# BOSS GARAGE

## Honduino MPFI V3

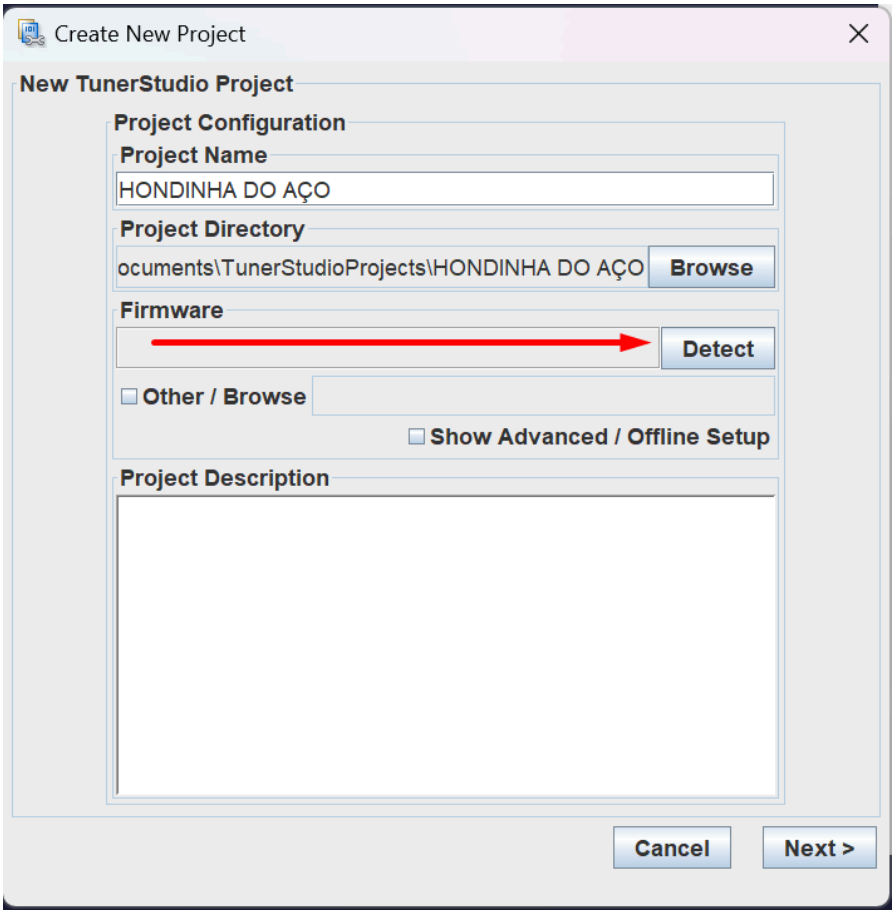
### Before connecting the ECU to the car

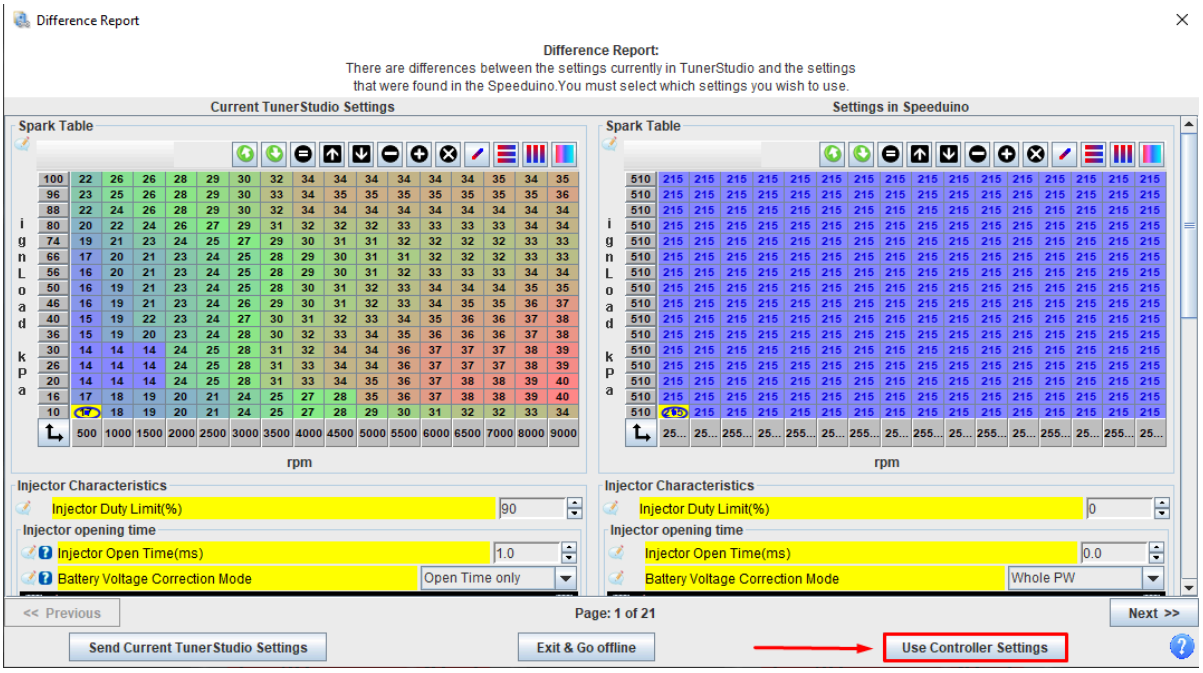
**1) Download TunerStudio software: LINK**

**Connectivity:**

- **Bluetooth**: Connect via USB to power the ECU and pair the Bluetooth
- **USB**: Unplug the Bluetooth module and connect via the USB

**2) Create a project and detect firmware**



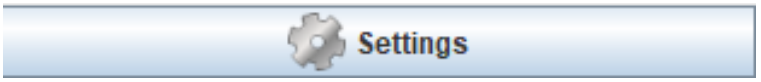


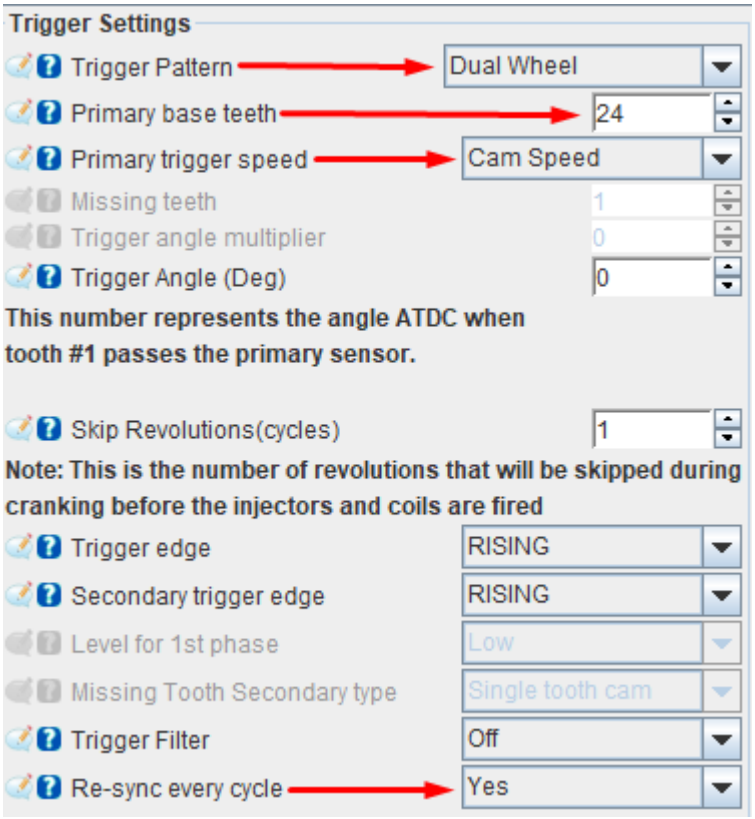

**“Use controller settings” to load ECU settings**

### 3) Trigger wheel

Configure the trigger wheel according to your distributor:

- OBD0: 16 teeth
- OBD1: 24 teeth
- OBD2: 24 teeth



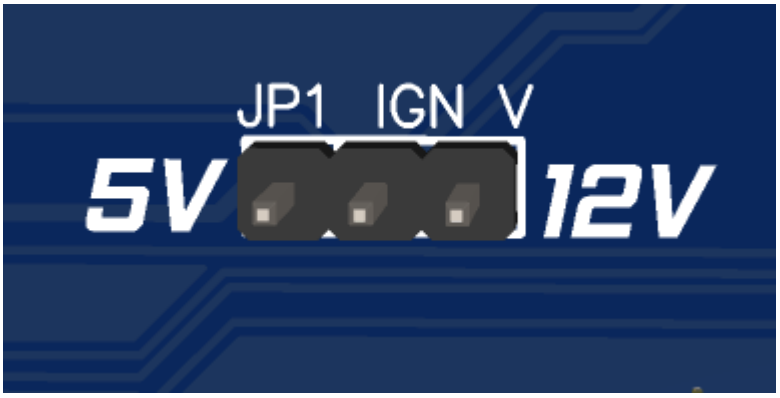




**4) Ignition (Distributor / COP)**

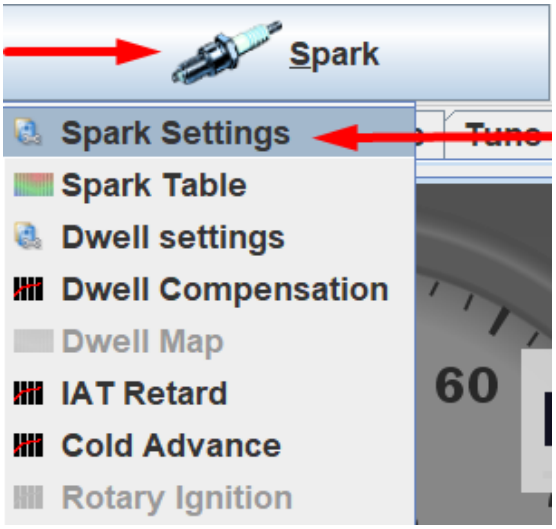
If you're running **stock distributor ignition** go to the topic 4.1), if you want to convert to **coil on plug ignition** go to the topic 4.2)

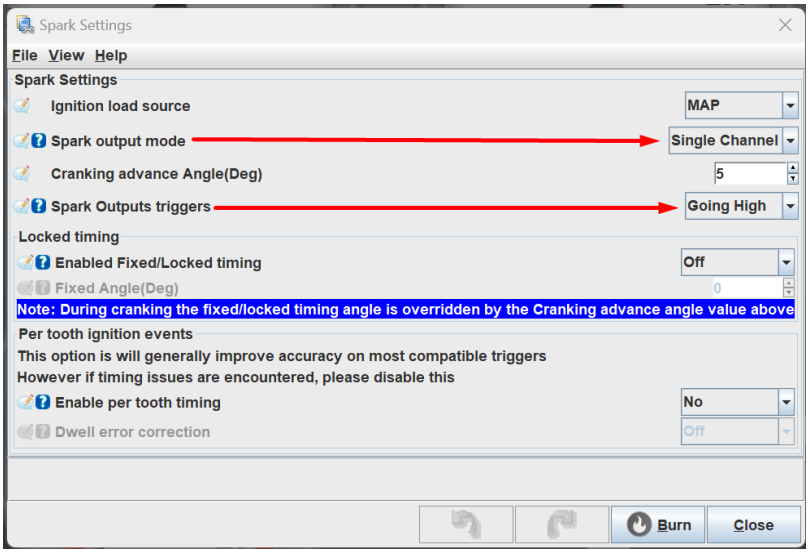
## DISTRIBUTOR IGNITION

4.1.1) On the board, select the 12V signal for the coils through the jumper JP1.




