

# \*1 Note on using multiple Power Supply Units (PSUs):

1. Ensure that you wire each PSU's earth grounds together (one earth ground from each PSU must get back to a common point that then gets attached to the earth ground of the AC input power connector).

2. Wire each PSU's negative terminals together (one negative terminal from each PSU must get back to a common point that then gets attached to the negative side of the AC input power connector).

2 - M3; M2  
1 - M2; M1  
0 - M1; M0

OR

3 - M3; M2  
2 - M2; M1  
1 - M1; M0

## UART (CS)

DRIVER0:	PC4
DRIVER1:	PD11
DRIVER2:	PC6
DRIVER3:	PC7
DRIVER4:	PF2
DRIVER5:	PE4
DRIVER6:	PE1
DRIVER7:	PD3

Only one (1) Jumper is needed for this mode. Jumper located in column MS3/2 and row 1& 2.

## SPI

DRIVER0-CS	PC4
DRIVER1-CS	PD11
DRIVER2-CS	PC6
DRIVER3-CS	PC7
DRIVER4-CS	PF2
DRIVER5-CS	PE4
DRIVER6-CS	PE1
DRIVER7-CS	PD3

Four (4) Jumpers are needed for this mode. Jumpers located in: columns MISO, CS, SCK, MOSI and rows 1 & 2.

