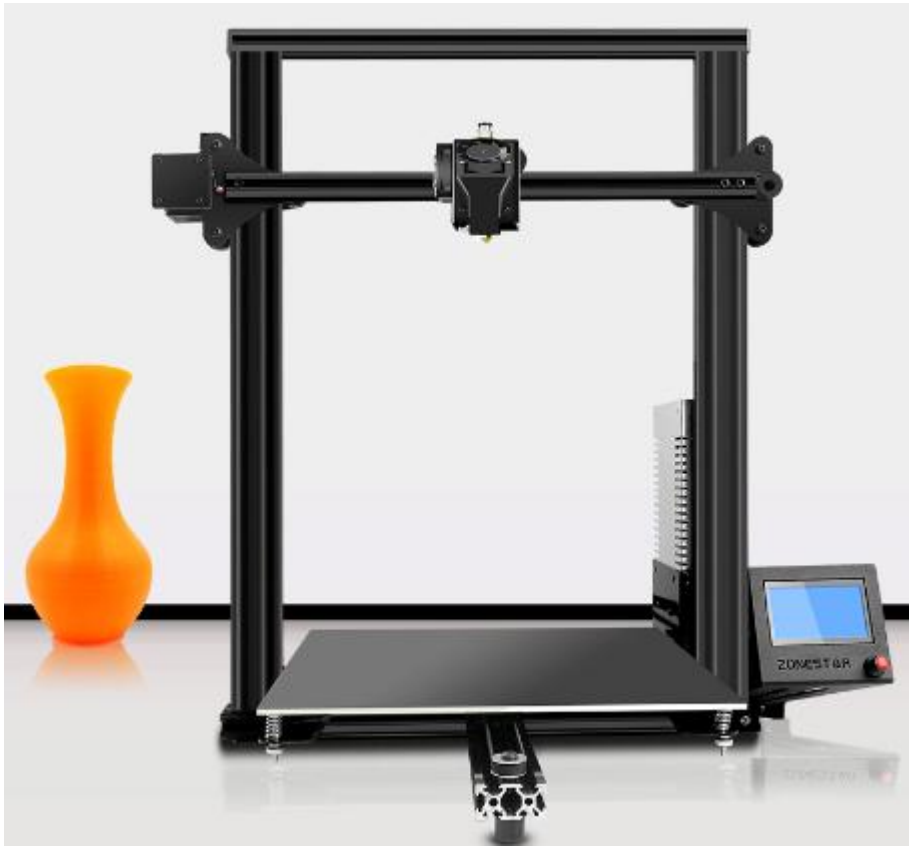
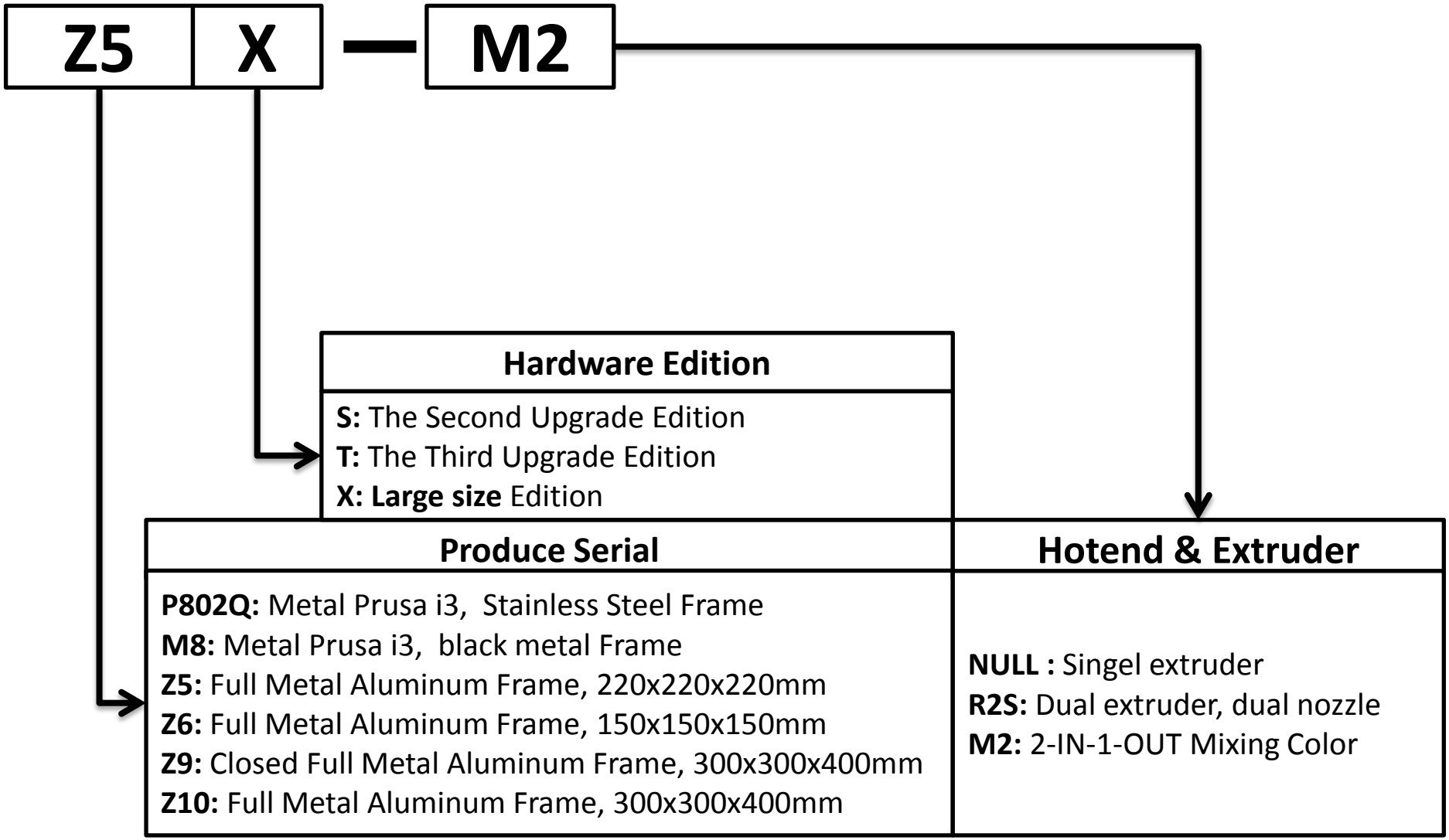
ZONESTAR



Model: Z5X Serial

Quick User Manual

ZONESTAR product line and naming rules



Specifications and configuration

Specifications:

Building mode	FFF/FDM	**Max Build volume**	300mm x 300mm x 400mm (***LxWxH***)
Nozzle diameter	0.4mm default	**Layer height**	0.1~0.36mm
Extruder number	1 or 2	**Print speed**	Max. 150mm/s ***(Recommand is 40~50mm/s)***
Printing precision	±0.1mm	**Support file format**	stl, obj, gcode
Hotbed power	24V 250W +-10%	**Hotbed temperature**	110 degree max
Printing material	PLA,ABS,PETG,HIPS,PVA, etc. (recommand material is PLA for Z5X-M2)		
Host software	Repetier-host, Cura, etc. (recommand is Repetier-host)		
Host software system	Linux,Windows and OSX		

Configuration:

SKU	Extruder Qty.	Nozzle Qty.	Mix color	Filament Run Out Detect	Laser engraving	Power Fail Resume	Auto Power off	TFT LCD SCREEN
Z5X	1	1	○	○	○	◎	◎	◎
Z5X-M2	2	1	●	○	○	◎	◎	◎
Z5X-R2S	2	2	○	○	○	◎	◎	◎

Remark:
● : Default equipped with this feature.
○ : This function is not available by default and can be upgraded.
◎ : This function is not available by default and can be upgraded, need tu upgrade control board.

!! ATTENTION !!

Please strictly follow the standard operation when installation.

Please put the printer away from the reach of kids.

Must be guided by adults when children are installed or used.

Take care when installation, to avoid electrical shock hazards.

Caution: Hot!
Hotend has high temperature even the printer stop working.

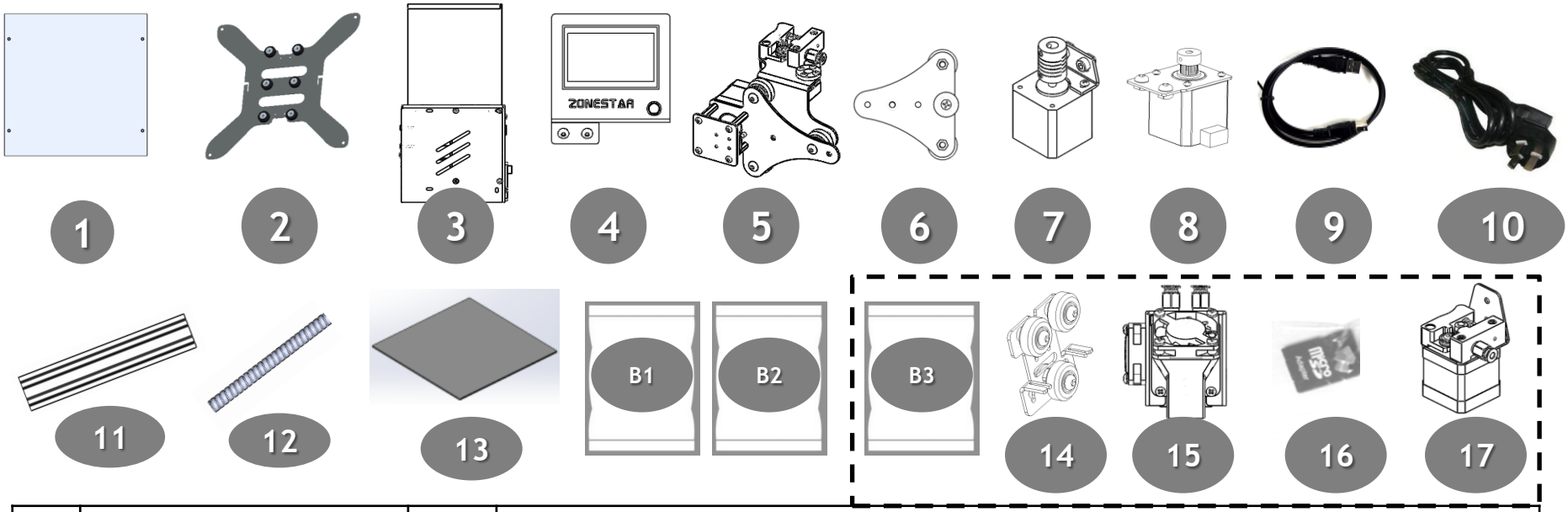
Caution: Hot!
Hotbed has high temperature even the printer stop working.

Please keep well-ventilated condition! May produce toxic gases when printer working.

Please make sure you have set the AC power select switch to the correct position before power on.

