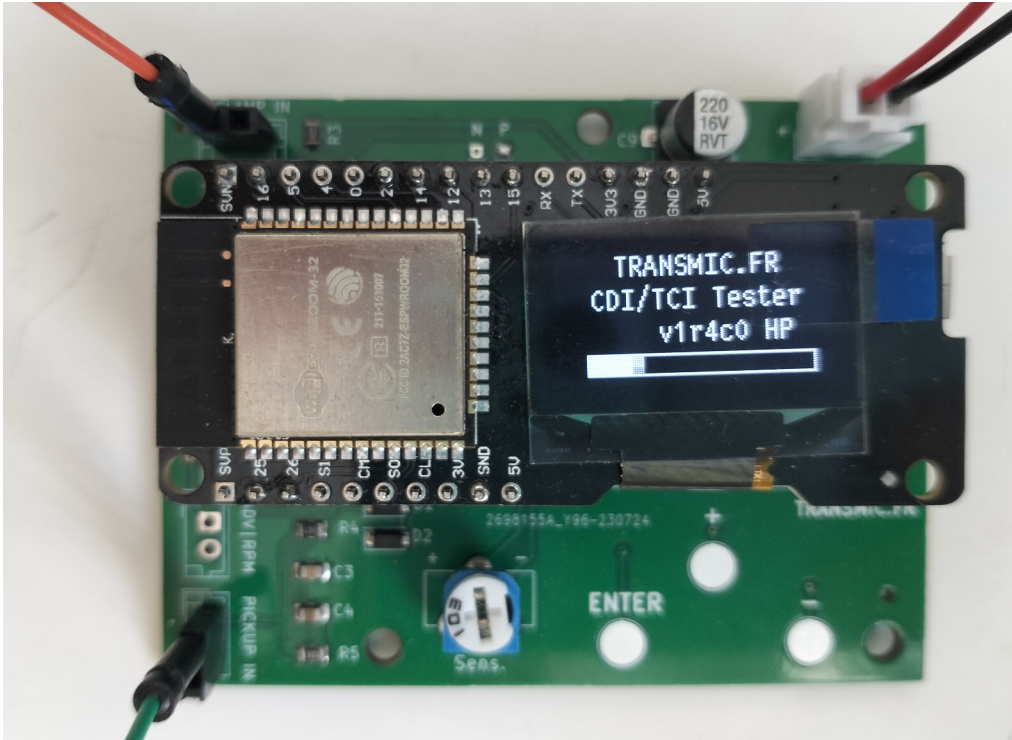


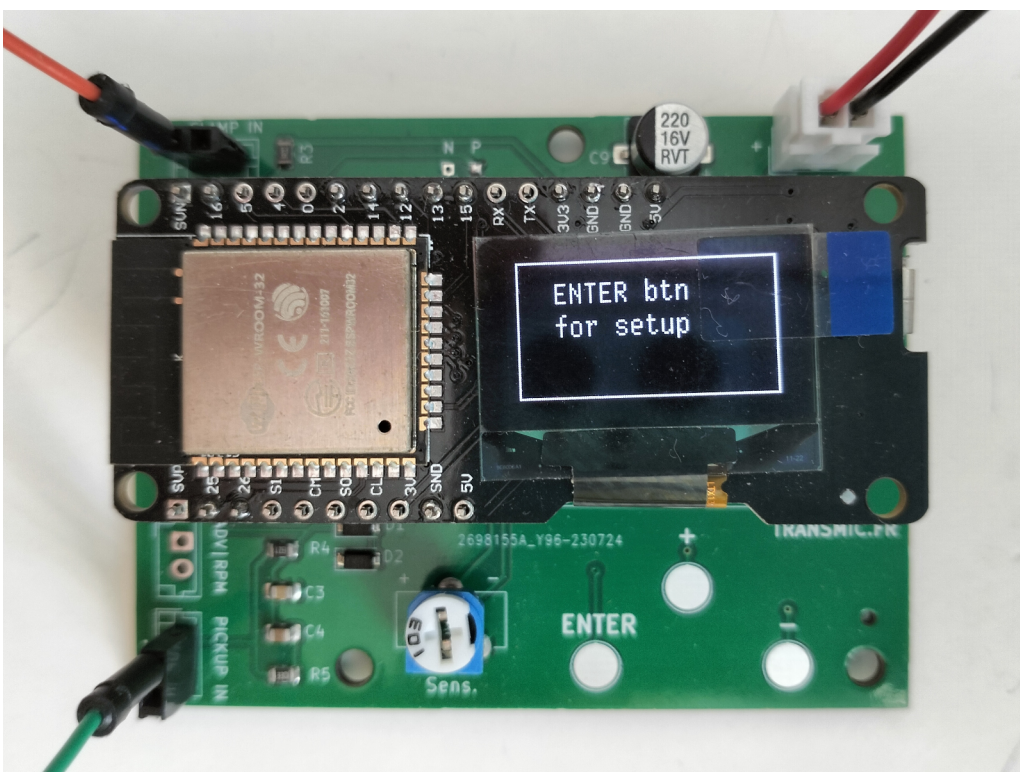
Ignition Timing Meter

TRANSMIC.FR V1R5C0

Power on the Timing Meter. Splash screen appears during 5sec



To launch the SETUP mode, touch "**ENTER**" button, otherwise wait **3 seconds** until it goes in RUN mode:



SETUP MODE

In SETUP mode, touch "+" or "-" touchpad to select **Strokes** number:

2 strokes or 4 strokes with Wasted Spark, pickup on crankshaft so 1 spark every 360 degrees: choose "2"

4 strokes without Wasted Spark, pickup on camshaft so 1 spark every 720 degrees: choose "4"

Touch **Enter** when done.

Touch "+" or "-" to increase **Pickup Position** relative to TDC:

Can be adjusted from 0 to 90° BTDC.

This value is used to directly display the advance in degrees BTDC.

*(If you let Pkp Position to zero, then the time between pickup and spark will be display in microsecond and degrees.
I.e.: "ADV: -19.5 deg" means: "Spark appends 19.5degrees AFTER the first pulse of the pickup."*

*So you have to do the subtraction by yourself, say pickup is set at 50° BTDC then true advance is:
50 – 19.5 = 30.5 degrees BTDC)*

Touch **Enter** when done.

Touch "+" or "-" to select **Pickup Type**:

Choices are:

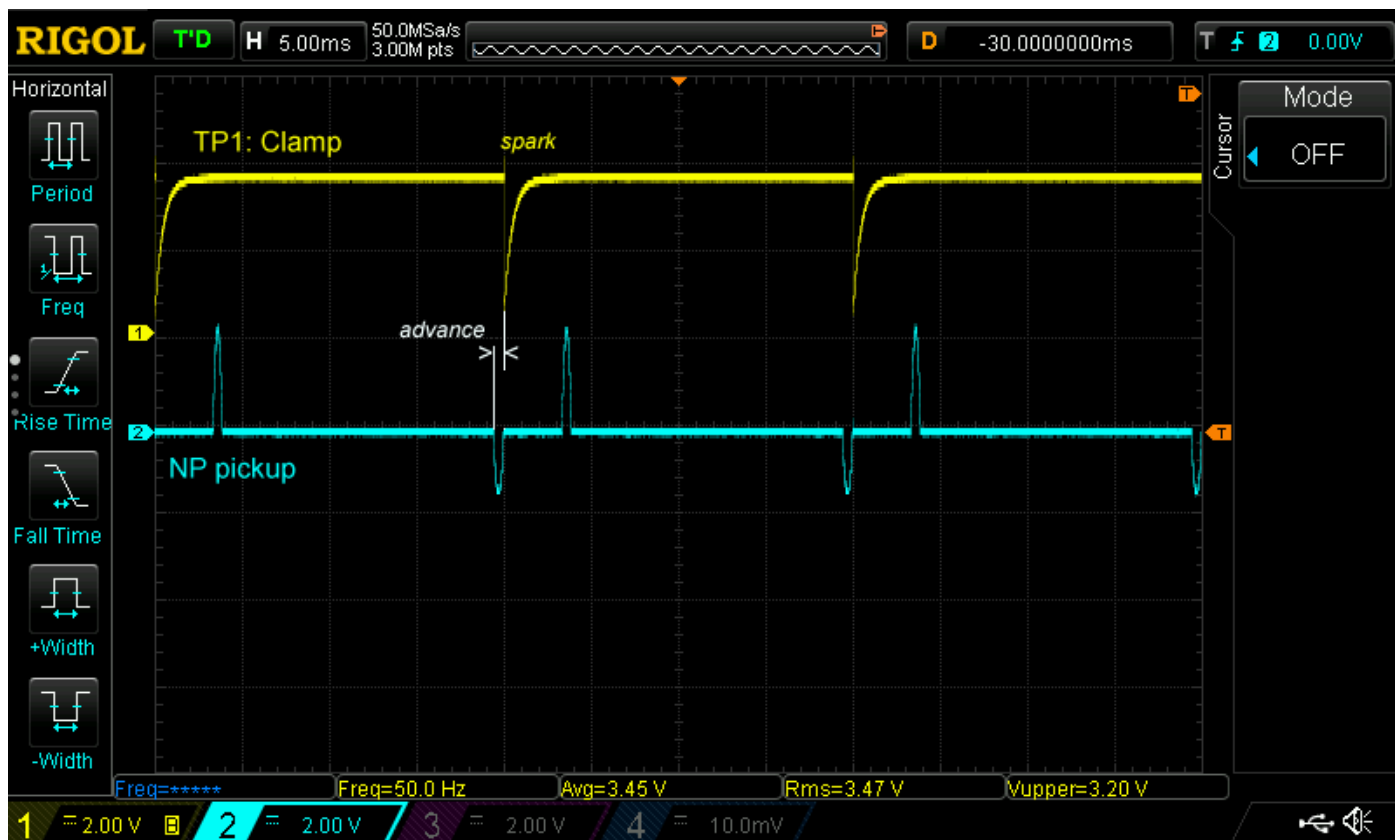
NP: for VR pickup that gives a **N**egative pulse first then a **P**ositive one or for **Hall Effect** Sensor.

