UP mini 2
User Manual

V 0.1

Index

Safety Precautions

1\ The UP mini 2 3D printer requires the power adapter provided by the original manufacturer, otherwise the machine could be damaged or even cause fire 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 print head and other mechanical parts move at high speeds. Touching these parts while they are moving could cause 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 filament, 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's ideal working temperature is between 15°C and 30°C with a relative humidity between 20–50%.

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. Nozzles and Print Boards are warranted for ninety (90) days.

• Tiertime reserves the right to determine the validity of all warranty claims.
• 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.
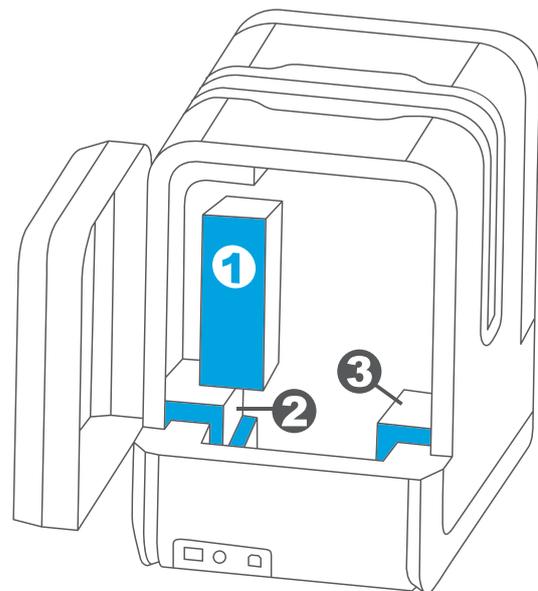
Rear View

Package Content
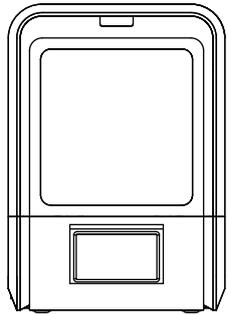
UP mini 2	Spool and Tool Holder	Calibration Card	50g Tester PackX3
Protective Gloves	Power Adapter	Power Cable	Scraper
USB Cable	Hex Keys 2.0mm, 2.5mm	Plier	ABS Filament
Nozzle Wrench	Perforated Print Board (Perf Board)	UP Flex Print Board	Print Head Nozzle
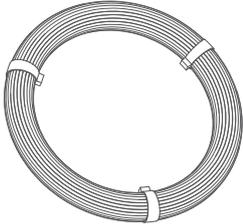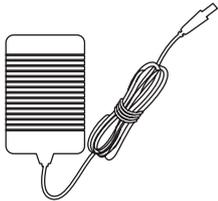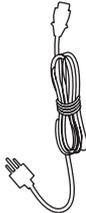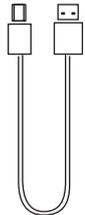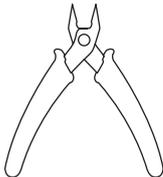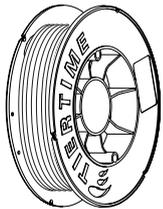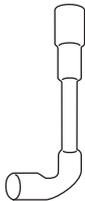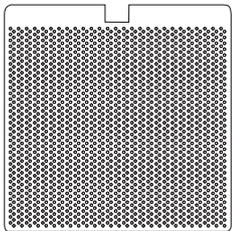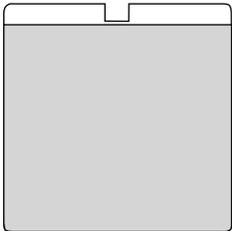
If anything is missing, please contact your local distributor or at support@pp3dp.com

Product Description

Front Side

Magnetic Top Lids

Back Door

Front Door

Handle

LCD Touch Screen

Initialization Button

Back Side

Filament Insertion Hole

Back Door

Power Switch

USB Connector

Power Supply Connector
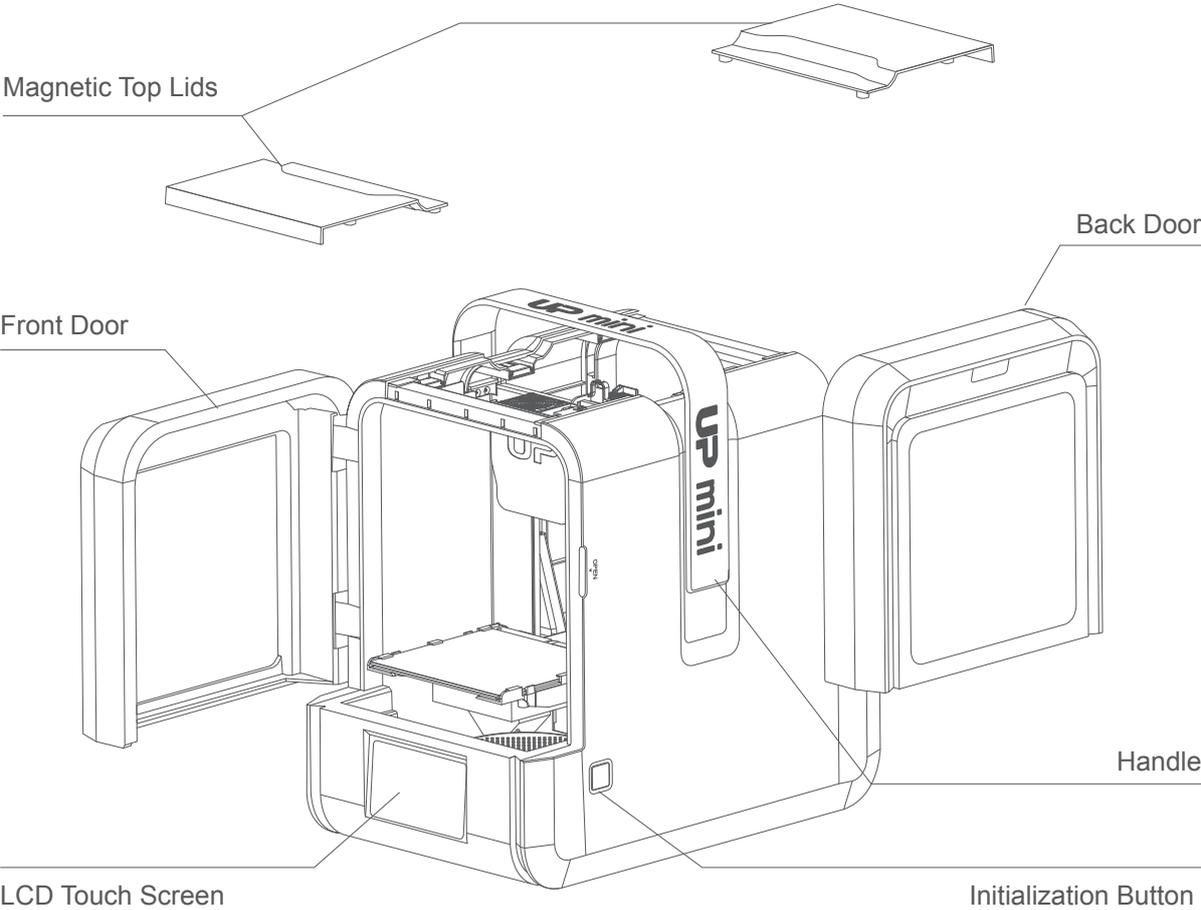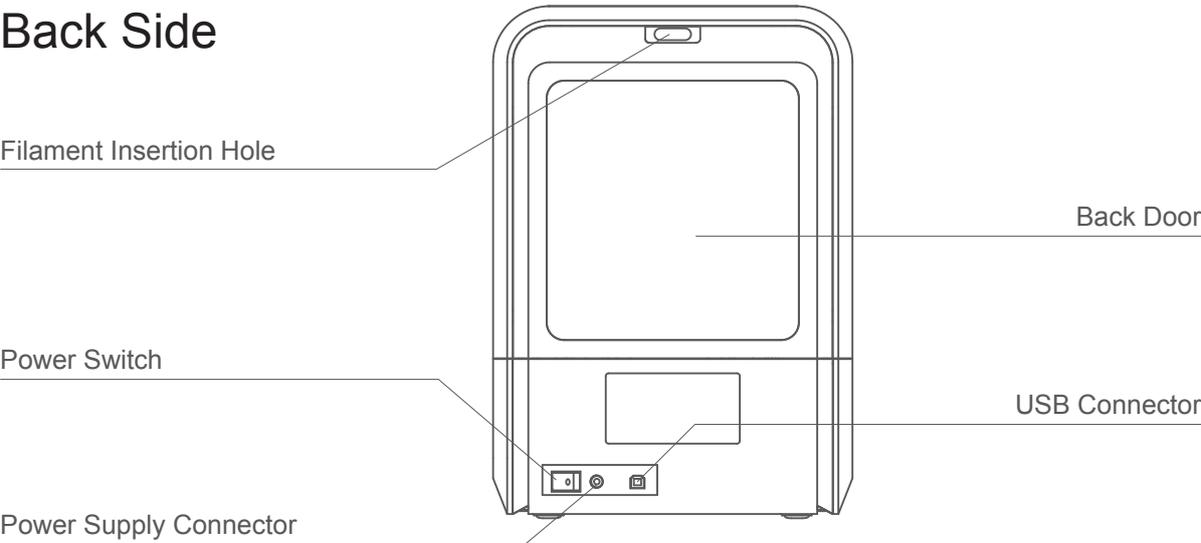
Filament Spool Holder

Spool Holder Lid

Filament Guiding Tube

Filament

Filament Spool

OPEN

Tool Drawer
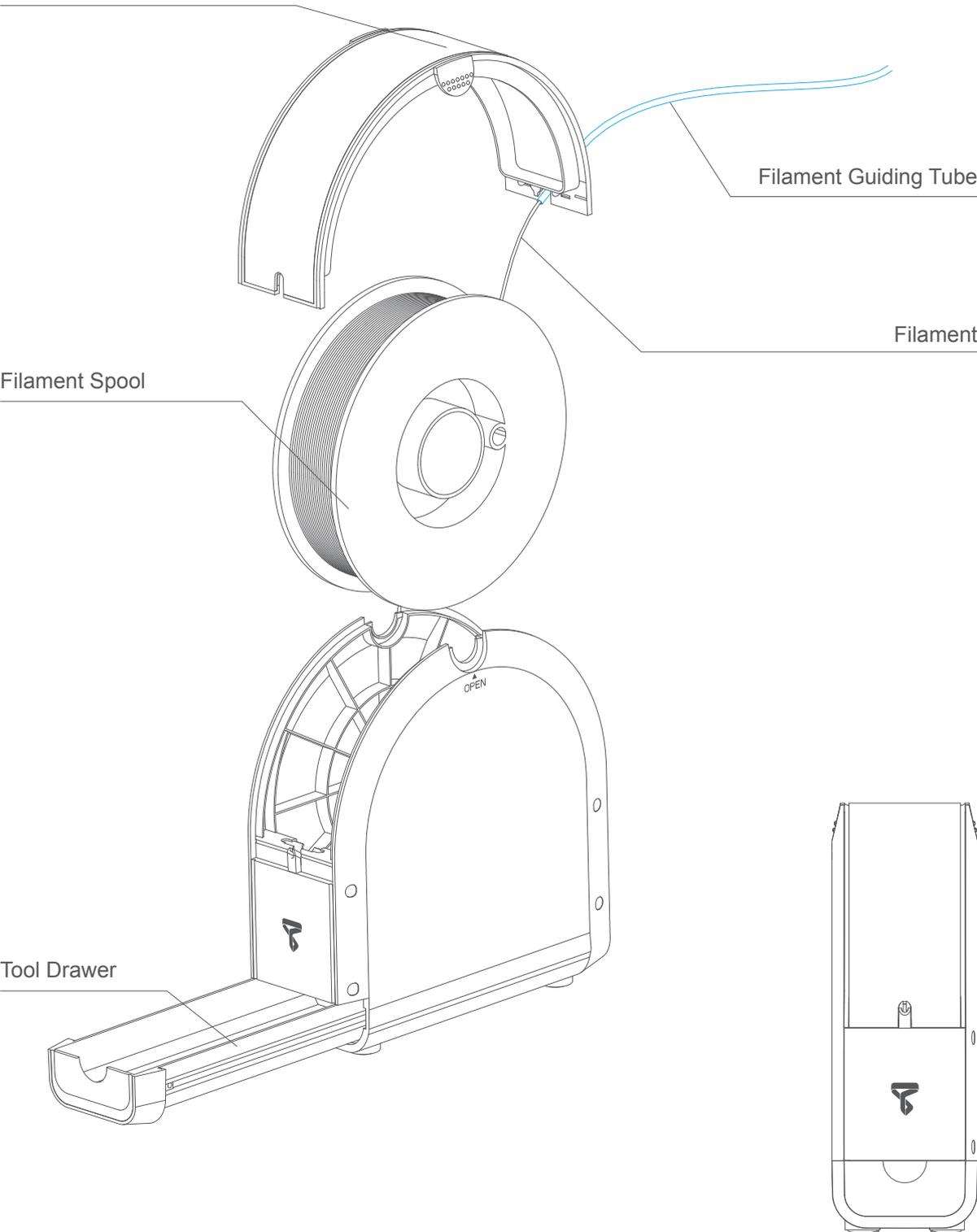
Installation of Print Board

Slide print board into the platform
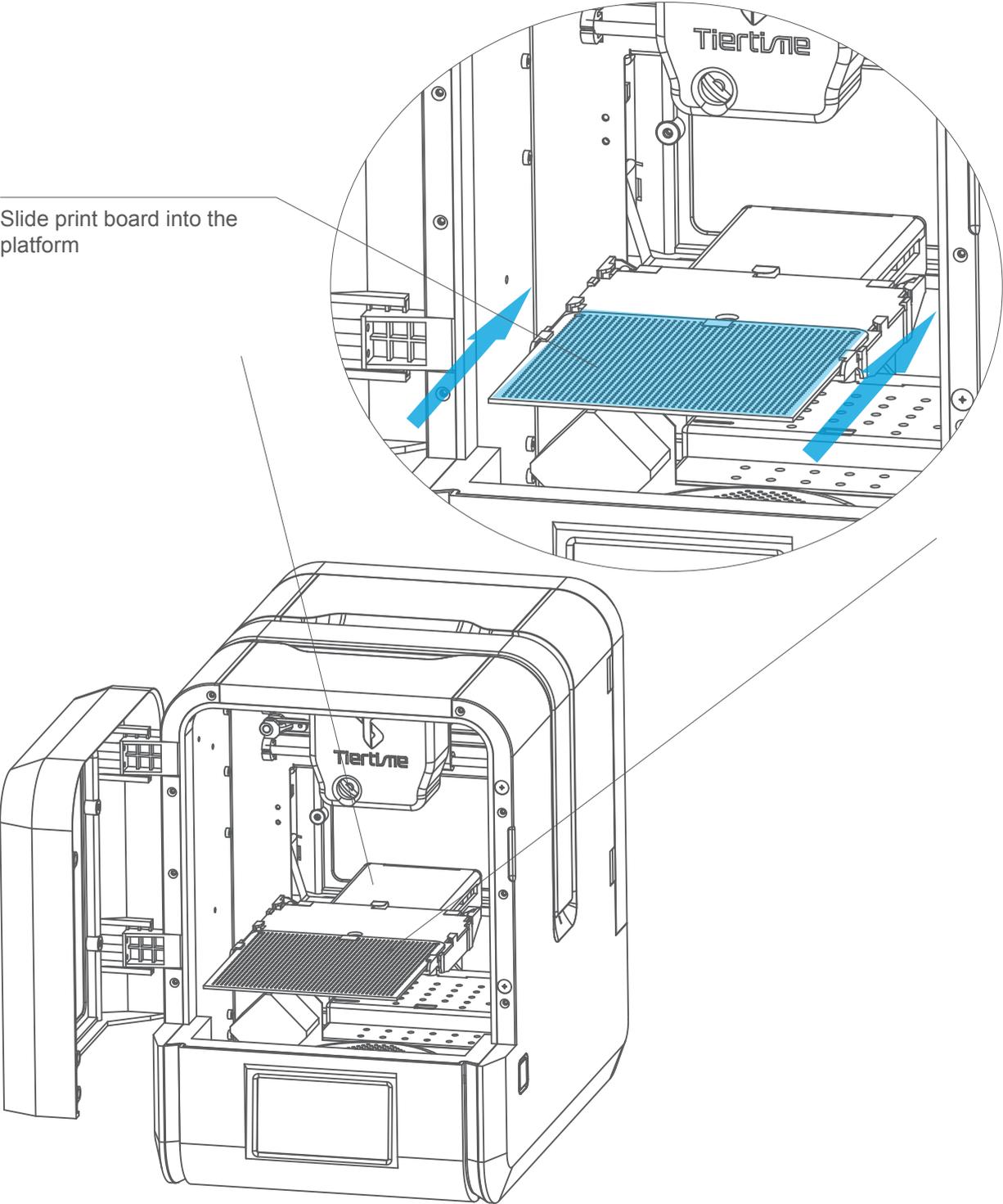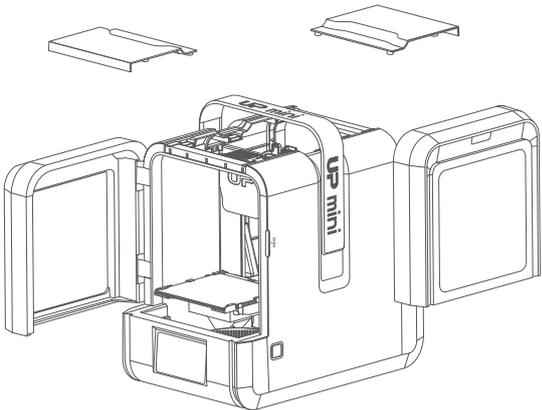
Open front door, back door
and top covers
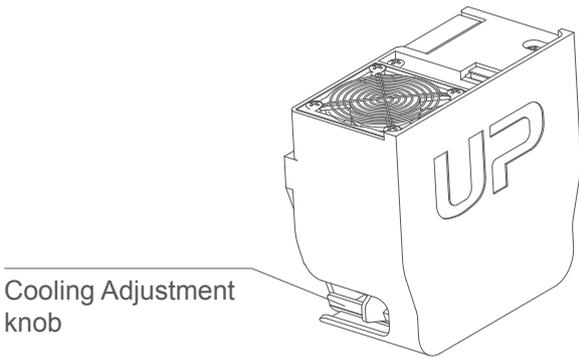
Cooling Adjustment
knob
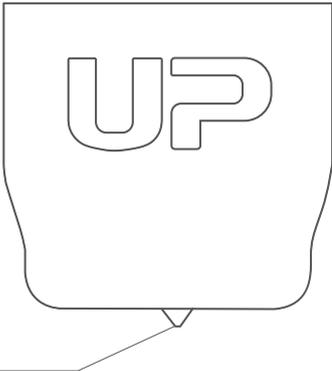
Nozzle
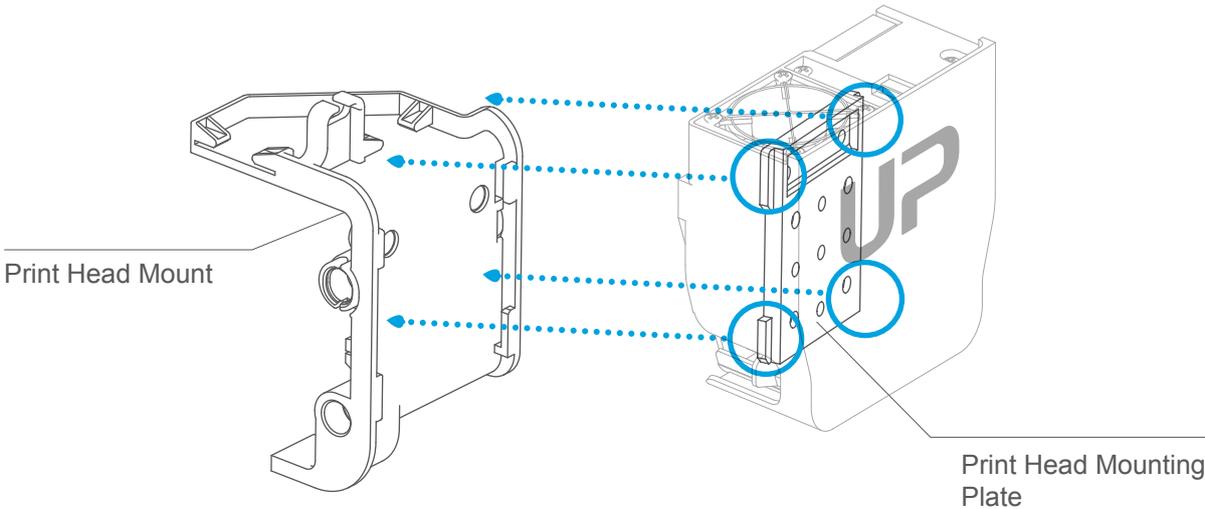
Print Head Mount

