Venus3 Signal Converter

This product will generate crank and cam signal patterns for different engines. This is used mostly in conversions where another engine type is fitted in a car, and the original ECU requires the crank and cam sensors to keep the body computer or dash board alive, so that other functions are still operating. This is all done by electronics and there is no need to fit trigger wheels on the crank and cam plates. This product can be used with any management system.

The signal converter uses the Venus3 hardware with reduced components. The firmware can also be loaded in a Venus3 ECU in Basic class or higher. Note that the reduced board will also be basic class although it will be priced lower due to reduced components. It can work with any combination RPM signal and generate a signal pattern for specific engine signals. Example, if you connect a 36-1 Ford signal to the signal converter it can generate a Jeep 6Cyl crank and cam signal pattern for their original ECU. This will then make the Tacho gauge working correctly.

The signal converter can except a magnetic or hall signal as an input. It will generate 2 open collector signals for the crank and cam signal. Should you require a square wave signal you may add a 1K pullup resistor to the output. I you require a magnetic output signal you may require a Capacitor and 2x1K pullup resistors per output. See the drawings for the modifications further below.
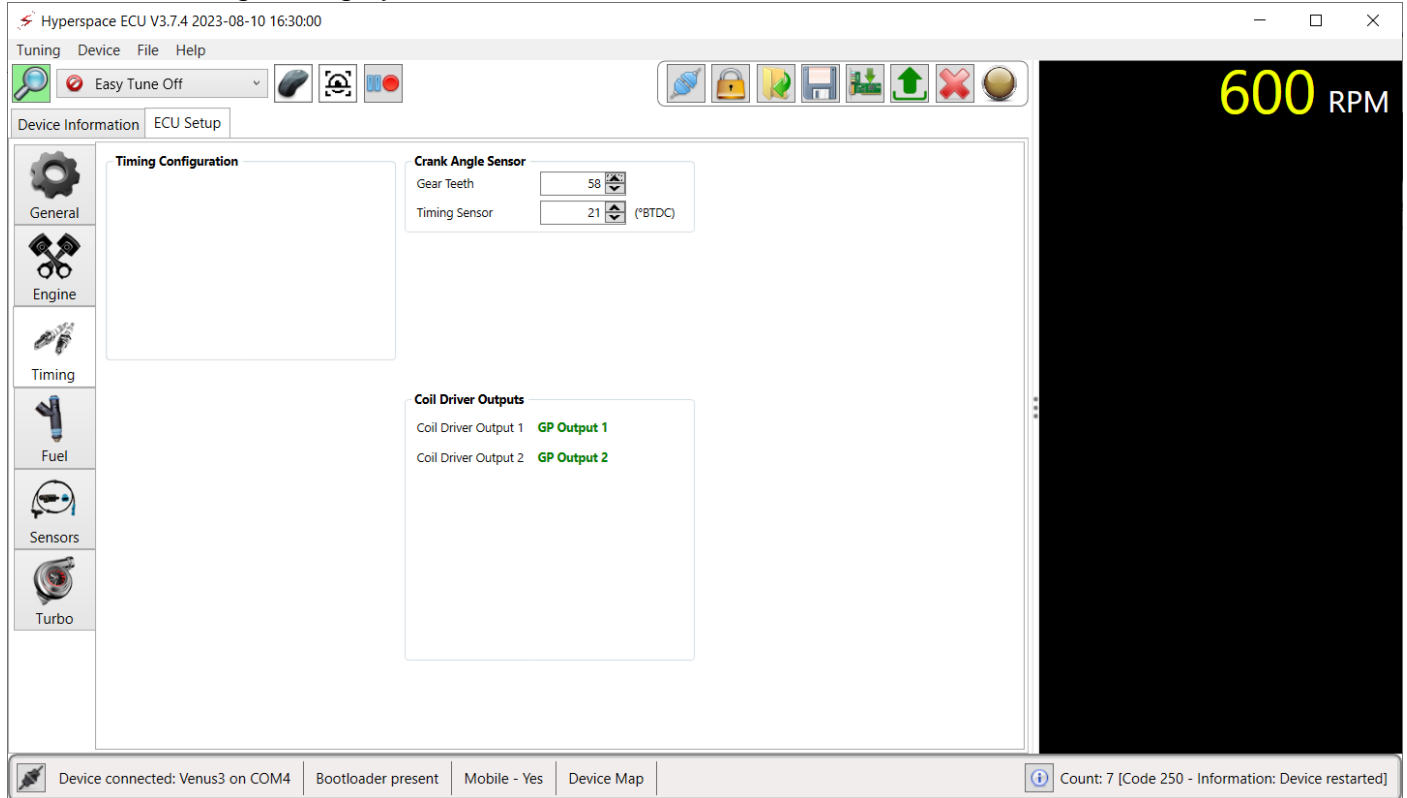
Setting up of the Venus3 Signal Converter

