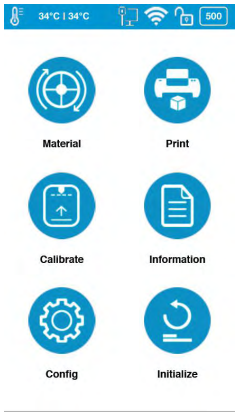
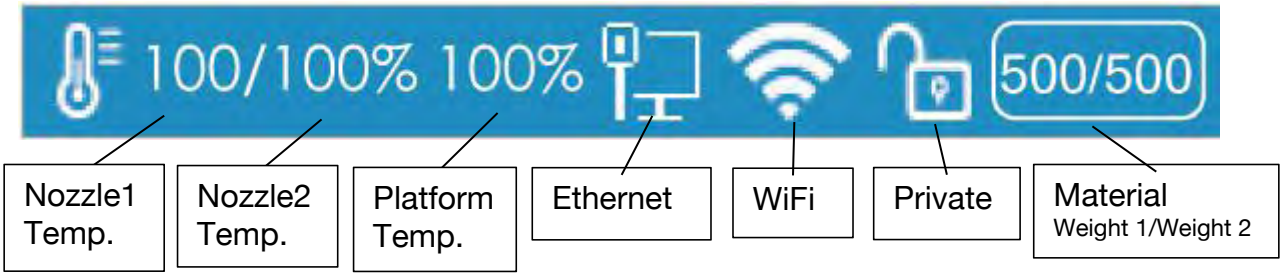
# 8. Touchscreen Introduction

Tiertime UP300D Touchscreen consists of two sections, the Printer Status Bar and the Main Menu.




## 8.1 Printer Status Bar

The Printer Status Bar is at the top of the UP300D Touchscreen, which is easy for you to monitor the printer's status regularly.




1. Temperature: during printing, nozzle temperature will be displayed in percentage. When print idle the temperature display is in degree Celsius.

2. Ethernet: If It appears, indicates the Ethernet is connected..

3. Wi-Fi: It shows the Wi-Fi network is connected。

: means network detected but cannot connect to printer.

4. Private: This lock icon indicates whether the printer has been set as private. Private printers connections are password protected. It only works for WiFi, USB connection will override the protection.

5. Material Weight: This icon represents the material's type name and the remaining weight of the current material roll. (It may appear alternatively as Name/ Weight)

## Main Menu

There are six buttons in the Main Menu: Material, Print, Calibrate, Information, Config, and Initialize.

The following table lists all the information of icons in the Main Menu and summarizes the actions associated with each icon.

Table 5.1 Main Menu Icon Description

| Name | Icon | Description |
|---|---|---|
| Material | | 1. Change Material Type<br>2. Withdraw Material<br>3. Extrude Material<br>4. Set Material Weight |
| Print | | 1. Print Job Current List<br>2. Print Job History List (Print Task Management)<br>3. Print Job's Details<br>3. Pause the ongoing print job, and change the material. |
| Calibrate | | 1. Auto Nozzle Height Detection<br>2. Set Nozzle Height Manually |
| Information | | 1. Basic Printer Information:<br>Model Name, Serial Number, Firmware Version, Screen Version, Total Print Time, Total Weight of the Material Consumed, LAN M.A.C., WLAN M.A.C..<br>2. Reset Printer Profile.<br>3. System Language Settings. |

## 5.2 Material

In the material section, there are Extrude, Withdraw, Change Material Type and Set Total Weight buttons functions.

| | |
|---|---|
| | To change the material type, click the **Material Type** button, and then input your filament's weight. Make sure the material settings properly reflect your situations, because the default setting may not fit yours. |

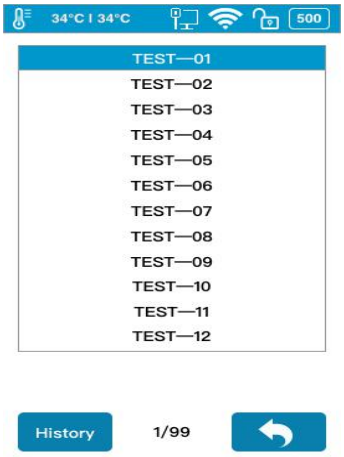
**Table 5.2 Material Icon Description**

| Name | Icon | Description |
|---|---|---|
| Withdraw | | To take out the filament inserted in the extruder unit with the preset temperature.<br><br>Click the **Withdraw** icon. The up arrow on the button will start moving upwards, indicating the extruder is heating up. The extruder will start pushing the filament out once the temperature reaches the melting temperature with a beep.<br><br>You now can remove the filament from the tip of the extruder. |
| Extrude | | To load the filament into the extruder unit with the preset temperature.<br><br>Click the **Extrude** icon. The down arrow on the button will start moving downwards, indicating the extruder is heating up. Once the extruder temperature reaches the filament's melting point, the machine will give off a beep, and you can push the filament into the extruder and the extruder will heat up the filament, and extrude through the nozzle.<br><br>If the machine works properly, you will find an evenly extruded string of filament coming out of the nozzle, without bubbles or tangling as the extrusion goes on. |
| Stop | STOP | To stop the printer in the middle of an extruding or withdrawing process. |

