FIFOTRACK ULTRASONIC FUEL SENSOR USER GUIDE

Model: TUB01

Version: V1.1

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- Please read this user guide carefully before installation to avoid any possible personal injury or property loss.

Document History

Version	Revision Date	Author	Detail
V1.1	Oct 15, 2016	Vito Hu	Initial Version

Contents

1 Instructions of Safety

This chapter contains information on how to install and operate ultrasonic 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

Ultrasonic fuel sensor (hereinafter to be referred as “sensor”) is connected to tracker via RS232 port, it is applied for:

- A300

3 Basic Description & Specification

- Working Voltage: 9 ~ 36V
- Maximum power consumption: 0.4W/12VDC
- Measurement resolution: 1mm
- Measurement rang: 5~100cm
- Tank material: steel/aluminium alloy
- Liquid: petrol/diesel
- Working temperature: -30℃~+75℃
- Working humidity: 5%~ 90%
- Cable length: 8m
- Protection rank: IP66
- Port: RS232

4 Package Parts

Standard Parts				
probe	8m extension cable	fuse	couplant	abrasive paper

				
Optional Parts				
A/B glue		Auxiliary installation display tool		
				

5 Installation

5.1 Preparation Before Installation

Before installation, the below parts are needed:

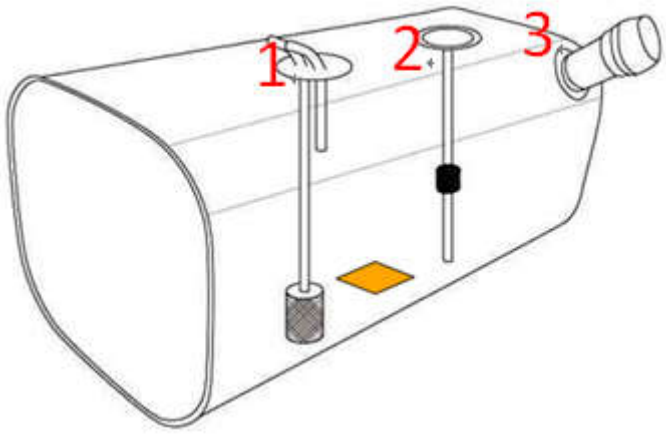
- Package parts of fuel sensor
- Insulating tape (self-provide)
- Rag (self-provide)
- Multimeter(self-provide)

NOTE:

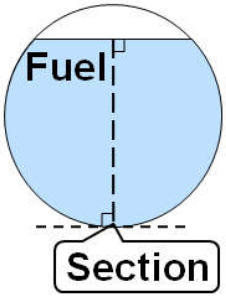
- Make sure tank is half-full of oil at least
- Make sure vehicle is parking on horizontal ground

5.2 Find a Precise Installation Location via Display Tool

Installation position should keep distance from fuel input tube, output tube, fuel-return tube, fuel float ball, baffle, etc. It's better to install on a flat area in the central of the fuel tank's bottom. For the below tank, It is proper to install the probe in the yellow area.



If it is a cylindrical tank, you should choose the area that closest to the ground.



5.2.1 Connect the probe to the display. Then power on the display by power supply or vehicle's battery, shown as below:

5.2.3 After power on, the display will show  , which means probe is initializing

5.2.4 Clean up the dirt and oil stain on the bottom of the tank. Apply the couplant to the probe surface and stick the probe on the bottom of the fuel tank. When the display shows  (The actual fuel level, uint cm, it may be different according to actual fuel heigth) and  (The installation code, the left digit should be greater than or equal to “2”, the right digit should only be “2”) repeatly, it means the position attached by probe is OK for installation.

5.2.5 When fuel level or installation code is not correct, move probe to nearby position, wait for at least 2s, read fuel level and installation code again, till both are correct.

5.2.6 If installation position is choosen, clean up the paint or the rust coated on the surface with abrasive paper provided in the package, until the tank metal is exposed, make it clean and dry.

5.3 Code Description of Auxiliary Installation Display Tool

Display Code	Description

	Probe is initializing
	Probe is not connected to display tool
	The Inclination Angle of probe is larger than 4°, which means the position is not suitable for installation. Under this condition, it is needed to adjust probe's position to eliminate the status code
	The fuel level is 18.9cm, it can be different according to actual fuel height
	The installation code, which is shown repeatly with fuel level code, the left digit should be greater or equal to "2" (here is "3"), the right digit should only be "2", which means position is OK

5.4 Install Probe with A/B Glue

Clean up the couplant on the fuel tank and probe surface.

