

# SR ( SuperRacer )

## User Manual

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Zhengzhou Chaokuo Electronic Technology Co., Ltd.

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- 1.The printer's default power input voltage is 230V,If your local voltage is 115V, please switch the input voltage of the power supply before turning on the power for the first time.
- 2.The assembly videos, firmware and slicing software are included in the SD card, please back up the files of the SD card in your computer before using.
- 3.Do not touch the hot bed and nozzle whilst the printer is running,as the heat would cause the burns to skin.
- 4.The printer location can effect the print quality, please ensure the printer is not placed in a hot/cold temperature, high humidity or near drafts.To ensure optimum printing ensure base of printer is placed on an even and firm surface.
- 5.Changes to the printers mechanical components and subsequent printer failure are not covered by the printers warranty.
- 6.Keep young children away from the printer due to the hot components whilst printer is running.
- 7.Please use the recommended filaments , poor quality filaments may cause poor print quality or damage the printer.
- 8.Typical maintenance would be useful.
- 9.Please wait for the hot bed to cool down completely before removing the print.
- 10.In an Emergency,turn the printer off from the mains supply to prevent damage to the printer then contact our technical support.
- 11.To avoid damage to printer and property,do not misuse printer.Printer has been designed for it's intended purpose only.
- 12.All printers have been tested before leaving the factory.Some excess testing filament and stains will remain in and around nozzle,this is normal.
- 13.In order to make the model stick to the hot bed well, please clean the hot bed before each printing.
- 14.When the printer has to be restored to factory settings, please restart the printer first, and then click "Restore".



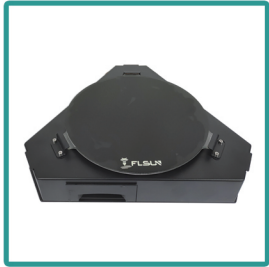
Model	FLSUN SuperRacer
Printing Size	φ260*330 (Highest vertex) mm
Molding Tech	Delta FDM
Nozzle Diameter	Standard 0.4mm
Print Accuracy	0.05-0.3mm
Filament Support	PLA/ABS/PETG/WOOD
File Format	STL/OBJ/AMF/3DS
Print Speed	Default Speed 150mm/s
Nozzle Type	Signal Nozzle
Environment Temp	5-40°C
Nozzle Temp	≤255°C
Hot Bed Temp	≤100°C
Slice Software	Cura/Repetier-Host/Simplify3D
Working Model	Online or Storage card offline
Power Supply Input	115-230V
Power Supply Output	24V
Working Power	300W
Resume Printing	YES
Auto-Leveling	YES
Filament Detection Sensor	YES



①	Filament Holder	⑤	BMG Extruder	⑨	Air Guide Nozzle	⑬	Tool box
②	Axis	⑥	Slider	⑩	Nozzle Kit	⑭	USB Port
③	Filament Detector	⑦	Parallel Arm	⑪	Belt Adjustment Nut	⑮	SD Card Slot
④	Linear Guider	⑧	Touch Screen	⑫	Hot Bed	⑯	Power Switch



## Main Parts



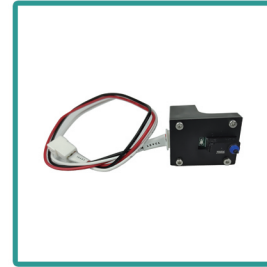
Bottom Shell



Top Shell and  
Touch Screen



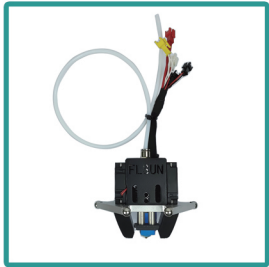
Axes



Leveling Switch



Parallel Arms



Effector Module



Extruder and Filament  
Detection sensor



Filament Holder



USB Line



Power Line



Gift Parts List



Diagonal Pliers



Shovel



SD Card and Reader



Wrench



Screwdriver



Allen Wrench



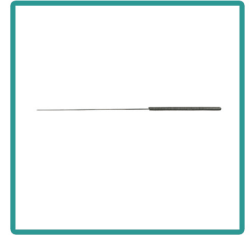
Nozzle Kit



Heating Rod



Thermistor



Clean Needle



Screws



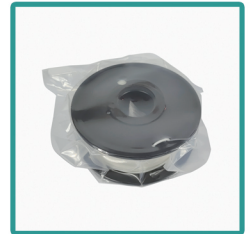
Grease



Open-end wrench



Brush



200g Filament



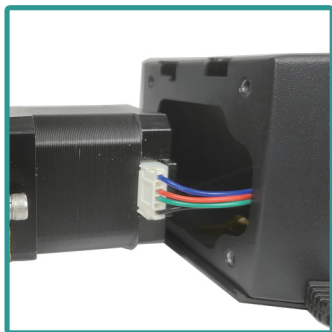
1. Take out all main parts and screws



2. Put the top shell on a flat surface, Please prevent the screen from being bumped during the assembly



3. Install the axis



4. Plug the motor cable before putting the motor into the top shell



M4\*22(Long)



5. Install the screws in the order from 1 to 4



6. One axis completed

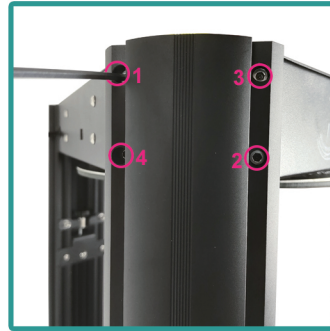




7. Install the other two axes in the same way

8. Install the bottom shell the two logos marked in the photo should be face the same direction

9. The top shell should be installed in the guide rail



10. Push the bottom shell down to the correct position

11. Install the screws for each axis in order from 1 to 4

12. Slide the touch screen bracket nut into the guide groove of the left shaft



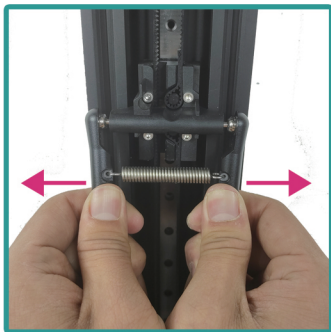
13. Move the touch screen bracket to one-third of the distance from the top case



