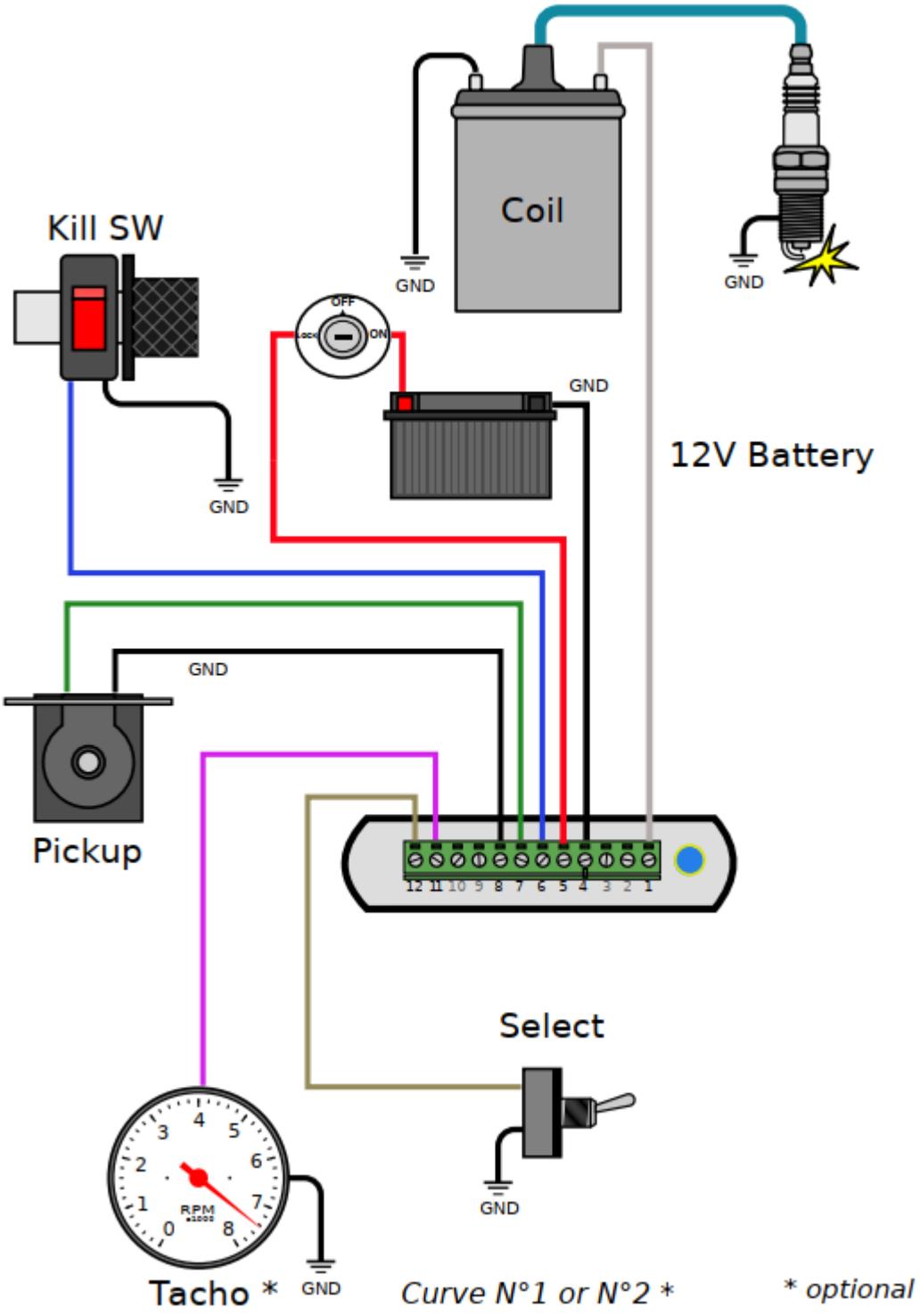
Summary

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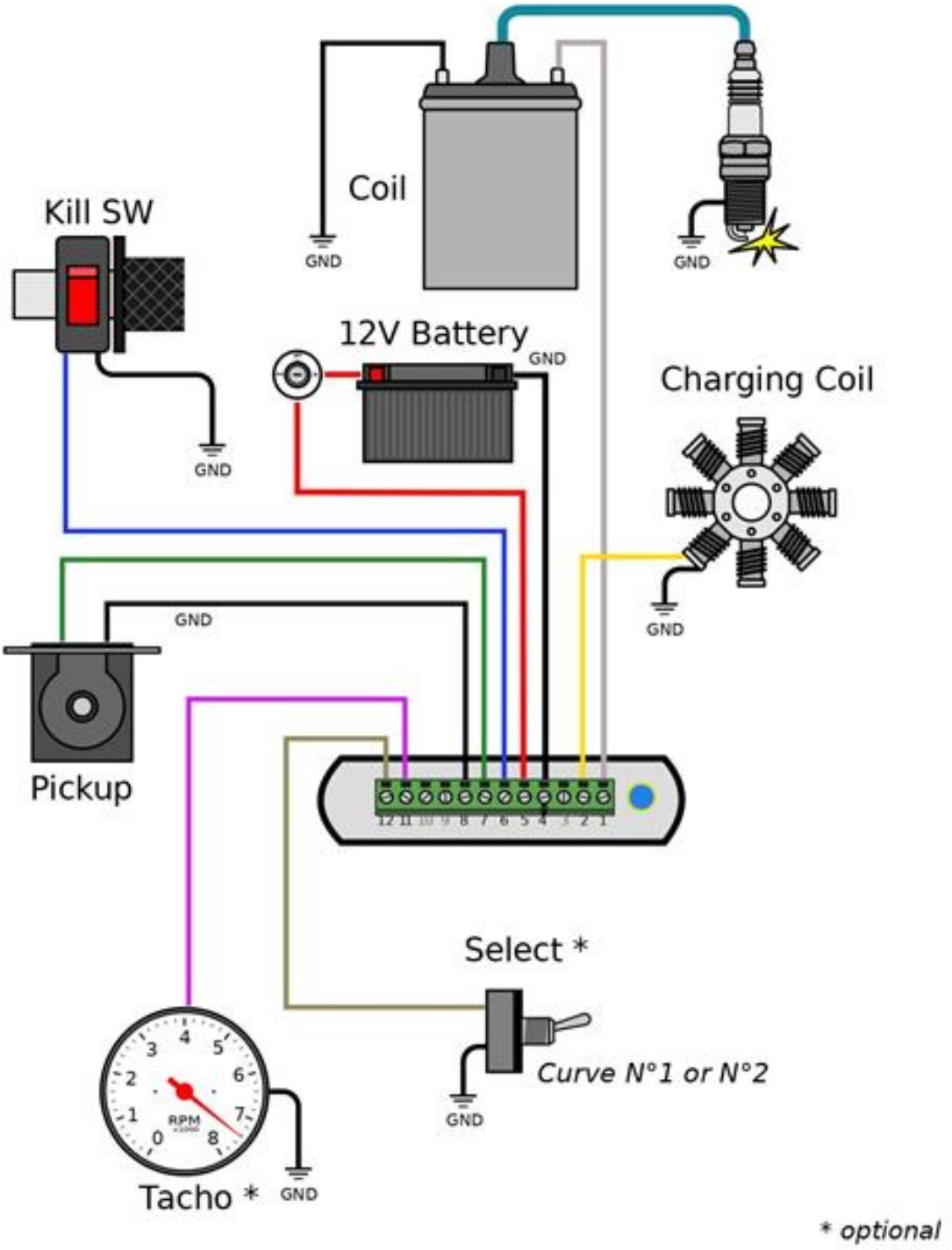
Wiring as DC-CDI



Pin 1 is next to the LED. Pin4/ground has a black mark

Wiring as AC-CDI

One wire of the charging coil is connected to the connector on pin 2 (HV input) and the other wire goes to connector pin 4 (Ground of the AC-CDI) or on any metal part of the frame connected to ground/minus battery



Pin 1 is next to the LED. Pin4/ground has a black mark

Connector



1	output	To ignition coil	
2	input	High Voltage from Charging Coil	
3	output	Test point	*(Internal High Voltage)*
4	input	**Ground frame (=minus from battery)**	
5	input	**+12Vdc from battery**	
6	input	Kill switch	
7	input	Analog Pickup	
8	input	Pickup or Hall Sensor Ground	
9	input	Digital Hall Effect Sensor *	
10	input	*not connected*	(Except for XT600: Pickup at 12°)
11	output	Tachometer *	
12	input	Curve Selection *	

** Options*

Kill Switch

The ignition uses the Kill switch input as a selector between 2 functions:

- Setup

- Stop engine.

Setup Mode

1) Turn the **Kill Switch ON** (*connector pin6 connected to ground*) **PRIOR** to power on the ignition box.

2) **Power on** the ignition box with a 6 to 12v battery.

Warning: The Power and Ground connections MUST BE SECURE.
A power outage during the setup process may cause the ignition box to brick !

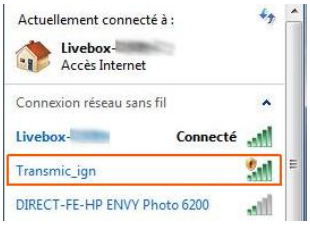
When the ignition box detects that the kill switch is already grounded, it turns into SETUP Mode.

3) The **Led** blinks 5 times meaning grounded Kill switch has been detected.
Then wait for the WiFi server to start
Then blinks 5 times again meaning "*Wifi Ready*" and finally flashes once every 5 seconds.

4) Turn the **Kill Switch OFF**

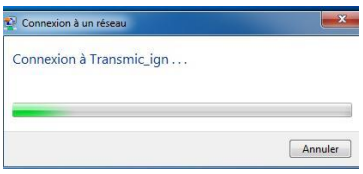
5) The ignition box starts a **Wifi AP** (Access Point)

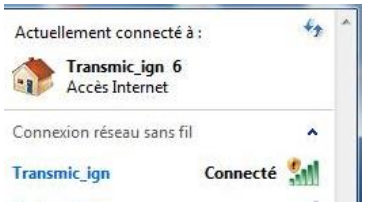
6) On your phone, laptop, PC, whatever, go to the **Wifi setting** and search for a new SSID called **Transmic_ign**



7) **Connect** to it. If a Password is required, it's "**password**"







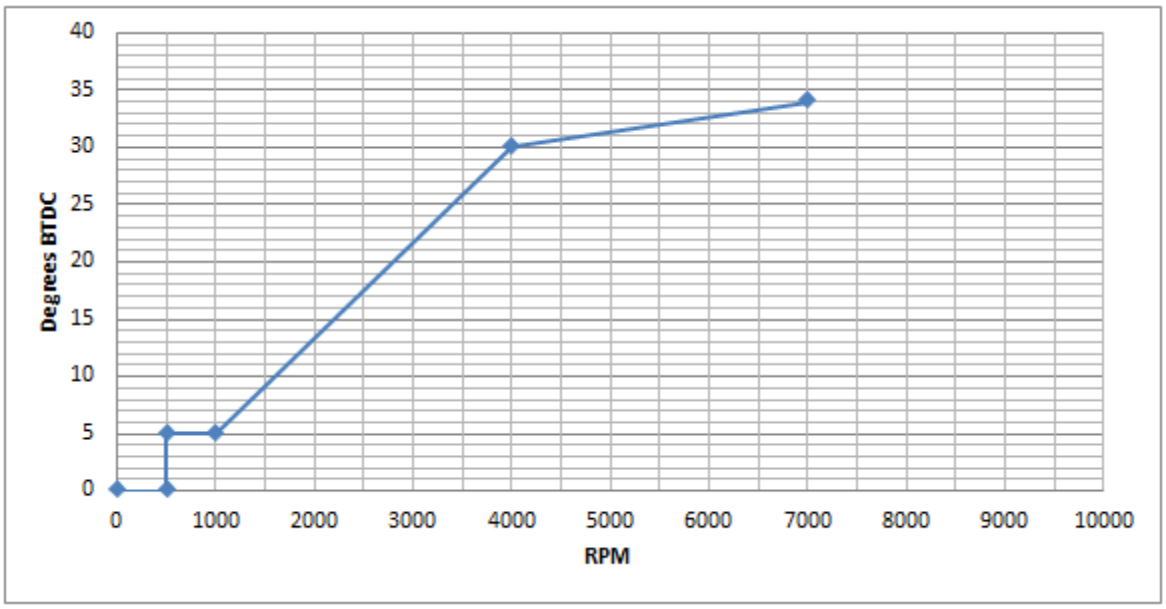
8) Once your device is connected to the AP, open up a **browser**
and head over to **http://192.168.4.1/setup** http not https !

9) Once connected your browser should display:



Ignition Timing

Assuming you want this ignition curve:



One can define the curve with 4 points but you can use up to 13 points.

(0 to 500rpm at 0° BTDC is hard coded for no kickback.)

The curve above is defined by 4 pairs of values

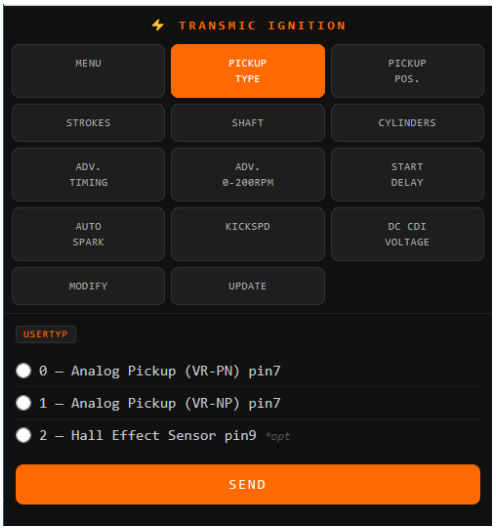
```
500 rpm     =     5°  BTDC
1000 rpm    =     5°  BTDC
4000 rpm    =     30° BTDC
7000 rpm    =     34° BTDC
```

Those 4 couples of values MUST be filled out in the form consecutively and in ascending order of RPM along with the pickup position.

