

Eryone ER-20

User Manual

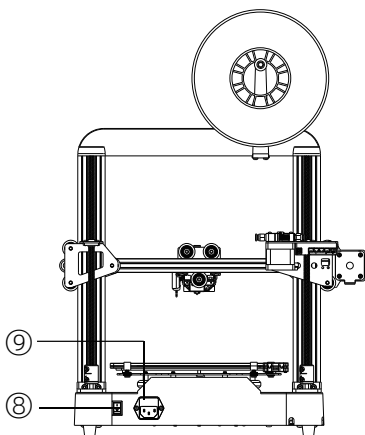
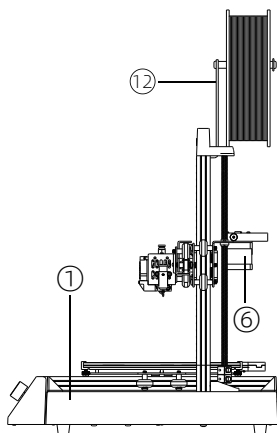
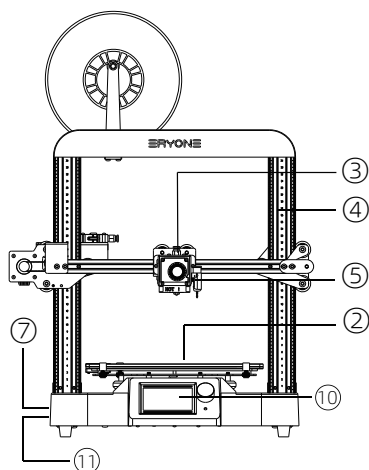
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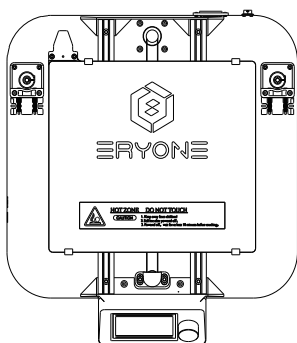
Quick Assembly-Overview



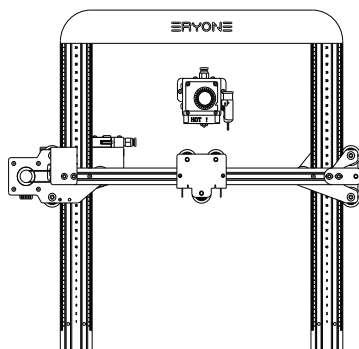
- ① Base frame
- ② Printing surface
- ③ Extruder
- ④ Gantry frame
- ⑤ Ery Sensor
- ⑥ Extruder stepper motor

- ⑦ SD card slot
- ⑧ Power switch
- ⑨ Power cable port
- ⑩ LCD screen
- ⑪ USB cable port
- ⑫ Filament holder

Prepare



①



②



③



④

- ① Base frame half assembly
- ② Gantry frame half assembly
- ③ Lead screw
- ④ All-in-one toolkit pack

Assembly Steps

We have prepared “ER20 Assembly Guide” of the video for you, it is saved in the SD card in the printer. Please open “ER20 Assembly Guide Video” folder for reference.

If you lost the SD card, please visit our youtube channel

www.youtube.com/eryone3d

Calibration and Print

Calibration can help you achieve excellent print results, so read this section carefully, or you may cause printer damage and print failure.

Auto leveling

The ER-20 3D printer firmware turns on the automatic leveling function by default. The sensor Eryone developed enables the machine to automatically level. We can Level the printer easily by calibrating.

① Preparation

Prepare a standard piece of A4 paper and lay the printer flat

② Auto Home

Home the printer to default location.

Move axis	→
Auto home	
Level Bed	
Fade Height:	0
Disable steppers	

③ Calibrate Z axis.

Click the LCD and click “Configuration” to enter “Calibrate Z” menu then level the printer according to the instructions.

Main	↑
Advance Settings	→
Probe Z Offset: -2.90	
Calibrate Z	→
Bl Touch	→

Configuration	→
Change Filament	→
About Printer	→
Change Media	
Print from Media	→

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Safety Information

- The Printer can be only used with the power adapters supplied by this company, or the printer might be damaged
- Components included in this package may be damaged by electrostatic discharge (ESD)

Electrostatic discharge (ESD) wristbands are recommended, to ESD's harm on the printer

- To avoid being exposed to high temperature burns, don't touch heated bed and nozzle of the printer with your hands when the printer is working
- Minors need to be accompanied by a guardian to use the printer and Keep away from children as much as possible so as not to cause harm to them
- Printers must be kept away from water and exposure to rain
- The printer is designed to work properly at an ambient temperature between 10°C and 32°C, and humidity between 20% and 50%, Operating outside those limits may result in low quality models.
- Please ensure that the distance between the nozzle and the hot bed is at least 0.05mm, so as to avoid damage of the nozzle caused by the impact of the nozzle on the heated bed
- In any installation step, if you have any questions, please contact us to get technical support
- Do not start the printer until you have finished assembling it. Otherwise, permanent damage to the printer may be caused and harm the user.
- After completing the installation of the components, please refer to the manual instructions again and check whether the cables are installed in place and whether any metal screws are loose or fall off
- Make sure the printer power is turned off before installing or removing printer component.
- Keep this manual is for future reference
- Eryone company reserves the right of final interpretation.

