

Model: Z9 5<sup>th</sup> Version

# User Manual

The newest documents download link: <https://github.com/ZONESTAR3D>

# !! 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 all of the extruders, or use the hotend clean tool to close the unused channel, even if you print single color 3D object.

# Symbols

- Extruder:**

The system to carry out Feeding-Melting-Stacking in FDM 3d printer.

- Extrusion feeder:**

A mechanism to transport filament to the hot end.

- Titan Extruder:**

A special remote extrusion feeder with deceleration structure, it can reduce the torque requirements in the stepper motor.

- 3D printer filament:**

In order to facilitate the work of 3D printer, plastic materials are pre processed into filaments. The commonly used types include PLA, ABS, PETG, TPU, PC, AAS, HIPS, PVA, WOOD, Carbon Fiber, etc..

- Hotend:**

The part to melt the filament.

- Nozzle:**

The outlet at the front end of the HOTEND, usually made of copper and has a small size hole for flow out filament.

- Print head:**

It means the **Hotend** and its attached cooling system.

- Printing platform:**

The device supporting the printed object.

- Hotbed:**

Heatable printing platform.

- Sticker (of hotbed):**

A special stickers pasted on the **Hotbed** are usually made of high temperature adhesive tape or PC film.

- Bed Automatic leveling:**

A function of automatically measuring and adjusting the distance between nozzle and printing platform.

- Control panel:**

The system that realizes human-machine interface in 3D printer.

- CoreXY:**

A special motion structure with two motors and belt to drive the X-axis and Y-axis together, it is applied in Z9M3.

- Motor Driver Module:**

An electronic function module to drive stepper motor.

- Mixer:**

The parts and software to realize the color mixing function.

- HOTEND Clean tool:**

A screw with a small rod which can be used to clean the feeding channel at the hot end or close the unused channel.

# Specifications and configuration

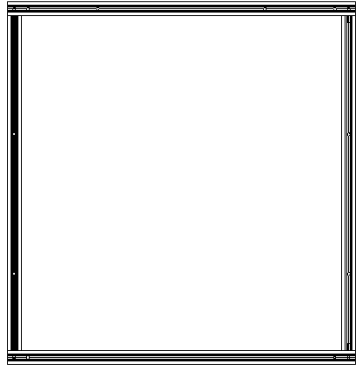
## Specifications:

Building mode	FFF/FDM	Extruder number	4
Nozzle diameter	0.4mm default	Layer height	0.1~0.36mm
AC Power voltage	110V/220V Selectable	Print speed	Max. 150mm/s ( <i>Recommand is 40~50mm/s</i> )
Printing precision	$\pm 0.1$ mm	Support file format	gcode
Hotbed power	24V 250W +-10%	Hotbed temperature	115 degree max
Printing material	PLA, PLA+, ABS, PETG, etc. (recommand material is PLA+ and PETG)		
Host software	Cura, Repetier-host,etc. (recommand is Cura)		
Host software system	Linux,Windows and OSX		

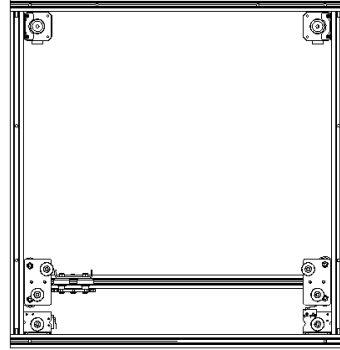
## Configuration:

SKU	Build volume (mm)	Pre-assembled	Printing platform	Control Panel
Z9V5	300x300x400 Max	95%	Aluminum plate	LCD128x64
Z9V5Pro	300x300x400 Max	95%	Superbase Glass	TFT-LCD 4.3 INCH

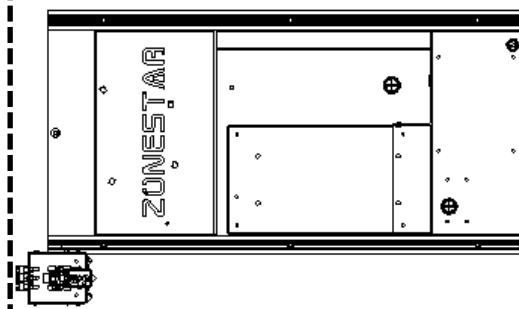
# Parts



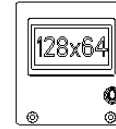
Bottom Assembly



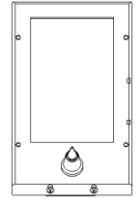
Top Assembly



Controller Assembly

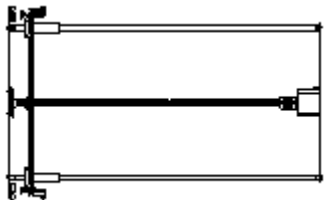


For  
Z9V5

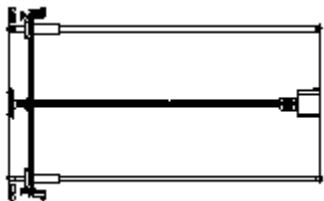


For  
Z9V5-Pro

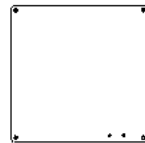
Control Panel (one of them)



