

ZHUHAI CTC ELECTRONIC CO., LTD

# CTC DIY Printer Installation and Use Manual

**A mature brand that has been tested  
by 10-years' time**

**focus on high-end science and technology, focus on 3D  
printing**

Thank you for purchasing the DIY 3D printer manufactured by Zhuhai CTC  
Electronic Co., Ltd.

Please carefully read this installation and use manual before installation and use.

Website: [www.cteprint.com](http://www.cteprint.com)

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# Introduction

Because the voltage under which this printer is used varies from one region to another, please first confirm the voltage of your region before using this printer (110V or 220V).

Printer maintenance conducted by customer is required after this printer is used for sometime. Frequent and correct maintenance can extend the using lifetime of printer.

## 1. Safety Issues

In order to obtain the best 3D printing effect, we do not recommend you to use the consumables of other brand other than the exclusive consumables provided by us. The maintenance and repairs caused by using consumables not provided by Zhuhai CTC Electronic Co., Ltd is not valid for the product warranty of our company.

**When it is printing or has just finished printing, the temperature of module, nozzle, print bed or the other parts within printer body, so do not touch with hand.**

**When the printer is powered, it is forbidden to touch the power source, power port cable, or motherboard cable with hand or conductive article**

**It is forbidden to print directly on the heating bed. A piece of glass plate is required to be put on the bed under this condition.**

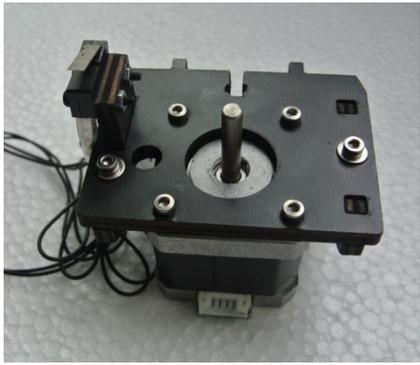
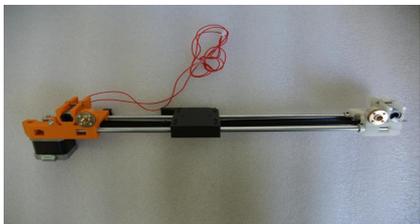
If you need to contact the after-sales service for 3D printer offered by Zhuhai CTC Electronic Co., Ltd, you can directly request to be added into the enterprise group (the group No. Is 102304634) about 3D printing of our company to obtain online technical support. You can also get relevant information about 3D printer use and fault shooting in the use manual offered with printer

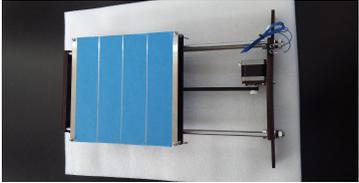
## 2. Materials and Parts

**Note: Only large assemblies are listed in table 1. Other parts are listed in appendix 1: Bill of Materials for DIY Printer**

Table 1:

| No. | Name | Description | Qty | Remark |
|-----|------|-------------|-----|--------|
|-----|------|-------------|-----|--------|

|          |                     |  |          |   |
|----------|---------------------|--|----------|---|
| <p>1</p> | <p>A4 Assembly</p>  |  | <p>1</p> |  <p>Figure 12</p>   |
| <p>2</p> | <p>A5 Assembly</p>  |  | <p>1</p> |  <p>Figure 13</p>  |
| <p>3</p> | <p>LED Assembly</p> |  | <p>1</p> |  <p>Figure 14</p> |
| <p>4</p> | <p>Q Assembly</p>   |  | <p>1</p> |  <p>Figure 15</p> |

|   |            |  |   |
|---|------------|--|---|
| 5 | P Assembly |  |  <p data-bbox="1075 421 1190 450">Figure 16</p> |
|---|------------|--|---|

### 3. Notes

Before installation, find A1 board, A2 board and A3 board, then align the holes of each board. Use ③, ④ and ⑥ to install each board for assembling a main framework. The installation direction must comply with the following figures (Figure 1 to Figure 5). The connection of each board and assemblies are shown in Figure 6.

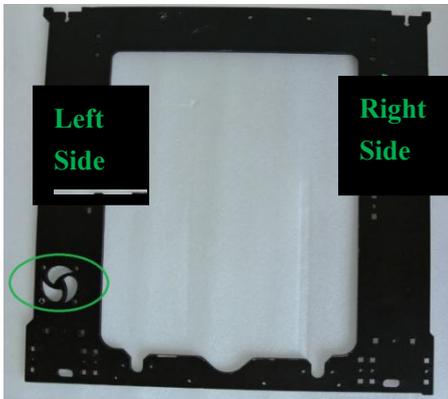


Figure 1. Front View of A1 Board

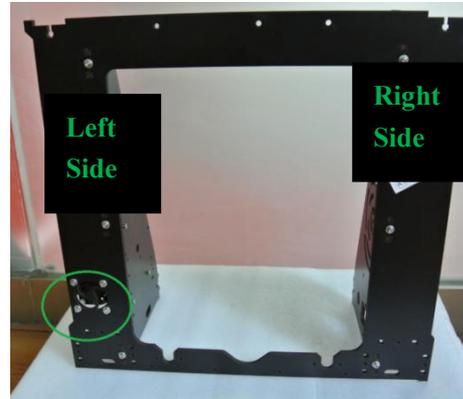


Figure 2 Front View of Main Framework



Figure 3 Back View of Main Framework



Figure 4 Right View of Main Framework

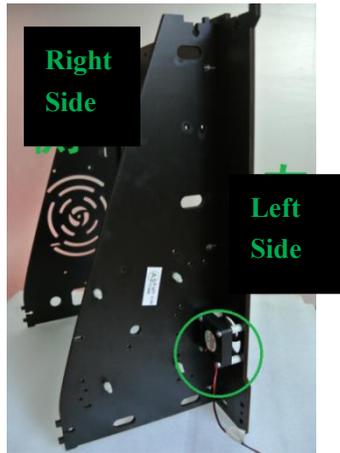


Figure 5 Left View of Main Framework

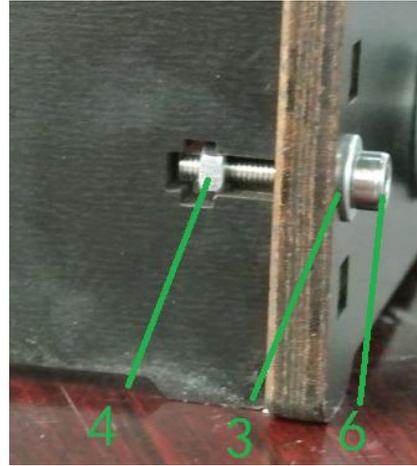


Figure 6 Connection of Boards and Assemblies

## Installation of Motherboard

### 1. A1 Assembly

Accessories: ②①, ⑦ × 4, ⑧ × 4, ③ × 4, ④ × 4.

Install cooling fan to the back of left cooling outlet of A1 board of main framework with accessories ⑦, ③ and ④. The fan label should face to the back of A1 board. **It is required to install 4 piece of support columns ⑧.** Note that the installation direction is shown in figure 5 and the following figure.



### 2. A2 Assembly

Accessories: ②②, ⑤ × 3, ⑬, ⑥ × 2, ③ × 4, ④ × 4.

The installation of A2 assembly is shown in Figure 7.1. As instructed in figure 7.2, fix the motherboard ②② onto the A2 board on the right side of main framework with 3 pieces of ⑤ screw. Then follow figure 7.4 to fix power source socket onto A2 board with screw ⑥, nut ④ and washer ③. The connected power source socket and motherboard cables are shown in figure 7.3.

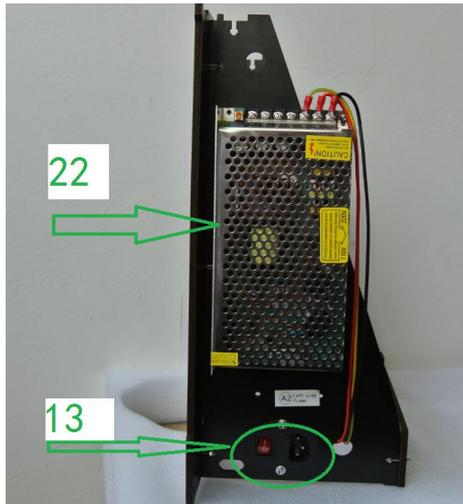


Figure 7.1 A2 Assembly

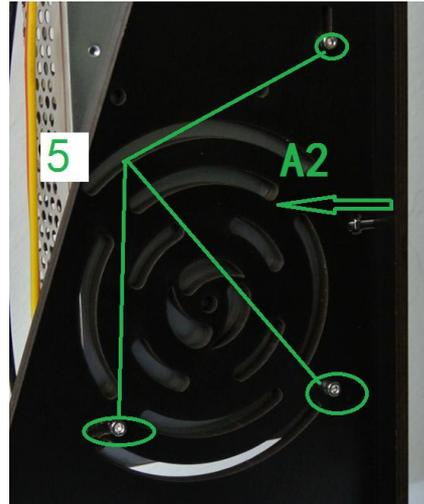


Figure 7.2 Motherboard on the Back and Tightening Screws



Figure 7.3 Connection of Power Source Socket and Motherboard Cables

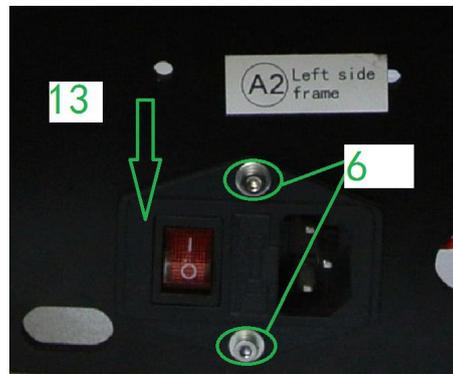


Figure 7.4 Power Source Socket and Tightening Screw

### 3. A3 Assembly

Accessories: ②③, ⑤ × 4, ⑨ × 4.

As shown in figure 8.1 and figure 8.2, insert the four support columns of motherboard into the A3 board on the left side of main framework with 4 pieces of ⑤ screws. Then follow figure 8.3, press motherboard ②③ with its holes in alignment with the 4 columns and pay attention to the installation direction.

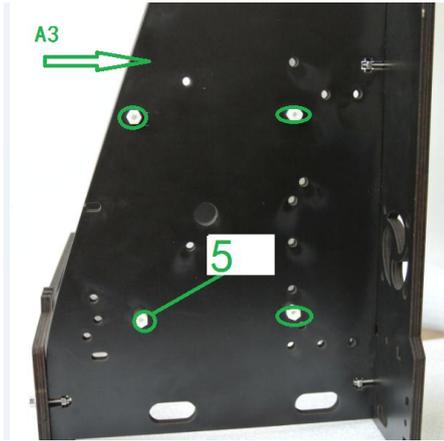


Figure 8.1

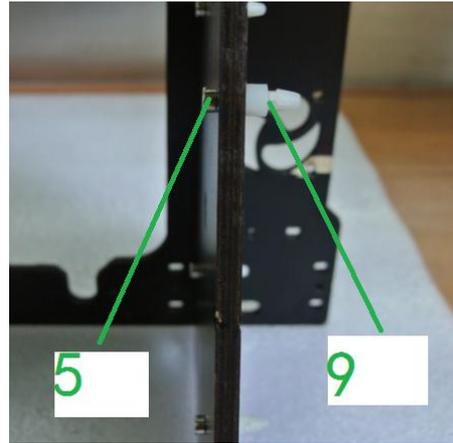


Figure 8.2 A3 Assembly

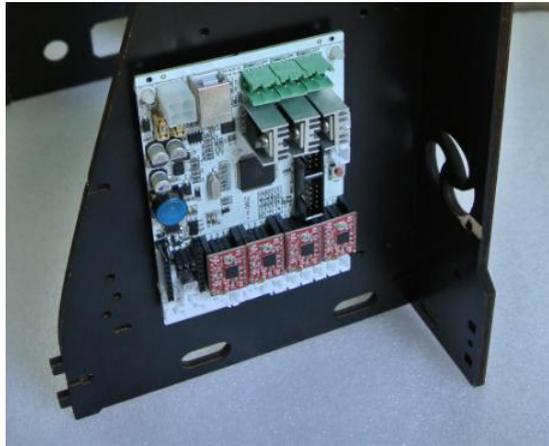


Figure 8.3

## Motherboard Structure Installation and Connection of Power Cable Ports

The major effect of main structure is shown in figure 9 and figure 10. The cable ports of motherboard and their functions are shown in figure 11(**Back direction from the Y-axis, right and left X-axis direction, the vertical direction of the Z axis**). In order to have better installation, it is advisable that user should see the finished product display pictures to generally know of the overall fitting effects and to identify the installation directions and positions.

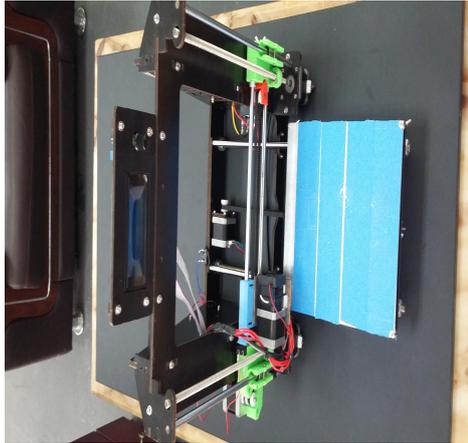


Figure 9 Back View

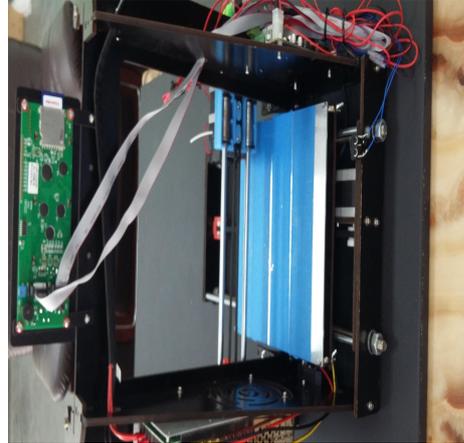


Figure 10 Front View

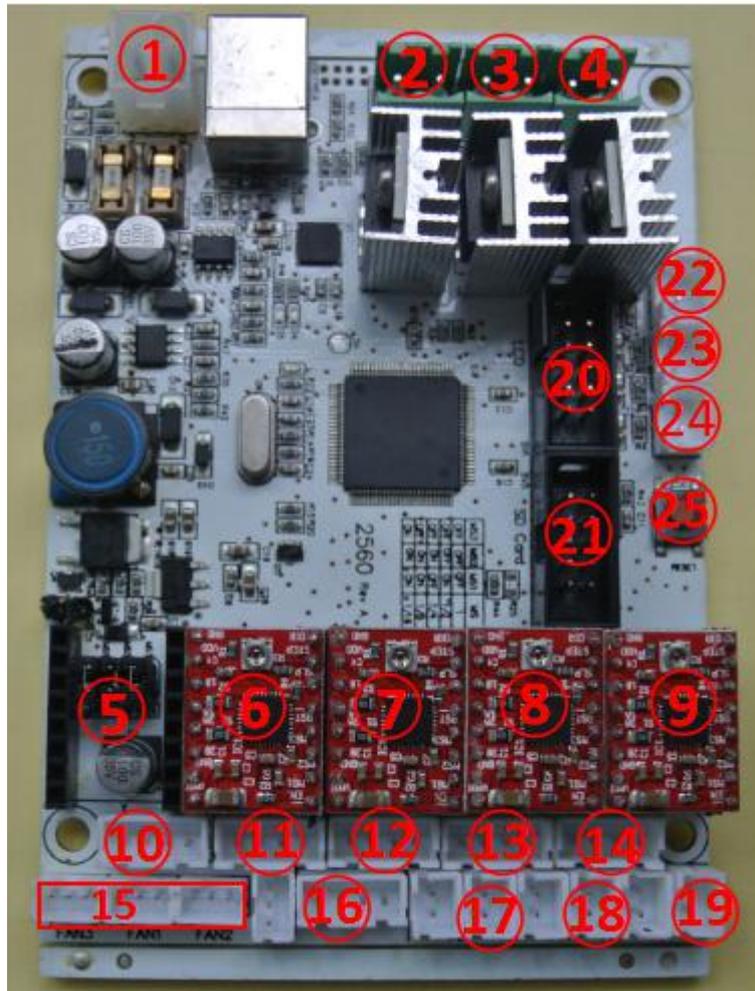


Figure 11 Motherboard Cable Ports

1. power source of motherboard; 2. heating bed; power 3. L nozzle power (spare) ; 4.L nozzle power; 5. L nozzle driver(spare); 6. R nozzle driver ;7.Z shaft driver; 8. Y shaft driver; 9.X shaft driver; 10.motor power of L nozzle(spare); 11. motor power of R nozzle; 12. motor power of Z shaft; 13. motor power of Y shaft; 14. motor power of X shaft; 15. spare power source of cooling fan; 17. Z shaft stopper; 18. Y shaft stopper; 19. X shaft stopper; 20. LED. 21 bar cable ports

of.SD card display; 22.temperature sensor socket of R nozzle; 23.temperature sensor socket of L nozzle 24.temperature sensor of heating bed(spare); 25.function reset key of motherboard.

