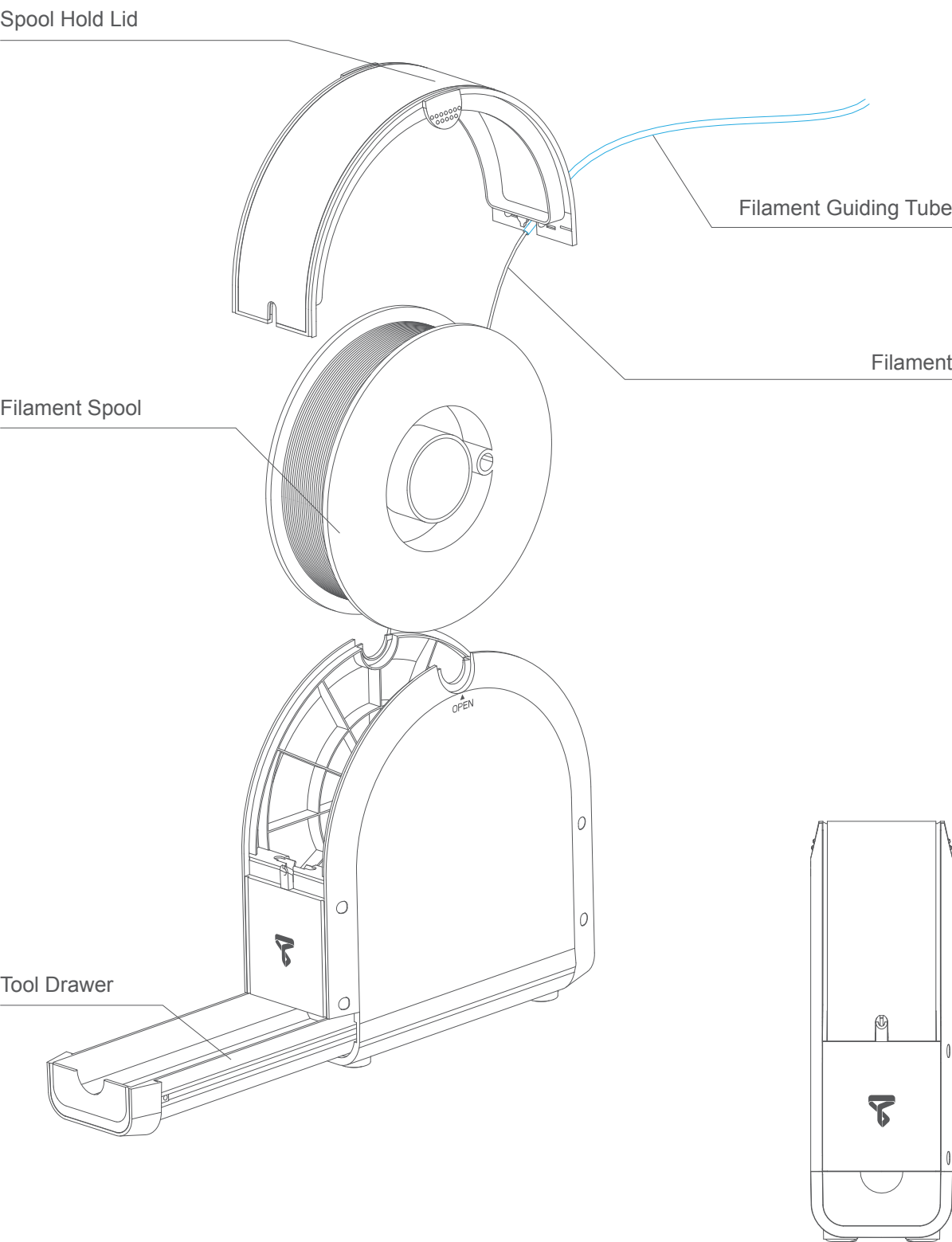
Front Side



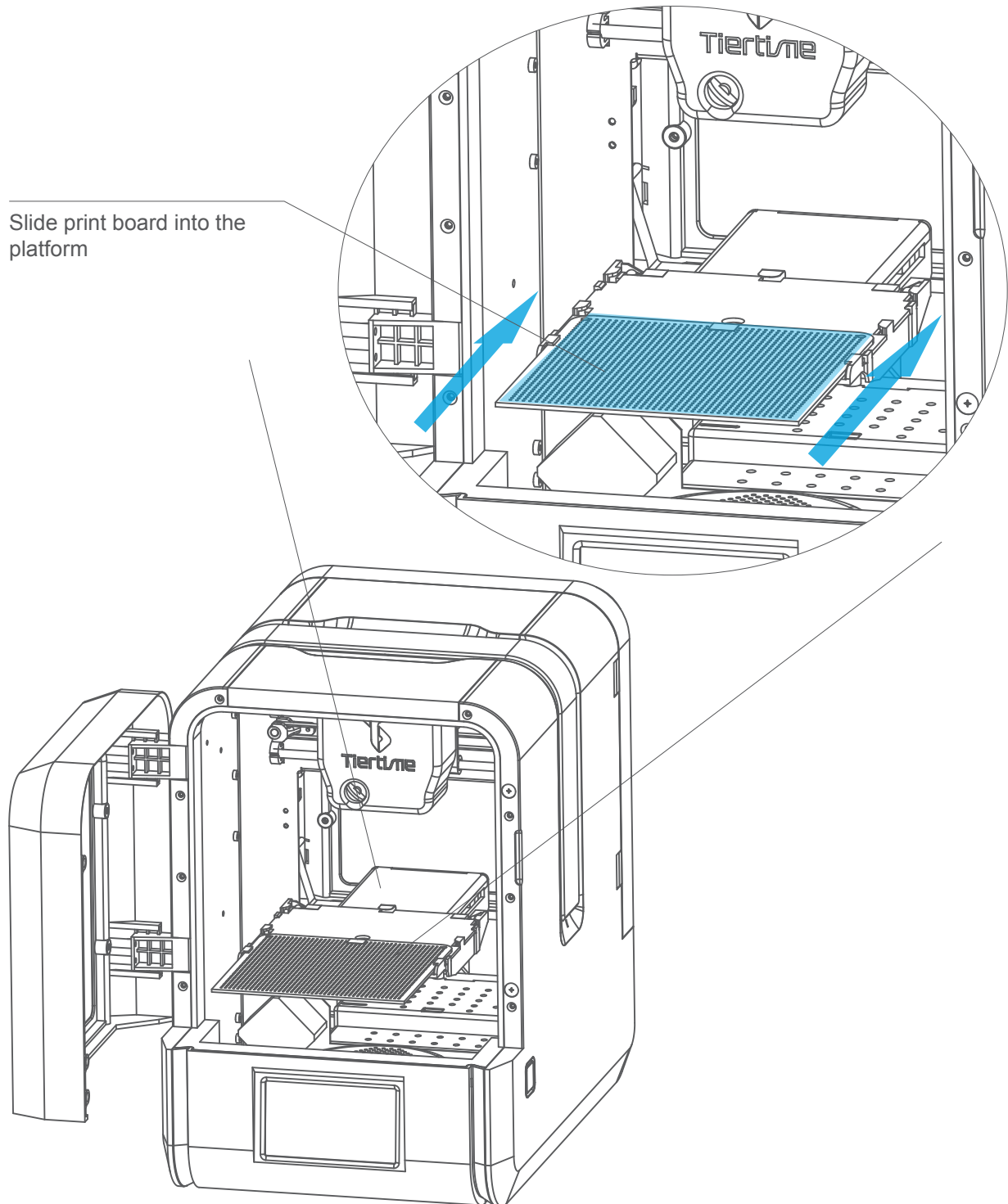
Back Side

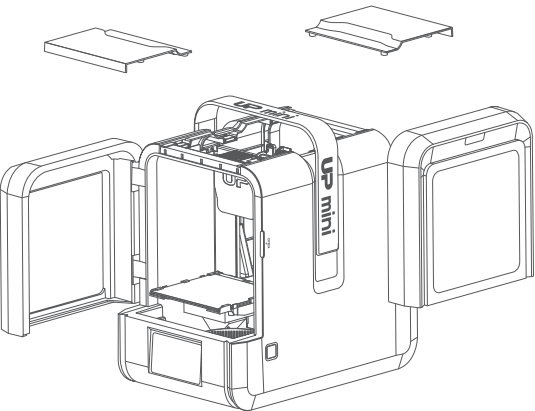


Filament Spool Holder

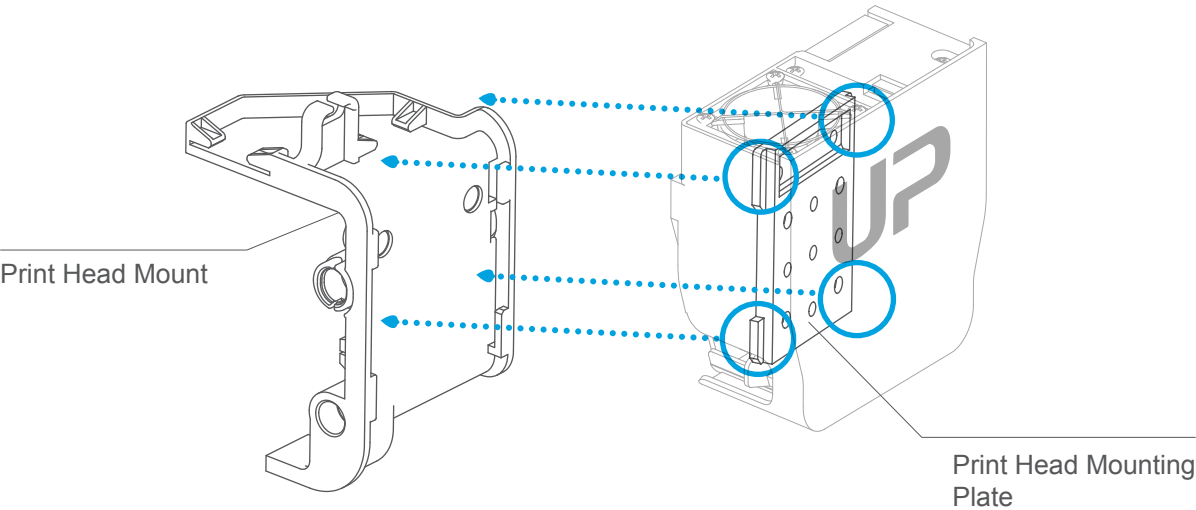
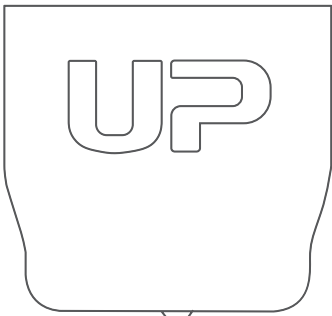
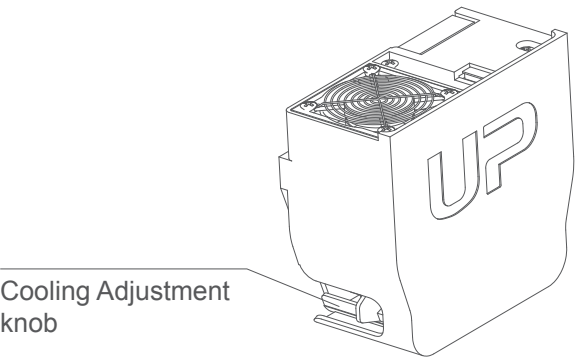


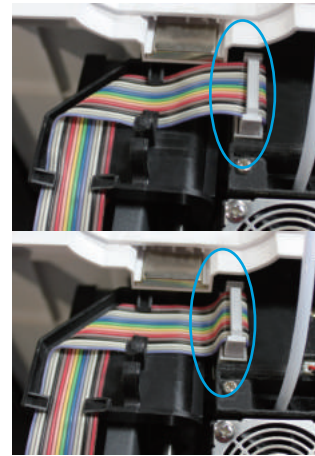
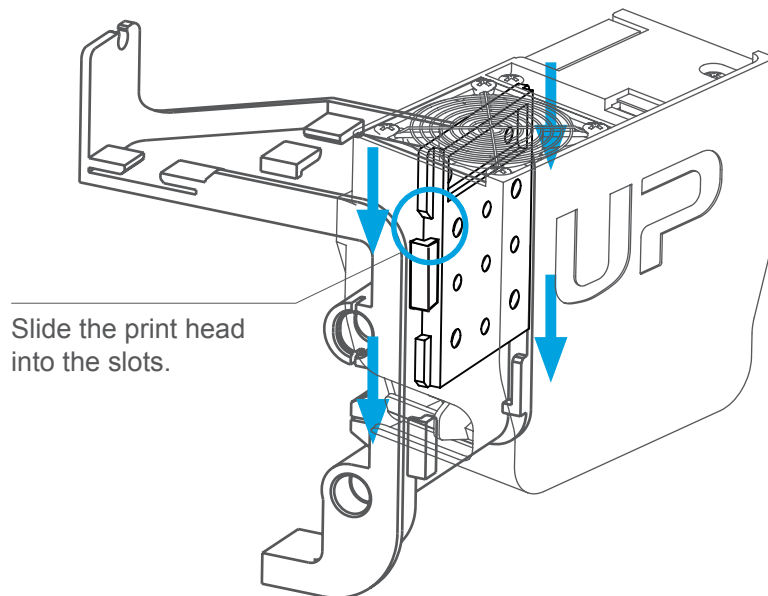
Installation of Print Board



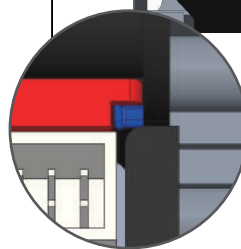
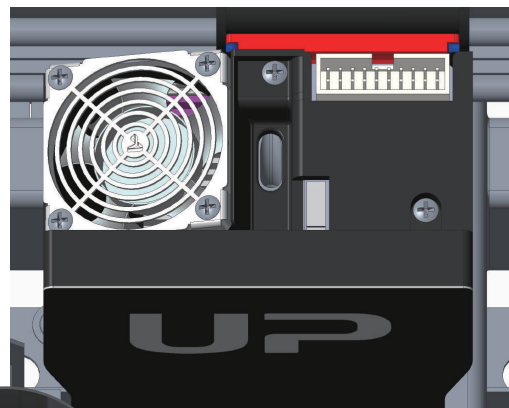
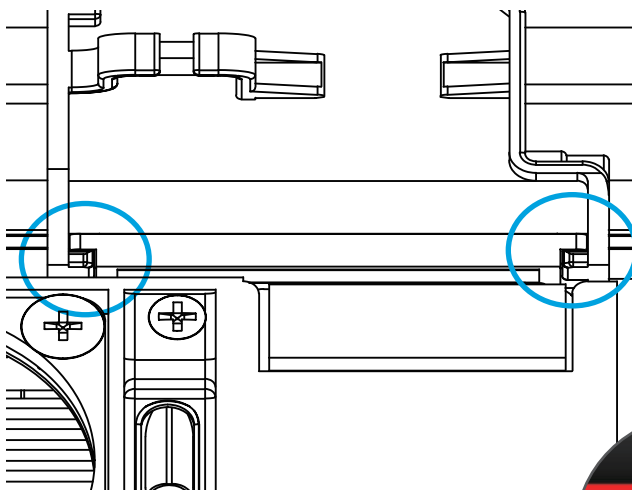


Open front door, back door
and top covers





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



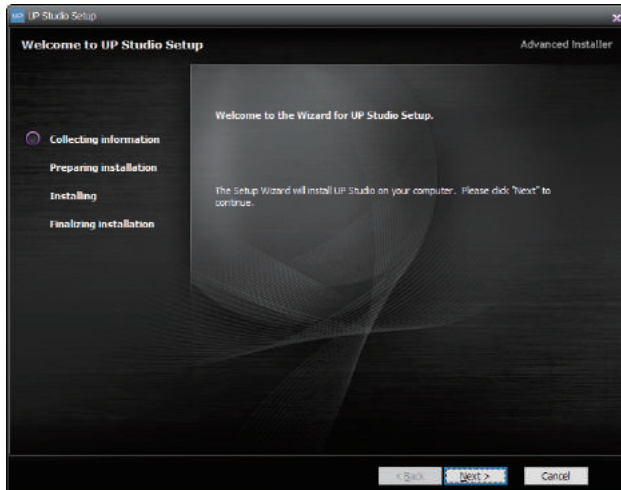
The print head must be pushed to the bottom of the mount.

