Keyes Gen II 3D Printer
Technical Manual for Installation

Content

I. Installation procedures

KEYES ROSTOK 3D printer is easy to install due to its simple hardware structure. Below are some tips and suggestions for installation.

Before installation, please keep necessary tools on hand. Tools needed are a set of allen driver for repair, M3, M4 screw tap, nipper pliers, wire stripper and etc. Please be careful with the pressure you apply during installation in case components were damaged due to overexertion.

The mechanical structure of the printer is mainly comprised of slider, acrylic board, fixed units, belt and various attachments. Each component has its own specific installation position and plays an important role, so please be sure to install in a proper way. You must also pay close attention to installation procedures. The whole printer structure is not complicated indeed, but if you don't follow certain steps, you might risk wasting lots of precious time. Now let's move on to specific installation procedures and methods of KEYES ROSTOK 3Dprinter .

1. Installing bottom bracket:

Materials needed are shown in below pic 1:

Pic1

List:

6pcs Slider

3pcs Bracket holder

12pcs M3*14 Hexagon socket head cap screws

12pcs M3 nut

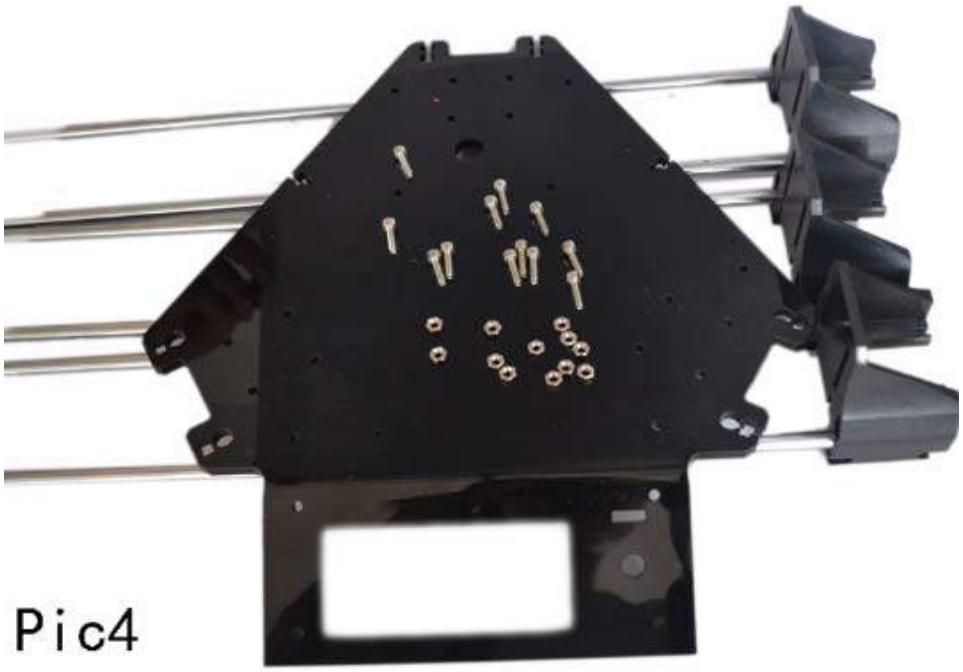
Install as following pic 2 shows: Install slider and softly strike the slider into bracket holder with small hammer, then screw it down with M3*14 screw. Please mind the pressure you apply, otherwise, the bracket holder may be broken due to overexertion. **Please pay extra attention to the direction shown in below pictures, the direction must not be taken conversely. The slider and the bottom of bracket holder must be in one line(as pic 3 shows).**

Pic2

Pic3

2. Installing bottom fixed plate of the frame:

Materials needed are shown in below pic 4:



Pic4

List:

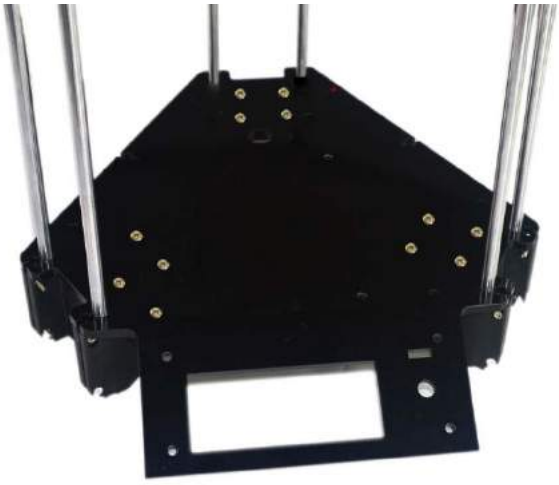
1pc bottom fixed plate of the frame

12pcs M4*14 screw

12pcs M4 nut

Install as following pic 5&6 shows: Install bottom fixed plate of the frame and screw it down with screws. **Please pay extra attention to the direction of bottom fixed plate of the frame.**

Pic5



Pic6

3. Installing motor:

Materials needed are shown in below pic 7:

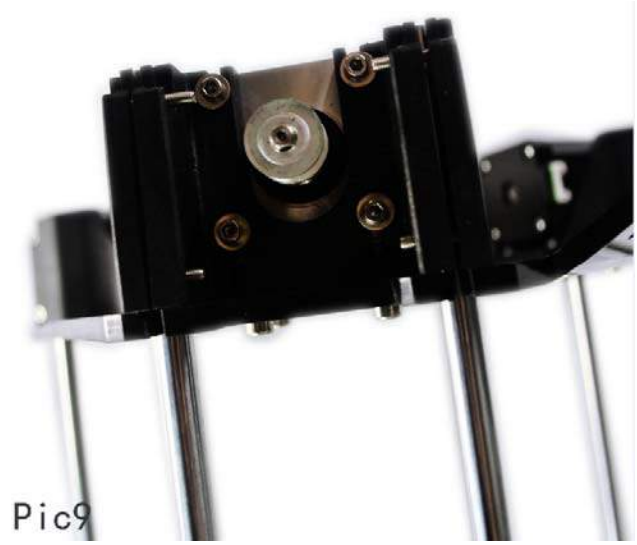
Pic7

List:
3pcs 42 stepper motor
12pcs M3*12 screw
12pcs M3 shim
3pcs synchronous wheel