Use this Windows software to draw the curve: Interactive_Graph.exe with Video

Pickup Type

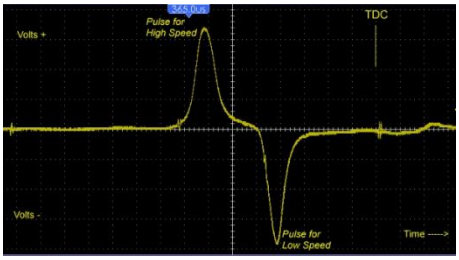
Default: 0



Select the type of pickup attached to the Ignition box:

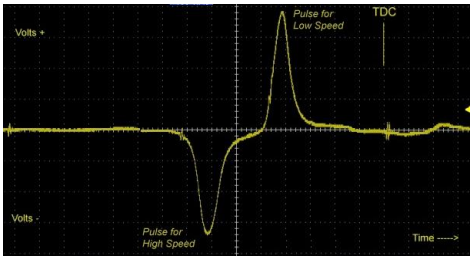
When the LEADING edge of the magnet passes in front of the pickup coil, a wave is produced and another wave of opposite voltage is generated when the FALLING edge of the magnet leaves the pickup coil. Depending on the wiring, the first pulse at Leading Edge can be positive (then negative at Falling edge), or the exact opposite.

0 = VR stands for Variable Reluctor aka pickup coil/trigger coil (Analog signal) **Positive** first (PN)



Check the polarity with a oscilloscope
or with a multimeter: https://www.youtube.com/watch?v=cLhaXoejBVQ

1 = Variable Reluctor (Analog signal) Negative first (**NP**)

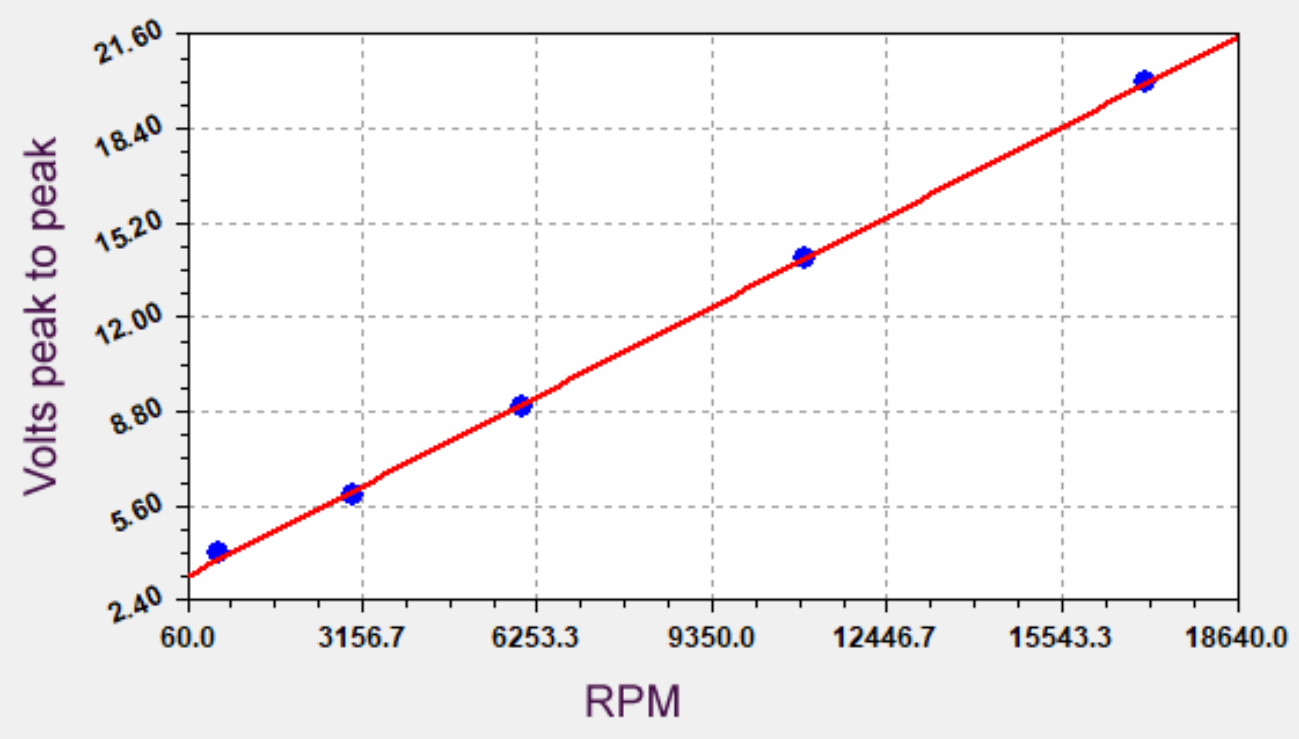


2 = Hall Effect Sensor (Digital signal)

This ignition box **works best with Positive first pickup** (**VR-PN**)
If the pickup is internally grounded into the stator there is no choice, the pickup output is either PN or NP
But if both pickup wires are available, then just swap the wires to change the polarity in order to get a **Positive first** signal (PN) on connector **pin7**.

Pickup voltage

In order to be detected by the ignition, the VR pickup MUST deliver sufficient voltage.
The higher the RPM, the more voltage it should produce.

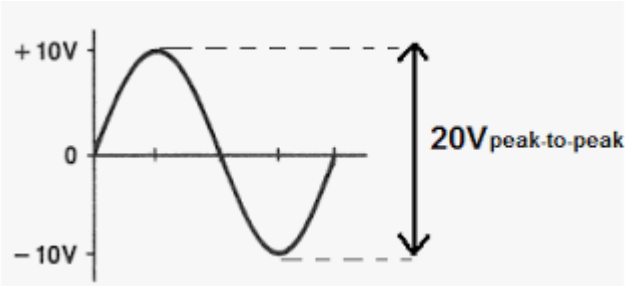


Formula :

Minimum Vpp voltage to be detected = RPM/1000 + 3

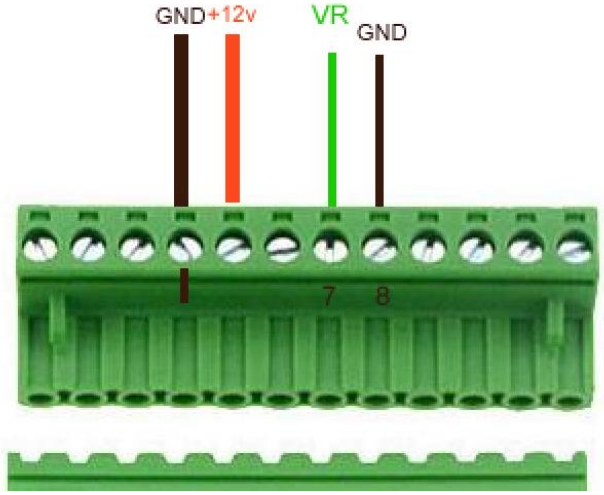
Example : At **6000rpm** the VR pickup must put out : 6000/1000 = 66 + 3 = **9Vpp**

9Vpp = +4.5v to -4.5v



VR pickup

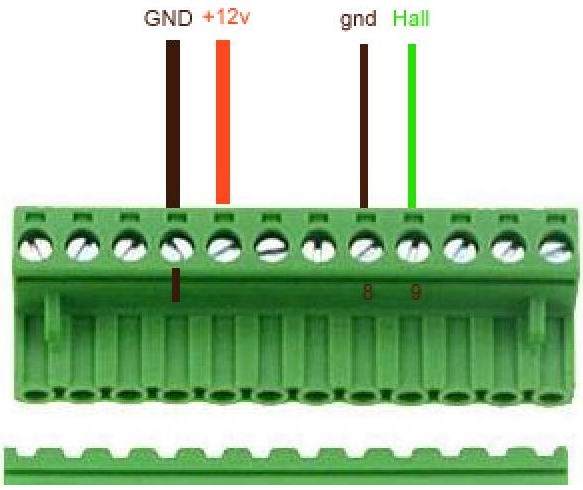
Analog **VR pickup** is connected between **pin 7 and pin 8/gnd**



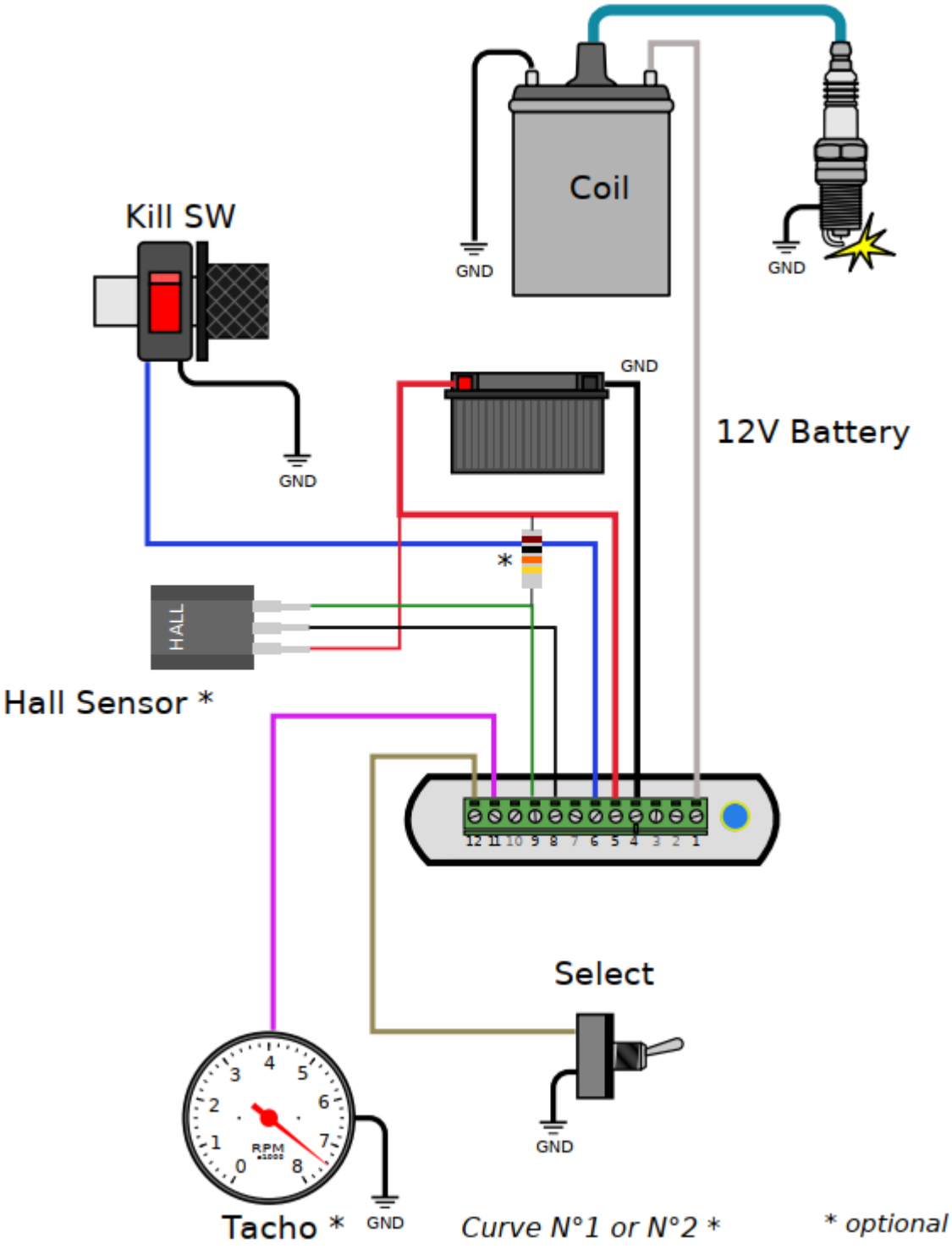
To avoid Electro Magnetic Interference (EMI) it's safer to connect the pickup sensor through a shielded cable. Shield grounded on one side only. Twisted pair is better.