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

Download and Install UP Studio

Obtain UP Studio

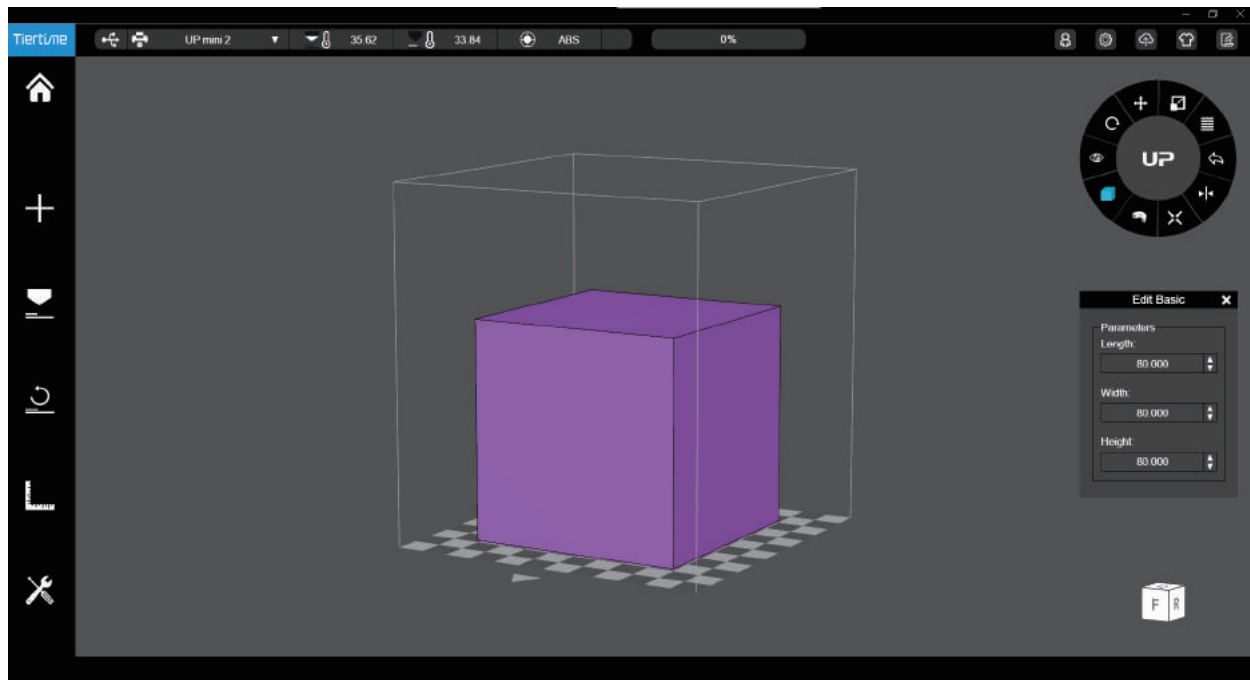
Go to www.tiertime.com, download the latest software and install it on your computer.



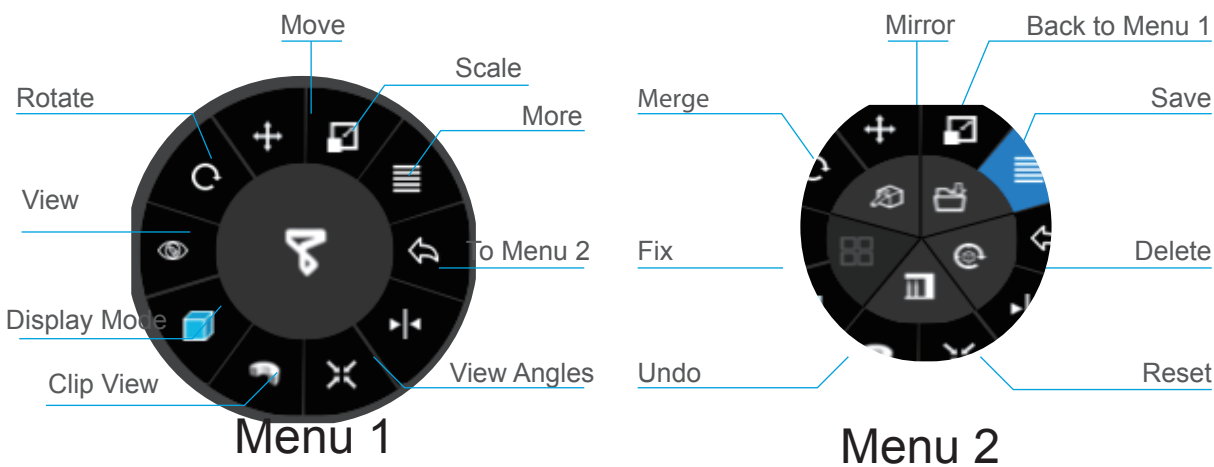
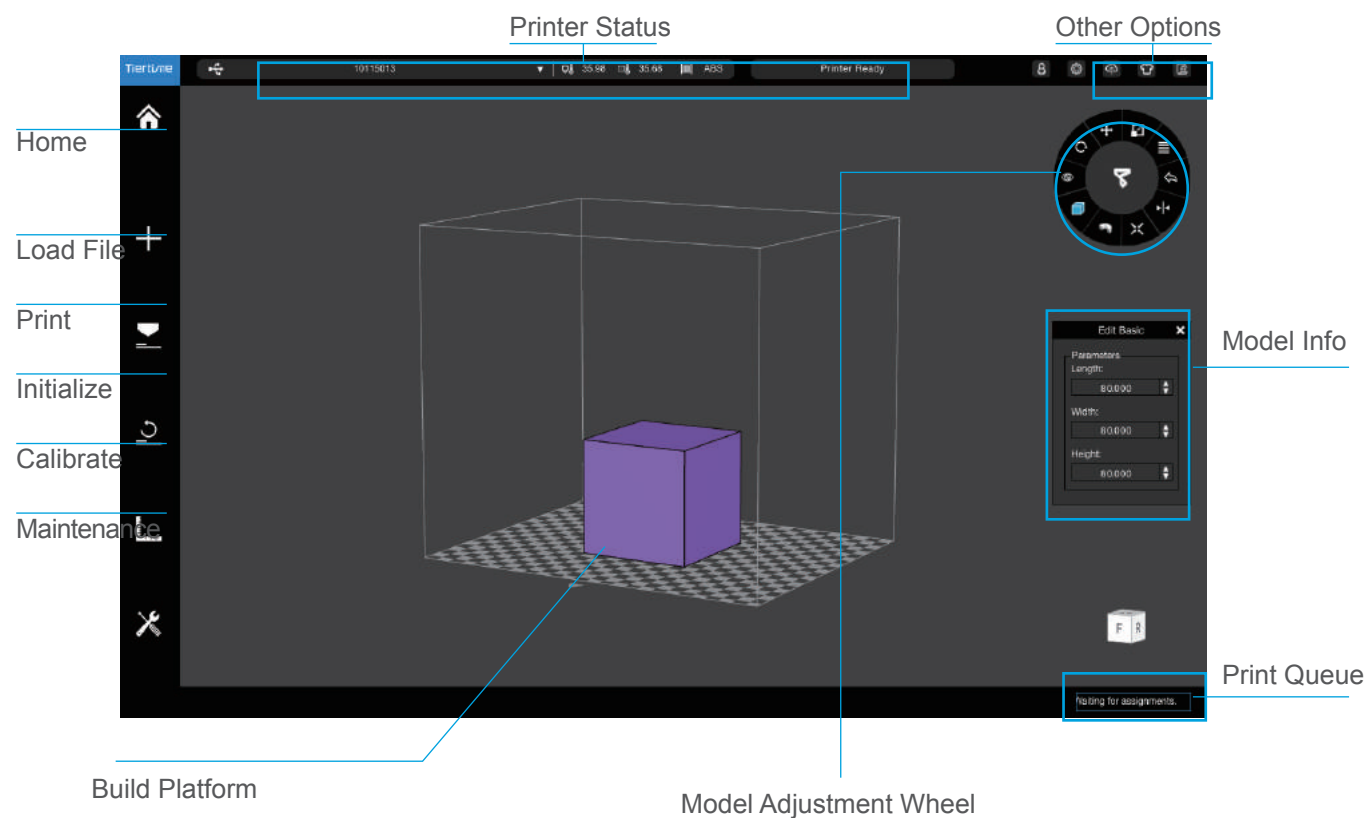
Minimum hardware requirements

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.

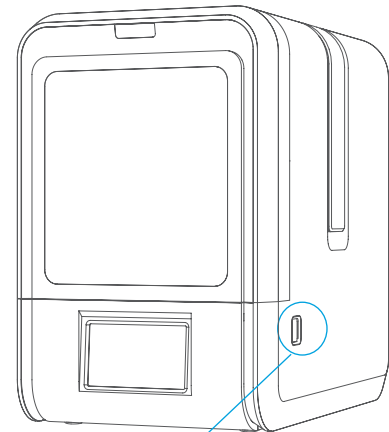
There are three ways to initialize your printer:

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:

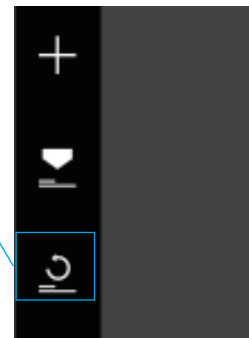
Stop the current print job:

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.

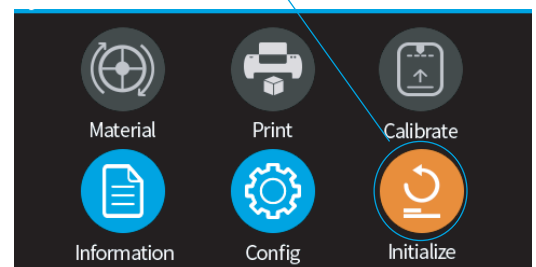


Initialization button

Initialization Button



PC client



Touch Screen

Printer Activation

Activation will lift the restriction on the number of prints and provide value-added services for UP mini 2 ES 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, go to step 5, otherwise sign up by filling in the form.

Sign Up

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

Email(please enter a email)

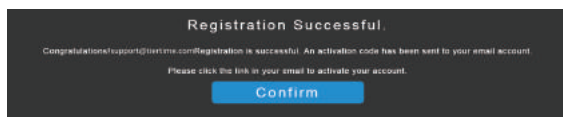
Password (6~32 characters)

Confirm password(Please input password again)

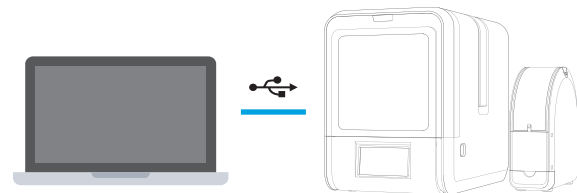
Registration means you agree with Tiertime User Protocol

Sign Up

3. You will receive an email from Tiertime with detail instruction activating your account. Follow the instruction to activate your account.



4. Connect the UP mini 2 ES to your computer.



5. Go to Account section and sign in.

Login

Username or e-mail

Password

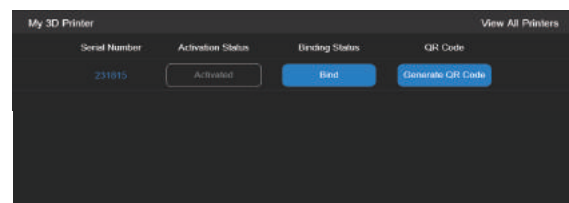
Sign In

Sign Up

Remember me

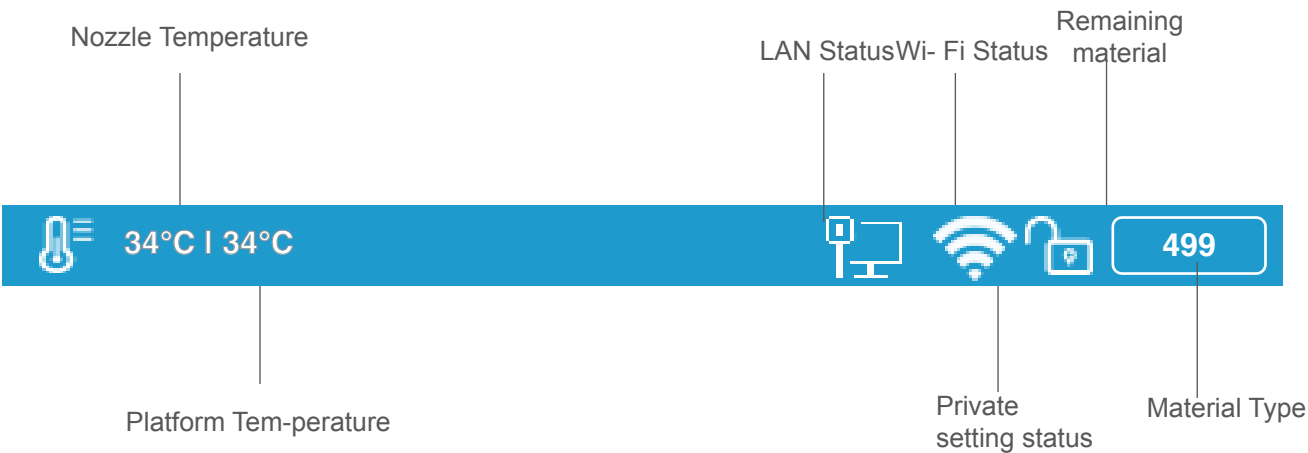
Forgot Password?

6. You will see the printer that you are using. Click **Activate** to finish the activation.



7. Restart the printer after the activation.

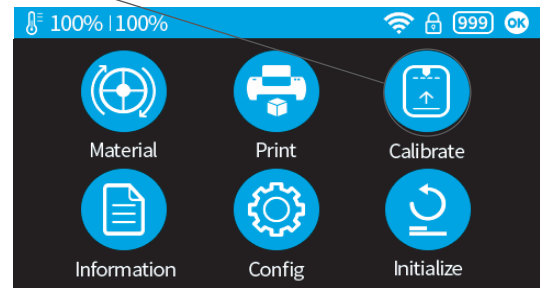
Touch Screen Control



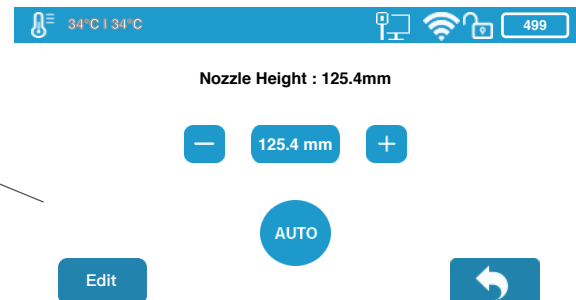
Prepare for Printing - Update Nozzle Height

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

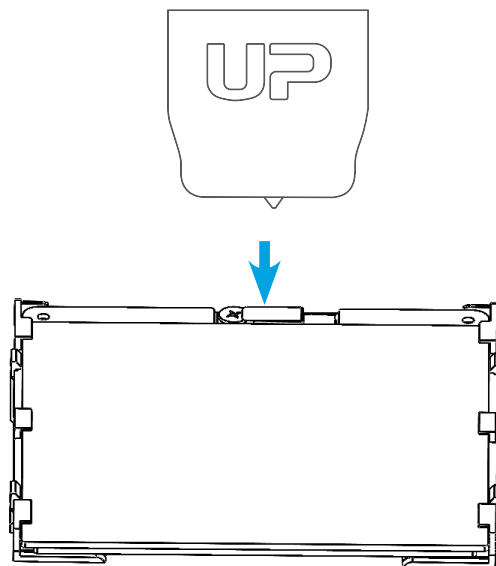
Press "Calibrate" button to enter Nozzle Height setup page.



Press the "Auto" button to start the automatic process. Or click "Edit" to input the height manually.

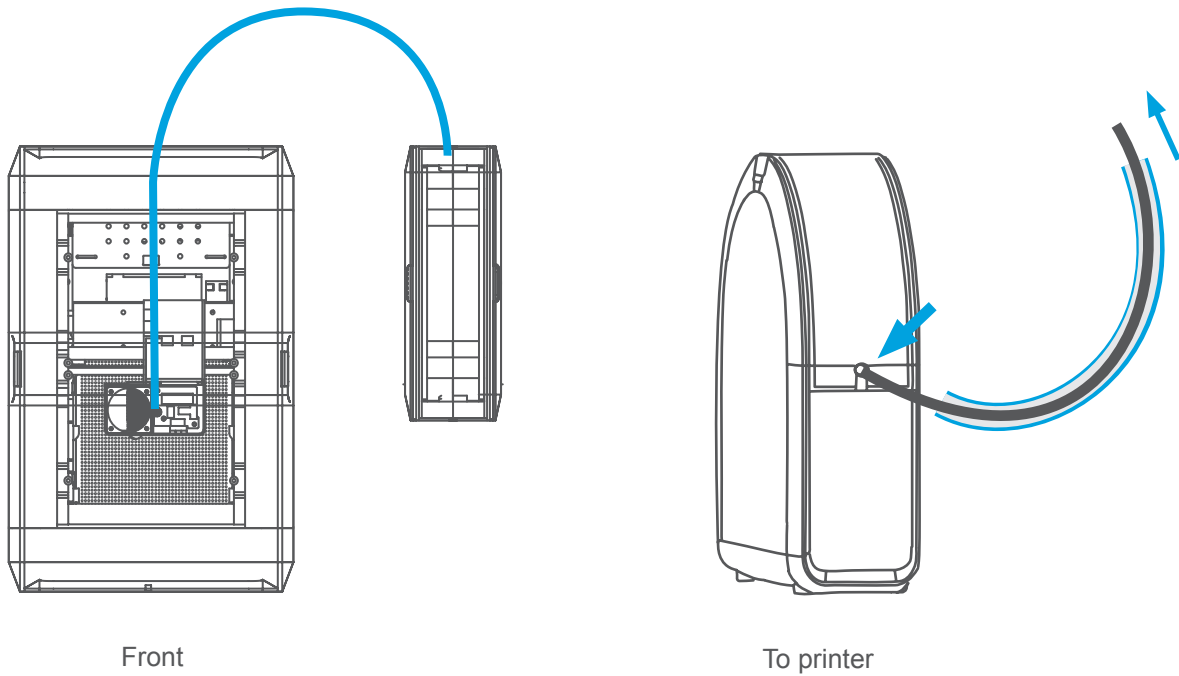


During nozzle height detection, the print head nozzle will touch the nozzle detector to make measurement.

