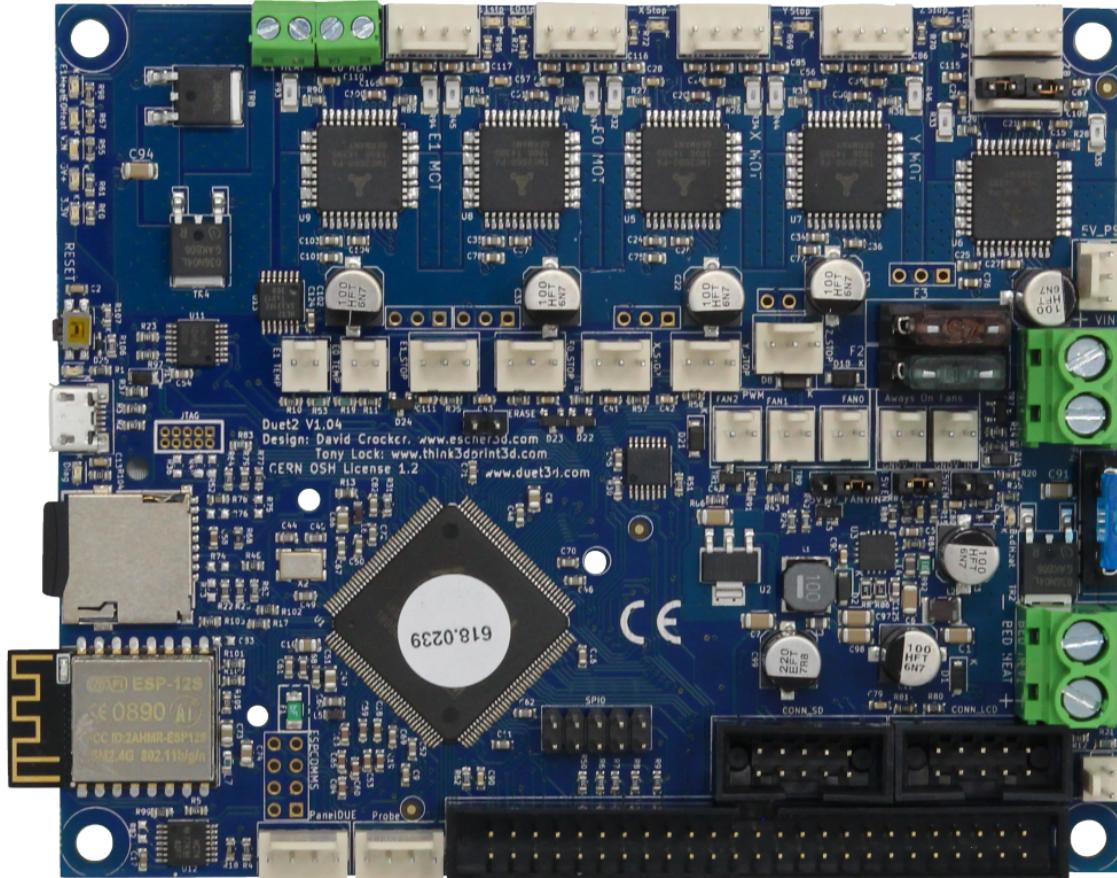


# Duet 2 Wifi motion controller wiring setup for MK3s



# WARNINGS AND PRECAUTIONS

## READ ALL THE MANUFACTURER'S APPLICABLE DOCUMENTATION!

- It is your responsibility to read, understand, and adhere to the applicable documentation for this controller board and any other devices that are to be attached to it.
- Lack of adherence / compliance to the equipment manufacturer's documentation and warnings can result in equipment, personnel, and property damage.
- Any / all authors of this documentation bear no responsibilities to your equipment or any damages that may occur.

**!!** Before proceeding further with the wiring, you should have already completed the duet3d guide, Step 1, located here:

[https://duet3d.dozuki.com/Guide/1.\)+Getting+Connected+to+your+Duet/7?lang=en](https://duet3d.dozuki.com/Guide/1.)+Getting+Connected+to+your+Duet/7?lang=en)

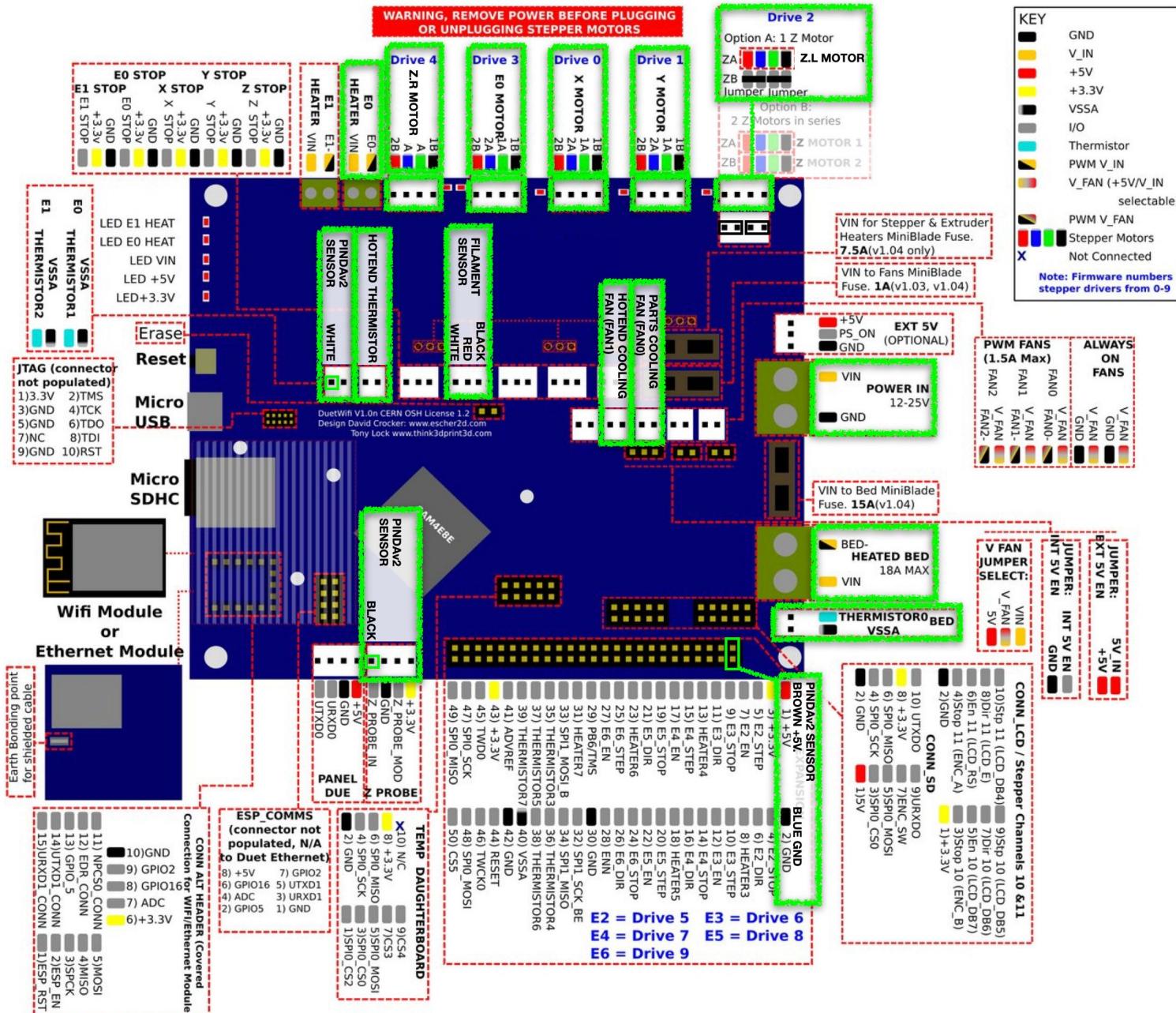
**!!** After completion of Step 1, you should have completed the wifi configuration and software update to the duet board. Proceed to <https://github.com/Argolein/RRF-machine-config-files/tree/master/Prusa%20MK3s>, review the readme and then copy the config files from the repository to the duet sd-card. Huge thanks to Ben Argolein for his work on this!