4.1.2) Select **Single channel** and **Going High**

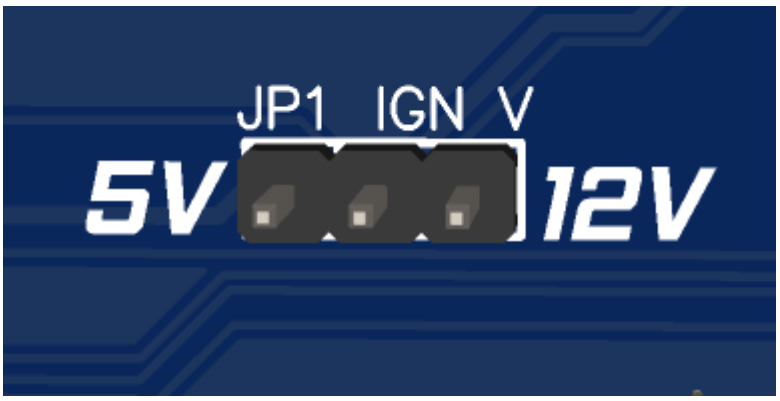



4.1.3) When changing to distributor or coil on plug ignition, the base timing always needs to be resynced.
See topic 10) to learn how to adjust the base timing.

## COIL ON PLUG IGNITION

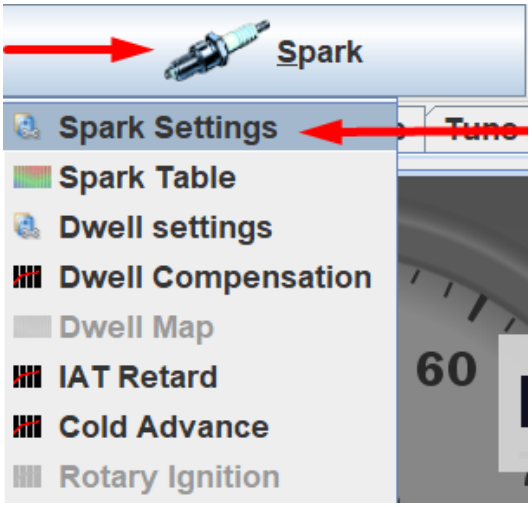
4.2.1) Disconnect the signal wire of the distributor coil (A21/A22)
4.2.2) On the board, select the 5V signal for the coils through the jumper JP1.

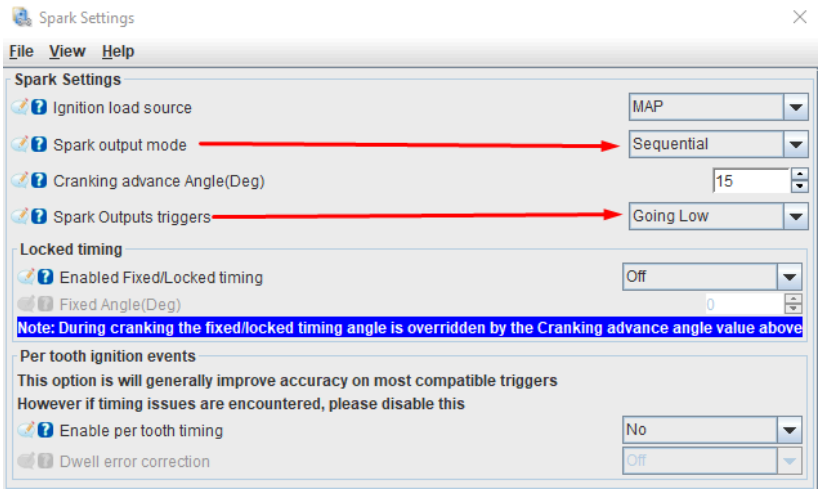



4.2.3) Connect each coil signal wires to the following pins:

| Cylinder | OBD1 connector |
|---|---|
| 1 | A21 |
| 2 | A17 |
| 3 | A18 |
| 4 | A19 |

4.2.4) Select **Sequential** and **Going Low**

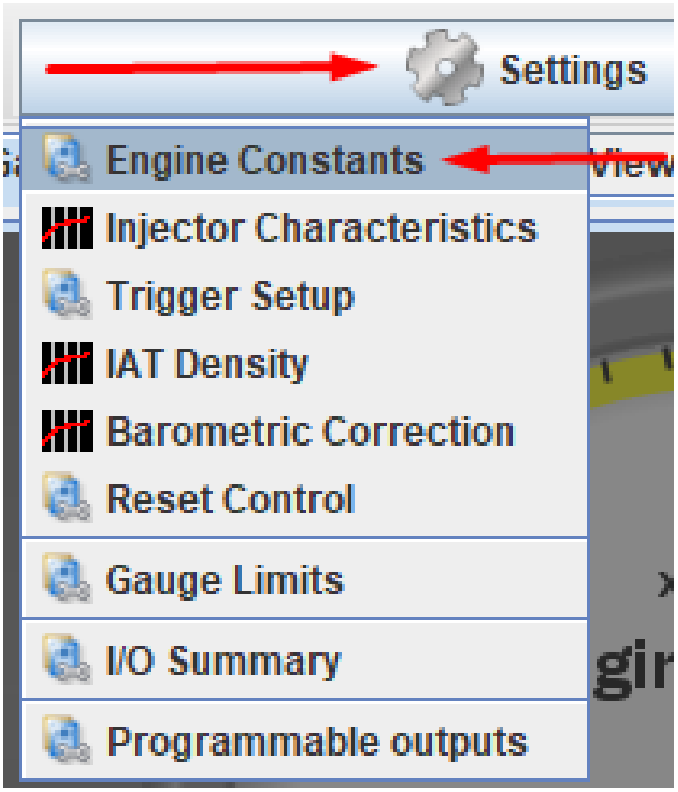


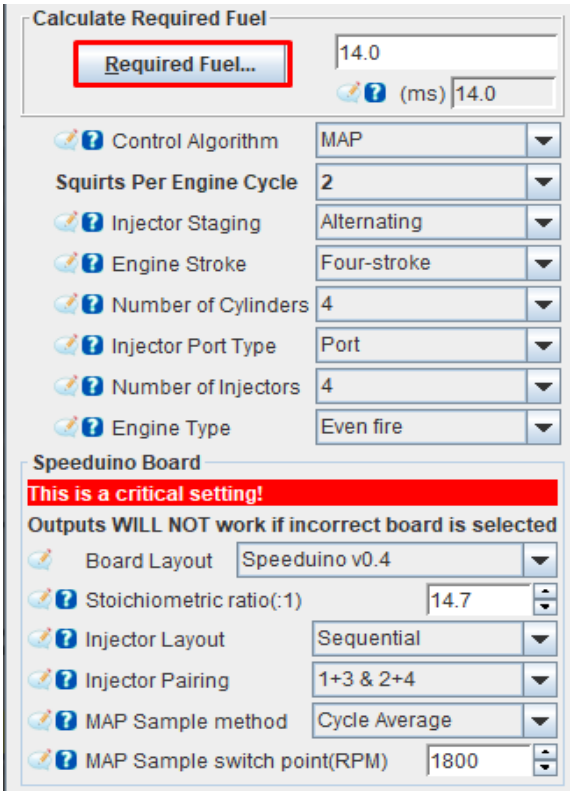




4.2.5) When changing to coil on plug ignition, the base timing always needs to be resynced. See topic 10) to learn how to adjust the base timing.

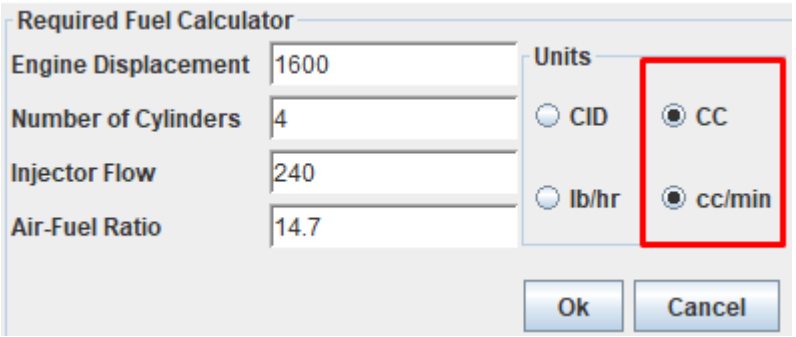
**5) Injection:**

**WARNING:** Use only high impedance injectors (> 8 ohm) or low impedance with resistor box.



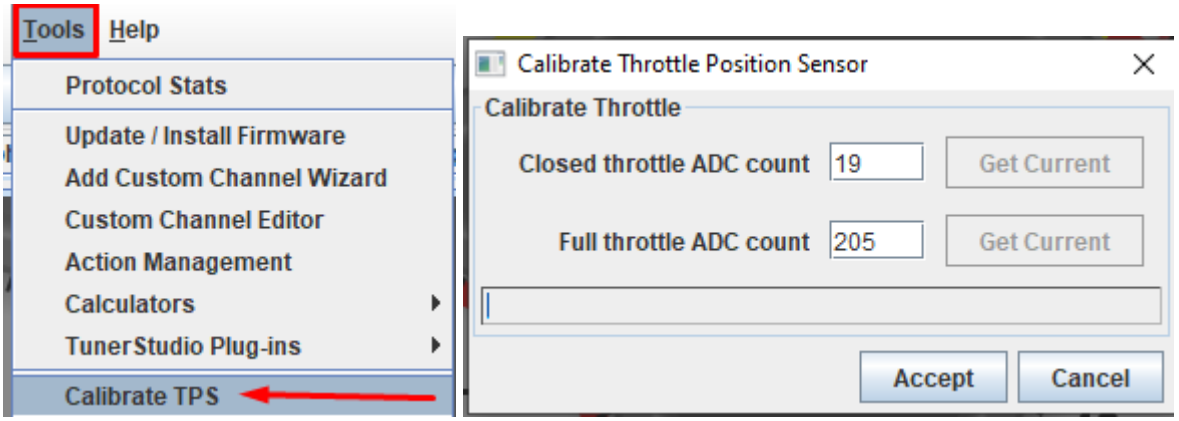




Change the engine displacement and injector flow rate




## Connect the ECU to the car

**6) Calibrate TPS**

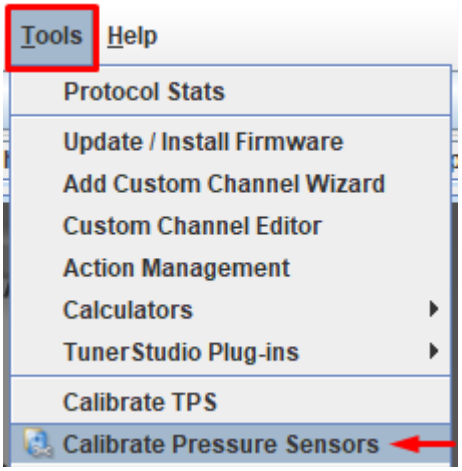


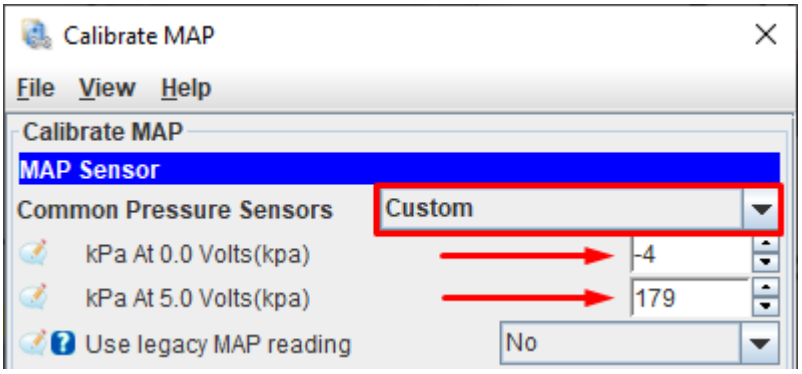

Click on closed throttle “Get current” button.
Then press the throttle and click on the full throttle “Get current” button.
Now, click “Accept” to save.

