Spartan 2.0 QUICK GUIDE

Use Board Layout: 16CH

12V.- power supply for ECU (normally to switch)
GND.- ground, the ground is common for sensors, and other devices
5V.- 5V output for sensors (TPS, MAP)
INJ1.- Bank 1 of injectors
INJ2.- Bank 2 of injectors
VVT/3.- Bank 3 of injectors / VVT output
BS/4.- Bank 4 injectors / Boost output
IGN1, ING2, IGN3, IGN4.- Ignition banks 1,2,3 and 4
IAT.- air intake temperature sensor
CLT.- coolant temperature sensor
TPS.- throttle body position sensor
LNCH.- input to activate launch control (IT IS ACTIVATED WITH GND OF THE SAME ECU)
O2.- input for oxygen sensor (wideband with controller or direct narrowband)
VR1+.- crankshaft sensor input or CKP type OPTICAL or HALL (add pullup) also configurable as VR positive pulse
VR2+.- OPTICAL or HALL type tree or CAM sensor input also configurable as positive pulse VR
VR1-.- is only used in case of configuring crankshaft sensor as VR type, this is the negative complementary pulse input
VR2-.- it is only used in case of configuring tree sensor as VR type, this is the negative complementary pulse input
FAN.- output for radiator fan (use with relay)
FP.- output for fuel pump (use with relay)
TACH.- tachometer output
BARO/FLEX.- On LATER REVISION Spartan solder selector for Baro/Flex input, older revisions has input to BARO
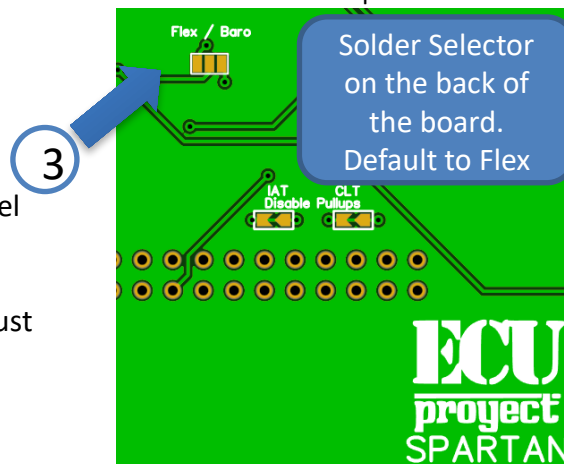
Jumpers (selectors)
1.- Selectors to choose between INJ3/VVT, INJ4/BST channel
2.- Selector to choose ignition outputs at 5V or 12V
3.- Spartan 2.0 offer solder selector for Baro/Flex input
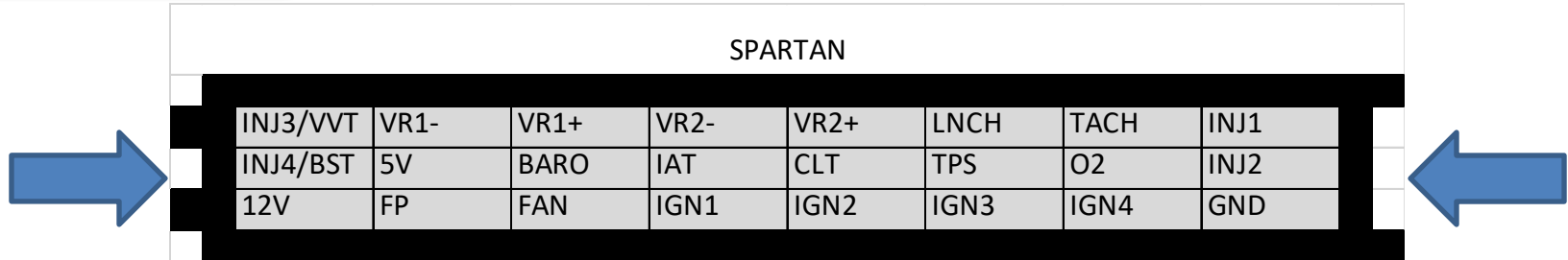The ECU comes in VR mode, to connect a hall sensor you just have to connect a Pullup resistor!

Solder Selector on the back of the board. Default to Flex

INTEGRATED VR card

4 bar internal map

SPARTAN							
INJ3/VVT	VR1-	VR1+	VR2-	VR2+	LNCH	TACH	INJ1
INJ4/BST	5V	BARO	IAT	CLT	TPS	O2	INJ2
12V	FP	FAN	IGN1	IGN2	IGN3	IGN4	GND

