iStartek VEHICLE ORIGINAL FUEL SENSOR USER GUIDE

Contents

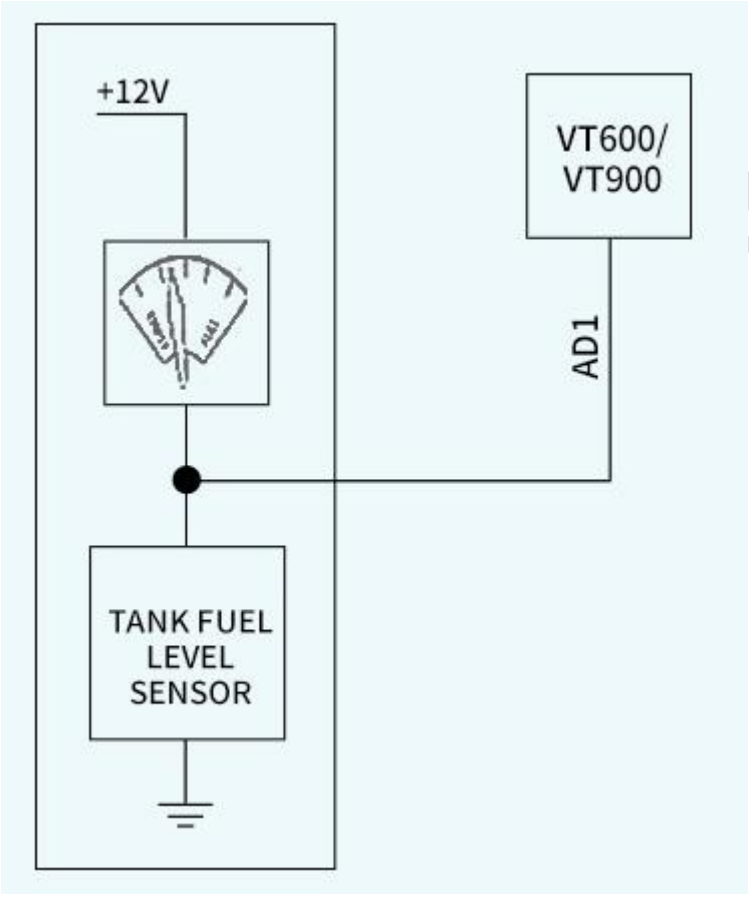
1 Instructions of Safety

This chapter contains information on how to operate vehicle original fuel sensor and device safely. By following these requirements and recommendations, you will avoid dangerous situations. Please read these instructions fully and follow them strictly before operating the tracker!
Before using, please make sure the tracker has been configured well and LED lights are visible in working status.

2 Applied Model

Vehicle original fuel sensor is connected to tracker via analog input (default analog input1), it is applied to GPS tracker model VT600/VT900