14. Rotate the knob clockwise to fix the touch screen bracket



15. Rotate the printer 180 degrees the logo is facing the front



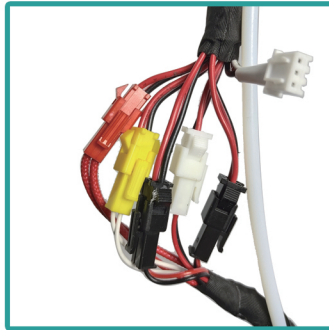
16. Pull the parallel arm to both sides and install it on the slider



17. Install the other two parallel arms in the same way



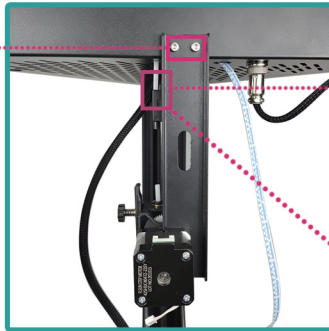
18. Install the effector module the logo on the effector module must face forward



19. Connect the connector of the effector module to the main cable

20. The color of the connector must match, two black interfaces can be connected arbitrarily

21. Install the main cable connector



The feed tube and the filament detection sensor entrance must be aligned



22. Put the right main cable into the groove in the axis

23. Install the extruder

24. Extruder installation completed



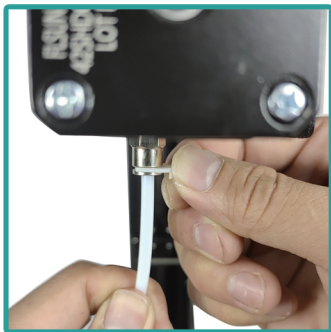
25.Plug the filament detection sensor cable



26.Plug the extruder cable



27.Insert the PTFE tube into the extruder until it can no longer forward



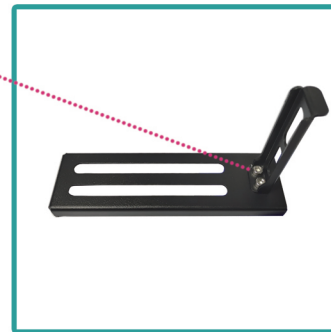
28.Fix the pneumatic connector with a buckle



29.Tie the PTFE tube and the main cable together at the location marked in the photo



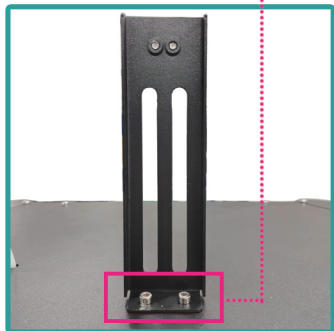
M4\*8 (short)



30.Assemble the filament holder



M4\*8 (short)



31. Install the filament holder to the top case



32. The orientation of the filament holder should be as shown in the photo



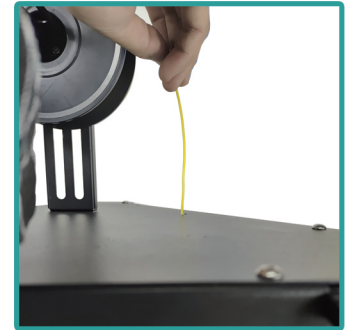
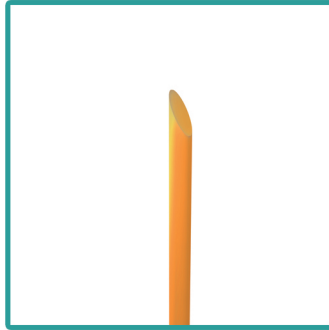
33. Remove the protective film on the hot bed the assembly is finished



◆ The default input voltage of the printer is **230V**, please make sure the printer is switched to your local voltage before turning on the power switch for the first time.



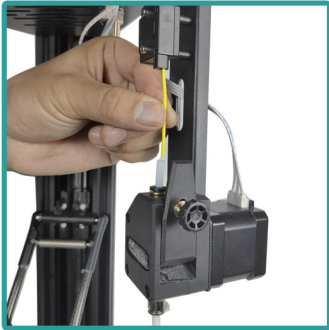
Flip the red switch to the right to switch the voltage to **115V**



1. Straighten the end of the filament 10cm. Use diagonal pliers to cut the end of the filament into a bevel.

2. This is how the filament should look after cutting

3. Pass the filament through the PTFE tube in the top shell



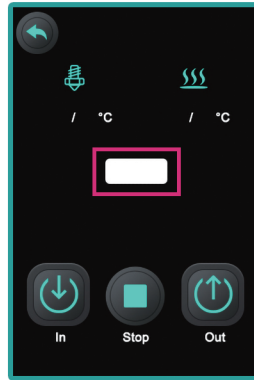
4. Pass the filament through the filament detection sensor and insert it into the extruder