colors may vary

ECU proyect

www.facebook.com/ProyectECU/

View from the ECU

INJ3

INJ1

12V

GND
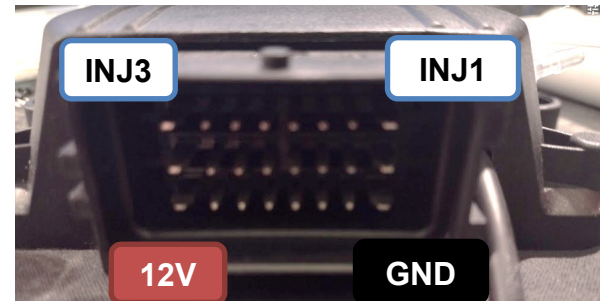
WARNING
Do not save tunes or megasquirt files in this ECU, this ecu IS NOT MEGASQUIRT, it is not clone of megasquirt either. So saving an incompatible tune will cause the ecu not to synchronize time and failures will occur.
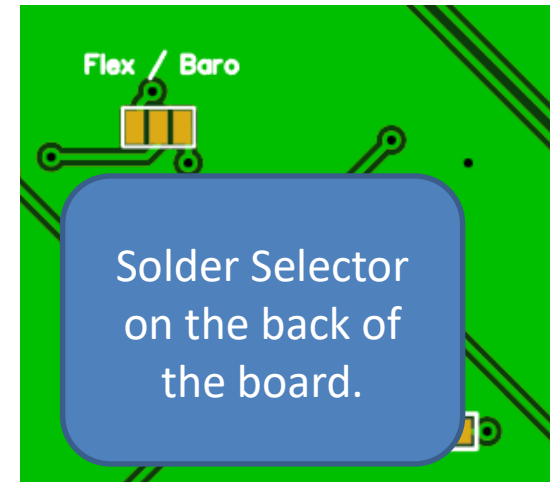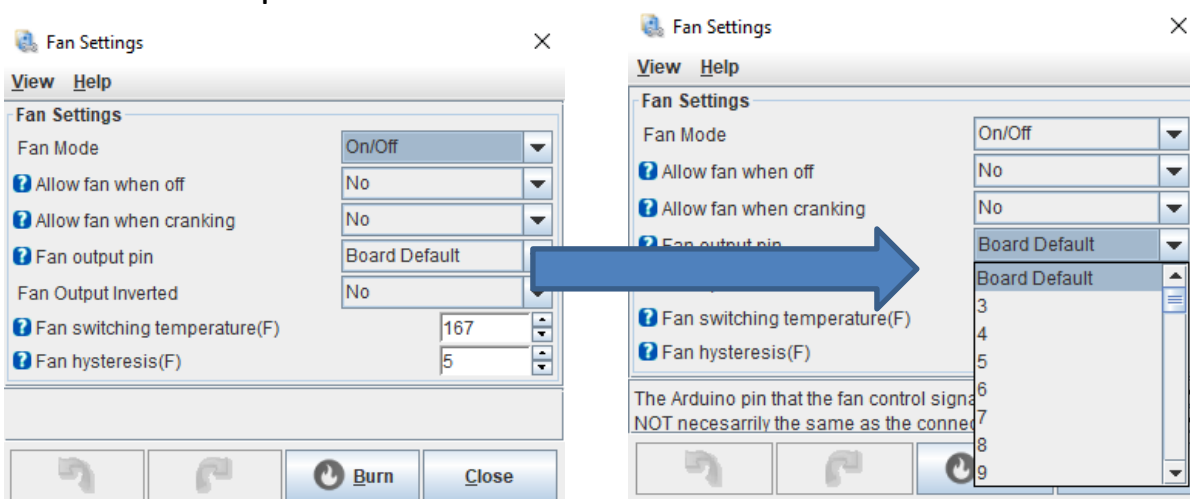
RECOMMENDATION:
Follow the Tutorial1 and the virtual drive files to connect to the ECU and do the Hardware test!
Do this before you install the ECU!

How to assign extra inputs or outputs?

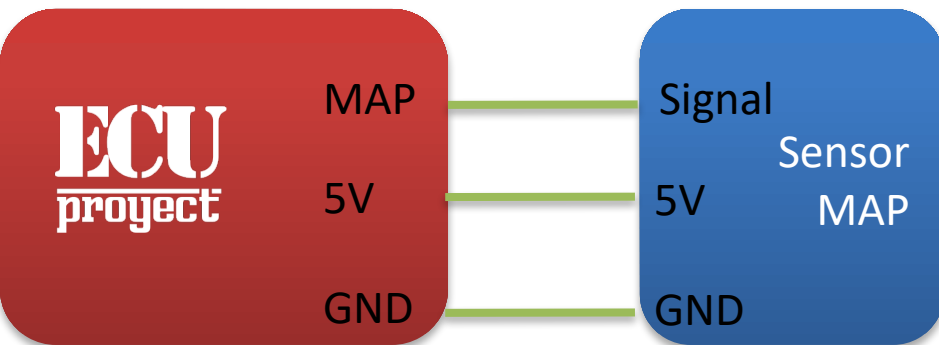Some menus have something called "pin", this is used to assign this function to another available output.

Fan Settings

Fan Settings	
Fan Mode	On/Off
Allow fan when off	No
Allow fan when cranking	No
Fan output pin	Board Default
Fan Output Inverted	No
Fan switching temperature(F)	167
Fan hysteresis(F)	5

Burn   Close

Fan Settings

Fan Settings	
Fan Mode	On/Off
Allow fan when off	No
Allow fan when cranking	No
Fan output pin	Board Default

Board Default
3
4
5
6
7
8
9

Fan switching temperature(F)
Fan hysteresis(F)

The Arduino pin that the fan control signa
NOT necesarrily the same as the conne

Flex / Baro

Solder Selector on the back of the board.