**!!** Before wiring up the MK3s, please proceed to the duet3d guide, Step 2, just to familiarize yourself with the overall wiring diagram, cautions, and warnings.

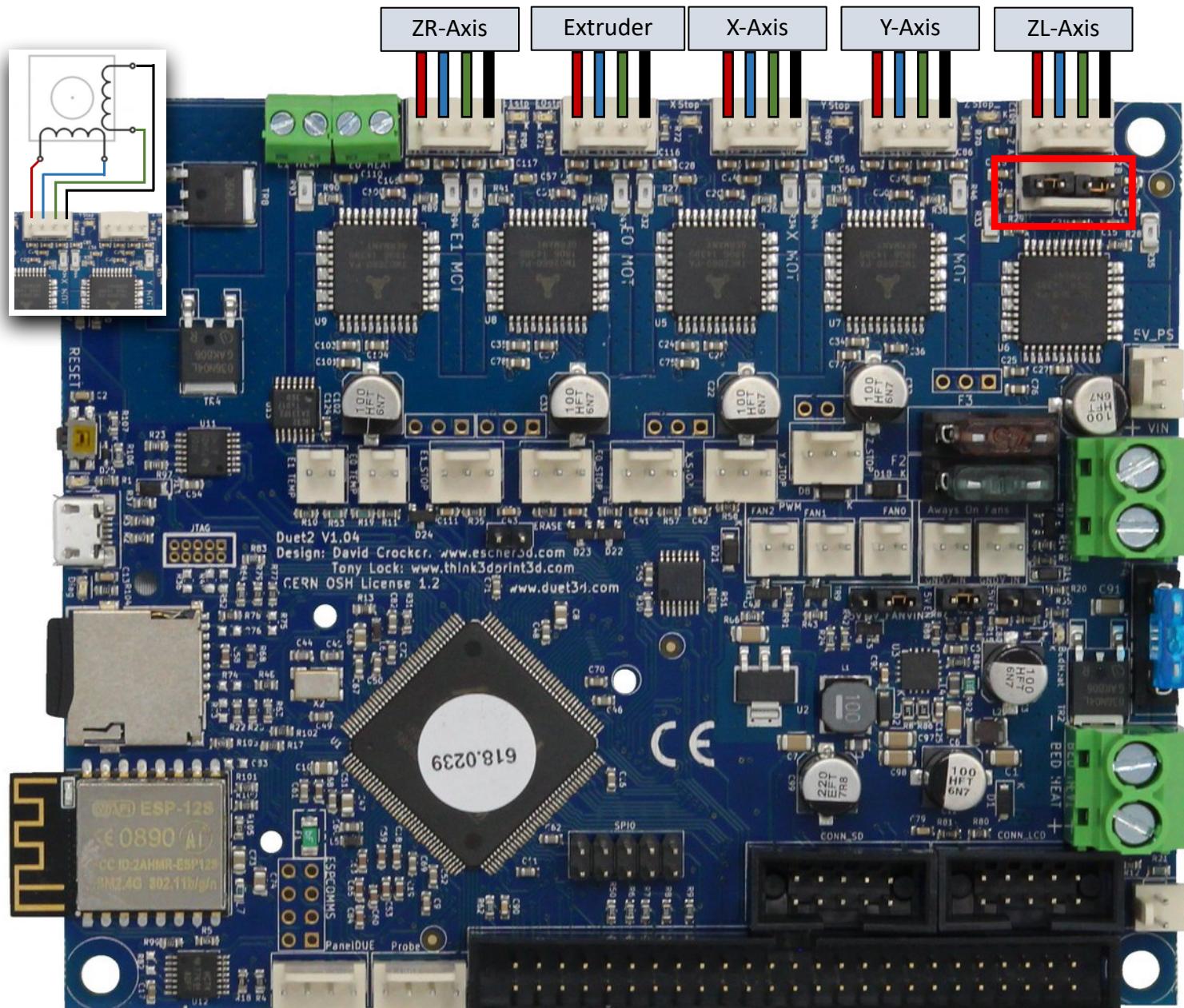
[https://duet3d.dozuki.com/Guide/2.\)+Wiring+your+Duet+2+WiFi-Ethernet/9?lang=en](https://duet3d.dozuki.com/Guide/2.)+Wiring+your+Duet+2+WiFi-Ethernet/9?lang=en)

**??** When in need of assistance, the Duet3d forums are a great place to search and ask questions. <https://forum.duet3d.com/>