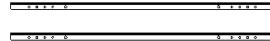
Z carrier - Left



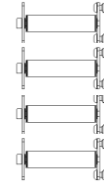
Z carrier - Right



Hotbed



Hotbed  
Bracket



Filament  
Bracket



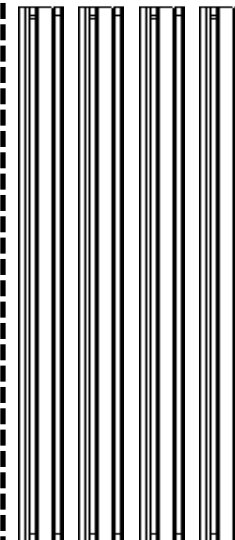
Hotbed  
sticker  
For Z9V5



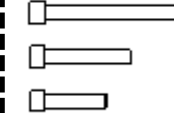
Super base glass  
For Z9V5Pro



Hotbed



Z-axis Profile



M4x36 4PCS



M4x25 16PCS



M4x18 4PCS



Hotbed screws/nuts



Al-Profile cover



Cable tie



Tools



Power cord

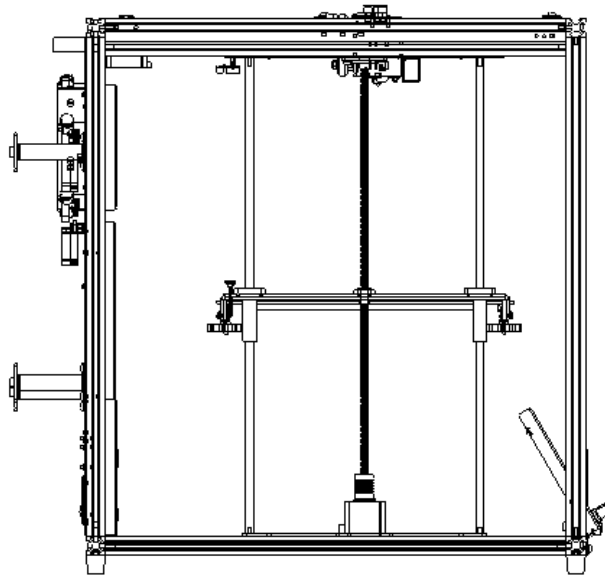


USB Cable

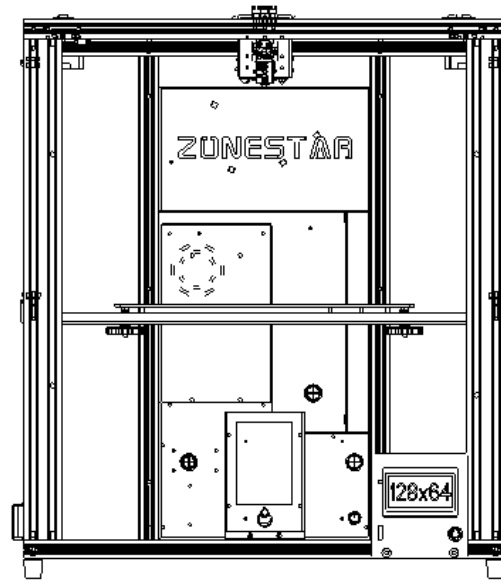


TF card/card reader

