SainSMART
POWER TO THE MAKERS

ENDER3 3D PRINTER

USER MANUAL

Contents

I. PREFACE - - - - - **2**

II. NOTICE - - - - - **3**

III. PACKAGE LIST - - - - - **4**

IV. QUICK START - - - - - **8**

1. Assembly Guide - - - - - **8**

2. Build Plate Leveling - - - - - **20**

3. Basic Printing - - - - - **22**

V. SOFTWARE INSTALLATION - - - - - **23**

VI. MENUS - - - - - **31**

1. Prepare - - - - - **32**

2. Control - - - - - **33**

3. No card/print from SD - - - - - **34**

4. Init.SD-Card/Change SD-Card - - - - - **34**

5. Tune - - - - - **34**

VII. TROUBLESHOOTING - - - - - **35**

VIII. SUPPORTS & SERVICE - - - - - **36**

I. Preface

Notice: Each device must be tested before leaving factory. If there are some residues in extruder or some tiny scratches on the build tape, it is normal and won't affect the printing quality.

The SainSmart Ender-3 3D Printer User Guide is designed for the Ender-3 users to start their printing journey. Even if you are familiar with 3D printing technology, we still recommend that you read through this guide, as there is lots of important information about the Ender-3 for you to get a better 3D printing experience. To achieve that, you can refer to the following materials:

Quick Start
Guide Users will find the Quick Start Guide together with the printer accessories. The Quick Start Guide will help you start your print journey as soon as possible.

Official Website (www.sainsmart.com):
Visit our official website for the up-to-date information concerning software, firmware, etc.

II. NOTICE

Read all the instructions in the manual and familiarize yourself with the SainSmart Ender-3 3D Printer User Manual before setting-up and using your 3D printer. Failure to comply with the warning and instructions may result in individual injury, fire, equipment damage or property damage.

PLEASE STRICTLY FOLLOW ALL THE SAFETY WARNINGS AND NOTICE BELOW ALL THE TIME.

1. Work Environment Safety

Keep your work place tidy. Do not operate SainSmart Ender-3 3D Printer in the presence of flammable liquids, gases or dust. SainSmart Ender-3 should be placed out of children and untrained people's reach.

2. Electricity Safety

Please always use the SainSmart Ender-3 3D Printer with a properly grounded outlet.
Please use the power supply provided by SainSmart in case of device damage.
Please unplug the device if you do not use it for long in case of uncertain accident.
Do not refit SainSmart Ender-3 plug.
Do not use SainSmart Ender-3 in damp or wet locations.
Do not expose SainSmart Ender-3 to burning sun.
Avoid using the device during thunderstorm weather.

3. Personal Safety

Do dress properly. Do not wear loose clothing or jewelry.

Do keep your hair, clothing and gloves away from moving parts.

Do not touch the nozzle and build plate during printing.

Do not touch the nozzle after finishing printing.

Do not operate the device while you are tired or under the influence of drugs, alcohol or medication.

4. Cautions

Do not leave the device unattended for long.

Do not make any modifications to the device.

Do not remove the models with force.

Do operate the device in a well-ventilated environment.

To lower the build plate before loading/unloading filament. The distance between the nozzle and build plate should be kept for at least 50mm.

Never use the device for illegal activities.

Never use the device to make any food storage vessels.

Never use the device to make any electrical appliance. Never put the model into your mouth.

Notice: Environment Requirements Temperature: RT 15-30°C

Moisture: 20%-70%

5. Filament

Do not abuse the filament.

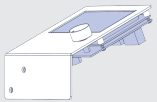
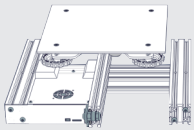
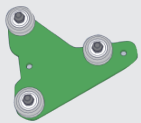
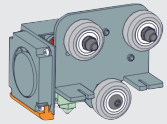
Do not unpack until filament is needed.

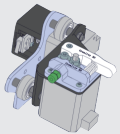
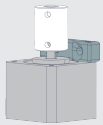
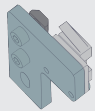
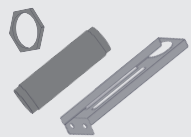
Storage all polymers degrade with time.

Filament should be stored in clean and dry conditions.

III. PACKAGE LIST

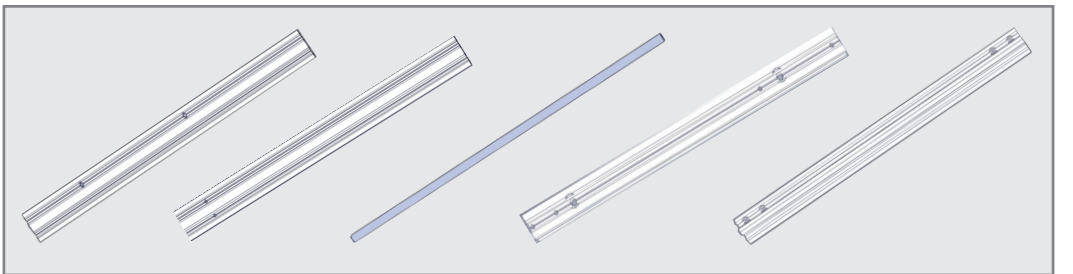
Parts

				
3.5inch LCD display	3D Printer base （with extruder connected）	Power supply 110/220V	Roller bracket	Nozzle parts

				
Extruder parts	Belt tensioner	Z-axis motor	Z-axis limit module	Spool holder

Cover	Power cable	Belt

Sections



Right-rails	Left-rails	Lead-screw	X-rails	Top-rails

Fasteners

M5x8mm x 4pcs	M5 T-Nut x 2PCS	M4x20mm x 2pcs
M5X25 x 4PCS		M4X16 x 4PCS
M4X18-P x 2PCS		M5X45 x 4PCS

