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CUBICON Single Plus

User Manual

CUBICON

This is an instruction manual (180325,En) for CIBICON Single Plus.
According to model name with details, functions or features may be different.
(specified separately in operation manual)
For improving qualities of the product, it is subject to change without prior notice. It is not held accountable for any errors or offering of the document or any losses incurred from the usage. The instruction manual is based in English.

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1. Introduction

Thank you for purchasing CUBICON Single Plus.
Among many types of 3D printer, CUBICON Single Plus is FFF type 3D Printer. Unlike other FFF type 3D printer, it is easy to use due to user convenience features.

CUBICON Single Plus is

- Material of the case is flame-resistant, protecting from fire and sophisticated prints brings out the beauty of the design.
- Use of detachable Extruder allows the use of many types of filament materials.
- Replaceable nozzle kit is applied to increase convenience of maintenance. When a nozzle is contaminated/damaged, users can easily replace the existing nozzle with a new one. (Not applied to Single Plus-310)
- Use of triple filters effectively removes gas, dusts and Nano particles.
- CUBICON Single Plus presents a lot more evolved Auto level Plus technology, following up the CUBICON Single's Auto Level Plus
- Special coated bed let you print without any adhesives or tapes and makes it so easy to pull out the prints from the bed.
- 32Bit software allows touch color LCD and instant printing pause function.
- Due to the use of internal memory, it is still possible to separate the external memory after printing and it is not necessary to use any specific USB memory.
- Diagnostic features allow to use the problems of the printer just by pressing a button
- High 600W powers allow stable printing and fast preheating.
- Filament detection sensor responds to any unwanted or unintentional filament consumption and enter stop or pause printing mode.

This instruction manual explains from the initial installation process to the actual printing process of the samples in step by step manner. The users, who have used the new features and special technologies of the CUBICON 3D printer series and have used 3D printers to adapt them, please read the user manual. Please experience new 3D printing with CUBICON Single Plus.

2. Safety precautions

Please read carefully “safety precautions” before use it and follow the instructions.

This instruction is to help prevent injuries for user or anyone from getting injured or damaging printers.

Not following the instruction can cause serious injuries or damages to the printer.

	Since the printer generates high heat during operation, there is a risk of burns if you insert a human body or equipment inside during operation. If you put human body or equipment inside, be sure to do so when it is cooled down after the operation is completed.
	Risk of Explosion if battery is Replaced by an incorrect type. Dispose of used batteries according to the instructions.
	The printer uses moving parts such as motors, belts, and gears. If you insert a human body or equipment into the unit during operation, there is a risk of injury from being caught by the unit..
	If the printer is exposed to water or other liquids, metal chips, or other conductive objects, there is a risk of fire or shock. Also, do not operate with wet hands because there is a risk of fire / electric shock.
	Be careful of the installation location because there is a risk of injury to children or pets caused by the printer. Observation and protection are required if there are children or pets around the printer.
	Printers and accessories include parts with sharp surfaces. Be careful not to injure yourself or damage the printer
	Do not heat or deform the filament, which is the material used in the printer, because it may cause fire or injury. Also, when swallowing the prints and filament residue, be careful handling because there is risk of suffocation.
	Do not use volatile objects in the printer as they may cause fire / explosion. In addition, if you leave the ignition or flammable material near the printer, it may cause a fire
	The printer's illumination LEDs use high-intensity LEDs, so do not look directly to protect your eyes.
	Do not damage or deform the printer's power and USB cables, and do not supply power other than the specified voltage.
	When moving the printer, stop the printer, cool the internal components sufficiently, and disconnect the power and USB cable while the main power is off.
	Do not insert filaments or other objects in the empty space inside the printer, as this may cause damage to the printer and fire.
	Do not turn off the power while the heating bed or the extruder is heated. The cooling fan does not turn, which could cause equipment failure or fire due to high temperature.
	The printer melts the material, which may have a characteristic odor during this process, so please place your printer in a well-ventilated place
	Do not install the printer outdoors, in direct sunlight, or in places subject to excessive vibration, moisture, or dust.
	Do not install the printer in an unstable place. Also, remove any objects that may be damaged by heat or vibration during printer operation.
	If you do not use the filament or parts supplied by our company, the product may be damaged or the quality can not be guaranteed. Problems resulting from this will be excluded from the free AS service.
	Do not disassemble or modify the printer in any way other than those approved by the user's manual. Failure to do so may result in injury or damage to the printer, Problems that occur in this case are excluded from the Free AS.
	Do not apply excessive force or shock to the printer. There is a risk of malfunction, breakage or injury. Also, please read the precautions in the manual carefully and use the printer

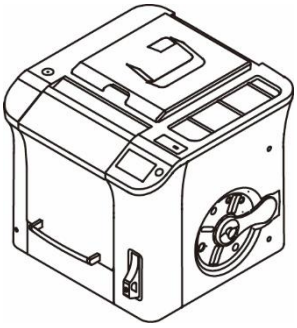
3. Precaution for use

Be sure to read and follow the "Precautions for Use" before using the printer.

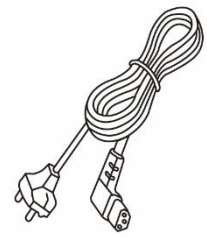
Filament	Please use genuine filament that we sell. * Failure to use non-approved filament will be excluded from the free AS.
	The opened filament should be consumed as soon as possible Keep the filament fixed on the spool so that it will not loosen when unavoidably stored.
Installation of Filament to spool and separation.	Check the locking of the door handle after mounting, paying attention to the direction of filament rotation.
	When removing the filament spool from the printer, be careful not to loosen the filament from the spool.
Filament replacement & Loading Unloading	Extruder temperature setting. * If the temperature setting is wrong, Extruder malfunctions due to nozzle blockage, filament breakage, etc.
	Set temperature carefully when replacing new filament and sufficiently remove old filament inside nozzle.
Heating condition of Nozzle and heating bed.	Heat the nozzle / heating bed to a temperature suitable for the filament.
	If the temperature of the filament is not within the proper temperature range, bad quality of printing such as filament carbonization, poor extrusion, cracking, flooding and equipment failure may occur.
	After the printing is completed, the print is removed after the heating bed has cooled sufficiently.
Cleaning of the detachable Extruder.	Regular extrusion check, cleaning, etc. need to be managed. * Replacement of wear nozzle due to normal use is excluded from free AS
	Clean the outside of the nozzle with a cotton cloth after heating the nozzle.
	Be careful of damaging the inside of the extruder when cleaning the inside of the nozzle using the nozzle management pin* Make sure that you are proficient enough as improper use can cause an extruder failure.
	Nozzle management pin must be used after removal of the extruder to prevent damage to the inside of the extruder.
	Nozzle cooling and heating repeatedly with filament in the nozzle is forbidden.
Assembly and disassembly of detachable Extruder	Separation / assemblage must be in the state that the power is off (power OFF).
	Do not turn off the power while the extruder is heated (It is possible to disconnect the Extruder immediately after power off for repair / replacement).
Fixed Extruder	Fixed extruder cleaning and other management is needed.
	After removal of detachable extruder, be sure to remove contaminants such as gears visible on the bottom of extruder and contaminants on filament path.
Cleaning of the heating bed	Typical cleaning involves scraping surface contaminants with a dry cotton cloth. * Replacement of heating bed with coating damaged by normal use is not eligible for free AS.
	In case of severe contamination, clean using only high purity acetone. * Do not use any cleaner (wet tissue) that is sold on the market because it may contain materials that damage the bed coating.
Auto-tilt	If an error occurs during Auto-tilt, make sure that the nozzle touches within the level contact area and retry after cleaning the heating-bed contact area and nozzle tip. If error persists, check / repair via AS center.
Preparing A/S request	When an abnormal condition occurs, be sure to record the file and the situation, the inside of the printer, and the LCD display as pictures / movies.

4. Components and definitions

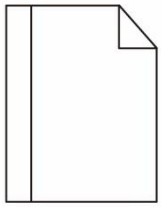
4-1. Components



CUBICON Single Plus

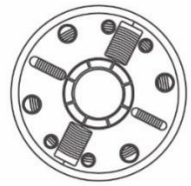


Power cable

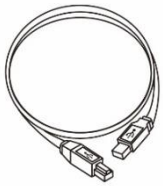


Quick Guide

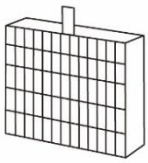
Accessaries



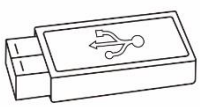
Filament



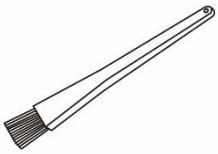
USB Cable



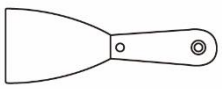
Filter



USB Memory

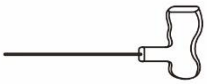


Brush

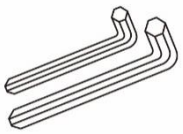


Scraper

Tweezers



Management pin



Wrench 2types (2Ø, 2.5Ø)

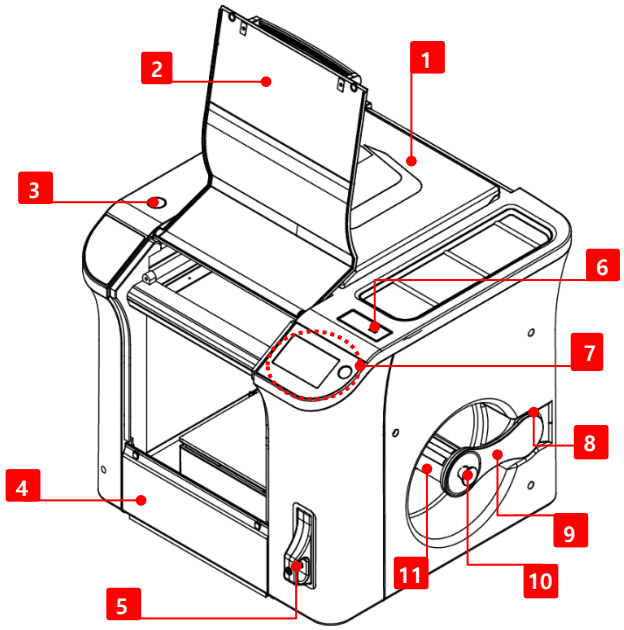
Box wrench (8mm)

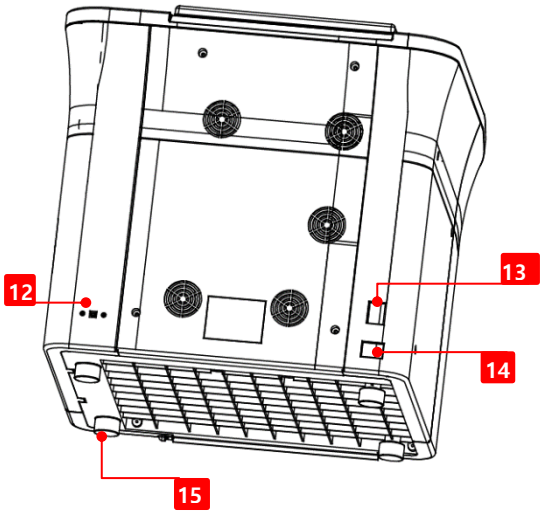
Nozzle kit (x1)

	* The types and specifications of the accessory accessories included in the product may be changed without prior notice for product improvement. * Box wrench and Nozzle kit apply only to Single Plus-320/321. (not apply to 310) * When purchasing additional accessories, please contact the website or your dealer. * Accessories are not included as part of A/S. * Among the parts of the printer, nozzles, heating beds, and Teflon tubes that are normally worn are consumables. * The materials and colors of the first filament are provided at random. * Manual, Cubicreator (software) are included in USB memory. Please download the latest version from the homepage (www.3dcubicon.com).

4-2. Definition of each part

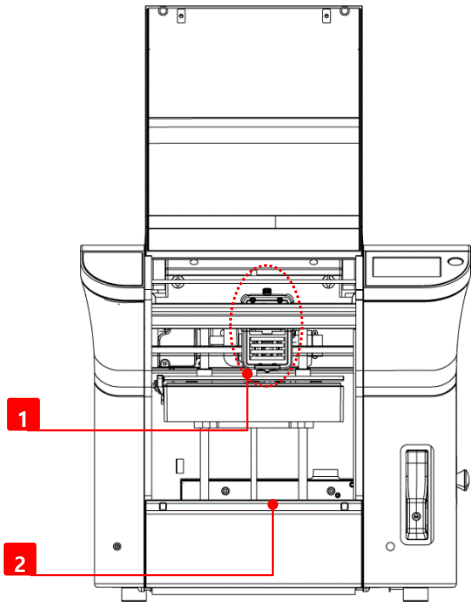
(1) CUBICON Single Plus main body

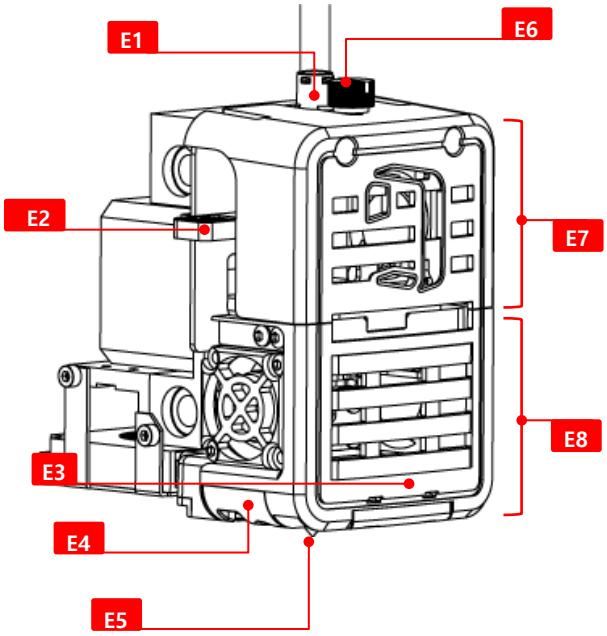




[1] Upper door	Filament replacement, detachment Extruder separation, etc.
[2] Front door	When you pull out the prints.
[3] Level gauge	When you install the printer, check the horizontal level.
[4] Lower door	When you clean the bottom
[5] clean filter case	Insert clean filter
[6] USB memory slot	Insert USB memory
[7] Touch LCD and Reset	Touch LCD Screen and printer emergency stop.
[8] Filament insertion port	Location where you insert Filament
[9] spool door	Door at which Filament spool is fixed.
[10] spool door handle	Spool door locking device(it must be locked after spool installation)
[11] Spool carrier	Area where Filament and spools are installed.
[12] USB input	USB Cable port, which is to be connected to PC (Type-B)
[13] Power switch	Main Power Switch
[14] Power input	Port connecting to the printer power.
[15] Rubber foot	prevents printer from slipping(4units on the bottom)

(2) CUBICON Single Plus Extruder





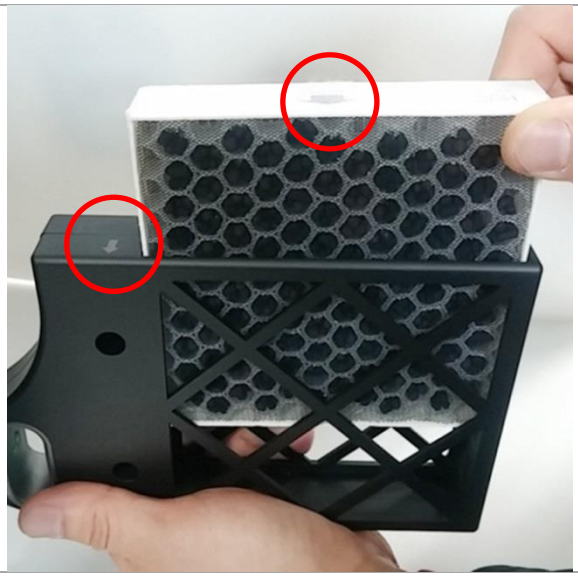
[1] Extruder part	Extruder (filament extruder) which flows filament and melts by nozzle
[2] Heating bed	Platform on which the output is printed
[E1] Filament Insert	Hole in which you insert Filament to Extruder에 Filament with Teflon tube.
[E2] Filament push handle	Handle to push or pull the filament in the extruder manually.
[E3] Molded illumination LED	White molded LED for checking the printing condition, located in the detachable extruder part
[E4] Wind Guides	Mechanism that blows wind of molding fan toward molding, located in detachable extruder part
[E5] Nozzles	Nozzle from which the filament melts out
[E6] Retaining screw	Fixing screw used to detach detachable extruder part
[E7] Fixed Extruder Part	Fixed part of Extruder
[E8] Detachable Extruder part	Detachable part of Extruder

5. Installation and getting ready for printing

5-1. Opening the package

① Remove the product from the packaging	② Transport the product to the installation site.
	