# WIRING OVERVIEW

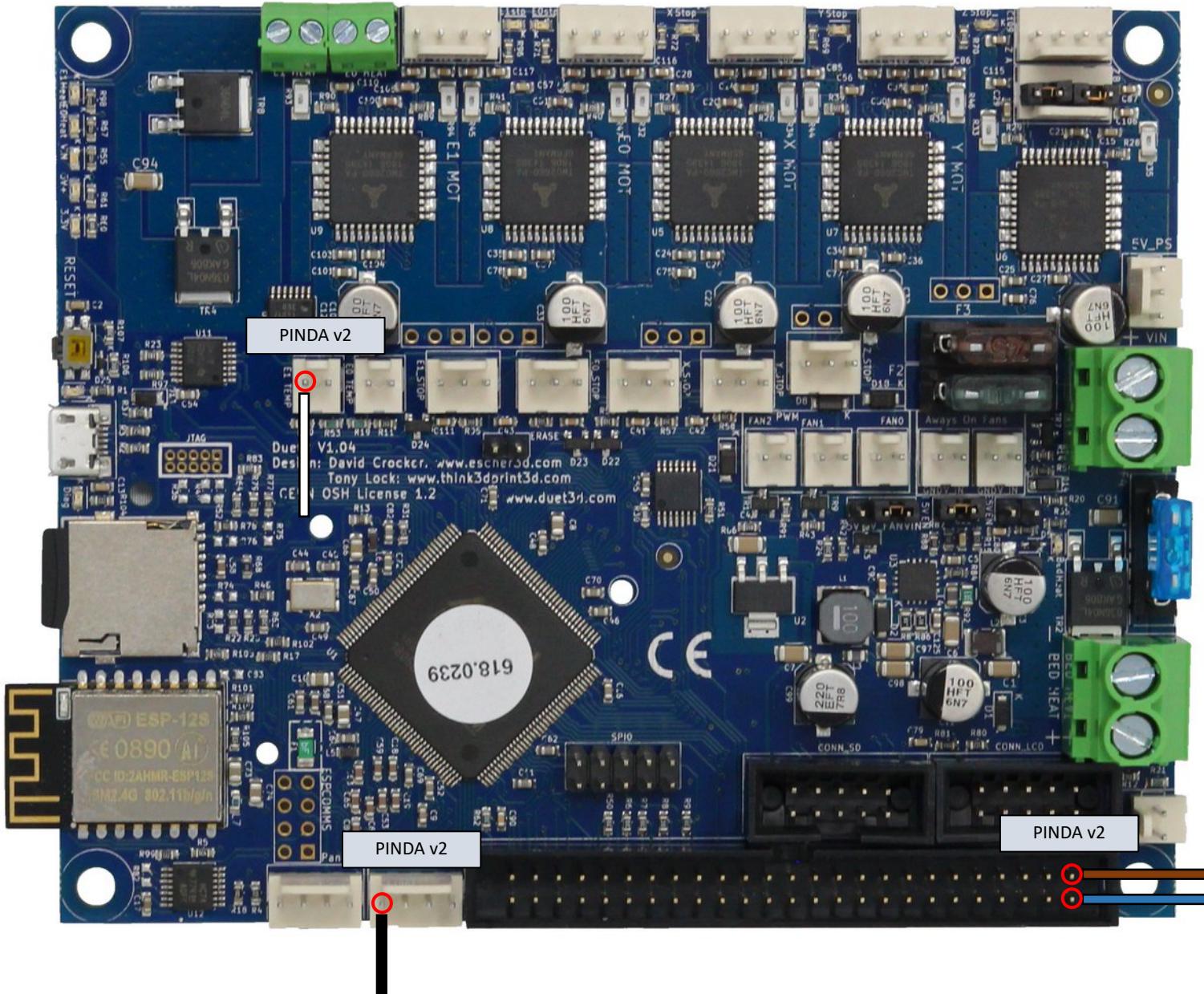


# STEPPER MOTOR (independent Z-axis control)



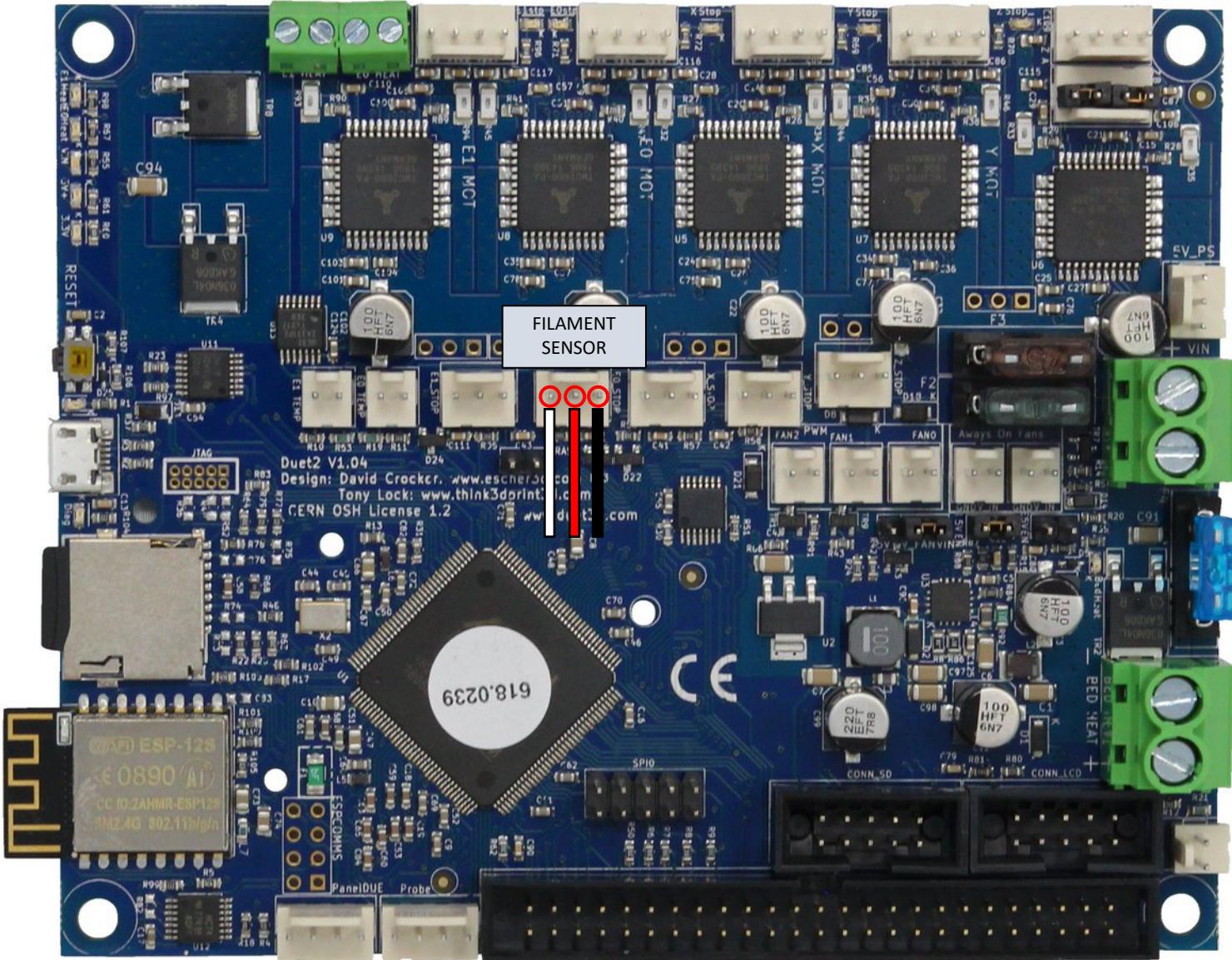
\*Be sure that the supplied jumpers are installed on the ZB connector. Coil 2: Red(-) Blue(+) / Coil 1: Green(+) Black(-)

