26/Aug/2025

Use Board Layout: Non applicable
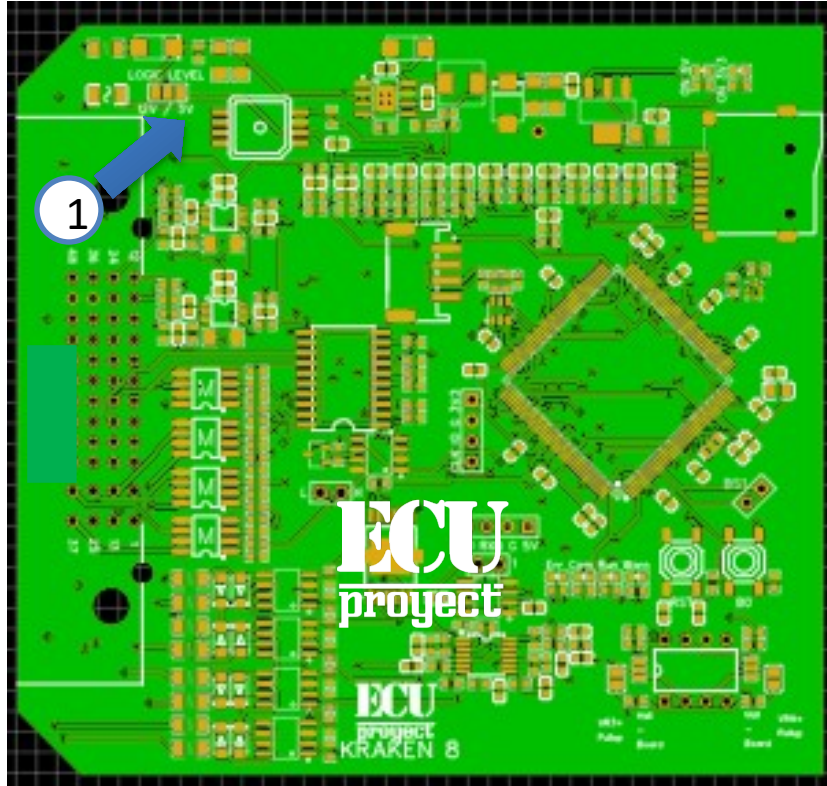
12V.- power supply for ECU (normally to switch)
GND.- ground, the ground is common for sensors, and other devices
5V.- 5V output for sensors (TPS, MAP)
INJ1, INJ2, INJ3, INJ4, INJ5, INJ6, INJ7, INJ8.- Injection banks 1 to 8
IGN1, ING2, IGN3, IGN4, IGN5, IGN6, IGN7, IGN8.- Ignition banks 1 to 8
FLX.- input for Flex Fuel sensor (ethanol content)
IAT.- air intake temperature sensor
CLT.- coolant temperature sensor
TB1,2.- Analog inputs for throttle body position sensor, it can be used for electronic TB functionality , it can be a spare analog inputs if desired
Pedal1,2.- Analog inputs to be used with electronic TB control, it can be a spare analog inputs if desired
LNCH.- input to activate launch control (IT IS ACTIVATED WITH GND OF THE SAME ECU)
O2.- input for oxygen sensor (wideband with controller or narrowband straight)
OIL- analog input for oil pressure sensor, it can be used as a secondary bank O2 wideband input, or as a spare analog input if desired
VSS.- configurable digital input (nitro, speed, etc), It can be used as a spare digital input if desired
Nitro.- configurable digital input (nitro, speed, etc), It can be used as a spare digital input if desired
VR1+.- crankshaft sensor input or CKP type OPTICAL or HALL (add pullup) also configurable as positive pulse VR
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
VR3, VR4.- It can be used as digital spare inputs, or adding a VR card it can be used as extra VR inputs
HIgh1,2,3,4.- High side (12v outputs) outputs to be used as spare outs, ex pump, fans, VVTs, etc
CANL, CANH.- output for CAN communications
Knock1,Knock2.- Knock sensor inputs for detection and protection with timing retard table
Knockaudioout1,2.- Knock analog audio out to be used with external amplifier and knock headphones, the signal is already filtered.
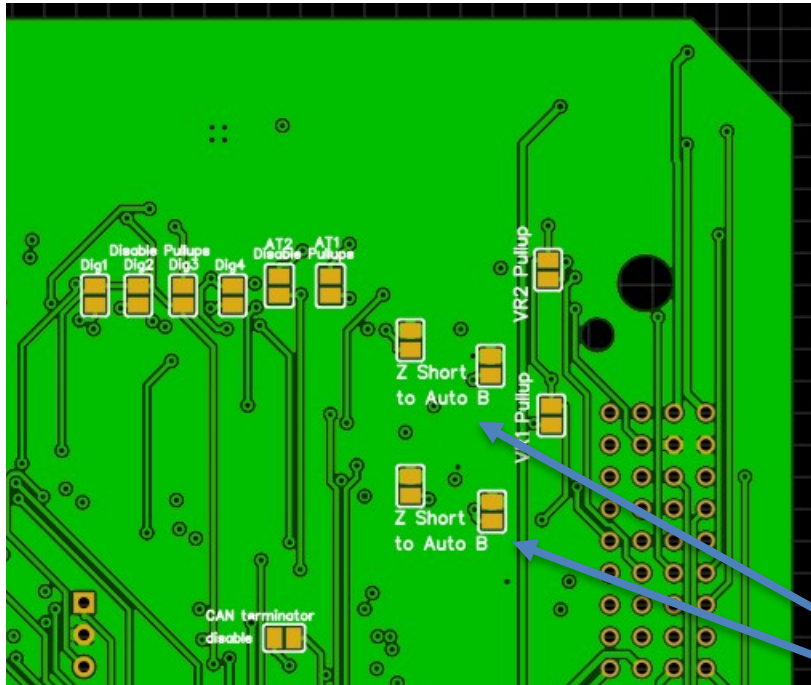

Jumpers (selectors)
1.- Selector to choose ignition logic level at 5V or 12V
The ECU comes in VR mode; to connect a hall sensor you just have to place a Pullup resistor!