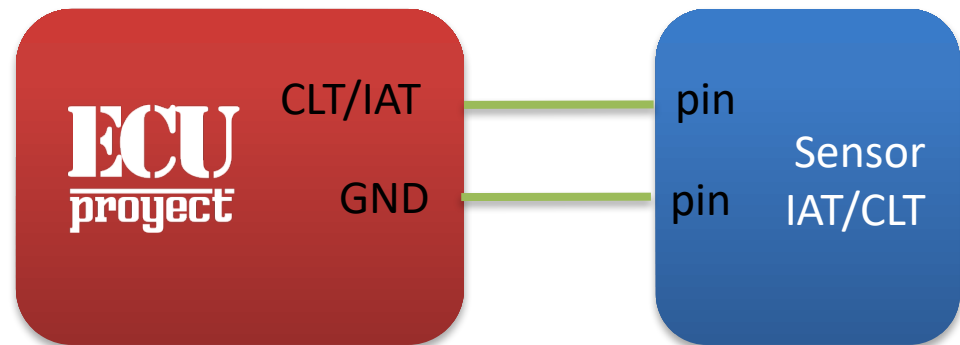Use this table to find out which pin each reassignable output has.

Spartan 2.0:

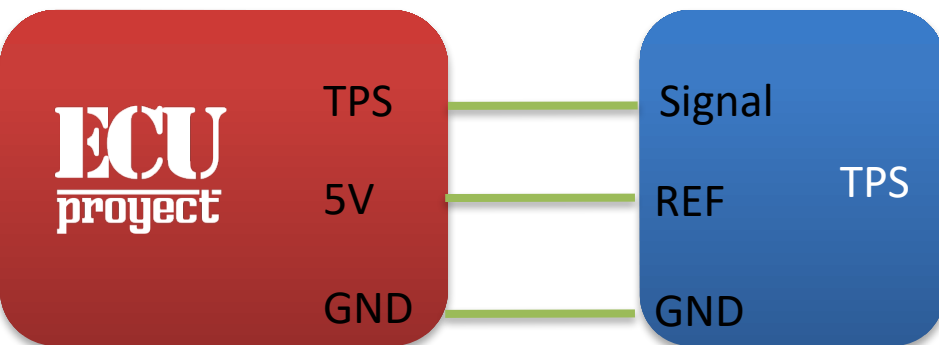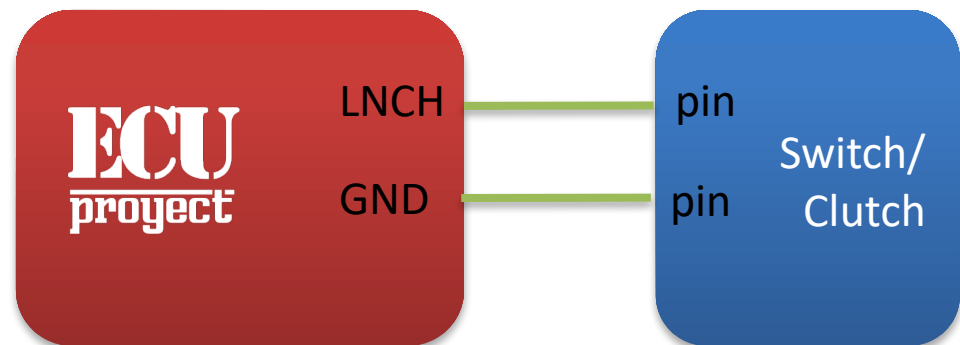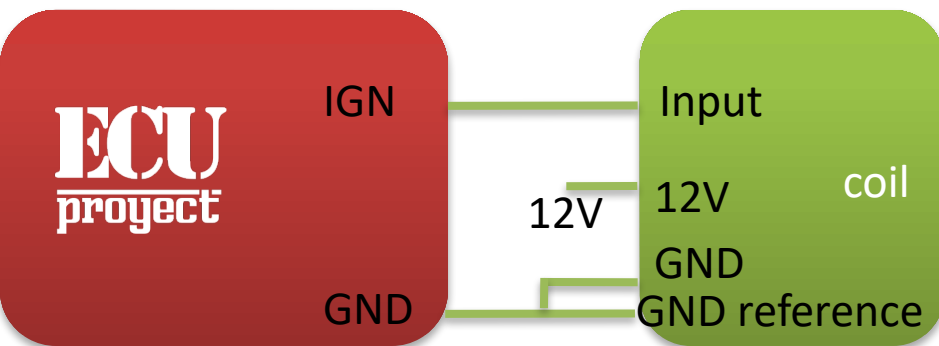| Inputs	Baro/Flex.- A9 (Analog) / 8 (Digital HS)
	O2.- A12 (Analog)
	Launch.- 3 (Digital)
Outputs	BST.- 36 (shared with injector by selector)
	VVT.- 33 (shared with injector by selector)

MAPconnection

ECU proyect — MAP, 5V, GND → Signal, 5V, GND — Sensor MAP

IAT or CLT connection

ECU proyect — CLT/IAT, GND → pin, pin — Sensor IAT/CLT

TPS connection

ECU proyect — TPS, 5V, GND → Signal, REF, GND — TPS

Launch Control Connection

ECU proyect — LNCH, GND → pin, pin — Switch/Clutch

Ignition Connection (Coil)