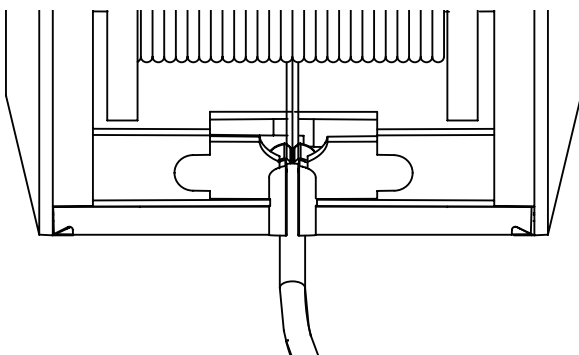


Prepare for Printing - Load Filament 2-1

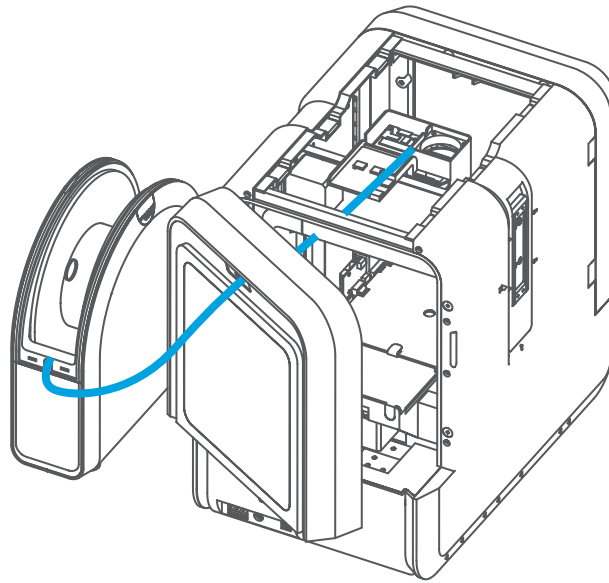
install the filament and guiding tube shown in blue.



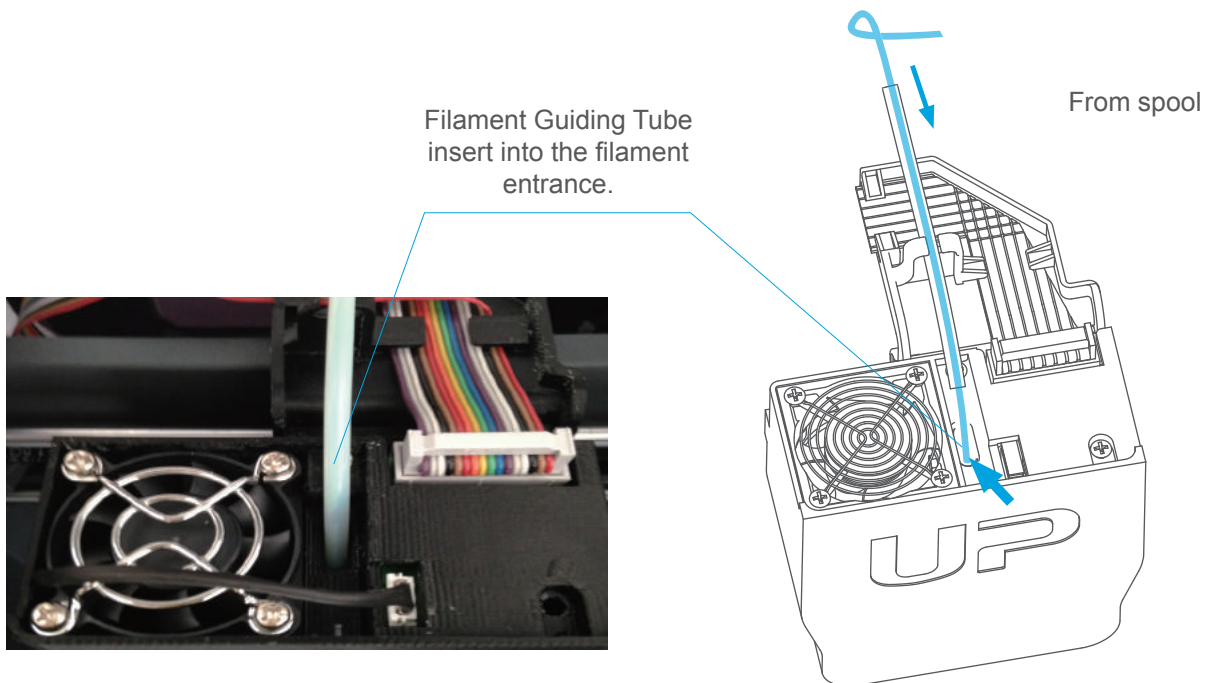
Push the guiding tube into the rubber ring as shown above.



Prepare for Printing - Load Filament 2-2

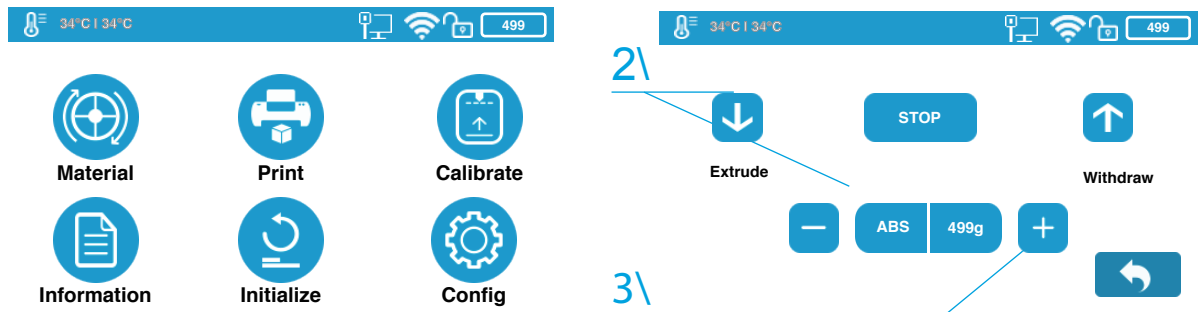


Back Side



Prepare for Printing - Load Filament

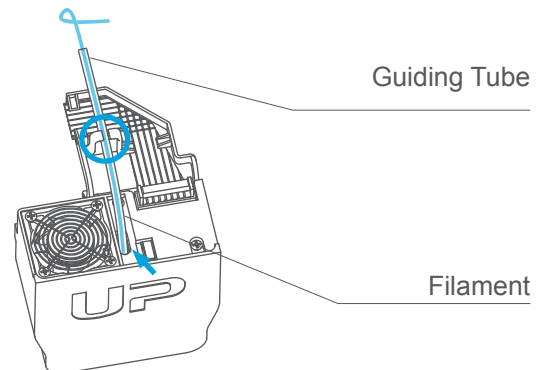
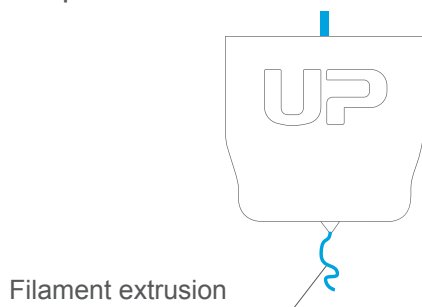
1\ Insert the filament from the spool into guiding tube, arrange the guiding tube as shown in previous page. Press the Material button on the touch screen.



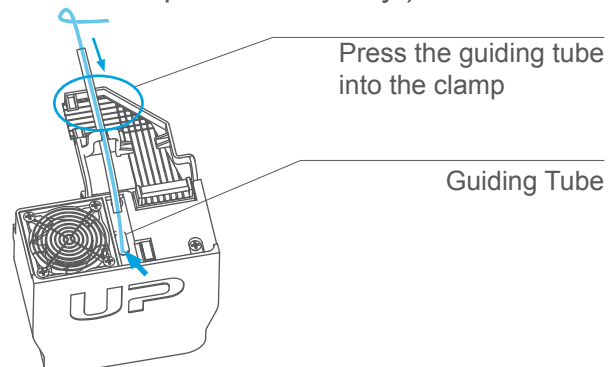
2\ Choose the printing material as ABS by press the Wheel button to switch between different materials input the filament weight by using the +/- buttons.

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.

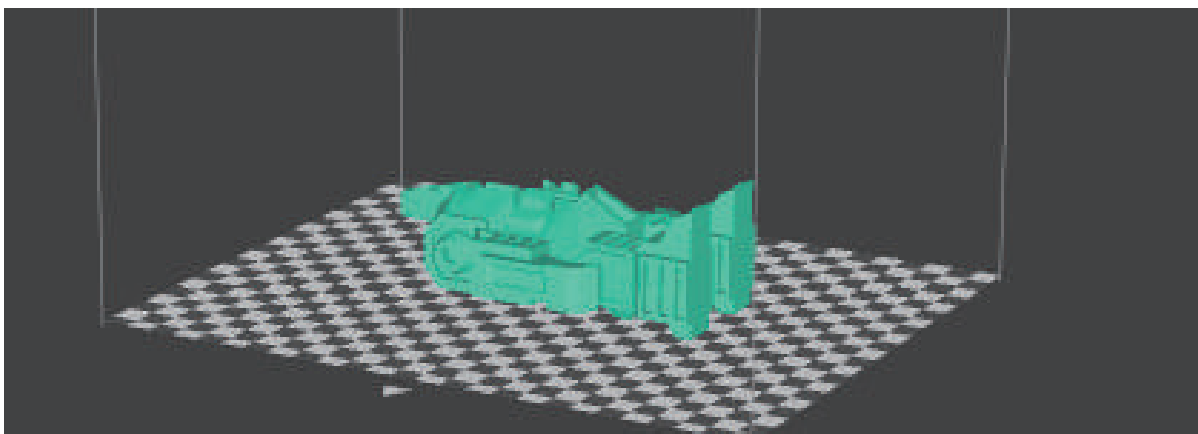
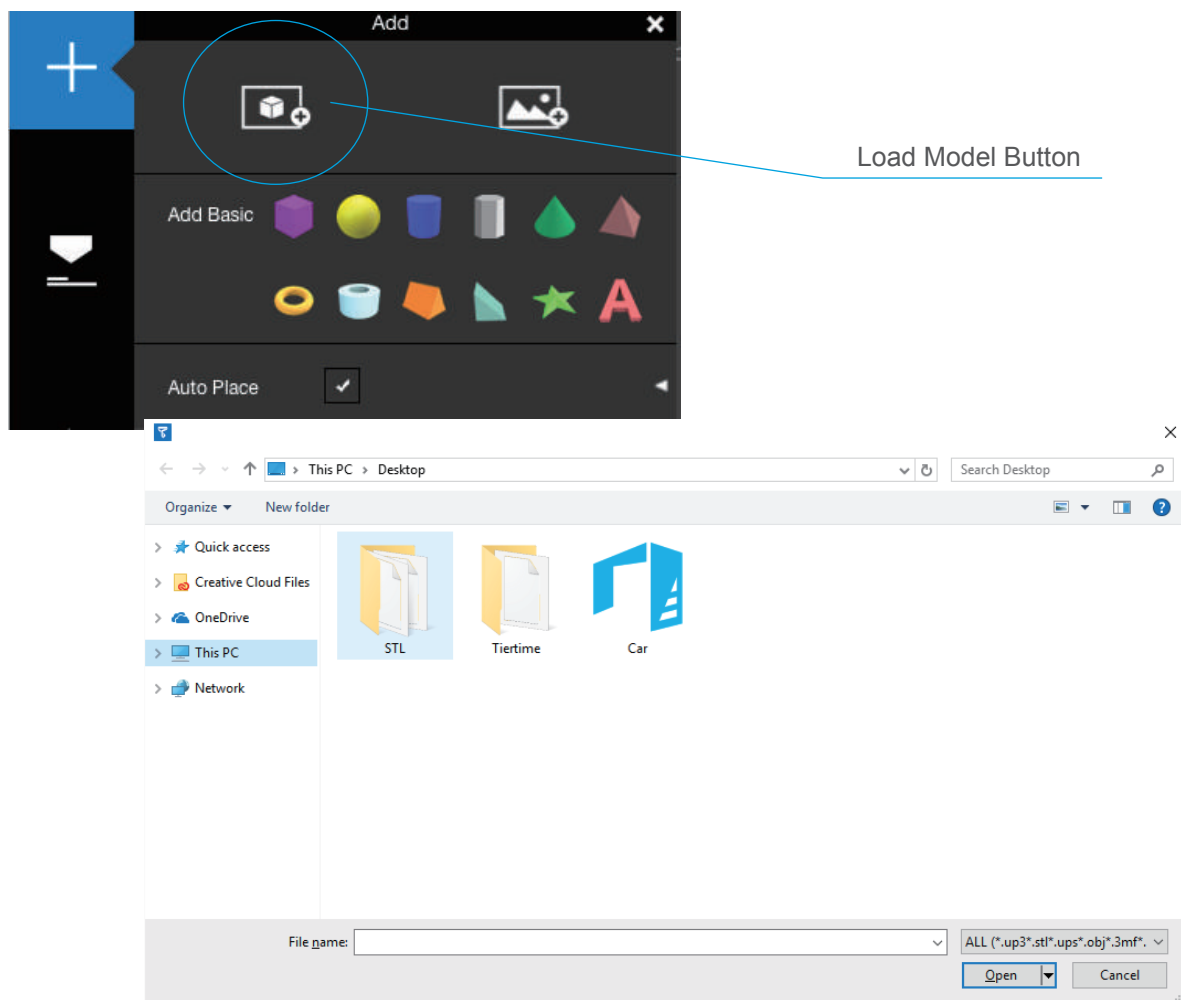


5\ Check the nozzle for plastic extrusion. If plastic is coming out from the nozzle, that means the filament is loading correctly and the printer is ready for printing. (The extrusion will stop automatically.)



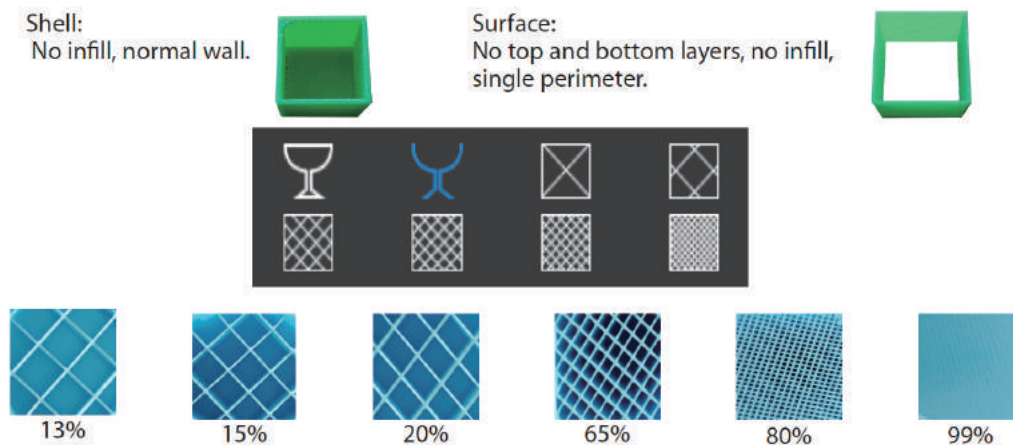
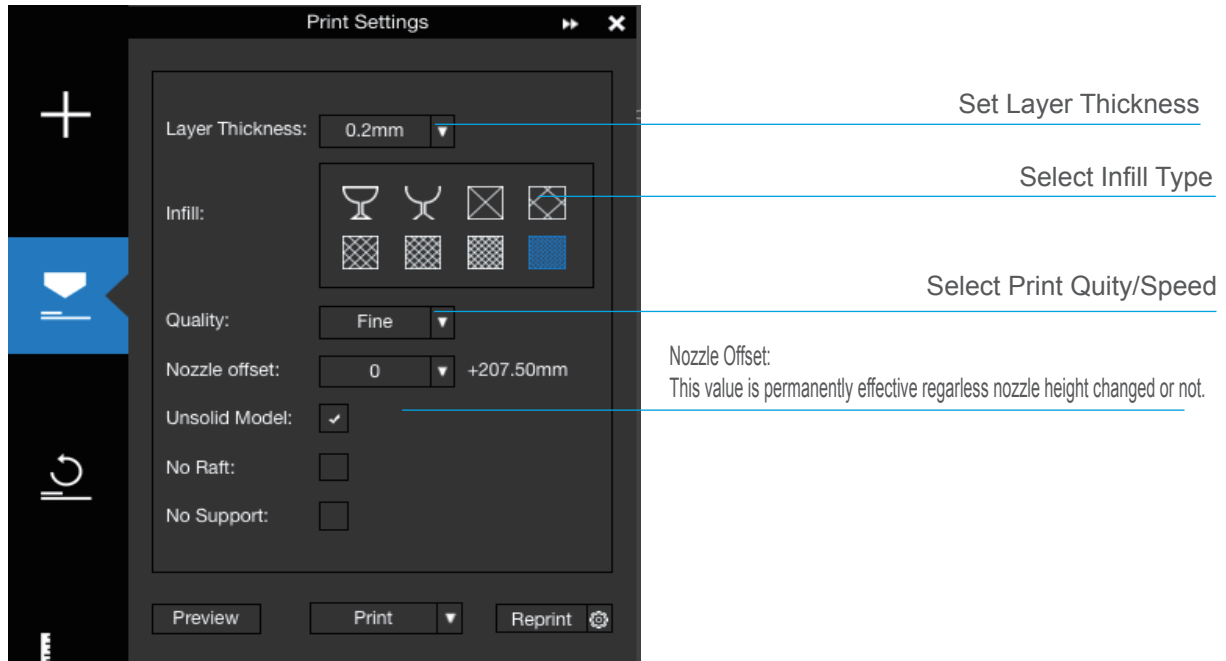
6\ Finally insert the guiding the tube in to the filament entrance and press the tube into the holding clip on the print head mount.