* Because of the weight and volume of the printer, be sure to have at least two people working on the printer. * If you lift the printer body while holding the plastic wrap around the printer, you can slide it, so make sure to life only the printer body without the plastic wrap.	
③ Open the front door and pull out the packing materials and accessories to see if they have all the accessories.	④ Open the upper door and lift the extruder packing material. **Be careful not to break the drive cable of the extruder or the Teflon tube.**
	
* In order to prevent problems that may occur when the drive unit is operated, the cable tie is not used and the unit is fixed with only the packaging material. Be careful of component damage when removing the inner packaging. * Extruder drive cables or Teflon tubing are located around the extruder fixing packaging. The driving cable and Teflon tube connected to the extruder are for extruder operation and filament supply passage, so be careful not to be damaged by pulling, kinking, stamping, or pressing.	

5-2. Filter Installation

① Remove the filter case from the printer body.	② Place the filter in the case. Be careful of direction
	
③ Insert the clean filter case into the body.	
	
* Please install the clean filter in the normal direction. * If the inserting direction is wrong, the filter performance will decrease and it may damage the fan.	

5-3. Filament Insertion

① The spool door handle on the printer body can be pushed back.	② Slowly unwind the filament from the filament spool and slide the filament into the filament insert. * Pay attention to the direction of insertion.
	
③ Open the upper door and push the filament out to the Teflon tube entrance inside the body.	④ Insert the filament spool into the filament rod and press the handle until it clicks to close the spool door and secure the spool.
	
	* Filament spools are directional. (Please attach the spool so that the side with the company logo or product sticker is visible from the outside) * If a filament spool is installed, any obstruction between the filament rod and the spool that interferes with the spool rotation may cause trouble with the filament feeding and cause the printer to malfunction. When inserting the spool, remove it so that there is no obstruction in rotation. Especially, please remove the desiccant (Silica gel) included in the spool package by the spool. * The Teflon tube is the path from the spool of the filament to the extruder. Since the length of the Teflon tube is optimized for the printer, pulling the tube with excessive force will cause the tube to bend or twist inside the printer, causing the filament movement to be unstable, which can cause a malfunction. Do not bend, cut or pull excessive force on the installed Teflon tube.
	* When removing the remaining filament spool, take care not to loosen the filament, and fix it on the spool so that it does not come loose during storage. * Be careful not to expose the remaining filaments to the outside environment such as moisture and dust by putting them in plastic bags etc., and use them promptly after opening the filament. If the filament is exposed to the external environment for a long time, it may not be extruded from the extruder due to absorption of moisture in severe case or result in the deterioration of the print quality

5-4. Printer Power ON

	Before turning on the printer, check again to make sure that all the packaging materials inside the printer have been removed, that the parts are not damaged, and that the spool mounting / rotation direction / rotation status is normal.
	Do not leave the printer powered off with the extruder heated. If the cooling fan does not turn, heat can damage electronic components and cause the printer to fail.

① Set the power switch on the back of the main unit to [OFF] (O).

② Plug the power cable into an outlet.

③ Set the power switch on the back of the main unit to [ON] (|)..

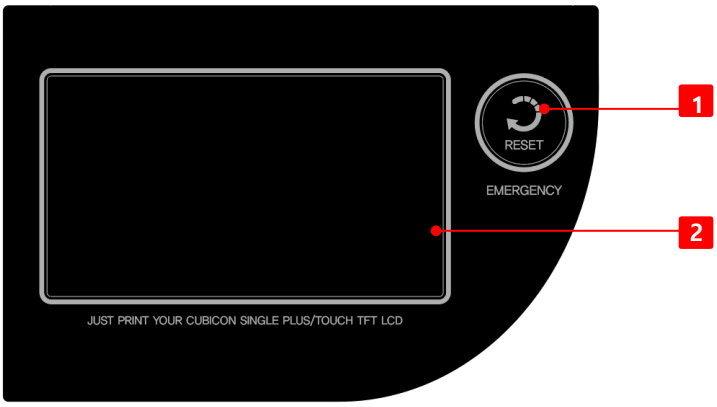
④ Check the display on the LCD screen.

	* When disconnecting the power or USB cable, do not pull on the cable, but pull out the connector. * The USB cable connects directly to the PC to print directly from the PC source or to update the firmware of the printer. There is no need to connect the USB cable where the printer is not connected to the PC.

6. Using the Printer

6-1. LCD control unit

Emergency Stop	If a problem occurs during operation of the printer, pressing the Reset (Emergency) button will immediately stop the printer and restart it. (Soft Booting)



[1] Reset	As soon as it is pressed, it is reset (Emergency).
[2] Touch LCD	The pressure sensitive touch screen displays the current status screen or menu.

⚠ * Please be careful of the unintentional printer reset by leaning to the reset key during the output or by placing objects close to the button.

6-2. LCD Main Screen

[1] Print	Menu used when printing files stored in USB memory or internal memory.
[2] Heating	A menu to preheat nozzle / bed by material
[3] Filament	Menu to load / unload Filament.
[4] Utilities	Menu to copy / delete G-code and move Extruder, self-diagnosis, auto level etc.
[5] Setting	Menu for CUBICON Single Plus user to customize and update firmware.
[6] Information	Displays the printer's information and time, and the amount of internal memory.

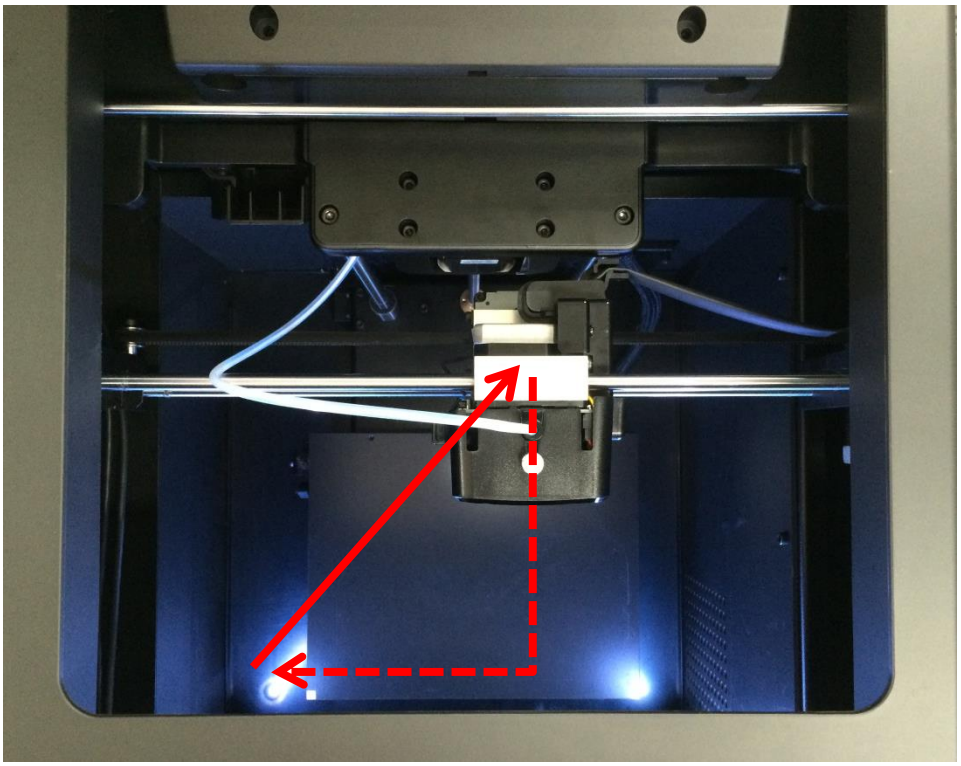
7. Filament exchange (Loading/Unloading)

The filament must be inserted in the extruder in order to melt out the filament as the output material with the nozzle, and the filament stuck in the extruder must be removed in order to replace the filament with another. Unloading is the process of loading a filament into an extruder to eject the filament in the extruder, and pressing the nozzle to melt the filament. In contrast, the process of unloading a filament from an extruder is called unloading.

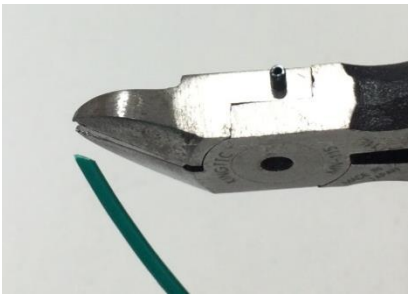
7-1. Filament Loading

Choose Filament in main menu.

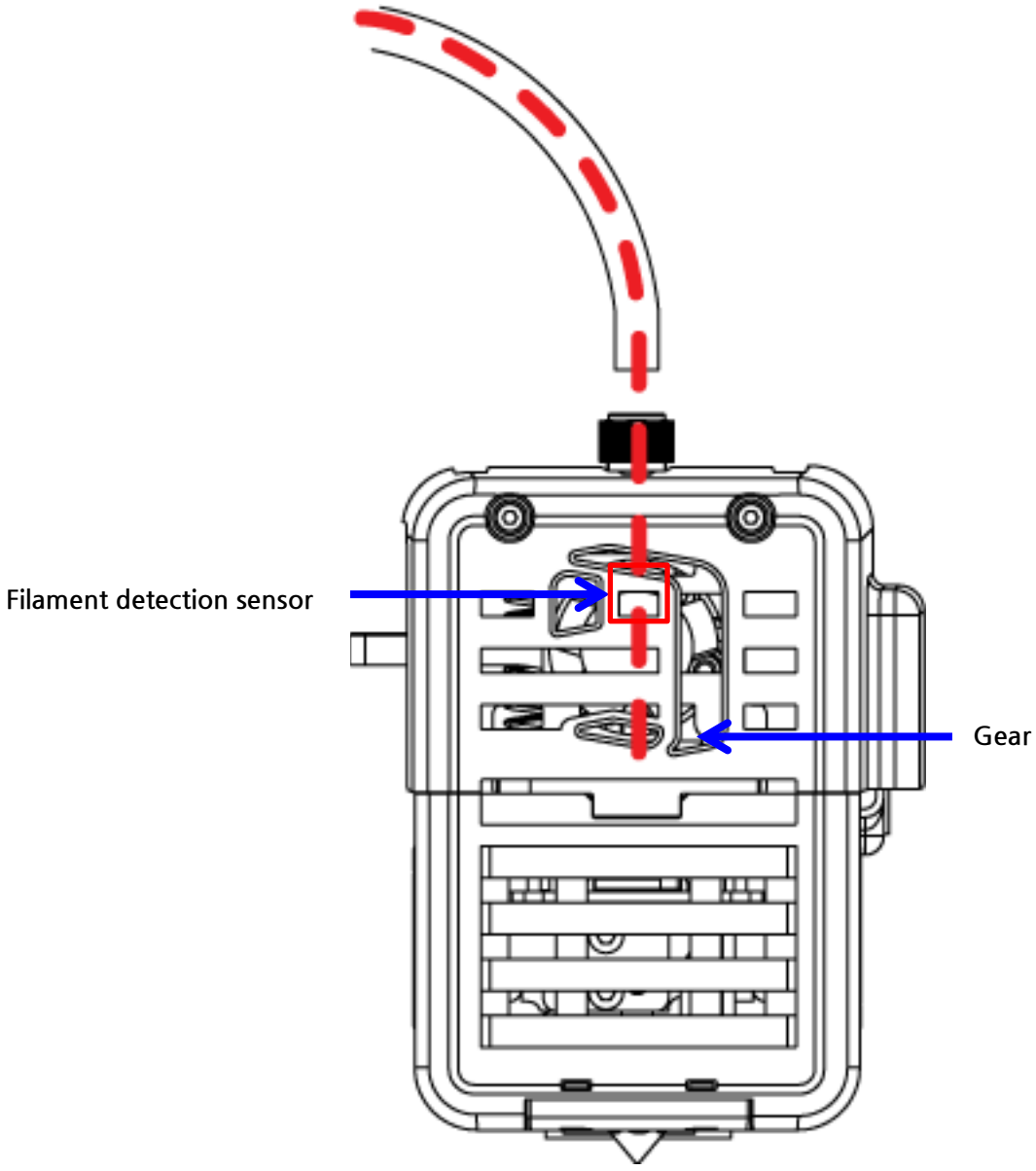
Select the Filament you want to load and select the Loading button.
Select the Start button after the temperature has risen to the target temperature.



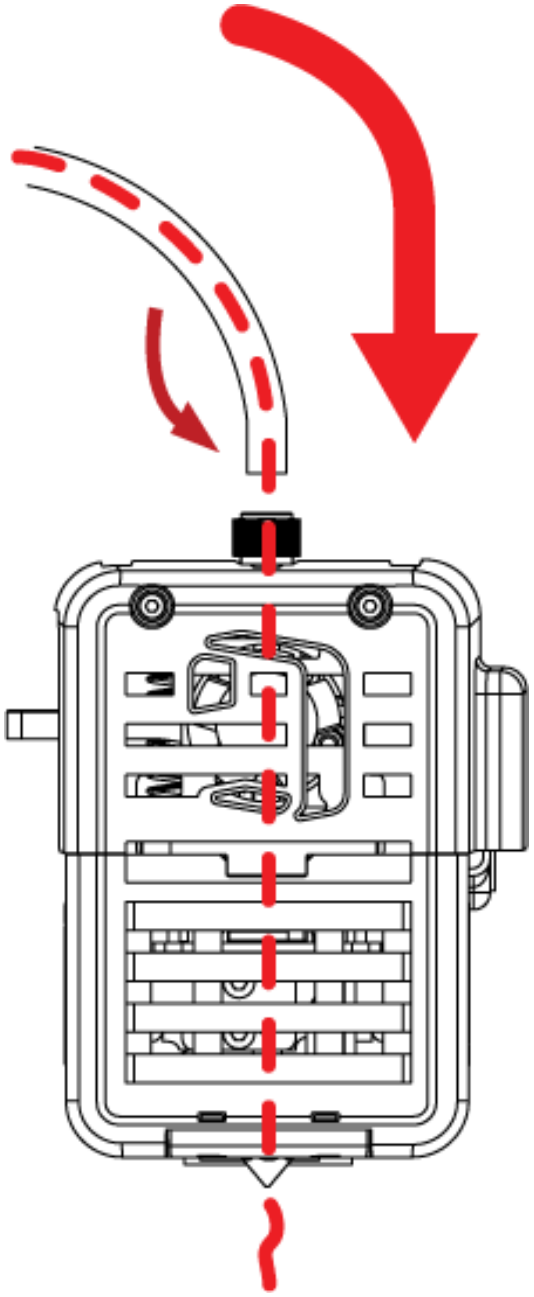
Please note that the extruder will move to the parking location.



Be careful about the safety and cut the end of the filament with a knife or scissors.



Push the filament through the filament detection sensor and into the gear opening.



Make sure the filament is extruded through the nozzle.

⚠	* When the nozzle temperature of the extruder rises, be careful not to touch the nozzle area with your body as the nozzle as well as the melted filament are hot. * When the filament enters the nozzle rod of the detachable extruder part, the filament may get stuck and may not get into the nozzle rod entrance. (may sounds like being stuck) In this case, press the filament pushing handle, pull out the filament, cut the end with scissors, etc., and put it back into the filament insertion port to retry the loading. * Pulling the Filament when working manually, please be careful not to exert excessive force as it can damage the sensor or nozzle bar inside.

7-2. Filament Unloading

From the main menu, select Filament.

Select the filament you want to unload and select the Unloading button

Select the Start button after reaching the target temperature

When the icon to press the handle on the LCD screen to pull out the filament appears, press the Handle to remove the filament.

⚠	* When the nozzle temperature of the extruder rises, do not touch the nozzle area because the nozzle as well as the melted filament are hot. * When pulling out the filament, be sure to hold down the handle. This is to prevent malfunction caused by the molten filament end being caught inside the extruder
⚠	* Depending on the type of filament, the shape of the filament end is different. And unloading can cause stabbing within the extruder. If you are worried you can not get it out easily, do not pull out the filament by force 1) After the filament is pushed to the nozzle, the tip is melted to correct the shape and then unloaded 2) After cutting the filament outside the extruder, separate the detachable extruder to remove the filament. If the Filament is pulled out and the filament (residue) gets caught in the Extruder, it may be even necessary to repair it to the Fixed Extruder part.

