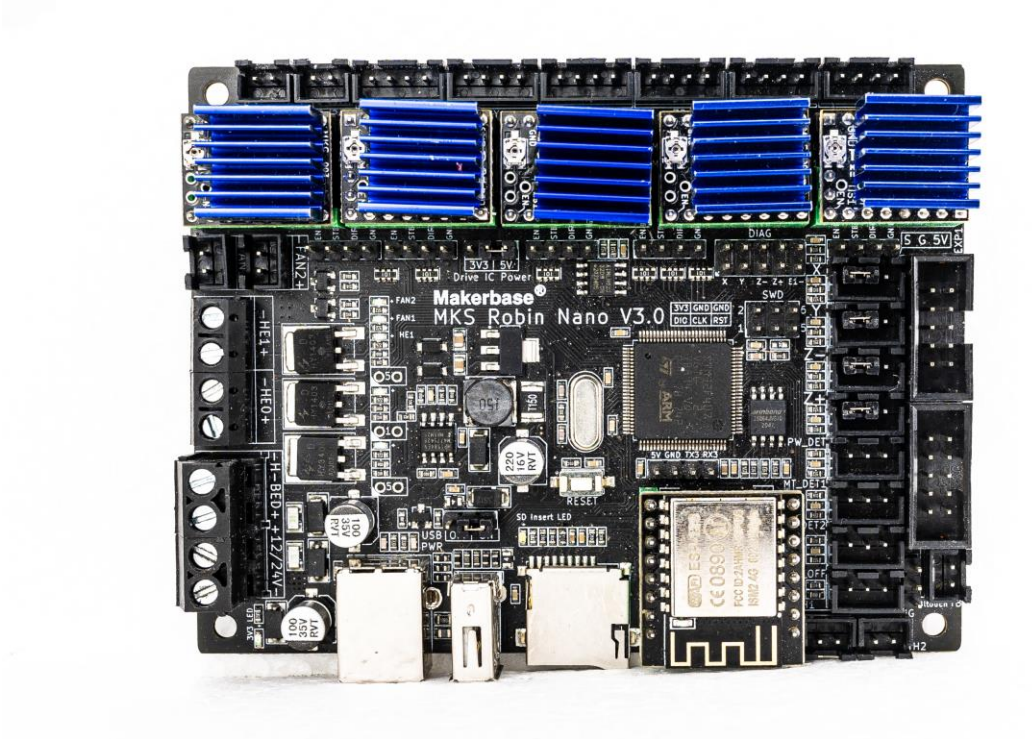
MKS Robin nano V3 use RRF firmware manual

1. Hardware



Just connect the MKS Robin Wifi module to the MKS Robin Nano V3 board, and need the TF card with FAT32 format.

2. Mainboard firmware update

1) Update Mainboard bootloader

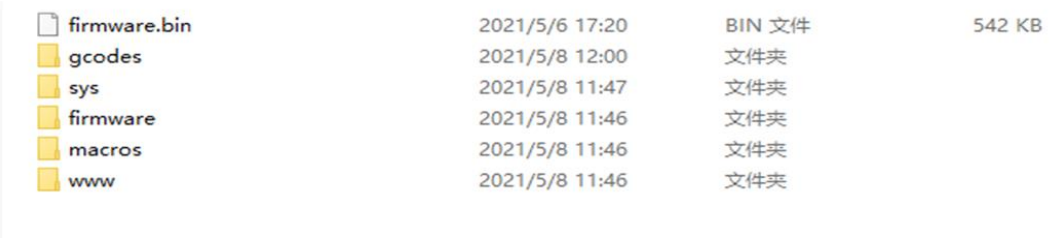
The original bootloader does not support RRF, so the BootLoader needs to be updated first. This is only a one-time step. The updated BootLoader will support both Marlin firmware and RRF firmware.