Hall Sensor

Digital **Hall Sensor** is connected between **pin 9 and pin 8/gnd**

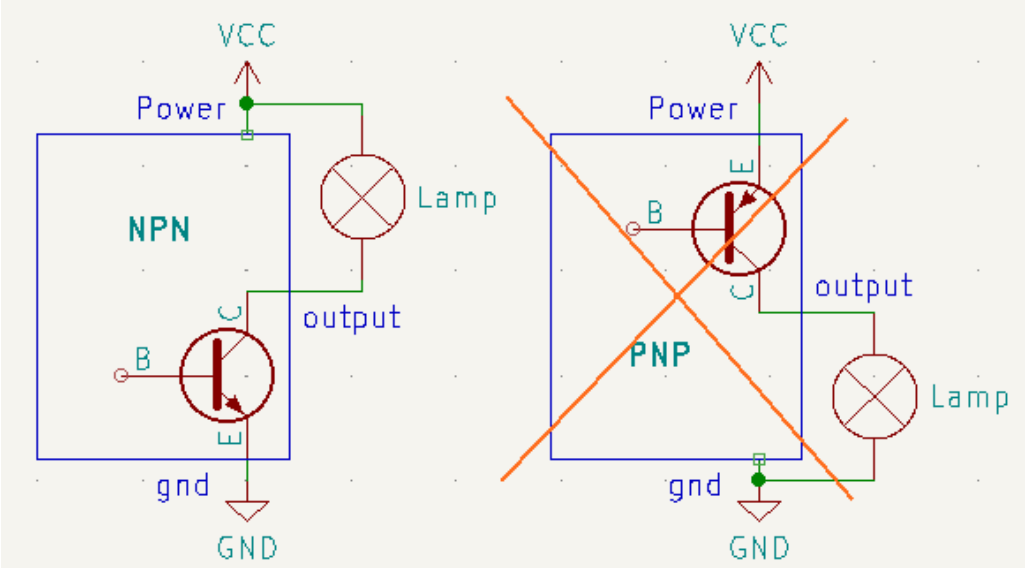


When Hall sensor is connected to pin 9 = "Pickup Type" must be set to [2] in Setup


Coil
GND
GND
Kill SW
GND
GND
12V Battery
*
HALL
Hall Sensor *
12 11 10 9 8 7 6 5 4 3 2 1
Select
GND
RPM
Tacho *
GND
Curve N°1 or N°2 *
* optional

2 types of Sensors

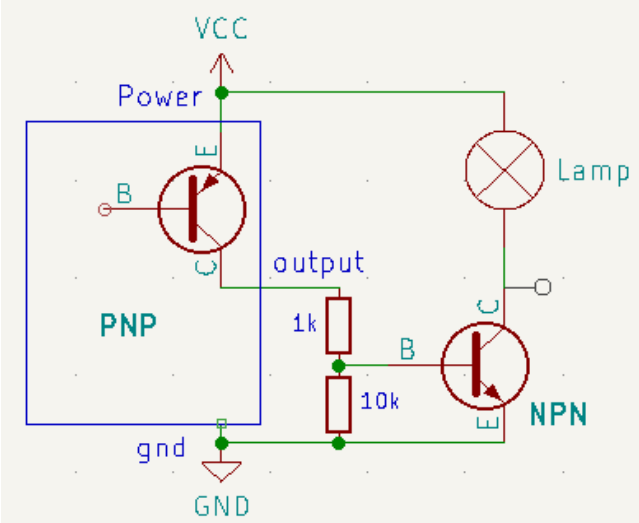
This ignition box only works with Hall sensors of **NPN** type.



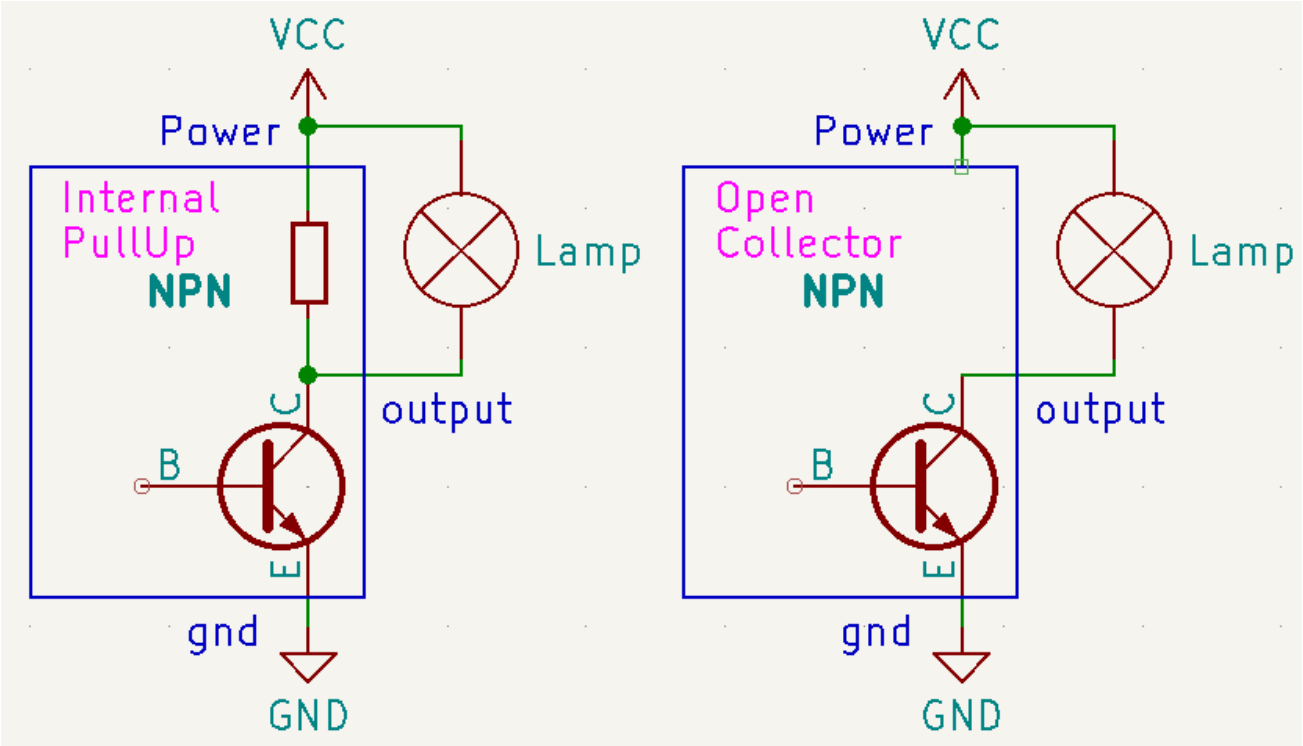
NPN Proximity Sensor Output is normally HIGH when nothing is near it.
NPN Proximity Sensor Output goes LOW when metal object is near it.

PNP Proximity Sensor Output is normally LOW when nothing is near it.
PNP Proximity Sensor Output goes HIGH when metal object is near it.

*Tip: A **PNP** type can be used if there is an external NPN transistor to reverse the signal:*



2 types of Output



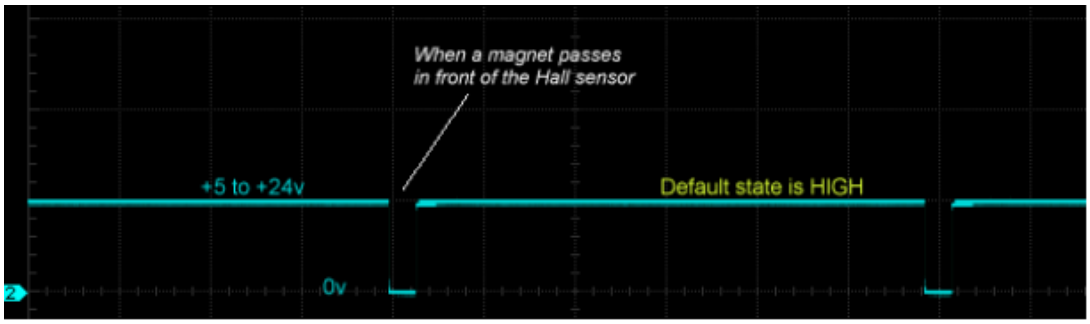
- Hall sensors with **built-in pull-up resistor** give positives voltage when no magnet.
- Hall sensors with **open-collector** output, give a floating voltage when no magnet.
This ignition box works with **both** type.

Hall sensors require a +5v to +12vdc supply voltage. *See their datasheet*
This ignition box works with Hall sensors powered from +5v to +24v

*You can even connect an **Optical Sensor** as long as it puts out a CLEAN square signal similar to the one above.*

See Appendix 2 for Position

Output of a Hall sensor



Timing

The ignition box uses the **rising edge** of the Hall sensor signal.



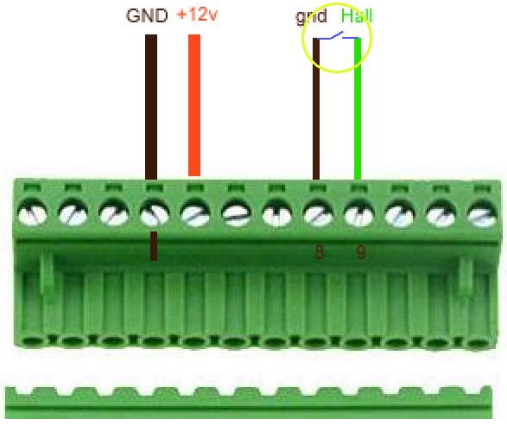
*The rising edge of the signal appear when the magnet leaves the hall sensor, therefore when the hall sensor is aligned with the **falling edge of the magnet**.*

Troubleshooting

You can test the Hall input:

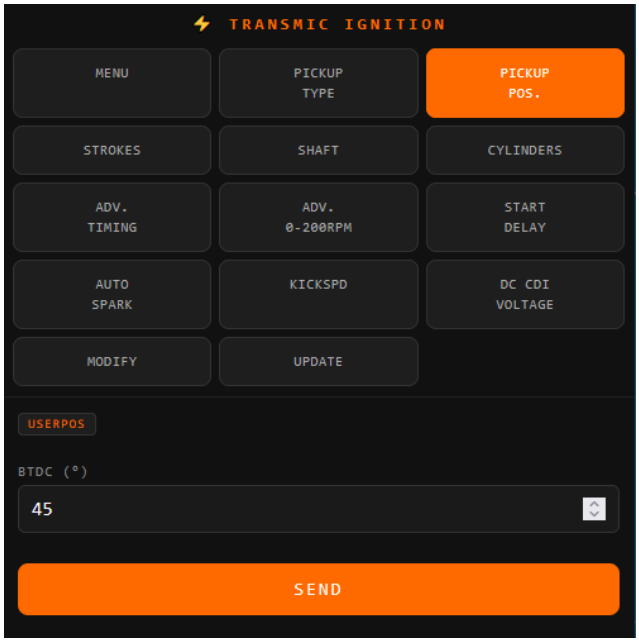
- "Pickup Type" must be set to [2] in Setup- Power up the box

- then make many fast and short touches between pin9/Hall and pin8/ground- Led will blink- Sparks will be produced on TCI and DCCDI ignitions.



Pickup Position

Default: 50
Range of values: 1 to 180



- Go back to the opened browser and first thing first, enter the **Pickup Position** then click **Send**

Formula is: ***Pickup position = Base advance + Magnet Length***

Magnet Length: 

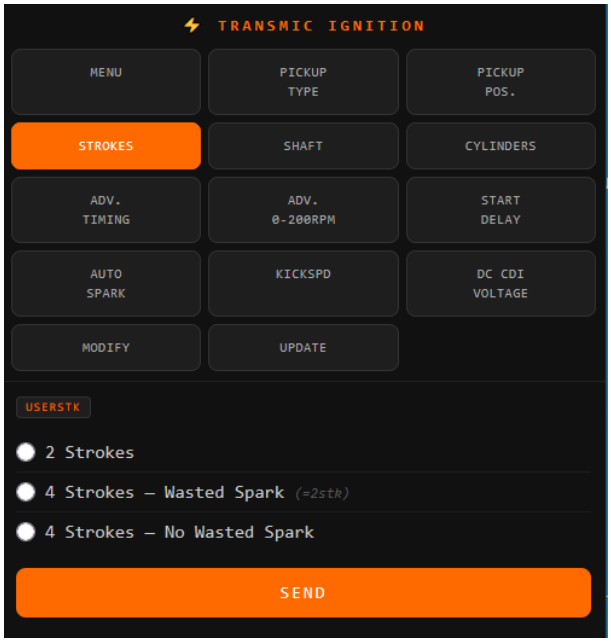
Base advance is generally 5 to 15° BTDC

See Appendix 1,2,3,4 to find the physical position of the pickup relative to TDC.

Current value appears in orange on the form.

Strokes

Default: 2



2 strokes : One pickup pulse every rotation

4 strokes with Wasted Spark : One pickup pulse every rotation = spark at TDC + wasted spark at BDC

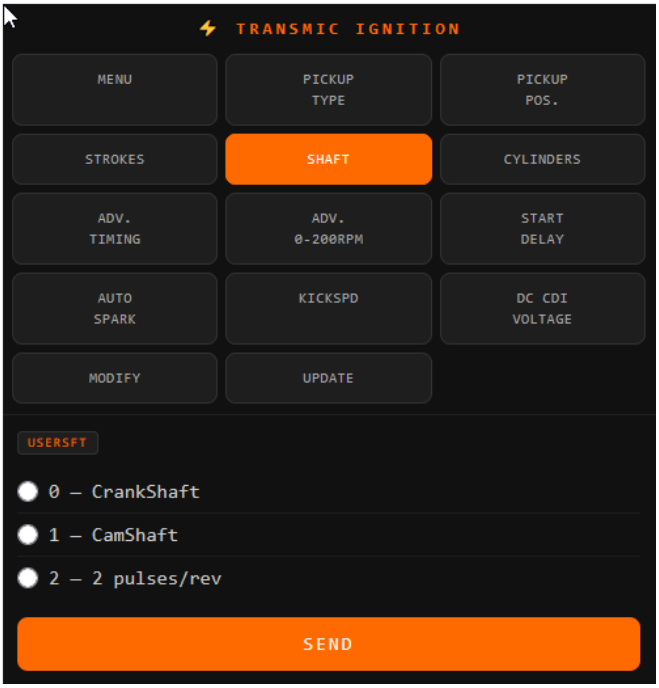
4 strokes No Wasted Spark: One pickup pulse every 2 rotations = spark at TDC only

4 strokes with Wasted Spark is the most common case.

Current value appears in orange on the form.

Shaft

Default: 0



- Select if the pickup is placed :

- **0**: on the **crankshaft** via the flywheel (2stk) with 1 pulse per rotation

- **0**: on the **crankshaft** via the flywheel (4stk) with 1 pulse per rotation with wasted spark. (*one spark occurs during the compression stroke and another during the exhaust stroke.*)

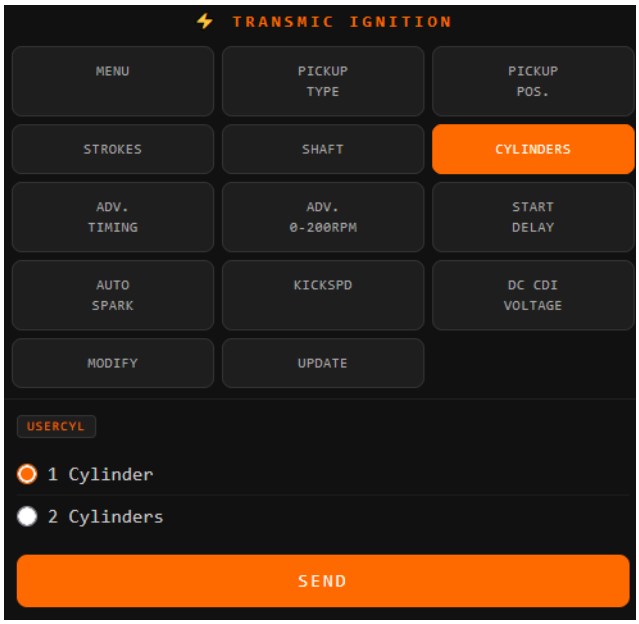
- **1**: on the **camshaft** (4stk) with 1 pulse per 2 rotations.