7-3. Replace Filament with Pause function

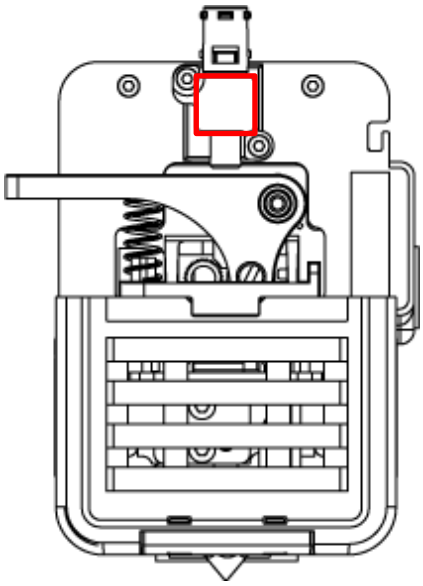
The CUBICON Single Plus has a pause function that allows you to change the filament during printing. If there are not enough remaining filaments, you can replace them earlier or replace the filaments of different colors to change the color

(1) Pause by user

Pressing Pause stops the printing and moves the extruder to the parking position. You can replace the attached filament or proceed with the desired operation.
When you are done, you can resume printing with Continue.

(2) Pause due to running out of filament

CUBICON Single Plus has a sensor that can detect the presence of filament.



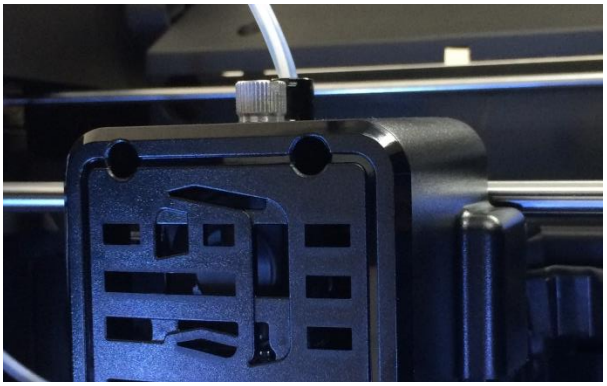
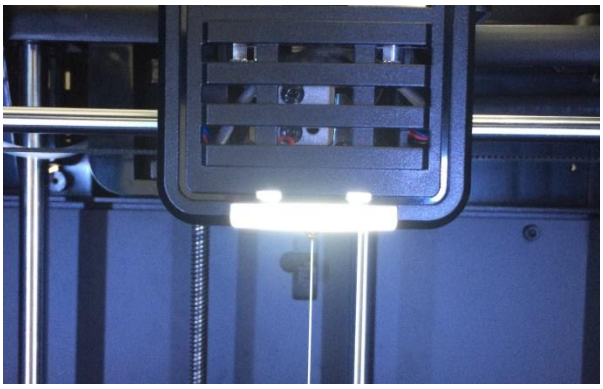
When the filament is exhausted by the sensor shown in the figure, it enters the pause mode automatically.

⚠	* When the TPU is printed, the sensor may not operate properly due to the flexible characteristics of the TPU itself. Before using Filament with soft material, please go to Setting> Function> Filament check to "OFF". * When the filament passes through the detection sensor, there is a difference in the filament fragments that are automatically unloaded depending on the model. The larger the area, the less the printing quantity, and the harder to get out. Please check the amount of filament remaining before printig because re-print may be necessary

8. Test model printing

This chapter explains how to install the printer and use USB memory to print the actual print.
Refer to the cubicreator Software manual for instructions on how to output from PC to USB cable connection.

8-1. Printing for the first time

① Read and load the '7-1 Loading' section	② When loading is completed, the output is ready.
	

8-2. Find and print a sample file from USB memory

Print right away	
① There is a sample file that can be printed inside the supplied USB memory.	② Press the print icon to select the file icon. Select the clip.hfb file that matches the filament you installed and print it.

Saving and Printing	
① Select Utilities and enter the file manager. Select USB memory and select clip.hfb file - copy.	② Press the printer icon again to select the file icon. Select the clip.hfb file that you copied to match the filament you installed.

⚠	* If you print it immediately, it will be copied to the internal memory, but unlike saving and printing, if you print the next file, the old file will be deleted. If you want to save the file to internal memory, save it and print it out.

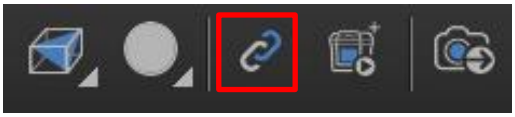
9. Network

CUBICON single Plus can save sliced files to USB memory and print them out via the printer's USB slot or connect them to PC via USB cable or Wi-Fi. This section describes the USB cable connection and the Wi-Fi Network connection. (It is necessary to use Cubicreator v3.1 * or higher to print through the network.) After printing through the network connection (after the slicing data transmission to the printer is completed), the printing will normally proceed even if the network is disconnected.

⚠	* WPA2PSK is recommended for the security setting of the wireless router and other security level is not guaranteed. * If the SSID includes special characters like Hangul, Chinese characters, etc., there could be a connection failure. * WI-FI connection can be different depending on the installation direction of the router, antenna direction, and router. * When printing via WiFi, sliced data is completely transferred from PC to printer and then it starts printing. * Unstable connectivity may cause transfer failure. **It's recommended to save the data into USB memory stick and use.**

9-1. Connecting the USB cable between PC and printer

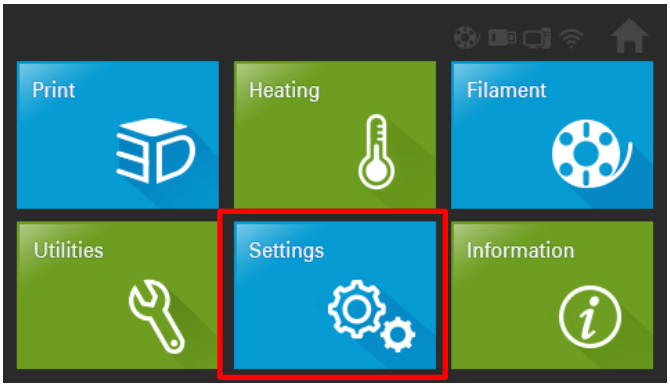
Connect your PC and printer with a USB cable. (You need to install the driver that is installed when you install Cubicreator.)



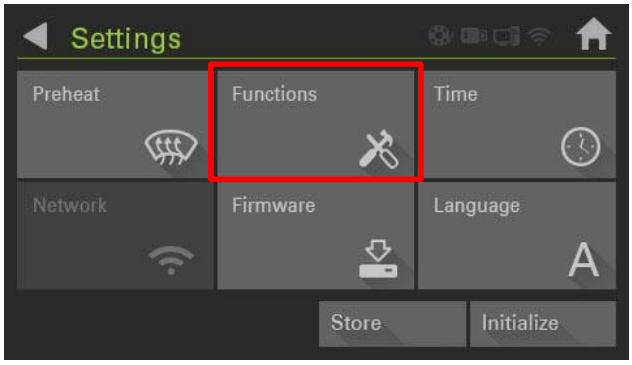
When the displayed icon is activated, the print is ready. Refer to the Cubicreator manual for detailed instructions.

9-2. Connecting the printer to WI-FI

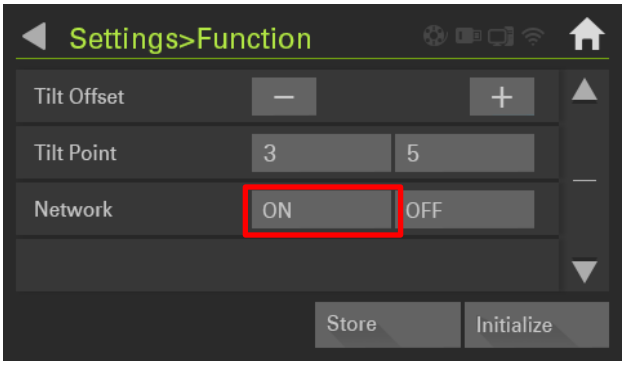
(Since Firmware v1.2.2, Wi-Fi function is set to "Off" by default.) If you use Wi-Fi, set "Settings - Function - Network" to "On".



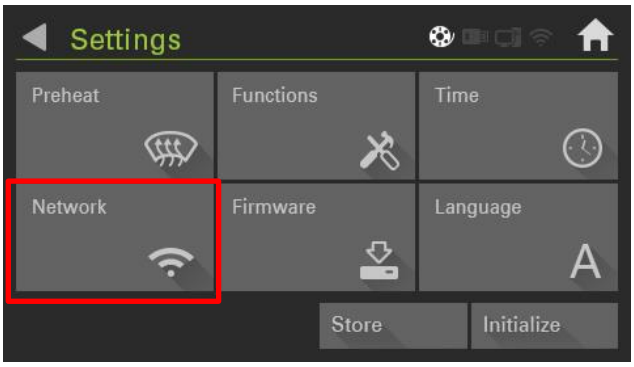
Select Setting.



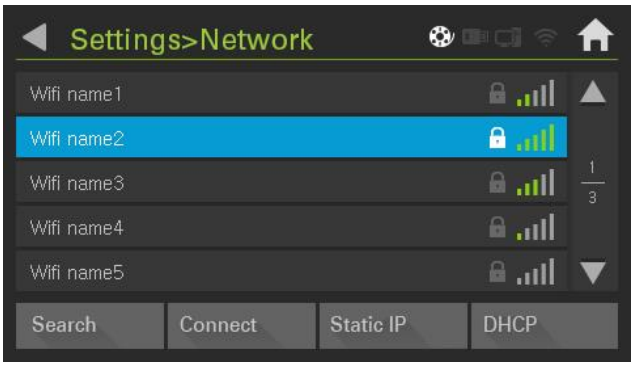
Select Function.



Select Network ON. (If you want to save the current state, please select the Store key to save.)
Network has been activated.



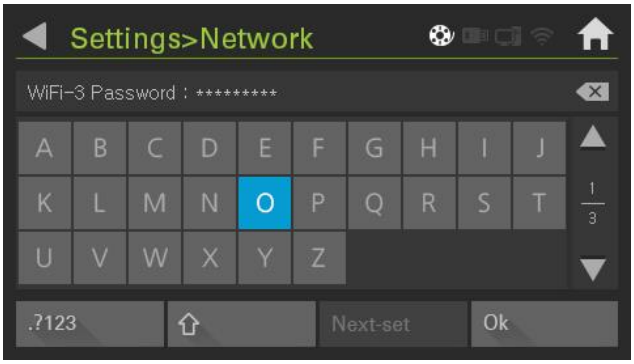
Select Network in Setting.



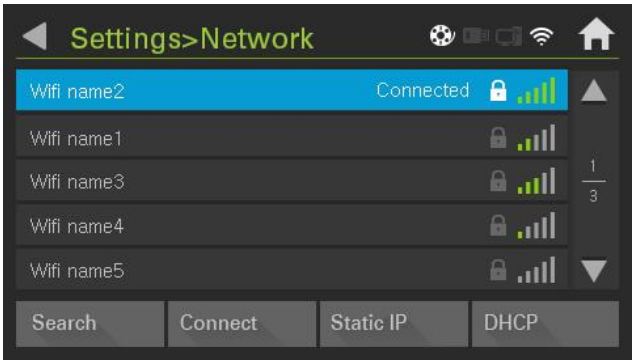
Select either Static IP or DHCP and click Find to search for the WI-FI you can connect to. Then select the

appropriate WI-FI signal

(1) Connecting with DHCP

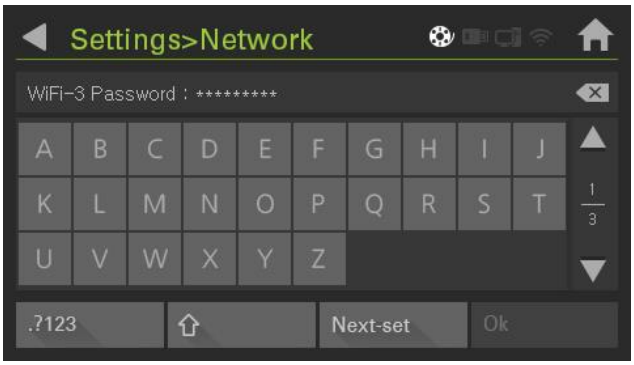


When you have finished entering the password, press Ok to start the connection.

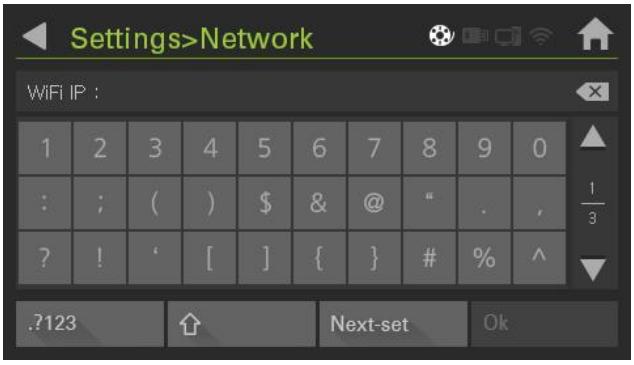


When connection is completed, the phrase 'Connected' is activated and Network Setting of CUBICON Single Plus is completed.

(2) Connecting with Static IP

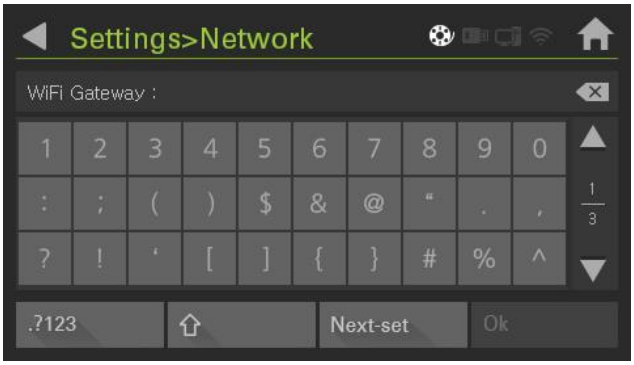


Enter the password and select Next-set.

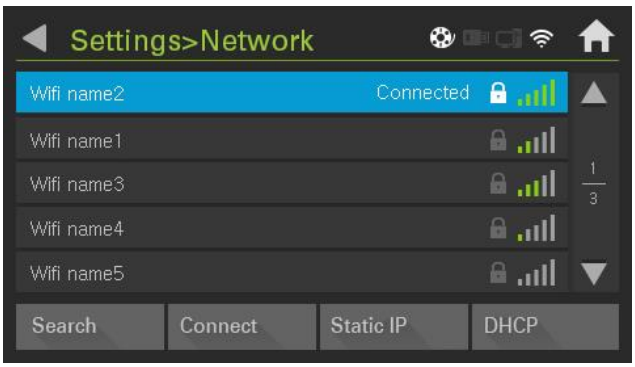


Enter WI-FI IP.

Type Subnet.



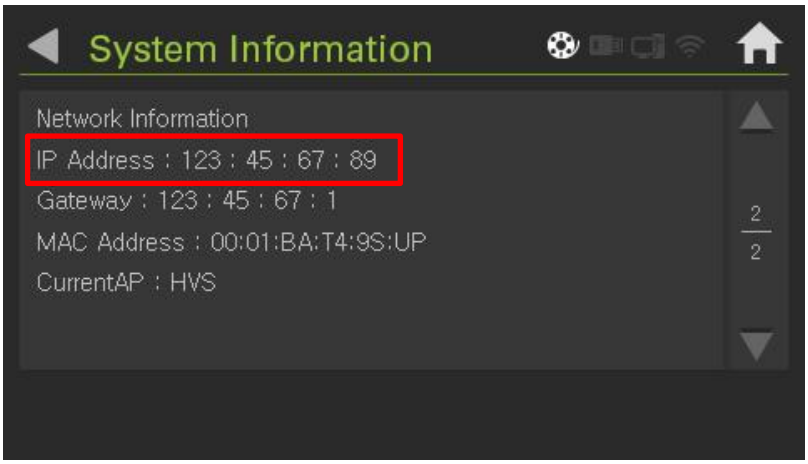
Enter Gateway and press Ok to start the connection.



