Makerbase

广州谦辉信息科技有限公司

Guangzhou Qianhui Information Technology Co.,Ltd.

MKS Robin Nano Motherboard Manual

Firmware version update

Firmware version	Modified Time	Modify Content	Note
V1.0.0	2018-10-13	Initial version	

Directory

Ⅰ.Overview

MKS Robin Nano is a product developed by MKS to meet market demand.Configuration of the firmware method is simpler, and with TFT touch screen(Optional 2.4 inch, 2.8 inch, 3.2 inch when purchased),.Simple operation interface.The firmware can be easily upgraded through the SD card and the user interface can be customized. It is suitable for the manufacturer of mass production 3D printers as the main control board.

Ⅱ Features

1.Using 32-bit high-speed ARM chip as the main control chip, using self-developed firmware;

2. Equipped with TFT touch screen (optional 2.4 inches, 2.8 inches, 3.2 inches), simple operation interface and high sensitivity;

3. Support external high-speed WIFI module, access the cloud, and realize remote printing of cloud model. And provide Android, IOS system mobile APP, support Chinese and English;

4.AUTO off after finishing can be achieve by the module.

5. Flexible motor drive seat mode, can support 4988, 8825, 2100, 2208 and all kinds of direct plug-in drive, and support other external drive, to meet your various driving requirements;

6.Upgrade the firmware by SD card, which is easy and convenient to operate;

7. Boot logo and all buttons and other interfaces can be designed by themselves;

8. Support up to 15 custom command button functions;

9. The circuit board is specially designed for heat dissipation, and the heat dissipation effect is better;

10. Using high quality MOSFET tube, the heat dissipation effect is better;

11. Use dedicated power chip to support 12V-24V power input;

12. Can accept 24V input, the same system power can reduce the hot bed current to 1/4, effectively solve the hot bed MOS tube heating problem;

13. Support breakpoint recovery function, power off save function, filament detection function,auto off after finishing function;

Ⅲ.Motherboard parameters

Board model:	MKS Robin Nano	Microprocessor:	STM32
Size of exterior:	110*84	Mounting hole size:	102*76
Input:	12V~24V 5A~15A	Motor Drive:	4988 ,8825,8729,2208,2100 DRIVE
Temperature sensor:	NTC 100K、31855	Touch screen:	2.4 inches ,2.8inches 3.2inches
Print file format:	G-code	Support Machine Structure:	XYZ、delta、kossel、Ultimaker、corexy
Recommended Software:	Cura、Simplify3d、Pronterface、Repetier-Host	Firmware update:	SD card

Ⅳ.Port Instructions

4.1 MKS Robin Nano Front view
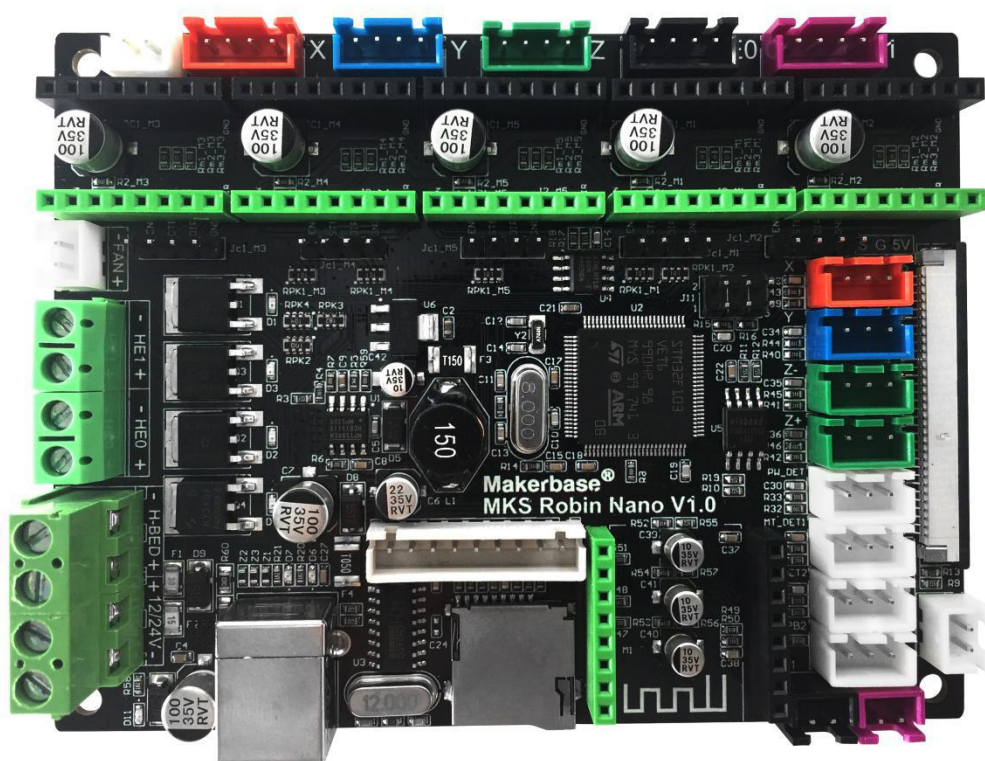
4.2   MKS Robin Nano Installation Dimensional Drawing
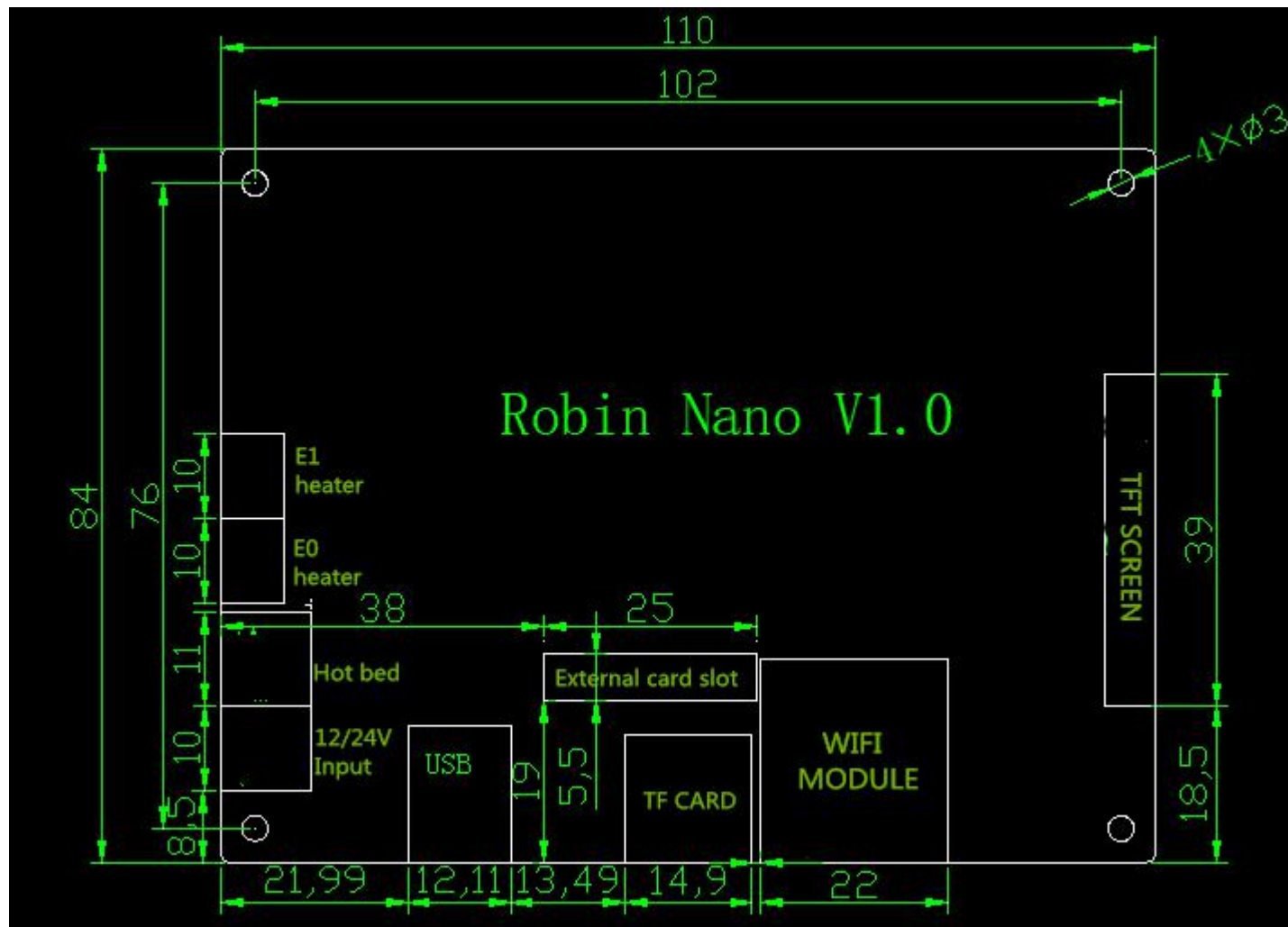
4.3   MKS Robin TFT(2.4inches,2.8inches,3.2inches) Installation Dimensional Drawing

MKS Robin TFT2.4

5
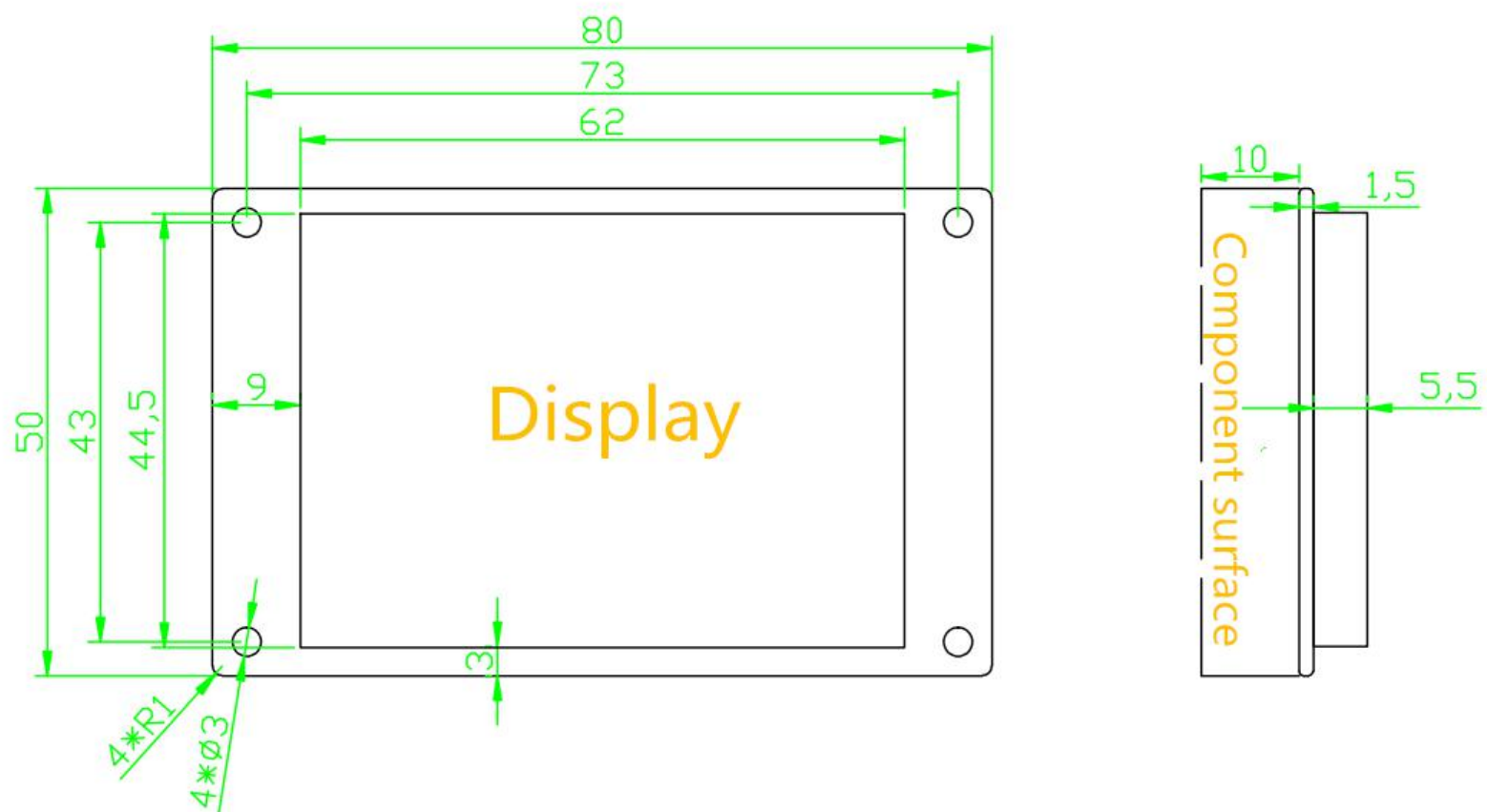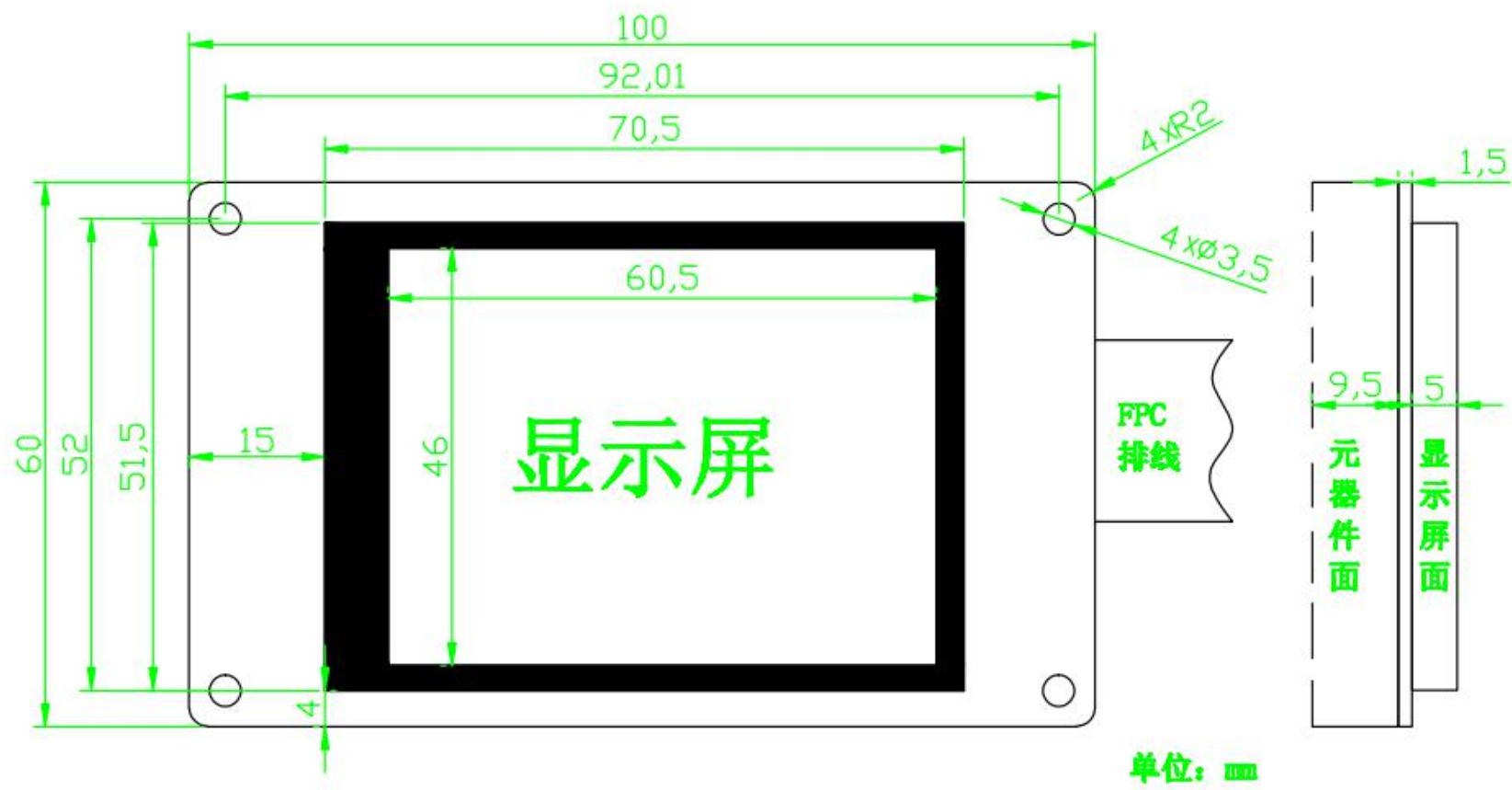
MKS Robin TFT2.8