PN: for VR pickup that gives a **P**ositive pulse first then a **N**egative one.

AUTO: ITM tries to detect the type of pickup.

Touch **Enter** when done.

It's important to understand that calculation starts from the first pickup pulse.



Touch "+" or "-" to select Display **Refresh Rate**:

Results are displayed on the screen and on the USB output at **0 to 9 seconds** interval.

Touch **Enter** when done.

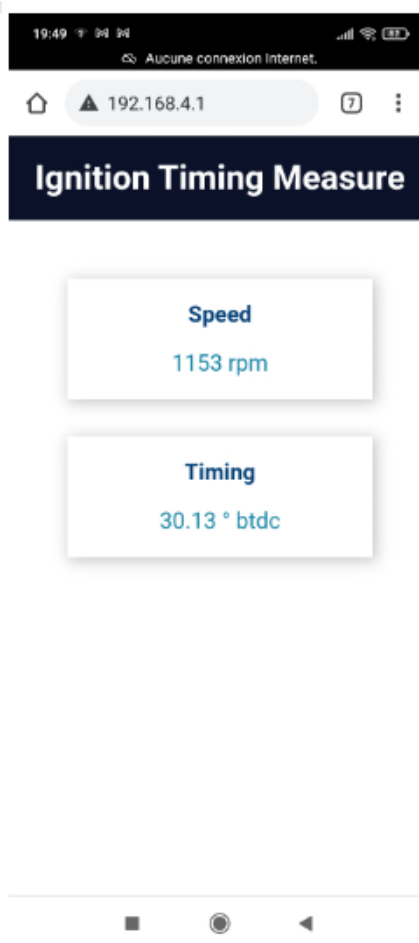
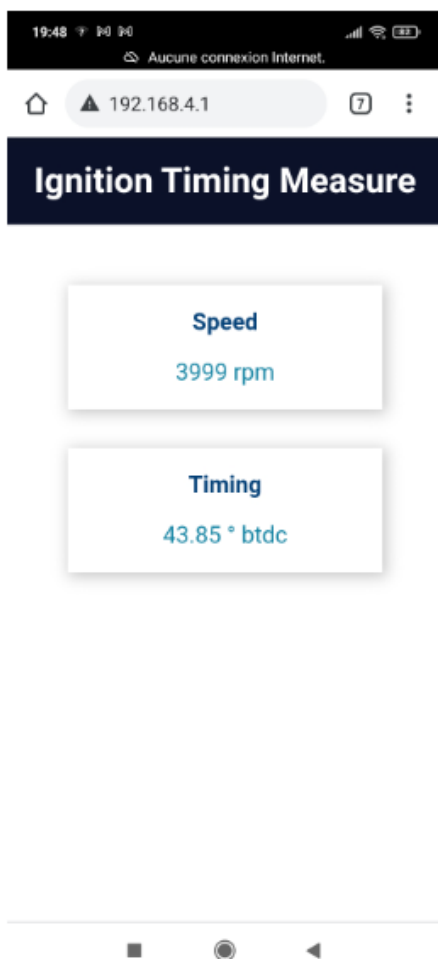
Touch "+" or "-" to select Display **Console Output**:

USB: Results are available in .CSV mode on USB Serial port at 115.200 8.N.1. (*You may need a [driver](#))*

or

Wifi: Results are shown on any web browser on any device connected to **Transmic_ITM** Access Point at <http://192.168.4.1/console>
SSID password: nothing or "password"

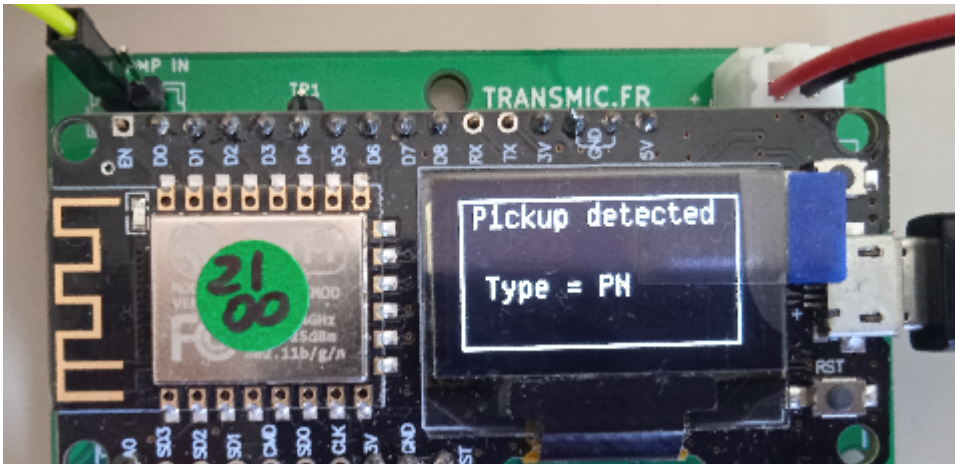
Touch **Enter** when done.