# PINDA v2 (with thermistor)

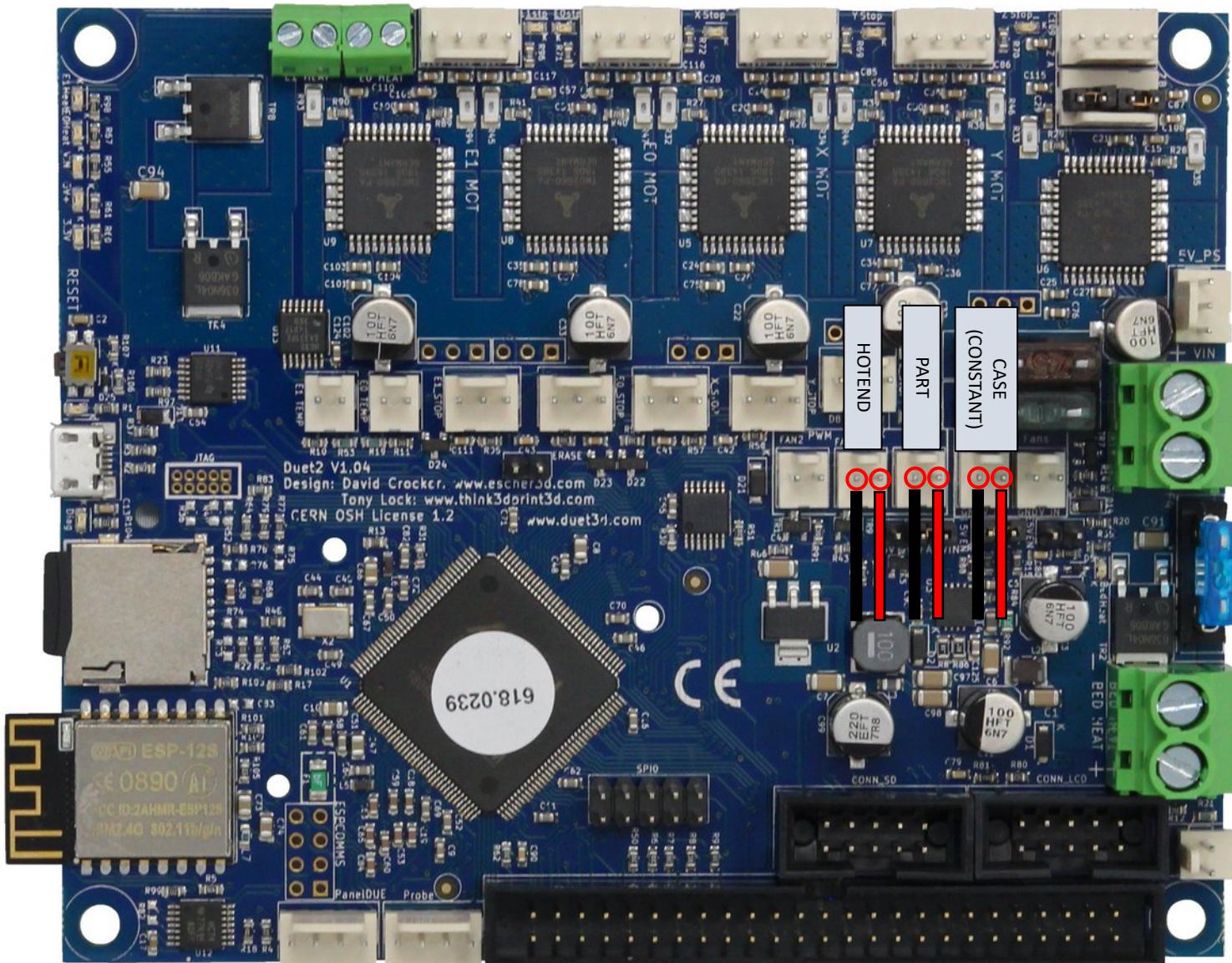


\*The PINDA v2 probe needs to be split into three connections; WHITE for temperature sense, BLACK for probe trigger, and power as BROWN +5v & BLUE GND.

# FILAMENT SENSOR

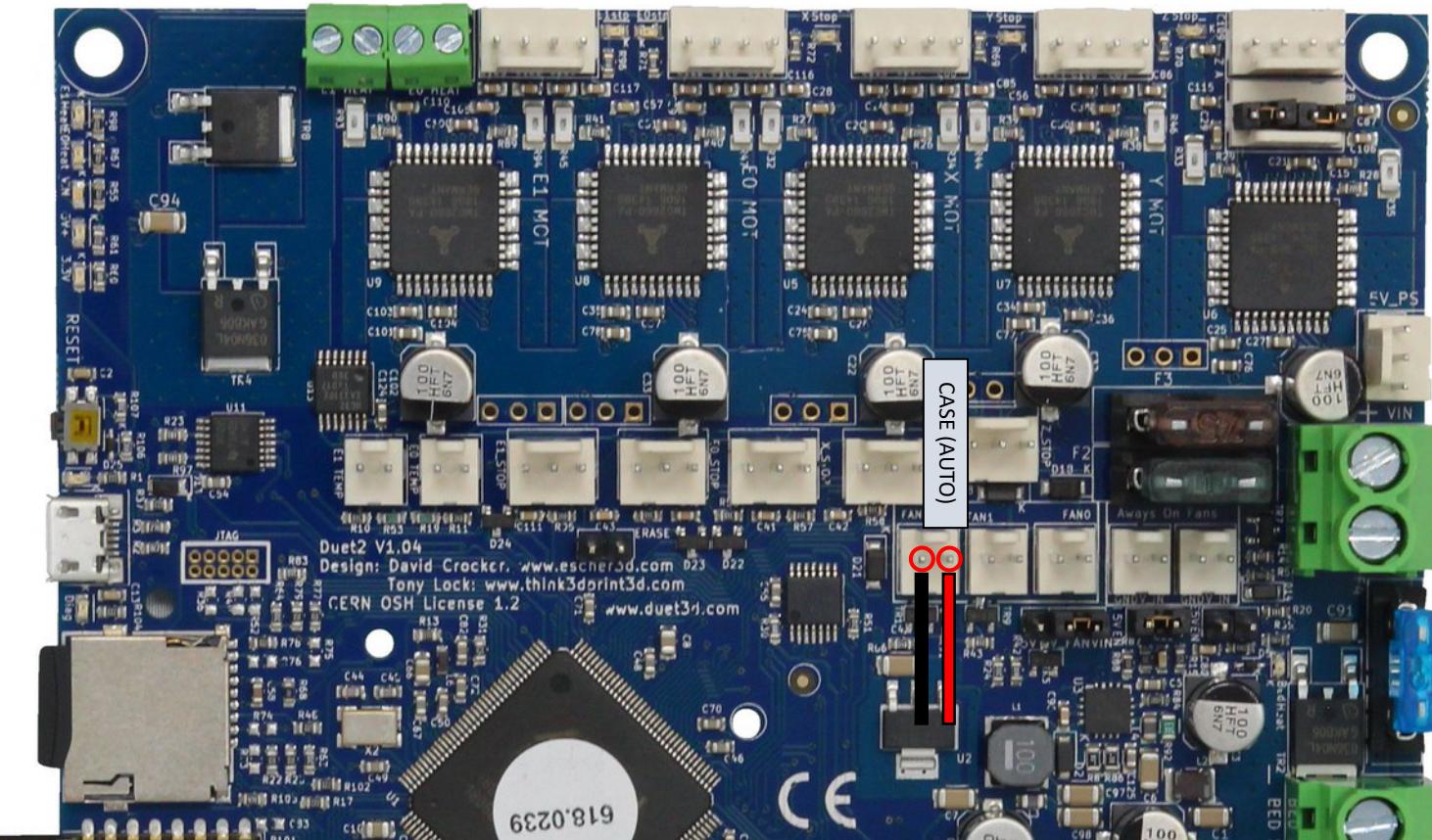


# HOTEND FAN, PART COOLING FAN, AND CASE FAN



\*The case fan is optional. As shown, the two rightmost connections are constant supplied - always on. The far left (FAN2) connection is available and can be programmed to operate at a defined condition, such as when the MCU or hotend reach a certain temperature. This is beyond the scope of this guide, but information is available in the forums.