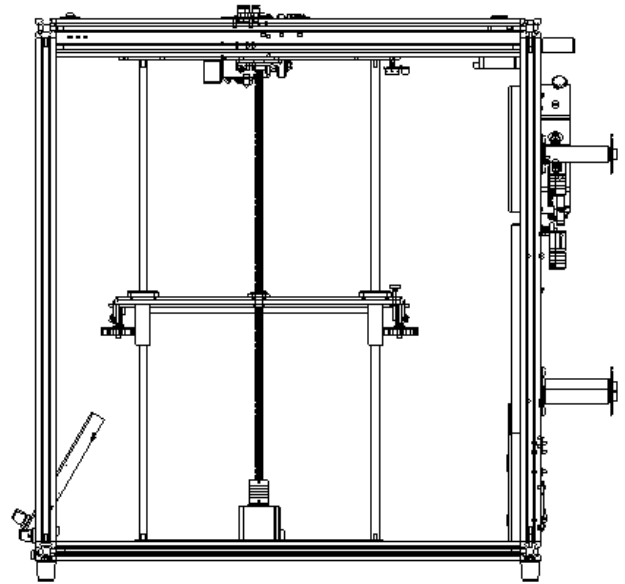
# Machine View



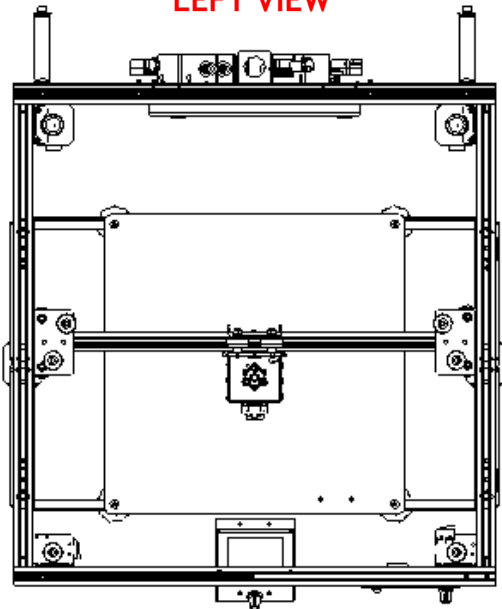
LEFT VIEW



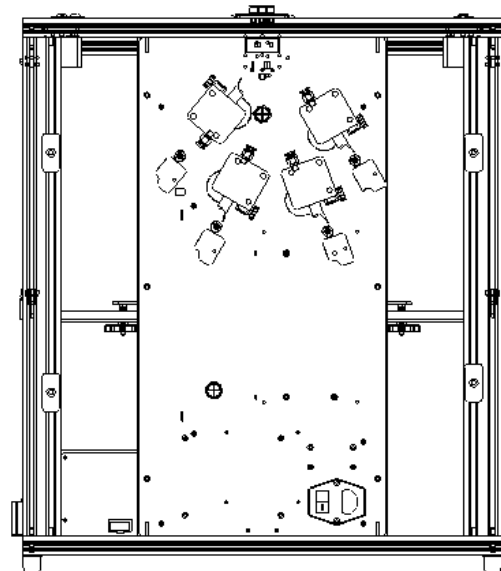
FRONT VIEW



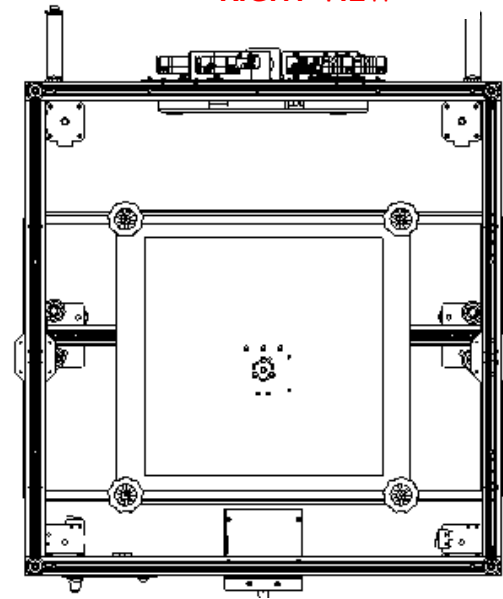
RIGHT VIEW



TOP VIEW

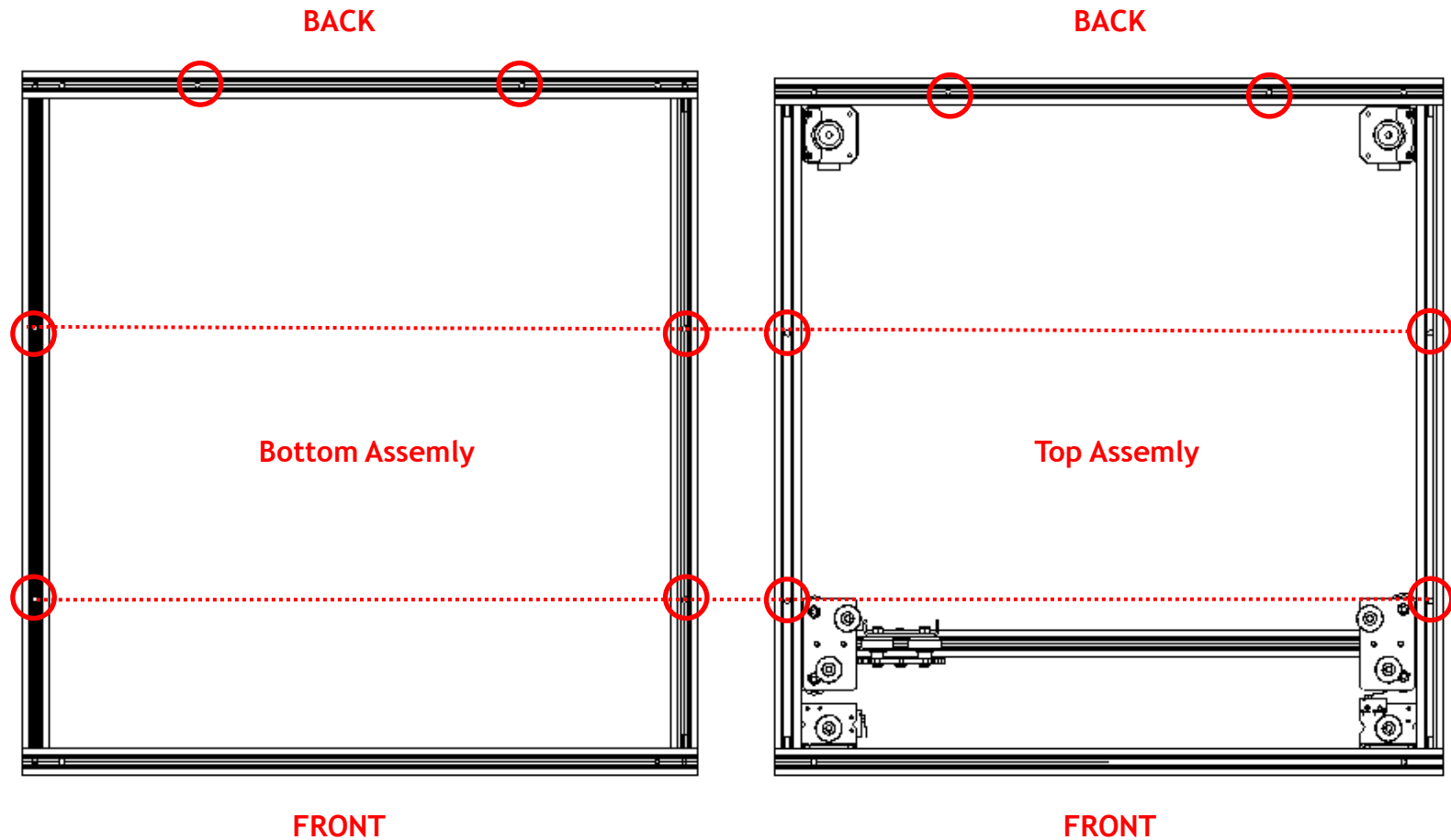


BACK VIEW



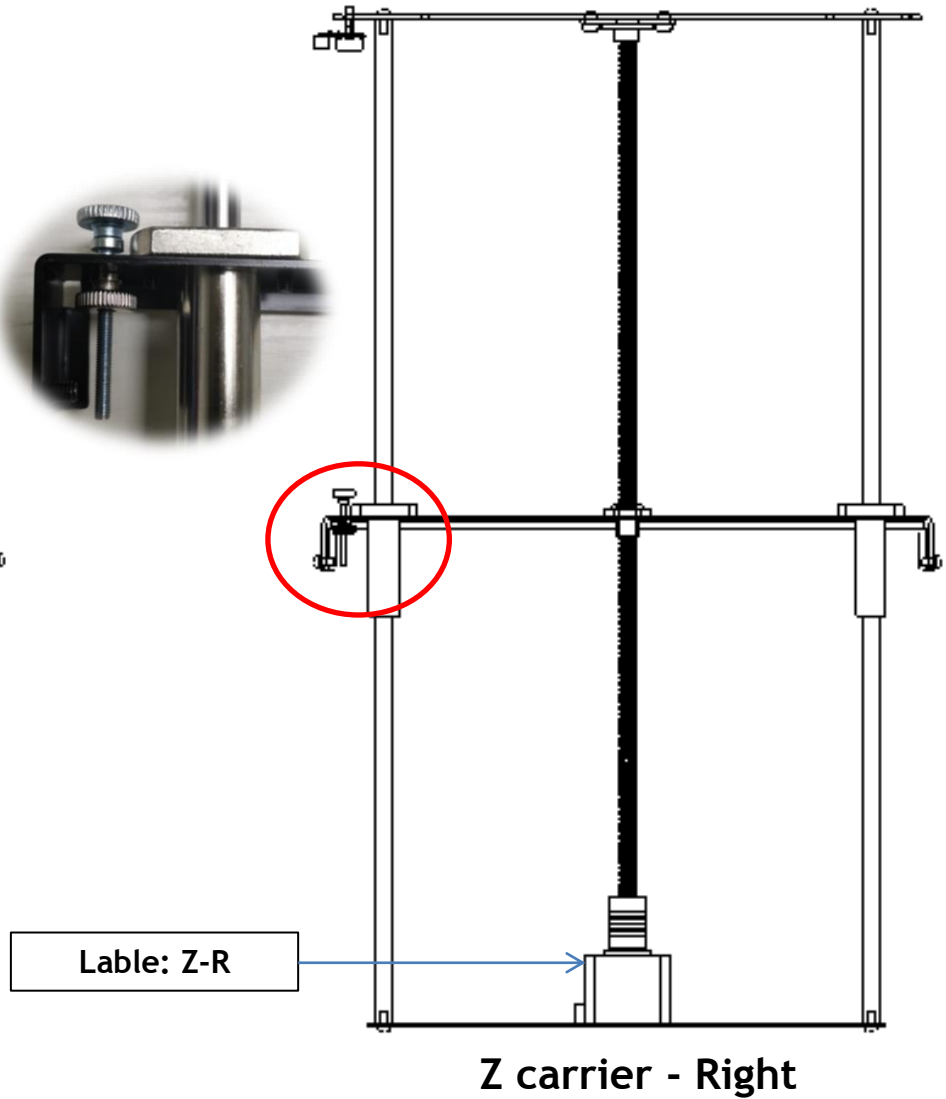
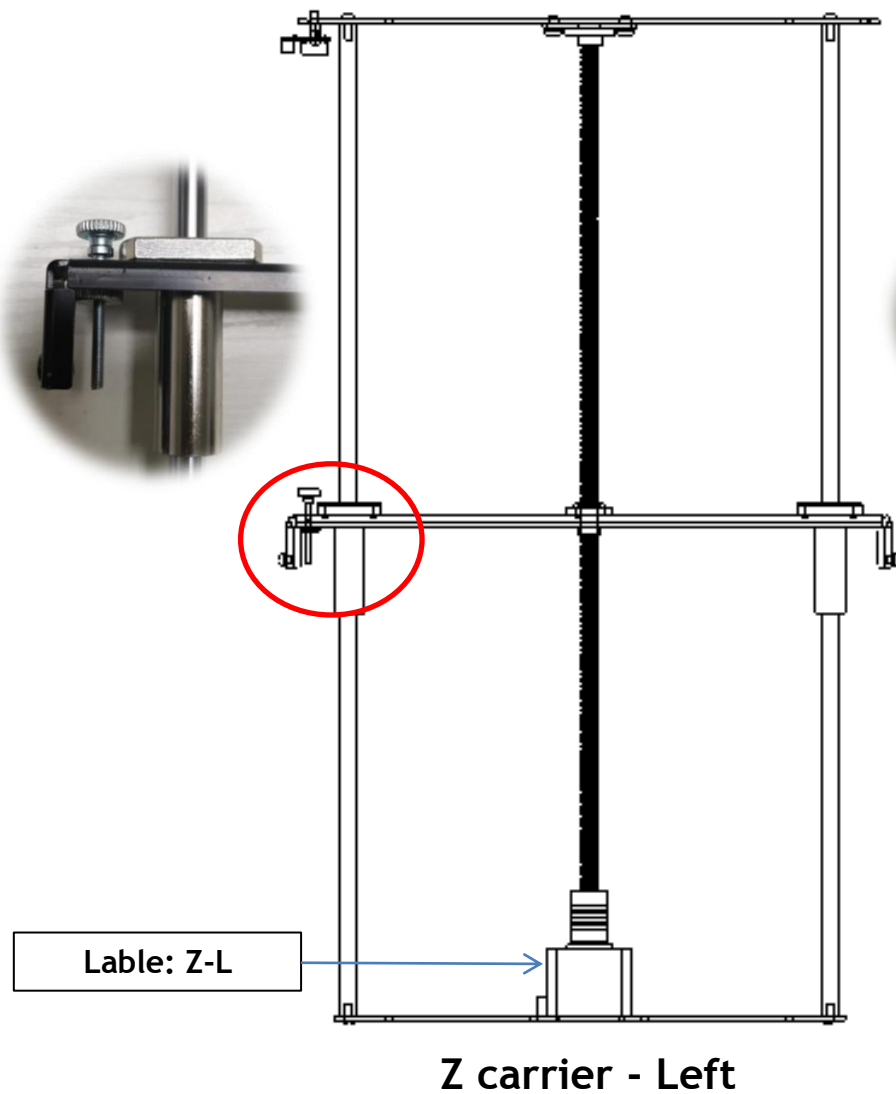
BOTTOM VIEW

# Direction of parts



**NOTE: Pay attention to the distinction between FRONT and BACK!!**

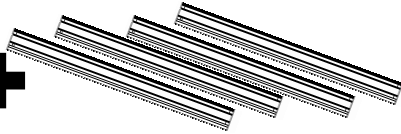
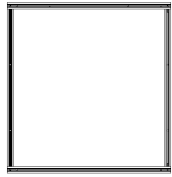
# Direction of parts



