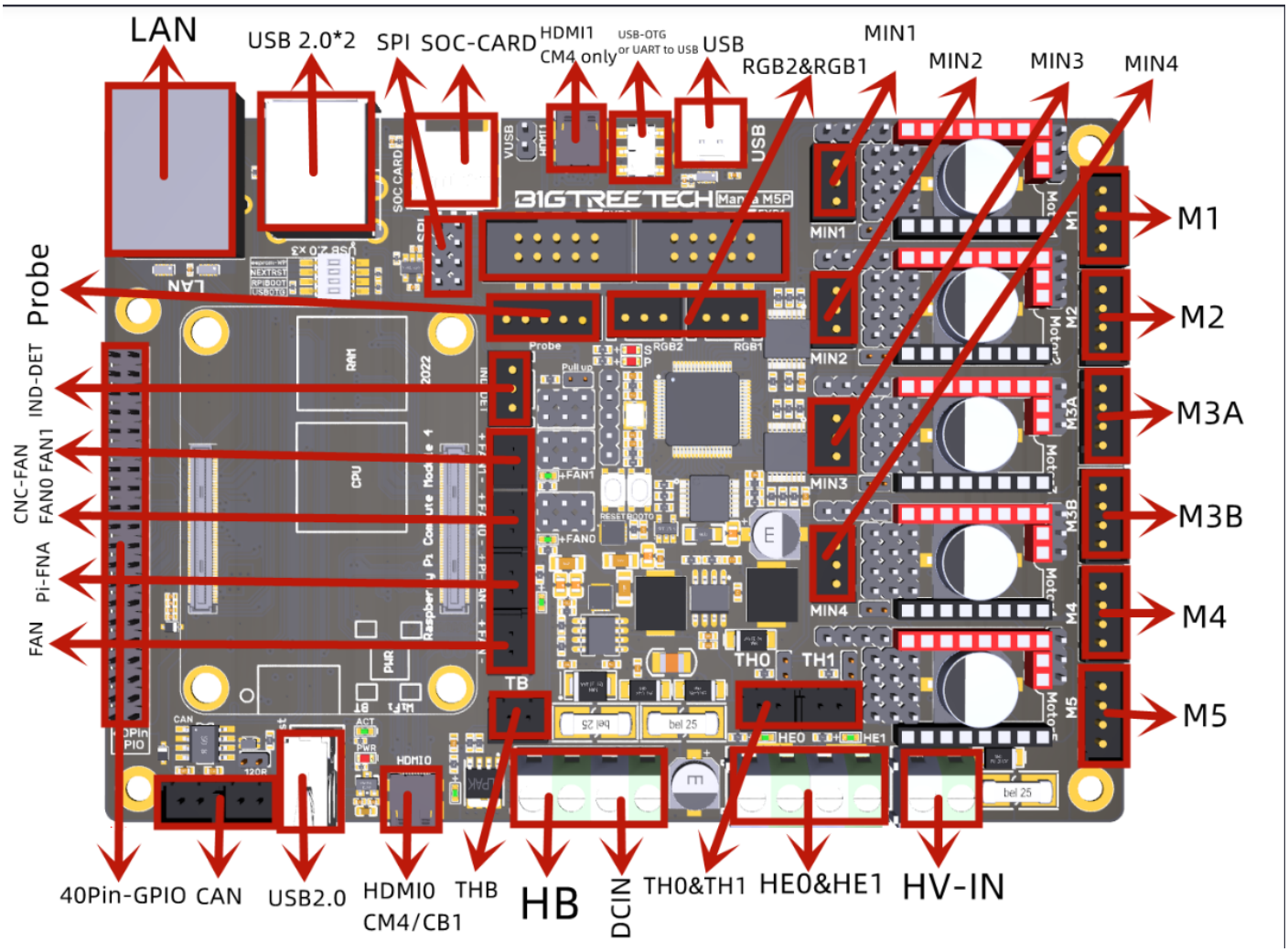
BIGTREETECH Manta M5P ,CB1, TMC2209, BLTouch, stock Creality LCD-Display