| Name | Icon | Description |
|---|---|---|
| Withdraw | | To take out the filament inserted in the extruder unit with the preset temperature.<br><br>Click the **Withdraw** icon. The up arrow on the button will start moving upwards, indicating the extruder is heating up. The extruder will start pushing the filament out once the temperature reaches the melting temperature with a beep.<br><br>You now can remove the filament from the tip of the extruder. |
| | | Click the **STOP** icon, the up/down arrow on the buttons will stop moving. The printer should stop fully from extruding or withdrawing the filament. |
| Material Type | ABS | To change the material type.<br><br>Click the **Material Type** icon button to change the material type.<br><br>Also, you can add customized types of material under **Maintenance** in the software first, and then the new type will be available on the touchscreen for you to select.<br><br>Default Settings:<br>The default material type is ABS.<br>The default material selection includes ABS, ABS+, PLA, and TPU.<br>The button will show the current selected material type. |
| Material Weight | 500g | To change the total weight the material remaining manually.<br>Click **Plus** icon to increase the value or **Subtract** icon to decrease the value. The value ranges from 0g- 9999g.<br><br>The material weight will be adjusted automatically based on how much the material is consumed by print jobs.<br><br>Default Setting:<br>The default value of material weight is 500g. |
| Exit | | Exit the Material section and go back to the main menu. |

## 8.2 Print

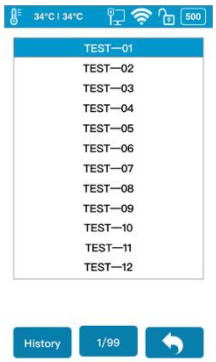
In the Print section, you can start a print job or manage the print jobs that currently in the print queue or have finished.




There are two sections:
The Print Job Current List lists the print jobs that have been assigned to the printer.
The Print Job History List contains all the print jobs that have finished.

It is the same content that shows in the software Wait Assignment Section.

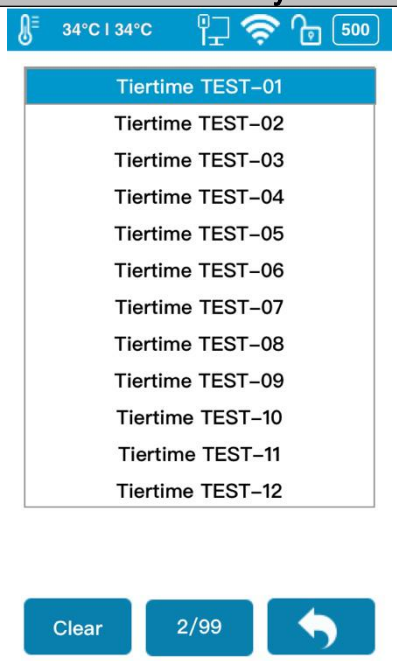
**Table 5.3 Print Description**

| Name | Icon | Description |
|---|---|---|
| Current Print job list |  | The print job list contains the print jobs that are assigned to the printer. The highlighted row is the current print job.<br><br>Click the **Print Job Name** to view more settings and detail information for the print job. You can start the printing process by clicking Print, or delete the print job by clicking Delete.<br> |
| History | History | Entering the history list of the print jobs which has previously been printed on the printer, or ended with errors. |
| Page | 5/20 | Click to go to the next page. |
| Exit | | Exit and go back to the main menu. |

## Print Job History List

The Print Job History List contains all the print jobs that have finished.

Tap the **Print Job Name** in the list to view the detail print settings. You can add the print job back to the Current Print Job List. The **Clear** button will erase the entire history print list.