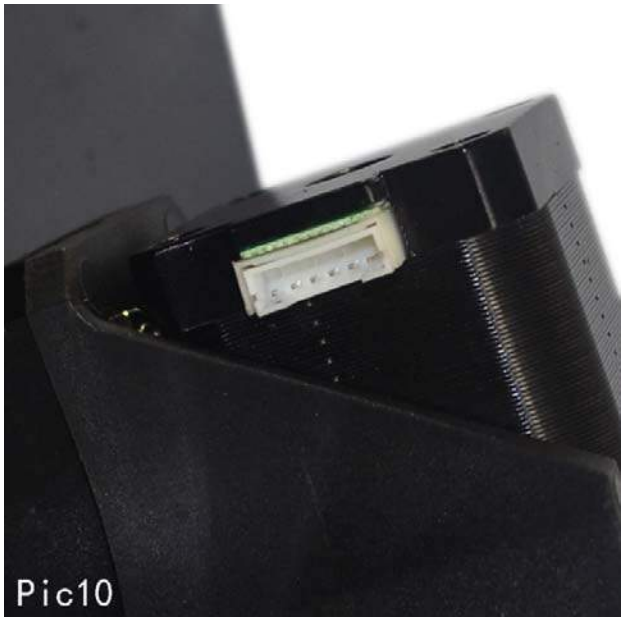
Install as following pic 8 shows: Install synchronous wheel. Don’t screw it down too tight because it will be readjusted during belt installation later.

Install as following pic 9 shows: Mount the stepper motor onto bracket holder. **Please pay extra attention to the direction of motor connection ports, it should point at the left or right of below pic 10 for easy connection.**

Pic8



Pic9



Pic10

4. Installing sliding block:

Materials needed are shown in pic 11:

Pic11

List:

3pcs Slider

3pcs belt clip

3pcs self-lubricating copper bush

3pcs 45mm copper pillar

3pcs M3*16 screw

6pcs M3*25 screw

6pcs M3*30 screw

12pcs M3 nut

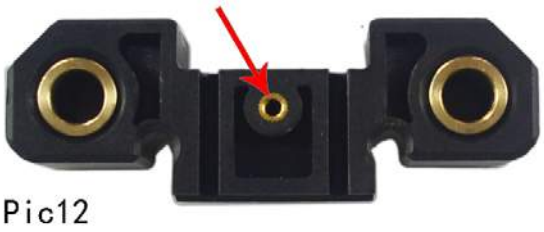
Install as following pic 12 shows: Install self-lubricating copper bush and softly strike it into slider(the side with chamfer should face down).

Install as following pic 13 shows: Install belt clip and copper pillar, the position pointed out by red arrow should be screwed down with M3*30 screw; the position pointed out by yellow arrow should be screwed down with M3*25 screw. **Please pay extra attention to the**

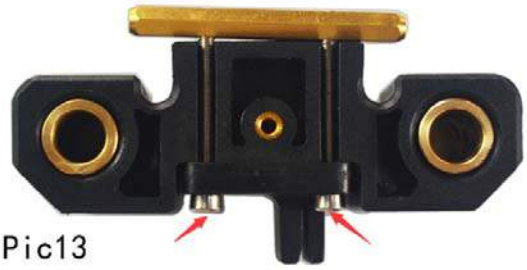
direction of belt clip during installation.

Install as following pic 13 shows: Install one M3*16 screw at the position pointed out by red arrow in pic 12.

Install as following pic 14 shows: Let the side with leveling screw face up and put slider into it. The side with belt clip faces the outside of the frame.



Pic12



Pic13

Pic14

Pic15

5. Installing top fixed plate of the frame:

Material needed are shown in below pic 16:

Pic16

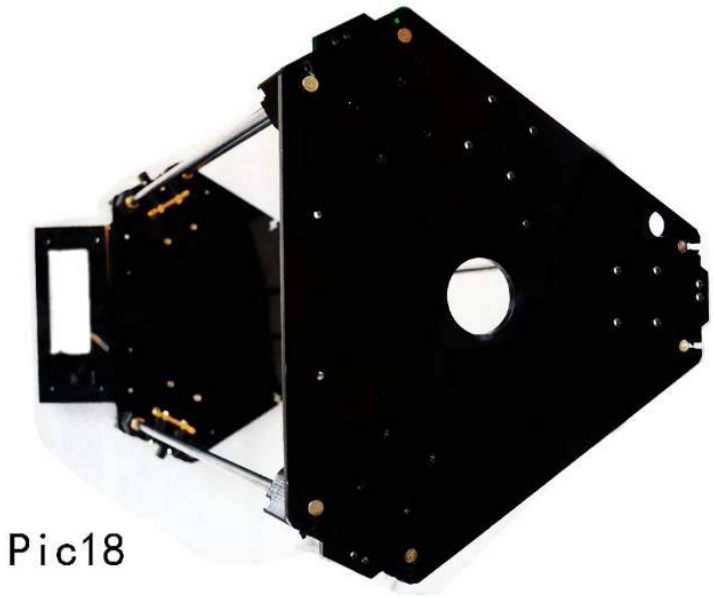
List:
1pc top bracket fixed plate
3pcs bracket holder
12pcs M3*14 screw
12pcs M4*14 screw
12pcs M3 nut
12pcs M4 nut

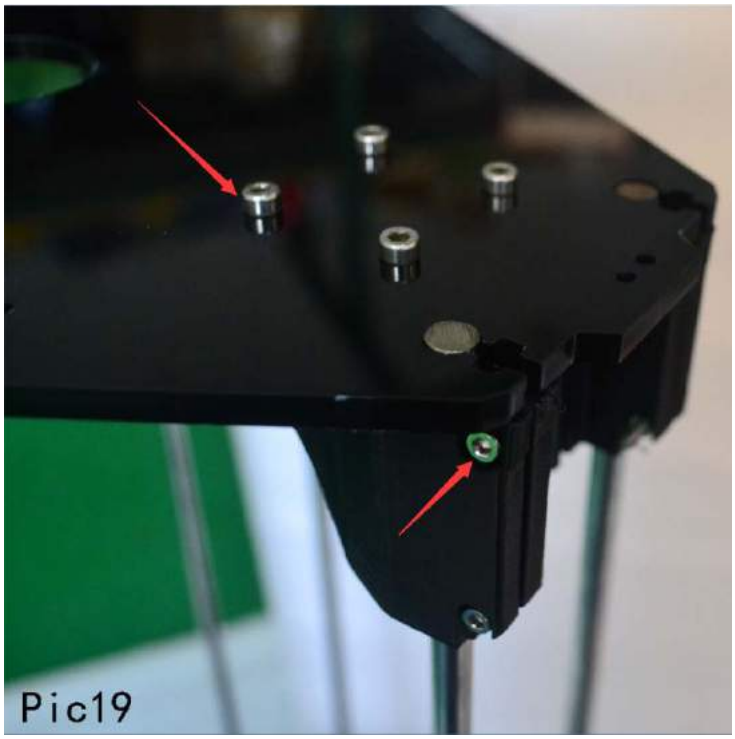
Install as following pic 17 shows: Install bracket holder onto the slider.