For mixing color printer, must load filament to both of the extruders, even if you print single color 3D object.

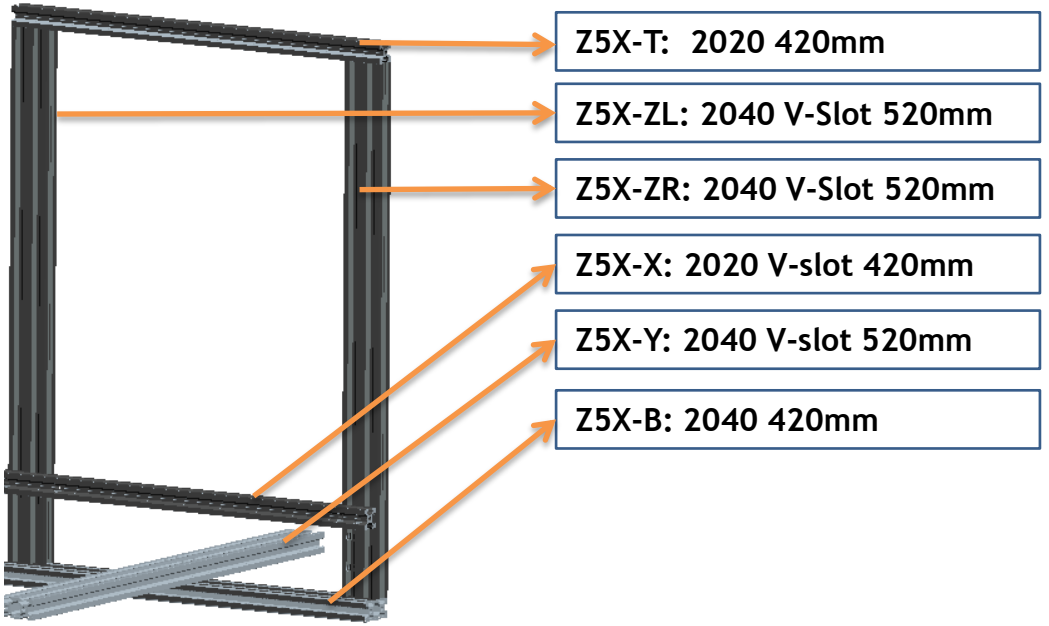
Parts



1	Hot Bed	9	Aluminum profile (6PCS)
2	HotBed bracket	10	Lead Screw
3	Control Box	13	Hotbed sticker
4	Control Panel	14	Print Head Bracket
5	Z carrier left	15	Print Head
6	Z carrier right	16	SD Card and spare parts
7	Z Motor Module	17	2nd Extrudsion feeder(Only For Z5S-M2 or Z5S-R2)
8	Y Motor Module	B1	Tools
9	USB cabble	B2	Endstops/Screws/Rubber pads*/Y Idler* (* They maybe has been installed to the aluminum profiles)
10	Power cord	B3	Timing Belt/PTFE tube(1 or 2)/Cable ties/aluminum profile End cover

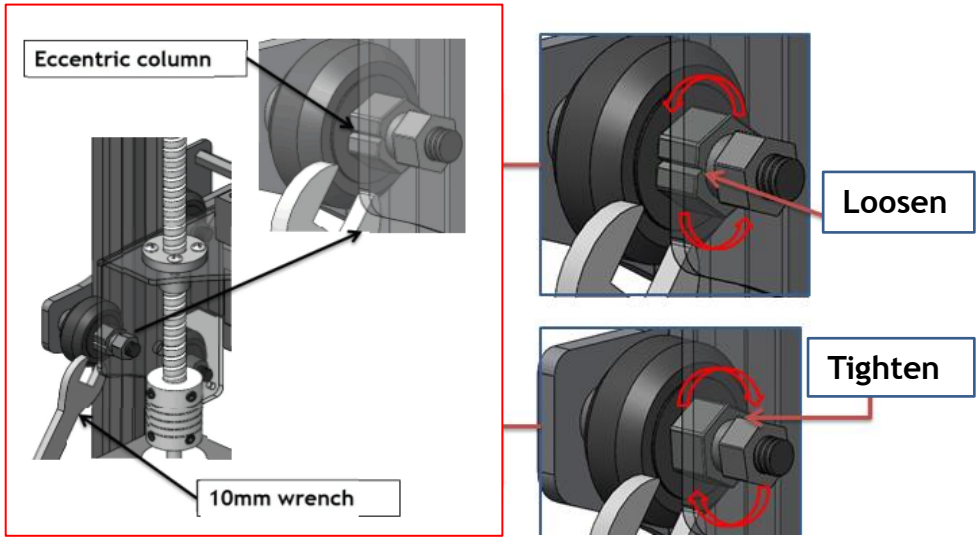
Installation

About the Profiles

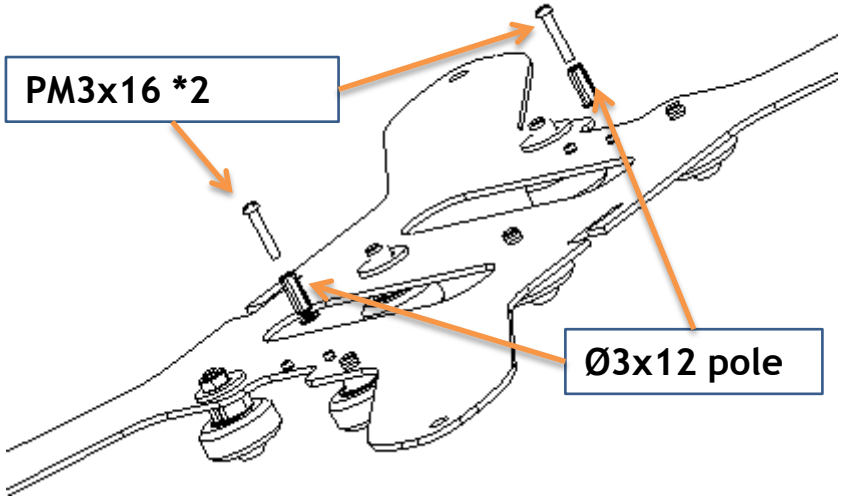


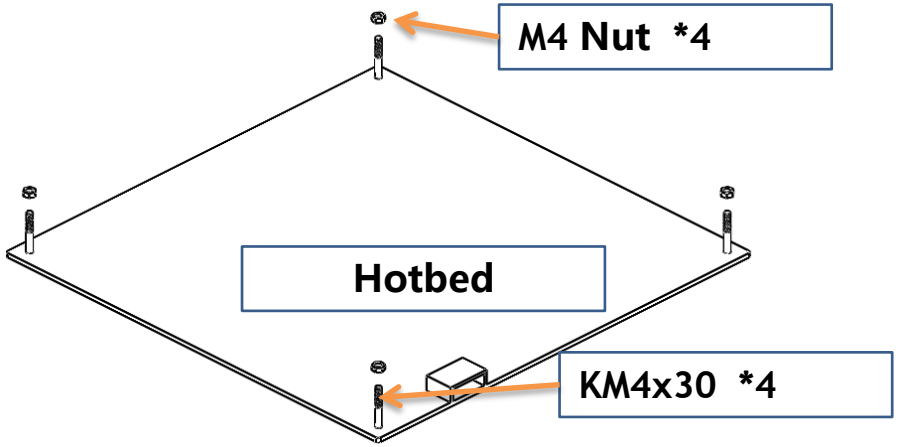
How to adjust the eccentric cloumn to let the carrier hold the rail well

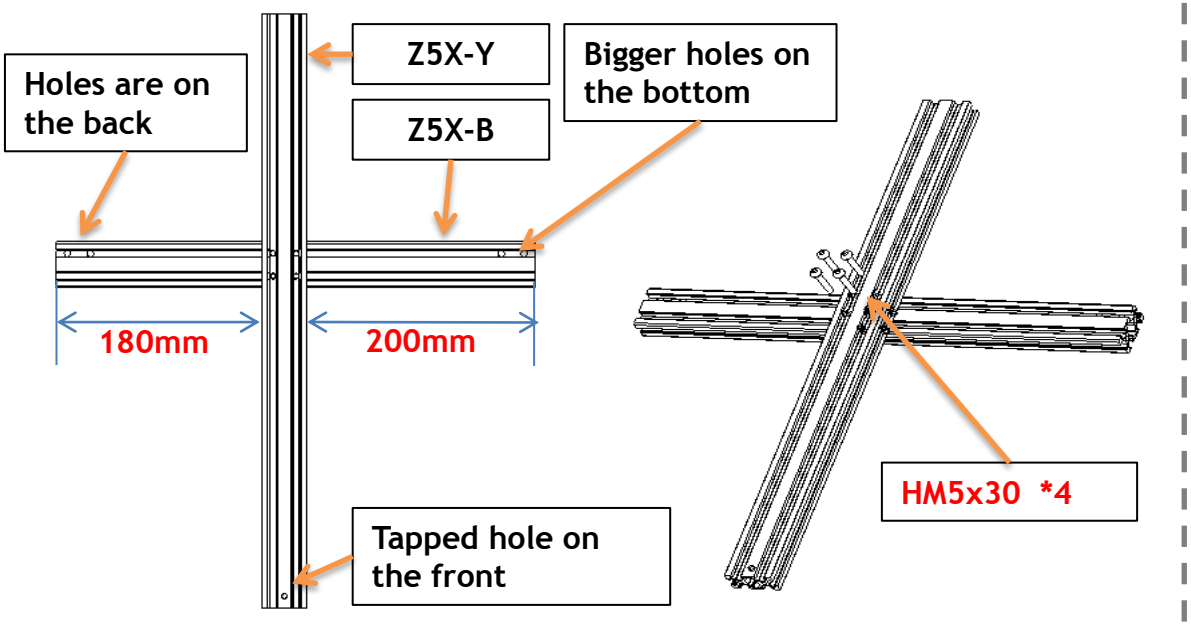
NOTE: : There are eccenitric cloumns in Z axis carriers, print head bracket and hotbed bracket

