

I would really be grateful if you start to build the Trigger Trap Splash Timer, that you go to the Photrio thread and say hi. Also please post photos of your completed tester.

Please refer to Photrio for further build help & to let us know you are building the timer.
[\(1\) Trigger Trap Splash Freeze Timer Cheap-Easy-It-Works | Photrio.com Photography Forums](#)

GitHub repository where all documentation & code can be found. [billbill100 \(github.com\)](#)

ESP32 Trigger Trap Splash Timer Wiring Guide V1.0 27/03/2024

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, with a mix of 10 and 20cm lengths.

Connections to some boards and sockets require soldering.

There are limited 3.3V and 0V (or GND) screw terminals available. One solution is to gather the 3.3V wires 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.

Do not use the GND terminal between pins 19 & 21 on the NodeMcu32 board (it is an error on the board printing and is GPIO 11 & CMD, not GND).

Please refer to the schematic for details of all connections and use them in conjunction with the photographs below.

Before connecting 12V power, check and double check all of the connections are correct. Use a multimeter on the Ohms scale to check 12V & 0V are the correct way round.

Do not connect the 5V and 0V wires from the D-DC converter to the ESP32 board. Instead, leave them loose & apply 12V power to the power in socket. Using a multimeter on the DC Volts scale, ensure correct polarity on the 2.1mm sockets. Then measure the voltage on the end of the wires, to ensure it is 5V and the polarity is correct. Only when you are 100% certain, make the connections to the ESP32 board.

The 2.1mm sockets have two solder tags. The shorter one is pin 1, Centre 12V Red.
The longer one is Sleeve 0V Black.

Power In. 2.1mm Jack plug.

Pin 1 Tip is 12V. Red.

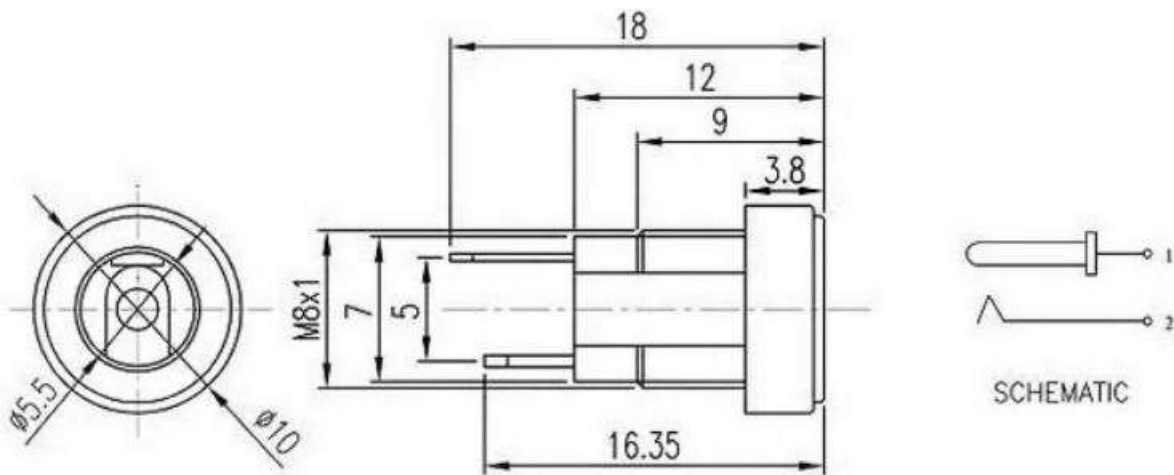
Pin 2 Sleeve is 0V. Black.

Solenoid Out. 2.1mm Jack plug.

Pin 1 Tip is 12V. Red.

Pin 2 Collar is 0V. Yellow.

Note:- Red 12V is common across all four 2.1mm connectors and the three Opto-Isolated Mosfet boards.
It is the 0V line from the Opto-Isolated Mosfet boards which is switched.



Trigger In 3.5mm Jack plugs.

Pin 1 Tip is 3V. Brown.
 Pin 2 Collar is Trigger In. White.
 Pin 3 Sleeve is 0V. Black.

