Makerbase

广州谦辉信息科技有限公司

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MKS Robin mini Motherboard Manual

MAKER BASE

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Firmware version update

Firmware version	Modified Time	Modify Content	Note
V2.0.3	2017-7	Initial version	
V2.0.4	2017-10	1. Fix WiFi transmission instability problem 2. Optimized the function of Filament change 3. Fixed the configuration options of the leveling. 4. Fixed a display problem with two-head printing 5. Add multi-language online switching function , which can support 7 languages; 6. Added configurable to change E1 to Double x, double y, double z option	
V2.0.6	2018-1	1. Correction of grammatical words in some multilingual display; 2. Increase the compatibility of the new LCD screen; 3. Increase the X-axis offset and the y-axis offset of the second nozzle E1.	
V2.0.7	2018-5	1. Update a profile with an SD card, you need to modify the configuration file name to: Robin_config.txt. 2. configuring a red version, you need to change the background color value of the profile to: 0x494949 3. Configure the WIN8 version to configure the language when setting: cfg_multiple_language:0 4. robin_mini_v2.0.7 can only be used in robin_mini_v2.0 hardware	

目录

Ⅰ.Overview

MKS Robin mini is a product developed by MKS to meet market demand.Configuration of the firmware method is simpler, and with 2.4-inch TFT touch screen, simple operation interface.Firmware can be easily upgraded by SD card and user interface can be customized.It is suitable to manufacturers who mass production of 3D printers.

Ⅱ Features

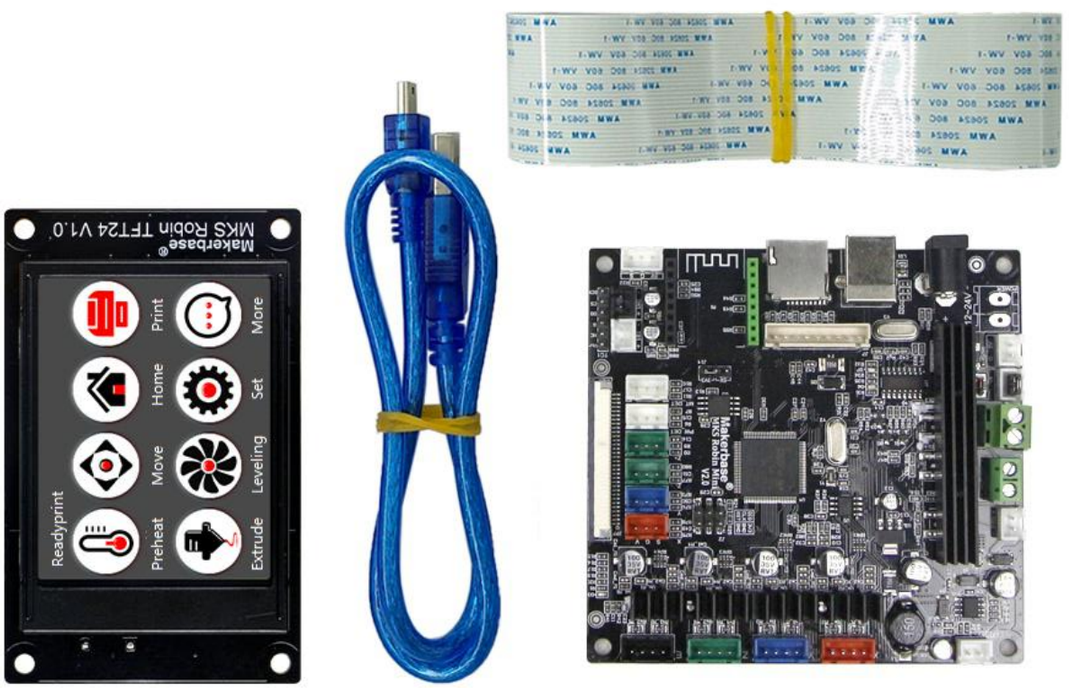
1.Using 32-bit high-speed arm chip as the main control chip,The firmware was developed independently.
2.with 2.4-inch TFT touch screen, simple operation interface.
3.With high-speed WiFi module, access to the cloud, the cloud model to achieve remote printing. and to provide Android, iOS mobile phone app, support in both English and Chinese.
4.Do not need to the module to achieve the Auto off after print finish function .
5.The configuration file can be configured to drive current, no longer worried about the adjustment drive led to burnout motherboard;
6.Firmware can be easily upgraded by SD card
7.Can be designed to start the logo and all keys and other interfaces by yourselves.
8.Can support up to 15 custom command button function;
9.The circuit board uses the high quality 4 layer board, and specially has made the heat dissipation optimized processing;
10.The use of high-quality MOSFET tube, cooling effect better;
11.Uses the special power supply chip, supports the 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.Gcode Print to support Chinese filename.

Ⅲ.Motherboard parameters

Board model:	MKS Robin mini	Microprocessor:	STM32
Size of exterior:	100*105	Mounting hole size:	92*97
Input:	12V~24V 5A~15A	Motor Drive:	4988 DRIVE
Temperature sensor:	NTC 100K、31855	Touch screen:	2.4 inches
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 mini



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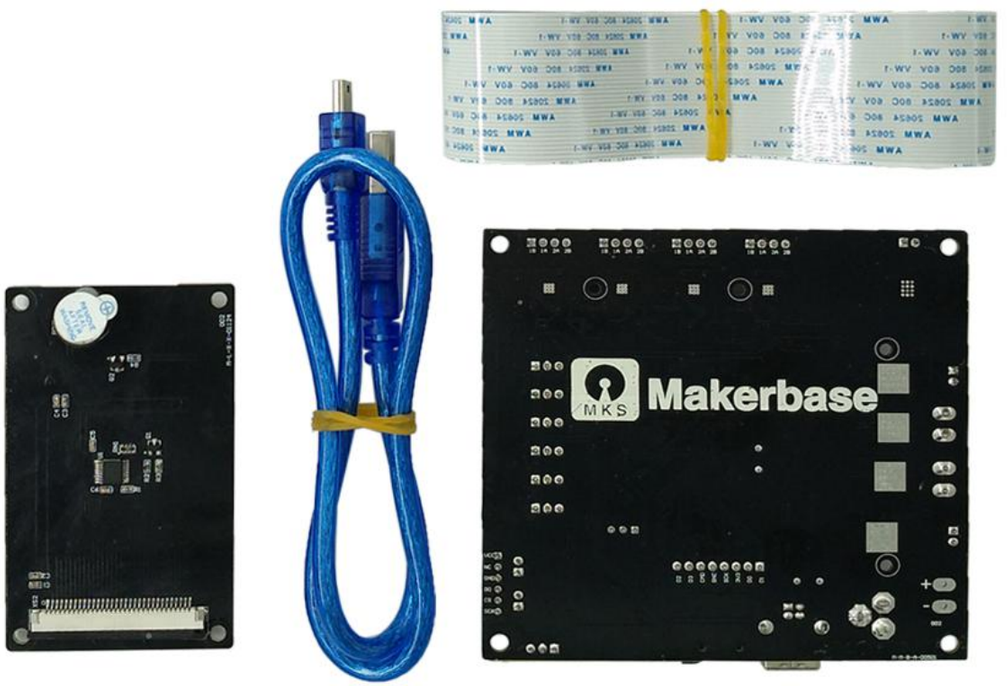
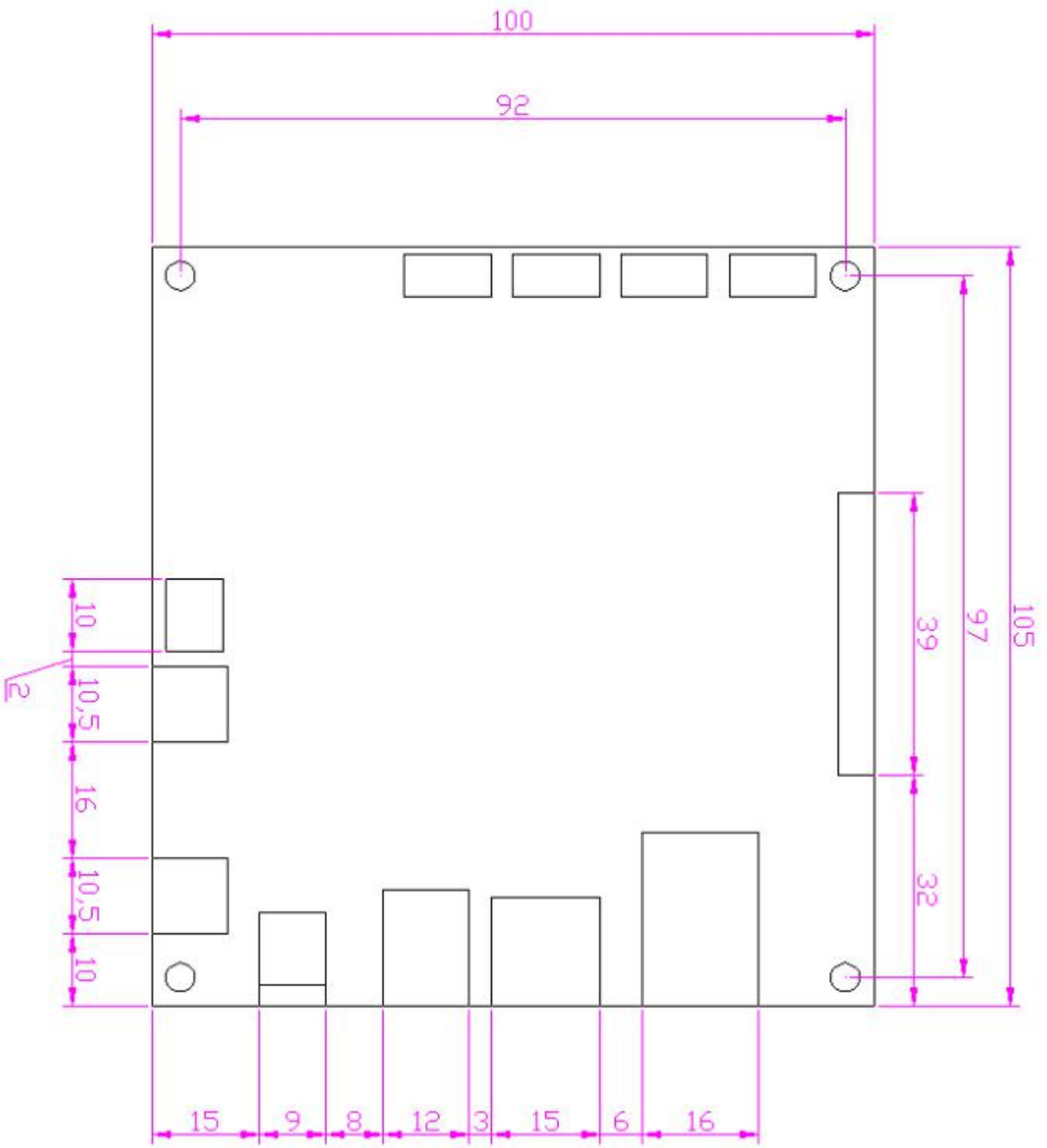
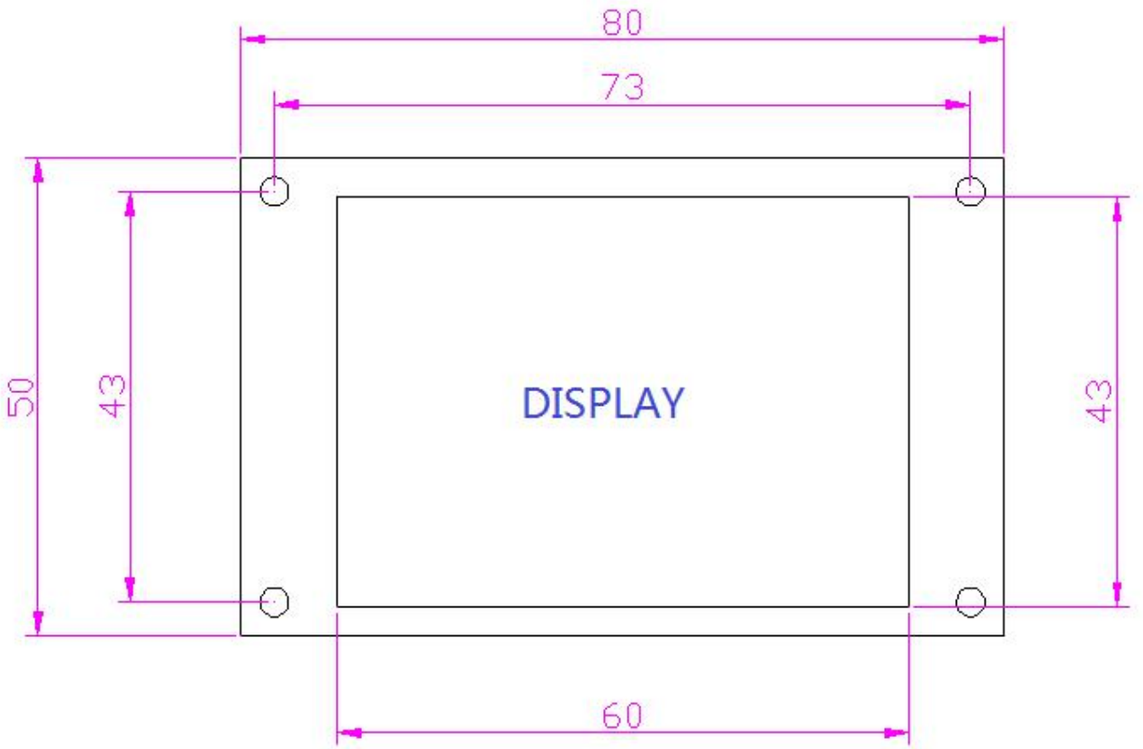