# CASE FAN AUTO CONTROL

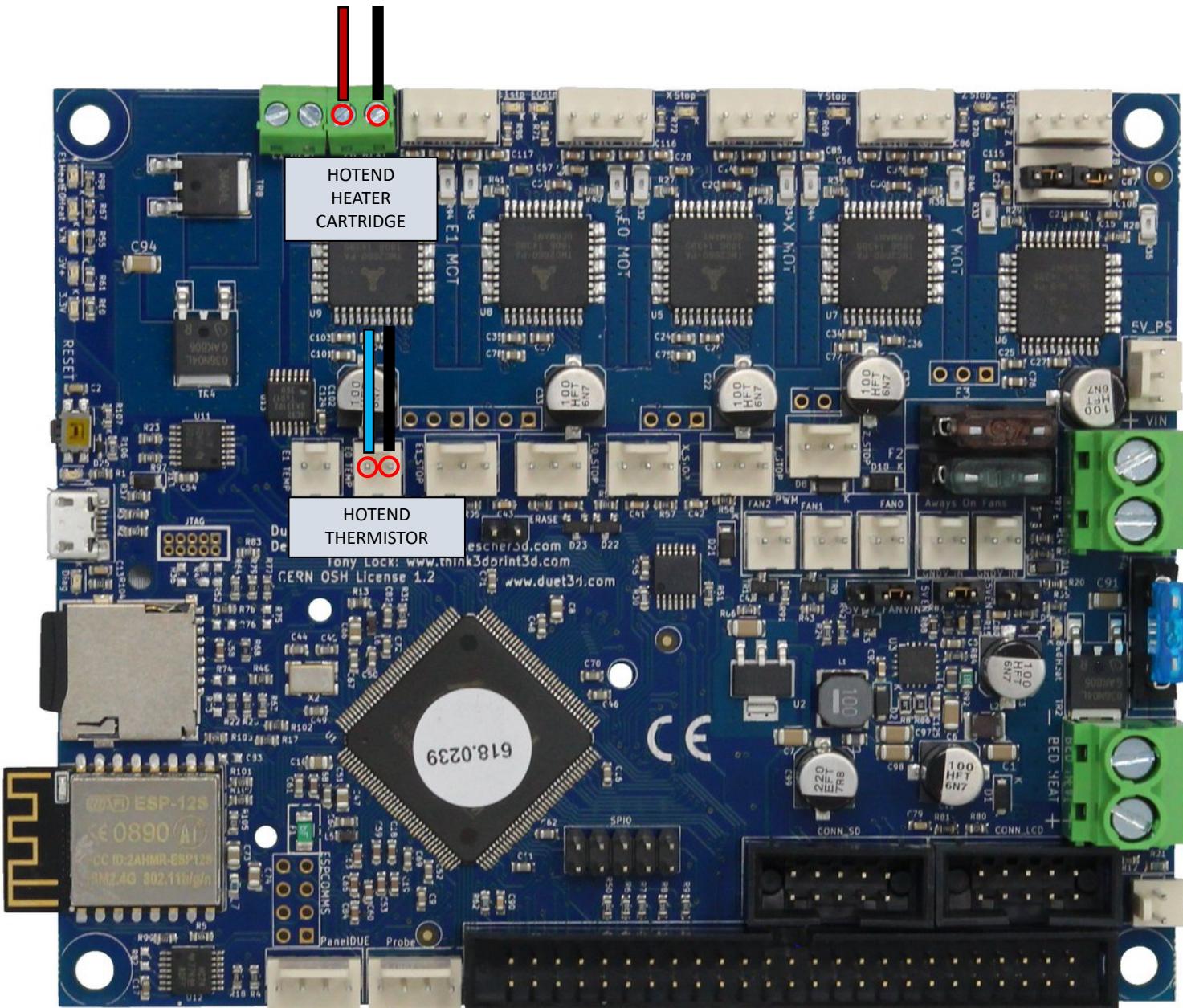


```
76 ; Fans
77 M950 F1 C"Fan1" Q250 ; Creates HOTEND Fan
78 M106 P1 T45 S255 H1 ; HOTEND Fan Settings
79 M950 F0 C"Fan0" Q250 ; Creates PARTS COOLING FAN
80 M106 P0 H-1 ; Set fan 1 value, PWM signal inversion and frequency. Thermostatic control is turned off PARTS COOLING FAN
81 ; The following lines are for auto case fan control, attached to 'fan2' header on duet board
82 M308 S2 Y"drivers" A"DRIVERS" ; Case fan - configure sensor 2 as temperature warning and overheat flags on the TMC2660 on Duet
83 M308 S3 Y"mcu-temp" A"MCU" ; Case fan - configure sensor 3 as thermistor on pin eltemp for left stepper
84 M950 F2 C"fan2" Q100 ; Case fan - create fan 2 on pin fan2 and set its frequency
85 M106 P2 H2:3 L0.15 X1 B0.3 T40:70 ; Case fan - set fan 2 value
86
87
```

\*If you desire to use auto case fan control, plug the case fan into the FAN2 port on the duet board and add lines 83 through 86 under the FANS section of your config.g file.

Please read the full documentaion here: [https://duet3d.dozuki.com/Wiki/Mounting\\_and\\_cooling\\_the\\_board#Section\\_Cooling](https://duet3d.dozuki.com/Wiki/Mounting_and_cooling_the_board#Section_Cooling)