Manta M5P Board details

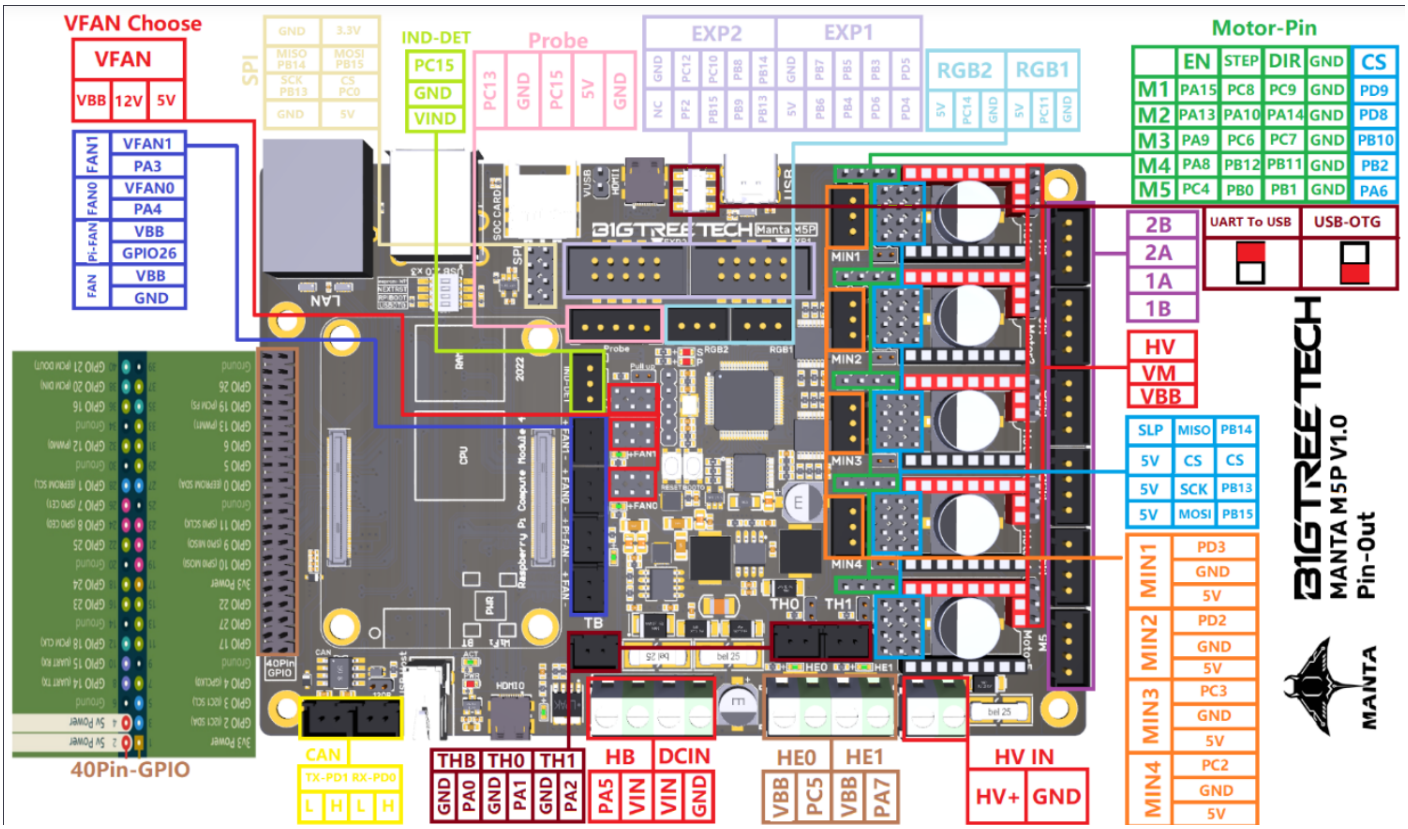
connections

[Webside by Bigtreetech]