5. Turn on the power

6. Click "Tools" on the homepage



7. Click "Change"



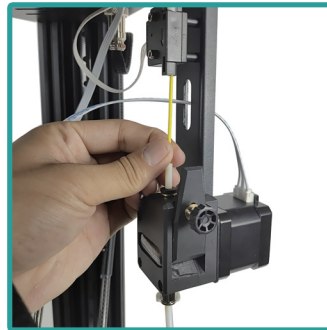
8. Click the white input box



9. If you use PLA please enter 200 and click "OK"



10. Wait for the nozzle to heat up to 200°C, then click "in"



11. Push down the filaments at the same time

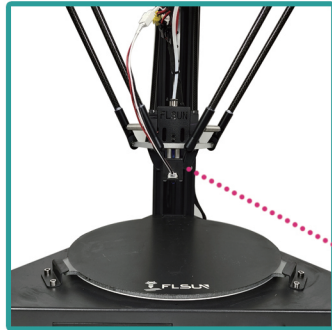


12. When the filament is extruded from the nozzle, click "Stop"





1. Connect the leveling switch



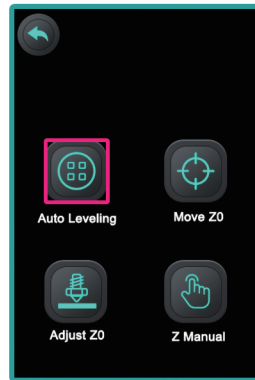
View from the right



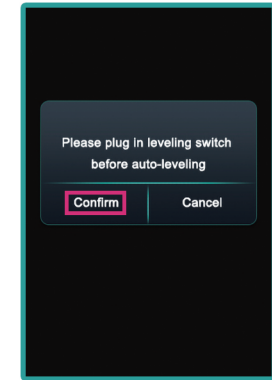
3. Click "Tools" icon on the homepage



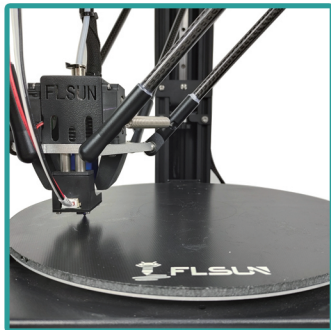
4. Click "Auto-Level"



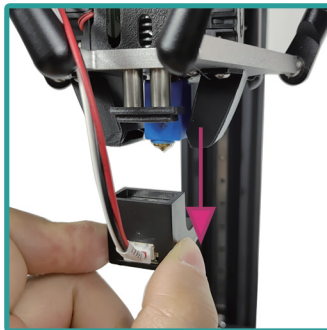
5. Click "Auto Leveling" on the subpage



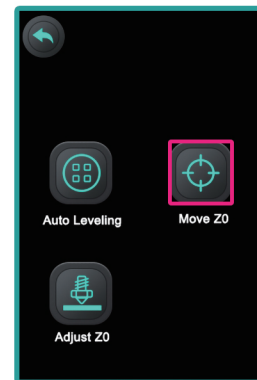
6. Click "confirm"



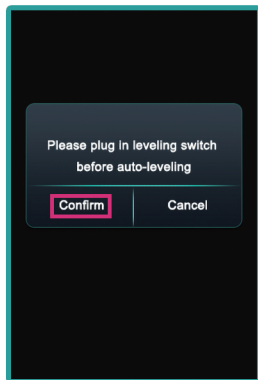
7.Wait for the auto leveling to complete



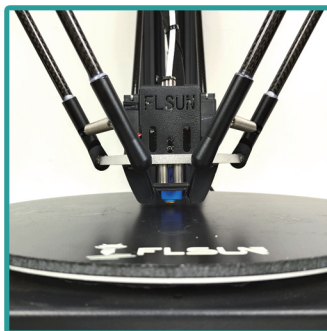
8.Remove the leveling switch and disconnect the interface after the auto leveling is completed



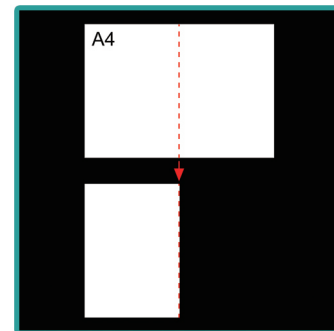
9.Click "Move Z0"



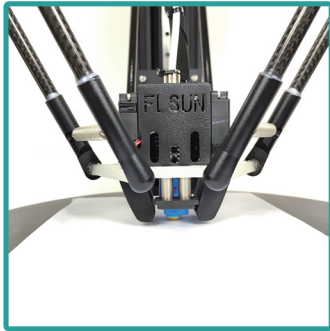
10.Make sure the leveling switch has been removed before click "Confirm"



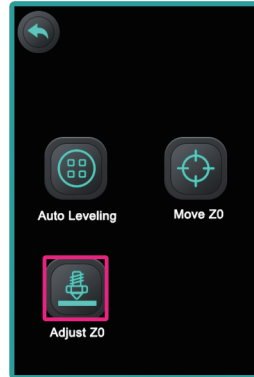
11.Wait for the nozzle to move closer to the hot bed



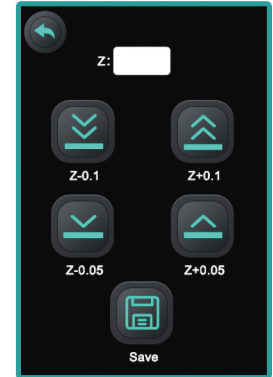
12.Fold a piece of A4 paper in half along the horizontal centerline



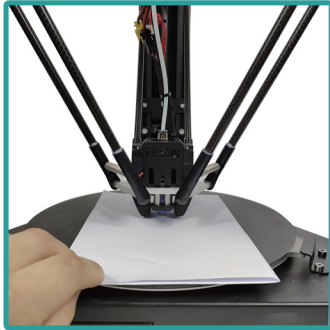
13. Put the folded A4 paper between the hot bed and the nozzle



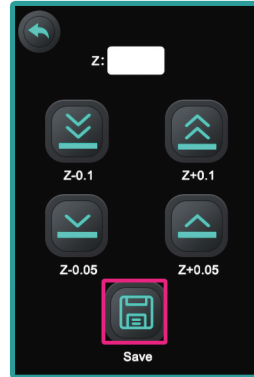
14. Press "Adjust Z0"



15. Click "Z+" and "Z-" to set the distance between the nozzle and the hot bed to the thickness of double-layer A4 paper



16. The most suitable distance is that gently move paper backwards and forwards the paper should have slight friction between the nozzle and the bed