**NOTE: Pay attention to the distinction between LEFT and RIGHT!!**



# Assemble

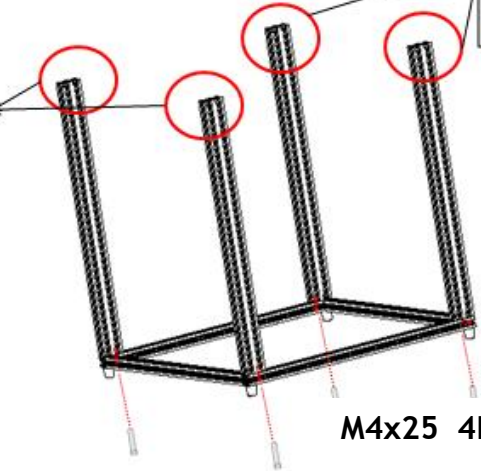
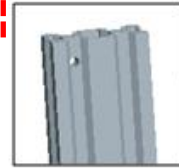


Bottom Assembly

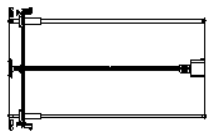
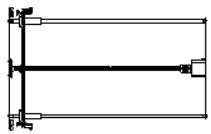
Z profile (4x2040)

M4x25 4PCS

**NOTE:** Pay attention to the hole on the Z profile, it should be on the top and out



M4x25 4PCS

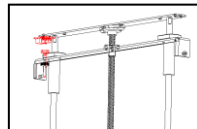


Z carrier - Left

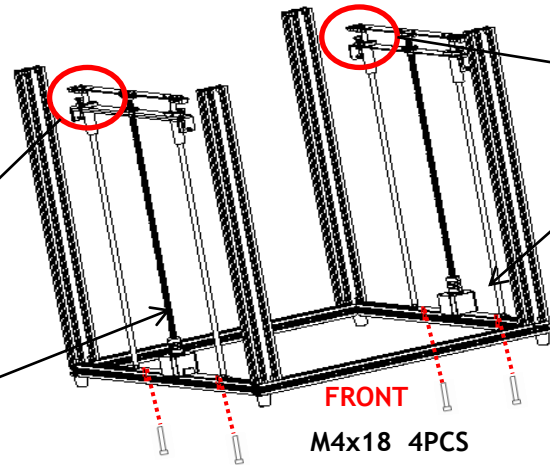
Z carrier - Right

M4x18 4PCS

**NOTE:**  
Pay attention to distinguish  
left and right carriers

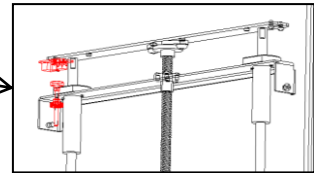


Z carrier - Left



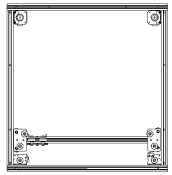
FRONT

M4x18 4PCS

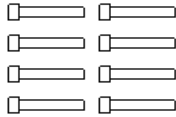


Z carrier - Right

# Assemble



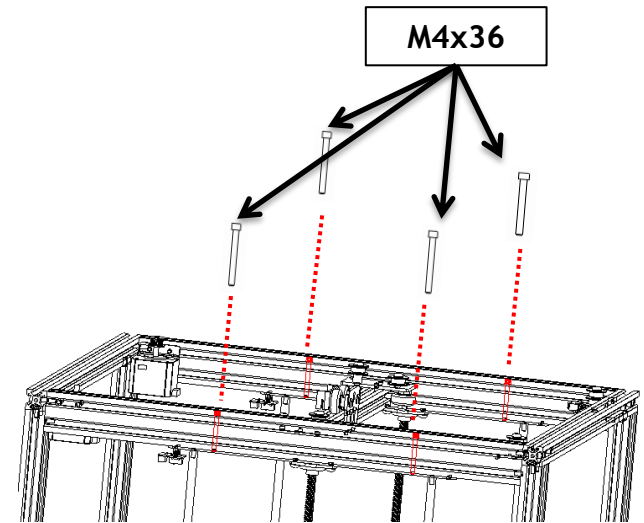
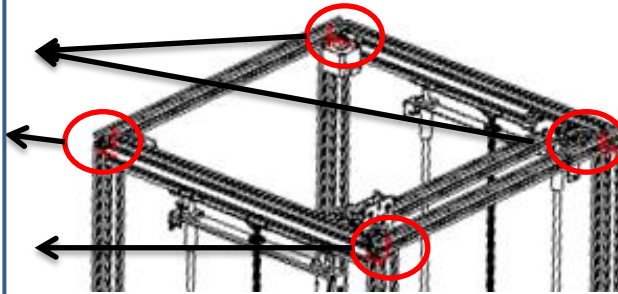
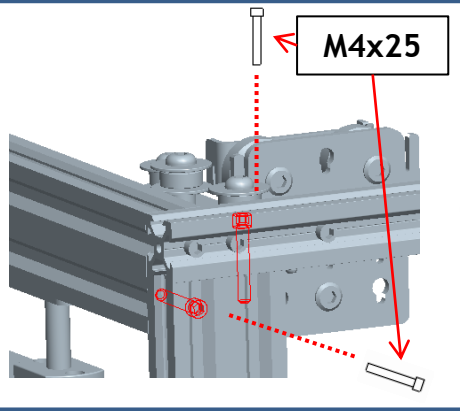
Top assembly



M4x25 8PCS



M4x36 4PCS



## ATTENTION!!

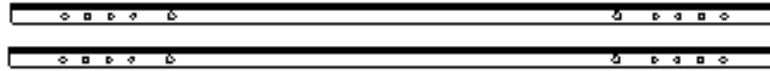
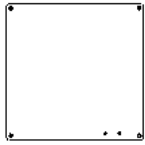
**NOTE:** Adjust the eccentric column so that the x-axis can not shake left and right. It is okay if there is a little gap.



**NOTE:** Ensure that the profile on the top 2 sides is flush with the z-axis profile



# Assemble

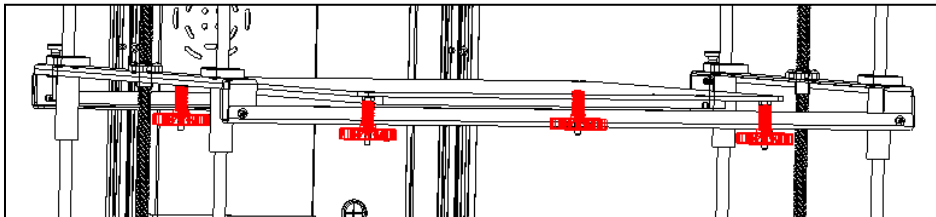


Hotbed Bracket

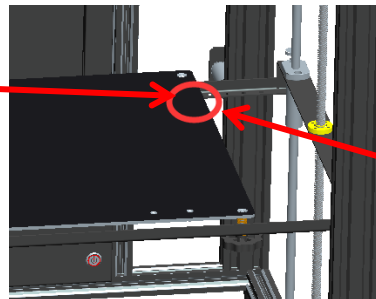
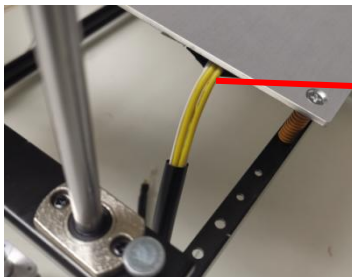
Hotbed screws



Take down these M4 screws first and then tighten them

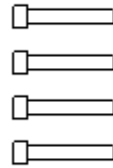
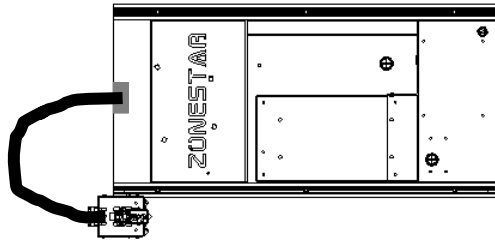


