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FUEL Sensor Connection to PDM32

Sensors

1 – How to connect any fuel level sensor

Question:

How can I connect any fuel level sensor to my AiM device?

Answer:

Fuel senders normally supply a variable resistance signal. To switch variable resistance (Ohm) in variable voltage (Volt) a properly dimensioned pull up resistor is needed so to allow analogue inputs to read and sample incoming data.

2 – Pull up resistor calculation

To correctly dimension the pull up resistor measure the two resistor values: with the fuel tank full and with the fuel tank empty. Multiply the highest value by 9 to obtain the pull up resistor value to be used. In case this value is not available on the market choose the first round up value.

Example: if the float indicates 126 Ohm with the fuel tank full and 25 Ohm with the fuel tank empty, take 126 Ohm, multiply it by 9 and you get 1134 Ohm. Such a pull up resistor is not available on the market so choose a 1200 Ohm 1/4W resistor (very prudential power value) with a 5% precision.

3 – Connection

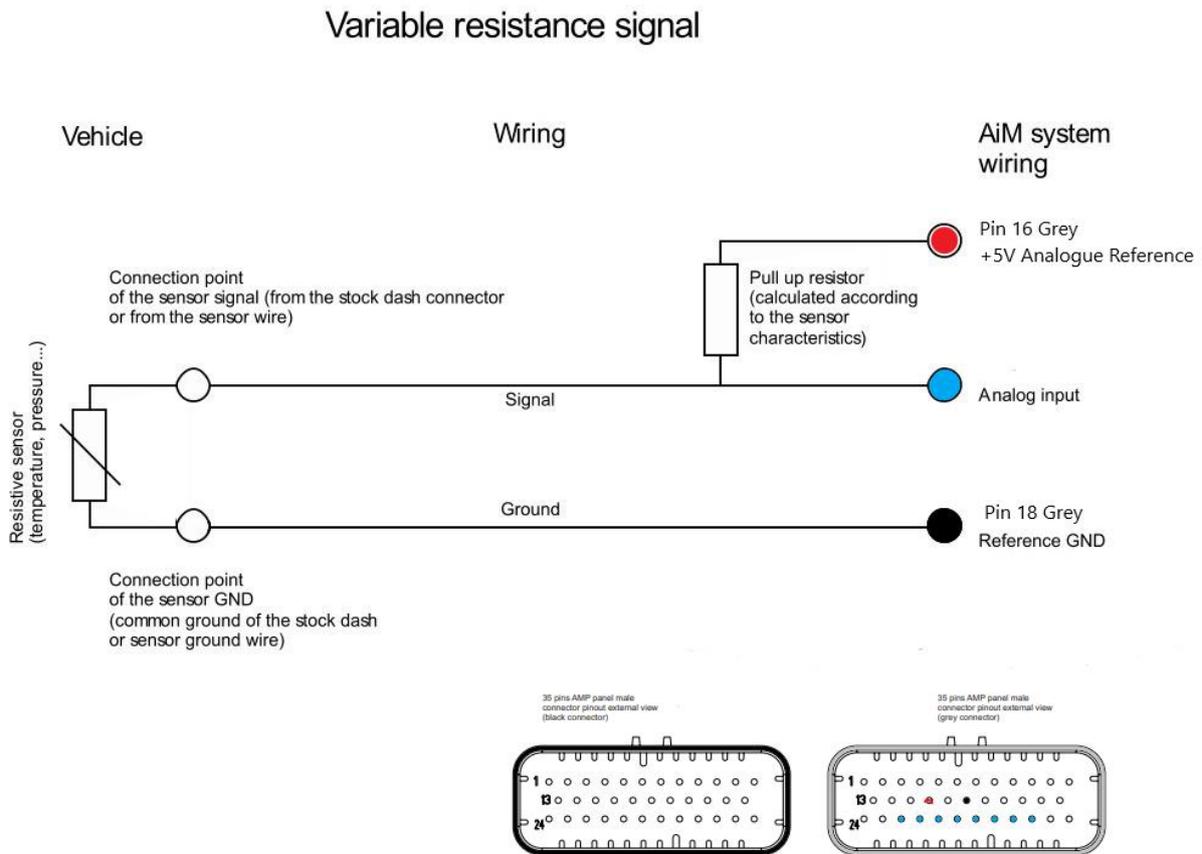
To connect the fuel sender, you can use the fuel pump connector, where the sensor terminations are, or the stock dash connector.

Sensors

If fuel level signal is taken from the stock dash connector ground wire can be unavailable. In this case use the common ground of the stock dash and connect it to your chosen analogue input

The pull up resistor needs to be bridged between Vref (Grey Pin 16) and your chosen analogue input (Grey 26-33, only 1 connection) used to connect the signal out coming from the sensor.

The scheme below shows a generic connection between sensor and pull up resistor.



Now you have the wiring done you will need to create a custom sensor for your fuel sensor. Using Race Studio 3 BETA where you created your config for the PDM

Press this icon in race studio 

Press New

Give your fuel sensor a name (Reg of the car could be good)

Put a comment in if you want

Then press ok.

