

Model: AS10 Version: V1.3 www.fifotrack.com

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| Version | Revision Date | Author | Detail | | |
|---------|----------------|---------|---------------------------------|--|--|
| V1.1 | Feb 15, 2016 | Vito Hu | Initial Version | | |
| V1.2 | March 17, 2020 | Vito Hu | Replace installation pictures, | | |
| | | | add more remarks, add FAQ. | | |
| V1.3 | July 3, 2021 | Vito Hu | 1. Add 4.7.6 Calibration failed | | |
| | | | result section | | |
| | | | 2. Add extension cable 7 | | |
| | | | meters description | | |
| | | | 3. Add warning section, | | |
| | | | avoid the vent-hole to be | | |
| | | | blocked by glue or sealing | | |
| | | | silicone gum | | |

Document History

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1 Product overview

AS10 capacitive fuel sensor is a stable, safety and mature product which has been proved by market for years. The AS10 fuel sensor is adaptable, users can cut off the fuel sensor length according to the height of fuel tank. fifotrack team provide detailed video and user manual to help users install the AS10 fuel sensor correctly step by step. The accuracy of fuel sensor is 98~99% under correct installation. Powered by fifotrack device firmware algorithm, the accuracy of uploaded raw fuel data to platform is 97~98%. Fuel graph, fuel filling, fuel theft, fuel consumption reports are available based on our GPS tracker with fuel sensor solution.

2 Basic Description & Specification

- Fuel Sensor Length: 200~700mm, any length is available within this range.
- Fuel Sensor length adjustable: Yes, can be cut off according to fuel tank height.
- Extension cable of fuel sensor: 7 meters
- Installation way: need drill a hole on fuel tank
- Measure result accuracy: 98~99%
- Resolution: ≤ 1 mm
- Wide range of power supply: DC10V-32V
- Maximum operating current: <15mA
- Output signal type: 0~5V analog type (Default), RS232 (optional)
- Working temperature: -40~85°C
- Protection rank: IP65
- Material of the tubes: Aluminum alloy
- Application environment: diesel, gasoline, kerosene (cannot be used in conductive medium like the water)
- Applicable tank: Only applicable in tank which has the same cross-sectional area from top to bottom, the tank height should be great than 200mm.

3 Safety attentions

- Before installation, make sure the fuel tank is empty **without** filled liquid like gasoline or diesel in fuel tank.
- Turn off vehicle
- No smoking during installation

- Don't use water or other conducting medium to test the fuel sensor.

4 Installation

4.1 Prepare tools

| Items | Pictures |
|--------------------------------|----------|
| Pistol drill | |
| Metal bit(diameter is 30~35mm) | |
| Marker pen | |

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| Steel saw | |
|--|--|
| Knife | |
| Rasp | |
| Screwdriver | |
| Tube container with same type liquid for calibration | |

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4.2 Drain out fuel tank

Safety is the top priority, you are required to drain out the liquid from fuel tank before installation. Make sure the fuel tank is empty before installation.



4.3 Select fuel sensor installation position on the fuel tank

Below are the principles to select fuel sensor installation position

- Avoid the position of fuel outlet and return tube.
- Avoid the position of fuel tank built-in fuel sensor
- Avoid other positions which may block the fuel tank inserting.
- Choose the central top position of fuel tank. This position can reduce fuel fluctuations, improve the fuel monitoring accuracy.



4.4 Drill a hole on the fuel tank

- Metal bit diameter is 30~35mm



- Mark the selected position

- Drill the hole with pistol drill and 35mm diameter bit on the selected position. Please do it slowly and punch near to 95% complete, then stop drilling. Peel off down metal with screwdriver and flat nose pliers to avoid it falling into the tank.

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- Avoid the debris falling into fuel tank during drilling. You can use brush to clean the debris. In case the debris fall into the fuel tank, please use magnet with rope to clean it.



4.5 Drill five small holes around the center hole

- Put the black rubber washer on tank to mark the position of five small holes.