Install springs and hand nuts for hotbed



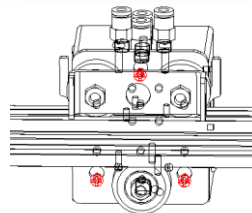
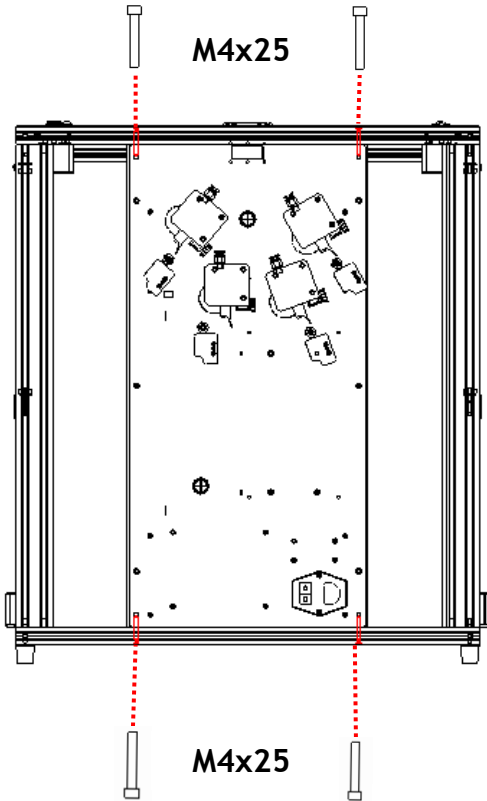
Put the hotbed cable to the left-back corner

# Assemble



M4x25 4PCS

M4x25

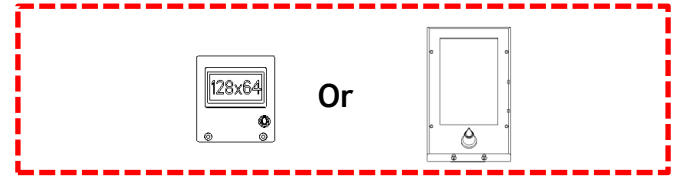


Loosen these 3  
M3x6 screws and  
then tighten

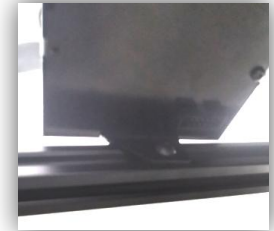
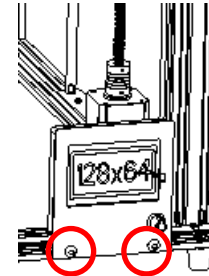
Install the control box assembly  
to the back of fram

Install the hotend to the carrier  
Of X axis

M4x25



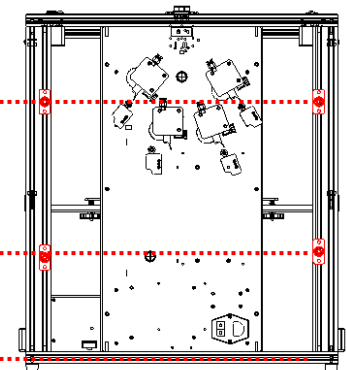
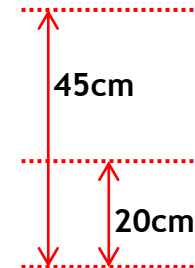
Or