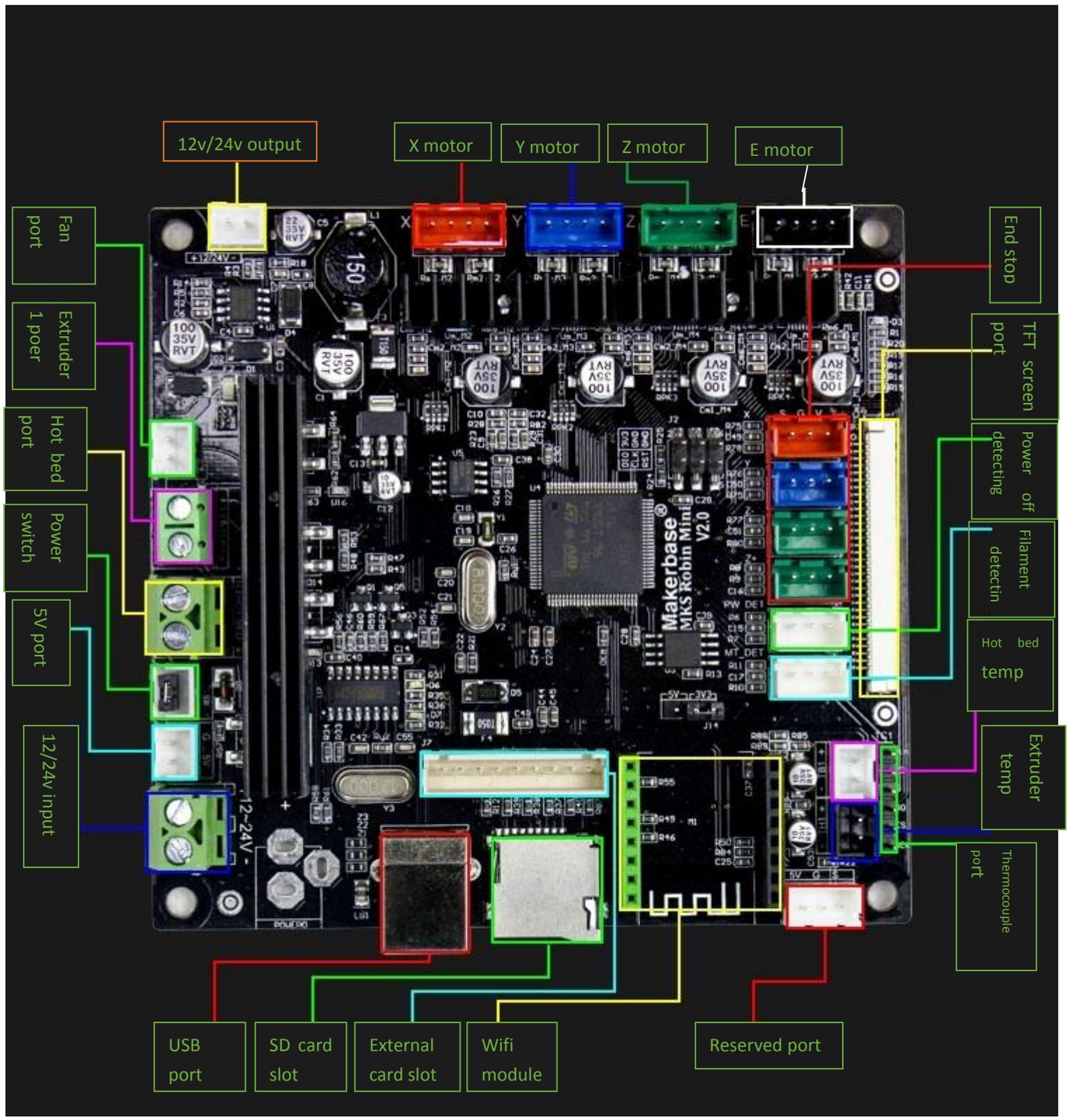
4.2 MKS Robin mini Installation Dimensional Drawing



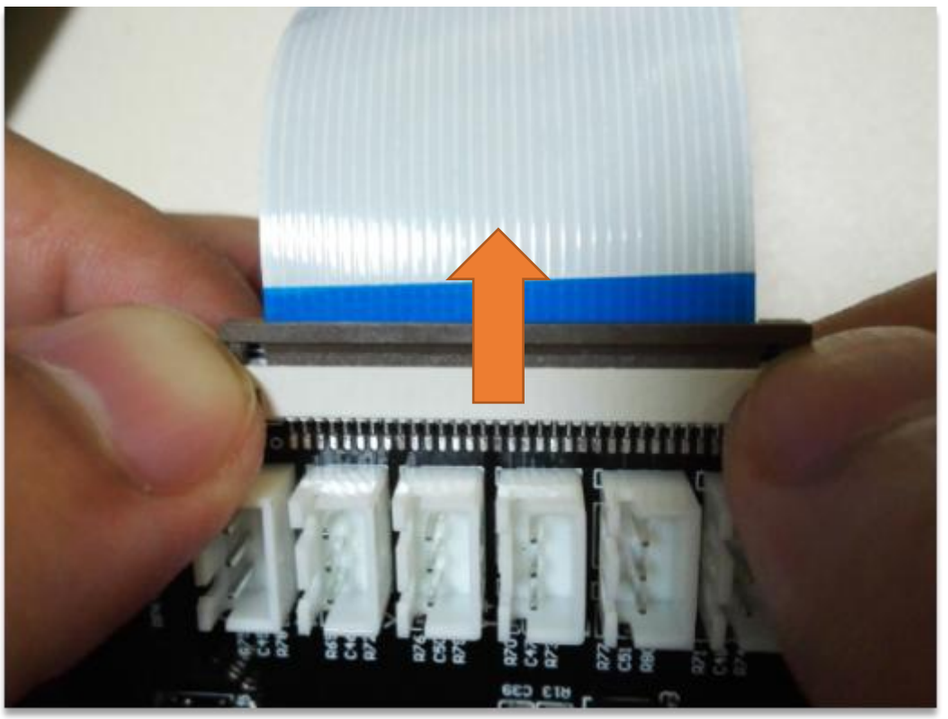
4.2 MKS Robin mini TFT24 Installation Dimensional Drawing



4.3 MKS Robin mini System connection diagram



Connect FFC Soft line, with double thumb will buckle open, put well FFC soft line, will buckle card tight can



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 mini 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 MksWiFI.ino.bin
④ Robin_mini.bin
⑤ Ronbin_mini_config.txt

Attention:Do not modify file names.