Loading a 3D Model



Print a Model

Make sure printer is connected to computer through USB, Wi-Fi (go to page 25 for details about Wi-Fi settings), an ethernet cable, and then loaded a model.



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

Pressing the “Print” button in the main menu will bring up the Print Job Current List the same as the one in the software. Clicking the name of each print job will bring up the detail information of the print job for print.

34°C | 34°C



499

Cube

Model- 1
Car
Cylinder
Sphere
Model- 3
Model- 4
Sphere- 1

History

1/ 4



Manage Print Queue

Next Page

Back to Main Menu

34°C | 34°C



499

Infill: 

Layer Thk.: 0.2

Time/ Weight: 1h10m20s/ 135g

File Name: Cube

Material: ABS

Quality: Normal

Print Settings

Creator: Tiertime-1

Date: 04-18 12:11:46

Total Time/Weight: 1h27m30s/200g

Delete

Print



Delet Print Job

Start Printing

Back to Print

210°C | 70°C



400

Time Remaining: 1h10m20s

Material: ABS, 135g

File Name: Cube

30%









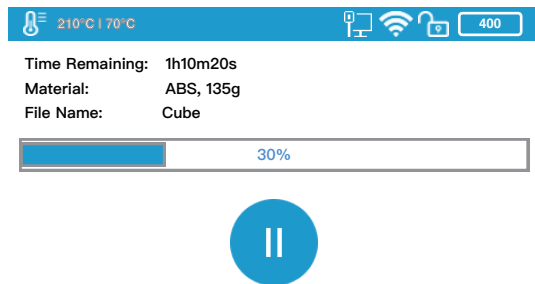
Pause/ Resume

Stop

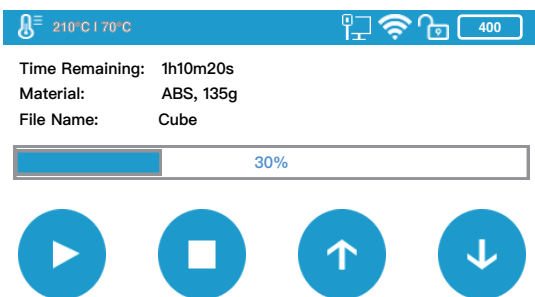
Withdraw

Extrude

Change Filament During Printing



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

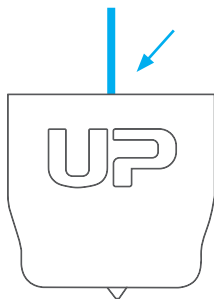


2. When print head stopped moving and platform lowered. Press the “Retract” button to remove filament.

Press the “Extrude button” to load the new filament

Press the “resume” button to resume printing.

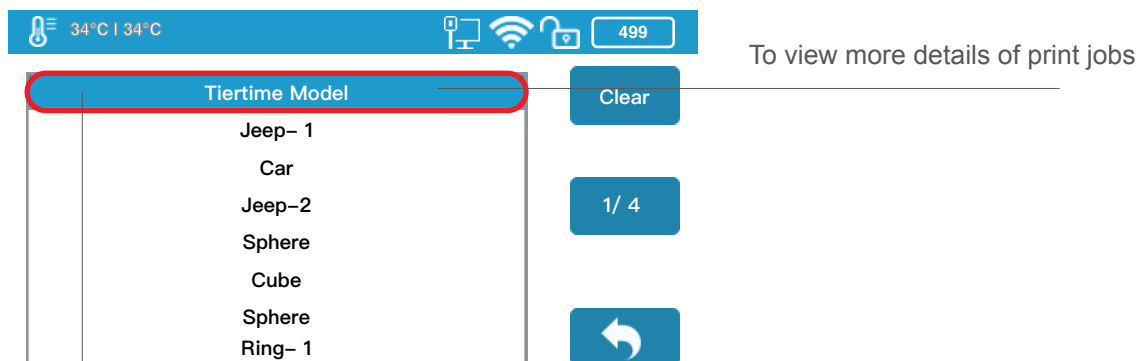
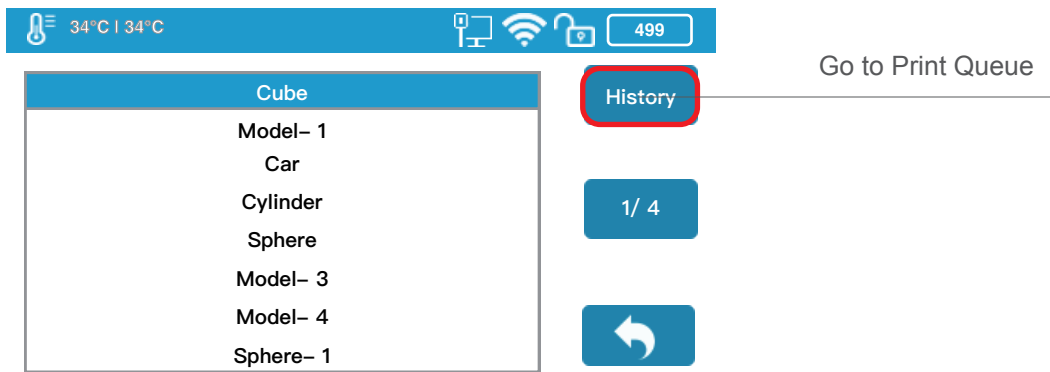
Press the “stop” button to stop the printing.



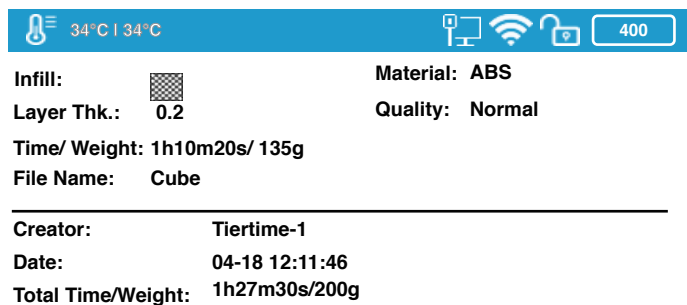
After filament was removed, insert new filament to the print head as described in page 16.

Print Queue

To start print, click Print in the touchscreen. Select print job name to view prints settings and then choose print.

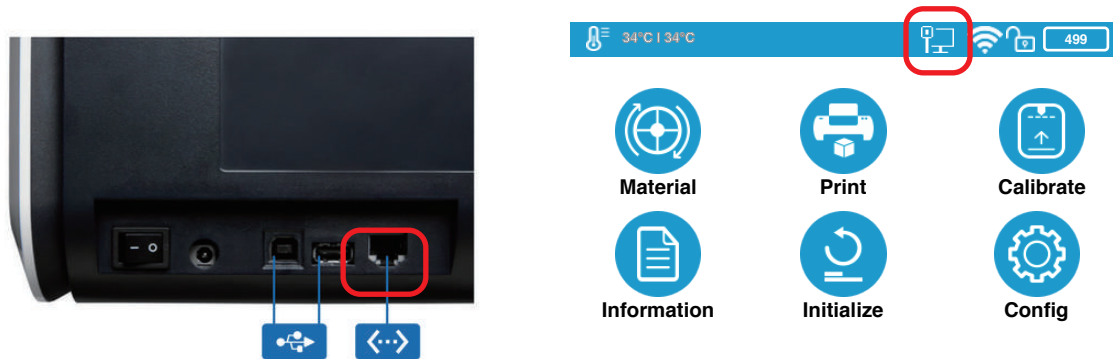


Choose the print job

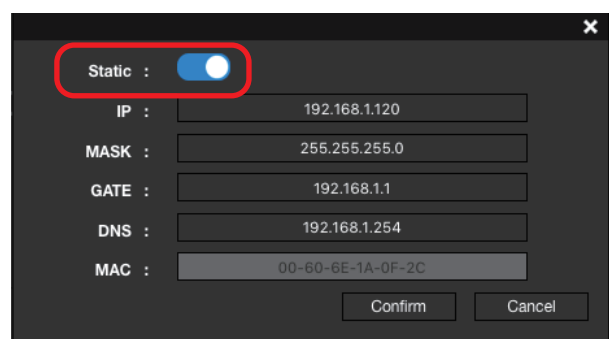
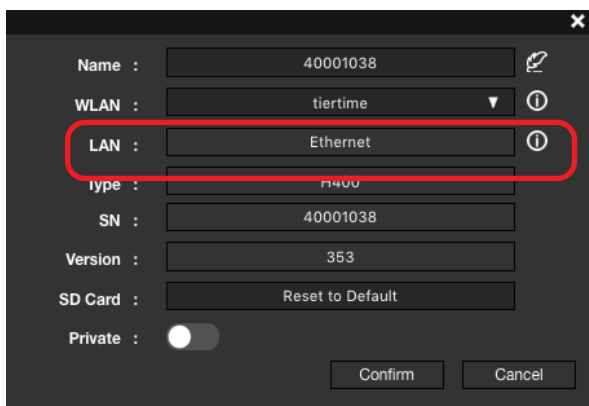


Machine Settings - Ethernet

To connect the UP mini 2 ES to ethernet, then plug in the ethernet cable into the LAN port. Make sure the ethernet icon appears in the printer status bar on the touchscreen. Now your printer connect with ethernet successfully.



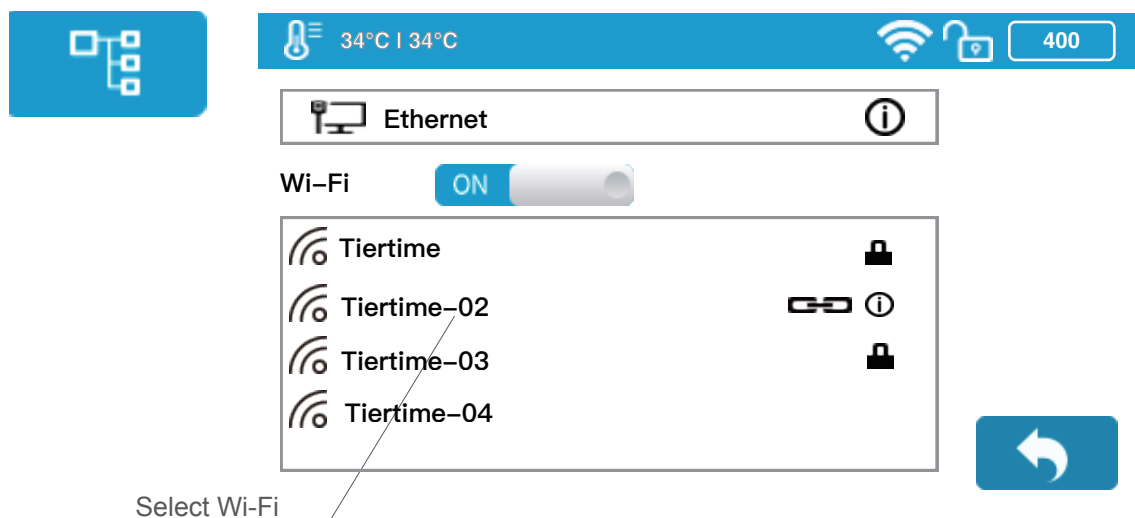
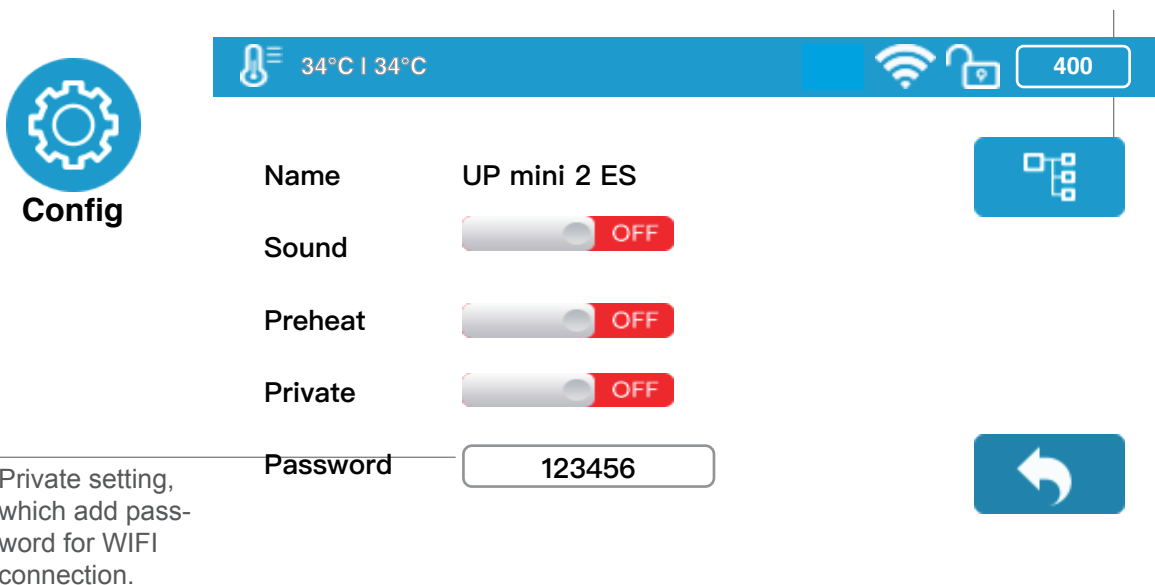
To edit the ethernet details, go to Settings, click the Printer, choose the connect printer, choose the “i”, and then toggle on Static. Now you can edit the details of the UP mini 2 ES. Click confirm to save editing.



Wi-Fi Setup through Touchscreen

Connecting to the UP mini 2 ES through Wi-Fi 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 Wi-Fi 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.



Network Settings

To edit network settings of Wi-Fi networks, click connected network's "Information" button, then toggle on the Static button. The same steps also apply to ethernet connection.