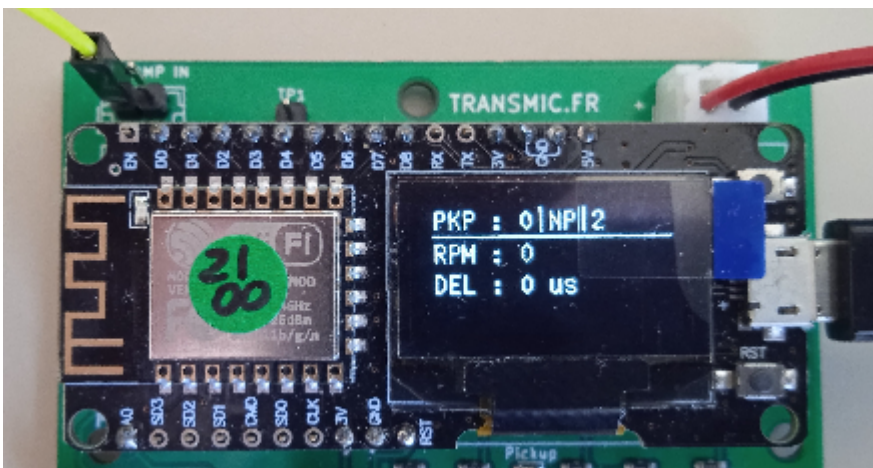
Now ITM unit is waiting for pickup signal...

In **AUTO** mode, "**Start Engine**" is displayed until a valid signal has been received.

In **AUTO** mode, the type of detected Pickup is displayed once a valid pickup has been seen.



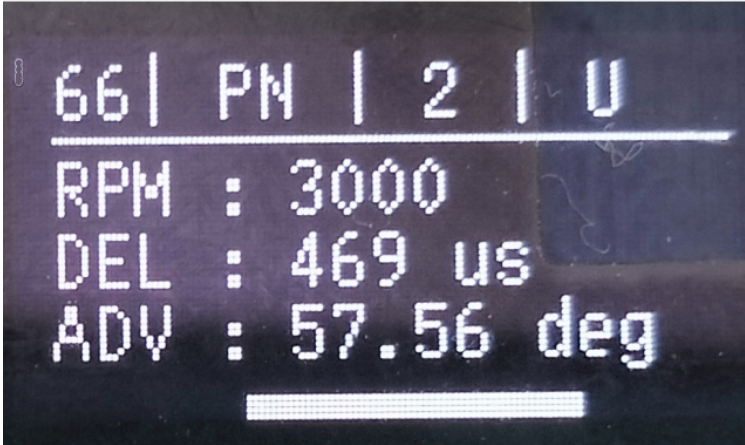
In **NP** or **PN** setting, "**Start Engine**" disappears after 2 seconds and ITM goes into RUN mode



RUN MODE

First line shows the settings

Pickup Position	Pickup wave Positive first	2 strokes	USB output or Wifi output
-----------------	----------------------------	-----------	---------------------------



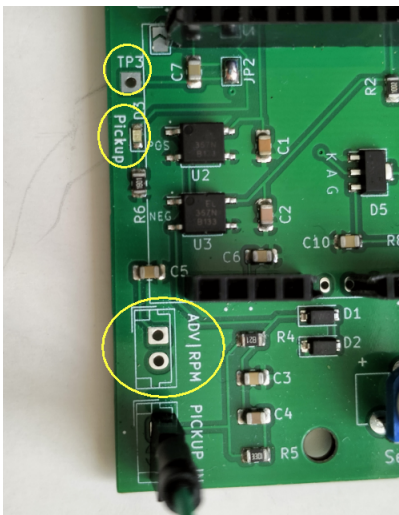
RPM : Measured from PICKUP pulses

DEL: Delay between pickup pulse and spark in microseconds

ADV: This delay for this particular RPM = this Advance timing BTDC
Positive number: Advance BTDC (before Top Dead Center)
Negative number: Advance ATDC (After Top Dead Center = Retard)

Bottom: Advance bargraph

Led flashes each time a pickup is detected.