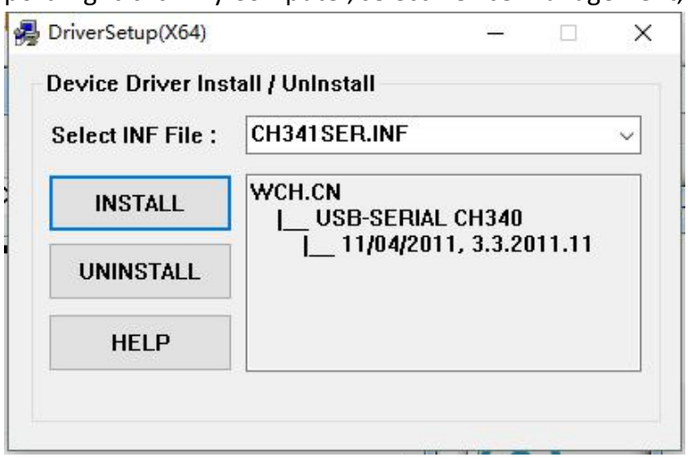
As figure

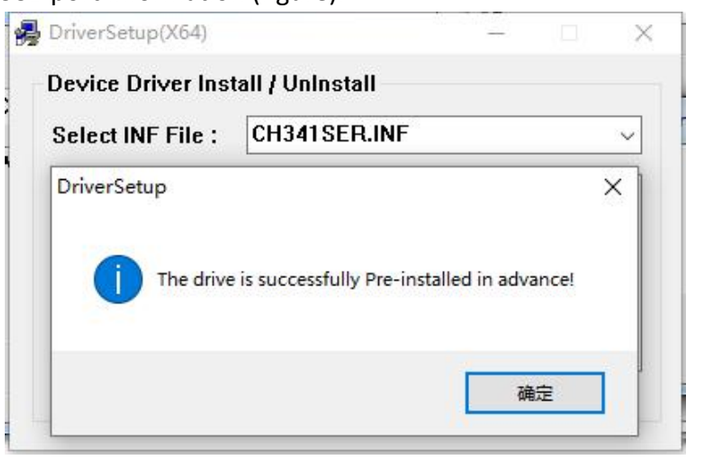
b. Plug the SD card into the motherboard and power on,hear drops ~ ~ A short sound, touch screen display update process, and so about 30S after the completion of the update.

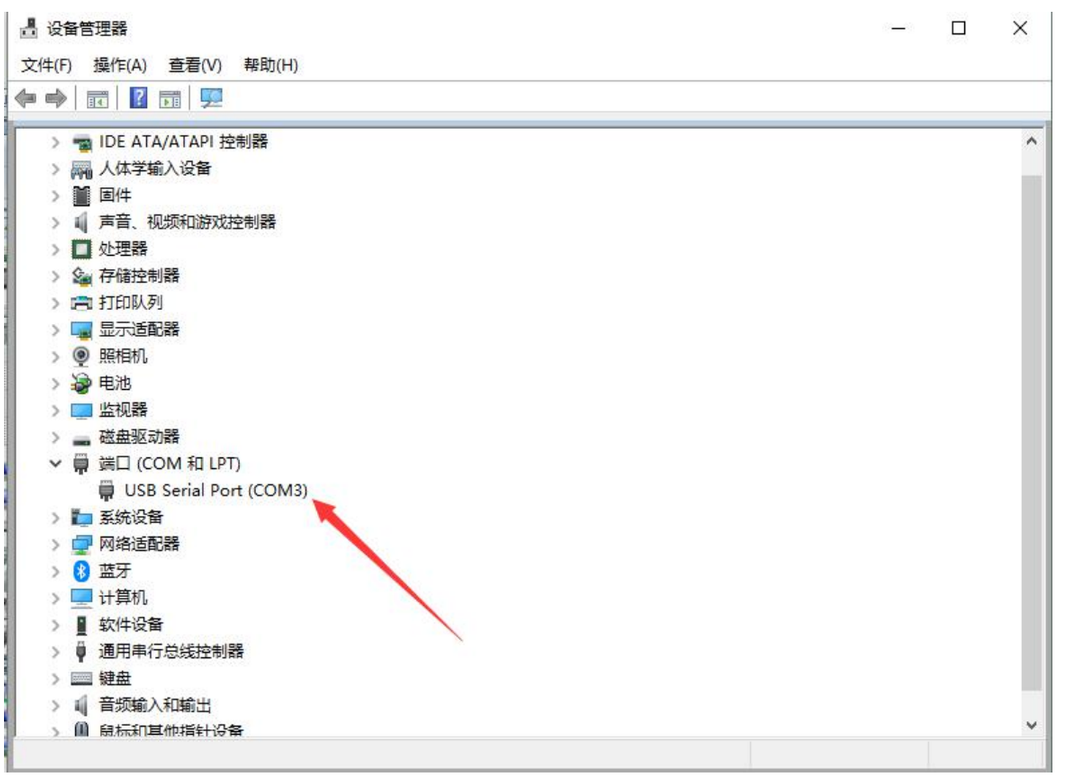
c. You can click” Settings--about” on the touch screen , to view current firmware information.
d. Advice: After the update is complete, delete the pictures and Fonts folder, avoid the next time to update the pictures and fonts.

Ⅵ. USB driver Installation

MKS Robin Mini 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 Power-on settings（Important, must be set）

```
#-------------------------------------------------------------
############ Based Settings( Required) ######################
#machine type
#0:xyz
#1:corexy(x_motor = x+y, y_motor = x-y),
#2:corexy(x_motor = x+y, y_motor = y-x),
#3:delta

>DRIVE_SYSTEM                0                          #machine type

>cfg_multiple_language       1                          #multi-language(enable:1, disable:0)

>cfg_language_type           3                          #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).

>cfg_ui_set_maxtemp          260                        #The display of maximum temperature of the extruder should not exceed MAXTEMP.
>cfg_ui_set_heated_bed_temp  120                        #The maximum temperature of the hot bed display shall not exceed HEATED_BED_MAX_TEMP.

>HAVE_HEATED_BED             1                          #1:enable bed;  0:disable bed
>EXT0_TEMPSENSOR_TYPE        1                          #1:100k thermistor; 102: MAX31855 thermocouple
>HEATED_BED_SENSOR_TYPE      1                          #1:100k thermistor;

#-------------------------------------------------------------
```

Attention：The Heat sensitive end interface on the motherboard should be connected to the heat sensitive, otherwise the "error" prompt will appear.