Print Head Mounting
Plate

Slide the print head
into the slots.
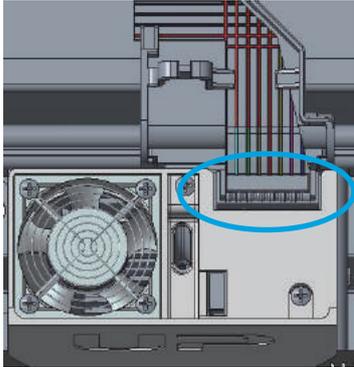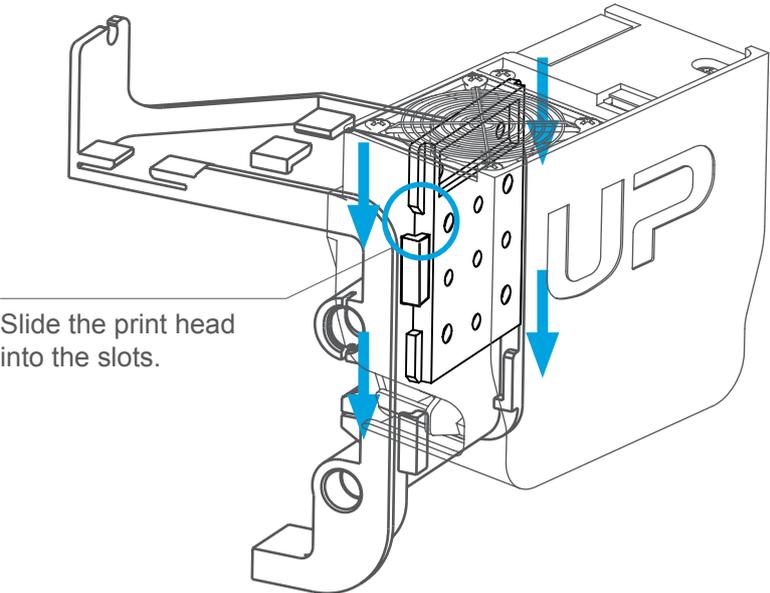
Plug in the print head cable.
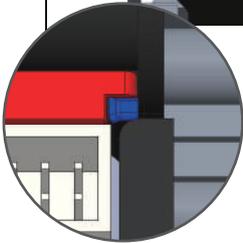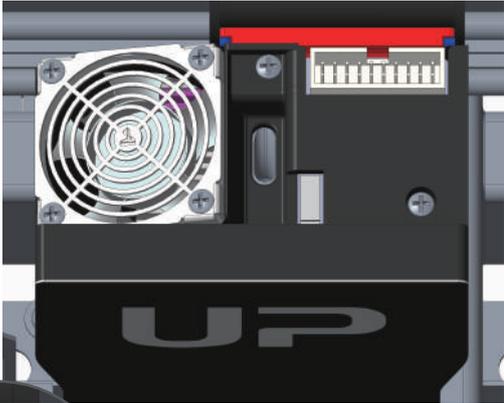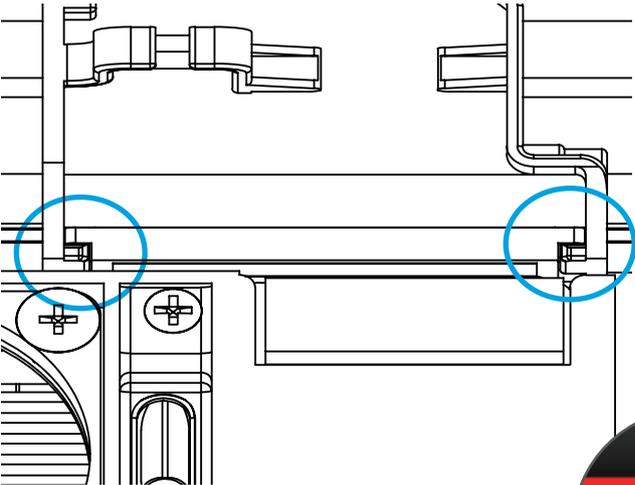
Download and Install UP Studio

Two ways to obtain UP Studio

1. Download the latest version from www.up3d.com.
Double click the installation file, follow the simple instructions, the installation will be finished quckily.
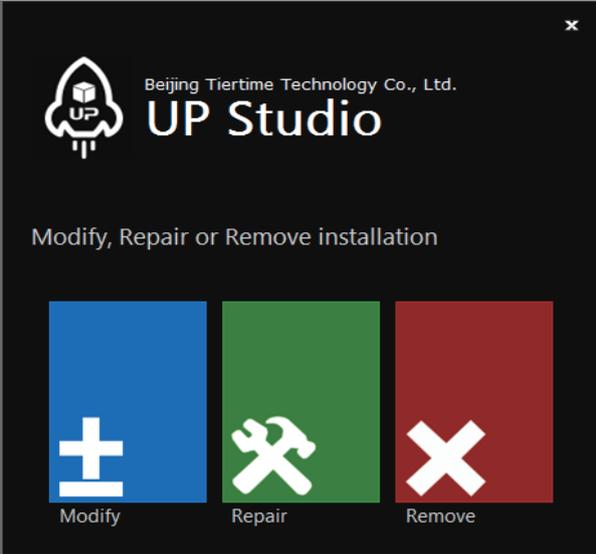

Minimum hardware requirements

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

Software Interface

Printer Status

Other Options

Home

Load File

Print

Initialize

Calibrate

Maintenance

Build Platform

Model Adjustment Wheel

Move

Rotate

Scale

Auto Place

To Menu 2

Undo

View Angles

Menu 1

Mirror

Back to Menu 1

Merge

Save

Fix

Delete

Undo

Reset

Menu 2
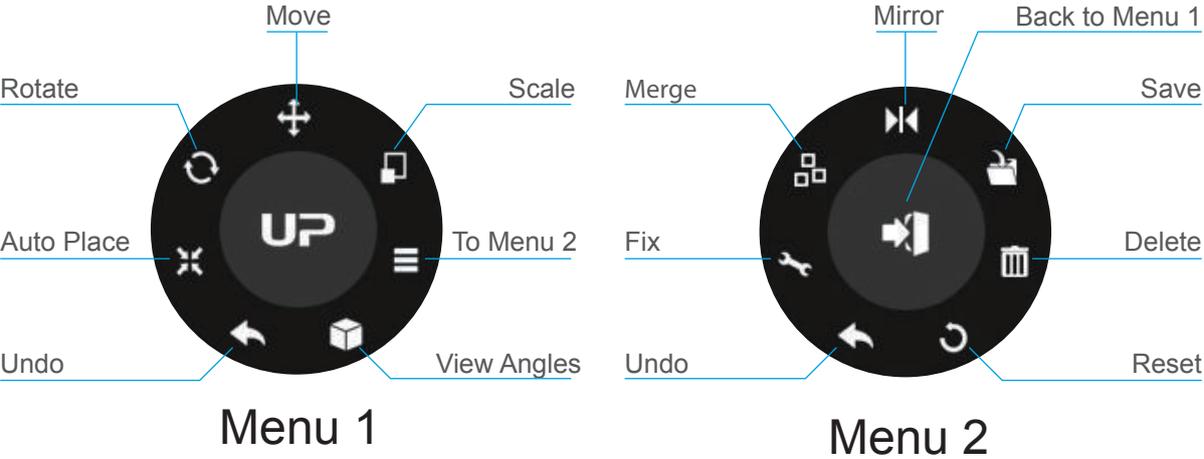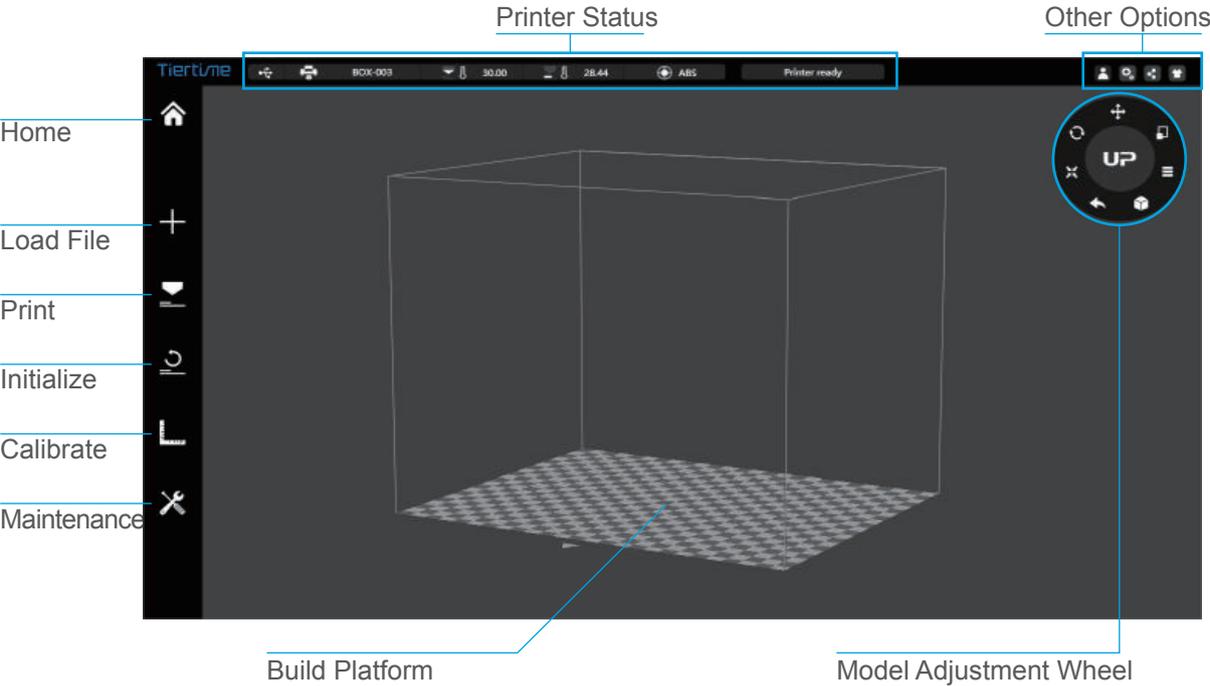
Initialization of Printer

Initialization is required every time the machine is switched on. During initialization, the print head and print platform move slowly and hit the endstops of the XYZ axis. 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 initiali zation.

Initialization button

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 on right).
3. When the printer is idle, press the initialize button on touch screen.

Initialization Button

PC client

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.

Material   Print   Calibrate

Information   Config   Initialize
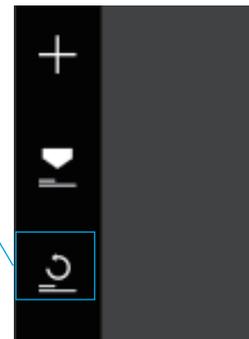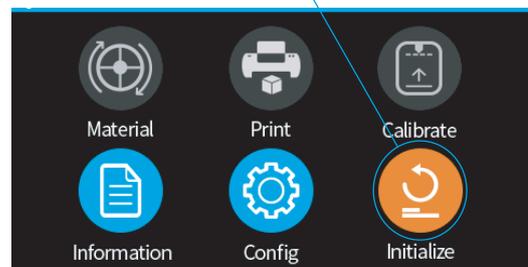
Touch Screen

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.

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

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

4\ Connect UP mini 2 to your computer.
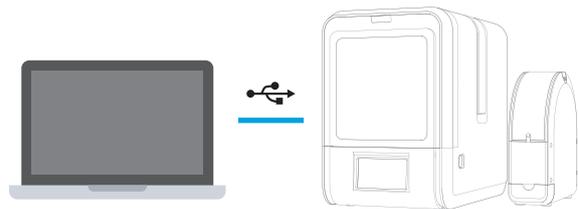
5\ Go to Account section and sign in.

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".

7\ Restart the printer after the activation.

Touch Screen Control

Change printing Material

Print a stored project

Machine settings including Wi-Fi

🌡 100% | 100% 📶 🔒 999 OK

Material

Print

Calibrate

Information

Config

Initialize

Printer Info, reset to factory and choose language

Nozzle Height Detection

Initialize the printer

Nozzle Temperature

WIFI Status

Remaining material

🌡 100% | 100% 📶 🔒 999 OK

Platform Temperature

Private setting status

Printer readiness status

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 before the first print.

Press "Calibrate" button to enter Nozzle Height setup page.
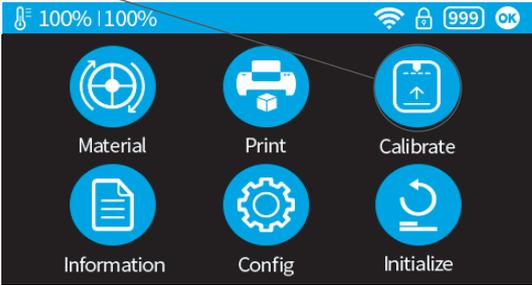
Press the "Auto" button to start the automatic process.
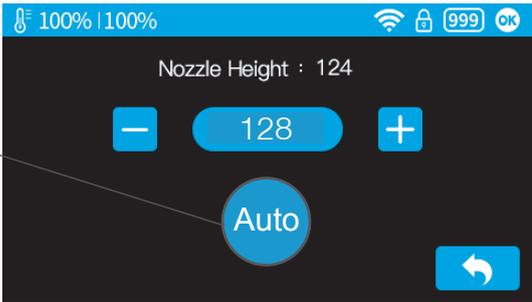
During nozzle height detection, the print head nozzle will touch the nozzle detector to make measurement.

install the filament and guiding tube shown in blue.