- Drill the five small holes through pistol drill with 5mm diameter tap on the marked positions on tank.

- Clean the fallen debris by magnet if needed.



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4.6 Adjust the fuel sensor pipe length

- Standard length of fuel sensor is 700mm. If the fuel tank height is less than 700mm, please cut fuel sensor pipe to fit the tank.

- Shortest length of fuel sensor is 200mm. Shorter than 200mm length, the fuel sensor will not work well.

4.6.1 Measure the height of fuel tank

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4.6.2 Mark the cutting position

- If the fuel tank length height is L, the mark position length should be L-3mm (plastic bottom plug length is 3mm)

- For example the height of fuel sensor is 600mm, the mark position length should be 600-3=597mm



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4.6.3 Cut the unwanted part with steel saw

Fix the sensor with proper force, too big force will cause deformation of the casing tube.



Note. Don't wist on the screw at the



4.6.4 Get rid of the burrs and debris at the cutting area with blade or screwdriver to avoid short circuit

-<u>Note:</u> Inside of the tube should keep clean, burrs dropped into the tube must be cleaned. Or else, there is a risk of blocking the oil drainage hole.

- Suggest put the fuel sensor into liquid and shake for a while to clean the burrs.



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4.6.5 Take down the filter unit, take out the plug and assemble the plug in the aluminum tube, then assemble the filter



Note: Filter assembly must be assembled in correct position. White plug in the filter assembly must be closely attached to casing tube; otherwise, this is a risk of falling down during application.



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4.7 Calibrate the fuel sensor

Default fuel sensor length (height) is 0-700mm, corresponding to liquid 0-100% height. After fuel sensor cutting, the fuel sensor need do calibration to record the new full and empty points, then the new length still can correspond to 0-100% liquid height value.

- The fuel sensor must do calibration after cut off or liquid medium type changed.

- Calibration of full level and empty level is related to the fuel level height, not related to the volume of tank.

- Incorrect calibration process is one of main sources of the fuel sensor failure.

- Calibration process requires strict steps one by one, full level calibration first, then empty level calibration.

4.7.1 Introduction of Fuel Sensor Calibrator



- Red light is power light, green light is calibration light.
- The calibrator has one built-in 12V 23A battery
- Battery need to replace when red light becomes dark or off.
- A full battery can support roughly 15 times calibration processes.



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4.7.2 Start to calibrate the fuel sensor

You can prepare a longer container full filled with same type liquid, as the simulation of the fuel tank for this calibration.



Open the head cover of fuel sensor with screwdriver, connect the calibrator to the fuel sensor. The calibrator has built-in 12V/3A battery, so **no** need connect external power to the fuel sensor. **Note:** if press wrong button during operation, please restart the calibrator by power switch, then do calibration from the full level calibration again.



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4.7.3 Full level calibration

- Fill up the container and put the fuel sensor inside it, wait for 30s till the aluminum tube of the sensor is full of fuel.



- Then press "F" button on the calibrator for 5 seconds till the green LED light slowly flickers, then release "F". It indicates that calibration enters full level mode. The green LED light will be off after about 10s and it indicates that the calibration of full level is finished.

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| Light state | Indications |
|-----------------------------|--|
| Green light slowly flickers | Start and process full level calibration |
| Green light off | Calibration finished |

4.7.4 Empty level calibration

- Take the fuel sensor out of container.

- After all of the fuel flows out of the sensor, then press the "E" button for 5s till the green LED light flickers fast, at this moment release the "E" button. It indicates that calibration enters empty level mode, the green LED will be off after about 10s and it indicates that the calibration of empty is finished.

Note: if press wrong button during operation, please restart the calibrator by power switch, then do calibration from the full level calibration again.