Printer Specifications

Printer and its parameters

Molding Technology	FDM
Printing Size	250x220x200mm
Printing Precision	0.05mm
X/Y/Z axis positioning precision	12.5μm/12.5μm/2.5μm
Filament diameter	1.75mm
Nozzle diameter	0.4mm
Recommended printing speed	40-70mm/s
Filament	PLA, PETG,TPU,etc
Average noise	49dB

Software Parameters

File Format	.STL, .OBJ, .ADE, .AMF
Files	GCODE
Operation system	WIN/MAC/LINUX
Firmware	Marlin
File transfer	USB/SD card

Electronic Parameters

Power supply input	115/230 VAC 50/60HZ
Power supply output	+24V 14.5A MAX
Standby power consumption	12W

Physical Parameters

Printer Size	396x446.5x449mm
Package Size	575x540x240mm
N.W.	8kg
G.W.	12.5kg

Temperatures

Maximum Nozzle temperature	260 °C
Maximum heated bed temperature	100 °C
Recommended nozzle heating time(20~180°C)	~ 1 m in
Recommended heated bed heating time(25~60°C)	~ 3 m in

Environment

Operating temperature	10 ~ 32 °C
Non-operating temperature	0 ~ 32 °C

Packaging

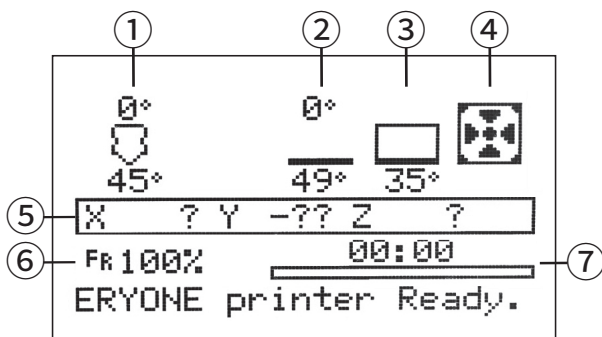
Please check the packaging list of your printer. It should contain the following:

- ☐ Printer
- ☐ All-in-one toolkit pack:
 - ☐ Install screw
 - ☐ SD card+knob+USB Cable
 - ☐ Filament holder
 - ☐ Tool kit
 - ☐ Extra gift
 - ☐ Spare screws
- ☐ Printer user manual
- ☐ PLA filament

If the above items are damaged or missing, please contact the sales staff in time

Screen Menu Introduction

Main LCD menu



- ① Nozzle temperature display section
- ② Heated bed Temperature display section
- ③ Motherboard temperature display section
- ④ Hotend cooling fan display section
- ⑤ Nozzle coordination display section
- ⑥ Printing basic speed rate
- ⑦ Printing progress display section

Since the firmware of the printer may be updated in the future, the menu may not be consistent with the actual screen display, please refer to the actual menu and refer to the latest version of the manual.

Please go to Eryone's website to download the latest version of the manual:
www.eryone.com

LCD layout

☐ Motion

☐ Move Axis

☐ Move X

☐ Move 10mm

☐ Move 1mm

☐ Move 0.1mm

☐ Move Y

☐ Move 10mm

☐ Move 1mm

☐ Move 0.1mm

☐ Move Z

☐ Move 10mm

☐ Move 1mm

☐ Move 0.1mm

☐ Move 0.025mm

☐ Extruder

☐ Move 10mm

☐ Move 1mm

☐ Move 0.1mm

☐ Auto Home

☐ Level Bed

☐ Bed leveling: On

☐ Fade Height:

☐ Disable Steppers

☐ Temperature

☐ Nozzle

☐ Bed

☐ Fan Speed

☐ Preheat PLA

☐ Preheat PLA

☐ Preheat PLA End

☐ Preheat PLA Bed

- ☐ Preheat ABS
 - ☐ Preheat ABS
 - ☐ Preheat ABS End
 - ☐ Preheat ABS Bed
- ☐ Cooldown
- ☐ **Configuration**
 - ☐ Advanced Settings
 - ☐ Set Home offsets
 - ☐ Velocity
 - ☐ Vmax X
 - ☐ Vmax Y
 - ☐ Vmax Z
 - ☐ Vmax E
 - ☐ Vmax Min
 - ☐ VTrav Min
 - ☐ Acceleration
 - ☐ Accel
 - ☐ A-Retract
 - ☐ A-Travel
 - ☐ Amax X
 - ☐ Amax Y
 - ☐ Amax Z
 - ☐ Amax E
 - ☐ Jerk
 - ☐ Probe offsets
 - ☐ Probe X offs
 - ☐ Probe Y offs
 - ☐ Probe Z offsets
 - ☐ Steps/mm
 - ☐ Xsteps/mm
 - ☐ Ysteps/mm
 - ☐ Zsteps/mm
 - ☐ Esteps/mm

- ☐TMC Drivers
 - ☐Driver Current
 - ☐Sensorless Homing
 - ☐Stepping Mode
- ☐Temperature
 - ☐Autotemp
 - ☐Min
 - ☐Max
 - ☐Fact
- ☐Filament
 - ☐E in mm3
 - ☐Unload mm
 - ☐Load mm
- ☐Initialize EEPROM
- ☐Probe Z offset
- ☐Calibrate Z
- ☐BLTouch
- ☐Outage Recovery
- ☐Preheat PLA Conf
- ☐Preheat ABS Conf
- ☐Store Settings
- ☐Load Settings
- ☐Restore Defaults
- ☐**Change Filament**
 - ☐Preheat PLA
 - ☐Preheat ABS
 - ☐Preheat Custom
- ☐**About Printer**
 - ☐Printer info
 - ☐Board info
 - ☐Thermistors
- ☐**Change Media**
- ☐**Print from Media**

■ **Motion:** Motion Menu

Printer motion parts control menu to move every axis.