**7) Calibrate MAP**
You can choose the map sensor through the **MAP SW** jumper.

STOCK = Sensor in the engine bay
MPX = Map sensor on the board

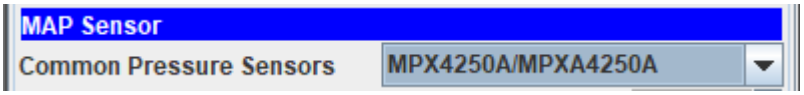
Stock map sensor configurations:



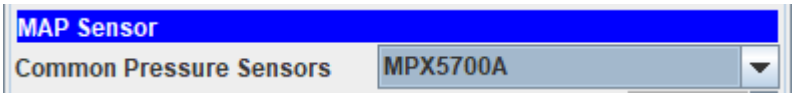




**If it uses a map sensor on the board:**

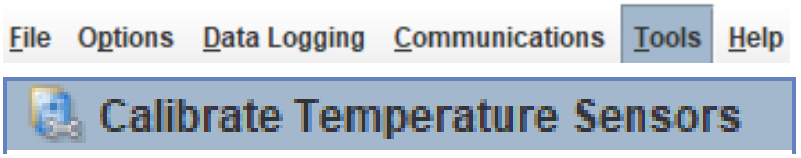
MPX42050AP

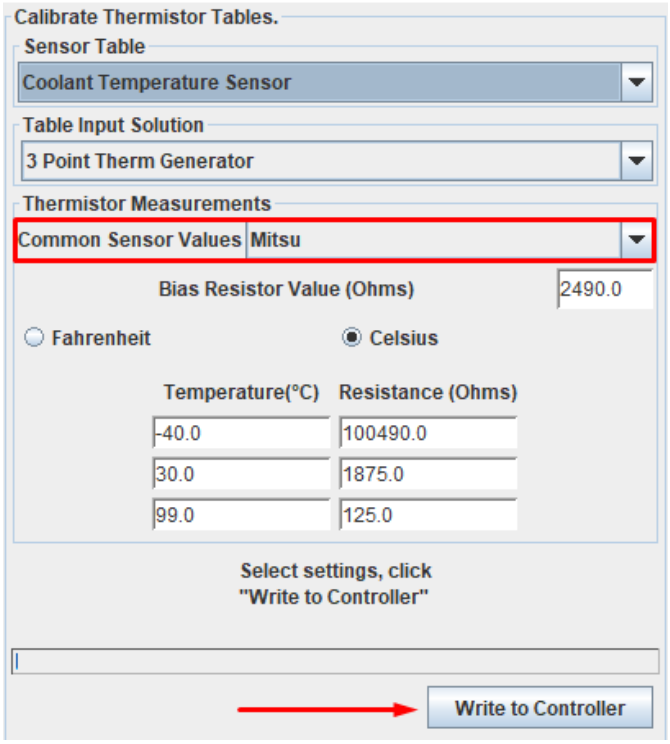


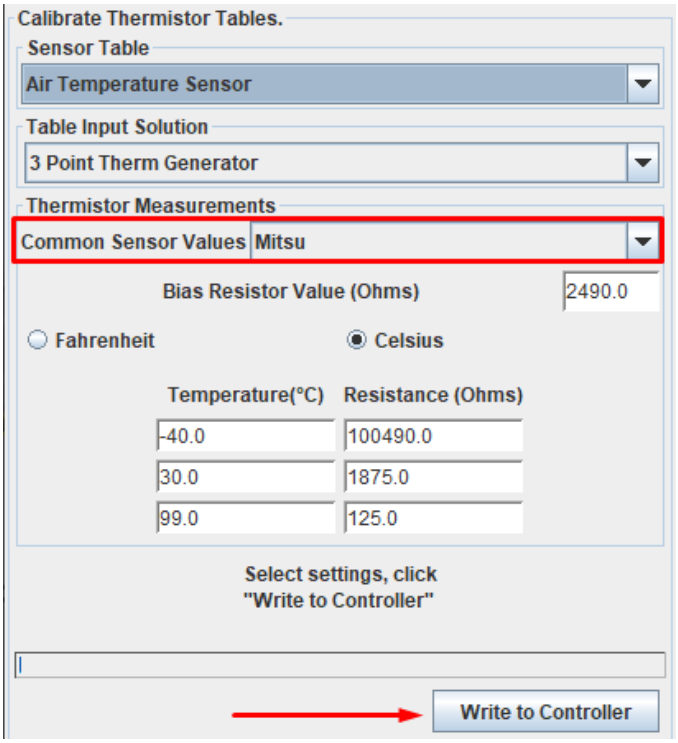

MPX5700AP




**8) Calibrate temperature sensors**

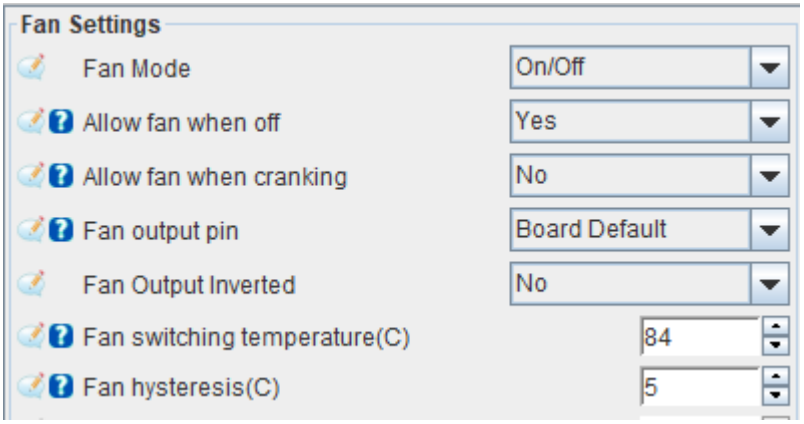





**9) Electric Fan**

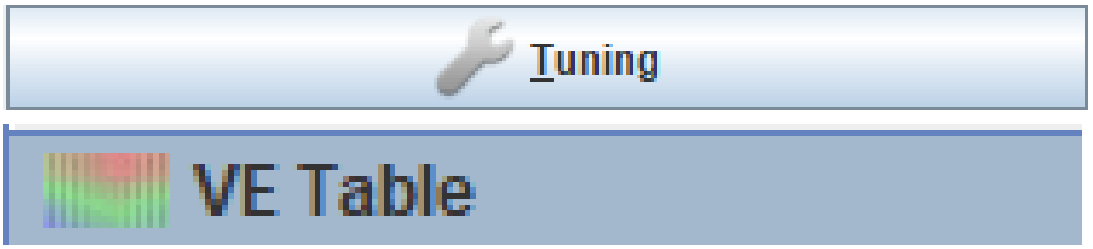
You can control the electric fan on OBD1 / OBD2 engines.
Also you can convert your OBD0 fan to be controlled by the ECU.




**10) Base timing**

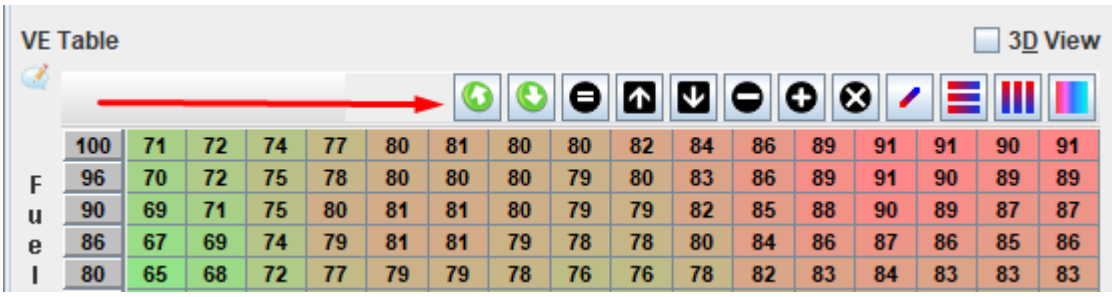
To sync the ignition timing with the engine, it's necessary to be adjusted with help of a Timing Light gun.

Export the VE Table (for later importing)







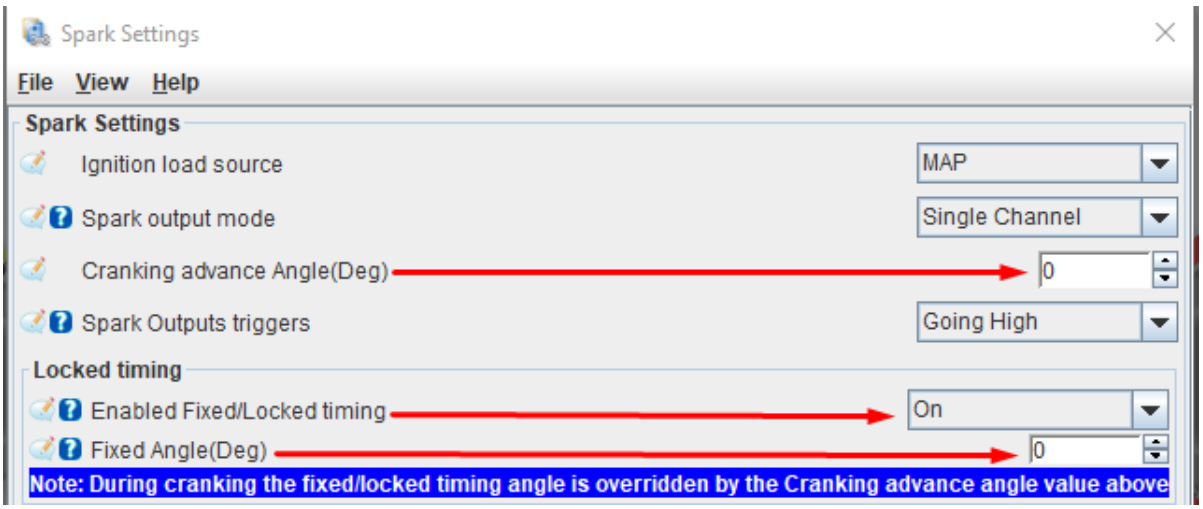



Zero all the table or disconnect the injectors, so while cranking doesn't inject fuel

| Fuel Load: kpa | 500 | 700 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