- **2**: on the **crankshaft** with 2 pulses per rotation

Current value appears in orange on the form.

Cylinder(s)

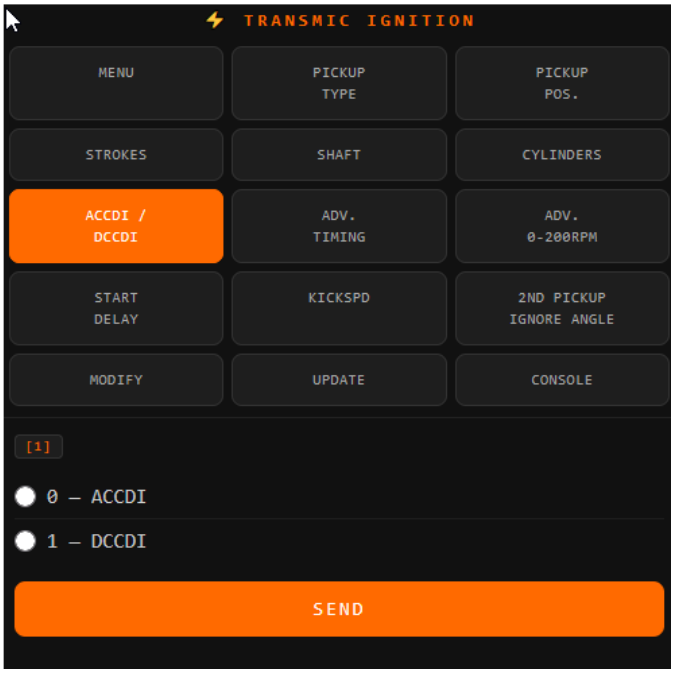
Default: 1



Current value appears in orange on the form.

CDI Type

Default: 1 (DC-CDI)



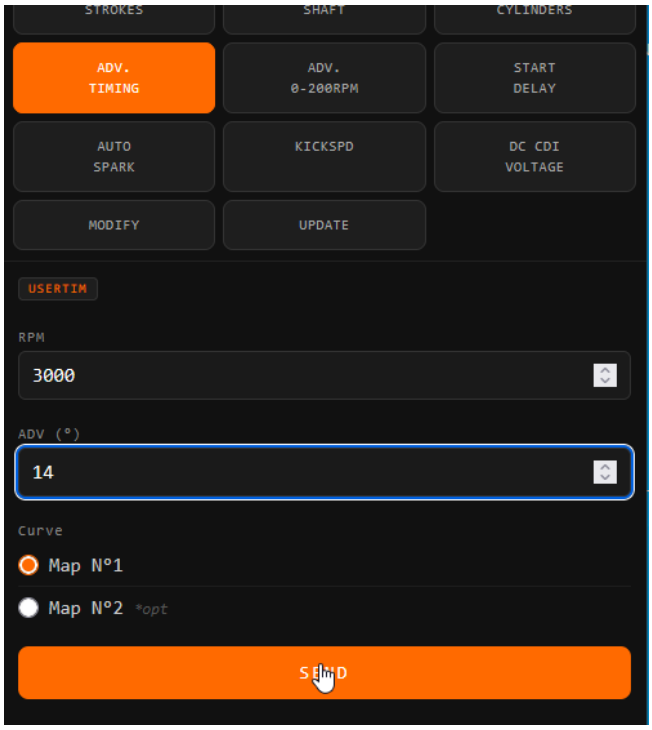
Current value appears in orange on the form.

Advance Timing

- Proceed now to enter the advance timing.
We want to setup:

```
500 rpm     =     5°  BTDC
1000 rpm    =     5°  BTDC
4000 rpm    =     30° BTDC
7000 rpm    =     34° BTDC
```

Enter values consecutively in ascending order of RPM !
Pair 500:5 first etc…
7000 being the last value (*as the firmware stops reading when it meets a null value*), 7000 will act as the hard rev-limiter: No more sparks at 7001 RPM !



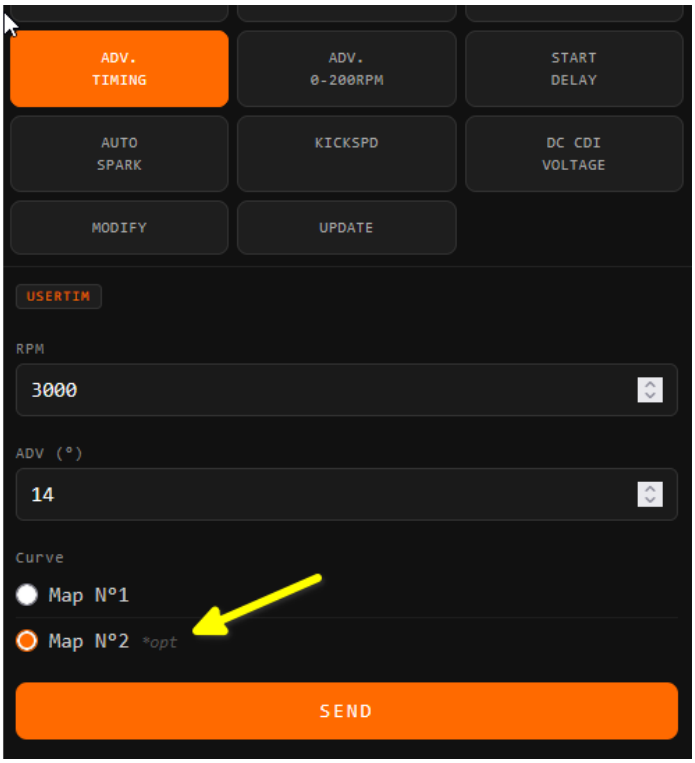
*RPM can be entered with a 100rpm step but RPM will be measured with **1rpm** precision.*
*Timing can be entered with a precision of 1° but the processor calculate all timing values between the points you entered, using linear interpolation so an **accuracy of 0.1°** is done at this step.*

*Any timing values will be COMPLETELY OFF IF PICKUP POSITION IS FALSE: **PICKUP POSITION IS KEY***

See Appendix 1 for Position
Curve N°1 is stored at addresses 0 to 100

If you bought the "*2 curves*" option, you can now configure the second timing map too.

Just select "***Map N°2***" for each couple of rpm|timing values.



Curve N°2 is stored at addresses 104 to 204

Select curve

Default: curve N°1

If you bought the 2 curves option, you can select between 2 different timing maps in RUNNING mode.

Just connect a switch between connector **pin 12 and ground**.

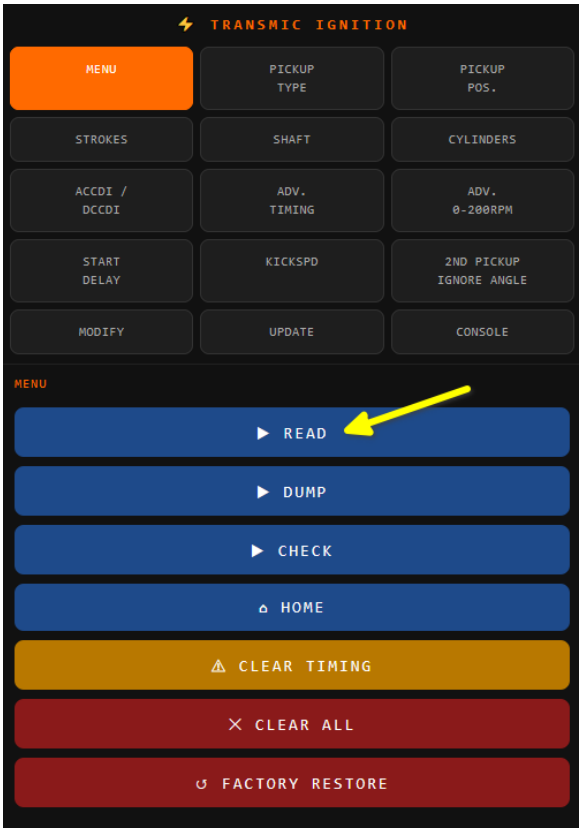
When switch is **open** (or no switch connected), **curve N°1** is used.

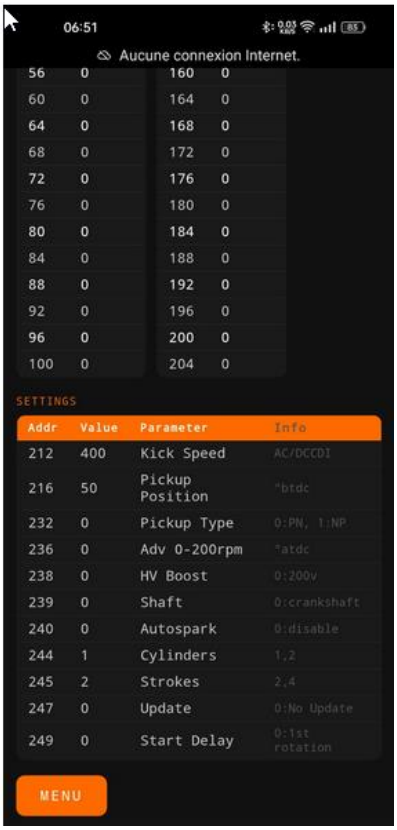
If switch is **on** (*pin 12 connected to ground*) BEFORE turning on the ignition box, then **curve N°2** will be used in RUN mode.

You can switch curves while riding.

Read

- To display the values that have been set, click on the **Read** button on the **Home** page :





Stored Values:

Timing Curve:

0	500
4	5
8	1000
12	5
16	4000
20	30
24	7000
28	34
32	0
36	0
40	0
44	0
48	0
52	0
56	0
60	0
64	0
68	0
72	0
76	0
80	0
84	0
88	0
92	0
96	0
100	0

exit

Stored Values:

Timing Curve:

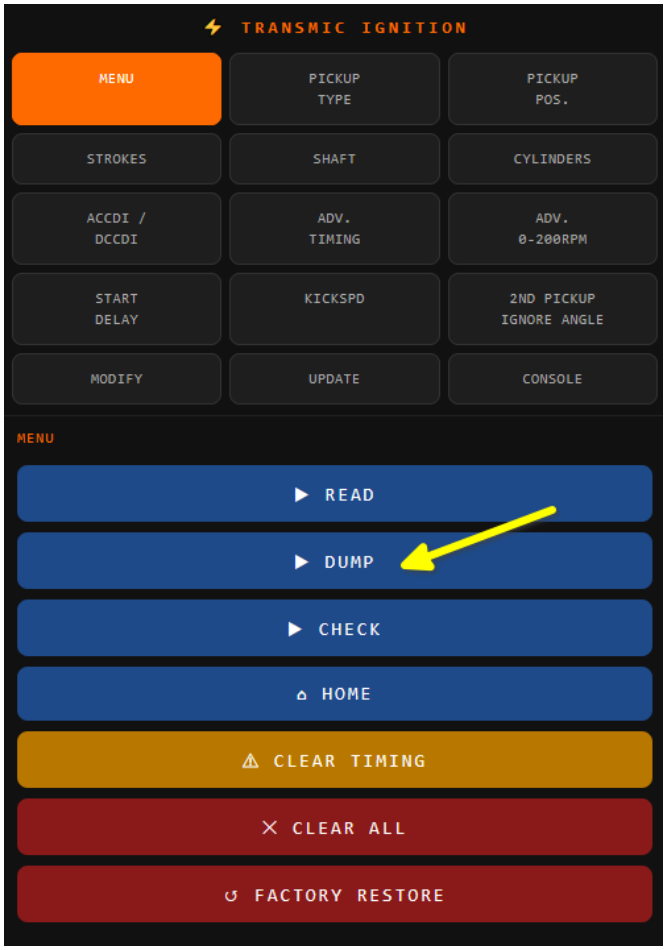
0	500
4	5
8	1000
12	5
16	4000
20	30
24	0
28	0
32	0
36	0
40	7000
44	34
48	0
52	0
56	0
60	0
64	0
68	0
72	0
76	0
80	0
84	0
88	0
92	0
96	0
100	0

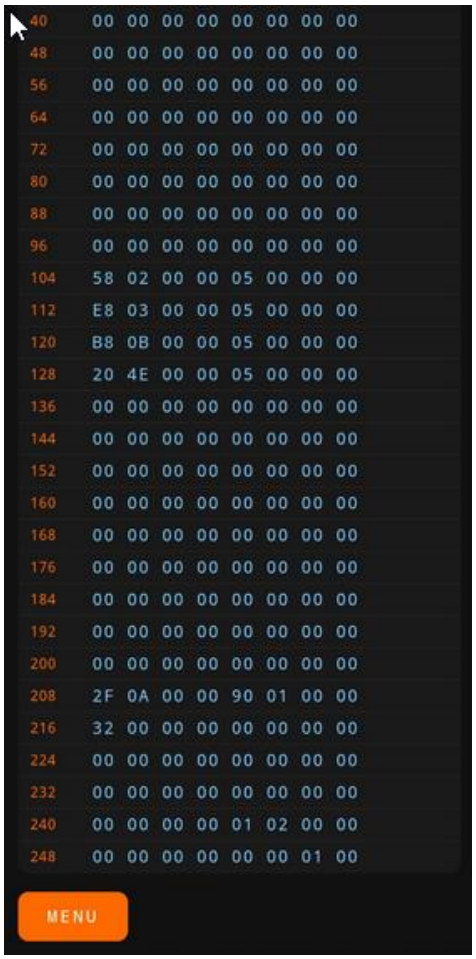
exit

All values must be **consecutive** and in ascending order of RPM !