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| Light state | Indications | | |
|---------------------------|---|--|--|
| Green light fast flickers | Start and process empty level calibration | | |
| Green light off | Calibration finished | | |

4.7.5 Calibration completion

Disconnect the calibrator from fuel sensor after calibration is done. Put fuel sensor into the calibration container. Connect VCC (Red) and GND (Black) of sensor to external power supply, then use multimeter to read the voltage of sensor signal V-out wire (Blue). The correct voltage you should get when the container is empty, half full and full statuses as follows

| Empty | 50% fuel | Full fuel |
|-------|----------|-----------|
| OV | 2.5V | 5V |

The correct voltage values indicate the calibration is ok. Otherwise, please double check the calibration steps and recalibrate the fuel sensor.

4.7.6 Calibration failed result

If the fuel sensor is CUT OFF but without calibration or the calibration is not successful. The fuel level will be affected. Below table describes the possible incorrect calibrations and results:

| Without | fuel | calibration | (including | wrong | According to the cutting off length, the fuel |
|---|-------|-------------|--|---------|---|
| calibration | ı) | | | | level output will be less full. For example, if the |
| | | | | | fuel sensor is 350mm length (fuel tank max |
| | | | | | height is 350mm) after cutting but without |
| | | | | | calibration, when the actual fuel is full, the fuel |
| | | | | | sensor only outputs around 40% of actual full |
| | | | | | fuel level, the fuel sensor data becomes |
| | | | | | inaccurate. |
| "Full" c | alibr | ation suc | cessful, " | 'Empty" | The fuel sensor will treat it as "without |
| calibration forget or failed calibration". It only saves calibration of | | | calibration". It only saves calibration data after | | |

| both | "Full" | and | "Empty" | calibration | steps | are |
|-------|---------|-----|---------|-------------|-------|-----|
| succe | essful. | | | | | |

4.8 Install the fuel sensor in vehicle fuel tank

- Put the black rubber washer on the holes with glue.
- Suggest put glue on both sides of rubber washer (Heavy duty adhesive glue or A/B glue)



<u>Warning</u>: Don't put too much glue or sealing silicone gum on the rubber washer, the glue may be pushed out when tightening, then flow down and block the vent-hole. If the vent-hole was blocked, the fuel sensor performance will be abnormal. Vent-hole position is below.



Below is an example, the vent-hole is blocked by glue



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- Fix the fuel sensor, install screws.



- Put Sealant



- Finish



4.9 Installation video guide

The installation video guide link: https://www.youtube.com/watch?v=7Xjg204mb1l&feature

5 Wire connection with GPS tracker



The fuel sensor has 3 wires

- Red wire: VCC, 10-32V DC supply
- Black wire: Ground
- Blue wire: signal V-out, 0-5V

Wire connection between the fuel sensor and GPS tracker

| Fuel sensor wire | fifotrack GPS tracker wire |
|---------------------|----------------------------|
| VCC (Red) | VCC (Red) |
| Ground (Black) | Ground (Black) |
| Signal V-out (Blue) | Analog input 1 (AD1, blue) |

Note:

-The fuel sensor, GPS tracker and external power must share ground wire together.

- After wire connection between the fuel sensor and GPS tracker, supply external power

(DC12-32V/2A) to GPS tracker, then both the GPS tracker and fuel sensor are powered.

6 Related commands

fifotrack device can generate below fuel statistics data based on hardware after parameters configured.

| Description | Command | SMS command | Alarm code or | |
|---------------------|--|----------------------|------------------|--|
| | | example | field | |
| Setting Fuel | B80, <ad-idx>,<theft-percent< td=""><td>000000,B80,1,10,20,0</td><td>Fuel theft alarm</td></theft-percent<></ad-idx> | 000000,B80,1,10,20,0 | Fuel theft alarm | |
| Theft/Filling Alarm | age>, <filling< td=""><td></td><td>code: 44</td></filling<> | | code: 44 | |
| | -percentage>, <use-acc></use-acc> | | | |