The setup part of the signal converter uses the Hyperspace ECU 3.7 Software.

Under the Sensors Tab you will see The Crank signal active. This is the only input to the Signal Converter. It can be edge selected in case the firmware requires it.

☑ Crank (TDC) [Falling]
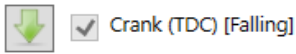
Under the Timing settings you will see this screen.

The only settings required are:

Gear Teeth is the number of pulses per engine revolution. In this example is a 60-2 teeth gear. This means there are 58 pulses per revolution.

Timing Sensor is the program that is required. In this example program 21 is selected which is for the Nissan 350Z signals. See a list of completed signals below.

Program List

This list is popular signals that was requested before. Contact us if your pattern is not in the system. We may require scope signals on difficult types.

| Program No	Description
9	36-1 Crank
12	36-1 Crank
19	18-6 Crank + Cam Jeep
21	36-6 Crank + Cam Nissan 350Z
23	60-4
31	24+TDC
45	36-6 Subaru
50	20-4+1 Pajero PI-D Diesel

Signal Outputs

Coil Driver Outputs

Coil Driver Output 1   **GP Output 1**

Coil Driver Output 2   **GP Output 2**

GP Output 1 is the crank signal pattern and GP Output 2 is the cam signal pattern. Below are different connection options if you do not get the OEM ECU to respond. Do this for both outputs of the Venus3. Option will convert the open collector signal to square wave. Option2 will convert the square wave to magnetic or reductor signal. Option3 will convert the magnetic signal level to the required level of the OEM ECU.
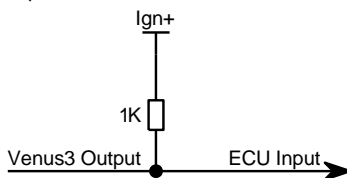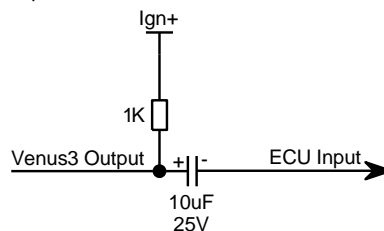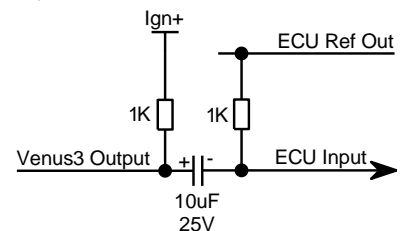

