

## ESP32 Shutter Tester wiring guide V1.4

Wiring of the modules is easily accomplished using Dupont wires. They come in a variety of lengths with terminals being male-male, female-female or male-female.

Using a screw-terminal breakout board, male-female are most suitable. Shorter lengths can be used for the LCD & buttons, to make wiring neater.

There is only one 5V output on the board, one 3.3V and two 0V (or GND). It will not be possible to fit all of these wires into a single screw terminal. Do not use the GND terminal between pins 19 & 21

One solution is to gather the 3.3V ends together, cut off the connector and remove a small piece of the insulation. Terminate all of the wires into a choc-bloc and then just one wire from the choc-bloc will go to the screw-terminal on the breakout board. The same is then done with the 0V wires.

As an alternate, the power wires can be daisy chained to each module, but this requires soldering directly to the board. Some of the build photos will show this.

**Note:-** The LCD and/or TFT screens are optional, as output is also sent to the computer screen.

The LCD can only show limited data, where as the TFT screen shows all data.

Touch-screen functionality maybe added in the future, requiring the tft touch screen.

There are three hardware versions.

**Legacy.** This uses two sensors and a LCD. This is no longer supported, or code available.

**Version 2.** Three sensors, four input buttons & LCD

**Version 3** As per version 2 but with the addition of a tft display.

**Note:-** Current firmware works with both Version 2 & 3 hardware versions.

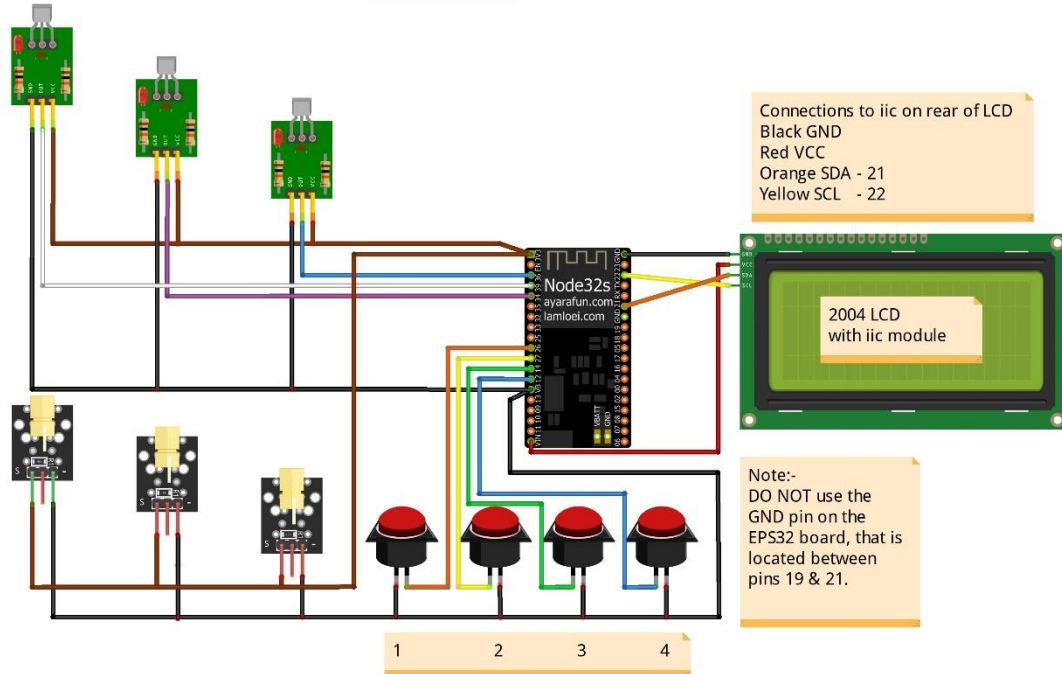
## Version 2. With centre Laser.

Transparent three legged sensors must be fitted with the flat surface at the rear and the little dome pointing over the board and towards the laser. Connecting them incorrectly WILL destroy them.

V2.2.1  
Wiring colours harmonised.  
New 3 Laser design

**Caution**  
To avoid sensor damage, wire up the rx modules BEFORE plugging the transparent sensors into them. Double check wiring BEFORE powering up the board & ensure LEDs light. Then de-power the board and insert sensors ENSURING the sensor is fitted the correct way round.

Varients of sensor boards means the 'VCC', 'S' or '+' and 'GND' or '-' might be the other way around, compared to this diagram.