Install LCD screen to the bottom-front profile

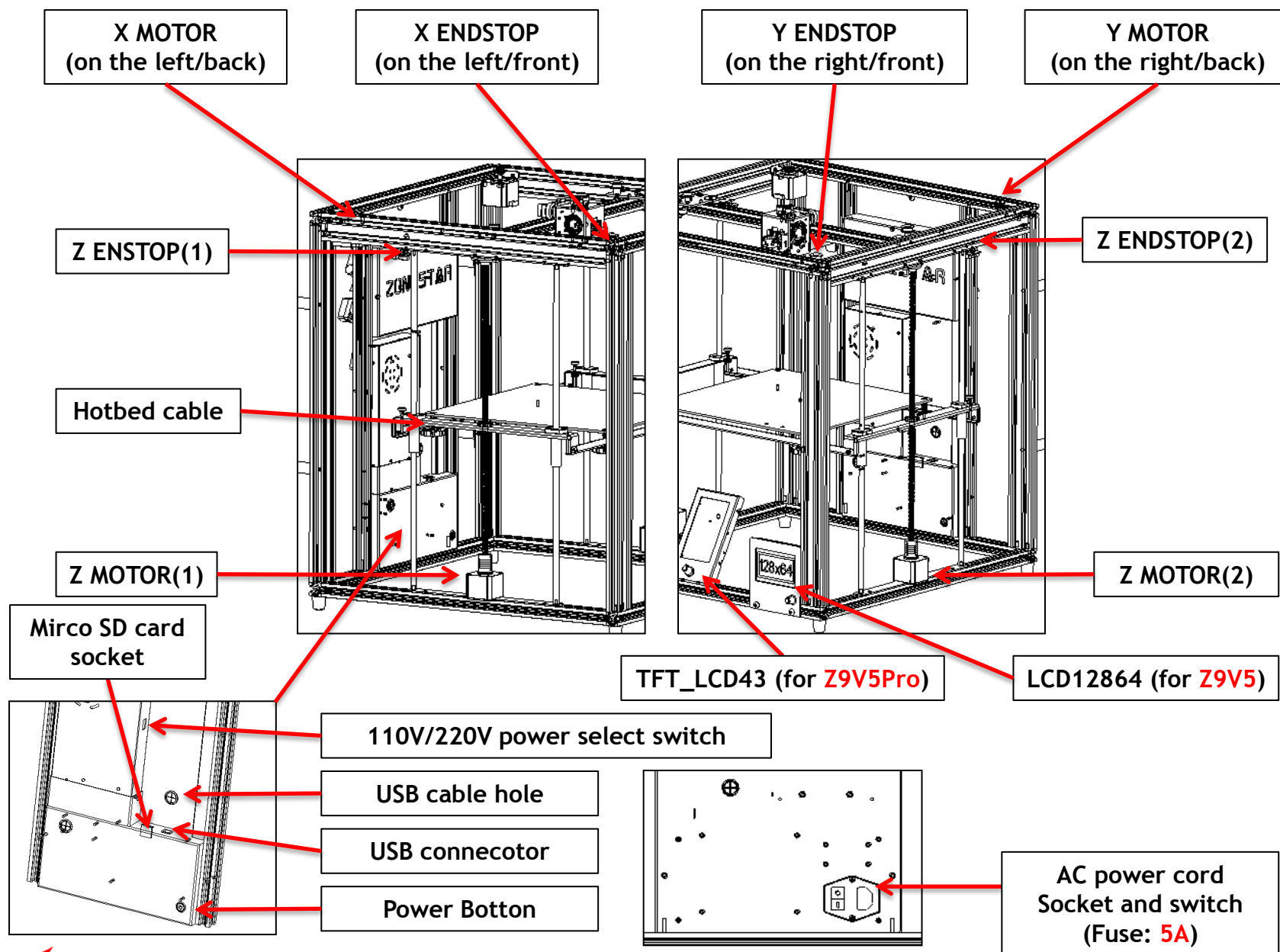


Filament Bracket

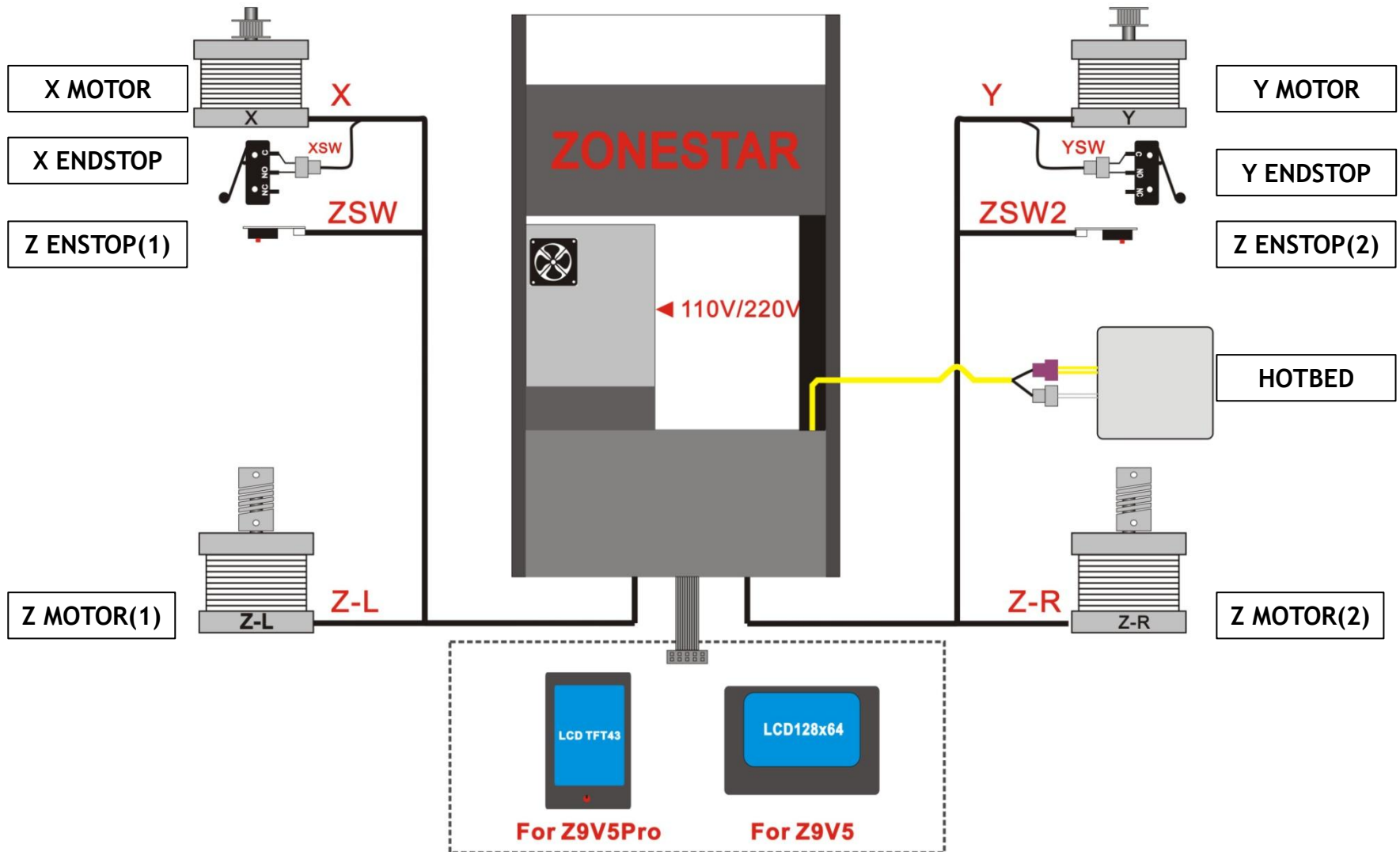


Install filament bracket to the back Z profile

# Wiring (parts)



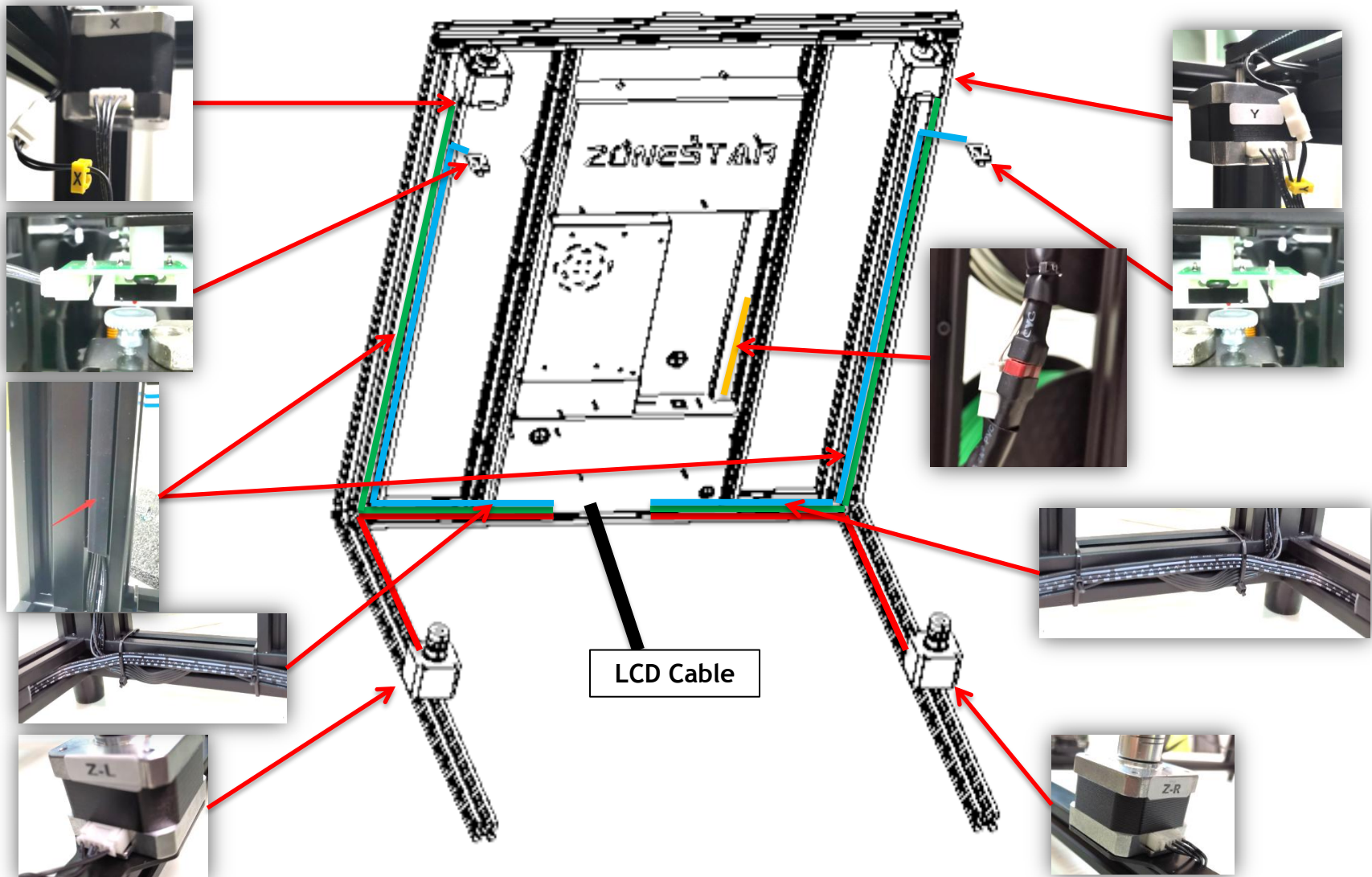
# Wiring Block



NOTE: According to the model, there is a LCD12864 or a 4.3INCH TFTLCD, it should be connect to the LCD cable



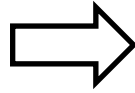
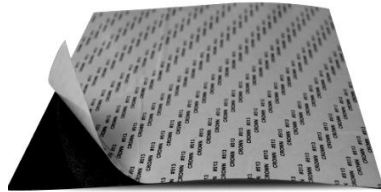
# Layout the wires



**NOTE:** Put the wires into the groove of profile, and cover with plastic strips.  
**ATTENTION:** Be careful!!! Avoid to damage the insulation of the wires!!!