INTEGRATED VR card

4 bar internal map

All the inputs and outputs are reassignable, including ignition, or injector outputs!! (Knock are fixed)

Backside of the PCB has several jumper solder options:

Disable pullups for Digital Input 1 .- Launch input on pinout
Disable pullups for Digital Input 2 .- Flex input on pinout
Disable pullups for Digital Input 3 .- VSS input on pinout
Disable pullups for Digital Input 4 .- Nitro input on pinout

Disable temperature bias resistor for AT1 .- CLT temp input on pinout
Disable temperature bias resistor for AT2 .- IAT temp input on pinout

CAN resistor terminator resistor disable .- Internal Can 120 ohm terminator

All these comes soldered from factory, and user must desolder to disable.

Also solder options available:
- VR1+ 1K pullup
- VR2+ 1K pullup
- Z short to Max VR chip Auto Bias for VR2 on top
- Z short to Max VR chip Auto Bias for VR1 on bottom
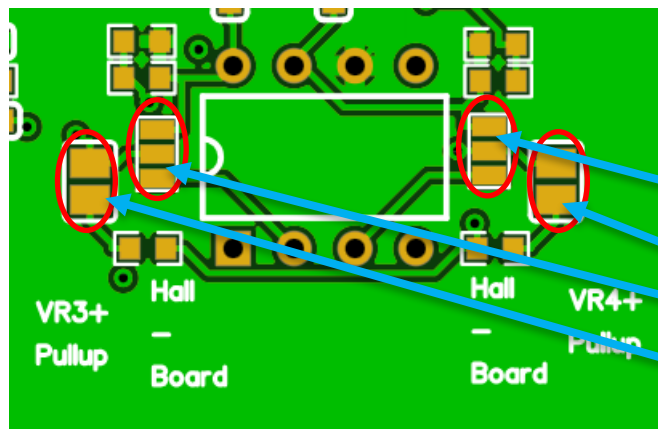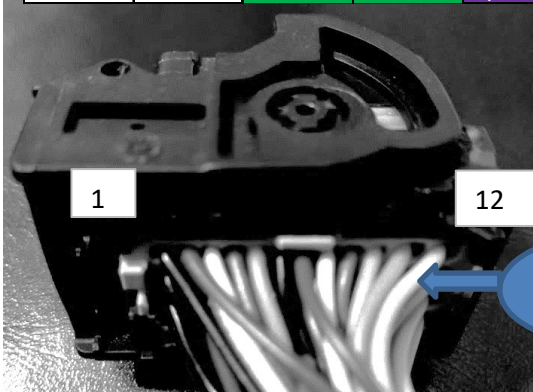
Front of the PCB has several jumper solder options:

Selector for VR4+ digital input direct to Digital 6 (HALL2) input or Trough optional VR board
- VR4+ 1k resistor pullup selector
- Selector for VR3+ digital input direct to Digital 5 (HALL1) input or Trough optional VR board
- VR4+ 1k resistor pullup selector

Kraken8 QUICK GUIDE

Connect the harness to the ECU, and place the ECU and harness with the wires facing you.

KRAKEN 8

VR1-	VR1+	LAUNCH	NITRO	OIL	IAT	HIGH1	HIGH2	IGN2	IGN1	INJ2	INJ1
VR2+	VR2-	FLEX	VSS	O2	CLT	HIGH3	HIGH4	IGN4	IGN3	INJ4	INJ3
12V	GND	VR3-	VR3+	KNOCK1 input	TB1	PEDAL1	MOTOR+	IGN6	IGN5	INJ6	INJ5
5V	GND	VR4-	VR4+	KNOCK2 input	TB2	PEDAL2	MOTOR-	IGN8	IGN7	INJ8	INJ7

4 pin connector

CAN H	KNOCK1 Audio Out
CAN L	KNOCK2 Audio Out

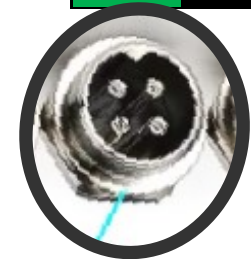### WIRE COLORS

1   12

Thicker wires for Injectors

Wire colors are random

ECU proyect

www.facebook.com/ProyectECU/

WARNING
Do not flash MegaSquirt tunes or files to this ECU. This ECU is NOT a MegaSquirt, nor is it a MegaSquirt clone. Flashing an incompatible tune will cause the ECU to not synchronize timing, causing errors.
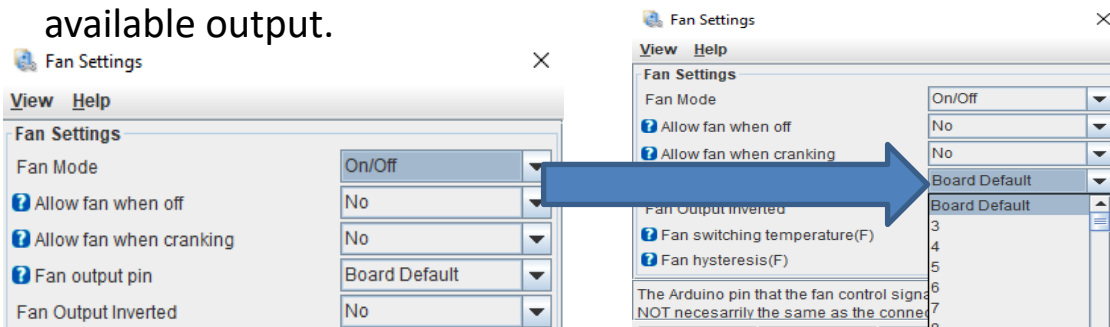
RECOMMENDATION:
Follow the Tutorial1 and the virtual drive files to connect to the ECU and do the Hardware test!
Do this before you install the ECU!