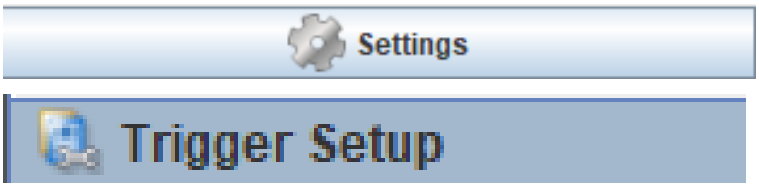
RPM

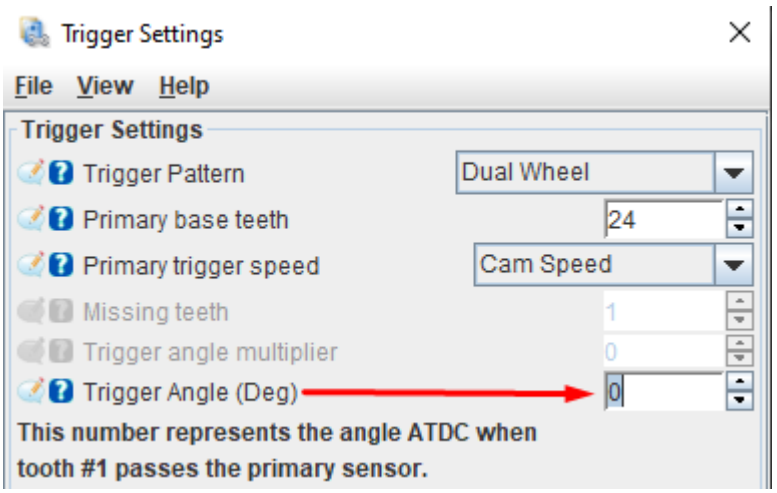
Lock the timing




In the crank there is 4 marks, which are 18, 16, 14 and 0 degrees.
The alone mark is the 0 degrees, mark it with a white highlighter.

Put the timing light clamp on the spark plug wire number 1
(**with the direction of the  arrow pointing the spark plug**)

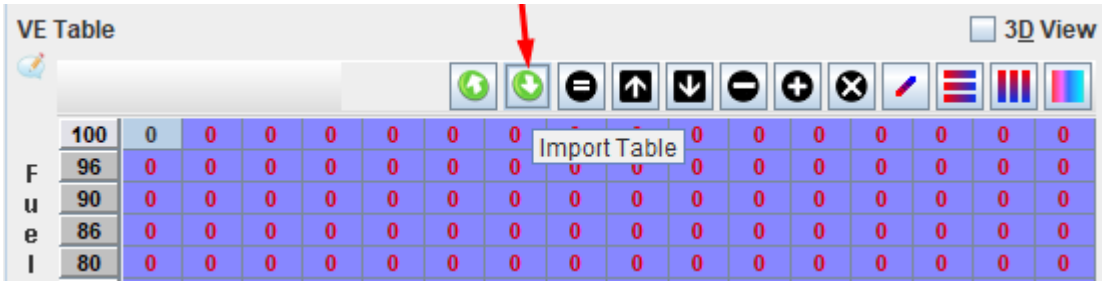




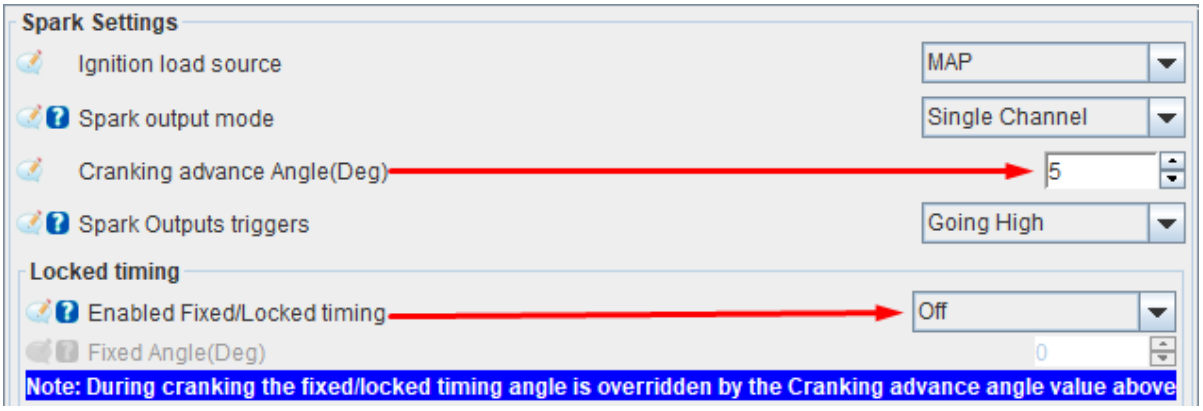

Crank the engine and see if you can see the 0-degree mark…
If you can't, adjust 30º in 30º in **trigger angle** settings until you see it.

Then make fine adjustments until the crank mark lines up with the distribution cover mark.

After the base timing is synchronized, import the VE table or connect the injectors.

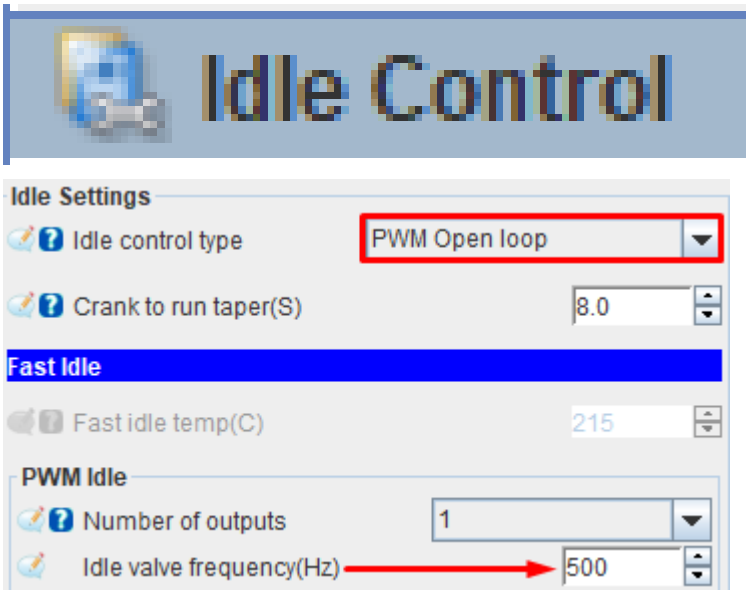



Now, unlock the timing and insert 5 to 10 degrees for cranking

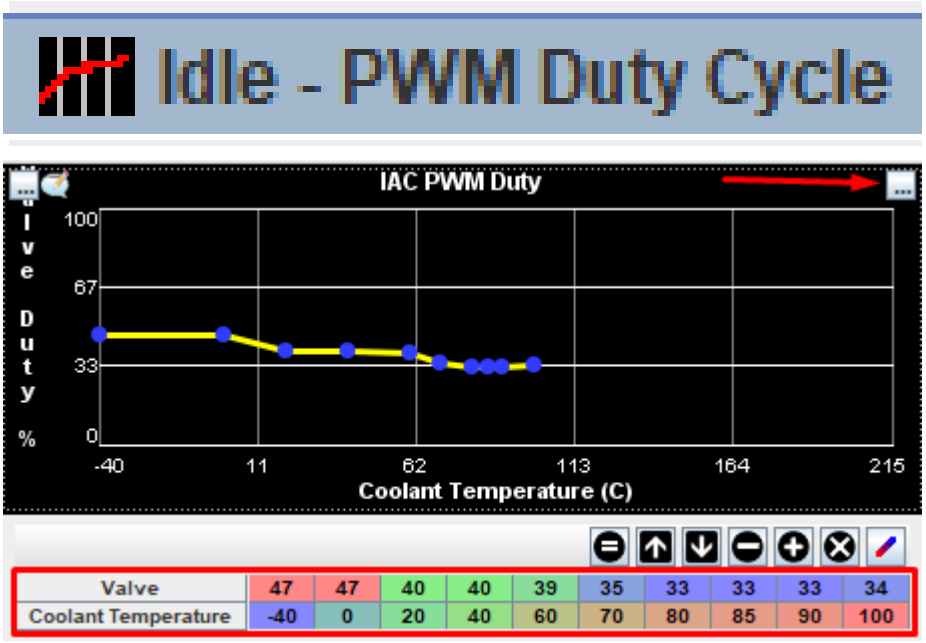



**Now, start your car** 🥳🥳🥳

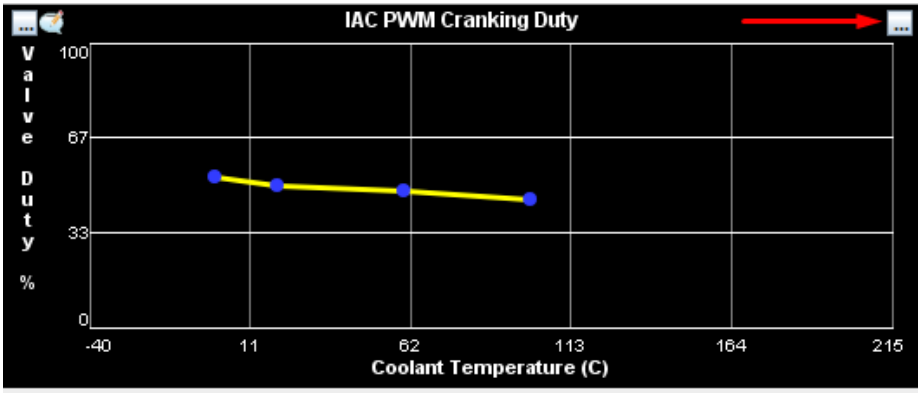
**11) Idle control**




Adjust the duty cycle when the engine is running




Adjust the duty cycle while cranking

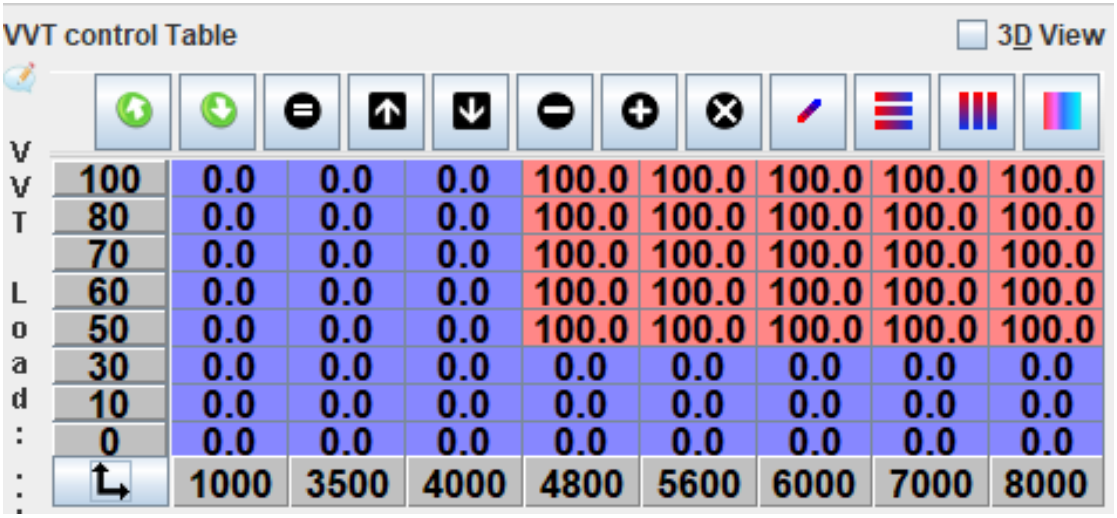



| Valve | 53 | 50 | 48 | 45 |
|---|---|---|---|---|
| Coolant Temperature | 0 | 20 | 60 | 100 |