MKS Robin TFT3.2
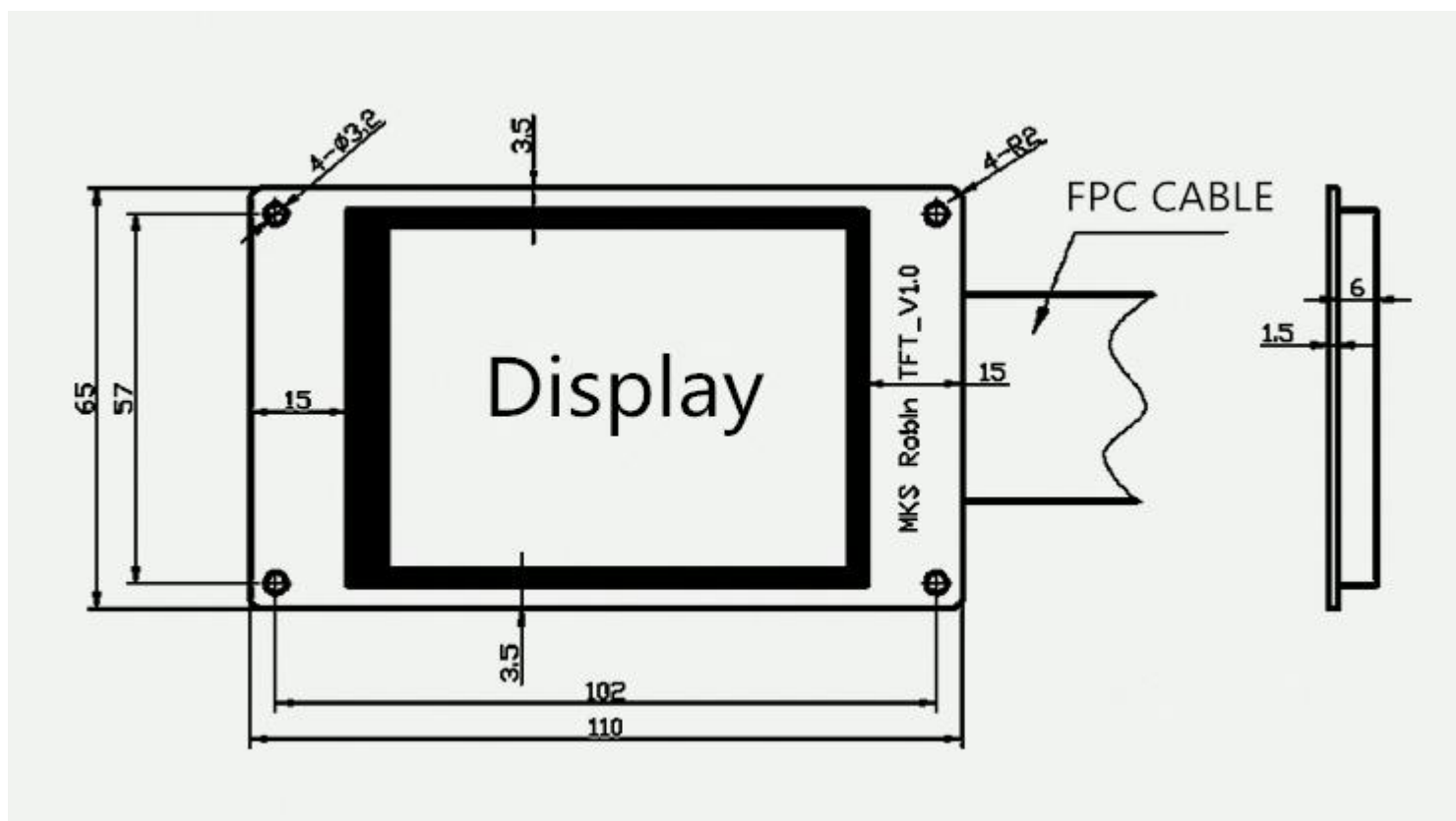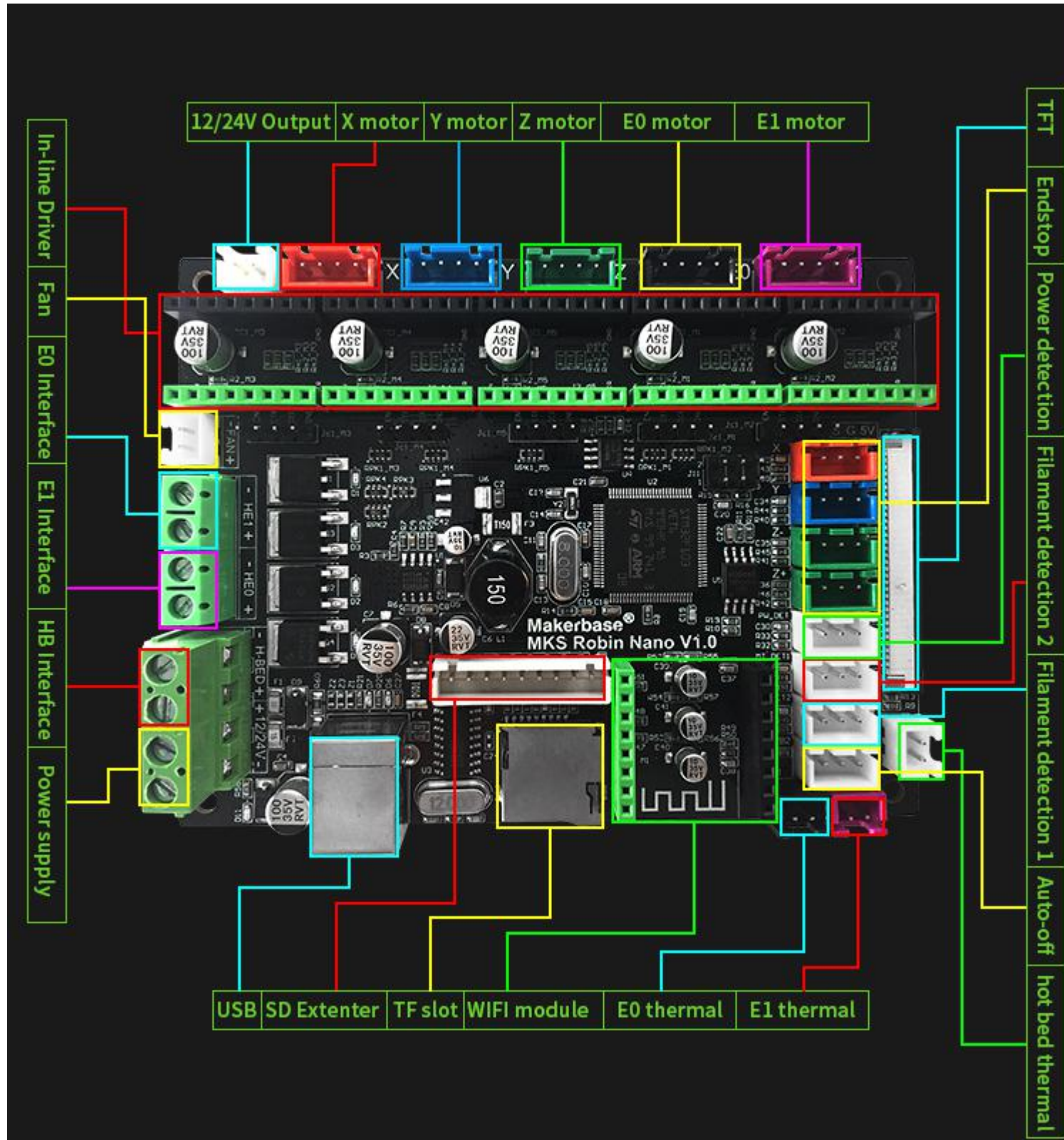
4.5 Driver and motherboard wiring diagram (note the driving direction, do not insert the reverse)
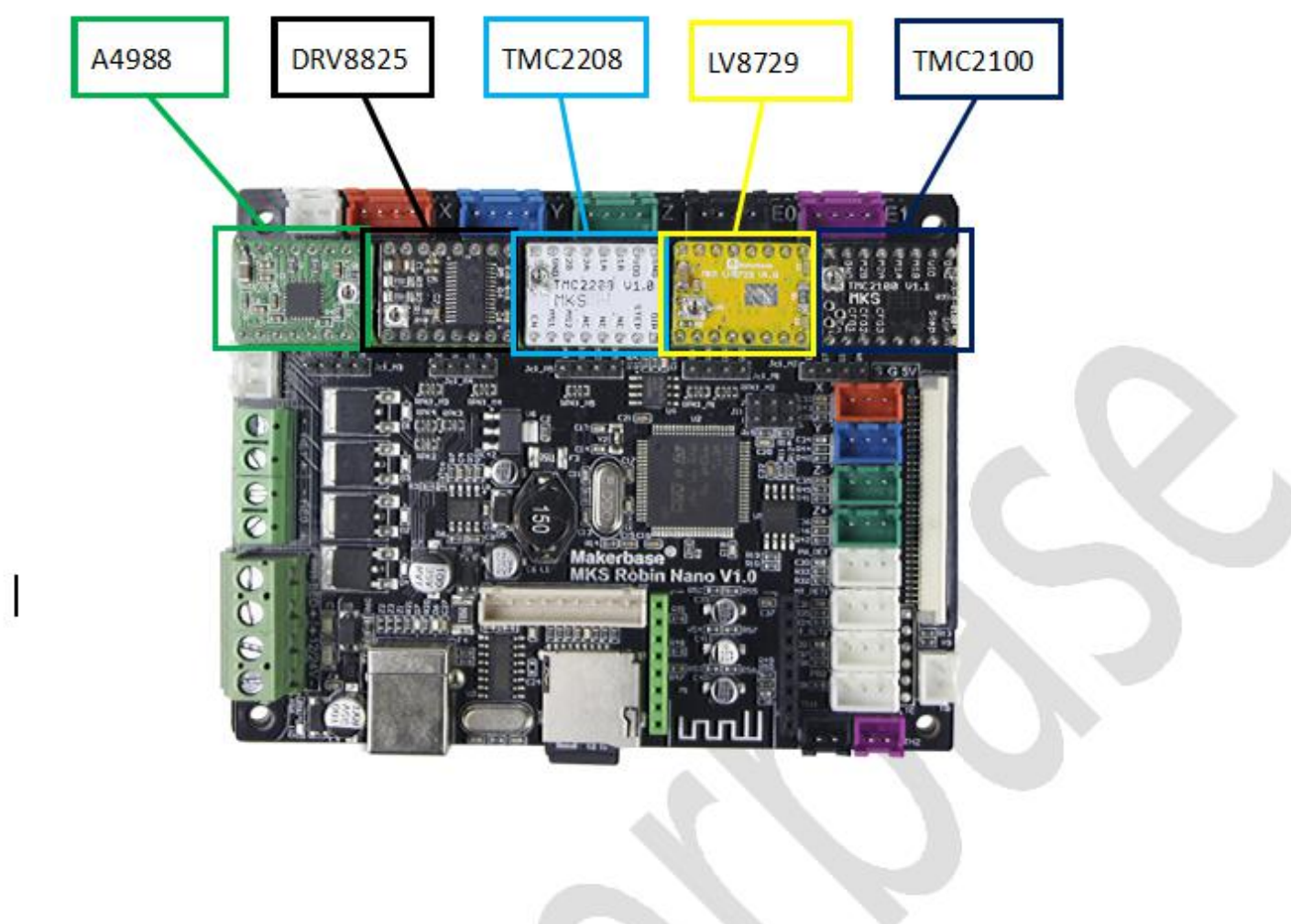
The following descriptions and descriptions of the parameters of the different drive modules are limited to the version produced by the makebase. Different manufacturers may have different

Drive subdivision table: (Motherboard subdivision jumper resistance from left to right are M1, M2, M3, respectively, where the resistance is High, the resistance is removed to Low, the motherboard defaults M1, M2, M3, are high, there are other requirements , can adjust itself).

4988 Drive subdivision table				8825 Drive subdivision table				8729 Drive subdivision table			
M1	M2	M3	Subdivision	M1	M2	M3	Subdivision	M1	M2	M3	Subdivision
Low	Low	Low	Full Step	Low	Low	Low	Full Step	Low	Low	Low	Full Step
High	Low	Low	1/2 Step	High	Low	Low	1/2 Step	High	Low	Low	1/2 Step
Low	High	Low	1/4 Step	Low	High	Low	1/4 Step	Low	High	Low	1/4 Step
High	High	Low	1/8 Step	High	High	Low	1/8 Step	High	High	Low	1/8 Step

High	High	High	1/16 Step	Low	Low	High	1/16 Step	Low	Low	High	1/16 Step
				High	Low	High	1/32 Step	High	Low	High	1/32 Step
				Low	High	High	1/32 Step	Low	High	High	1/64 Step
				High	High	High	1/32 Step	High	High	High	1/128 Step

TMC2208 driver chip internally uses a differential algorithm to extend the 16 subdivisions to 256 subdivisions. The step values are calculated according to 16 subdivisions.

It is recommended to use 16 subdivisions with a good mute effect. It can also be adjusted according to the subdivision table according to its own needs.

TMC2208 *Drive subdivision table*（No need to set M3）		
M1	M2	*Subdivision*
high	low	1/2 Step
low	high	1/4 Step
low	low	1/8 Step
high	high	1/16 Step

TMC2100 drive has a clear mute effect and the motor track runs more smoothly. The internal algorithm optimizes the setting, and the drive subdivision defaults to 16, which is not affected by the transformation of the external jumper resistance.