This is the RPM reading according to your pulse setting. Your dash should show the same RPM when it is connected.
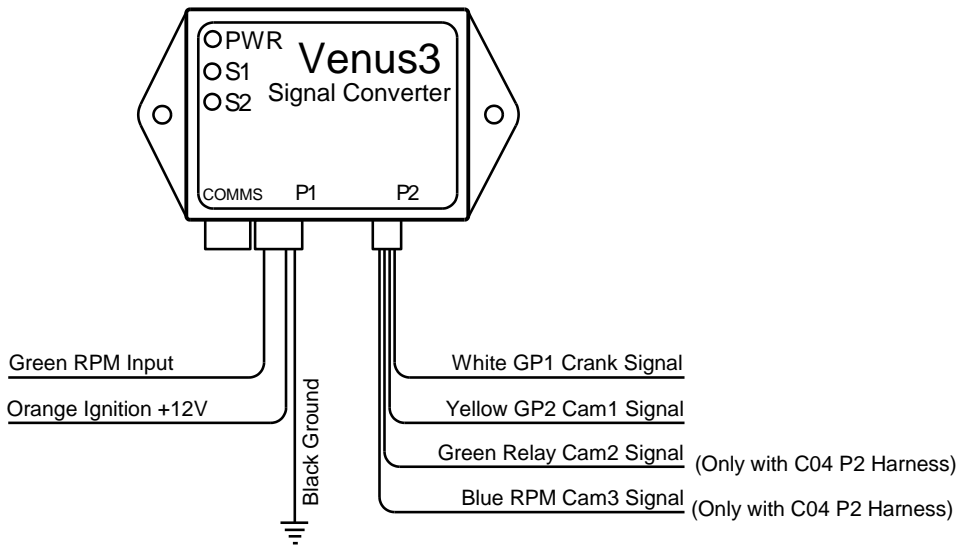
Wiring

Connecting to an ECU setup

This option is using minimum wires. On Spitronics ECU's there is already a green output RPM signal wire that can connect to the Green RPM Input wire. You can tap into the orange Ignition wire.

Connect to ECU signal

Harness Required C01 P1, C02 P2 or C04 P2

PWR
S1
S2

Venus3
Signal Converter

COMMS   P1   P2

Green RPM Input

Orange Ignition +12V

Black Ground

White GP1 Crank Signal

Yellow GP2 Cam1 Signal

Green Relay Cam2 Signal   (Only with C04 P2 Harness)

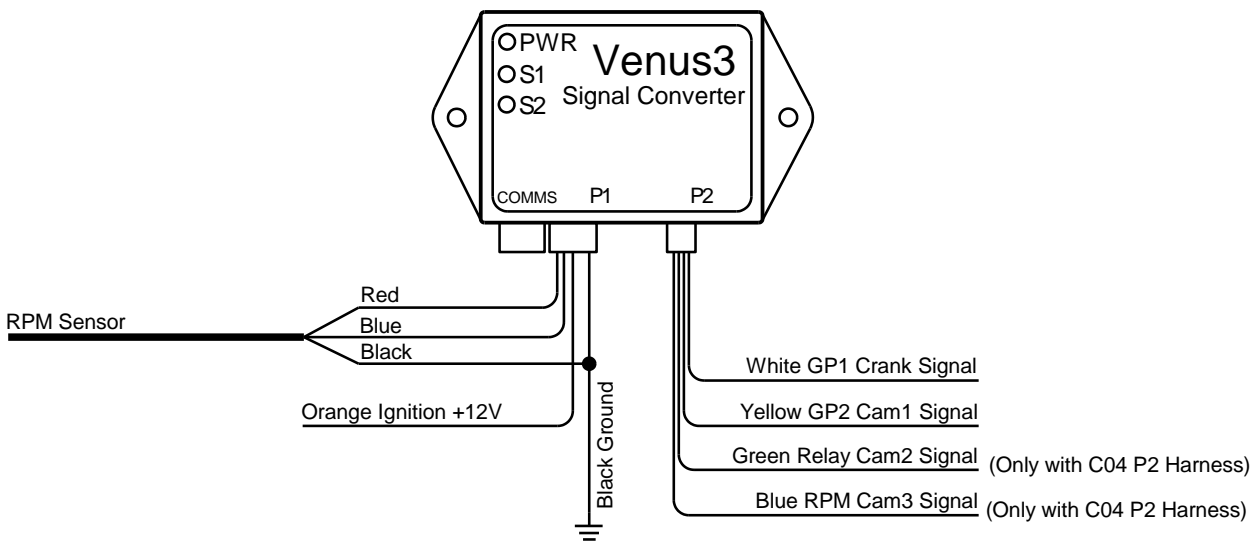Blue RPM Cam3 Signal   (Only with C04 P2 Harness)

Connecting to an RPM sensor

This option is normally used where diesels and carburettor engines are used. It includes a screened wire into the engine bay that will supply power and ground to the sensor. Note that wiring differs between hall and magnetic sensors. Also ensure that the jumper settings are on the right positions.