 34°C | 34°C   400

Network	Tiertime-02
Static	☒
I.P.	192.168.7.111
Mask	255.255.255.255
Gate	192.168.7.1
DNS	192.168.1.253



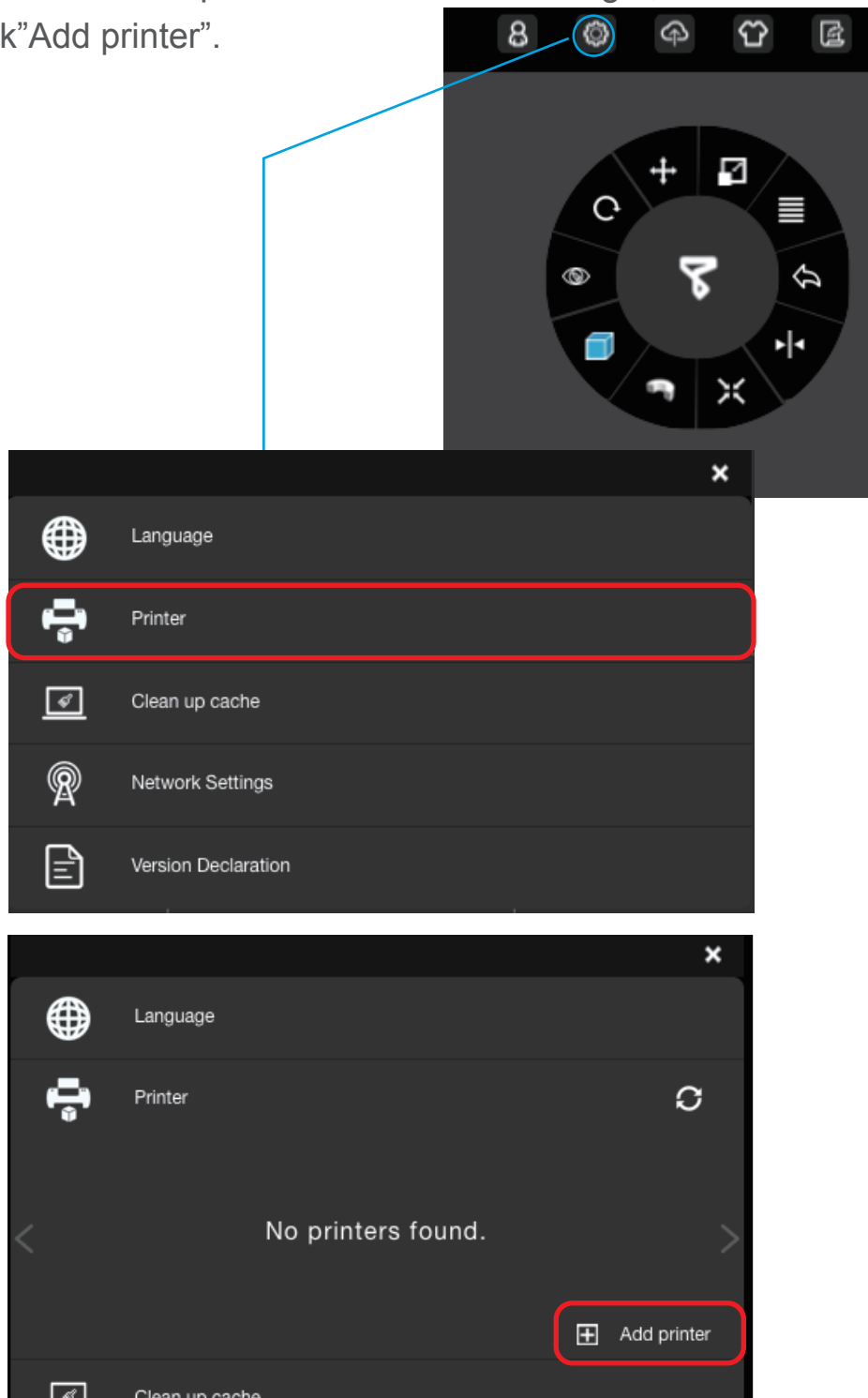
Private

☐

Password

If user switch on the private function in Wi-Fi setting, a password field will appear to allow password setup. This is password that will be required for Wi-Fi connection to the printer to prevent unauthorized usage through Wi-Fi . 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.

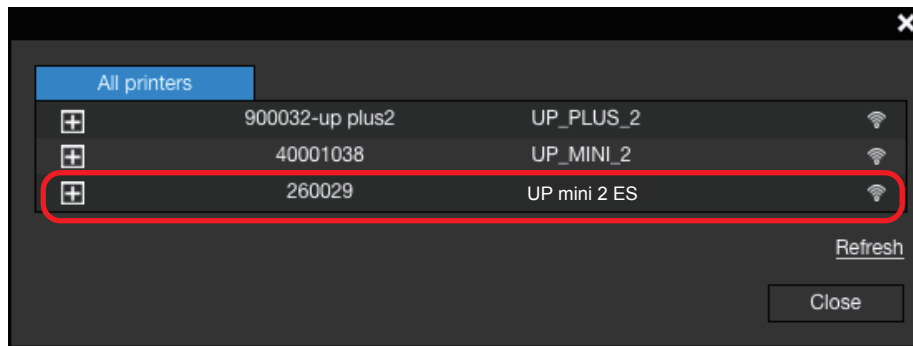
Open UP Studio on your computer, make sure it connect to the same Wi-Fi network as the printer. Then click “Settings”, find “Printer” section, then click “Add printer”.



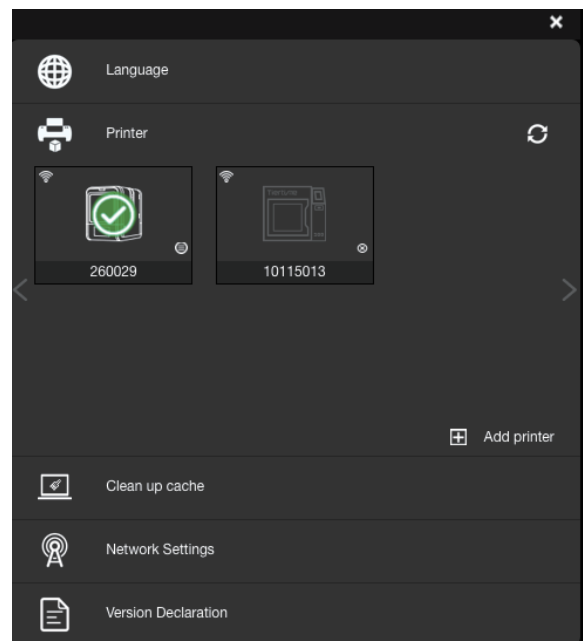
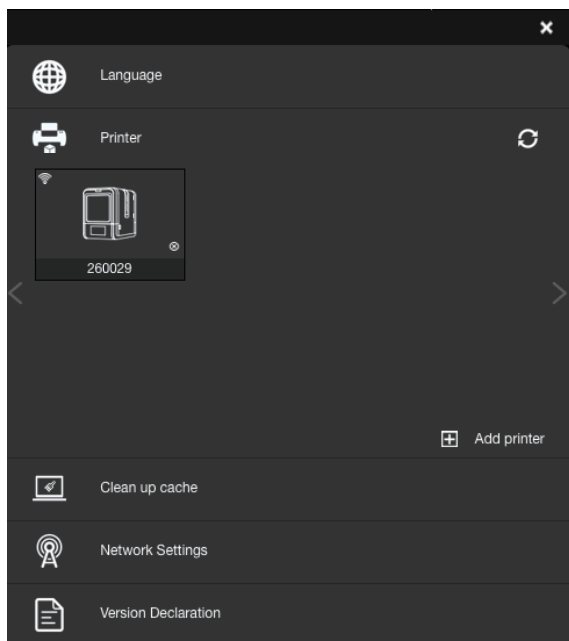
Wi-Fi Setup (UP Studio)

3-2

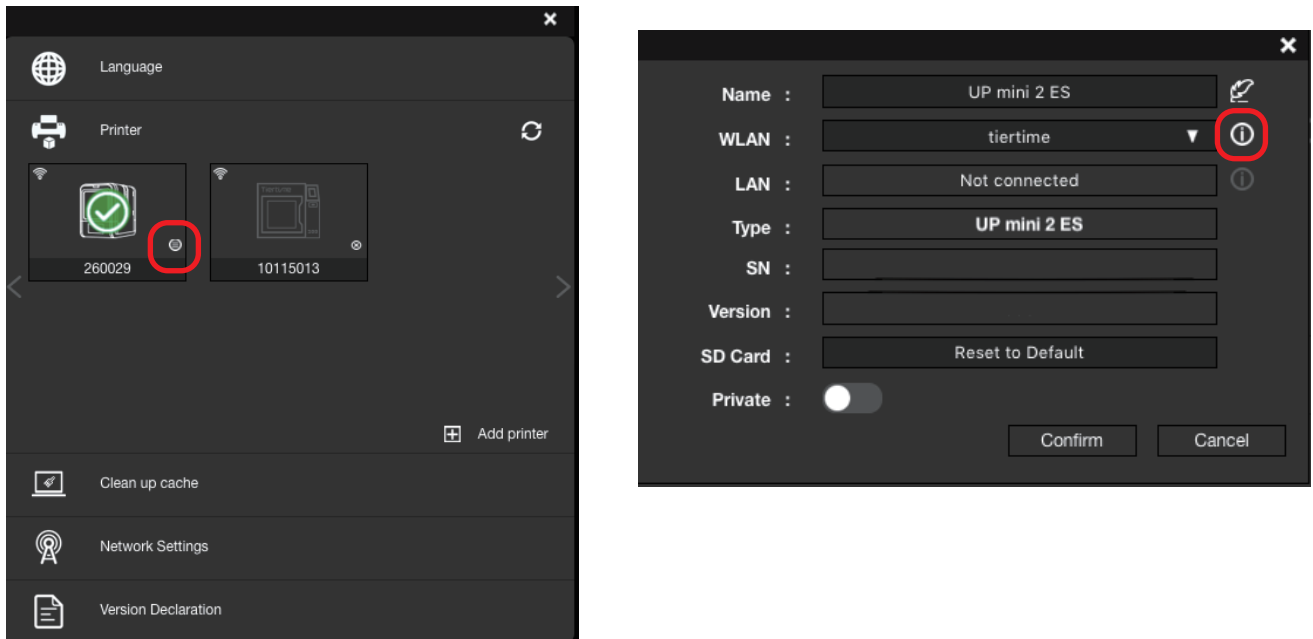
Find the printer in the All printers lists, then click “+” to add the printer. If the printer not shows up, click “Refresh” to reload the list.



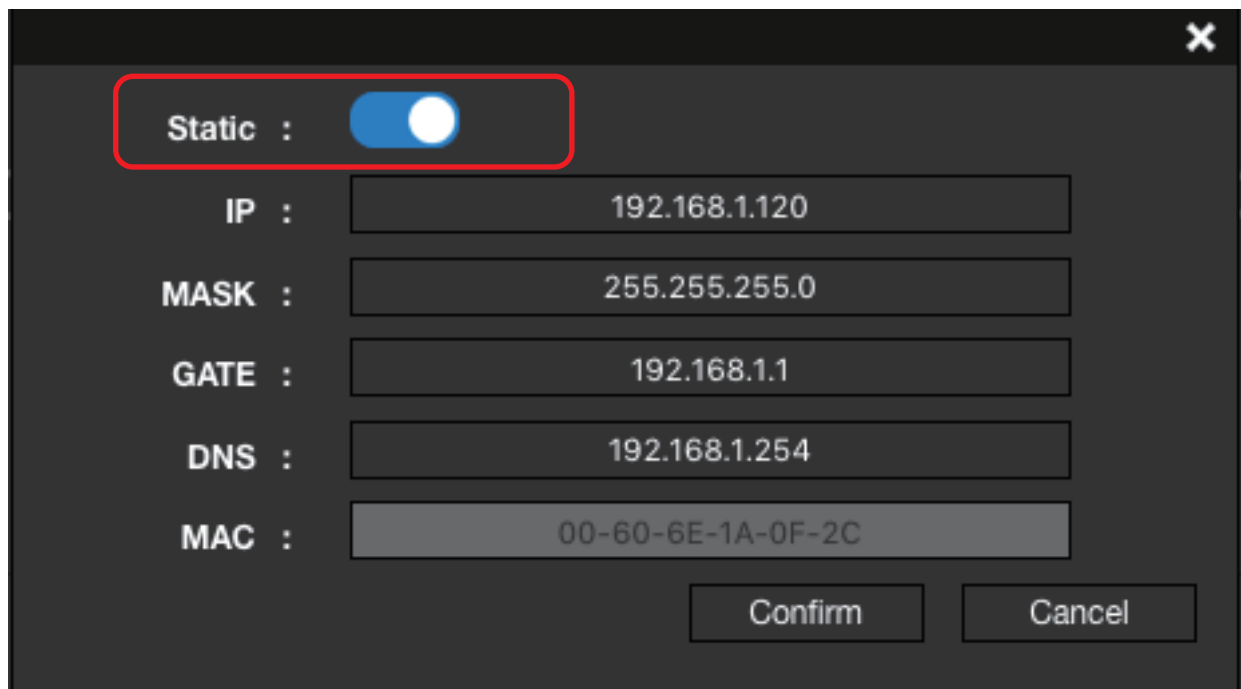
The icon of the printer will show up in Printer. Click the printer icon to connect. A green tick means the printer is connected to the software successfully.



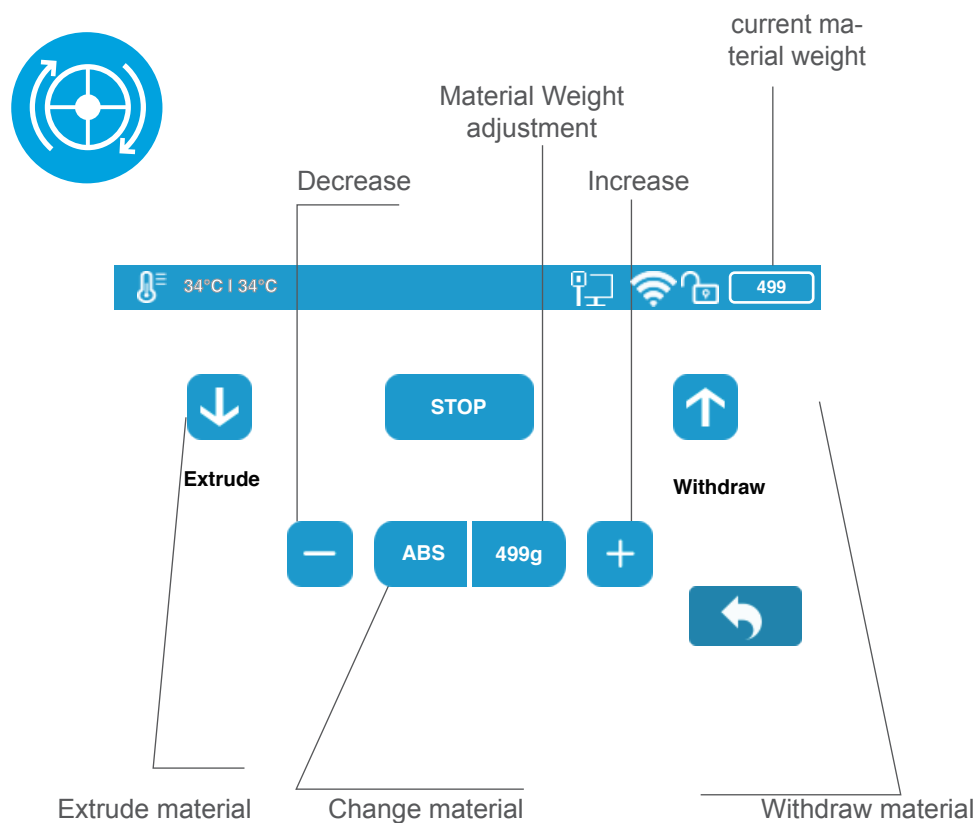
You can change the Wi-Fi Network settings in UP Studio.



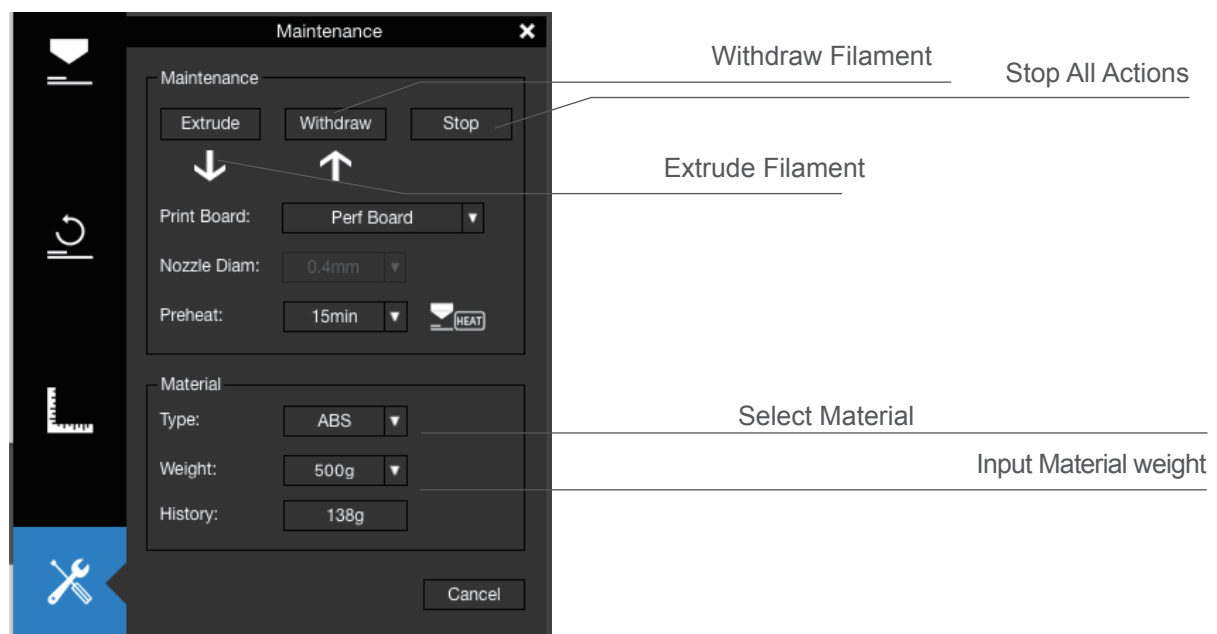
Toggle on “Static”, then to change the IP, Mask, Gate, DNS address. “Confirm” to save and finish.