To printer
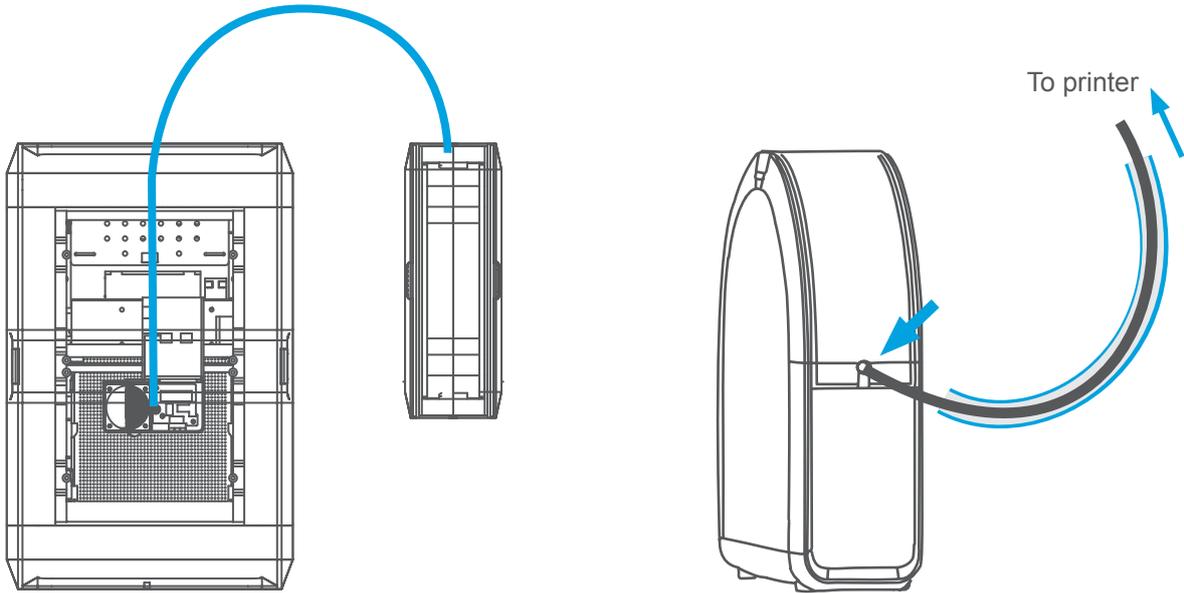
Top View

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

Back Side

Insert filament Guiding Tube
into the filament entrance.

From spool
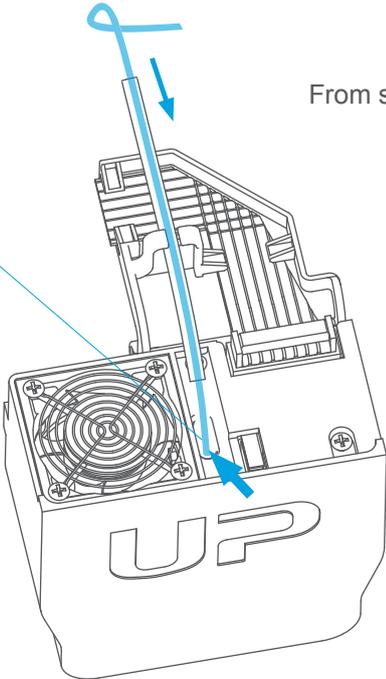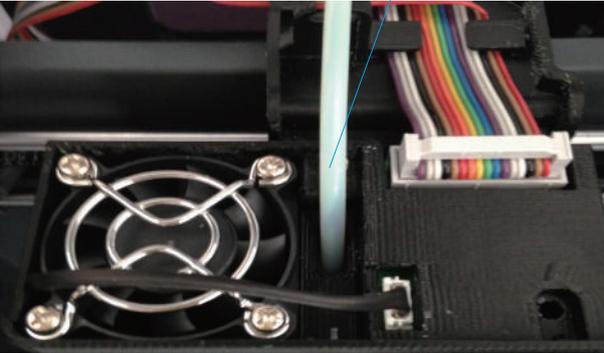
Prepare for Printing - Load Filament

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.
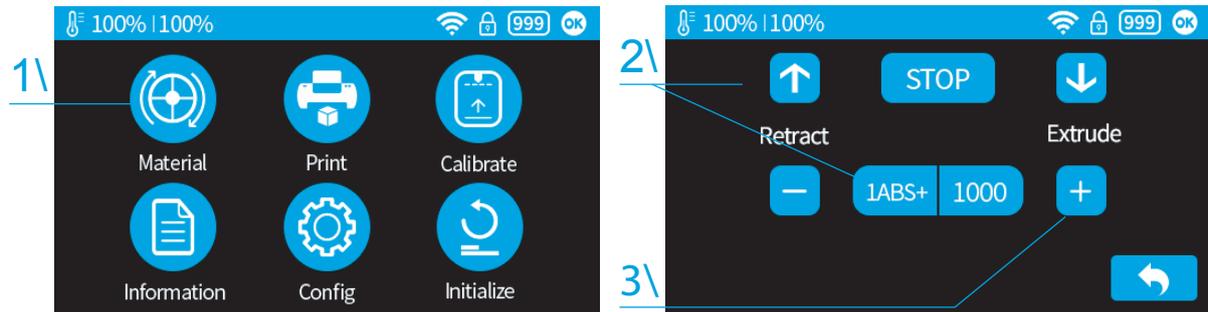

2\ Choose the printing material as ABS by pressing the Wheel button to switch between different materials. Input the filament weight by using the +/- buttons.

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.


Guiding Tube

Filament

Filament extrusion
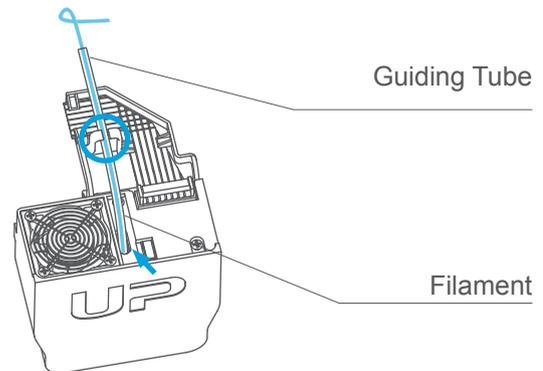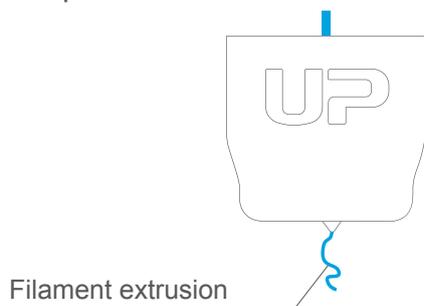
5\ Check the nozzle for plastic extrusion. If plastic is coming out from the nozzle, that means the filament is loading correctly and the printer is ready for printing. (The extrusion will stop automat- ically.)
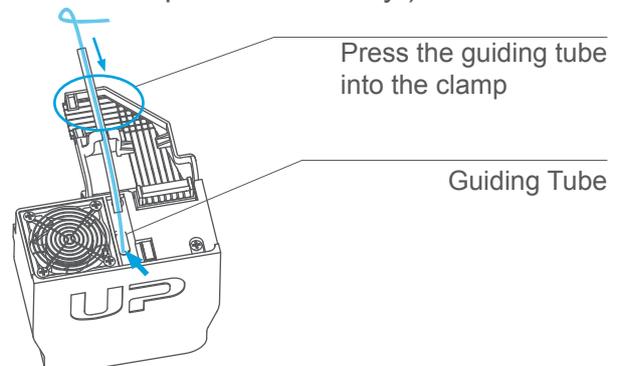
6\ Finally insert the guiding the tube in to the filament entrance and press the tube into the holding clip on the print head mount.

Press the guiding tube into the clamp

Guiding Tube

Loading a 3D Model

Load Model Button
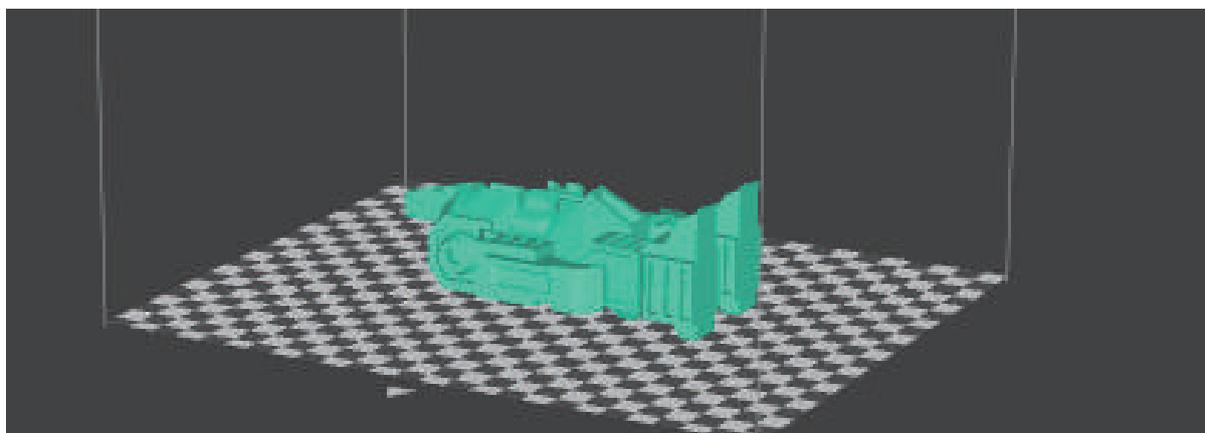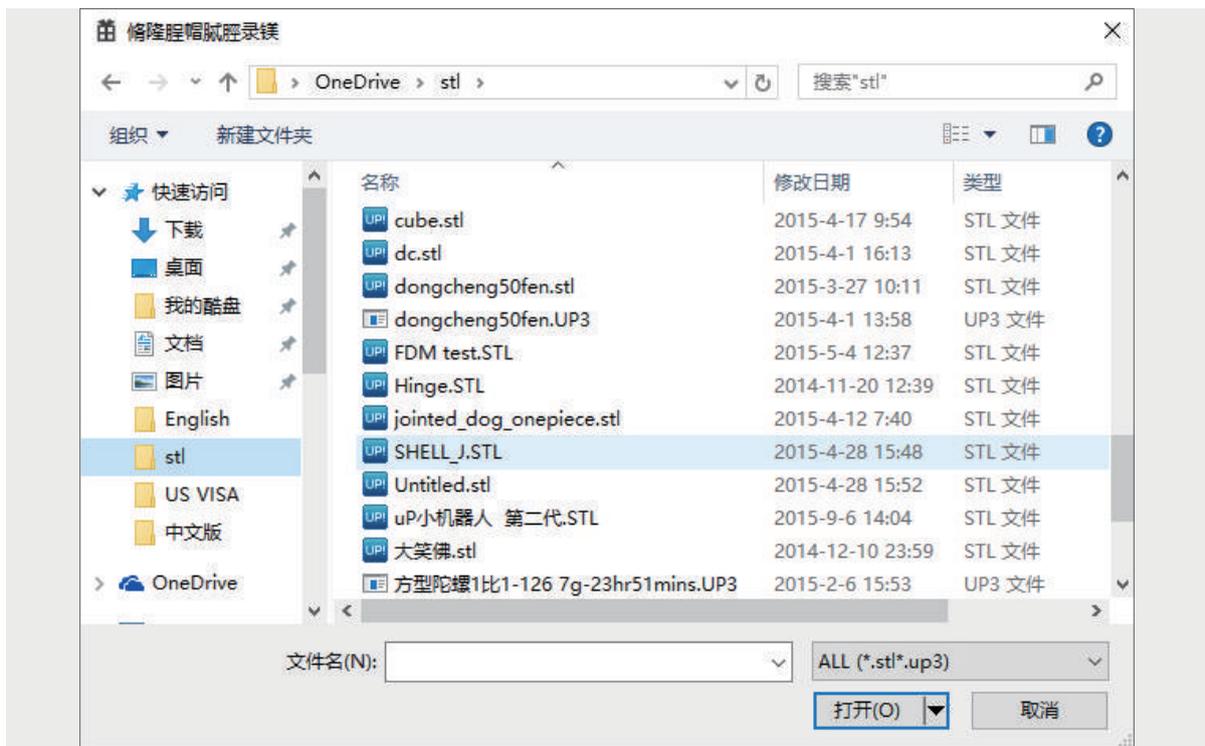
Print a Model

Make sure printer is connected to computer throug USB or WIFI (go to page 25 for details about WIFI setting)and loaded a model.
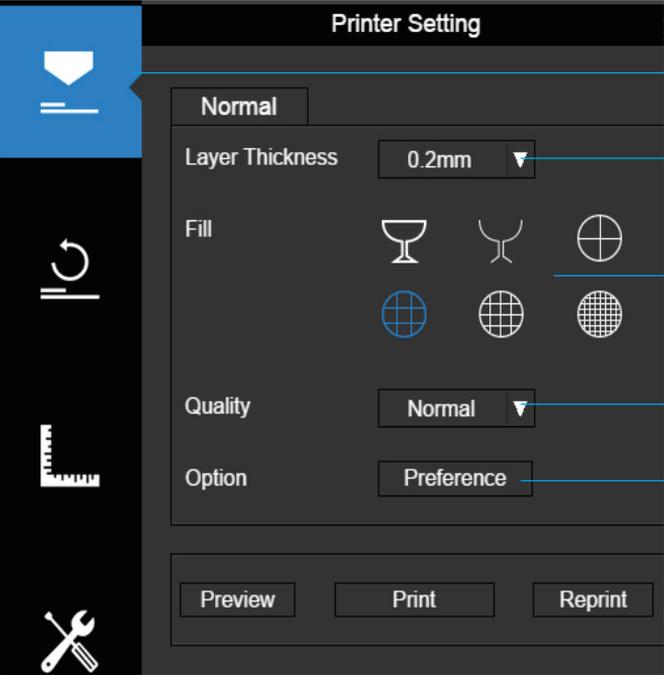
Click print button to open the print interface

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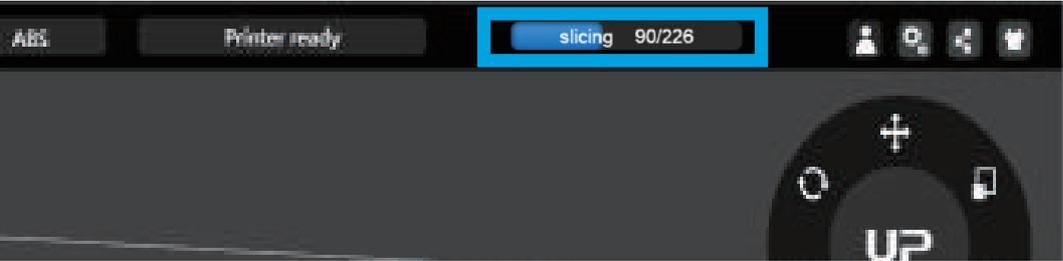
When the UP software is slicing or sending data to the printer, progress displayed on the status bar on top of the software interface. Do not unplug the USB cable as this will disrupt the data transfer and result in a print failure. The USB cable can be unplugged after the data transfer is finished.

Printing Progress

Print job progress

Pause print job

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 begining.

Extrude

Resume   Stop Print Job   Withdraw

Change Filament During Printing
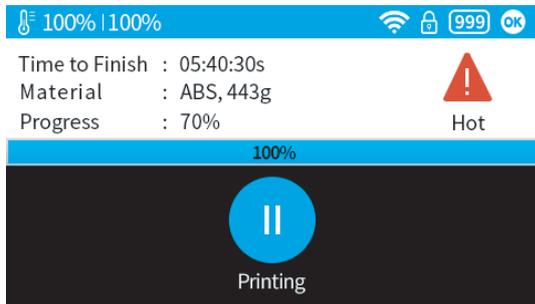
1\ During printing process the "Pause" button, the printing job will be paused.
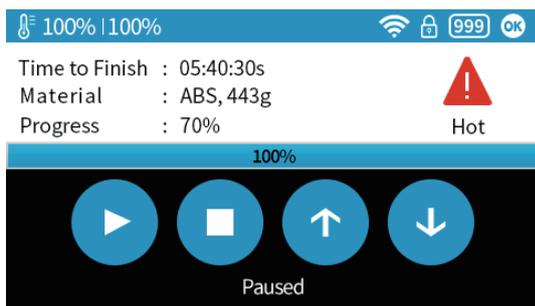
2\ When print head stopped moving and platform lowered. Press the "Withdraw" button to remove filament.

Press the "Extrude button" to load the new filament

Press the "resume" button to resume printing.
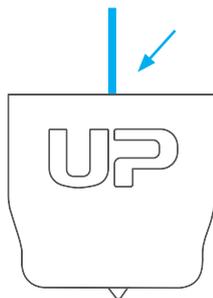
After filament has been removed, insert new filament to the print head as described in page 16.
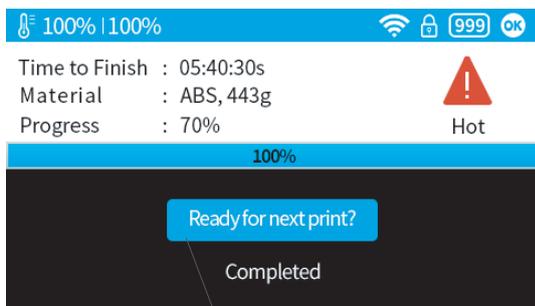
Print Job Finished

Printer ready confirmation:

After the print job has finished, the user needs 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.