Dump

Read EEPROM addresses and display them in HEX values for debug purpose.

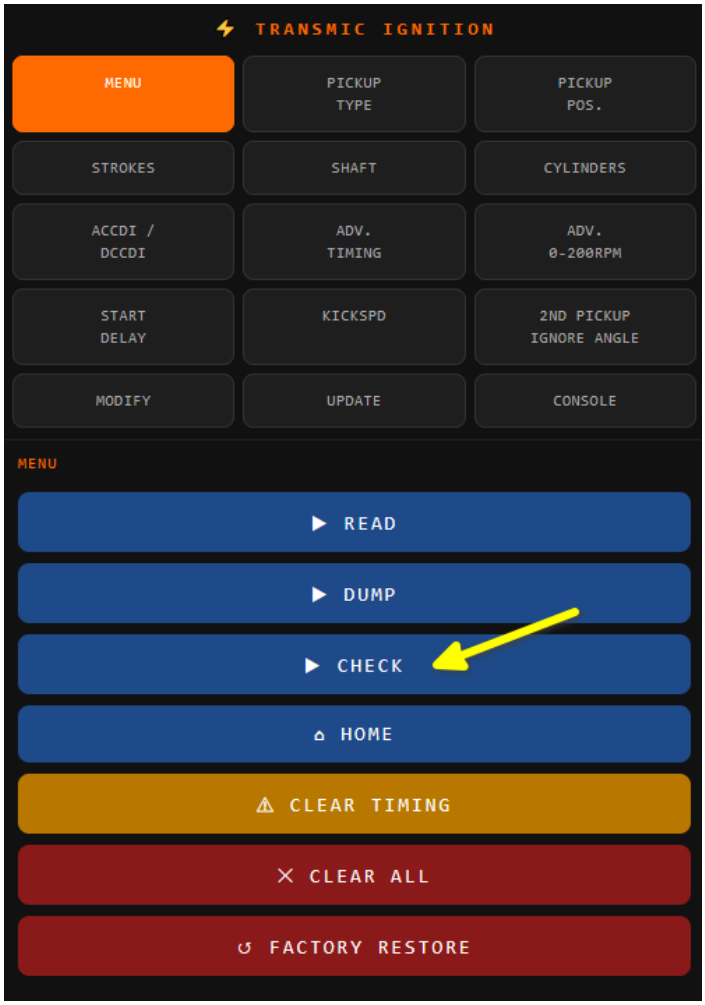


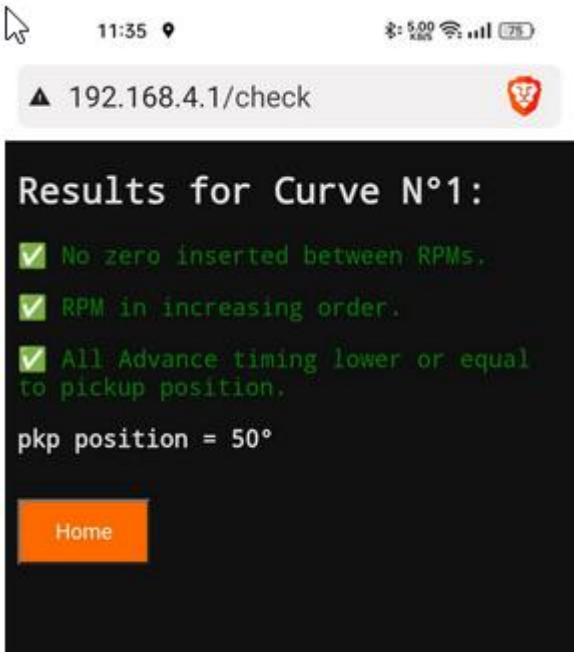


Check

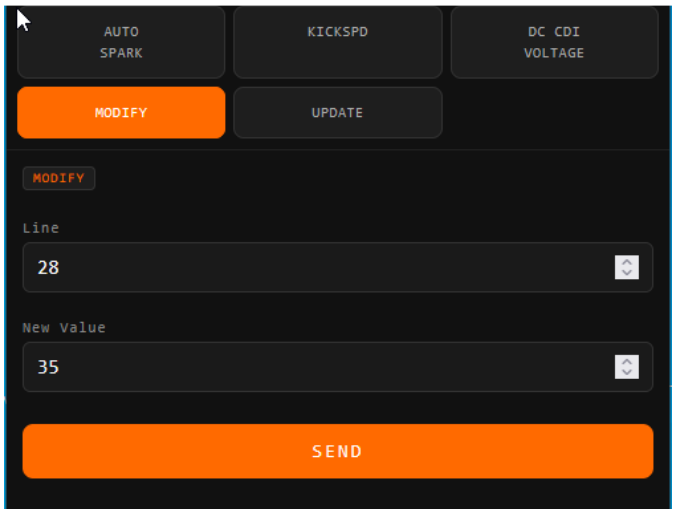
Read the Timing Curve N°1 and verify that there are no errors in the Setting.

Click on the **Check** button on the **Menu** page :



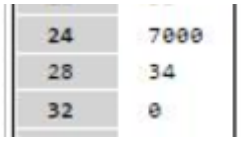


Modification



Say you want to modify the advance timing for 7000rpm and set 35° instead of 34°

In *Read* mode above, we saw that RPM 7000 is stored at address 24 and timing for 7000rpm is at address 28.



Since we want to modify the advance timing at line 28, we now have to enter :

Line **28**
New value **35**
then **Send**

Same thing to change any other values.

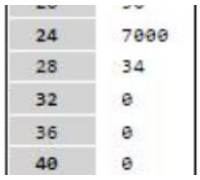
Remember:
All timing values must be in ascending order of RPM and no blank address between timing values.
*Use **Read** and **Check** buttons to check that out.*

Add points

Say you want **to add** one advance timing of 34° @ 8000rpm

In *Read* mode above, we saw that last RPM 7000 is stored at address 24 and timing for 7000rpm is at address 28.

The next 2 empty slots available are:



24	7000
28	34
32	0
36	0
40	0

Address **32** for RPM and Address **36** for timing

We now have to enter :

Line	**32**
New value	**8000**
then	**Send**

Line	**36**
New value	**34**
then	**Send**

Remember:

All timing values must be **consecutive** and in ascending order of RPM !

*Use **Read** and **Check** buttons to check that out.*

Clear points

Say you want to remove the last advance timing of 34° @ 7000rpm

In *Read* mode above, we saw that last RPM 7000 is stored at address 24 and timing for 7000rpm is at address 28.

24	7000
28	34
32	0
36	0
40	0

To zero out those values we now have to enter :

Line **24**
New value **0**
then **Send**

Line **28**
New value **0**
then **Send**

Remember: All timing values must be **consecutive** and in ascending order of RPM !
Use **Read** *and* ***Check*** *buttons to check that out.*

Stored Values:

Timing Curve:

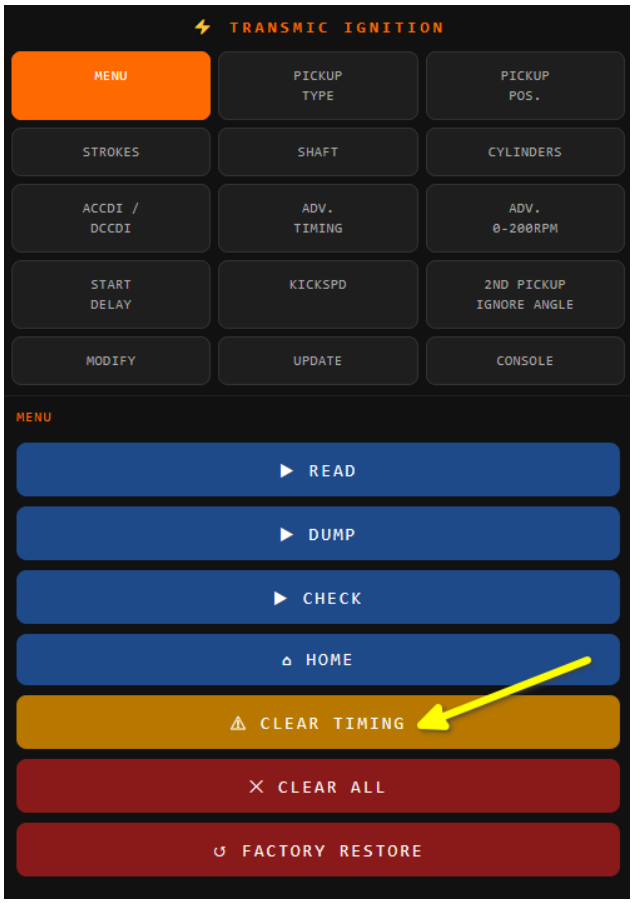
0	500
4	5
8	1000
12	5
16	4000
20	30
24	0
28	0
32	0
36	0
40	7000
44	34
48	0
52	0
56	0
60	0
64	0
68	0
72	0
76	0
80	0
84	0
88	0
92	0
96	0
100	0



exit

Clear Timing

This button will **clear TIMING values** WITHOUT confirmation.
Pickup position, polarity, shaft, dwell etc are kept.



Browser shows :

Timing values cleared!

Please restart the ignition box.

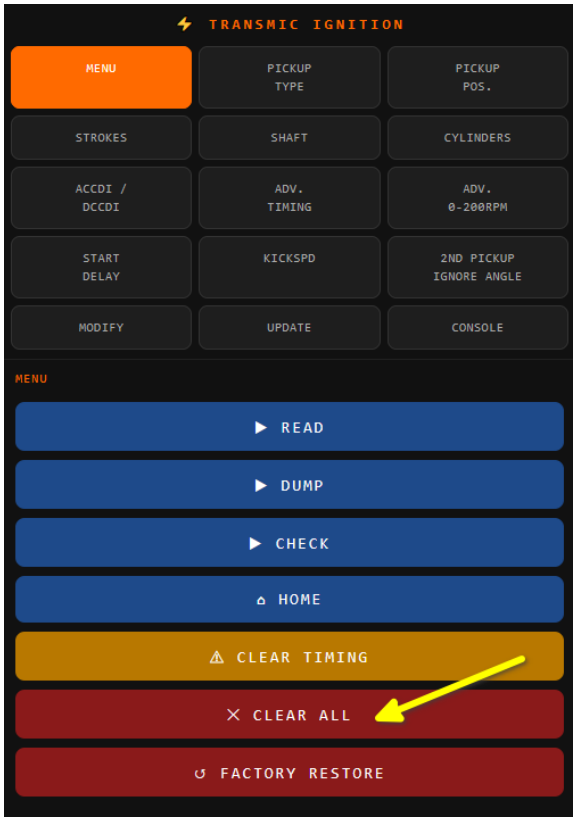
This box now has no Advance Curve and cannot operate until you set timing values.

Restart the ignition box. (power off/power on)

Don't forget the Kill switch position if you want to return in Setup mode….

Clear All

This button will **clear ALL values** WITHOUT confirmation.
Timing, Pickup position, polarity, shaft, dwell etc are zeroed.



Browser shows :

EEPROM values cleared!

Please restart the ignition box.

This box is now *empty* and cannot operate until you set values. '

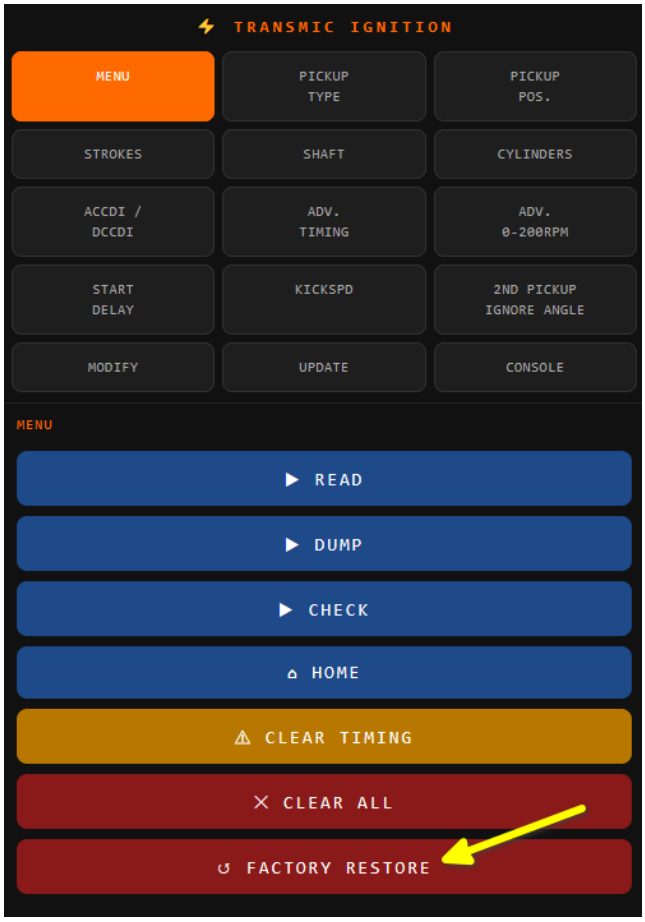
Restart the ignition box. (power off/power on)

Don't forget the Kill switch position if you want to return in Setup mode….

Factory Restore

This button will **Restore Factory Default** WITHOUT confirmation.

Timing, Pickup position, polarity, shaft, dwell etc are set to default values.



Browser shows :

Init All done!