Set Materials (Touch Screen)

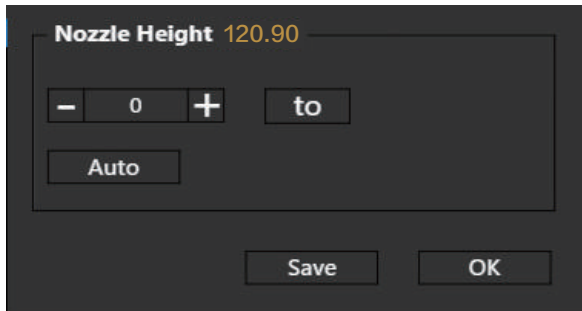


Set Materials (UP Studio)



Set Nozzle Height (UP Studio)

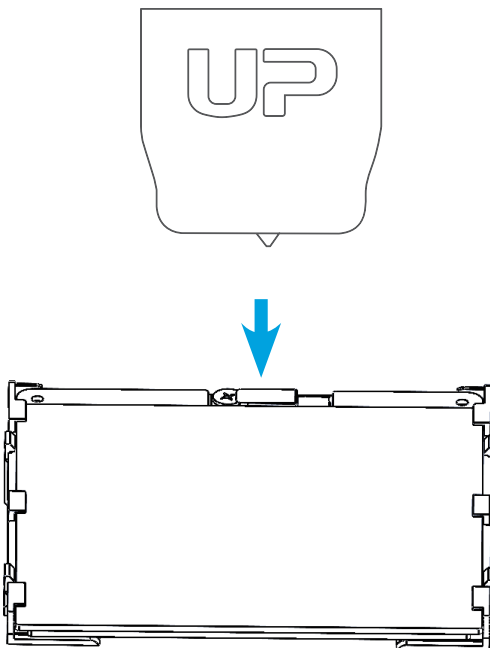
For setting nozzle height with touch screen please refer to page 16.



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



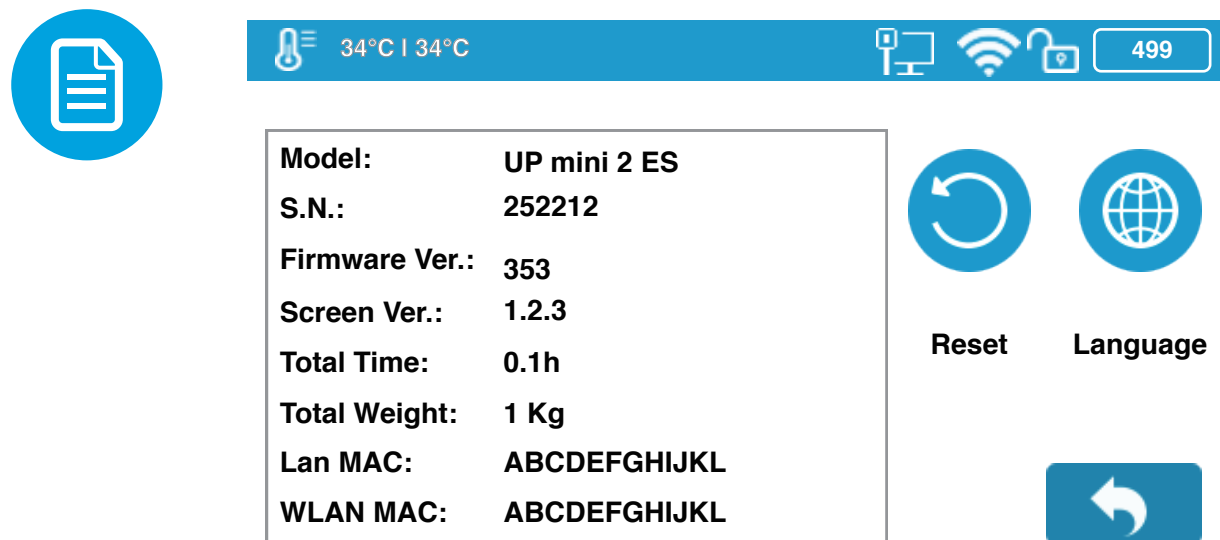
 34°C | 34°C

 400

Name	UP mini 2 ES	
Sound	☐ OFF	
Preheat	☐ OFF	
Private	☐ OFF	
Password	123456	

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.

Screen Ver.: Shows current screen version of the printer.

Total Time: total printing time count

Total Weight: total print weight count

Lan MAC: Printer's LAN address

WLAN MAC: Printer's WLAN MAC address.

Reset: The printer's name, nozzle height, material type to ABS, and material weight will be 500g.

Default Settings:

Printer's Name: S.N.

Nozzle Height: 0mm

Material Type: ABS

Material Weight: 500

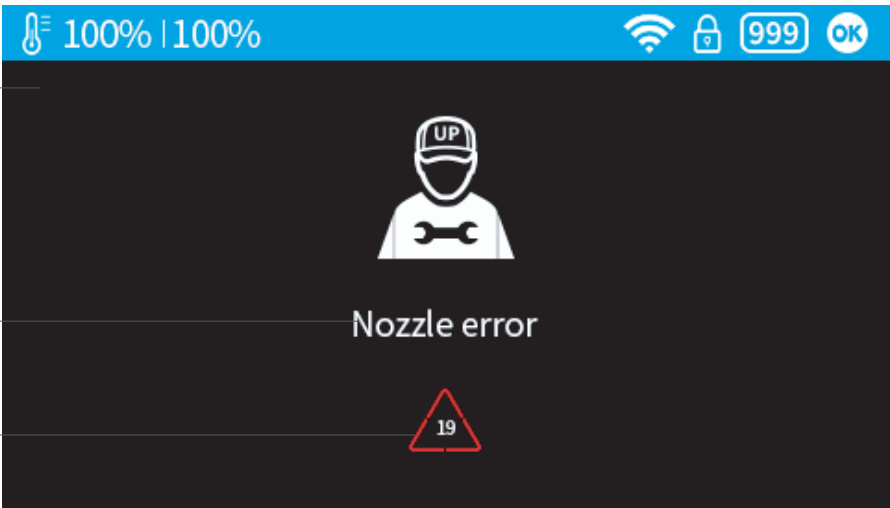
Language: There are two set of languages to choose from Chinese Simplified and English.

Error Prompts

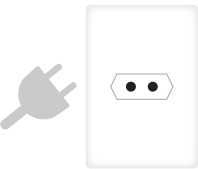
Suggested solution,
in this case:
Contact support

Error Message

Error code



Other possible error prompt:



Unplug printer and restart



reinitialize the printer

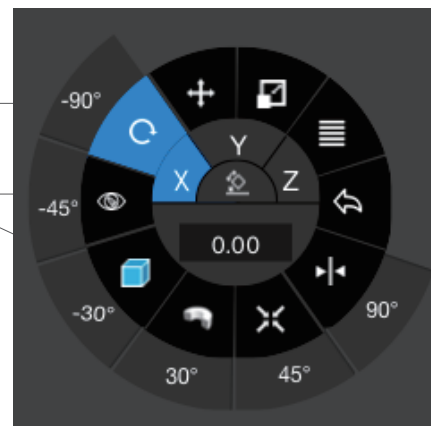
Rotating Models (UP Studio)

Choose the model and Click rotate button.

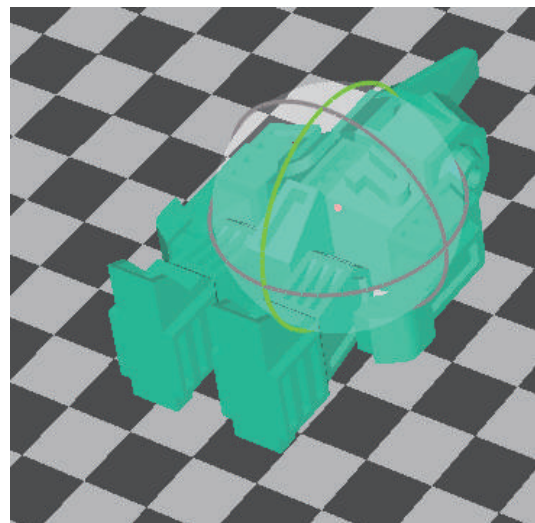


Choose rotation axis

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.

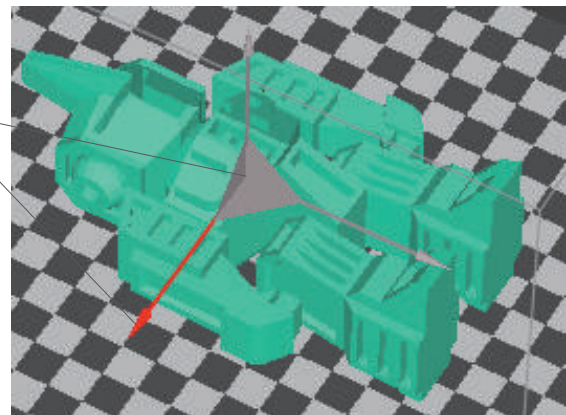
By default the scaling is in all axes.
User could also choose a specific axis for scaling.

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)



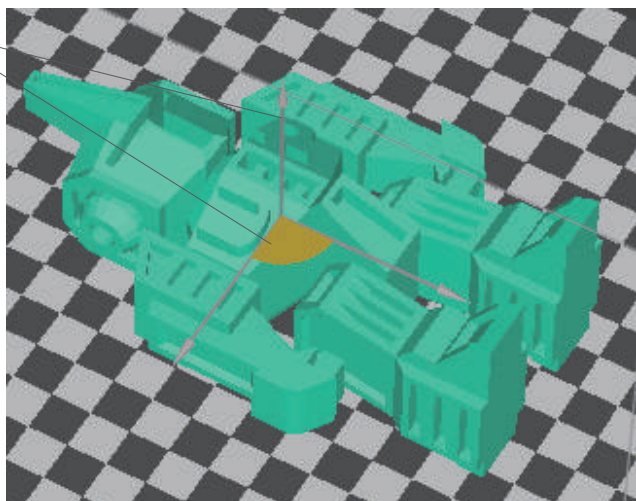
Choose the model and click the Move button.

Choose the the direction of movement

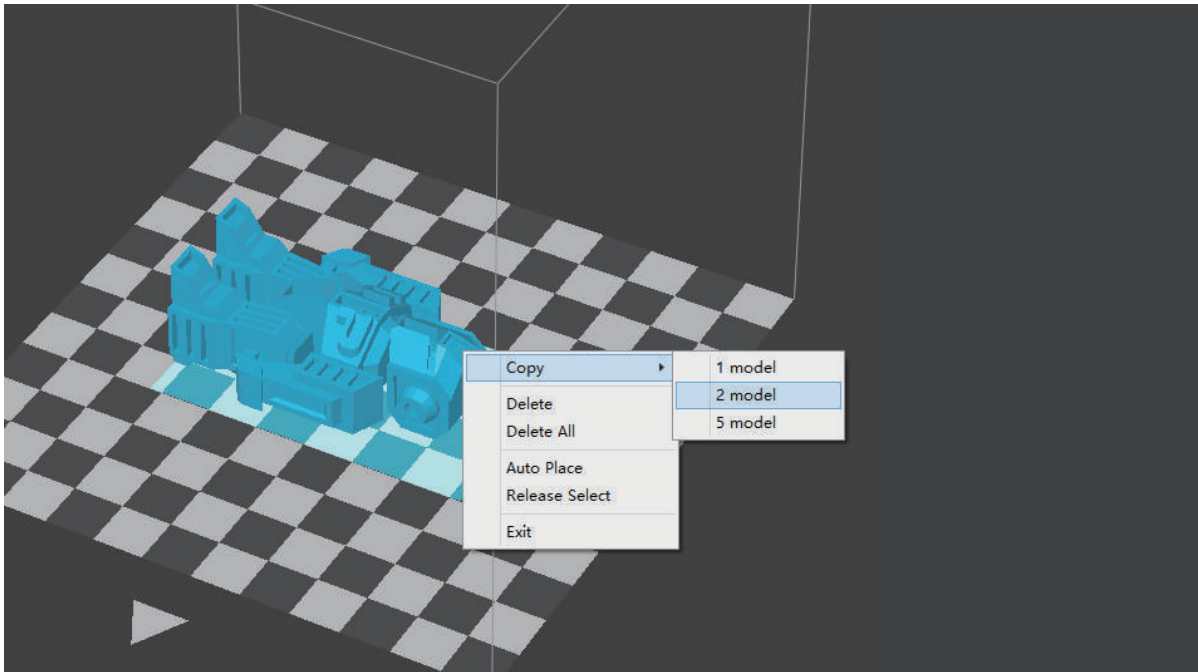
User could input a specific value or choose a preset value for distance of movement.



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.



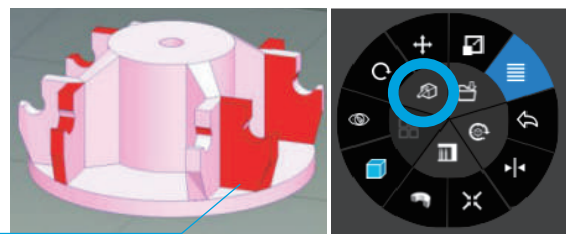
Make Copies



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

Repair A Model

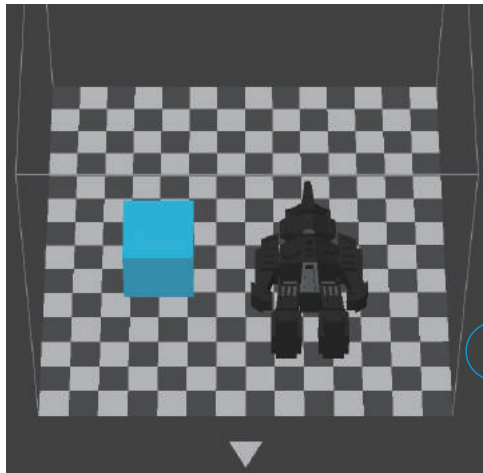
1\ If the model contains defective surfaces, the software will highlight the surfaces in red. Click the "more" button to reach second level menu



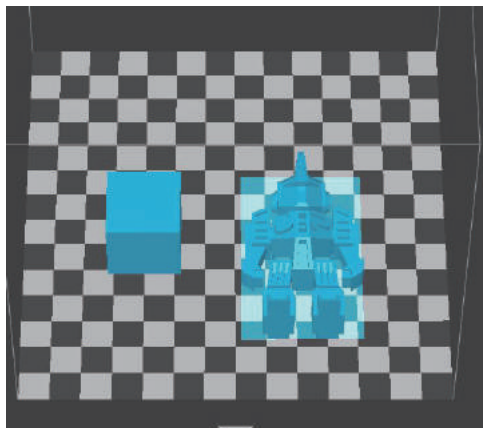
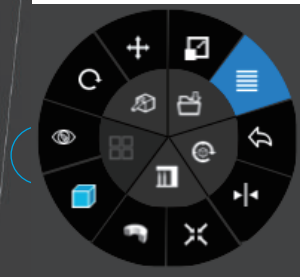
2\ Click the x button to repair the model. The red defective surfaces will resume a normal color when repaired.



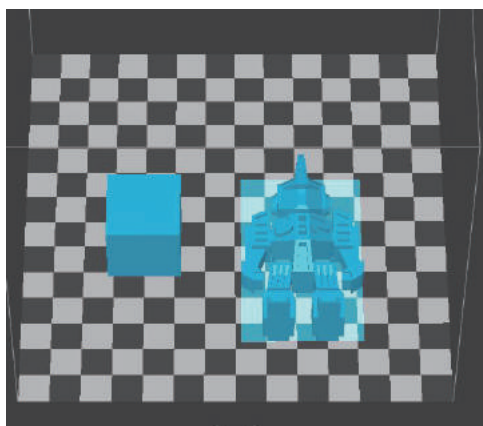
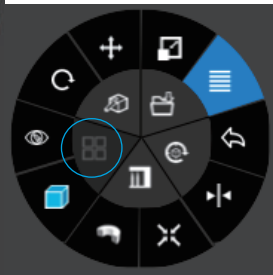
Merge and Save Models



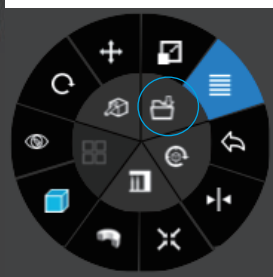
1\ Ctrl/CMD click all the models on the build plate.



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.



Top and Bottom

Surface: 3 Layer ▼ Threshold Angle: 45 Deg ▼

Support

Roof Density: 3 Layer ▼ Threshold Angle: 30 Deg ▼

Min. Surface Area: 3 mm2 ▼ Spacing: 8 lines ▼

Stable Support: ☐

Other Options

Thin Wall: ☐ Preheat: ☒

Easy to peel: ☐ Sleep: ☒

Extrusion Width: 0.6mm ▼

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

Threshold 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.