Default drive current and maximum current for each drive

	A4988	DRV8825	LV8729	TMC2208	TMC2100
Default current	1A	1.3A	0.8A	0.707A	0.5A
maximum current	2A	2.5A	1.5A	1.414A	1A

Formula	I=Vref/0.8	I=Vref*2	I=Vref*2	I=Vref/1.414	I=Vref*1.9/2.5

The driving current must be converted by measuring the driving voltage. To measure the driving voltage Vref, refer to the following figure.
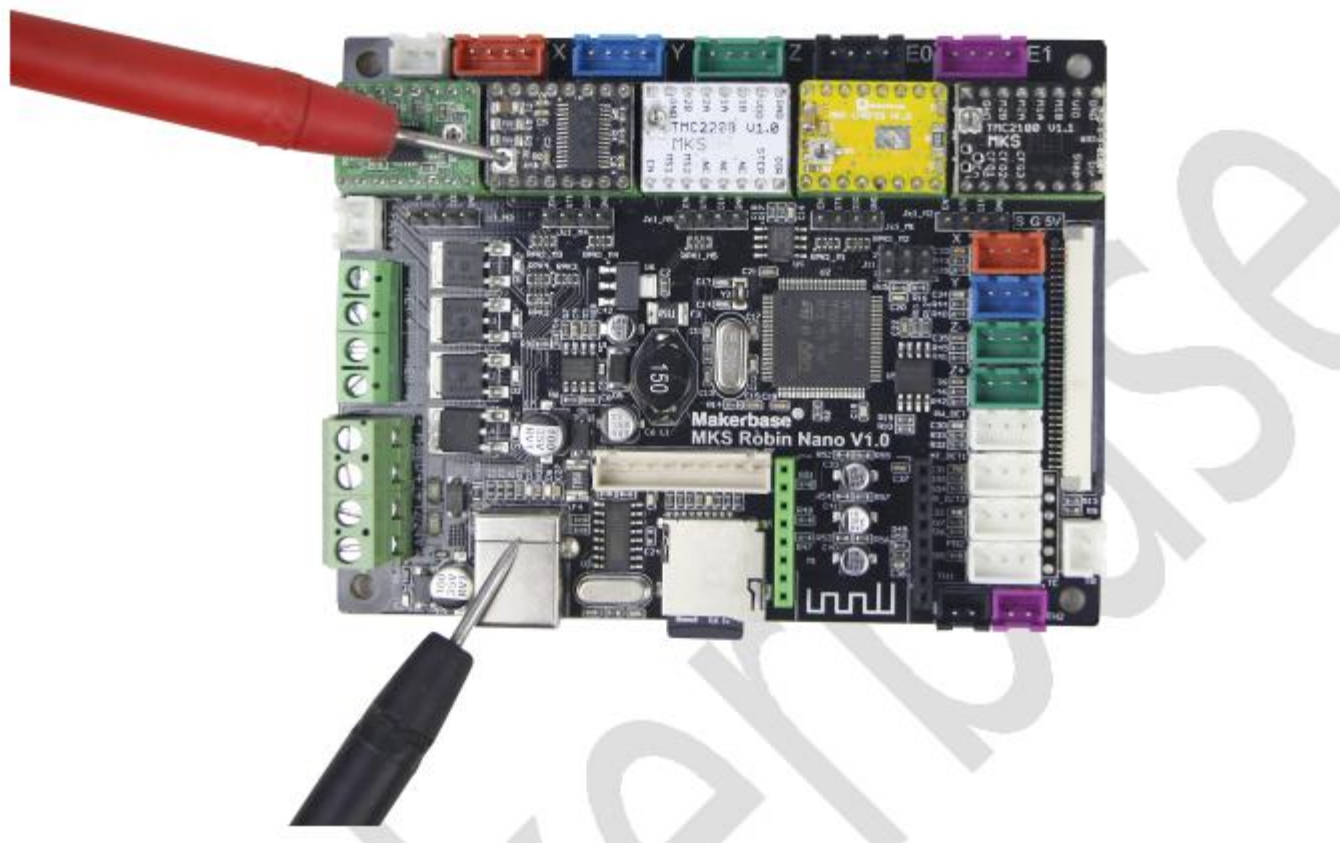
The Vref can be adjusted according to the running condition of the motor, and the upper knob can be adjusted by adjusting (clockwise to increase, counterclockwise to decrease).

Note: Before the adjustment knob, it must be done in the case of power failure. After the adjustment is completed, the power-on measurement is taken to prevent the drive from burning out.

Ⅴ.Firmware Upgrade Instructions

The factory firmware is up to date, so no updates are required.

5.1   The ways to get the MKS Robin Nano Latest Firmware.

- *Get firmware from customer service or technician*

- *Download the firmware from the makerbase discussion group.*

- *Download on Web:*

    https://github.com/makerbase-mks?tab=repositories

5.2   The methods for updating the firmware

a. Copy the latest upgrade to the SD card root directory, including:

① *Mks_font*

② *Mks_pic*

③ *Robin_nano.bin*

④ *Robin_nano_cfg.txt*

⑤ *Mkswifi.bin*
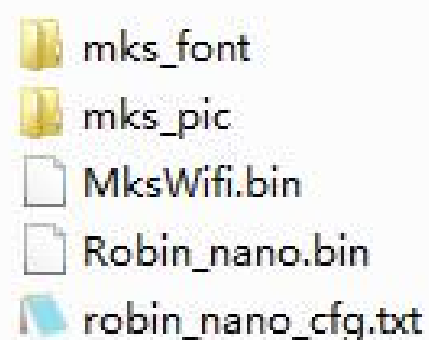
    Attention:Do not modify file names. No need to copy mkswifi.bin without WiFi module

b. Plug the SD card into the motherboard and power on,hear drops ~ ~ A short sound, touch screen display update process, and so about 30S after the completion of the update.

c. You can click" Settings--about" on the touch screen , to view current firmware information.

Ⅵ. USB driver Installation

MKS Robin nano uses CH340 drive. You can get USB driver file with customer service or technician.Click to install the

USB driver file, after the driver installation completes, will connect the Robin motherboard the USB to insert the USB

port.Right-click My Computer, select Device Management, USB port information (figure):
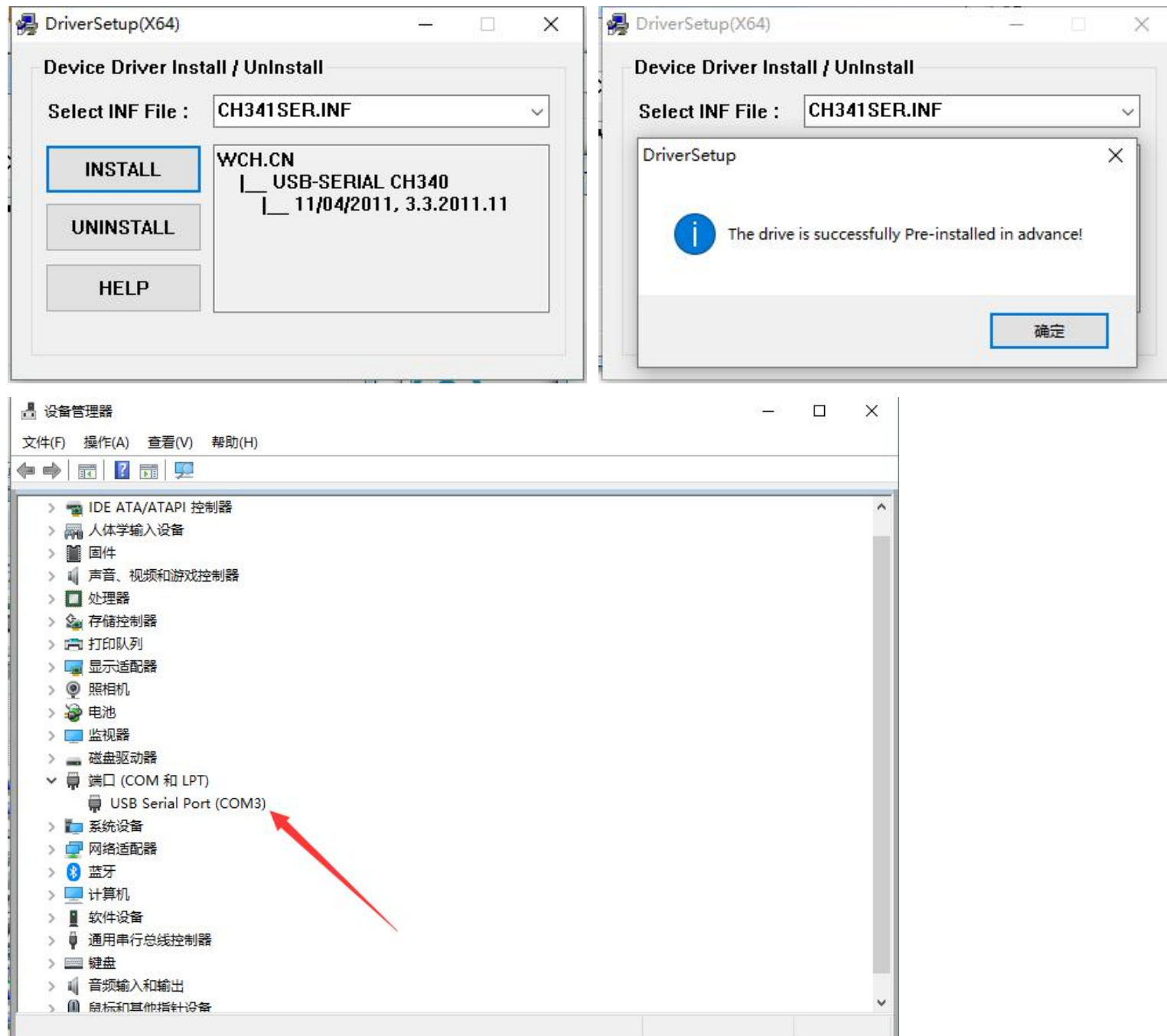
Ⅶ. Machine parameters and function configuration

7.1 Basic settings（Important, must be set）

```
#============================ Basic Settings ============================

>MACHINETPYE 0     # 0:Cartesian; 1:DELTA ; 2:COREXY

>HAS_TEMP_BED 1       # whether enable the heated bed (disable: 0, enable: 1)

>EXTRUDERS   1    #This defines the number of extruders

#enable z2.
>Z2_STEPPER_DRIVERS       0    #1:enable z_dual; 0:disable


# Travel limits after homing (units are in mm)
>X_MIN_POS 0
>Y_MIN_POS 0
>Z_MIN_POS 0
>X_MAX_POS 210
>Y_MAX_POS 210
>Z_MAX_POS 180

# position of hotend  for filament change and pause print
>FILAMENT_CHANGE_X_POS 5    # X position of hotend  for filament change and pause print
>FILAMENT_CHANGE_Y_POS 5    # Y position of hotend  for filament change and pause print
>FILAMENT_CHANGE_Z_ADD 5    # Z addition of hotend (lift) for filament change and pause print

#Offset of the second extruders.
>HOTEND_OFFSET_X 20.00     #(in mm) offset of the second hotend on the X axis ,Offsets for the first hotend must be 0.0.
>HOTEND_OFFSET_Y 5.00      #(in mm) offset of the second hotend on  the Y axis ,Offsets for the first hotend must be 0.0.
```

```
#================= Language settings =====================================
>cfg_language_adjust_type    1 #multi-language(enable:1, disable:0)

>cfg_language_type        2 #languages setting,this configuration is valid when "cfg_multiple_language" is disabled.
         #(simplified Chinese:1; traditional Chinese:2; English:3; Russian:4; Spanish:5;French:6;Italian:7).
```

```
#=========================== Thermal Settings ==========================
>TEMP_SENSOR_0   1   #1: 100k thermistor ; -3 : thermocouple with MAX31855

>EXTRUDE_MINTEMP   170
>HEATER_0_MINTEMP  5
>HEATER_0_MAXTEMP 275
>HEATER_1_MINTEMP  5
>HEATER_1_MAXTEMP 275
>BED_MAXTEMP      150

#===================== Thermal Runaway Protection =====================
>THERMAL_PROTECTION_PERIOD    40    #Seconds
>THERMAL_PROTECTION_HYSTERESIS   4    #Degrees Celsius
>WATCH_TEMP_PERIOD        20  #Seconds
>WATCH_TEMP_INCREASE       2 #Degrees Celsius
>THERMAL_PROTECTION_BED_PERIOD     20    #Seconds
>THERMAL_PROTECTION_BED_HYSTERESIS   2 #Degrees Celsius
>WATCH_BED_TEMP_PERIOD       60    #Seconds
>WATCH_BED_TEMP_INCREASE    2    #Degrees Celsius
```

Note: The thermal end interface on the motherboard should be connected to the thermal, otherwise an "error"

prompt will appear.

7.2 Function setting

```
#============================= Stepper Motor Settings =============================
#Invert the stepper direction.
>INVERT_X_DIR          1
>INVERT_Y_DIR          0
>INVERT_Z_DIR          1
>INVERT_E0_DIR       0
>INVERT_E1_DIR       0

#Movement setting
>DEFAULT_X_STEPS_PER_UNIT   80.6   #Default Axis-X Steps Per Unit (steps/mm)
>DEFAULT_Y_STEPS_PER_UNIT 80.4   #Default Axis-Y Steps Per Unit (steps/mm)
>DEFAULT_Z_STEPS_PER_UNIT 400 #Default Axis-Z Steps Per Unit (steps/mm)
>DEFAULT_E_STEPS_PER_UNIT 90  #Default Axis-E Steps Per Unit (steps/mm)

>DEFAULT_X_MAX_FEEDRATE    200 #Default Axis-X Max Feed Rate (mm/s)
>DEFAULT_Y_MAX_FEEDRATE    200 #Default Axis-Y Max Feed Rate (mm/s)
>DEFAULT_Z_MAX_FEEDRATE    4 #Default Axis-Z Max Feed Rate (mm/s)
>DEFAULT_E_MAX_FEEDRATE    70  #Default Axis-E Max Feed Rate (mm/s)

>DEFAULT_X_MAX_ACCELERATION   1000  #Default Axis-X Max Acceleration (change/s) change = mm/s
>DEFAULT_Y_MAX_ACCELERATION   1000  #Default Axis-Y Max Acceleration (change/s) change = mm/s
>DEFAULT_Z_MAX_ACCELERATION   100 #Default Axis-Z Max Acceleration (change/s) change = mm/s
>DEFAULT_E_MAX_ACCELERATION   1000  #Default Axis-E Max Acceleration (change/s) change = mm/s

>DEFAULT_ACCELERATION     1000  #X, Y, Z and E acceleration for printing moves
>DEFAULT_RETRACT_ACCELERATION   1000   #X, Y, Z and E acceleration for retracts
>DEFAULT_TRAVEL_ACCELERATION  1000   #X, Y, Z acceleration for travel (non printing) moves
>DEFAULT_MINIMUMFEEDRATE 0.0  #minimum feedrate
>DEFAULT_MINSEGMENTTIME       20000 #minimum time in microseconds that a movement needs to take if the buffer is emptied.
>DEFAULT_MINTRAVELFEEDRATE  0.0  #

>DEFAULT_XJERK         20.0   #Default Axis-X Jerk (mm/s)
>DEFAULT_YJERK         20.0   #Default Axis-Y Jerk (mm/s)
>DEFAULT_ZJERK         0.4  #Default Axis-Z Jerk (mm/s)
>DEFAULT_EJERK         5.0  #Default Axis-E Jerk (mm/s)


#============================= Endstop  Settings =============================

>MIN_SOFTWARE_ENDSTOPS  1         # 0:axes can move below MIN_POS;  1:axes won't move below MIN_POS.
>MAX_SOFTWARE_ENDSTOPS   1          # 0:axes can move below  MAX_POS;  1:axes won't move below MIN_POS.

# Mechanical endstop with COM to ground and NC to Signal uses "false" here (most common setup).
>X_MIN_ENDSTOP_INVERTING 0   # set to true to invert the logic of the endstop.
>Y_MIN_ENDSTOP_INVERTING 0   # set to true to invert the logic of the endstop.
>Z_MIN_ENDSTOP_INVERTING 0   # set to true to invert the logic of the endstop.
>X_MAX_ENDSTOP_INVERTING 1    # set to true to invert the logic of the endstop.
>Y_MAX_ENDSTOP_INVERTING 1    # set to true to invert the logic of the endstop.
>Z_MAX_ENDSTOP_INVERTING 1    # set to true to invert the logic of the endstop.
>FIL_RUNOUT_INVERTING   0    # set to true to invert the logic of the Filament Runout Sensor.

# Specify here all the endstop connectors that are connected to any endstop or probe.
>USE_XMIN_PLUG  1    # 1:used; 0:noused
>USE_YMIN_PLUG  1    # 1:used; 0:noused
>USE_ZMIN_PLUG  1    # 1:used; 0:noused
>USE_XMAX_PLUG 0    # 1:used; 0:noused
>USE_YMAX_PLUG 0    # 1:used; 0:noused
>USE_ZMAX_PLUG 1    # 1:used; 0:noused


#============================= Home Settings =============================

>X_HOME_DIR -1         # Direction of endstops when homing; 1=MAX, -1=MIN :[-1,1]
>Y_HOME_DIR -1         # Direction of endstops when homing; 1=MAX, -1=MIN :[-1,1]
>Z_HOME_DIR -1         # Direction of endstops when homing; 1=MAX, -1=MIN :[-1,1]
>HOMING_FEEDRATE_XY 2400         # Homing X Y speeds (mm/m)
>HOMING_FEEDRATE_Z  600          # Homing Z speeds (mm/m)
>HOME_Y_BEFORE_X 0     # When G28 is called,0: X home before Y; 1: Y home before X
```

A. Motor direction: After the point back 0, if the direction of the reverse direction, then modify 1 or 0;

B. Pulse value：The pulse value of 1mm for each axis is calculated, and the formula for calculating the pulse value of each shaft motor is as follows:

Formula of pulse number/mm of synchronous wheel motor:（**360÷step angle**）**×Subdivision÷**（**Diameter×3.14**）

The formula of the pulse number/mm of The screw rod Motor:（**360÷step angle**）**×Subdivision÷lead**

C. endstops type: The endstop switch is divided into two types: normally open and normally closed, 1 is normally open and 0 is normally closed;

D. Enable the endstop of each axis: the endstop switch triggered when returning to zero, generally XYZ is the minimum limit, and delta is the maximum limit;

E. Enable the software limit of each axis: the maximum travel set in the configuration file, the maximum travel cannot be exceeded when moving.