7.2 Feature Settings

```
################## Machine settings ##############################

>INVERT_X_DIR                  0                                #X motor direction, 1 goes opposite direction;
>INVERT_Y_DIR                  0                                #Y motor direction, 1 goes opposite direction;
>INVERT_Z_DIR                  0                                #Z motor direction, 1 goes opposite direction;
>EXT0_INVERSE                  1                                #E0motor direction, 1 goes opposite direction;

>XAXIS_STEPS_PER_MM            80                               #X steps per mm
>YAXIS_STEPS_PER_MM            80                               #Y steps per mm
>ZAXIS_STEPS_PER_MM            400                              #Z steps per mm
>EXT0_STEPS_PER_MM             90                               #E0 steps per mm

>X_MAX_LENGTH                  210                              #the MAX X-axis distance
>Y_MAX_LENGTH                  210                              #the MAX Y-axis distance
>Z_MAX_LENGTH                  300                              #the MAX Z-axis distance
>X_MIN_POS                     0                                #the MIN X-axis distance
>Y_MIN_POS                     0                                #the MIN Y-axis distance
>Z_MIN_POS                     0                                #the MIN Z-axis distance

>MIN_EXTRUDER_TEMP             175                              #MIN TEMP on Extruder ,play a protective role
>MAX_EXTRUDER_TEMP             275                              #MAX TEMP on Extruder ,play a protective role
>MAX_HEATED_BED_TEMP           150                              #MAX TEMP on heated bed , play a protective role

>HOMING_ORDER                  1                                #Set direction of endstops when homing;
>X_HOME_DIR                    -1                               #Homing direction(-1:MIN, 1:MAX)
>Y_HOME_DIR                    -1                               #Homing direction(-1:MIN, 1:MAX)
>Z_HOME_DIR                    -1                               #Homing direction(-1:MIN, 1:MAX)

>HOMING_FEEDRATE_X             30                               #the feedrate on X homing
>HOMING_FEEDRATE_Y             30                               #the feedrate on Y homing
>HOMING_FEEDRATE_Z             30                               #the feedrate on Z homing
```

```
# 1 means endstop always-on, 0 is always-off
>ENDSTOP_X_MIN_INVERTING        0
>ENDSTOP_Y_MIN_INVERTING        0
>ENDSTOP_Z_MIN_INVERTING        0
>ENDSTOP_X_MAX_INVERTING        0
>ENDSTOP_Y_MAX_INVERTING        0
>ENDSTOP_Z_MAX_INVERTING        0

# 1 for Min/Max endstop enable in hardware, while 0 disable
>MIN_HARDWARE_ENDSTOP_X         1
>MIN_HARDWARE_ENDSTOP_Y         1
>MIN_HARDWARE_ENDSTOP_Z         1
>MAX_HARDWARE_ENDSTOP_X         0
>MAX_HARDWARE_ENDSTOP_Y         0
>MAX_HARDWARE_ENDSTOP_Z         0

# 1 for Min/Max endstop enable in software, while 0 disable
>min_software_endstop_x         0
>min_software_endstop_y         0
>min_software_endstop_z         0
>max_software_endstop_x         1
>max_software_endstop_y         1
>max_software_endstop_z         1

>MAX_FEEDRATE_X                 100                         #the Max feedrate of X moving mm/s
>MAX_FEEDRATE_Y                 100                         #the Max feedrate of Y moving mm/s
>MAX_FEEDRATE_Z                 40                          #the Max feedrate of Z moving mm/s
>MAX_FEEDRATE_EXT0              100                         #the Max feedrate of E0 moving mm/s
>MAX_FEEDRATE_EXT1              100                         #the Max feedrate of E1 moving mm/s

>MAX_ACCELERATION_UNITS_PER_SQ_SECOND_X         1000        #the Max acculeration of X printing mm/s^2
>MAX_ACCELERATION_UNITS_PER_SQ_SECOND_Y         1000        #the Max acculeration of Y printing mm/s^2
>MAX_ACCELERATION_UNITS_PER_SQ_SECOND_Z         100         #the Max acculeration of Z printing mm/s^2
>MAX_ACCELERATION_EXT0                          1000        #the Max acculeration of E0 printing mm/s^2
>MAX_ACCELERATION_EXT1                          1000        #the Max acculeration of E1 printing mm/s^2

>MAX_TRAVEL_ACCELERATION_UNITS_PER_SQ_SECOND_X  1000        #MAX acceleration of X-axis moving mm/s^2
>MAX_TRAVEL_ACCELERATION_UNITS_PER_SQ_SECOND_Y  1000        #MAX acceleration of Y-axis moving mm/s^2
>MAX_TRAVEL_ACCELERATION_UNITS_PER_SQ_SECOND_Z  100         #MAX acceleration of Z-axis moving mm/s^2
```

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 required for each axis to move 1mm, the formula for calculating the pulse value of each axis 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. Maximum stroke: Usually set according to the area of the platform.

d. Drive current: Max current1000mA

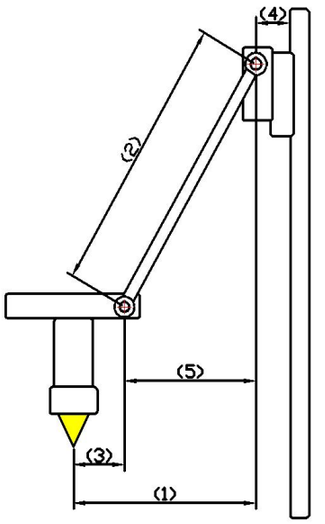
e. Limit type:The limit switch is divided into two types, normally open and closed, and 1 is normally open, 0 is normally closed;

f. Enable Limit of each axis: The limit switch triggered by return zero, the general XYZ is the minimum limit, the delta

is the maximum limit;

g. Enable software Limit of each axis:Maximum stroke set in configuration file, cannot exceed maximum stroke when moving.

h. In other general cases, the default is OK.



7.3 Parameter settings of the delta

```
#-------------------------------------------------------------
################# Delta Settings ################################

>DELTA_MAX_RADIUS                          135          #the radius of Delta annulus
>PRINTER_RADIUS                            197          #the distance from machine center to vertical top
>DELTA_DIAGONAL_ROD                        346.75       #the length of Delta pole
>DELTA_FLOOR_SAFETY_MARGIN_MM              15           #the safe distance of leveling edge

>END_EFFECTOR_HORIZONTAL_OFFSET            28.0         #
>CARRIAGE_HORIZONTAL_OFFSET                14.5         #
>ROD_RADIUS                                169          #


#-------------------------------------------------------------
```

7.4 Leveling setting

Two ways to leveling:manual leveling and automatic leveling.

#Leveling mode configuration

>cfg_leveling_mode 0 #1: automatic leveling; #0 manual leveling

7.4.1 manual leveling: Manual leveling can be used on common machine structure (MB, I3, etc.)

You can set up the three-point leveling, four-point leveling, or five-point leveling in the configuration file

```
########## 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_point5:150,150
```

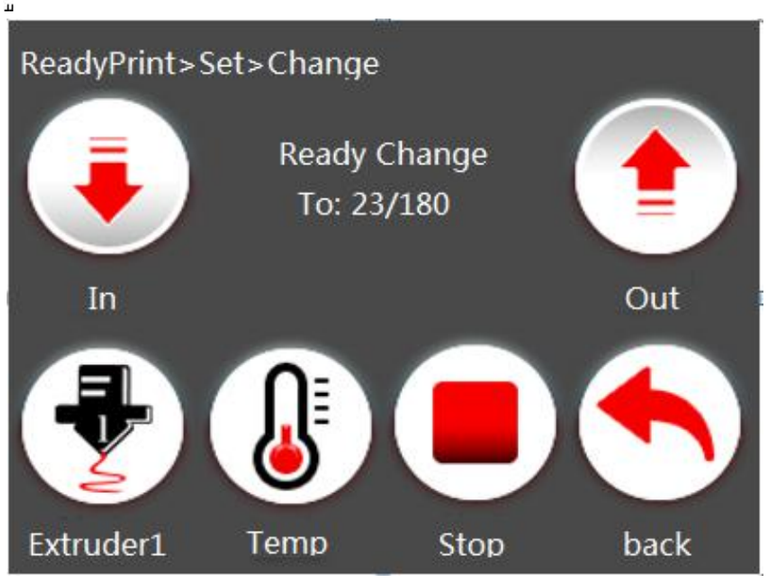
7.4.2 automatic leveling: In a machine fitted with a leveling device, you can set the automatic leveling in the configuration file type.You can choose three points leveling, four points leveling or more points leveling.

```
############ Auto Leveling ###############

>cfg_auto_leveling_cmd:G28;G32 S2;                    #the setting of auto-leveling command button

>FEATURE_Z_PROBE                    0                #0:disable leveling, 1:enable leveling
>BED_LEVELING_METHOD                1                #0:3 points leveling,1:more points leveling,2: 4 points leveling
>Z_PROBE_ON_HIGH                    1                #Probe signal(0: low level,always on; 1:high level,always off)
>Z_PROBE_HEIGHT                     -0.8             #the height difference between Z-probe and  nozzle
>Z_PROBE_X1                         -90              #coordinateX1 is preset point
>Z_PROBE_Y1                         -90              #coordinateY1 is preset point
>Z_PROBE_X2                         90               #coordinateX2 is preset point
>Z_PROBE_Y2                         -90              #coordinateY2 is preset point
>Z_PROBE_X3                         -90              #coordinateX3 is preset point
>Z_PROBE_Y3                         90               #coordinateY3 is preset point

>cfg_leveling_z_speed               1500             #the speed of Z moving when manual leveling(mm/min)
>cfg_leveling_xy_speed              3000             #the speed of XY moving when manual leveling (mm/min)

>BED_LEVELING_GRID_SIZE             5                #leveling interval
>Z_PROBE_SPEED                      30               #the speed of Z-probe
>Z_PROBE_XY_SPEED                   100              #the speed of XY

"
```

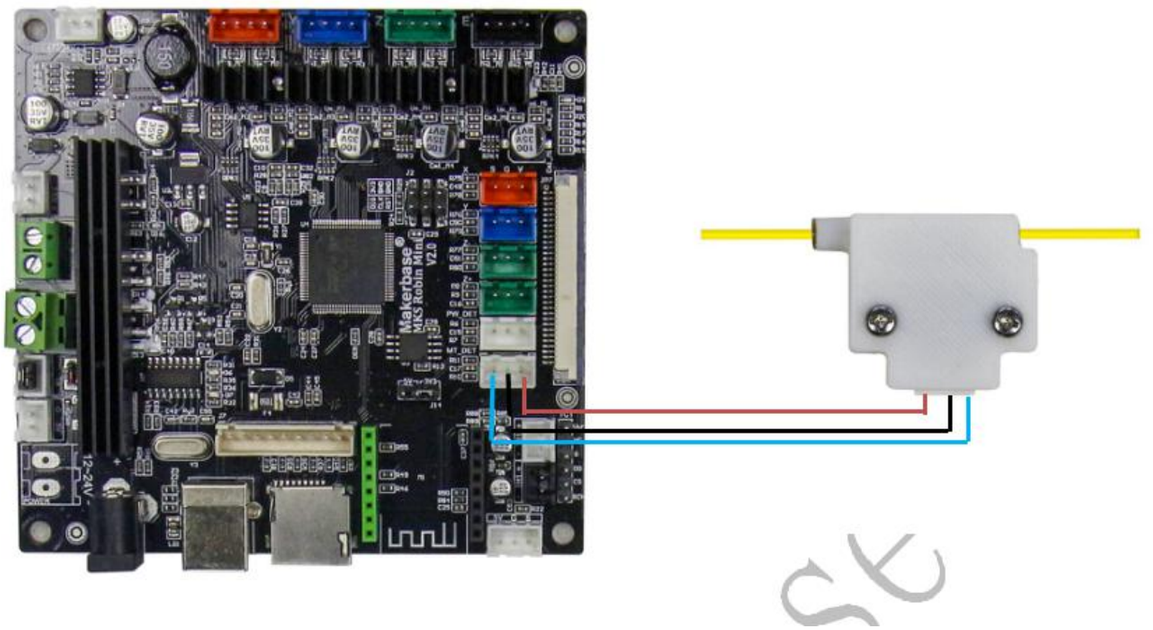
7.5 Filament Change Function

Filament Change Function: To make it easier for you to change the filament, you can also suspend the printing midpoint after the use of the feed function.The extrusion head rotation speed and minimum temperature can be configured in configuration file.As the figure:

```
>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              #the length to retract filament(mm),Max:2000mm
>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 .
```