**12) VTEC**




Configure the table



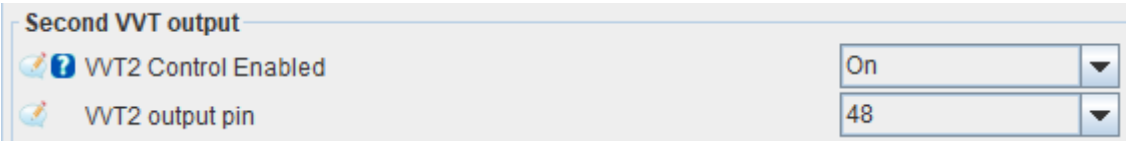

**0 = VTEC OFF**
**100 = VTEC ON**

**13) 3 stage VTEC**
This feature is only for engines with two solenoids (VTEC-E and VTEC)

Normally, the engine runes with 16 valves.
With VTEC A, it uses only 12 valves (VTEC-E)
With VTEC B, it uses 16 valves and a bigger cam lobe. (VTEC)

Activate VTEC B





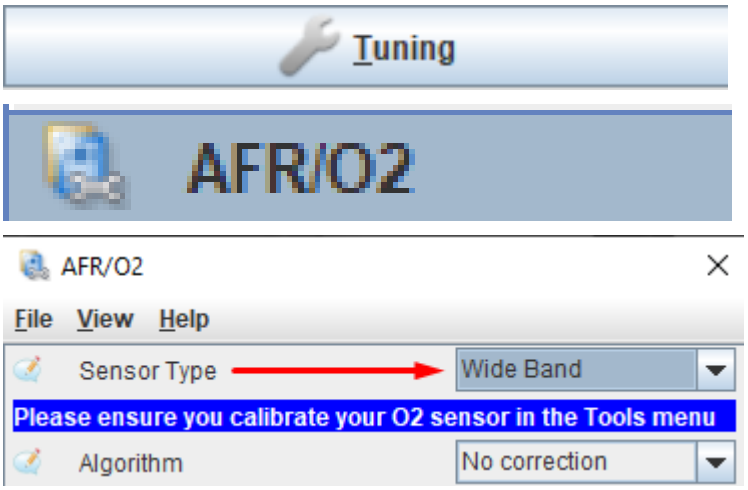

Configure the table:


## Extra features

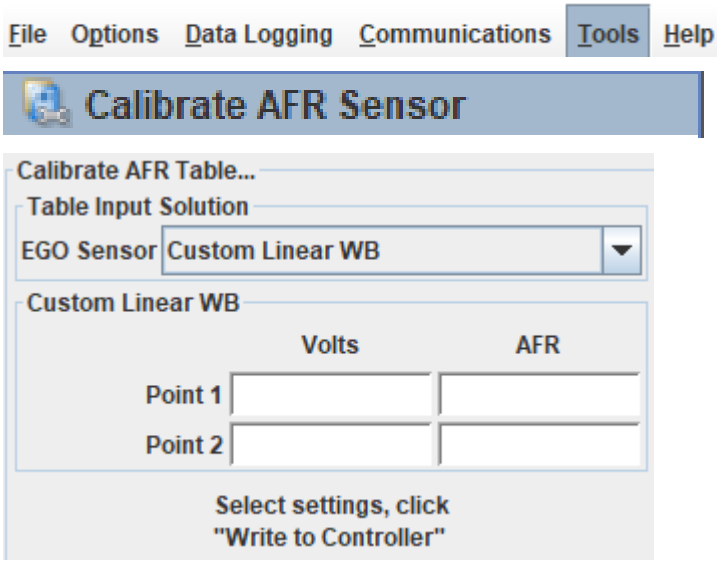
**14) Wideband**

Connect the 0-5V analog wire from the wideband controller to the OBD1 D14.

Activate the wideband:



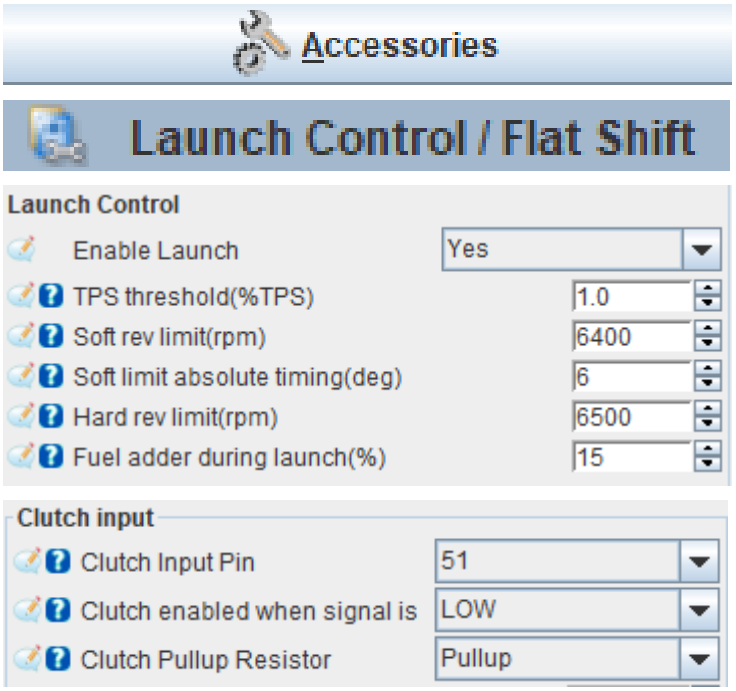

Calibrate the sensor settings:



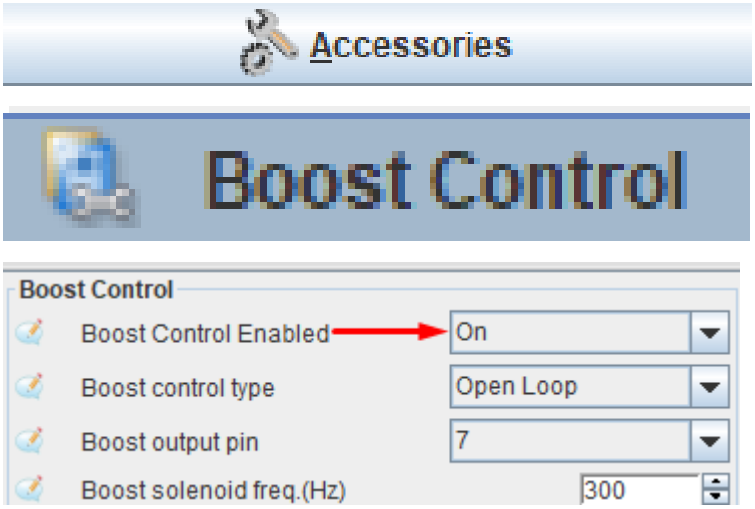

Choose your wideband from the list.

If it’s not there, choose “Custom Linear WB” and setup the wideband controller values.

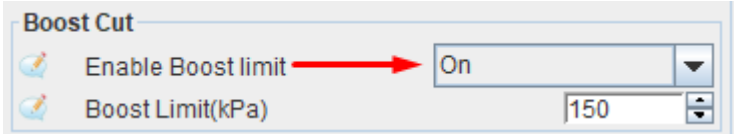
**15) Launch control**
Some cars have clutch switch, but most of them needs to be wired a switch that sends ground to the pin OBD1 B7 when the clutch is pressed.



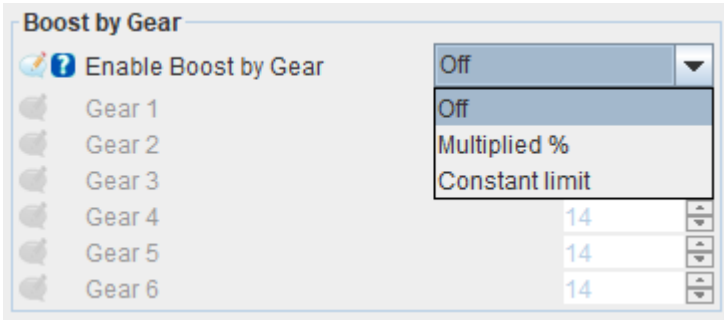

**16) Boost control**
Connect the negative wire of the boost controller valve to pin OBD1 B3



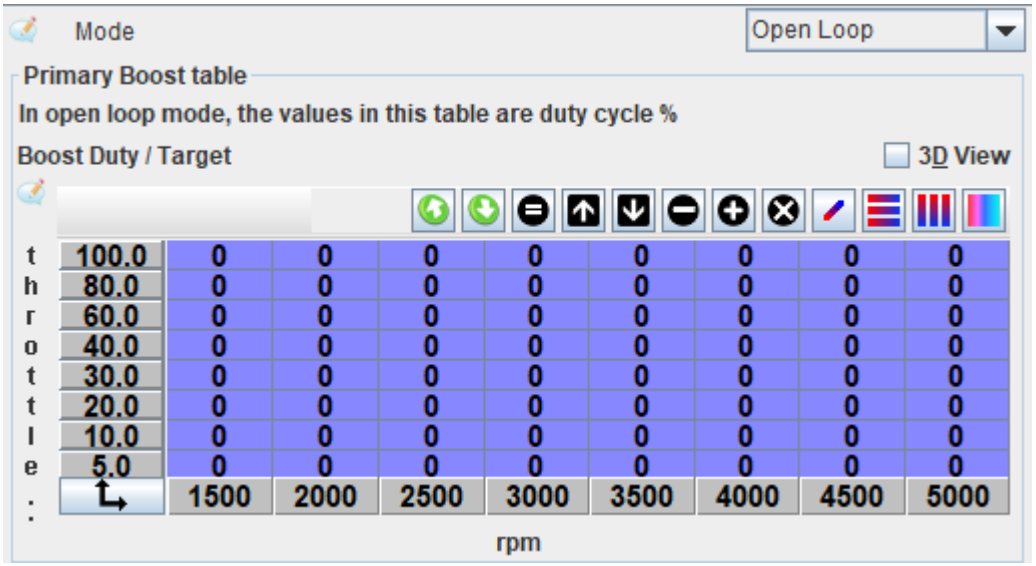

**PROTECTION**: Enable boost cut to when the value is reached




To use a boost by gear, you need to set up first the VSS.