- ☐ **Move axis:** Move each axis
 - ☐ Move X: 3 type of mode, 10mm/1mm/0.1mm
 - ☐ Move X: 3 type of mode, 10mm/1mm/0.1mm
 - ☐ Move Z: 4 type of mode, 10mm/1mm/0.1mm/0.025mm
 - ☐ Move E: Extruder extrusion filament (need Preheat first), 3 type of mode, 10mm/1mm/0.1mm
- ☐ **Auto home:** Auto home all three axes of the printer XYZ
- ☐ **Level Bed:** Using this feature to auto level the printer (The offset point needs to be set first, This will be explained on the Probe Z Offset menu)
- ☐ **Bed leveling:** Enable the auto bed leveling or not(Default enable)
- ☐ **Fade Height:** Fade the amount of Mesh Based Compensation over a specified height. At the specified height, no correction is applied and natural printer kinematics take over. If no number is specified for the command, 10mm is assumed to be reasonable.
- ☐ **Disable the Stepper:** After the stepper motor is disabled, the motor self-lock function is unlocked and the stepping motor can be moved manually

■ **Temperature:**

Menu for nozzle temperature, heated bed temperature and cooling fan speed

- ☐ **Nozzle:** Nozzle temperature parameter setting.
- ☐ **Bed:** Heated bed temperature parameters setting.
- ☐ **Fan speed:** Fan speed control.

Nozzle cooling fan speed setting, using PWM to adjust fan speed, the parameters are 0~255, corresponding to running at a rate percentage of 0~100%.

Generally do not let its speed below 20%, otherwise situation that fans can not work properly might appear.
- ☐ **Preheat PLA:** Preheat menu.

Preheat the nozzle, heated bed, or both. When using this feature, the heating component will enter the heating state according to the PLA preheating parameters preset in the firmware.

- ☐ **Preheat ABS:** Preheat menu.

Preheat the nozzle, heated bed, or both. When using this feature, the heating component will enter the heating state according to the ABS preheating parameters preset in the firmware.

■ Configuration:

This menu is the most complicated part of the LCD menu. It is recommended that you do not change any parameters in this menu if you are unclear.

Advanced Settings includes advanced parameter setting, auto leveling sensor parameter setting, etc

- ☐ **Advanced Settings:** Advanced parameter setting menu
- ☐ **Set Home offsets:** Sets the current printer's coordinate value as the home offsets
- ☐ **Velocity:** Printer speed parameter control menu
 - ☐ **Vmax X:** X-axis movement speed upper limit
 - ☐ **Vmax Y:** Z-axis movement speed upper limit
 - ☐ **Vmax Z:** Z-axis movement speed upper limit
 - ☐ **Vmax E:** Upper limit of the rotation speed of the extruder
 - ☐ **Vmax Min:** Maximum value of Printer moving speed
 - ☐ **Vtrav Min E:** Minimum value of Printer deadhead moving speed
- ☐ **Acceleration:** Acceleration control menu
 - ☐ **Accel:** The overall acceleration value of the printer
 - ☐ **A-Retract:** Printer extruder motor retract acceleration setting
 - ☐ **A-Travel:** Printer travel acceleration maximum value setting
 - ☐ **A max X:** X axis moving acceleration maximum value setting
 - ☐ **A max Y:** Y axis moving acceleration maximum value setting
 - ☐ **A max Z:** Z axis moving acceleration maximum value setting
 - ☐ **A max E:** Extruder acceleration maximum value setting
- ☐ **Jerk:** Accelerating arc parameter setting

- ☐ **Probe offsets:** Auto Leveling sensor offset setting
 - ☐ **Probe X offs:** Auto Leveling sensor X axis offset setting
 - ☐ **Probe Y offs:** Auto Leveling sensor Y axis offset setting
 - ☐ **Probe Z offs:** Auto Leveling sensor Z axis offset setting

- ☐ **Steps/mm:** Number of steps of motor rotation per millimeter printer moves
 - ☐ **X Steps/mm:** Number of steps of motor rotation per millimeter printer X axis moves. The parameter is related to the type of motor, the number of teeth and the pitch of the synchronous wheel
 - ☐ **Y steps/mm:** Number of steps of motor rotation per millimeter printer Y axis moves

The parameter is related to the type of motor, the number of teeth and the pitch of the synchronous wheel
 - ☐ **Z steps/mm:** Number of steps of motor rotation per millimeter printer Z axis moves. The parameter is related to motor type and Z-axis screw type
 - ☐ **E steps/mm:** Number of steps of motor rotation per millimeter printer extruder rotates, the parameter is related to motor type and feeder gear type

- ☐ **TMC Drivers:** stepper motor driver setting
 - ☐ **X Steps/mm:** TMC drivers current setting
 - ☐ **Sensorless Homing:** Infinite Limit switch function Settings, mainly to adjust the X/Y axis of the stepper motor driver sensitivity.