Copy the following files(“bootloader” folder on github) to the TF card, insert the card into the motherboard card s, then power on and wait the update to be finished.

firmware.bin	2021/5/28 19:25	BIN 文件	520 KB
nano_v3_bootloader.bin	2021/5/10 12:10	BIN 文件	41 KB
Robin_nano_v3.bin	2021/5/10 10:41	BIN 文件	39 KB

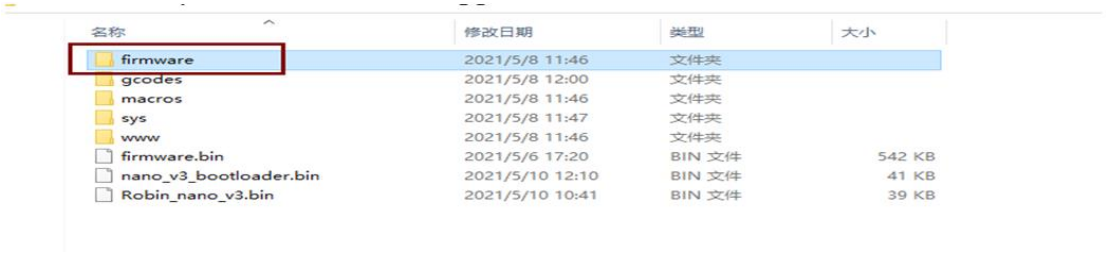
2) Update mainboard RRF firmware

Copy the following files(“release firmware” folder on github) to the TF card, then power on until the “FAN1” light on the motherboard flashes, that means update RRF firmware complete



3. wifi firmware update and wifi configuration

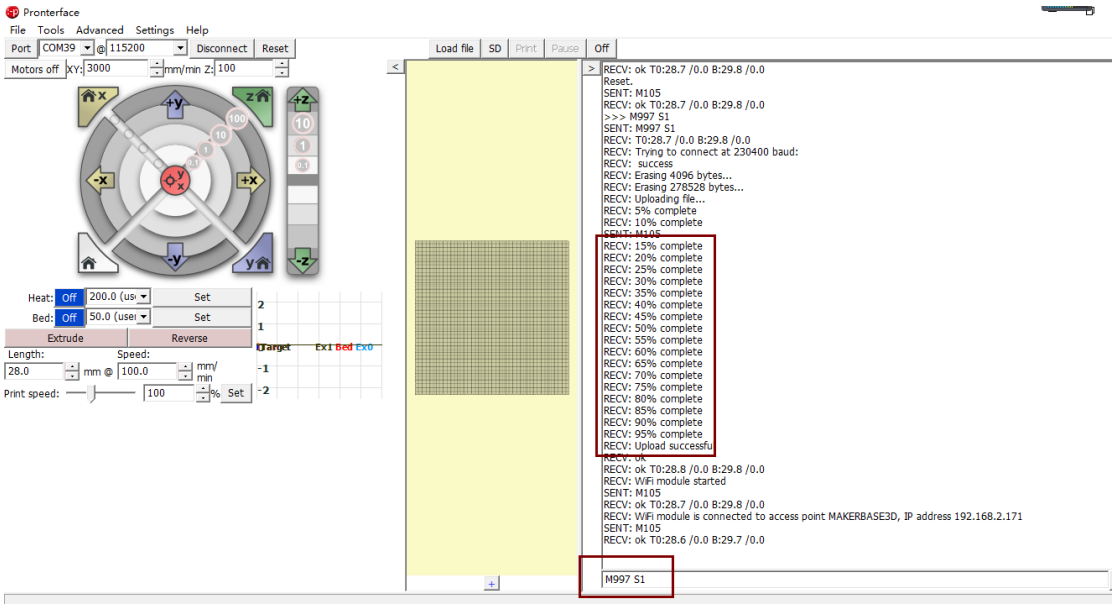
To update the Wifi firmware, you need to make sure that the wifi firmware DuetWiFiServer.bin is in the firmware folder of TF card.