Install as the following pic 18 shows: Install top bracket fixed plate onto bracket holder in the direction indicated by the arrow in pic 18. The top bracket fixed plate and the slider should be kept in the same horizontal level.

Install as following pic 19 shows: the part point out by red arrow should be screwed down with M4*14 screw; the part pointed out by green arrow should be screwed down with M3*14 screw.


Pic17


Pic18


Pic19

6. Installing power supply:

Materials needed are shown in below pic 20:

Pic20

List:
1pc switch power supply
4pcs plastic sleeve
4pcs M3*20 screw

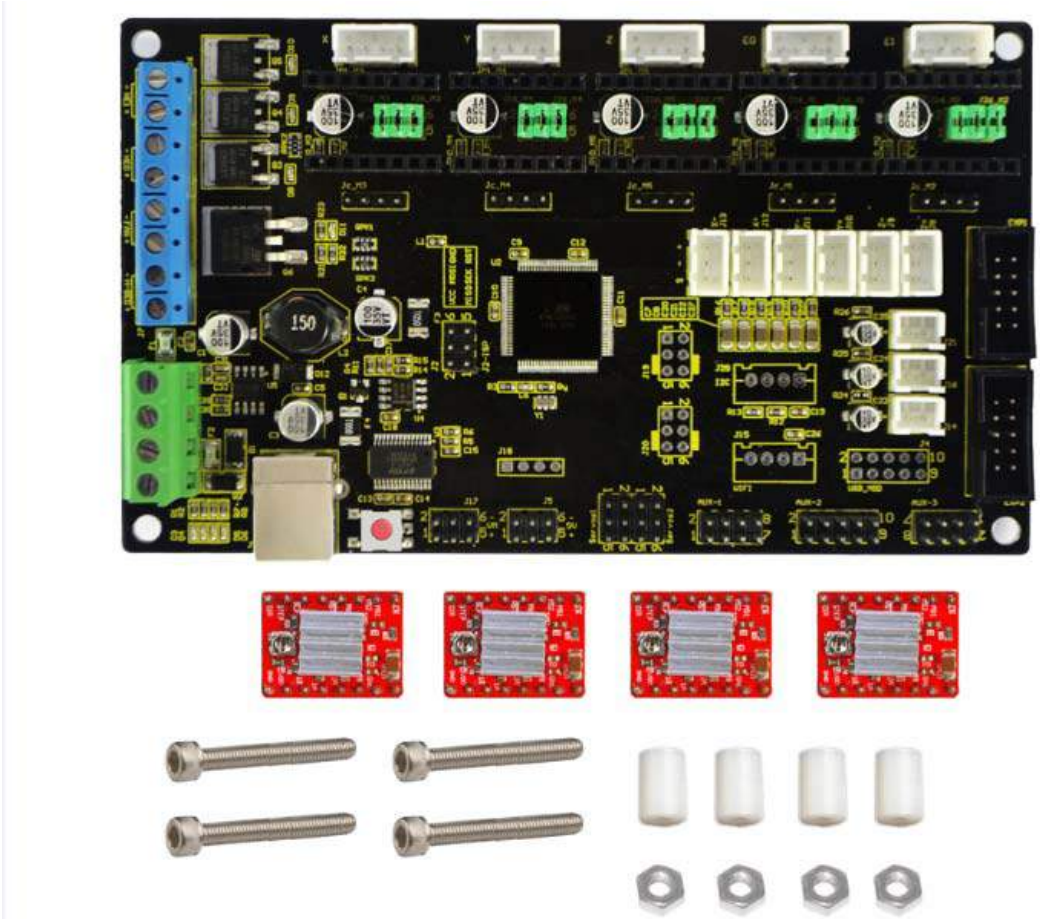
Install as following pic 21&22 shows: Install power supply onto top bracket fixed plate in the direction indicated by pic 21 and screw it down as pic 22 shows.

Pic21

Pic22

7. Installing 3D V1.2 mainboard:

Materials needed are shown in below pic 23:



Pic23

List:

1pc 3D V1.2 board

4pcs 4988 stepper motor drive

4pcs Plastic Column

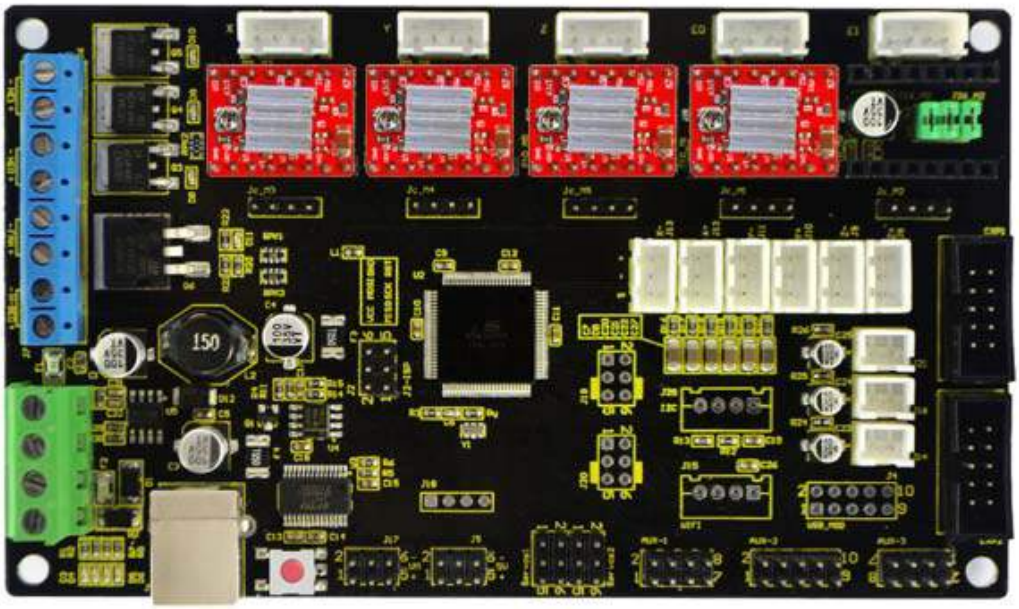
4pcs M3*20 screw

4pcs M3 nut

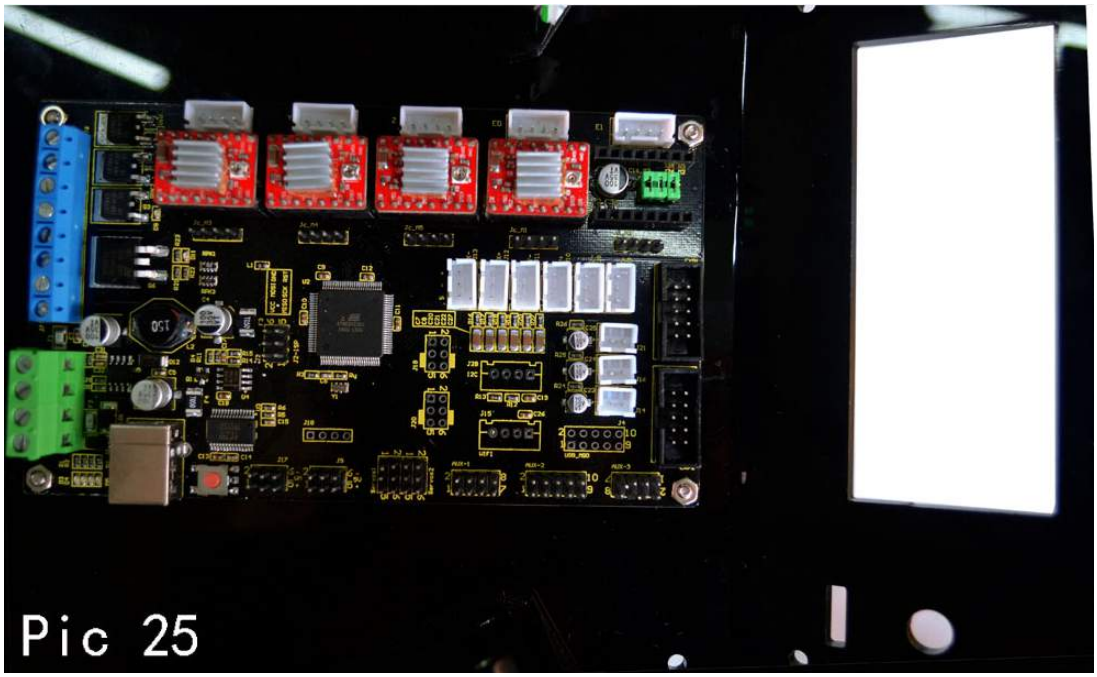
Install as following pic 24 shows: Install 4988 drive board onto 3D V1.2 main control board.

Please make sure 4988 drive is installed in correct direction, otherwise, it may be burned down.

Install as following pic 25 shows: Install mainboard onto bottom bracket fixed plate. Add plastic column between 3D V1.2 and bottom bracket fixed plate, then screw it down.



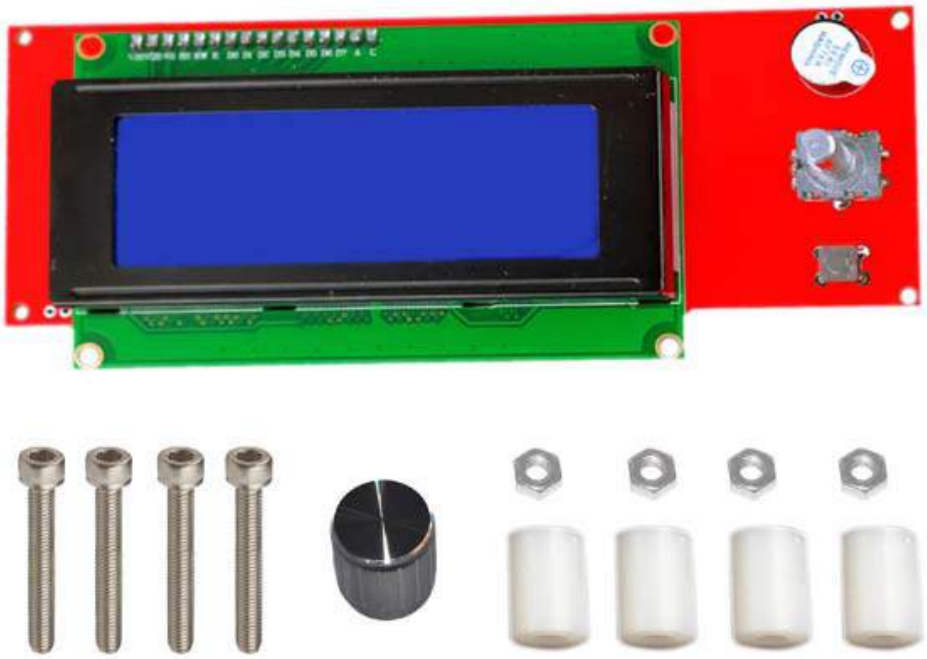
Pic24



Pic 25

8. Installing 2004 display:

Materials needed are shown in below pic 26:



Pic26

List:

1pc 3D 2004 display
1pc volume knob
4pcs plastic column
4pcs M3*20 screw
4pcs M3 nut

Install as following pic 18 shows: Install display, add plastic column between the display and bottom bracket fixed plate, then screw it down.

Pic27

Pic28

9. Installing nozzle:

Materials needed are shown in below pic 29

List:
1pc Nozzle
1pc Movable platform
3pcs 45mm copper pillar
1pc Air blower
1pc Fan
1 Set of nozzle fixed plate
4pcs 25mm copper pillar
1pc Air-deflecting block of air blower
2pcs M2*5 self-tapping screw
6pcs M3*8 screw
8pcs M3*16 screw
6pcs M3 nut

Install as following pic 30 shows: screw 45mm copper pillar down with M3*8 screw.

Install as following pic 31 shows: Install nozzle onto the movable platform.

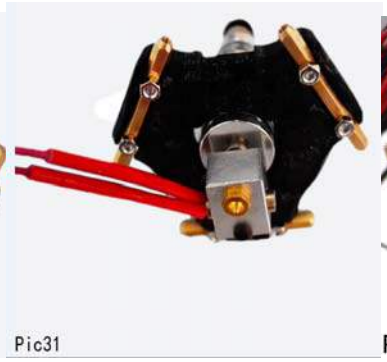
Install as following pic 32 shows: Let heating wire and temperature-sensitive wire pass through the movable platform as pic 31 shows.