7.6 Filament detecting



7.7 Power off recovery

Motherboard functionality itself has Power off recovery the function, if you want to have higher requirements, can add UPS power, for the following reasons:

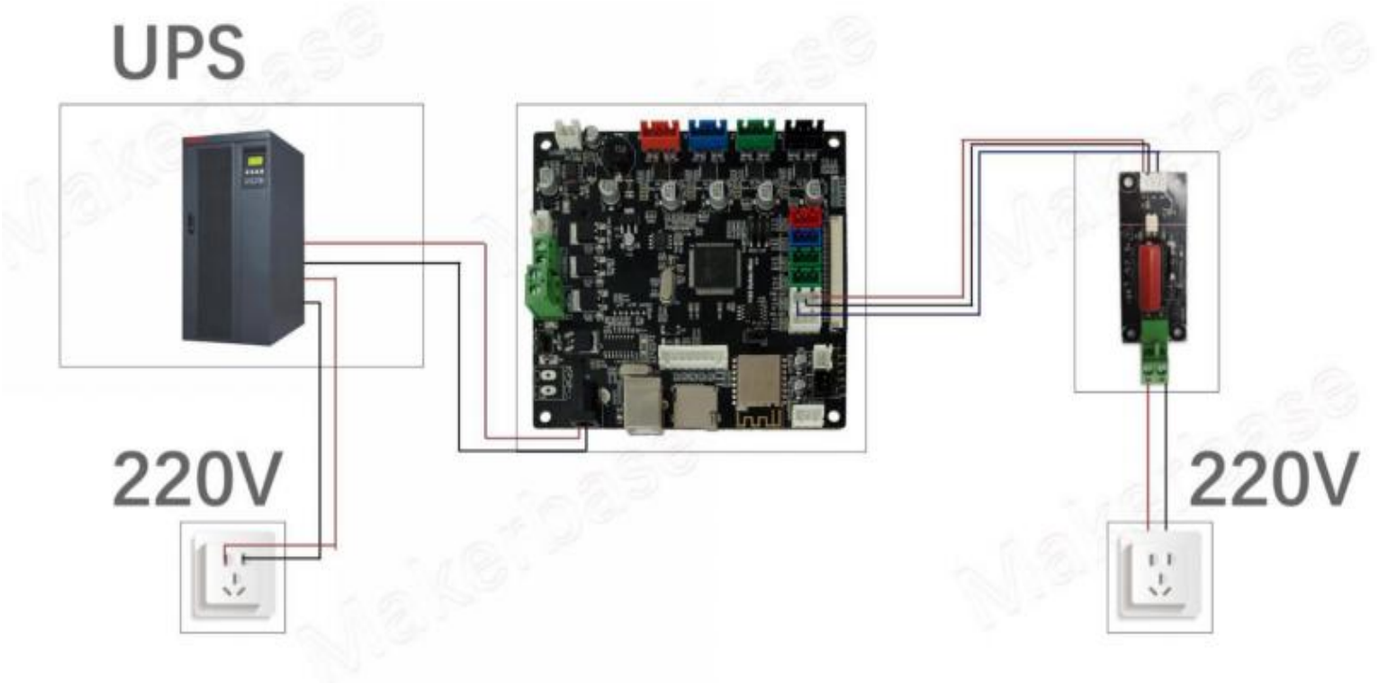
1. No UPS Power

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

Power detecting module signal line s connection PB0, negative positive connection -and + two pins blow the PBO.

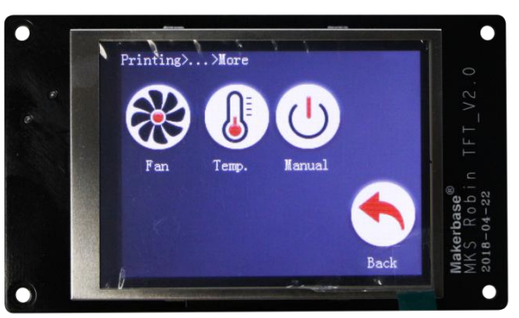
When the system loses power, the Power detection module informs the touch screen to enter the suspend printing state, UPS power supply. Leave the print head out of the model.



7.8 Auto off after print finish function

Robin Mini Motherboard has its own auto off after print finish function, only in the configuration file and printing to open the function can be.

```
>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
```

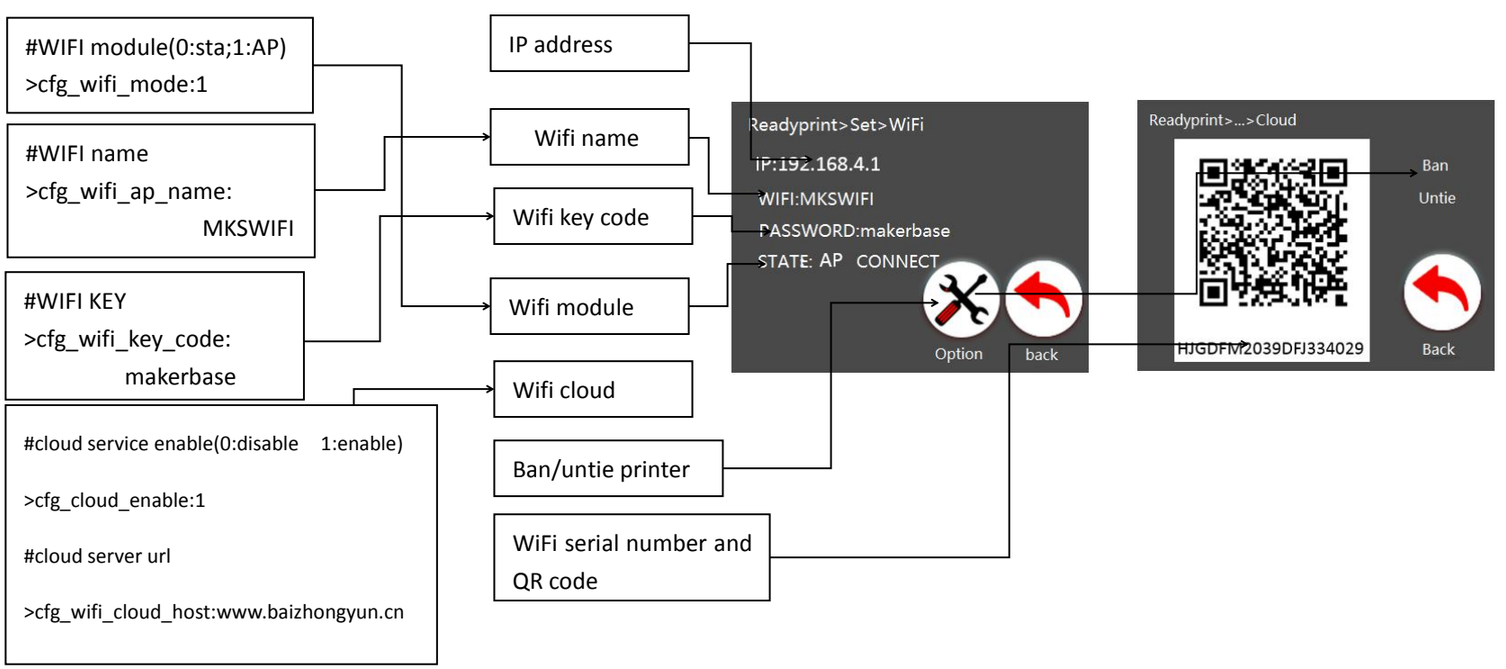
4 .Point setting, click on the breakpoint recovery and select the file to be printed on the breakpoint recovery, as shown in Figure 5, figure 6.
5 . After you select the file, wait for it to print.as Figure 7.
(After selecting the model, the larger the model, the more complex it is, the longer it waits here.)
The steps of breakpoints recovery:

Ⅷ. WiFi feature (remote control printing)

