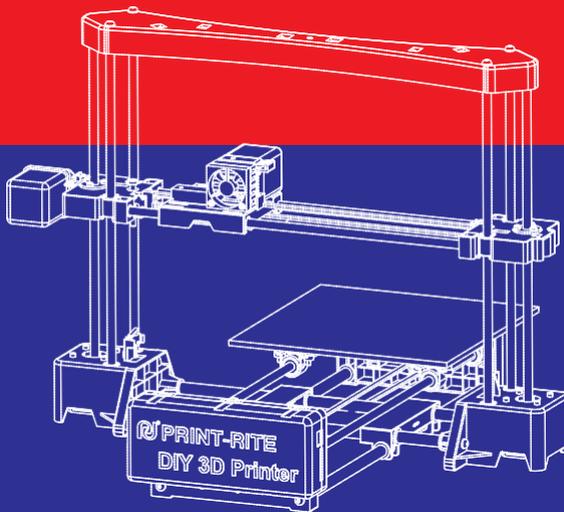




DIY

3D Printer

USER MANUAL



* Carefully and thoroughly read this manual before use



Manufactured by ISO 9001/
14001 certified plant.



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This User Manual is designed to start your journey with the DIY 3D Printer.

Welcome to the world of DIY 3D Printing!

Following this manual will help you make amazing products.

In this manual, Safety Alert Symbols will be marked at the start of all safety messages. The Safety Alert Symbol means potential safety hazards, which may possibly harm you or others and potentially cause product or property loss.

Safety Alert Symbol



WARNING: HOT SURFACE - DO NOT TOUCH

Desktop 3D Printers reach high temperatures when printing. Make sure the Desktop 3D Printer is given time to cool down before touching printer parts.



WARNING: HAZARDOUS MOVING PARTS - KEEP FINGERS AND OTHER BODY PARTS AWAY

The moving parts of the Desktop 3D Printer will possibly cause harm. Do not touch the Desktop 3D Printer when the printer is running.



WARNING: Make sure you do not stand too close to the Desktop 3D Printer when it is running.



CAUTION: Be careful when using unapproved materials, these may damage your Printer and significantly impact on the print quality.



CAUTION: In an emergency, disconnect the power plug from the power socket.



CAUTION: Ensure that the power socket is located near the Printer and within reach in case of an emergency.



CAUTION: Place the Desktop 3D Printer in a well-ventilated area as the melted plastic may emit plastic odor when printing.

Printing

Print Technology: Fused Deposition Modeling

Construction Dimension: 200 x 200 x 170mm

Layer Resolution Setting: 0.1 - 0.4mm

Positional Accuracy: XY: 0.011mm
Z: 0.00 25mm

Filament: PLA only

Filament Diameter: 1.75mm

Nozzle Diameter: 0.4mm

Mechanical

Frame: Steel + Engineering Plastic

Platform: Engineering Plastic

XYZ Bearing: Steel

Stepper Motors:

1.8° step angle,

1/16 micro-stepping

Electrical

Storage Temperature: 0 °C - 32 °C [32 °F - 90 °F]

Operating Temperature: 15 °C - 32 °C [60 °F - 90 °F]

Power: 60W

Input Voltage: 110V - 240V 50/60HZ

Dimension

Printer Size: 502 x 536 x 382MM

Package Size: 565 x 290 x 285MM

Software

Software package: REPETIER-HOST 0.95F

File Type: .STL , .GCO

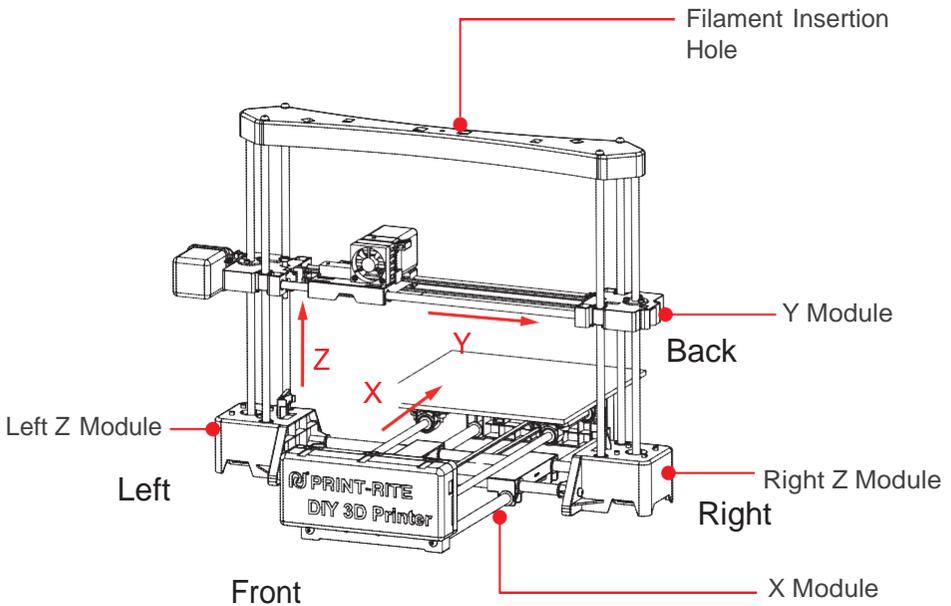
Operating System: WINDOWS 7, MAC OS,

LINUX Connection: USB

Chapter 3 Print Principle

The DIY 3D Printer makes solid, three-dimensional objects by melting PRINT-RITE PLA filament.