17. Click "Save"



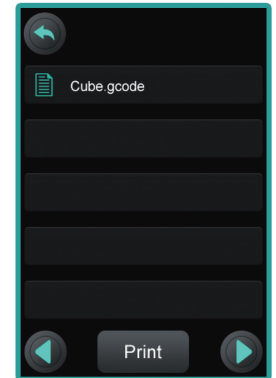
18. Return to the homepage



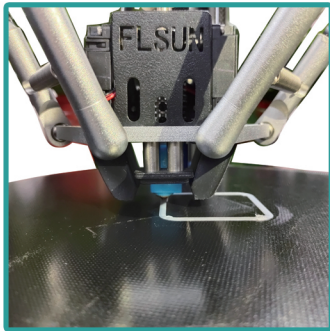
19. Insert SD card



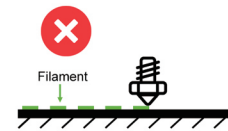
20. Click "Print"



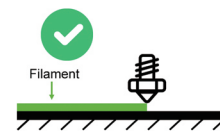
21. Select a test gcode to print



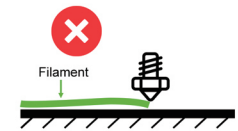
22. Observe the extruded filaments of the first layer



1. The nozzle is too close to the hot bed



2. Proper distance

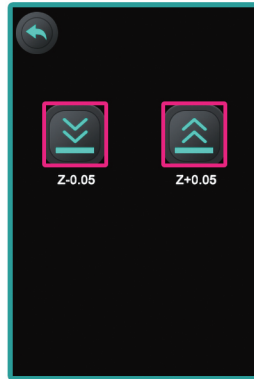


3. The nozzle is too far from the hot bed

22. If the nozzle is too close or too far away from the hot bed you can continue to adjust the height of Z0 while printing and the adjustment will be automatically saved



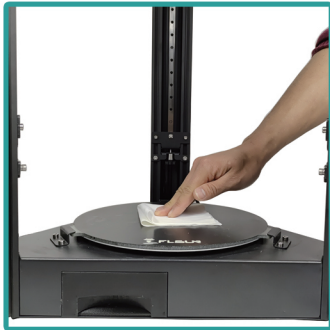
23. Click "Adjust Z"



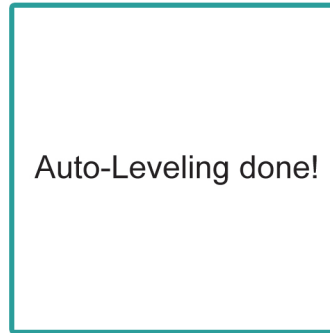
23. Click "Z-0.05" or "Z +0.05" to adjust the height of the Z



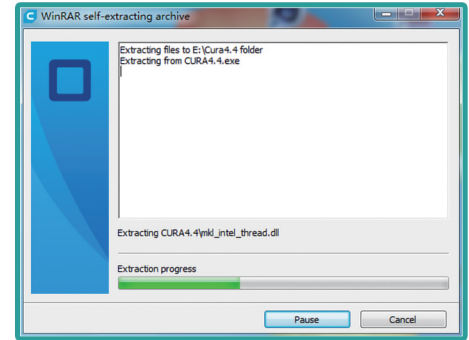
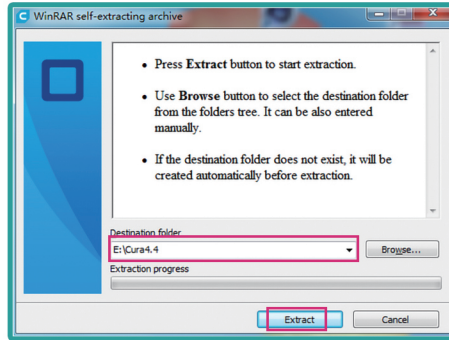
24. Adjust the distance between the nozzle and the hot bed to a proper distance then click "Cancel"



25. Clean the hot bed



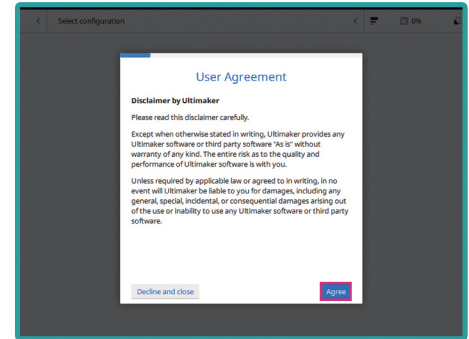
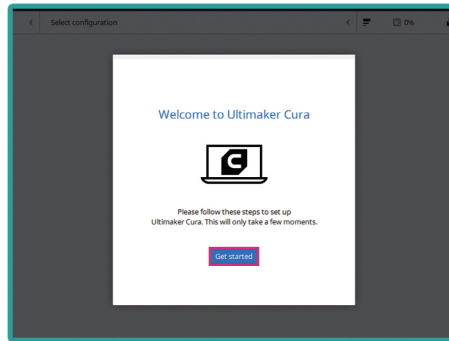
Auto-Leveling done!



1. Copy the CURA slicing software in the SD card to your computer double-click to install

2. Select an installation location and click "Release"

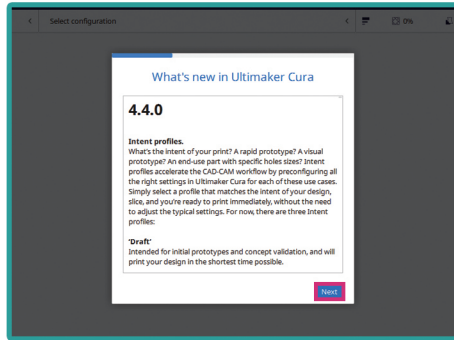
3. Wait for the installation to complete



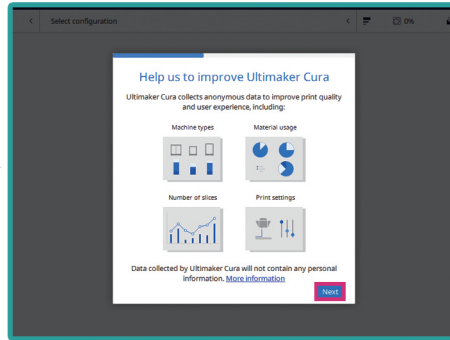
4. Double-click the Cura shortcut on the computer desktop