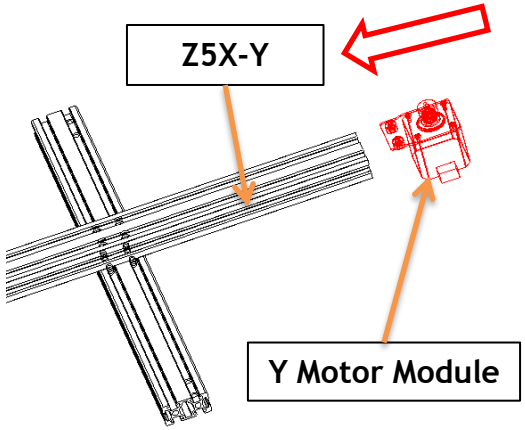


Installation







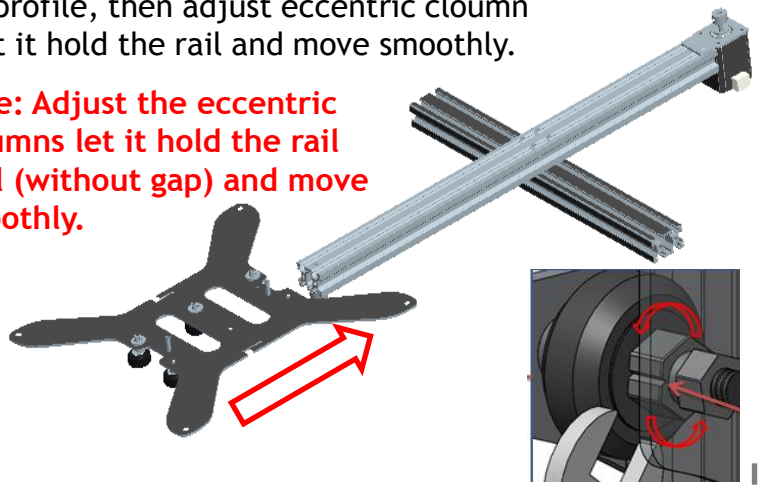


Note:
1. Keep the motor as close as possible to the end of profile.
2. You can move back this motor to tighten the belt later,

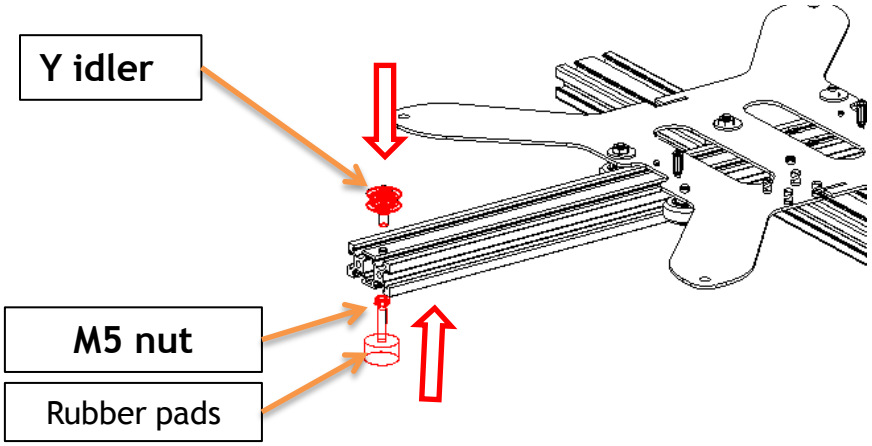
Installation

Insert the hotbed bracket from the front of Y profile, then adjust eccentric cloumn to let it hold the rail and move smoothly.

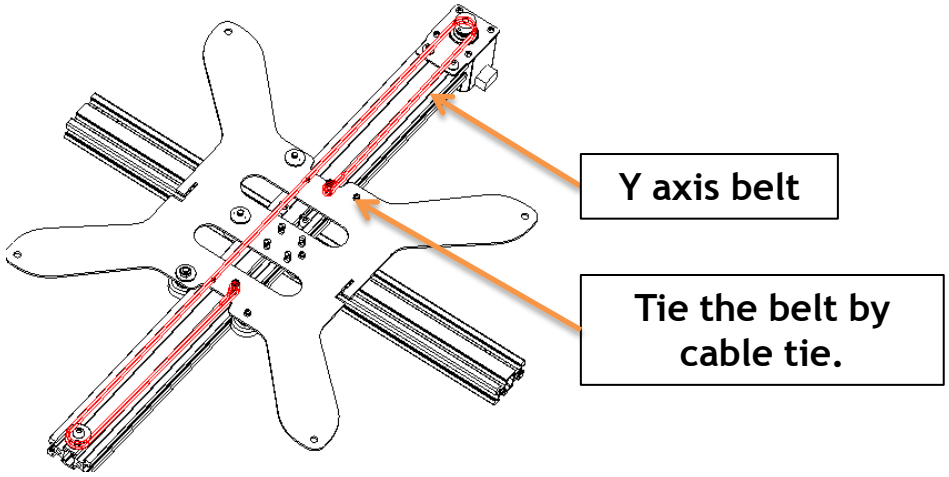
Note: Adjust the eccentric cloumns let it hold the rail well (without gap) and move smoothly.

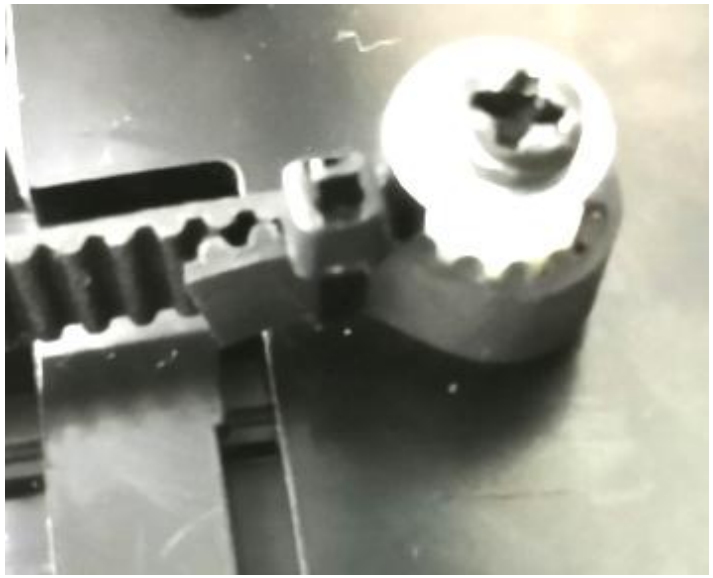


Install the Y belt idler and rubbers pads to the up-front of Y profile,adjust the pad height to level the base.

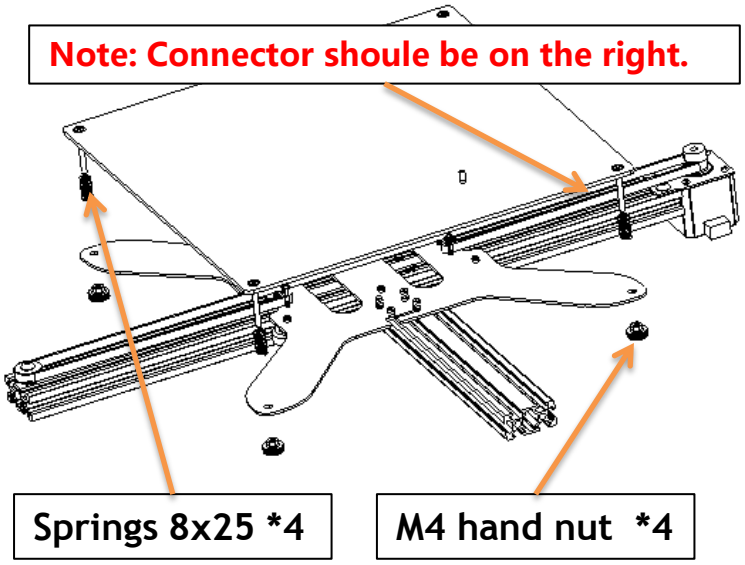


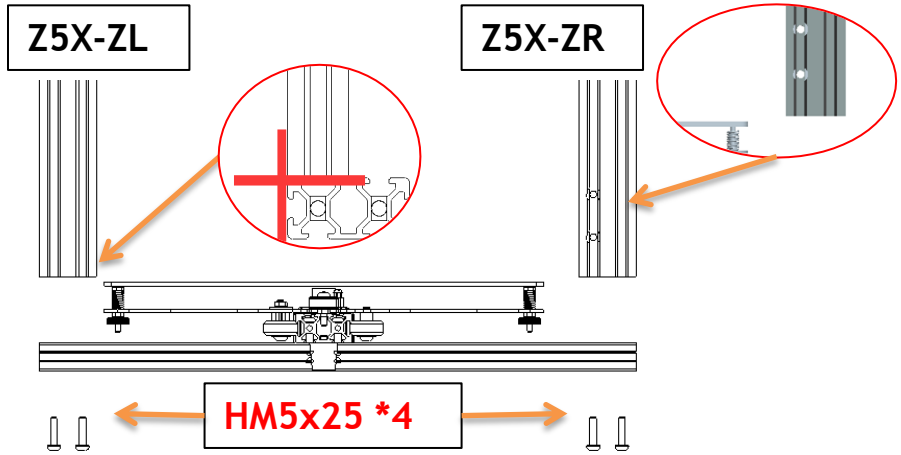
Install Y axis bed, tighten it and then tie it on the poles of hotbed bracket, check it work well and then cut the belt.





Installation

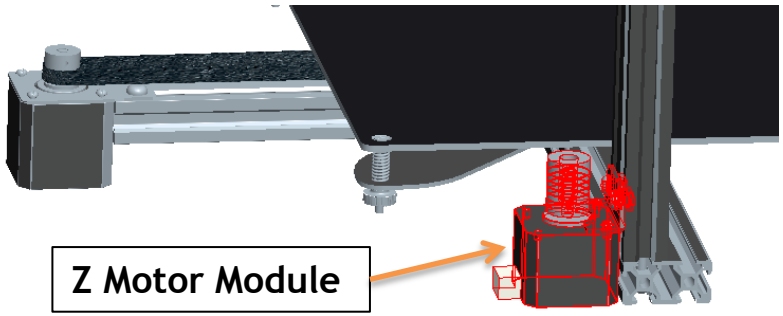


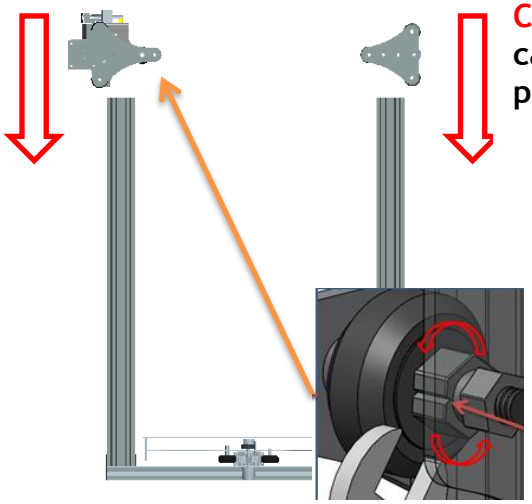


WARNING

Note: 1. Align the Z-axis profiles and the bottom profile. 2. The holes of Z5X-ZR Profile should be on the inner and bottom, the big holes forward.

Install the Z-axis motor module to the left side profile of the Z-axis, place the motor in the lowest position, and tighten the screws.