The designed 3D files are converted into DIY 3D Printer command through computer software called “Repetier-Host” this is then sent to the printer via a USB Cable. Then, the printer will heat up and melt PRINT-RITE PLA filament and extrude it from the nozzle to make a solid object layer by layer. This method is called Fused Deposition Modeling or FDM.



Chapter 4 Accessory Checklist



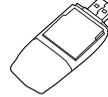
1 x 0.5kg PLA Filament -----



Spool Holder



Flash Drive



Power Cable -----



USB Cable -----



Screw Drivers -----



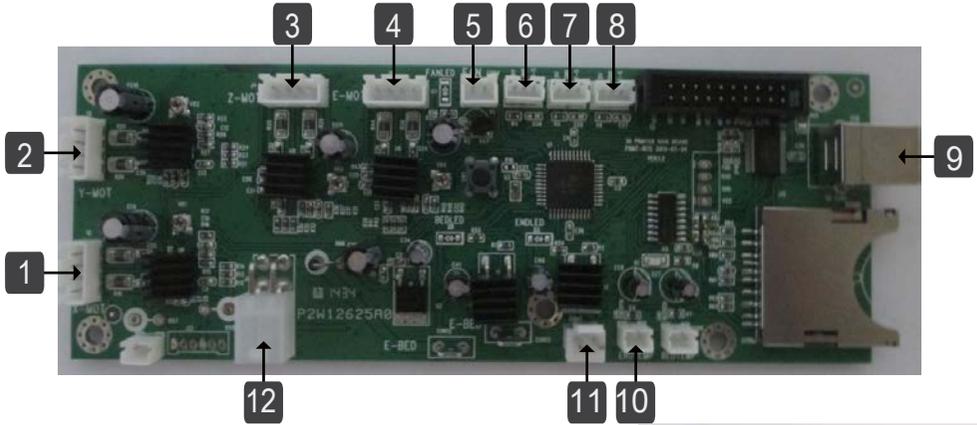
Test Sheet



Chapter 5 Electrical Connection

5.1 Connect the wires to the Mainboard as show below.

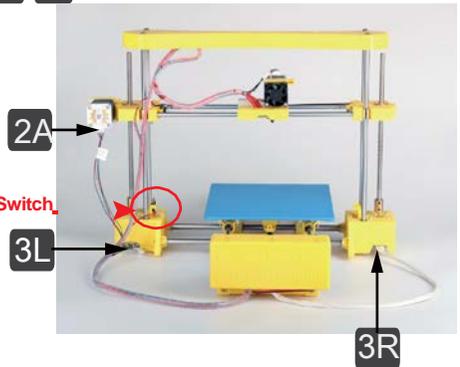
(Each wire is uniquely labelled)



- | | | |
|------------|----------|-------------------|
| 1. X-MOTOR | 5. FAN | 9. USB Cable Port |
| 2. Y-MOTOR | 6. XSTOP | 10. ETEMP |
| 3. Z-MOTOR | 7. YSTOP | 11. HOTEND |
| 4. E-MOTOR | 8. ZSTOP | 12. POWER INPUT |

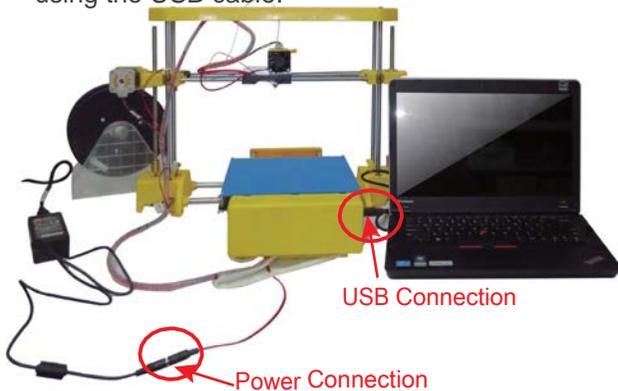
- 3R. connect to Z-Motor
- 3L. connect to Z-Motor
- 2A connect to Y-Motor

NOTE: Make sure the Z Limit Switch on the Left Z Module is assembled.



5.2 DIY Printer is now ready.

Connect the printer using the power cable. Connect the printer to the computer using the USB cable.



Reminder during Electrical Connection

1. Connect the wire to the mainboard base using the label on each wire.
2. Do not connect to the power supply during electrical set up.
3. Harness the wire cable after connection. Avoid wire entanglement as this can cause a connection problem.

6.1 Install REPETIER-HOST

REPETIER-HOST is a software which is used to slice the 3D models (.GCO .STL) and commands the DIY Printer to print.