5. Click "Get started"

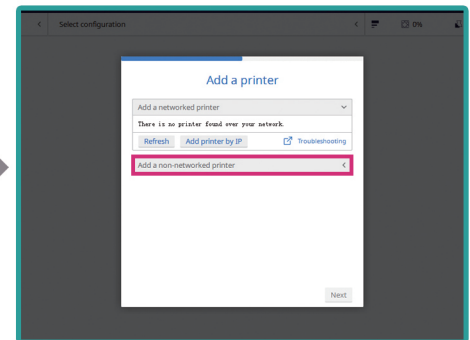
6. Click "Agree"



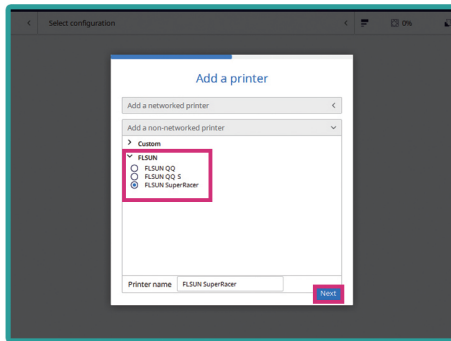
7. Click "Next"



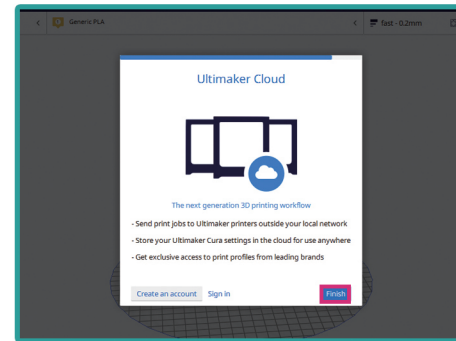
8. Click "Next"



9. Click "Add a non-networked printer"



10. Select "FLSUN>Flsun SuperRacer"



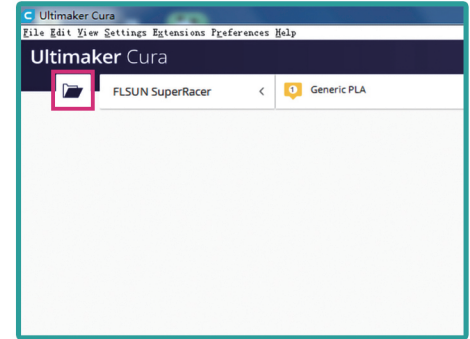
11. Click "Finish" to complete the installation



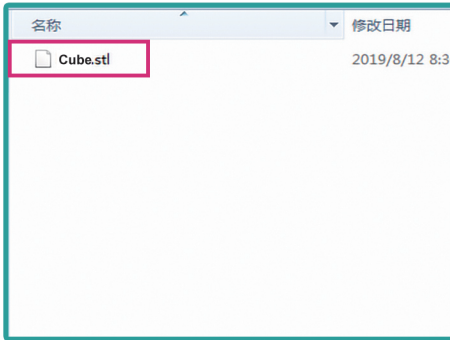
1. Insert the SD card into the card reader



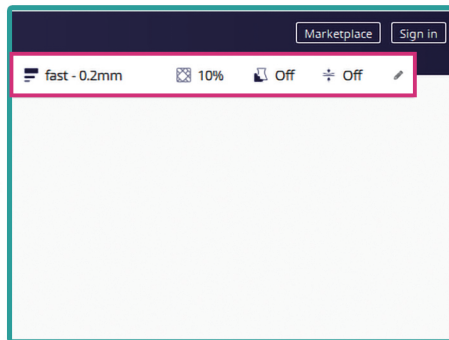
2. Insert the card reader into the USB port of the computer



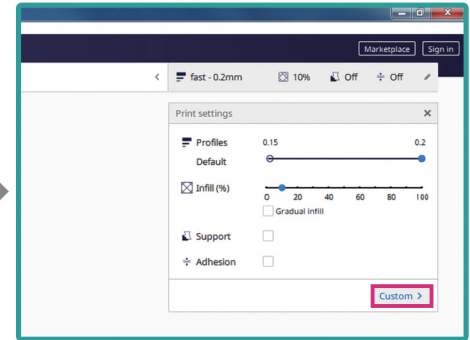
3. Double-click to open CURA, then click the folder icon in the upper left corner of the window



4. Select a supported file the CURA supports STL/OBJ/AMF/3DS format files



5. Click on the marked area in the photo to open the slice parameter configuration page

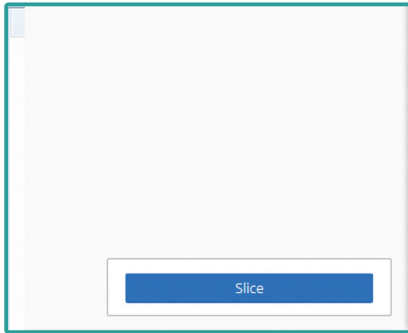


6. Click "Custom" to open more parameter configuration

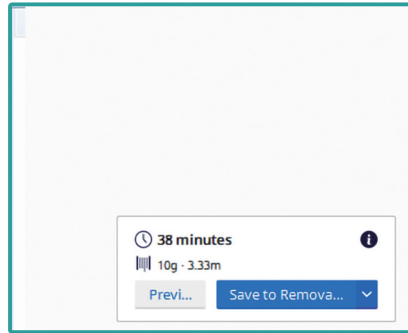


<b>Quality</b>		
Layer Height	0.2	mm
<b>Shell</b>		
Wall Thickness	0.8	mm
Wall Line Count	2	
Top/Bottom Thickness	0.8	mm
Top Thickness	0.8	mm
Top Layers	4	
Bottom Thickness	0.8	mm
Bottom Layers	4	
Horizontal Expansion	0	mm
<b>Infill</b>		
Infill Density	10	%
Infill Pattern	Gyroid	
<b>Material</b>		
Printing Temperature	220	°C
Build Plate Temperature	60	°C
Enable Retraction	<input checked="" type="checkbox"/>	
<b>Speed</b>		
Print Speed	150	mm/s
<b>Travel</b>		
Z Hop When Retracted	<input checked="" type="checkbox"/>	
<b>Cooling</b>		
Enable Print Cooling	<input checked="" type="checkbox"/>	
Fan Speed	100	%
<b>Support</b>		
Generate Support	<input checked="" type="checkbox"/>	
Support Placement	Everywhere	
Support Overhang Angle	50	
<b>Build Plate Adhesion</b>		
Build Plate Adhesion Type	None	
<b>Dual Extrusion</b>		