| Print Job History List | Print Job Information |
|---|---|
|  | |

## Start a Print

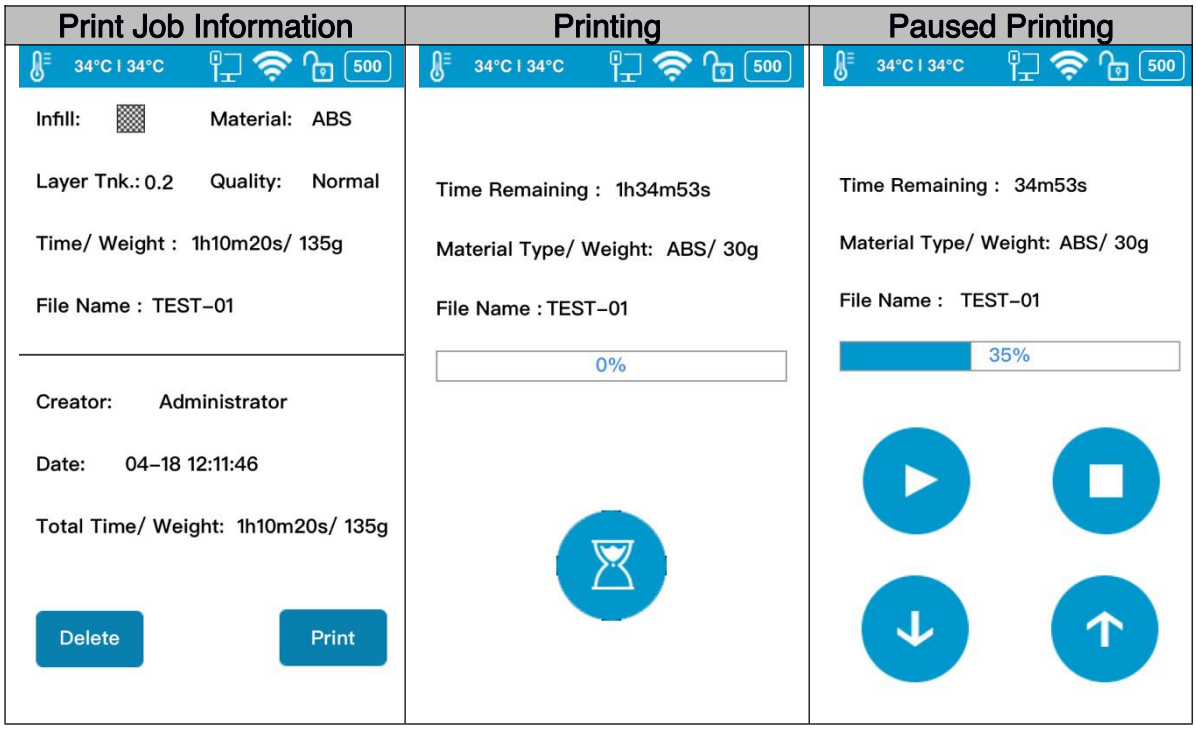


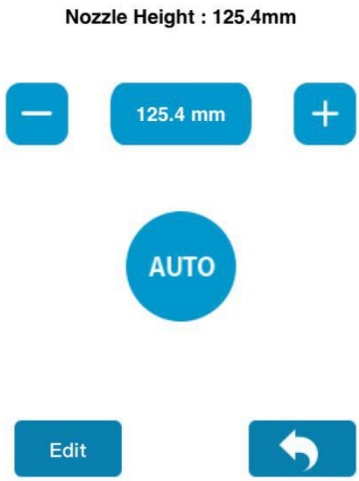

Table 5.4 Print Description

| Name | Icon | Description |
|---|---|---|
| Pause | | Pause the on-going print job. |
| Resume | | Resume the paused print job. |
| Stop | | The printer will stop the print job completely. |
| Extrude | | To extrude the inserted filament. |
| Withdraw | | To withdraw the inserted filament. |

## 8.3 Calibrate

The nozzle height of a printer is a key parameter that needs properly set before any print jobs. It can be calibrated manually or set automatically.

Click **Auto** on the touchscreen, the printer will go through a mechanical process to detect the nozzle height. The final nozzle height will appear on the screen after the whole process finishes:




Click **Edit** on the touchscreen, and enter the suitable value for your printer.

You can also use either +/- button to adjust the value in the Value Box, and then tap the Value Box to move the nozzle to the value you set in the Value Box.

Nozzle Height is the current printer's nozzle height.

The default value for the nozzle height for each Tiertime printer has been set as 0mm before leaving factory floor for safety reasons. Therefore, calibration is the mandatory step prior to your first print.

**Table 5.5 Calibration Icon Description**

| Name | Icon | Description |
|---|---|---|
| Nozzle Height | Nozzle Height : 125.4mm | The actual nozzle height. |
| Live nozzle Height | 20.0 mm | Indicating the present nozzle height. |
| | + − | Using +/- to adjust the nozzle height manually. |
| Auto | AUTO | The printer will start detecting the nozzle height automatically.<br><br>Same as Nozzle Detection in software. |
| Edit | Edit | To edit the nozzle height by inputing numbers manually. |
| Exit | | Exit Calibration section and back to main menu. |

## 8.4 Information

In this section, it displays all the information of your printer, which is not editable.

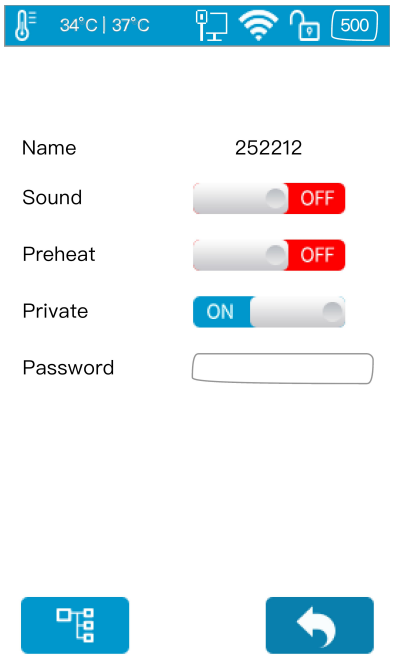
- Model: The Model Name of your printer's model.
- S.N.: Your printer's ID, which will be required if you look for customer service.
- Firmware Ver.: Stands for firmware version of your printer.
- Screen Vers.: Stands for the touchscreen version. You can check whether your touchscreen is operating using the latest touchscreen system.
- Total Time: This represents the total printing time of your printer from the beginning.
- Total Weight: This indicates the total material weight which accumulated from the first print.
- LAN M.A.C: The unique LAN M.A.C address of your printer in Ethernet .
- WLAN M.A.C: It's the unique printer's M.A.C address in your Wi-Fi network.