Computer Operation System : WINDOWS 7, MAC OS, LINUX

1 Find“setup-RepetierHost_0_95F.exe”in the Flash Drive provided and double click to start the set-up. You can also download the software from below link.
http://3dclub.przhfanling.com/file/setupPrint-Rite-RepetierHost_0_95F.zip

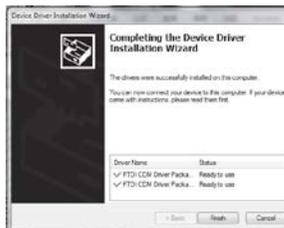
2 Start to install the software. (The computer will ask “Do you want to allow the following program to make changes to this computer?”,please click “Yes” to continue with the software installation.



3 Repetier-Host is now installed on the computer. See below. Tick “Install driver” and “Launch Print-Rite Repetier-Host” and then click “Finish” to continue.



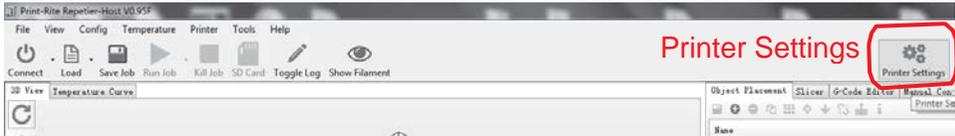
4 The driver is now installed on the computer, click “Finish”.



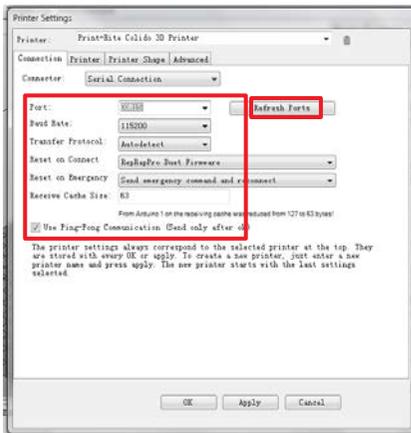
6.2 Setup REPETIER-HOST

1 Double click  , to go into "Repetier-Host" software

2 Click "Printer Settings"

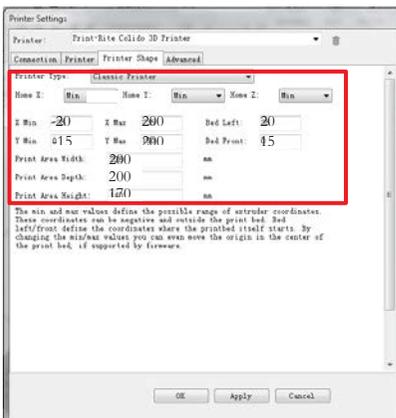


3 Set printer settings as below, select the corresponding port (COMx) ,
Baud rate : 115200. Click "Refresh the port" and then select the correct COMx.



NOTE: COMx depends on the computer or 3D printer you are using. Also, the COMx can be seen and matched with COMx in Device Manager as below when the computer connects to the printer.

4 Click "Printer Shape" and set the parameters as shown below. Click "Apply" and then "OK". Repetier-Host Setup is now complete.

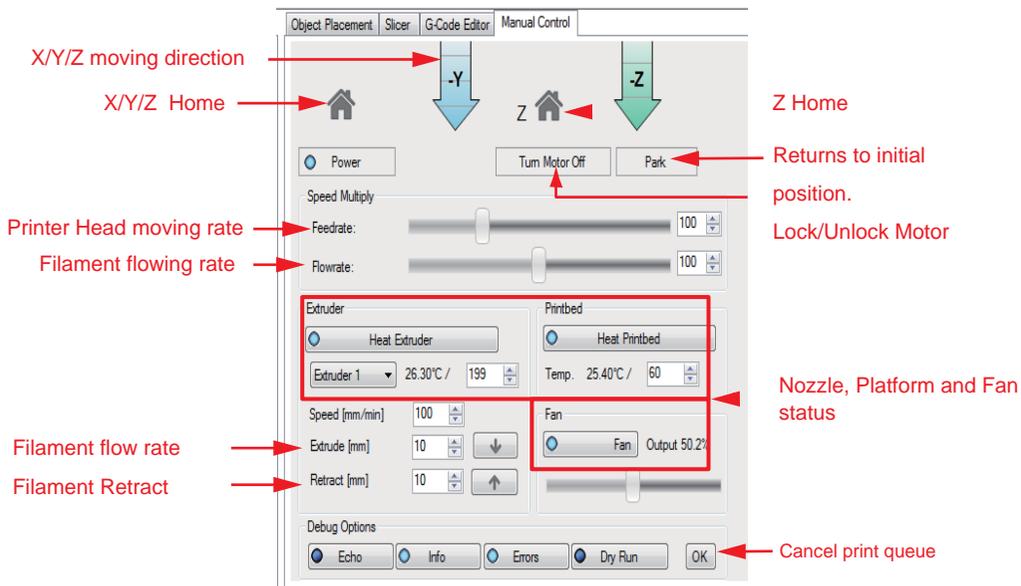


7.1 Calibration

The printer head and the platform calibration is very important. Incorrect calibration will severely impact on the printing quality.