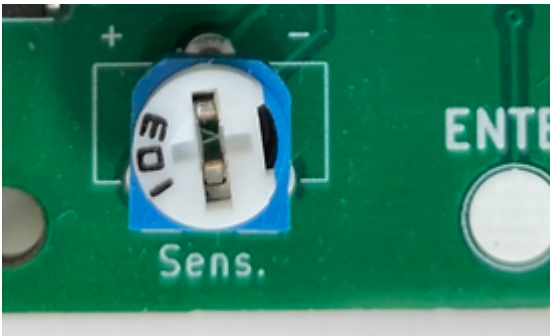


If you own an oscilloscope, use **P** or **N** test pads to visualize the signal detected by pickup input.

SENSITIVITY

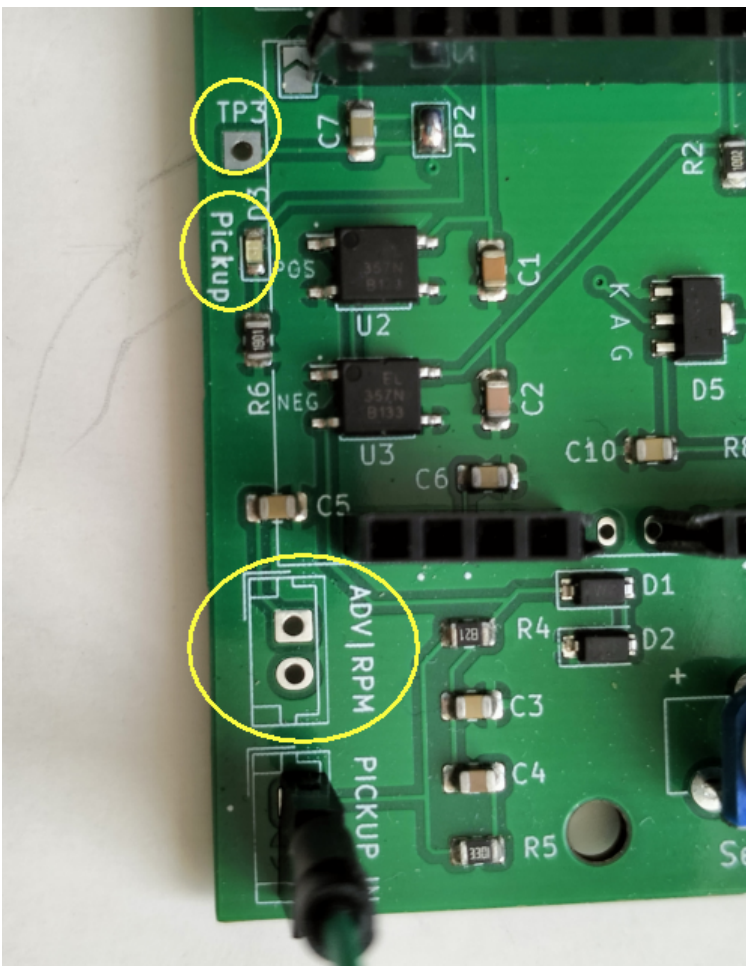
An INDUCTIVE probe or just 3 to 6 turns around the sparkplug wire detects the spark.

Sensitivity is adjustable by the small trimmer:



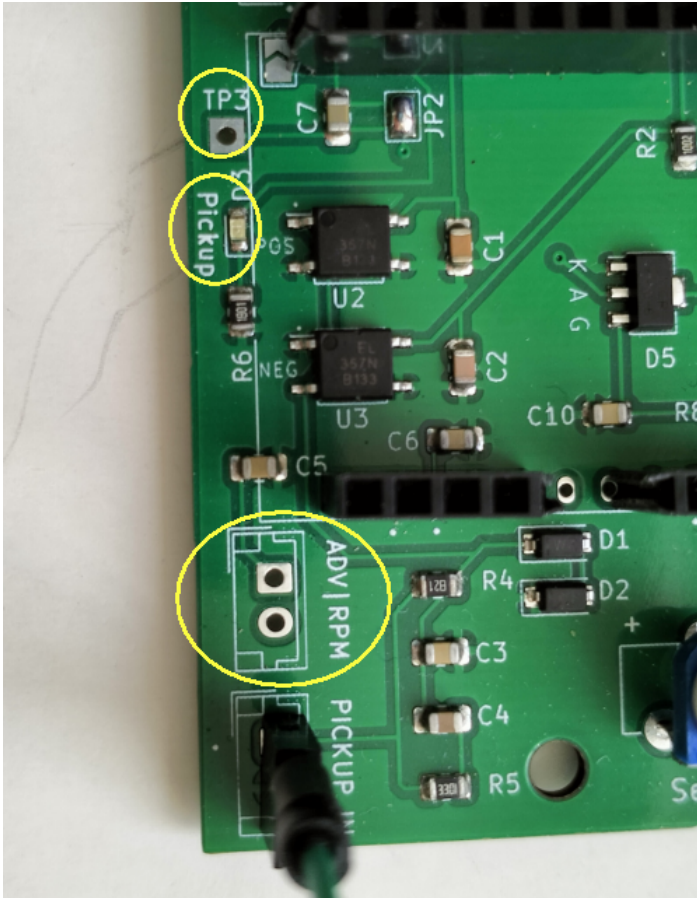
and/or add or remove wires around the spark plug cable.