1. collect all the assemblies before installation: A4, A5, LED, P,Q(different colors) as shown in the following figures.



Figure 12 A4 Assembly



Figure 13 A5 Assembly



Figure 14. LED (front side on the left and back side on the right)

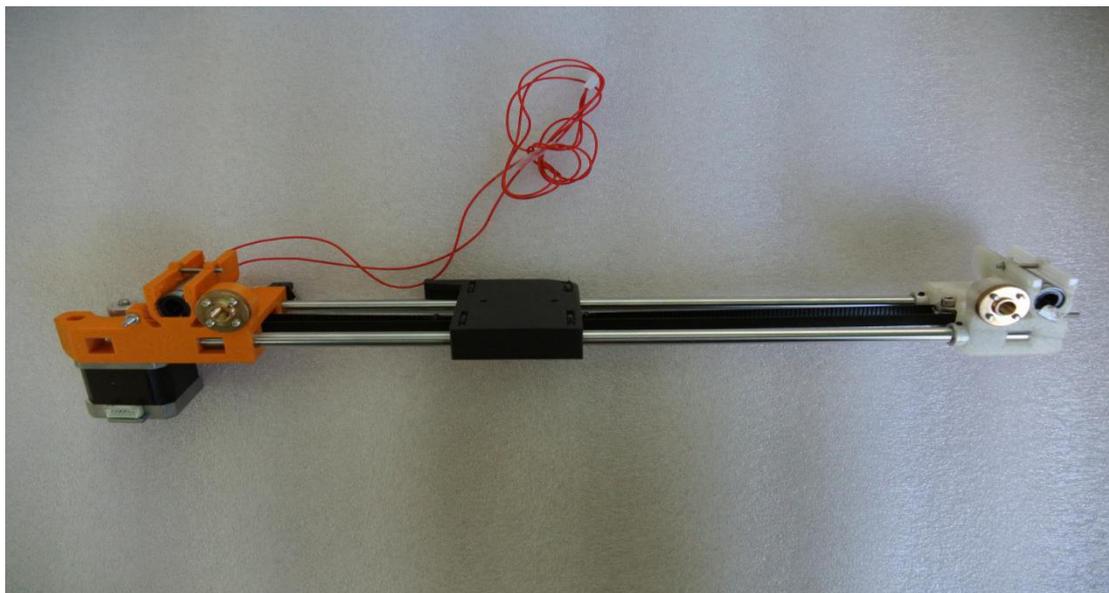


Figure 15 Q Assembly

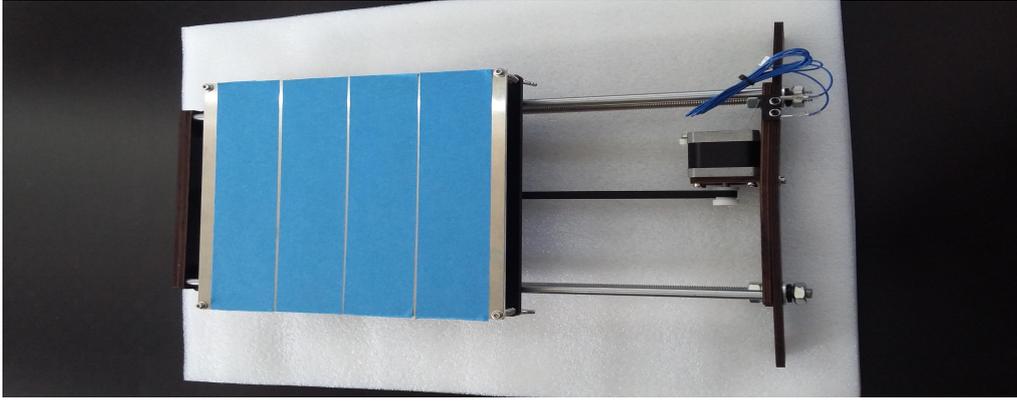


Figure 16 P Assembly

2. Find power cable ⑱ and connect A3 assembly and A2 assembly. One end of the power cable connection is shown in figure 17 and the other end is connected to port 1.

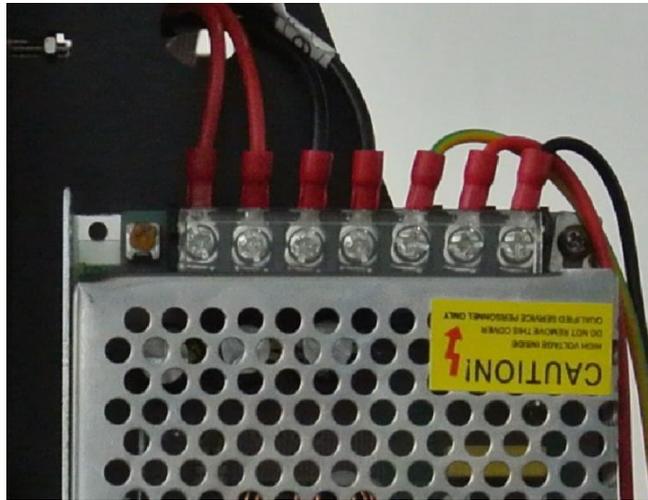


Figure 17

### 3. Installation of P Assembly

Accessories: ⑥ × 6, ④ × 6, ③ × 6 and ⑱.

Align the holes of P assembly with the holes of previously installed main structure. Then fix the two and install P assembly to the main structure as shown in figure 18. Then follow figure 19 to install the bottom of P assembly to the A1 assembly. Next connect motor to the port 12 of motherboard with short cable ⑲. Connect the bottom heating cable to the port 2 of motherboard. Connect the temperature sensor cable of bed to the port 22 of motherboard. Connect the stopper(blue)cable port to the port 17 of motherboard.

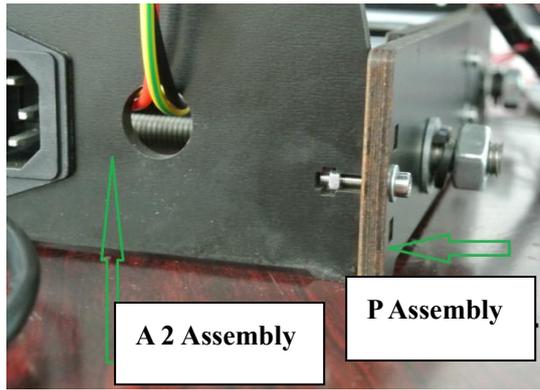


Figure 18

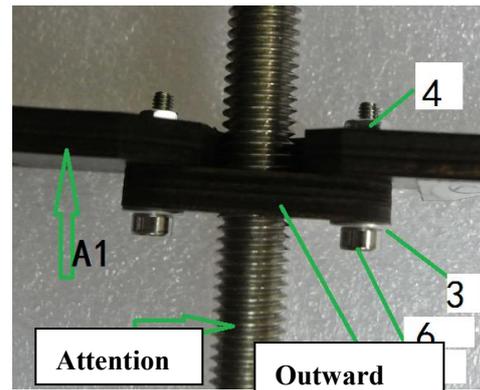


Figure 19

#### 4. Installation of A4 Assembly

Accessories: ⑥ × 3, ④ × 3, ③ × 3.

Align the holes of A4 assembly to the A1 board of front side of main structure, and connect the A4 assembly to the bottom end of left side of A1 assembly. Then connect the motor to port 15 of motherboard with short cable ⑱ and stopper (black) cable to the port 16 of motherboard.

#### 5. Installation of A5 Assembly

Accessories: ⑥ × 3, ④ × 3, ③ × 3.

Align the holes of A5 assembly to the A1 board of main structure and install A5 assembly to the bottom end of right side of A1 board. Then connect motor to the port 11 of motherboard with long cable ⑱.

#### 6. Installation of LED

Accessories: ⑥ × 2, ④ × 2, ③ × 2, ⑩

Align the holes of A18 board on LED and A1 assembly to install the two together in place. The LED is outward as shown in figure 20. Use bar cable ⑩ to connect LED with motherboard with port 19 of motherboard being connected to the EXP1 port of LED motherboard and the port 20 of motherboard being connected to the EXP2 port of LED motherboard.

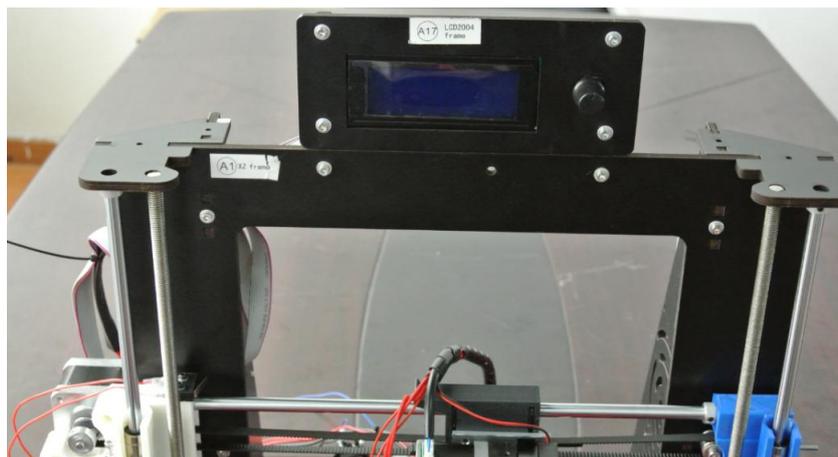
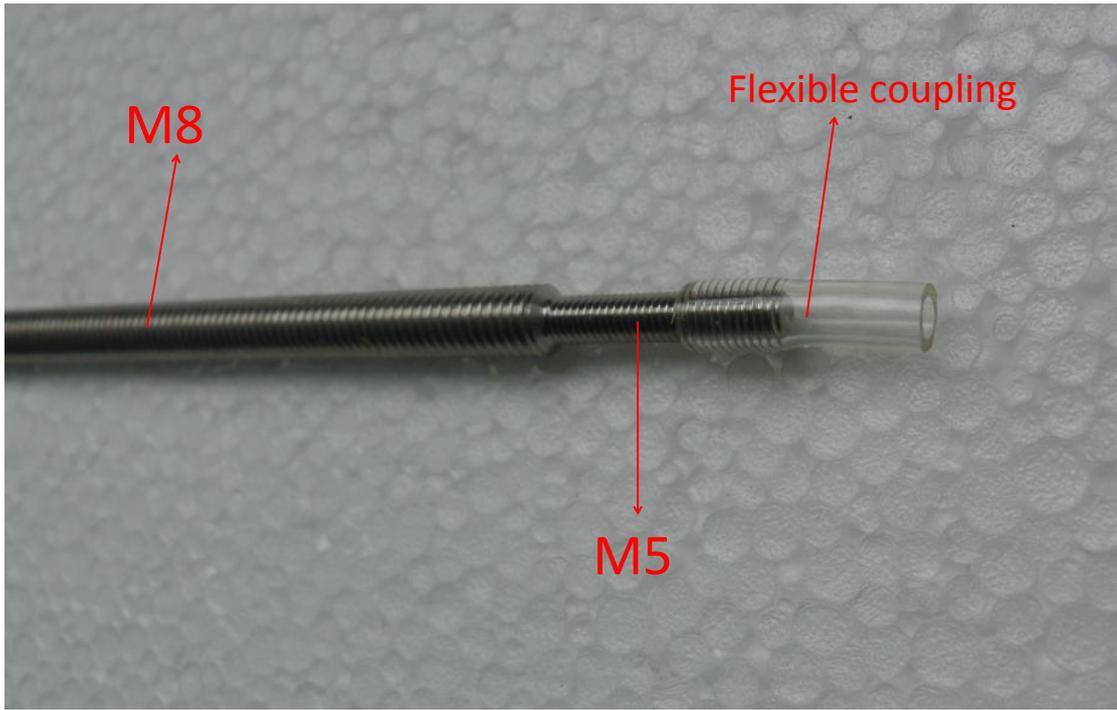


Figure 20 LED Position

## 7. Installation of Q Assembly

**Notes: Because each size of assembly may bear some deviation caused by production, in order to obtain the good installation and functions, it is advisable for you to pay attention to the installation of Q assembly. If necessary, please adjust the right side of Q assembly to left or right for ensuring the normal functions, and adjust the length of belt according to actual gap.**

**Before assembly, the first Z-axis screw M5 ends connect flexible coupling 30, is prohibited after blowing hot and then install the flexible coupling to the M5 terminal end of the flexible coupling insert M5 depth of about 10mm. As shown below:**



(1) Accessories: A4×2, ⑥×4, ④×4, ③×4.

Align the holes of A4 board and the A1 assembly and A2 assembly on the right side of main structure, and install these parts together in place. Then align the holes of A4 board and the A1 assembly, A3 assembly on the left side of main structure, and install these parts together in place as shown in figure 21 and figure 22. **Please remember to use screw for fixture.**

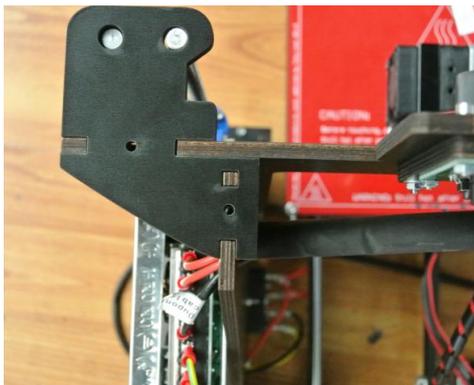


Figure 21



Figure 22

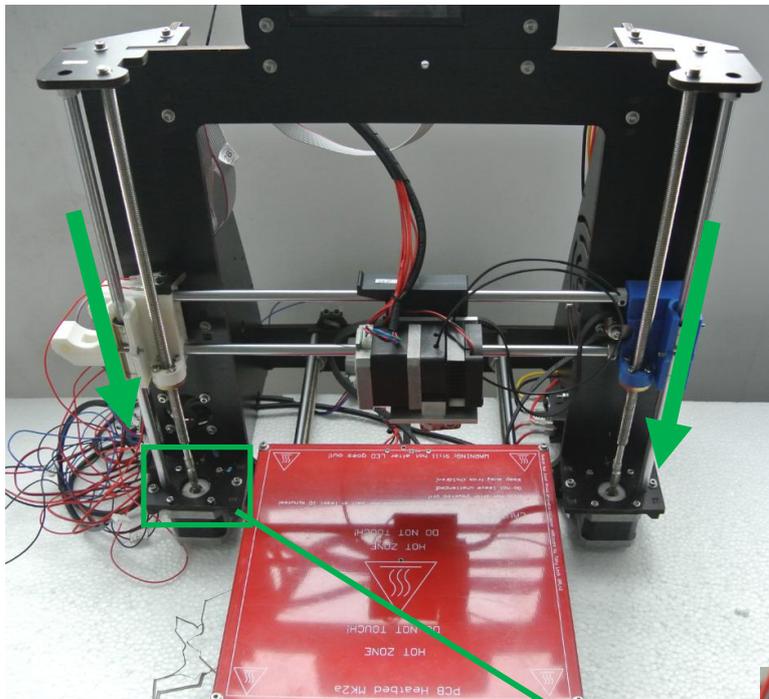
(2) Accessories: ①×2, ⑳×2

Get the guide rod ① through the **external holes** on the two sides of A4 board, ⑳, bearing outside of P assembly, external holes of A4 and A5 assemblies up to

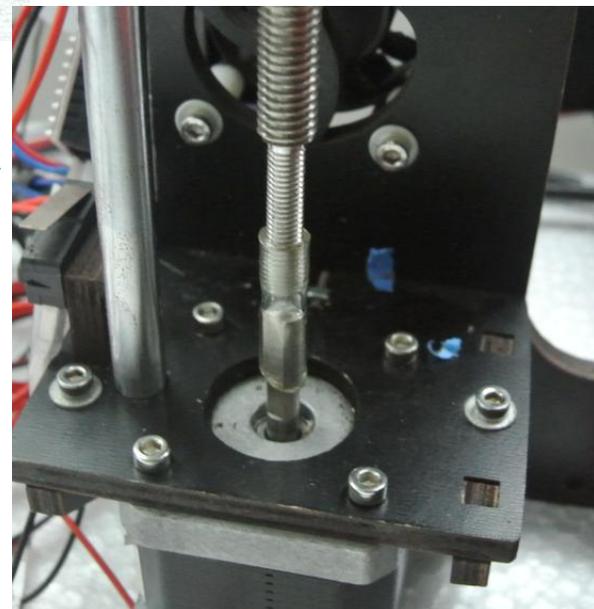
down. Adjust the distances on the two sides of P assembly. Move ⑳ to the joint of guide rod ① and A4 board and fix it.