This box now have a default Advance Curve which is not the one you need...
Tune the values before to start the engine!

Restart the ignition box. (power off/power on)

Don't forget the Kill switch position if you want to return in Setup mode….

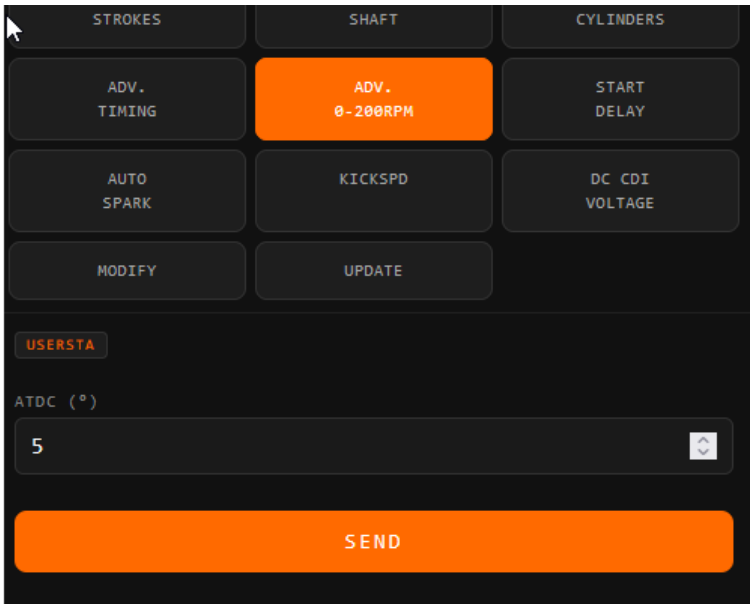
Advanced settings

If you don’t need those Extra settings below, just let them to their default value.

Advance at kick start

Default: 0
Range of values: 0 to 10

For an easier Manual Kick start and to avoid kickbacks, you can delay the advance between 0 to 500rpm to send the spark a few degrees **After** Top Dead Center (ATDC)



Current value appears in orange on the form.

Tech info: If the measured period/rpm is less than 500rpm, the CPU uses the measured rpm (ie 320rpm) to determine when the next TDC will append during the next revolution, assuming the rpm remains constant.

If the engine speed decrease due to low inertia, the TDC calculation will be incorrect, resulting in an early spark.
To address this issue, the CPU adds an offset to the calculation, which equals the value of the "Advance 0-500" tab that the user may have set.
i.e. if the user specifies 20° ATDC, the CPU will calculate the theoretical next TDC and add 20° to the result.

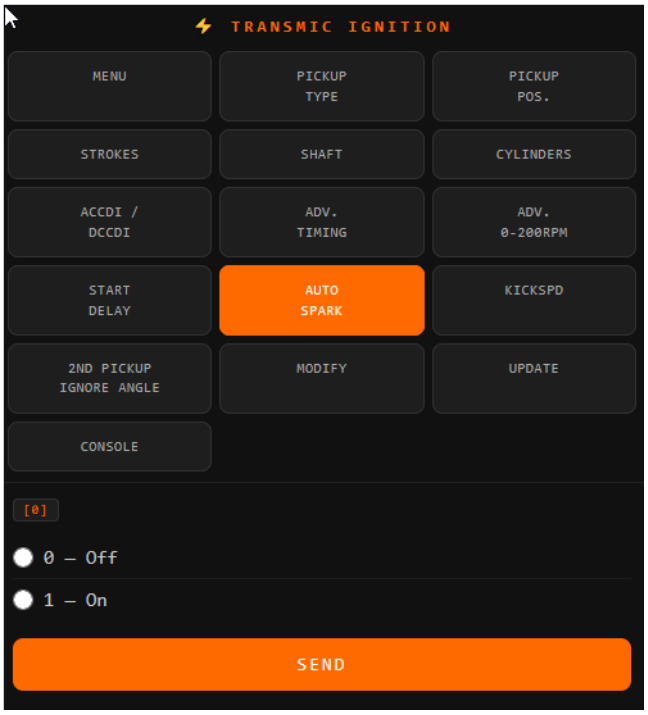
If the measured rpm is over 500rpm, the CPU read the advance timing map the user has set to find which advance must be applied for this specific RPM (ie520rpm). No user offset will be used.

AutoSpark

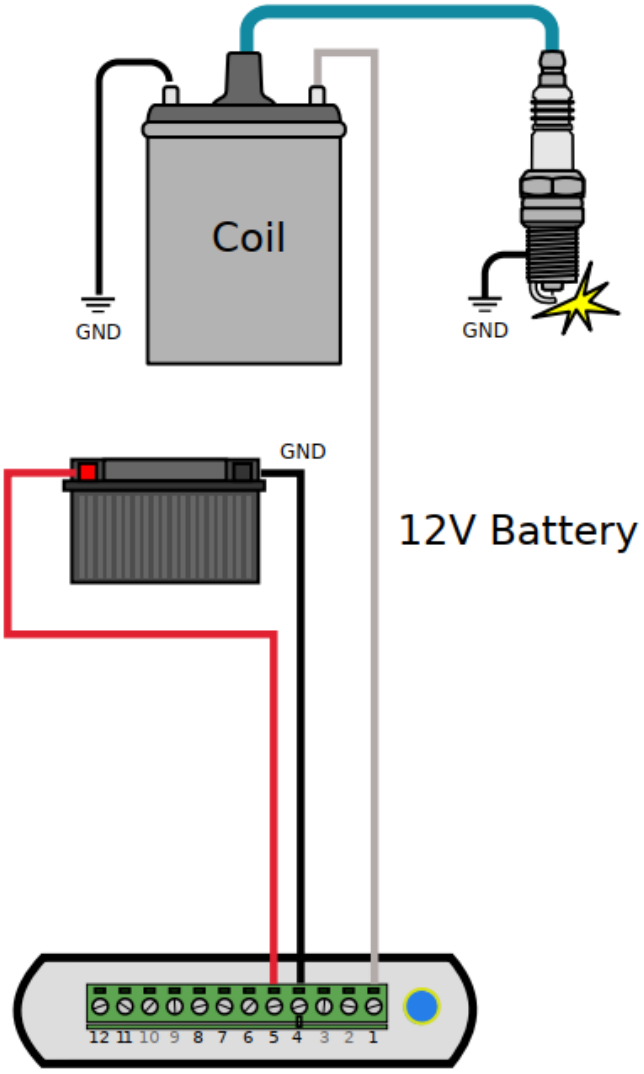
Default: Off

This **Autotest function** is usable on TCI and DCCDI mode only.
The ignition box fires the ignition by itself at 300rpm WITHOUT any pickup connected.
This way you can test the wiring, the DCCDI, the ignition coil and sparkplug.

Of course, remove the sparkplug from the cylinder head and connect it's metal part to the bike frame.



Current value appears in orange on the form.



- Connect Kill wire to gnd
- Power on
- Unit boots in **Setup** mode
- Disconnect kill wire
- With a browser set *Autospark* to 1
- Click **Send** button
- Home page displayed
- Power off
- Power on
- Unit boots in **Run** mode.

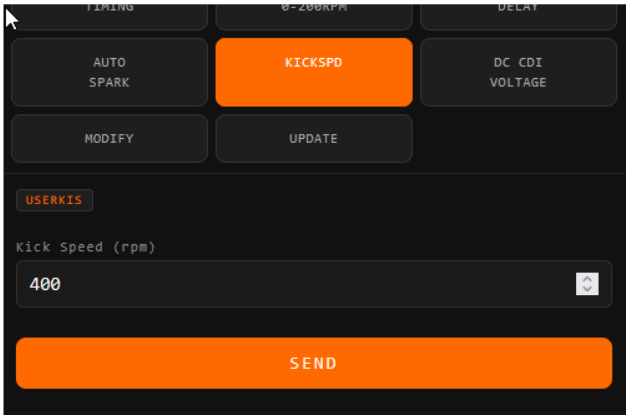
Unit makes sparks at 300rpm

Stop with the Kill switch or turn the power off

Kick Speed

Default: 400
Range of values: 100 to 1000rpm

For an easier Manual Kick start and to avoid kickbacks, you can select what will be the RPM of the very first engine rotation when it is kick started.



Current value appears in orange on the form.

Tech info: When a trigger signal comes (pickup or hall), the CPU measures the time between this pulse and the preceding one to determine the period, and hence the rpm.

At the very first pulse only, as there is no previous one, the period is unknown. The CPU then uses the "kick speed" rpm (default 400rpm) or any other value the user may have specify.

The "kick speed" value will not be used for the following pulses because the period will be calculated based on two consecutive trigger pulses.

If there is more than 1sec between 2 pickup pulses, "kick speed" setting will be applied again for the next first pulse.

Start Delay

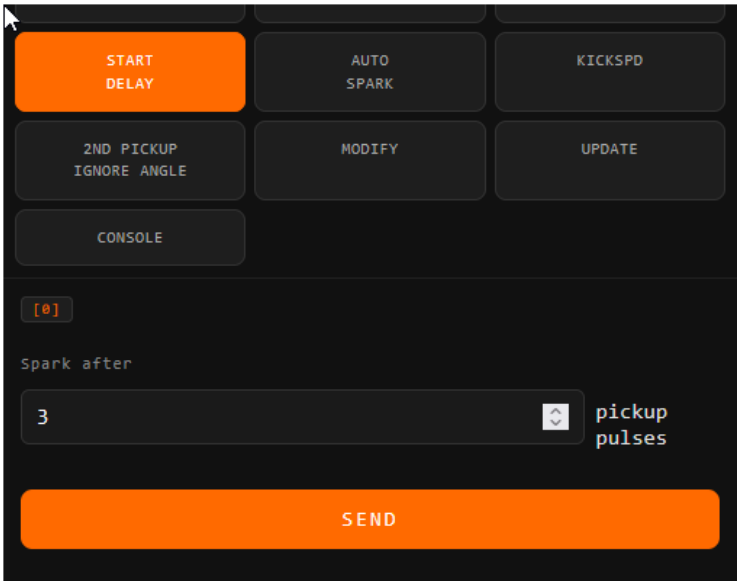
Default: 0
Range of values: 0 to 5

For an easier start and to avoid kickbacks, you can select after how many pickup pulses = ”Engine revolutions” will append before the very first spark.

“0” = Spark at first rotation
“1” = Wait 1 rotation then Spark at second rotation. etc

Keep in mind that a strong kickstart barely produce 2 or 3 pulses, not more !

In case of a e-starter, you can use a bigger value (3 to 5): The ignition box will wait 3 engine rotations before sparking.



Current value appears in orange on the form.

Tech info: When a trigger signal (pickup or hall) is received, the CPU evaluates the time between this pulse and the previous one to establish the period, and hence the rpm.

The period is unknown solely for the initial pulse, because there is no previous one.
Sparking after 1,2,3 pickup pulses allows the proc to correctly compute the right RPM and timing = Easier start.

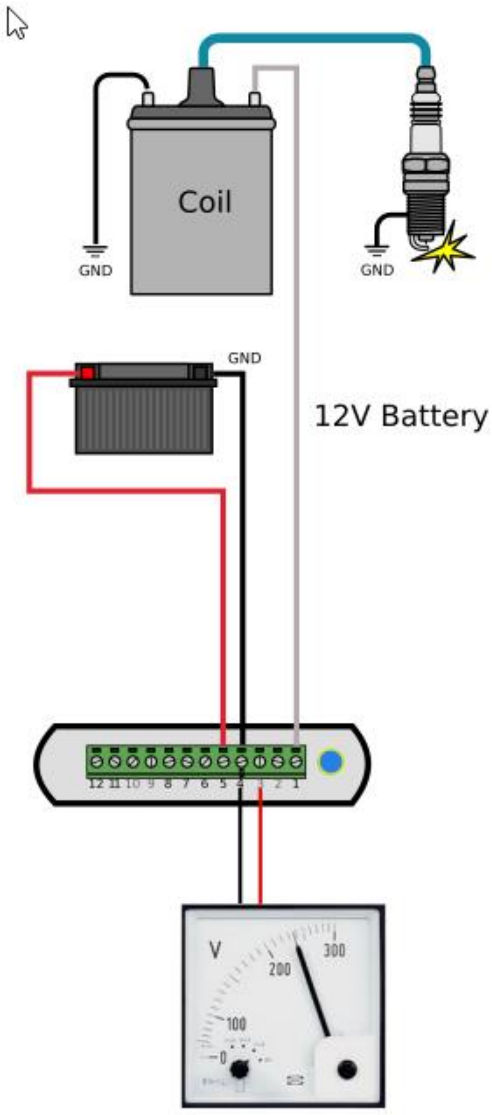
Test Point

This DC-CDI ignition contains a DC converter that transforms the +12Vdc battery voltage into a 350Vdc voltage.

This tension is available to measurement at pin 3. /!\ Beware of Electric Shock

To check the voltage:
- Turn off the DCCDI
- Connect multimeter set on 300Vdc range between ground pin 4 and TestPoint pin 3.
- Turn on the DCCDI

Status	Expected
DCCDI powered on, engine stopped	0Vdc
DCCDI powered on, engine running	350Vdc
DCCDI powered on, Autospark mode 300rpm	350Vdc



Running Mode

NEVER operate the DC-CDI without the ignition coil connected to pin 1.

Otherwise, the DC converter will generate a high voltage that cannot dissipate and may damage internal components.

1) **Disconnect** the **Kill** wire from ground if you previously went into **Setup Mode**

2) **Power on** the ignition box, it goes in "**Run Mode**"

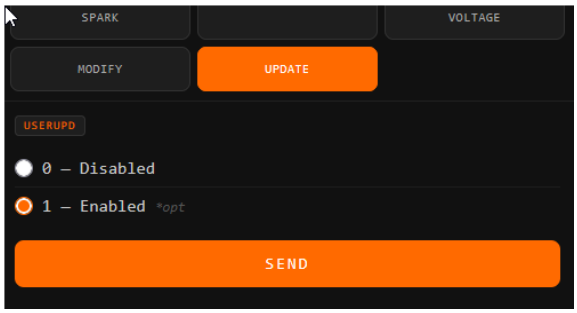
3) The **blue LED** flashes one time.