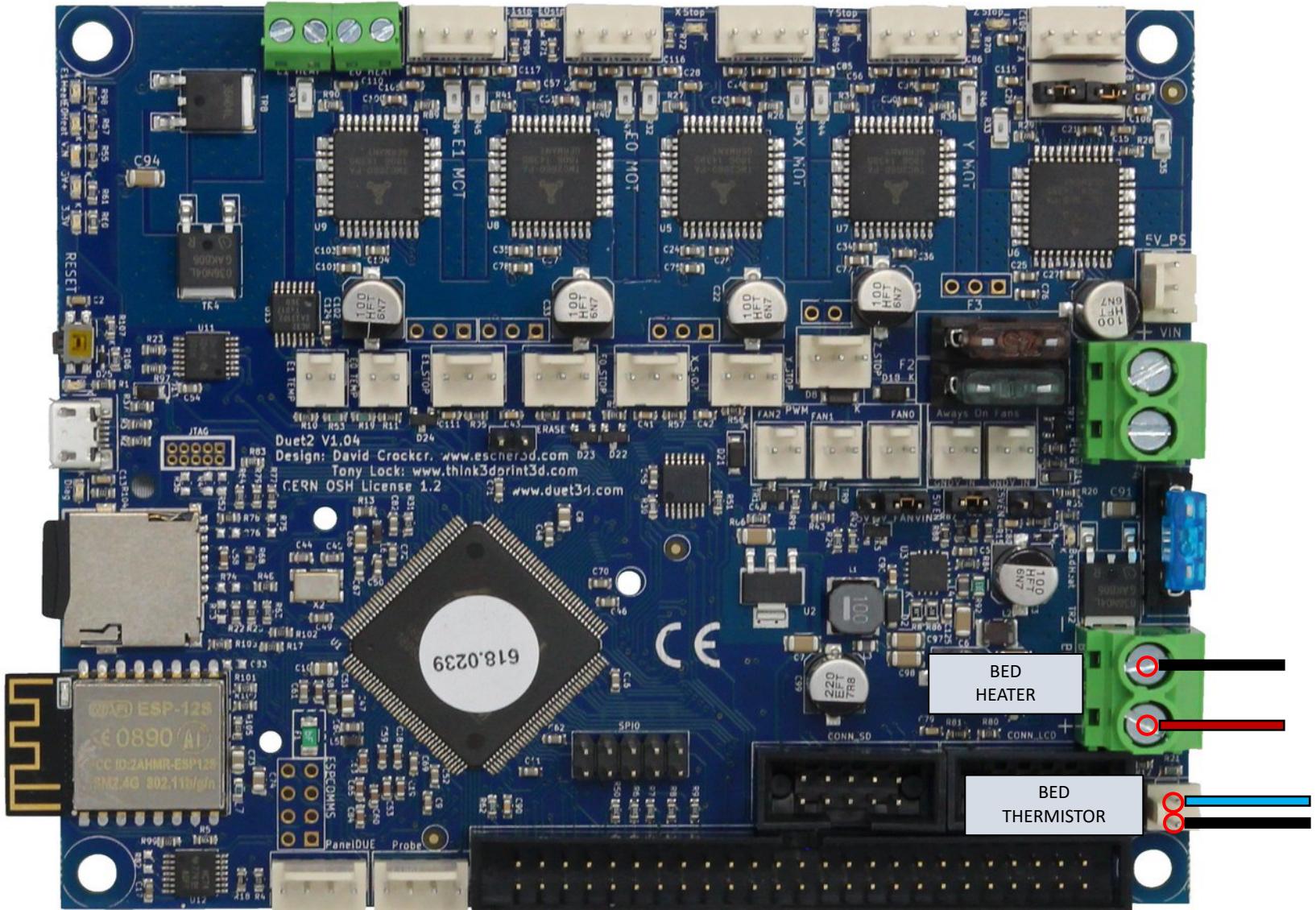
# HOTEND POWER AND THERMISTOR



\*Polarity does not matter for hotend heaters.

\*The polarity of a thermistor does not matter.

# BED POWER AND THERMISTOR



\*If your heater has an integrated LED, then the polarity will matter as the LED will not light with reverse polarity. Otherwise, a heater's polarity doesn't matter.

\*The polarity of a thermistor does not matter.

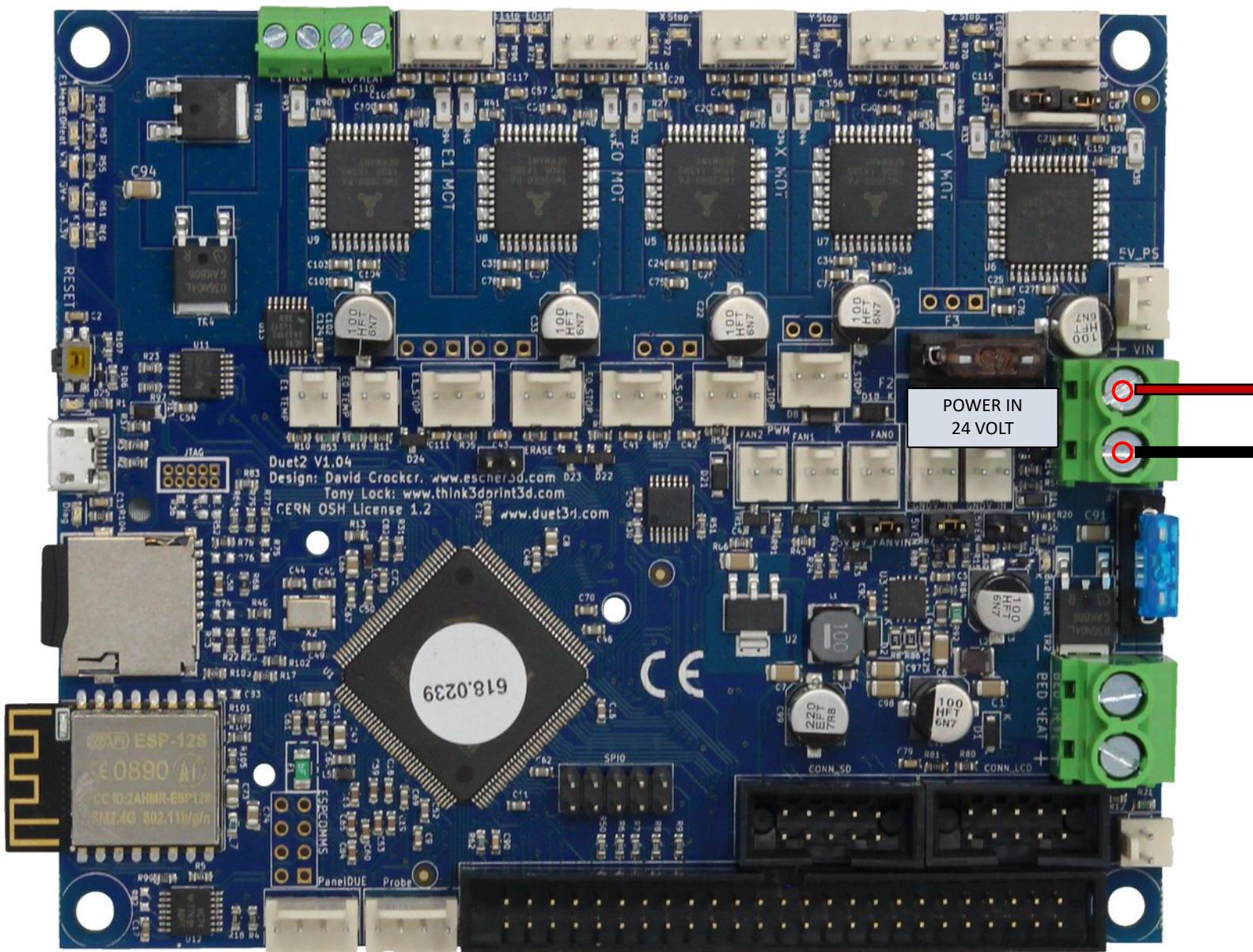
!!!!!!!!!!!!!!

Before proceeding to the next step be sure to first go to the beginning of this guide and second check that all of the connections are in the proper locations and fully seated into the board.

As you verify the wiring placements, check each connection for a tight-fitting crimp to ensure good connectivity.

!!!!!!!!!!!!!!

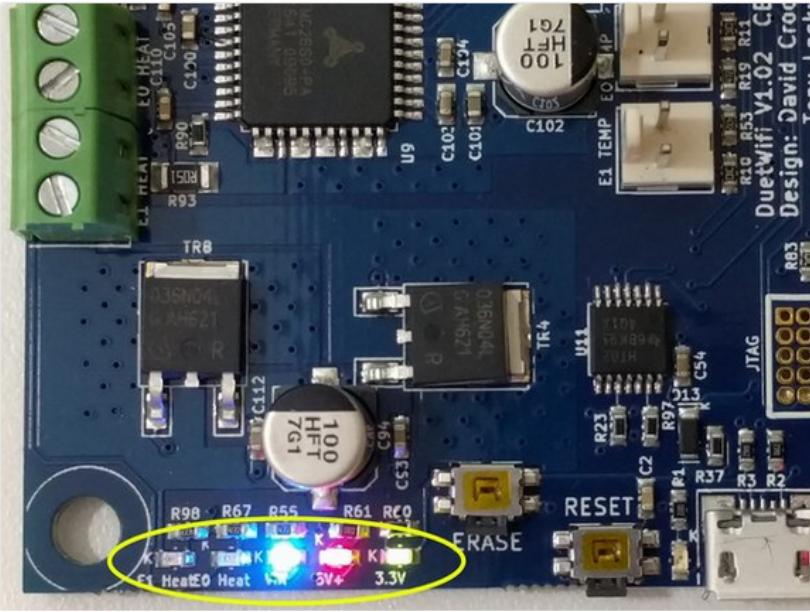
# POWER IN – 24 VOLT



\*Unlike the Einsky RAMBo controller board, the Duet controller only requires 1 set of power cables.