3 Basic Description of Connection



4 Fuel Sensor Cable Identification

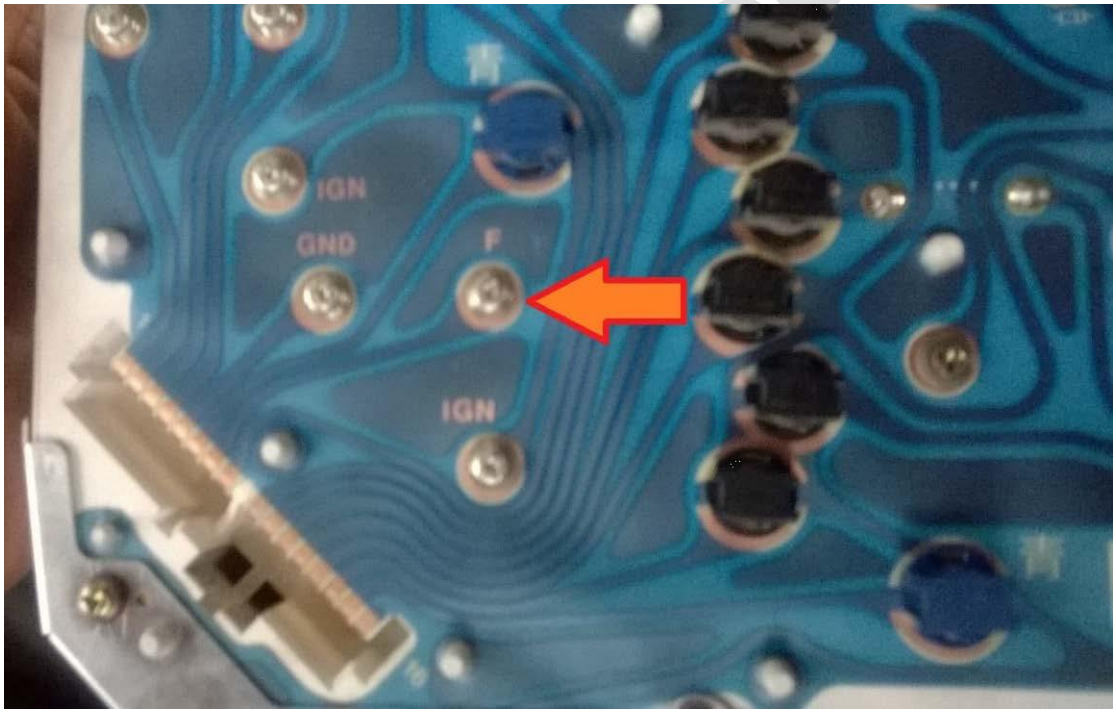
4.1 Step 1

Removing the driver's indicator panel

As above picture, the fuel level is more than a quarter of tank.

4.2 Step 2

Identify the cable that connects the fuel tank sensor to the gauge meter on the driver's panel. Behind the indicator panel, it is clearly labeled where the fuel sensor cable is being connected as shown on the image below.



4.3 Step 3

After doing a continuity test, the cable was identified. To prove this, you have to cut the identified cable to see the reaction of the fuel gauge meter.

4.4 Step 4

After moving with the vehicle and covering a distance of 100m approximately, the gauge meter indicator arrow dropped from quarter a tank to Empty.
Then reconnect the cable, when driving back the arrow went back to the previous position (quarter tank)
The identified cable has been proved after above tests.