4) Start the engine. The blue LED **blinks** in sync **with RPM**.

5) When the engine runs, if **Kill** wire is connected **to ground** THEN it **stops** the engine.

Update firmware

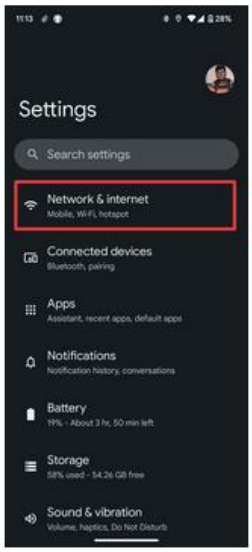
1) Turn the ignition box in "**Setup**" mode
2) Under "**UPDATE**" tab, check "**Enabled**" > **Send**

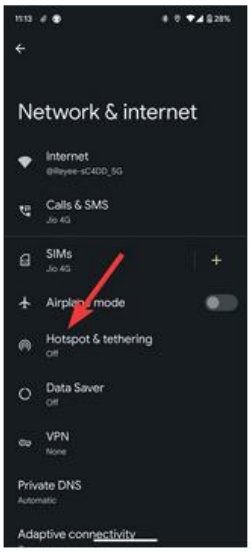


Android

3) On your SmartPhone pull down from the top of the screen and navigate to **Settings** > Tap **Network & Internet** > Go to **Hotspot & tethering**

Tap **WiFi hotspot** and set **Hotspot name** = **transmic**

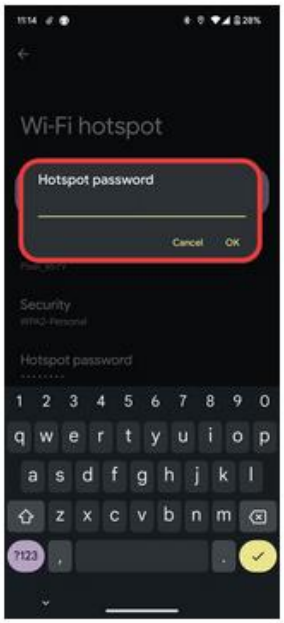








Set the "**Hotspot password**" to **update4ignition** > **Turn on** the Wifi hotspot





Security should be WPA2
Band should be 2.4GHz
Video : https://youtu.be/mYplGVcX2sQ?t=74

4) Check that your smartphone can reach the internet server :
Open a browser > go to http://update.transmic.fr:84/
You should read smth like :

Last Firmwares Versions

Type	CDI	TCI
V14		v14r0c0

5) Connect **KILL** wire to ground on the ignition box
6) **Restart** the ignition box
The **Led** blinks 5 times meaning grounded Kill switch has been detected.

7) Led flashes every second while searching for the WiFi Hotspot.
Led goes off when connected to Hotspot and while trying to reach the update server.

Understanding update status with led (video)

A new firmware is available :LED is ON while downloading data from the network and is Off while writing data to the box.
After 30-45 seconds, the led turns off and the ignition box restart.
Because the kill wire is still connected to ground, the box will restart in Setup mode, open a wifi AP and display the updated version on the home page.
Remove the kill wire from the ground.
Power off the ignition box.

There is no firmware available :
The Led blinks continuously 3 times per second indicating the update control has been completed.
Remove the kill wire from the ground.
Power off the ignition box.

IPhone

To change the Hotspot name you have to change your iPhone's name !!
Settings > general > About > Name

Enable your hotspot:
Settings > Cellular > Personal Hotspot > wifi Password > done > Allow others to join

Troubleshooting WiFi connection

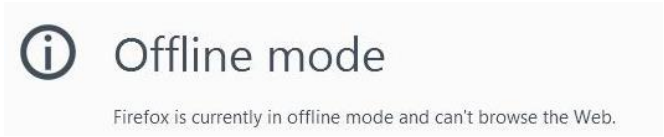
- Check that the 12pins connector is FULLY inserted and there is nothing preventing the male connector from fully engaging:



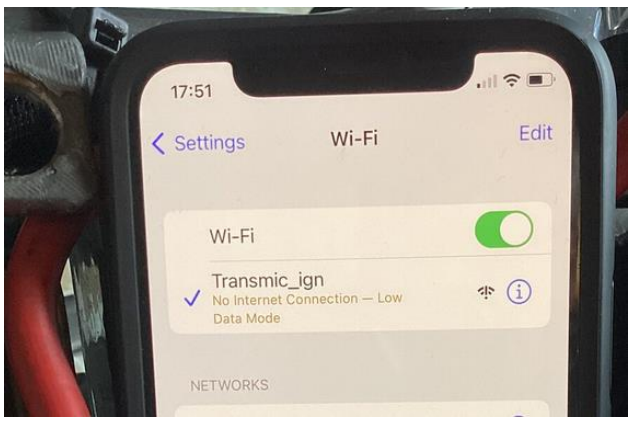
- Reboot the ignition box. (Power off/power up)

- Ignore any browser message saying it's not connected to internet.
It's not an Error, it's a Warning:

ie: Firefox on W10:



Iphone11:



Indeed, **it's connected ONLY to the Ignition box, not to the web.**
(*It's impossible to reach Google and the ignition box at the same time*)

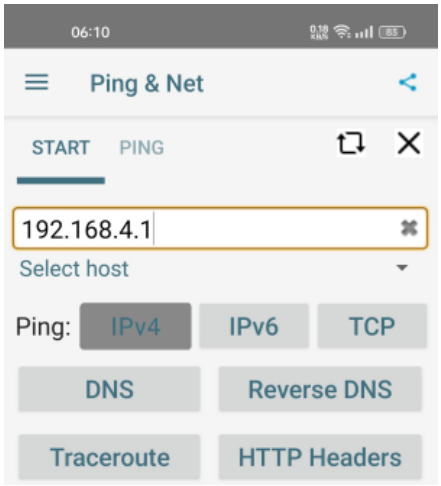
Check the SSID

- You can see all the SSID/Network available with a WiFi Monitor as:

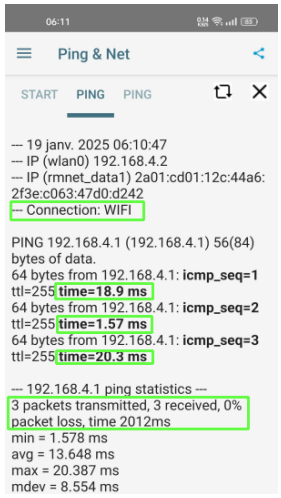
- Android: Wifi Analyzer for Android
- Windows: Wifi-Analyzer for W10

Check the Connection

- Android: You can test the network connection from your phone to the ignition box:
  - Install a ping utility software: This one is great without any adds: "Ping & Net" from Ulf Dittmer



expected:

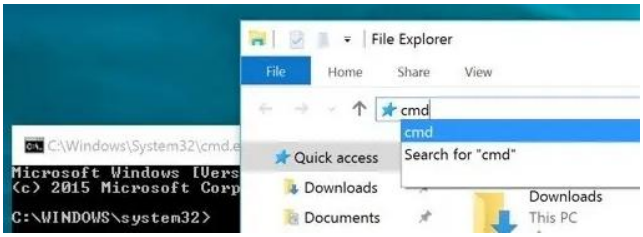


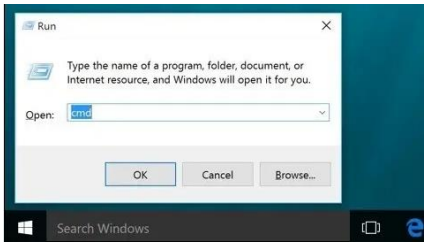
- Windows: You can test the network connection from your laptop to the ignition box:

  Open a command Prompt:

  Type "cmd" into the address bar of File Explorer and hit Enter

  or Press Windows+R to open "Run" box. Type "cmd" and then click "OK"





ping the ignition box, it should replies:

C:\>**ping 192.168.4.1**
Pinging 192.168.4.1 with 32 bytes of data :
Reply from 192.168.1.1 : bytes=32 time<1ms TTL=64
Reply from 192.168.1.1 : bytes=32 time<1ms TTL=64

Clear DNS cache

Windows:	in MsDos console:	C:\>**ipconfig /flushdns**
MacOS:	in Terminal :	sudo dscacheutil -flushcache
Linux:	in Terminal:	sudo systemd-resolve –flush-caches

Troubleshooting display

Double check the setup URL **http://192.168.4.1/setup**

1) Console URL is **http://** NOT https:// but some browsers, like Chrome, automatically switch to secure https://

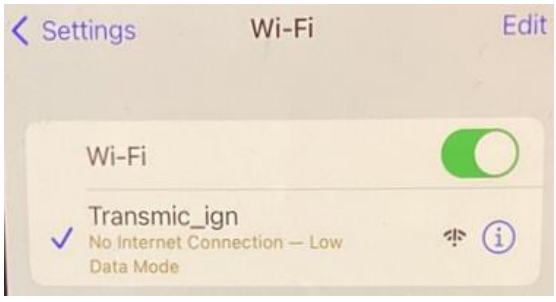
- Use Firefox. *Close all Firefox windows than relaunch it.*
- or Use a lightweight, portable browser as *QtWeb*
- or *disable* **HSTS** In Chrome

2) No error in the IP address?

3) No error in the URI ? It's **/setup** WITHOUT backslash at the end and case-sensitive.

4) Refresh the page

5) Check that the phone is still connected to the Ignition WiFi Access Point.



iPhone won’t connect to Wifi AP

Apple is full of features like probing the wifi connection by trying to connect to apple.com and rejecting the cnx if not possible, DNS probing, wifi switching, wifi assist, you name it

You may not be prompted for a password.
Apple devices try "*weak*" passwords in the background !
If the Iphone is already connected to SSID "*Transmic_ign*" (*Check mark below*) that means it guessed the right pwd.



1) Disconnect Cellular data

2) Forget the "*transmic_ign*" SSID and connect to it again:
https://youtu.be/yQKFOLIKlqo?si=A0CFfJYSo3uqEjml&t=18

3) Remove interworking from the wifi configuration:
Settings > Cellular Data > Wi--Fi Calling: Off

4) Disable the automatic switch to mobile data when Wi-Fi connectivity is "poor"
Settings > Mobile Service > Wi-Fi Assist: off
https://youtu.be/yQKFOLIKlqo?si=AaP1W3ZmdztTiKkh&t=162

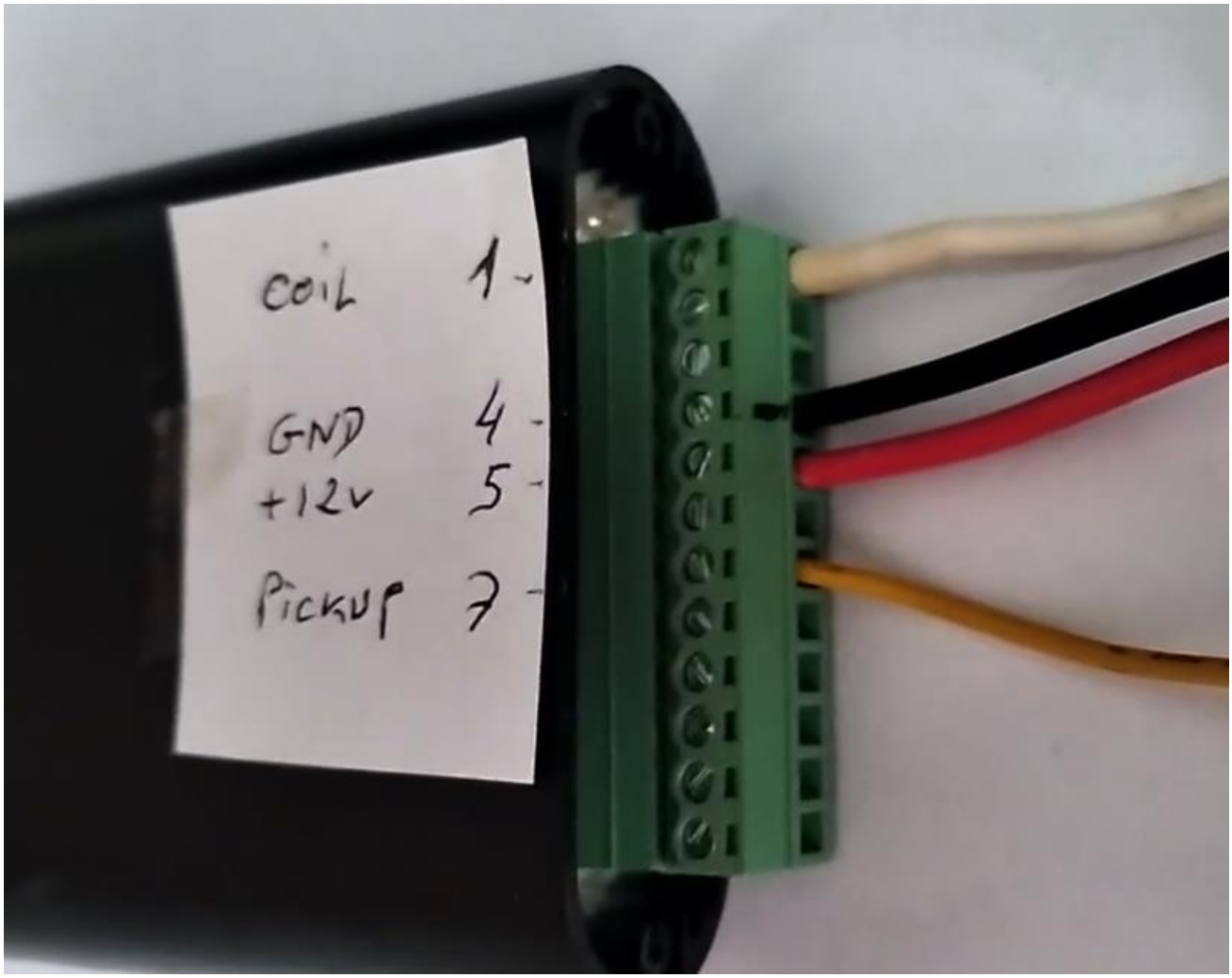
5) Disable WiFi Auto-join to your local network:
https://youtu.be/9vM95hlBW-c?si=xnFNmgoxQUGXkSbJ&t=18