Connections to iic on rear of LCD  
Black GND  
Red VCC  
Orange SDA - 21  
Yellow SCL - 22

Note:-  
DO NOT use the GND pin on the EPS32 board, that is located between pins 19 & 21.

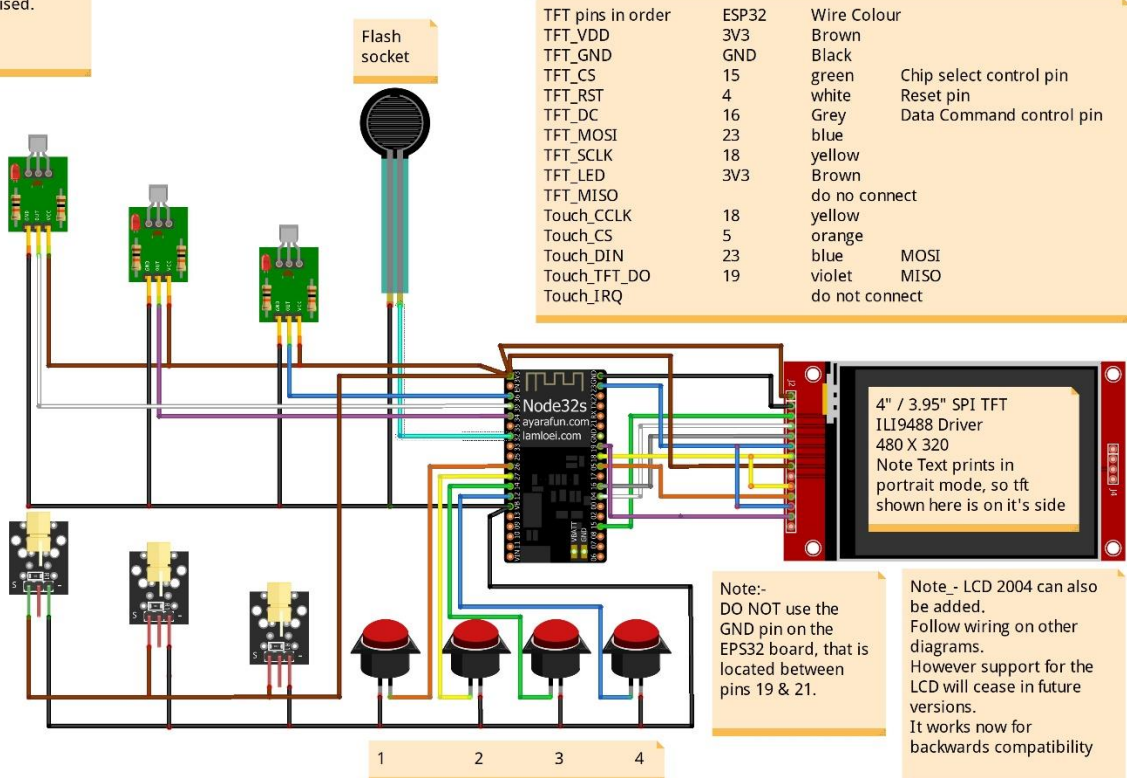
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## Version 3 with TFT screen.

V2.1.3  
Wiring colours harmonised.  
New 3 sensor design.  
Flash socket added

Transparent three legged sensors must be fitted with the flat surface at the rear and the little dome pointing over the board and towards the laser. Connecting them incorrectly WILL destroy them.

**Caution**  
To avoid sensor damage, wire up the rx modules BEFORE plugging the transparent sensors into them. Double check wiring BEFORE powering up the board & ensure LEDs light. Then de-power the board and insert sensors ENSURING the sensor is fitted the correct way round.