**Table 5.6 Information Icon Description**

| Name | Icon | Description |
|---|---|---|
| Reset | | This reset button will erase the following three sets of values which has been stored in your printer.<br>Calibration -> Nozzle height, to 0mm.<br>Material -> Material type set to ABS, and total weight set to 500g.<br>Config -> Name to its defaulted S.N number. |
| Language | | There are two types of languages available for you to choose, Simplified Chinese and English. |
| Exit | | Exit Information section and get back to the main menu. |

## 8.5 Config

Config section contains five parameters, and the Network Settings .




**Name**: it's the printer's name, you can change it on the UP Studio software.
The default name is the printer's S.N number.

**Sound**: Toggle the click sound while using touchscreen.

**Preheat**: Toggle the build plate preheating option. If it is on, the machine will start pre-heating 15 minutes ahead of the start of the print job.
You can read the introduction of Preheating in Maintenance -> Preheat in the Software User Manual.

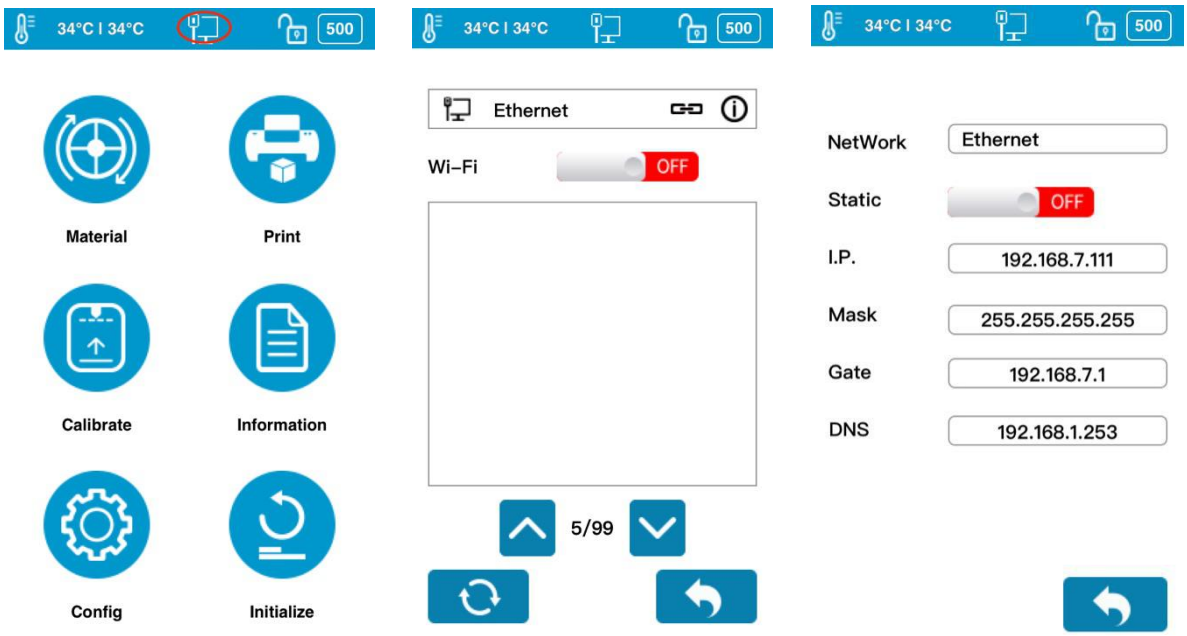
**Private**: Toggle the printer to set a password for private use. Once this option is on, you can set a password for your printer and your printer will not be accessible by other users on the same network without obtaining the password.

**Password**: The password for the printer to protect your printer from other people's access. Click the text field to enter your password.

## 8.5 Network Connection

This section includes Ethernet Network Settings and Wi-Fi Network Settings.

Ethernet Network Settings:
1. Plug an Ethernet cable to the LAN socket at the back of UP300D.
2. The Ethernet connection Status icon should be appear in the **Printer Status Bar**.
3. You now can go to **Config** to enter Network Settings section.
4. Click Information button to edit the printer's Ethernet Network Settings.