(3) Accessories: ㉑ × 2

Get screw ㉑ through the internal holes on the two sides of A4 board, the internal holes of P assembly (get it through by rotating), the shaft couplings above the motors of A4 and A5 assemblies from up to down. Adjust the distances on the two sides of P assembly to ensure the future correct installation. Keep the horizontal distance between the outer ends of two screws ㉑ as 320mm. Secure the tightening screws of shaft couplings on the up side of motors.



Downward pressure screw, squeeze the flexible coupling Z-axis motor projecting end



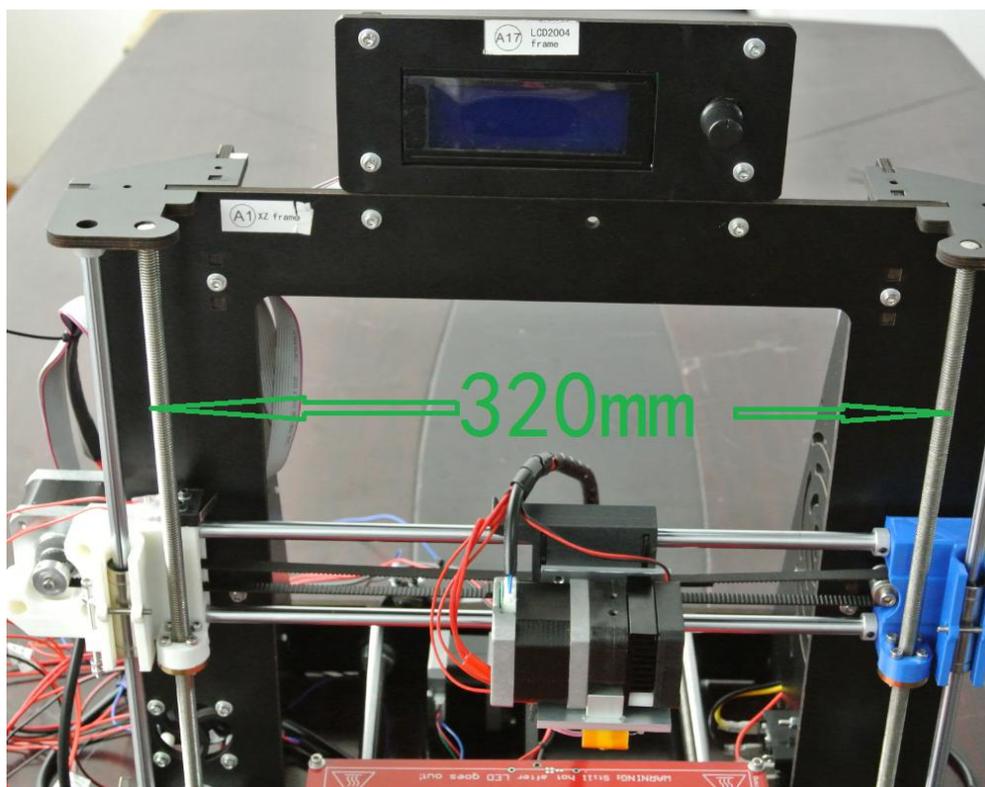


Figure 23

( 4 ) connect the stopper(cable) cable of Q assembly to the port 18 of motherboard

#### 8. Installation of Nozzle

Accessories: ⑥ × 2, ③ × 2, ④ × 2.

First unscrew cooling fan of nozzle, dismantle the L1, L2 and L3 parts of nozzle as shown in figure 24. **Install L1 part to the movable block in the middle of P assembly** with ⑥, ④ and ③. Please remember that first get screw ⑥ through the movable block in the middle of P assembly, then install the nozzle in the reverse order that these parts are dismantled, as instructed in figure 25. Connect motor of nozzle to port 10 of motherboard with long cable ⑲. Connect cooling fan cable to port 14 of motherboard 14. Connect power cable of nozzle to port 3 of motherboard. Connect temperature sensor of nozzle to the port 21 of motherboard.

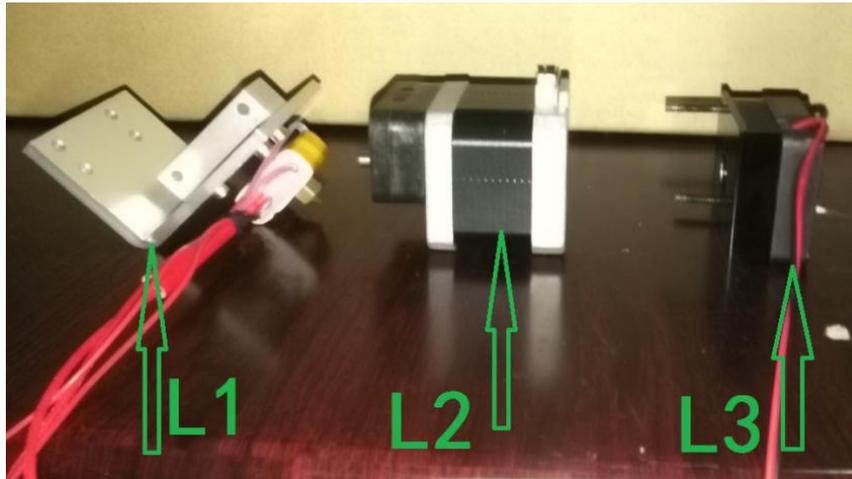


Figure 24

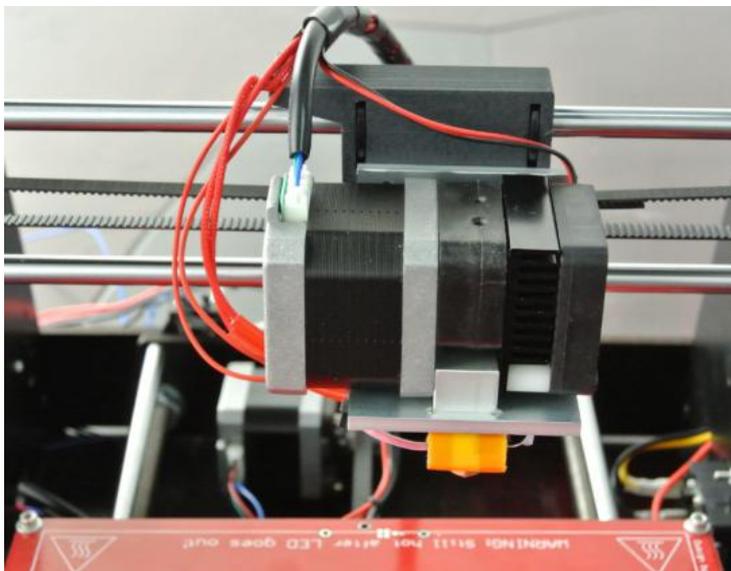


Figure 25

## Commissioning and Notes

1. Identify that the sensing resistor of temperature sensor cable of nozzle is in the correct position, as shown in figure 26.

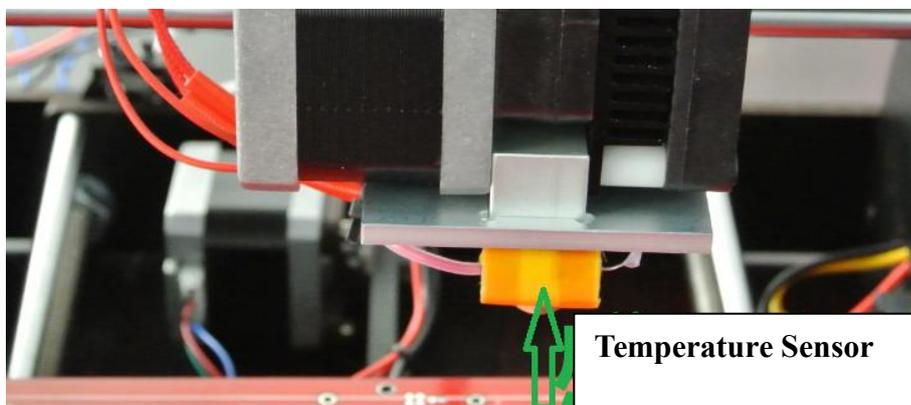


Figure 26

2. First confirm that cables are in normal state. Then commission the position function of stopper under the printer is powered, in particular the commissioning of Z shaft stopper. Click function key to choose Prepare, then choose Auto home and click confirm to check each stopper. Adjust the nut of long screw on the left of Q assembly and the lowest position of Z shaft moving downward to guarantee the gap between Z shaft of nozzle and printing plate.

3. Cut off the power and put square glass on the upside of red heating bed, then use four dovetail clamps to fix the glass. Note that the position of dovetail clamp should not affect the functions of nozzle and among others. Move the nozzle to exam if the printing bed is parallel with the nozzle, and keep a proper gap. Then power the printer, exam the original position of nozzle, the gap between nozzle and printing bed to ensure the correctness of gap.

4. Exam if the threaded rod of Z shaft is deformed. Keep the gap between shaft couplings of motors of A4, A5 assemblies and the beds as 3mm. Try to maintain the shaft line of Z shaft threaded rod and the output shaft of motor in the same straight line. Keep the horizontal distance of upper side of Z shaft threaded rod equal to that of bottom side. **Adjust these distances or gaps until no noise occurrence when motor moves.**

5. The bundling of cables is not supposed to affect the moving space and functions of each part. Adjust the heating temperature of heating head according to practical conditions.

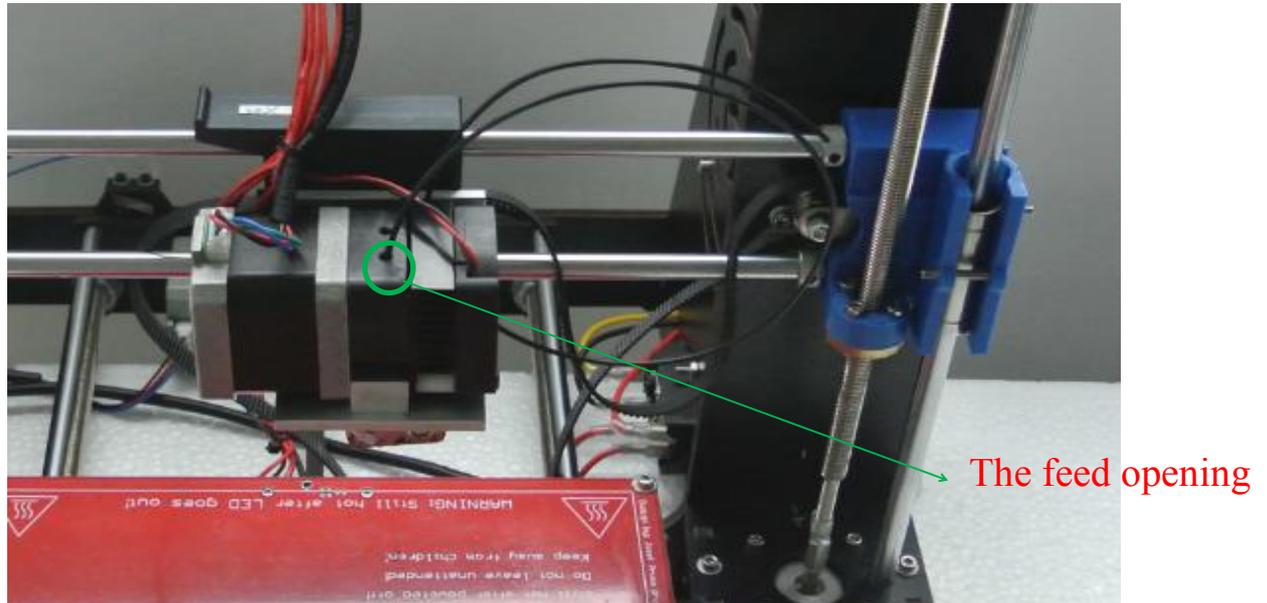
6. The sounds of rotational motor and cooling fan are normal. If the adhesive of glass surface is not enough, you can stick masking tape onto the glass surface. ( At the factory, we have you posted a good textured plastic, do not torn blue textured plastic )

7. Heating tube damage(Suitable for all FDM 3D printers): When stop using the printer or need to clean the nozzle, use spanner to clamp the square aluminum block and unscrewing the nozzle. Make sure the square aluminum block can not move when unscrewing the nozzle, otherwise the heating tube would be damage.

8. Adjustment of belt: Cut off the black nylon tie, adjust the belt length, fix the belt. Then secure the belt with nylon tie.

9. Inlet port for the print head outside parties. When to start printing (after refueling), you

need to printing supplies line, insert the print head side of the outer end of the inlet, (do not insert the inner end of the inlet), as shown:

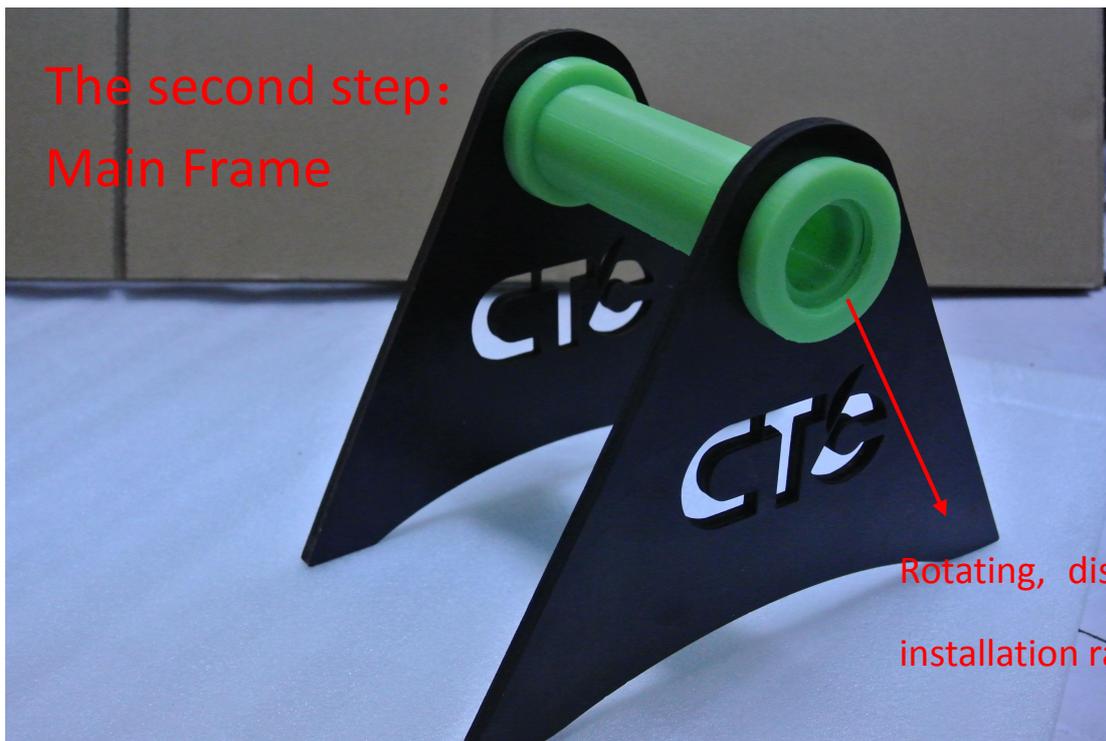


10. When the display screen does not work, the ways: 1. Check the connection lines between the display screen and main board are in order.

2. Check the white colour object on the blue plastic board on the upper left of the back the display screen. Please tighten the white object by screwdriver and keep the screen light on.