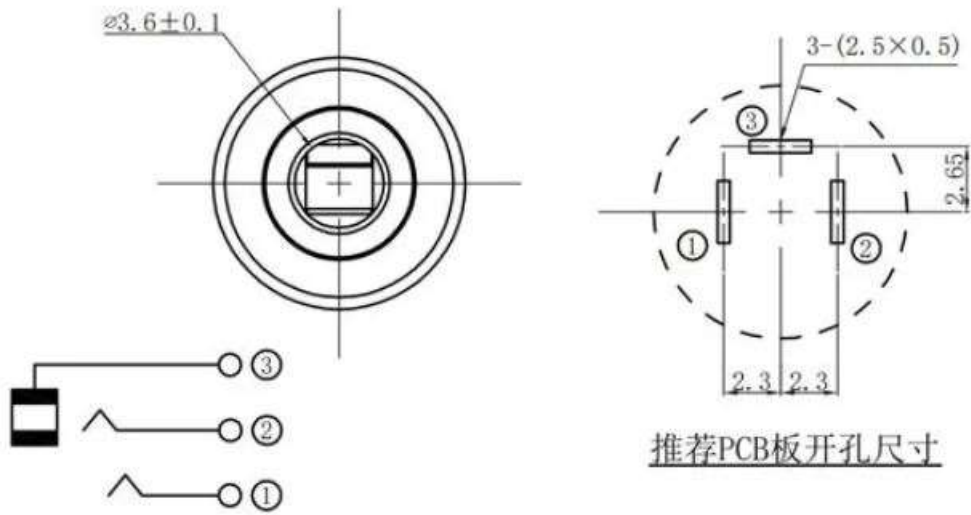
Flash In 3.5mm Jack plug.

Pin 1 Tip. Yellow.
 Pin 2 Sleeve. Black.

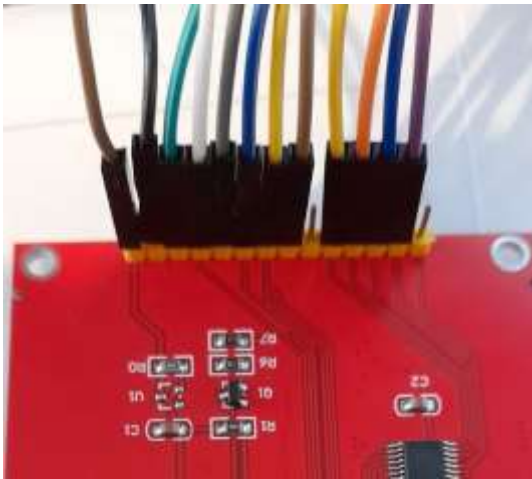
Relay Out 3.5mm Jack plugs.

Pin 1 Tip is 3V. Brown.
 Pin 2 Collar is Trigger Out. Blue.
 Pin 3 Sleeve is 0V. Black.

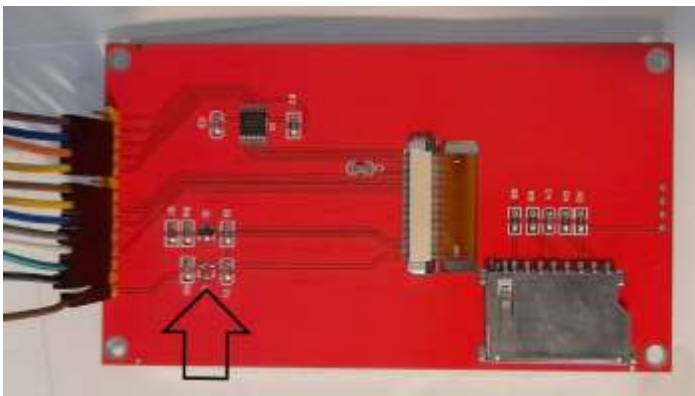
See separate document for 3.5mm camera connection.



Tft connections.



Rear of tft screen 320 x 480 ili9488 Touch. Note U1 is not populated on the board, as it is a 3.3V board. (Arrow).



Completed wiring for tft.



Buttons & encoder wiring. Note the choc-bloc to combine the GND wires and the piezo sounder.



Light Sensor. A hole was drilled in the front of the box, for the photo cell. (Not pictured)



Hole drilled in side of box, for access to adjustment control & small hole drilled so LED on Light sensor can be seen. Below this is the 3.5mm jack socket for connection to camera. This is mounted on the right side of the box.



Left side of box, showing sockets.