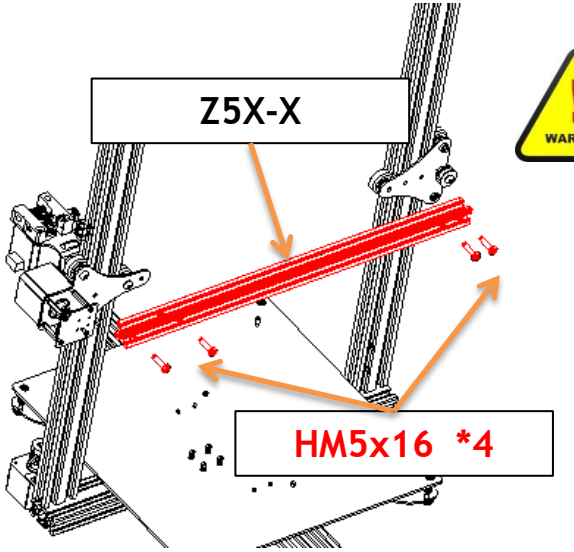


Carefully insert the carriers to the Z-axis profiles,

Note: Adjust the eccentric cloumns let it hold the rail well (without gap) and move smoothly.

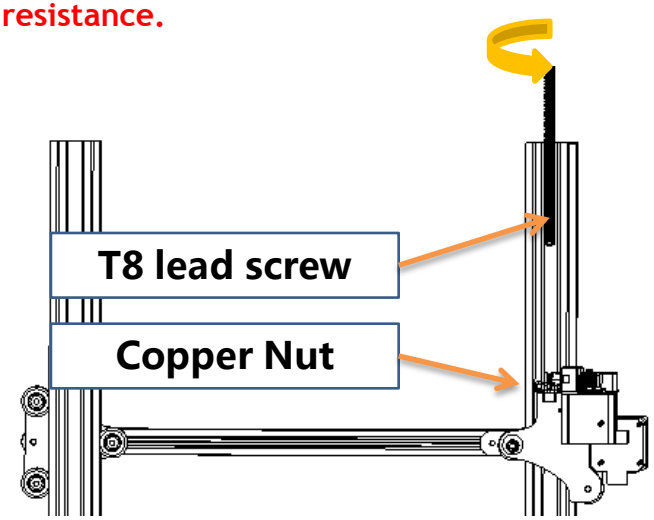
Installation

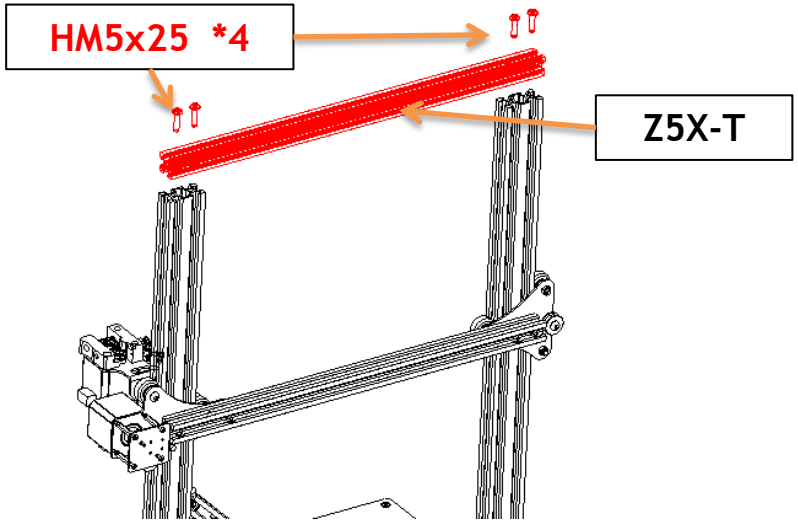
Install the X axis profile to the carrier, try your best to keep it parallel to the print platform.



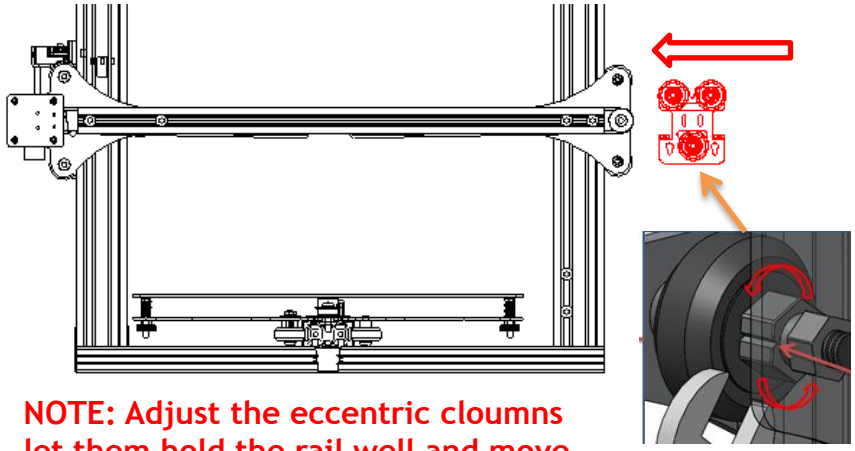
Note: 1. The left and right carriers should be in a plane, if not, adjusting the installation of the Z axis profiles.
2.

Rotate in the lead screw to the copper nut of Z left carrier, and lock it on the coupling of Z motor module.
NOTE: Put some butter on the copper nut, it can greatly reduce the resistance.





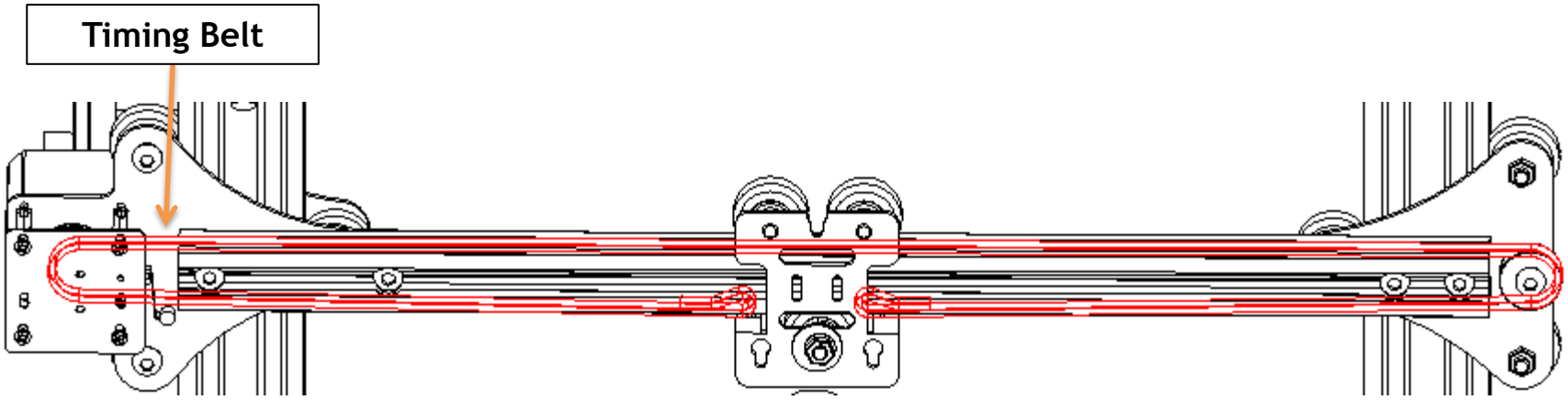
Insert the print head bracket from the right.



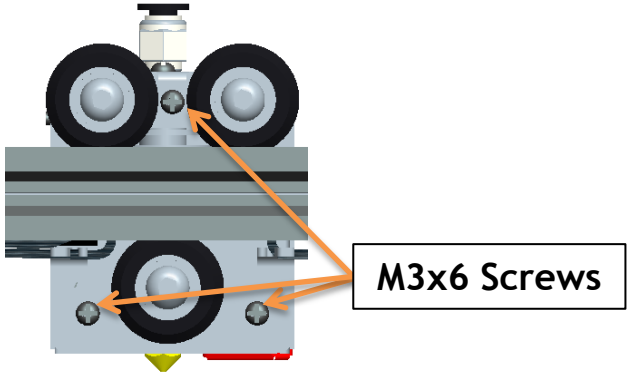
NOTE: Adjust the eccentric cloumns let them hold the rail well and move smoothly.

Installation

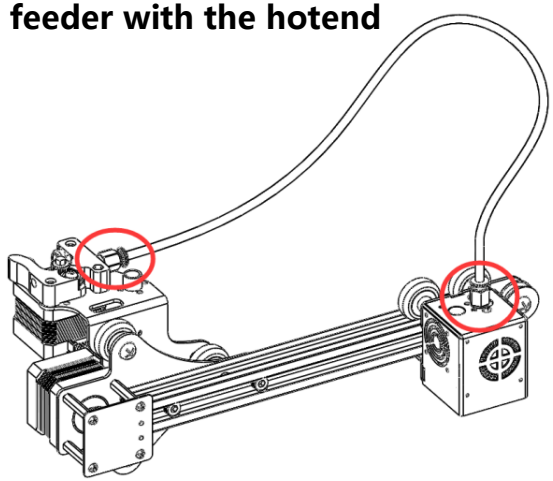
Tighten the belt, and then lock it on the bracket of print head



Install the print head to the bracket and lock the screws.

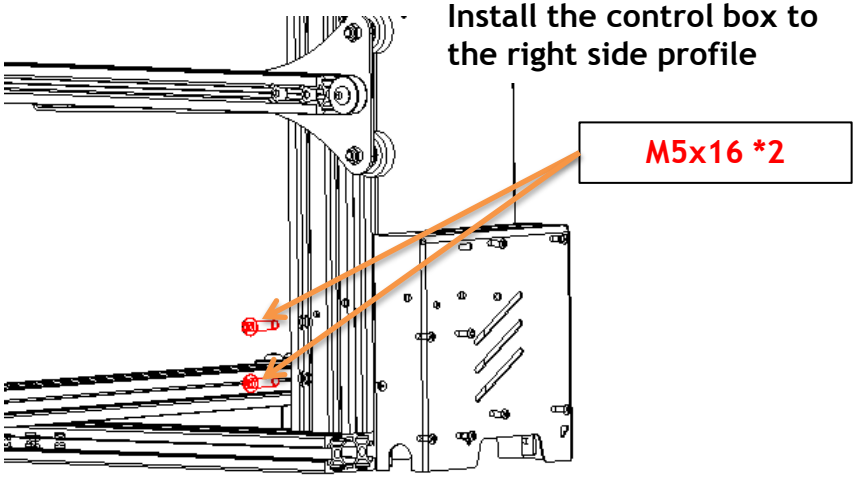


Insert the PTFE tube to the fittings to connect the extrusion feeder with the hotend

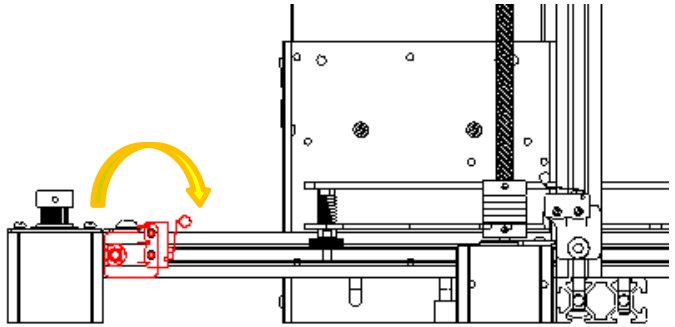


Installation

Install the control box to the right side profile

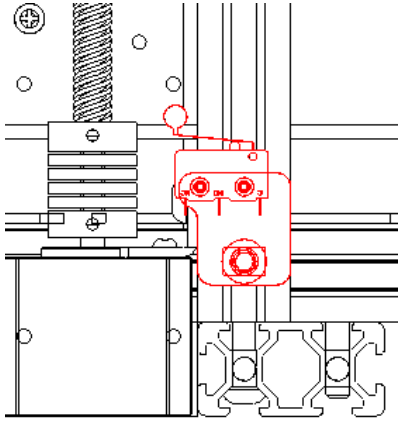


Install a ENDSTOP to the back- right of Y profile, clockwise rotate about 30 degree, so that it can be triggered when the hotbed on the back.