Polish probe's surface and tank's installation position, so that the adhesive will be easy to paste.

Apply proper amount of A/B glue to probe's surface evenly. If the ambient temperature is less than 0°C, heat the probe and then apply A/B glue to it.

Mix the A/B part evenly, NOTE: The operation should be finished in 30s at most. Otherwise, polish A/B glue on probe's surface with abrasive paper, and redo the above operations.

Stick the probe on the marked location, reading display, ensure that fuel level and The installation code is correct ( : fuel level is 18.9cm, it can be different according to actual fuel height;  : The installation code, which is shown repeatly with fuel level code. The left digit should be greater or equal to "2", here is "3", the right digit should only be "2", which means installation is OK).

Hold the probe for at least 5 minutes until the glue is solidified.

Disconnect the aviation connector between probe and display tool.

NOTE:

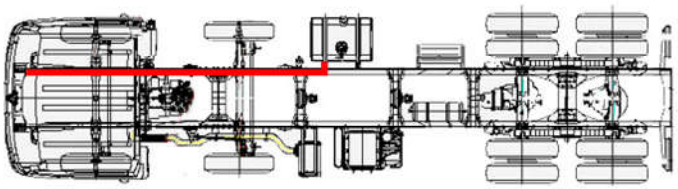
During operation, the installation code should be always “2”. Otherwise, remove probe from tank, polish probe’s surface and the position on tank, and do the above operations again.

5.5 Wiring

Tie the probe and the cable near to probe on the fuel tank by 1.2m cable tie, as below:

Follow the frame of vehicle to arrange extension cable in the cab. Wiring should be at least 20cm far

away from the motor and high temperature parts of the vehicle to avoid electromagnetic interference. Usually wiring should not affect vehicle's dumper or maintenance.



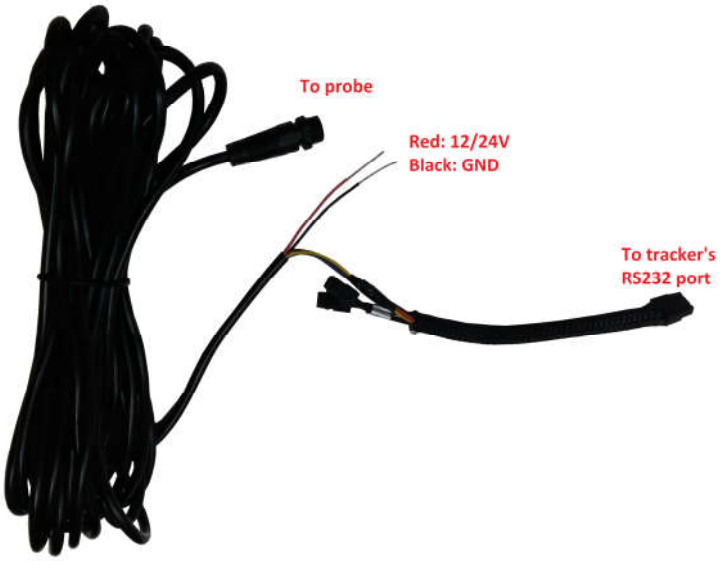
NOTE:

- Wrap over the naked joints with electrical tape
- Tie the extension cable every 50cm with cable tie provided in the package

5.6 Connect to A300

Connect the extension cable to probe with aviation connector; Plug the other connector of extension cable into "RS232|MIC|SPK" socket of A300, connection will be finished.

Connect extension cable and tracker to vehicle's battery, and then, both fuel sensor and tracker start to work.



5.7 Check Connection Between Sensor and Tracker

After sensor and tracker power on, sensor initializes and starts detecting fuel level after 1 minute,. User can use below SMS command to check the connection, and check whether sensor works normally:

SMS command: 000000,C05

Reply: C05,<rt_level>,<install-status>

While,

rt_level: real-time fuel level of sensor, unit mm

install-status: The detected installation status, which can be

"OK"

"Probe Disconnect"

"Low Power"