How to assign extra inputs or outputs?

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

Analog Input		🟩		Lowside1	INJ1		IGN1	IGN1		AnalogVoltage1	TPS1
Digital Input		🟩		Lowside2	INJ2		IGN2	IGN2		AnalogVoltage2	TPS2
Output 12V (3.6amp)		🟨		Lowside3	INJ3		IGN3	IGN3		AnalogVoltage3	PEDAL1
Output 5V		🟦		Lowside4	INJ4		IGN4	IGN4		AnalogVoltage4	PEDAL2
Output GND (6.7amp)		🟧		Lowside5	INJ5		IGN5	IGN5		AnalogVoltage5	O2
Analog input Especial		🟪		Lowside6	INJ6		IGN6	IGN6		AnalogVoltage6	FUEL
				Lowside7	INJ7		IGN7	IGN7		AnalogVoltage7	XXX
				Lowside8	INJ8		IGN8	IGN8		AnalogVoltage8	XXX
Highside1	HIGH1									AnalogVoltage9	XXX
Highside2	HIGH2						DIG1	LAUNCH		AnalogVoltage10	XXX
Highside3	HIGH3						DIG2	FLEX		AnalogVoltage11	MAP
Highside4	HIGH4						DIG3	VSS		AnalogVoltage12	12V
							DIG4	NITRO		AnalogTemp1	CLT
CANH	PD0						DIG5	HALL1		AnalogTemp2	IAT
CANL	PD1						DIG6	HALL2		AnalogTemp3	XXX
							Knock1	Knock1		AnalogTemp4	XXX
VR1 table	PE7						Knock2	Knock2			
VR2 table	PE8										
VR1 IN	VR1					MOTOR+	ETB1_DIS	PD11			
VR2 IN	VR2					MOTOR-	ETB1_DIF	PD10			
							ETB1_PW	PD12			

Digital inputs?

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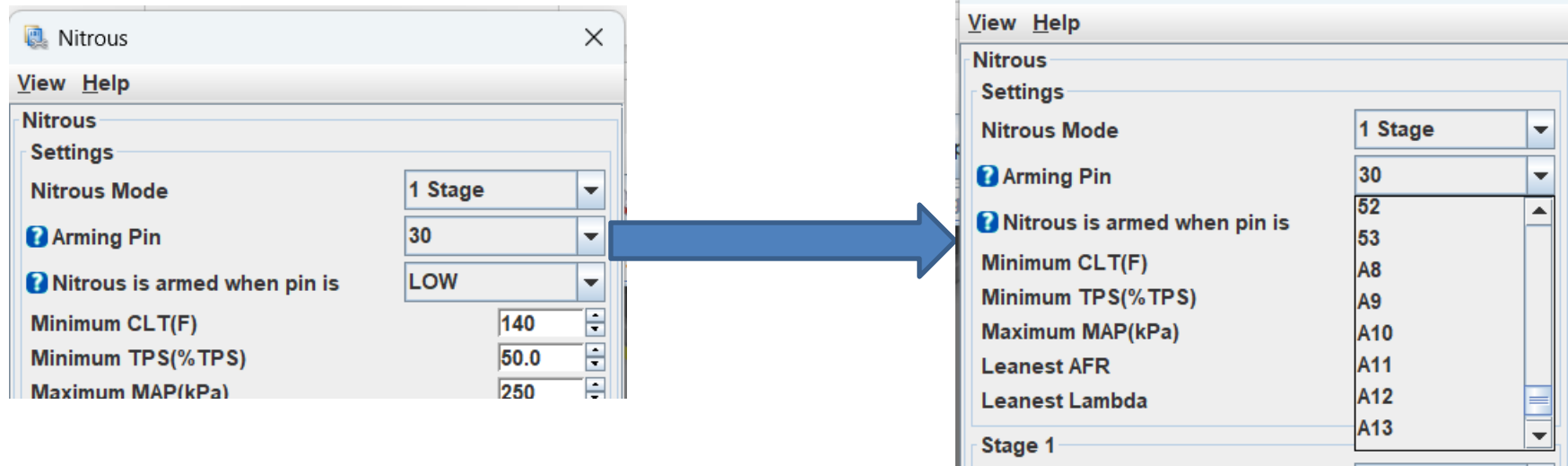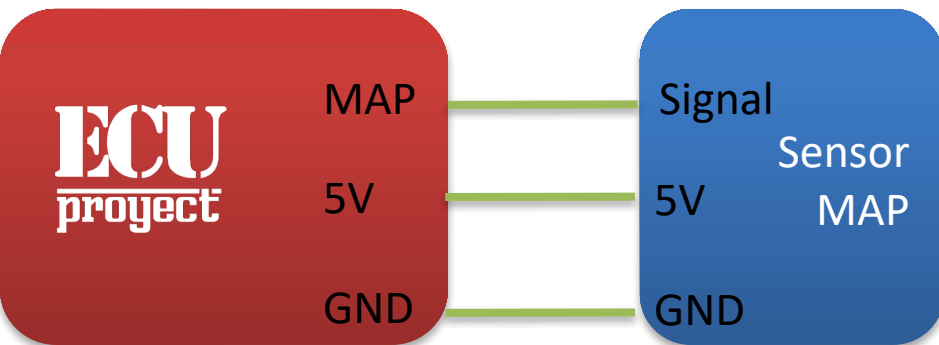

The digital inputs have pullup resistor (can be disabled). So if you want to use GND activation, you must just select inverted default so the activation comes from a low signal and high signal is not activated.