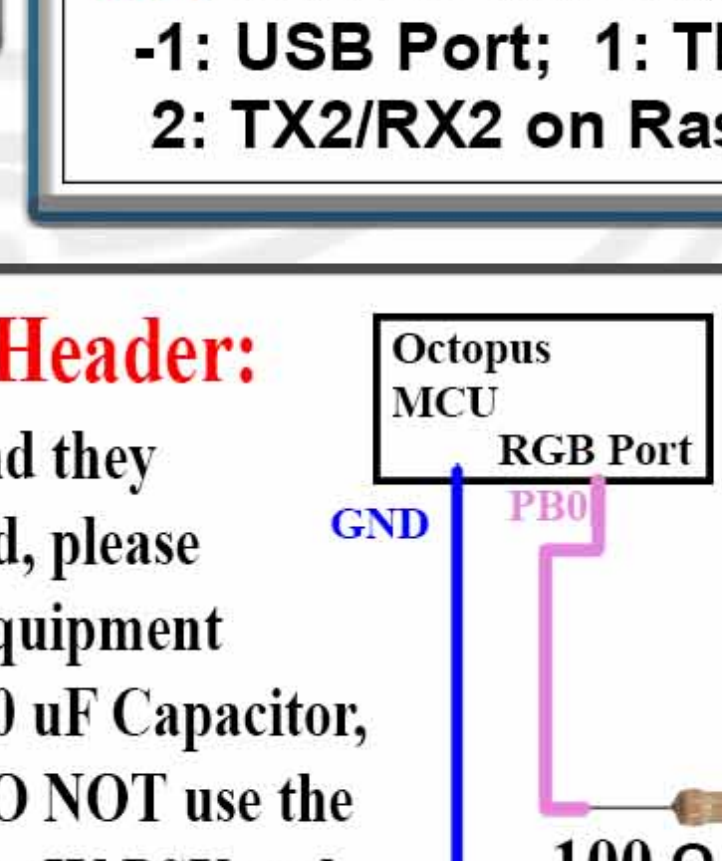
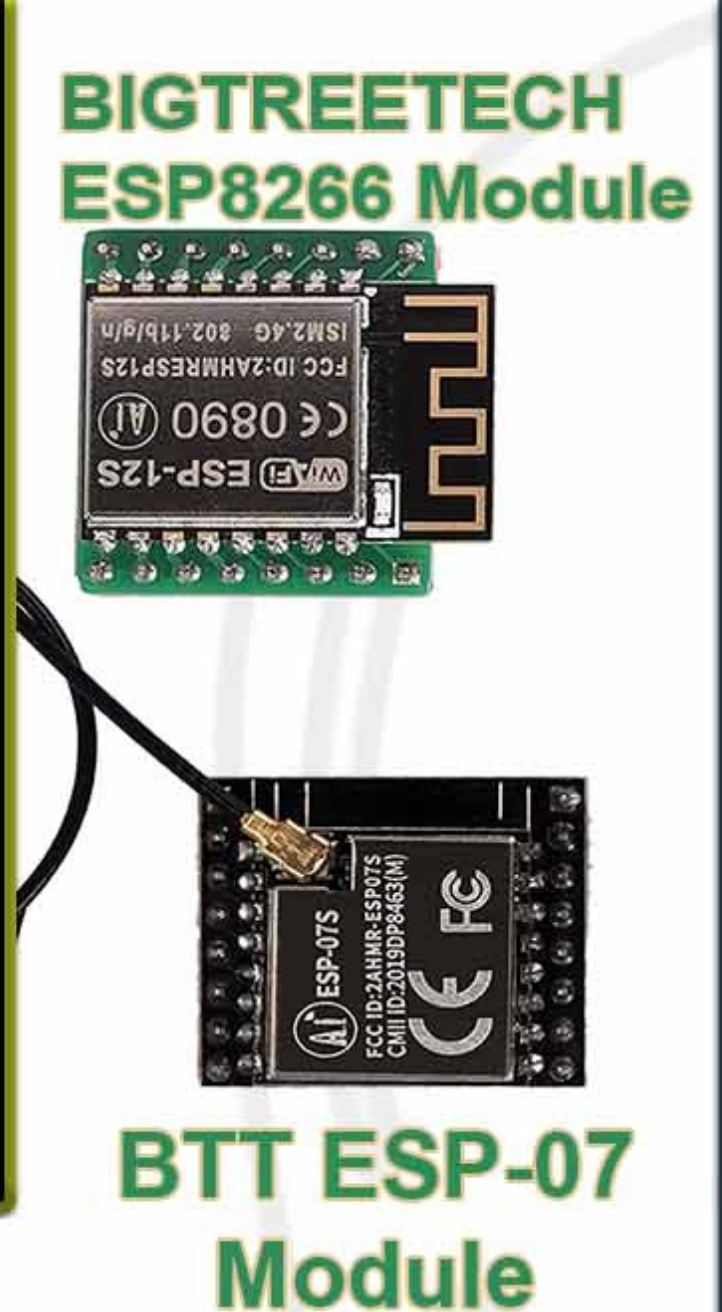
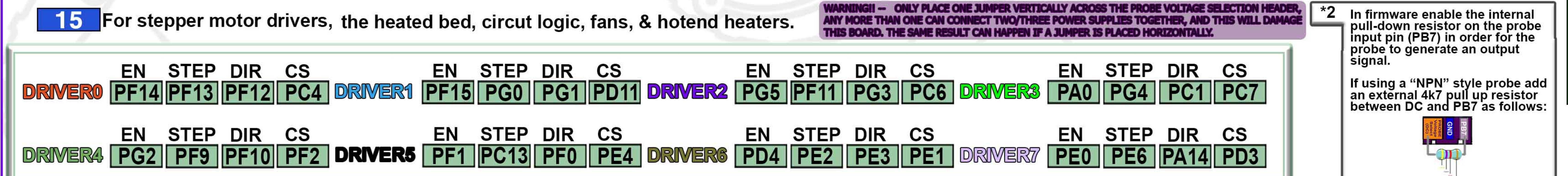
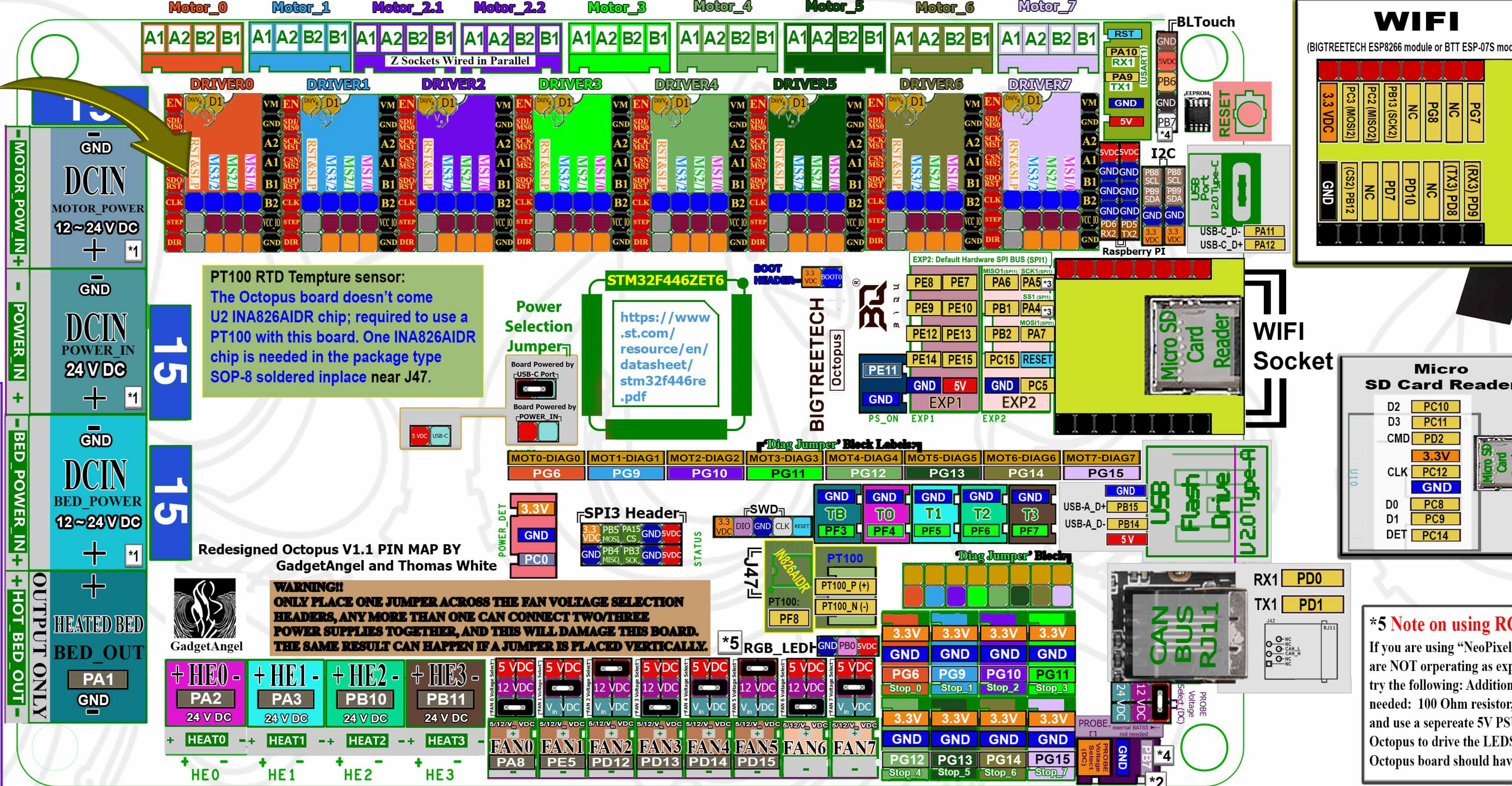
## NOTE:

Things to be aware of when using the SPI bus #1: The Stepper Motor Drivers share the same SPI bus as EXP2, They only share: MISO, MOSI and SCK lines. They have separate CS lines.

[https://en.wikipedia.org/wiki/Serial\\_Peripheral\\_Interface](https://en.wikipedia.org/wiki/Serial_Peripheral_Interface)



V<sub>R</sub>; V<sub>R</sub> location depends on the Stepper Driver Board



### Klipper Building Options for The Octopus V1.0/V1.1:

(Top)

Klipper Firmware Configuration

```
[*] Enable extra low-level configuration options
Micro-controller Architecture (STMicroelectronics STM32) ---->
Processor model (STM32F446) ---->
Bootloader offset (32KiB bootloader) ---->
Clock Reference (12 MHz crystal) ---->
Communication interface (USB (on PA11/PA12)) ---->
USB ids ---->
[ ] Specify a custom step pulse duration (NEW)
[ ] GPIO pins to set at micro-controller startup (NEW)
```

### Marlin 2.0.x Firmware Changes:

In Platformio.ini file change: `default_envs =`

In Configuration.h file change:

```
#define SERIAL_PORT -1
#define SERIAL_PORT_2 1
#define MOTHERBOARD BOARD_BTT_OCTOPUS_V1_1
```

Note: Serial Port definitions in Marlin 2.0.x for GTR Board:  
-1: USB Port; 1: TFT Port; 3: WIFI Port;  
2: TX2/RX2 on Raspberry Pi Connector

### STALLGUARD (Sensor-less Homing)

DIAG PIN	ENDSTOP	Stop
M.0 MOT0-DIAG0	PG6	Stop_0
M.1 MOT1-DIAG1	PG9	Stop_1
M.2 MOT2-DIAG2	PG10	Stop_2
M.3 MOT3-DIAG3	PG11	Stop_3
M.4 MOT4-DIAG4	PG12	Stop_4
M.5 MOT5-DIAG5	PG13	Stop_5
M.6 MOT6-DIAG6	PG14	Stop_6
M.7 MOT7-DIAG7	PG15	Stop_7