F. Homing direction: Set according to where the machine's endstop switch is installed on the machine. For example, the endstop switch of the x-axis is placed on the left side of the x-axis, then the homing direction is the minimum value returning to zero.

7.3   Delta Settings

```
#============================== Delta Settings ==============================
>DELTA_SEGMENTS_PER_SECOND   40      #--default
>DELTA_DIAGONAL_ROD     346.75  #Center-to-center distance of the holes in the diagonal push rods.
>DELTA_SMOOTH_ROD_OFFSET 211.5   #Horizontal offset from middle of printer to smooth rod center.
>DELTA_EFFECTOR_OFFSET      28    #Horizontal offset of the universal joints on the end effector.
>DELTA_CARRIAGE_OFFSET     14.5  #Horizontal offset of the universal joints on the carriages.
>DELTA_RADIUS           169  #Horizontal distance bridged by diagonal push rods when effector is centered.
>DELTA_HEIGHT           302  #height from z=0.00 to home position
>DELTA_PRINTABLE_RADIUS      125  #Print surface diameter/2 minus unreachable space (avoid collisions with vertical towers).
>DELTA_CALIBRATION_RADIUS   100  #set the radius for the calibration probe points - max 0.8 * DELTA_PRINTABLE_RADIUS
```

The parameter corresponding to the serial number in the picture

(1). >DELTA_PRINTABLE_RADIUS

(2).>DELTA_DIAGONAL_ROD

(3).>DELTA_EFFECTOR_OFFSET

(4).>DELTA_CARRIAGE_OFFSET

(5).>DELTA_RADIUS
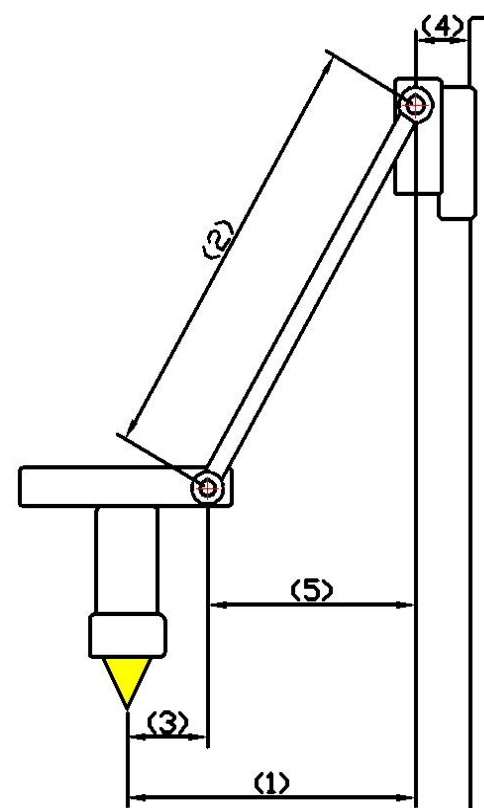
7.4 Bed Leveling Setting

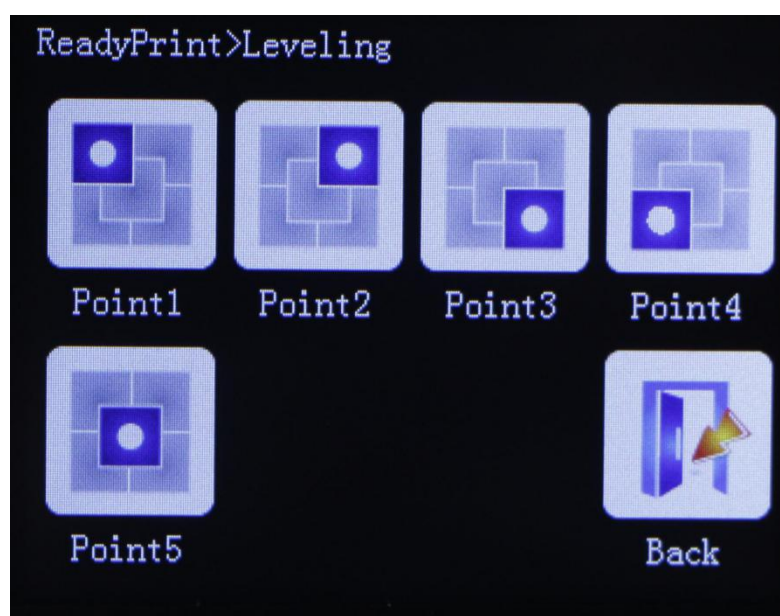*types of leveling: manual leveling and automatic leveling*

```
#========================= Bed Leveling =============================
#Leveling mode settings
>cfg_leveling_mode       0        #1:auto-leveling; 0:manual leveling
```

7.4.1 Manual leveling

```
#========================= Manual Leveling ==============================

>cfg_point_number       5        #the point number of manual leveling(3,4,5 point available)

#the 5 point location of  manual leveling
>cfg_point1:50,50
>cfg_point2:180,50
>cfg_point3:180,180
>cfg_point4:50,180
>cfg_point5:100,100
```


7.4.2 Auto leveling

```
#========================= Bed Leveling =============================
#Leveling mode settings
>cfg_leveling_mode       1        #1:auto-leveling; 0:manual leveling
```

```
#============================== Z Probe Options ==============================

#Select for a probe connected to Z-Min or Z-Max.
>Z_MIN_PROBE_PIN_MODE    2  # 0 : NULL; 1: ZMIN; 2: ZMAX

>Z_PROBE_OFFSET_FROM_EXTRUDER  0  # Z offset: -below +above  [the nozzle]
>X_PROBE_OFFSET_FROM_EXTRUDER  0  # X offset: -left  +right  [of the nozzle]
>Y_PROBE_OFFSET_FROM_EXTRUDER  0  # Y offset: -front +behind [the nozzle]
>XY_PROBE_SPEED      4000 # X and Y axis travel speed (mm/m) between probes
>Z_PROBE_SPEED_FAST      600  # Speed for the first approach when double-probing (with PROBE_DOUBLE_TOUCH)
>Z_PROBE_SPEED_SLOW      300  # Speed for the "accurate" probe of each point


#============================== Bed Leveling ==============================

>BED_LEVELING_METHOD      0  # 0:NULL_BED_LEVELING; 3:AUTO_BED_LEVELING_BILINEAR; 5:MESH_BED_LEVELING

>GRID_MAX_POINTS_X      3  # the number of grid points per dimension. <= 15
>GRID_MAX_POINTS_Y      3  # the number of grid points per dimension. <= 15
>Z_CLEARANCE_DEPLOY_PROBE  20    # Z Clearance for Deploy/Stow    > 0
>Z_CLEARANCE_BETWEEN_PROBES 20   # Z Clearance between probe points  > 0

# Set the boundaries for probing (where the probe can reach).
>LEFT_PROBE_BED_POSITION  30
>RIGHT_PROBE_BED_POSITION    180
>FRONT_PROBE_BED_POSITION  30
>BACK_PROBE_BED_POSITION    180

>MESH_INSET        20    # Mesh inset margin on print area for MESH_BED_LEVELING
```

## 7.5   Filament change function

Filament change function: It is convenient for you to replace the consumables. You can also use the refueling function to configure the reversing head rotation speed and the minimum temperature in the configuration file during the printing midpoint pause, as shown below;

```
>cfg_filament_load_length      100        #the lenght to extrude filament (mm),Max:2000mm
>cfg_filament_load_speed      800        #the speed to extrude filament(mm/min)
>cfg_filament_load_limit_temperature  200      #It is the minimum temperature to extrude filament .

>cfg_filament_unload_length      100      #It is the minimum temperature to extrude filament .
>cfg_filament_unload_speed      800      #the speed to retract filament(mm/min)
>cfg_filament_unload_limit_temperature  200      #It is the minimum temperature to retract filament .
```

Printing>Operation>Filame

E1: 27/0

Load

Unload

Extrusion1

Back
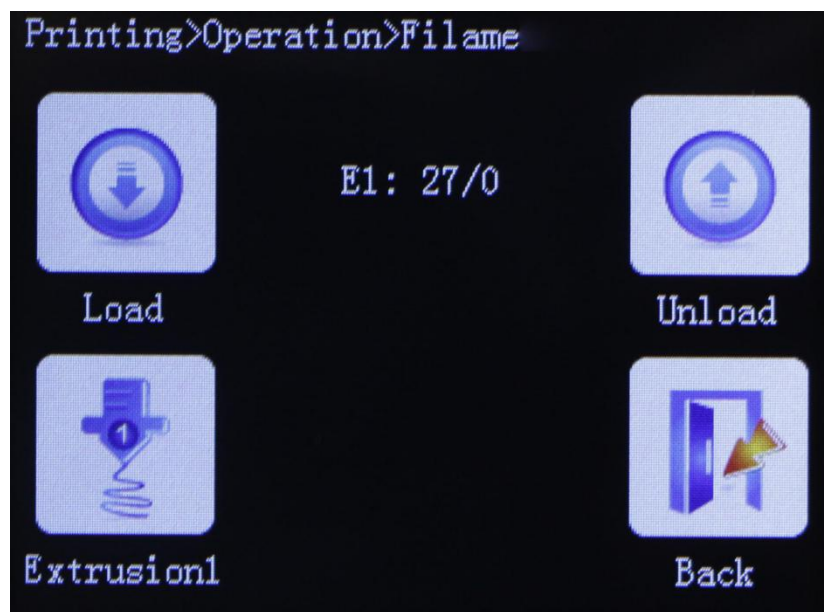
7.6   Filament Detecting
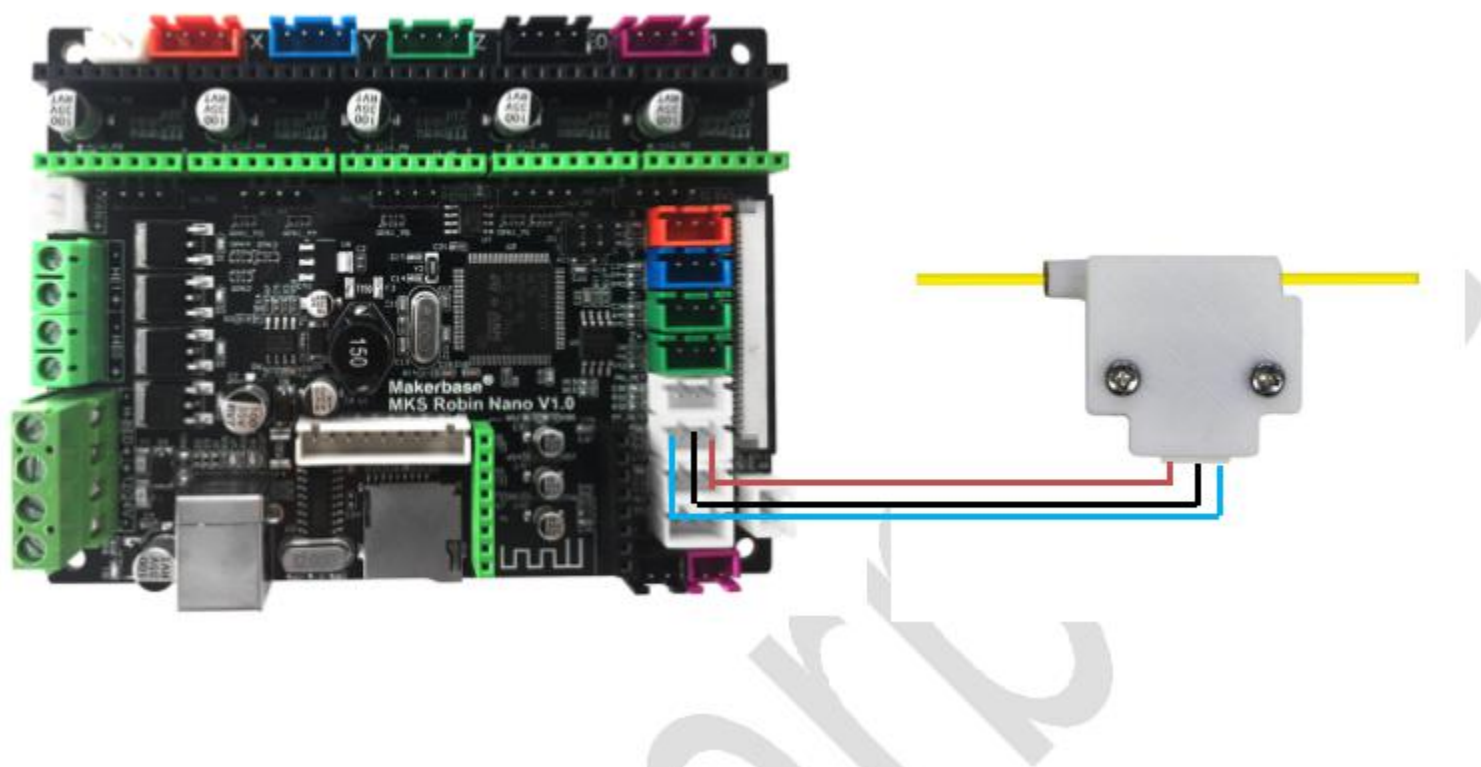
7.7   Power off recovery

The motherboard function itself has a breakpoint continuous function. If you want higher requirements, you can add UPS power for the following reasons:

1.   No UPS Power

1.1 A sudden power outage during the printing process, machine can continue to print from the power off. (due to power failure can not drive the motor, the print head will still remain on the model, may cause defects in the model, if the need for more complete power off processing, the need for power detection module and UPS).