Use the Pronterface or other host on PC to connect to the motherboard, and then send the command:

M997 S1

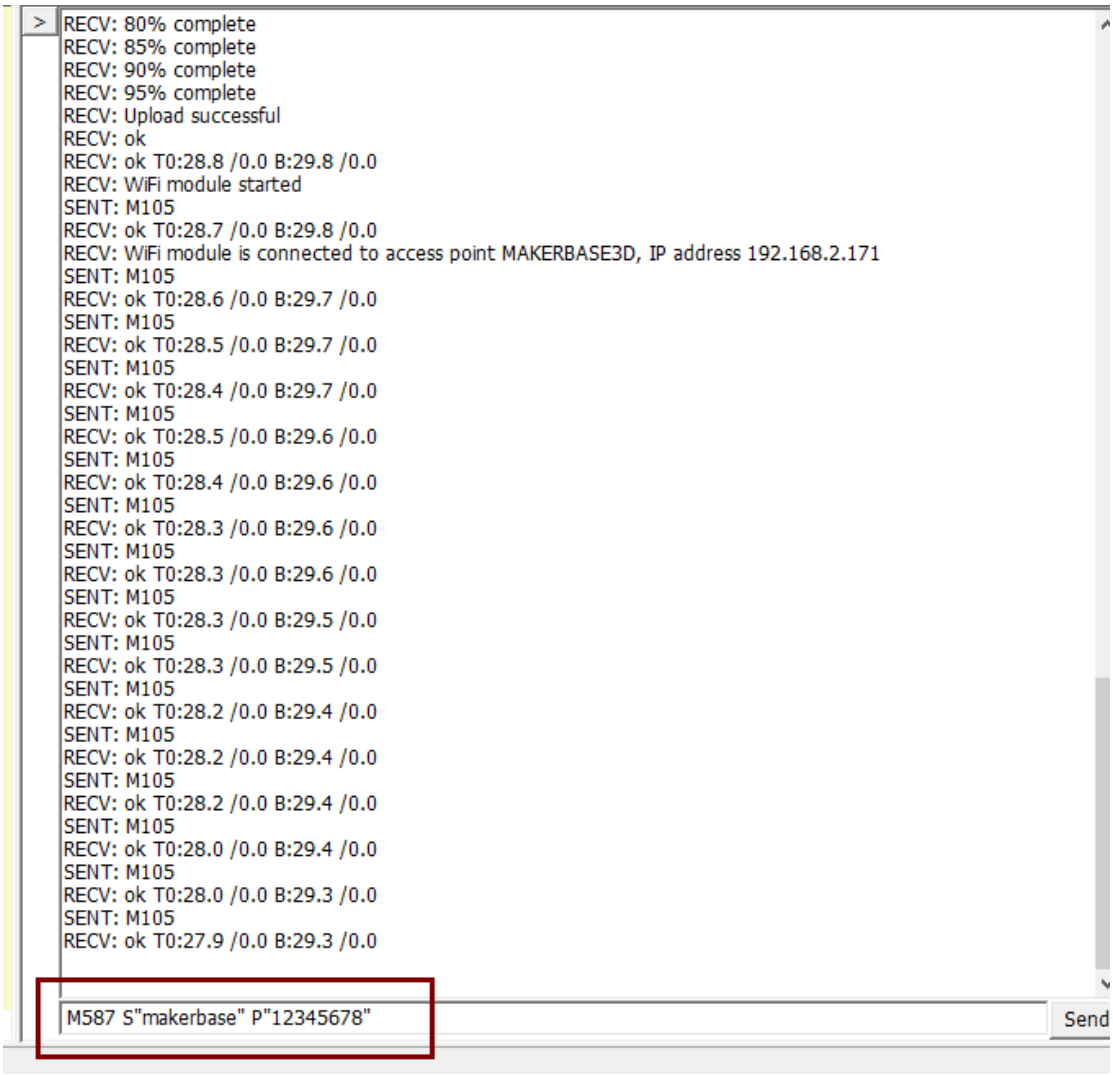
to update the wifi firmware. The firmware update process will display the update progress on the Pronterface.



Wifi name and wifi password settings, send the command :