Confirmation button

Reprint or Printing Stored Print Jobs

Info of the stored file print job

Start Printing

	🌡 100%	100%	📶 🔒 ▭ OK

Infill : ⊕   Time :25%,
Z-resolution: 0.2mm   Weight :10
Date : Fast

Print

Test001

Test002

∧

∨ ↩

Stored file name

Change Page
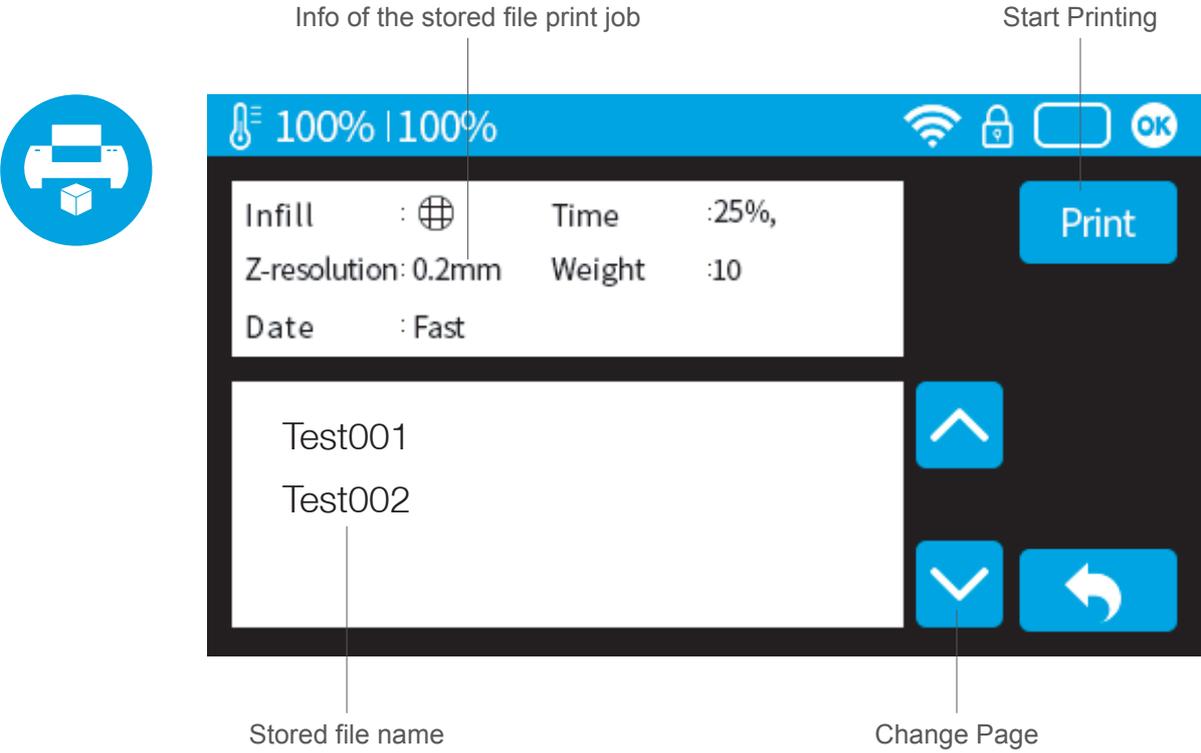
Black Out Recovery

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

🌡 100% | 100%   📶 🔒 999 OK

Would you like to resume the print job before black out?

✕   ✔

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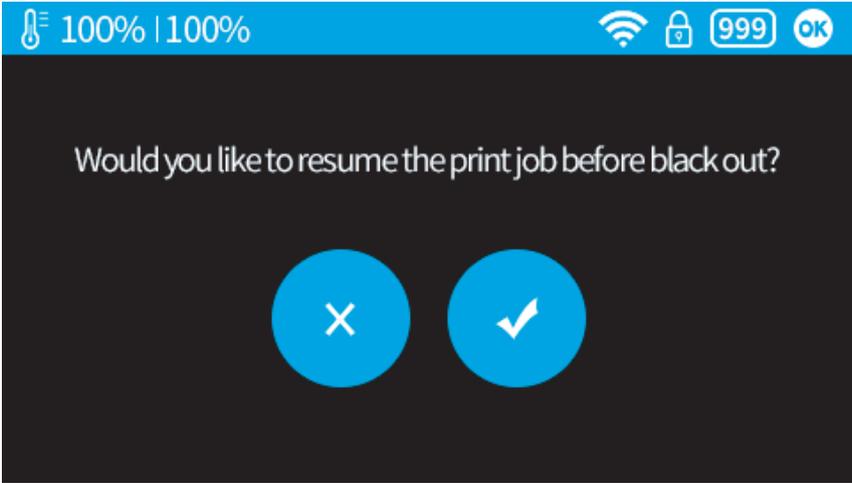
Machine Settings - WIFI Connection
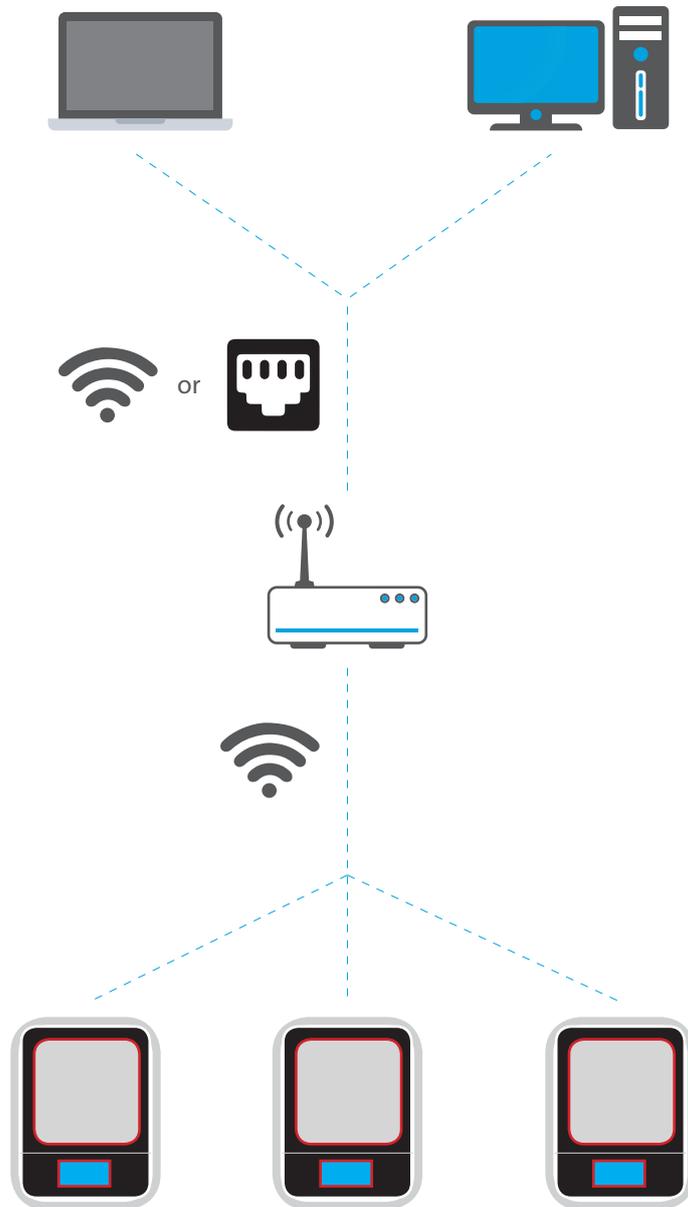
Connecting to the UP mini 2 through WIFI requires a Wireless Local Area Network (WLAN). Computer and printers must connect to the same WIFI network (same SSID) before able to communicate.

In order to acheive 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 trasnfer.

WIFI Setup through Touch Screen.

SSID Input   Input WIFI Password   Select WIFI

IP address

Private setting,
which add pass-
word for WIFI
connection.

Input Private Pass- word   WIFI connected   Connect to
current WIFI

Detectabe WIFI Network   Flip Page   Refresh

Select WIFI
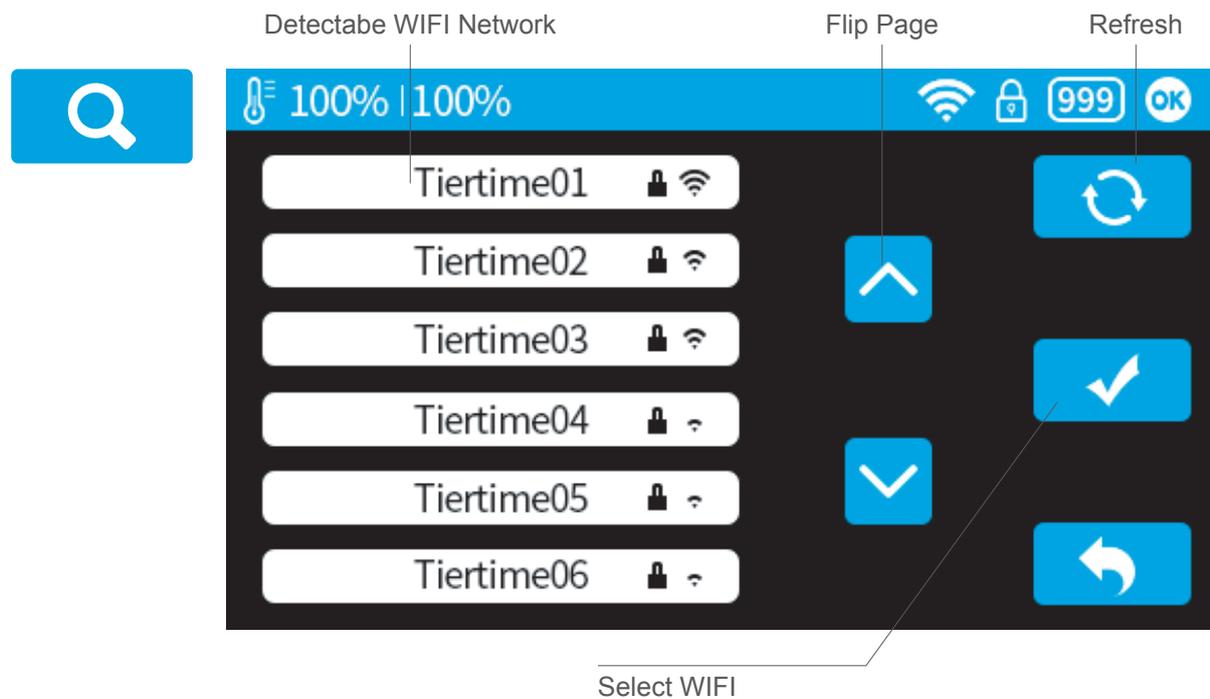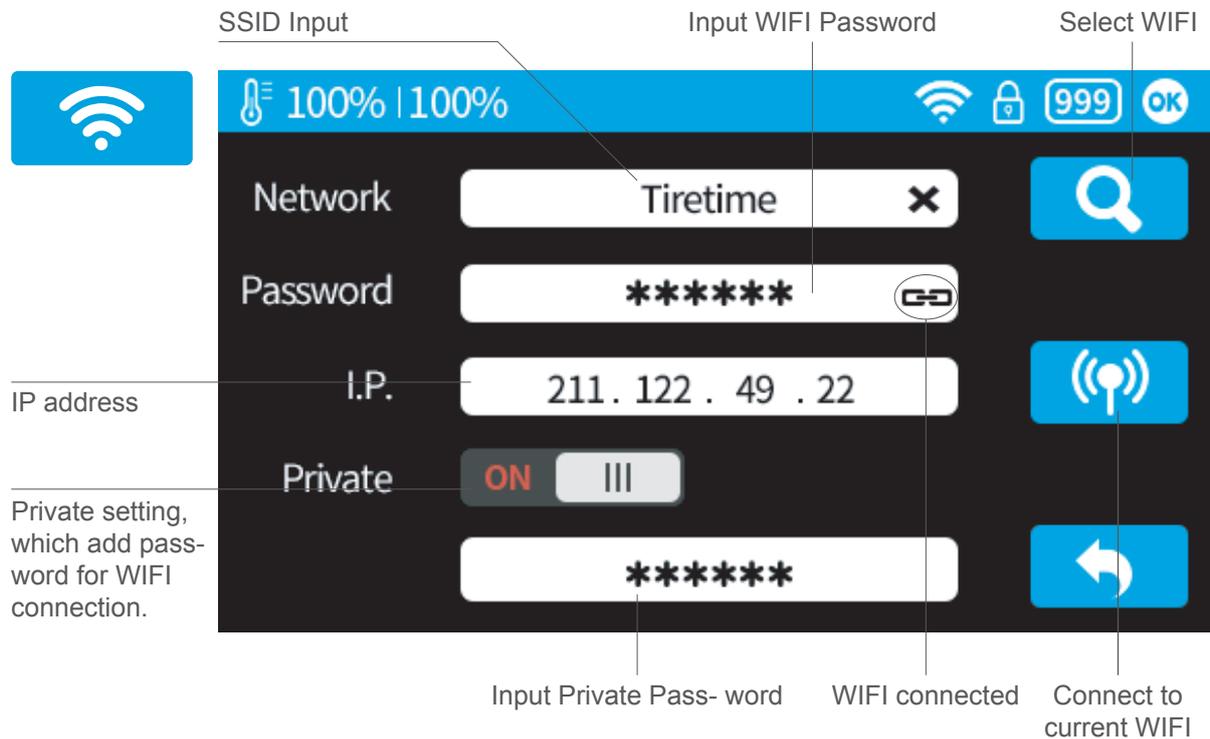
Setup Private WIFI Access
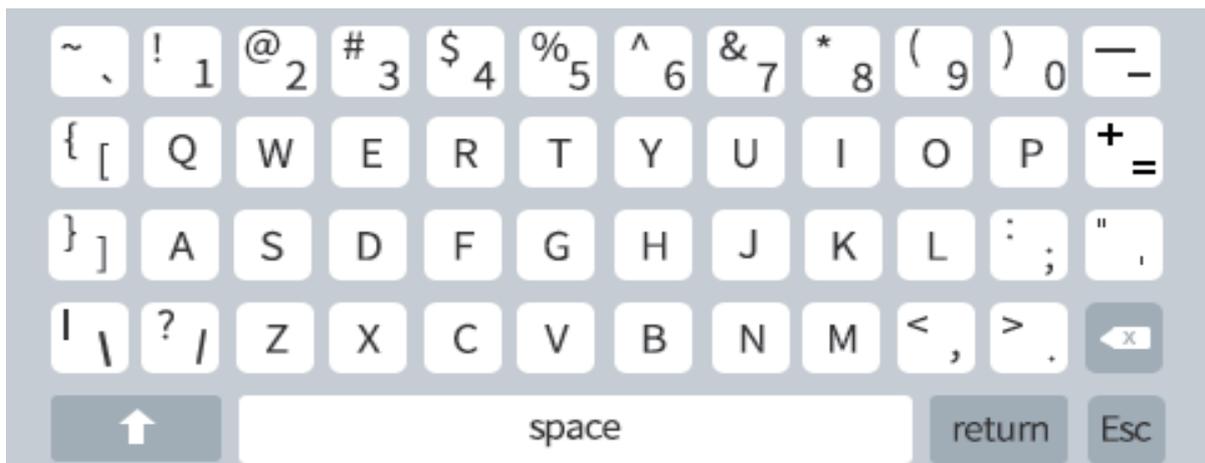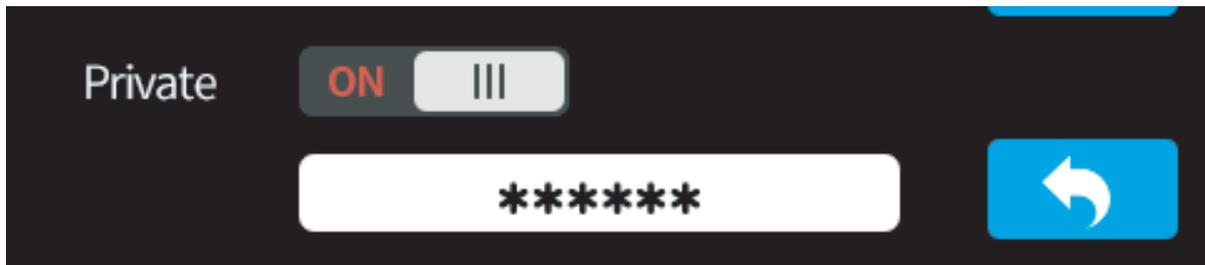
If user switches on the private function in WIFI setting, a password field will appear to allow password setup. This password will be required for WIFI connection to the printer to prevent unathorized usage through WIFI. Please note this is a weak protection that anyone who can access the printer through USB or touch screen could change the private password.
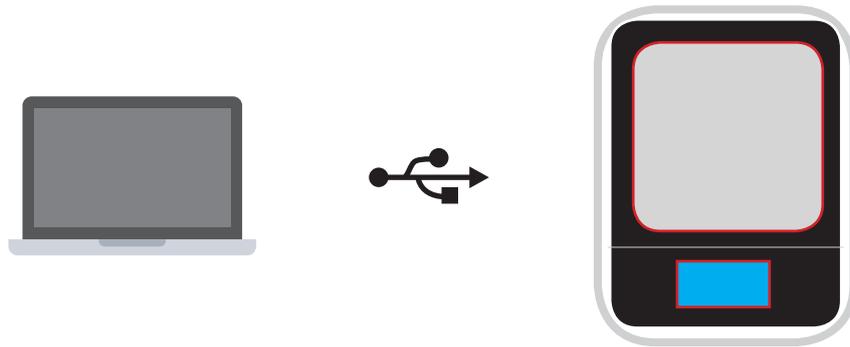
1\ Connect UP mini to computer through USB.