- ..... 1 1.Set the printing height of each layer, SR supports a minimum layer height of 0.05mm.
- ..... 2 2.The thickness of the walls in the horizontal direction ,this value divided by the wall line width defines the number of walls.
- ..... 3 3.The number of walls when calculated by the wall thickness,this value is rounded to a whole number.
- ..... 4 4.The thickness of the top/bottom layers in the print.
- ..... 5 5.The thickness of the top layers in the print.
- ..... 6 6.The number of the top layers.
- ..... 7 7.The thickness of the top layers in the print.
- ..... 8 8.The number of the bottom layers.
- ..... 9 9.Amount of offset applied to all polygons in each layer.positive values can compensate for too big holes,negative values can compensate for too small holes.
- ..... 10 10.Set fill rate.
- ..... 11 11.Set the infill patterns,when the filling density is greater than 20%, the intill pattern should be "Lines"
- ..... 12 12.Set the printing temperature of the nozzle,when printing PLA, the nozzle temperature should be set to 220°C.
- ..... 13 13.Set the printing temperature of the hot bed.
- ..... 14 14.Enable retraction,Enable retraction to avoid stringing or oozing during printing.
- ..... 15 15.Set the printing speed, the default printing speed of SR is 150mm/s, and the maximum printing speed is 200mm/s.
- ..... 16 16.Whenever a retraction is done,the build plate is lowered to creat clearance between the nozzle and the print.it prevents the nozzle from hitting the print during travel.
- ..... 17 17.Turn on the turbo fan. When printing a smaller model, turn on the turbo fan to prevent the model from tilting.
- ..... 18 18.Set the fan speed.
- ..... 19 19.Enble generate support.
- ..... 20 20.Support placement style,"Everywhere" means that support is not only generated from the hot bed, but also from the model itself,"Touching Buildplate" means the support will be generated only from the hot bed.
- ..... 21 21.Support will be generated only when the angle between the model and the vertical direction is greater than this degree.
- ..... 22 22.Build plate adhesion type.Select "Brim" mode to make the model better stick to the hot bed.



7. After adjusting to appropriate parameters, click "Slice"



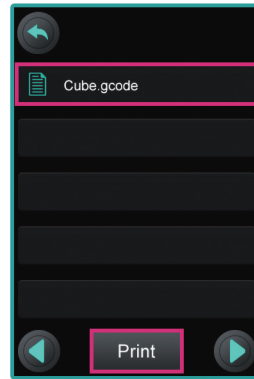
8. Click "Save to Removable driver"



9. Insert the SD card into the printer card reader slot



10. Click "Print"



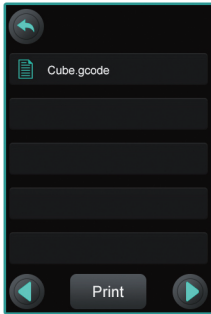
11. Select the Gcode file and click "Print"



12. Printing will start automatically

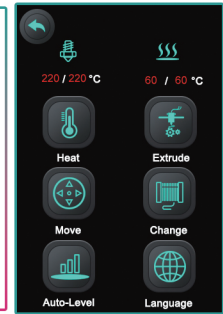


## Homepage

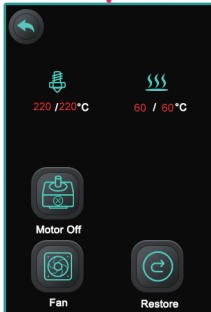


Select a gcode file to print

- Heat:One-key preheating
- Extrude:Extrude filaments
- Move:Move XYZ axis separately
- Change:Change filament
- Auto-Level:Auto leveling page
- Language:Switch display language



Cumulative printing time

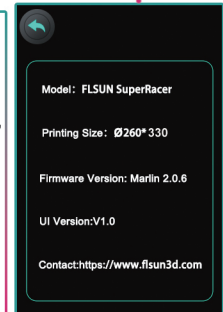


Motor Off:Unlock motor

Fan:Control the speed of the turbofan

Restore:Restore factory settings

You can find the firmware version, print size, UI version and contact information on the information page





## Set Page

PLA:Preheat nozzle and hot bed to PLA printing temperature

ABS:Preheat nozzle and hot bed to ABS printing temperature

Cool Nozzle:Turn off nozzle heating

Cool Bed:Turn off the bed heating

Click on the two white input boxes to enter temp values



Z+:Z direction rise

Z -:Z direction down

Y+:Y direction rise

Y -:Y direction down

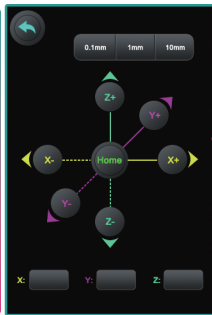
X+:X direction rise

X -:X direction down

X:X coordinate

Y:Y coordinate

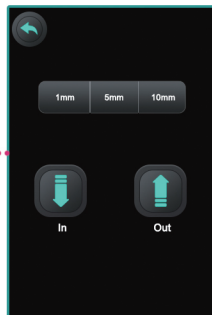
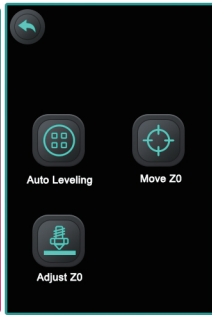
Z:Z coordinate