Connect to RPM Sensor

Harness Required C03 P1, C02 P2 or C04 P2

PWR
S1
S2

Venus3
Signal Converter

COMMS   P1   P2

RPM Sensor

Red

Blue

Black

Orange Ignition +12V

Black Ground

White GP1 Crank Signal

Yellow GP2 Cam1 Signal

Green Relay Cam2 Signal   (Only with C04 P2 Harness)

Blue RPM Cam3 Signal   (Only with C04 P2 Harness)

RPM Sensor Connection

Magnetic Crank Sensor

Crank — Blue — Crank Sensor +
Red — Crank Sensor -
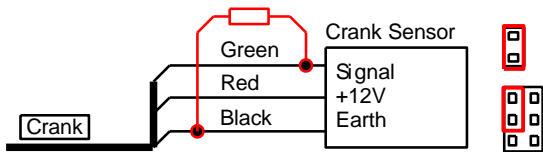
Hall Crank Sensor

Crank — Green — Crank Sensor
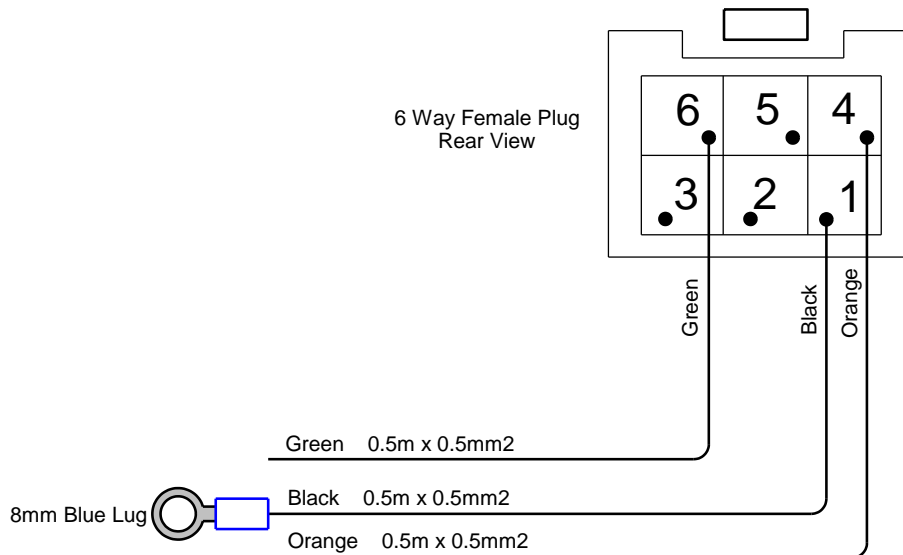Red — Signal
Black — +12V
Earth
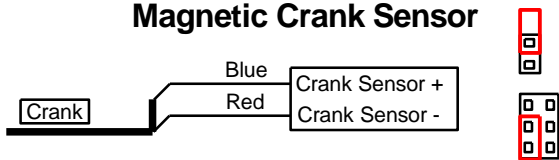
Note! Optional 1 K resistors from signal to earth will help prevent interference from the ECU supply voltage
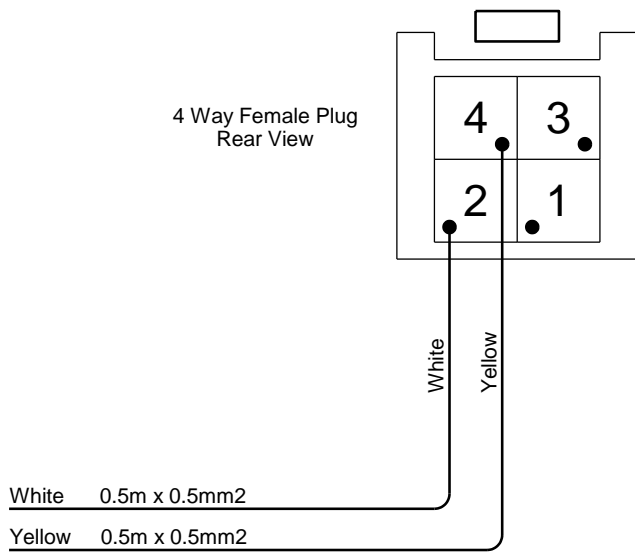
Harnes Options