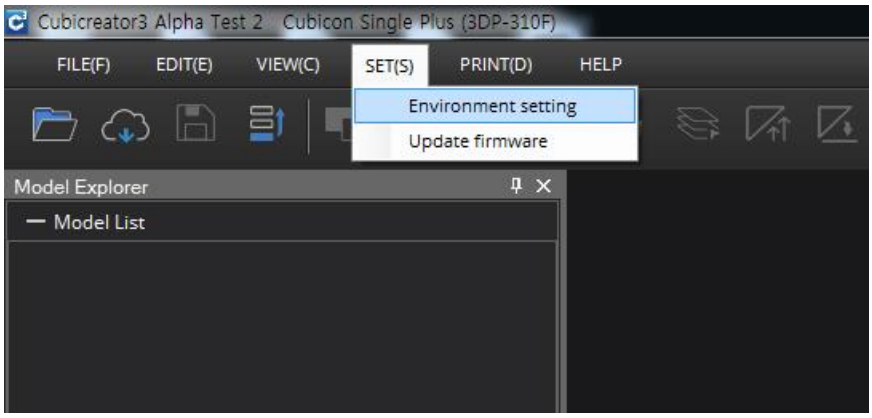
When the connection is completed, the phrase 'Connected' is activated and the Network Setting of the CUBICON Single Plus is completed.

(3) Checking the connected IP

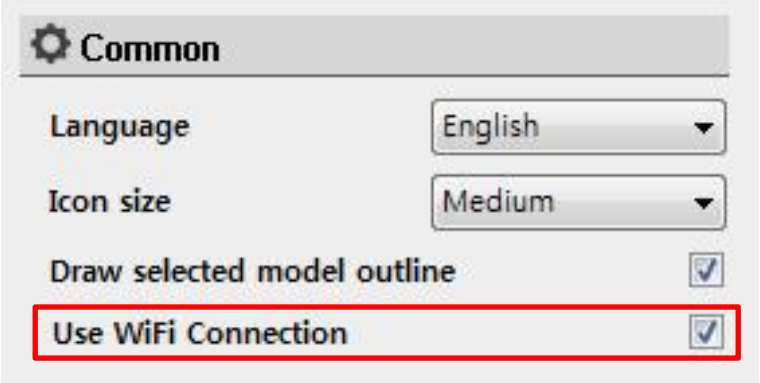
If Wi-Fi is connected, press 'System Information' on the main menu, and you can check the current IP of the printer on the 2/2 screen.



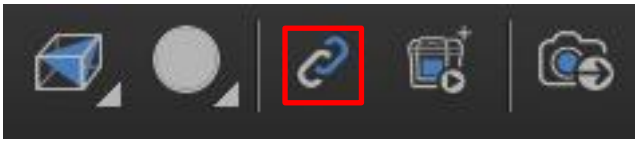
9-3. Connecting Cubicreator3 WI-FI



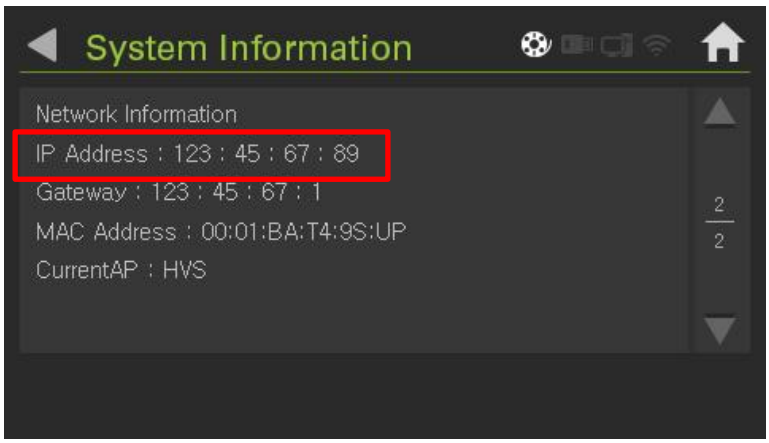
Run Cubicreator 3 and select environment settings.



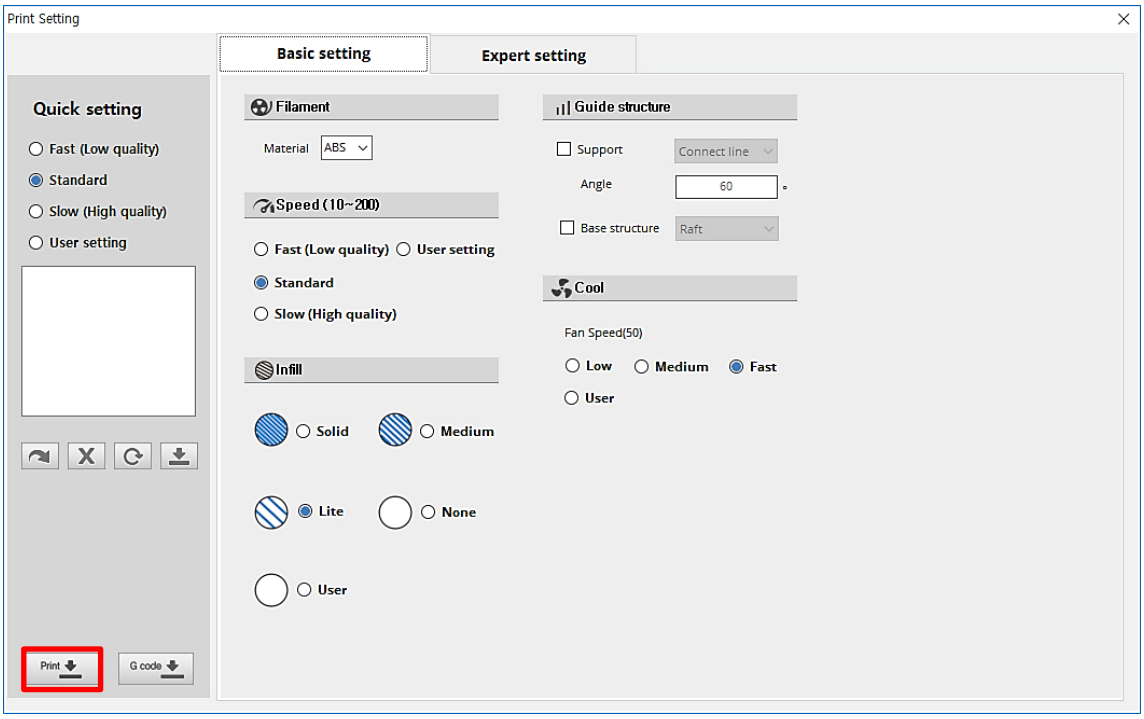
Select the 'Use Wi-Fi Connection' option.



Tap the Connect icon. Connect with the IP of the printer you want to connect. For more information, please refer to the Cubicreator3 manual.



IP can be checked in 2/2 of 'System Information'.



When the connection is completed normally, the Print icon is activated as if the connection was made with a USB cable.

10. User Interface

Menu tree

Print	
• Printing Standby	
Start (not activated)	
File	- Start
	- Up-Folder
	- Information
	- USB / I - Memory
Heating	
Filament	
• Printing in progress	
Pause	
Stop	
Heating	
Filament	

Heating
Cool Down
ABS
PLA
A100
USER

Filament
Start
Stop
Unloading
Loading

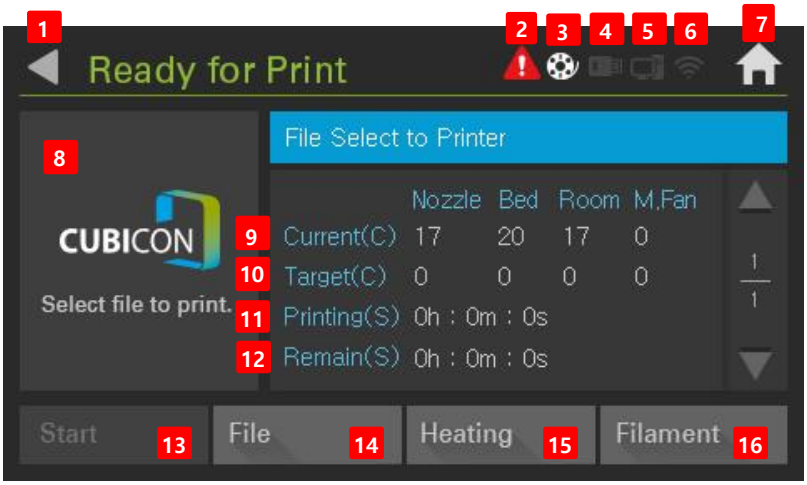
Utility	
File Manager	- Copy
	- Delete
	- Up-Folder
	- USB / I - Memory
Motion	- Extruder
	- Bed
	- Motor
	- D-Gear
Diagnostics	- Start
LED& Sound	- Store
LED& Sound	- Initialize
Auto Level Test	- Filament
Auto Level Test	- Start
System Log	- Copy

Setting	
Preheat	
Function	- Filament Check
	- File Sorting
	- Filter Fan
	- Rear Fan
	- Tilt Point
	- Tilt Offset
	- Rear Left Offset
	- Rear Right Offset
	- Network
	- Bed Thickness
Time	
Network	- Connect
	- Static IP
	- DHCP
Firmware	- Download
Language	

Information

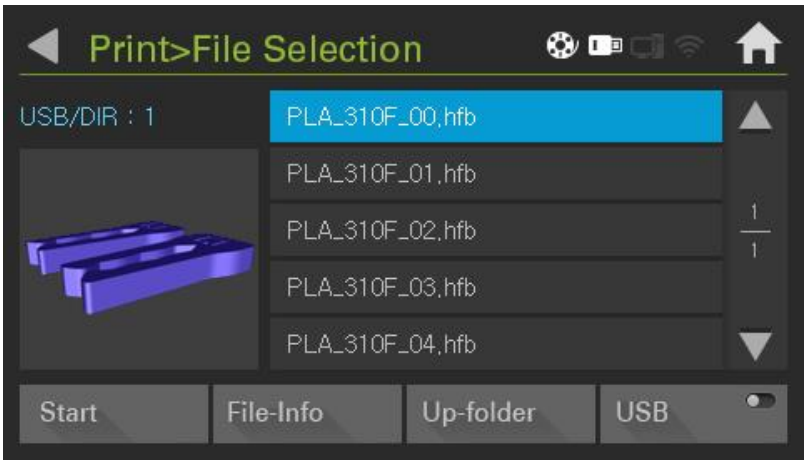
* Menu configuration available before and after output differs.
* Depending on the version of firmware and Cubicreator, menu configuration may vary.
* This document is written in Firmware1.2.5, Cubicreator3.5.

· Main > Print > Ready for Print



[1] Back	Enter the previous screen.
[2] Error	Tells the printer what the problem is. (If you press it in the main screen, it goes into Diagnostic.)
[3] Filament	Icon indicating presence or absence of a filament.
[4] USB Memory	This icon appears when USB memory is enabled
[5] PC	It is activated when connected to PC
[6] Wi-Fi	Activated when WI-FI is connected.
[7] Home	Exit to the main screen.
[8] Image	Represents an image of a file to be printed. Activated when generating G-code with Cubicreator 3.
[9] Current	Indicates current temperature.
[10] Target	Indicates the temperature set in G-code.
[11] Printing	Indicates the progress time of the model being printed
[12] Remain	Indicates the remaining time of the model being printed.
[13] Start	Deactivated on first start
[14] File	Select the file you want to print.
[15] Heating	Enter heating menu.
[16] Filament	Enter the Filament menu.

·Main > Print > file Selection



[1] Start	Print the selected file.
[2] File-Info	Shows the file information of the selected file. (From Cubicreator 3.0 or higher)
[3] Heating	Enter heating menu.
[4] Filament	Enter the Filament menu.

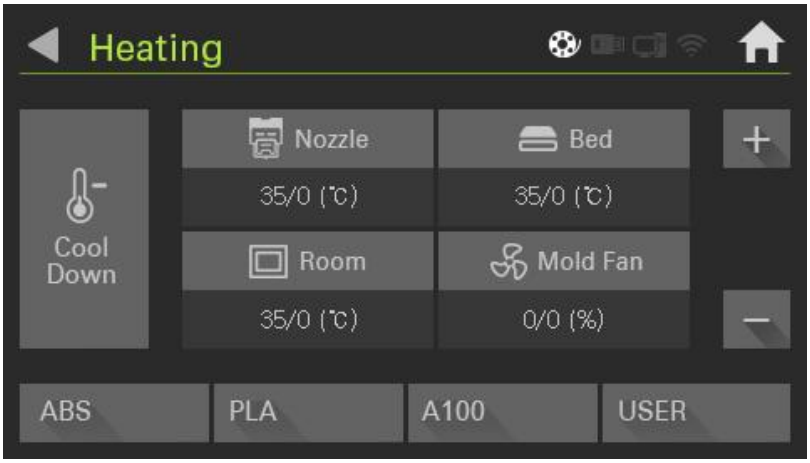
· Main > Printing...

[1] Pause	Pauses the printing.
[2] Stop	Stop printing
[3] Heating	Control the current temperature.

· Main > Pause during printing

[1] Continue	The paused file is printed after connecting the paused origin.
[2] Stop	Abort the output. (Pop-up window activated after FW1.1)
[3] Heating	Adjust the current temperature.
[4] Filament	Filament Loading / Unloading.

· Main > Heating



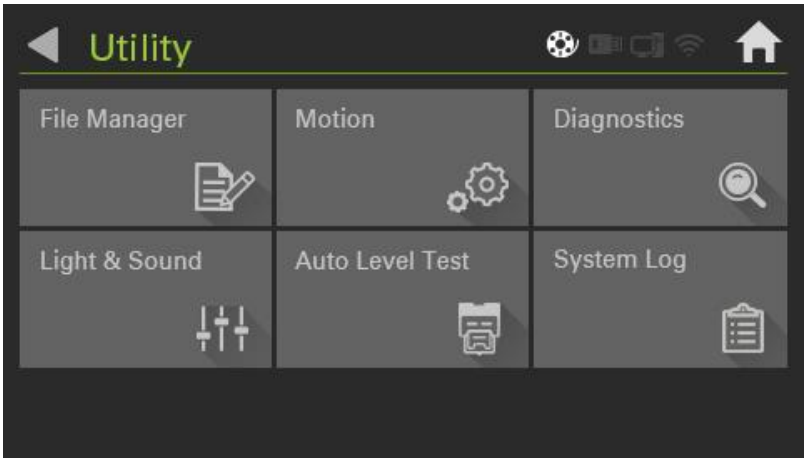
[1] Nozzle	Temperature of nozzle
[2] Bed	Bed temperature
[3] Room	Printer internal temperature
[4] Fan	You can control the intensity of the fan wind.
[5] +	You can raise the selected number.
[6] -	You can lower the selected value.
[7] Cool Down	Reset all temperature setting values.
[8] ABS	Preheat to the default setting temperature of ABS.
[9] PLA	Preheat to the default setting temperature of PLA.

[10] A100	Preheat to the default setting temperature of ABS-A100.
[11] USER	The default temperature is 230 ° C.

· Main› Filament

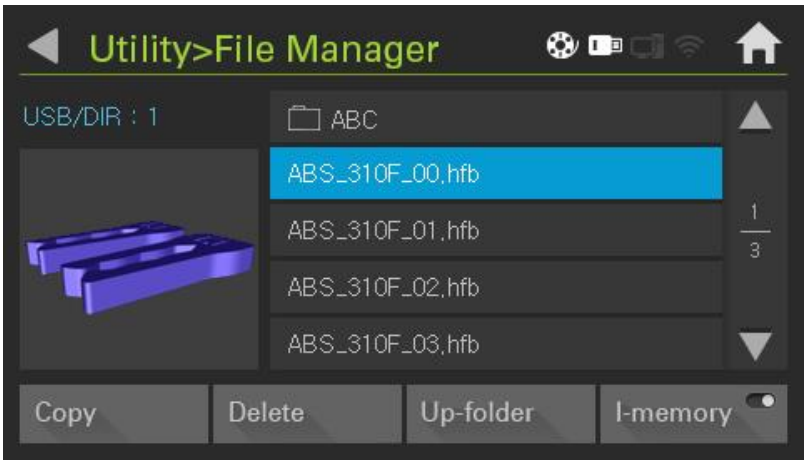
[1] Filament type	Choose Filament. (ABS, PLA, A100, customized option)
[2] Start	Starts the selected action.
[2] Stop	Stops the current operation.
[3] Unloading	Remove the filament.
[4] Loading	Insert the filament.