# Paste the hotbed sticker/Install the superbase glass

## Z9V5



**Remove the paper**

**Paste on the hotbed**

### **NOTE:**

Take care when pasting, avoid the influence of air bubbles cause the hot bed is not smooth.

### **Tips:**

First tear off one side of the sticker on the back, then Level with a shovel from one side to the other side, and then gradually tear off the sticker on the back.

## Z9V5 Pro



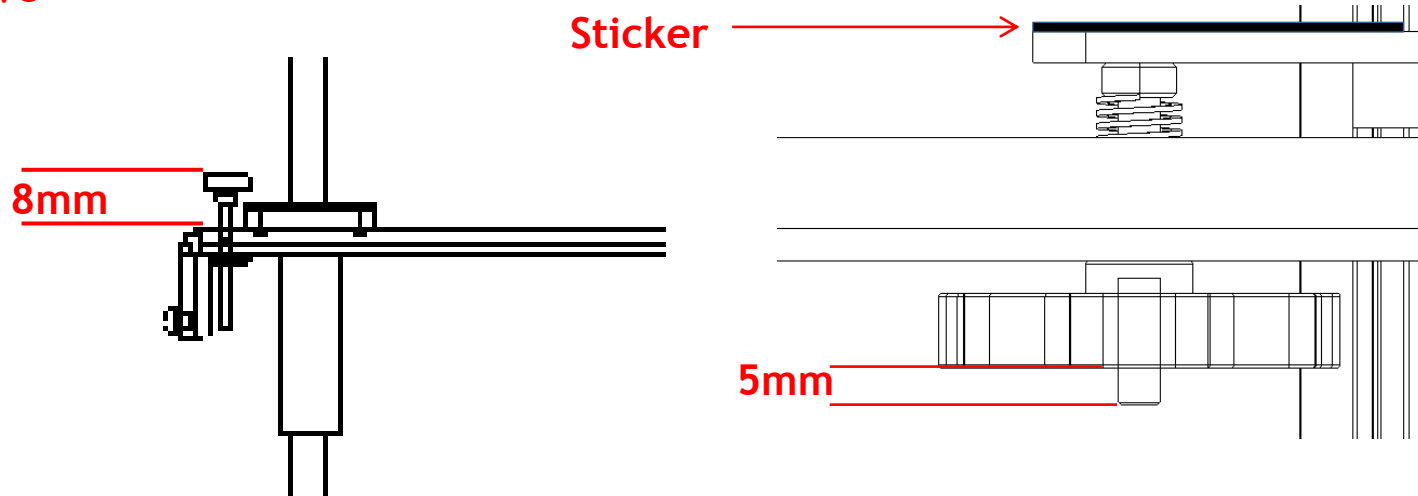
### **Tips:**

Using 4 clips to fix the glass on the hotbed

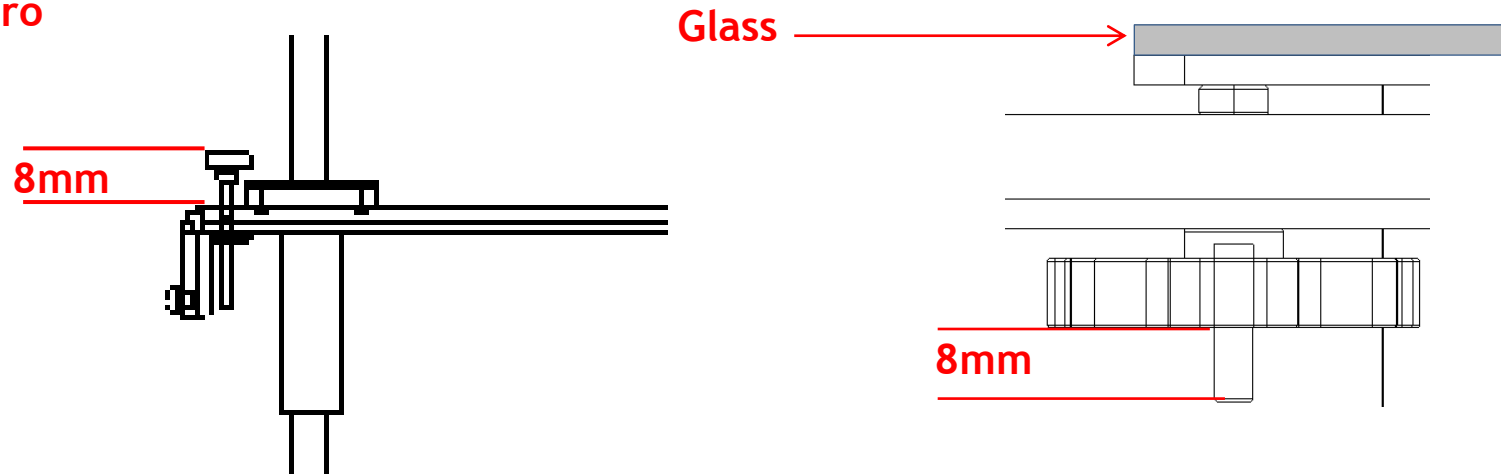


# Check the Z axis height adjust screws and hotbed nuts

## Z9V5



## Z9V5Pro



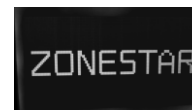
# Power ON / Power OFF

**!!ATTENTION!!**

**MAKE SURE THE AC VOLTAGE SELECT SWITCH HAS BEEN SET TO THE CORRECT POSITION!!!**



## POWER ON

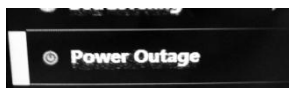


Plug in AC power cord and turn on the power switch

Push and hold the DC power button

**hold** the button until the LCD shows Logo

## Manual POWER OFF



.....



Do "Switch Power Off" or Power Outage

Wait the LCD screen off

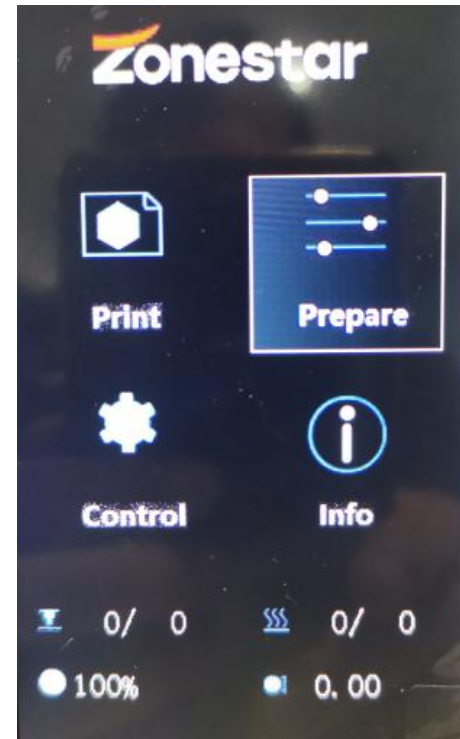
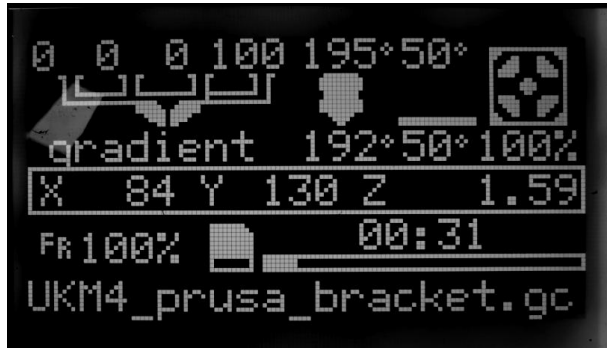
Turn OFF AC Power Switch

## Auto Power off after printed

For LCD12864: If you hope the printer power off automatically when printing is finished, you need to add a command **M81** at "end gcode" in slicing software. **PS: Only work when printing from SD card!**

For TFT-LCD, you can turn on the **auto shutdown** feature on LCD, it will auto shut down after 15 minutes without operation or stopped printing.