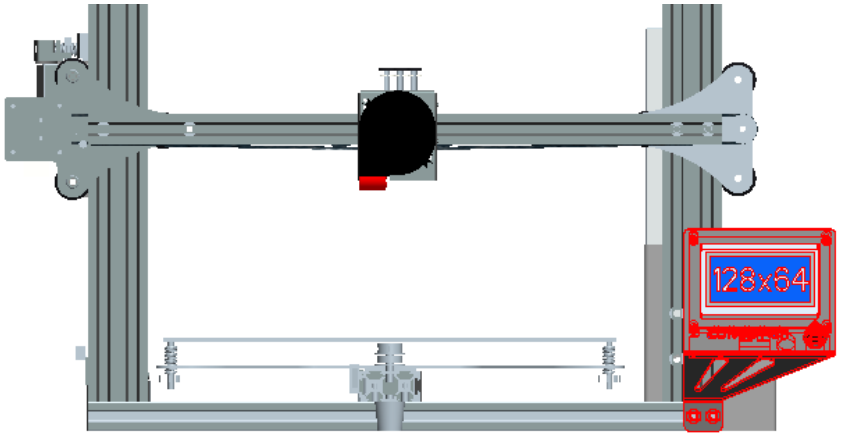


Install another ENDSTOP to the outside of Z right profile.

※How to determine installation height:
1.Move down the printhead until the nozzle hits the hotbed.
2.Move the limit switch up and fix it when the tongue touched the carrier.
PS: It is not necessary to be too precise in this step, you can adjust again on leveling hot bed.



Install the control panel to the right of bottom profile.

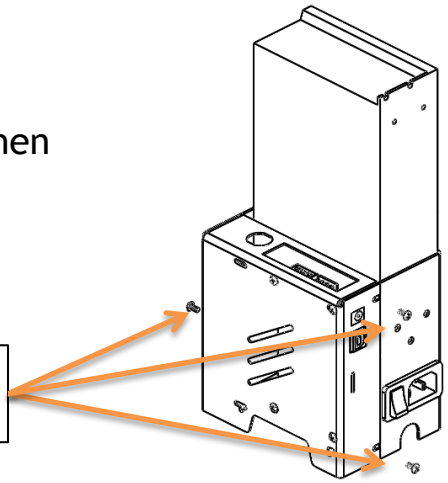


Wiring

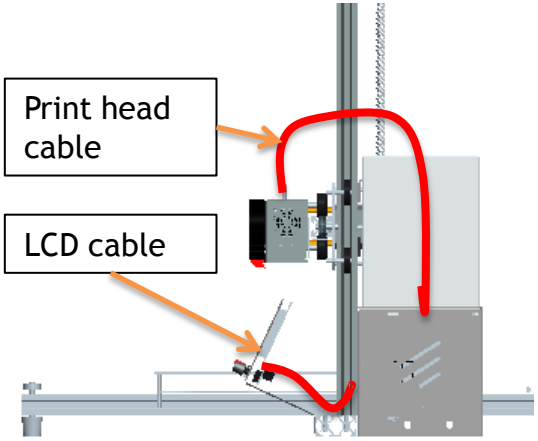
Step 1: Set the AC power switch to 110V or 220V depending on the power supply voltage in your city.

Step 2: Open the control box and refer to the wiring diagram to wiring , then close the control box.

Step 3: Refer to the below picture to layout the wires, if necessary, tie the wires to the frame.

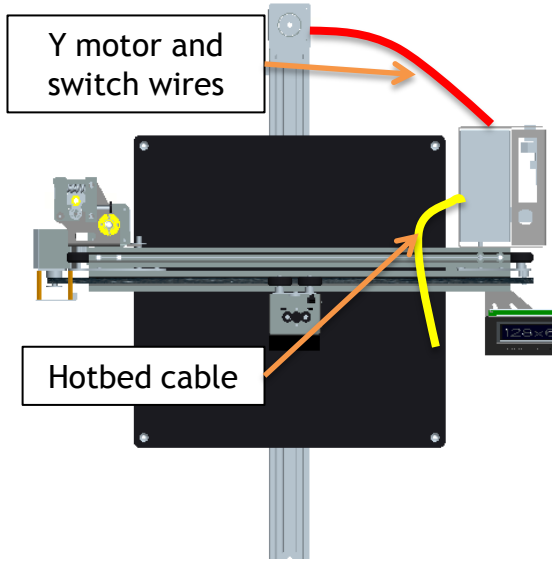


LEFT VIEW

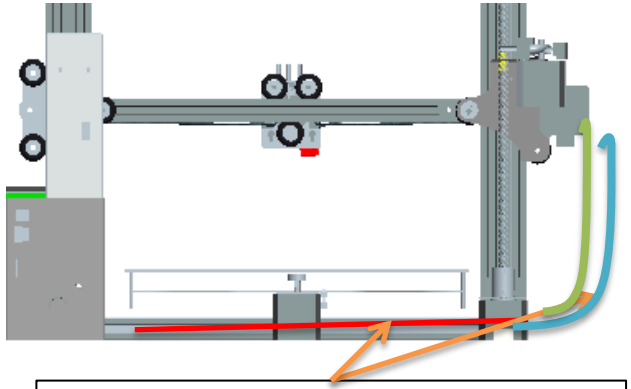


※ Print head cable in the middle of the frame .