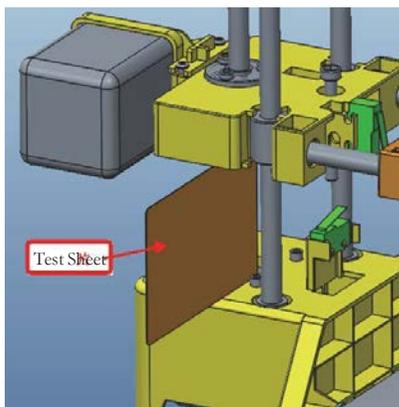
7.1.1 “Manual Control” introduction

The DIY Printer calibration and printing is controlled by the “Manual Control” menu.

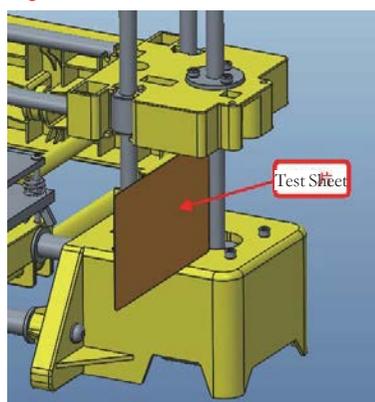


7.1.2 Turn off the printer. Rotate the two Z screw rods at the same time until the distance between the Y Module and Z Module is equal to the test sheet width. This is to ensure the Y module is level.

Left Y Base

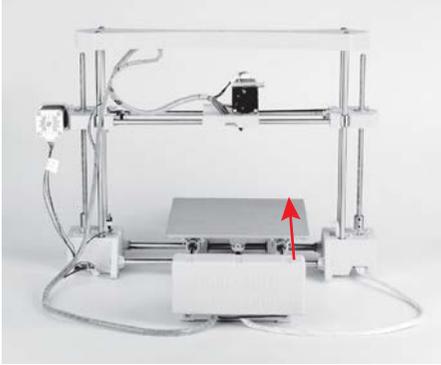


Right Y Base

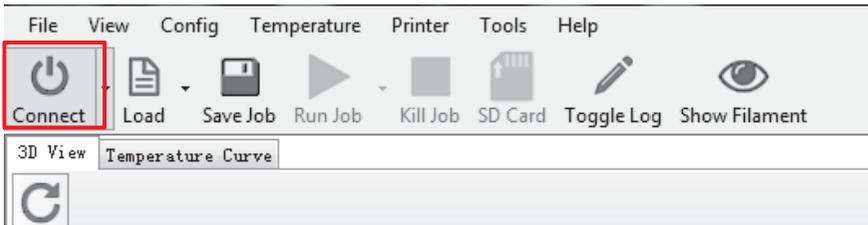


7.1 Calibration

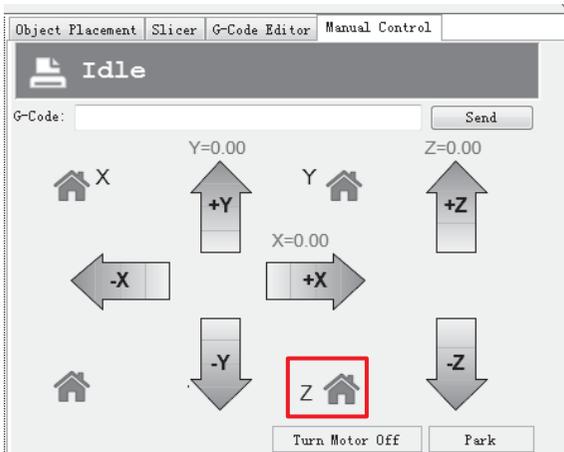
7.1.3 Move the platform away from the nozzle tip before calibration. This is to avoid any nozzle and platform damage.



7.1.4 Turn ON the printer. Click “Connect” to have DIY 3D printer connect to the computer.



7.1.5 Click “Z HOME” in “Manual Control” menu to go to Z Home position.

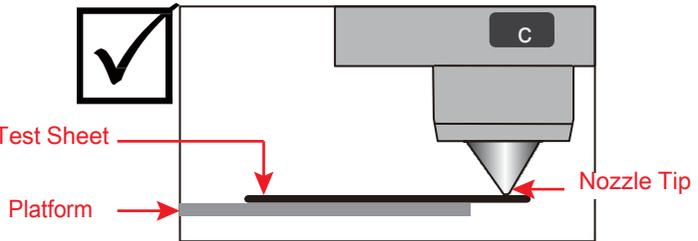


7.1 Calibration

7.1.6 Use the test sheet to check the gap between the nozzle tip and the platform. They must meet the “Calibration Standard Conditions” as shown below.

Calibration Standard Condition:

The test sheet must be laying completely flat on the platform, and the test sheet must be just touching the nozzle tip.