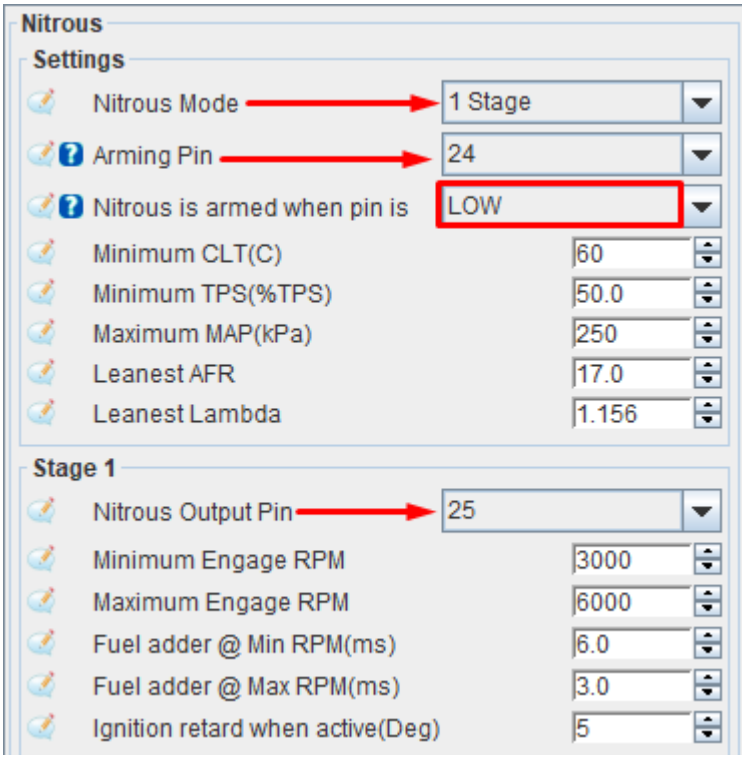

Configure the table:


**18) Nitro control**

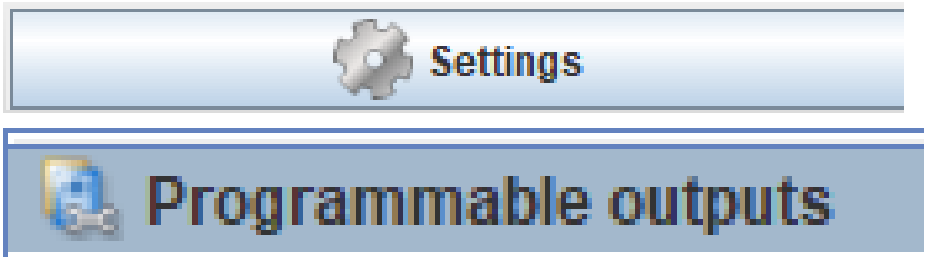
Connect a ground wire through a switch to the terminal OBD1 B8 which activates the nitro.
Connect the ground wire of the nitro solenoid to the terminal OBD1 A10.

Active nitro settings, set the input/output, and the other configurations as you like.

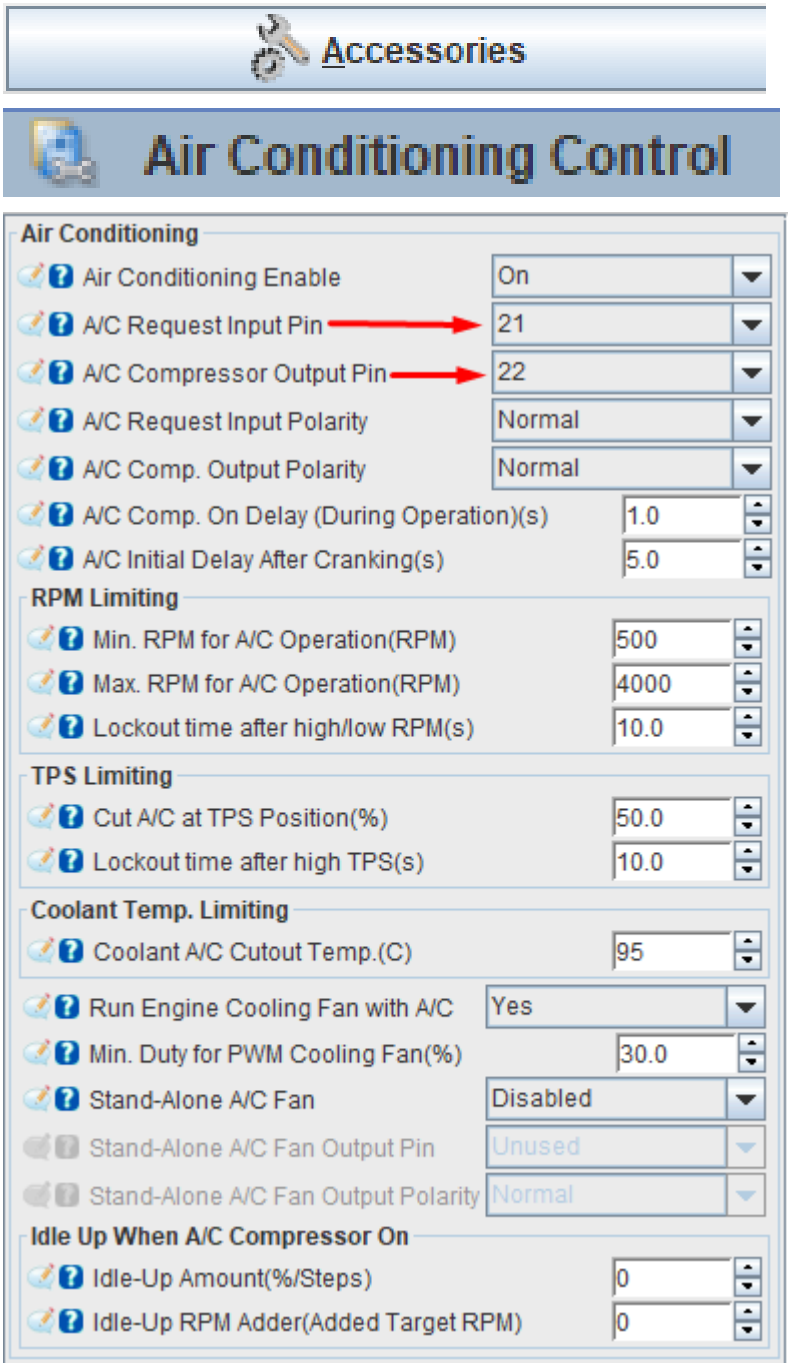

**19) CEL / Shift light**

You can use the engine light as a shift light or as you like through a programmable output.

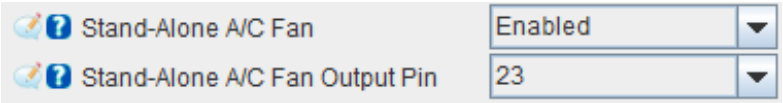


**20) A/C control**

Setup input and output and customize as you like.

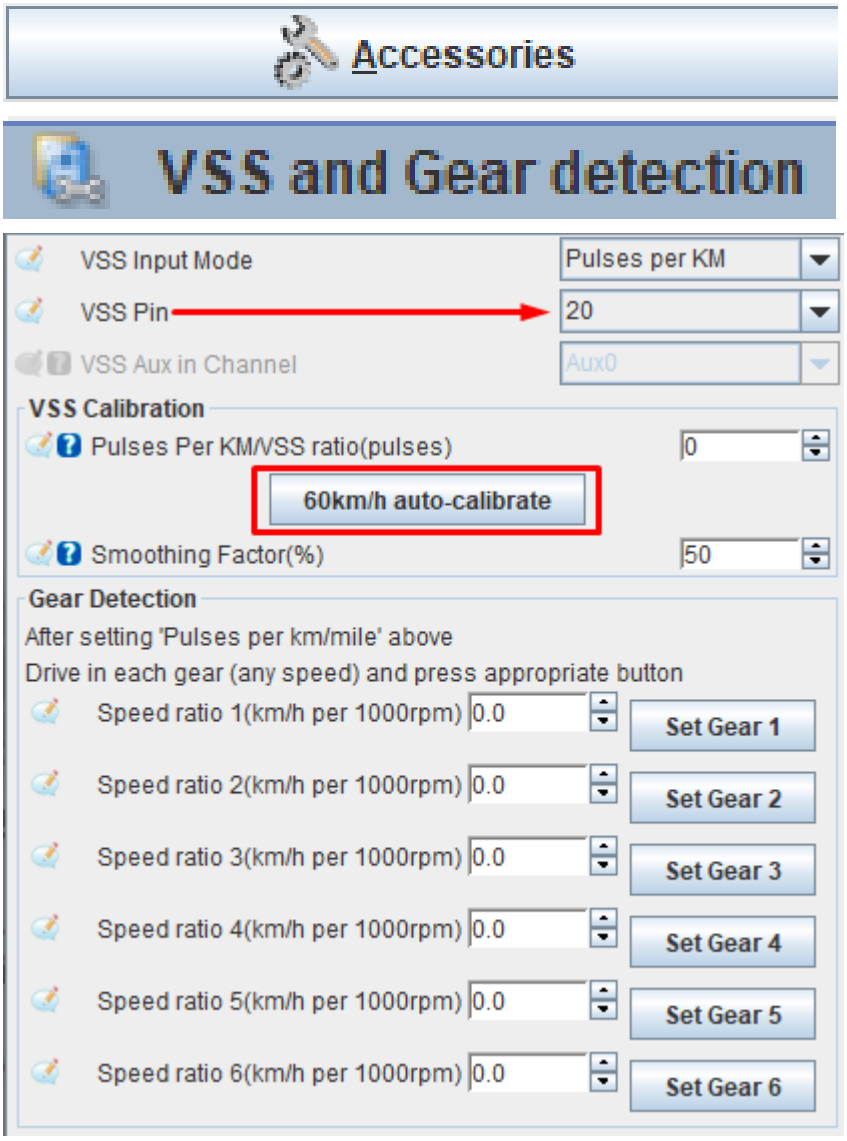



Also, you can control an A/C dedicated fan, select pin 23, and wire the ground for the FAN2 relay on terminal OBD1 D18.




**21) VSS**

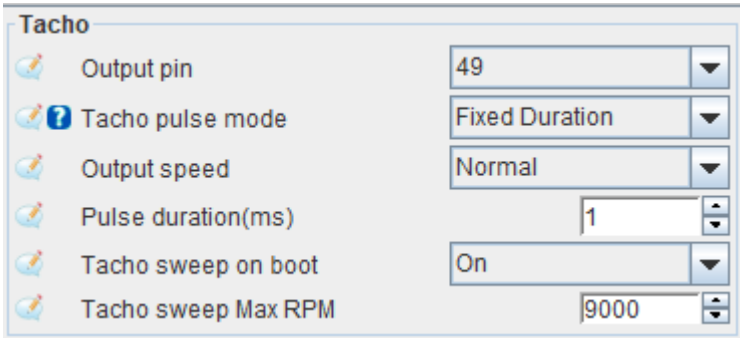
Drive at 60km/h and click the button to calibrate vehicle speed



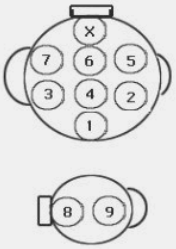
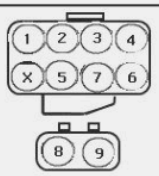
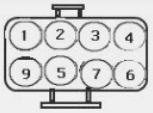
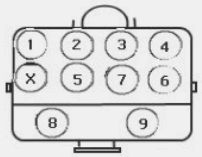

**22) Tachometer**

If you use the stock distributor, the tachometer signal is sent by the distributor coil.
But if you convert the ignition to coil on plug or want the signal controlled by the ECU, it needs modifications.