The sensitivity of the driver to the resistance when the XY axis moving and homing.

It should be noted that too high the value is likely to lead to higher sensitivity value, resulting in failure of the homing.
 - ☐ **Stepping Mode:** Switch the working mode of the stepper motor driver, on means silent mode on, off means silent mode off

- ☐ **Temperature:** This option is related to the automatic temperature adjustment function setting
 - ☐ **Autotemp:** Whether to turn on automatic temperature adjustment (off by default)
 - ☐ **Min:** Minimum value of automatic temperature adjustment
 - ☐ **Max:** Maximum value of automatic temperature adjustment
 - ☐ **Fact:** Automatic temperature adjustment temperature coefficient (related to firmware)

- ☐ **Temperature:** Filament setting
 - ☐ **E in mm3:** This function is used to measure the consumption of filaments. Whether mm3 is used as the unit or not, off by default.
 - ☐ **Unload mm:** Extruder unload length
 - ☐ **Load mm :** Extruder load length

- ☐ **Initialize EEPROM:** Initializes the EEPROM data

- ☐ **Probe Z offset:** Auto leveling sensor key parameter。 Adjusting this parameter can change the offset height of the sensor, Offset point refers to the height between the nozzle and the hot bed by moving the Z-axis to 0 after the printer is returned to its position with the automatic leveling sensor.
- ☐ **Calibrate Z:** Auto leveling sensor calibration menu. Entering this menu can quickly adjust the offset height of the sensor without using other menus for homing and other operations.
- ☐ **Bltouch:** Ery sensor control menu. Enter this menu to check whether the function of the sensor is normal.
- ☐ **Outage Recovery:** Power resume print menu. You can turn it on or off. On by default .
- ☐ **Preheat PLA conf:** Preheating parameter configuration menu for printer PLA. On this menu you can adjust the heating temperature values of the nozzle and the heated bed.

- ☐ **Preheat ABS conf:** Printer ABS preheating parameters configuration menu. On this menu you can adjust the heating temperature values of the nozzle and the heated bed.
- ☐ **Store Setting:** Save the currently unsaved parameters to the printer. Load Setting: Load printer default parameters
- ☐ **Restore Defaults:** Reset printer factory parameters

■ **Change Filament:** This menu can be used in the printing process of the printer to help users quickly replace the filament.

- ☐ **Preheat PLA:** This menu differs from the Temperature menu , the refueling after using the preset PLA's preheating parameters
- ☐ **Preheat ABS:** This menu differs from the Temperature menu , the refueling after using the preset ABS's preheating parameters
- ☐ **Preheat custom:** This menu allows the operator to customize the temperature parameters for preheating and refueling.

■ **About Printer:** This button includes information about this printer.

- ☐ **Printer info:** Printer firmware information
- ☐ **Board info:** Printer motherboard information
- ☐ **Thermistors:** Printer thermistors information

■ **Change the Media:** Replace the printed SD card (This option is not available on The ER-20)

■ **Change the Media:** Select the slice file from the SD card

Install the driver and slicing

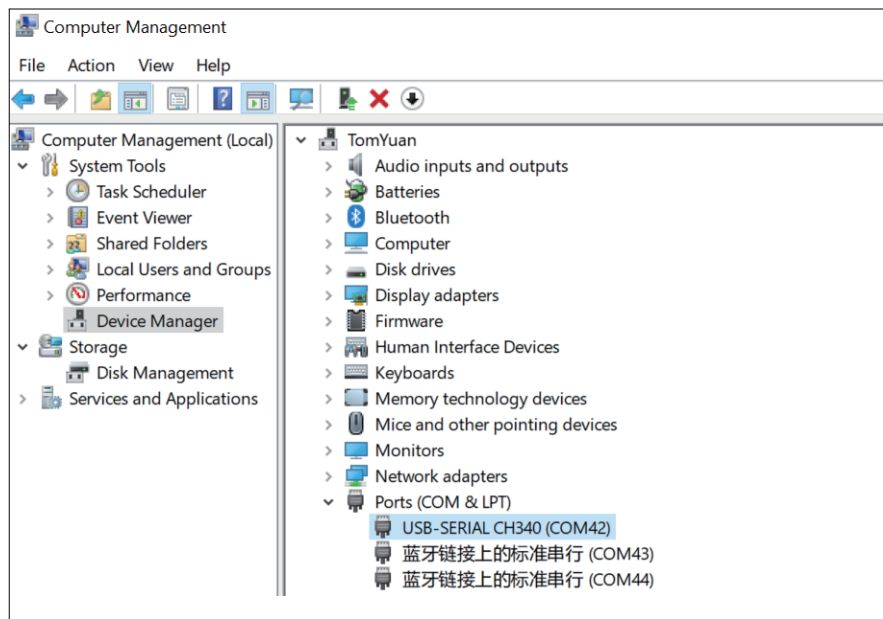
First we need to install our driver on our computer. If your system is WIN10, you can enter the device driver management → update the driver, so that the driver will be installed automatically

1. You can import the driver for this printer from the SD card surface, located in: **/USB Driver/** . Then install the driver according to the corresponding computer operating system

2. Of course, you can also visit this link to get the new version of the driver:
http://www.wch.cn/download/ch341ser_exe.html