Auto Leveling:Start Auto Leveling

Move Z0:Move the nozzle close to the hot bed

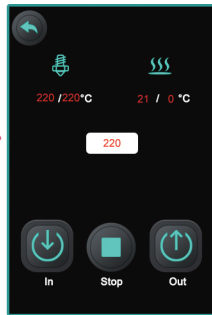
Adjust Z0:Fine-tuning the distance between the nozzle and the hot bed



In:Feed filament

OUT:Back filament

Click "1mm, 5mm and 10mm" to switch the extrusion distance of each step



Click the white input box to enter the temperature, the nozzle and hot bed will be preheated to the entered temperature value

In:Feed filament

OUT:Back filament

Stop:Stop extruding



Select the language you want to display and click "Save"

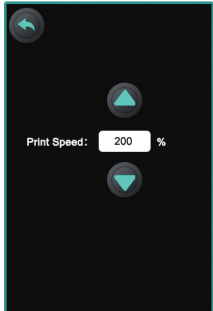


## Printing Page

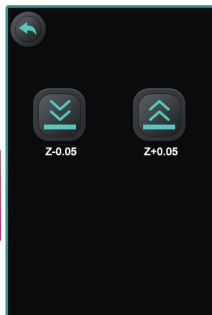
Click the white input box to enter the temperature of the nozzle and hot bed



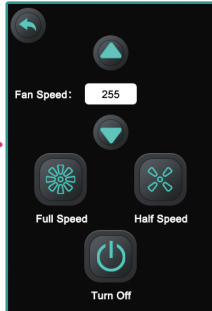
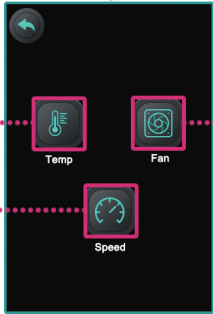
Click the up and down buttons to adjust the printing speed. When the printing speed exceeds the speed allowed by the printer, the quality may deteriorate.



Instantaneous printing speed  
Printed height



Click Z-0.05 and Z+0.05 to adjust the height of Z during printing

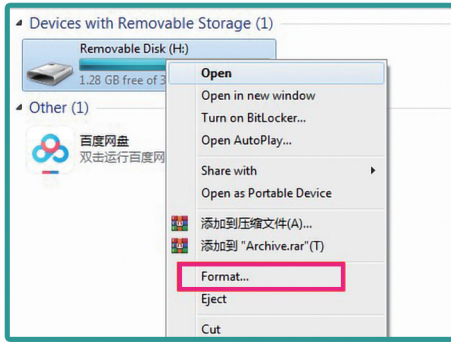


Click the up and down buttons to adjust the fan speed

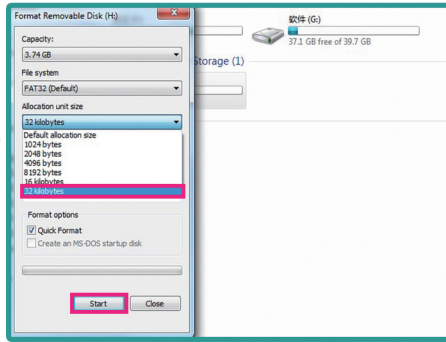
Full Speed: Turbofan runs at full speed

Half Speed: Turbofan runs at Half speed

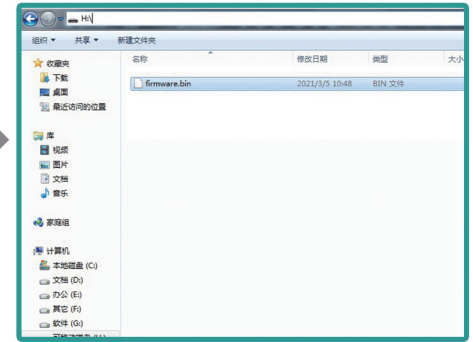
Turn Off: Turn Off Turbofan



1.Format SD card



2.Select 32kilobytes format, click "start"



3.Copy the firmware to the root directory of the SD card



4.Insert the SD card into the card reader slot of the printer



5.Turn on the power



6.After the update is complete the touch screen will display the home page



## **Q1 The model can't stick to the hot bed**

Solution 1: To adjust Z0 height after Auto-leveling, according to the standard adjustment card, till the height between nozzle and hot bed is the same as the standard adjustment card.

Solution 2: To Heat the hot bed to 60°C, then wipe the lattice platform with water or alcohol to remove grease and dust.

Solution 3: To add brim at the bottom of the model or rise the temperature of the hot bed in the slicer software.

## **Q2 The filament can't easy to insert into extruder**

Cut the end of the filament into an oblique, straighten the head of the filament, and use automatic feeding. When the extruder starts working, push the filament downward by hand.

## **Q3 The filament can't exit from the extruder smoothly when you change it**

Solution 1: Pull out the PTFE tube from the extruder, then pull out the filament from the extruder.

Solution 2: If the PTFE tube has been deformed please change the PTFE tube first, insert the new PTFE tube till bottom, and tighten the pneumatic connector with the locking clip, then push down the new PTFE tube until it can no longer move forward.

## **Q4 Nozzle clogging**

Solution 1: To heat the nozzle to 220°C, then clean the nozzle with the nozzle cleaning needle

Solution 2: To heat the nozzle to 240°C, then click "Tools>Change>In" to use automatic feeding, to see if there is any filament extruded from the nozzle.

Solution 3: To clean the extruder gear and remove the filament fragment.

Solution 4: To exchange the nozzle module and cut the PTFE tube to a flat end and insert it to the bottom as far as possible.



### Q5 Poor printing surface quality, with spots and wire drawing

Solution 1: Check if the linear guide and parallel arm are loose and lubricated

Solution 2: To cut the PTFE tube to a flat end, heat the nozzle to 220°C, then re-insert the PTFE tube to nozzle module as far as possible.

Solution 3: Clean up the remaining filament debris on the extruder gear.

### Q6 Solutions when display errors

**error:TH-MAX** The nozzle temperature sensor short circuit, please check the nozzle temperature sensor or the nozzle temperature sensor connector.