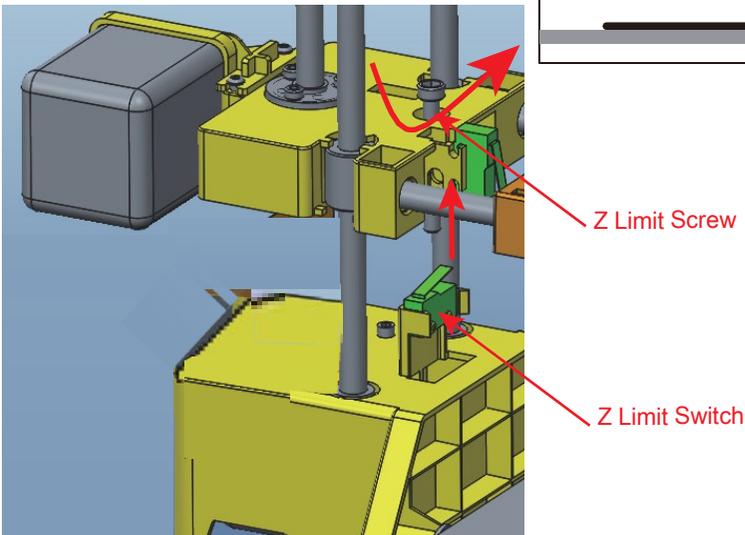
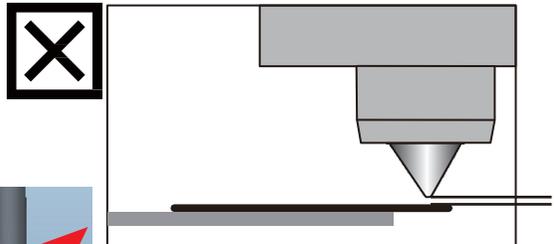
If the calibration standard condition is not met, the platform level must be adjusted by adjusting the Z Limit Screw.

Condition 1: There is a gap between the nozzle tip and the test sheet

Adjustment 1: Rotate the Z Limit Screw anti-clockwise by using a screw driver

to move the Z Limit Screw a little closer to the Z Limit Switch as shown

below. Click “Z HOME” to check the calibration condition until the nozzle tip touches the test sheet.



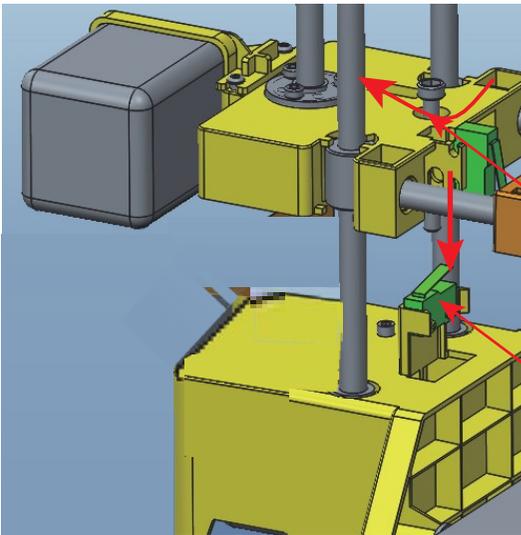
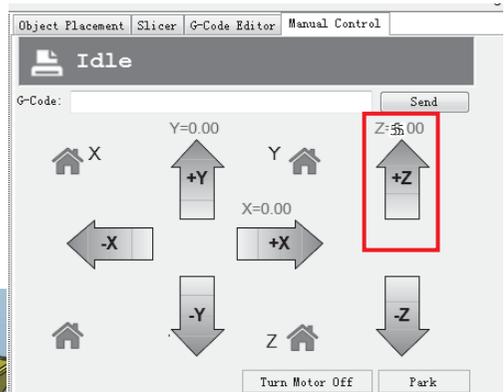
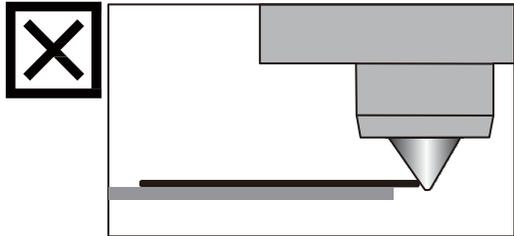
7.1 Calibration

Condition 2: The test sheet is over the nozzle tip.

Adjustment 2: Click "+Z" to move up the nozzle approximately 5mm, rotate the Z Limit

Screw in a clockwise direction using the screwdriver to move the Z Limit Screw closer to the Z Limit Switch as shown below.

Click "Z HOME" to check the calibration condition until the nozzle tip just touches the test sheet.