C01 P1 Input Harness – ECU Option

This harness is used when this product is used with and ECU where the rpm signal is found under the dashboard.

6 Way Female Plug
Rear View

6	5	4
3	2	1

Green
Black
Orange

Green   0.5m x 0.5mm2
Black   0.5m x 0.5mm2
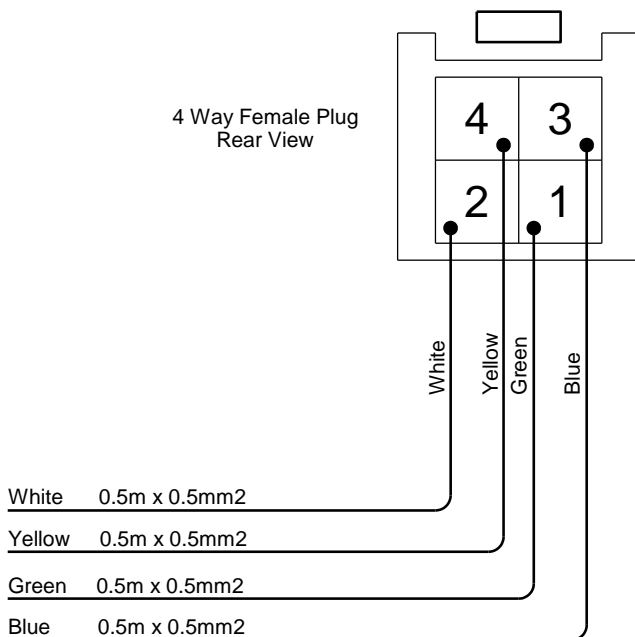Orange   0.5m x 0.5mm2

8mm Blue Lug

C02 P2 Output Harness

This is the output harness. Some ECU's require 1 signal and others may require 2 signals. Should there be more signals required the Venus3 Signal Converter can output up to 4 patterns. Then the C04 P2 harness is used.

4 Way Female Plug
Rear View

| 4 | 3 |
| 2 | 1 |

White
Yellow

White   0.5m x 0.5mm2
Yellow   0.5m x 0.5mm2

C04 P2 Output Harness

Some ECU's require 3 or 4 signals then this is the harness to use. This is the case with quad cam Jeep's etc.

4 Way Female Plug
Rear View

| 4 | 3 |
| 2 | 1 |

White
Yellow
Green
Blue

White   0.5m x 0.5mm2
Yellow   0.5m x 0.5mm2
Green   0.5m x 0.5mm2
Blue   0.5m x 0.5mm2