Language

Printer

Wifi

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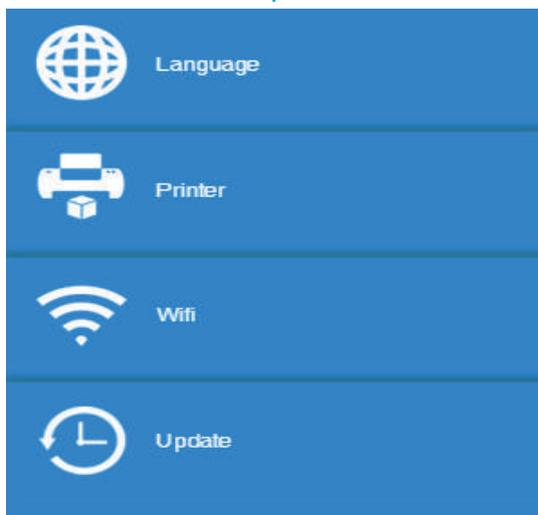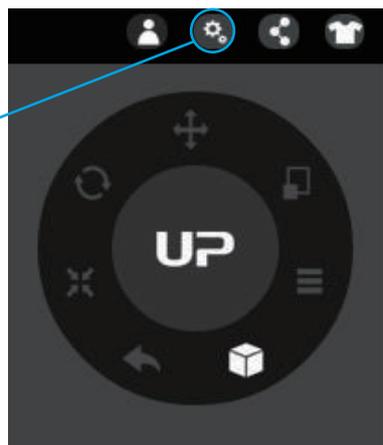
2\ At top right corner click the setting button and then click WIFI tab.

3\ Click network to choose an available network (user can also use touch screen panel to setup WIFI connection).
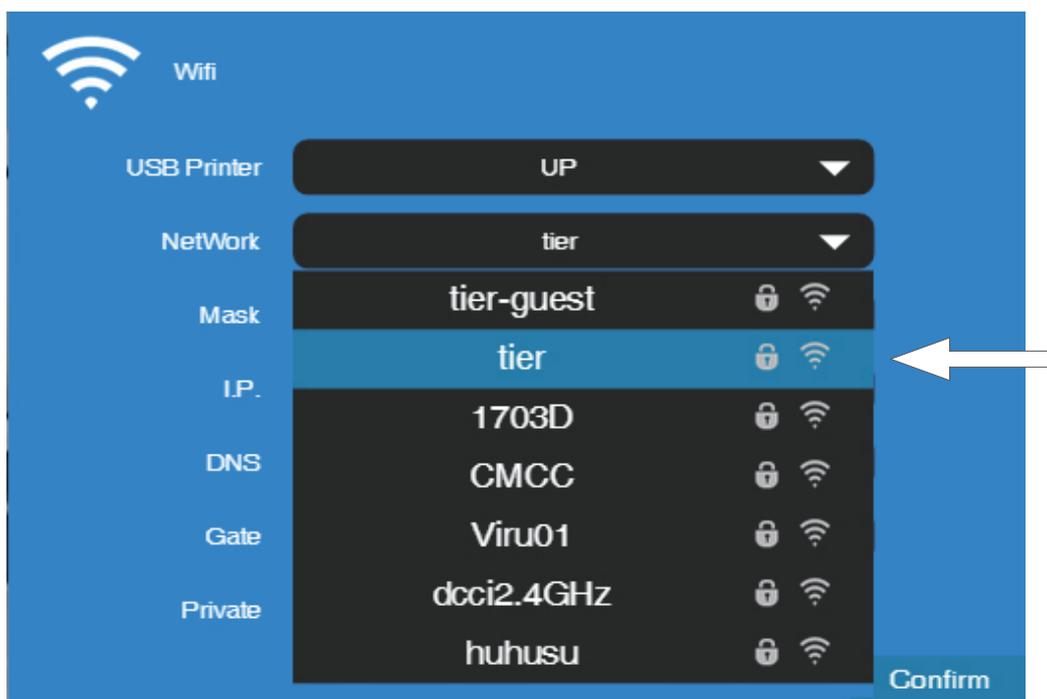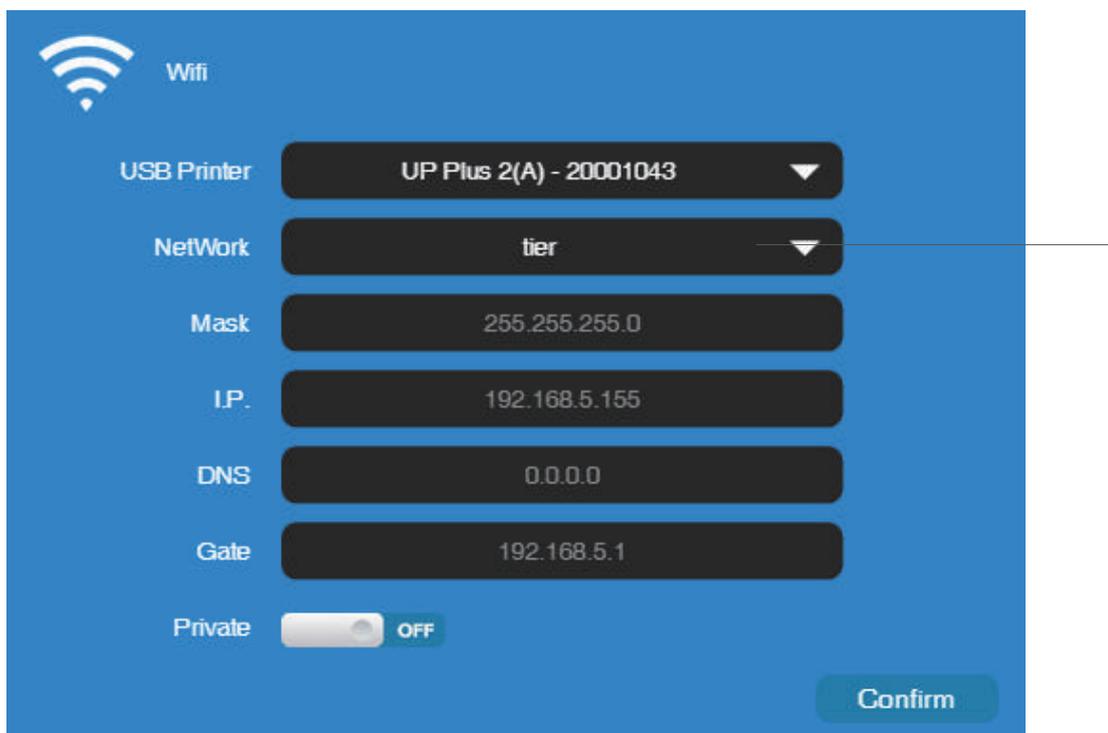
Choose your network from the drop down list.

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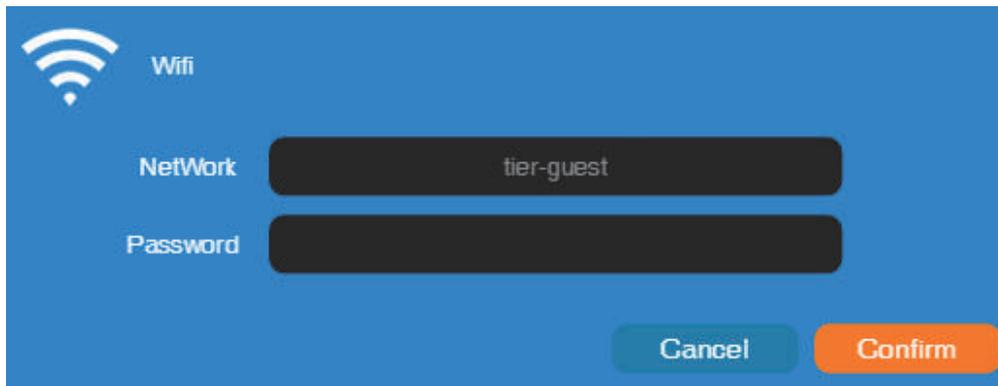
5\ If "Private" is set to ON, a private password could be optionally added to limit printer WIFI access to trusted users. Please note that the password is a weak protection that can be accessed and changed by anyone who can connect the machine through USB.


6\ Printer Tab
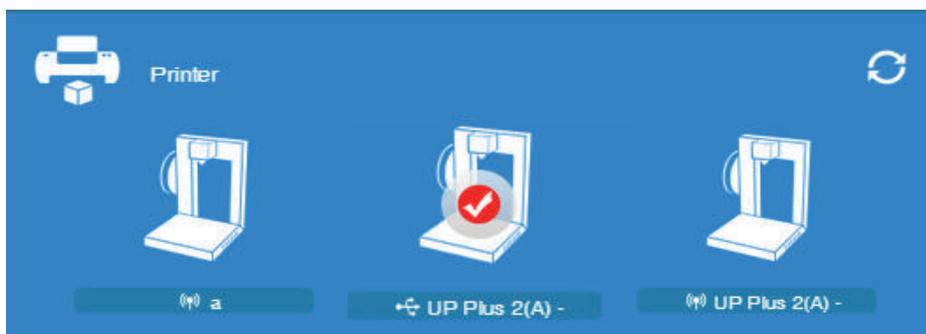
Disconnect USB and choose available printers on the network to operate through WIFI.

Set Materials (Touch Screen)

Decrease | Material Weight adjustment | Increase | current material weight

100% | 100% 999 OK

1000

Save current setting

Stop extrusion and heating

Retract | ABS | Extrude

Back

Withdraw material | Change Material | Extrude material

Set Materials (UP Studio)

Extrude Filament | Withdraw Filament | Stop All Actions

Maintenance

Extrude | Withdraw | Stop

Material | ABS ▾ — Select Material

Weight | 100g — Input Material weight

Save | Cancel

Set Nozzle Height (UP Studio)

For setting nozzle height with touch screen please refer to page 14.
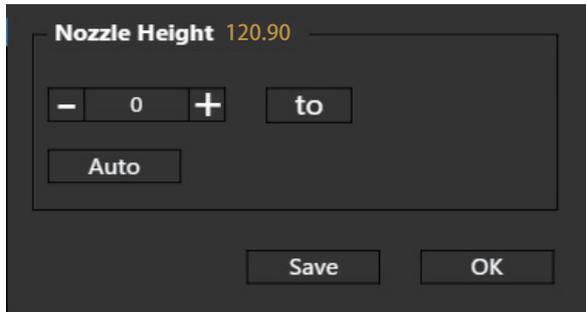
Open the Calibration panel

At the Nozzle Height section, click "Auto", which will initiate the automatic nozzle height de- tection process.

Clicking +/- button will move the platform up and down, or user could input a specific

value in the text field and click "To" button. This will move the platform to a specific height. Click save will replace nozzle height value with current platform height.
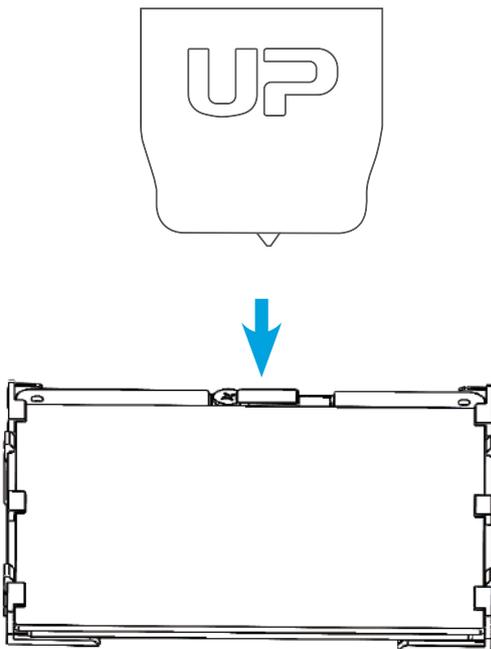
During nozzle height detection, the print head nozzle will touch the thin metal tab on the detector to make measurement.

Machine Configuration

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

internal lighting switch

WIFI setting button

100% | 100%		OK
Name	Tiertime	
Wifi	ON	
Lighting	OFF	
Preheat	ON	

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

Language and Factory Reset
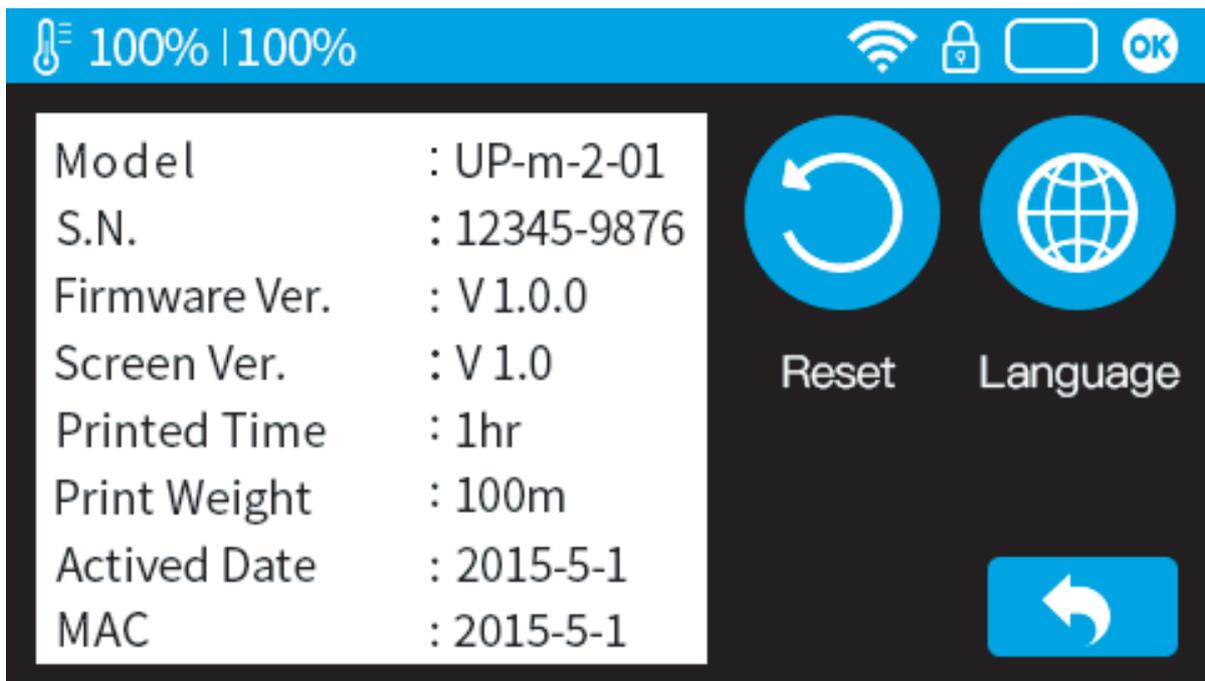
Model: current machine model

S.N.: machine serial number

Firmware Ver: shows current firmware version

Print Time: total print time count

Print Weight: total print weight count

Actived 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

100% | 100%

999 OK

Nozzle error

19
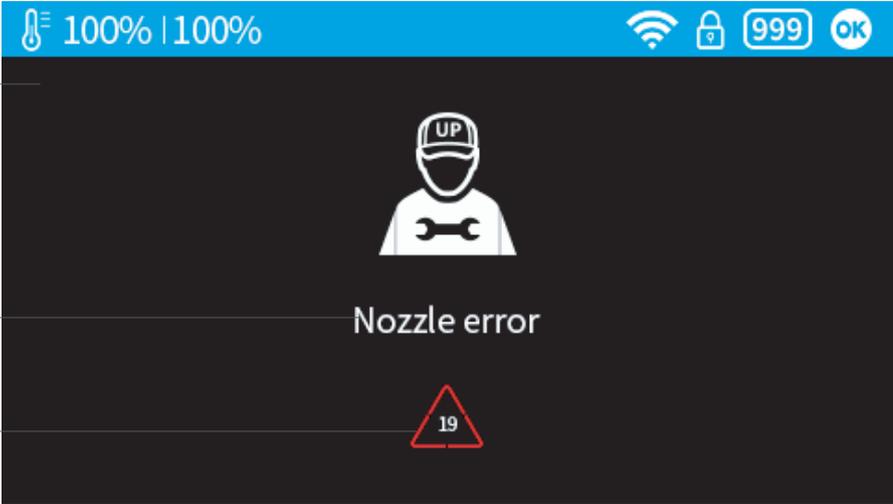
Other possible error prompt:
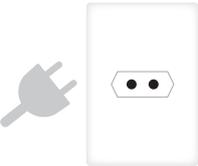
Unplug printer and restart

reinitialize the printer

Rotating Models (UP Studio)