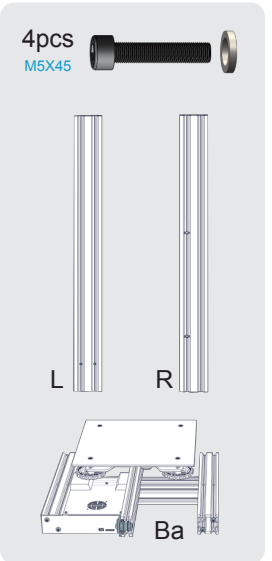
Tools

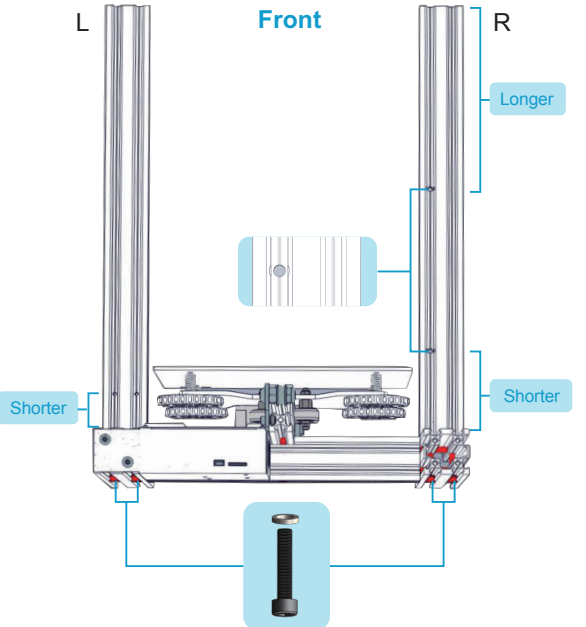
	TF card with Reader x 1PCS		PLA filament 50g x 1PCS		Needle for nozzle x1PCS
	Screwdriver x 1PCS		Cable tie x 10PCS		Removal tool x 1PCS
	Allen wrench 1.5# 2.0# 2.5# 3.0# 4.0# x 5PCS		Nozzle 0.4mm x1PCS		Pliers x 1PCS
	Wrench 6# x 1PCS Wrench 8-10# x1PCS		Pneumatic fittings x1PCS		