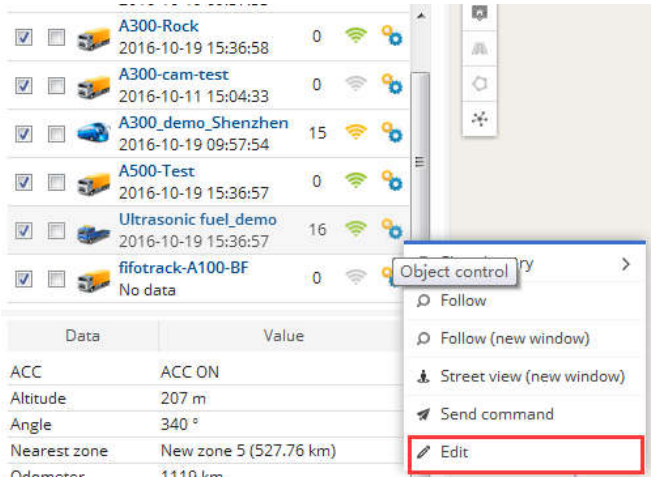
"Unexpected Restart"

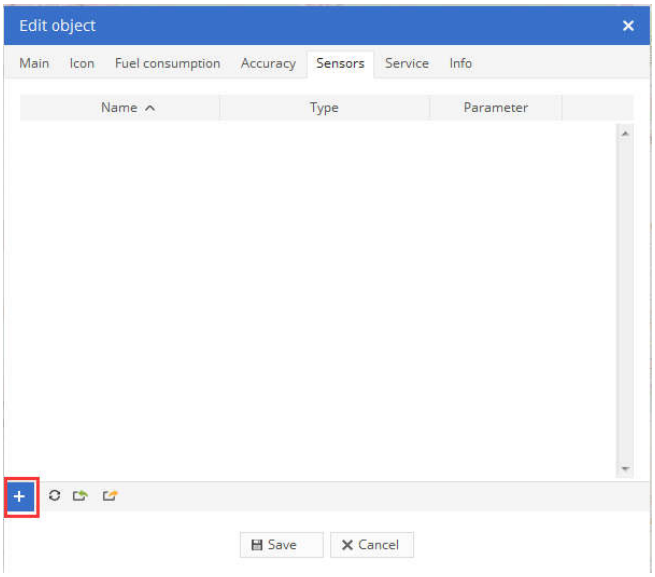
6 Operation

6.1 Setting on FIMS

User needs to set "Fuel level" sensor on FIMS, and then, all function about fuel will be working. Follow below steps:

Login FIMS, select target tracker->Edit->Sensors->Add,





At “Sensor Properties” dialog, set parameters as below:

Sensor

- Name: Input self-define string
- Type: Select “Fuel level”
- Parameters: Select “ai2”
- Show in popup: selected

Result

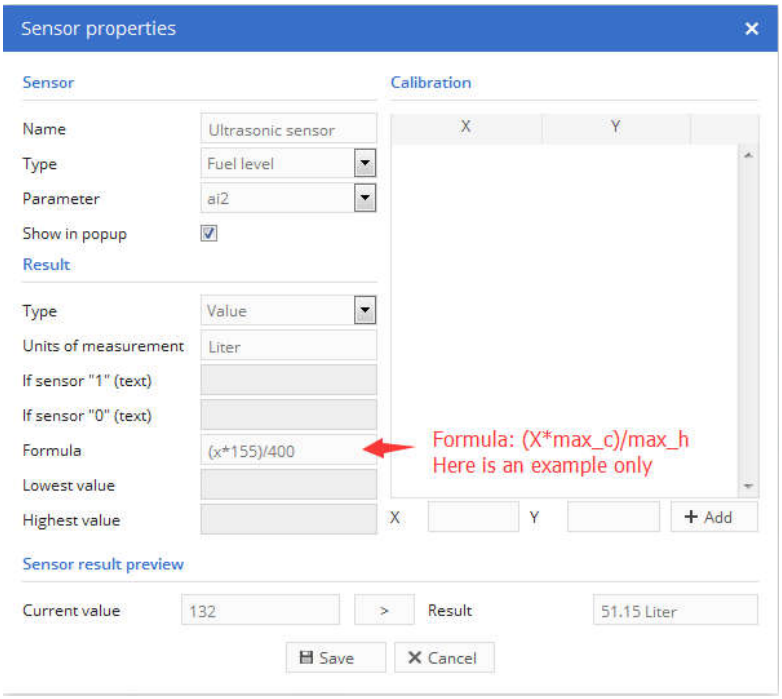
- Type: Select “Value”
- Units of measurement: self-define
- Formula: (X*max_c)/max_h, while

  max_c: maximum capacity of tank, using the unit specified in “Units of measurement”