Choose the model and Click scale button.
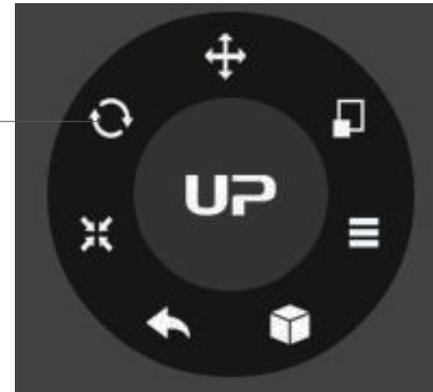
Choose rotation axis

User could input a specific value
or choose a preset value for rotation.
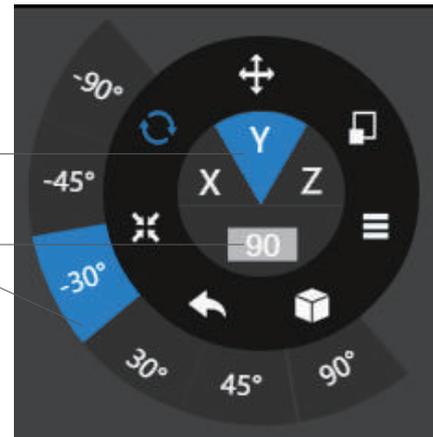
Alternatively, user could use the rotation
guide to rotate model in real time by holding
and dragging with mouse.
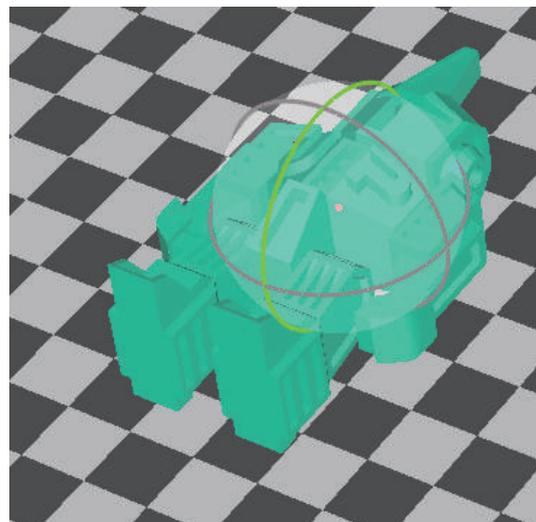
Scaling Models (UP Studio)
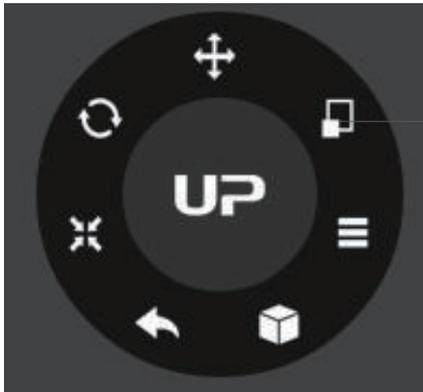
Choose the model and Click rotate button.

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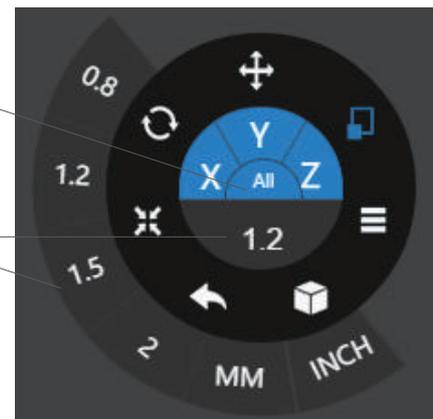
Click MM or INCH to convert models to
sizes of corresponding units.

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.
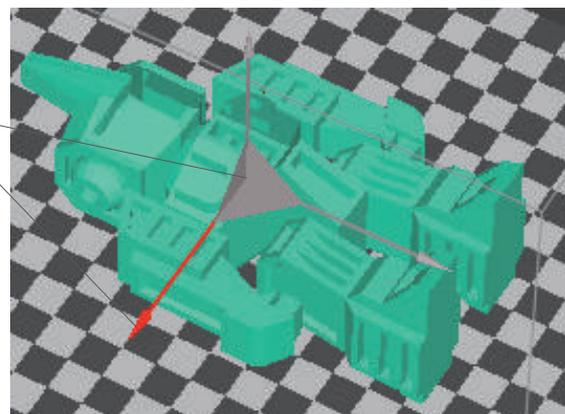
Move Model (UP Studio)

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.
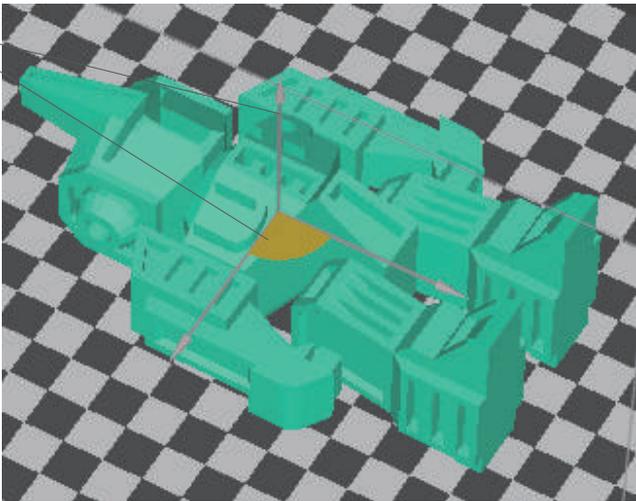
Make Copies
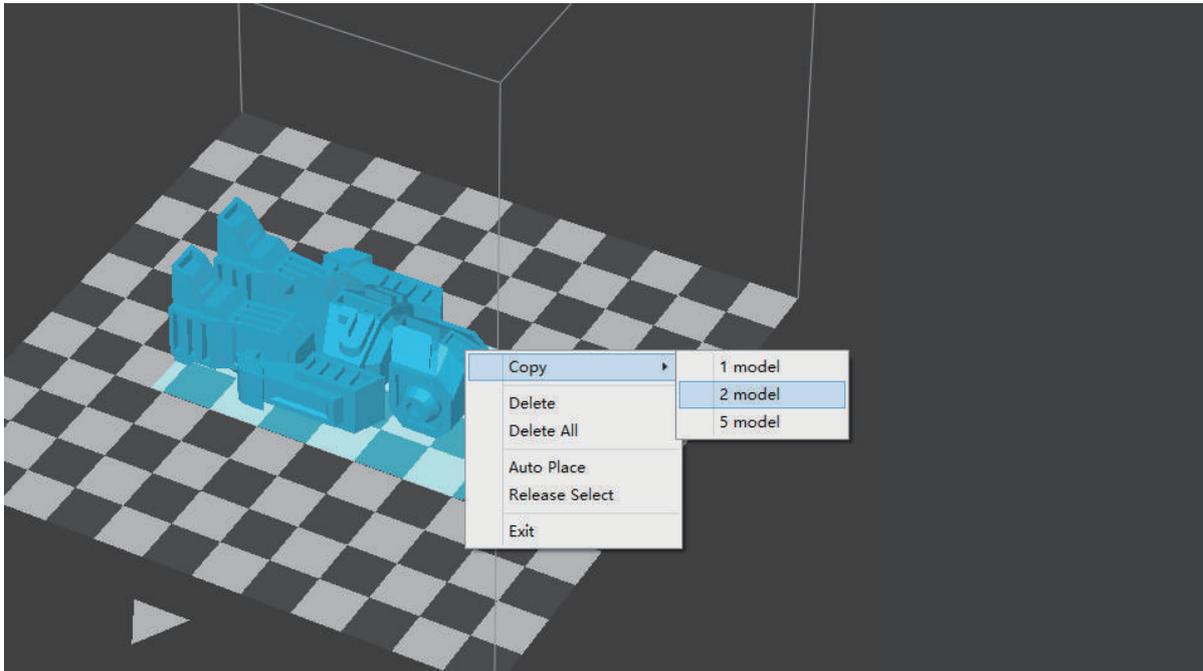
Select the model by clicking it (hight lighted),the right-click to bring up the menu and select copy number.

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
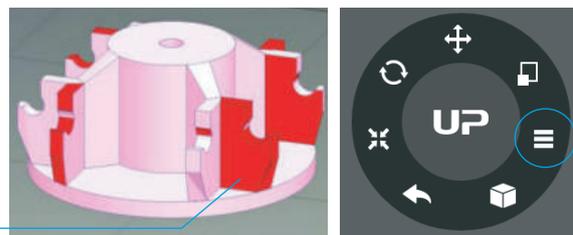

2\ Click the fix button the repair the model.The red defective surfaces will resume a normal color when repaired.
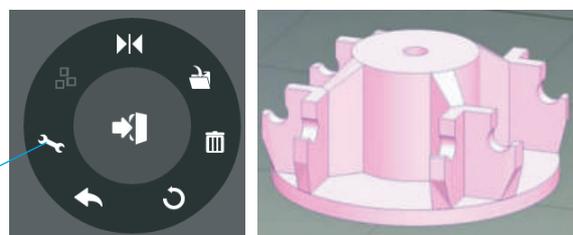
Merge and Save Models
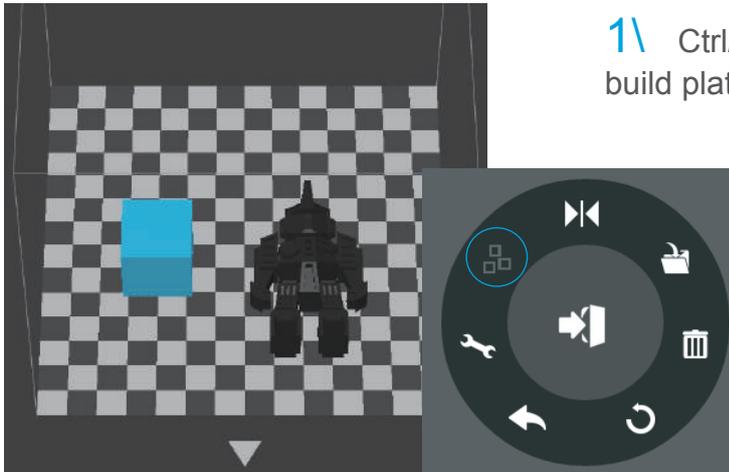
1\ Ctrl/CMD click all the models on the build plate.
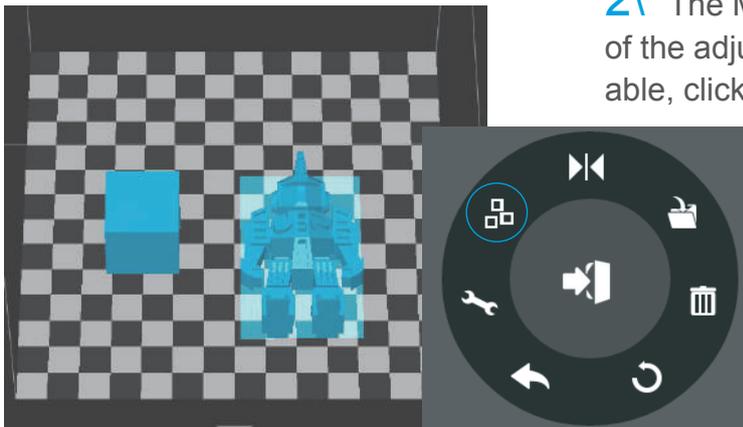
2\ The Merge button on the second level of the adjustment wheel will become available, click to merge the models.
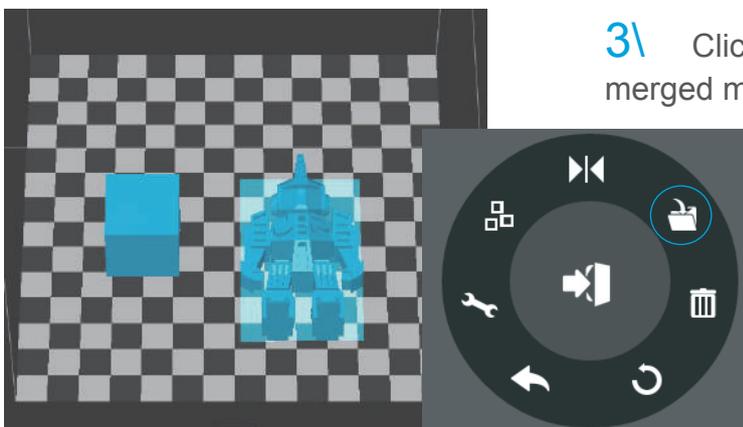
3\ Click the save button to save the merged models to comptuer.
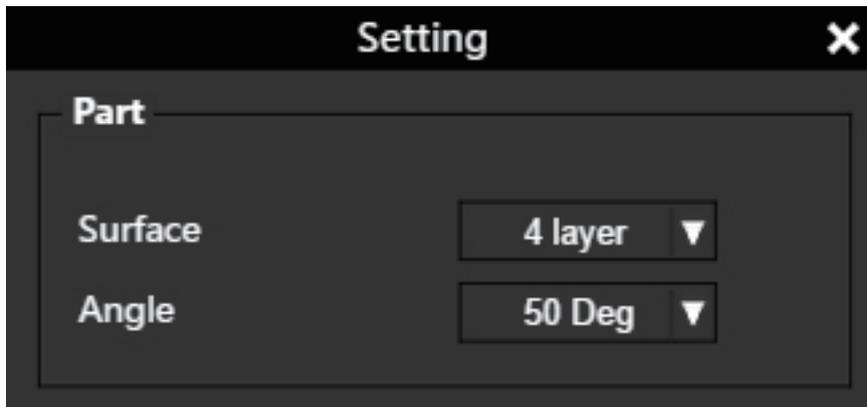
Surface: the number layers at the sealing the top and the bottom of the printed object.
Angle: This determine at which angle the Surface layers start to be printed.
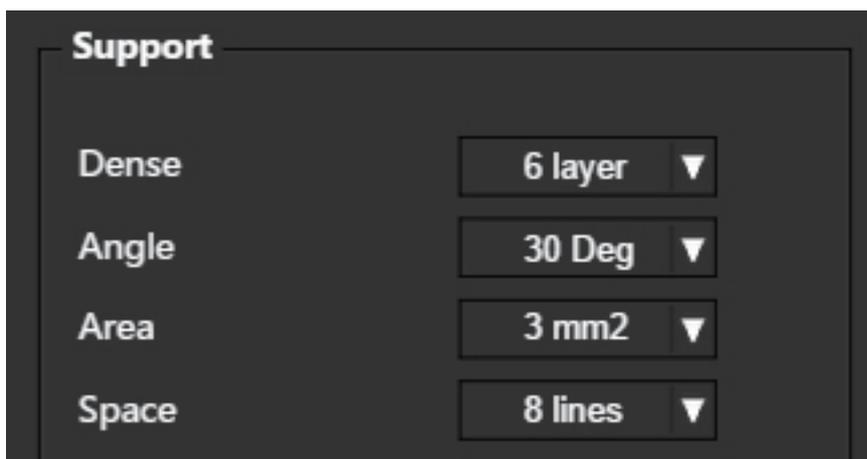
Dense: Choose the number of dense layers between support and supported surfaces.

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.

Print Preference
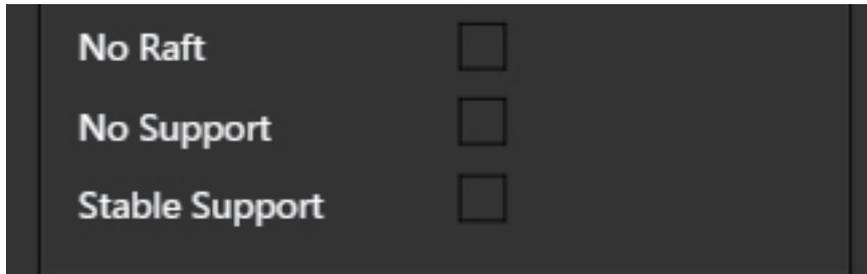
No Raft: print without raft.

No Support: print without support

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


Unsolid 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.

Preheat: Preheat to target temp, or for 15 mins maximum.