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| | | | Fuel filling alarm |
|---------------------|--|---------------------|-------------------------------|
| | | | code: 45 |
| Setting Fuel Level | B81, <ad-idx>,<low-percenta< td=""><td>000000,B81,1,15,80</td><td>Low fuel level</td></low-percenta<></ad-idx> | 000000,B81,1,15,80 | Low fuel level |
| Alarm | ge>, <high-percentage></high-percentage> | | alarm code: 46 |
| | | | High fuel level |
| | | | alarm code: 47 |
| Enable/Disable Fuel | B82, <ad-idx>,<use-acc>,<ad< td=""><td>000000,B82,1,0,1,0</td><td>Field in protocol:</td></ad<></use-acc></ad-idx> | 000000,B82,1,0,1,0 | Field in protocol: |
| Consumption | d-theft>, <clear></clear> | | <fuel_consume></fuel_consume> |
| Statistics | | | |
| Setting Alarm | B23, <alm-code>,<gprs><sm< td=""><td>000000,B23,44,11000</td><td>This command</td></sm<></gprs></alm-code> | 000000,B23,44,11000 | This command |
| Action | S> <two-way-call><monitor-c< td=""><td>0</td><td>enables the alarm</td></monitor-c<></two-way-call> | 0 | enables the alarm |
| | all> <photo><an-idx></an-idx></photo> | | action like |
| | | | uploading to |
| | | | platform, sending |
| | | | to SOS |
| | | | number,etc. |
| | | | |

<u>Remarks:</u> Please check specific model command list for the details of commands.

7 Fuel monitoring on Platform

First make sure the GPS tracker is online after parameters configured and the fuel sensor is under working condition.

7.1 Set AD Definition in FIMS

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



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| Edit o | bject | : | | | | | | × |
|--------|-------|-----------------|----------|--------------|--------|-----------|---|---|
| Main | Fuel | consumption | Accuracy | Sensors | Servio | e | | |
| | | Name 🔨 | | Туре | | Parameter | | |
| ACC | | | Ig | nition (ACC) |) | di1 | 1 | ^ |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | r. * | | | | | | - |
| | | | | | | | | |
| | | | E Save | X Ca | incel | | | |

At "Sensor Properties" dialog, set parameters as below:

<u>Sensor</u>

- Name: Input self-define string
- Type: Select "fuel level"
- Parameters: Select "ai0"
- Show in popup: selected

<u>Result</u>

- Type: Select "type"
- Units of measurement: input unit of fuel level, such as "L" or "Liters", it is self-defined
- Formula: input formula to calculate fuel level, the formula is "(X*max_level)/4096" while "max_level" is the maximum capacity of fuel tank.(In this example, max_level is 200L)

Click "Save", data about fuel level will display at "Object page", as below:

| Sensor | Calibrati | Calibration | | | | |
|-------------------------|--------------|-------------|---|---|-------|---|
| Name | Fuel | X | ^ | Y | | |
| Туре | Fuel level | • | | | | * |
| Parameter | ai0 | • | | | | |
| Show in popup | | | | | | |
| Result | | | | | | |
| Туре | Value | | | | | |
| lf sensor "1" (text) | | | | | | |
| lf sensor "0" (text) | | | | | | |
| Units of measurement | L | | | | | |
| Formula | (X*200)/4096 | | | | | |
| Lowest value | | | | | | Ŧ |
| Highest value | | х | Y | | + Add | |

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| Objects Events Places History | | | | | | |
|-------------------------------|-----|-------|---|-----|-------|---|
| Q | Sei | arch | | | \$ | 1 |
| ø | ρ | | Object | kph | 3 | |
| - | | - | 2016-02-16 10:32:29 | | | |
| 1 | | | Halogen Demo-Nigeria 2015-12-08 04:09:33 | 0 | (10 | ъ |
| V | | - | Q1-test 2016-02-15 10:42:26 | 0 | (0: | ъ |
| v | | ۲ | TESTE CAC 2016-02-16 10:32:36 | 0 | Ş | ъ |
| 1 | | - | Uncle Hossein_Iran 2016-01-28 11:20:48 | 0 | (():- | ъ |
| V | | a los | nauman 2016-02-16 10:32:45 | 0 | Ş | 8 |