Z Limit Screw

Z Limit Switch

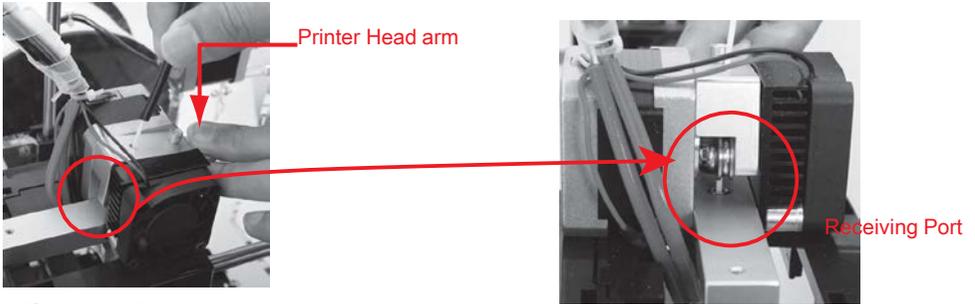
7.2 Filament Test

7.2.1 Load Filament

7.2.1.1 Cut the filament tip using scissors, Ensure that the end of the filament is flat.

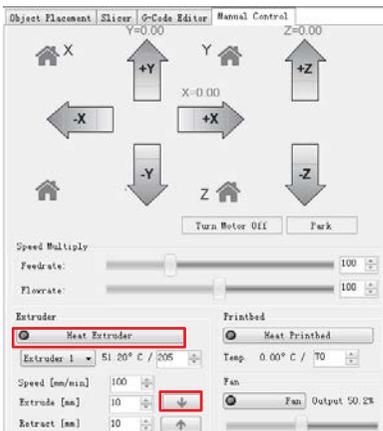


7.2.1.2 Push down the Printer Head arm. Insert the filament into the hole located on the top of the the Printer Head. Push the filament until the tip of the filament is inserted into the nozzle receiving port. Then release the Printer Head arm.

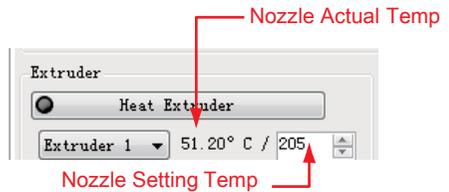


7.2.2 Filament Test

7.2.2.1 Click “Heat Extrude”to heat up the nozzle to the setting temperature. Once the actual temperature reaches the setting temperature, click “” to extrude the melted filament.



Note: Setup the nozzle setting temperature base on the filament material you are using (190 - 210 °C for PLA).

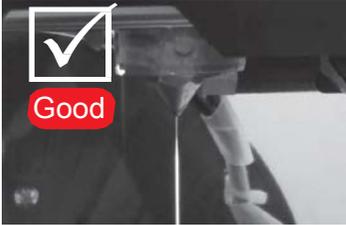


7.2 Filament Test

7.2.2.2 Check the melted filament condition flowing out from the nozzle.

Good condition:

The melted filament flows out smoothly and continuously from the nozzle.



Bad condition:

The melted filament does not flow out smoothly and continuously from the nozzle.

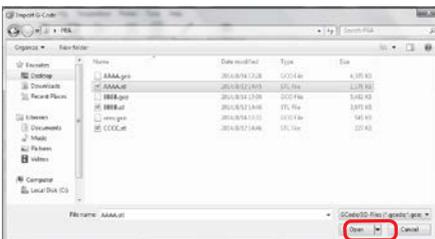
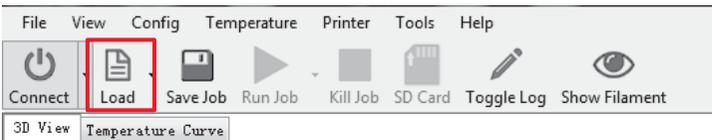


Note: If the flow of filament is not constant, check the following.

- a. Nozzle Temperature - must be equal to the setting temperature and according to the filament material melting temperature.
- b. Nozzle Cleanliness - No Clogging
- c. Filament Insertion on the receiving port

7.3 Print with Repetier-Host

7.3.1 Click “Load” to select the file that you want to print.

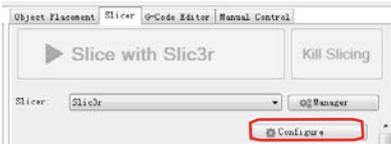


Note: The load file should be .STL format. If want to load .GCO file, the .GCO file should be converted from .STL file firstly through following steps, then refer to 7.3.6 to print.

7.3 Print with Repetier-Host

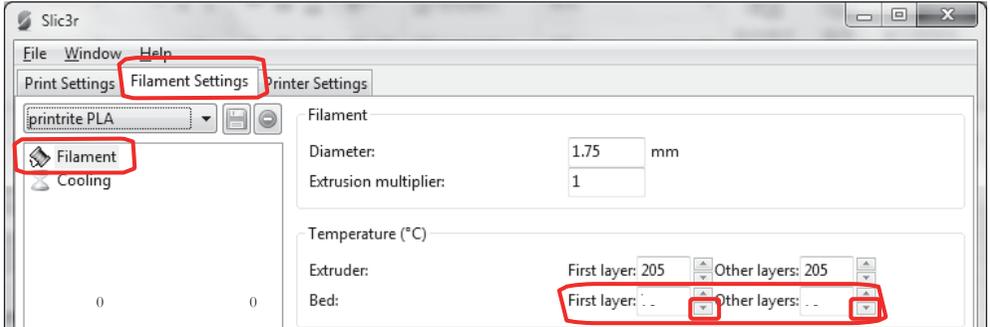
7.3.2 Setup the platform temperature to "0".

a. Click "Configure" to go into "Slic3r" menu.