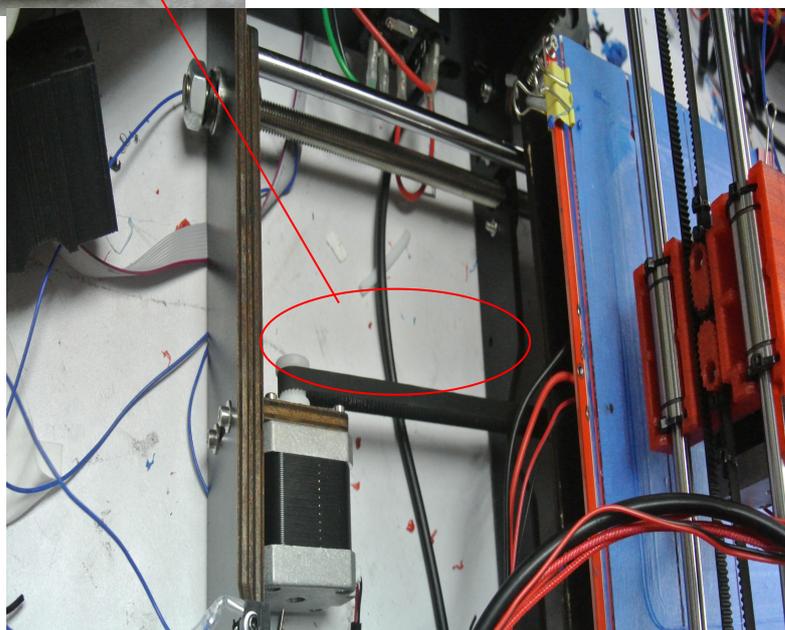
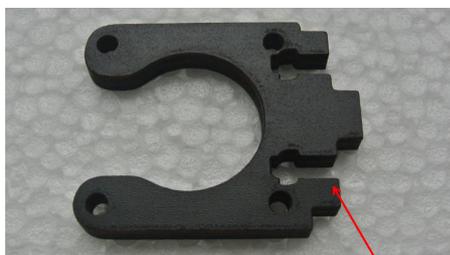
11. Tray to install and use:



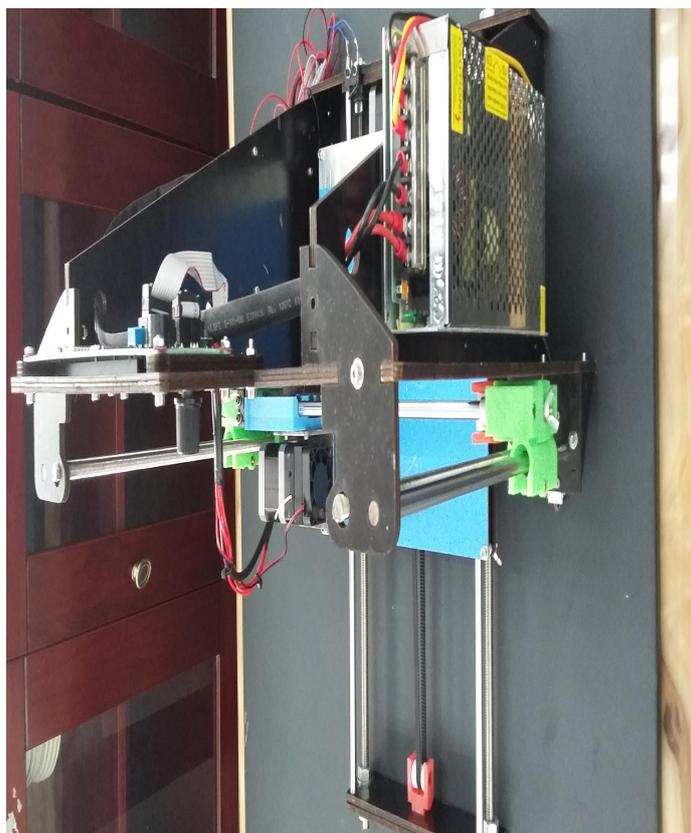


12.Y shaft motor fixing plate (A6)

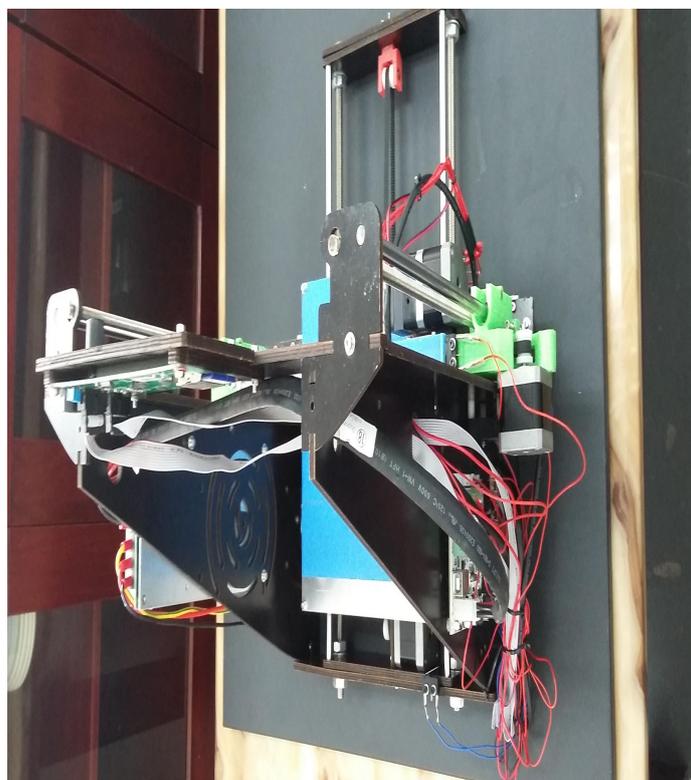
Y axis motor fixed plate is a spare object. The installation location is shown below:



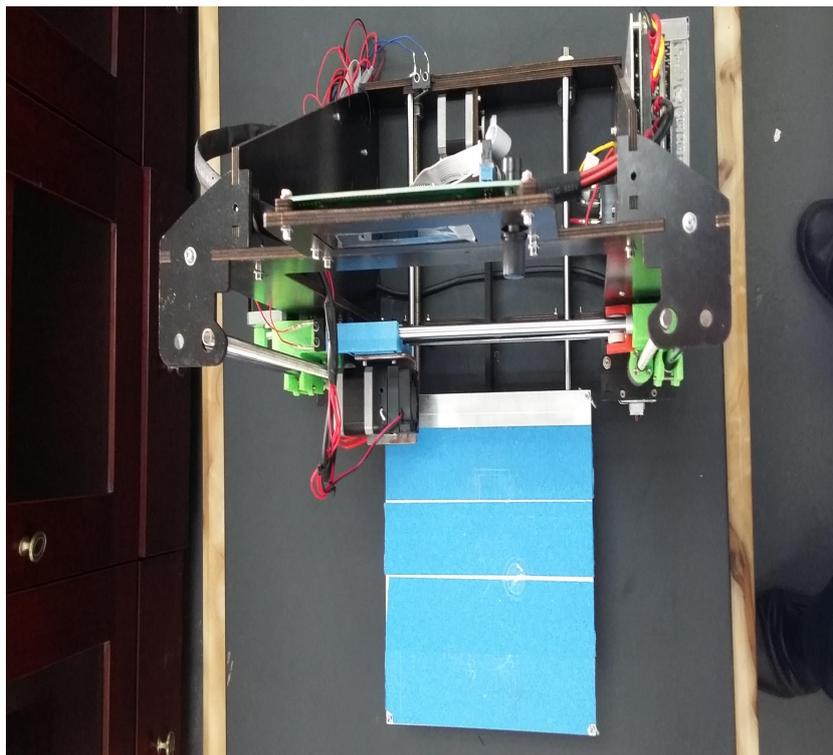
### Finished Product Display



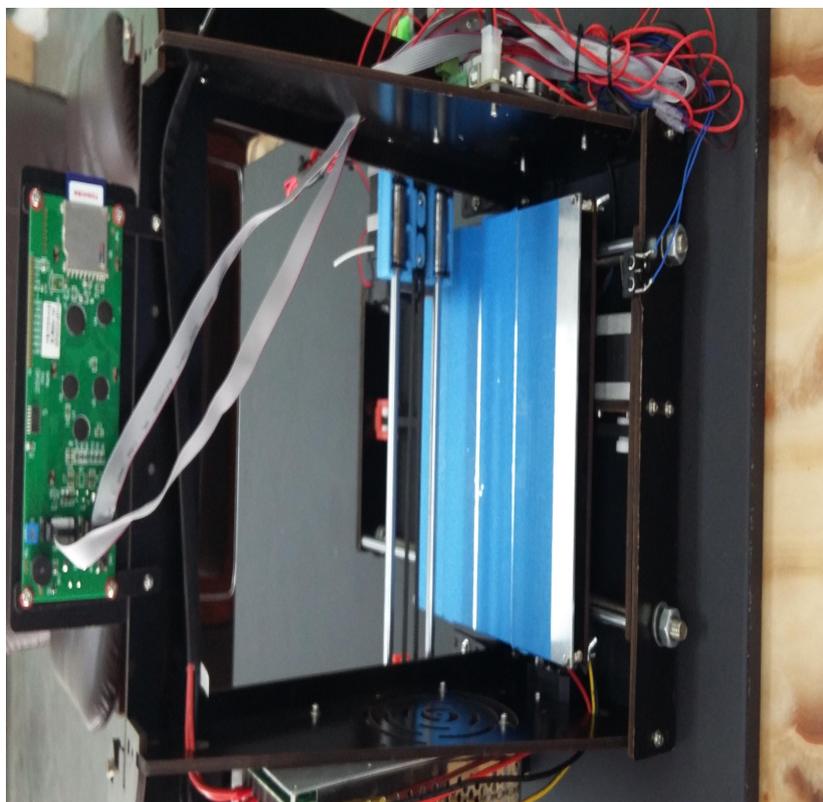
Right View



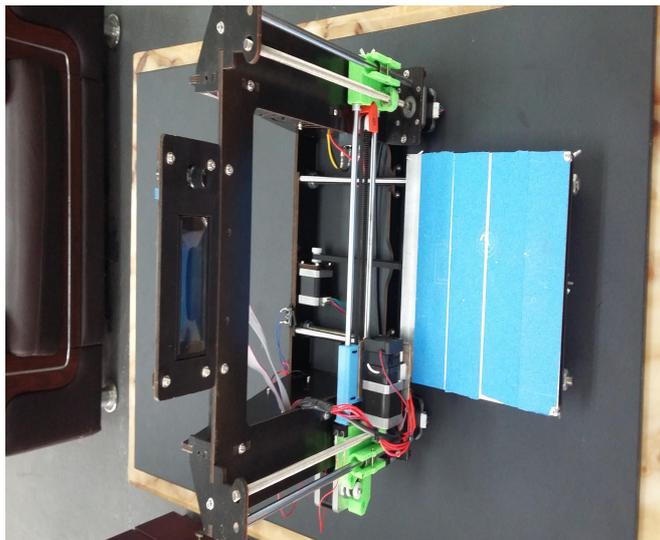
Left View



Overview



Back View



Front View



Material Rolling Wheel

# Use Instructions

## 1. Proposed Environment

Operation Environment: Good ventilation. No dust; Temperature: 15°C~35°C.  
Relative humidity: 20%~80%( no condensation).

Storage Environment: Temperature: 0°C~40°C. Relative Humidity:  
10%~80%(no condensation. Free of corrosive gas and clean.

## 2. Printer Parameters

Structure Sizes: 200mm\*200mm\*180mm (these are the maximum sizes. It is advised to decrease practical sizes).

Input Voltage: 110V-220V

Applicable Operation System: Windows7/8(32-bit/64-bit)

Software: Cura

Printing Raw Material: PLA

Raw Material Property: Special PLA designed for 3D printing (exclusive composition)

Layer Precision: 0.1mm-0.5mm

Positioning Precision: XY shafts, 0.011mm

Filament Diameter: Z shaft, 0.025mm

Nozzle Diameter: 0.4mm

Moving Shaft Speed: 30mm/s\_100mm/s

Recommended Nozzle Moving Speed: 35-40 mm/s

Input File Type: stl

Cooling Method: Wind cooling

Maximum Temperature of Nozzle: 260°C (usually 210°C)

## 3. Chinese/English Operations

The Chinese/English Operations about screen are listed in table 2. The movement adjustment of each shaft is shown in table 3 with English/Chinese versions.

Table 2 Chinese/English Explanations of Screen

|                                       |                        |
|---------------------------------------|------------------------|
| Info Screen                           | 屏幕信息                   |
| Tune                                  | 调优 (微调)                |
| Main                                  | 主要                     |
| Speed: 100                            | 速度:100                 |
| Printing Temperature:100---PLA190-210 | 打印温度:100---PLA 190-210 |
| Bed:0(temperature)PLA 50-70           | 打印床:0 (温度) PLA 50-70   |
| Fan speed 255                         | 风扇转速 255               |
| Flow: 100                             | 出丝流量:100               |
| Change filament                       | 更换丝                    |
| Control                               | 控制                     |
| Main                                  | 主要                     |
| Temperature                           | 温度                     |
| Control                               | 控制                     |
| Nozzle Temperature 207                | 喷嘴温度 207               |
| Bed Temperature 0                     | 打印床温度 0                |
| Fan speed 255                         | 风扇转速 255               |
| Autotemp off                          |                        |
| Min 195                               | 最小值                    |
| Max 250                               | 最大值                    |
| Fact 000.10                           | 打印实际精度 (mm)            |
| PID-P: +022.20                        |                        |
| PID-I: +001.08                        |                        |
| PID-D: +114.00                        |                        |
| PID-C: 1                              |                        |
| Preheat PLA conf                      | 预热 PLA                 |
| Store memory                          |                        |
| Preheat ABS conf                      | 预热 ABS                 |
| Printer Parameters Setting            | 打印机参数设置                |
| Accel 1000                            |                        |
| Vxy-jerk: 20                          |                        |
| Vz-jerk: +000.40                      |                        |
| Ve-jerk: 5                            |                        |
| Vmax x: 500                           |                        |
| Vmax y:500                            |                        |
| Vmax z: 2                             |                        |
| Vmax e: 25                            |                        |

|                  |          |
|------------------|----------|
| Vmin             | 0        |
| Amax             | X:1000   |
| Amax             | Y:1000   |
| Amax             | Z:100    |
| Amax             | E:10000  |
| A-retract        | 1000     |
| Xsteps/mm:       | +080.00  |
| Ysteps/mm:       | +080.00  |
| Zsteps/mm:       | +4020.0  |
| Esteps/mm:       | +0096.0  |
| LCD contrast     | 液晶显示器对比度 |
| Store memory     | 存储内存     |
| Pause print      | 暂停打印     |
| Stop print       | 停止打印     |
| Load memory      | 加载内存     |
| Restore failsafe | 恢复故障保险   |

Table 3 Movement of Each Shaft

| Move 10mm / Move 1mm / Move 0.1mm | 各轴移动速度 |
|-----------------------------------|--------|
| Move x                            | 移动 X 轴 |
| Move y                            | 移动 Y 轴 |
| Move z                            | 移动 Z 轴 |

## 4. Use Instructions

Both offline printing and online printing are available in this printer. **Install Cura14.07.** Details on 4.2 online.

### 4.1 Offline Printing

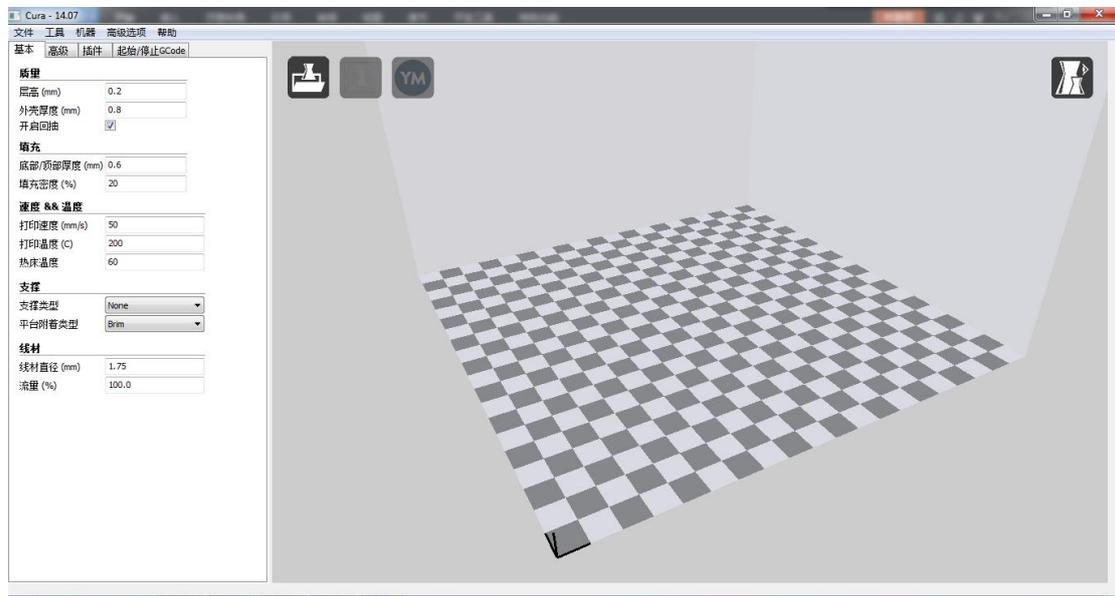
**A brief overview: Open Cura software, import the resulting good three-dimensional STL file slicing generate GCODE format file, save it to the SD card, insert the SD card the display, open the printer into the main page, select Build From SD, enter select Print the GCODE file, select until the printhead, the bottom plate is heated to a preset temperature, printing starts, printing open end.**

Open the power source motherboard (in the following picture) and press function

key to enter parameter setting center and to set the nozzle temperature, bed temperature (nozzle is 210°C and bed is 60°C generally). Then return the main menu and choose Print from SD to select the to-be-printed model. Then “Heating...” is displayed until the set temperature. The printing is started. **The to be Cura 14.07 document must be in STL format, to-be-printed document must be in GCODE format.**



Double-click the icon to open Cura 14.07.