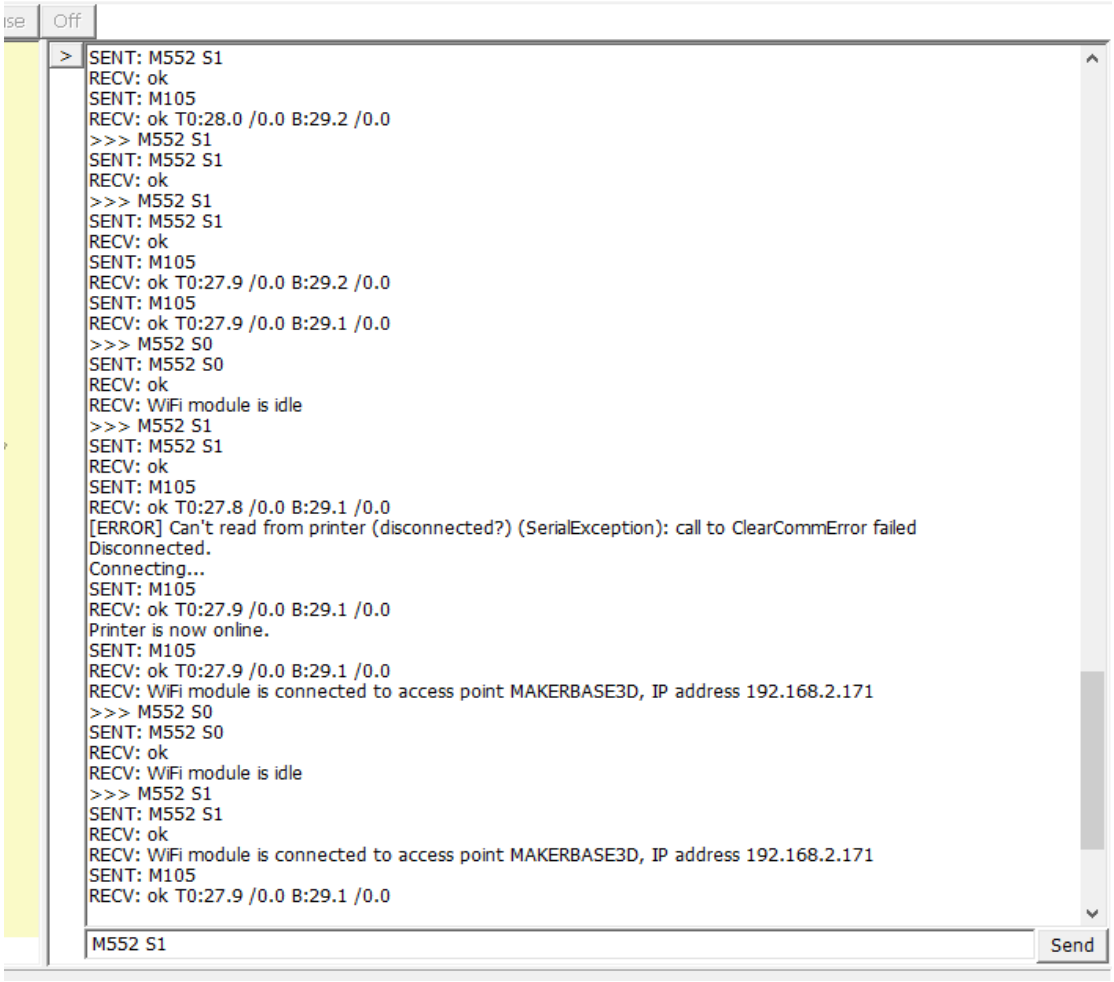
M587 S "wifi name" P "wifi password"

Modify wifi name and wifi password according to your actual situation.

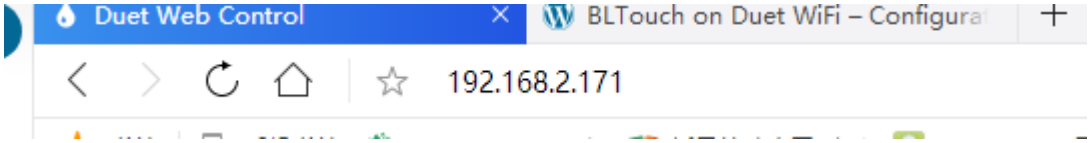


Wfi IP query, the host computer sends instructions:

M552 S1

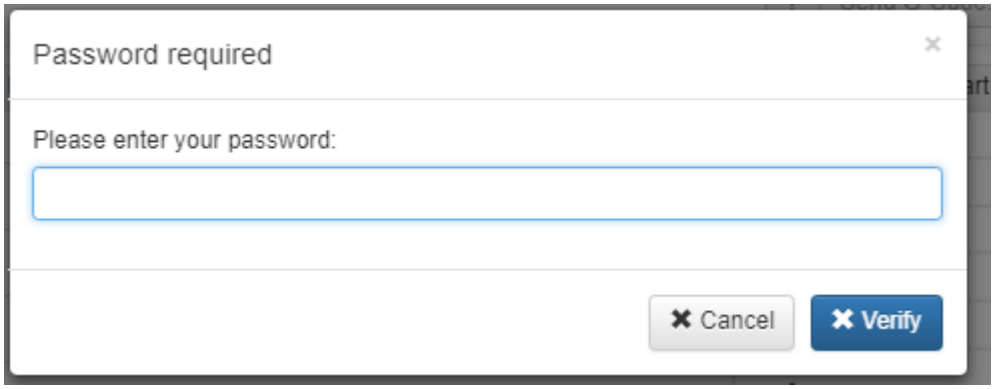


Web page control connection, enter the IP in the browser to login



Enter the login password, which is set in the configuration file:

release firmware/rrf_v3.2/sys/config.g



```
; Configuration file for MKS SGen L v2.0 (firmware version 3)
; executed by the firmware on start-up
;
; generated by RepRapFirmware Configuration Tool v3.2.1-LPC on Wed Feb 03 2021

; General preferences
G90                                             ; send absolute coordinates...
M83                                             ; ...but relative extruder move
M550 P"My Printer"                              ; set printer name
M551 P"makerbase"                 ; Set password

M555 P2                           ; P1;like RepRapFirmare   P2;like Marlin
M575 P1 B115200 S1                ; Paneldue

; Network
M552 S1                                         ; enable network
M586 P0 S1                                      ; enable HTTP
M586 P1 S0                                      ; disable FTP
M586 P2 S0                                      ; disable Telnet

; Drives
M569 P0 S0                                      ; physical drive 0 goes forward
M569 P1 S0                                      ; physical drive 1 goes forward
M569 P2 S1                                      ; physical drive 2 goes forward
M569 P3 S0                                      ; physical drive 3 goes forward
```

4. Modification of the machine parameter configuration file

The following config options should be modified on the file : release firmware/rrf_v3.2/sys/config.g

3.1 Set the rotation direction of the motor, S0 or S1, if the rotation direction is not correct, configure the opposite

M569 P0 S0 ; （X）physical drive 0 goes forwards using default driver timings
M569 P1 S0 ; （Y）physical drive 1 goes forwards using default driver timings
M569 P2 S1 ; （Z）physical drive 2 goes forwards using default driver timings
M569 P3 S0 ;（E0） physical drive 2 goes forwards using default driver timings

3.2 Pulse setting

M92 X80.00 Y80.00 Z400.00 E420.00 ; set steps per mm

3.3 Maximum speed and acceleration setting

M566 X900.00 Y900.00 Z60.00 E120.00 ; set maximum instantaneous speed changes (mm/min)
M203 X6000.00 Y6000.00 Z180.00 E1200.00 ; set maximum speeds (mm/min)
M201 X500.00 Y500.00 Z20.00 E250.00 ; set accelerations (mm/s^2)

3.4 Print platform range setting

; Axis Limits

M208 X0 Y0 Z0 S1 ; set axis minima

M208 X230 Y210 Z200 S0 ; set axis maxima

3.5 Limit type setting

; Endstops

M574 X1 S1 P"^xstop" ; configure active-high endstop for low end on X via pin !^xstop