Printing Parameters

Surface

Infill

Surface

Support

Dense (support)

Print Platform

Raft

Support Range: < 30° | Support Range: < 90°
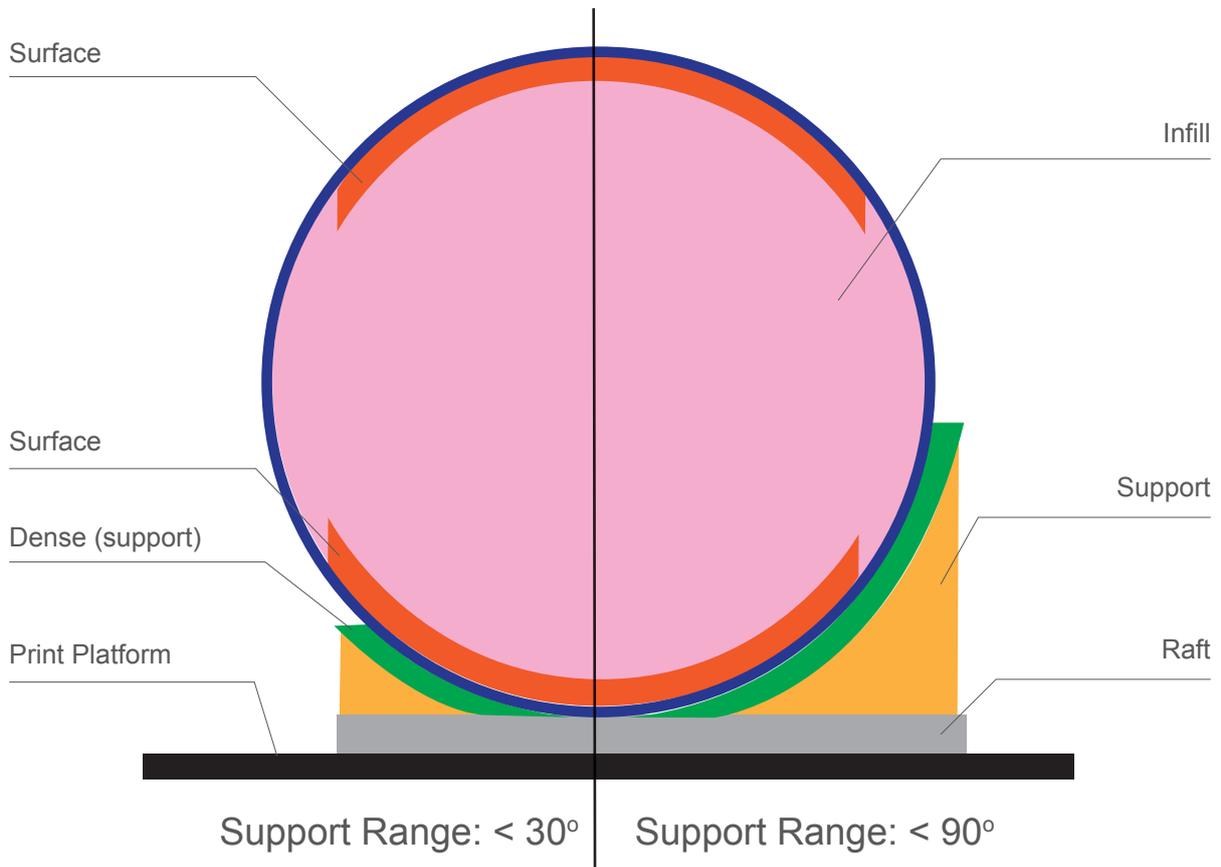
Dense: Solid support structure ensures that the surface being supported retains its shape and surface finish.

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" buttonto save currently platform height as nozzle height.
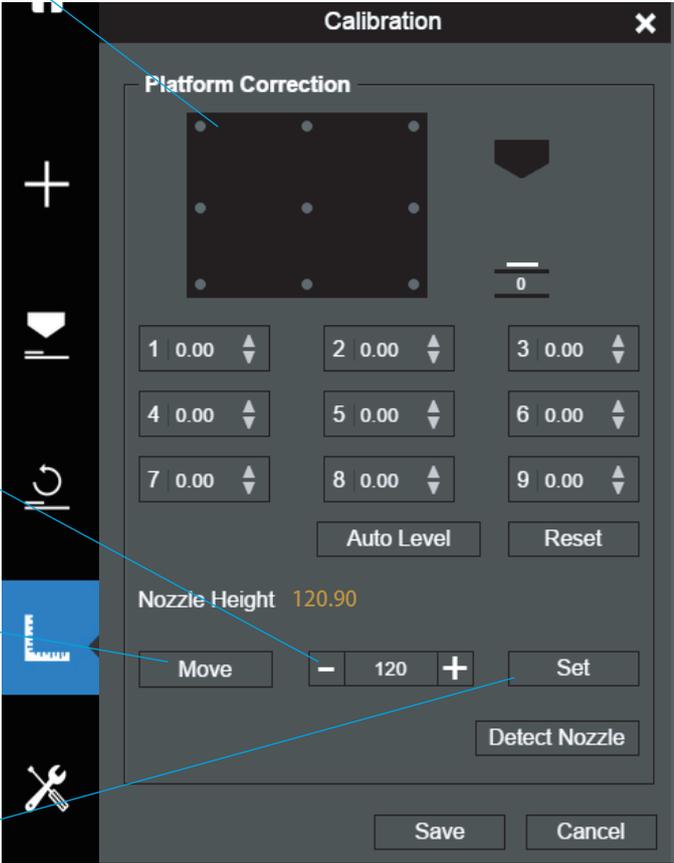
So if user click the 9 buttons, the printhead will move to corresponding position and platform will move to a height that equal to "value in the text field" PLUS the "compensation value"

For example, high lighted button 5 has a compensation value of 0.5 and the text field has a number of 10, so when click button 5 the platform will go to 10.5mm.
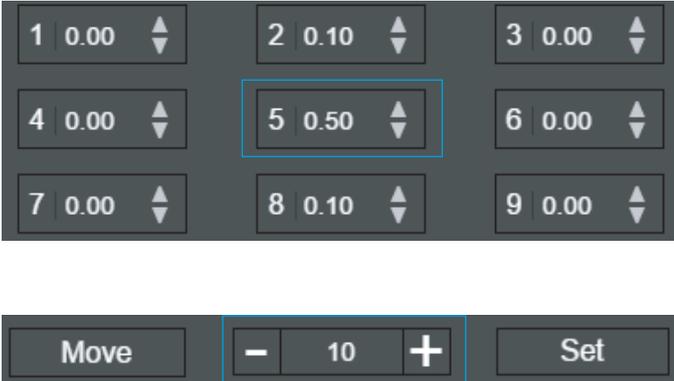
1\ Initialize the printer

2\ Put a Calibration Card on the platform.
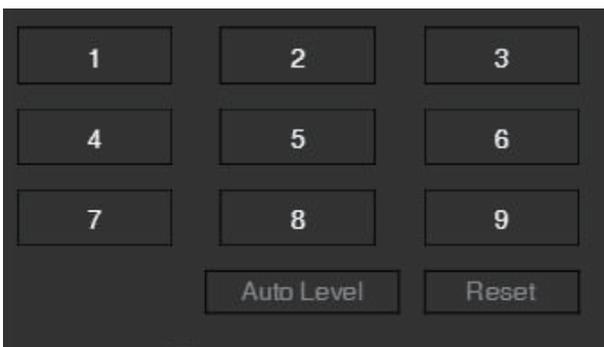
3\ Move print head to the middle of the platform by click 5.

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.

|		
Platform too high, nozzle is pinning Calibration Card onto platform, Lower the platform slightly.	Just right, can feel some resistance when moving the paper.	Platform too low, no resistance at all when moving Calibration Card, raise the platform slightly.
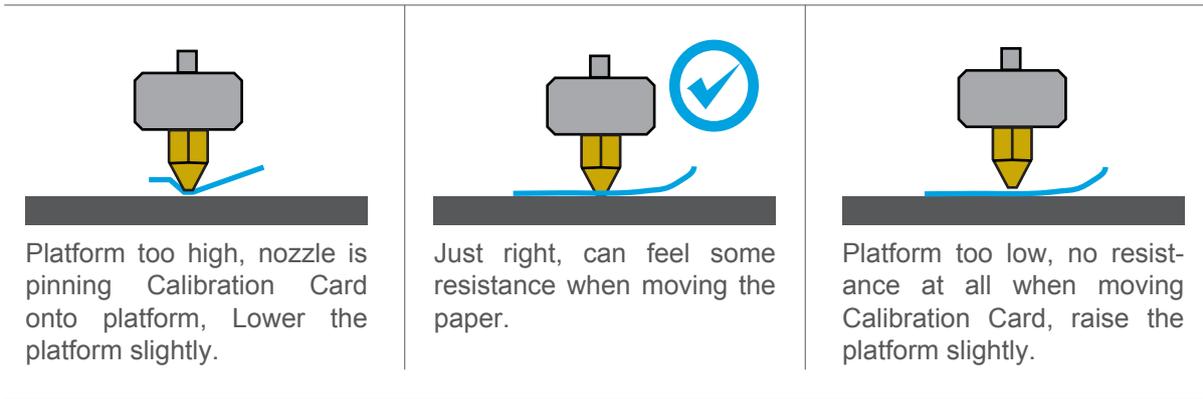
5\ When the ideal platform height is obtained, record the platform height value. Repeat steps 1–5 for all of the other eight positions and note their platform height values.

Platform Correction

118
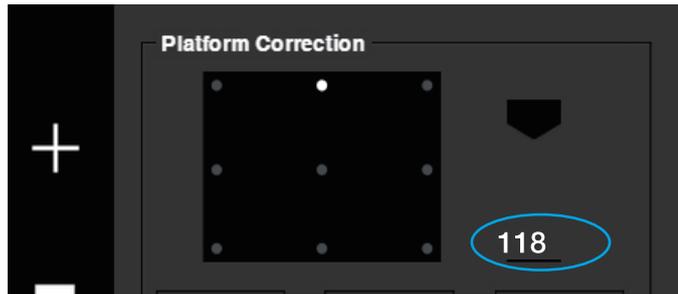
6\ When you have obtained the platform height values for all nine positions, find the lowest value among all the values.

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 6 and click the "Set" button. This will set this point as the "Nozzle Height".

Leveling ☐   Nozzle Height 210.60

Move   – 0 +   Set

Detect Nozzle

Save   OK
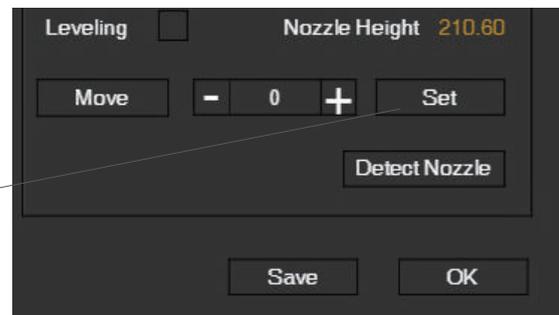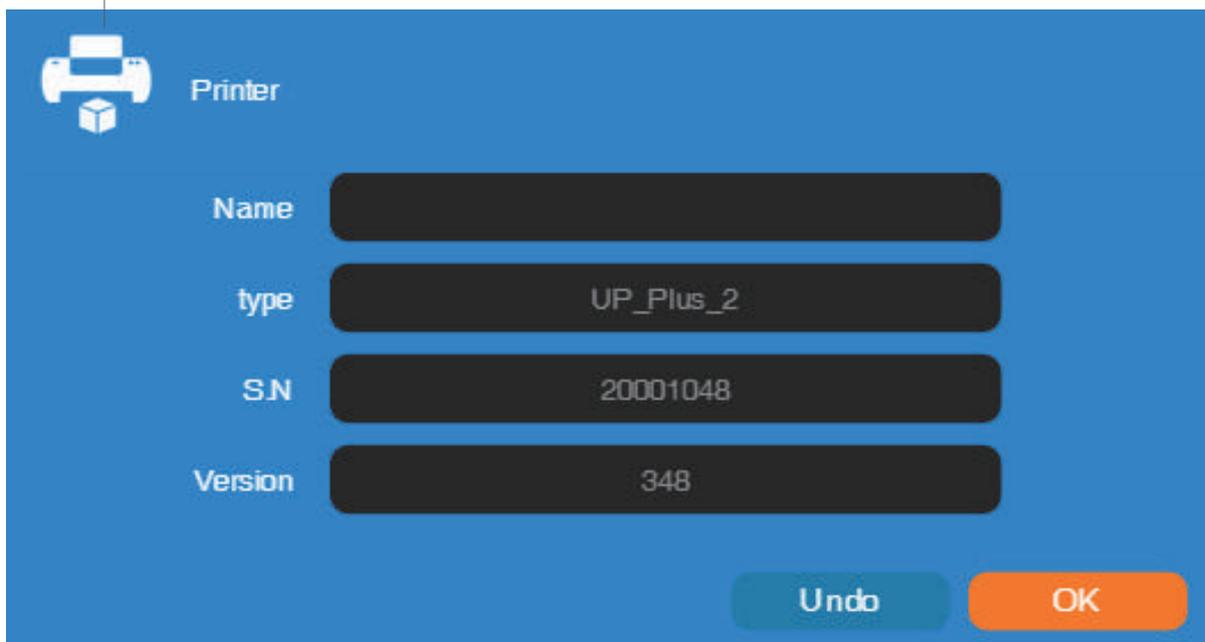
Printer Info

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 firmware version will be displayed. User could also set a custom name for the printer in the name field.

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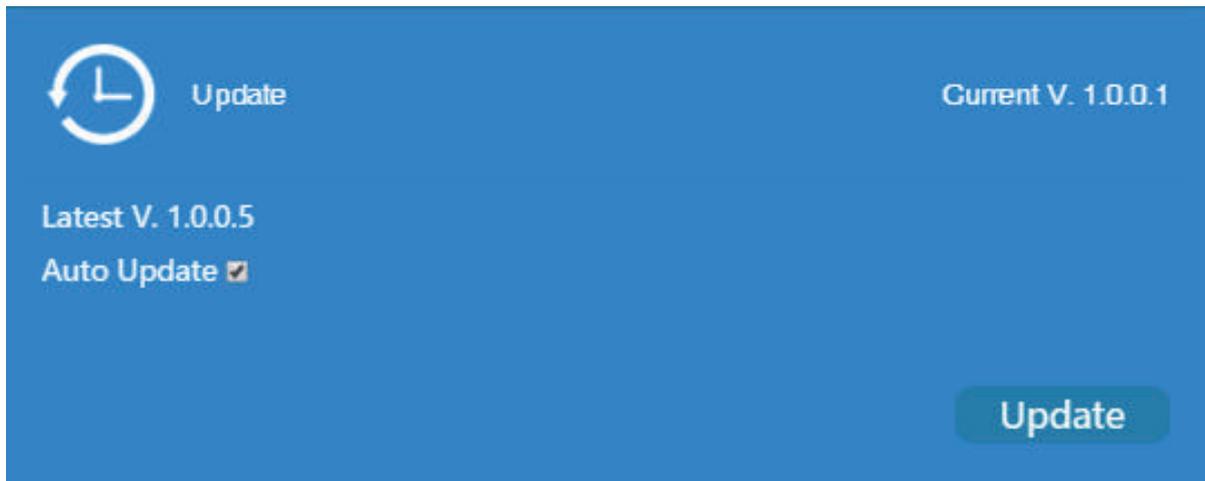
Check Auto Update to allow the software to inform user the latest version.

Convert Picture Into 3D Model
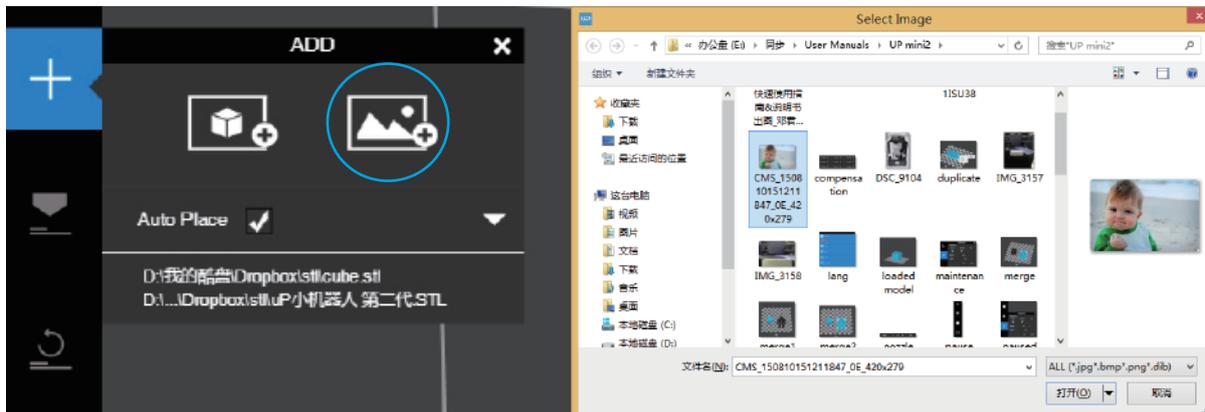
Click add picture button and select a picture.
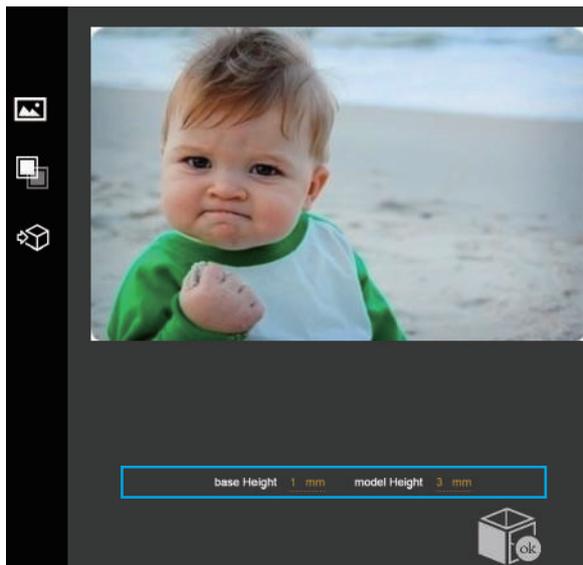
The Base height determine the thickness of a flat layer that will hold the picture.