IV. QUICK START

1. Assembly Guide

Step 1

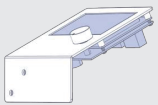




Step 2

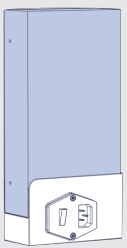
2pcs
M5X8

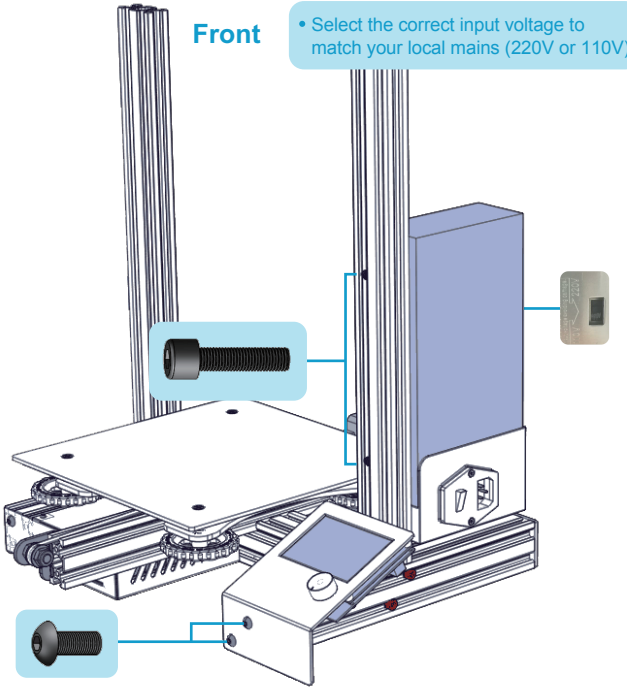
S



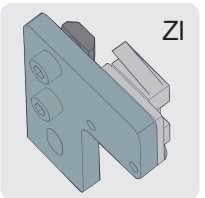
2pcs
M4X20

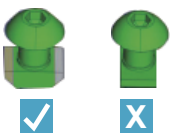
P

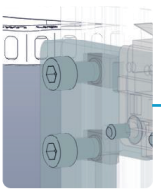


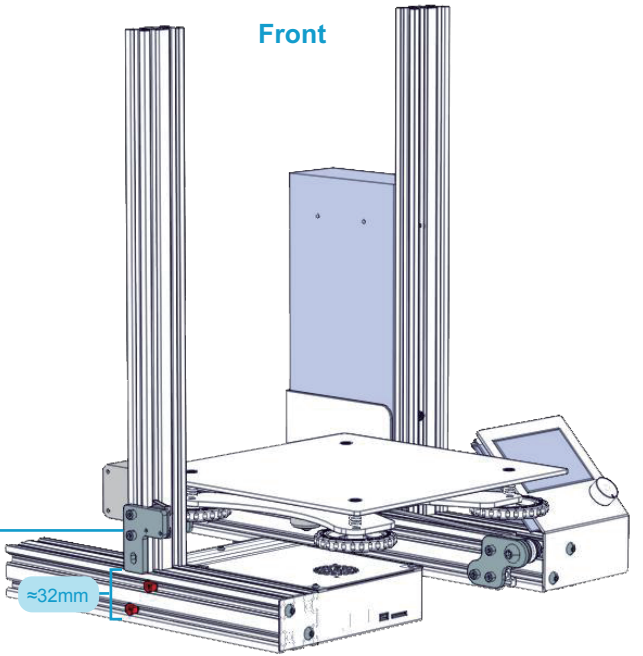


Step 3

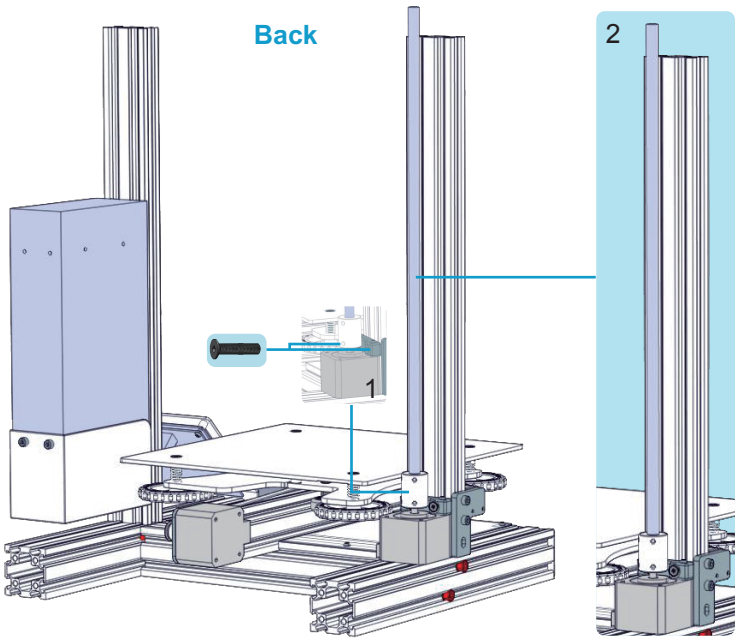


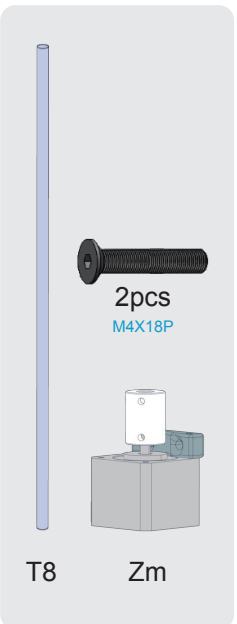






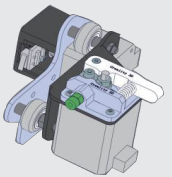
Step 4



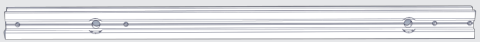


Step 5

E

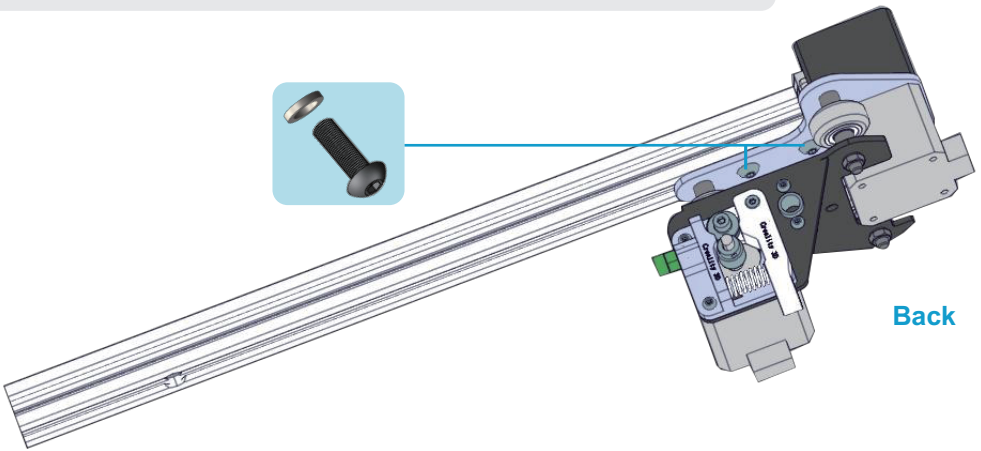


B1



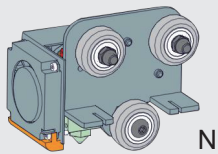
2pcs

M4X16

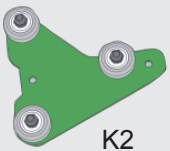


Back

Step 6



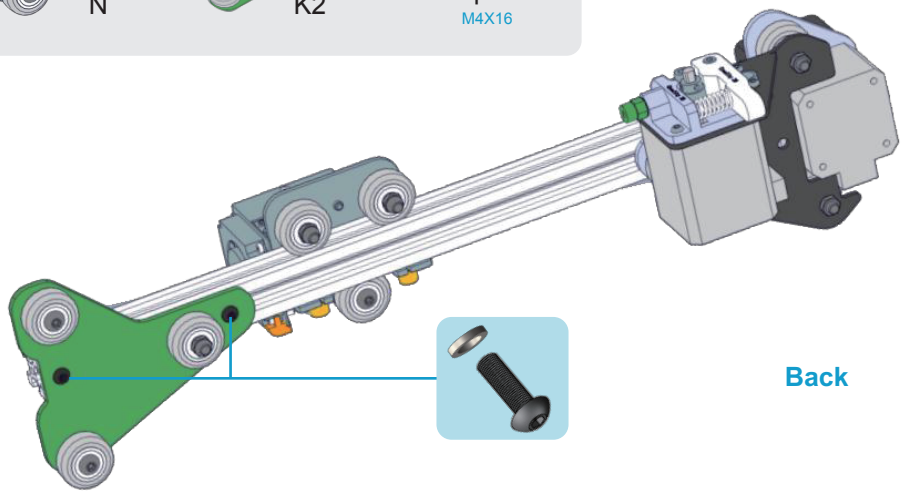
N



K2

2pcs

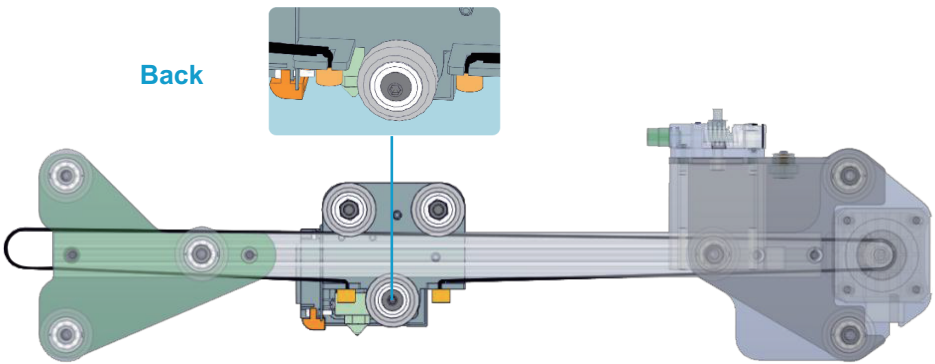
M4X16



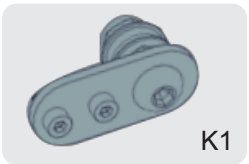
Back

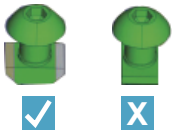
Step 7

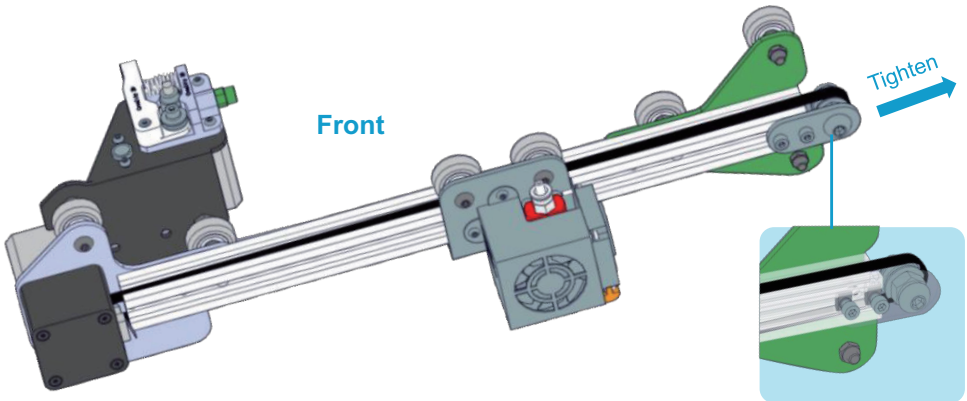
Be



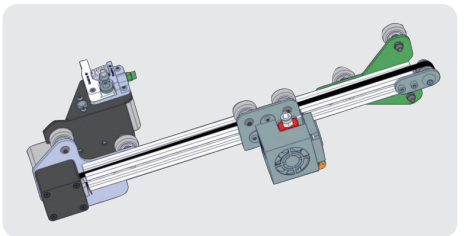
Step 8

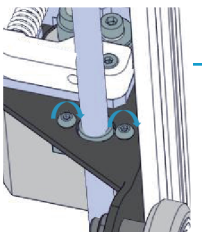






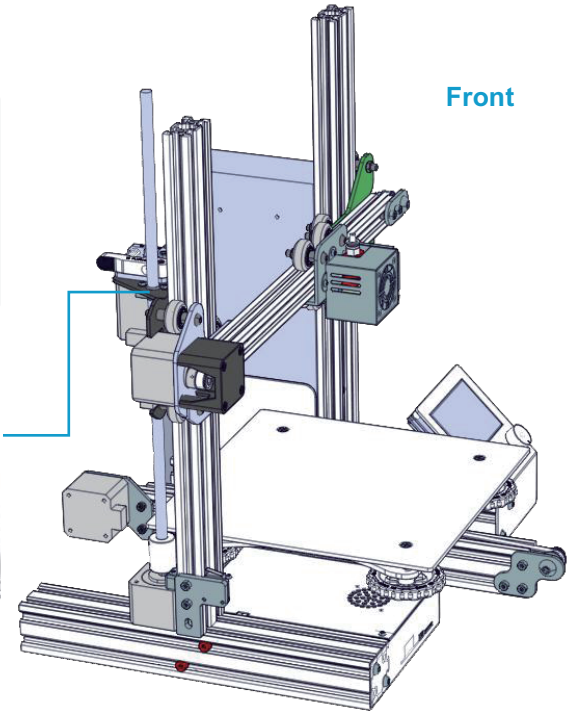
Step 9



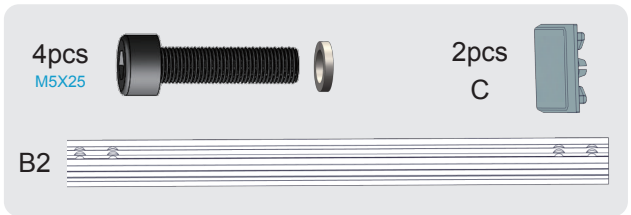


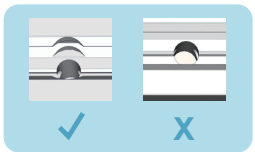
- Don't tighten it too tight

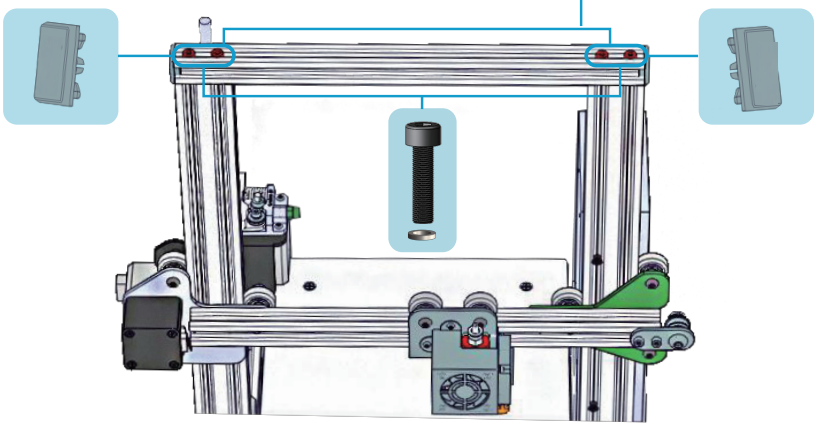
Front



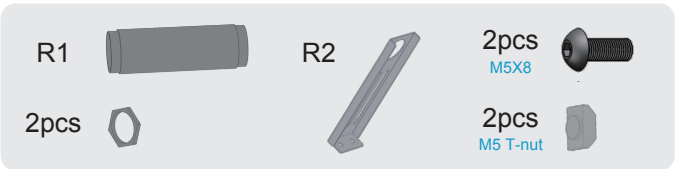
Step 10

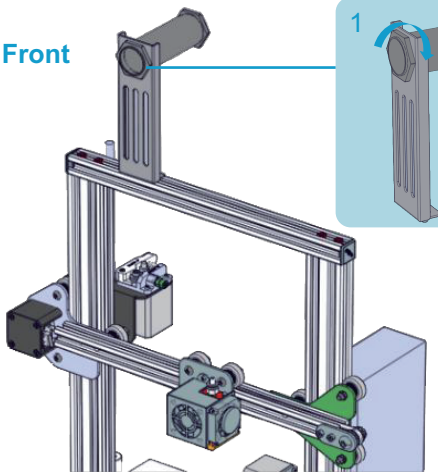


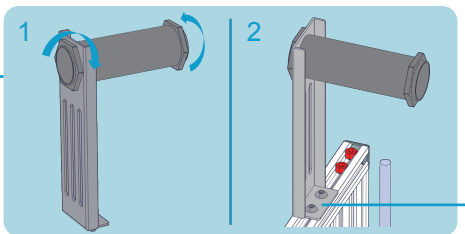


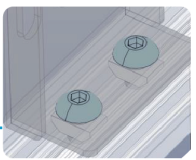


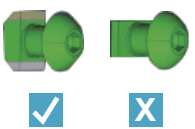
Step 11



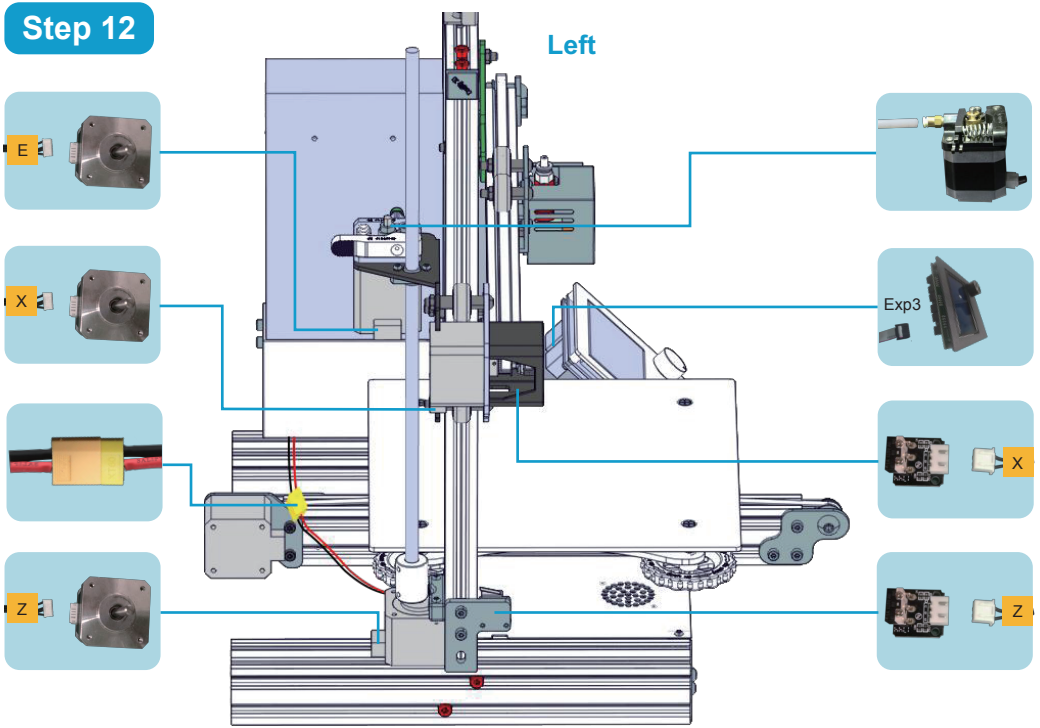




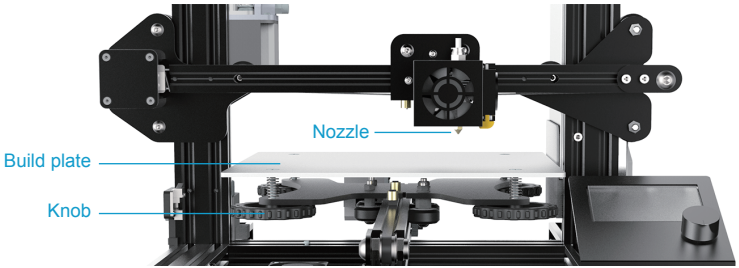




Step 12



2. Build Plate Leveling