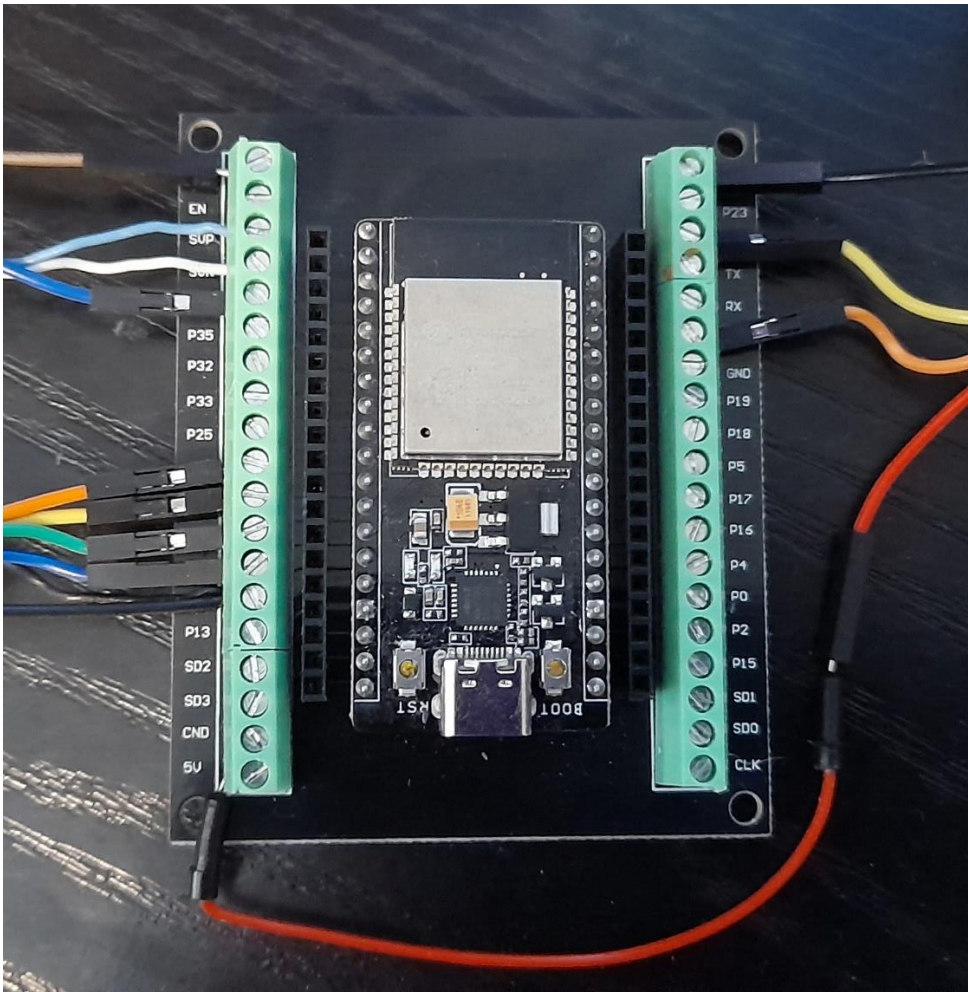
TFT pins in order	ESP32	Wire Colour	
TFT_VDD	3V3	Brown	
TFT_GND	GND	Black	
TFT_CS	15	green	Chip select control pin
TFT_RST	4	white	Reset pin
TFT_DC	16	Grey	Data Command control pin
TFT_MOSI	23	blue	
TFT_SCLK	18	yellow	
TFT_LED	3V3	Brown	
TFT_MISO		do not connect	
Touch_CCLK	18	yellow	
Touch_CS	5	orange	
Touch_DIN	23	blue	MOSI
Touch_TFT_DO	19	violet	MISO
Touch_IRQ		do not connect	

Note:-  
DO NOT use the GND pin on the EPS32 board, that is located between pins 19 & 21.

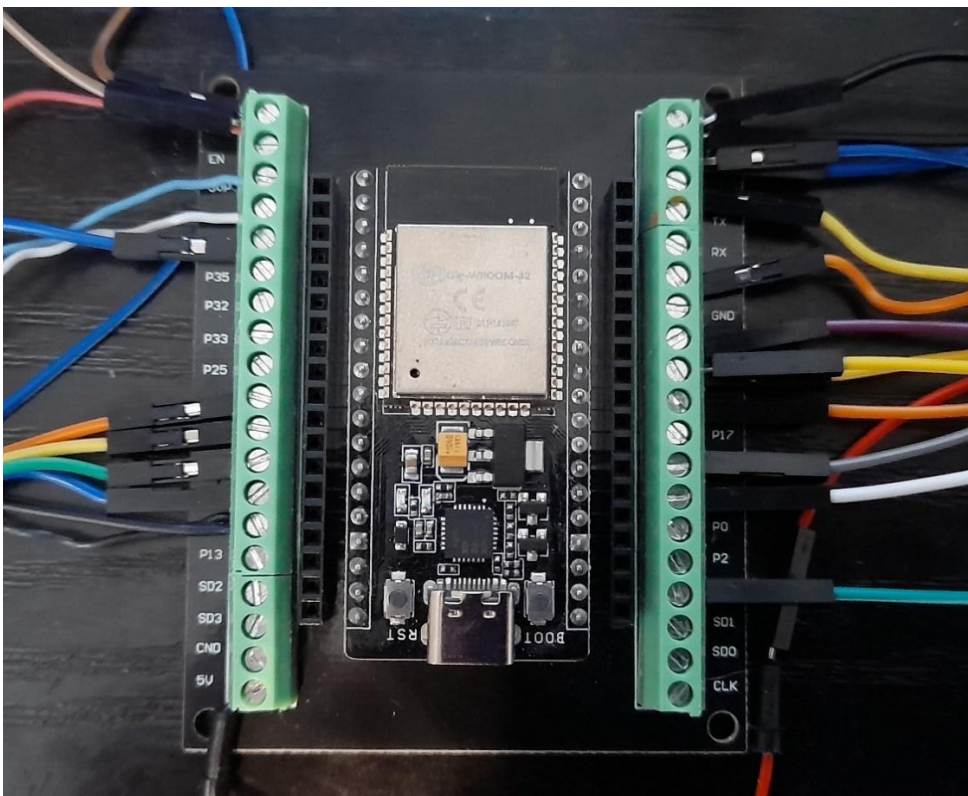
Note - LCD 2004 can also be added.  
Follow wiring on other diagrams.  
However support for the LCD will cease in future versions.  
It works now for backwards compatibility