· Main › Utilities



[1] File Manager	Copies and deletes files in USB / internal memory.
[2] Motion	Starts the selected action.
[3] Diagnostic	It is known whether there is a problem inside printer by self-diagnosis.
[4] LED & Sound	You can adjust LED color selection and volume.
[5] Auto Level Test	Measures the flatness of the bed.
[6] System Log	Copy the saved logs

· Main > Utilities > File Manager

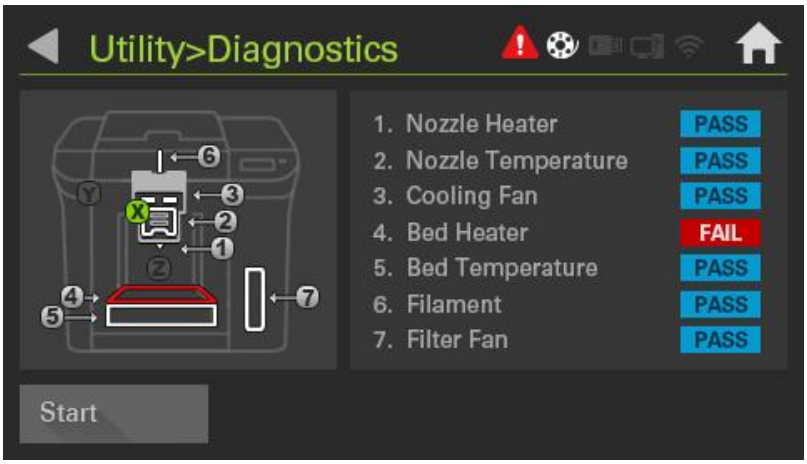


[1] Copy	Move to △ ▽ and copy the selected file.
[2] Delete	Deletes the currently selected file.
[3] Up-Folder	It exits from the inside of the folder to the parent folder.
[4]USB/internal memory	Enter USB / Internal memory.

· Main > Utilities > Motion

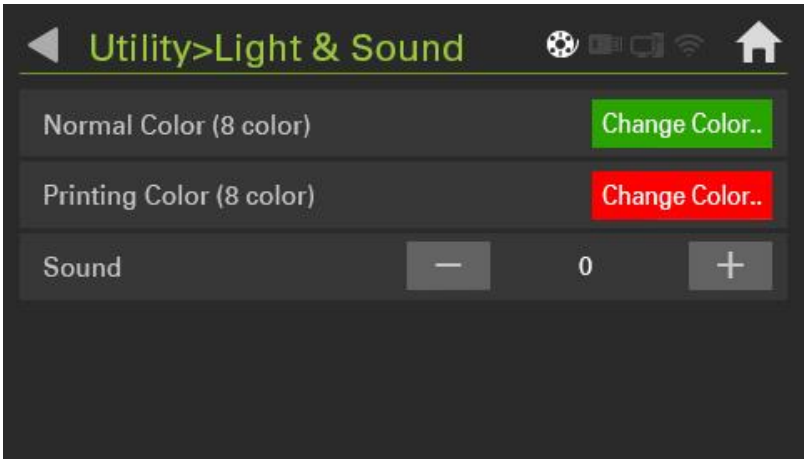
[1] Extruder	Move the extruder to the home and parking locations.
[2] Bed	Move the bed up and down.
[3] Motor	The extruder can be fixed or moved manually.
[4] D-Gear	Extruder gear can be rotated.

· Main > Utilities > Diagnostic



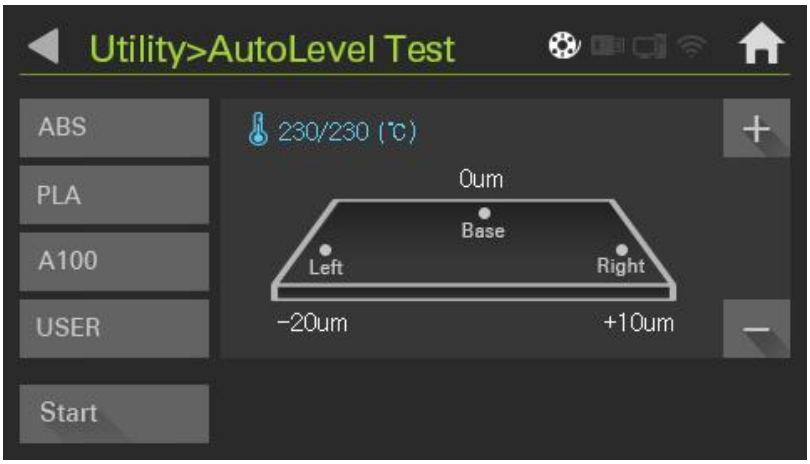
[1] Start	Self-diagnose main parts (Click the warning icon to enter this screen.)

· Main > Utilities > LED & Sound



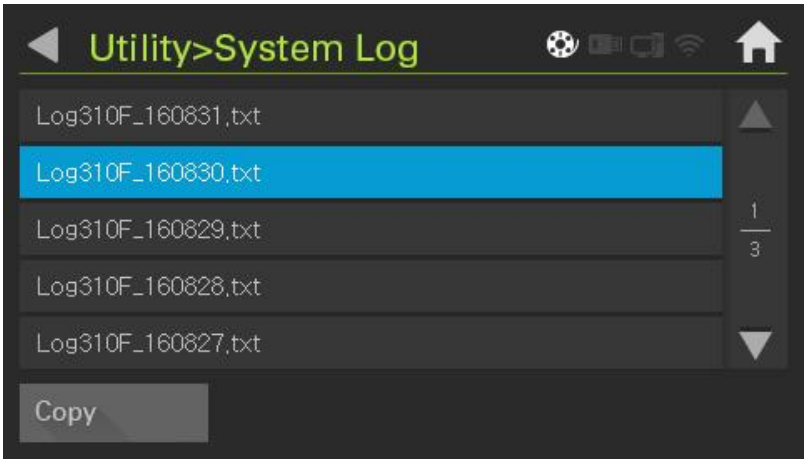
[1] Nomal Color	You can select the color of the internal light when not printing.
[2] Printing Color	You can select the color of the internal light during printing.
[3] Sound	You can set the level of the button touch sound

· Main > Utilities > Auto Level Test



[1] Start	Select the material for the filament and start the test.

· Main > Utilities > System Log

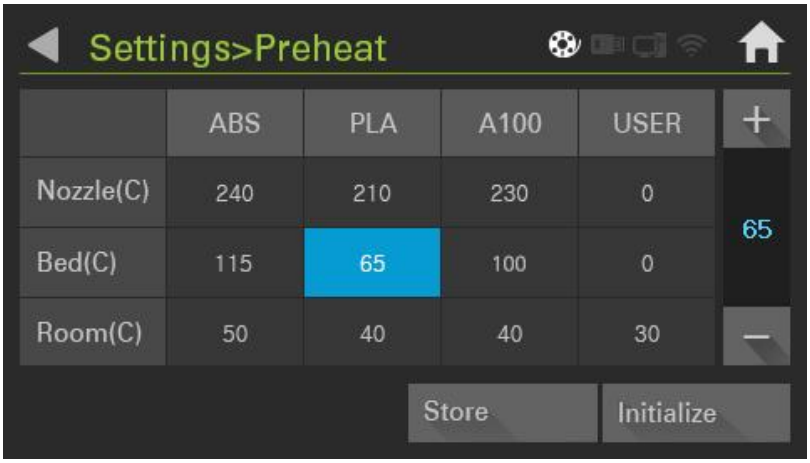


[1] Copy	Copy the system log.

· Main > Setting

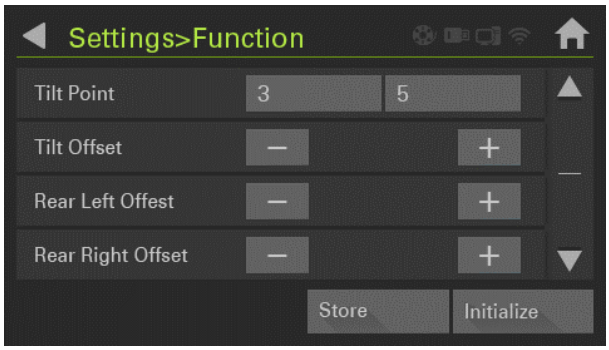
[1] Preheat	Correct the setting value of filament temperature.
[2] Function	Filament detection sensor and filter ON / OFF can be set.
[3] Time	You can set the current time.
[4] Network	The G-code can be transmitted using the internal WI-FI network
[5] Firmware	Firmware can be updated.
[6] Language	Select a language.
[7] Store	Saves the currently entered settings
[8] Initialize	Initializes the currently input settings.

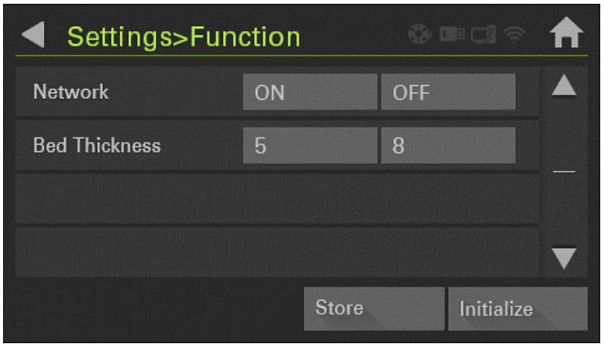
· Main > Setting > Preheat



	The user can directly set the selected temperature with the + and - buttons.

· Main > Setting > Function





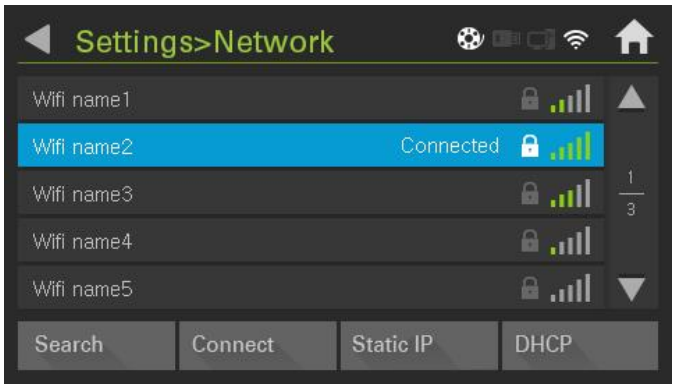
[1] Filament Check	You can turn Filament detection sensor on and off.
[2] File Sorting	Sorts the files in order by name / date.
[3] Filter Fan	You can turn the filter pan on and off.
[4] Rear Fan	You can adjust the intensity of the rear fan with the +, - buttons. It is necessary to adjust it flexibly according to the external environment temperature.
[5] Tilt Point	You can select the Tilt(Auto leveling) types. 3point Tilt type is applied to default, you can select 5point Tilt type. (From Firmware v1.25)
[6] Tilt Offset	Sets the distance between the nozzle and the bed. As you go to '-', the gap between the nozzle and the bed is narrowed
[7] Rear Left Offset	Sets the distance between the nozzle and the bed on the rear left side.
[8] Rear Right Offset	Sets the distance between the nozzle and the bed on the rear right side.
[9] Network	Turns the Wi-Fi function ON / OFF. (From Firmware v1.2.2)
[10] Bed Thickness	Sets the thickness of the bed. (5mm/8mm)

	When adhesive condition of floor lay is required to adjust, please refer to Offset settings [6]~[8]. Normally, first use [6]Tilt Offset to adjust overall offset of the bed and then, use [7]/[8] offset values to adjust Left and Right values on the rear side. To make use of this offset function practically, enough experience is required as all offset values work associated with measured values during auto leveling process.
	[5] Tilt Point needs to be used according to the number of tilt point on the bed. If 5point setting applies to a 3point heated bed, both the bed and nozzle will get damaged during auto leveling process. Please visit the official website or contact authorized distributors for the purchase of a 5point heated bed.

· Main > Setting > Time

	Set the time.

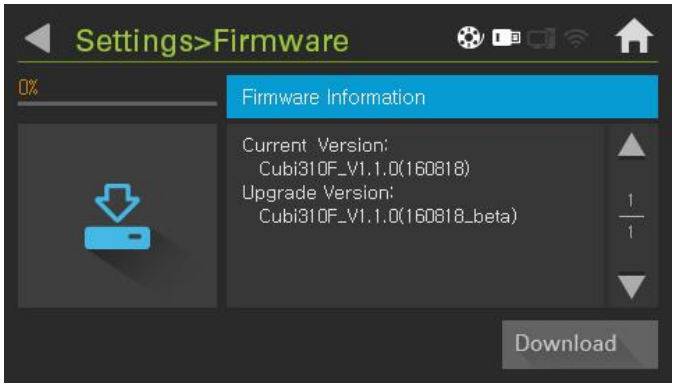
Main > Setting > Network



[1] Search	Search for Wi-Fi signals.
[2] Connect	Connect to the selected Wi-Fi.
[3] Static IP	Select Static IP.
[4] DHCP	Select DHCP IP.

Depending on the model of the wireless router, connection failure may occur depending on the compatibility with the WiFi module of the device and the usage environment.
Since it is important for the printer to transfer data reliably, we recommend using USB memory.

· Main > Setting > Firmware

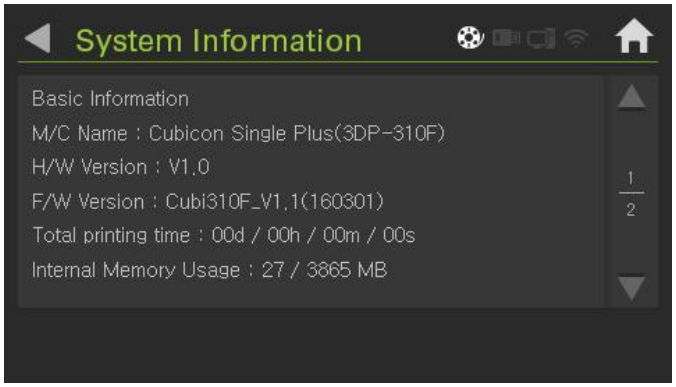


[1] download	You can install the latest firmware using USB memory. (See Updating Firmware 11-7)

· Main > Setting > Language

	English is the default language and you can choose another language.

· Information



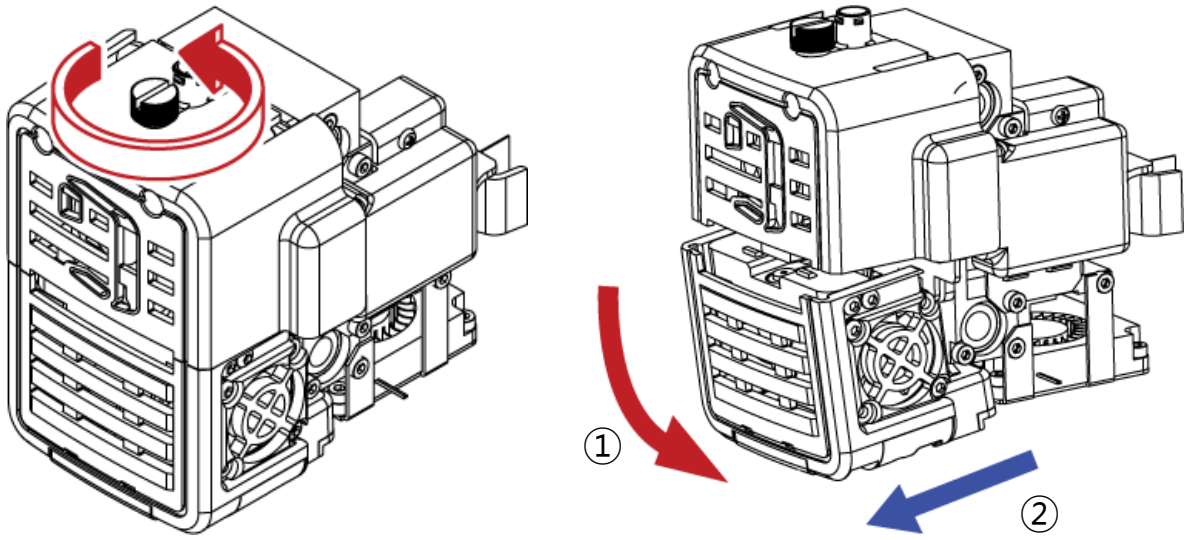
	Displays the printer's information and total printing time, internal memory capacity, and network information

11. Printer Maintenance

11-1. Extruder Attach and Detach

⚠	* Removing the detachable Extruder with the power turned on may cause the printer to malfunction due to shock. When removing detachable Extruder be sure to turn the power off before moving the nozzle down to room temperature. * If you need to remove at high temperature, the entire extruder is hot. Be careful of burns, and proceed with gloves on.
⚠	* Please note that if you remove the detachable extruder with the filament inside the extruder, it may damage the sensor or other devices * If unloading is not possible due to trouble, cut the filament from the filament insertion port of the extruder and carefully remove it by pressing the filament pressing knob when removing the detachable extruder.