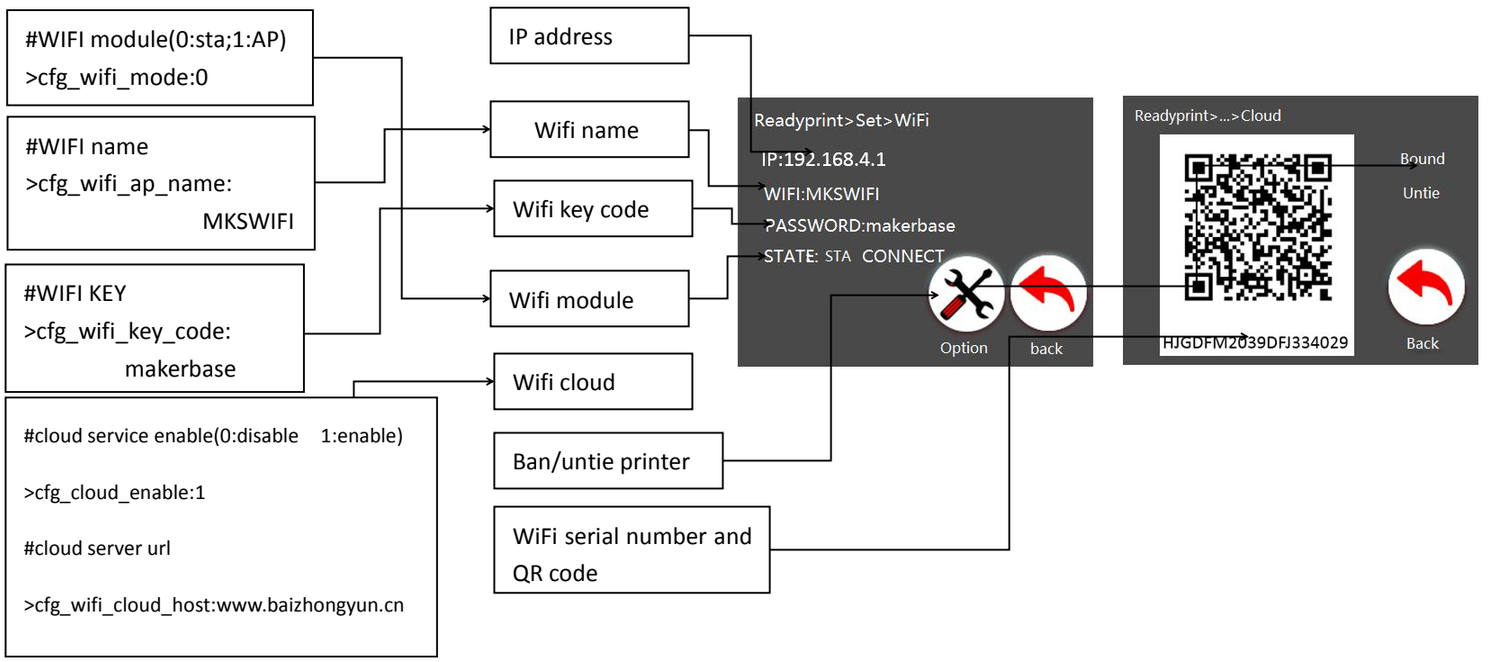
8.1 The introduction of the wifi function mode

The wifi mode have two types: STA MODE and AP MODE.
AP MODE: WiFi firmware can be upgraded by the Web or SD card.Configure the routers that you want to connect to.
STA MODE: Connecting the WiFi module to the router, then through the mobile phone app remote control, download the model to print.

8.1.1 To configure WiFi information status in a configuration file:WiFi mode, wifi name, wifi password.
AP mode:



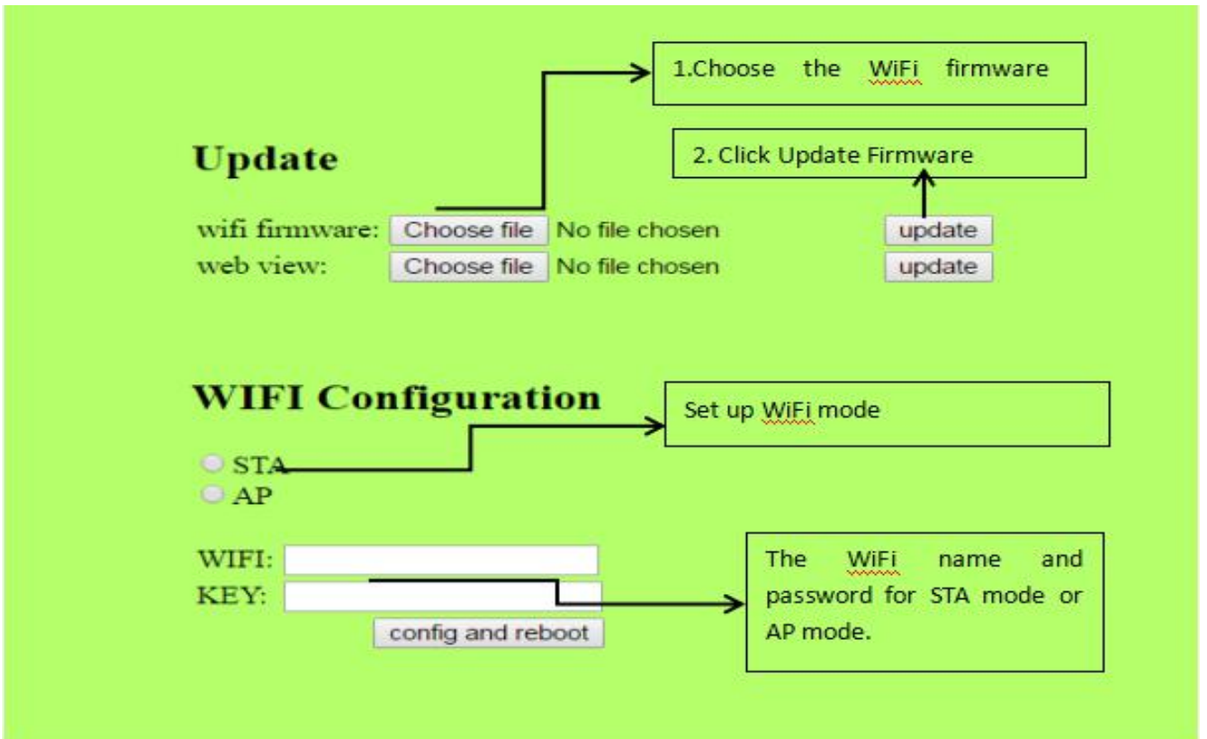
STA mode



Attention:

1. Scan two-dimensional 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 printer;
4. You can modify the WiFi mode through the computer Web, or change it through a configuration file.

8.2 Updating the WiFi firmware method via the computer web



8.3 Mobile app Print.

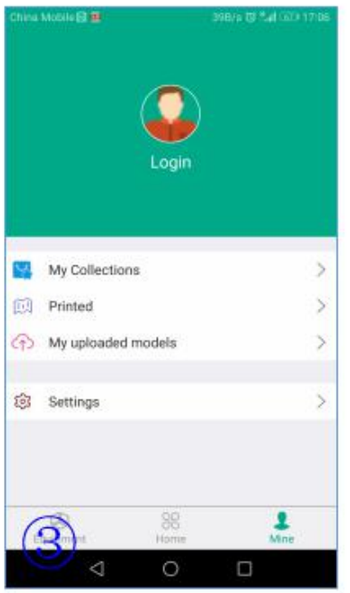
8.3.1 The ways to get the mobile app.

1. Get installation Kits (Android) to customer service or technical support
2. Android users can search for "Mkscloud" in the app website and Huawei application market to download;
3. IOS users can search for "Mkscloud" in the app store for downloading;
4. Login to create a base model website for download: https://baizhongyun.cn/home/index