TOP VIEW

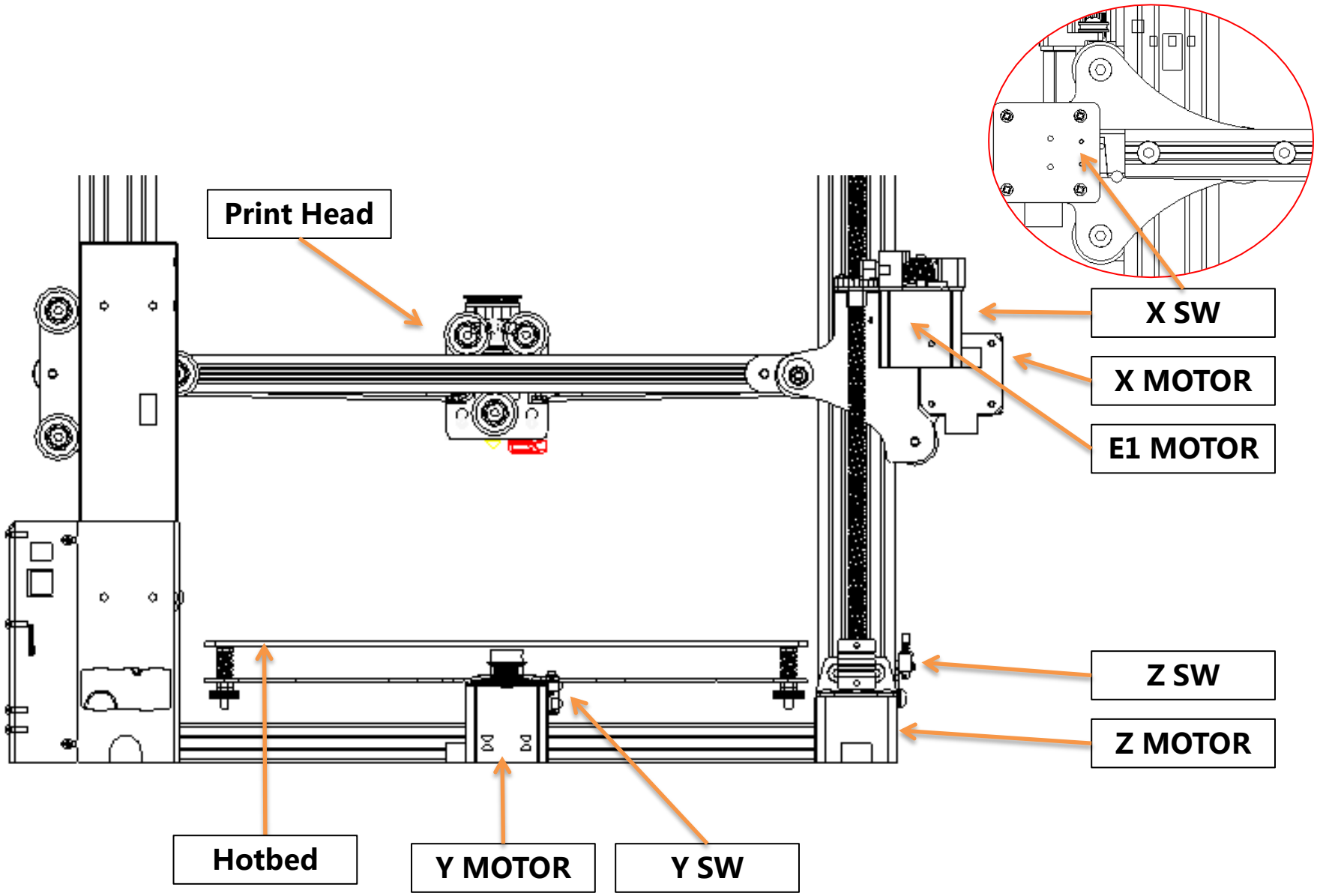


BACK VIEW



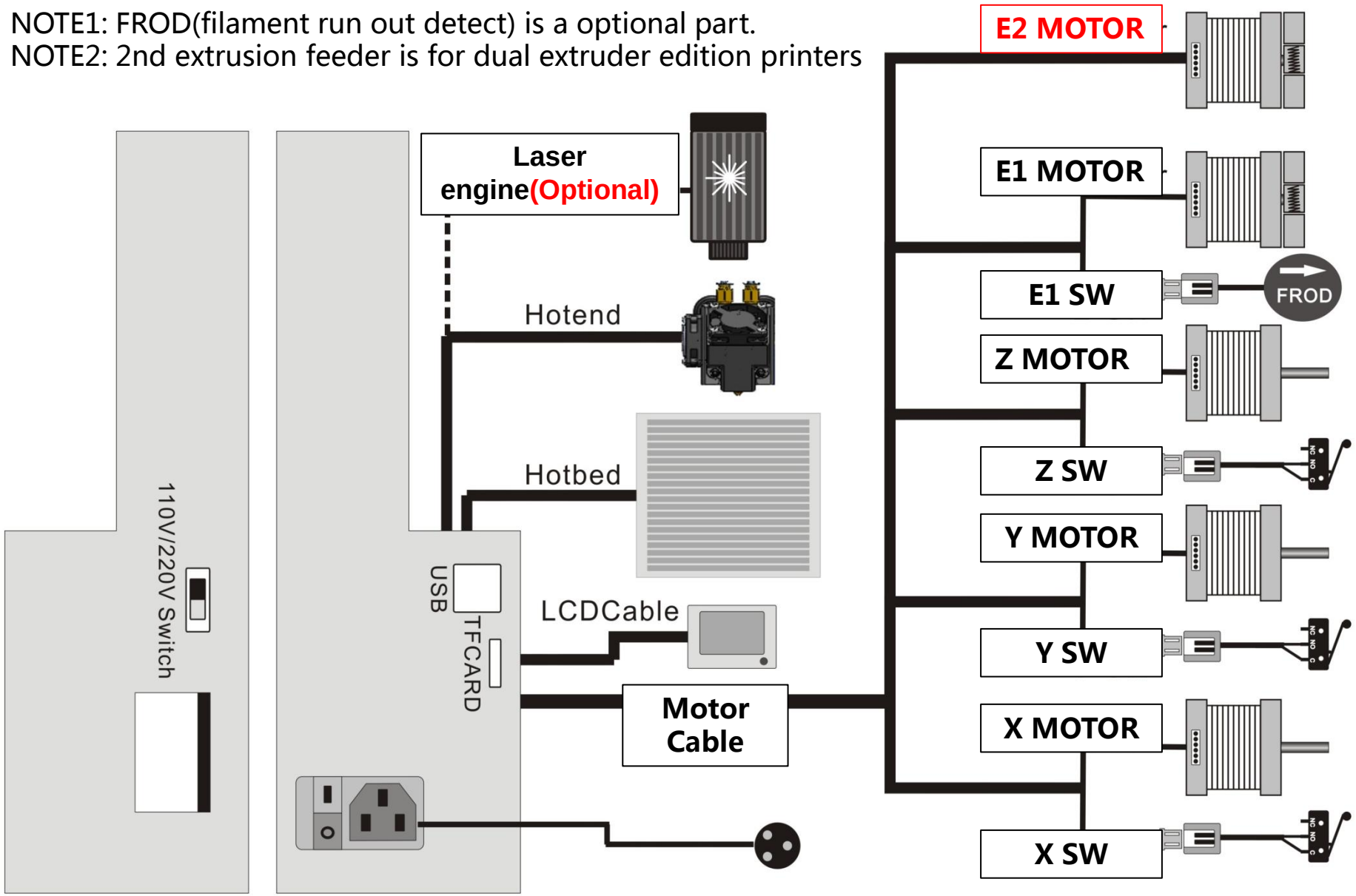
1. Cable of Z motor and switch
2. Cable of X motor and switch
3. Cable of extrusion and FROD

About Electronics Parts

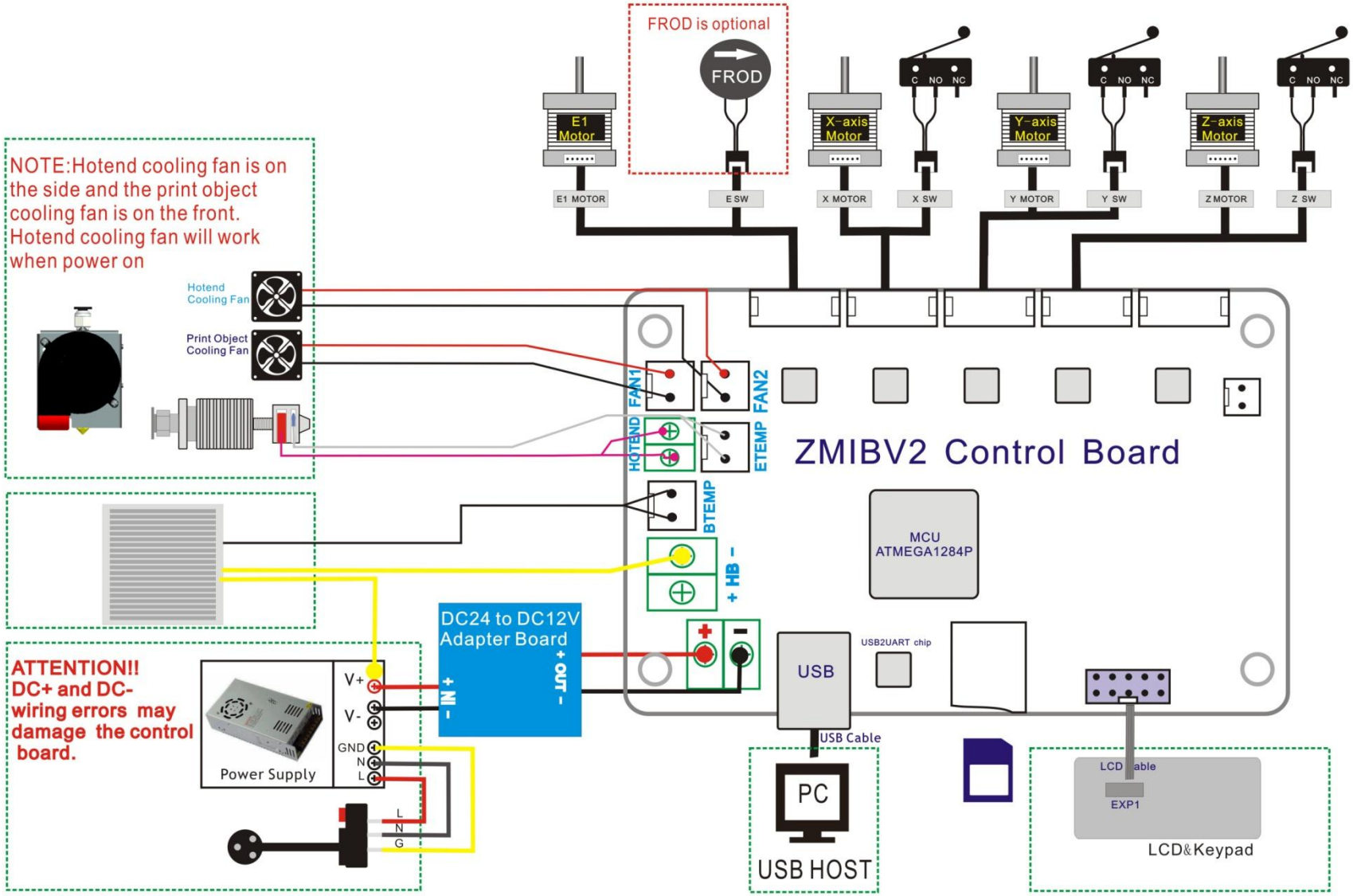


Wiring Diagram Block

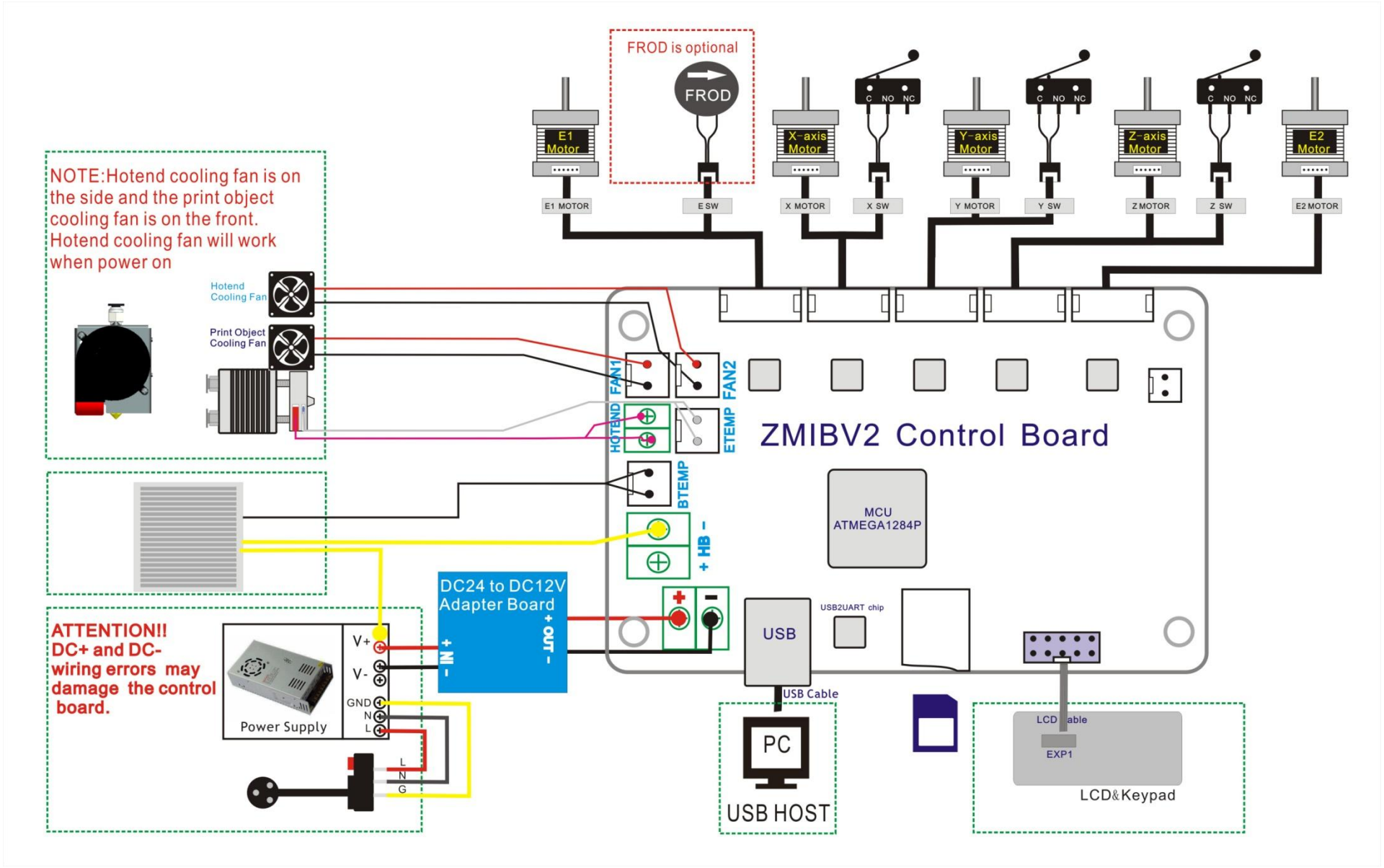
NOTE1: FROD(filament run out detect) is a optional part.
NOTE2: 2nd extrusion feeder is for dual extruder edition printers