Install as following pic 33, 34 & 35 shows: Fix the nozzle and air-deflecting block of Air blower, then screw it down with M3*16 screw. **Please note that air-deflecting block of the air blower should not be connected with the heating aluminum block of nozzle.**

Install as following pic 36 shows: Install cooling fan and fix it with nylon ribbon.

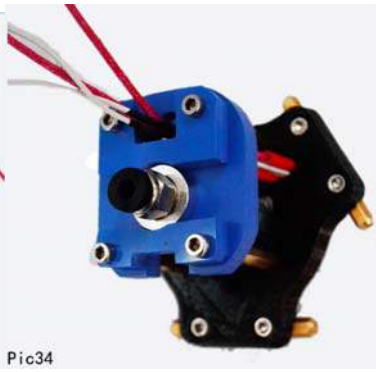
Install as following pic 37 shows: Finally, install air blower. First, drill a hole at the air port of the air blower for fixation of air blower and air-deflecting block of the air blower. The final effect is shown as below pic 38.


Pic30

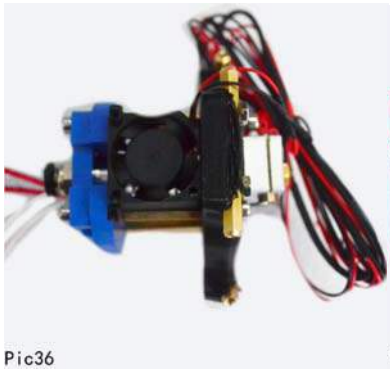

Pic31


Pic32


Pic33


Pic34


Pic35


Pic36


Pic37


Pic38

10. Installing hotbed:

Materials needed are shown in below pic 39:

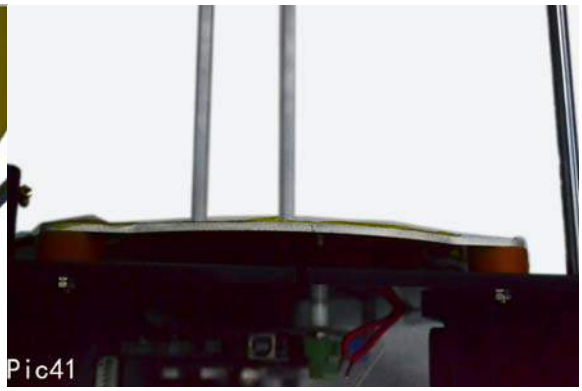
Pic39

List:
1pc hotbed
6pcs bakelite
6pcs M3*25 screw
6pcs M3 nut

Install as following pic 40 shows: Before fixing the hotbed, first let temperature-sensitive wire and heating wire pass through the bore in the bottom fixed plate of the frame.

Install as following pic 41 shows: Screw the hotbed down onto the bottom bracket fixed plate.

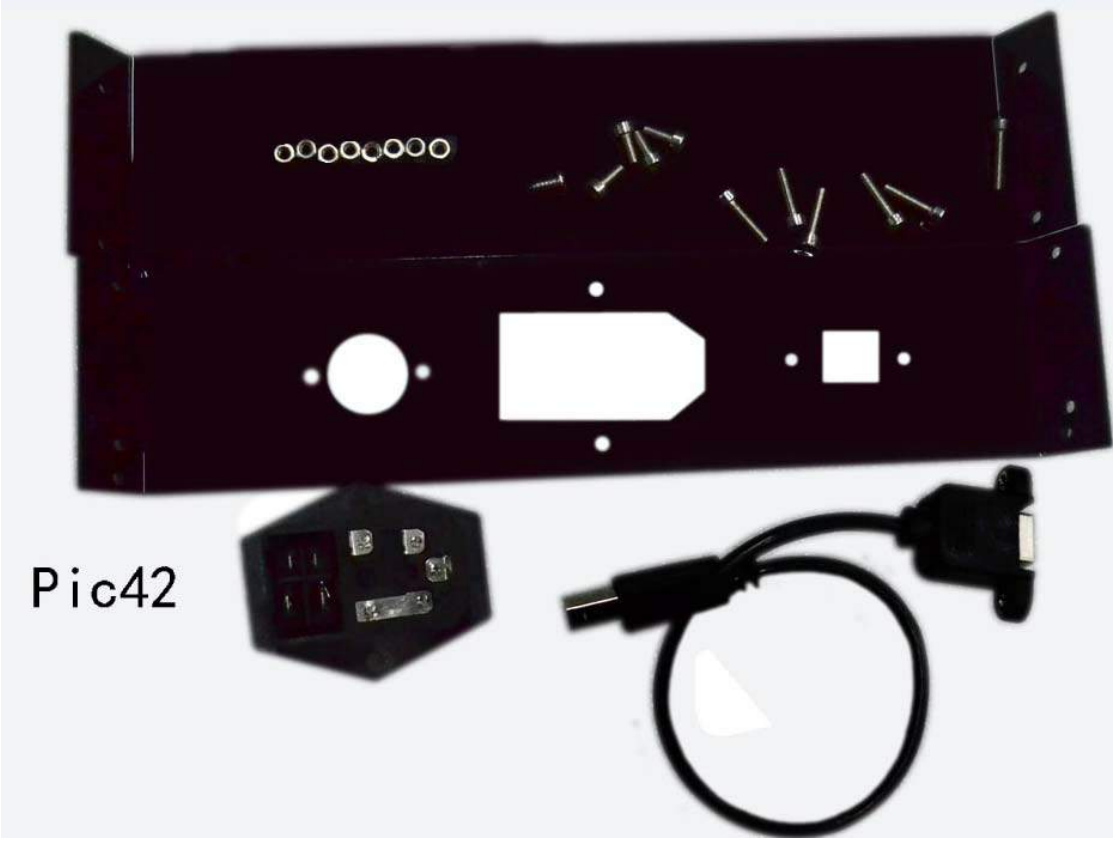
Pic40



Pic41

11. Installing side shield:

Materials needed are shown in below pic 42:



Pic42

List:

1pc Side shield 1

1pc Side shield 2

1pc USB extension cord

1pc Power socket

4pcs M3*8 Self-tapping screw

4pcs M3*8 screw

6pcs M3*14 screw

8pcs M3 nut

Install as following pic 43 shows: Fix the power socket and USB extension cord with M3*8 screw.