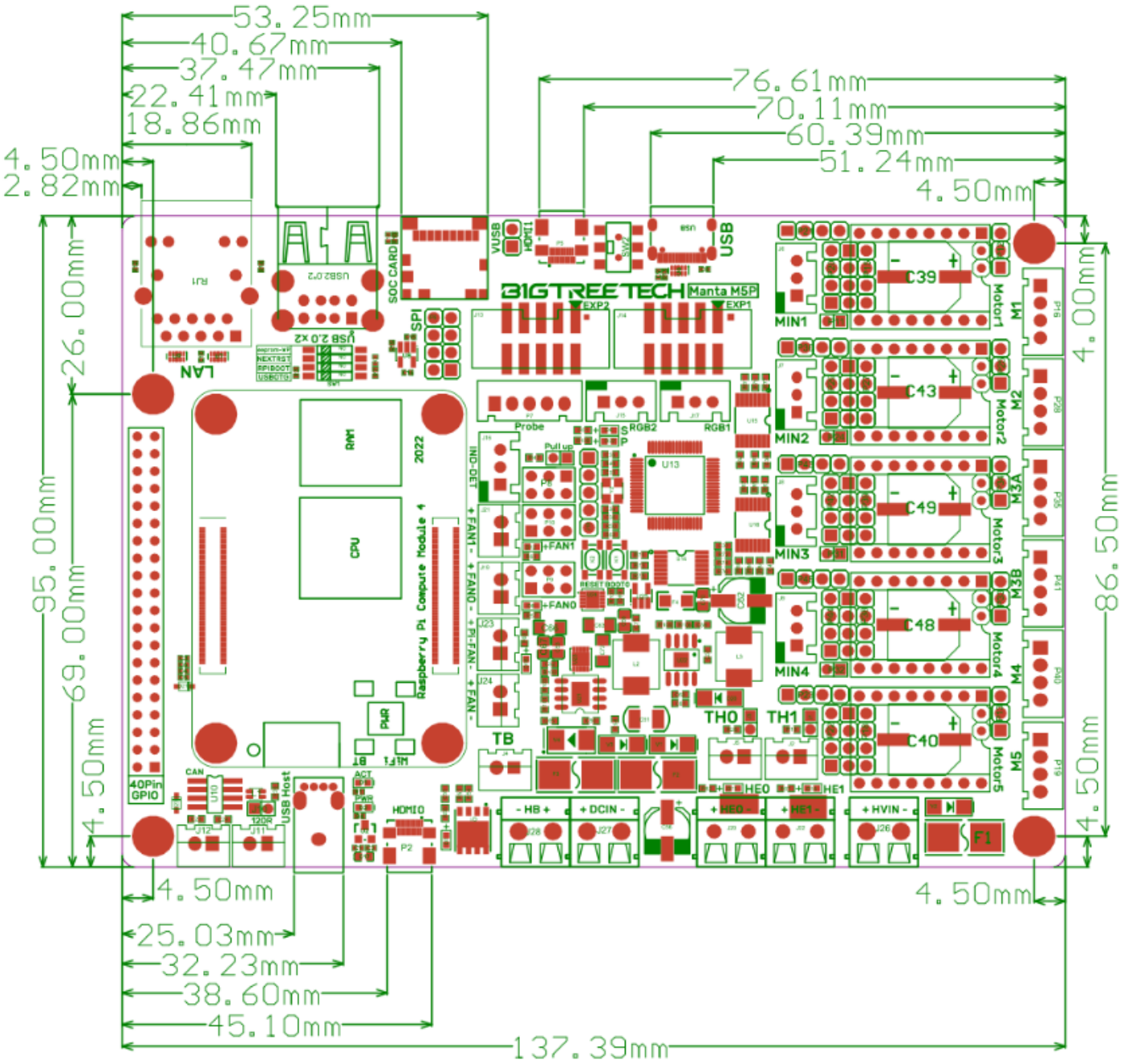
Connectors



Pinout


VFAN Choose
VFAN
VBB 12V 5V
FAN1 VFAN1
PA3
FAN0 VFAN0
PA4
Pi-FAN VBB
GPIO26
FAN VBB
GND
SPI
GND 3.3V
MISO PB14 MOSI PB15
SCK PB13 CS PC0
GND 5V
IND-DET
PC15
GND
VIND
Probe
PC13 GND PC15 5V GND
EXP2
EXP1
RGB2
RGB1
Motor-Pin
EN STEP DIR GND CS
M1 PA15 PC8 PC9 GND PD9
M2 PA13 PA10 PA14 GND PD8
M3 PA9 PC6 PC7 GND PB10
M4 PA8 PB12 PB11 GND PB2
M5 PC4 PB0 PB1 GND PA6
2B
2A
1A
1B
UART To USB
USB-OTG
HV
VM
VBB
SLP MISO PB14
5V CS CS
5V SCK PB13
5V MOSI PB15
MIN1 PD3 GND 5V
MIN2 PD2 GND 5V
MIN3 PC3 GND 5V
MIN4 PC2 GND 5V
BIGTREETECH
MANTA M5P V1.0
Pin-Out
MANTA
40Pin-GPIO
CAN
TX-PD1 RX-PD0
L H L H
THB TH0 TH1
GND PA0 GND PA1 GND PA2
HB DCIN
PA5 VIN VIN GND
HE0 HE1
VBB PC5 VBB PA7
HV IN
HV+ GND