Wiring Diagram for Z5X

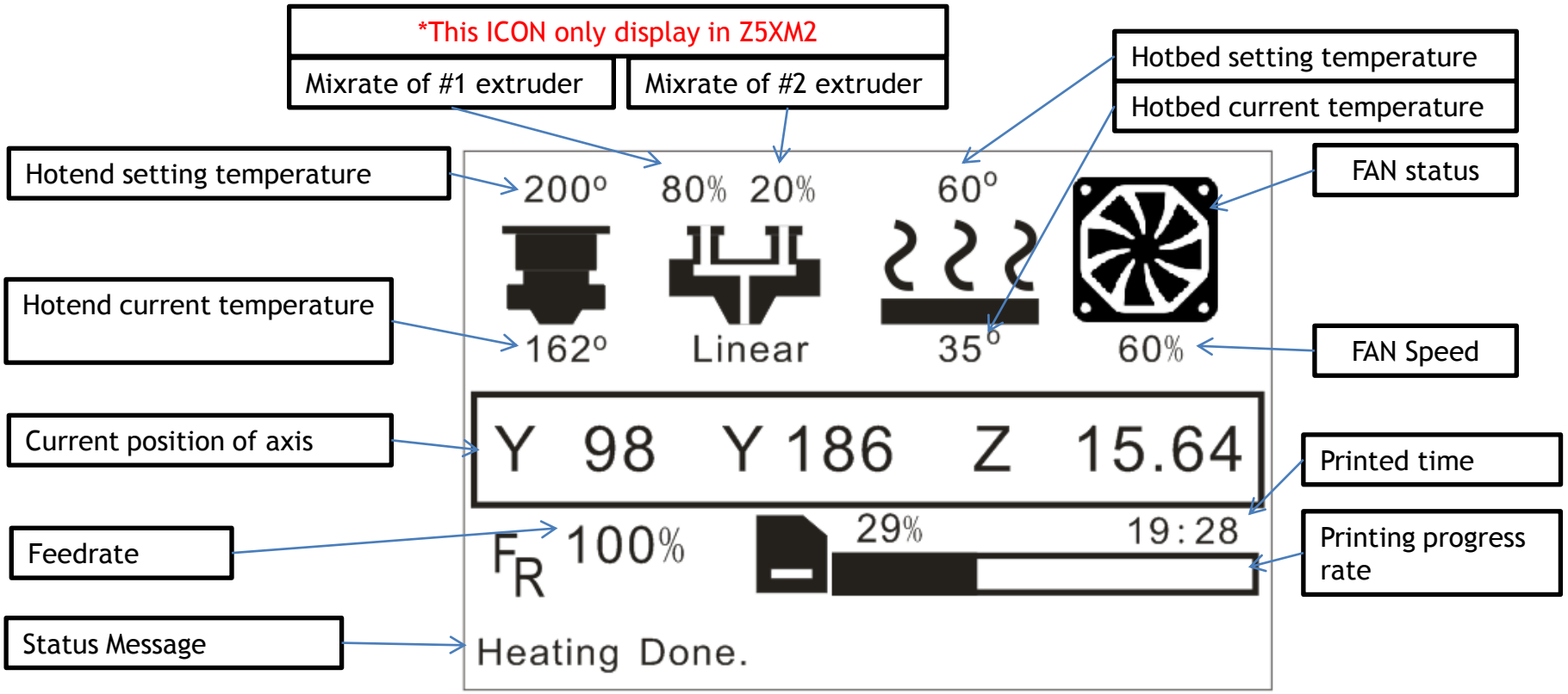


Wiring Diagram for Z5X-M2 and Z5X-R2S



LCD Menu and Operation

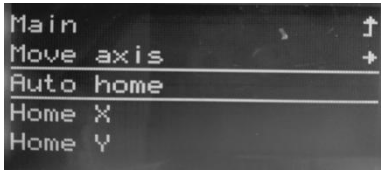
Knob operation: <***Clockwise rotation***>: Next Item / Value +. <***Counterclockwise rotation***>: Previous Item / Value -. <***Push***>: Enter / Execute.

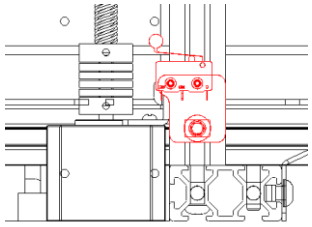


For details on the LCD menu, please refer to the file "LCD Menu Description.pdf" in the SD card.

Set Z offset by adjust Z ENDSTOP installation height

1. Clean nozzle: make sure there aren't any filament at the end of nozzle, if not, remove it by a diagonal pliers.
2. Choose ”control”>> ”Motion”>>”Z offset”,set this value to 0,
3. Return to”control”,then click ”Store Settings”
4. Choose ”Prepare”>> ”Auto Home”>>, wait the hot end go to the orig position.
5. Choose ”Prepare”>> ”Move axis”>>”Move Z”>>”Move 10mm”,Move Z-axis，Make the nozzle higher than the bed.
6. Choose ”Prepare”>> ”Move axis”>>”Move X” or ”Move Y”>>”Move 10mm”,Move X-axis and Y-axis，let the nozzle to the middle of the bed.
7. Choose ”Prepare”>> ”Move axis”>>”Move Z”>>”Move 0.1mm”,Move Z-axis，let the nozzle touch the bed.
8. Move up the Z ENDSTOP, and let it be triggered.



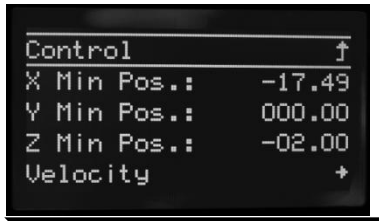


Set Z offset to 0 on LCD MENU → **Auto Home** → **Move** the nozzle and let it almost to touch the bed → **Move up the Z ENDSTOP and let it be triggered**

Set the origin coordinates on LCD menu

You can also to adjust the z (or X/Y) offset on LCD menu

1. Clean nozzle: make sure there aren't any filament at the end of nozzle, if not, remove it by a diagonal pliers.
2. Choose ”Prepare”>> ”Auto Home”>>, wait the hot end go to the orig position.
3. Choose ”Prepare”>> ”Move axis”>>”Move Z”>>”Move 10mm”,Move Z-axis，Make the nozzle higher than the bed.
4. Choose ”Prepare”>> ”Move axis”>>”Move X” or ”Move Y”>>”Move 10mm”,Move X-axis and Y-axis，let the nozzle to the middle of the bed.
5. Choose ”Prepare”>> ”Move axis”>>”Move Z”>>”Move 0.1mm”,Move Z-axis，let the nozzle touch the bed. Remember this hight of Z-axis (e.g: 0.5)
6. Choose ”control”>> ”Motion”>>” Z min pos:”,modify this value, the new value = The current Z offset value - the value you remember in the last step. (e.g: new value = 0 - 0.50 = -0.50)
7. Return to”control”,then click ”Store Settings”



Auto Home → **Move** to the middle → **Set Z offset** → **Store Settings**

Prepare to print - level the hotbed

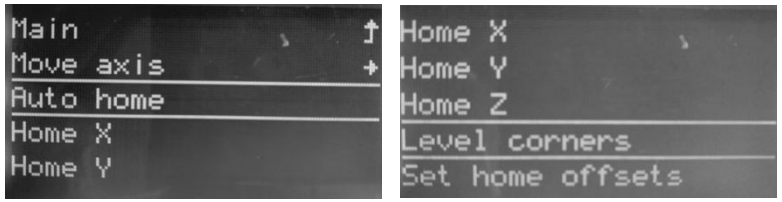
1. Clean nozzle: make sure there aren't any filament at the end of nozzle, if not, remove it by a diagonal pliers.

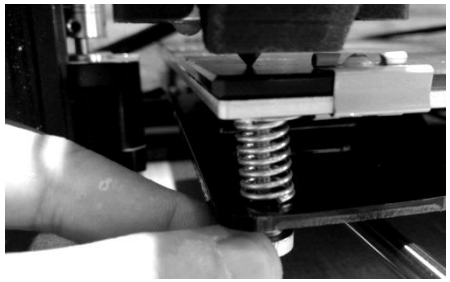
2. Choose “Prepare”>> “Auto Home”>>, wait the hotend go to the orig position.

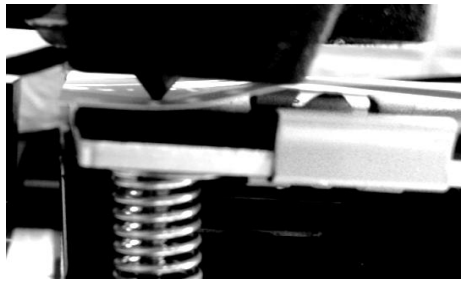
3. Watch the nozzle and make sure the nozzle is higher than the bed, otherwise tighten the hand nuts under the bed to pull down the hotbed or loosen these nuts to move up the bed.

4. Choose “Prepare”>> “Level Corners”>>, the nozzle will go to the first corner, adjust the hand nuts under the hotbed, let the nozzle almost touch the hotbed. In order to get a properly distance, you can put a A4 paper on the hotbed, and when the distanse between the nozzle and hotbed can only insert a paper, it will be perfect.

5. Choose “next corner”, and adjust again. Repeat this step again and again, until all of the four corner at the same height.







Home all axis → start “level corners” wizard → Adjust bed height → put a paper on the bed to measure the height

Prepare to print - Load Filament

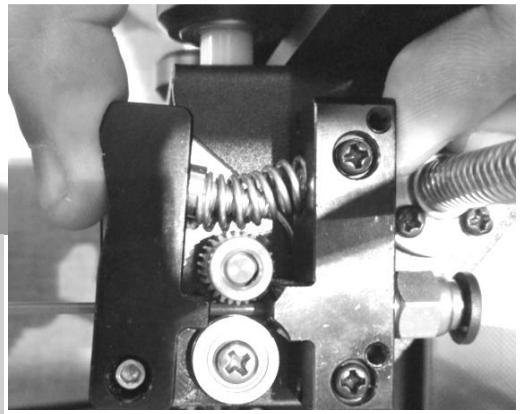
1 Preheat nozzle: Choose “Prepare”>> “Preheat PLA”, then nozzle and hotbed will be heated. **Waiting nozzle temperature reached to setting.**

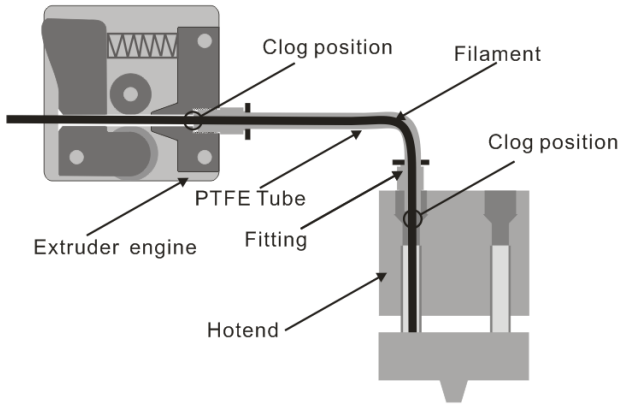
2 ***If there is filament in the hotend, do this step, otherwise skip this step.***
Choose “Prepare”>> “Move axis”>>”Extruder”>>”Move 1mm”>>”extruder: ****mm”, then Clockwise rotate the knob slowly, until you can see the filament flow from the nozzle.