Activate tacho output and tacho sweep effect on boot:




Connect the pin **OBD1 B6** from ECU to the connector that the distributor connects: **Engine speed output**

| OBD/Model | Plug Type (all plugs are shown from wired side) | Wiring Color and Wire Function (Wire colors may vary pay attention more to the number positions) |
|---|---|---|
| OBD0 (except Civic DPFI Models) 1988-1991 |  | 1. Large White (Ign input signal)<br>2. Orange (Crank position output)<br>3. Orange/Blue (TDC output)<br>4. Blue/Green (CYP output)<br>5. White(Crank position ground)<br>6. Blue/Yellow (CYP ground)<br>7. White/Blue (TDC ground)<br>8. Blue (Speed output) ←<br>9. Black/Yellow (Ign input) |
| OBD1 1992-1995 |  | 1. Yellow/Green (Ign input signal)<br>2. Blue/Green (Crank position output)<br>3. Orange/Blue (TDC output)<br>4. Orange (CYP output)<br>5. Blue/Yellow or White (Crank position ground)<br>6. White or Black (CYP ground)<br>7. White/Blue or Red (TDC ground)<br>8. Blue (Engine speed output) ←<br>9. Blk/Yellow (Ign Input)<br>X- blank spot |
| OBD2b Civic (except HX and Si) 1996+ |  | 1.Yellow/Green (Ign input signal)<br>2. Lt blue or blue (Crank position output)<br>3. Orange/Blue or Green (TDC output)<br>4. Orange or Yellow (CYP output)<br>5. White (Crank position ground)<br>6. Black (CYP ground)<br>7. White/Blue or Red (TDC ground)<br>9. Black/Yellow (Ign input) |
| OBD2a Civic OBD2b Civic Civic HX and Si OBD2a and OBD2b Integra | 1996+  | 1. Yellow/Green(Ign input signal)<br>2. Blue/ Green (Crank Position output)<br>3. Orange/Blue (TDC output)<br>4. Orange (CYP output)<br>5. Blue/Yellow (Crank Position Ground)<br>6. White (CYP ground)<br>7. White/Blue (TDC ground)<br>8 Blue (Engine speed output) ←<br>9. Black/Yellow (Ign input)<br>X- blank spot |

Some OBD2b engines also have this wire connected to the ECU, it's the pin OBD2b A19. You can connect it to the OBD1 B6 terminal but don't forget to unplug the "engine speed output" wire in the distributor connector.

**23) Pinout OBD1 + AUX I/O**

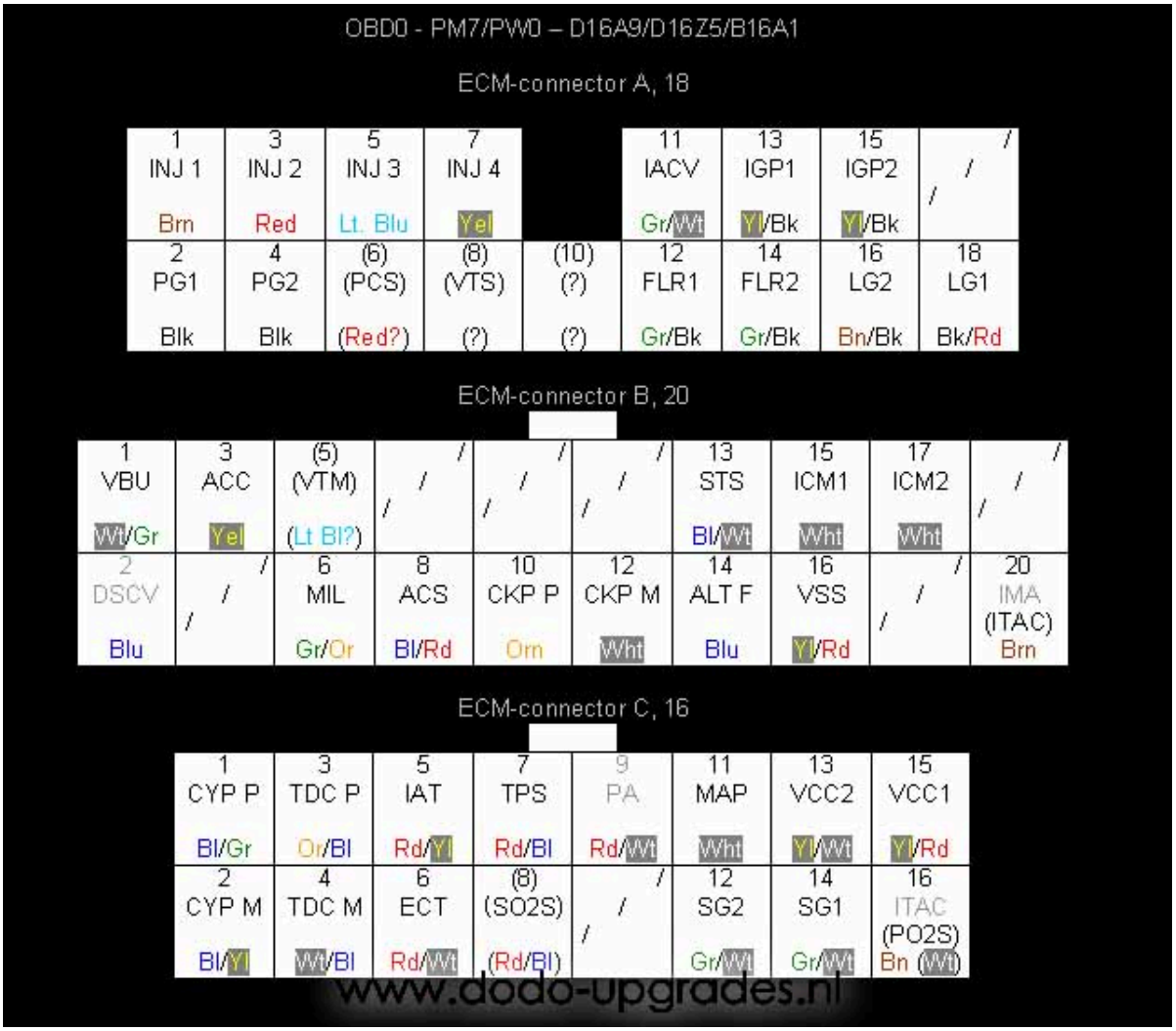

| INPUTS | ECU terminal | Tunerstudio pin |
|---|---|---|
| AC signal | OBD1 B5 | 21 |
| Clutch input / Launch control | OBD1 B7 | 51 |
| Nitro switch | OBD1 B8 | 24 |
| Auxiliary temperature 1 | OBD1 D4 | A9 |
| Auxiliary temperature 2 | OBD1 D7 | A10 |
| Auxiliary analog 1 | OBD1 D8 | A11 |
| 0-5V wideband signal | OBD1 D14 | A8 |
| Intake air temperature | OBD1 D15 | A0 |
| Auxiliary analog 2 | OBD1 D16 | A12 |
| Stock MAP sensor | OBD1 D17 | A3 |

| OUTPUTS | ECU terminal | Tunerstudio pin |
|---|---|---|
| VTEC A / high side switch (12v) | OBD1 A4 | 4 |
| Fuel pump relay / low side switch | OBD1 A7 | 45 |
| IACV / low side switch | OBD1 A9 | 5 |
| Nitro solenoid / low side switch | OBD1 A10 | 25 |
| FAN relay / low side switch | OBD1 A12 | 47 |
| CEL / low side switch | OBD1 A13 | 26 |
| VTEC B / high side switch (12v) | OBD1 A14 | 48 |
| AC clutch relay / low side switch | OBD1 A15 | 22 |
| COIL 2 | OBD1 A17 | x |
| COIL 3 | OBD1 A18 | x |
| COIL 4 | OBD1 A19 | x |
| COIL 1 | OBD1 A21 | x |
| Boost solenoid / low side switch | OBD1 B3 | 7 |
| Tachometer | OBD1 B6 | 49 |
| FAN2 relay / low side switch | OBD1 D18 | 23 |

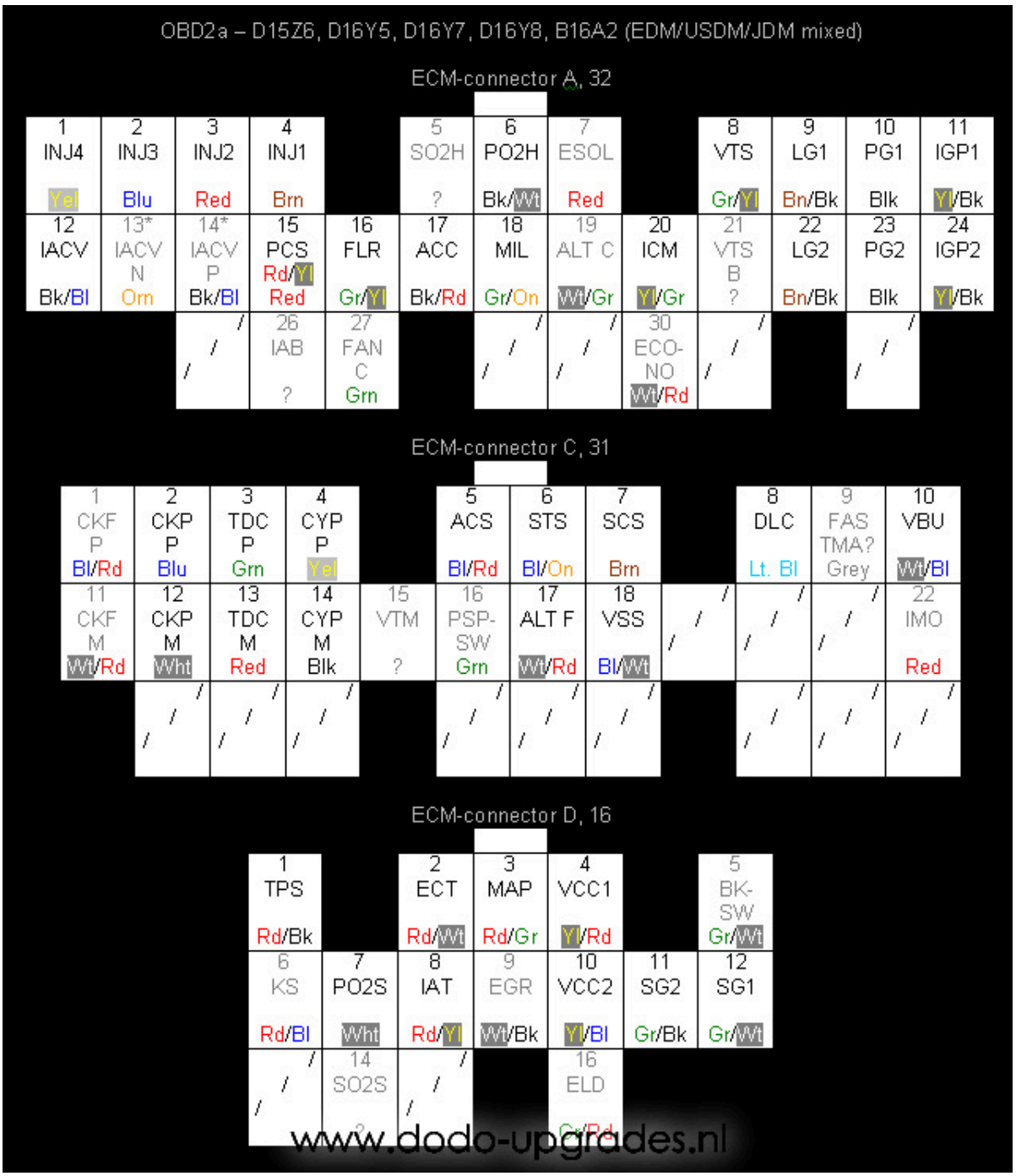
Low side switch = sends a ground to activate a relay
High side switch = sends 12V to activate a solenoid