Dimensions

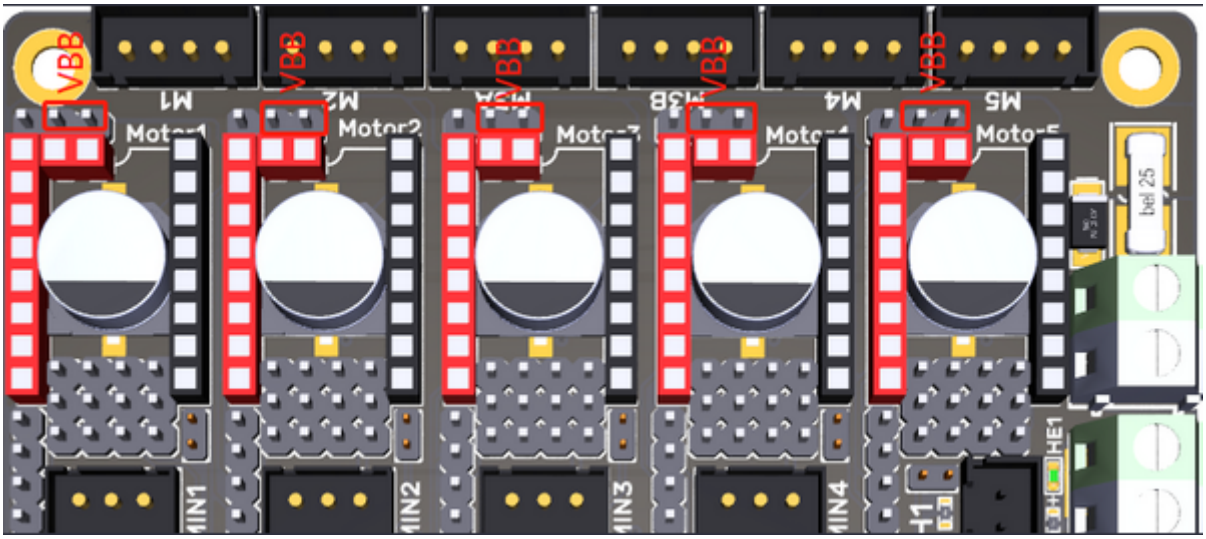

53.25mm
40.67mm
37.47mm
22.41mm
18.86mm
4.50mm
2.82mm
76.61mm
70.11mm
60.39mm
51.24mm
4.50mm
26.00mm
95.00mm
69.00mm
4.50mm
4.00mm
86.50mm
4.50mm
4.50mm
25.03mm
32.23mm
38.60mm
45.10mm
137.39mm
BIGTREETECH
Manta M5P
EXP1
EXP2
USB
SOC CARD
SPI
LAN
RAM
CPU
2022
Raspberry Pi Compute Module 4
IND-DET
+FAN1
+FAN0
+PI-FAN-
Probe
Pull up
RGB2
RGB1
RESET BOOT0
MIN1
MIN2
MIN3
MIN4
Motor1
Motor2
Motor3
Motor4
Motor5
M1
M2
M3A
M3B
M4
M5
C39
C43
C49
C48
C40
TH0
TH1
TB
HE0
HE1
- HB +
+ DCIN -
+ HE0 -
+ HE1 -
+ HVIN -
F1
40Pin GPIO
CAN
USB Host
HDMI0
ACT
PWR
BT
WIFI
PWR

ADXL345 pin	RPi pin	RPi pin name
3V3 (or VCC)	01	3.3V DC power
GND	06	Ground
CS	24	GPIO08 (SPI0_CE0_N)
SDO	21	GPIO09 (SPI0_MISO)
SDA	19	GPIO10 (SPI0_MOSI)
SCL	23	GPIO11 (SPI0_SCLK)