Set the filament diameter as 1.75mm and nozzle diameter is 0.4mm.

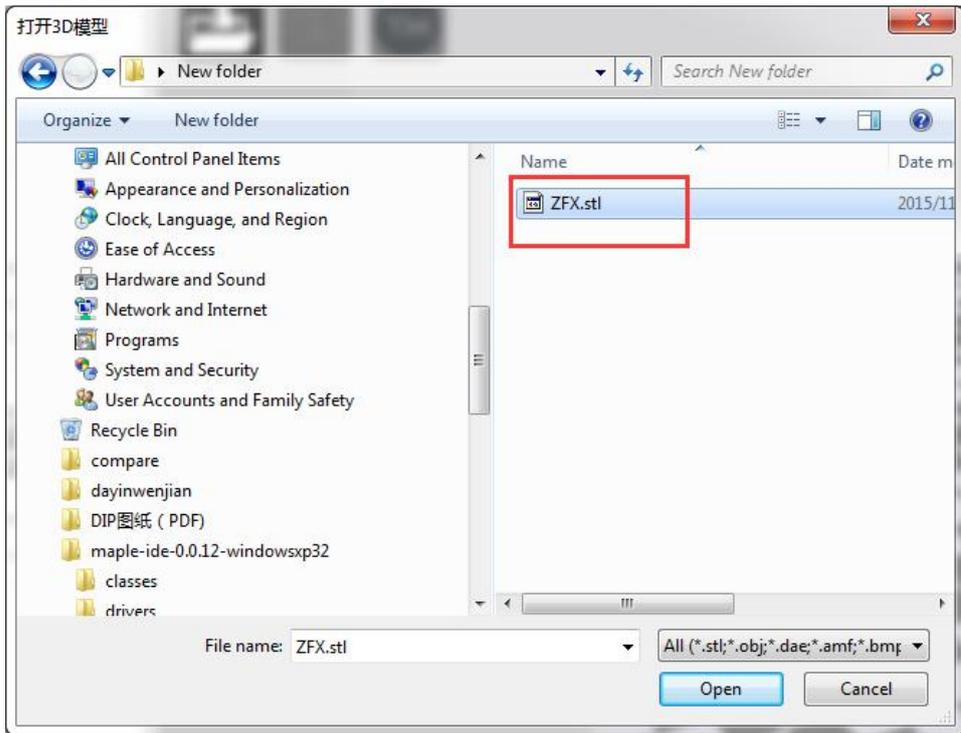
| 基本                      | 高級                                  | 插件 | 起始/停止GCode |
|-------------------------|-------------------------------------|----|------------|
| <b>质量</b>               |                                     |    |            |
| 层高 (mm)                 | <input type="text" value="0.1"/>    |    |            |
| 外壳厚度 (mm)               | <input type="text" value="0.8"/>    |    |            |
| 开启回抽                    | <input checked="" type="checkbox"/> |    |            |
| <b>填充</b>               |                                     |    |            |
| 底部/顶部厚度 (mm)            | <input type="text" value="0.6"/>    |    |            |
| 填充密度 (%)                | <input type="text" value="20"/>     |    |            |
| <b>速度 &amp;&amp; 温度</b> |                                     |    |            |
| 打印速度 (mm/s)             | <input type="text" value="50"/>     |    |            |
| 打印温度 (C)                | <input type="text" value="190"/>    |    |            |
| 热床温度                    | <input type="text" value="60"/>     |    |            |
| <b>支撑</b>               |                                     |    |            |
| 支撑类型                    | <input type="text" value="None"/>   |    |            |
| 平台附着类型                  | <input type="text" value="None"/>   |    |            |
| <b>线材</b>               |                                     |    |            |
| 线材直径 (mm)               | <input type="text" value="1.75"/>   |    |            |
| 流量 (%)                  | <input type="text" value="100.0"/>  |    |            |

| 基本        | 高級                               | 插件 | 起始/停止GCode |
|-----------|----------------------------------|----|------------|
| <b>机器</b> |                                  |    |            |
| 喷嘴大小 (mm) | <input type="text" value="0.4"/> |    |            |



Click the first icon to pen file folder . Then choose the to-be-printed STL file.



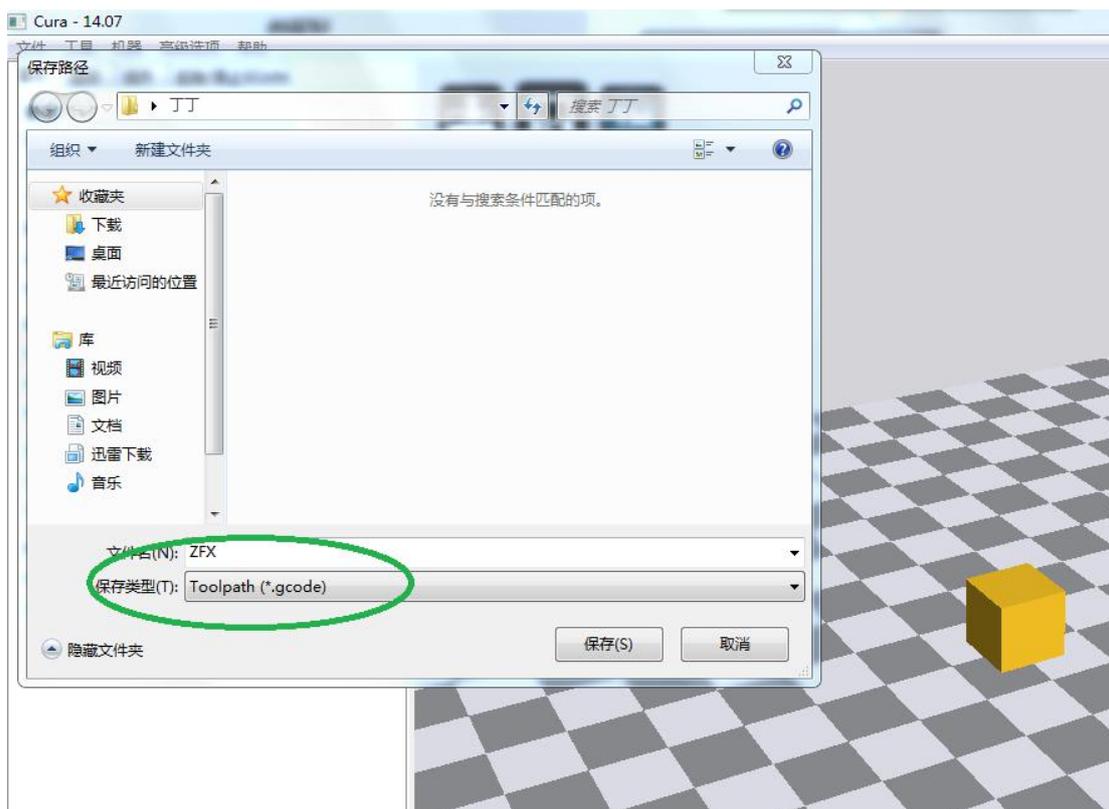
Automatic Slicing



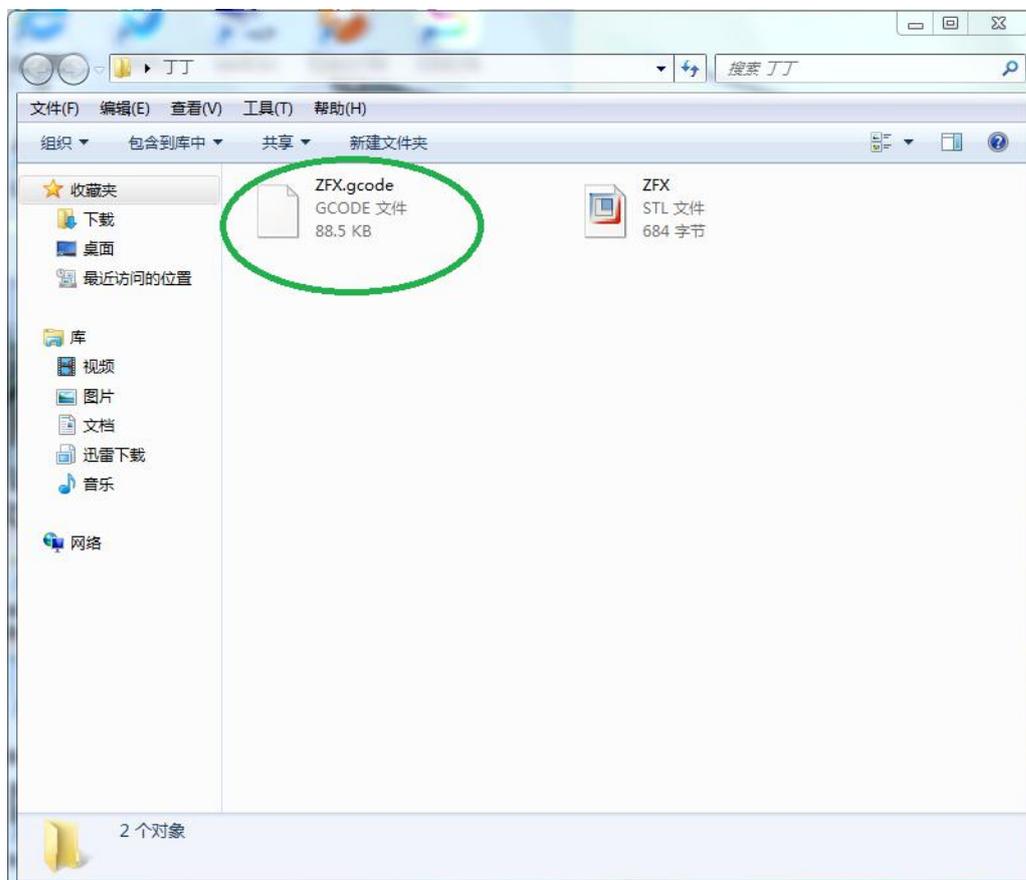
After slicing, the icon will be shown and choose the middle online –printing icon.



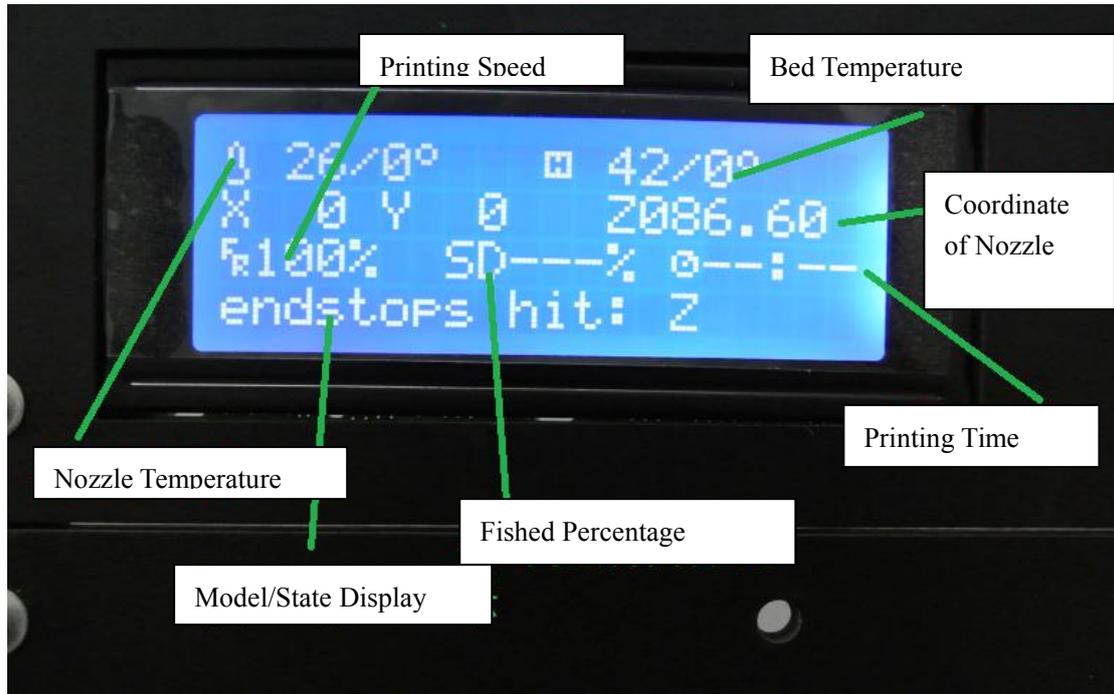
If the middle icon is storage after slicing, then you have to choose“Save”.



Open the folder that you want to print, Then choose the to-be-printed GCODE file. Then Paste and copy, save it to SD card.



Open the DIY, insert the SD card. Choose Print form SD to select the to-be-printed model, The printing is started.



LED Screen

Click function key to enter the LED control screen and then adjust relevant parameters:



Each function is shown as follows:

- 1、 Info screen (return screen hint)
- 2、 Prepare(preparation before printing)
  - 2.1 main (return to the superior level)
  - 2.2 disble steppers

- 2.3 Auto home (initial printing point)
- 2.4 Preheat PLA (Preheat PLA)
- 2.5 Preheat ABS (Preheat ABS)
- 2.6 Cool down (cool down)
- 2.7 Switch power on/off
- 2.8 Move shaft (move each shaft)
  - 2.8.1 Prepare (return to the superior layer)
  - 2.8.2 move 10mm (move in the unit of 10mm)
    - 2.8.2.1 move shaft (return to the superior layer)
    - 2.8.2.2 move x (move X shaft)
    - 2.8.2.3 move y (move Y shaft)
  - 2.8.3 move 1mm (move in the unit of 1mm)
    - 2.8.3.1 move shaft (return to superior layer)
    - 2.8.3.2 move x (move X shaft)
    - 2.8.3.3 move y (move Y shaft)
    - 2.8.3.4 move z (move Z shaft)
  - 2.8.4 move 0.1mm (move in the unit of 0.1mm)
    - 2.8.4.1 move shaft (return to superior layer)
    - 2.8.4.2 move x (move X shaft)
    - 2.8.4.3 move y (move Y shaft)
    - 2.8.4.4 move z (move Z shaft)
- 3、Control (control setting center)
  - 3.1 main (return to superior layer)
  - 3.2 Temperature (Temperature)
    - 3.2.1 control (return to superior layer)
    - 3.2.2 nozzle (nozzle temperature)
    - 3.2.3 bed (bed temperature)
    - 3.2.4 Fan speed (fan speed)
    - 3.2.5 Auto temp (temperature display)
      - 3.2.5.1 min (minimum temperature)

3.2.5.2 max (maximum temperature)

3.2.5.3 fact (actual temperature)

3.2.6 PID-P

3.2.7 PID-I

3.2.8 PID-D

3.2.9PID-C

3.2.10 Preheat PLA conf (Preheat PLA)

3.2.10.1 Temperature (Return to superior layer)

3.2.10.2 Fan speed (fan speed)

3.2.10.3Nozzle (nozzle temperature)

3.2.10.4 Bed (bed temperature)

3.2.11 Preheat ABS conf (Preheat ABS)

3.2.11.1 Temperature (return to superior layer)

3.2.11.2 Fan speed (fan speed)

3.2.11.3Nozzle (Nozzle temperature)

3.2.11.4 Bed (bed temperature)

3.3Motion (setting printer parameters)

3.3.1 control (return to superior layer)

3.3.2 Accel ( 3.3.2 to 3.3.20 are not commonly used parameters that you had better not adjust).

3.3.3Vxy-jerk

3.3.4Vz-jerk

3.3.5Ve-jerk

3.3.6Vmax x

3.3.7Vmax y

3.3.8Vmax z

3.3.9Vmax e

3.3.10Vmin.

3.3.20 Esteps

3.4 Restore failsafe

1、 Print form SD (choose model to print from SD card)

4.1 main (return to superior layer)

4.2----- ) (SD card, printing model name)

During printing, click function key to enter the following interface and adjust relevant parameters.:

1、 Info Screen (return to main screen)

2、 Tune (fine-tuning)

2.1main (return to superior layer)

2.2speed (printing speed)

2.3Nozzle (nozzle temperature)

2.4Bed (bed temperature)

2.5Fan speed (fan speed)

2.6 Flow (material flow)

2.7 Flow (material flow)

2.8 Change filament ( (change printing filament)

3、 Control (control)

Which is the same as the previous Control function.