ECU proyect — IGN, GND → Input, 12V, GND, GND reference — coil — 12V

Injector connection

ECU proyect — INJ → pin, pin — Injector — 12V
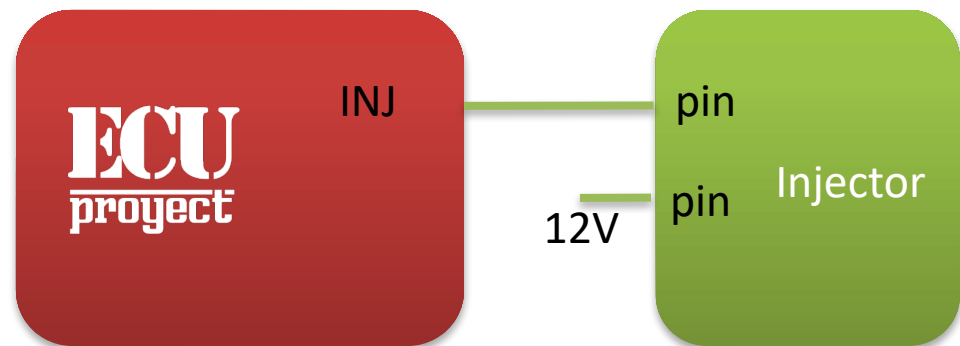
WIDEBAND connection (with gauge)

ECU proyect

O2 ——— 0-5V output

12V ——— 12V

GND ——— GND

Controller wide band ——— **Wideband Sensor**

Narrowband O2 sensor connection

ECU proyect

O2 ——— Signal

12V ——— 12V

GND ——— GND / GND reference

Sensor O2 Narrow

FP connection (with relay)

ECU proyect

FP ——— GND

12V ——— 12V

relay of Bomb

FlexFuel connection

ECU proyect

FLX ——— Signal

12V ——— 12V

GND ——— GND reference

Sensor FlexFuel

FAN connection (with relay)

ECU proyect

FAN ——— GND

12V ——— 12V
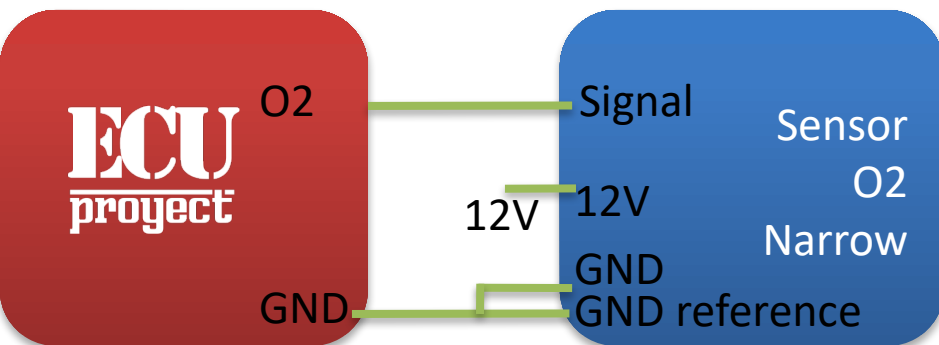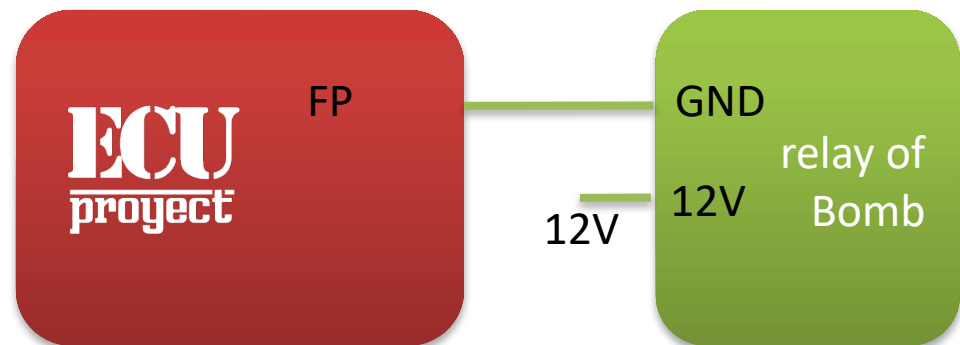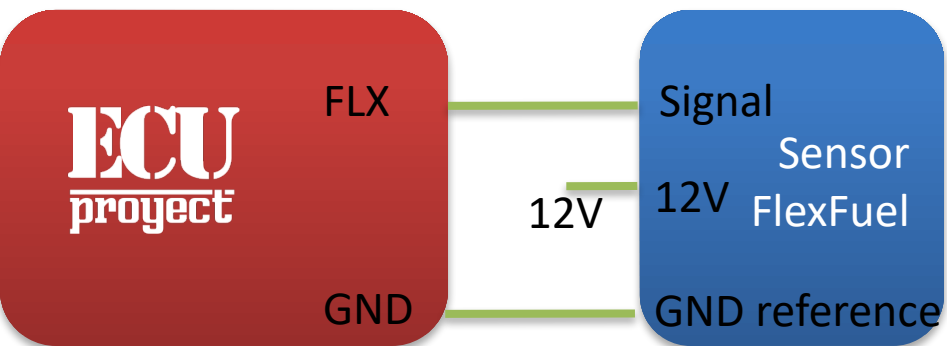
Fan relay
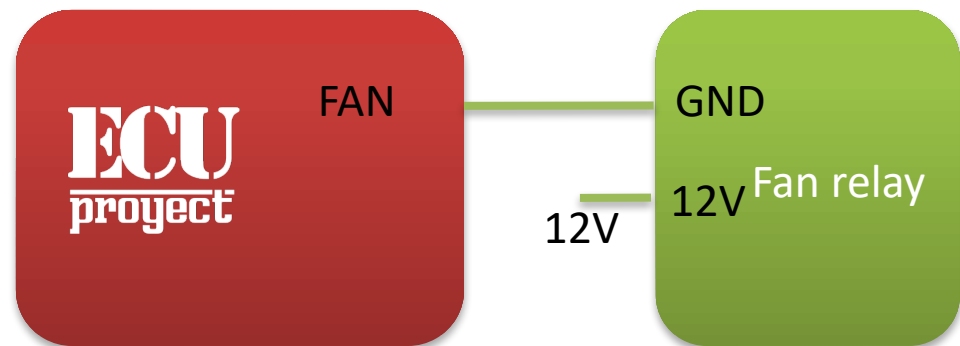
VR Type CKP Sensor Connection