(1) Detaching Extruder



Turn off the power and turn the extruder knob counterclockwise.

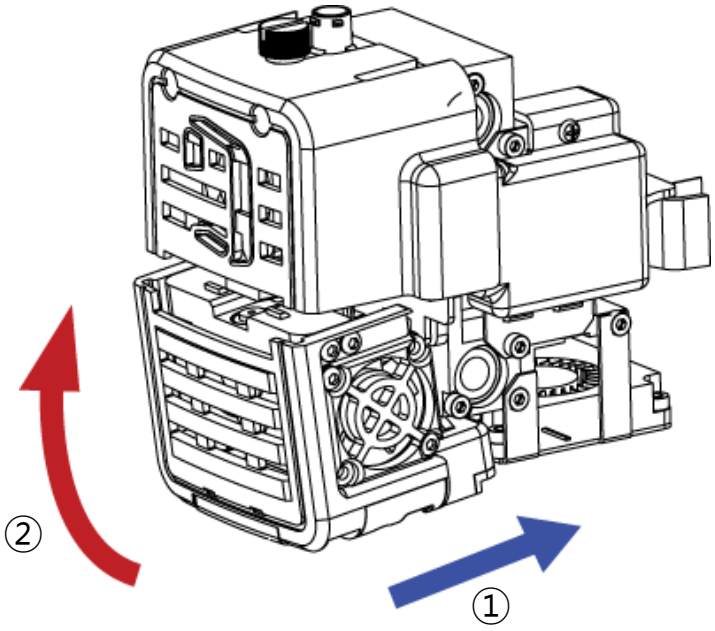
If the knob is completely loosened at this time, the Extruder may fall into the bed, so you must grasp the Extruder with one hand to loosen it.

Pull the detachable Extruder down to remove the Extruder.
Please note that it may be a bit tight because it is fitted in the fan of the fixed part.

(2) Attaching Extruder

Basically the reverse order of detachment.

Please note that there is a hole on the rear of the extruder for the molding fan, so after fitting, insert it into the fixing part until it clicks and then tighten the knob clockwise. Please do not force the knob as it requires fair amount of accuracy.



⚠	* To remove / install the detachable extruder, be sure to turn off the power of the printer and proceed when the temperature of the nozzle of the extruder has cooled down completely. * If you have to unplug or disconnect at high nozzle temperature, be careful of burns. * Be careful that excessive force applied to detachment / detachment of the extruder will damage the parts of the extruder part. * If the detachable extruder is not mounted correctly on the fixed part, or if the print is made without the fixing screw, it may cause the problem of mounting the extruder during printing, which may cause the printing to fail or malfunction. Please use after mounting correctly. * The extruder area contains electrical devices, so be careful not to touch with wet hands or cause shocks.

11-2. Replacing Nozzle kit (Single Plus-320/321)

	Replaceable nozzle kit applies to Single Plus-320/321, not to Single Plus-310. In Single Plus-310, a removable extruder of Single Plus-320/321 has to be purchased separately to make nozzle kit available. Removable extruders of both Single Plus-310 and Single Plus-320/321 are compatible with each other.

In Single Plus-320/321, a nozzle kit is designed and applied to make users easily replace the nozzle when contaminated/damaged. Users who aren't even very knowledgeable can easily handle management problems with nozzles so that you can save cost and time for after-sales service.

In case that a standard cleaning method doesn't work for problems like clogged extruders, please replace clogged nozzles with reference below.

If you are having a hard time in replacing it or worried about damage to extruder, please contact authorized service centers for help.

(1) Preparation material

Get a nozzle kit, Box wrench and heat resistant gloves prepared.

	* Do not reuse once used nozzle kit. Nozzle kit and Box wrench are available separately. * **Do not disassemble Nozzle kit(nozzle & tube) at random** as it's minutely assembled for its feature. If users disassemble it at random, it causes internal structure to change and break down and a problem in quaulity may occur during operation. * High temperature of nozzle helps comfortably perform the process of disassembling nozzle kit. Be sure to wear heat resistant gloves to prevent injuries from high temperature.

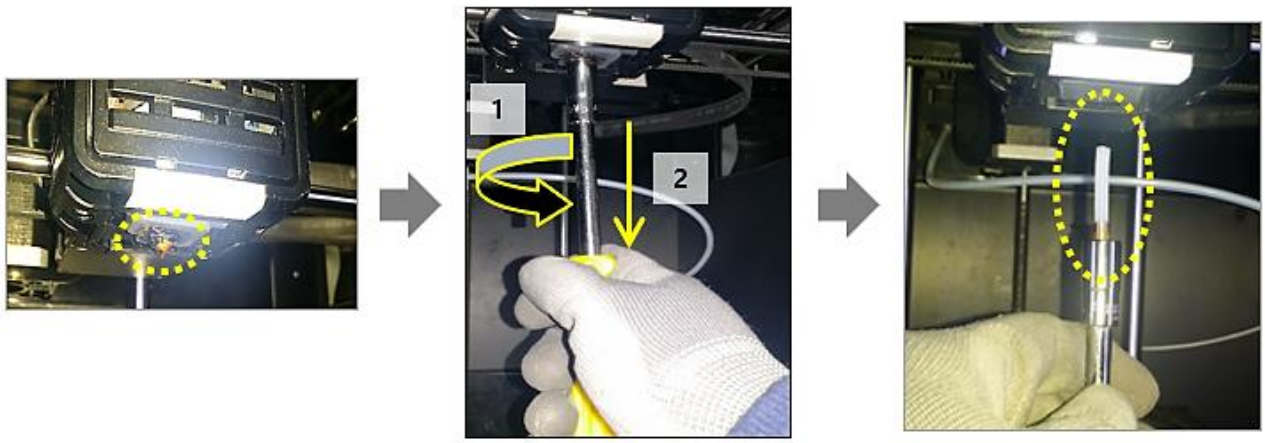
(2) Removing filament inside extruder

Remove a filament hose inserted and run **'Unload filament' to remove filaments inside.**
Even if filament is not inserted into extruder, please set the temperature according to filament that you guess is inside of nozzle. This is to melt filaments stuck or hardened around nozzle part. It helps remove the nozzle kit from the extruder.

⚠	**If you try to disassemble a nozzle kit from extruder while filament is inside, it migth become hard and be not able to be removed.** When Unloading(removing filament from extruder)process is not working due to breakdowns, please cut stuck filament off from the extruder, hold down a lever and then separate the nozzle kit.

(3) Separating a nozzle kit

Take a firm grip of extruder body, first,
Slot a box wrench into the nozzle and **turn it counterclockwise (1)** so that the nozzle kit can be removed (2). At this moment, the nozzle is too hot. Please put heat resistant gloves on and keep working. The separated nozzle kit is also in high temperature and be careful not to get burned.



In case a Teflon tube assembled with nozzle kit is left inside, try to remove the tube by pushing down with a cleaning pin or a line of filaments through the infeed.

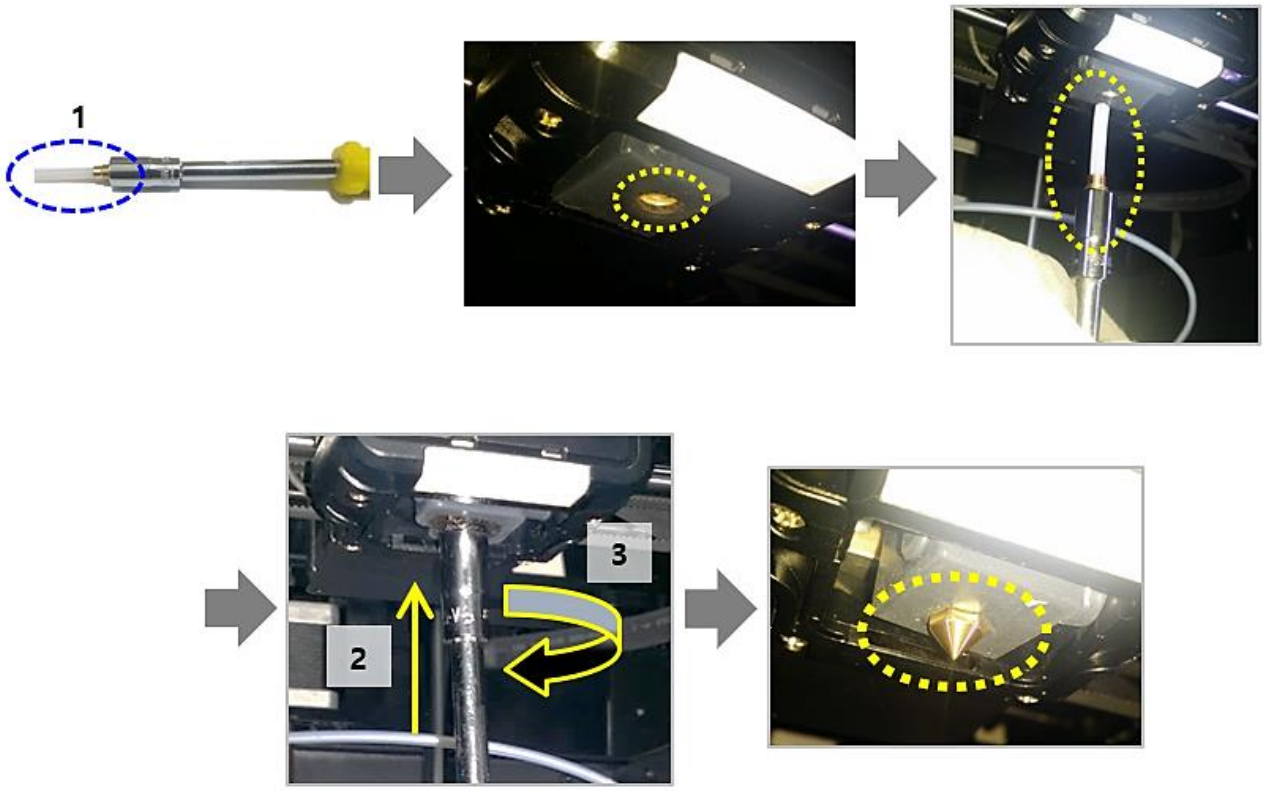
⚠	* **When you separate a nozzle kit, please take a firm grip of extruder body**. This is to prevent probable damage to machine from a box wrench turning. * When filament is inside extruder and removing the nozzle kit, please hold down a lever first and try. * Please note use of excessive force may cause a nozzle kit to be damaged or broken. * If you are having a hard time in relacing it or worried about damage to extruder, please contact authorized service centers for help.

(4) Assembling a nozzle kit

Slot a box wrench into a new nozzle kit (1), a process of assembling the new nozzle kit proceeds in opposite to disassembling it.

Take a firm grip of extruder body, first.

Put the new one into a heating block (2) and then, assemble it with the block **by turning the wrench clockwise (3).**



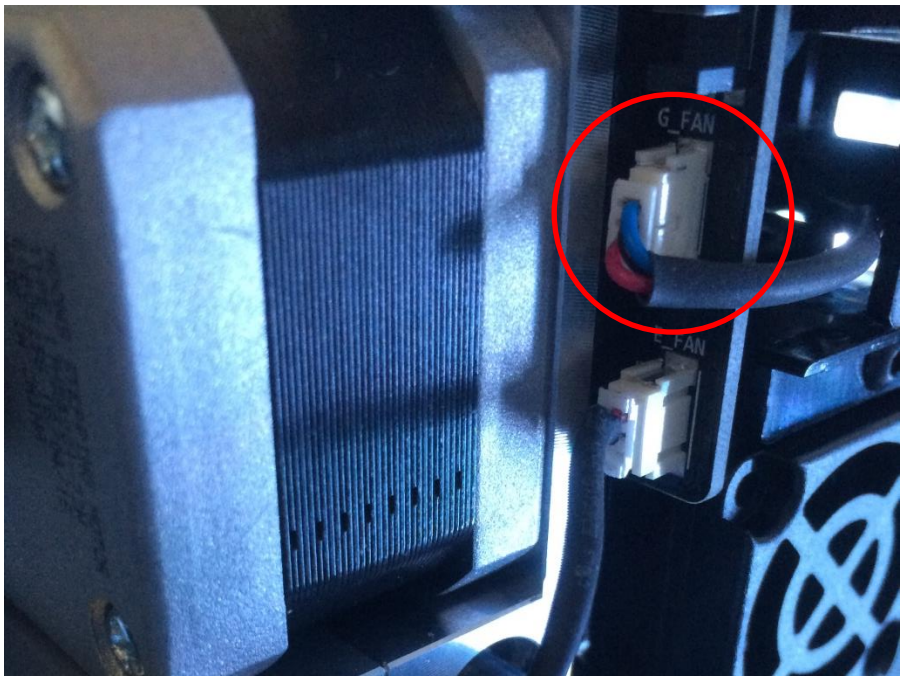
Please note use of excessive force may cause the heating block to be damaged or broken.

	* Use of excessive force may cause parts to be damaged or broken during the process of assembly and disassembly. * If you are haing a hard time in replacing it or worried about damage to extrduer, please contact authorized servcice centers for help.
	* The life span of nozzle kit can depend on service environment and management condition. With consideration of an extruding state, please do maintain nozzles. * The maximum temperature of extruder for CUBICON Single Plus is 260℃. Please set the temperature to less than 250℃ for use. Otherwise, the life span of nozzle kit will be shortened.

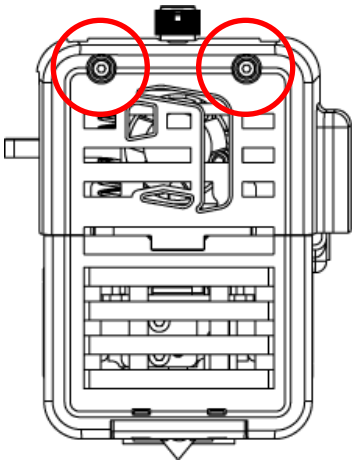
11-3. Extruder Management

The nozzle of the extruder is located at the bottom of the extruder and is the part that the filament melts and makes the print.
If the nozzle is used for a long time as a consumable part of the printer, normal wear, filament residues and filament impurities could be accumulated and should be replaced. However, just in case that proper care is not done, problems will occur earlier than the normal lifespan and the printing quality will be poor. Please clean the nozzles periodically in order to use the nozzles with a uniform printing quality.