| Data | Value |
|------------------|---------------------------|
| ACC: | ACC OFF |
| Altitude: | 0 m |
| Angle: | 0 ° |
| Engine hours: | 0 h |
| Nearest marker: | FRATELSAT (13.79 km) |
| Nearest zone: | New zone 1 (0.35 km) |
| Odometer: | 18 km |
| Position: | 22.546750 °, 114.078885 ° |
| Time (position): | 2016-02-16 10:32:45 |
| Time (server): | 2016-02-16 10:32:49 |
| fuel: | 148.68 L |

7.2 Fuel Report

FIMS support three types of fuel report:

- Fuel fillings
- Fuel thefts
- Fuel level graph

Fuel fillings

Object: nauman **Period:** 2016-02-19 14:00:00 - 2016-02-20 00:00:00

| Time | Position | Before | After | Filled | Sensor | Driver |
|---------------------|--------------------------|---------|----------|---------|--------|--------|
| 2016-02-19 18:02:15 | 22.546248 °, 114.07968 ° | 51.90 L | 87.11 L | 35.21 L | fuel | n/a |
| 2016-02-19 18:02:46 | 22.546248 °, 114.07968 ° | 87.11 L | 123.63 L | 36.52 L | fuel | n/a |

٠

X^C

Total filled: 71.73 L

Fuel thefts

Object: nauman

Period: 2016-02-19 14:00:00 - 2016-02-20 00:00:00

| Time | Position | Before | After | Stolen | Sensor | Driver |
|----------------------------|---|------------|------------|--------|--------|--------|
| 2016-02- 19 15:31:10 | 22.546328 °, 114.080146 ° - 1963 Hua Fu Lu, HuaQiang Bei, Futian Qu, Shenzhen Shi, Guangdong Sheng, China, 518031 | 82.71 L | 39.11 L | 43.6 L | fuel | n/a |

Total stolen: 43.6 L

Fuel level graph

Object: nauman

Period: 2016-02-19 14:00:00 - 2016-02-19 15:25:00



Fuel report settings

| Reports | | | | | | | | × |
|----------------------------|---|-------------------------|-------------------|----------|---------|--|---|----------|
| + New 🗎 Save 🛪 | Create | | | | | | | |
| Report | | | | | | | | |
| Name | FF | Objects | Data items | Zones 9 | Sensors | | | |
| Туре | Fuel fillings | A100-Test | fifo | | | | | |
| Format | General information General information (merged) | A100-test- Halogen D | bf emo-Nigeria | | | | | |
| Show addresses | Object information | Nissan_An | gola | | | | | Ξ |
| Zones instead of addresses | Drives and stops Travel sheet | Q1-test TESTE CAC | | | | | | |
| Stops | Events | Uncle Hossein_Iran | | | | | | |
| Speed limit (kph) | Overspeeds Underspeeds | nauman test-hu | | | | | | - |
| Time period | Zone in/out Service | Schedule | | | | | | |
| Filter Today | Fuel fillings Fuel thefts | Daily | | | | | | |
| Time from 2016 | Logic sensor information | Weekly | | | | | | |
| Time to 2016 | Fuel level graph | Send to e-n | nail | E-mail a | ddress | | | |
| | Temperature graph | | 5 | 01.0 | - | C 1 1 1 | | |
| Name 🔨 | Sensor graph | | Format | Objects | Zones | Schedule | | |
| СС | Fuel thefts | | html | 1 | 0 | × | Î | ^ |
| FF | Fuel level grap | ph | html | 1 | 0 | × | Î | - |
| Fuel fillings | Fuel fillings | | html | 1 | 0 | × | Î | - |
| Fuel fillings | Fuel fillings | | html | 1 | 0 | × | Î | |
| GG | Overspeeds | | html | 1 | 0 | × | Î | |
| KANGULOGPS - Nissan | General informa | ition | html | 1 | 0 | Image: A second s | Î | |
| NN | General information | (merged) | html | 1 | 0 | × | Î | - |
| 0 | | | | | • | | | |