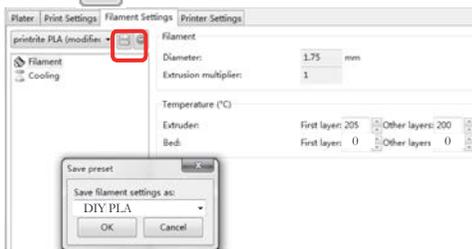


b. Click "Filament Settings", select "printrite PLA" and "Filament".

Click "v" of Bed Temperature "First layer" and "Other layer" and change to "0".



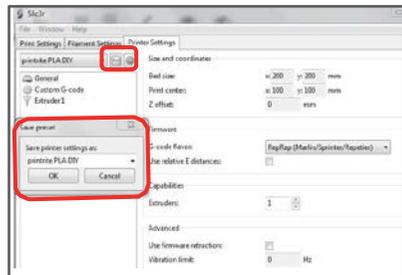
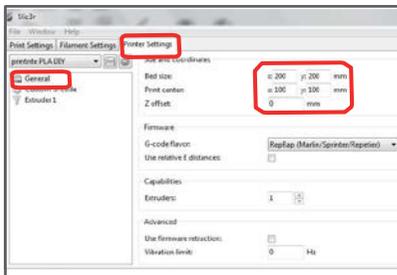
c. Click "Save" to save the file and amend the settings name if desired.



7.3.3 Setup the platform printing size.

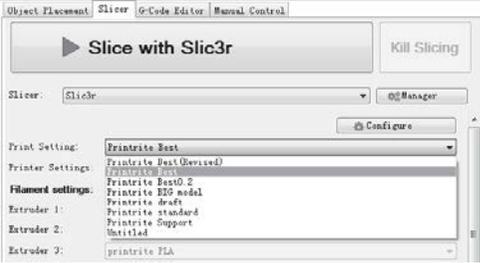
Click "Printer Settings" and "General", revise the "Size" and "Printer Center" as below.

Click "Save" to save and name the printer setting.

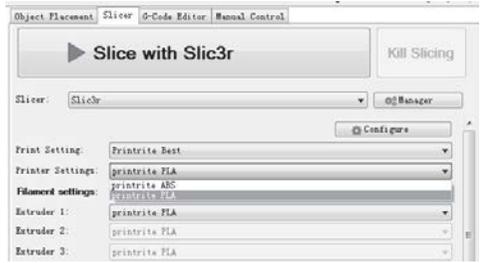


7.3 Print with Repetier-Host

7.3.4 Select “Print Setting”base on the model/effect you want to print, Select “Printer Settings”and “Filament settings”, then select “Slice with Slic3r” to generate the G-code file.



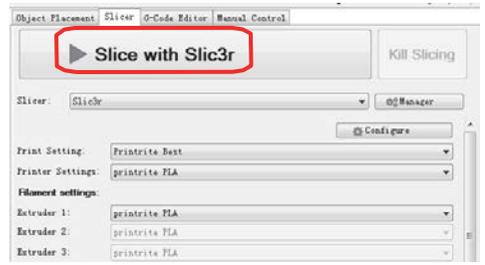
Print Settings: Select the model that you want to print



Printer Settings: Select “printrite PLA DIY”



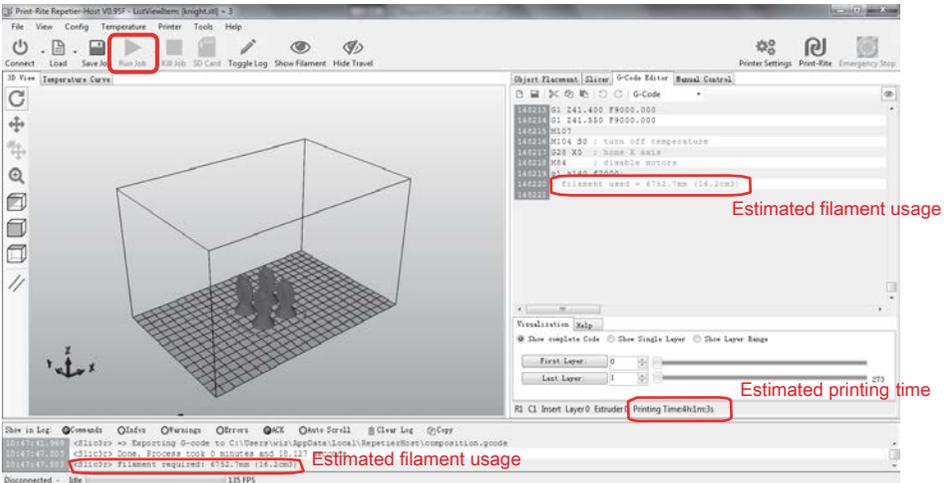
Filament settings: Select “DIY PLA”