The first and most important step towards ensuring the success of a 3D print is making certain that the build plate is parallel to the plane the extruder nozzle travels in, which is also known as “leveling” in 3D printing. And this is especially crucial and necessary for semi-assembled 3D Printer like Ender-3 without auto-leveling or assisted-leveling feature.

To level your build plate for the first time, please follow the instructions below:

1. Attach the power supply, plug the power cable into an electrical outlet and turn on the printer.
2. Remove any debris from the build plate or the tips of the extruder nozzle, then TAP **Prepare** → TAP **Home**
3. The build plate and nozzle will start to move. PRESS the control knob when they stop moving ,TAP **Prepare** → TAP **Disabled Steppers**
4. Horizontally observe the distance between the build plate and nozzle, make sure there is a small gap between the tip of the nozzle and the top of the build plate for you to place a piece of A4 paper in between of them. Slide the paper back and forth, but with some friction.

If the paper slides through easily, the nozzle and build plate are too far apart. Rotate the knob clockwise to decrease the distance between them. If the paper cannot slide through, rotate the knob anticlockwise.

5. After leveling the first adjustment point，repeat step 4 for the other three points.
6. When you finish adjusting all the 4 points, confirm again that the piece of paper slides between the nozzles and plate with a moderate amount of friction. Now that you have completed leveling and you are ready to load filament.

Successful First Layer

Check out the below images to see a successful first layer and two unsuccessful ones.

	The nozzle is at the correct height above the platform.	✓
	The nozzle is too far from the platform. This can result in the extruded material not sticking to the build platform.	X
