TESS-WDL

TESS-W Data Logger.

The following describes the TESS-WDL prototype, based on a TESS-W pcb v4.2. For Tess-WDL we add a module with SD card, real time clock, a solar panel, a charge control circuit and a lithium battery.
It is suitable for taking measurements in isolated locations without internet or electricity. It saves data to SD every 10 minutes.
The power supply system recharges the battery during the day and **ONLY in darkness powers** the photometer.
To activate, charge and save reads, **turn ON** the internal switch (red dot).
When **not in use**, **turn OFF the internal switch** (black dot) to avoid draining the battery.

How it works. *(In darkness or with the solar panel well covered).*

1 - When an **SD card is present**, the application goes into **data logger mode**. It does not activate wifi, takes a measurement, stores it and goes into low power mode for 10 minutes, repeating the cycle as long as it is dark.

2- When there is **no SD**, the program will start in **normal wifi mode**, it may happen that:

a) There is **NO known Wifi**: TESS-WDL **creates its AP**, until the battery runs out. Useful to connect to the mobile phone and check the clock time, allowing its adjustment if necessary. It is necessary that the unit is in darkness, (or covered with something dark).

b) If there is a **known Wifi** and if it is in darkness, it connects to wifi, sends the measurement to the broker and go to sleep until the next cycle.

TESS-WDL prototype.

Setting the time.

If it has been a long time since the last use, before taking action, it is advisable to check that the module's clock is on time. To do this you need to remove the SD card and turn on the light meter in a location without known Wi-Fi and in darkness. Under these conditions, the light meter will appear as a Wi-Fi access point.

With a mobile phone, find and connect to the wifi access point created by the TESS-DL.
Once connected, type in a browser the address: 192.168.4.1 and enter.
On the web page that appears we have the link to set the clock.

In this process the mobile could disconnect us from the TESS, trying to find an outlet to the internet. It is a matter of repeating the process.

Data recovery

To retrieve the readings, remove the SD card and read the data file with a USB adapter.
Before handling the SD, set the **power switch to OFF**.

The generated csv file has this format:

```
# TESS Photometer. Name: stars166  CI: 20.14
# Date      Time     Seq  Frec     Mag     Tsen   TIR
10/01/2023; 6:02:45; 1; 4654.19; 10.97; 8.87; -3.75
10/01/2023; 6:12:51; 2; 783.48; 12.91; 9.13; -3.75
10/01/2023; 6:22:58; 3; 305.83; 13.93; 9.08; -3.79
10/01/2023; 6:33:06; 4; 237.07; 14.20; 8.98; -3.84
```

The file can be opened with excel:

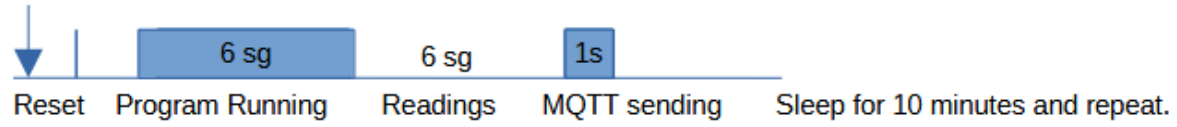
	A	B	C	D	E	F	G
1	10/01/2023	6:02:45	1	4654,19	10,97	8,87	-3,75
2	10/01/2023	6:12:51	2	783,48	12,91	9,13	-3,75
3	10/01/2023	6:22:58	3	305,83	13,93	9,08	-3,79
4	10/01/2023	6:33:06	4	237,07	14,2	8,98	-3,84
5							

LED status.

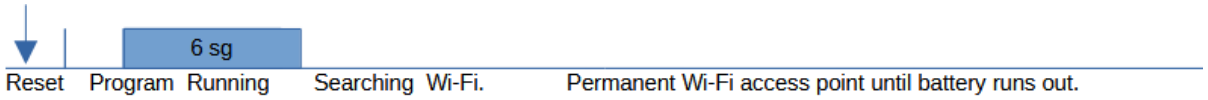
Internal switch in ON position and pressing RST button in the CPU pcb.
Ensure that the battery is charged. Cover the solar cell with something dark.

1 SD card removed.

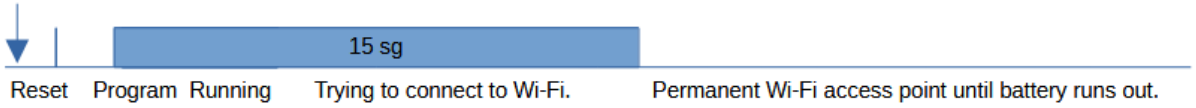
A- SSID present and configured.



B- SSID not present.



C- SSID present, incorrect password, or weak signal.



2 SD card inserted.

SSID does not matter.