3. Manual installation Guide
<https://sparks.gogo.co.nz/ch340.html>

WIN10 installation successful example



Slice the model

1. Download the slicing software Download link:

<https://ultimaker.com/software/ultimaker-cura>

2. Import of slicing software profiles

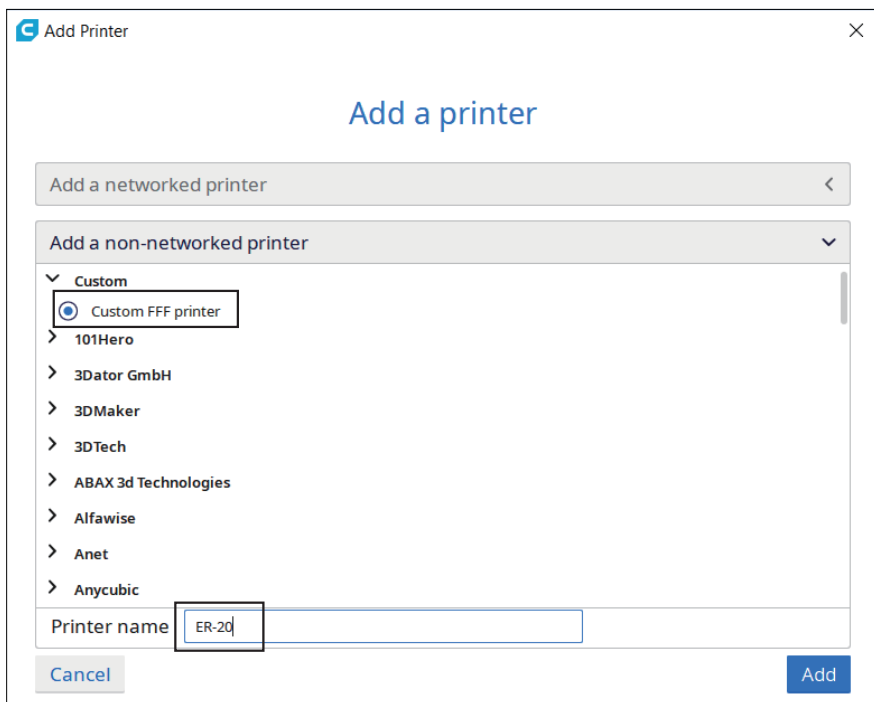
1) You can find the slicing software default parameters from the SD card, Located in the root directory **/ER-20 Cura Profiles/**, (if you don't know how to import slice parameters, there is a video on the SD card that comes with the machine for reference)

2) Visit this link to get the latest slicing software profiles

<https://www.eryone.com/forum/viewtopic.php?f=9&t=179>

Open the slicing software and click

Preferences→Configure add a new printer



Set basic printer parameters

Machine Settings

ER-20

Printer

Printer Settings

X (Width)
250 mm

Y (Depth)
220 mm

Z (Height)
200 mm

Build plate shape
Rectangular

Origin at center
☒

Heated bed
☒

Heated build volume
☐

G-code flavor
Marlin

Start G-code

G28 ;Home
G1 z15.0 F6000 ;Move the platform down
;Prime the extruder
G92 E0
G1 F200 E3
G92 E0