Slice to generate G-code

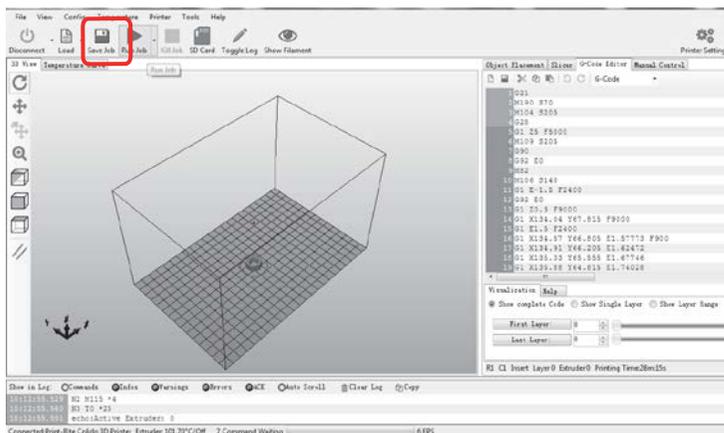
7.3.5 Click “Run Job”, to start the print.

NOTE: Once the nozzle actual temperature reaches the setting temperature, the printer will start to print.



7.3 Print with Repetier-Host

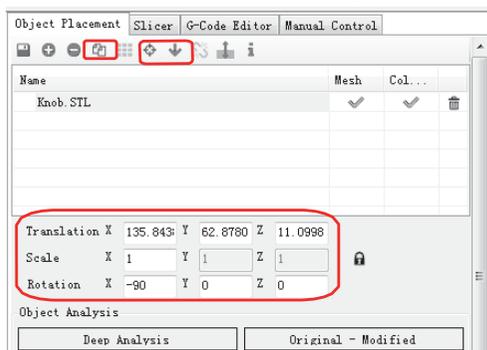
7.3.6 If you want to save the file directly after slicing and generating the G-code file (7.3.4), click “Save Job” to save the G-code file on to the computer. Then refer to 6.3.1 to load the GCO file and directly click “Run Job” to print .



7.3.7 Additional Information

1. Printed objects must be closed drawings based on the FDM process.

After loading the STL file in Repetier software. It can be moving, scaled down/up, rotated or duplicated. By clicking “Put Down”, you can place the model on the platform by clicking “Put In Center”. The model will be placed in the middle of the printing area as shown below. Then slice the revised STL file to print.



2. For 3D printing with the FDM process, we suggest printing the model with OA structure. If

printing the model with OB or OC structure (called Suspended Printing), the parallel or downward layers will fall down on the model or on the platform due to the lack of supporting layers. You will need to add support where needed.



Remark:

- OA- the structure is upward to stretch
- OB- the structure is parallel to stretch
- OC- the structure is downward to stretch

DIY Printer	
? Question	 Solution
The filament does not flow out smoothly or continuously?	<ol style="list-style-type: none"> 1. Check if the filament is loaded into the print head properly. 2. Check if the filament roll can rotate continuously 3. Check if the nozzle temperature is reaching the correct setting temperature.
What to do when the nozzle is clogged?	<ol style="list-style-type: none"> 1. Heating up the nozzle to the higher temperature (over 20°C than setting temperature). 2. Push down the printer head arm and gently push the thinnest Alan Key into the print head. This should remove any blockage. Try to re-load filament.
The printed object does not stick on the platform?	<ol style="list-style-type: none"> 1. Re-calibrate the printer. 2. Check if the temperature setting is correct and matches the filament material you are using. 3. Check if there is any dust or oil on the heat table. If so, remove with a soft cloth. DO NOT wash the table.
The filament cannot be pulled out from the printer head?	<ol style="list-style-type: none"> 1. Check if the nozzle temperature reaches the setting temperature; 2. When the nozzle temperature reaches the setting temperature, push down the printer head arm and push a bit filament into the nozzle, then pull the filament out.
The printer does not work after sending a file to the printer?	<ol style="list-style-type: none"> 1. Check the connection between the printer and the computer. 2. Check if there are files in the print queue. Click "OK" in the manual control menu to cancel the print queue. 3. Power OFF the printer and Power ON to re-start.
The computer cannot connect to the printer although Repetier software is installed?	<ol style="list-style-type: none"> 1. Check if the printer is connected to the computer with the USB cable and turned on. 2. Check if the selection of COM port in the printer setting is right by referring to 6.2 3. Un-install the Repetier software and re-install.
Need stop during printing , what to do?	<ol style="list-style-type: none"> 1. If you need to pause printing temporarily, click "Pause Job" in the Repetier software 2. If need stop printing, click "Kill Job" in the Repetier software.
How long and how much filament will it take to print one sample?	The filament usage and printing time is based on the sample size and simple/complex shape, the filling density (the higher the filling density, the more filament usage and lower printing time), the printing setting (Best, Standard, Draft in Print Rite Repetier). Refer to 7.3.5, after selected the printing setting to slice, the software will show the estimated filament usage and printing time.
The printed sample stick to the platform and cannot be removed?	Using a thin metal sheet to remove the printed sample from the platform carefully.

If you need more assistance, please feel free to contact us:

Email: 3Dsupport@utec.com.mo