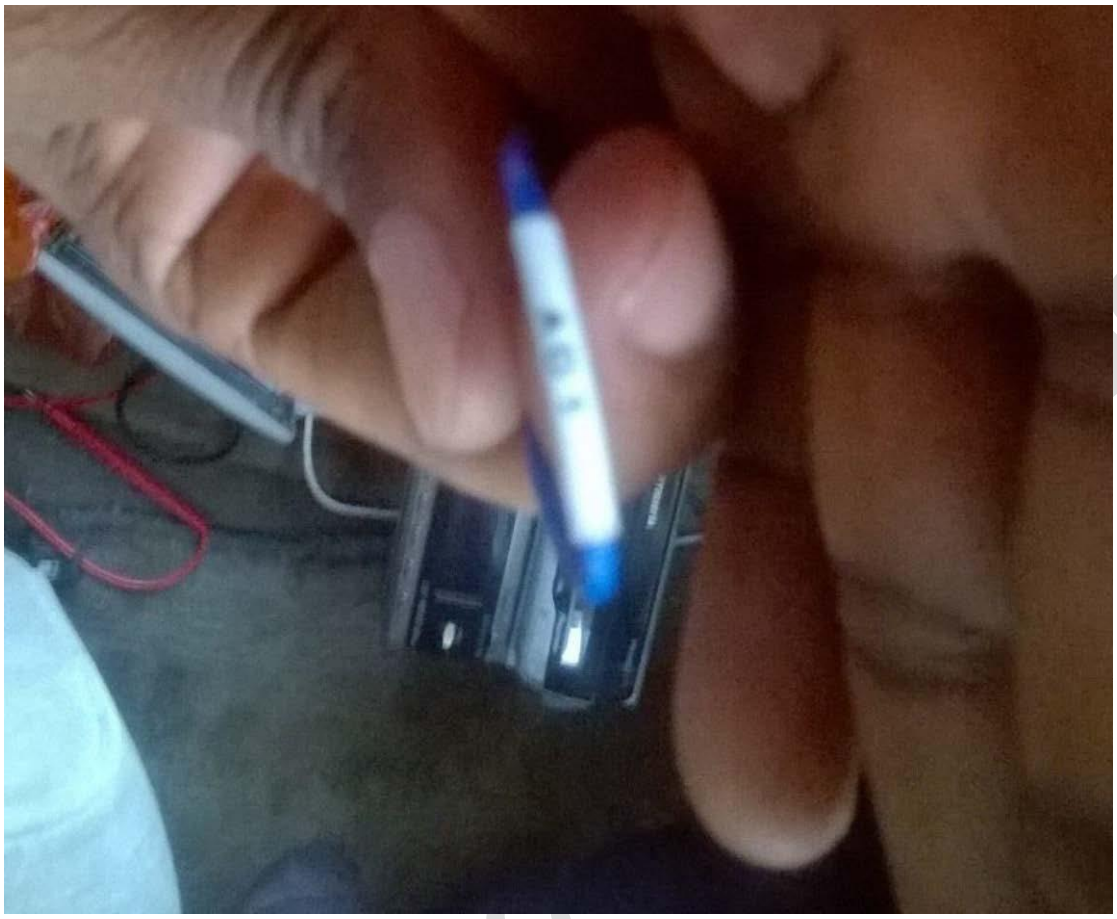
5 Fuel Sensor Cable Connection

5.1 Regular and Irregular Fuel Tank

Output voltage of original fuel sensor is not linear, both the regular and irregular fuel tank have to do the cable connection and calibration as follows.

5.2 Connect Fuel Sensor Cable to AD1

Connect analog input 1 to the original fuel sensor cable. The fuel sensor cable is connected to the driver's indicator panel.



5.3 Record Voltage of Fuel Sensor Cable for Calibration

Fuel tank volume	Fuel sensor cable voltage
0 liters	X
10% liters	X
20% liters	X
30% liters	X
40% liters	X
50% liters	X
60% liters	X
70% liters	X
80% liters	X
90% liters	X
Full liters	X

Note:

1) This measure should be done under engine on status.

2) More calibration records, higher precision.

For Example

Fuel tank volume (full is 65 liters)	**Fuel sensor cable voltage**
0 liters	3.90V
10 liters	3.47V
20 liters	2.89V
30 liters	2.15V
40 liters	1.53V
50 liters	0.93V
60 liters	0.21V

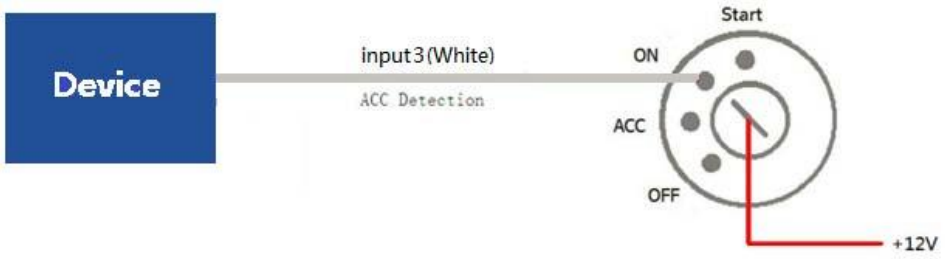
Note:

1) This measure should be done under engine on status.

2) More calibration records, higher precision.

5.4 Connect Digital input 3 to ACC

Digital input 3 of VT600/VT900 is specified to detect the status of engine on/off for original fuel sensor solution. Please don't use any other digital inputs to connect with ACC.



5.5 Fuel Formula

VT600 Fuel Formula:

$$(1-\frac{V\text{-}Vminmum}{Vmaximum\text{-}Vminimum})*100\%$$

$$V=\frac{AD}{1024}*6$$

Note:

V maximum value not more than 6V

If the output voltage of the fuel tank is maximum at full oil, remove the 1- part from the formula.

This formula applies to the type of fuel tank' voltage output at the minimum voltage at full power, which

is the case for most car fuel tanks.

VT900 Fuel Formula:

$$(1-\frac{V\text{-}Vminmum}{Vmaximum\text{-}Vminimum})*100\%$$

$$V=\frac{AD}{1024}*24$$

Note:
V maximum value not more than 24V
If the output voltage of the fuel tank is maximum at full oil, remove the 1- part from the formula.
This formula applies to the type of fuel tank' voltage output at the minimum voltage at full power, which is the case for most car fuel tanks.

5.6 Vehicle Original Fuel Sensor Advantages and Limitations

Advantages:

1. Cost saving, no need pay for external fuel sensor and following maintenance costs.
2. Easy and controlled installation way
3. Safe, no need drill a hole on fuel tank
4. Fuel consumption trend, fuel filling, fuel theft are clear and acceptable enough for fleet management.

Limitations:

1. When engine off, original fuel sensor will not work due to lack of power. The fuel filling or fuel theft data is not real-time, it will be uploaded when engine on.
2. Less precision compare to external fuel sensor

Please e-mail us at info@istartek.com if any question or feedback.