You can feed both PSU cables into the single VIN terminal block on the Duet if they will fit, or else run a single heavy-duty cable from the PSU to the Duet.

# POWER IN – 24 VOLT EXPECTED LED INDICATIONS



- These indicators show the status of 3.3v power, 5v power, the Vin (power from your power supply) and the two extruder heaters.
- When the board is idle and connected to a power supply, expect the 3.3v, 5v, and Vin LEDs to be illuminated.
- When the board is powered only through an external 5v supply or through USB, expect only the 5v and 3.3v lights to be on.
- In this area you will also find indicators to show when an extruder heater is turned on.



My Duet wifi didn't power up the 5V/3.3V circuit when I connected my 24V PSU. The issue was that the INT 5V\_EN jumper to drive the 5V circuit was not placed properly. I assume that this jumper should be connected as default when delivered as it is not mentioned in this guide. However, the jumper on my board was only sitting on one of the pins. Something to look out for if you are having issues here.

## NOTES

# NOTES

## Example start gcode for Prusa Slicer:

```
; Prime Filament Sensor for Runout  
M581 P1 T2 S-1 R0 ; Filament Sensor P1 triggers Trigger2.g always (R0) TRIGGER OFF  
M950 J1 C"nil" ; Input 1 e0 Filament Sensor  
M591 D0 P2 C"e0stop" S1 ; Filament Runout Sensor  
M83 ; extruder relative mode  
M140 S[first_layer_bed_temperature] ; set bed temp  
M109 S165 ; Set extruder temp 165C before bed level  
M190 S[first_layer_bed_temperature] ; wait for bed temp  
;G28 W  
G32 ; Levels Z Tilt and probes Z=0  
G29 S0 ; mesh bed leveling  
G1 X0 Y0 Z2 F2000  
M109 S[first_layer_temperature] ; wait for extruder temp  
G1 X10 Y-7 Z0.3 F1000.0 ; go outside print area  
G92 E0.0  
G1 Z0.2 E8 ; Purge Bubble  
G1 X60.0 E9.0 F1000.0 ; intro line  
G1 X100.0 E12.5 F1000.0 ; intro line  
G92 E0.0
```