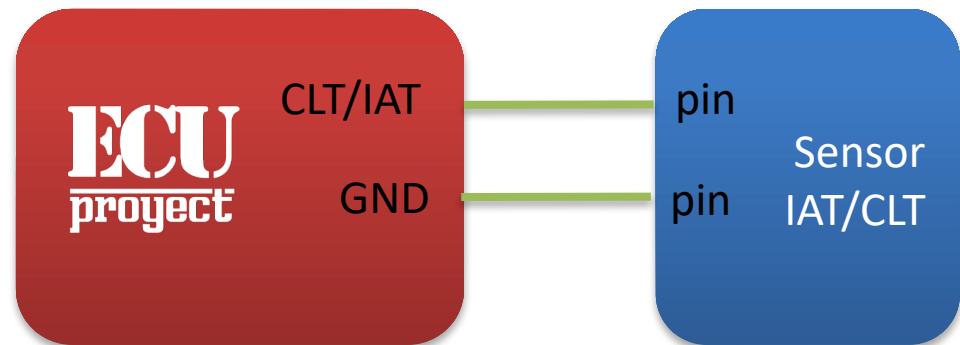Configuration of digital input activation with GND

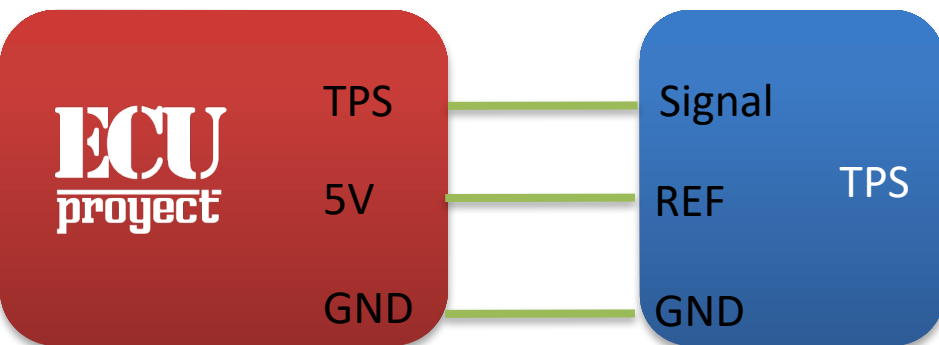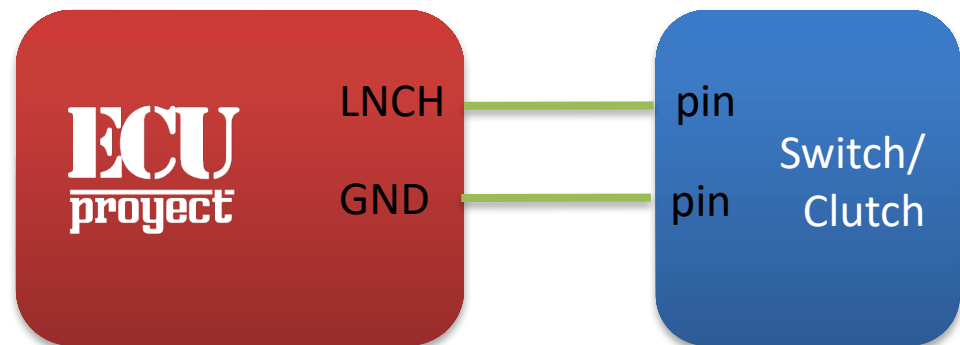Configuration of digital input activation with 5V or 12V

MAPconnection

ECU proyect

MAP — Signal

5V — 5V — Sensor MAP

GND — GND

IAT or CLT connection

ECU proyect

CLT/IAT — pin

GND — pin — Sensor IAT/CLT

TPS connection

ECU proyect

TPS — Signal

5V — REF — TPS

GND — GND

Launch Control Connection

ECU proyect

LNCH — pin

GND — pin — Switch/Clutch

Ignition Connection (Coil)

ECU proyect

IGN — Input

12V — 12V — coil

GND — GND

GND reference

Injector connection

ECU proyect

INJ — pin

12V — pin — Injector
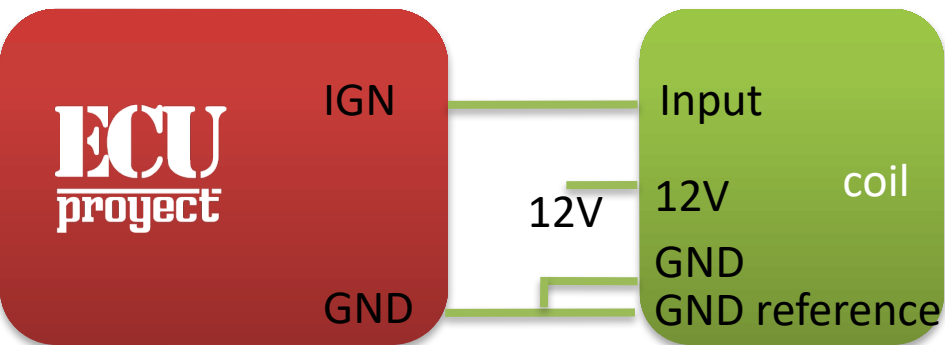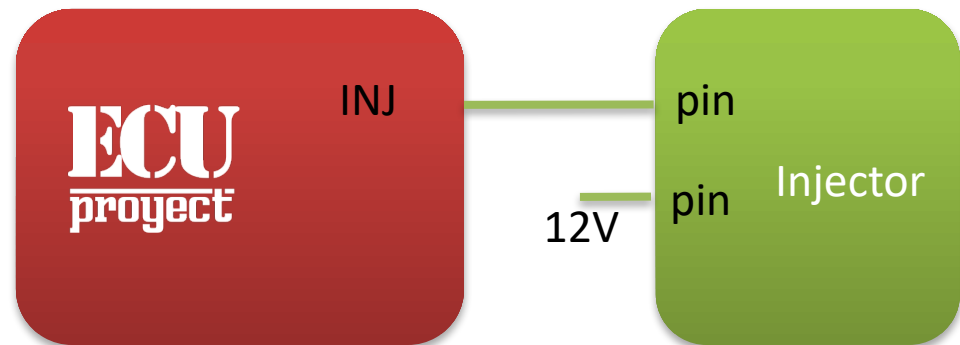
WIDEBAND connection (with gauge)