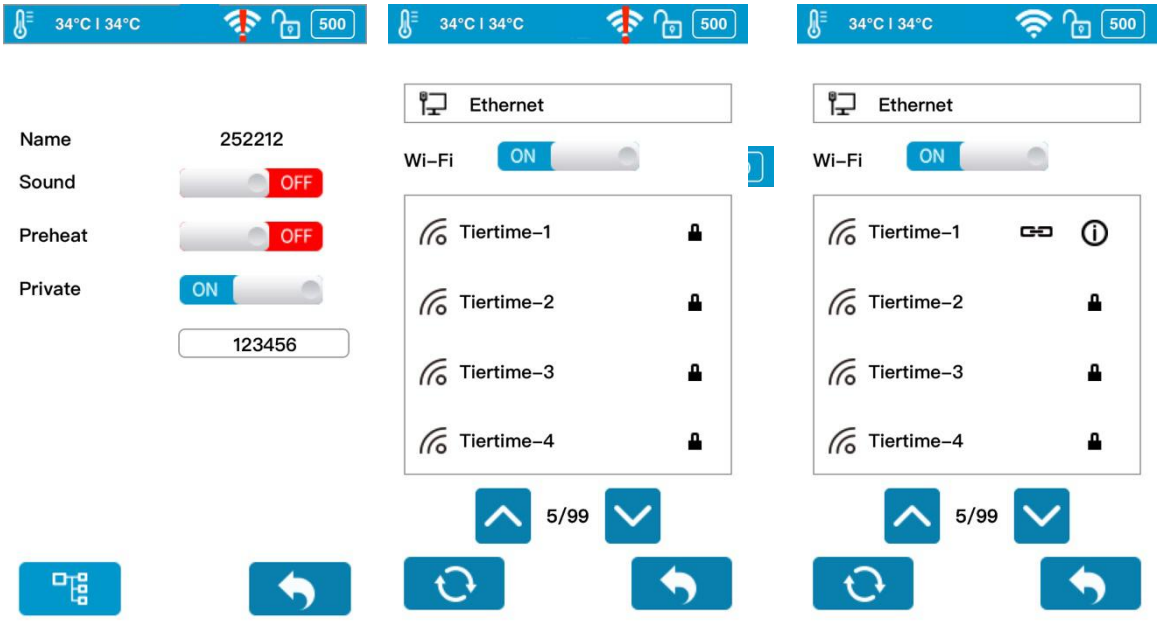
**Network Settings Icon Description**

The following descriptions also applies for Wi-Fi network settings.

| Name | Icon | Description |
|---|---|---|
| Network Type/ Name | Network Ethernet | The printer is connect with Ethernet. |
| | Network Tiertime | The name of connected Wi-Fi network. |
| Static | OFF | Toggle the static IP option to edit following settings for static IP. |
| IP | IP 192.168.7.111 | This is printer's IP address in the network. Click the text field to edit, click **Return** to save and exit editing. |
| Mask | Mask 255.255.255.0 | This is printer's mask in the network. Click the text field to edit, click **Return** to save and exit editing. |
| Gateway | Gate 192.168.7.1 | This is where you define the printer's gateway. Click the text field to edit, click **Return** to save and exit editing. |
| DNS | DNS 192.168.1.253 | This is where you define the printer's domain name system. Click the text field to edit, click **Return** to save and exit editing. |
| Page | 5/20 | Go to the next page. |
| Exit | | Exit and get back to the Network Section. |

## 8.6 Wi-Fi Network Connection and Settings:

1. Go to **Config**, enter Network Settings Section.
2. Toggle on Wi-Fi Network Connection.
3. Find the desired Wi-Fi Network's name in the list below.
4. Tap the name to connect the Wi-Fi Network.
5. The UP300D is connect to the Wi-Fi Network successfully, when the red exclamation mark disappeared, a interlock and Information icon appears.
6. Tap the Information icon to edit the printer's Wi-Fi Network Settings.

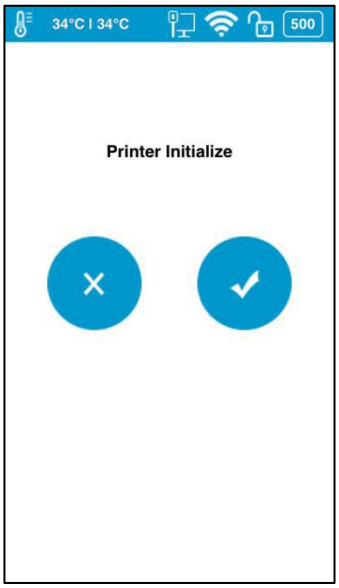


Wi-Fi Network Settings Description

| Name | Icon | Description |
|---|---|---|
| Wi-Fi Networks | OFF | Toggle the option to allow the printer connect to Wi-Fi networks. |
| Wi-Fi Name | Tiertime-01 | Choose the name of the network to connect to |
| Connection Status | | Once this icon appears next to the Wi-Fi network name, it indicates the printer has been connected to this Wi-Fi network. |
| Network Information | | Click the Network Information icon to enter network information editing page. |
| Password Required | | The network requires the password to connect. |
| Refresh | | Refresh the Wi-Fi network list. |
| Page | 5/20 | Click to enter the next page. |
| Exit | | Exit and go back to the main menu. |

## 9. Initialize

The printer requires initialization before printing.
The Material, Calibration and Print buttons on the Main menu of the touchscreen will be greyed out before the printer is properly initialized.




Click **Initialize** and confirm the printer will start initializing by clicking "√". After the printer is initialized, you can start sending print jobs to the printer.

# 10. Print Boards

There are two print boards in the UP300D package.

## 10.1 Perf Glass Board

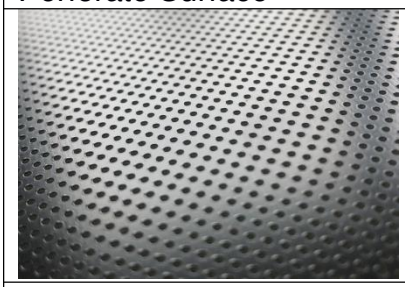
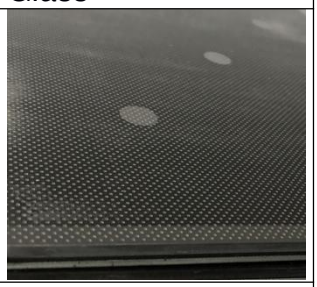
The one with many small holes on one side of the board. Perforated surface has the strongest surface adhesion when used with raft setting. It is made for printing material with high shrinkage ratio that tend to warp during printing and frequently used in conjunction with the HT extruder. Use this print board for: ABS, PC, Nylon, PP and etc.