**24) Pinout OBD0, OBD2a, OBD2b**
The Honduino ECU has a similar pinout to the P28 OBD1 stock ECU and with conversion cables, it works also with OBD0, OBD2a, and OBD2b multipoint injection engines.

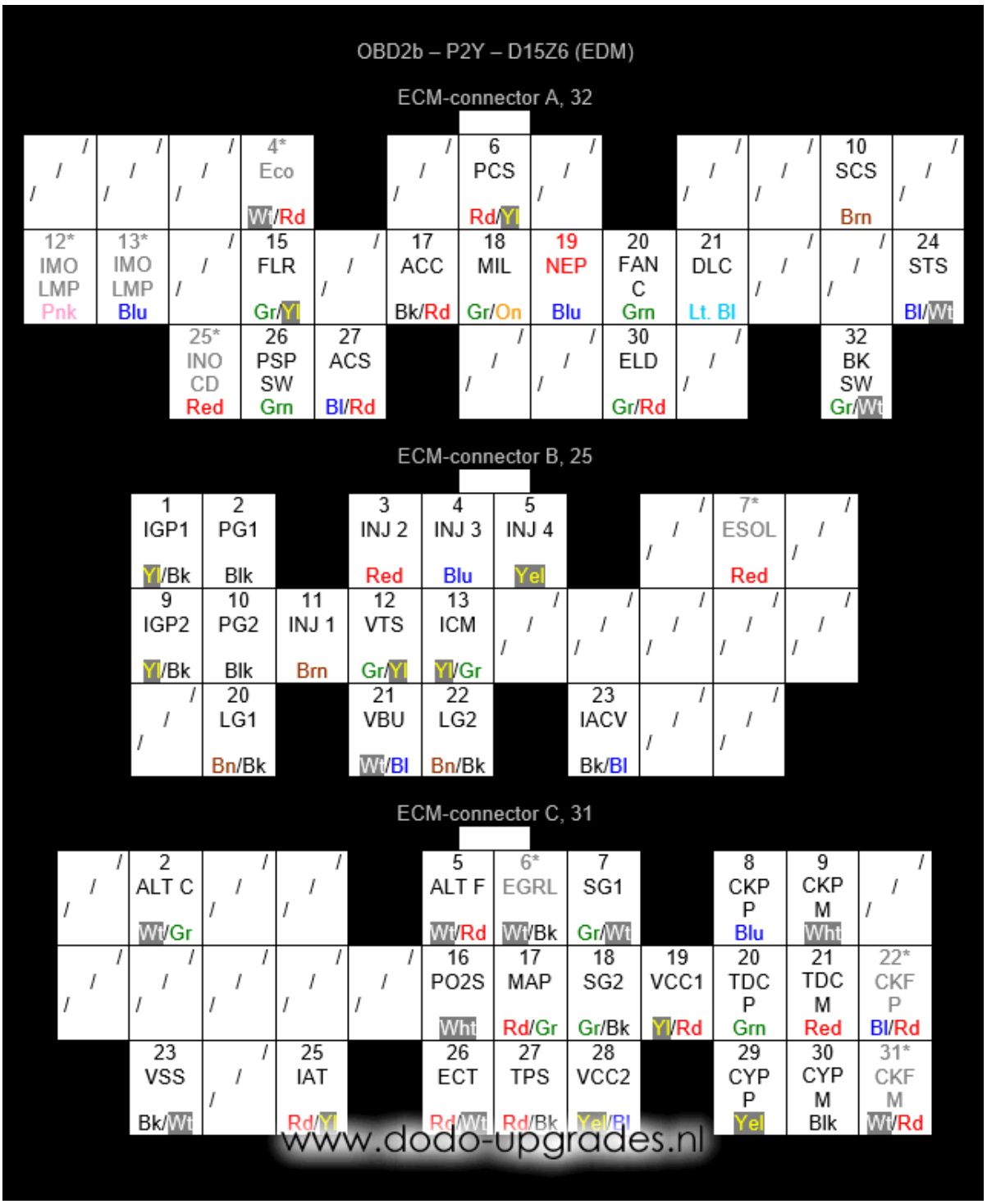
## OBD0


OBD0 - PM7/PW0 – D16A9/D16Z5/B16A1
ECM-connector A, 18
1 INJ 1 Brn
3 INJ 2 Red
5 INJ 3 Lt. Blu
7 INJ 4 Yel
11 IACV Gr/Wt
13 IGP1 Yl/Bk
15 IGP2 Yl/Bk
/ / /
2 PG1 Blk
4 PG2 Blk
(6) (PCS) (Red?)
(8) (VTS) (?)
(10) (?) (?)
12 FLR1 Gr/Bk
14 FLR2 Gr/Bk
16 LG2 Bn/Bk
18 LG1 Bk/Rd
ECM-connector B, 20
1 VBU Wt/Gr
3 ACC Yel
(5) (VTM) (Lt Bl?)
/ / /
/ / /
/ / /
13 STS Bl/Wt
15 ICM1 Wht
17 ICM2 Wht
/ / /
2 DSCV Blu
/ / /
6 MIL Gr/Or
8 ACS Bl/Rd
10 CKP P Orn
12 CKP M Wht
14 ALT F Blu
16 VSS Yl/Rd
/ / /
20 IMA (ITAC) Brn
ECM-connector C, 16
1 CYP P Bl/Gr
3 TDC P Or/Bl
5 IAT Rd/Yl
7 TPS Rd/Bl
9 PA Rd/Wt
11 MAP Wht
13 VCC2 Yl/Wt
15 VCC1 Yl/Rd
2 CYP M Bl/Yl
4 TDC M Wt/Bl
6 ECT Rd/Wt
(8) (SO2S) (Rd/Bl)
/ / /
12 SG2 Gr/Wt
14 SG1 Gr/Wt
16 ITAC (PO2S) Bn (Wt)
www.dodo-upgrades.nl

## OBD2a


OBD2a – D15Z6, D16Y5, D16Y7, D16Y8, B16A2 (EDM/USDM/JDM mixed)
ECM-connector A, 32
1 INJ4 Yel
2 INJ3 Blu
3 INJ2 Red
4 INJ1 Brn
5 SO2H ?
6 PO2H Bk/Wt
7 ESOL Red
8 VTS Gr/Yl
9 LG1 Bn/Bk
10 PG1 Blk
11 IGP1 Yl/Bk
12 IACV Bk/Bl
13* IACV N Orn
14* IACV P Bk/Bl
15 PCS Rd/Yl Red
16 FLR Gr/Yl
17 ACC Bk/Rd
18 MIL Gr/On
19 ALT C Wt/Gr
20 ICM Yl/Gr
21 VTS B ?
22 LG2 Bn/Bk
23 PG2 Blk
24 IGP2 Yl/Bk
26 IAB ?
27 FAN C Grn
30 ECO-NO Wt/Rd
ECM-connector C, 31
1 CKF P Bl/Rd
2 CKP P Blu
3 TDC P Grn
4 CYP P Yel
5 ACS Bl/Rd
6 STS Bl/On
7 SCS Brn
8 DLC Lt. Bl
9 FAS TMA? Grey
10 VBU Wt/Bl
11 CKF M Wt/Rd
12 CKP M Wht
13 TDC M Red
14 CYP M Blk
15 VTM ?
16 PSP-SW Grn
17 ALT F Wt/Rd
18 VSS Bl/Wt
22 IMO Red
ECM-connector D, 16
1 TPS Rd/Bk
2 ECT Rd/Wt
3 MAP Rd/Gr
4 VCC1 Yl/Rd
5 BK-SW Gr/Wt
6 KS Rd/Bl
7 PO2S Wht
8 IAT Rd/Yl
9 EGR Wt/Bk
10 VCC2 Yl/Bl
11 SG2 Gr/Bk
12 SG1 Gr/Wt
14 SO2S ?
16 ELD Gr/Rd
www.dodo-upgrades.nl

## OBD2b


OBD2b – P2Y – D15Z6 (EDM)
ECM-connector A, 32
4* Eco Wt/Rd
6 PCS Rd/Yl
10 SCS Brn
12* IMO LMP Pnk
13* IMO LMP Blu
15 FLR Gr/Yl
17 ACC Bk/Rd
18 MIL Gr/On
19 NEP Blu
20 FAN C Grn
21 DLC Lt. Bl
24 STS Bl/Wt
25* INO CD Red
26 PSP SW Grn
27 ACS Bl/Rd
30 ELD Gr/Rd
32 BK SW Gr/Wt
ECM-connector B, 25
1 IGP1 Yl/Bk
2 PG1 Blk
3 INJ 2 Red
4 INJ 3 Blu
5 INJ 4 Yel
7* ESOL Red
9 IGP2 Yl/Bk
10 PG2 Blk
11 INJ 1 Brn
12 VTS Gr/Yl
13 ICM Yl/Gr
20 LG1 Bn/Bk
21 VBU Wt/Bl
22 LG2 Bn/Bk
23 IACV Bk/Bl
ECM-connector C, 31
2 ALT C Wt/Gr
5 ALT F Wt/Rd
6* EGRL Wt/Bk
7 SG1 Gr/Wt
8 CKP P Blu
9 CKP M Wht
16 PO2S Wht
17 MAP Rd/Gr
18 SG2 Gr/Bk
19 VCC1 Yl/Rd
20 TDC P Grn
21 TDC M Red
22* CKF P Bl/Rd
23 VSS Bk/Wt
25 IAT Rd/Yl
26 ECT Rd/Wt
27 TPS Rd/Bk
28 VCC2 Yel/Bl
29 CYP P Yel
30 CYP M Blk
31* CKF M Wt/Rd
www.dodo-upgrades.nl