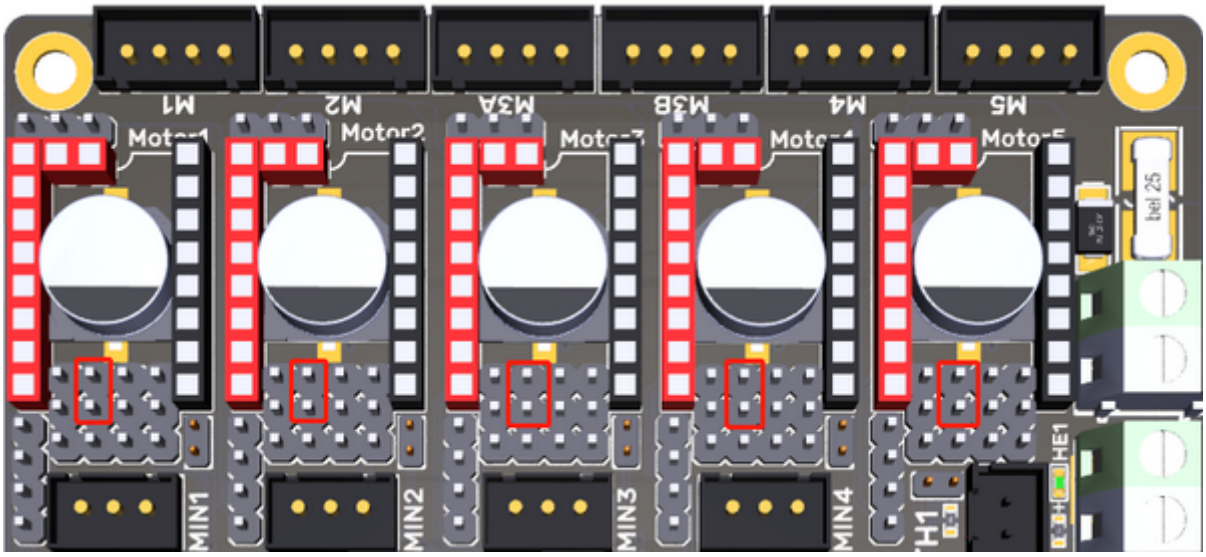
TMC2209

TMC2209 stepper driver

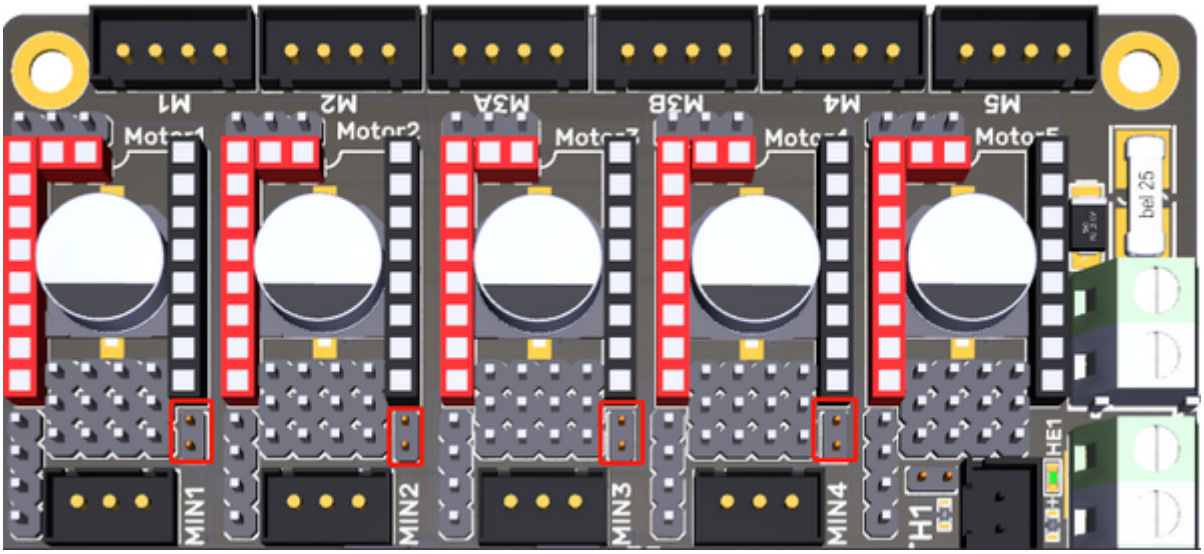
Schematic for 24 Volt powering



UART Mode of TMC Driver

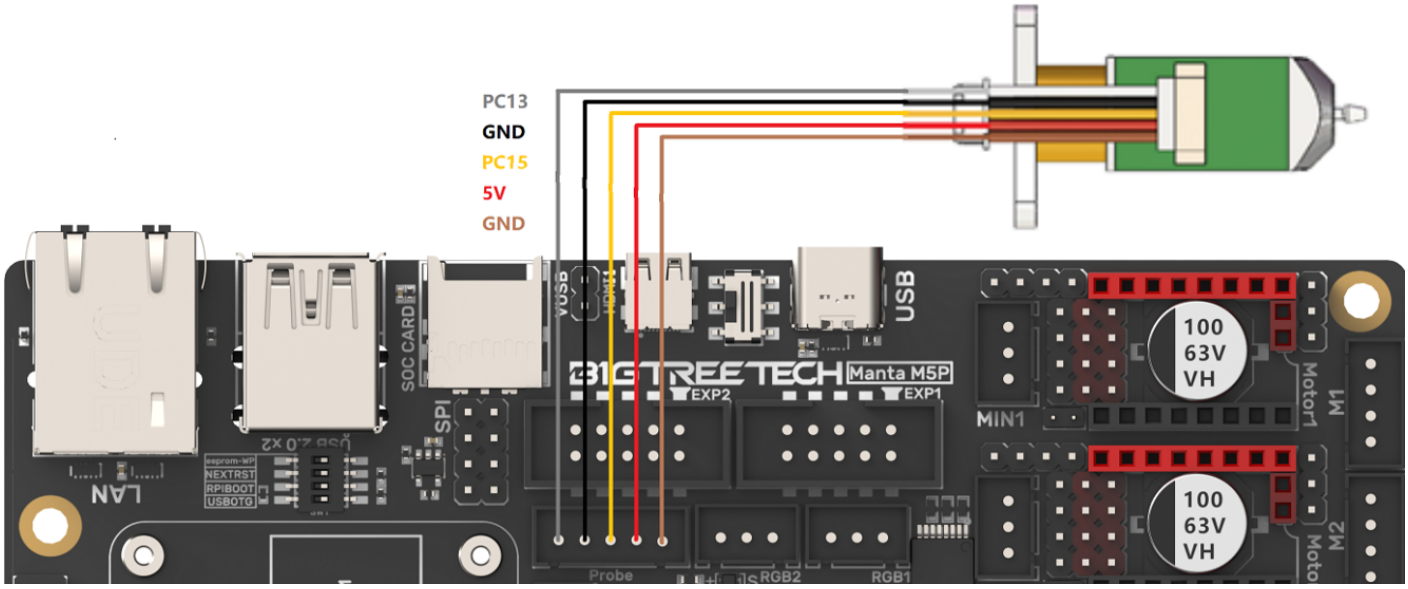


DIAG(Sensorless Homing) of TMC Driver


M1
M2
M3A
M3B
M4
M5
MIN1
MIN2
MIN3
MIN4
HE1
bel 25

BLtouch

BLTouch Wiring



CB1

CB1 Software

CB1 webside

Release download.

CB1

Shutdown with shelly plug s

I will switch off the "Shelly plug s" after the shutdown of the device with a delay of 30 seconds.