Check your WLAN settings under:
Settings > Maintenance > Support Info > System Config > Show System Config

How to Test the whole unit

Remove all connections except the coil and the power line

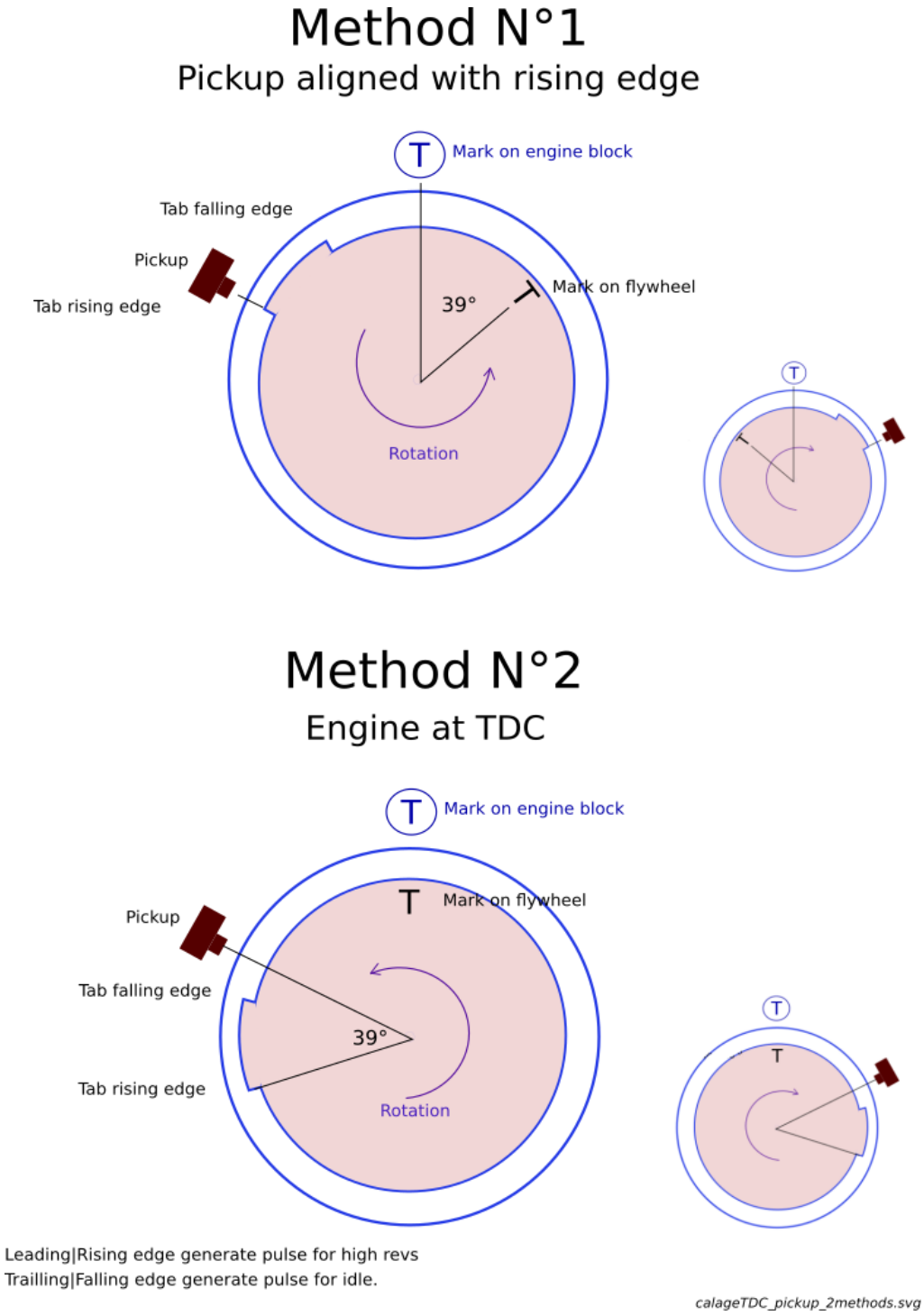
- Make sure the ignition coil is connected between pin1 and ground.
- Power on the unit (led flashes once)
- Quickly and gently taps +12 volts with a wire linked to the pickup input pin 7 : See video



Appendix 1

Case of Variable Reluctor aka VR pickup/pickup coil/trigger coil (*For Hall sensor, read Appendix2*)

In the example below the pickup/sensor is set at 39° BTDC



Leading|Rising edge generate pulse for high revs
Trailling|Falling edge generate pulse for idle.

calageTDC_pickup_2methods.svg

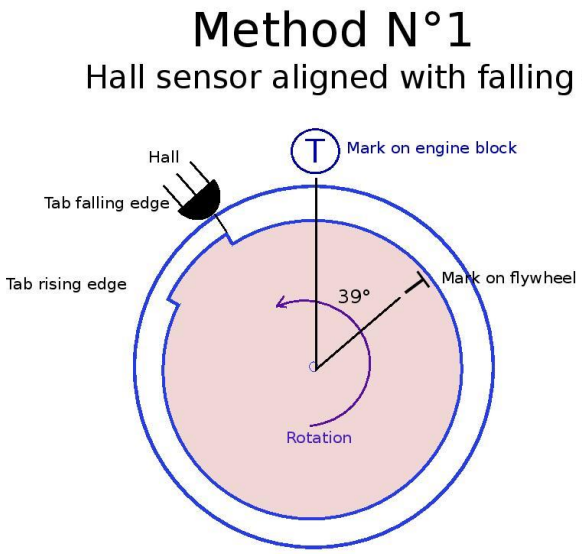
Appendix 2

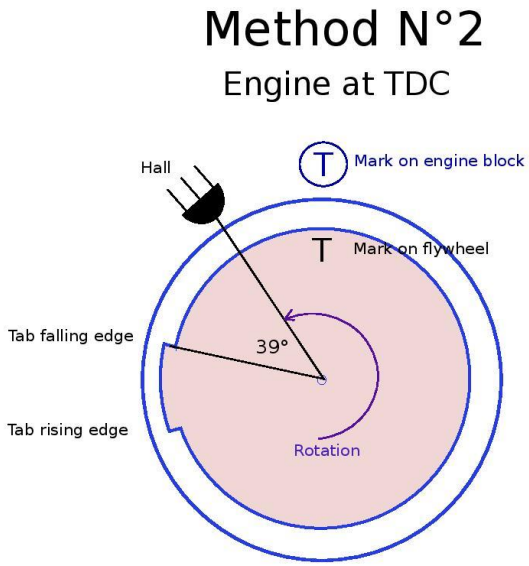
Case of Hall Effect Sensor

(*For VR pickup/analog pickup read Appendix1*)

Find the physical position of the digital **Hall Sensor** relative to Top Dead Center.

In the example below the sensor is set at 39° BTDC



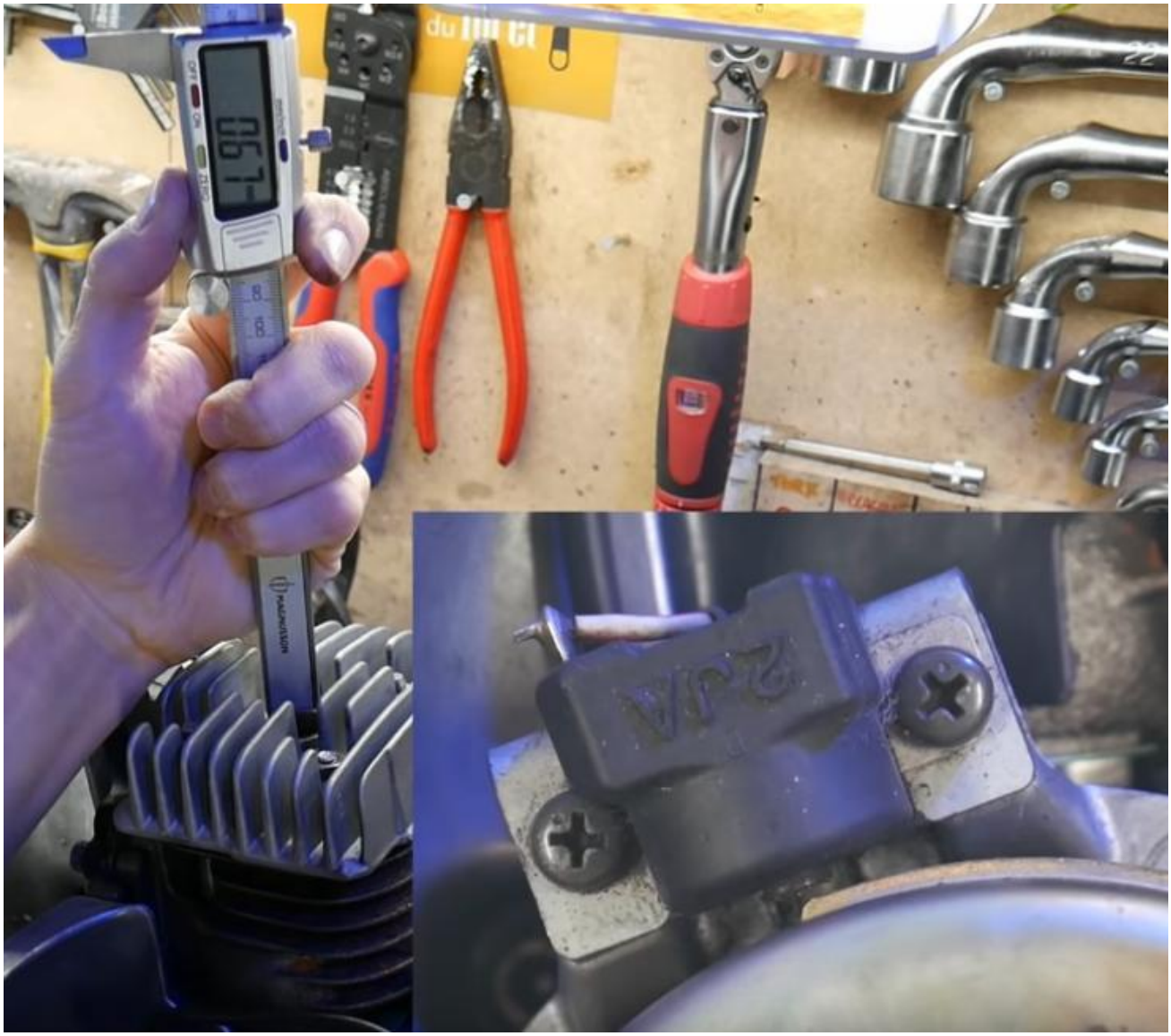


Appendix 3

A) Remove the sparkplug, find the TDC position with a *dial indicator gauge* or a *caliper rule*:



B) Align the pickup with the beginning of the magnet on the rotor and measure the travel of the piston with the caliper rule:



C) Use an online timing calculator to convert millimeters into degrees:

https://lambretta-images.com/tuningh/port-timing-calculators/degrees-to-mm-timing-calculator/
or
http://www.ajcshop.fr/Calculettes/html/calculette-convertisseur-allumage.htm

ie:



=>



Appendix 4

Tries and errors and Timing Lamp



If there is no mark on the flywheel, a possible way is as follows:
Method:

Remove the spark plug, insert a gauge in the sparkplug hole.
Turn the flywheel until the piston is at TDC. Remove the gauge.

Draw 2 marks opposite each other on the flywheel and on the engine case. It's the TDC mark.

Print a *Timing Tape* from https://www.blocklayer.com/timing-tape

Align the 0 mark to the new TDC mark and stick the tape on the flywheel.

Set the ignition box with a pickup position of say 30° BTDC

Set the ignition box with a SAFE and FLAT timing curve at a static advance
(ie : 10° BTDC from 500 to 4000rpm)

Put back the sparkplug and start the engine if possible.

Otherwise plug the sparkplug in its cap, tied the plug to the frame to have sparks, then rotate the engine with a drill machine (The faster the better).

With a timing lamp, take note where on the timing tape the spark appends.
Take note how much "off" is the timing.

Examples :
If the timing lamp shows 15° BTDC (instead of 10°) that mean the "*Pickup Position*" is off by 5° (15° - 10°).
The pickup position is off by 5°.
Increase the "*Pickup Position*" by 5.
Real position is not 30° but 30° + 5° = 35°
Set the ignition box with a pickup position of 35° BTDC
Using the timing lamp, check that the timing is now read at 10°
Make smalls adjustments to the pickup position if necessary.

If the timing lamp shows 5° BTDC (instead of 10°) that mean the "*Pickup Position*" is off by -5° (5° - 10°).
The pickup position is off by -5°.
Lower the "*Pickup Position*" by 5.
Real position is not 30° but 30° - 5° = 25°
Set the ignition box with a pickup position of 25° BTDC
Using the timing lamp, check that the timing is now read at 10°
Make smalls adjustments to the pickup position if necessary.

In one word:
If the Timing Lamp measure MORE advance than what is set in the user interface then INCREASE the "*Pickup position*"

If the Timing Lamp measure LESS advance than what is set in the user interface then LOWER the "*Pickup position*"