Install as following pic 45&46 shows: Fix side shield 1 and side shield 2 in the direction indicated by the arrow in pic 44, then screw it down as pic 46 shows. Please make sure the side shields are installed in the correct direction.

Pic43

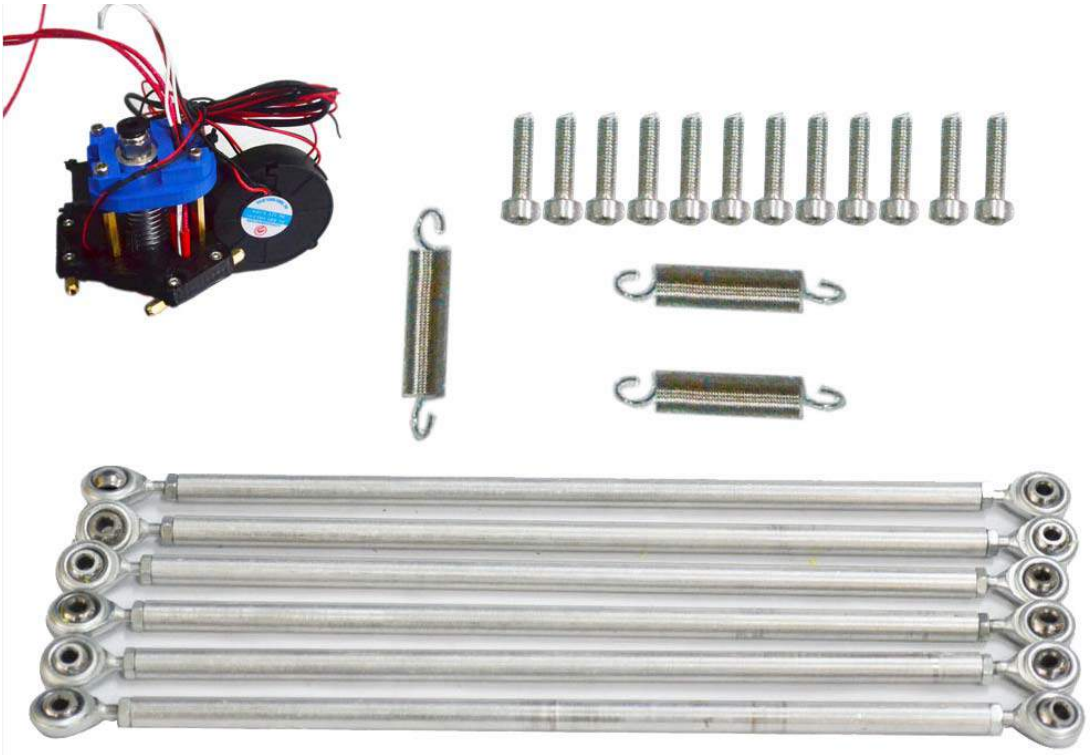
Pic44

Pic45

Pic46

12. Connecting nozzle with sliding block:

Materials needed are shown in below pic 47:



Pic47

List:

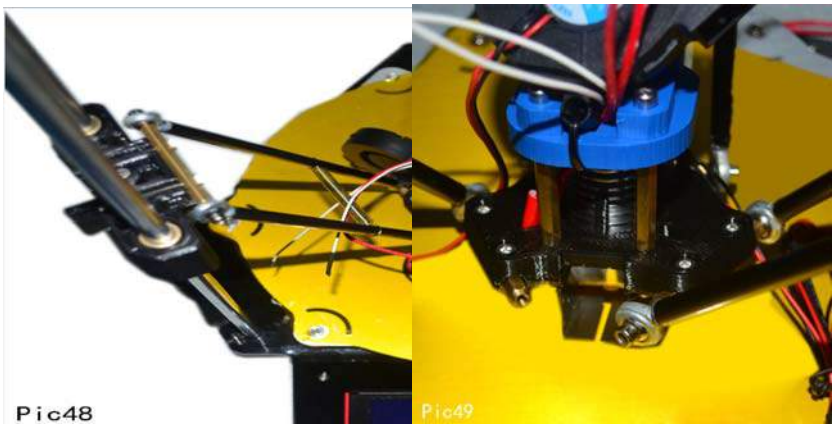
6pcs push rod (fiber tube with fisheye installed)

12pcs M3*12 screw

3pcs tension spring

Install as following pic 48 shows: Fix push rod onto the slider and nozzle with M3*12 screw. Please first remove the air blower install in step 9, then fix the push rod, finally fix the air blower again.

Install as following pic 49 shows: Fix with nylon ribbon and M2*5 self-tapping screw. Add tension spring onto two adjacent push rods in the direction indicated by the arrow in pic 49.



13. Installing collision board:

Materials needed are shown in below pic 50:

Pic50

List:

3pcs Collision board

3pcs collision fixed plate

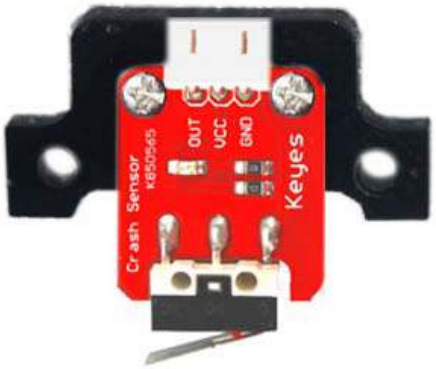
6pcs M3*8 Philip's head screw

6pcs M3*16 hexagon socket head cap screw

12pcs M3 nut

Install as following pic 51 shows: Screw down the collision board with M3*8 self-tapping screw.

Install as following pic 52 shows: Install collision fixed board onto the top fixed bracket with M3*16 screw.



Pic51

Pic52

14. Installing synchronous belt and its regulator

Materials needed are shown in below pic 53:

Pic53

List:

3pcs Belt regulator

6pcs M3*25 screw
6pcs M3 nut
3pcs M4*16 screw
3pcs M4 nut
3pcs synchronous belt
6pcs flange bearing

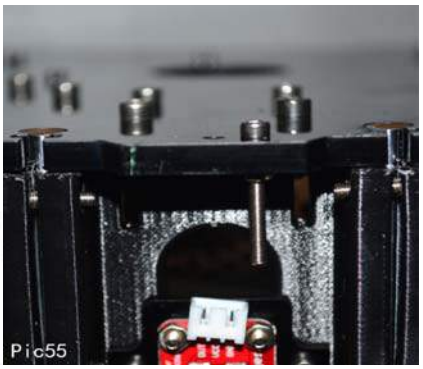
Install flange bearing as following pic 54 shows. If there is no M3 nut in the position indicated by arrow in pic 54, then add one.