Model Height determine the contrast of the finally print.
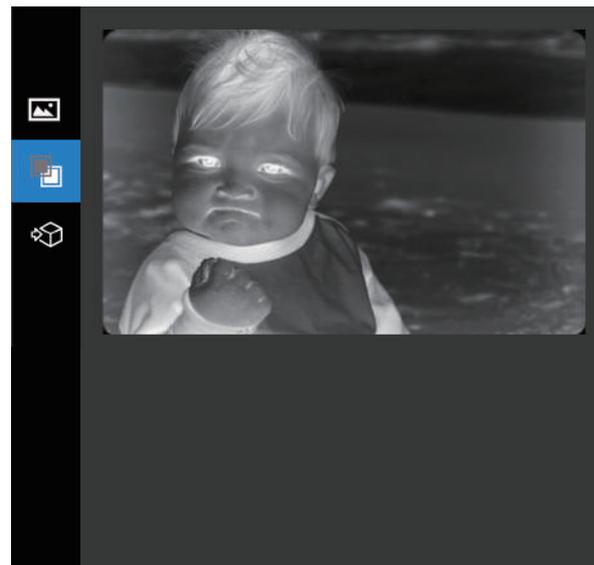
The convert negative button will reverse the pixel intensity so that user could choose the picture to be protruding from or sunken into the base.
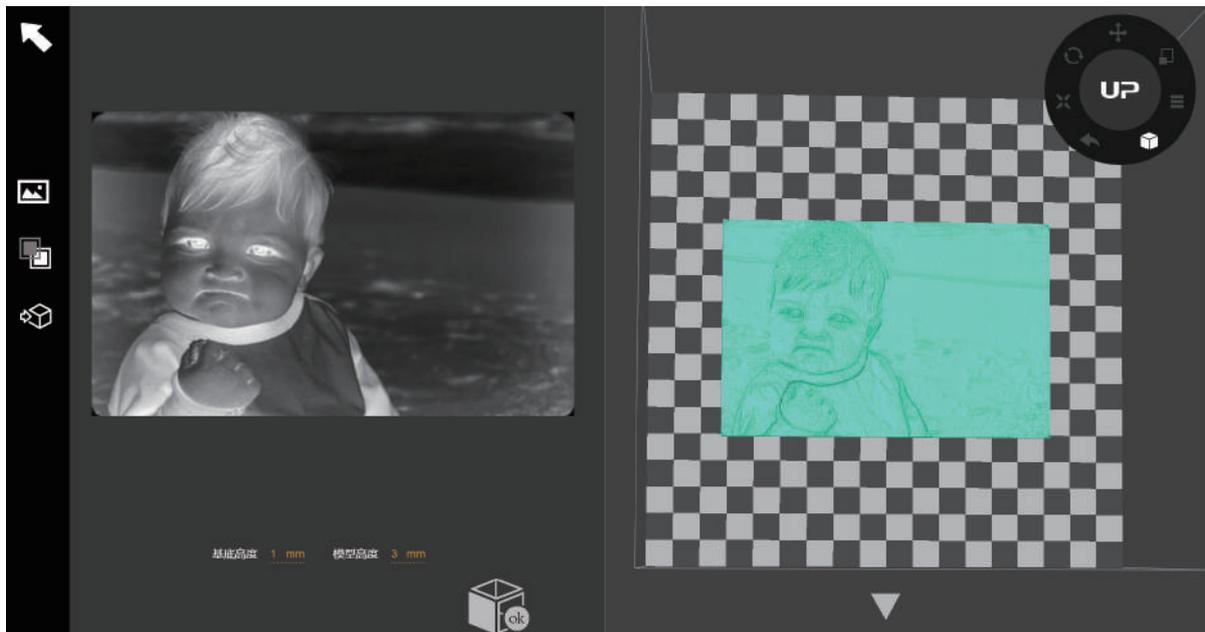
Update 3D model button. This button will convert the modified picture on the left to a 3D rendering on the right.

Click OK button to place the 3D render onto the 3D printing interface, ready for printing.

Printing Techniques

1. Ensure optimal 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"Calibation"panels.You can try to adjust the nozzle height value plus or minus 0.1–0.2mm from the base on previous saved nozzles heights.

2. Calibrate the printing platform well. An unleveled platform usually causes warping.

3. Allow enough time for sufficient preheating.A well preheated platform is essential for printing large objects without warping.

Air Flow Adjustment knob

4. The airflow on print head is adjustable, slide the air flow adjustment knob to change the amount of cooling directed onto the printed object. Generally the more cooling provided, the better the print quality. Cooling also help with support and raft removal. However cooling also encourage wrapping, 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.

5. 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.

6. Printing with no support. It is possible to print with out supporting structures.You can turn off support by choosing "No Support" in the "print" setting panel.
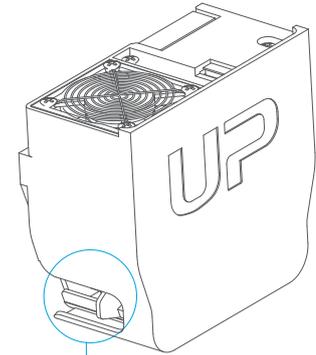
Printer Maintenance - Air Filter Replacement

It is recommmended to change the HEPA filter in the filtration unit for every 300 hours of usage or 6 months.

Air Filtration Unit
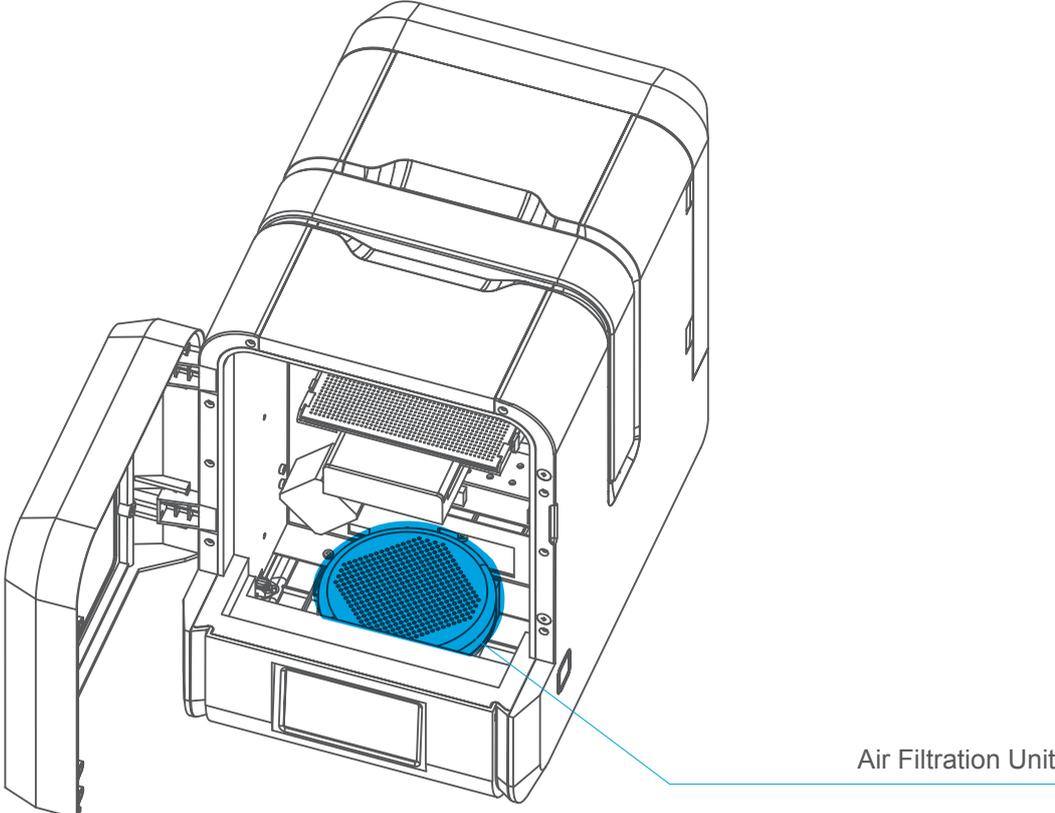
Front View

Turn anti-clockwise to open the cap.

HEPA-Filter
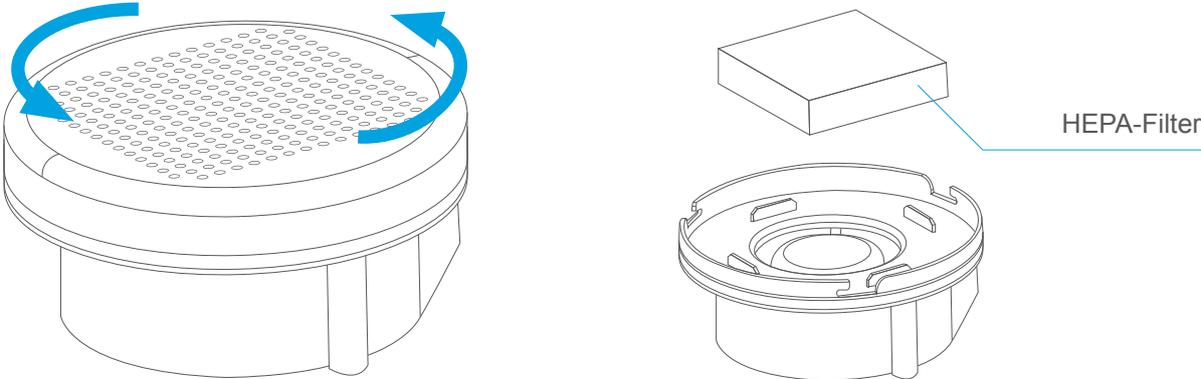
Print Head Maintenance
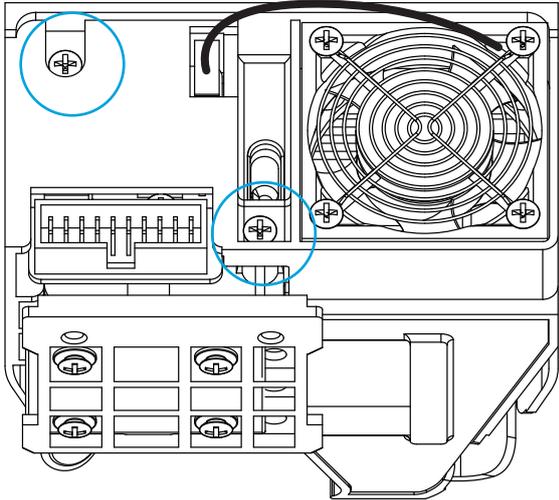
It is not necssary to remove the print head cover if order to remove the nozzle. However if you want to, you can do so by removing the two philip screws (circled).
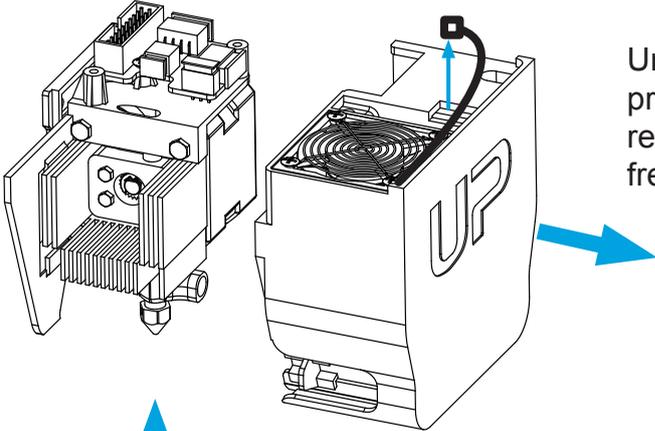
Unplug the fan socket and pull out the print head cover toward you. Unplug the red and black cable to remove the cover freely.
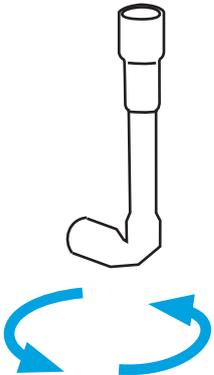
Heat up the nozzle to printing temperature by using the withdraw function in maintenace interface. When temperature is reached, the printer will buzz.

Nozzle can be removed by using the nozzle wrench provided.

Printer Maintenance - remove motherboard cover
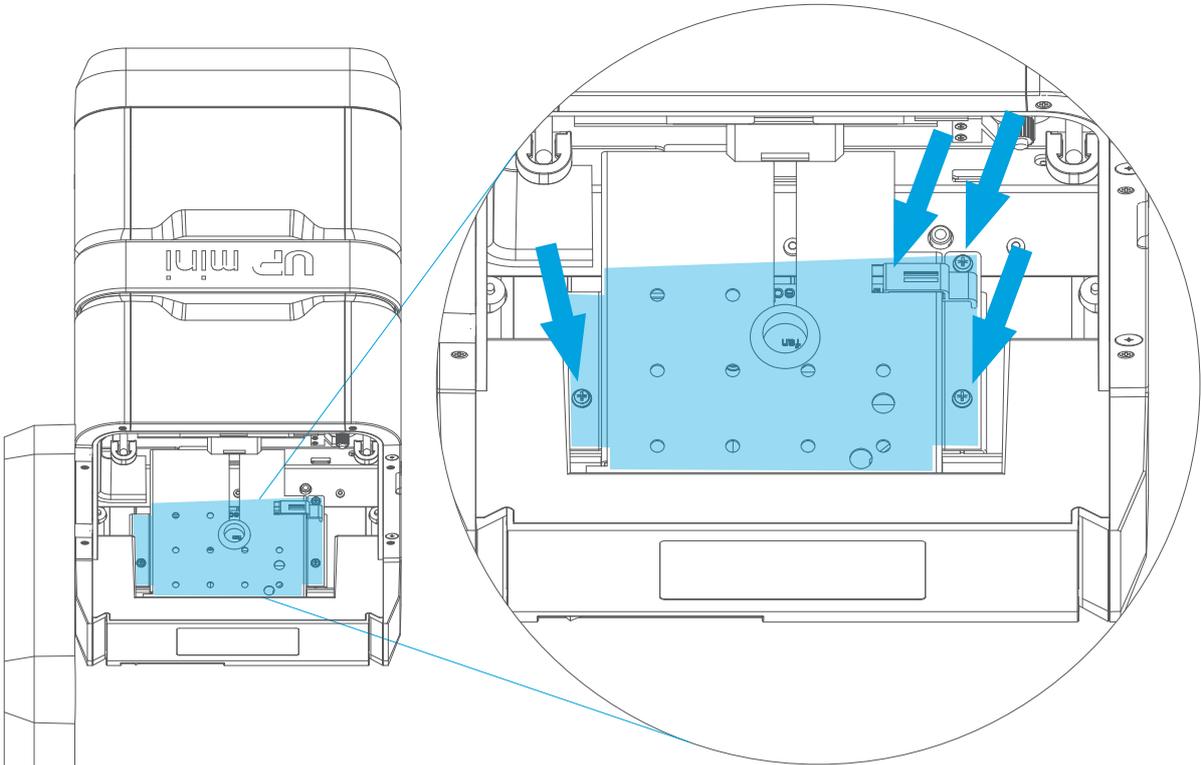
Remove the 3 screws and FFC cable clip on the mainboard cover.

Mainboard

CPU
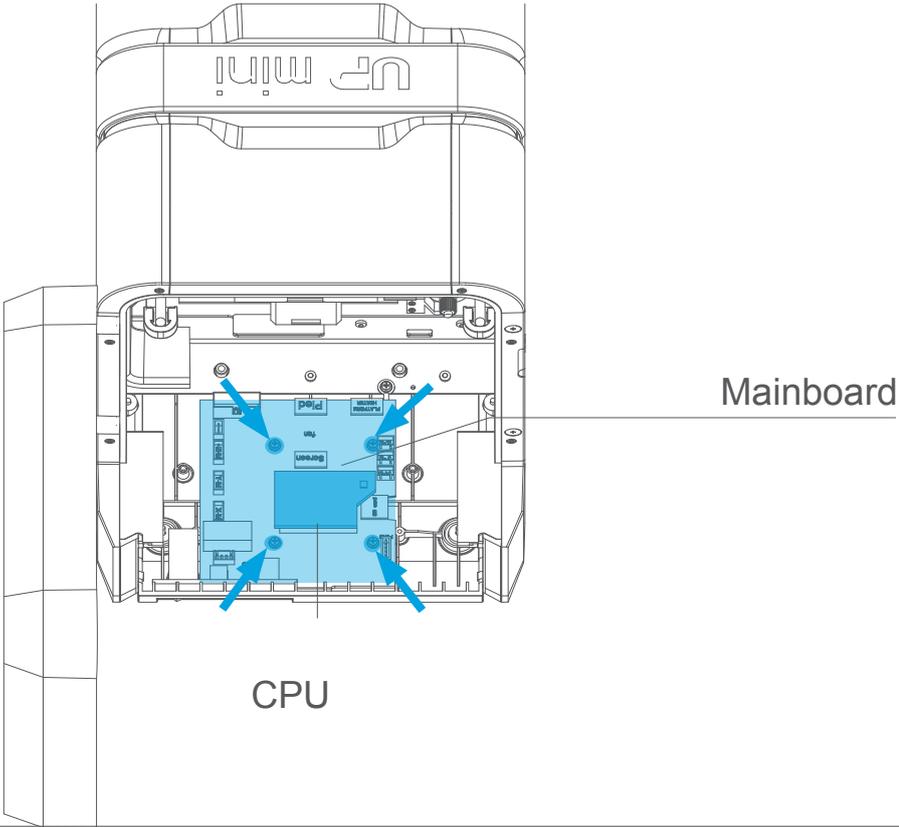
Beijing Tiertime Technology Co., Ltd

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twitter.com/UP3DP

Support: support@pp3dp.com   Web: www.tiertime.com www.up3d.com