	The nozzle is too close to the platform. This can result in damage to the nozzle and build platform.	X

Notice: In general, you do not need to level your build plate before every print. As you continue to use your printer, the frequency with which you need to level your plate will diminish.

3. Basic Printing

• Pre-Heat

1. Press the control knob，TAP **Prepare** → TAP **Prepare PLA**/**Prepare ABS**
2. Press the control knob，TAP **Control** → TAP **Temperature** → TAP **Nozzle**, rotate control knob to set the temperature as at least 180℃. Wait until the required temperature is met.

• Feeding Filament

1.Press and hold the extruder lever then insert 1.75mm filament through the small hole of the extruder. Continue feeding until the filament comes out the nozzle.

2. For replacing filaments, preheat the nozzle then pull out the existing filament. Next, insert the new filament.

• Printing

1. Insert the SD card
2. TAP **Print from SD** → Select the file to print

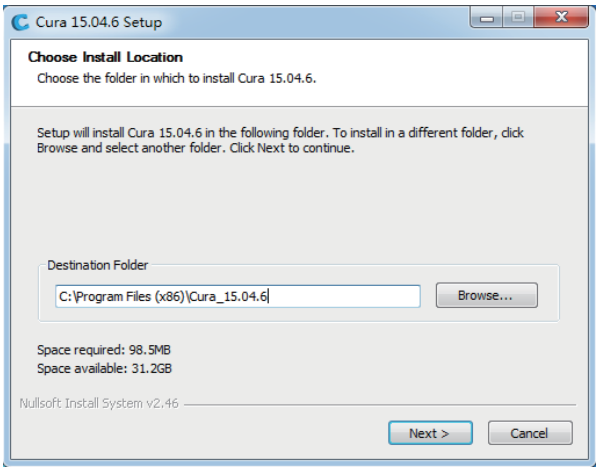
V. SOFTWARE INSTALLATION

As you've seen, you can print a model directly from a gcode file on a microSD™ card and this is the preferred method, as it does not require a continuous connection to your computer. You can download gcode files to the microSD™ card and print them without building any model files by yourself.

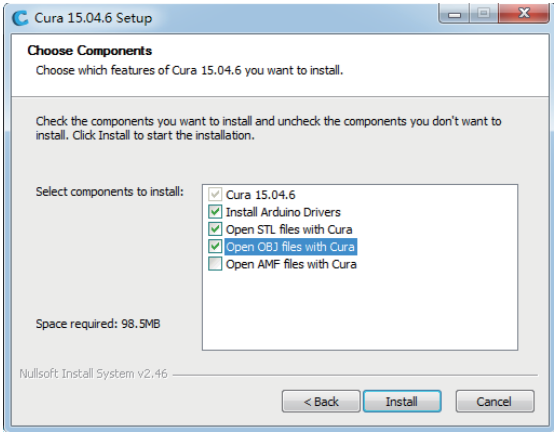
Or you can create your own gcode files using an open source program, such as Cura or Repetier-Host, which are pre-installed on the microSD™ card that comes with the printer. These programs support the most commonly used files formats (such as STL, OBJ and FBX files, etc.). We recommend you start with Cura, since it includes a Slicing Engine.