3 ***If there is filament in the hotend, do this step, otherwise skip this step.***
Press the handle on the extrude feeder and pull out the filament.

4 Press the handle on the extrude feeder and insert filament, make sure the filament has been inserted to the hotend.

5 Choose “Prepare”>> “Move axis”>>”Extruder”>>”Move 1mm”>>”extruder: ****mm”, then Clockwise rotate the knob slowly, until you can see the filament flow from the nozzle.





Use a diagonal pliers to cut off the head of filament

Press the handle and insert filament into the extruder engine

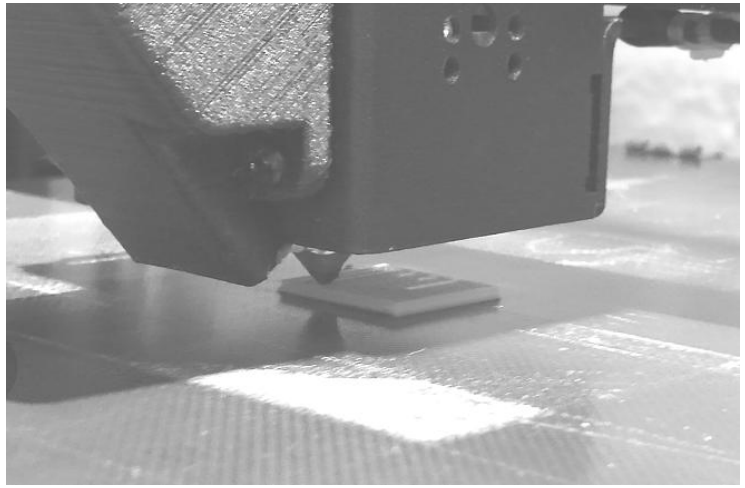
When loading filament, make sure it has entered the hotend, if it clog in extruder or hotend, try to remove the fittings and load the filament again.

Print a test 3D object (Print from SD card)

1. Insert the SD card to the SD card socket on the control box, and then power on the control box.

2. Choose “Print from SD”>> Choose “Test_gcode\Single Color\xyz_cube.gcode”, push the knob to start printing.

3. Wait the printer to finish heating and start to print, watch the distance from nozzle to bed, double click the knob of LCD menu and set the z offset if the distance is not perfect, let the filament can stick on the hotbed well.



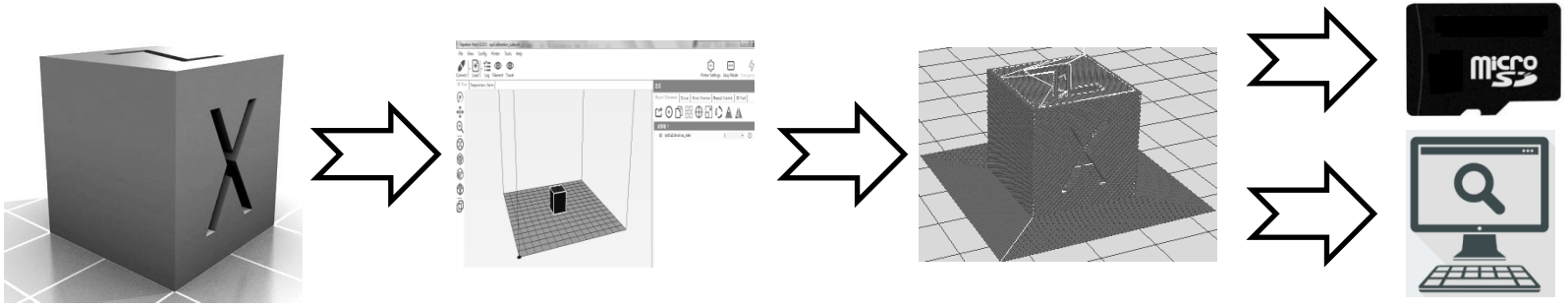
Insert SD card to control box and then start to print

Adjust z offset if the filament can't stick to bed well

Wait for printing finish!

Slicing, control and printing from PC HOST

1 *Before building a 3d object by using this 3D printer, you need to use a software to convert the 3D models (stl, obj, etc., depending on the type of slicing software) into a machine-recognizable file - **gcode file**. This process is called **"slicing"**.*



2 *Our recommended slicing and HOST software is **repetier-host**, which is a free software, you can also use any other software to slicing the 3d model as long as it can support reprap protocol, for example: Cura, slic3r, KISSlicer, pronterface, simplify3d etc.*

3 *For more about slicing, please refer to the document in the SD card, directory: **"PC Software & Driver\slicing & Host software"**.* You can also download the latest document from our cloud disk:
https://drive.google.com/drive/folders/0B9Z1DbrxfqbpUjNHRXhBWmlVZVU
If you want to control the printer from PC HOST, we store the guide in SD card, please find it out and read it.

About Mixing Color Feature (only for mixing color hotend)

1

Manually extrude mixing color filament *(extruding from both of extruders at the same time)*:

Step 1: *Refer to the "Prepare to print - Load Filament" to load filament to both of extruder engine, and make sure the filament has been insert to hotend already.*

Step 2: *When nozzle temperature reached to the settings, choose "Prepare">>"Move axis" >> "Extruder">>"E1 percent">> change this value, this value means extrusion percent of extruder 1.*

Step 3: *Choose "Move 10 mm">>Add this value, watch the extruder engine, you will both of the filament will enter to the hotend, and after extrude about 50mm, the filament will flow from the nozzle and color will be different according to the mixed ratio of the setting.*

** At the beginning, the color of filament maybe comes from the remaining in the nozzle.*

2

Manul mixing *(Mixing two color filament when printing from SD card)*:

Step 1: *Start to print a monochrome object from SD card.*

Step 2: *After the printing start, choose "tune">>"E1 percent" >> change this value. The printer will* ***automatically mix*** *the 2nd extruder's filament according to the setting.*

PS: Mixing result is affected by many factors such as object shape, path planning, filament type and so on.

3

Auto mixing *(Converter a monochromatic object to a multi-color object)*:

Using this function, you can convert a monochrome object into a mixing-color object.

Step 1: *Start to print a monochrome object from SD card.*

Step 2: *After the printing start, choose "tune">>"Auto Mix Mode" >> change this value to 1 or 2. If choosing "1", the printer will* ***automatically mix*** *the 2nd extruder's filament,* ***from less to more****, according to the printing progress. If choosing "2", the printer will* ***randomly mix*** *the 2nd extruder's filament to hotend in the printing process.*

PS: Mixing result is affected by many factors such as object shape, path planning, filament type and so on.

4

*You can also set the printer to print two colors, mixing colors and use up to 16 virtual extruders when slicing. For more about mixing color feature, please refer to the document in the SD card, directory: "****Operation\Tips of mixing color feature****".*

You can also download the latest document from our cloud disk.

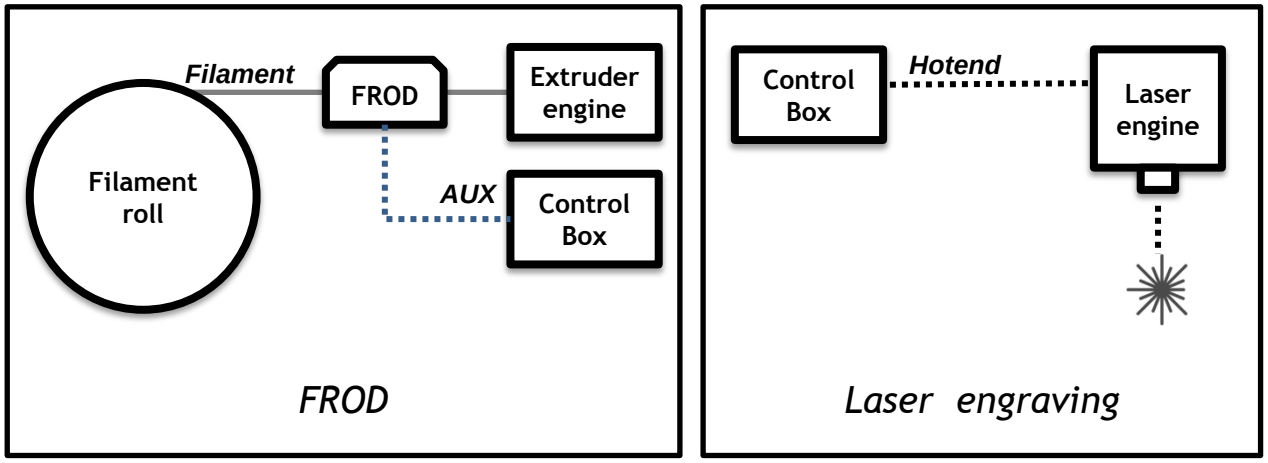
Improve your kit

1. **FROD:**
Filament run out detector is a sensor be used to detect the filament roll use up, Z5 control box can connect one FROD. About how to connect this sensor, please refer to the wiring diagam.

2. **Laser engraving:**
Only need to install a laser engine on the print head, you can turn this machine into a simple laser engraving machine.

3. **Filament roll dock:**
Usually you can get a free dock from the filament supplier. If not, you can print one by yourself or purchase one from us.

4. **Dual color / Mixing color extruder and hotend:**
This kit can be easily upgraded to a two-color printhead or a 2-IN-1-OUT color-mixed printhead without replacing the control board, which you can purchase at our store.



If you are interesting in these features, welcome to vist our online store to purhcase.

About ZONESTAR

ZONESTAR Innovation Technology Co., Ltd. is a high-tech manufacturer specializing in the development and production of 3D printers.

Since began to develop and manufacture 3D printers in 2013, we have successively introduced several series of products such as P802, D805, Z5, Z6, Z8, Z9, and Z10, which are popular with customers all over the world. Now, ZONESTAR has Gradually grew to be a leader in the category of DIY 3D printers.

At the same time, we are committed to applying 3D printing technology to a wider range of fields and have successfully developed 3D printers for use in food, advertising, ceramics, and other fields.

ZONESTAR has always regarded ***Innovation***, ***Quality*** and ***Service*** as our core value of the company and strived to provide customers with high-quality and high-tech products and excellent services.

www.zonestar3d.com

Youtube Channle

online store