ECU proyect
VR1+ ——— + pulse
VR1- ——— - Pulse
GND ——— Mesh(S)

VR sensor 3 wires

ECU proyect
VR1+ ——— + pulse
VR1- ——— - Pulse
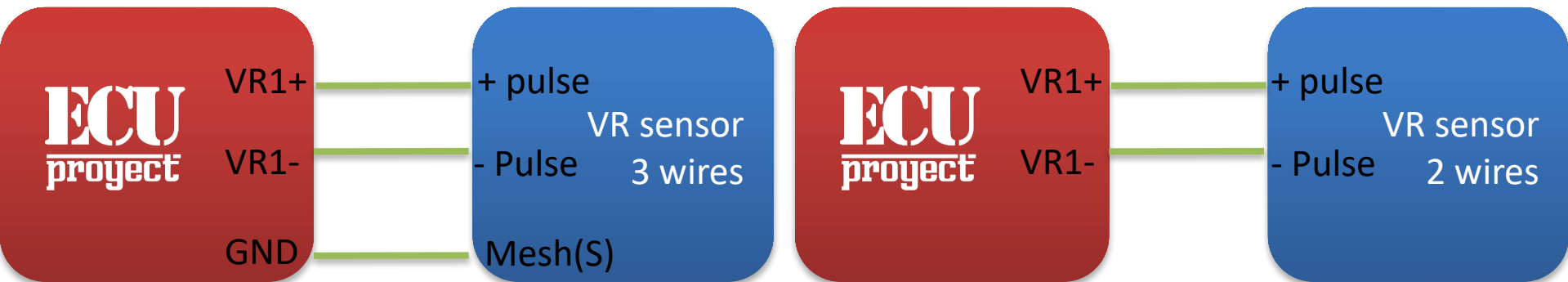
VR sensor 2 wires

Hall/Optical CKP Sensor Connection

ECU proyect
VR1+ ——— Signal
pull-ups
——— 12V/5V
GND ——— GND

Sensor Hall/Optical
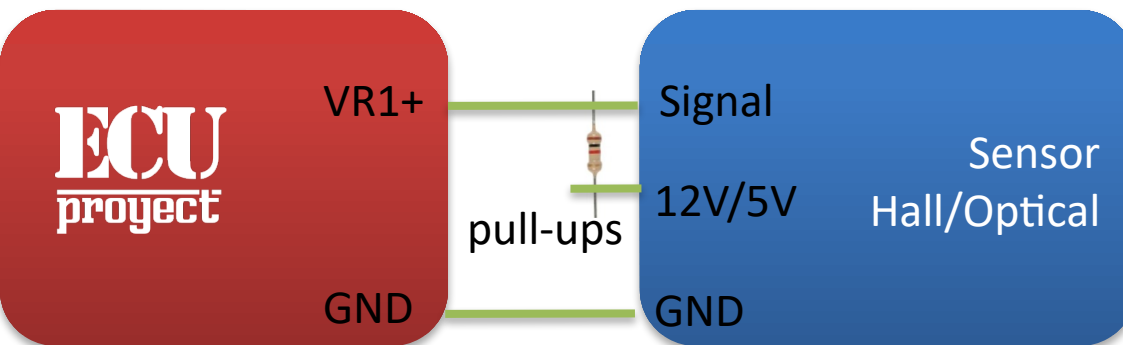
Pullup: Resistance from 1k to 10k. Not all Halls require Pullup (for example some of LS)

Tachometer Connection

ECU proyect
TACH ——— Input
12V ——— 12V
GND ——— GND reference

Tachometer

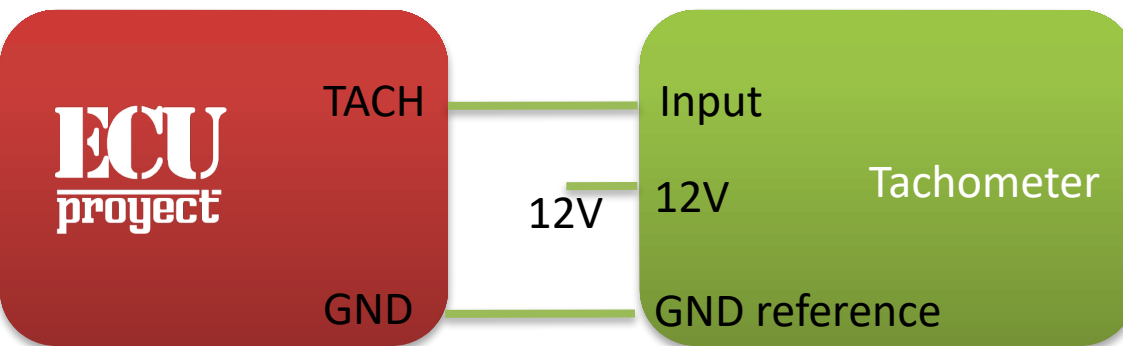There are 2-wire and 3-wire VR sensors, in the case of the 2-wire ones it is easy to connect them, but for the 3-wire one there is confusion because we have a cable that has no signal and can cause failures.