# PANELDUE CONNECTION

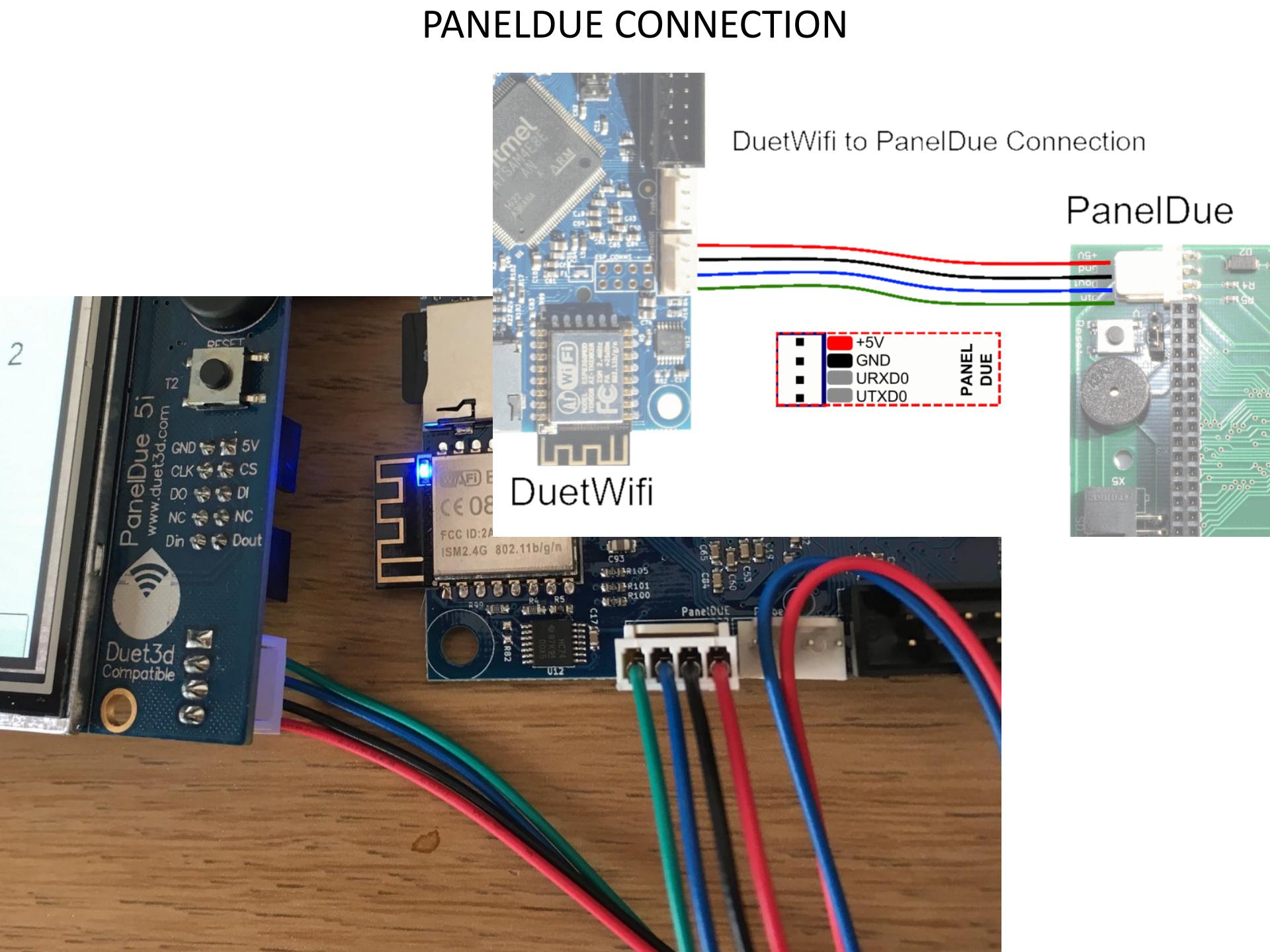
2

3

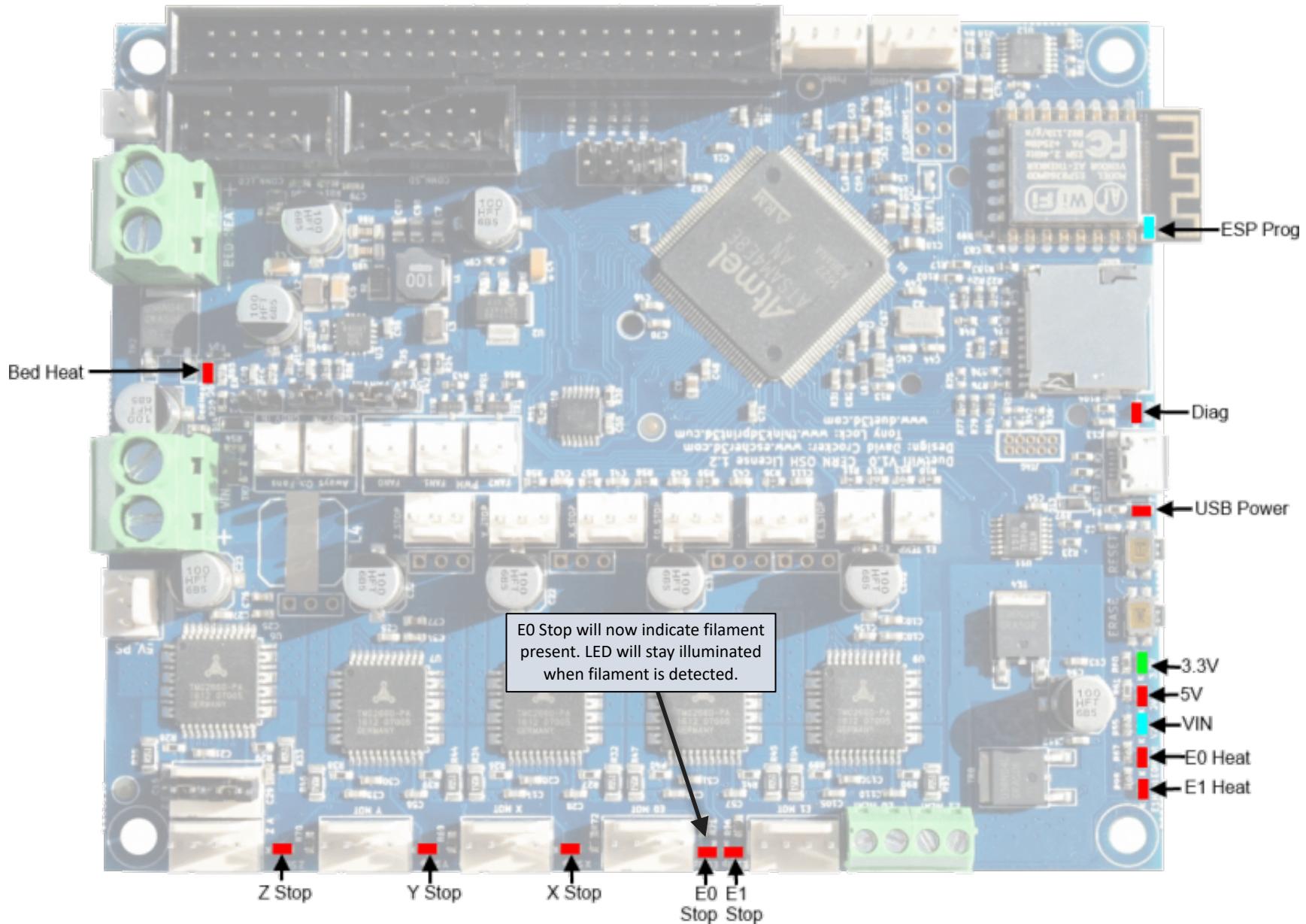
4

5

6

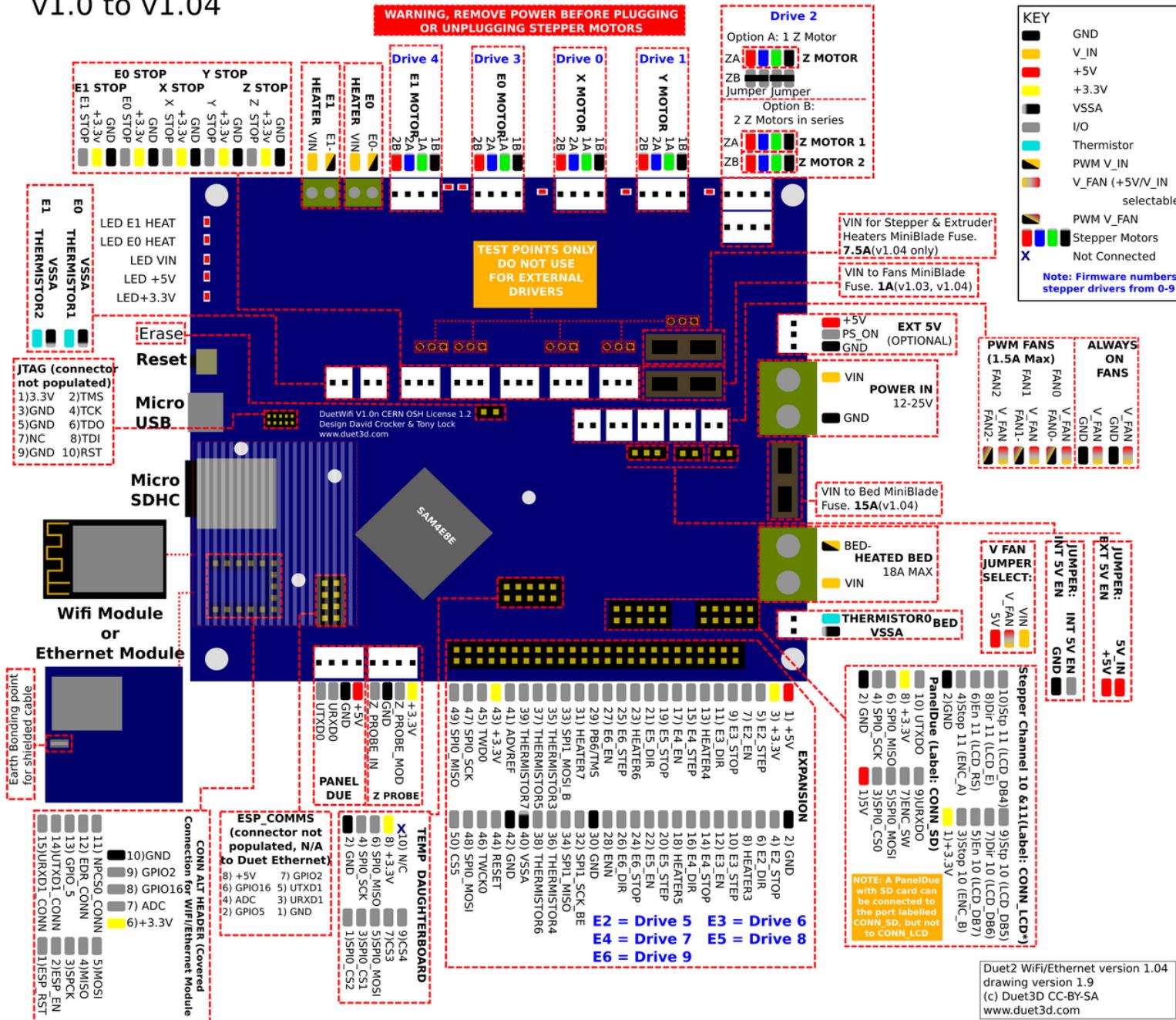


# DUET 2 WIFI LED INDICATIONS



# Duet Wifi / Duet Ethernet Connections

v1.0 to v1.04



# DUET 2 WIFI DIMENSIONS