Extruder 1

Printhead Settings

X min
-32 mm

Y min
-10 mm

X max
10 mm

Y max
10 mm

Gantry Height
200 mm

Number of Extruders
1

Shared Heater
☐

End G-code

M104 S0
M140 S0
;Retract the filament
G92 E1
G1 E-1 F300
G28 X0 Y0
M84

Close

Set print header basic parameters

Machine Settings

ER-20

Printer

Nozzle Settings

Nozzle size
0.4 mm

Compatible material diameter
1.75 mm

Nozzle offset X
0 mm

Nozzle offset Y
0 mm

Cooling Fan Number
0

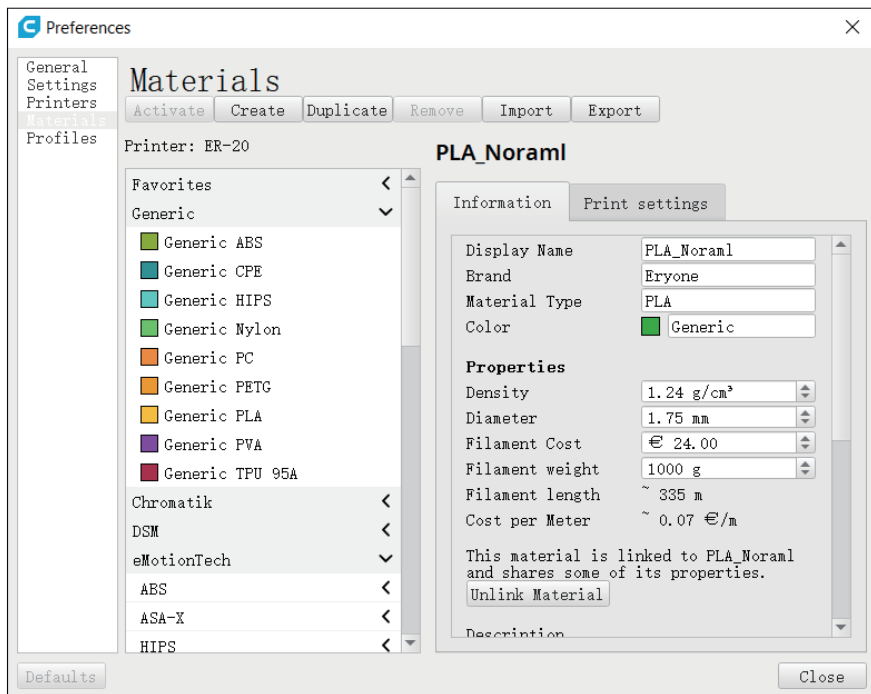
Extruder Start G-code

Extruder 1

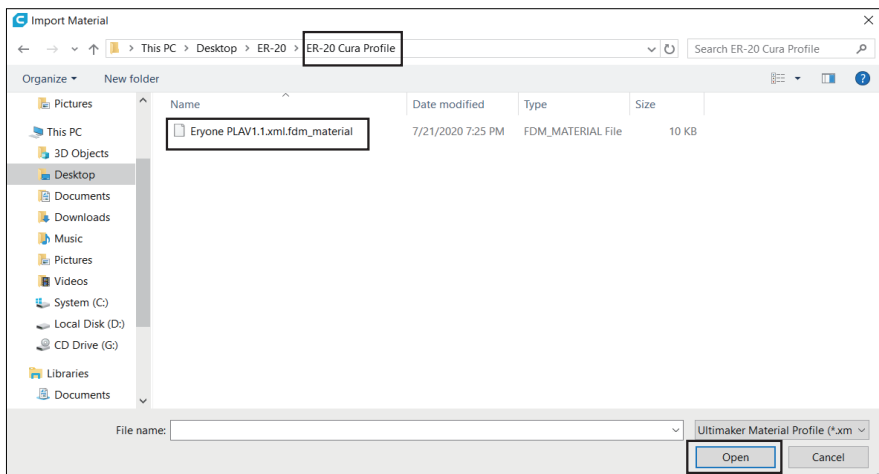
Extruder End G-code

Close

Import default parameters of PLA



Import default parameters of PLA



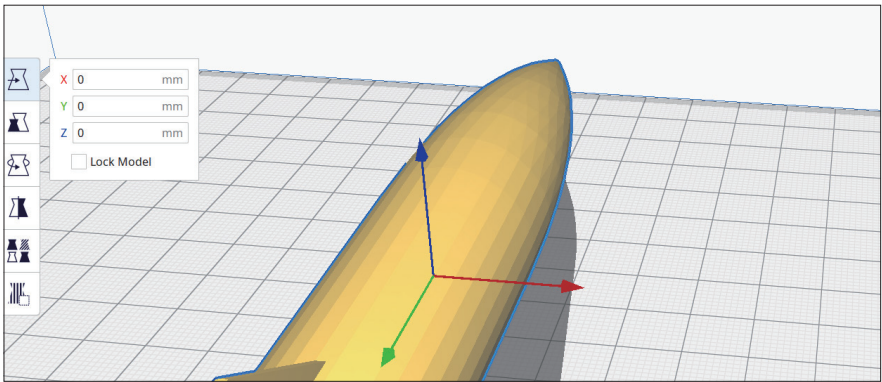
Software slicing

After importing the STL file, make a simple adjustment to the 3D model, so that the software can automatically help us complete the slicing.

3D models: You can refer to these websites to get free or paid models (Everyone does not charge any fee, but the paid model is set by the model-maker). www.thingiverse.com or www.myminifactory.com

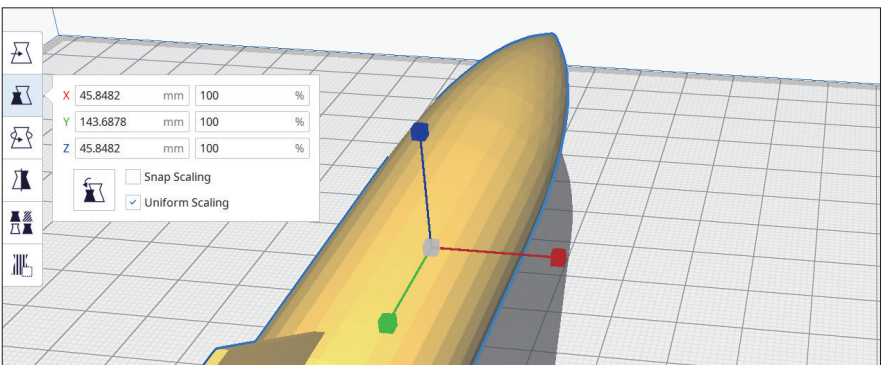
Position adjustment

After importing the STL file, you need to adjust the model. Move model: left-click the model → click the arrow to adjust the model



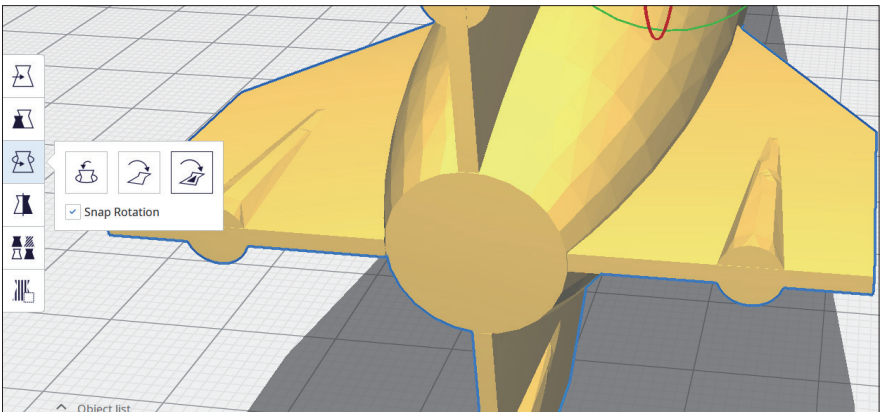
Size adjustment

If you find that the model is too small or too large, you can click this icon to scale the model