To find which is the pair of signals, a multimeter is used to measure ohms.

Take a pair of pins and place the multimeter, if the resistance is infinite, then we have that we are taking a signal pin and a mesh pin

We change pins until it gives us a resistance between 0.8k ohm to 1.5k ohm.

+ pulse

0.8-1.5k ohm

∞ ohm

- Pulse

∞ ohm

VR sensor 3 wires

Mesh(S)
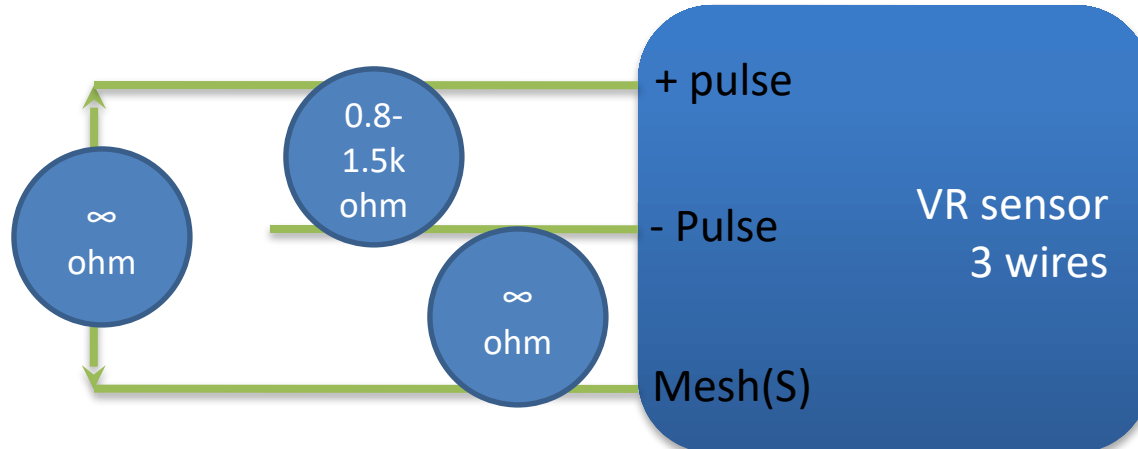
coil types

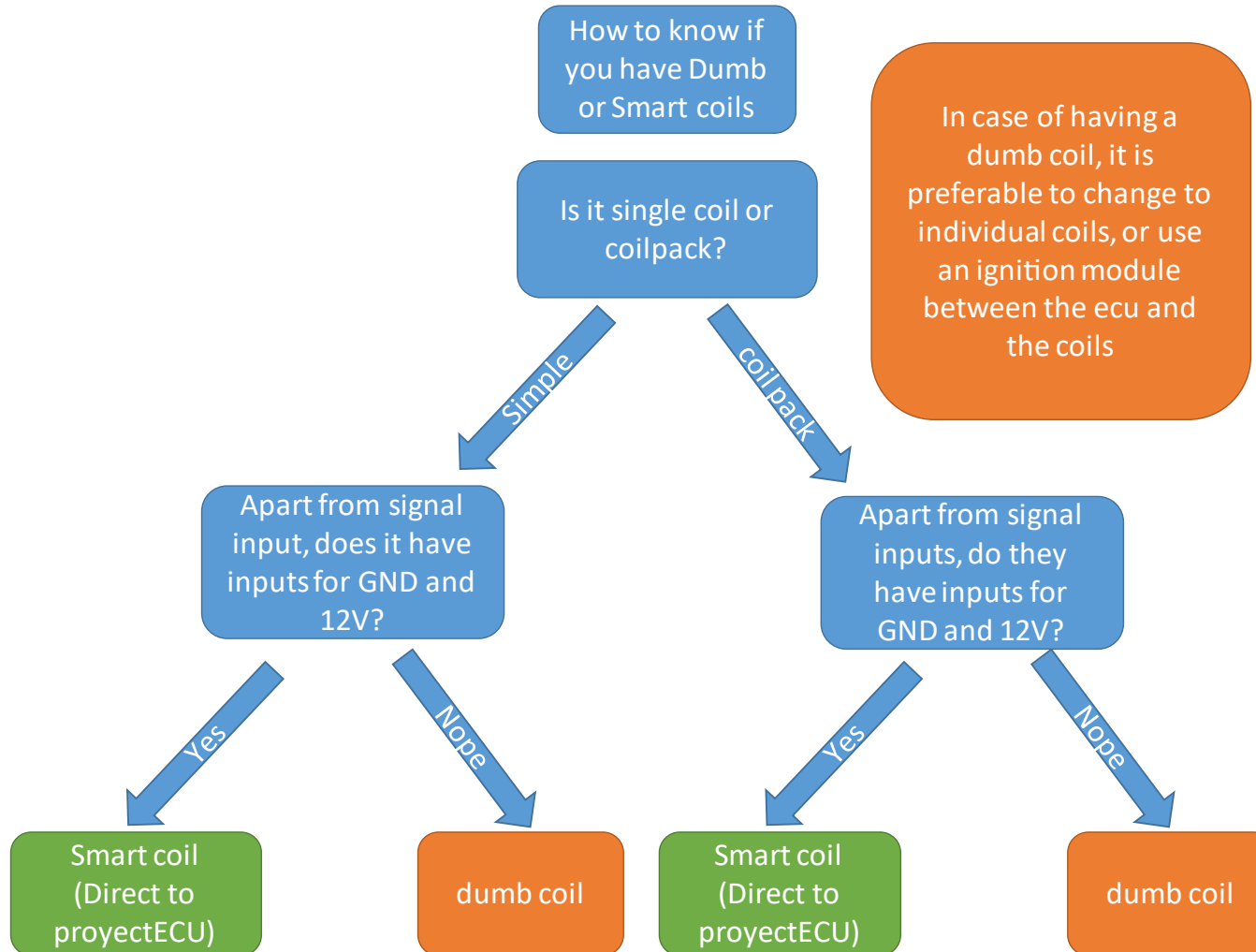There are 2 types of coils, this small guide can indicate what type of coils
we have.
In general it can be summed up that if the coil or coil pack has 12v and GND, it is a coil
Smart, if it only has 12v OR GND (only one of the two) then it's Dumb coil.