Save as Save Close

Measure Type: Volume

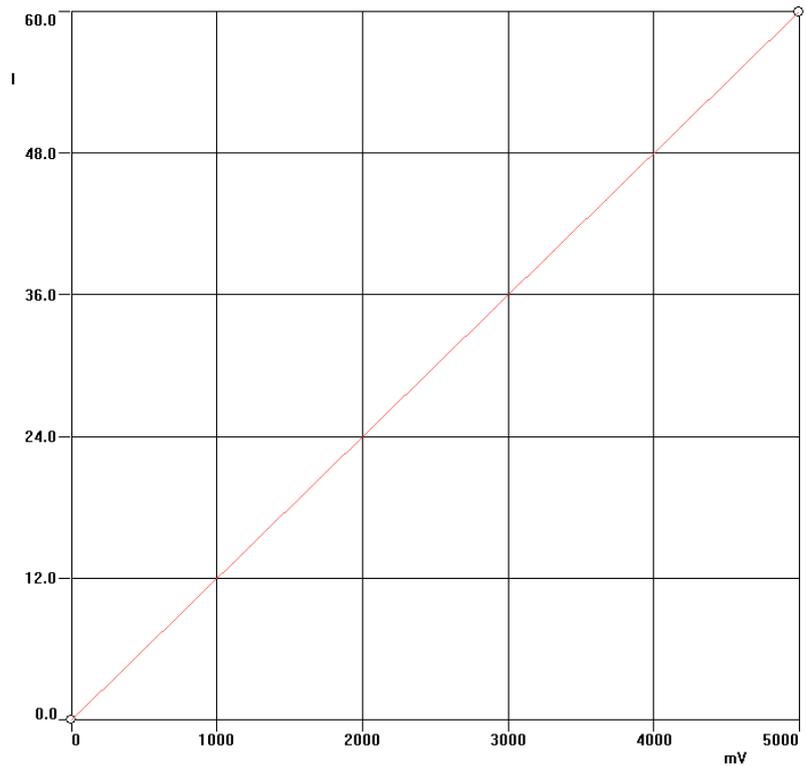
Calibration Type: None

Input Type: mV Ohm

Use internal AiM pull up resistance (if available)

Set the Ohms value of your external pull up resistor: 2700 Suggested

N	mV	I	
01	0	0.000	+
02	5000	60.000	+



Fill in the measure type as Volume, Calibration type as None

Input type is mV

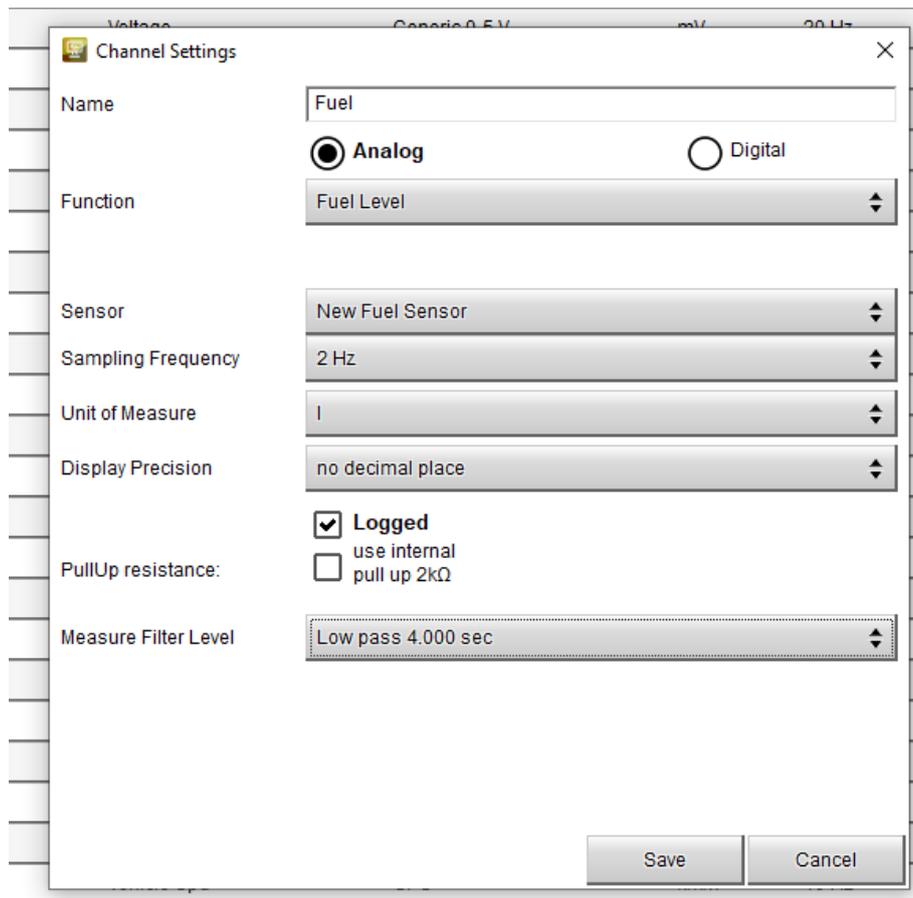
Then put 0mV= 0L

5000mv=60L (or what your full volume is)

Press Save

Then go to the two cogs and open your configuration.

In Channels select your analogue input channel.



Name the channel Fuel

Analogue

Function: Volume / Fuel Level

The sensor is the sensor you created.

Do not use pull up resistance!

Then transmit to your PDM32

In live measures press the mV button

Note the empty tank mV value and 0L

Add 3 litres and note the mV value and 3L

And so on until you fill the tank.

You now have about 20 values and associated litres to plug back into your custom sensor.

Using the plus icon to add extra lines as you need them.

(if the graph is reversed that is not a problem)

Save the sensor after you put those values in

Reselect the sensor in your config in channels and transmit.

Your fuel sensor is now calibrated to within 3 litres.