## 10.2 Flex Glass Board

The Flex board is made by adding a layer of plastic sheet onto the Perforated surface. (Although extra layer of material is added the total thickness of Flex Galss is same as Perf Glass). It is made for materials that has low shrinkage ratio, so that they do not warp as much as material mention above.
Use this print board for: PLA, PETG, PET, TPU and etc.

## 10.3 Glass Surface

Both build plate have glass side that can be used for printing.  It is similar to Flex board in terms of suitable material. User can use the Glass side and print with raft turned off to obtain a flat smooth surface. However the machine need to leveled mechanically and the nozzle the height value may need to be adjusted (offset)  for optimal result.

| Perforate Surface | “Flex” Surface | Glass |
|---|---|---|
|  | |  |
| Suitable Material：<br>ABS, PC, Nylon, PP and etc. | Suitable Materials：<br>PLA, PETG, PET, TPU and etc. | |

***Flex/ Perf Glass Board: Glass boards could break if dropped. Please handle with care.**

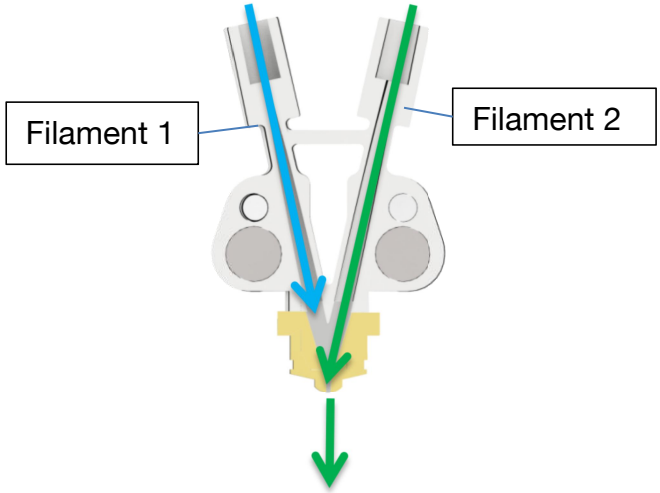
# 11. Extruders

UP300D has following extruder options:
1. Convergence Dual Extruder (Included)
2. HT* Single Extruder (Included)
3. LT* Single Extruder (Optional)
*HT=high temperture, LT=low temperature

## 11.1 Convergence Dual Extruder

The extruder although has similar size of a single extrusion extruder but essentially it is two extruders made into one. The Convergence dual uses a direct extrusion design and has 2 gearbox-stepper motors build into it. It has two cooling fans, one for cooling the hotend and the other is a toolpath coupled fan for cooling printed models.

Convergence Dual Extrusion




Convergence Dual is a patented technology by Tiertime.
The Convergence hotend has two channels “converge” at one nozzle opening, the two channels can extrude different materials alternately. Since the two extrusions share a single nozzle, there is no need for nozzle alignment calibration. The two material will always be aligned perfectly.

## 11.2 Single Extrusion Print Heads

HT Single Extruder

There are 2 types of single extruders available: HT type and LT type.
Following is table summarizing the properties of different extruders.
For Convergence Dual, only listed material pair are recommend to use on the extruder, unverified material pairs may not be printable using the extruder.

| Extruder Type | Filament Diameter | Maximum Temperature | Main Material | Support Material |
|---|---|---|---|---|
| Convergence Dual Extruder | 1.75mm | 300C | ABS | Tiertime Breakaway |
| | | | PLA | Tiertime PVA (water soluble) |
| | | | PLA | Tiertime Breakaway |
| ABS Type | | 300C | ABS, PC, PP, PA, HIPS, ASA, etc | |
| TPU Type | | 280C | PLA, PETG, TPU, TPE, PET, etc | |

# 12. Maintenance

12.1 Replacing Nozzle:

1. Wear heat resistance gloves.
2. The nozzle must be removed while the extruder is heated up to near printing temperature. When the nozzle is cooled, it will be too tight to be removed and unscrew the nozzle with force will destroy the hotend.
3. When extruder heated up, use the nozzle wrench to unscrew the nozzle.
4. Put on the new nozzle
5. Heat up the extruder again and tighten the nozzle with wrench.

12.2 Change Extruder:

Tools: An Allen Key and the Extruder you would like to install.

Preparation: Withdraw the filament, switch off the printer, unplug the extruder cable, and WAIT, until the extruder cools down before taking any further actions.