2.   Have ups Power
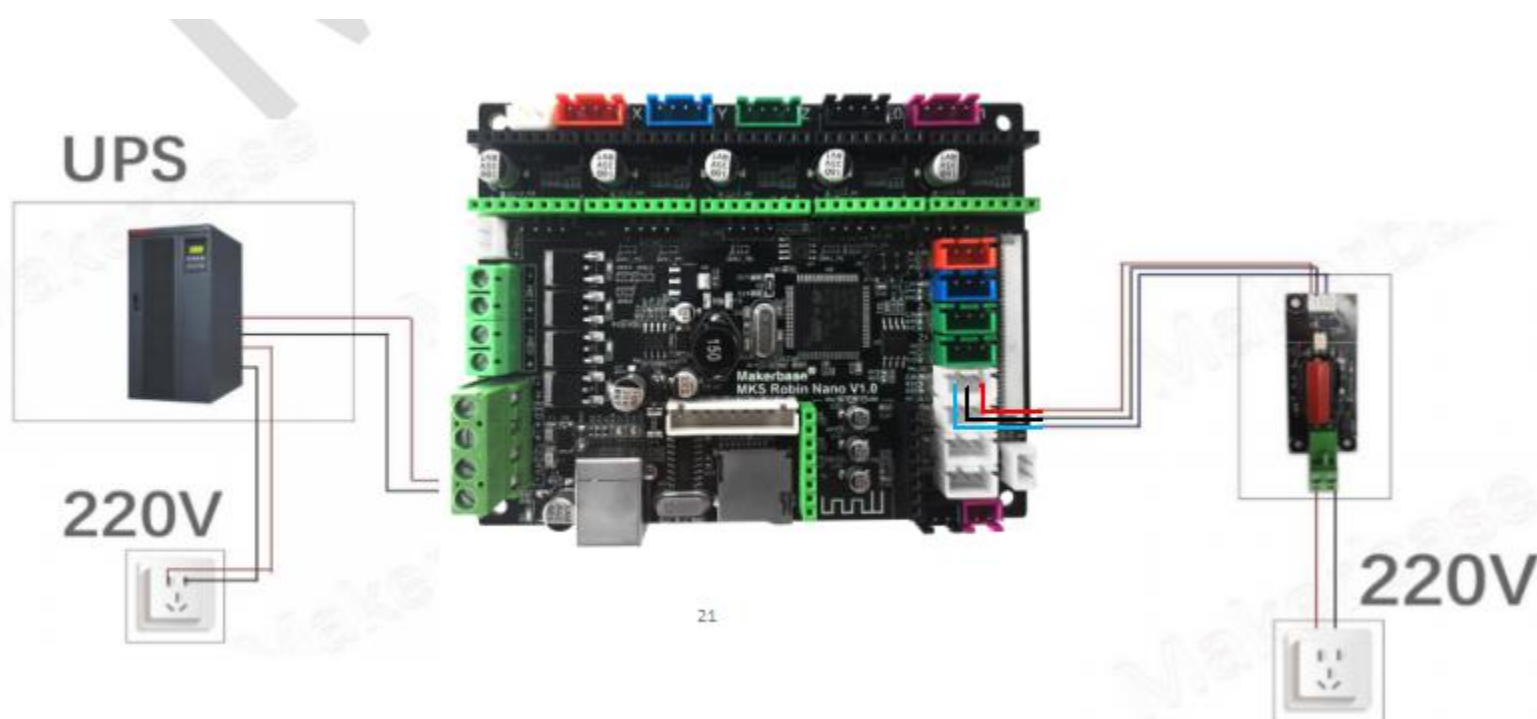
7.8 Auto off after print finish function

Robin nano motherboard needs to cooperate with the shutdown module to complete the shutdown function, and open the shutdown configuration in the configuration file, and also need to click the "auto power off" button on the screen to complete the shutdown.

```
>cfg_print_over_auto_close          1          # auto-off when print finishes(1:yes; 0:no)
```


7.9 Breakpoints recovery

When you spend most of your time printing a model, the careless error operation causes the print to stop, but does not want to waste the printed model. Then you can use the breakpoint to continue to play the function, save your beloved model. The following illustration requires that you follow these steps

1. First click "Preheat", the extrusion head and hot bed target temperature set (no hot bed can ignore the hot bed target temperature).as Figure 1

2. When the temperature reaches the target temperature, click "homing", choose to homing, so that the axes are back to home point.(Attention:Model printing failure to select Breakpoints recovery the operation between the Midway, if there is a power outage must be homing operation, such as continuous electricity can not return to home point operation).as Figure 2

3. After the axis back to home points, move the z axis will touch the mouth to stop printing of the layer, such as Figure 3, Figure 4, the time to test eyesight (can be selected in the configuration file to allow error, the following figure

```
#set error range of Z-axis on breakpoints recovery
>cfg_breakpoint_z_error:0.2
```

4 .Point setting, click on the breakpoint recovery and select the file to be printed on the breakpoint recovery, as shown in Figure 5, figure 6.

5 . After you select the file, wait for it to print.as Figure 7.

(After selecting the model, the larger the model, the more complex it is, the longer it waits here.)

The steps of breakpoints recovery:

Ⅷ. The network printing function

MKS Robin nano uses the network printing features, just add the Robin wifi module, wifi configuration in the configuration file, and then use the Mkscould mobile phone app to connect the WiFi module, it can be printed through the app control machine.

8.1   The introduction of printing mode

1. **Cloud Print Mode:** *Recommended for use in a WiFi router environment with Internet access. Once you have a network connection to the WiFi module, the printer becomes the online printer on the cloud.Access to the app or control printer anywhere in the world. can also be in the local area network through the host computer (Printrun, etc.) to control the printer.*

2. **LAN Print Mode:** *Recommended in the case of a WiFi router, but the router is not available on the Internet or the network is slow (the cloud Print mode printer responds too slowly).*

3 . **AP printing mode:***When the printer is in an environment where there is no WiFi router, the WiFi module is not configured, the WiFi module is configured, but the network environment is not good enough to connect to the router, the above three cases are entered by default.At this time the WiFi module will produce hot "mkswifi-xxxx" (open hotspot, no password), you can access the hotspot through the app, browser, host computer (Printrun, etc.) to control the printer.*
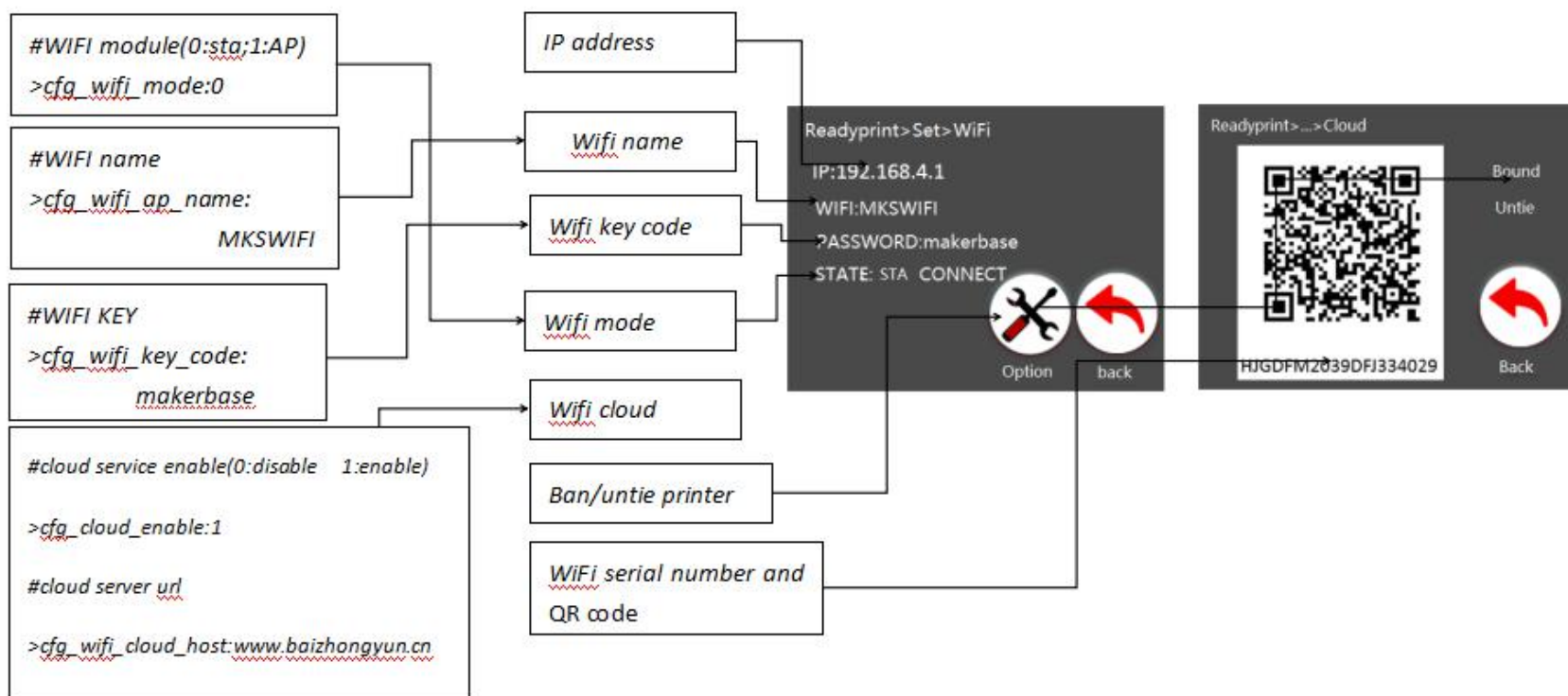
Attention:

1. *Scan QR code to bind*

2. *If the router is off or the signal is bad, WiFi mode automatically jumps back to AP mode, and when the router signal is ready, it will change back to the STA format previously set.*

3. *Only in STA mode can bind the cloud printer;*

4. *You can modify the WiFi mode through the computer Web, or change it through a configuration file.*

8.2   Cloud Print Mode

1.Network Diagram
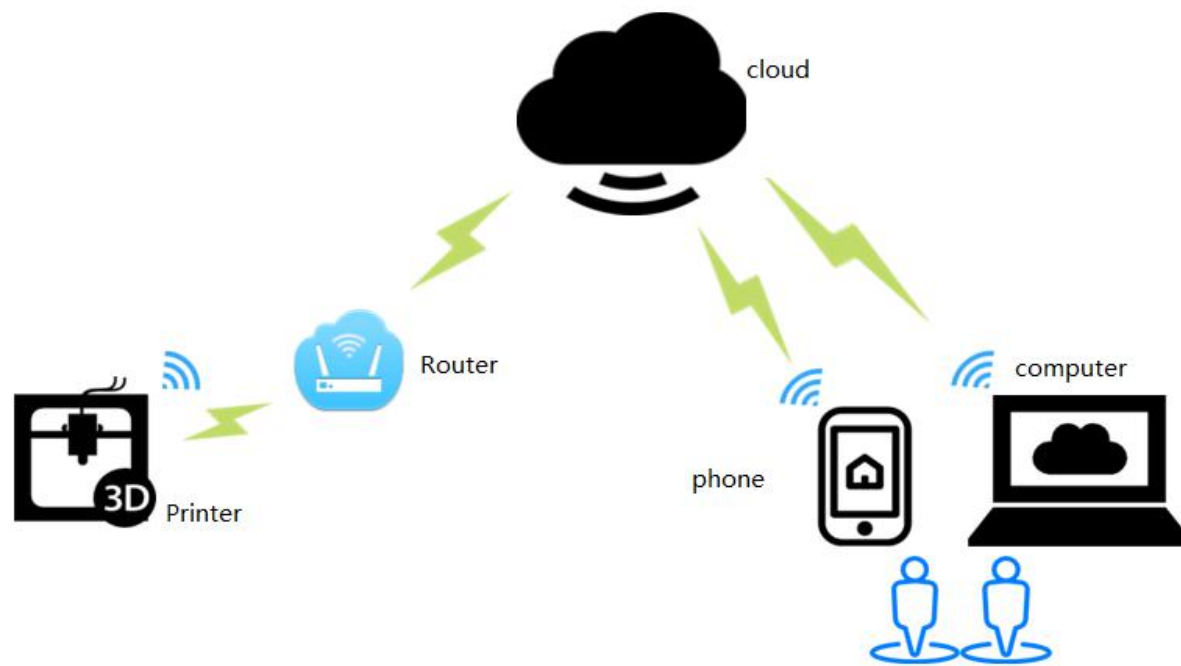
Features: Can control printers anywhere in the world by app.

2. WiFi setting

2.1 MKS Robin nano-wifi Configuration

The WiFi configuration options in the configuration file are shown in the following table:

Robin_nano_cfg.txt	Description
#wifi mode(0:sta;1:ap) >CFG_WIFI_MODE 0	Set WiFi mode to STA mode
#wifi name >CFG_WIFI_AP_NAME MKSWIFI	Set the WiFi name to the name of the router you want to connect to
#wifi password >CFG_WIFI_KEY_CODE MAKERBASE	Set the WiFi password to the router password you want to connect to
#cloud service enable(0:disable 1:enable) >cfg_cloud_enable:1 #cloud server url >cfg_wifi_cloud_host:www.baizhongyun.cn #cloud server port >cfg_cloud_port:10086	The default settings can be

3. Firmware update

3.1 Copy the latest upgrade program to the SD card root directory,, upgrade procedures include:

Configuration file：robin_nano_cfg.txt

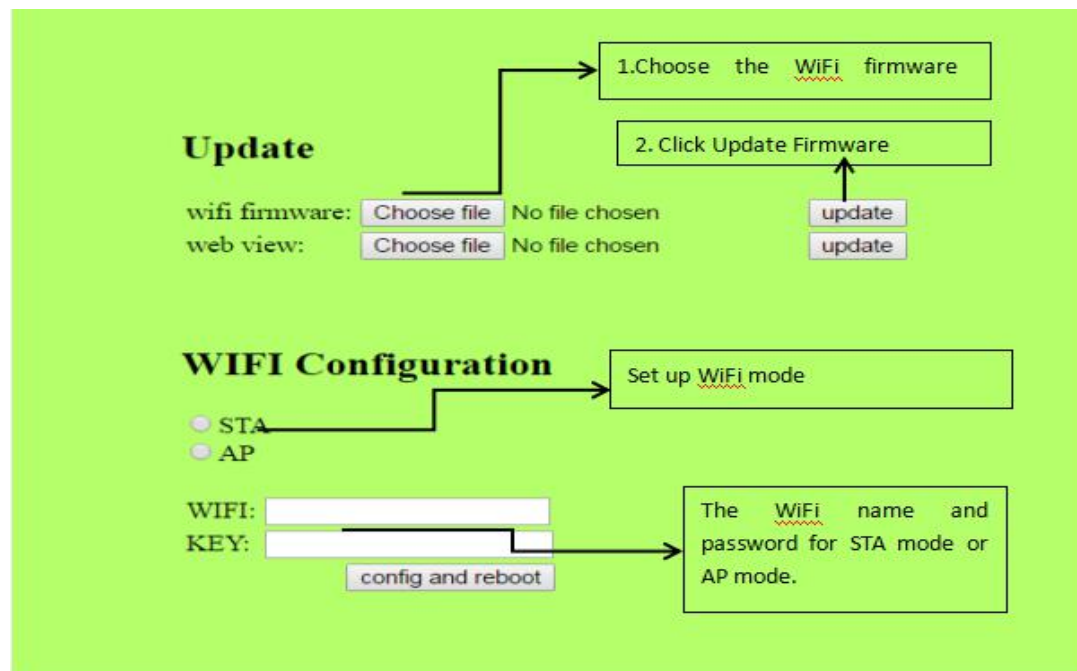Motherboard firmware：robin_nano.bin

WiFi firmware：MksWiFi.bin

3.2 Update Considerations

A. *The filename is not modifiable, or it will cause an update failure;*

B. *After the successful upgrade of the program, the filename will change;*

C. The current motherboard firmware and WiFi firmware version number can be viewed in the about.

3.3 WIFI firmware update can also be updated through the web side, in the same LAN, in the Computer browser input IP address, access to the Web page update firmware interface, the following figure:
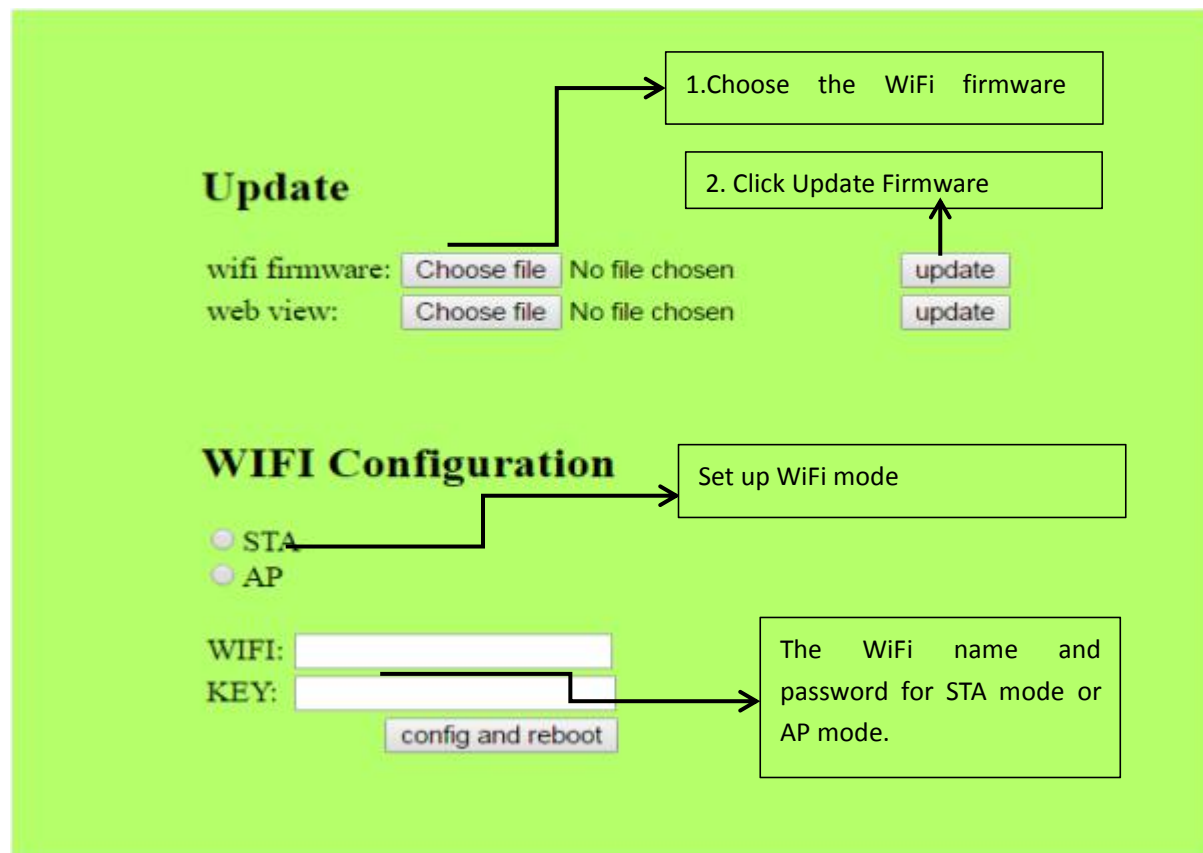