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

Pullup 2.49k

FLX —— Signal

12V —— 12V

5V

GND —— GND reference

Sensor FlexFuel

FAN connection (with relay)

ECU proyect

FAN —— GND

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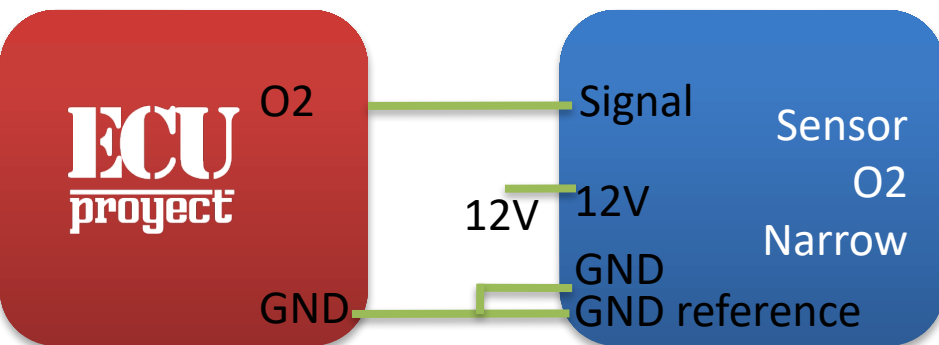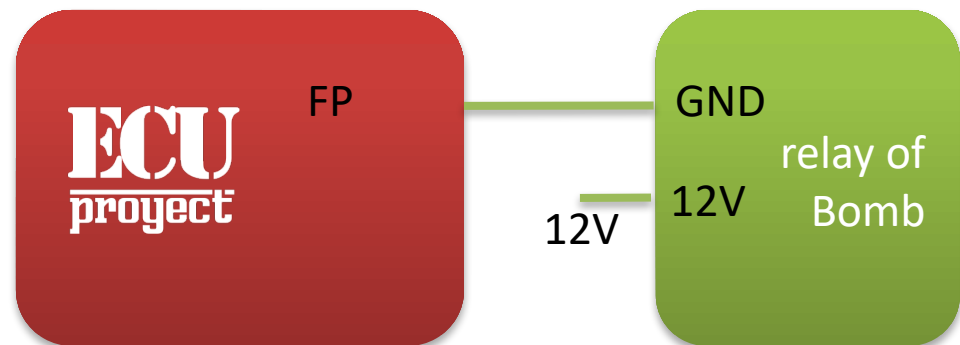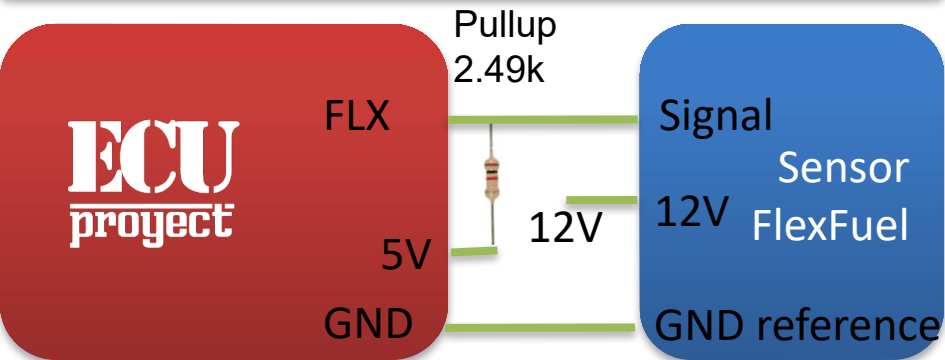
Fan relay
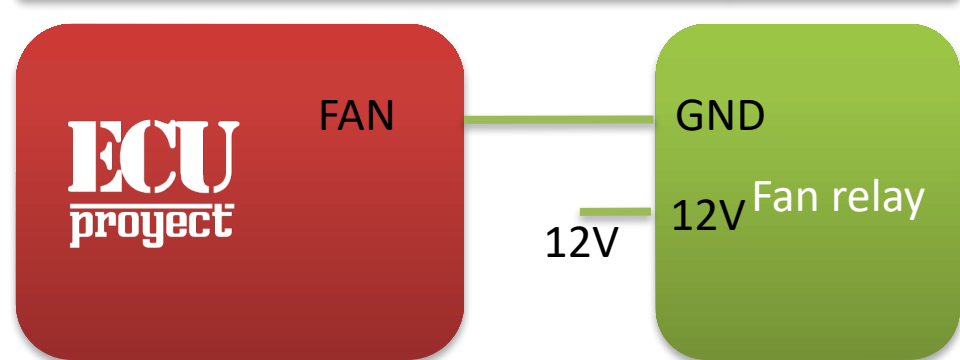
VR Type CKP Sensor Connection