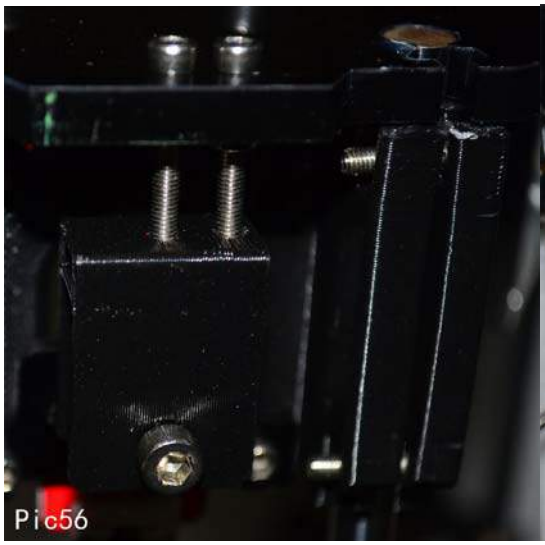
Install one M3*25 screw as following pic 55 shows and screw it down with nut. Please note that the mounting hole should be on the right-side bore.

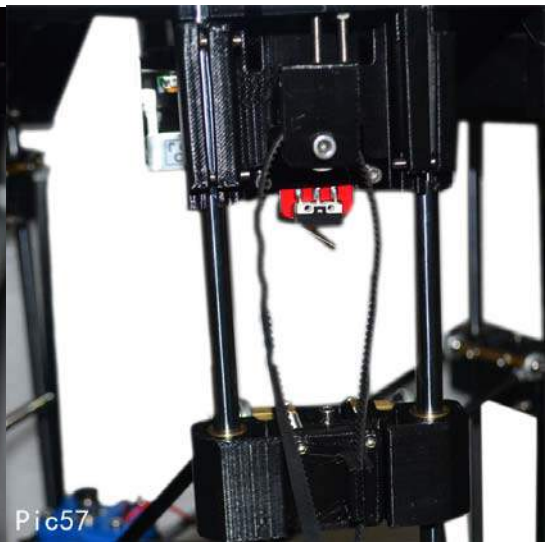
When belt regulator is mounted with flange bearing, fix the belt regulator onto the frame as following pic 56 shows.

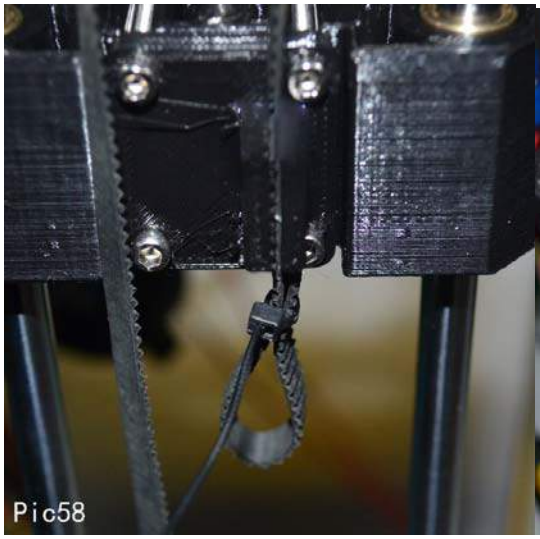
Fix synchronous belt as shown in following pic 57, 58&59. If synchronous belt is a little loose after installation, you can adjust the screw on the left(as shown by pic 55) to regulate synchronous belt.

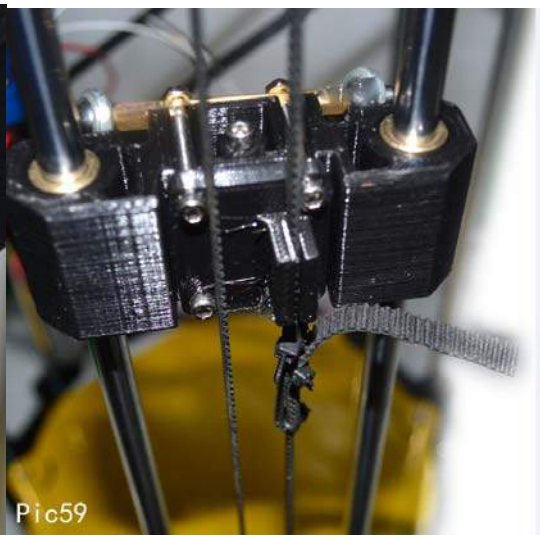

Pic54


Pic55


Pic56


Pic57





15. Installing extruder:

Materials needed are shown in below pic 60:

Pic60

List:

1pc Stepper motor

1pc L-type motor holder

1 set of plastic units for extruder

4pcs of M4*14 screw
4pcs M4 nut
1pc pneumatic quick connector
1pc spring
1pc V-type bearing
1pc extruder gear
1pc M3*14 screw
3pcs M3*20 screw
1pc hand screw
1pc M3*40 screw
3pcs M3 nut

Install as following pic 61 shows: Install L-type motor holder with M4*14 screw.

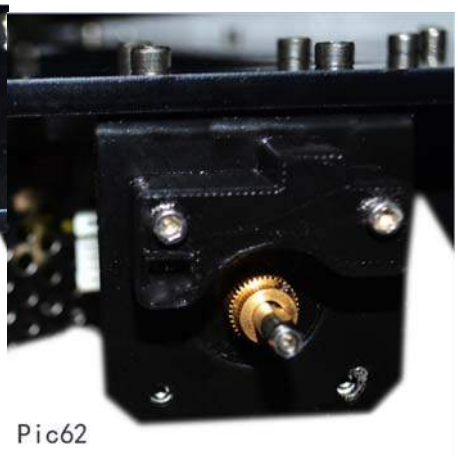
Install extruder gear as following pic 62 shows. Please pay attention to the position of extruder gear and V-type bearing(as shown by pic 65). Then fix upper part of the extruder with M3*20 screw.

Install as following pic 63&64 shows: Install pneumatic quick connector, then install V-type bearing with M3*14 screw.

Install as following pic 65 shows: Install hand nut and spring.

Install as following pic 66 shows: Finish the final installation.