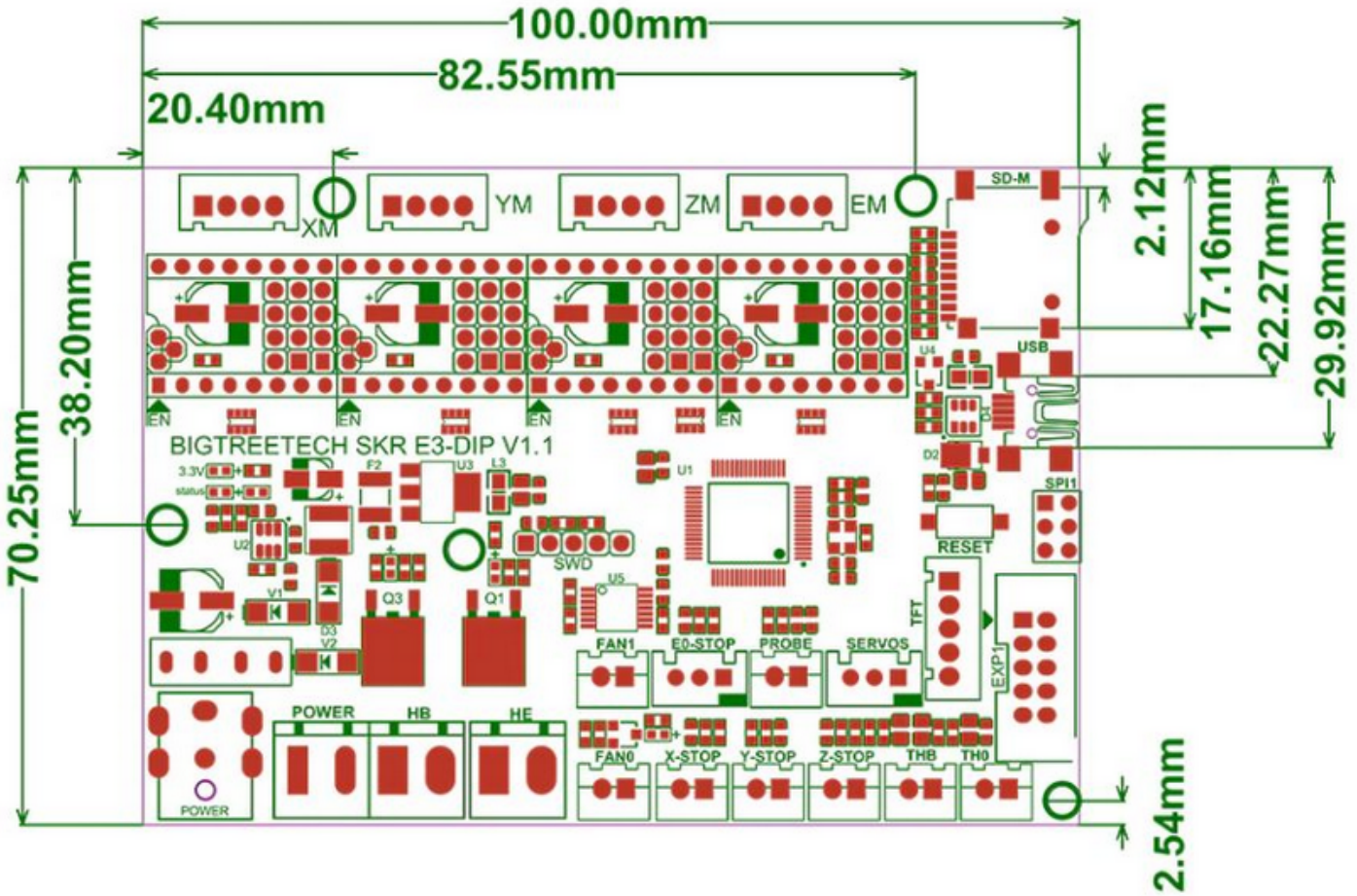
Create file with sudo nano /usr/lib/systemd/system-shutdown/systemd-halt.service .

```
[Unit]
Description=Run mycommand at shutdown
Requires=network.target
DefaultDependencies=no
Before=shutdown.target

[Service]
Type=oneshot
RemainAfterExit=true
ExecStart=/bin/true
ExecStop=curl -u username:password "http://IP-Address/relay/0?turn=on&timer=30"

[Install]
WantedBy=multi-user.target
```

After that enable service with sudo systemctl enable /usr/lib/systemd/system-shutdown/systemd-halt.service .