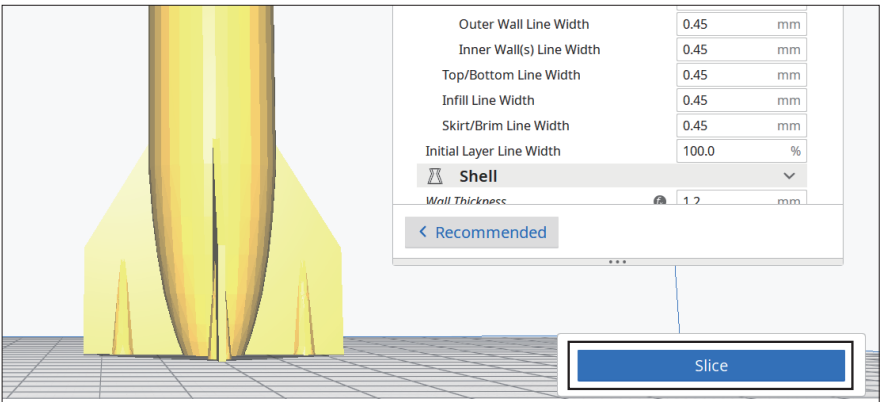


Angular adjustment

If the model is be incorrectly placed. You can then click the rotate icon to adjust



Now you can click the slice icon and save it to the SD card.



Insert the SD card into the printer and choose print code

To learn more about model slicings , please visit our website:

www.eryone.com

Follow our professional engineers to play with 3D model slicings!

Firmware Update

Our engineering team will continue to optimize the 3D printer firmware and fix bugs.

Add new features, etc. (Update the firmware can effectively improve the user experience, this is our commitment), you can visit

<https://www.eryone.com/forum> to get the latest firmware

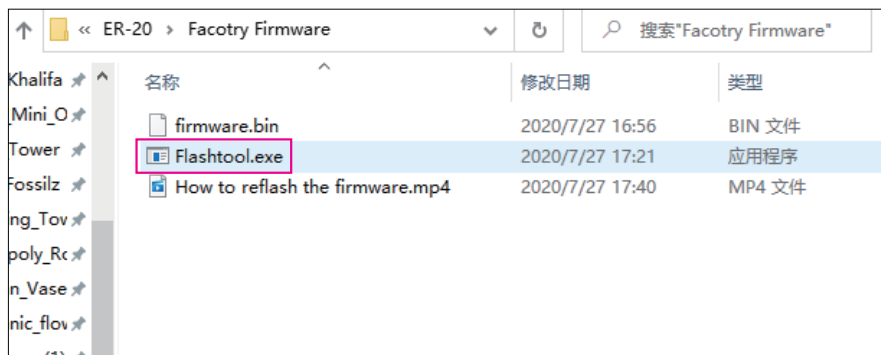
Preparation:

1. Laptop /PC (The printer driver has been installed,If you have not installed it, please refer to the Driver Installation section.)
2. USB cables
3. firmwares

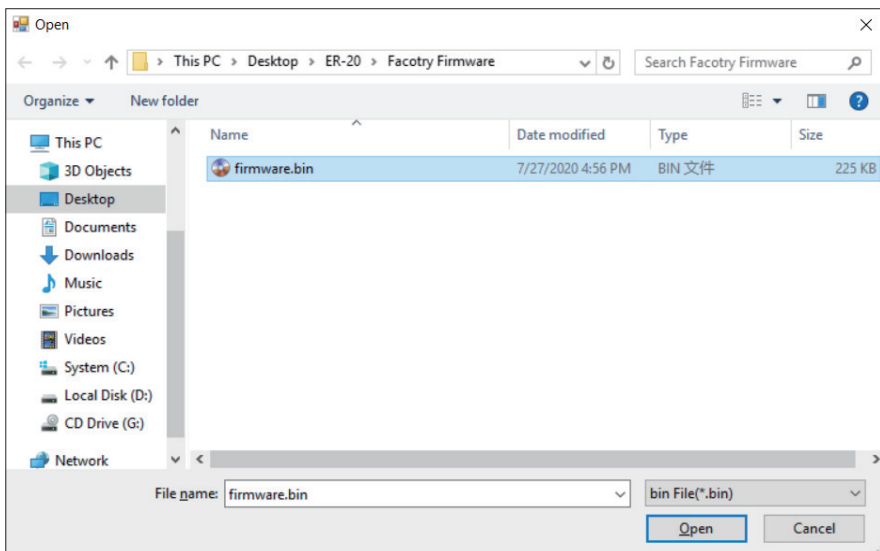
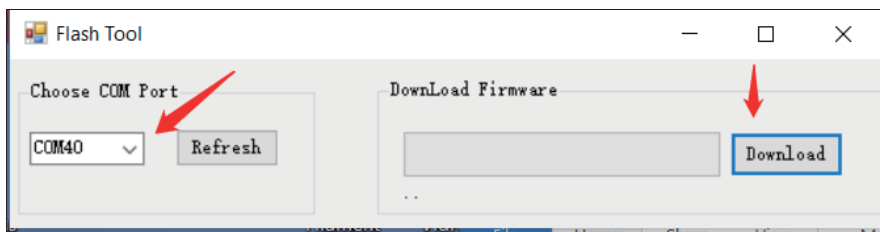
steps:

1. Find the firmware from the SD card, copy it to your laptop /PC or download the latest firmware to your laptop /PC
2. Connect the printer with a Micro USB cable and turn on the printer power switch

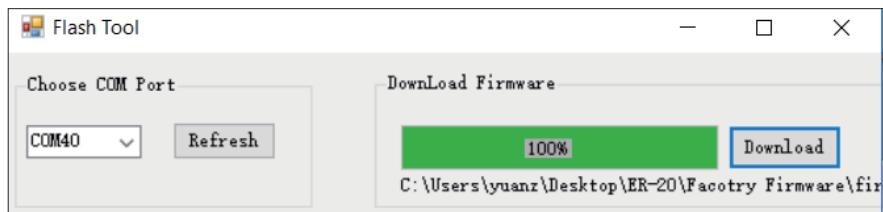
Open the Cura slice software and refer to the diagram below or to the video on the SD card.



Select firmware and flash



Flash completed



3. Refresh the EEPROM of the printer, restart, and complete the update!
Open Cura, find the Monitor menu and enter Gcode "M502" to refresh the data

ER-20

COM40

Extruder 1

235 °C

25°C 0°C

Pre-heat

Build plate

80 °C

26.1°C 0°C

Pre-heat

Printer control

Jog Position

X/Y

Z

<

⬆

⬇

>

⬆

⬇

⬆

⬆

Jog Distance

0.1

1

10

100

Send G-code

M502

M502

Active print

Job Name

Printing Time

Enter Gcode "M500" to save the data and remove the cable

ER-20

COM40

Extruder 1

235 °C

25°C 0°C

Pre-heat

Build plate

80 °C

26.21°C 0°C

Pre-heat

Printer control

Jog Position

X/Y

Z

<

⬆

⬇

>

⬆

⬇

⬆

⬆

Jog Distance

0.1

1

10

100

Send G-code

M500

M500

Active print

Job Name

Printing Time

Trouble shooting and printer maintenance

This section lists just a few common solutions to the problem. If your printer has a problem not in the list, please visit the Eryone company official forum: <https://www.eryone.com/forum>

■ Print layer shift

usually caused by the step loss of the stepping motor, which may be caused by the following circumstances:

1. The acceleration and speed options in the section parameters are not set properly
2. If the belt is too loose/too tight, the synchronous wheel cannot grab the belt. If the belt is too tight, the friction force will be too high, exceeding the endurance force of the motor.
3. Please check if any foreign matter has collided with the hot bed or nozzle.

■ Nozzle clogging

Nozzle clogging is a common problem in FDM printing, which can be caused by many reasons. We give several common solutions

1. The use of poor quality PLA filament, poor quality PLA impurities more, it is easy to clog the nozzle.
2. Check whether the nozzle is broken. If the nozzle hits the heated bed, the nozzle will be broken.
3. Check the teflon tube regularly. The tube will age if used for a long time. The simple treatment is to pull it out and replace it (you can also cut off the aged part of the tube). Notice that when you have finished cleaning, re-insert it into the bottom of the heated end.
4. Change nozzle

■ The print cannot stick to build plate

This problem is usually caused by improper leveling. There are some differences between PLA and PETG leveling, which can occur when you switch from PLA to PETG. A re-calibration of the sensor is required to correct this problem using the "Calibration Z" function

■ Homing failed

Because the ER-20 uses the statguard function(senserless homing) of TMC2209. When we find that it can't home correctly, we just need to lower its key parameter: the sensitivity value.

The default value for X/Y is 70/90, which you can adjust by LCD button

■ Power resume print layer shift

This problem is similar to the previous one due to the printer not being neatly home

As a result, the printer gets the wrong origin, which leads to the printing dislocation after the printer power is restored. We can fix this problem by simply adjusting the sensitivity values.

Printer Maintenance

Regular maintenance of the printer requires only a few simple steps. Your printer can be restored as new, which will greatly extend its service life, It is recommended to dust the surface of the printer once a week

■ It is recommended to pull out the pla after each use to prevent the pla from being broken in the teflon tube due to moisture.

And at the same time use brush to clean feeder gear broken pla

■ It is recommended to preheat and clean the nozzle after each use of the printer, which can effectively avoid the residual PLA effect the next printing

■ It is recommended that every two weeks, use IPA to clean the heated bed surface and check the belt tightness. It is recommended to check whether the printer cable/screw is loose before each use. In case of looseness, insert the cable and tighten the screw in time

■ It is recommended to replace the nozzle, teflon tube and feeder gear every three months

How to contact us

If you have any questions during the installation process,
please contact us for technical support:

Mail:

technical@eryone.com

Facebook:

<https://www.facebook.com/groups/247271792709370>

Whatsapp:

+86 18138406906

+1 (803) 336-5110

Check out our youtube channel for more information about the printer video:

<https://www.youtube.com/eryone3d>



Thanks for choosing eryone product!
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