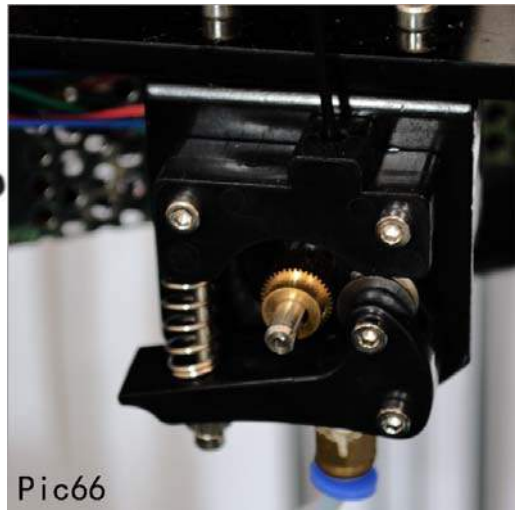

Pic61


Pic62


Pic63


Pic64

Pic65



Pic66

16. Installing material rack:

Materials needed are shown in below pic 67:

Pic67

List:

1pc Acrylic board for material rack

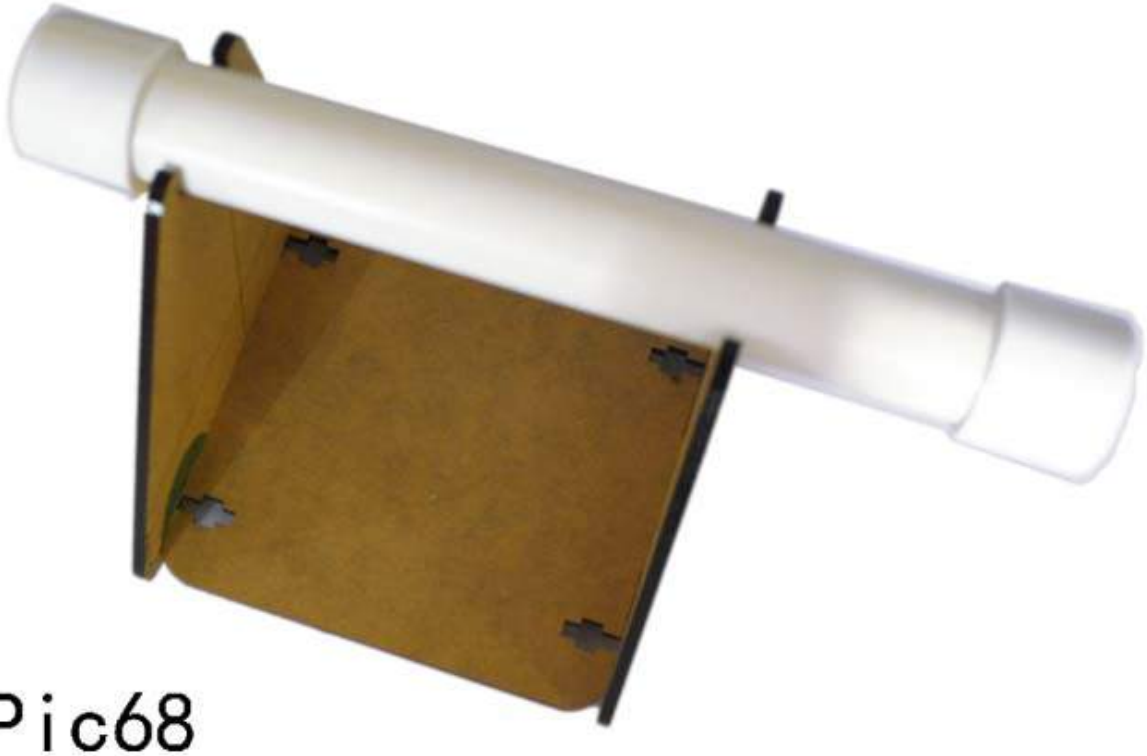
1pc water pipe

2pcs end cap

4pcs M4*14 screw

4pcs M4 nut

Install material rack as following pic 68 shows:



Pic68

2. Connecting components:

Component connection mainly refers to connection between the mainboard and various functional units or actuating elements. Here we list the associated interfaces in below table for your reference. **If the motor rotates reversely, please exchange the third wire of HX2.54-4P cable with the forth one.**

When connecting power line of the nozzle, fan and air blower, temperature-sensitive resistance wire of nozzle, (X, Y, Z) limit line and power line with controller, please first let them pass through the hole indicated by green arrow in below pic 69&70. Please carefully check whether the wiring is correct and wrap the wire with winding pipe after double check.

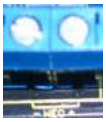
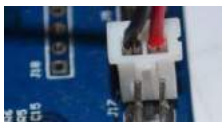

Pic69


Pic70

Please refer to below table for concrete connection position.

<table>
<tr><td rowspan="6">1.Wiring of motor and limit switch

This printer is equipped with four stepper motors with each one carries fixed interfaces. Limit switch on the same slider must correspond with motor interface, otherwise, limit switch or even the whole structure may be damaged during debugging</td><td rowspan="2">Left side slider in positive direction</td><td>Limit block: connect interface of HX2.54-3P with collision board
  </td><td>Color of J12 connecting line is black and blue
  </td></tr>
<tr><td>Stepper motor</td><td>3D V1.2 X motor interface</td></tr>
<tr><td rowspan="2">Right side slider in positive direction</td><td>Limit block: connect interface of HX2.54-3P with collision board
  </td><td>Color of J10 connecting line is black and green
  </td></tr>
<tr><td>Stepper motor</td><td>3D V1.2 Y motor interface</td></tr>
<tr><td rowspan="2">Rear side slider in the positive direction</td><td>Limit block: connect interface of HX2.54-3P onto collision board
  </td><td>Color of J8 connecting line is black and green
  </td></tr>
<tr><td>Stepper motor</td><td>3D V1.2 Z motor interface</td></tr>
<tr><td>Nozzle</td><td>Air blower
Red line+</td><td>3D V1.2 FAN</td></tr>
</table>

		Black line-	
		Heating rod	3D V1.2 HE0 
		Temperature-sensitive resistor	3D V1.2 J21 
		Cooling fan	3D V1.2 J17 
		Stepper motor	3D V1.2 E0 motor interface
2004display	EXP1		3D V1.2 EXP1
	EXP2		3D V1.2 EXP3
Hotbed	Temperature-sensitive resistor		3D V1.2 J16 
	Heating wire		3D V1.2 H-BED 
Power supply	Cooling fan		HX2.54 socket near power supply ADJ
	DC output		3D V1.2 12/24V 
	AC input L red line N Black line ⏚ Yellow green line		Upper switch pin of power socket