4. APP print
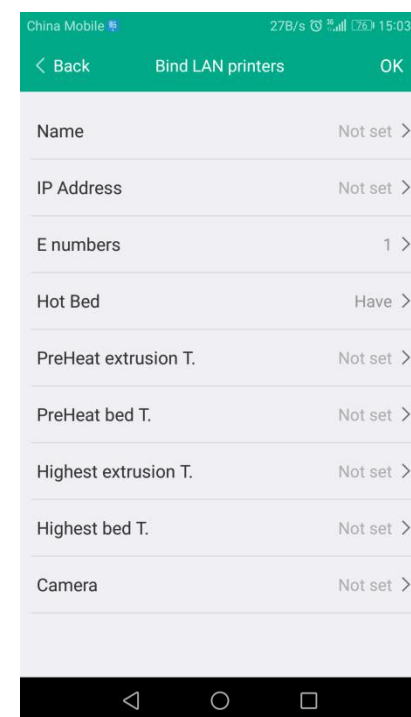
① Download MKSCloud App
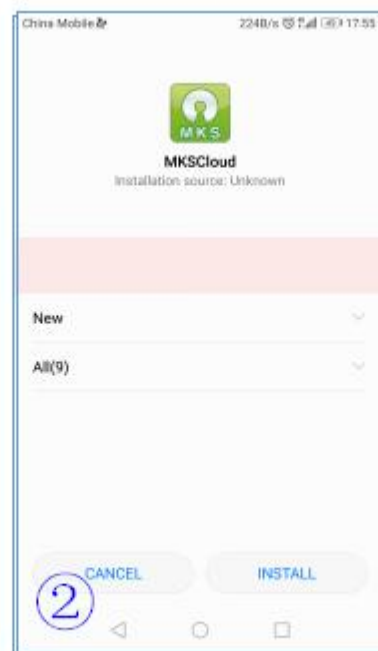
② Installation

③ login

⑥ Model Preview Interface

⑤ Printer bindings
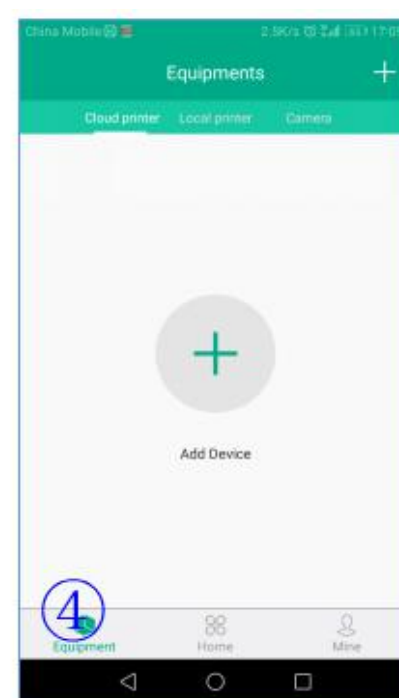
④ Add Printer page
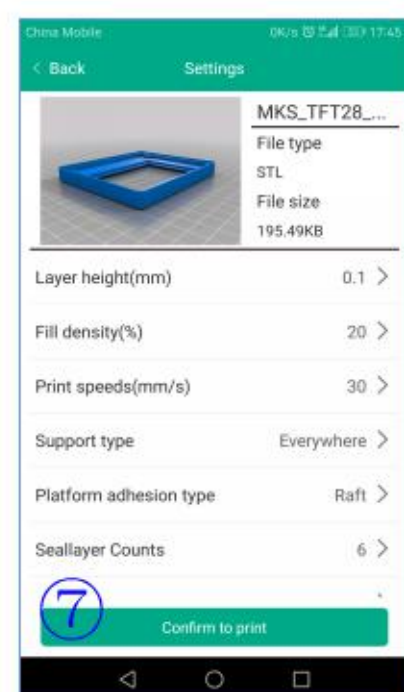
⑦ Adjust the Print Parameters page

⑧ Printing pages

⑨ Print complete

8.3 LAN Print mode

1.Network Diagram

Features: Can control printer in LAN

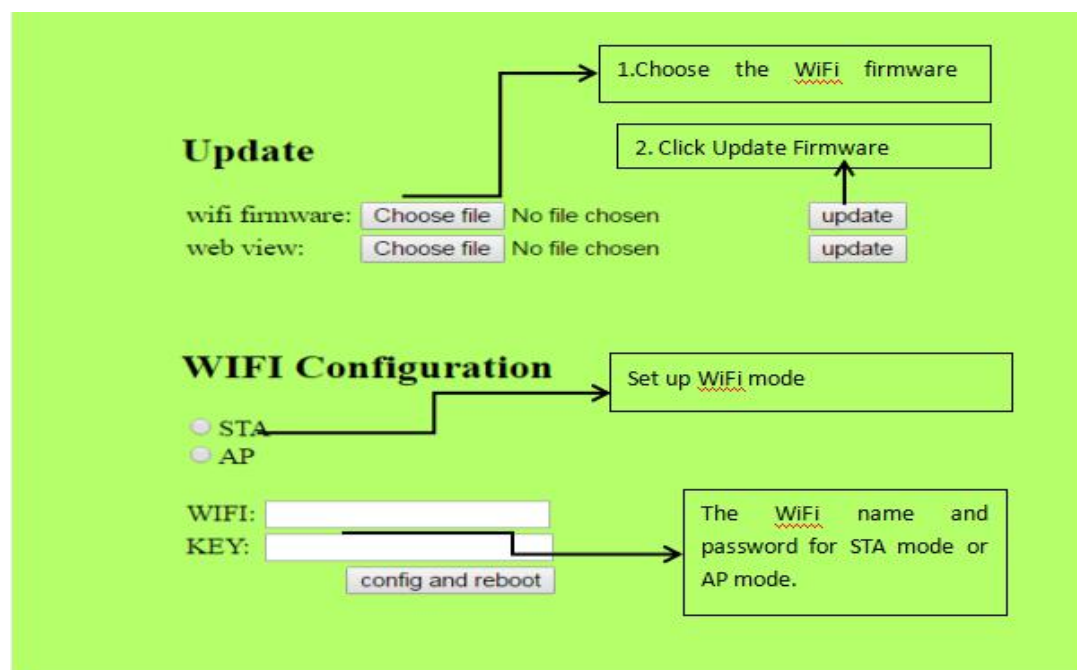| Robin_nano_cfg.txt	Description
#wifi mode(0:sta;1:ap) >CFG_WIFI_MODE 0	Set WiFi mode to STA mode
#wifi name >CFG_WIFI_AP_NAME MKSWIFI	Set the WiFi name to the name of the router you want to connect to
#wifi password >CFG_WIFI_KEY_CODE MAKERBASE	Set the WiFi password to the router password you want to connect to
#cloud service enable(0:disable 1:enable) >cfg_cloud_enable:0 #cloud server url >cfg_wifi_cloud_host:www.baizhongyun.cn #cloud server port >cfg_cloud_port:10086	It is recommended to disable the cloud services,when LAN control. Other parameters can be used by default.

3   Firmware update

3.1   Copy the latest upgrade program to the SD card root directory, upgrade procedures include:

Configuration file：robin_nano_cfg.txt

Motherboard firmware：robin_nano.bin

WiFi firmware：MksWiFi.bin

3.2   Attention matters

A. The filename is not modifiable, or it will cause an update failure;

B. After the successful upgrade of the program, the filename will change;

C. Can view the current motherboard firmware and WiFi firmware version number in the about inside;

3.3 WiFi firmware update can also be updated through the web side, in the same LAN, in the Computer browser

input IP address, access to the Web page update firmware interface, the following figure:

3. *APP print*
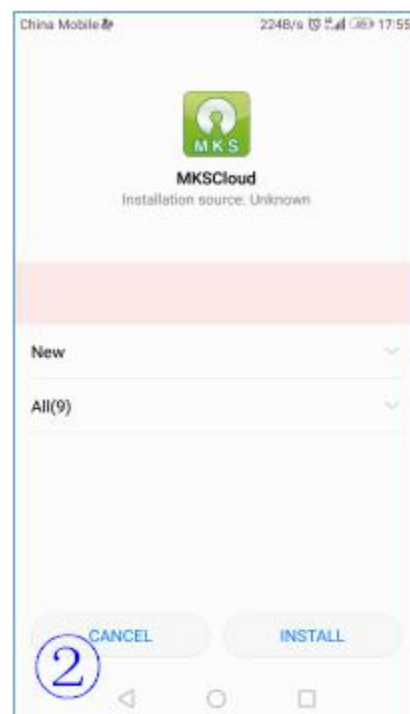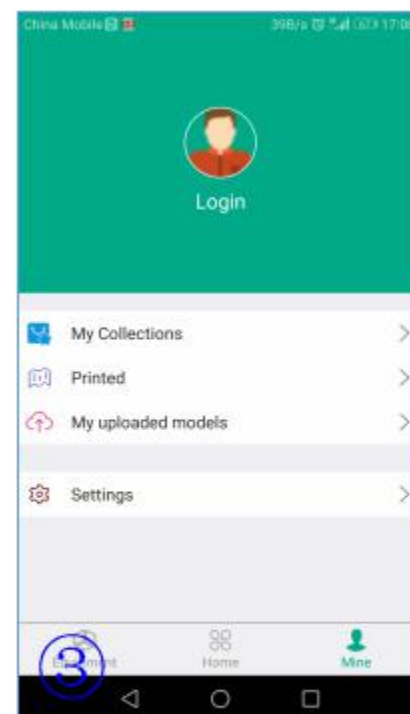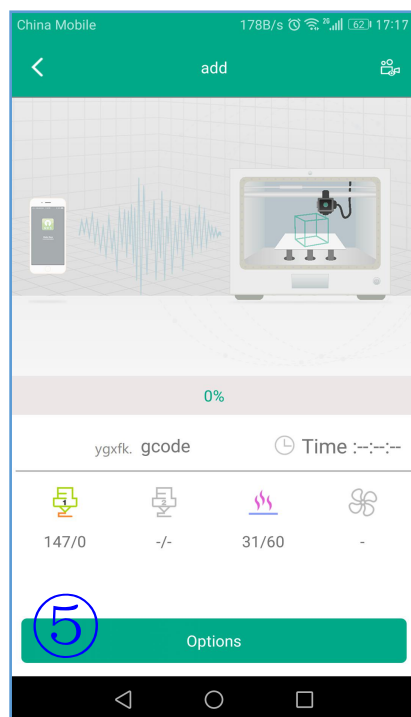
Printing interface   choose the file   add the printer

4. Upper Computer Printing

4.1 pringtrun printing
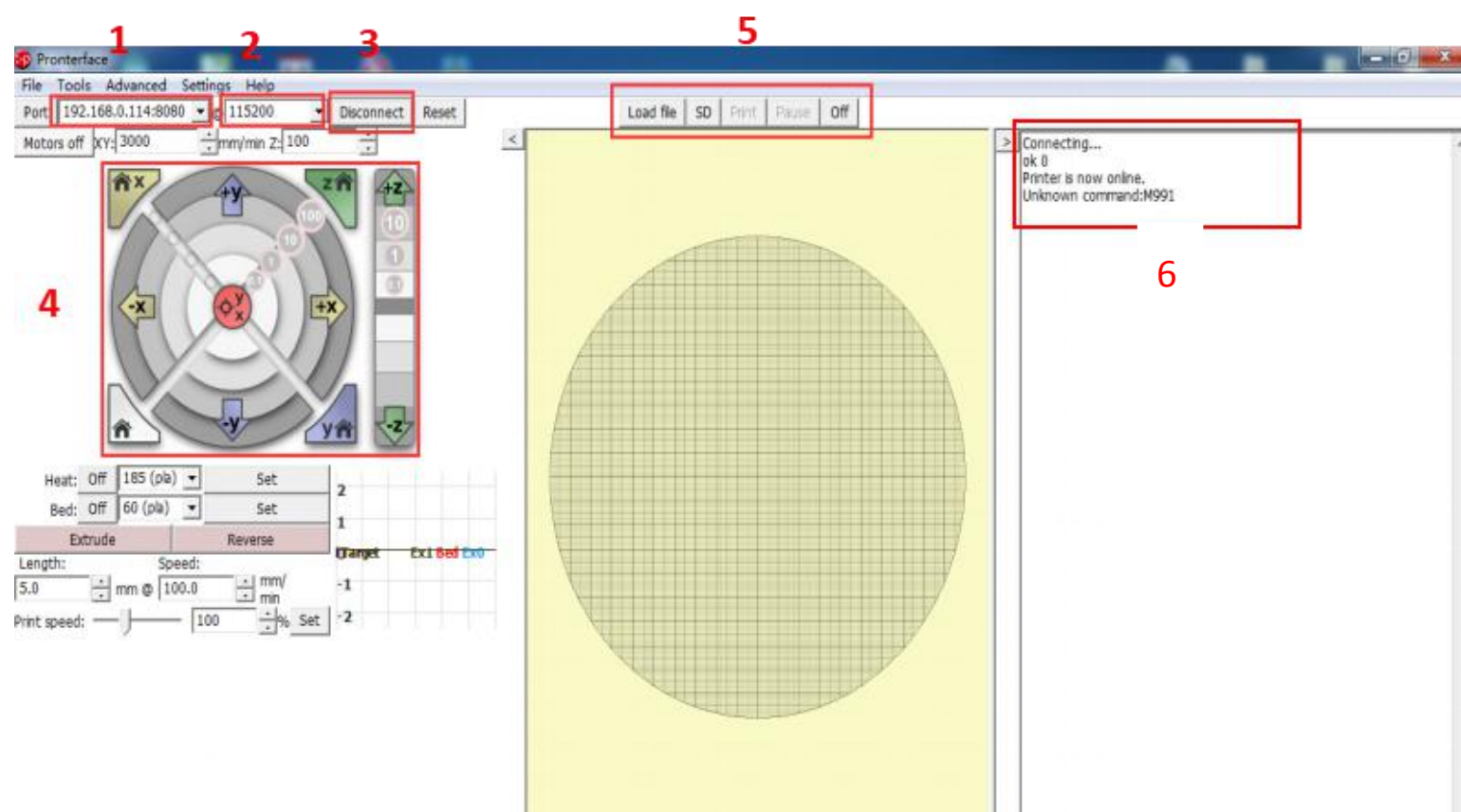
1. Here fill in "IP address +:8080", IP address can be in the set "WiFi" view, such as the above image of the IP address of 192.168.0.114, so fill in as: 192.168.0.114:8080;