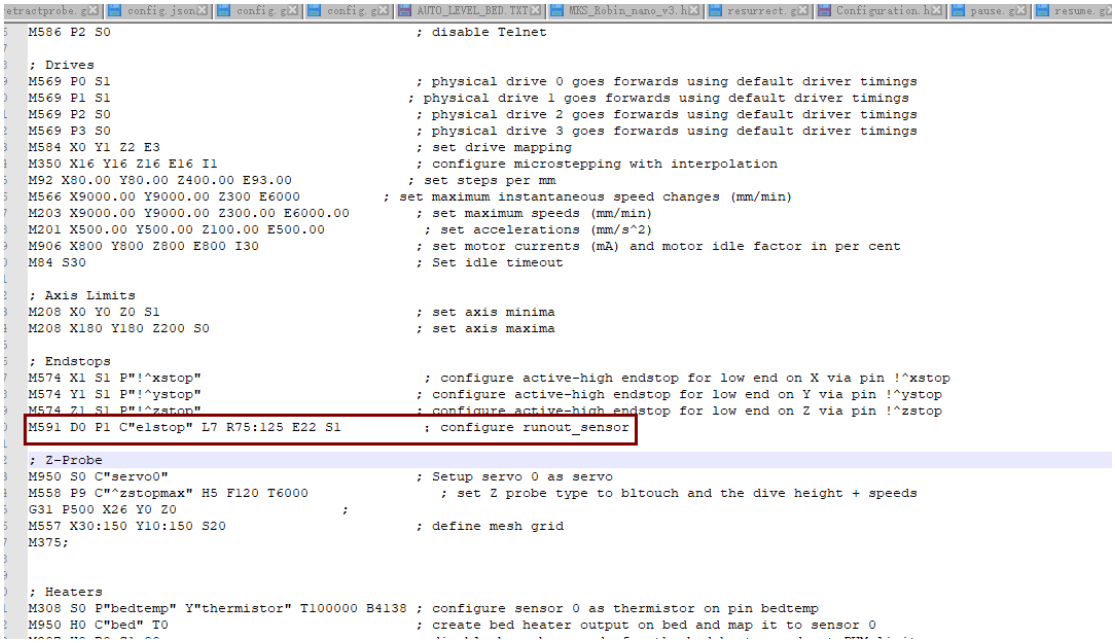
M574 Y1 S1 P"!^ystop" ; configure active-high endstop for low end on Y via pin !^ystop

M574 Z1 S1 P"!^zstop" ; configure active-high endstop for low end on Z via pin !^zstop

4、Runout_sensor cofiguration

Add the following code to the enstops configuration:

M591 D0 P1 C"e1stop" L7 R75:125 E22 S1 ； configure runout_sensor P1 low level trigger, P2 high level trigger



5.Enable PanelDue screen

Add instructions in the distribution file

:M575 P1 B115200 S2 ; enable support for PanelDue

```
; Heaters                                                                    D:\RRF\R
M308 S0 P"bedtemp" Y"thermistor" T100000 B4138 ; configure sensor 0 as the
M950 H0 C"bed" T0                              ; create bed heater output
M307 H0 B0 S1.00                               ; disable bang-bang mode fo
M140 H0                                        ; map heated bed to heater
M143 H0 S120                                   ; set temperature limit for
M143 H0 S120                                   ; set temperature limit for
M308 S1 P"e0temp" Y"thermistor" T100000 B4138  ; configure sensor 1 as the
M950 H1 C"e0heat" T1                           ; create nozzle heater outp
M307 H1 B0 S1.00                               ; disable bang-bang mode fo
M143 H1 S280                                   ; set temperature limit for

; Fans
M950 F0 C"fan0" Q500                           ; create fan 0 on pin fan0
M106 P0 S0 H-1                                 ; set fan 0 value. Thermost

; Tools
M563 P0 D0 H1 F0                               ; define tool 0
G10 P0 X0 Y0 Z0                                ; set tool 0 axis offsets
G10 P0 R0 S0                                   ; set initial tool 0 active

; Custom settings are not defined
; Miscellaneous
M575 P1 B115200 S2                           ; enable support for PanelDue
M501                                           ; load saved parameters fro
                                             ; select first tool
; Automatic power saving
M911 S21 R22 P"M913 X0 Y0 G91 M83 G1 Z3 E-5 F1000" ; Set voltage threshold
```

6. Bltouch/3Dtouch configuration

6.1 Add the following instructions to the configuration file;

;Z-Probe

M950 S0 C"servo0" ; Setup servo 0 as servo

M558 P9 C"^zstopmax" H5 F120 T6000 ; set Z probe type to bltouch and the dive height + speeds