8.3.2 Mobile phone app operation method

Download MKSCloud App

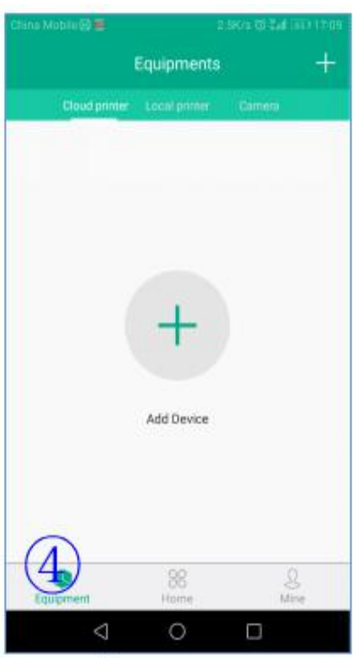
Installation



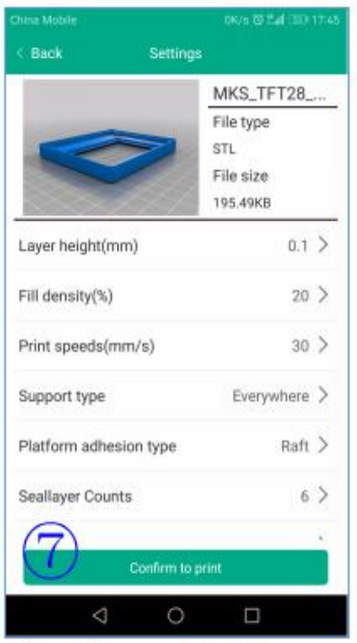
login

Model Preview Interface

Printer bindings

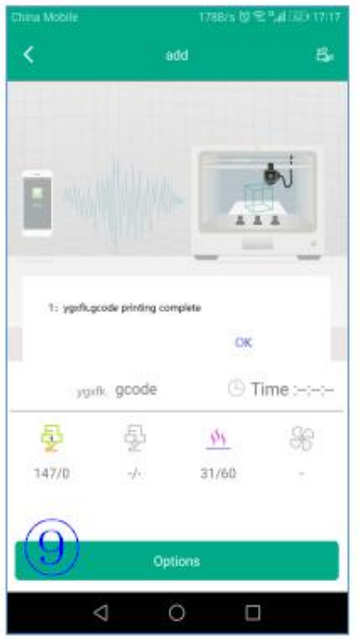


Add Printer page



Adjust the Print Parameters page

Printing pages

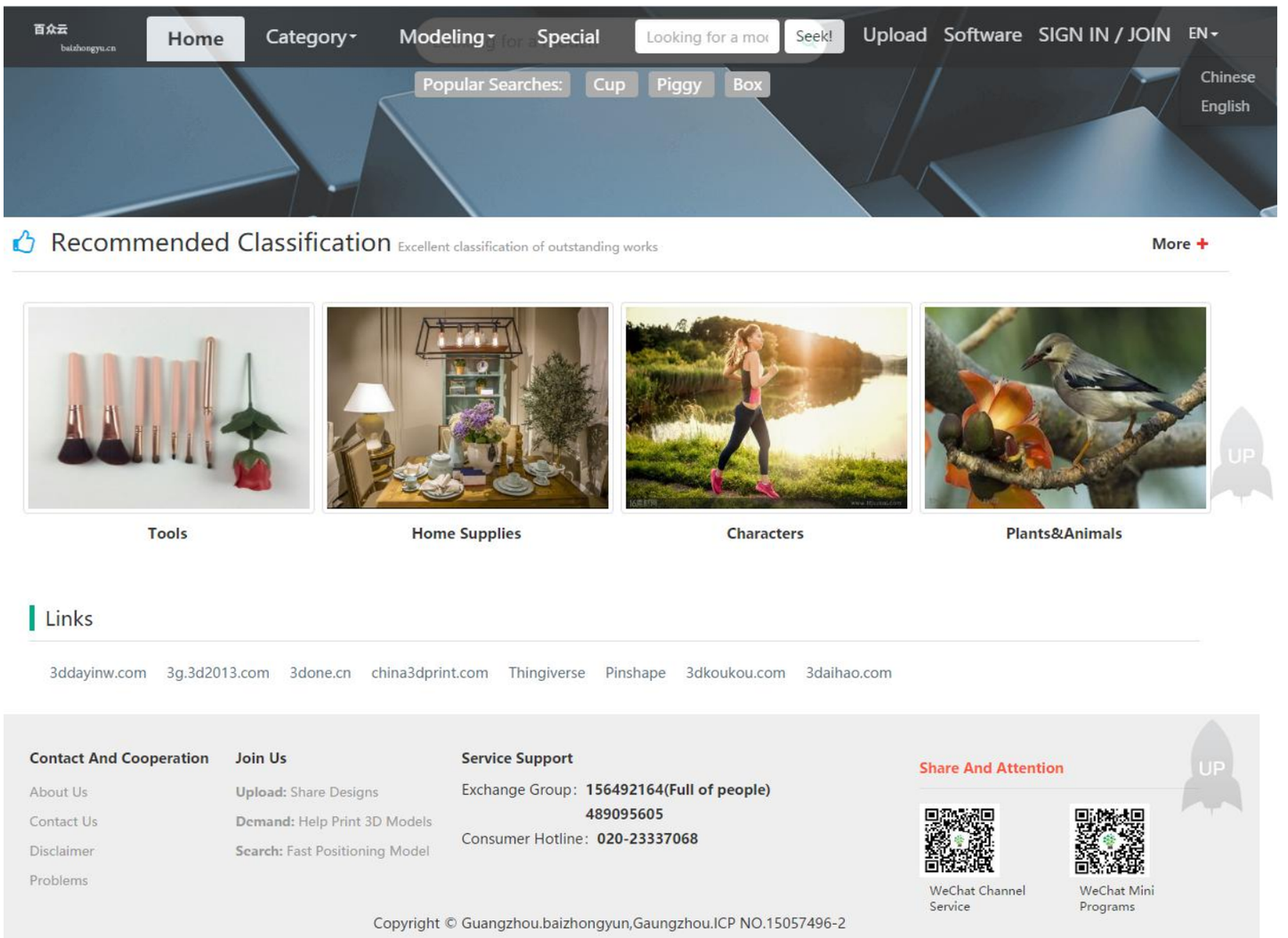


Print complete

8.4 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:

9.1.1 . 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);

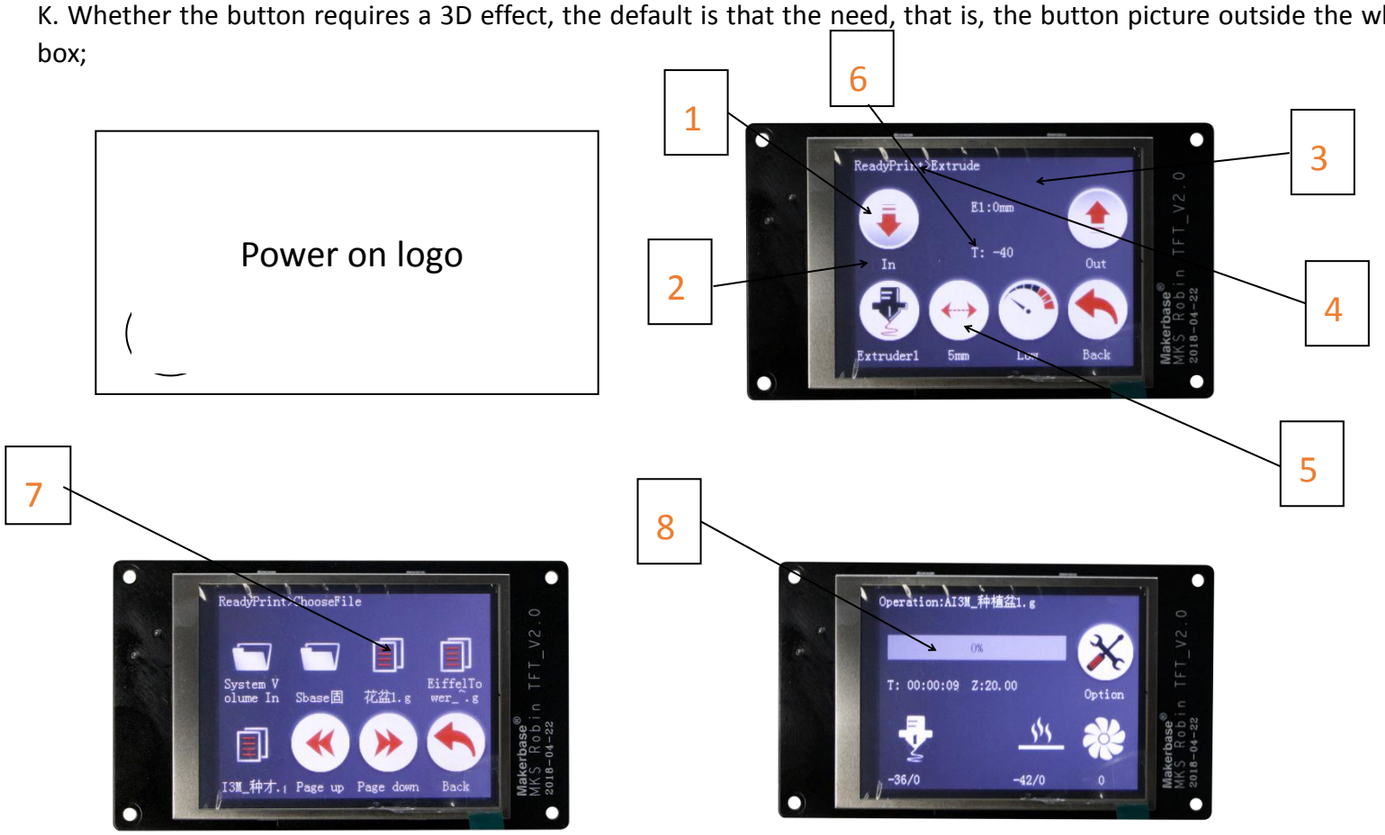
G. " Select the file interface, the font color of the file name (see figure "7", the default white);

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 box;