2. Baud rate selection is 115200 (same as the baud rate of the motherboard, modified according to the actual situation)

3. The button of connect and disconnect.

4. After the icon color becomes darker, the connection is successful;

5. choose SD file printing or select the computer file printing (select the computer file printing is a command transmission printing, so the printing effect is not good, and unstable, do not recommend this method)

6. View information about the printer feedback.

8.4 AP print mode

1. Network Diagram:
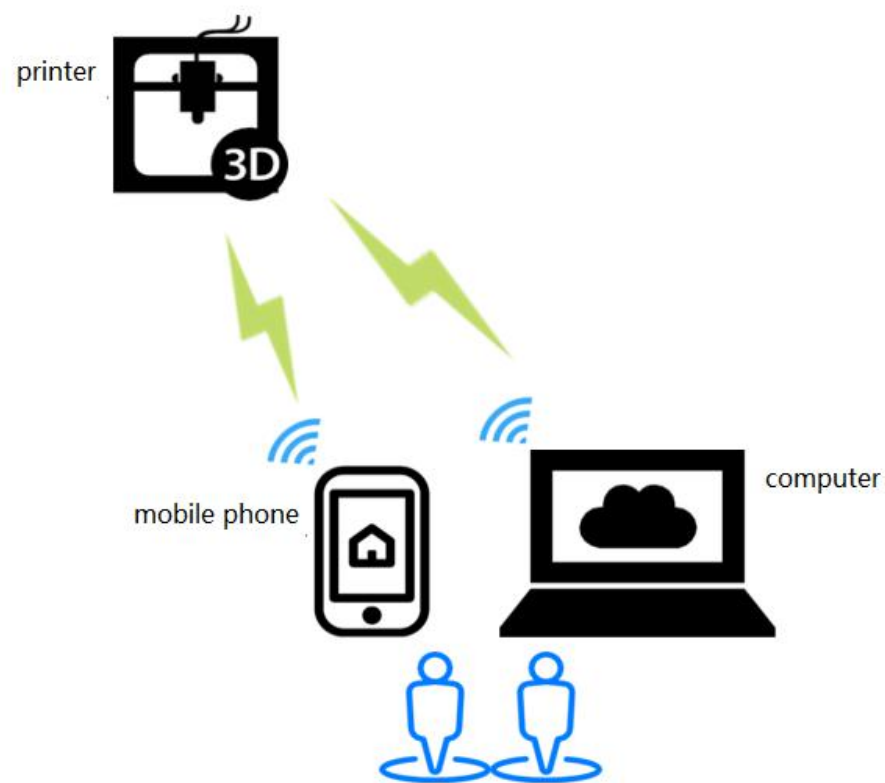
Features: WiFi module will produce hot "mkswifi-xxxx" (open hotspot, no password), you can access the Hotspot

control printer.

2. WiFi configuration

Robin_nano_cfg.txt	Description
#wifi mode(0:sta;1:ap) >CFG_WIFI_MODE 1	Set WiFi mode to AP mode
#wifi name >CFG_WIFI_AP_NAME MKSWIFI	Set the WiFi name to the name of the module you want to connect to
#wifi password >CFG_WIFI_KEY_CODE MAKERBASE	Set the WiFi password to the module
#cloud service enable(0:disable 1:enable) >cfg_cloud_enable:0 #cloud server url >cfg_wifi_cloud_host:www.baizhongyun.cn	It is recommended to disable the cloud services,when AP mode control. Other parameters can be used by default.

#cloud server port >cfg_cloud_port:10086	

3   Firmware update

3.1   Copy the latest upgrade program to the SD card root directory, upgrade procedures include:

> Configuration file：robin_nano_cfg.txt
>
> Motherboard firmware：robin_nano.bin
>
> WiFi firmware：MksWiFi.bin

3.2   Attention matters

A. The filename is not modifiable, or it will cause an update failure;

B. After the successful upgrade of the program, the filename will change;

C. Can view the current motherboard firmware and WiFi firmware version number in the about inside;

3.3 WiFi firmware update can also be updated through the web side, in the same LAN, in the Computer browser

input IP address, access to the Web page update firmware interface, the following figure:

8.5 Model Library Web site

Web site :https://baizhongyun.cn/home/index

Welcome small partners to upload their favorite models and use.
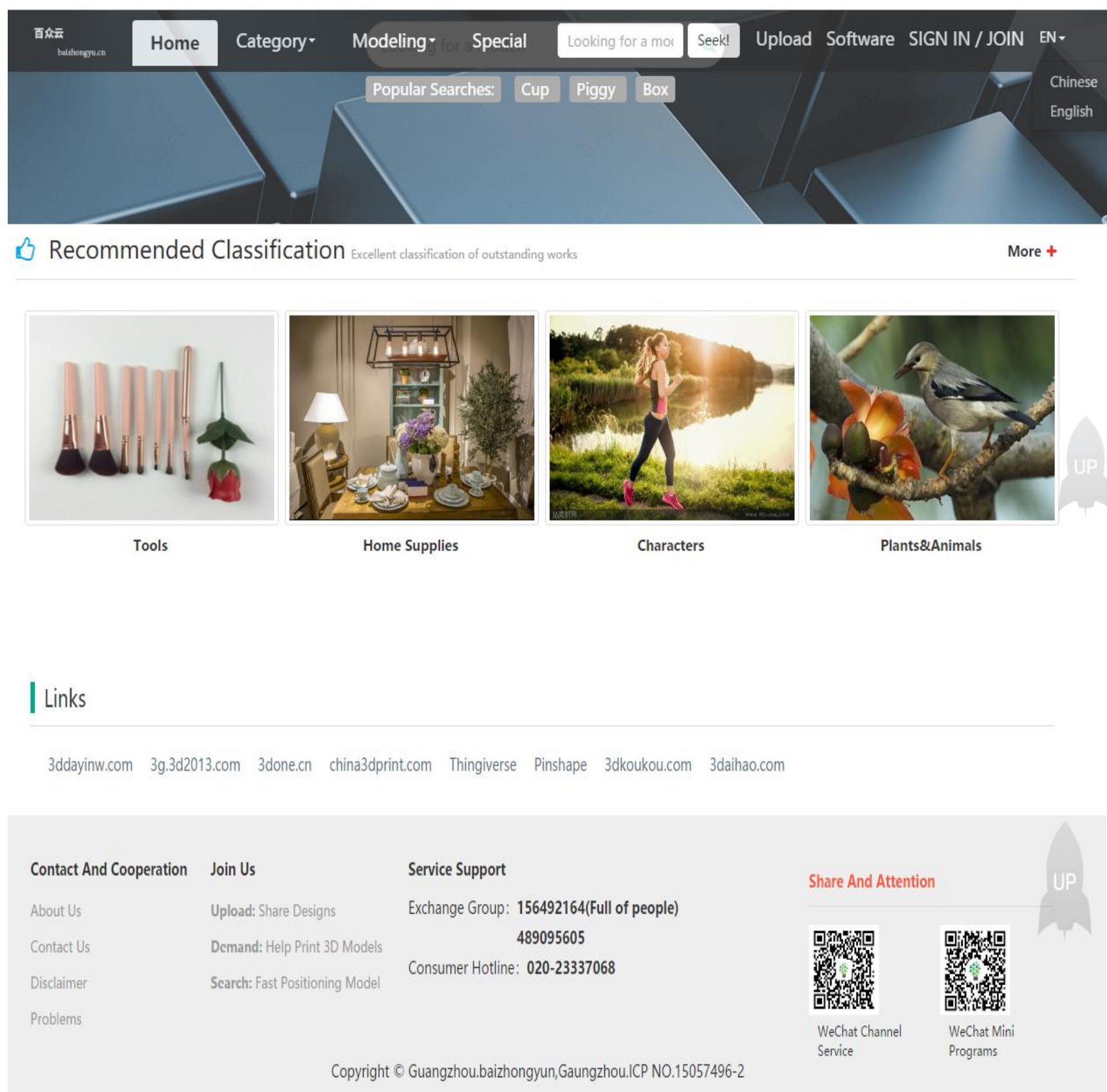
Ⅸ .TFT touch Screen User interface configuration

9.1 Conventions:

If the customer needs to customize the display picture of the touch screen, the first should follow the following conventions:

1 . Scope of customization:

A. Power-on interface logo;

B. Picture of the button (see below "1" and "2") (including icons and text);

C. Screen background color (see below figure "3", default black);

D. Title text color (see below figure "4", default white);

E. Display the background color of the state of the temperature (see figure "5", the default dark blue);

F. Display the color of the state such as temperature (see below figure "6", the default white);

G. " Select the file interface, the font color of the file name (see figure "7", the default white);

H. " Select the file interface, the font background color of the file name, and suggest the same color as the picture;

I. " Printing "interface, printing status information text background color; (See figure" 8 ", default white);

J. " Printing interface, print status information font color, suggest and picture color is the same;

K. Whether the button requires a 3D effect, the default is that the need, that is, the button picture outside the white

(1)Custom boot logo picture, TFT24,28,32(wide =320 pixel, high =240 pixel;) ,TFT35(wide =480 pixel, high =320 pixel;)

(2) Custom button picture, TFT24,28,32(wide =78 pixel, high =104 pixel;)   TFT35(wide =117 pixel, high =140 pixel)

(3) The name of the customized picture must be named in accordance with the appendix;

(4) Custom color value is 16, in accordance with 3 primary colors blue, green, red order;

(5) Customize the "More" menu function button, can be customized up to 7 function buttons;

(6) Custom "Print more" function button, can be customized up to 6 function buttons;

9.2 . Steps

1.1 Preparation Tools

1.IMG2LCD software (cracked version of no watermark, ask customer service to obtain)

2.corresponding to the. bmp suffix name of the picture, pixels to correspond, do not know the pixel, please see above.

3.You can ask the customer to obtain the key source AI file to make two modifications.
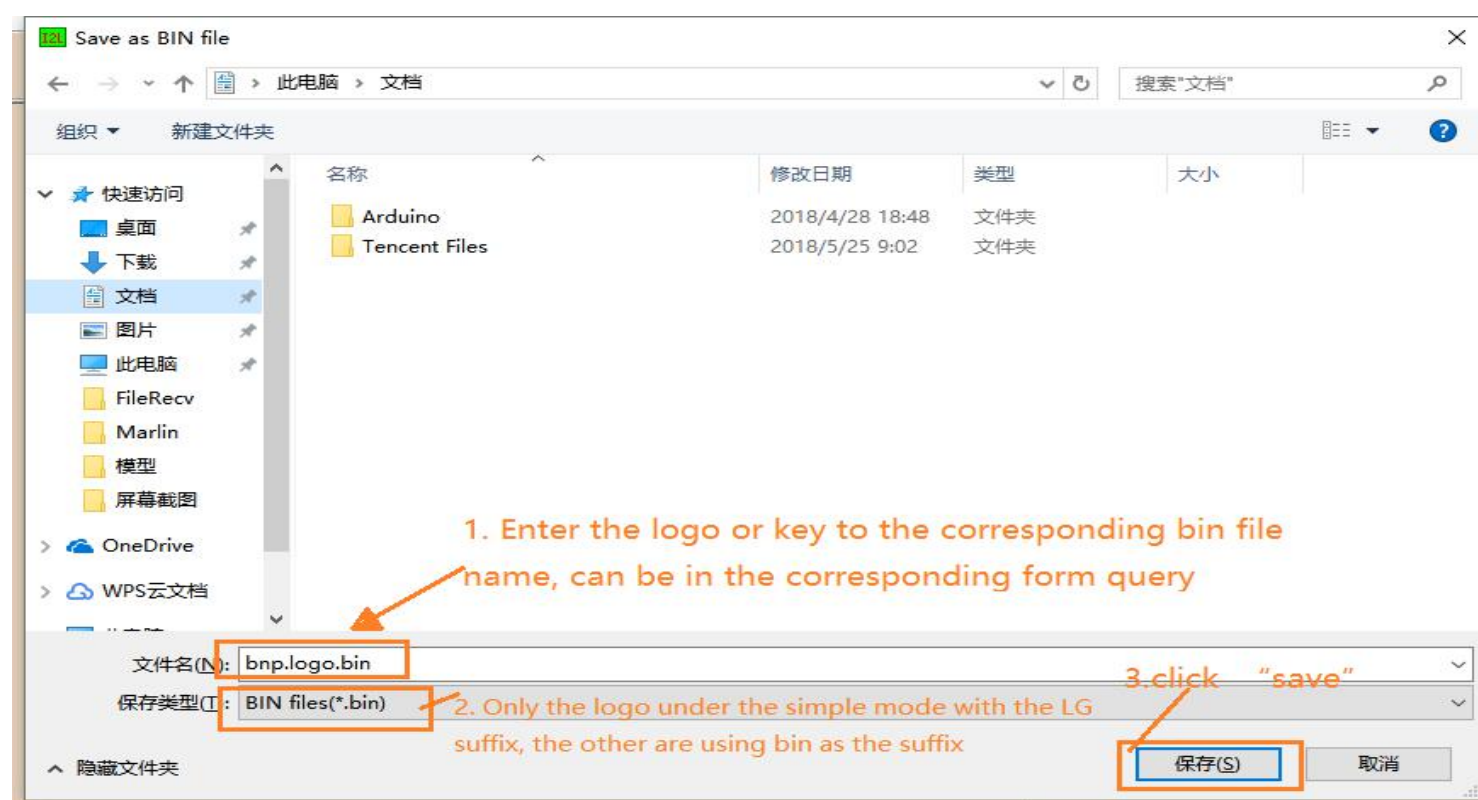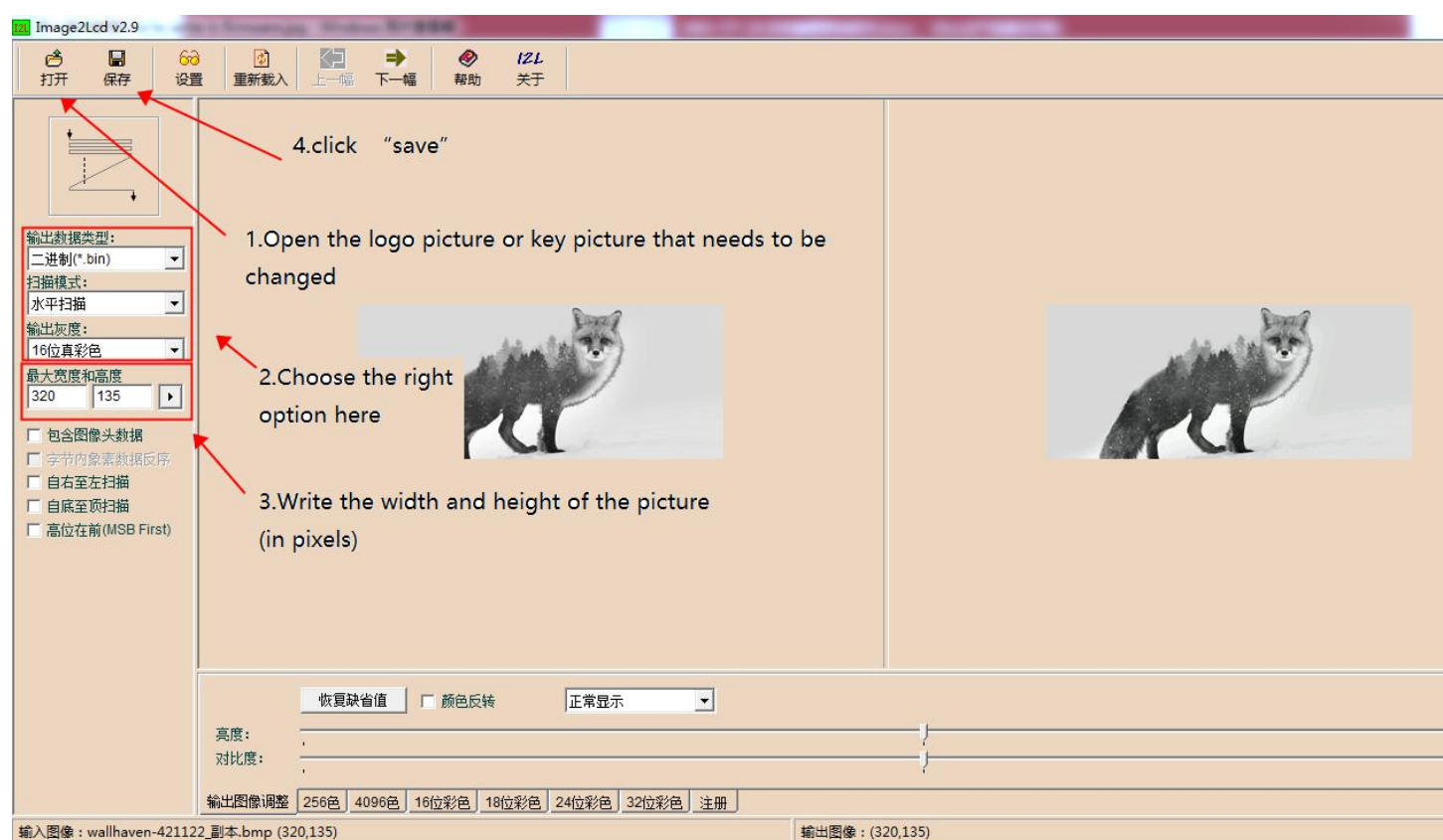
Copy the saved files to the Mks_pic folder

logo and key picture naming

9.3 Name of logo and button picture

Picture naming rules (note that some pictures are duplicated, just provide one)