ECU proyect

VR1+ ———— + pulse
VR1- ———— - Pulse   **VR sensor 3 wires**
GND ———— Mesh(S)

ECU proyect

VR1+ ———— + pulse
VR1- ———— - Pulse   **VR sensor 2 wires**
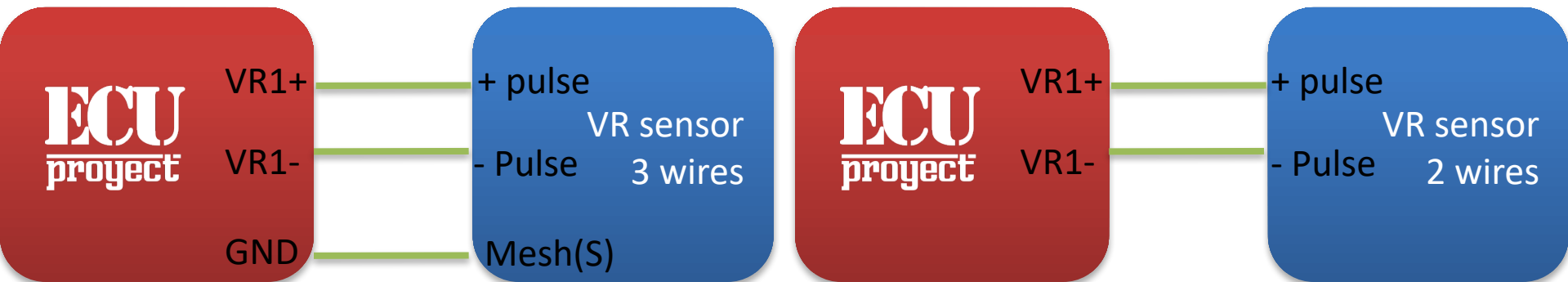
Hall/Optical CKP Sensor Connection

ECU proyect

VR1+ ———— Signal
        12V/5V   **Sensor Hall/Optical**
pull-ups
GND ———— GND
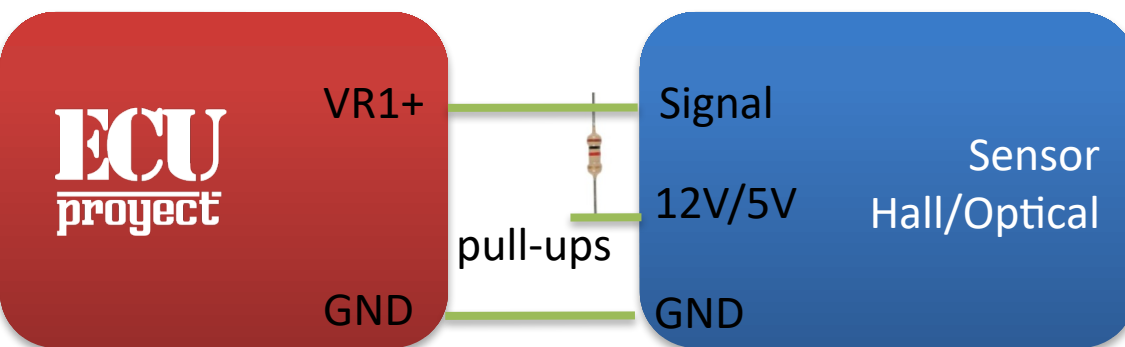
Pullup: Resistance from 1k to 10k. Not all Halls require Pullup (for example some of LS)

Tachometer Connection

ECU proyect

TACH ———— Input
        12V   **Tachometer**
12V
GND ———— GND reference

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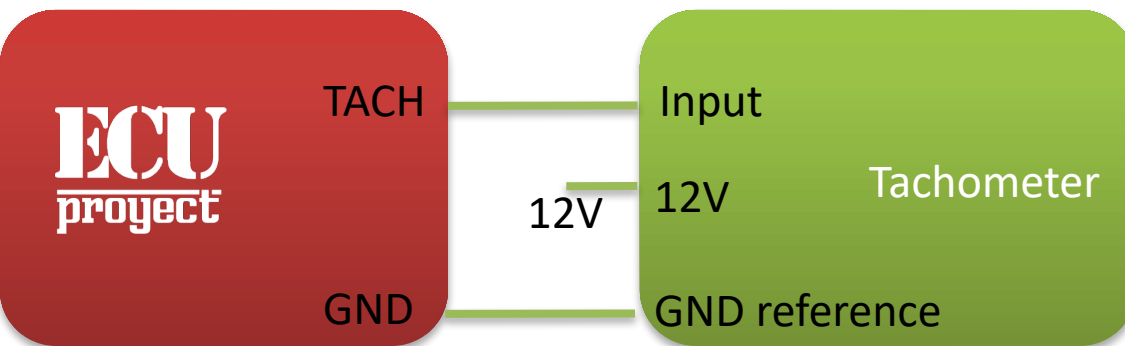
To find which is the pair of signals, a multimeter is used to measure ohms.