C03 P1 Input Harness – Standalone Option

This harness is used when this product is used without an ECU where the rpm signal is found in the engine bay on a sensor.
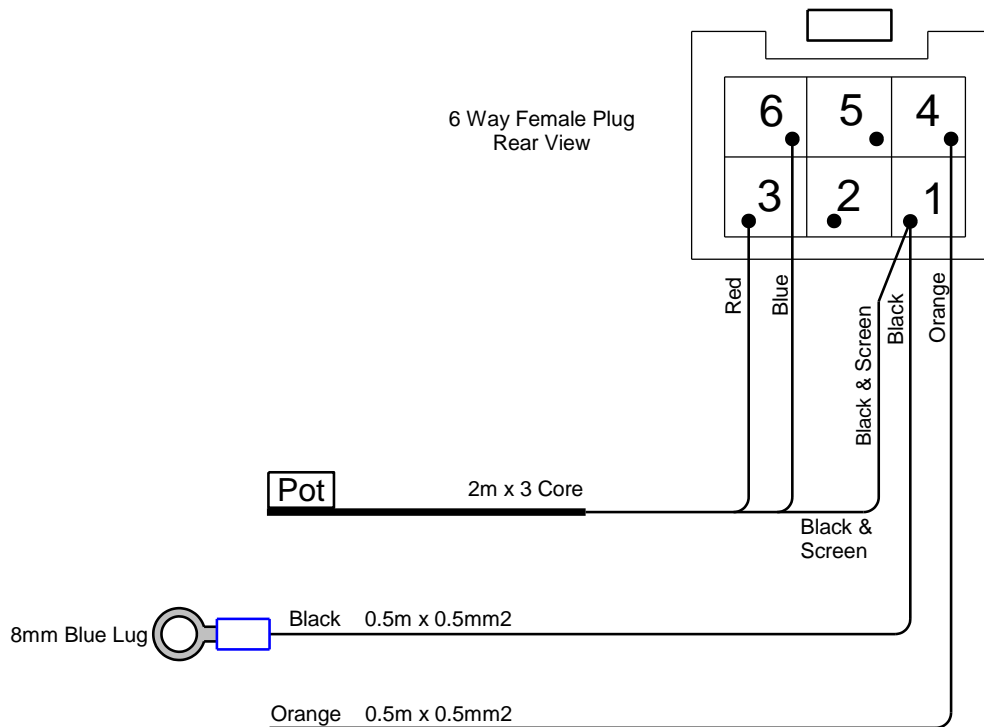
Venus3 Pin Layout
Signal Converter Board

Wire Colors			Connection	Venus3 Signal Converter				Connection		Wire Colors	
		Sim		Pin Name			Pin Name		Sim		
C03 P1	C01 P1	leds		P1 - 6 Way Input					leds	C01 P1	C03 P1
Orange	Orange			.+12 Volt Ign	4	1	GND			Black	Black
					5	2					
Blue	Green			Crank Sensor	6	3	Crank Power			N/C	Red
	C02 P2			P2 - 4 Way Output						C02 P2	
		RPM			3	1			Relay		
	Yellow	GP2	Cam Signal	GP Output 2	4	2	GP Output 1	Crank Signal	GP1	White	
	USB			6 Way USB						USB	
	N/C			Tuning Pot	4	1	Dual Map Sw			N/C	
	Yellow			Receive	5	2	Transmit			Green	
	Red			.+5 Volt Out	6	3	GND			Blue	

Venus3 ECU as signal Converter

Wire Colors		Sim leds	Connection	Pin Name			Pin Name	Connection	Sim leds	Wire Colors	
				Venus3 ECU Layout							
				P1 - 12 Way Input							
					7	1					
					8	2					
					9	3					
				.+12 Volt Ign	10	4	GND				
					11	5					
				Crank Sensor	12	6	Crank Power				
				P2 - 10 Way Output							
					6	1					
					7	2					
					8	3					
		RPM			9	4			Relay		
		GP2	Cam Signal	GP Output 2	10	5	GP Output 1	Crank Signal	GP1		
USB				**6 Way USB**					USB		
N/C				Tuning Pot	4	1	Dual Map Sw		N/C		
Yellow				Receive	5	2	Transmit		Green		
Red				.+5 Volt Out	6	3	GND		Blue		

Venus3 Signal Converter Jumper Settings

Only 2 jumpers are used.
A 3way jumper pin for selection between 12V Hall sensors or 5V Magnetic reductor sensors.
A 2way jumper pin for selection for Pullup filter when Hall sensors are used.

Crank Filter
Mag - Off
Hall - On

Crank Sensor
Up - Hall
Down - Magnetic