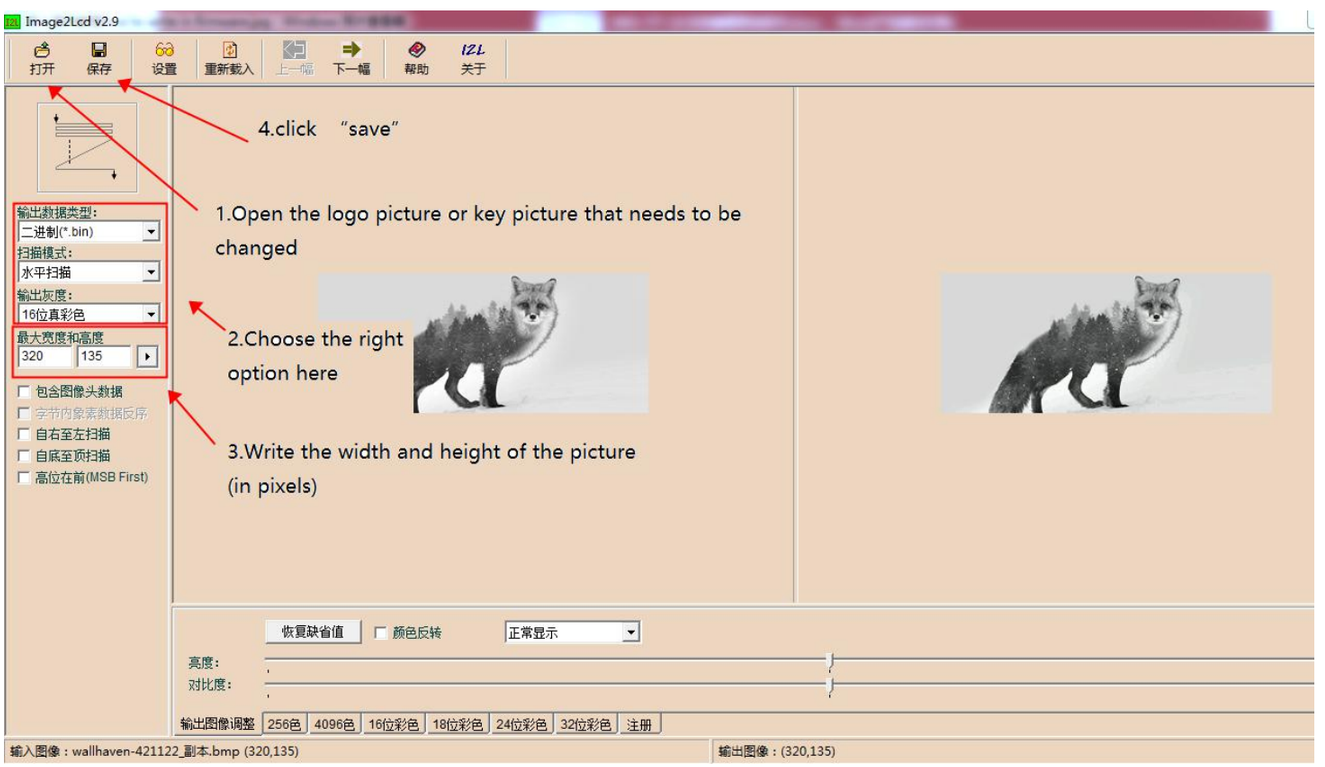


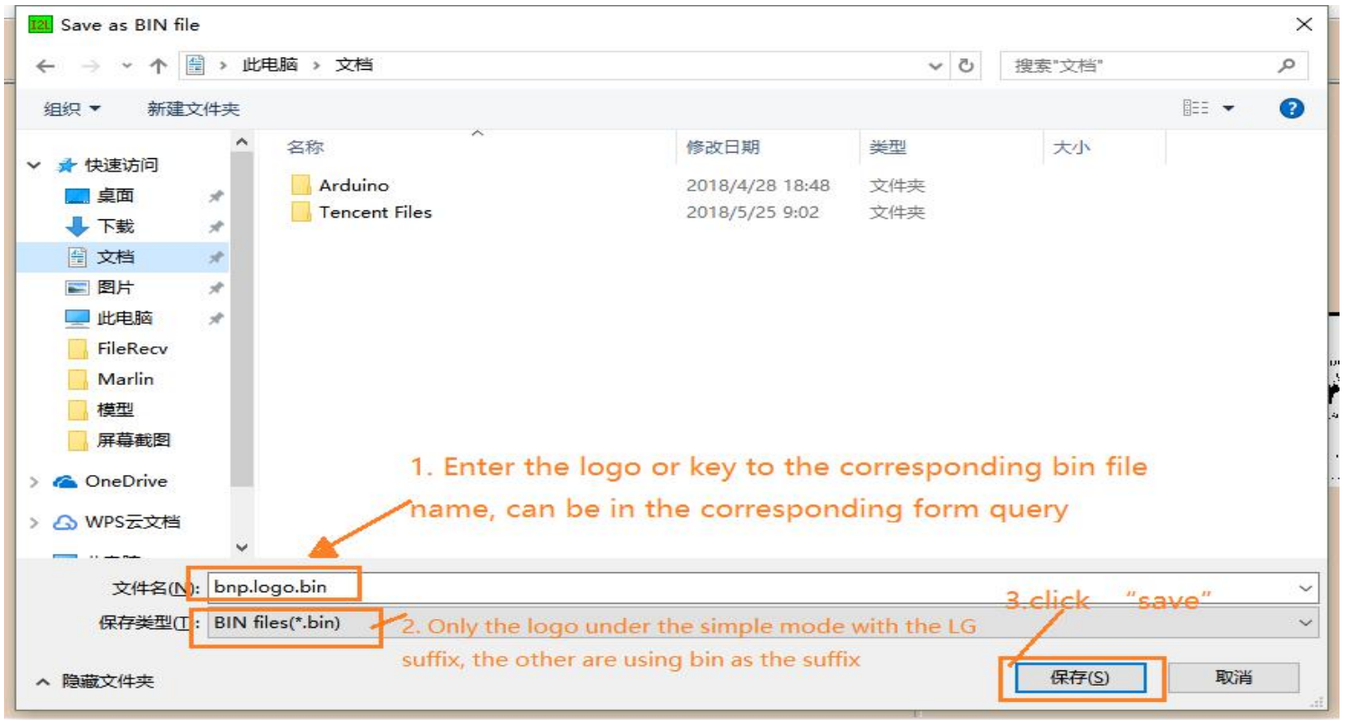
(1)Custom boot logo picture, 16DPP, wide =320 pixel, high =240 pixel;

(2) Custom button picture, 16DPP, wide =78 pixel, high =104 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;

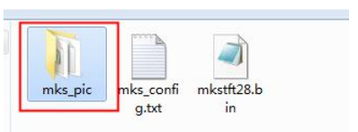
9.2 . Steps

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)

1. Power-on logo.

bmp_logo.bin

2. Ready to print Interface:

Preheat: bmp_preHeat.bin	Move: bmp_mov.bin	Home: bmp_zero.bin	Print: bmp_printing.bin
Extruct: bmp_extruct.bin	Leveling: bmp_leveling.bin	Setting: bmp_set.bin	More: bmp_more.bin

3. 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_degree.bin 5 度: bmp_step5_degree.bin 10 度: bmp_step10_degree.bin	close: bmp_speed0.bin	Return: bmp_return.bin

4. Extrusion interface

In: bmp_in.bin			Out: bmp_out.bin
Extru(E): E1: bmp_extru1.bin E2: bmp_extru2.bin	Step: 1mm: bmp_step1_mm.bin 5mm: bmp_step5_mm.bin 10mm: bmp_step10_mm.bin	Rate: Low: bmp_speed_slow.bin Normal: bmp_speed_normal.bin High: bmp_speed_high.bin	Return: bmp_return.bin

5. MOVE interface

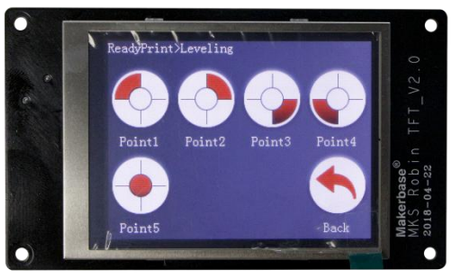
X+: bmp_xAdd.bin	Y+: bmp_yAdd.bin	Z+: bmp_zAdd.bin	Step: 0.1mm: Bmp_step_move0.1.bin 1mm: bmp_step_move1.bin 10mm: bmp_step_move10.bin
X-: bmp_xDec.bin	Y-: bmp_yDec.bin	Z-: bmp_zDec.bin	return: bmp_return.bin

6. Home interface

All (Home): bmp_zeroA.bin	X: bmp_zeroX.bin	Y: bmp_zeroY.bin	Z: bmp_zeroZ.bin
			return (Back): bmp_return.bin

7 . 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		



8 . Setting interface

File system: bmp_fileSys.bin	wifi: bmp_wifi.bin	fan: bmp_fan.bin	about: bmp_about.bin
breakpoint: bmp_breakpoint.bin	change: bmp_function1.bin	Motor off: bmp_function2.bin	Return: bmp_return.bin

9 . Fan interface

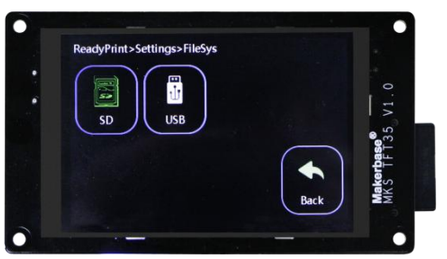
ADD: bmp_Add.bin			DEC: bmp_Dec.bin
Full speed: bmp_speed255.bin	Halfspeed: bmp_speed127.bin	Close: bmp_speed0.bin	return: bmp_return.bin

10 . change filament interface

In: bmp_in.bin			Out: bmp_out .bin
Extru (E) : E1: bmp_extru 1.binE2: bmp_extru 2.bin	preheat: bmp_pre Heat.bin	Stop: bmp_stop. bin	Return: bmp_return .bin

11. File system interface

SD: No set: bmp_ sd.bin set: bmp_sd _sel.bin	U disk: No set: bmp_ usb.bin set: bmp_usb _sel.bin		
			Return (Back) : bmp_return.bin

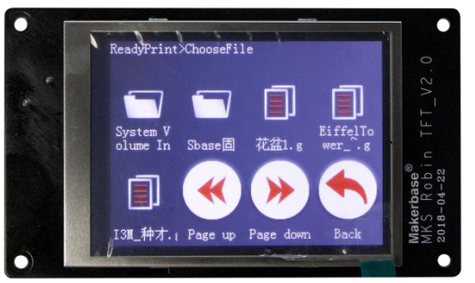


12 . more interface

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

13 . choose file

File: bmp_file.bin dirctor: bmp_dir.bin			
	Page up: bmp_ pageUp.bin	Pagedown: bmp_page Down.bin	Return: bmp_ return.bin



14 . Printing interface

			option: bmp_menu.bin
Extru1 （E1）: bmp_extr u1_no_wo rds. bin	Extru2（E2）: bmp_extru2_ no_words.bin	Hot bed: bmp_bed_n o_words. bin	fan: bmp_fan_no_words.b in Fan_move: bmp_fan_move.bin

15 . option interface

Pause: bmp_pause.b in			stop: bmp_stop.bin
temperate: bmp_temp.bi n	Speed: bmp_speed .bin	move: bmp_more .bin	return: bmp_return.bin

16 . 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

17 . Speed interface

Add: bmp_Add.bi n			Dec: bmp_Dec.bin
Move: No set: bmp_mov.bi n Set : bmp_mov_se l.bin	Extruct: No set: bmp_extruct .bin Set : bmp_extruct _sel.bin	Step: 1mm: bmp_step1_m m.bin 5mm: bmp_step5_m m.bin 10mm: bmp_step10_ mm.bin	Return: bmp_return.bin

18 . More interface in ready print

Fan: bmp_fan. bin	Change filament: bmp_filament change.bin	Auto off: Set: bmp_auto_off.bi n No set: bmp_manual_off. bin	custom1: bmp_morefunc1.bi n
custom2: bmp_more func2.bi n	custom3: bmp_morefunc 3.bin	custom4: bmp_morefunc4.b in	return: bmp_return.bin

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