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.
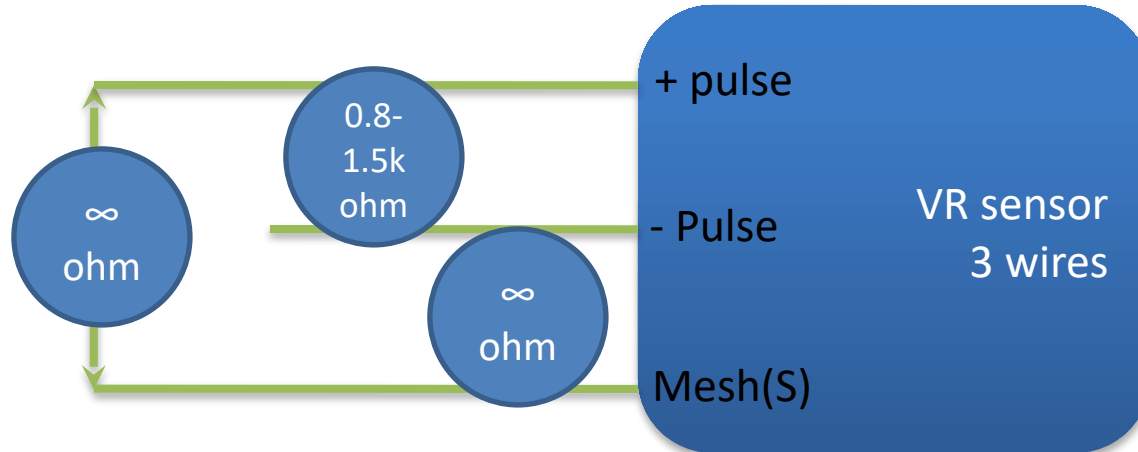
There are 2 types of coils, this small guide can indicate what type of coils we have.

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

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

ECU proyect

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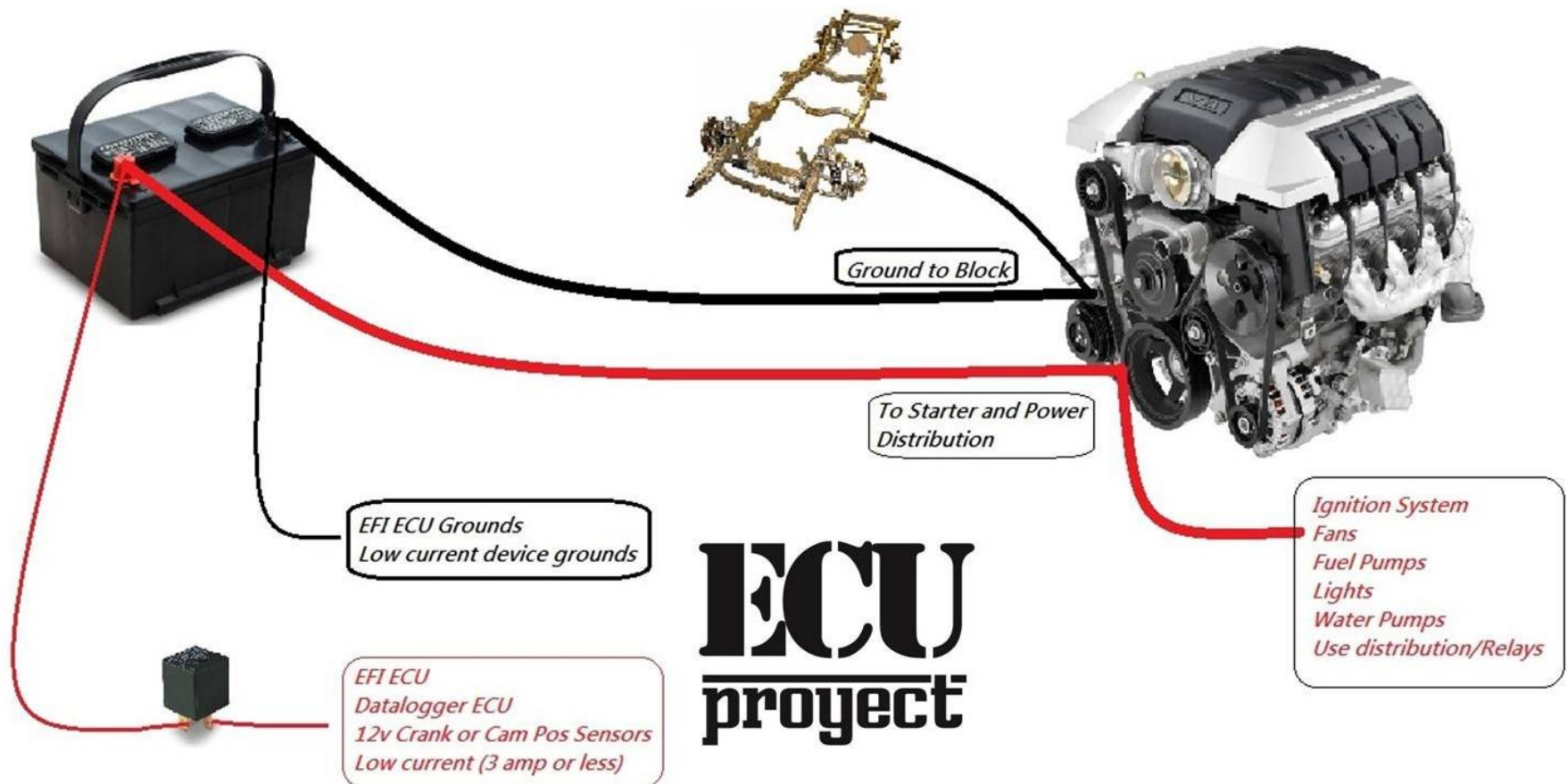
Wideband analog signal connection exists in 2
ways depending on your wideband kit, here
we show 2 examples taking WB aem:
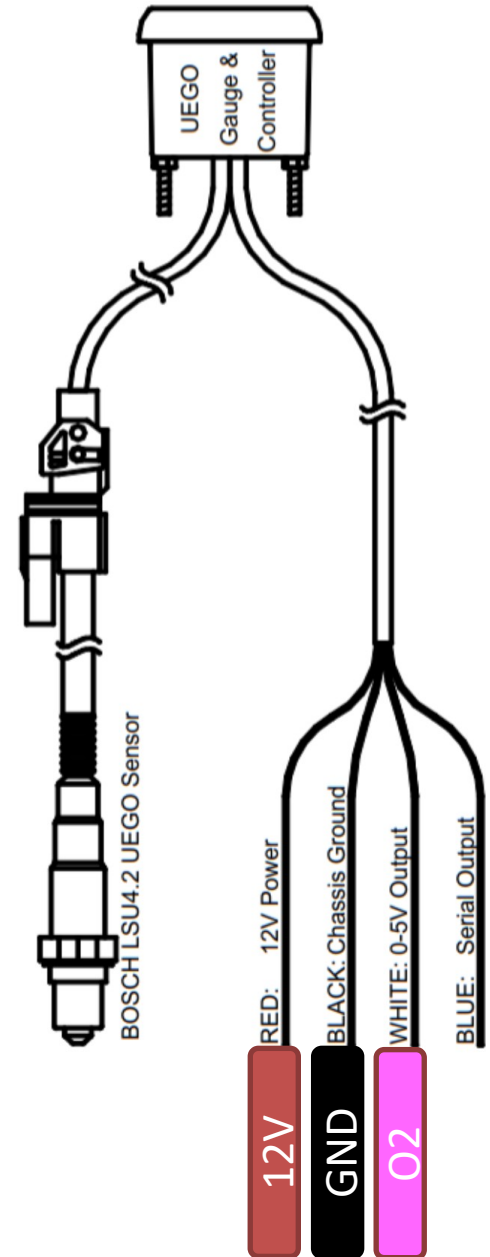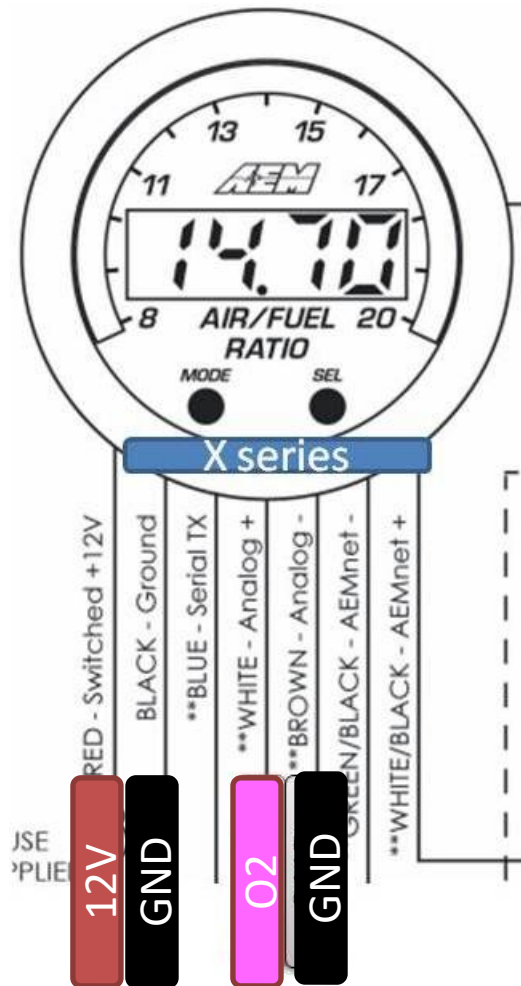
Pinout Sheet