**error:TB-MAX** The hot-bed temperature sensor short circuit, please check the hot-bed temperature sensor or the hot-bed temperature sensor connector.

**error:TH-MIN** The nozzle temperature sensor broken circuit, please check the nozzle temperature sensor or the nozzle temperature sensor connector.

**error:TB-MIN** The hot-bed temperature sensor broken circuit, please check the hot-bed temperature sensor or the hot-bed temperature sensor connector.

**error:TH-Runaway** The temperature sensor at the nozzle fails or is suddenly disconnected during printing.

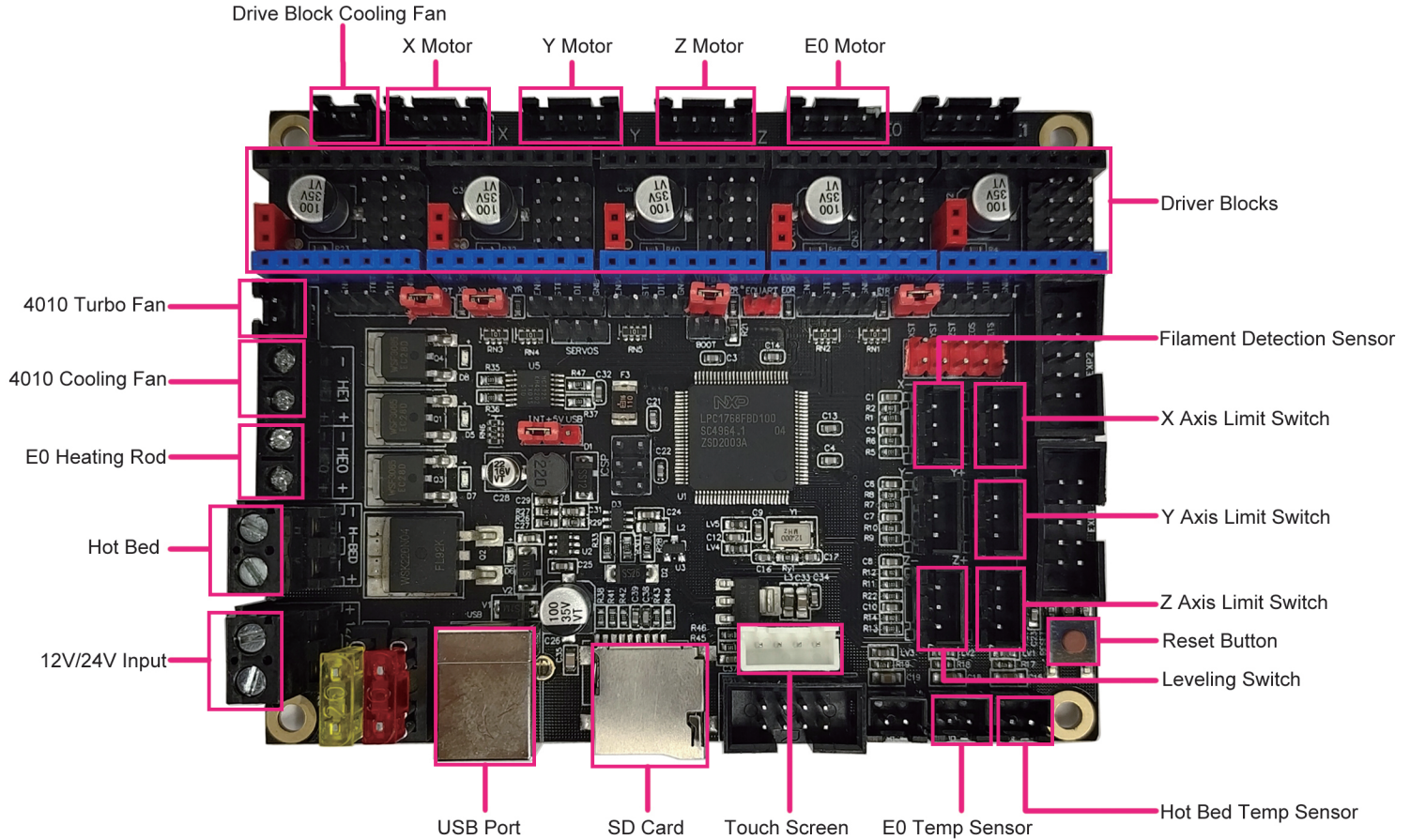
**error:Heating failed** The nozzle temperature sensor fails or suddenly disconnects during preheating or heating.

### Q7 The printer can't be leveled, and the three axes don't go home .

Solution 1: Click "Set>Restore",and then do the Auto-Leveling again.

Solution 2: Check whether the red light on the limit switch is on. If the light on the limit switch is not on, it may be that the limit switch is damaged. swap with other limit switches and try again.







Use water or alcohol to clean the hot bed before **each print**. If there is dust or residual filaments on the hot bed, the print will not stick to the hot bed well.



Apply grease to the contact between the parallel arm and the fish eye ball head, **do it once every 15 days**.



Adjust the belt tightness, **do it once two months**. Loosen the two screws marked 1 and 2 in the photo, and then turn the belt adjusting nut clockwise. When there is no gap between the cylindrical gasket and the iron sheet (pointed by the finger), tighten the two screws 1 and 2.

Iron sheet  
Cylindrical gasket  
Belt Adjustment Nut



			<p>Squeeze the grease into the small hole of the slider and sides of the linear guide, and then slide the slider up and down to spread the grease evenly, <b>do it once every 15 days</b>.</p>
			<p>Completely loosen the adjusting knob of the extruder, open the extruder, and use the brush to clean the extruder gears and residual filaments inside, <b>do it once every 7 days</b>.</p>
			<p><b>Regularly</b> check whether the buckle fixing the pneumatic connector on the extruder and the effector module has fallen off.</p>



**SR Facebook Group**

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**Support Skype:**FLSUN\_Zhang

**Official Website:**<https://www.flsun3d.com/>