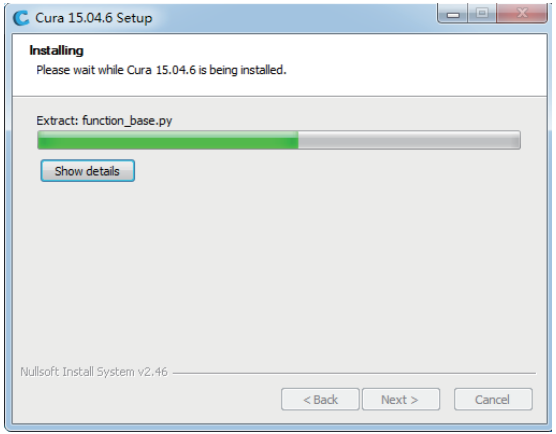
Installing Cura for Windows

1. Use a card reader to read the contents on the microSD™ card included in the printer. Locate and double-click the **Cura_15.04.6.exe** file to start the setup program.
2. You may choose a new location for the program files or accept the default (recommended). Click **Next** to continue.

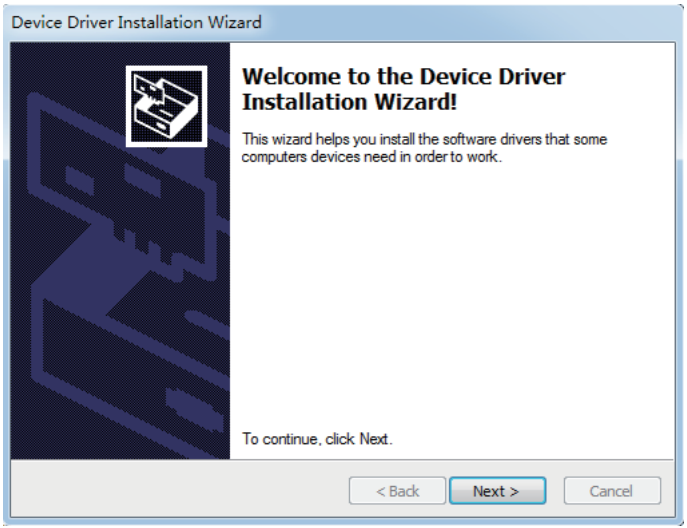


3. Ensure that all boxes are checked, then click **Install** to continue.

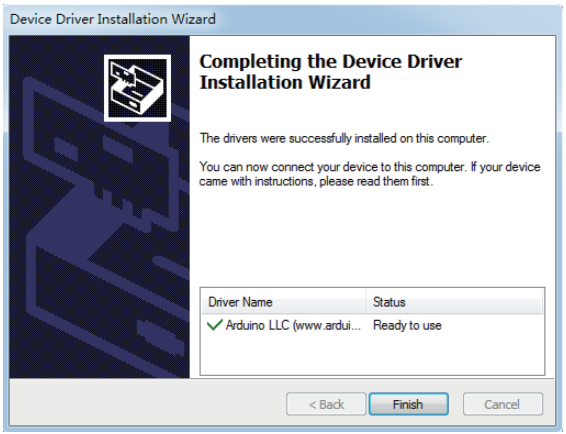




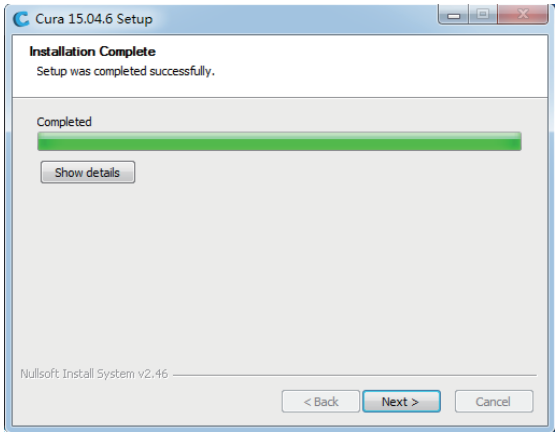
4. Once the files have been extracted and the Cura installation is complete, the driver installation wizard will launch.



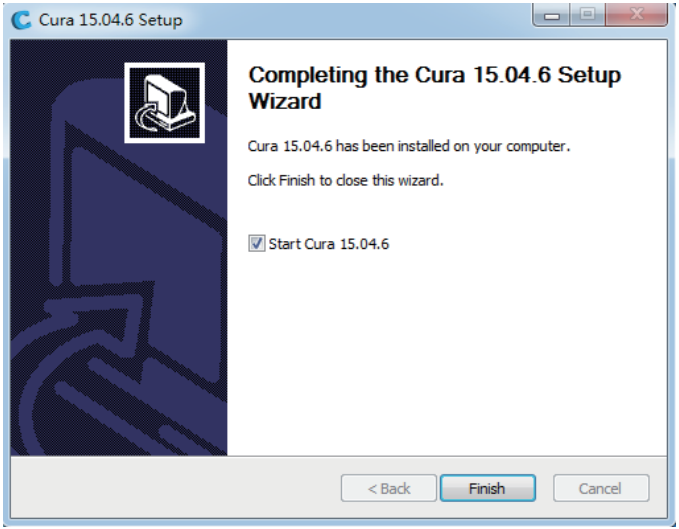
5. Click **Finish** to complete the driver installation.



6. Click **Next** to continue.

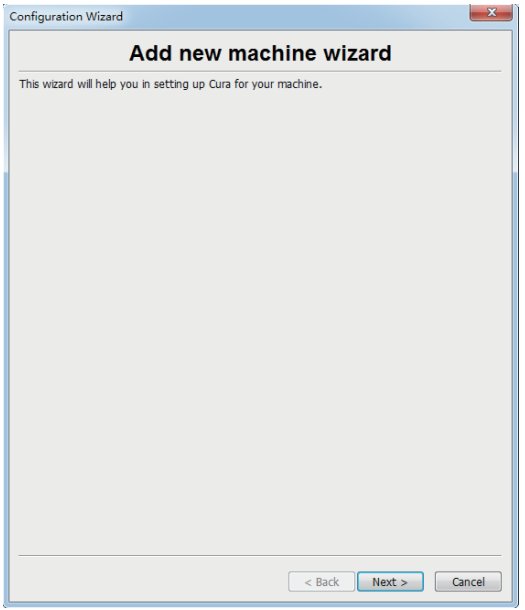


7. Ensure that the box next to the start Cura 15.04.6 option is checked, then click **Finish** to complete the installation and launch the program.