Power-on logo.

bmp_logo.bin			

Power on logo

Ready to print Interface:

Preheat: bmp_pre Heat.bin	Move: bmp_mov .bin	Home: bmp_zero. bin	Print：bmp_printing.bin
Extruct：bmp_extr uct.bin	Leveling: bmp_leve ling.bin	Setting：bmp_set.b in	More：bmp_more.bin
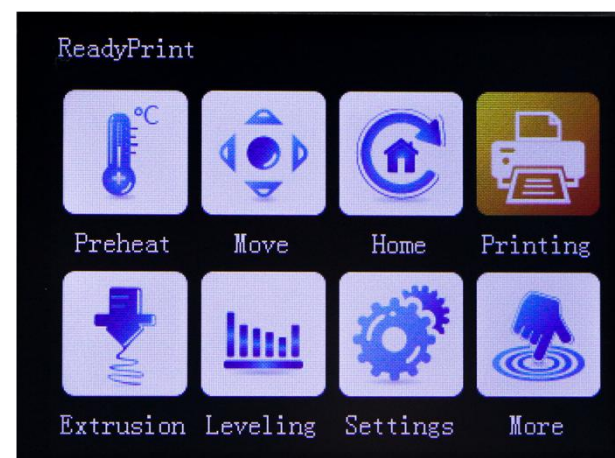
Preheat interface:

Add：bmp_Add.bin			Dec：bmp_Dec.bin
Preheat：Hot bed ：bmp_bed.bin Extru1 ：bmp.extru1.bin Exteu2：Bmp.extru2.bin	Step：Step1_degree：bmp_step1_de gree.bin Step5：bmp_step5_de gree.bin Step10：bmp_step10_d egree.bin	close：bmp_spee d0.bin	Return：bmp_return.bin

Extrusion interface

In： bmp_in.bin			Out： bmp_out.bin
Extru （E）： E1： bmp_extru 1.bin E2： bmp_extru 2.bin	Step： 1mm: bmp_step1 _mm.bin 5mm: bmp_step5 _mm.bin 10mm: bmp_step1 0_mm.bin	Rate： Low： bmp_speed_s low.bin Normal： bmp_speed_n ormal.bin High： bmp_speed_h igh.bin	Return： bmp_return.bin
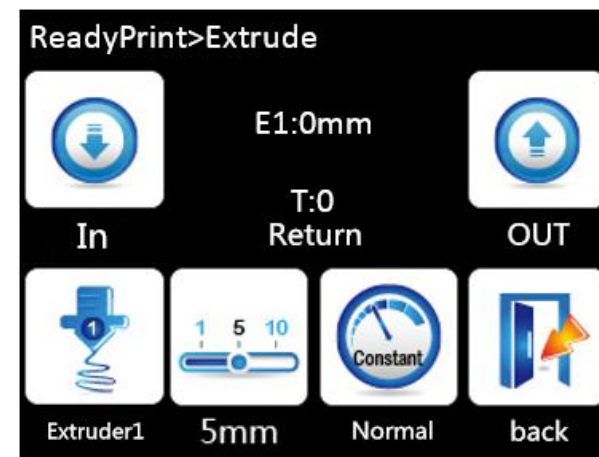
MOVE　interface

X+: bmp_ xAdd. bin	Y+: bmp_y Add.bin	Z+: bmp_z Add.bin	Step： 0.1mm　　　　　　　： Bmp_step_move0.1.bin 1mm： bmp_step_move1.bin 10mm　　　　　　　： bmp_step_move10.bin
X-: bmp_ xDec. bin	Y-： bmp_y Dec.bin	Z-： bmp_z Dec.bin	return： bmp_return.bin
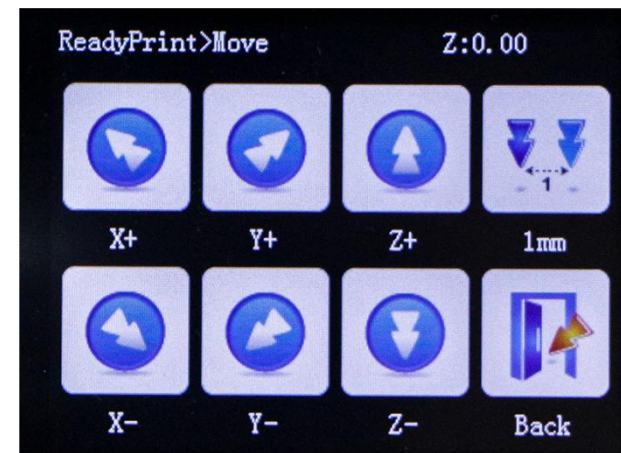
Home　interface

All （Home ）： bmp_zer oA.bin	X： bmp_zero X.bin	Y： bmp_zero Y.bin	Z： bmp_zeroZ.bin
			return（Back）： 　bmp_return.bin

Language interface

simplified_cn：bmp_simplified_cn.bin simplified_cn：bmp_simplified_cn_sel.bin	_traditional_cn.：bmp_traditional_cn.bin traditional_cn.：bmp_traditional_cn_sel.bin	english ：bmp_english.bin english ：bmp_english_sel.bin	russian：bmp_russian.bin russian ：bmp_russian_sel.bin
spanish：bmp_spanish.bin spanish：bmp_spanish_sel.bin	french：bmp_french.bin french：bmp_french_sel.bin	_italy：bmp_italy.bin italy：bmp_italy_sel.bin	（Back）：bmp_return.bin

Leveling   interface

Autoleveling：bmp_autoleveling.bin	Leveling1：bmp_leveling1.bin	Leveling2：bmp_leveling2.bin	Leveling3：bmp_leveling3.bin
Leveling4：bmp_leveling4.bin	Leveling5：bmp_leveling5.bin		
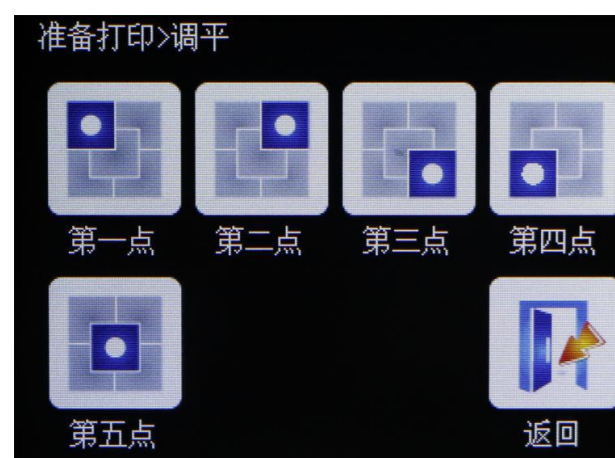
Setting   interface

wifi：bmp_wifi.bin	fan：bmp_fan.bin	about：bmp_about.bin	change：bmp_function1.bin
breakpoint：bmp_breakpoint.bin	Motor off：bmp_function2.bin	language：bmp_language.bin	Return：bmp_return.bin

Fan interface

ADD： bmp_Add.bi n			DEC： bmp_Dec.bin
Full speed： bmp_speed 255.bin	Halfspeed： bmp_spee d 127.bin	Close： bmp_spee d0 .bin	return： bmp_return. bin

more interface

custom1： bmp_ custom1. bin	custom2： bmp_ custom2. bin	custom3： bmp_ custom3. bin	custom4： bmp_ custom4. bin
custom5： bmp_ custom5. bin	custom6： bmp_ custom6. bin	custom7： bmp_ custom7. bin	return： bmp_ return. bin
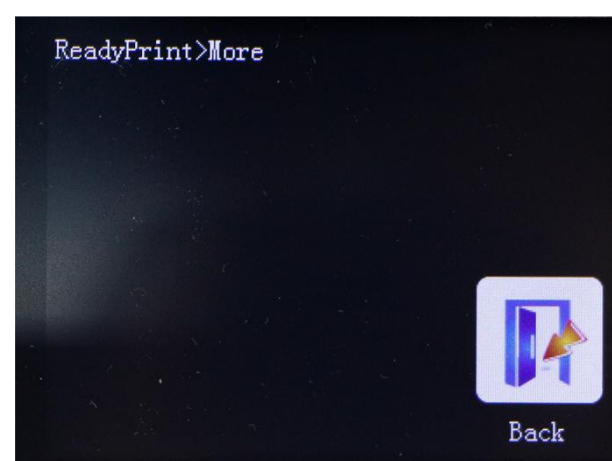
choose file

File：bmp_ file.bin			
	Pageup： bmp_pag eUp.bin	Pagedown： bmp_page Down.bin	Return： bmp_return. bin
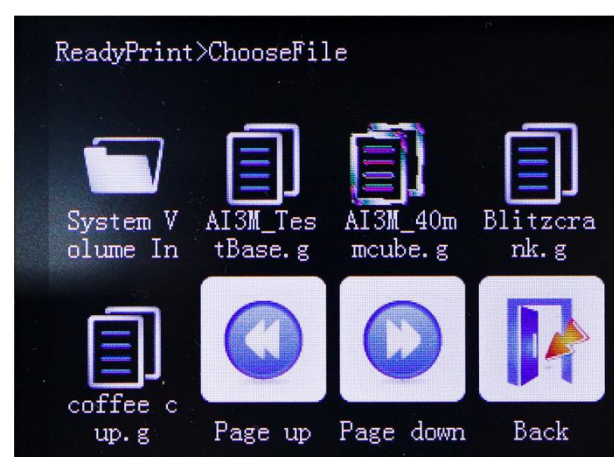
Printing   interface

			option： bmp_menu.bin
Extru1 （E1）： bmp_extr u1_no_w ords. bin	Extru2（E2）: bmp_extru2_ no_words.bin	Hot bed： bmp_bed _no_word s. bin	fan： bmp_fan_no_words .bin Fan_move： bmp_fan_move.bin
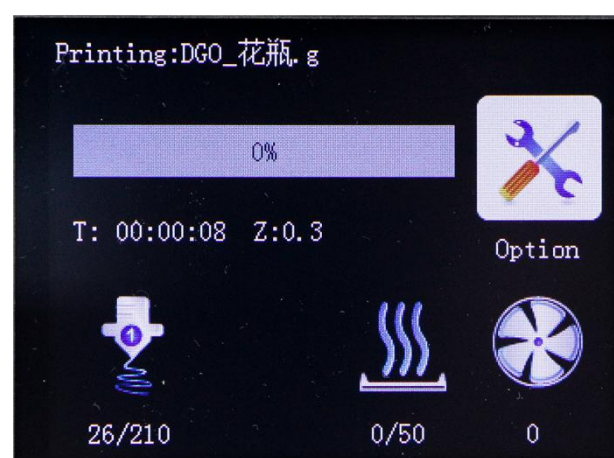
option interface

Pause：bmp_pause.bin			stop：bmp_stop.bin
temperate：bmp_temp.bin	Speed: bmp_speed.bin	move：bmp_more.bin	return：bmp_return.bin

Pause interface

resume：bmp_resume.bin			stop：bmp_stop.bin
Extruct: bmp_extruct.bin	Move: bmp_mov.bin	Temperate：bmp_temp.bin	More（move）：bmp_more.bin

Speed　interface

Add：bmp_Add.bin			Dec：bmp_Dec.bin
Move：No set：bmp_mov.bin Set ：bmp_mov_sel.bin	Extruct：No set：bmp_extruct.bin Set :bmp_extruct_sel.bin	Step：1mm：bmp_step1_mm.bin 5mm：bmp_step5_mm.bin 10mm：bmp_step10_mm.bin	Return：bmp_return.bin
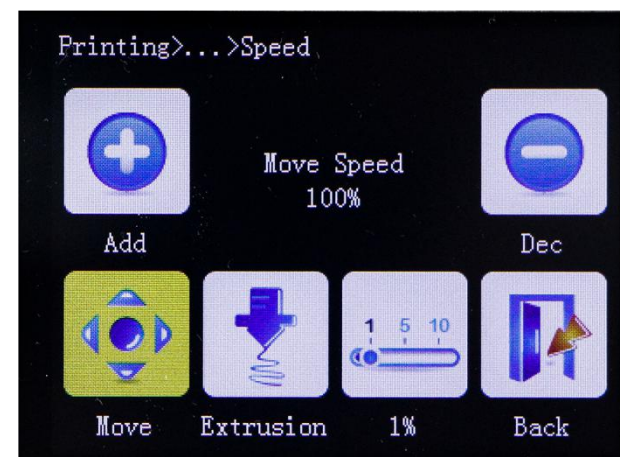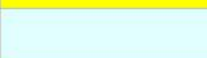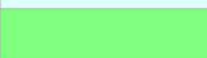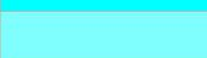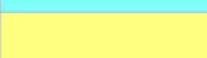
More interface in pause printing

Fan： bmp_fan.b in	Filament change: bmp_filamen tchange.bin	Auto off： bmp_auto_of f.bin Maunal off： bmp_manual _off.bin	morefun1： bmp_morefun c1.bin
morefun2： bmp_more func2.bin	morefun3： bmp_morefu nc3.bin	morefun4： bmp_morefu nc4.bin	Return： bmp_return.bi n

Common color corresponding to the hexadecimal value

蓝色		0x0000FF
绿色		0x00FF00
红色		0xFF0000
黄色		0xFFFF00
浅蓝		0xE1FFFF
浅绿		0x80FF80
浅红		0xFF8080
青色		0x00FFFF
浅青色		0x80FFFF
浅黄色		0xFFFF80
深绿色		0x008000
深红色		0x800000
深蓝色		0x000080
深黄色		0x808000
黑色		0x000000
白色		0xFFFFFF

Ⅹ．Technical Support and Guarantee

1. Power test will be done prior to shipment to ensure normal use of the product

2. Welcome to join the discussion group: 489095605

3. Welcome to the blog exchange: http://flyway97.blog.163.com

4. 3D printer motherboard contact

Miss Zhong：15521638375 Mr. Huang：13148932315 Mr. Tan：13640262556. Mr.Peng：13427595835

5. If you have any questions you can contact our customer service or find technical

support staff in the group, we will be happy to serve you.

MKS official website　　　　　　　　　*MKS Taobao website*