# LCD Menu and Operation



For details on the LCD12864 menu, please refer to "[LCD12864 Menu Description.pdf](#)".  
For details on the TFT-LCD menu, please refer to "[LCD\\_DWIN Menu Description.pdf](#)".

# Verify wiring

**Step 1: Before turning on the power, confirm again:**

✓ **Check if it has been set correctly of the 110V/220V power voltage select switch!!!**

**Step 2: Check temperature sensor:**

Plug in the AC power cord and turn on power, watch the LCD screen, temperature should be almost the same with ambient temperature.

**Step 3: Check X, Y and Z axis Motors and ENDSTOPs:**

**DO:** Move axis>>Move X/Y/Z>> Move 10mm. Enter and rotate knob to move the X/Y/Z axis (TFT-LCD need to press the button).

**CHECK:** Check if the print head can move left/right (X axis), front/back (Y axis), or the hotbed can move up/down (Z axis).

**CHECK:** Press and hold the X/Y limit switch, and try to reduce the value of X/Y, the print head should stop moving, otherwise check the connection of the X/Y limit switch.

**CHECK:** Press and hold the Z limit switch, and try to reduce the value of Z, the hotbed should stop moving, otherwise check the connection of the Z- limit switch.

**Step 4: Check heaters and Fans:**

1. **Temperature>>Nozzle: 180**, set the nozzle temperature to 180 degrees, and then return to info menu, the nozzle temperature will rise, usually it is one degree per seconds or so.

2. **Temperature>>Bed: 60**, set the heat bed temperature to 60 degrees, and then return to info menu, the hotbed temperature will rise, usually it is one degree per 2 seconds or so.

3. Check HOTEND cooling fan. When the nozzle temperature is over 60 degrees, the cooling fan on the side of print head should work.

4. Check Extruder fan, **Temperature>>Fan Speed: 100%**, the extruder fan should work.

**Step 5: Check extrusion feeders:**

1. **Temperature>>Nozzle: 180**, set the nozzle temperature to 180 degrees, and then return to info menu, waiting for the temperature reached to the setting.

2. **Set the mixing ratio of all extruders to the same (25:25:25:25):**

**Mixer>>Set Mix>>Active V-tool: 0>> set to Active V-tool: 4**

3. **Move Axis>>Extruder>>Move 10mm>>Extruder: +20mm**, watch the gear of the extrusion feeder, and check if all of the extrusion feeders will work.

# Prepare to print - Level the hotbed

1

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

2

Watch the nozzle and make sure the nozzle is higher than the bed about 1mm, otherwise tighten the hand nuts under the bed to pull down the hotbed or loosen these nuts to move up the bed.

3

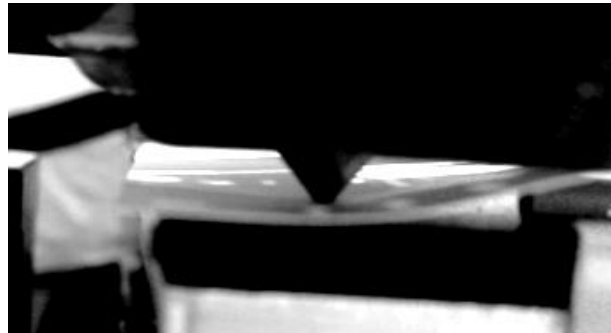
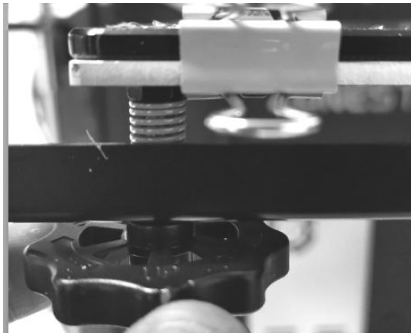
**LCD128x64:** Choose “Motion”>> “bed leveling”>> “Level Corners”,

**TFT-LCD:** Choose “Prepare”>> “bed leveling”>> “Point 1(2/3/4)”,

the nozzle will go to the corners of the bed, 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 distance between the nozzle and hotbed can only insert a paper, it is perfect.

4

Choose the next corner, and adjust again. Repeat these steps again and again, until all of the four corner at the same height.



# Prepare to print - Load Filament

1

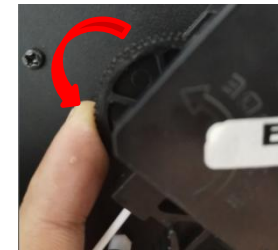
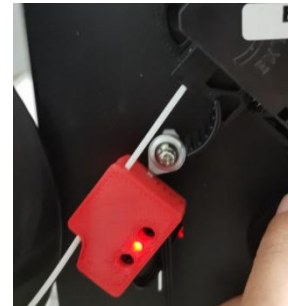
Preheat nozzle: Temperature>> Nozzle, set it to about 190 degree (for PLA) or 220 degree(for ABS and PETG filament), then nozzle will be heated. Waiting nozzle temperature reached to setting.

2

Press the handle on the extrude feeder and insert filament, until the filament **enter to the hotend (make sure the filament enter the hotend)**.

3

Rotate the gear of the extruder feeder manually, until the filament is flowed out from nozzle



Preheating the nozzle

Use a diagonal pliers  
to cut off the head of  
filament

Press the handle and  
insert filament into  
the extrude feeder

Rotate the gear and watch  
the nozzle, until the  
filament is flowing out

## NOTE:

1. We have only open one channel of the hotend when the printer left the factory, so please load one filament the hotend in your "hello world" prints.
2. Before loading more than one filaments to the hotend, please read this guide first: [Mix Color HOTEND User Guide- load and unload filament](#)

Reference guide:

1. [Mix Color HOTEND User Guide- load and unload filament.pdf](#)
2. [Operature guide for Mixing Color Printer V1\\_1.pdf](#)

# Complete your first print

1

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

**LCD12864:** Choose “Print from Media”>> Choose “Test\_gcode\Single Color\xyz\_cube.gcode”, push the knob to start printing.

2

**TFT-LCD:** Click “Print”>> 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, set the z offset if the distance is not perfect, let the filament can stick on the hotbed well.

**For LCD12864:** Double click the knob to call out a “babystpe Z” menu to adjust the distance from nozzle to bed.

**For TFT-LCD :** Open “tune>>Z offset” Menu to adjust the distance from nozzle to bed.



Too Far



Too close



Good

## 1. About slicing:

The printer can only accept gcode file, if you want to print your own 3d model files, usually the file suffix are *stl, AMF, Obj, etc.* you need to convert it to a gcode file, this process is called *slicing*. About how to slicing a 3d model file, please refer to this guide “*Slicing guide for Mixing Color Printer.pdf*.”

## 2. About bed auto leveling feature:

Many factors will lead to the problem of uneven hot bed. This printer is equipped with a Proximity sensor for automatic leveling of the hot bed. With this sensor, you can correct the unevenness of the hot bed. About more information, please refer to this guide: “*Auto leveling feaure user guide (PL-08N).pdf*”.

## 3. About mixing color feature:

This machine is equipped with a mixing extruder, which can print single color, multi-color and gradient colors object. For the introduction of mixed color printing, please refer to this guide: “*Operature guide for Mixing Color Printer.pdf*”.

## 4. About power loss recovery feature:

When you print from SD card, and power is lost when printing, the printer will resume to Print from the last layer which printed before power lost automatically, about the detail, please refer to this guide: “*Power loss recovery feature user guide.pdf*”.

**NOTE: if you can't find these guide in your SD card, please download from the below link:!** [\*\*https://github.com/ZONESTAR3D\*\*](https://github.com/ZONESTAR3D)



# Wiring Diagram

## Z9V5 Wiring Diagram

Control Board: ZM3E4\_ **V2**  
Grey block is for upgrade features