If you own an oscilloscope, use **TP3** test pad to visualize the signal detected by the clamp.



DAC OUTPUTS

Two optional 8 bits Analog outputs are available:



ADV:

- Max voltage is around +3.1v.
- Output: **Degree = $mv * 2 / 100$** (ie $3100mv * 2 / 100 = 62^\circ$)
- Max output 62° BTDC
- Steps of $12mv * 2 / 100 = 1mv \approx 0.25^\circ$

RPM:

- Max voltage is around +3.1v.
- Output: **RPM = $mv * 3225$** (ie $3100mv * 3225 = 10,000rpm$)
- Max output 10,000 RPM
- Steps : $10,000 / 255 = 1mv \approx 40 rpm$

DRIVER

To communicate with the device through the USB connector, you will need a driver.

If you haven't it yet then install **CH340G** driver

Windows: <http://www.arduined.eu/tag/windows-7/>

Mac: https://wiki.wemos.cc/_media/ch341ser_mac_1.5.zip

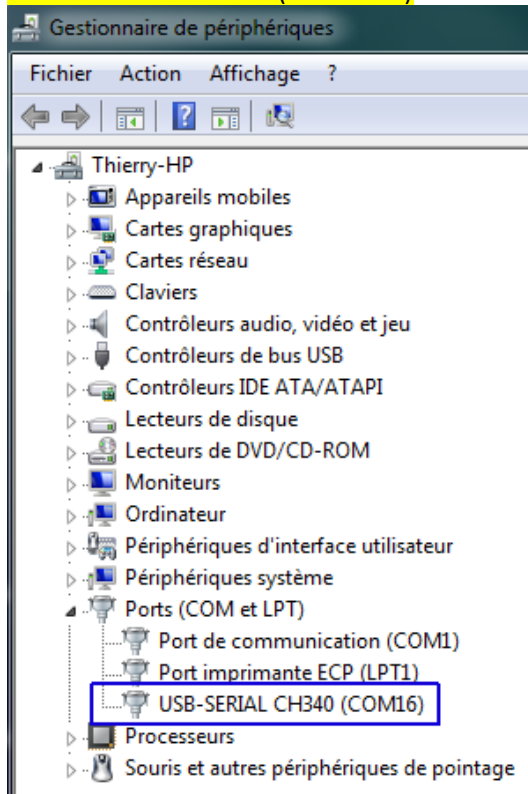
Chip Manufacturer driver http://www.wch.cn/download/CH341SER_EXE.html

Restart the PC

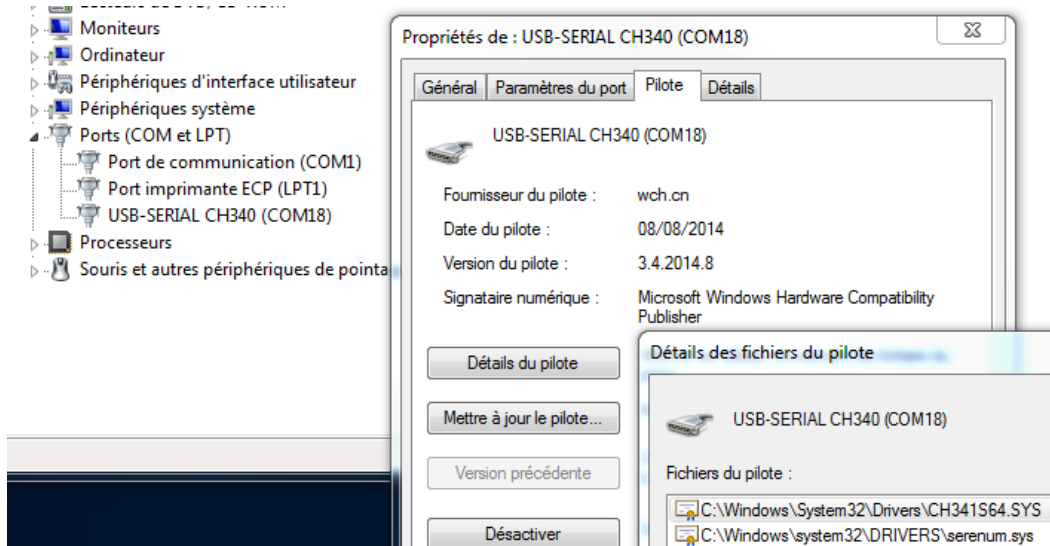
CONNECTION

Open "*Device Manager*" Scroll down, under "*Ports (COM&LPT)*" plug the USB connector to the CDI box, you should notice a new COM-port named "CH340"

Note the Port number (ie COM16)



Right click for *Properties > Driver* tab, if another Windows driver is in there, then "*Update driver*" find and install the one for CH340.