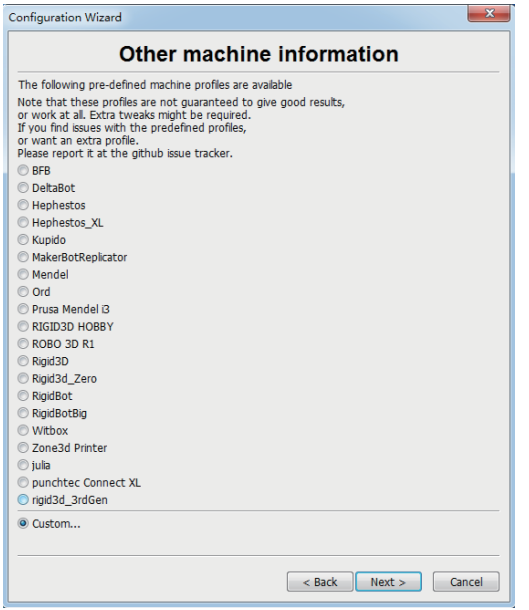


8. Wait for Cura to finish launching. If this is the first time you have run Cura on this machine, Cura will automatically launch the First time run wizard. Otherwise, you will need to select **Machine** > **Add new machine**.

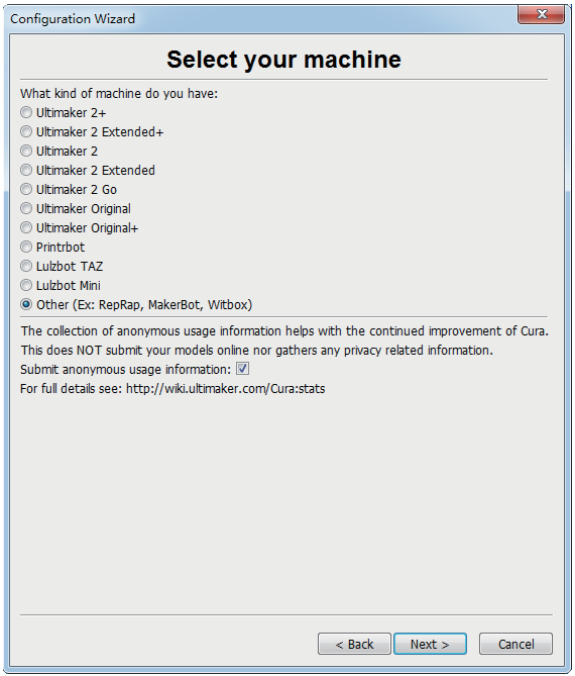
9. Click the button next to the **Other** option, then click the **Next** button to continue.



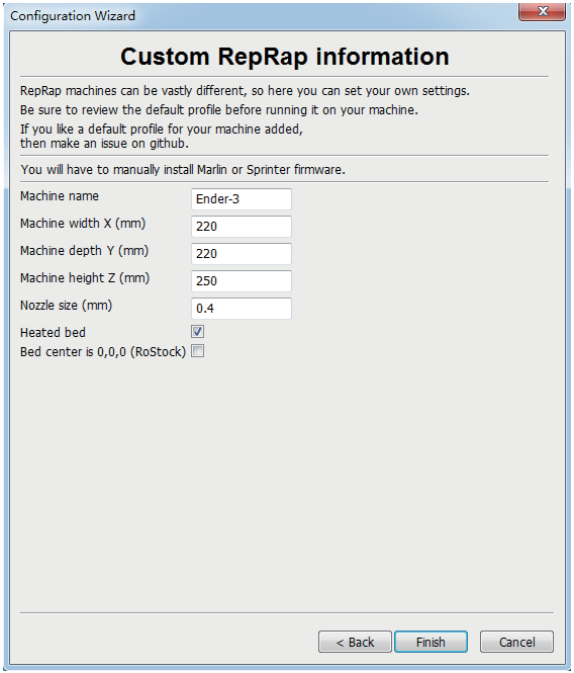
10. Select the **Custom...** option, then click **Next** to continue.



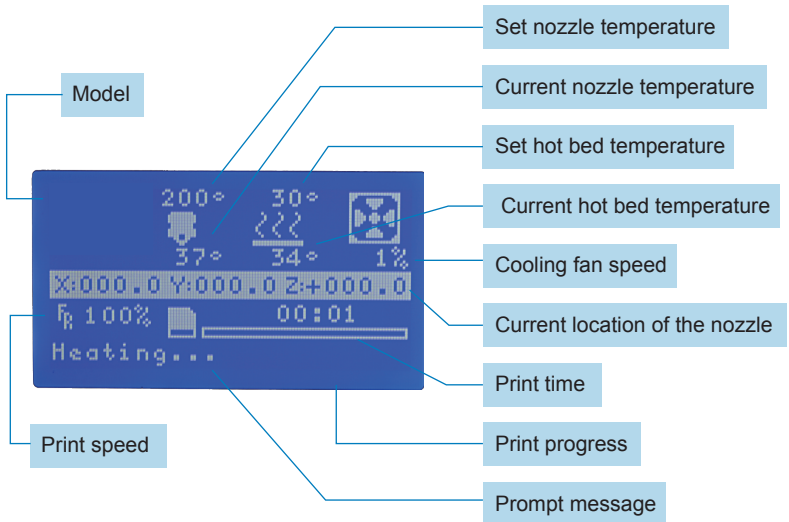
11. Click the button to the left of the **Other** entry, then click **Next** to continue.



12. Change the settings to match those shown in the images below, then click **Finish** to continue.



VI. MENUS


Model
Set nozzle temperature
Current nozzle temperature
Set hot bed temperature
Current hot bed temperature
Cooling fan speed
Current location of the nozzle
Print time
Print progress
Prompt message
Print speed
200°
30°
37°
34°
1%
X:000.0 Y:000.0 Z:+000.0
100%
00:01
Heating...

1. Prepare

1.1 Disable Steppers

Disable stepper motors for the X/Y/Z axis so you can move the print head around manually without risking damaging the stepper motor driver electronics.

1.2 Auto Home

To make the X/Y/Z axis returns to the home position then your Ender-3 is ready for printing.

1.3 Preheat PLA

Heat up to the default setting temperature, which is 220℃ for the nozzle and 60℃ for the heated bed.