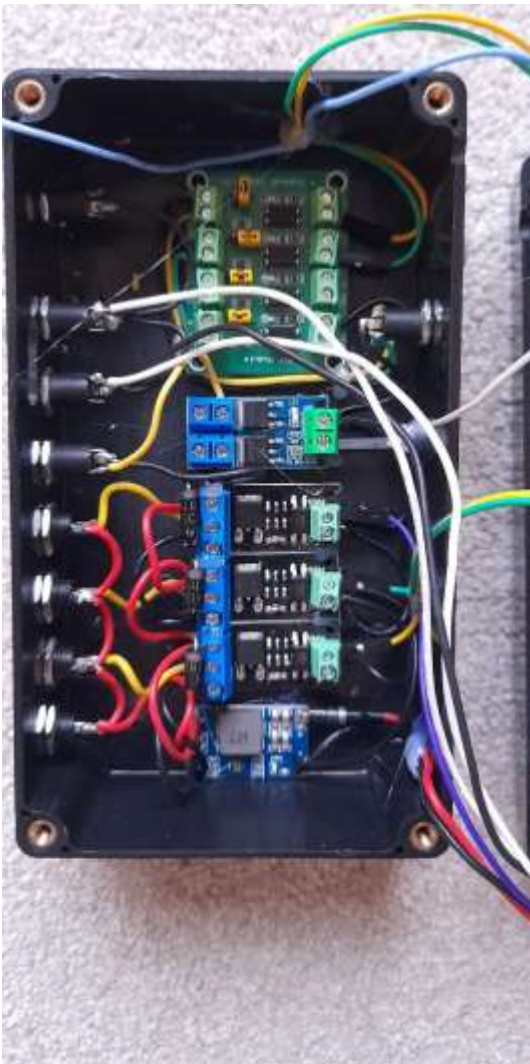
Left to right – relay out. Trigger High in. Trigger Low in, Flash Out, Solenoid 1, 2, 3 and power in.

Note centre pin misaligned in some of the 2.1mm sockets. Caused by rubbish Chinese soldering iron that did not have enough heat output (now in the bin) Putting a 2.1mm jack plug into the socket whilst soldering (with a quality iron) will help keep pin centralised.



Base of box showing all of the modules. Note Brown wire has not yet been added, for Trigger out & Relay sockets. Blue wire for relay not yet soldered to connector.

Note Old opto-Isolator board shown.



Left side of box, showing connections. Blue wire (Relay out not yet soldered, brown wires not yet added).
Note Old opto-Isolator board shown.



The 2.1mm socket connections can be identified as the 12V centre solder tab is shorter than the 0V solder tab.

Right side of box.

3.5mm camera connection mounted on right side of box.

Note Old opto-Isolator board shown.



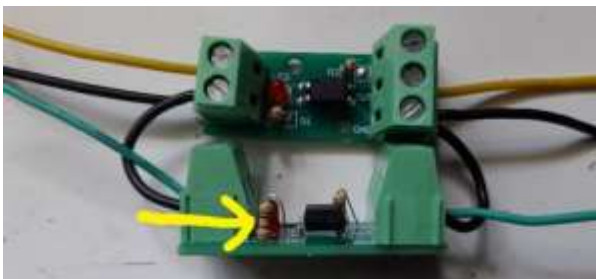
Opto-isolator – new type.

Important Note. The photos show a different 4 port isolator board. This was found not to be suitable due to resistor values on both input and output to be wrong. A new single port isolator has now been specified. This still has the wrong resistor value, but it is easily changed.

Although the bag clearly states 5V, the current limit resistor is 470 Ohm, which is far too high to be used with 3.3 volts. They have sent a version that is for 12V. The resistor must be removed and replaced with a 27 Ohm resistor. Even the 5V version has a resistor value that is too high, so no matter what voltage version you have, the input resistor requires changing.



The yellow arrow points to the resistor that must be changed to 27 Ohm resistor



Optocouplers showing how they should be wired.

On the left,

Black -INPUT to GND on ESP32

Yellow +INPUT to pin G22 of the ESP32

Green +INPUT to pin G21 of the ESP32

On the right,

Black GND to 3.5mm socket body

Yellow OUT to 3.5mm socket collar

Green OUT to 3.5mm socket tip

If using an opto-isolator for the flash output, the resistor also requires changing to 27 Ohm.