How to know if you have Dumb or Smart coils

Is it single coil or coilpack?

In case of having a dumb coil, it is preferable to change to individual coils, or use an ignition module between the ecu and the coils

Simple

coil pack

Apart from signal input, does it have inputs for GND and 12V?

Apart from signal inputs, do they have inputs for GND and 12V?

Yes

Nope

Yes

Nope

Smart coil (Direct to proyectECU)

dumb coil

Smart coil (Direct to proyectECU)

dumb coil

The ground connection is VERY important, a bad connection can cause loss of communication with the ECU, sensors with voltage variation, or even damage to the wiring.

Ground to Block

To Starter and Power Distribution

EFI ECU Grounds
Low current device grounds

ECU
proyect

EFI ECU
Datalogger ECU
12v Crank or Cam Pos Sensors
Low current (3 amp or less)

Ignition System
Fans
Fuel Pumps
Lights
Water Pumps
Use distribution/Relays
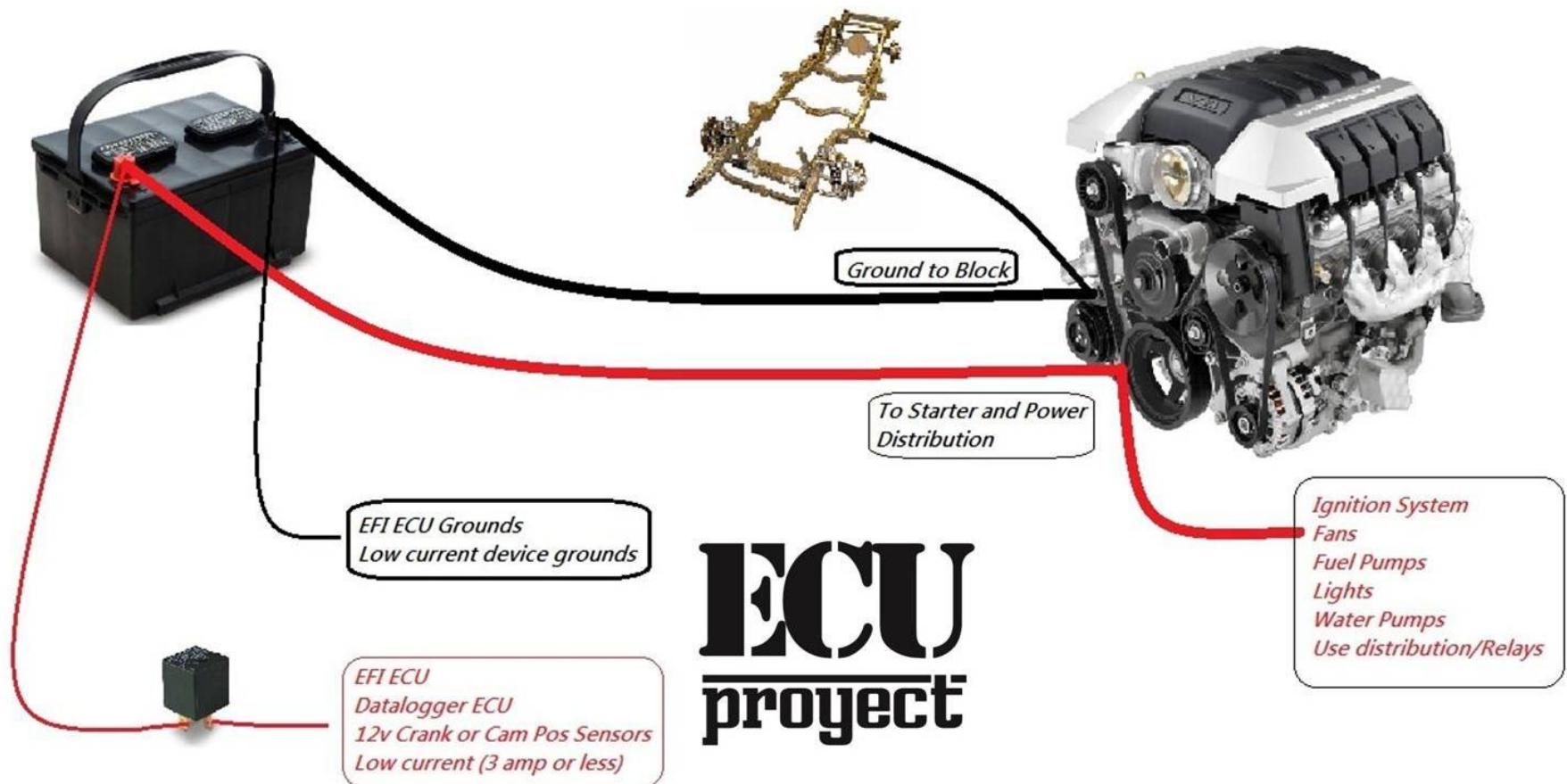