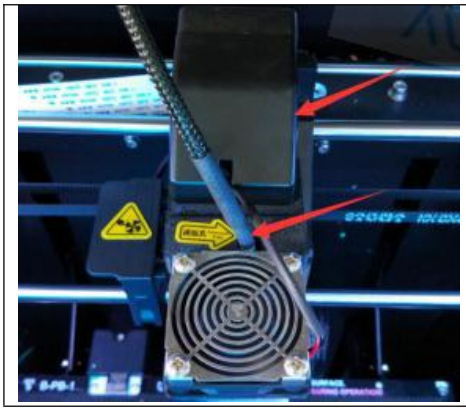
## 12.3 Extruder Maintenace

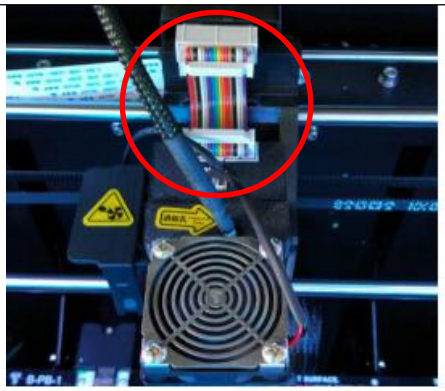
## Replace the extruder:

Use the Allen key to unscrew the screw on the left side of the extruder, remove the extruder, and then position the replacement extruder in the right place, tighten the screw, and plug in the extruder cable.

12.3.1 Single Extruder

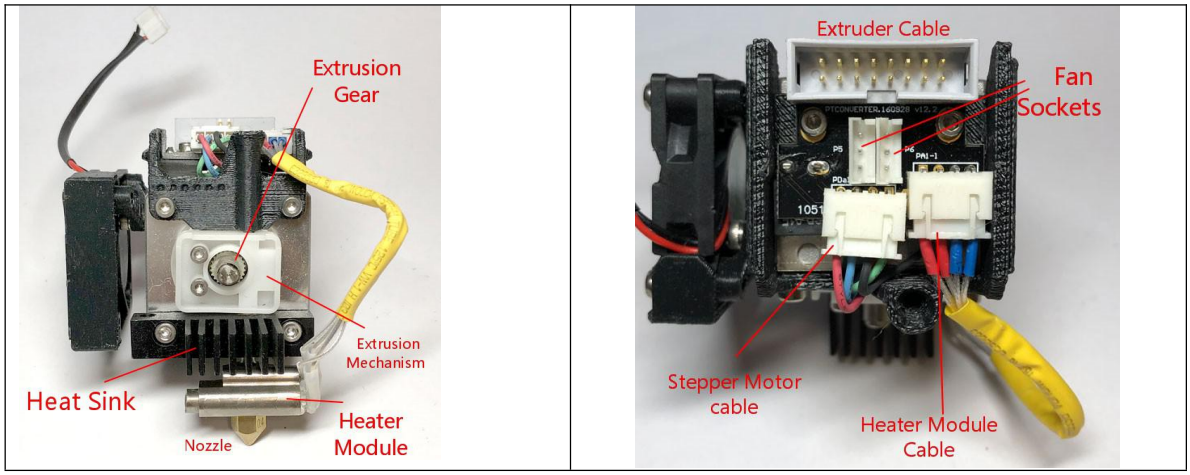
1. Withdraw any filament currently load into the extruder.
2. Remove the cover for CFC cable (rainbow colored).
3. Unplug the extruder CFC cable



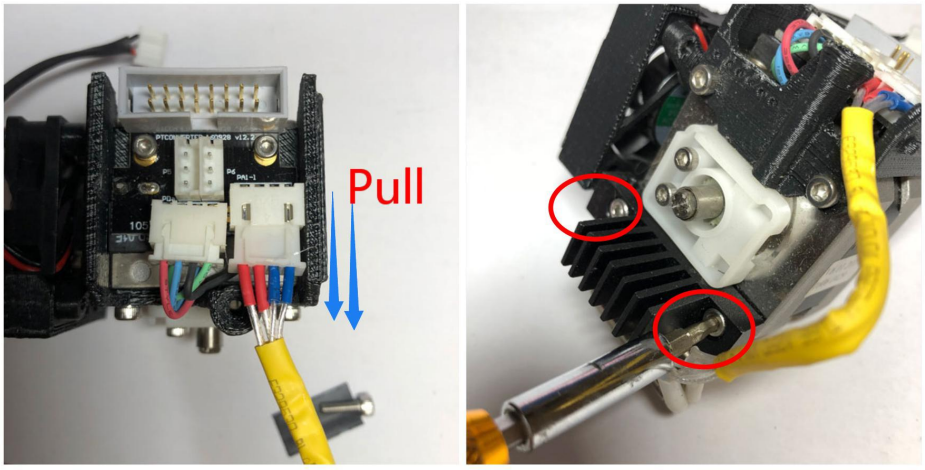


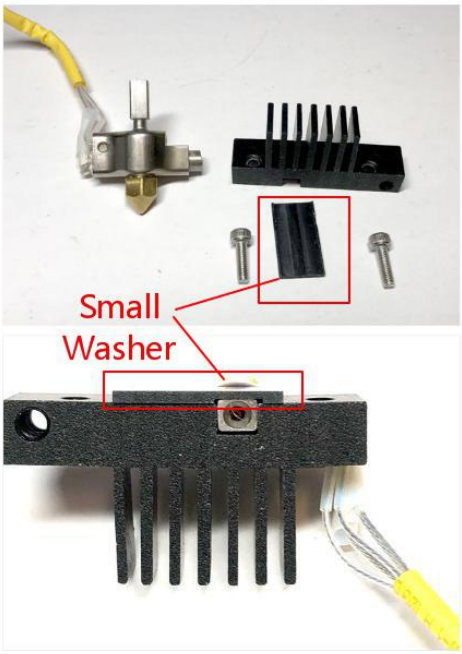
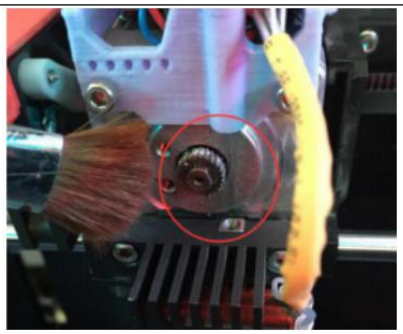
3. Unplug the fans. Pull out the extruder casing (gently).