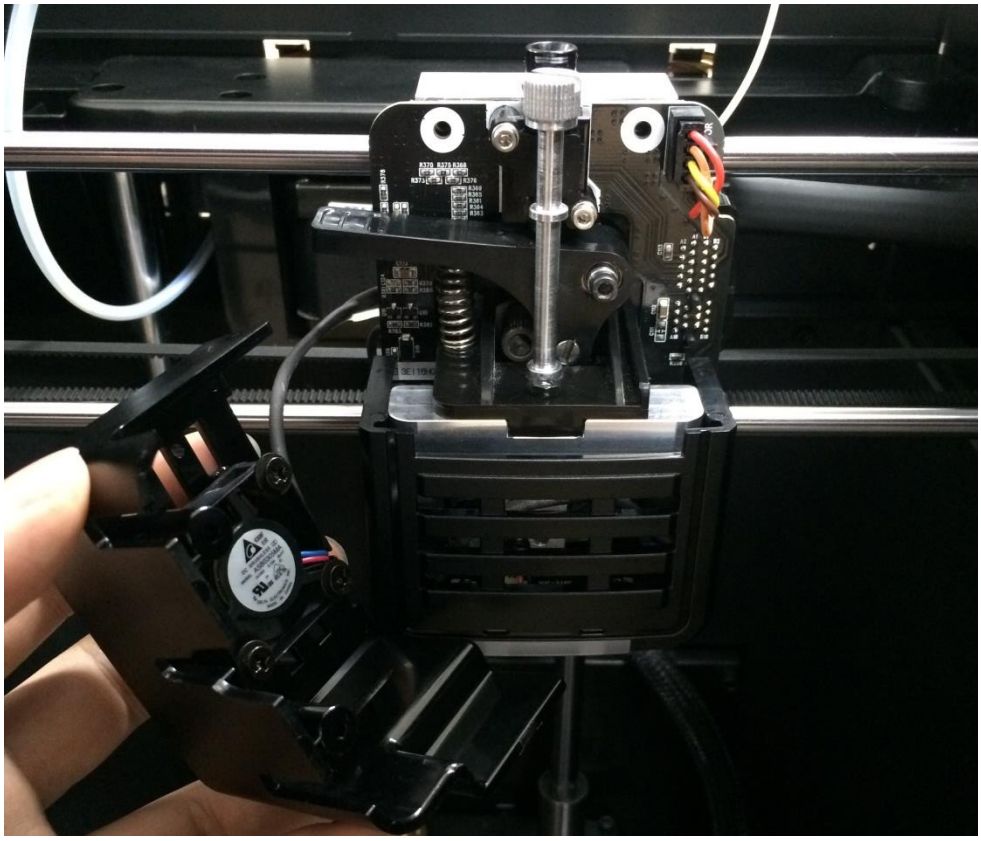
(1) Cleaning contaminated Gear Part



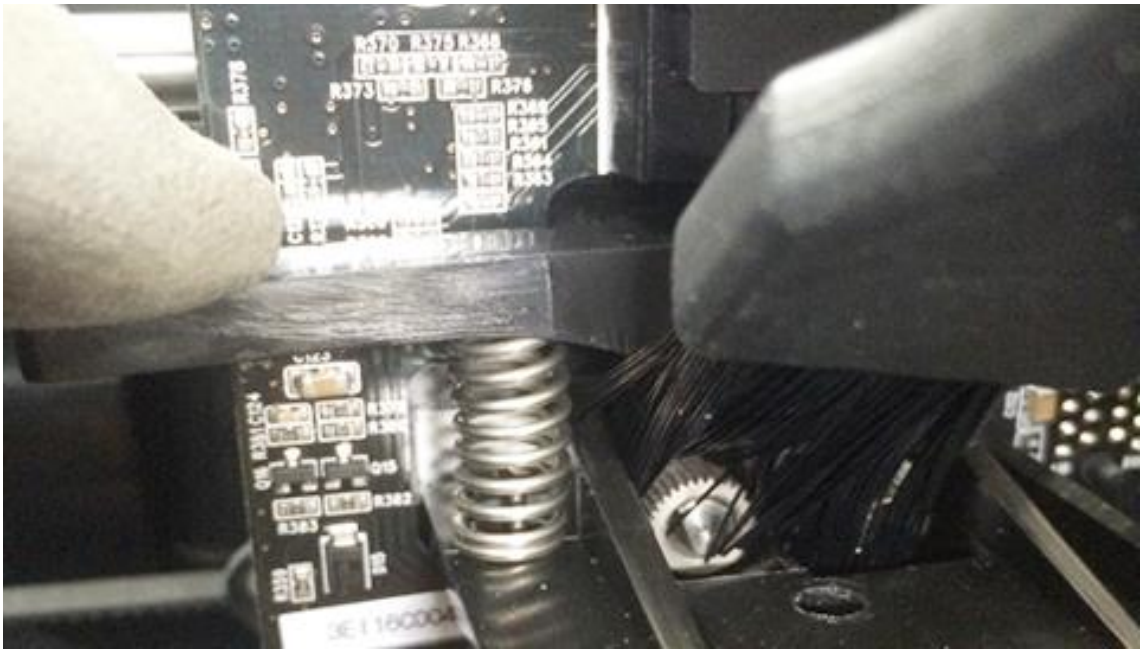
Turn off the power and unplug the G_FAN connector on the back of the extruder. **Be careful not to damage the cable when pulling the cable.**



Remove the bolt in front of the cover by turning it counterclockwise with a wrench of 2Ø in diameter.



Be careful that the cover is equipped with a gear fan. Remove the cover, and then remove the filament residue and filament dust around the gear with an anti-static brush



Clean the dust with the antistatic brush after pressing the handle.

With the extruder removed, turn on the power and rotate the Extruder gear with the D-gear. Be sure to turn the gear while pressing the handle. When cleaning with air compressors, etc., powder may get stuck on the shaft, causing deterioration of quality and equipment failure.

⚠	* When cleaning the gear part, be sure to turn the gear while pressing the handle. Moving the gear without pushing may cause gear wear. * When cleaning with air, etc., be careful that the powder may stick to the shaft and cause the equipment to malfunction. * Never put conductive material in the area to be cleaned with power on. It leads to the shock of equipment

(2) Clean contaminants on the filament path

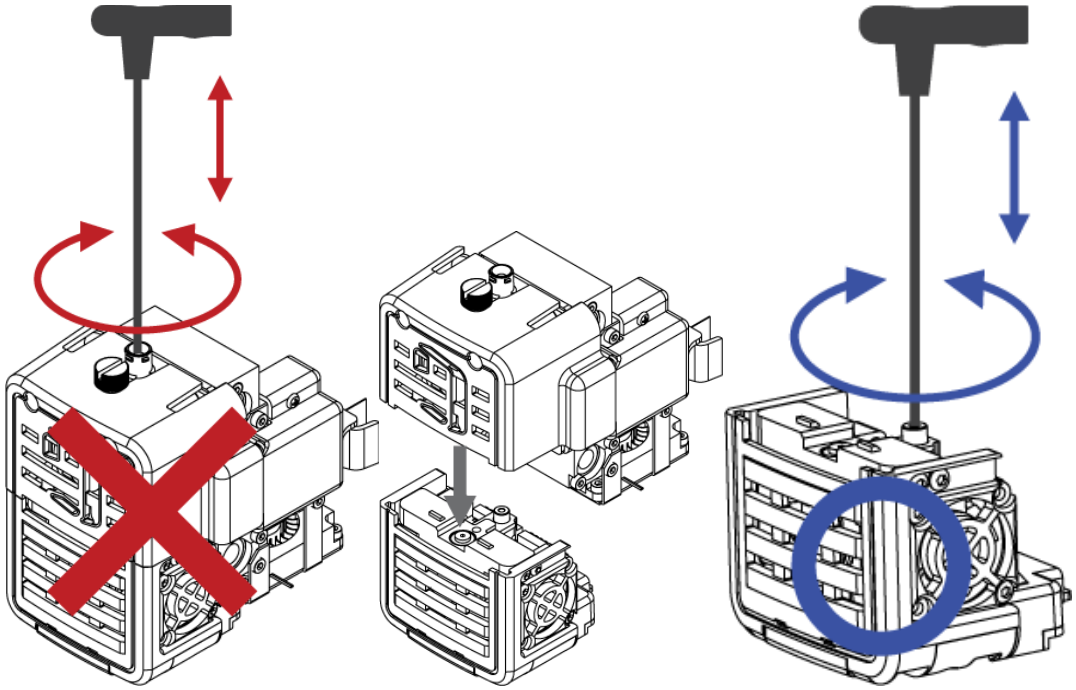
It is not recommended to use all of the basically supplied materials in combination with an extruder. Filaments have a clear difference in characteristics and temperature and do not occur immediately because of this. If you use ABS with PLA, even if you think you removed the inner filament, there is PLA residues on the wall. These filament deposits will accumulate continuously and eventually clog the nozzles, causing printing failures.

(The picture below shows the consequences from mixing many filaments.)

If there is a filament stuck in the filament inlet of the detachable extruder, remove it with tweezers.

(3) Cleaning the inside of the nozzle

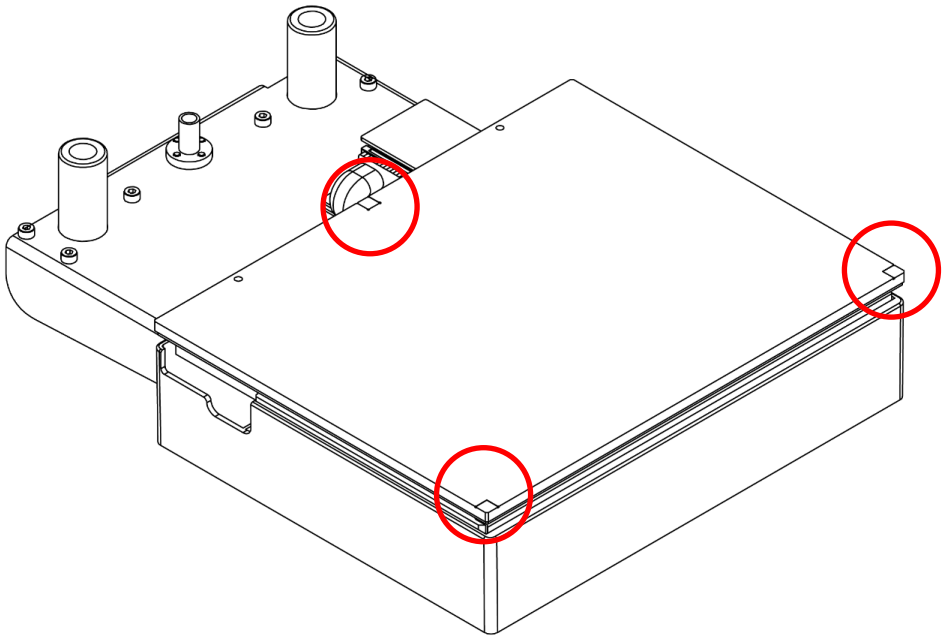
Cleaning of the space between the inlet and nozzle is basically possible with Filament Loading. If it is not possible to proceed with the loading due to the deformation of the internal filament due to the mixed use of materials, clean the inside with the nozzle management pin. Be careful not to damage the inside by forcefully pushing it with excessive force



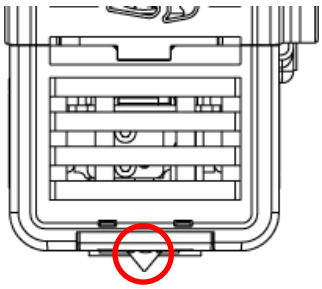
⚠	* Please wear gloves and be careful about burns as they must be done in a hot condition. * When holding the extruder in the hot detachable part, hold only the plastic part. Metal parts and rubber parts are hot. * Nozzle management pins need not be used frequently unless materials are frequnctly mix used.

11-4. Auto leveling contact area management

The CUBICON Single Plus recognizes the gap between the heating bed and the nozzle, and automatically adjusts the bed height by touching the level contact point of the extruder nozzle at the level contact point of the heating bed. If there is dirt on the contact point between the tip of the nozzle and the heating bed, the auto leveling will fail because of poor electrical connection. Clean the dirt and use it so that normal Auto Leveling process is achieved.



The three red circles in the figure above are used as level contacts when auto leveling. **(There are extra two (2) leveling points to 5 point heated bed on the rear side at each corner.)**
The level contacts of the heating bed will be contaminated during the Auto Leveling process. If this contamination is not removed, the molten filament will become stuck and Auto Leveling will fail.
Before printing, clean the contacts using tweezers or scrapers.



The nozzles in the above extruder figure are the direct contact points during Auto Leveling. When you start the output, cleaning is basically carried out. Please clean with a wire brush attached to the supplied electrification brush.

11-5. Heating Bed Management

The heating bed is the floor where the filament is melted and extruded to form the prints. It is easy to be contaminated with filament or filament pieces melted when molding, and if the print continues to be polluted, contaminants will stick to the printed molding, which will contaminate the molding or prevent the molding from sticking to the heating bed during printing.

Before and after the printing, the heating bed should be kept clean to prevent the quality of the printing from being degraded by the contaminants.

① Filament debris from the heating bed is removed using tools such as tweezers, scrapers, and brushes. When using a tool, be careful not to damage the surface of the heating bed. If the surface is damaged, and the coating peels off, the prints will not stick so well.
② The filament remaining on the surface of the heating bed during molding may not be removed well. To remove this serious contamination, wipe out the contaminated material by rubbing it with an appropriate amount of high purity acetone.

* Use only high purity acetone to clean the heating bed.
* If not severely contaminated, it's recommended to clean it with a dry fabric.

	* The surface of the heating bed may appear blotchy, but this occurs during the manufacturing coating process and is not related to heating bed properties. * The coating life span of the heating bed depends on the user's printing habits. Replace the heating bed if the prints fall too easily. * The heating bed of CUBICON Single Plus can print without using Kapton tape when the ABS / PLA filaments offered by us are printed in the proper temperature condition. However, if you want to print using Kapton Tape according to your output habits or output model, you can purchase the Capone Tape separately.
	When the filament is melted and printed, the molten filament hardens and shrinks, which may cause lifting from the bottom of the print. It can be improved by printing temperature condition, adhesion of heating bed, or slicing option change, but it is mostly a phenomenon that varies depending on the degree of shrinkage. Consider a design method that can help distribute the shrinking force when designing 3D models.
	* Do not use solvents other than acetone in the heating bed as it can damage the coating. * When using acetone for cleaning the heating bed, be careful not to use acetone other than the heating bed as it may cause damage to the product. * When using acetone, please be careful to use in a well ventilated place. (Be sure to follow the safety regulations on the acetone packaging.) * In the case of using some wet tissues, do not use a wet tissue because some of the cleaning component can contaminate the heating bed coating. * Do not remove the heating bed or apply excessive force to remove the prints. It may cause malfunction due to shock. * Auto leveling is calibrated to the non-coated area on the bed. Please remove any foreign material before printing.

11-6. Filter change

CUBICON Single Plus uses a clean filter with a triple layer of Purafil catalyst, HEPA filter, and charcoal deodorant filter to filter contaminants that can occur in FFF type printers.

If a lot of contaminants are trapped in the clean filter, the performance of the filter may deteriorate as well as obstruct the operation of the filter fan, which may cause malfunction.

If the clean filter contains a lot of contaminants, do not clean it but replace it.

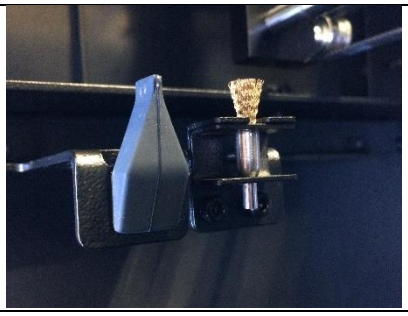
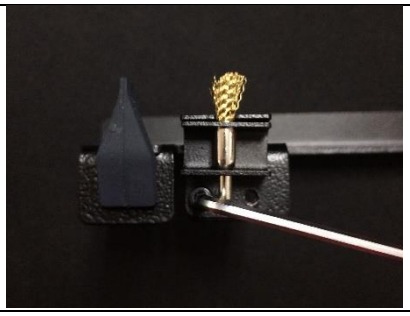
The replacement period of the clean filter varies depending on the operating environment and the user's printing habits, but it is recommended to replace the clean filter every 6 months in a normal environment.

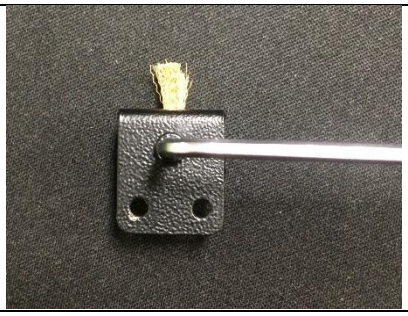
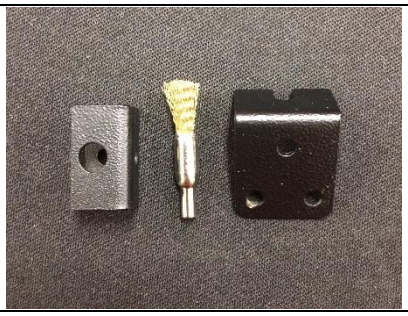
	Please install the clean filter in the normal direction of the case. If the mounting direction is wrong, the filter performance will decrease and it may cause blowing fan trouble.

11-7. When and how to replace rubber brush & wire brush

The rear left side of the printer is equipped with a nozzle cleaning brush with a heat-resistant rubber to clean the tip of the nozzle, and a metal brush. If there are many filament residues on these brushes, it is recommended to remove the filament residue because it causes secondary contamination of nozzle tip. These two brushes are consumables, so if damage occurs during use, replace them with the designated AS centers.

Nozzle Cleaning Brush replacement time is when the soles are no longer functioning properly due to filament debris. In this case, it is necessary to replace it. Continuous use without replacement will cause Auto leveling failure and nozzle shock.

① check the Location of wire brush and rubber.	② Turn it counterclockwise with a 2.5Ø wrench to loosen it.
	

③ Turn it counterclockwise with a 2.5Ø wrench to loosen it.	④ Prepare the wire brush to be replaced.
	
⑤ Assemble as shown in the picture.	⑥ Turn it clockwise with a 2.5Ø wrench.
	