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Version 2 with LCD

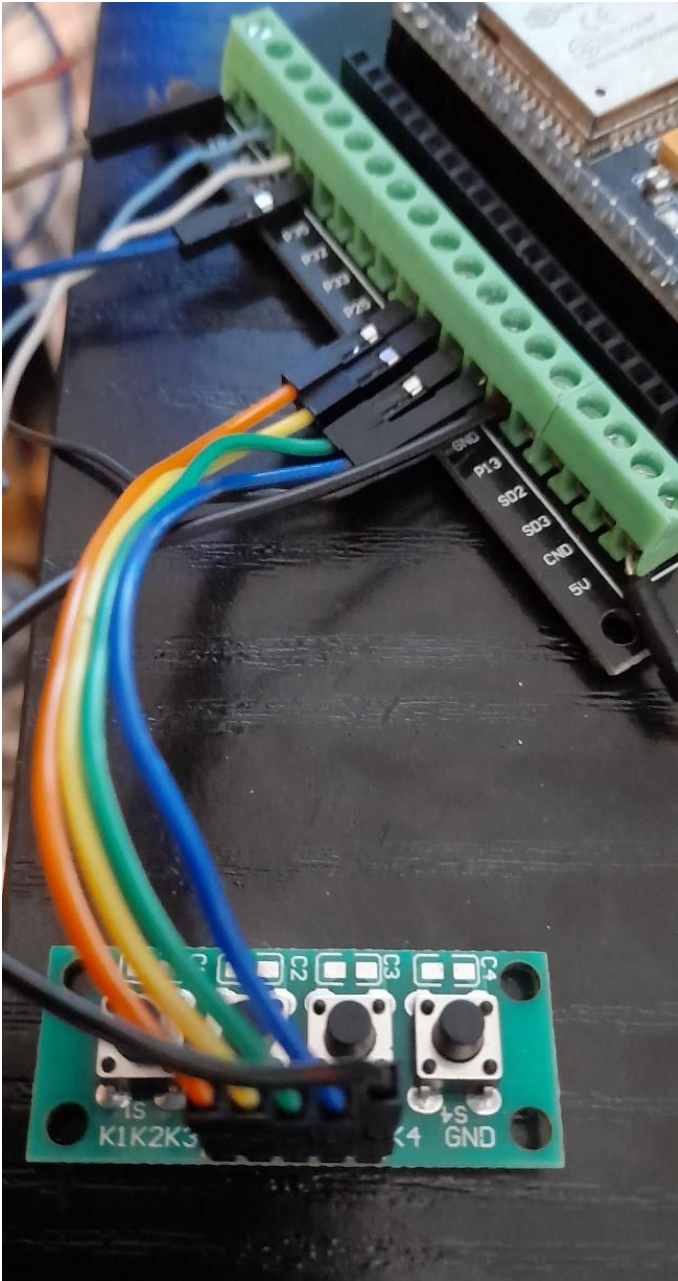


Version 3 with TFT and LCD connected





Button wiring



LCD connections. Note blue contrast adjuster



A red PCB populated with various electronic components. At the top, a multi-colored ribbon cable is connected to a header. The board features several surface-mount components: resistors labeled R1 through R8, capacitors labeled C1 and C2, and a central microcontroller chip. There are also two circular mounting holes on the left and right sides.