DIAG pin to/from Driver

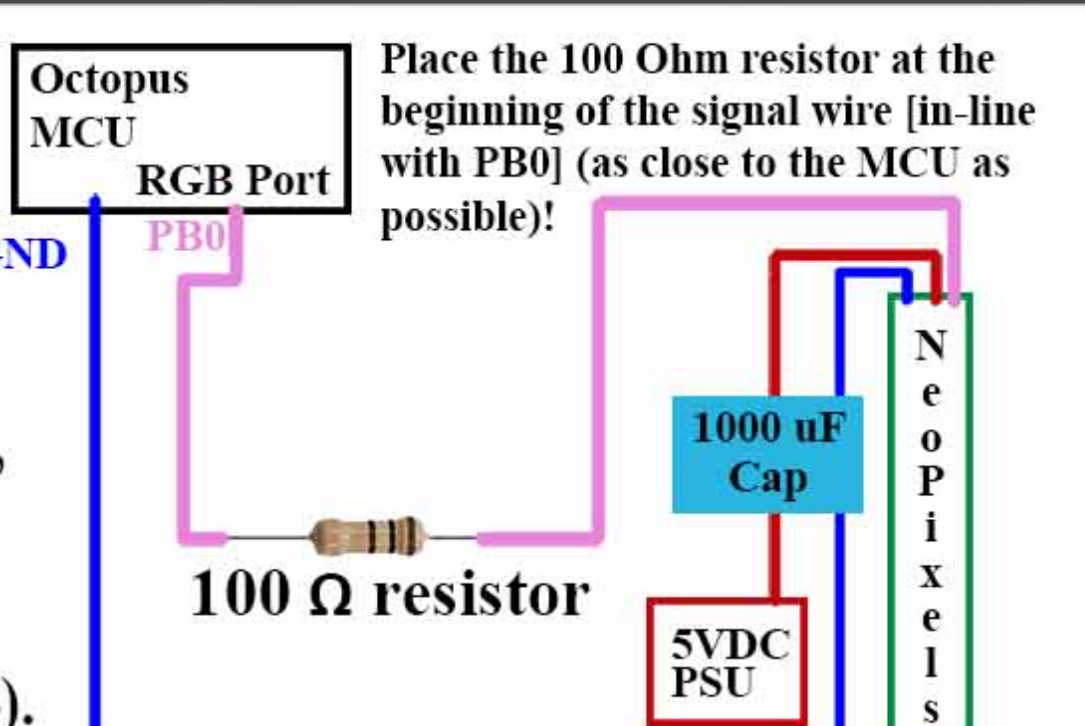
Endstops to/from MCU

Note1 Concerning the TMC2209/TMC2226 in UART Mode ONLY: If using limit switches/ends, ensure the DIAG pin is NOT connected to the MCU Endstop (i.e., ensure the 'Ding Jumper' is removed).

Note2 For TMC2209/TMC2226 in UART Mode ONLY: if you are using it for your extruder motor and you want to use a filament runout sensor, ensure the DIAG/DIAG1/DIAG0 PIN is NOT connected to the MCU Endstop to allow the filament runout sensor to work properly (i.e., ensure the 'Ding Jumper' is removed for the corresponding extruder motor).

## \*5 Note on using RGB Header:

If you are using "NeoPixels" and they are NOT operating as expected, please try the following: Additional Equipment needed: 100 Ohm resistor, 1000 uF Capacitor, and use a separate 5V PSU. DO NOT use the Octopus to drive the LEDs. The 5V PSU and Octopus board should have a shared GND (V-).



\*2 In firmware enable the internal pull-down resistor on the probe input pin (PB7) in order for the probe to generate an output signal.



Note: If you are unsure about any of the information provided on this PIN Diagram, please ask for help from the 3D printer community, check the Processor's data sheet and board's schematic diagram.

\*3 THE PIN IS NOT 5V TOLERANT! IT IS ONLY 3.6 VOLTS TOLERANT. PLEASE SEE THE STM32F446xC/E DATASHEET.

\*4 The PIN PB7 is a shared signal PIN between the BLTouch header and the PROBE connector. You CAN NOT use both a BLTouch and PROBE!