4、 Pause Print (pause printing)

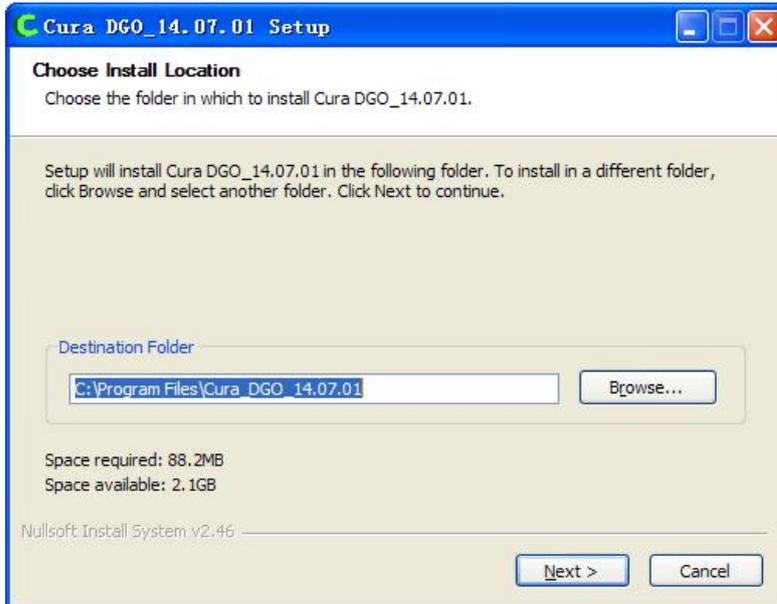
5、 Stop Print ( (stop printing)

These parameters mainly control the temperatures of nozzle and bed as well as printing speed.

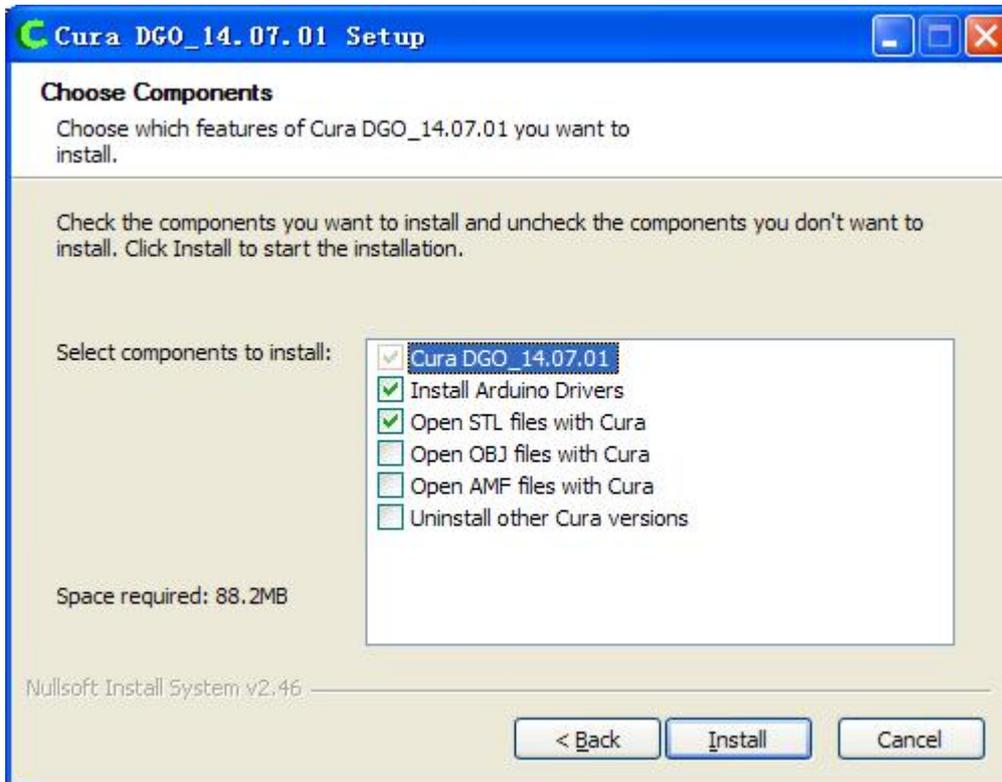
## **4.2 Online Printing**

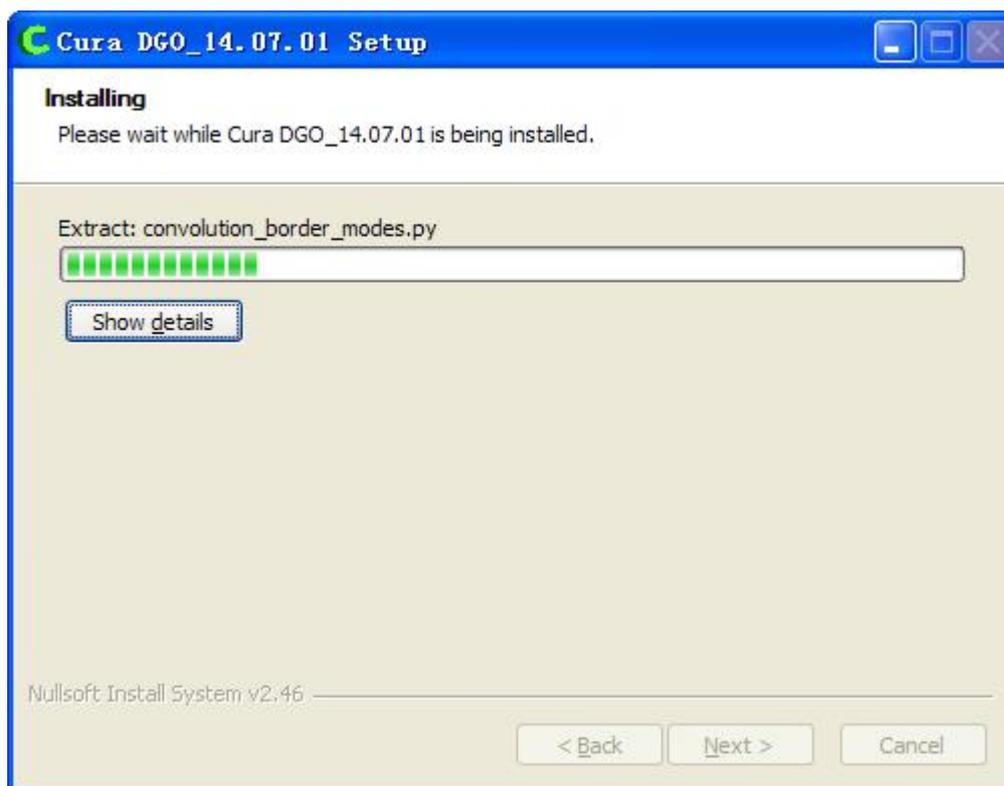
**Install Cura14.07. Close the anti-virus software before installation.**

4.2.1 Double-click Cura\_DGO\_14.07.01.exe.



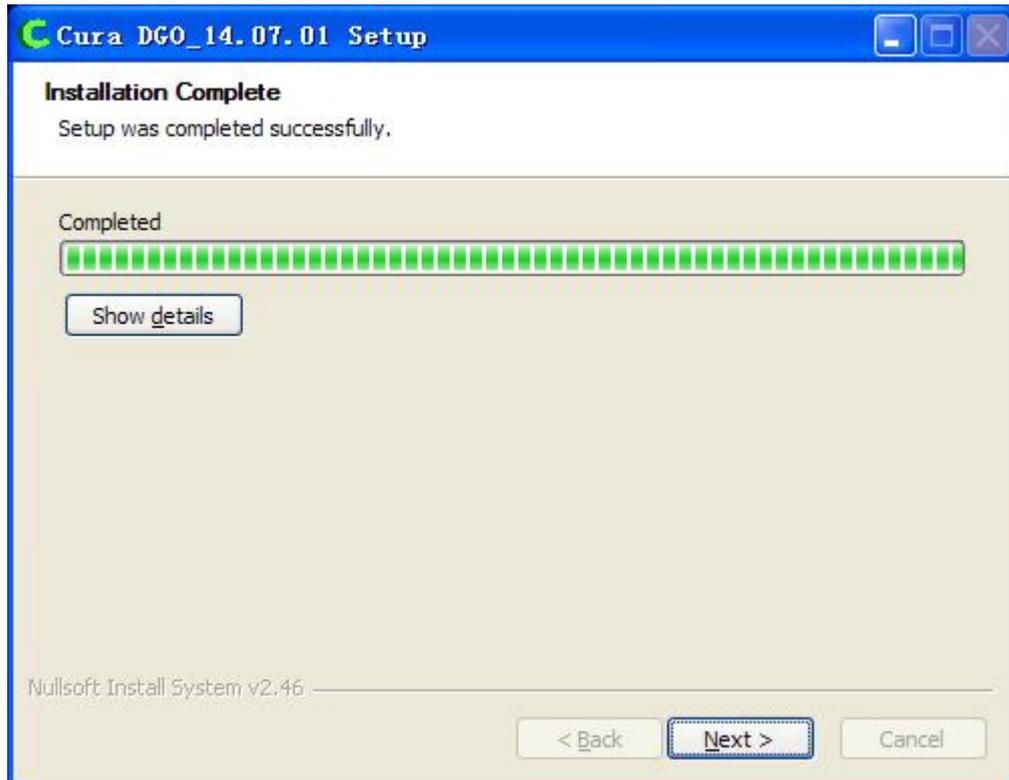
4.2.2 Choose the default install components.



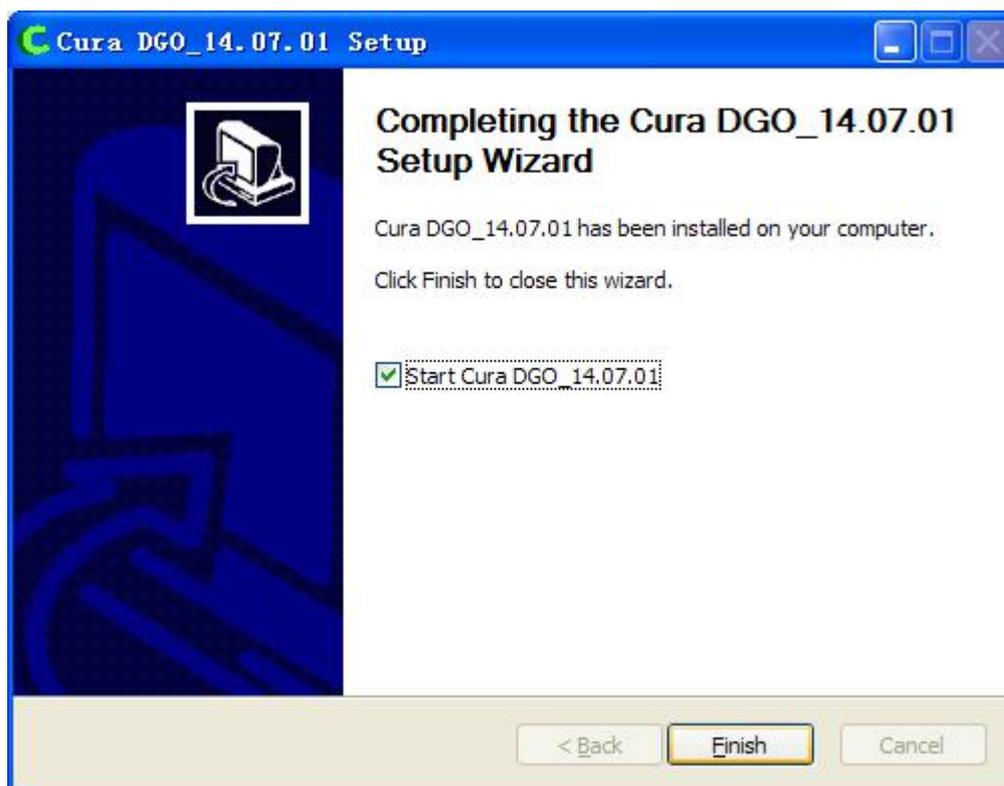


#### 4.2.3 Install the default Arduino Driver





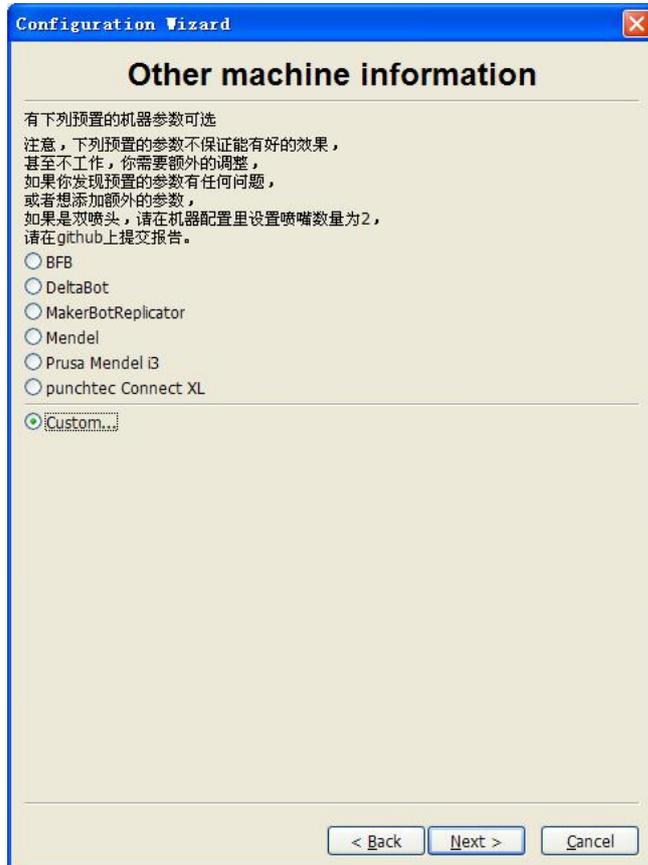
4.2. Directly open Cura when installation is completed.

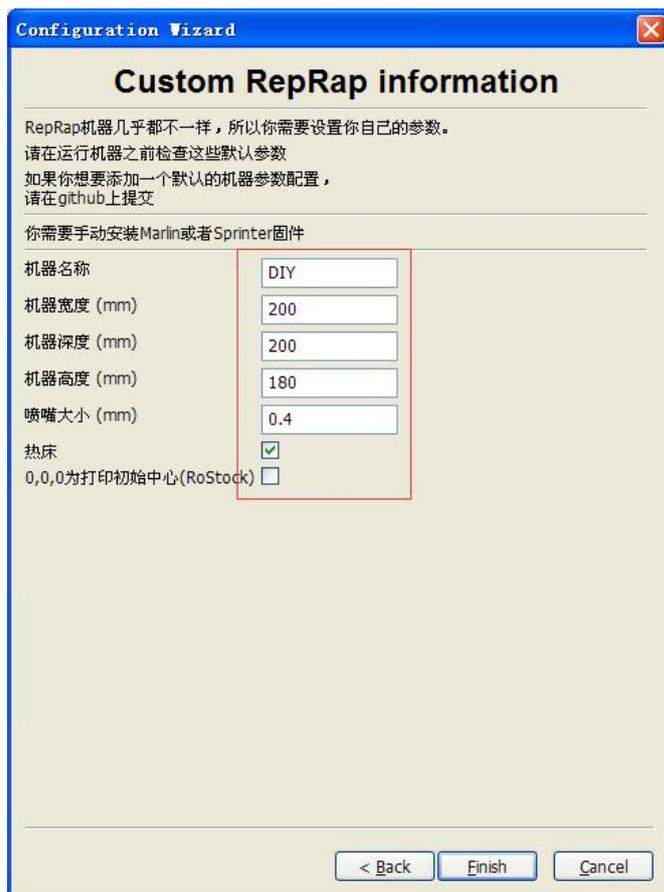


#### 4.2.5 First starting guide

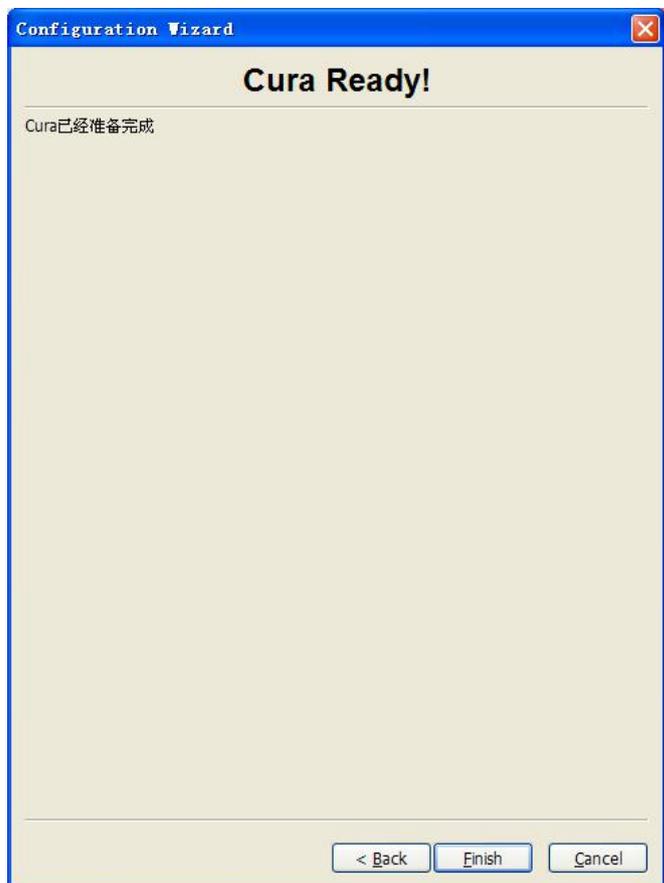


#### 4.2.6 Choose parameters and pay attention to the setting in red frame.





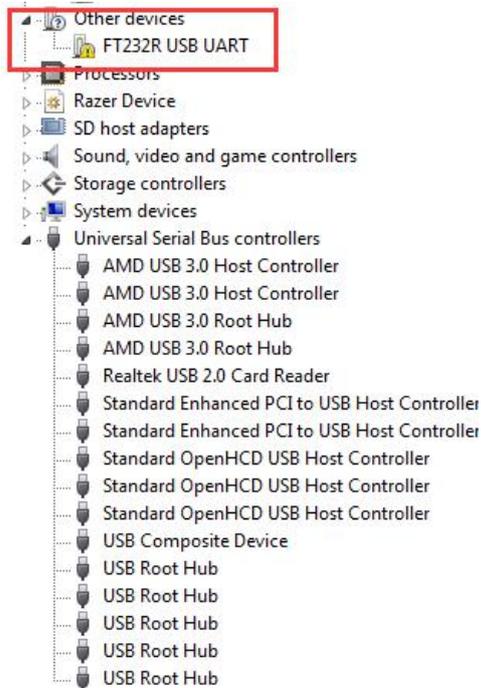
4.2.7 Printer setting is completed.