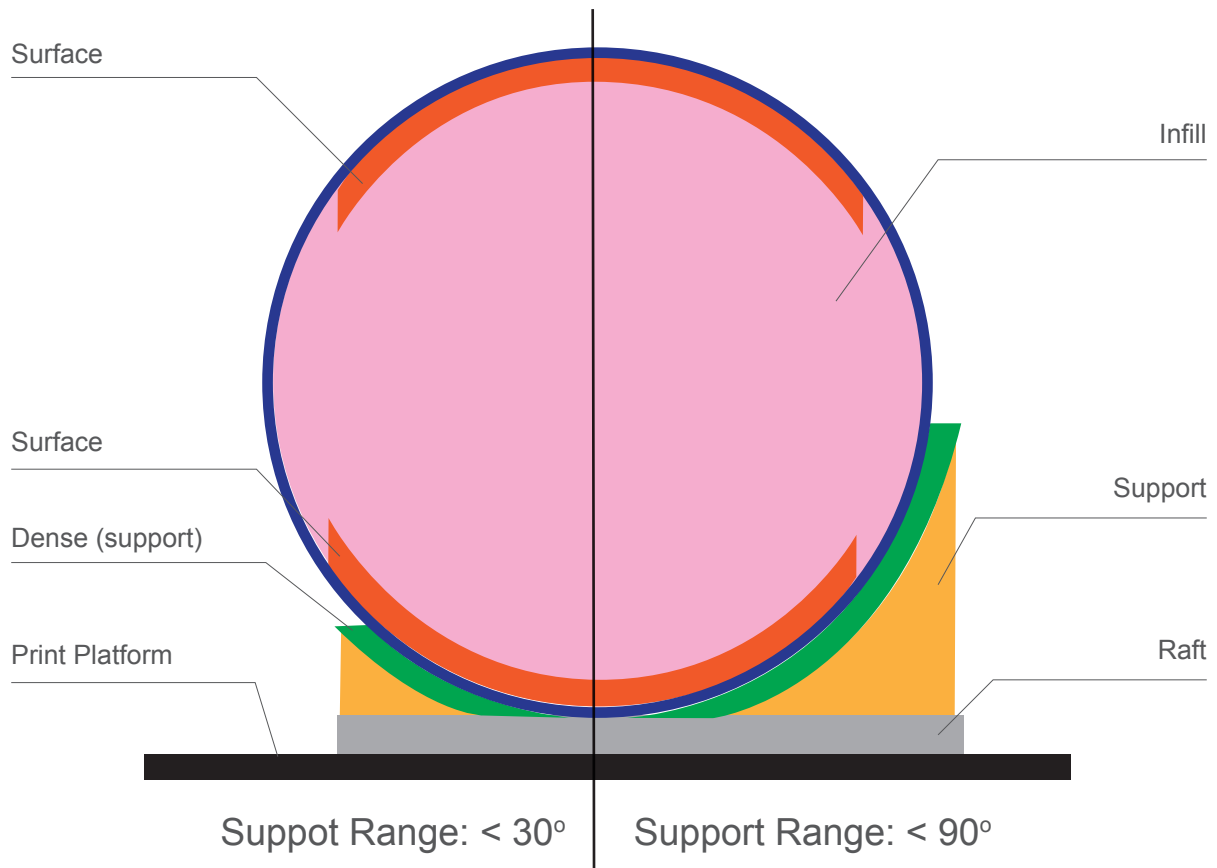
Others	
Unsolid Model	☐
Thin Wall	☐
Keep Heating	☐

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.

The screenshot shows a 'Calibration' dialog box with two tabs: 'Level Calibration' (selected) and 'Model Calibration'. The 'Level Calibration' tab contains a 3x3 grid of buttons labeled 1 through 9, each with a '0.00' value and an up/down arrow. To the right of the grid is a 'Nozzle Height' field with a value of '20.00' and a 'MOVE' button. Below the grid are three buttons: 'Manual', 'Auto Level', and 'Reset'. At the bottom of the dialog are 'Confirm' and 'Cancel' buttons.

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 eld" + the "compensation value"

Manual Calibration

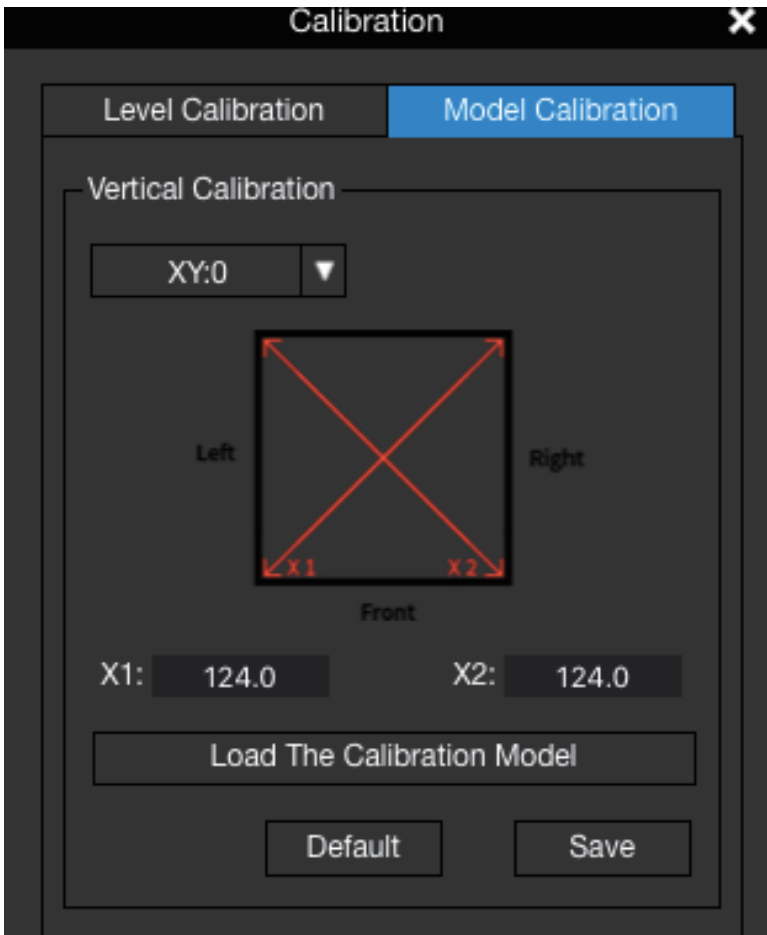


1\ Initialize the printer

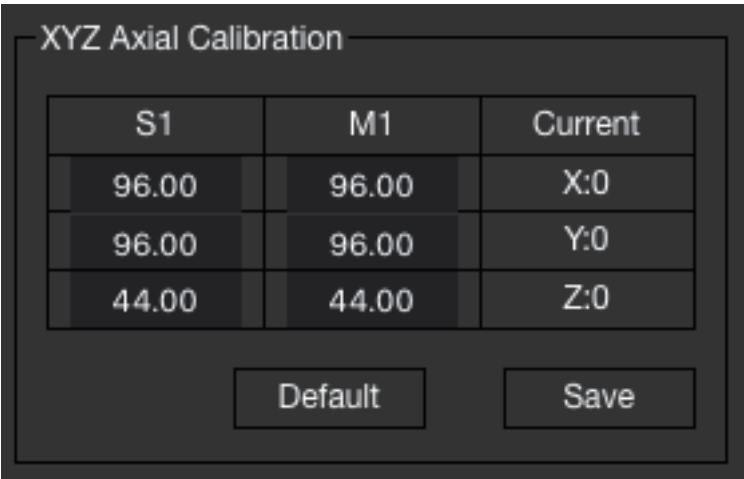
2\ Put a Calibration Card on the platform.

3\ Follow the instructions.

Model Calibration



Vertical Calibration, its main purpose is to ensure all three axes are perpendicular to each other in order to guarantee consistent, high-quality prints.

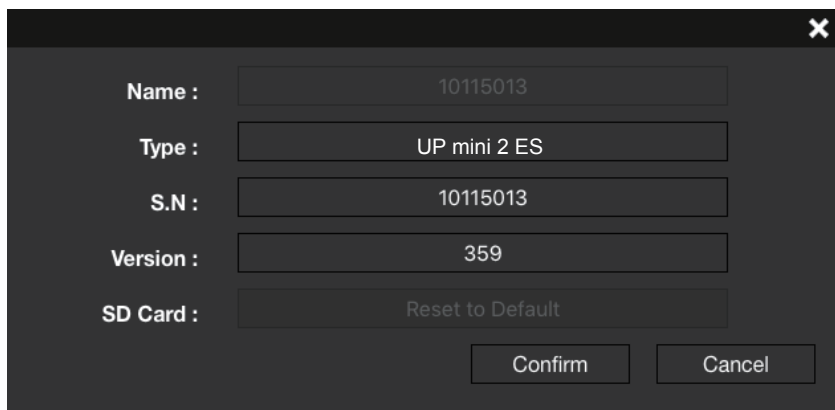
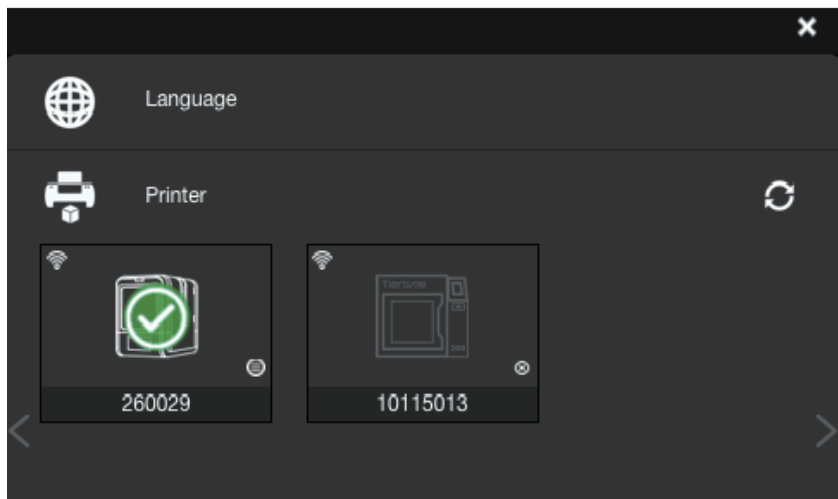


XYZ Axial Calibration is used to improve dimensional accuracy for a specific model. When a printed object is found to be deviating from its theoretical dimensions, we can use this method to correct it and achieve better precision.

For detailed instruction, go to www.tiertime.com, Tips and Tricks section.

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.



Name :	10115013
Type :	UP mini 2 ES
S.N :	10115013
Version :	359
SD Card :	Reset to Default

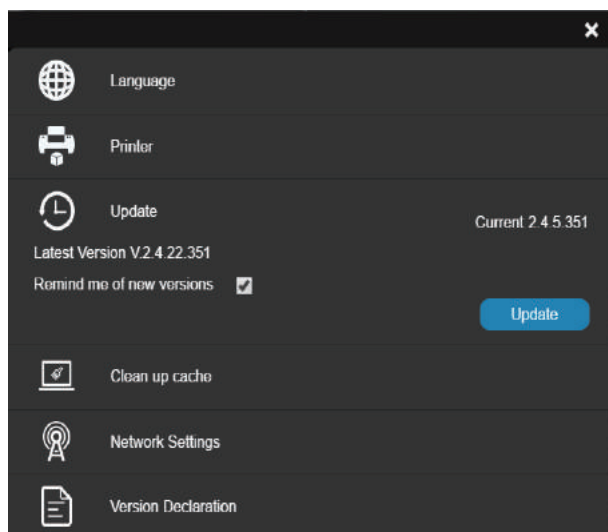
ConfirmCancel

Software Version and Update

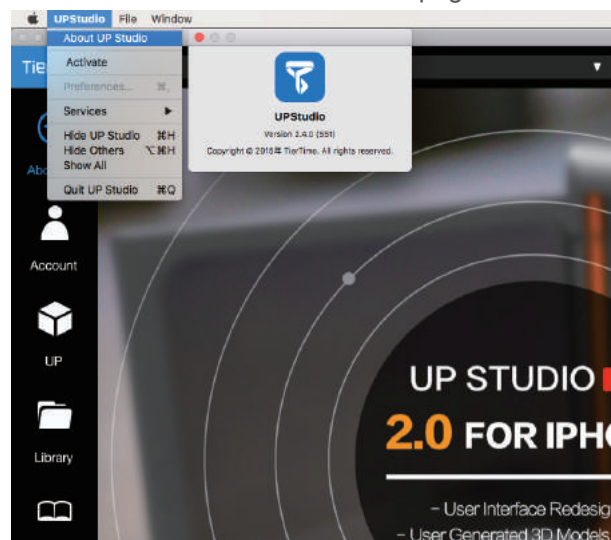
In Windows operating systems, the software version number can be found in Settings. To update the software, click the update button. Also, you can tick “Remind of new versions” that you will get notification when a new version is available.

In Mac operating systems, go to UP Studio, then click “About Up Studio”. The window that pops up will show the current software version number. To update the software, go to the app store to check the latest release.

Windows

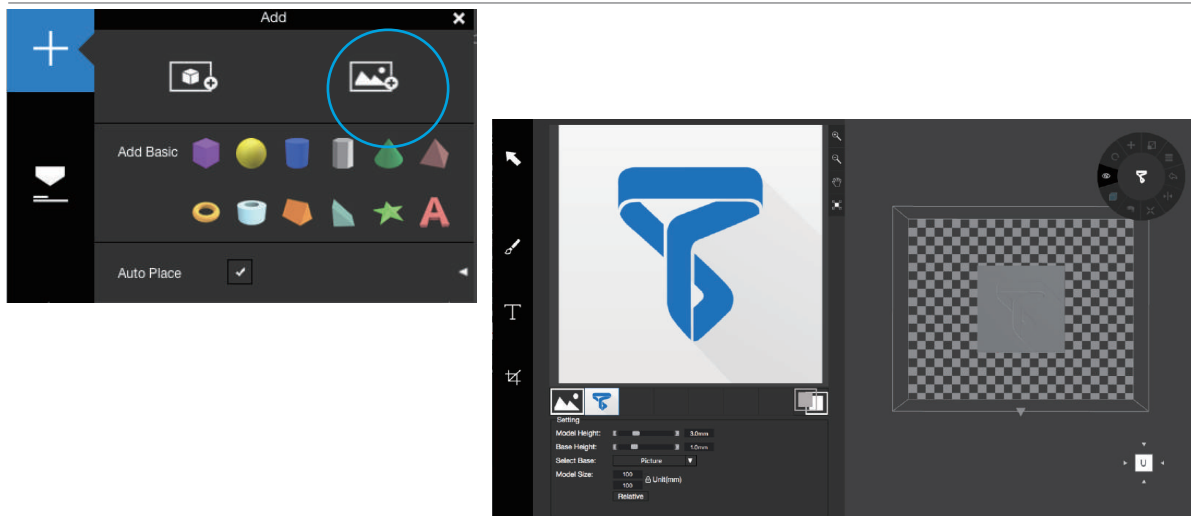


macOS Add.png

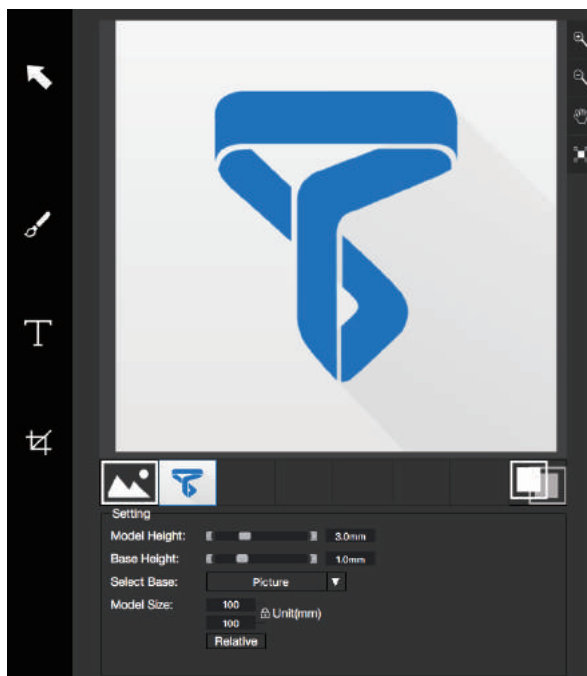


Convert Picture Into 3D Model

2-1



Click add picture button and select a picture.