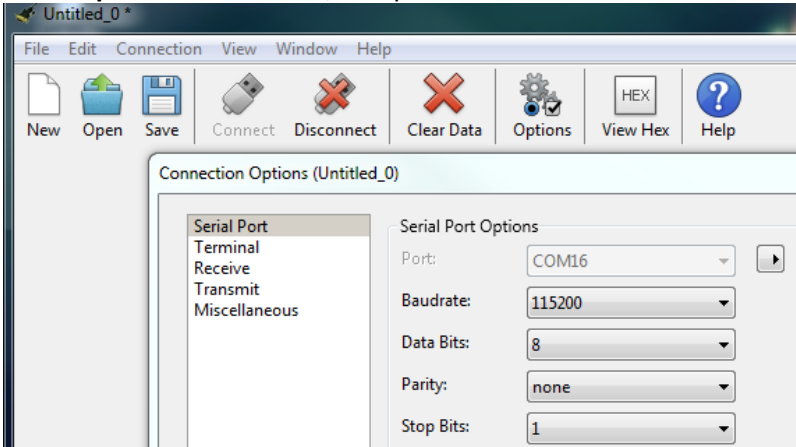
If Windows doesn't recognize the device because the driver is missing, the new Port will appear in "*Other devices*" folder.



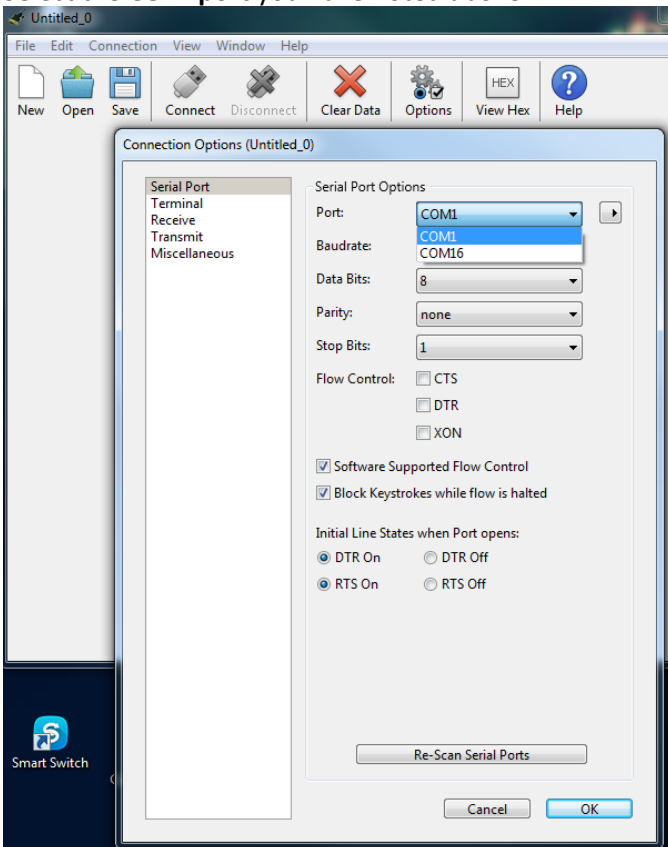
TERMINAL CONSOLE

Launch a terminal on your PC (I recommend **CoolTerm** <http://freeware.the-meiers.org>)
But *Putty* or *Kitty*, *Teraterm* are usable too...