Ender 2 pro board

E-2 pro 2.2.42 board



Klipper

Klipper

Ender 2 pro printer.cfg

```
[include mainsail.cfg]
[include macros/*.cfg]

[virtual_sdcard]
path: /home/biqu/printer_data/gcodes
on_error_gcode: CANCEL_PRINT

[mcu]
serial: /dev/serial/by-id/usb-Klipper_xxxxxxxxxxxxxx

[printer]
kinematics: cartesian
max_velocity: 300
max_accel: 3000
max_z_velocity: 5
max_z_accel: 100

#*********************************************************************
# "RepRapDiscount 128x64 Full Graphic Smart Controller" type displays
#*********************************************************************

[board_pins]
aliases:
    # EXP1 header
    EXP1_1=PD5, EXP1_3=PB3, EXP1_5=PB5, EXP1_7=PB7, EXP1_9=<GND>,
    EXP1_2=PD4,  EXP1_4=PD6, EXP1_6=PB4, EXP1_8=PB6, EXP1_10=<5V>,
    # EXP2 header
    EXP2_1=PB14, EXP2_3=PB8, EXP2_5=PC10, EXP2_7=PC12,  EXP2_9=<GND>,
    EXP2_2=PB13, EXP2_4=PB9, EXP2_6=PB15, EXP2_8=<RST>, EXP2_10=<NC>

[display]
lcd_type: st7920
cs_pin: EXP1_4
sclk_pin: EXP1_5
```

```
sid_pin: EXP1_3
encoder_pins: ^EXP2_3, ^EXP2_5
click_pin: ^!EXP1_2
#kill_pin: ^!EXP2_8

[output_pin beeper]
pin: EXP1_1



#*********************************************************************
# Temperature Sensors
#*********************************************************************

[temperature_sensor CB1]
sensor_type: temperature_host
min_temp: 10
max_temp: 100

[temperature_sensor M5P]
sensor_type: temperature_mcu
min_temp: 10
max_temp: 100

#*****************************************
# Fan configuration
#*****************************************

[heater_fan HotendFan]
pin: PA3
max_power: 1.0
fan_speed: 1.0
kick_start_time: 0.1
heater: extruder
heater_temp: 50.0

[fan]
pin: PA4

#[heater_fan SoC_fan]
#pin: cb1:gpio79
```

```
#*********************************************************************
# BLTouch Sensors
#*********************************************************************

[bltouch]
sensor_pin: PC13
control_pin: PC15
samples: 2
#horizontal_move_z: 10
speed: 20
x_offset: -41
y_offset: -8
#z_offset: 0.0

#*********************************************************************
# Bed Mesh Settings
#*********************************************************************

[bed_mesh]
speed: 100
horizontal_move_z: 10
mesh_min: 10, 5
mesh_max: 113, 135
probe_count: 4, 4
mesh_pps: 2,2
fade_start: 1
fade_end: 10
fade_target: 0

#*************************************
# NeoPixel configuration
#*************************************

[neopixel Licht]
pin: PC11
chain_count: 1
initial_RED: 0.0
initial_GREEN: 1.0
initial_BLUE: 0.0
```

```
initial_WHITE: 0.0

########################################
# X-Axis configuration
########################################

[stepper_x]
step_pin: PC8
dir_pin: !PC9
enable_pin: !PA15
microsteps: 16
rotation_distance: 40
endstop_pin: ^PD3
position_endstop: 0
position_max: 155
homing_speed: 50

[tmc2209 stepper_x]
uart_pin: PD9
run_current: 0.800
diag_pin: PD3
stealthchop_threshold: 999999

########################################
# Y-Axis configuration
########################################

[stepper_y]
step_pin: PA10
dir_pin: !PA14
enable_pin: !PA13
microsteps: 16
rotation_distance: 40
endstop_pin: ^PD2
position_endstop: 0
position_max: 150
homing_speed: 50

[tmc2209 stepper_y]
uart_pin: PD8
```

```
run_current: 0.800
diag_pin: PD2
stealthchop_threshold: 999999

########################################
# Z-Axis configuration
########################################

[stepper_z]
step_pin: PC6
dir_pin: PC7
enable_pin: !PA9
microsteps: 16
rotation_distance: 8
#endstop_pin: ^PC3
endstop_pin: probe:z_virtual_endstop
#position_endstop: 0.0
position_max: 170
position_min: -2.0

[tmc2209 stepper_z]
uart_pin: PB10
run_current: 0.800
diag_pin: PC3
stealthchop_threshold: 999999

[safe_z_home]
home_xy_position: 117,85 # Change coordinates to the center of your print bed
speed: 50
z_hop: 10                 # Move up 10mm
z_hop_speed: 5

########################################
# Extruder configuration
########################################

[extruder]
step_pin: PB12
dir_pin: PB11
enable_pin: !PA8
```

```
microsteps: 16
#rotation_distance: 33.500
rotation_distance: 23.467
nozzle_diameter: 0.400
filament_diameter: 1.750
heater_pin: PC5
sensor_type: EPCOS 100K B57560G104F
sensor_pin: PA1
#control: pid
#pid_Kp: 21.527
#pid_Ki: 1.063
#pid_Kd: 108.982
min_temp: 0
max_temp: 270

[tmc2209 extruder]
uart_pin: PB2
run_current: 0.800
diag_pin: PC2
stealthchop_threshold: 999999

########################################
# Bed configuration
########################################

[heater_bed]
heater_pin: PA5
sensor_type: Generic 3950
sensor_pin: PA0
#control: watermark
min_temp: 0
max_temp: 130
```