* Assembly is in the reverse order of separation by ③ → ② → ①.
* The position of the cleaning brush nozzle has been changed from the side of the bed to the side of the body.

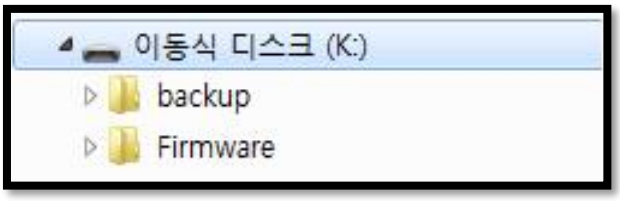
11-8. Firmware Update

You can install the latest firmware by downloading the firmware from the CUBICON homepage.

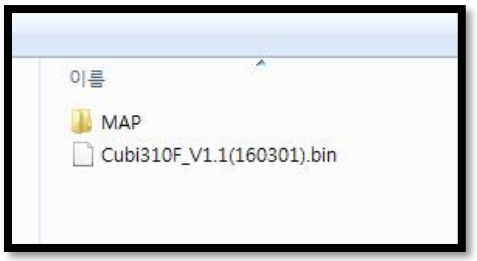
(1) Installing Firmware with Cubicreator

Setting - Select Update Firmware, select the file to install, and install it as the latest firmware. (Please refer to the Cubicreator manual for details.)

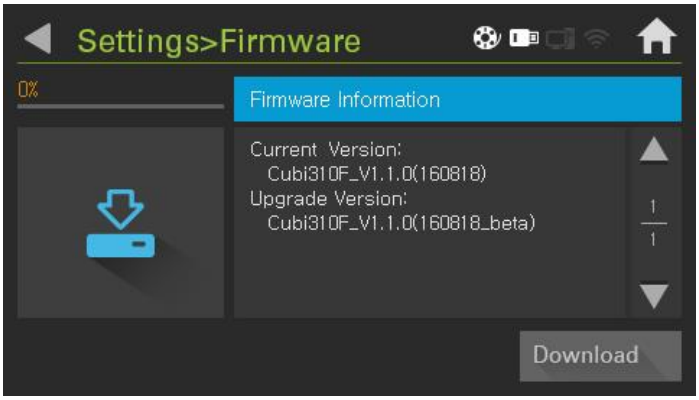
(2) Installing firmware using USB memory



Create 'Firmware' folder in Root folder of USB memory.



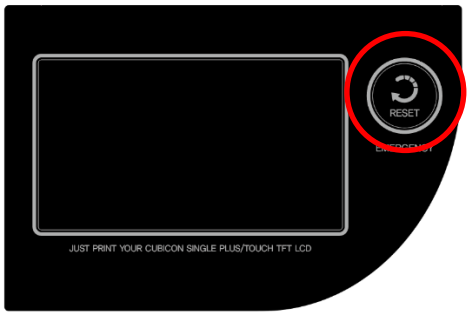
Copy the UI file and the latest firmware inside the 'Firmware' folder.



Insert USB memory into CUBICON Single Plus and select the Firmware icon in Setting. Select the Download button to start the firmware update. Firmware update completed - Initialize once after reboot. Initialize takes about 1 minute.

11-9. Firmware recovery

CUBICON Single Plus has the ability to return to the previous firmware in case of problems during firmware update.
Turn off the printer and press and hold the Reset button. After turning on the power, press and hold the Reset button for 20 seconds to recover the previous firmware.



When the touch LCD is reset and rebooted, it can be confirmed that the recovery is completed successfully.

12. Trouble shooting

	* Problems with the printer hardware can be resolved using {Setting> Function> Initialize} in the function menu or by firmware update. * The output quality may vary greatly depending on the model, depending on the output condition or the Cubicreator option setting when generating the G-code. Therefore, check the quality using various output conditions and options.
	If there is a problem with the equipment, it is important to clearly identify the problem. Please take pictures of the modeling file (STL), hfb (hvs) file, problem pictures and videos of the time, so that you can refer to them for customer support.

1) I cannot see the data on the USB memory.

→ CUBICON Single Plus only supports FAT32 type format file system.

→ CUBICON Single Plus only supports English File name. If you use a file name in another language, the character may be garbled or appear blank.

→ If you put a "." Comma in the file name, it may not output. (Recognized as an extension after ".")

→ The LCD screen of CUBICON Single Plus only shows files with extensions * .hfb and .hvs. Check whether the file has been copied normally in the USB memory.

→ Only 255 files of USB memory on printer can be recognized. Organize the File properly.

2) USB memory data is not printing.

→ Make sure the selected file is G-Code with the extensions * .hfb, * .hvs.

CUBICON Single Plus can only use G-Code (extension * .hfb, * .hvs) files that are sliced using Cubicreator. G-Code files using other slicing programs will not print and may cause damage to the equipment.

→ On environment setting In Cubicreator, check if product model is set to **"CUBICON Single Plus (subdivided into 310/320/321 etc.)"** if not, an output error may occur.

→ The data on the USB memory may be damaged. Please recreate the G-Code file.

→ If you use Cubicreator to copy to memory after slicing, it may not be print. Use Cubicreator to check that the corresponding G-Code file is normal. If the output path shown by G-Code appears to be an abnormal path, the G-Code is wrong.

→ The 3D model is wrong and slicing through Cubicreator may be wrong. Import the original 3D model from Cubicreator to check if the slicing problem or G-code conversion is normal, and use a separate 3D model checking program to check whether the 3D model is abnormal.

→ You may have trouble saving data to USB memory due to security program or virus of your PC. Please check and take action and try again.

3) Cannot print from PC with USB cable connection.

→ Make sure that there is no problem connecting the USB cable between the PC and the printer.

→ Make sure that the driver for CUBICON Single Plus is properly installed in your PC.

→ On environment setting In Cubicreator, check if product model is set to **"CUBICON Single Plus (subdivided into 310/320/321 etc.)"** if not, an output error may occur.

→ Check your PC for a problem with viruses, remove the problem, and then reinstall the driver.

→ Communication problems between PC and printer may cause connection problems. Reconnect the USB cable, restart Cubicreator, or turn the power button on and off.

4) I cannot print with PC and WI-FI connection.

→ Make sure your PC and printer are connected to the same router.

→ On environment setting In Cubicreator, check if product model is set to **"CUBICON Single Plus (subdivided into 310/320/321 etc.)"** if not, an output error may occur.

→ Please locate and use the printer and PC in which Wi-Fi signal is great.
Depending on a wireless router, a connection failure may occur caused by compatibility and service environment with Wi-Fi module in the printer. **It's important for the printer to transfer stable data, so please use USB memory stick.**

→ Initialize the printer's settings or turn off the power and try again.

5) The filament is not extruded into the nozzle.

→ Make sure it is a genuine Filament. Some filaments have different temperature conditions than the original filament, and when used with CUBICON Single Plus, they are subject to severe thermal deformation, which can cause extruder failure. **Printer failure due to the use of non-approved Filament is excluded from the free AS warranty.**

→ Ensure that the filament feeds smoothly. If you have problems such as twisting or loosening the filament on the spool, loosen the filament and rearrange it. Filaments that are twisted or unwound can cause persistence problems, so it is recommended that you keep them organized.

→ Filaments contaminated with environment such as moisture or dust may be different from those of the original opening. The use of these filaments can cause malfunctions such as extruder clogging. Opened filament should be used promptly as soon as possible. If it is necessary to store it, please keep it for a short period of time by blocking the moisture / dust with vinyl etc. while it is fixed to the spool.

→ Make sure that the thickness of the supplied filament is not too thick or thin. CUBICON Single Plus should only use 1.6 ~ 1.9mm diameter filament for accurate supply of filament. If a thinner or thicker filament is used, the filament may get stuck in the equipment or cause the equipment to fail.

→ If the filament is twisted or caught in the extruder, there will be problems in extrusion and extrusion will not occur. Remove the detachable extruder to remove and use the filament in question. Particularly for Filament with low output temperature, extruder inner twisting problem can easily occur. If the temperature inside the equipment is reduced, twisting problems may be improved.

→ Make sure that the attachment / detachment of the extruder is correct. If there is a problem with

mounting, an error message may appear on the LCD screen.

→ Check that the extruder temperature conditions of the printer and the filament in use are correct.

→ If the nozzle is damaged, replace the nozzle. The nozzle is a consumable item. Replace using AS service

6) The printout does not stick to the floor (heating bed).

→ Make sure it is a genuine Filament. Some filaments are not adhered to our heating bed, which can cause equipment failure during printing.

→ Filaments contaminated with environment such as moisture or dust may have different characteristics from those of the original opening. Adhesion to the heating bed may be poor when using such a filament. Opened filament should be used promptly as soon as possible. If it is necessary to store it, please keep it for a short period of time by blocking the moisture / dust with vinyl etc. while it is fixed to the spool.

→ Remove contaminants from the heating bed. Wet tissue sold on the market can damage the heating bed coating. Never use a wet tissue on a heating bed.

→ Make sure the temperature conditions of the filament, heating bed and extruder are appropriate. The heating bed of the CUBICON Single Plus should be in the proper temperature condition with the filament used, and this temperature may vary depending on the type of filament, model, and output environment.

→ Make sure that the area attached to the heating bed is too small or the molding floor is irregular. You can improve by using the Floor Auxiliary option when creating a G-Code or slowing down the first layer output.

→ Use an appropriate masking tape if necessary. Depending on the modeling model or type of filament, it may be advantageous to apply a separate heat-resistant tape, such as Kapton tape, on the heating bed to bond the molding. Correct the Tilt Offset as much as the thickness of the tape that will be exposed to the edge contact area that becomes auto level.

→ Please check whether coating on the heating bed is damaged or that the heating bed is bent excessively. In this case, the heating bed should be replaced. The heating bed is a consumable. Replace with AS service.

7) Part of the printout, mainly the bottom floor rim falls off the floor.

→ "6) The printout falls without sticking to the floor (heating bed)." Check the situation and take action.

→ Some improvements can be made with options such as internal fill density when creating G-Code.

→ This is caused by the shrinkage of the material in the printer using the heat melting method. Adjust the output conditions (extruder, heating bed, printer internal temperature) or use materials with less shrinkage. However, shrinkage can be improved slightly depending on the material, but the most effective way to modify the model to improve the shrinkage is to use the natural phenomenon when the molten filament solidifies.

8) The middle of the print is split.

→This is caused by the shrinkage of the material in the printer using the heat melting method. Adjust the output conditions (extruder, heating bed, printer internal temperature) or use materials with less shrinkage. However, shrinkage can be improved slightly depending on the material, but the most effective way to modify the model to improve the shrinkage is to use the natural phenomenon when the molten filament solidifies.

→When creating G-Code, you can improve some options such as inner fill density.

* Quality problems such as warpage caused by shrinkage, cracking and so on may occur and be worse commonly in cold environment like winter season. In this case, keep a place where 3D printer is located warm moderately.

9) The print does not fall from the floor (heating bed).

→ Wait until the heating bed has cooled down sufficiently. Forcibly releasing will damage the heating bed. The CUBICON Single Plus heating bed hold the print to the floor during the printing process and the print separate easily when the heating bed cools down after the printing is completed. The temperature at which the print falls depends on the filament and molding model used and the surrounding environment.

→ If the molding does not fall even after the heating bed is sufficiently cooled off (room temperature), use some flat scraping object by shoving it into the bottom part of the print.

→ If the scum remains on the heating bed, the scum may stick to the print and does not fall off the bed. Keep the surface of the heating bed clean.

→ If the coating on the heating bed is damaged, the heating bed should be replaced. Please use AS service.

→ ABS-A100 filament, a Genuine Cubicon filament material, features low shrinkage and high adhesiveness to the bed. Due to its characteristics, it may be slightly difficult to remove a print from the bed. When using ABS-A100, try to set the bed temperature to less than 100℃.
For a print including wide adhesion surfaces, the temperature should be at under 100℃.

10) The print is completed, but only a part of the model is printed, and some part of the print in certain extents is not printed or strangely printed.

→ "5) Filament is not extruded into nozzle" Check the situation and take action.

→ Check the printing model and G-Code. If the model is abnormal, there may be a problem in creating G-Code. Retry after revising the model.

→ Depending on the model or on the support stand, etc., it may interfere with the print of the part already printed and the support, which may cause the printing problem. It can be improved by changing the slicing method (adjusting slicing options, changing direction, etc.).

→ Remove contaminants inside the nozzle.

→ If there is no abnormality in the model and the problem persists, it is necessary to replace the nozzle.

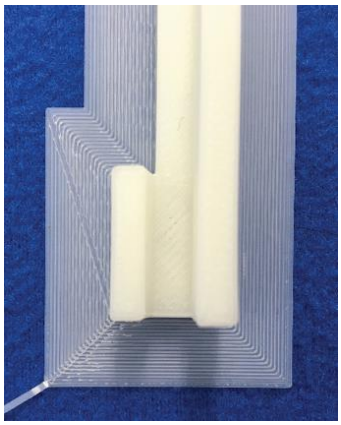
11) Floor layer is not level and equal.

→ Remove the cause leading to auto leveling failure and try again. Auto leveling failure generally results from leveling points on the bed, contamination of nozzle tip, environmental change such as vibration during auto leveling process.

→ If a gap between nozzle and bed is too close compared to the standard on the bed, a floor layer will become thin and get piled up. On the other hand, the gab is too far and the floor layer will have gaps in each line. This is a limit that printers may have as it's not possible to make the surfaces of nozzle tip and of heating bed perfectly parallel.

This problem may differently occur due to equipment condition, environmental influences and types of filament and so on. Therefore, it's difficult to control precisely and it is recommended to take a post processing step or use a raft setting as a base structure or apply extra tapes to the bed. Another way is to adjust offset values in order to minimize/reduce errors when printing.

Too close between nozzle and bed



Suitable between nozzle and bed

Too far between nozzle and bed

12) It does not print due to Auto Leveling fails.

→ During Auto Leveling, make sure that the vibration of surrounding environment does not affect the equipment. If vibration affects the equipment, the Auto Level may fail.

→ Before starting the printing, the printer initiates the bed's Auto Level. If Auto Leveling fails for any reason (the printer automatically tries Auto Leveling several times), the printer stops printing.

→ Continue to maintain Auto Leveling contact point.

→ If you continue to have problems, you need to replace the extruder cleaning brush, heating bed, etc. or get AS service.

→ Auto Leveling may fail depending on different temperature and filament characteristics when using non-approved Filament.

13) Filament detection sensor does not work normally.

→ Make sure that the diameter of the supplied filament is 1.6 ~ 1.9mm.

→ Flexible filaments such as TPU can cause the filament to be pushed into the feed detection sensor. In this case, please disable filament feed detection function. (Setting〉 Function〉 Filament Check "Off" in the menu)

→ The filament detection sensor is a consumable when used for a long time. Replace with AS service.

14) The print stops during printing.

→ Check the power source

→ If the problem persists, please use AS service after recording the problem of occurrence, such as in a picture or video.

13. Specifications

Size and weights	
Product size	554x579x524 mm
Weights	~25kg (~55lbs)
Packaging size	640x630x610 mm (25.1x24.8x24.0 in)
Packaging weights (main body and accessories)	~32kg (70.1lbs)
Temperatures	
Ambient temperatures	15 - 35 °C
Storing temperatures	0 - 35 °C
Electricity	
AC Input	Free Volt 100-240V~, 50/60Hz, 5A
Power Supply	24V DC @ 25A
Power consumption	~500W (MAX)
Display	4.3inch Touch screen TFT LCD
Internal memory & communication	USB Memory(FAT32), USB Cable, WI-FI
Software	
Offered slicing software	Cubicreator v3.6 and over Select the product in Cubicreator “CUBICON Single Plus (subdivided into 310/320/321, etc.)”
Compatible 3D Design file type	.stl , .obj
Supporting operating system	Windows 7 and above
Printing	
Print technology	FFF (Fused Filament Fabrication)
Print size	240x190x200mm (9.4x7.4x7.7 in)
Molding speed	Max 500mm/sec
Layer height setting	150~300um, Min 100um
wall thickness	Optimal 400um+
Filament diameter	1.75mm
Filament type	ABS, ABS-A100(Anti-warping), PLA, TPU(Flexible) Filament
Nozzle diameter	0.4mm
XY location accuracy	6.25um
Z location accuracy	1.25um
Nozzle Max temperature	260°C
Heating bed max temperature	120°C

· Specifications could change without prior notice for product improvement.