KRAKEN 8

VR1-	VR1+	LAUNCH	NITRO	OIL	IAT	HIGH1	HIGH2	IGN2	IGN1	INJ2	INJ1
VR2+	VR2-	FLEX	VSS	O2	CLT	HIGH3	HIGH4	IGN4	IGN3	INJ4	INJ3
12V	GND	VR3-	VR3+	KNOCK1 input	TB1	PEDAL1	MOTOR+	IGN6	IGN5	INJ6	INJ5
5V	GND	VR4-	VR4+	KNOCK2 input	TB2	PEDAL2	MOTOR-	IGN8	IGN7	INJ8	INJ7

4 pin connector

CAN H	KNOCK1 Audio Out
CAN L	KNOCK2 Audio Out

WIRE COLORS

(yellow / red)
(green / black)

Legend								
Analog Input		Lowside1	INJ1	IGN1	IGN1	AnalogVoltage1	TPS1	
Digital Input		Lowside2	INJ2	IGN2	IGN2	AnalogVoltage2	TPS2	
Output 12V (3.6amp)		Lowside3	INJ3	IGN3	IGN3	AnalogVoltage3	PEDAL1	
Output 5V		Lowside4	INJ4	IGN4	IGN4	AnalogVoltage4	PEDAL2	
Output GND (6.7amp)		Lowside5	INJ5	IGN5	IGN5	AnalogVoltage5	O2	
Analog input Especial		Lowside6	INJ6	IGN6	IGN6	AnalogVoltage6	FUEL	
		Lowside7	INJ7	IGN7	IGN7	AnalogVoltage7	XXX	
		Lowside8	INJ8	IGN8	IGN8	AnalogVoltage8	XXX	
						AnalogVoltage9	XXX	
Highside1	HIGH1					AnalogVoltage10	XXX	
Highside2	HIGH2			DIG1	LAUNCH	AnalogVoltage11	MAP	
Highside3	HIGH3			DIG2	FLEX	AnalogVoltage12	12V	
Highside4	HIGH4			DIG3	VSS	AnalogTemp1	CLT	
				DIG4	NITRO	AnalogTemp2	IAT	
CANH	PD0			DIG5	HALL1	AnalogTemp3	XXX	
CANL	PD1			DIG6	HALL2	AnalogTemp4	XXX	
				Knock1	Knock1			
VR1 table		PE7		Knock2	Knock2			
VR2 table		PE8						
VR1 IN		VR1		MOTOR+	ETB1_DIS	PD11		
VR2 IN		VR2		MOTOR-	ETB1_DIR	PD10		
					ETB1_PW	PD12		