G31 P500 X26 Y0 Z2.1 ; set X offse\Y offset1\Trigger Z height

M557 X30:150 Y10:150 S20 ; define mesh grid

M375 ; Load height map

```
M201 X500.00 Y500.00 Z100.00 E500.00            ; set accelerations (mm/s^
M906 X800 Y800 Z800 E800 I30                    ; set motor currents (mA) a
M84 S30                                         ; Set idle timeout

; Axis Limits
M208 X0 Y0 Z0 S1                                ; set axis minima
M208 X180 Y180 Z200 S0                          ; set axis maxima

; Endstops
M574 X1 S1 P"!^xstop"                           ; configure active-high en
M574 Y1 S1 P"!^ystop"                           ; configure active-high end
M574 Z1 S1 P"!^zstop"                           ; configure active-high end
M591 D0 P1 C"e1stop" L7 R75:125 E22 S1          ; configure runout_sensor

; Z-Probe
M950 S0 C"servo0"                               ; Setup servo 0 as servo
M558 P9 C"^zstopmax" H5 F120 T6000              ; set Z probe type to bltou
G31 P500 X26 Y0 Z2.1                            ; set X offse\Y offset1\Tri
M557 X30:150 Y10:150 S20                        ; define mesh grid
M375                                            ; Load height map

; Heaters
M308 S0 P"bedtemp" Y"thermistor" T100000 B4138 ; configure sensor 0 as the
M950 H0 C"bed" T0                               ; create bed heater output
M307 H0 B0 S1.00                                ; disable bang-bang mode fo
M140 H0                                         ; map heated bed to heater
M143 H0 S120                                    ; set temperature limit for
M143 H0 S120                                    ; set temperature limit for
M308 S1 P"e0temp" Y"thermistor" T100000 B4138  ; configure sensor 1 as the
M950 H1 C"e0heat" T1                            ; create nozzle heater outp
M307 H1 B0 S1.00                                ; disable bang-bang mode fo
```

6.2 Add the deployprobe.g file in the sys folder, the instructions in the file are: M280 P0 S10

6.3 Add the retractprobe.g file in the sys folder, the instructions in the file are: M280 P0 S90

6.4 Add the heightmap.csv file in the sys folder, which is used to save the measured height data

6.5 Add the bed.g file in the sys folder, the instructions in the file are:

M561

G29

6.6 Add the control key AUTO_BED_LEVELING in the macro folder. The control key is used to perform automatic leveling operations on the screen. The instructions inside are:

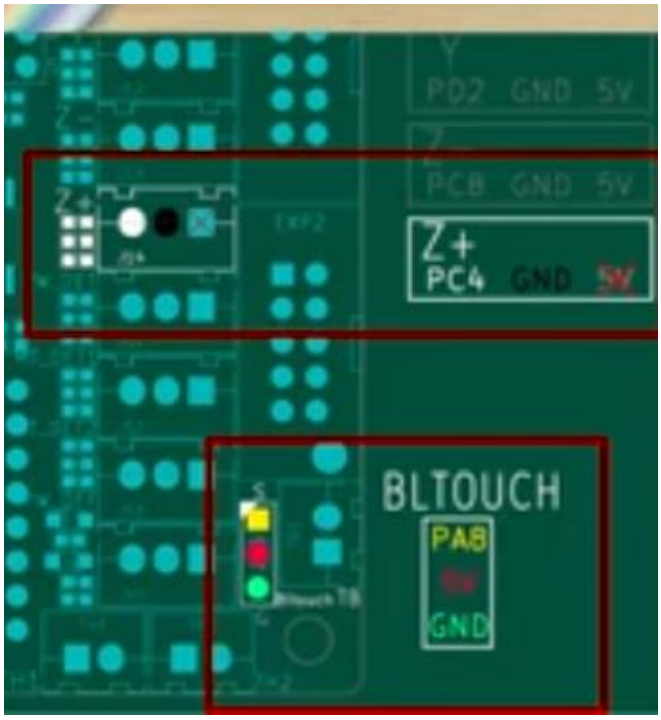
M280 P0 S160

G28

G32

6.7 Add the control key Alarm Release in the macro folder, the instruction inside is M280 P0 S160, the control key is used to release the 3Dtouch alarm

6.8 3Dtouch wiring



6.9 Zoffset adjustment, please refer to the tutorial in the link below for details.

https://betrue3d.dk/bltouch-on-duet-wifi-configuratio-and-usage/#macrogroup