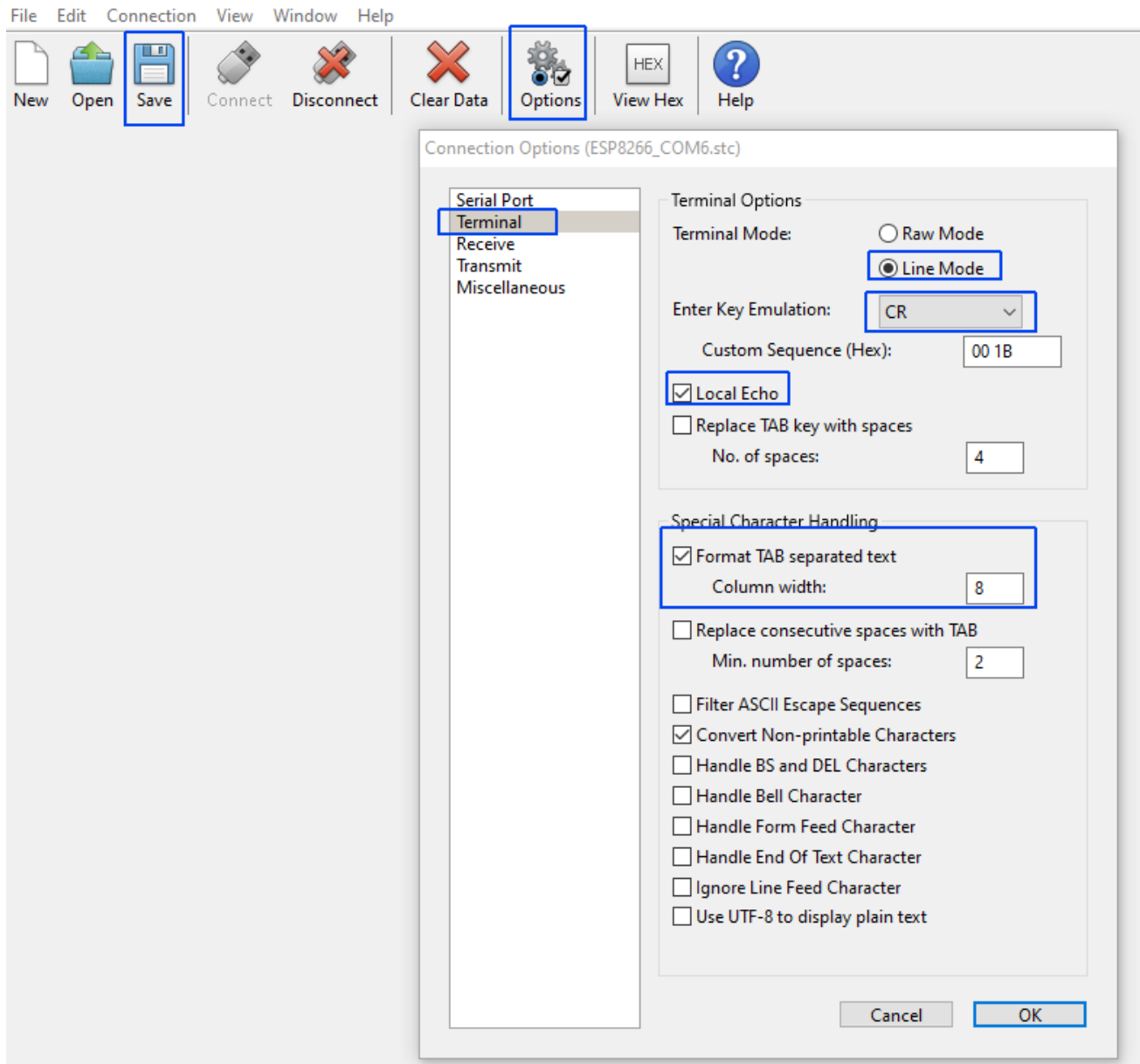
Go to **Options > Serial Port**, Setup the terminal to **115200.N.8.1**



Select the **COM-port** you have noted above.



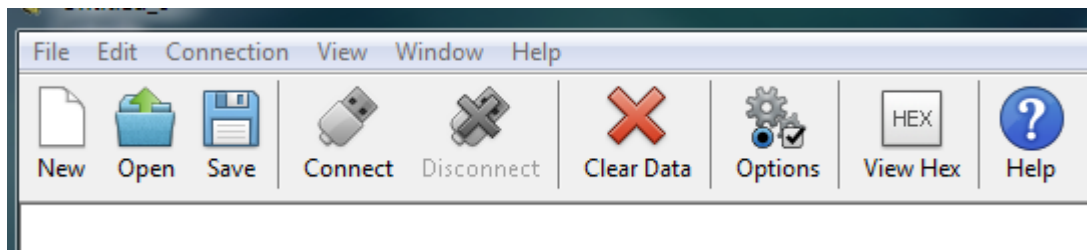
Under **Options > Terminal** check *Line Mode*, *Enter Key Emulation*, *local Echo* and *Format TAB > OK*.



Save this configuration

Connection

Click on "**Connect**" button



Other OS

-Android

– Use [Serial USB Terminal by Kai Morich](#) and a Male-Male USB type-C OTG connector to USB micro-B. ([video](#))

The phone must be [OTG compatible](#) with OTG turned on:

settings—additional settings—enable/disable OTG.

Mac

– Shell commands:

```
terminal
```

```
ls /dev/*usbserial*
```

```
screen /dev/cn.usbserial-xxxxxxx 115200 -L
```

```
screen /dev/tty.usbserial-xxxxxxx 115200
```

Linux

– Use a Terminal Software as [CoolTerm](#) or [Putty](#).

– Use Shell commands to find the COM-port:

```
tail -f /var/log/syslog | grep USB
```

```
dmesg | egrep --color 'serial|ttyS'
```

```
ls /dev/ttyUSB*
```

Port Configuration:

```
sudo su
```

```
stty -a </dev/ttyUSB0
```

```
stty -F /dev/ttyUSB0 cs8 115200 time 10
```

Connection to the device:

```
cat /dev/ttyUSB0 & cat > /dev/ttyUSB0
```