1.4 Preheat ABS

Heat up to the default setting temperature, which is 230℃ for the nozzle and 90℃ for the heated bed.

1.5 Cool down

Stop the nozzle form moving and it will be cooled down.

1.6 Move Axis

Manually adjust the position of X/Y/Z axis and extruder stepper motor.

Notice: To use this option for adjustment, nozzle MUST have been preheated up to the temperature of 185 °C.

1.6.1 10mm **Move X** **Move Y**

1.6.2 1mm **Move X** **Move Y** **Move Z** **Extruder**

1.6.3 0.1mm **Move X** **Move Y** **Move Z** **Extruder**

2. Control

2.1 Temperature

2.1.1 Nozzle

Manually set up the temperature for nozzle.

2.1.2 Bed

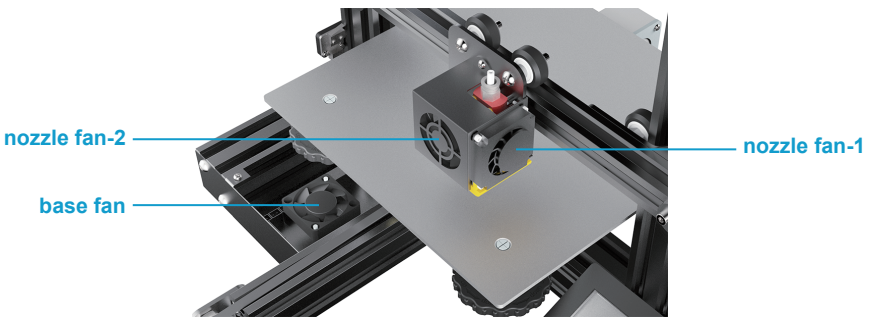
Manually set up the temperature for heated bed.

2.1.3 Fan Speed

Set up fan speed, which defines the speed at which the fans spin. A higher fan speed allows for better cooling and reduces oozing, but can also increases the shrinkage of the material.

Notice: This option if only for base fan and the nozzle fan-1 that located on the right side of the nozzle.

The nozzle fan-2 that located in the front of the nozzle is always ON and its speed is unadjustable.



2.1.4 Restore Failsafe

Restore factory setting.

3. No card/print from SD

When there is no inserted SD card, it will display **No Card**.

When your card is inserted, choose the file that you need to print from your SD card.

4. Init.SD-Card/Change SD-Card

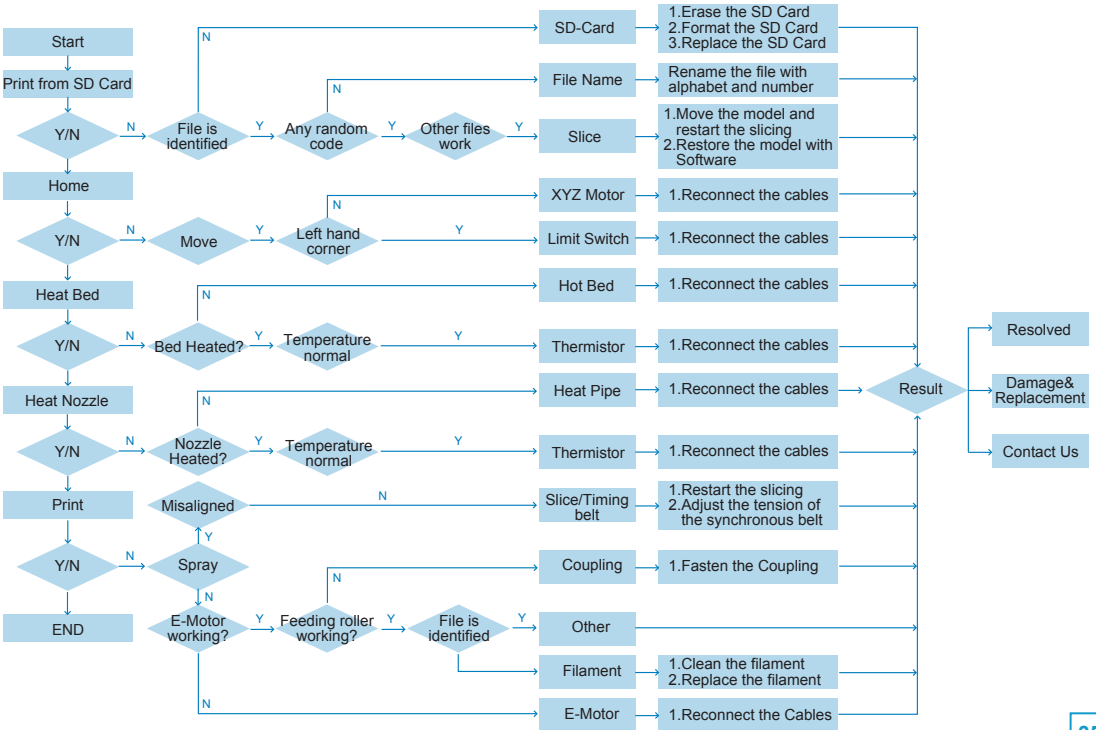
Please initialize you SD card every time you insert one.

5. Tune

Notice: This option is only accessible for manual parameters adjustment during printing process.

Speed	Adjust the printing speed
Nozzle	Adjust the nozzle temperature
Bed	Adjust the heated bed temperature
Fan Speed	Adjust the fan temperature
Flow	Adjust the filament flow

VII. TROUBLESHOOTING



VIII. SUPPORTS & SERVICE

SainSmart support team is on standby and ready to help you with any problems you may have with your Ender-3 3D printer. If the issues or questions are not covered in this User Guide, you can seek for solutions on our official website or contact us via email.

The SainSmart support team can be reached by e-mail between the hours of 8:00 a.m. to 5:00 p.m. (PST) Monday through Saturday. In case you contact us during off-duty time, your inquiry will be answered the following business day.

Notice: Because of change different filament the extruder maybe blockaded. It's not owing to quality issue, and outside the scope of 400-hours life. If users encounter this problem, please contact our after-sales department and finish clean work according to their instruction.

Official Website: www.sainsmart.com
Email: support@sainsmart.com
ADD: 2711 Centerville Road, Wilmington, DE, 19808, United States
Find Us Socially:
Facebook (@SainSmart)
Instagram (@sainsmart)
Twitter (@Sain_Smart)

- When contacting support, please have your serial number ready. The serial number is a bar code on the Ender-3.

Manufacture No	CE XXXXXXXXXX

www.sainsmart.com

support@sainsmart.com
2711 Centerville Road, Wilmington, DE, 19808, United States