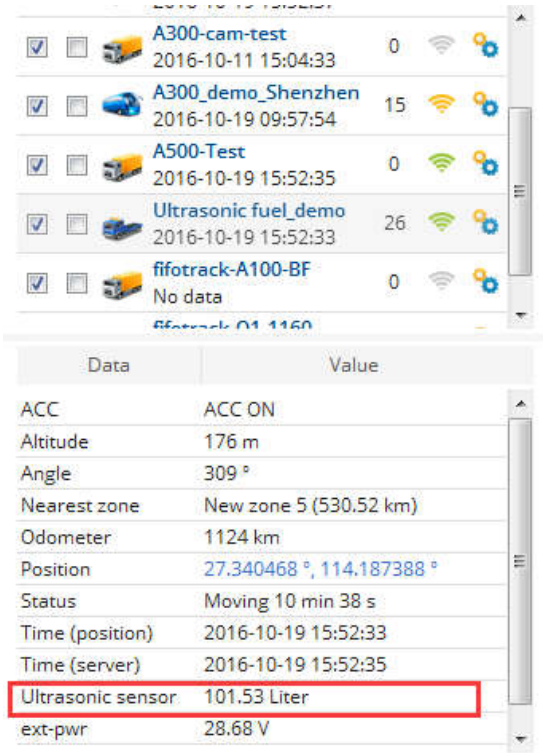
  max_h: maximum height of tank, unit mm

For example, when tank has capacity of 155Liters, and maximum height 40cm, the formula is

(X*155)/400



Click “Save”, fuel level will be display at “Object page”, as below:

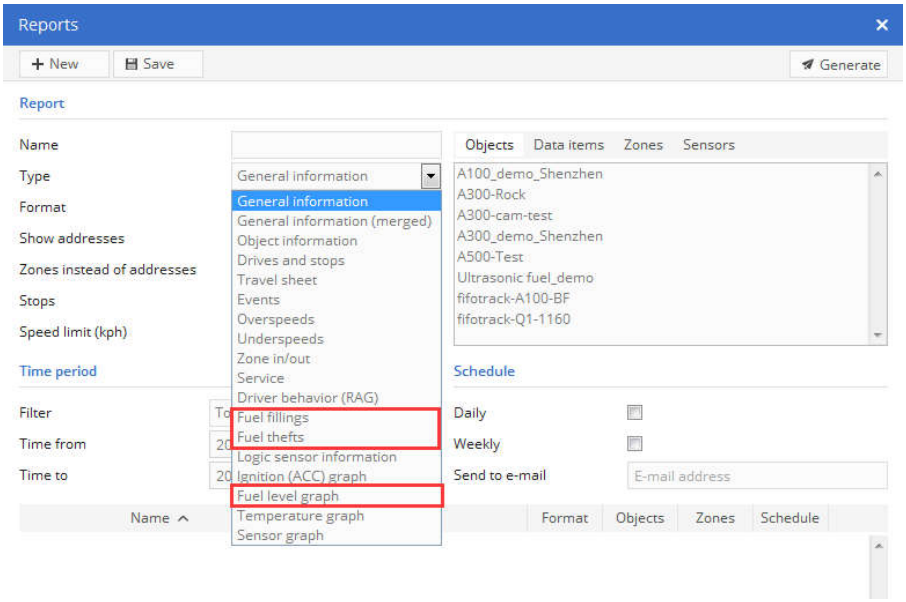


6.2 Fuel Reports

FIMS supports three types of fuel reports:

- Fuel fillings
- Fuel thefts

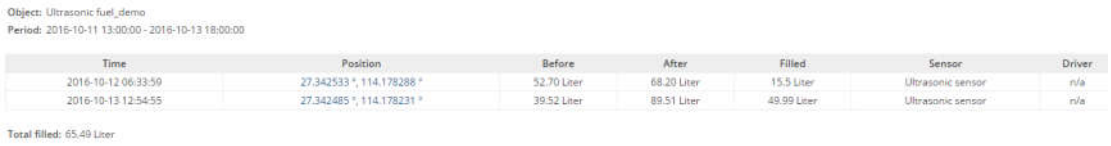
- Fuel level graph



The below figures are exported reports:

Fuel level graph

Fuel fillings



7 NOTE

- Connect sensor's extension cable and tracker's cable together, and then connect to vehicle's battery. Wrap over the naked joints with electrical tape. At last, connect extension cable to fuel sensor, and power on sensor. It can avoid damage to fuel sensor.
- During installation, reading display tool is necessary, which is useful to determine whether operation is correct or not.

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