4. Extruder Internal Structures.




5. Remove heater module and heat sink.



| | |
|---|---|
|  | Please note for some verisons of extruder, there is a small washer piece between the heat sink and the extruder motor. It is required for normal extruder assembly, ensure the the heater module to be installed securely. Do not lose this piece! |
|  | 6. Clean the gear with a brush. |

## 8.1 Clean the Waste Tray

Located at the bottom of build chamber, a waste tray is introduced in UP300D. 3D printing with plastic extrusion technology is a messy business. Normally lots of unwanted plastic scraps are generated here and there during printing and the post processing stage. It is a nightmare to clean it up especially for the machine with full enclosure.

The waste tray makes the cleaning work fast and easy. You can take the whole tray out and dump the scraps inside the tray to a dumpster, and put it back to the bottom of the machine.

## 8.2 Dual Filtration System

UP300D has the upgraded air filtration system inherited from UP BOX+ with bigger and better Dual Filtration System - the HEPA Filter and the Activated Carbon Filter. Both of the filters are located inside the build chamber, circulating the air internally to reduce the toxic particles generated during the 3D printing process.

We suggest you change the filter every 3 months, or every 300 hours active printing time.

You can purchase the new filters from the official Tiertime online store, https://shop.tiertime.com, or popular ecommerce web sites like Amazon, or eBay.

**To change the Filters**

The filter system is located at the left side of the build chamber.

1, Use a screwdriver to unscrew the two screws in the front, remove the cover, and take out the two used filters separately.

2, Take two new filters, place them into the slot, and push the slot back to the end.

3, Tighten the screws using screwdriver.

## 12. Specification

| | |
|---|---|
| Printing technology | MEM (Melted Extrusion Modelling) |
| Extruder | Single/Dual |
| Nozzle Diameter | 0.2mm, 0.4mm, 0.5mm, 0.6mm （Only 0.4mm for Dual Extrusion) |
| Extruder Maximum Temperature | 299°C |
| Extruder Maximum Travel Speed | 200 mm/sec |
| XYZ Accuracy | 2, 2, 0.5 micron |
| Connectivity | USB cable, Wi-Fi, LAN and USB Stick |
| Display | 4.3″ Full Colored LCD Touchscreen |
| Build Volume | 205 × 255 × 225mm (8.7″ x 10″ x 8.8″)(XYZ) |
| Printed Object Accuracy | ±0.1mm/100mm |
| Layer Resolution | 0.05/0.1/0.15/0.2/0.25/0.3/0.35/0.4mm |
| Calibration and Leveling | Automatic |
| Build Plate Maximum Temperature | 100°C |
| Print Board | Perf Glass Board or Flex Glass Board, Heated |
| Enclosure | Full |
| Dual Filtration System | HEPA and Activated carbon filters V2 |
| Supported Materials | UP Fila ABS, ABS+, PLA , TPU and more |
| Filament Diameter | 1.75mm |
| Filament Spool Compatibility | 500 - 1000g |
| Tiertime Print Queue | Yes |
| Pause to Change Filament Type | Yes |
| Out of Filament Detection | Yes |
| Compatible with 3rd party Materials | Yes |
| **Physical dimensions** | |
| Machine Dimensions | 500x523x460 mm (19.6″ x 20.5″ x 18.1″) |
| Net Weight | 30kg |
| **Power requirements** | |
| Input | 110-240VAC，50-60Hz，220W |
| Extra USB Input for Add-on | 5V, 1A |
| **Software** | |
| Software | UP Studio |
| Supported OS | Windows 7 SP1 or later, Mac OS X, iOS 8.x/9.x |
| Hardware Requirements | OpenGL 2.0, At least 4GB of RAM |
| Supported File Formats | up3, .ups, .tsk .stl, .obj, .3mf, .ply, .off, .3ds, .g code |
| Preview Support Structures | Yes |
| Editable Support Structures | Yes |
| Cloud Print Settings | Yes |
| **Ambient Environment** | |
| Operating Ambient Temperatures | 15 - 30°C，20 - 70% RH non |

## 13. Customer Service and Community

| | | |
|---|---|---|
| Support Ticket | Email to support@tiertime.com | |
| Knowledge Base: | https://support.tiertime.com | |
| User forum: | https://forum.tiertime.com | |
| Facebook Group | https://www.facebook.com/groups/205337203341609/ | |
| Facebook Page | facebook.com/tiertime | |

| | | |
|---|---|---|
| Youtube Channel | youtube.com/tiertime | |
| Twitter | twitter.com/tiertimecorp | |
| Instagram | instagram.com/tiertime | |

FCC WARNING

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.
The distance between user and products should be no less than 20cm.