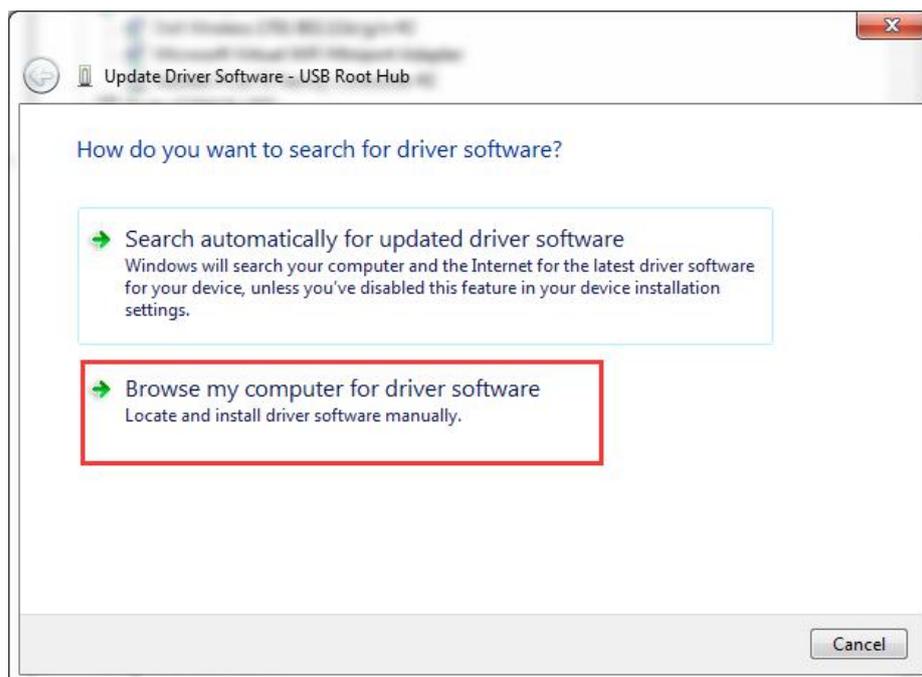
## 5. Installing Series Ports Driver

5.1 Open DIY power source and connect USB to computer.

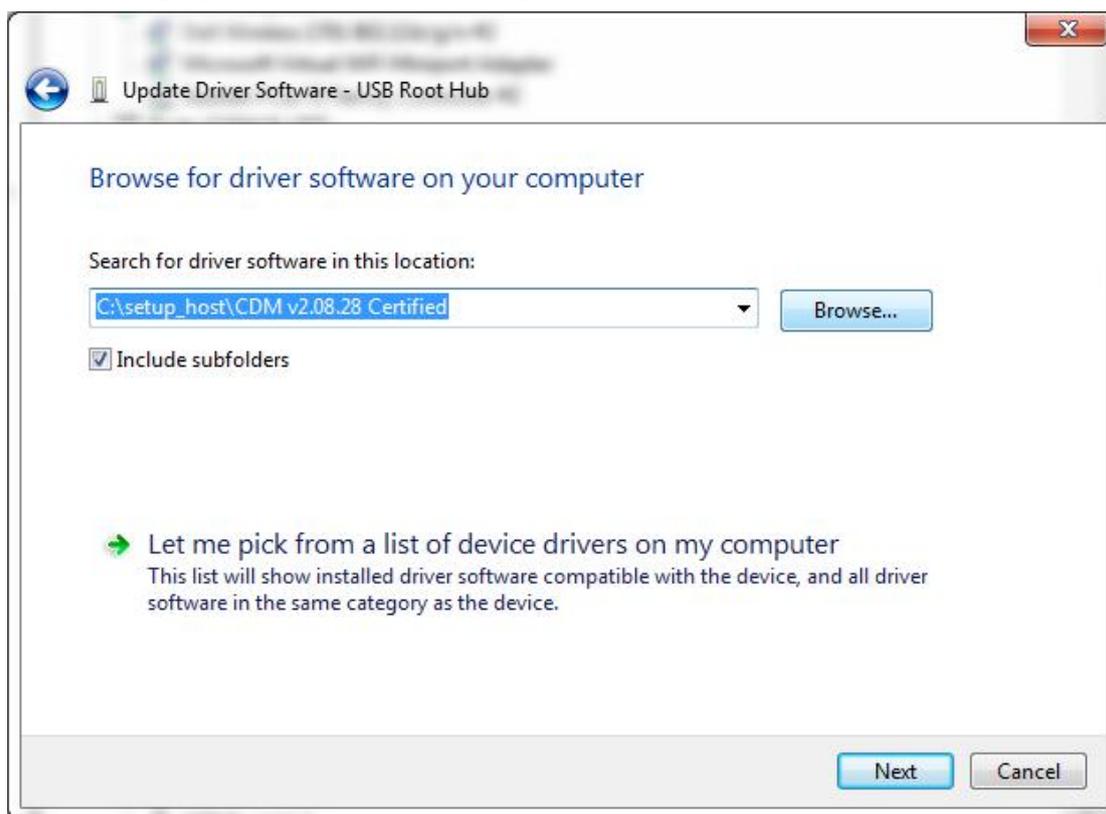
5.2 Right-click “My computer” to choose Device Manager. If there is no proper series driver, the yellow warning in the following red frame be displayed.



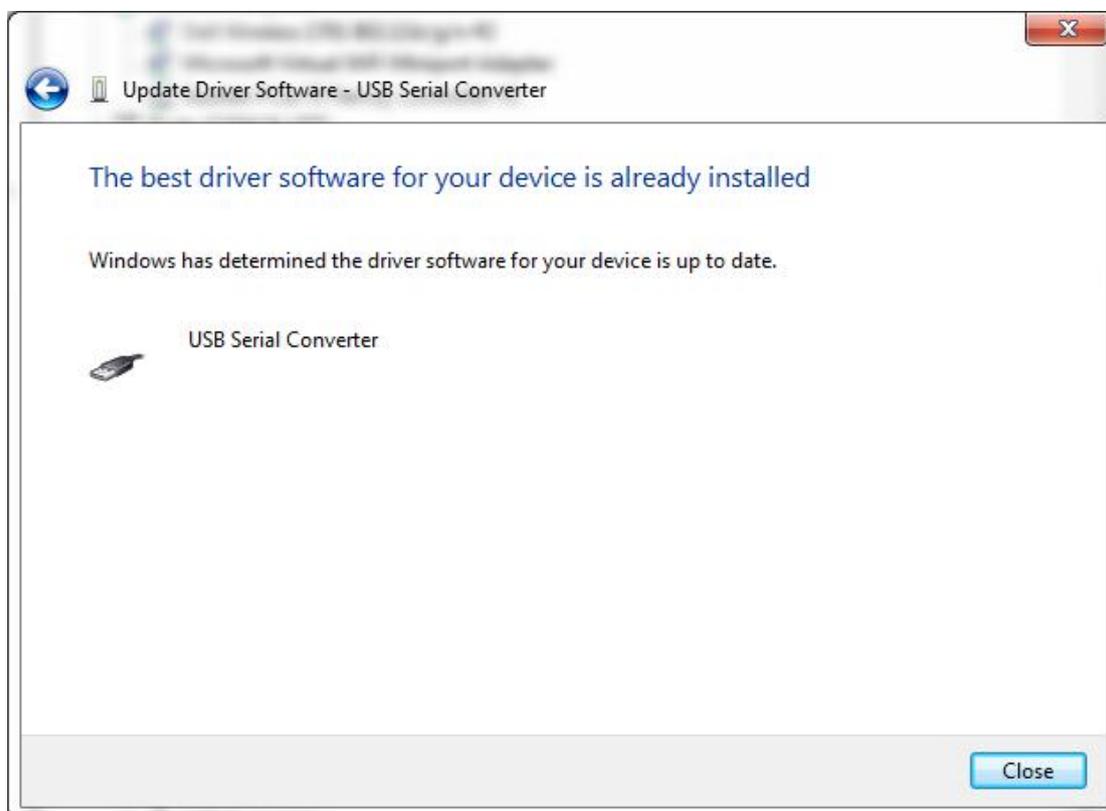
5.3 Right-click “FT232R USB UART” to update driver program. Choose “from list or specified location” for upgrading.



5.4 Choose proper driver document to update the driver.

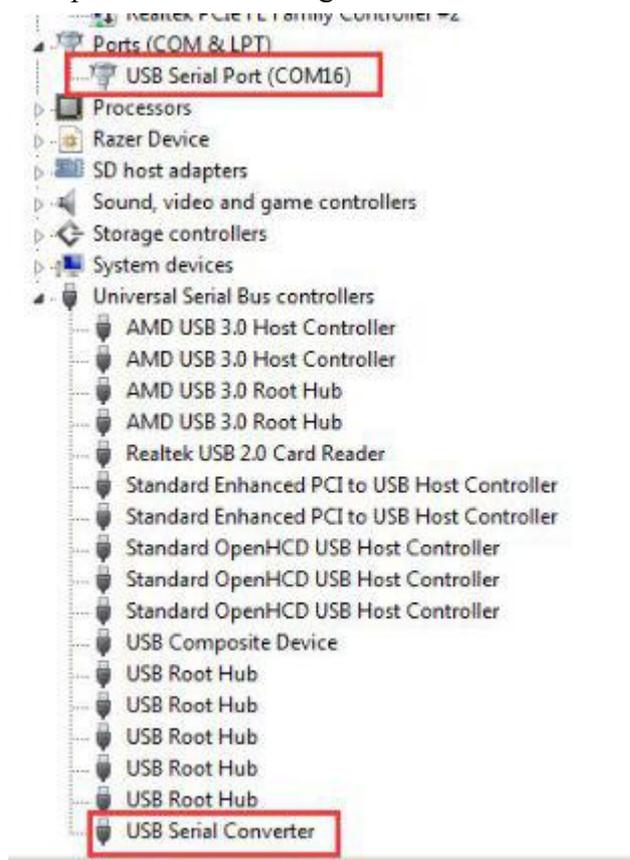


5.5 When updating is finished, the following interface will be shown. Then close the window.



5.6 After driver installation, the following interface will be displayed in the “My

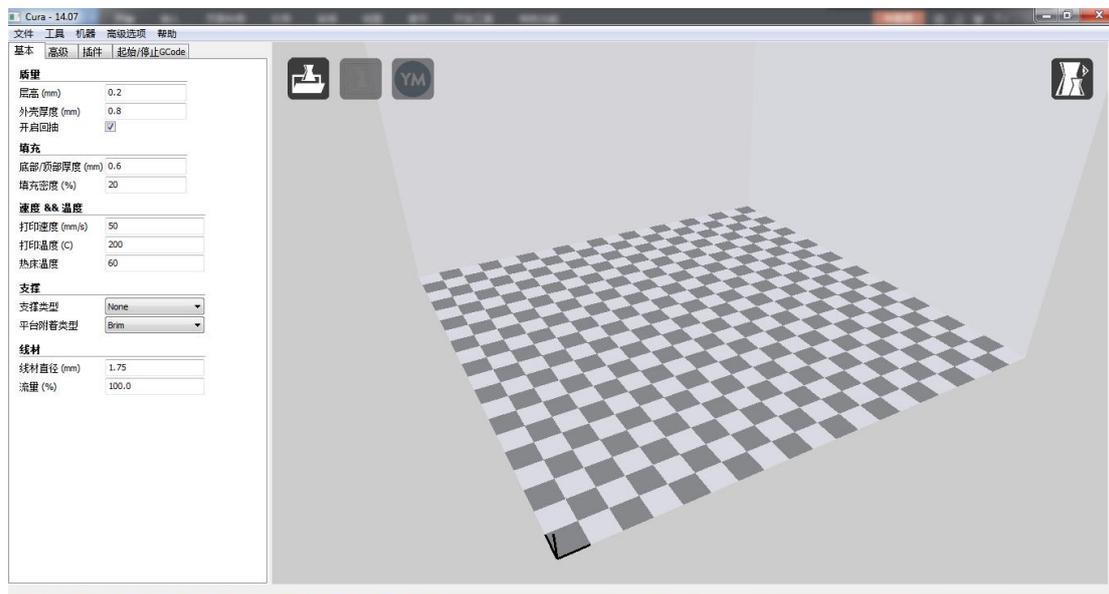
Computer-Device Manager”.