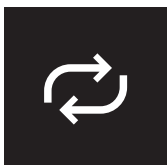
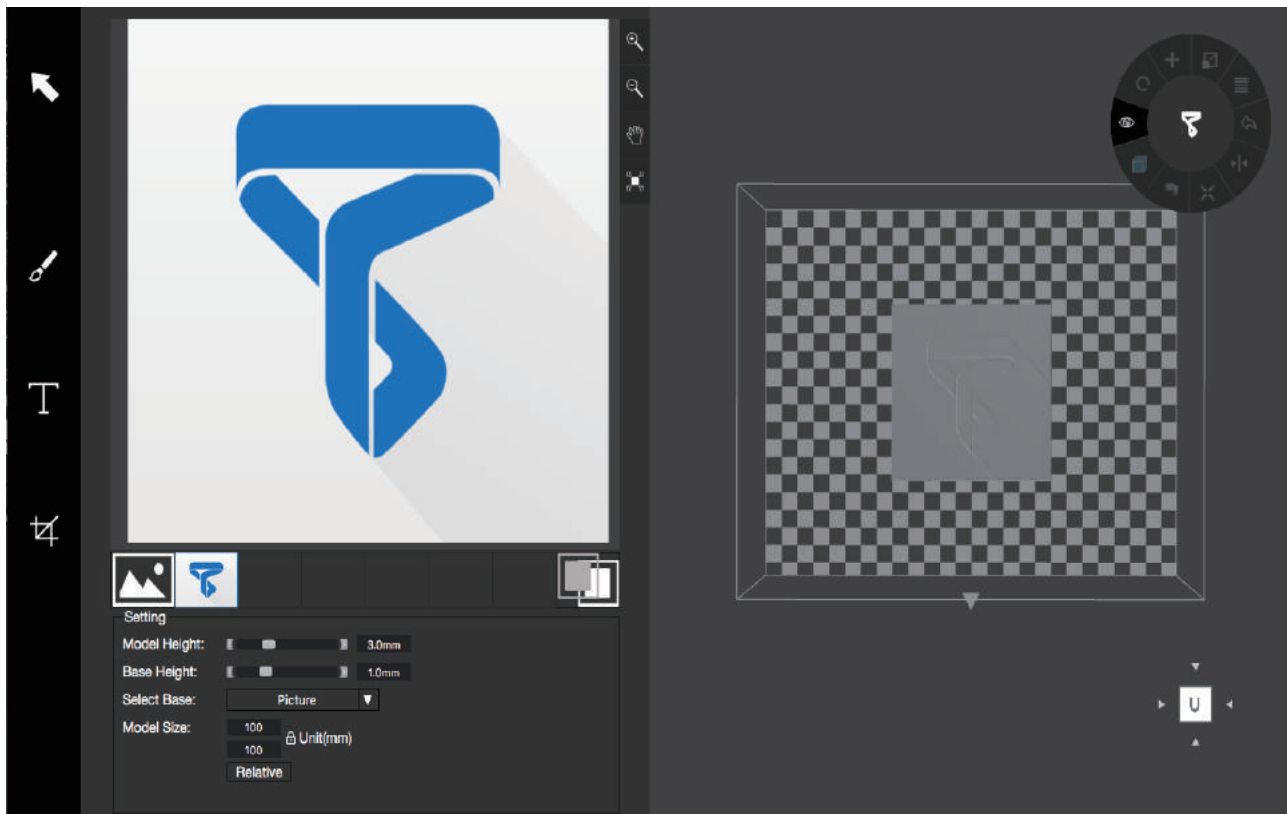


The Base height determine the thickness of a flat layer that will hold the picture.

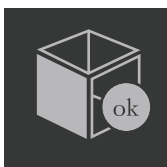
Model Height determine the contrast of the finally print.



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.

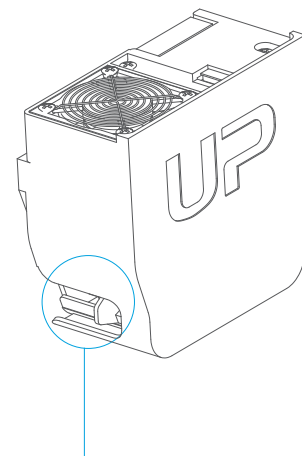
2. Calibrate the printing platform well. An unlevelled platform usually causes warping. Allow enough time for sufficient preheating. Please use the 3D Print–Preheat function. A well preheated platform is essential for printing large objects without warping.

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.

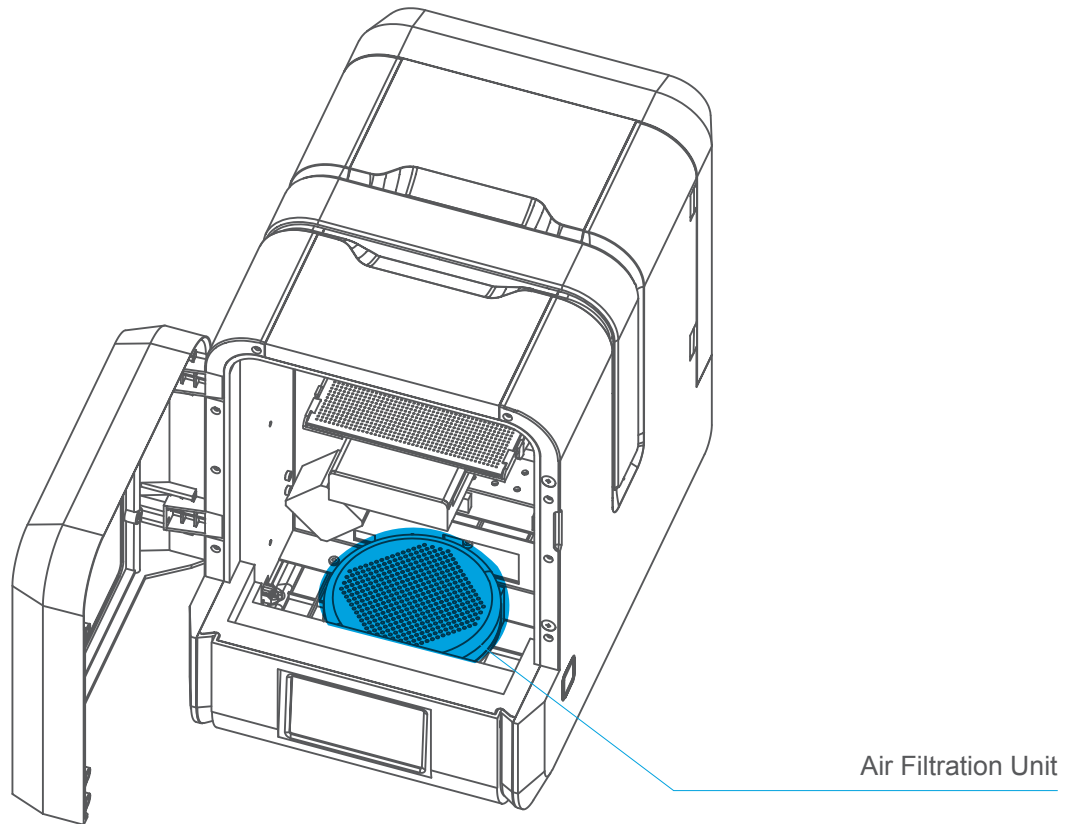
5. Printing with no support. It is possible to print without supporting structures. You can turn off support by choosing "No Support" in the "print" setting panel.



Air Flow Adjustment knob

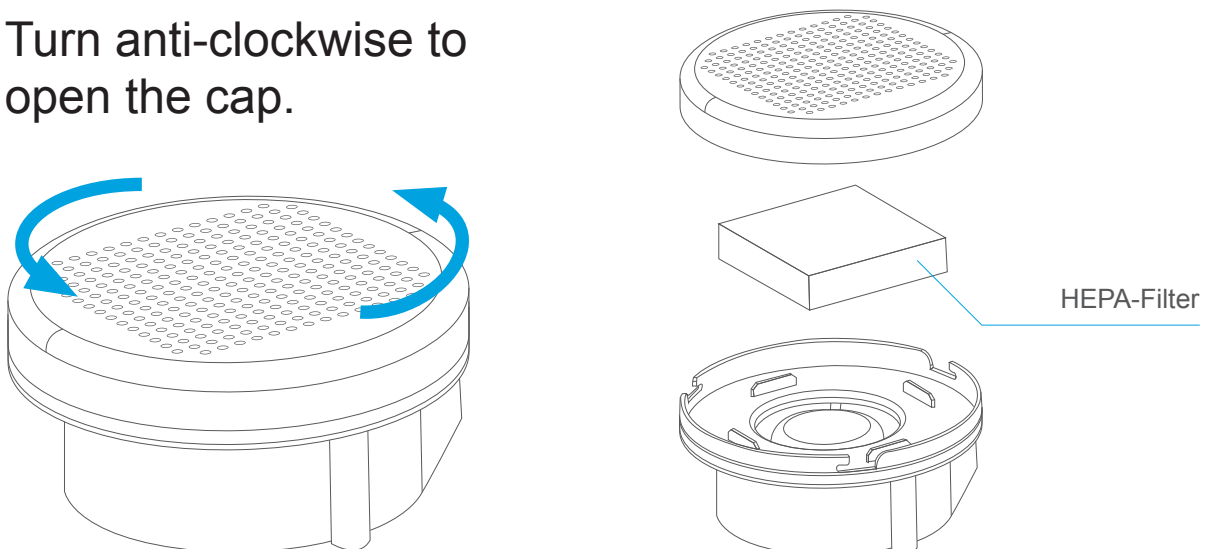
Printer Maintenance - Air Filter Replacement

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

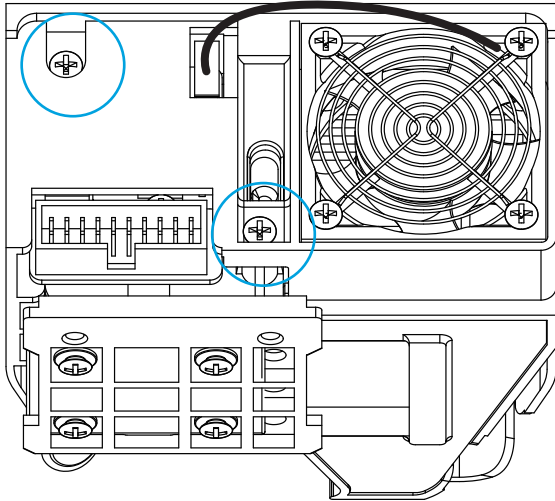


Front View

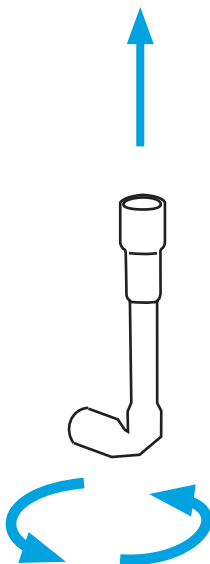
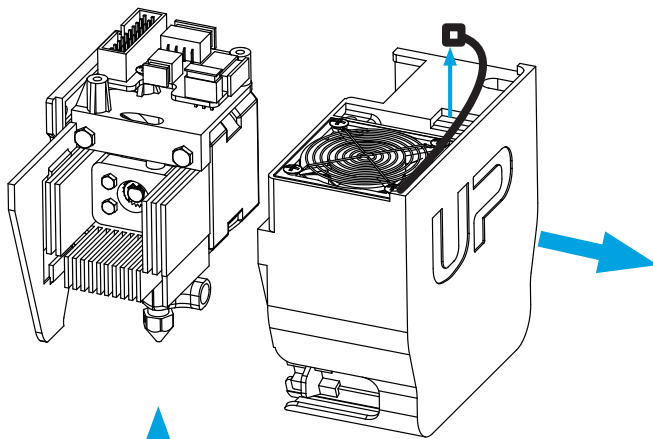
Turn anti-clockwise to open the cap.



Print Head Maintenance



The printhead cover could be removed after unscrew 2 bolts.

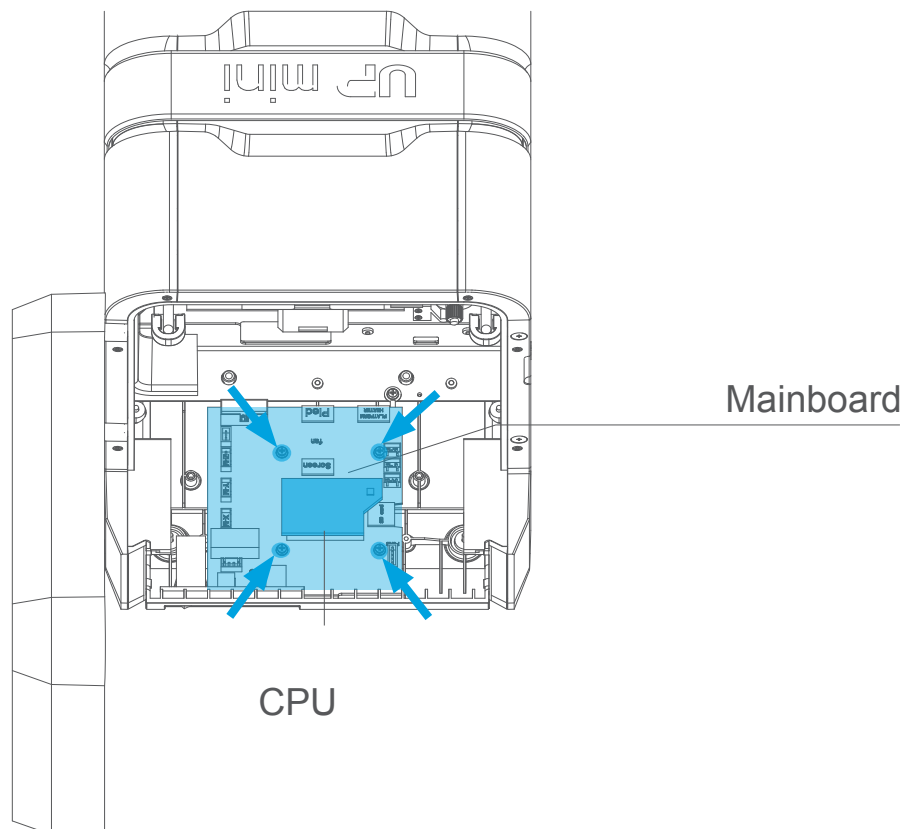
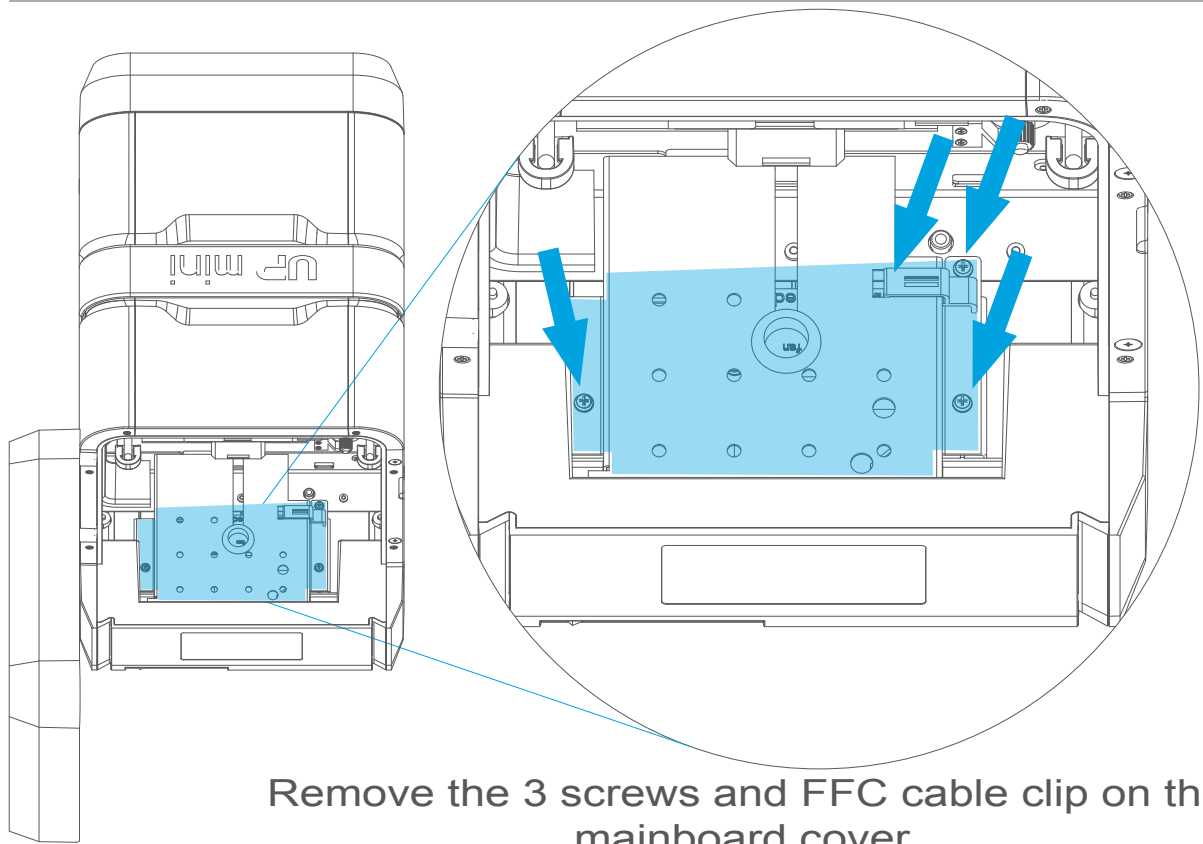


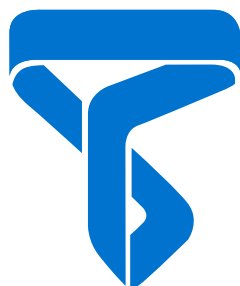
Heat up the nozzle to printing temperature by using the extrude function in maintenace interface.

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





Tiertime

Beijing Tiertime Technology Co., Ltd

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[twitter.com/tiertime](https://www.twitter.com/tiertime)

Support email: support@tiertime.com

Web: www.tiertime.com

US Support Hotline: (888) 288-6124