Klipper

StartStopPrinter.cfg

```
#####################################################################
##   Start print macro
#####################################################################

[gcode_macro START_PRINT]
gcode:
  # Get Params
  {% set t_extruder = params.T_EXTRUDER|default(205)|float %}
  {% set t_bed = params.T_BED|default(60)|float %}
  {% set b_min_x = params.BUILD_MIN_X|default(10)|float %}
  {% set b_min_y = params.BUILD_MIN_Y|default(10)|float %}
  {% set b_max_x = params.BUILD_MAX_X|default(133)|float %}
  {% set b_max_y = params.BUILD_MAX_Y|default(145)|float %}



  #Set LED Red
  SET_LED LED="Licht" Red=1 GREEN=0 BLUE=0 SYNC=0 TRANSMIT=1

  M117 Bett heizt

  # Start
  M140 S{t_bed}                      ; Setze Heatbed Temperatur
  M190 S{t_bed}                      ; Warte auf Bed Zieltemperatur

  #Set LED Blue
  SET_LED LED="Licht" Red=0 GREEN=0 BLUE=1 SYNC=0 TRANSMIT=1

  M117 Home xyz

  G28                                ; Home
  M83                                ; Extruder relativer Modus



  M117 Kallibrierung
```

```
  # Start probing
  #BED_MESH_CALIBRATE PROFILE=mesh1 METHOD=automatic
  BED_MESH_CALIBRATE AREA_START={b_min_x},{b_min_y} AREA_END={b_max_x},{b_max_y}


  G1 X5 Y5 Z15 F2200
  #G1 Z0.2 F3000
  G92 E0.0                          ; Extruder Reset
  G90                               ; Absolute Positionierung

  #Set LED Red
  SET_LED LED="Licht" Red=1 GREEN=0 BLUE=0 SYNC=0 TRANSMIT=1

  M117 Hotend heizt

  M104 S{t_extruder}                ; Setze Hotend Temperatur
  M109 S{t_extruder}                ; Warte auf Hotend Zieltemperatur

  #Set LED White
  SET_LED LED="Licht" RED=1 GREEN=1 BLUE=1 SYNC=0 TRANSMIT=1

  # _PRIME_LINE;macro

  G1 E8 F2000
  G1 Z0.3 F3000                     ; put down hotend
  G1 X5 Y5 F2200

  M82                               ; Absolute Positionierung
  G92 E0                            ;zero the extruded length again

  M117 Druck aktiv

##########################################################################
##   End print macro
##########################################################################

[gcode_macro PRINT_END]
gcode:
  TURN_OFF_HEATERS
```

```
  G91                                ; Relative Position
  G1 E-5 F3000                       ; Retract
  G1 X-0.5 Y-0.5 E-5
  G90                                ; Absolute Positionierung
  G1 X83 Y145 F2200                  ; Bewege den Kopf nach hinten in die Mitte
  M107                               ; Partcooling Fan deaktivieren
  M84
  M117 Druck fertig

  #Turn LED off
  SET_LED LED="Licht" RED=0 GREEN=0 BLUE=0 SYNC=0 TRANSMIT=1

  NOTIFY_PRINT_DONE

#*****************************************************************************
##   Prime Line macro (not in use)
#*****************************************************************************

[gcode_macro _PRIME_LINE]
gcode:
  G90                                ; Absolute Position
  G1 E10 F2000
  G1 Z0.3 F3000                      ; put down hotend
  G1 X5 Y5 F2200
  G1 X5 Y5 Z0.2 F3000                ; get ready to prime
  G92 E0                             ; reset extrusion distance
  G1 X110 E15 F600                   ; prime nozzle
  G1 X140 F5000                      ; quick wipe

#*****************************************************************************
##   Mesh probe macro (not in use)
#*****************************************************************************

[gcode_macro probe_mesh]
gcode:
  # Set extruder and bed temperature
  M190 S60
  # Home all axis
  G28
  # Start probing
```

```
BED_MESH_CALIBRATE PROFILE=mesh1 METHOD=automatic
# Turn off heaters afterward
TURN_OFF_HEATERS
```

Klipper

macro.cfg

```
#*****************************************************************
##   Start print macro
#*****************************************************************

[gcode_macro START_PRINT]
gcode:
  # Get Params
  {% set t_extruder = params.T_EXTRUDER|default(205)|float %}
  {% set t_bed = params.T_BED|default(60)|float %}
  {% set b_min_x = params.BUILD_MIN_X|default(10)|float %}
  {% set b_min_y = params.BUILD_MIN_Y|default(10)|float %}
  {% set b_max_x = params.BUILD_MAX_X|default(133)|float %}
  {% set b_max_y = params.BUILD_MAX_Y|default(145)|float %}



  #Set LED Red
  SET_LED LED="Licht" Red=1 GREEN=0 BLUE=0 SYNC=0 TRANSMIT=1

  M117 Bett heizt

  # Start
  M140 S{t_bed}                      ; Setze Heatbed Temperatur
  M190 S{t_bed}                      ; Warte auf Bed Zieltemperatur

  #Set LED Blue
  SET_LED LED="Licht" Red=0 GREEN=0 BLUE=1 SYNC=0 TRANSMIT=1

  M117 Home xyz

  G28                                ; Home
  M83                                ; Extruder relativer Modus



  M117 Kallibrierung
```

```
  # Start probing
  #BED_MESH_CALIBRATE PROFILE=mesh1 METHOD=automatic
  BED_MESH_CALIBRATE AREA_START={b_min_x},{b_min_y} AREA_END={b_max_x},{b_max_y}


  G1 X5 Y5 Z15 F2200
  #G1 Z0.2 F3000
  G92 E0.0                          ; Extruder Reset
  G90                               ; Absolute Positionierung

  #Set LED Red
  SET_LED LED="Licht" Red=1 GREEN=0 BLUE=0 SYNC=0 TRANSMIT=1

  M117 Hotend heizt

  M104 S{t_extruder}                ; Setze Hotend Temperatur
  M109 S{t_extruder}                ; Warte auf Hotend Zieltemperatur

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  # _PRIME_LINE;macro

  G1 E8 F2000
  G1 Z0.3 F3000                     ; put down hotend
  G1 X5 Y5 F2200

  M82                               ; Absolute Positionierung
  G92 E0                            ;zero the extruded length again

  M117 Druck aktiv

##########################################################################
##   End print macro
##########################################################################

[gcode_macro PRINT_END]
gcode:
  TURN_OFF_HEATERS
```

```
  G91                                ; Relative Position
  G1 E-5 F3000                       ; Retract
  G1 X-0.5 Y-0.5 E-5
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  G90                                ; Absolute Position
  G1 E10 F2000
  G1 Z0.3 F3000                      ; put down hotend
  G1 X5 Y5 F2200
  G1 X5 Y5 Z0.2 F3000                ; get ready to prime
  G92 E0                             ; reset extrusion distance
  G1 X110 E15 F600                   ; prime nozzle
  G1 X140 F5000                      ; quick wipe

#*****************************************************************************
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  # Set extruder and bed temperature
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  # Home all axis
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  # Start probing
```

```
BED_MESH_CALIBRATE PROFILE=mesh1 METHOD=automatic
# Turn off heaters afterward
TURN_OFF_HEATERS
```