## 6. Online Printing



6.1 Double-click the icon to open Cura 14.07.



6.2 Set the filament diameter as 1.75mm and nozzle diameter is 0.4mm.

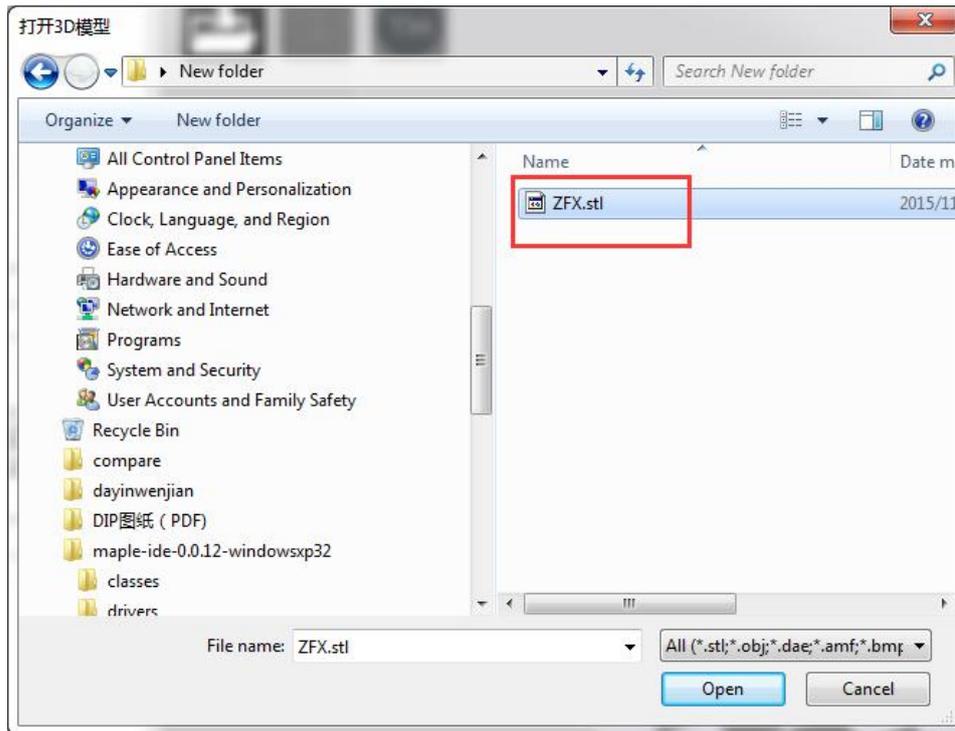
| 基本                      | 高级                                  | 插件 | 起始/停止GCode |
|-------------------------|-------------------------------------|----|------------|
| <b>质量</b>               |                                     |    |            |
| 层高 (mm)                 | <input type="text" value="0.1"/>    |    |            |
| 外壳厚度 (mm)               | <input type="text" value="0.8"/>    |    |            |
| 开启回抽                    | <input checked="" type="checkbox"/> |    |            |
| <b>填充</b>               |                                     |    |            |
| 底部/顶部厚度 (mm)            | <input type="text" value="0.6"/>    |    |            |
| 填充密度 (%)                | <input type="text" value="20"/>     |    |            |
| <b>速度 &amp;&amp; 温度</b> |                                     |    |            |
| 打印速度 (mm/s)             | <input type="text" value="50"/>     |    |            |
| 打印温度 (C)                | <input type="text" value="190"/>    |    |            |
| 热床温度                    | <input type="text" value="60"/>     |    |            |
| <b>支撑</b>               |                                     |    |            |
| 支撑类型                    | <input type="text" value="None"/>   |    |            |
| 平台附着类型                  | <input type="text" value="None"/>   |    |            |
| <b>线材</b>               |                                     |    |            |
| 线材直径 (mm)               | <input type="text" value="1.75"/>   |    |            |
| 流量 (%)                  | <input type="text" value="100.0"/>  |    |            |

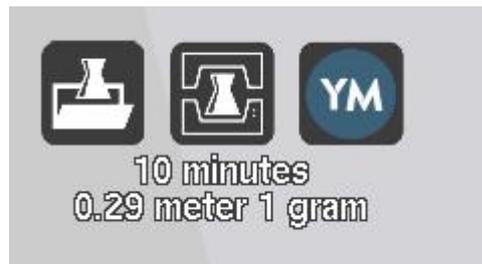
| 基本        | 高级                               | 插件 | 起始/停止GCode |
|-----------|----------------------------------|----|------------|
| <b>机器</b> |                                  |    |            |
| 喷嘴大小 (mm) | <input type="text" value="0.4"/> |    |            |



6.3 Click the first icon to pen file folder. Then choose the to-be-printed STL file.



#### 6.4 Automatic Slicing

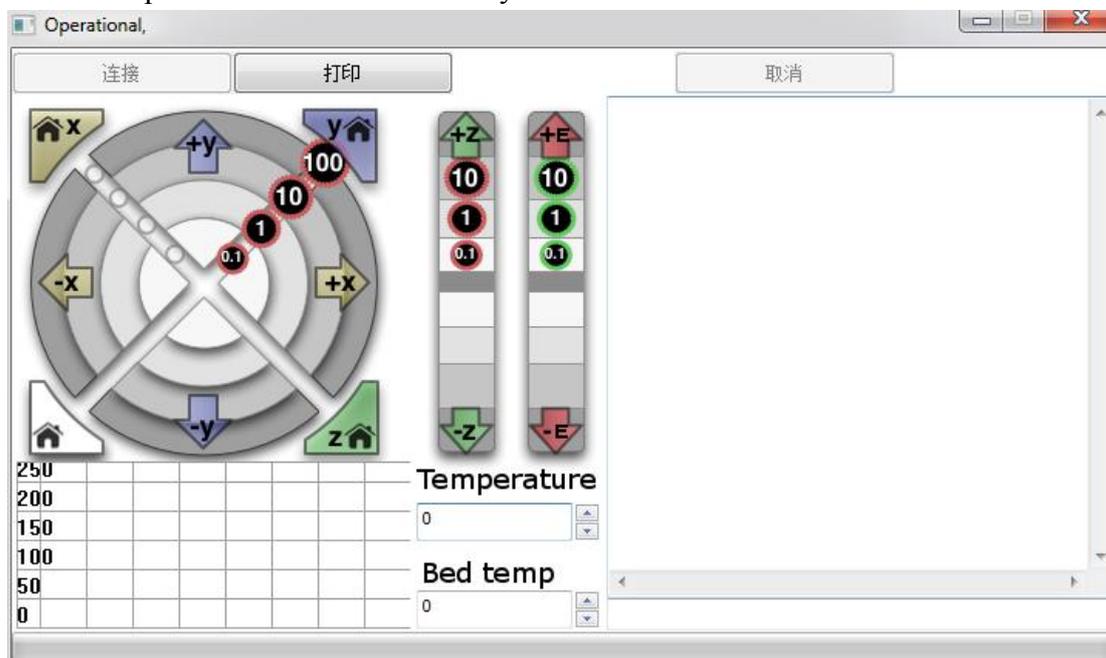


After slicing, the icon will be shown and choose the middle online –printing icon.



If the middle icon is storage after slicing, then you have to choose “Printer-Printer Setting” to set the ports ( subject to the port detected by computer, COM16 is taken as example in this manual ) and baud rate.

6.5 Then online-printing window is popped out. When the “print” turns black, it means the printer has been successfully on-line.



Then click “Print” to heat nozzle and bed until the temperature reaches pre-set value. Then printer will return to starting position and began to print on-line.

# Maintenance

## 1. Cleaning Nozzle

You need to clean the nozzle after printer is used for some time. Dismantle nozzle, remove fan, motor and the black square at the material inlet of motor, on which is the rubber extruding gear of nozzle. Open this square and clean the plastic rubber in the gear. Then install these parts back to printer.

## 2. Tightening Belt

Notes: 1. Belt should be seamlessly contacted with belt wheel.

2. Forces of the two side of Y shaft belt wheel should be the same.

3. X shaft shall be perpendicular to Y shaft.

## 3. Shaft and Threaded Rod Maintenance

Oil the bearing steel of XYZ shafts with high quality lubricant. The oil amount is not supposed to be too much.

## 4. Fault Shooting

4.1 Offset. If offset remains after screw tightening, please check if the belt wheel is on the same parallel line.

4.2 Abnormal temperature display 0-1024. Check if the thermocouple is correctly connected. If so, change thermocouple.

4.3 Temperature display is NA. Check if the thermocouple is correctly connected. If so, change thermocouple.

4.4 X shaft moves abnormally with vibration. The x shaft motor cable should be changed.

4.5 LCD turns blue without information or sudden rebooting after printer is started OR THE stopper switch of motor does not stop. Check if the sensor is connected correctly. If so, then change the sensor cable.

4.6 Cooling fan does not move. First confirm if the fan can rotate when temperature is over 40°C. If not, use screwdriver to check the port connect or use

batter to test problem. If you can confirm the problem, then change fan.

4.7 Motor does not rotate, change the motor driver board.

## 5. Common Problems and Solutions

5.1 filament is blocked----filament is too thick----dismantle the nozzle.

5.2 sliding----filament is too thin----cut part of filament

5.3 nozzle is blocked----heating tube is blocked by filaments----dismantle heating part and heat it to 220°C, then get filaments out with tweezers.

5.4 abnormal temperature----thermocouple is damaged----change thermocouple

5.5 printing offset---screw is loosened---check and tighten screw

5.6 sample edge deformations---bed is too high---adjust the bed height

5.7 filament is glued onto nozzle----supporting material are pulled by nozzle---reset the parameters

5.8 filament does not flow out---model is faulted---transform the model into code and set parameters after model being corrected.

5.9 driver or software cannot be installed---wrong system configuration---reinstall system

5.10 print samples cannot be glued on bed---too large gap between nozzle and bed---readjust the bed

5.11 Click any mode when printer is powered, the motor doest no move---change a new printer identifier.

5.12 tape cannot be moved off----heat the bed to 20°C or 30°C and take off the tape completely.

5.13 Print material no way to feed off - Check for loose plastic extrusion gear damage, nozzles and heating tube Have blocking material to see whether the feed tray line stuck, stuck if it will strand Larsson rewound feeding dish can

5.14 When the printing is completed or the printing needs refueling en route, use the system discharge function, do not force the hand pulled a strand, and is likely to cause the bottom line is heated to soften the material deformed so easily damaged while stuck squeeze rubber gear, Unable to create the material and cutting

phenomenon

## 6. Warranty Statement and Permit Agreement

### 6.1 Quality Guarantee

Each product you have bought is attached with the promise given by CTC. We ensure that each product manufactured by us is of high quality through strict accessory fabrication standards and assembling inspection flows.

### 6.2 After-sale Guarantee:

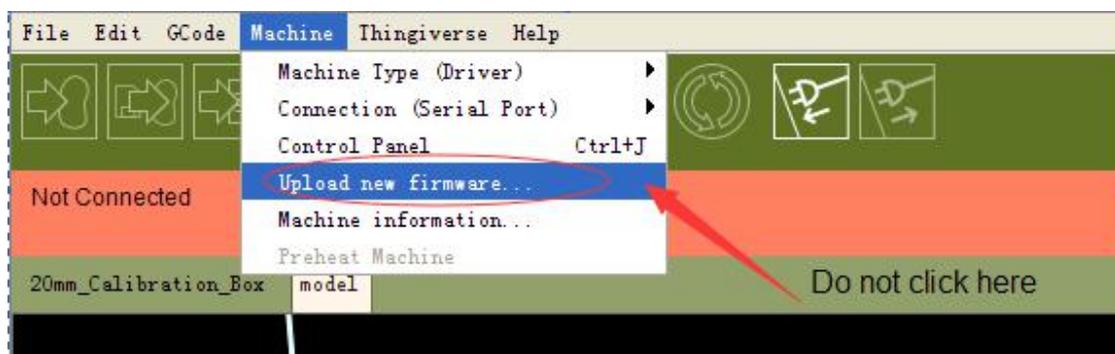
1. We promise to change or repair the product with quality problem within 3 days after your receipt of the product (free of charge and we will bear the two-way transport fees).

2. We promise to change or repair the product with quality problem within 7 days after your receipt of the product (free of charge and we will bear half the two-way transport fees).

3. We promise to change or repair the product with quality problem within 15 days after you receipt of the product free of charge. And you should bear the two-way transport fees.

4. We offer free-of-charge consultation service to you about any product problem after 15 days since you have received the product. However, you should bear all the cost for any accessory change and the two-way transport fees.

5. Do not upgrade the firmware(as pic. below). Any damage caused by upgrading the firmware is not within the warranty policy.



### 6.3 Notice for Return or Change

1. Customer should carefully check if all the parts are included in the package according to bill of materials as soon as you have received the printer.

2. CTC will not liable to any part damage caused if you have not complied with the installation instructions. And you should bear all the cost of any part needed to be changed and the transport fee.

3. Because DIY printer will be installed by customer. So the printing quality varies from one customer to another. We will not accept any return request once the printer is completely installed.

3.1 Basic conditions for return/change: All the accessories, instruction manual and outer package of the product should be the same as it was sold to you. We will not accept return or change request if any one of the aforesaid is missed. You can keep the free-of-charge articles for product change; You should send the free-of-charge articles to use with the product for product return.

3.2 Return /change due to quality problem. Please carefully check the completeness of product as soon as you have received the product. If any quality problem is found, please take a photo and contact us within 5 days.

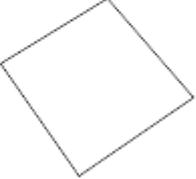
3.3 Please note the following terms, otherwise, we will not offer return/change service to you. (1) Any product that you request to change/return shall have all the complete outer package, accessories and instruction manual, etc. (2) We will not accept return/change if the product has been stained or damaged by personal acts. (3) free-of-charge articles are not eligible for return/change. (4)No return/change is accepted if you have used non-CTC consumables. (5) Product that has been invoiced are not to be returned. You can change the product with quality problem. .

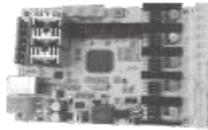
#### **6.4 About Product Care:**

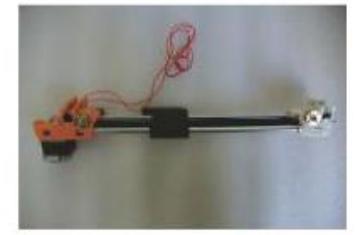
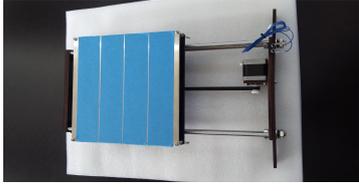
(1) After you finish printing, try to clean all the residual consumables inside the nozzle or printer to prevent nozzle being blocked next time. This is also the rudimentary maintenance for 3D printer. Note: we will not offer repair warranty if nozzle is blocked by consumables provided by other suppliers. (2) You can add some anti-lubricant to guide track once a month. (3) During printing, do not cut off the power directly or touch the conductive parts of printer with metal.

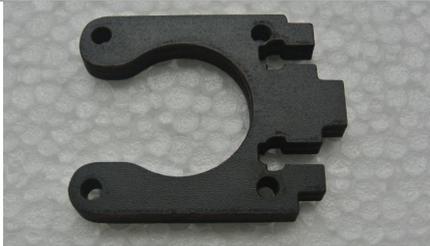
**Appendix 1: Bill of Materials for DIY Printer**

| No | Name                       | Specifications               | Qty | Pic   |
|----|----------------------------|------------------------------|-----|---|
| 1  | Smooth rod                 | D8*L322mm                    | 2   |    |
| 2  | Threaded rod               | M8*L300mm<br>Z-axis screw    | 2   |   |
| 3  | M3 Washers                 | M3                           | 35  |    |
| 4  | Nut                        | M3                           | 35  |    |
| 5  | Screw                      | M3x8mm                       | 10  |    |
| 6  | Screw                      | M3x16mm                      | 25  |   |
| 7  | Screw                      | M3x30mm                      | 5   |   |
| 8  | Motherboard support column |                              | 6   |  |
| 9  | Fan support column         |                              | 4   |  |
| 10 | Display screen cable       |                              | 1   |  |
| 11 | USB Cord                   | A-B                          | 1   |  |
| 12 | Serial number              |                              | 1   |  |
| 13 | 3D power Cable             | 3*0.75 square mm Switch Line | 1   |  |

| No | Name               | Specifications  | Qty | Pic   |
|----|--------------------|---|-----|---|
| 14 | Dovetail clamp     |   | 4   |    |
| 15 | Nylon ties         |   | 15  |    |
| 16 | Grater             |   | 1   |    |
| 17 | Power Cable        | Power cable and plug  | 1   |    |
| 18 | Dupont cable       | 3pin Male-3pinFemale  | 1   |   |
| 19 | Power cable        | Connectboard to PSU   | 1   |  |
| 20 | Fan                | 40*40*15mm 12V  | 1   |  |
| 21 | Borosilicate glass | 216mm*216*mm*3mm  | 1   |  |
| 22 | Power supply       | Input:<br>115V/1.5A<br>230V/0.75A<br>Output:<br>DC12V/0-15A | 1   |  |

| No | Name                     | Specifications  | Qty | Pic   |
|----|--------------------------|---|-----|---|
| 23 | Control board            | GT2560  | 1   |    |
| 24 | Extruder Heating Wire    | Mk8 extruder<br>Nozzle size 0.4mm<br>Supplies can use ABS (1.75MM), PLA (1.75MM) (Optional), for filament size 50cm (soldered on heatbed) | 1   |    |
| 25 | Starter ABS/PLA Filament | About 250g  | 1   |   |
| 26 | SD Card                  | 2G  | 1   |  |
| 27 | Screw locking ring       | M8  | 2   |  |
| 28 | Holder                   |   | 1   |  |
| 29 | High-temperature tube    | spare   |     |  |
| 30 | Flexible coupling        |   | 6   |  |

| NO | Name          | Specif i cations | Qty | PIC  |
|----|---------------|------------------|-----|--|
| 29 | A4<br>Asembly |                  | 1   |  A black metal assembly with a central shaft and several screws, mounted on a base.             |
| 30 | A5<br>Asembly |                  | 1   |  A black metal assembly similar to A4, but with a different central shaft and mounting points. |
| 31 | LED           |                  | 1   |  A black rectangular LED assembly with a blue display screen and a control knob.              |
| 32 | Q<br>Asembly  |                  | 1   |  A black assembly with a red wire and a small component, possibly a sensor or actuator.       |
| 33 | P<br>Asembly  |                  | 1   |  A blue assembly with a white frame and a black component, possibly a motor or actuator.      |

| Plank kits (5mm) |                            |                |     |   |
|------------------|----------------------------|----------------|-----|---|
| No               | Name                       | Specifications | Qty | Pic   |
| A1               | XZ frame                   | EUY-M01        | 1   |    |
| A2               | Left side frame            | EUY-M02        | 1   |    |
| A3               | Right side frame           | EUY-M03        | 1   |    |
| A4               | Z top mount                | EUY-M08        | 2   |  |
| A5               | Tripod                     |                | 2   |  |
| A6               | Y shaft motor fixing plate | spare          | 1   |  |