Wideband analog signal connection exists in 2 ways depending on your wideband kit, here we show 2 examples taking WB aem:
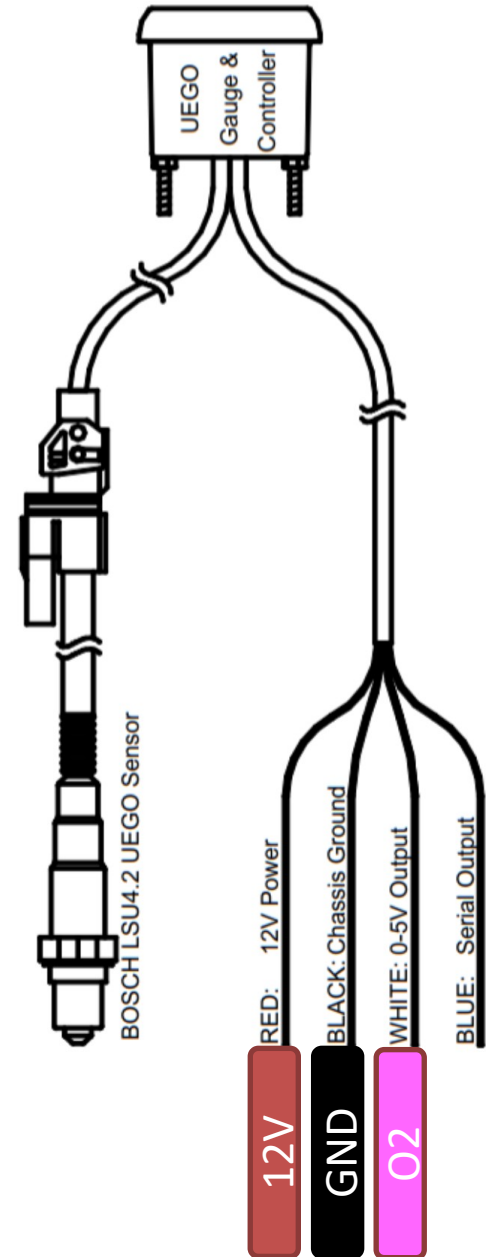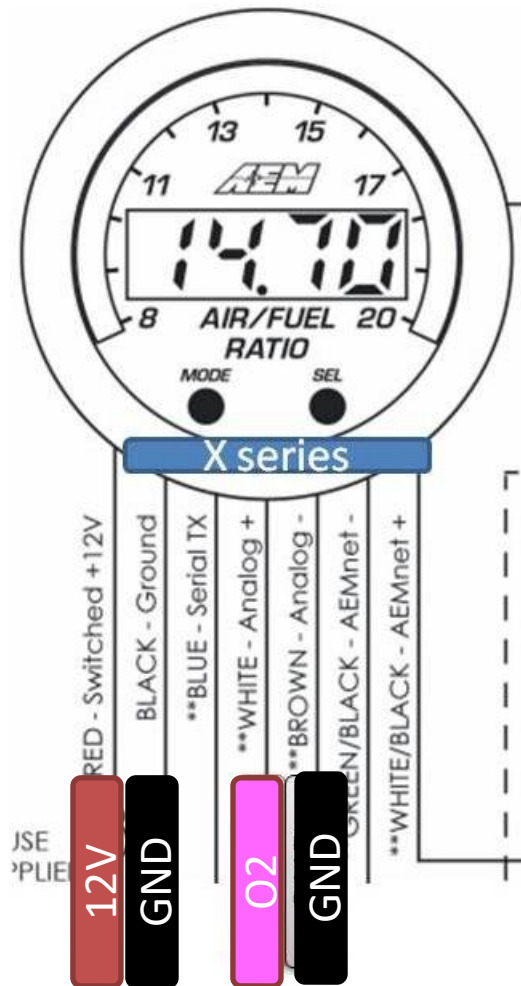
Bluetooth use (if available)

Power on the ECU

In the android device go to the bluetooth section, search and connect to the device "ProyectECU", the pin is: 1111

On the Android device go to the Play Store and search for "RealDash"

Install realdash APP

Once installed you have to open realdash and configure in your panel, Connections "ADD", Source "Speeduino", Type "Bluetooth", Bluetooth "ProyectECU", Settings "Serial 3" and DONE.

We can now enjoy data in Dash.

RealDash
Napiko   Autos y vehículos   ★★★★★ 2.993 ⬇
🄴 Todos

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Available Video Tutorial:
ProjectECU.com/downloads

Tutorial how to connect to ProyectECU Bluetooth from cell/tablet

ProjectECU → Program / USB →

ProjectECU → visualize data / Bluetooth →