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For "Fuel fillings" and "Fuel thefts" reports, accuracy can be set at target tracker->Edit->Accuracy dialog, as below:

| Edit object | × |
|---|--------------|
| Main Fuel consumption Accuracy Sensors Service | |
| By default it should be set to (UTC 0:00), adjust only in case it is not possible to set (UTC 0:00) time zone on GPS device side | s (UTC 0:00) |
| Detect stops using | GPS + ACC |
| Min. moving speed in km/h (affects stops and track accuracy, default 6) | 6 |
| Min. difference between track points (eliminates drifting, default 0.0005) | 0.0005 |
| Nie zeelen (elizeieetee driftiee, defeult E) | |
| Min. gpslev value (eliminates drifting, default 5) | 5 |
| Max, bdop value (eliminates drifting, default 3) | |
| wax. hoop value (enminares uniting, default 5) | 3 |
| Min. fuel difference to detect fuel fillings (default 10) | 20 |
| Min. fuel difference to detect fuel thefts (default 10) | 20 |
| Clear detected sensor cache | Clear |
| | |
| | |
| | |
| | |
| | |
| 🗎 Save 🔷 🗙 Cancel | |
| | |

8 Fuel monitoring accuracy

What's the fuel sensor accuracy? Below factors affect the fuel monitoring accuracy:

| Factors | Details |
|---------|---|
| 1 | The fuel sensor itself accuracy under correct installation, it is stable, 98-99% |
| 2 | Calibration, the incorrect calibration process will reduce the fuel sensor accuracy |
| 3 | The GPS tracker analog input signal error rate is $<\pm 2\%$. This error rate is constant, so it |
| | can be eliminated by fuel sensor formula adjustment. |
| 4 | The quality of GPS tracker firmware algorithm. During the vehicle moving, the fuel level |
| | fluctuates, need the firmware of GPS tracker to deal with this situation, filter the |
| | fluctuations. All fifotrack models have built-in fuel filtration algorithm, that's why we |
| | suggest use our own GPS tracker and fuel sensor solution together. |
| 5 | Data uploading time interval to platform. The principle is configuring short time interval |
| | like at 10 seconds under ACC on condition, setting long time interval or stop uploading |
| | data under ACC off condition. The platform has more meaningful data to deal with, the |

| | accuracy is higher. |
|---|--|
| 6 | The quality of platform algorithm to deal with the fuel data, especially the fuel |
| | filling/theft/consumption data, the platform need do lots of calculations. This part is |
| | out of the tracker and fuel sensor's control. |
| 7 | The stability of external power. If the external power is not stable, on/off too frequently, |
| | the fuel sensor accuracy will be affected. |
| 8 | The fuel tank shape. Irregular size fuel tank need do height-capacity calibration, since |
| | the fuel tank height and the fuel capacity is not linear relationship. |
| 9 | Incorrect key information such as the fuel tank full capacity, the fuel tank shape size is |
| | regular or irregular. |

What's the fuel sensor accuracy if everything do correctly? Our answer is 97-98%

Below is the example about the comparison between fuel filling report and the actual filled fuel.

Fuel fillings

Г

Object: 2R-5818 (Fuel) 2020-03-01 00:00:00 - 2020-03-10 00:00:00 Period: After Position Before Filled Time Sensor 2020-03-04 19:54:41 20.650163 °, 96.620848 ° 56.02 Liters 168.06 Liters Fuel Level 2020-03-05 19:07:57 20.140433 °, 96.195740 ° 56.02 Liters 406.99 Liters Fuel Level AUNGBAN STATION DENKO TATKON STATION Ø 2 09 426 056 501 **2 09 9749 00275** 01172982 05-03-2020(19:05) 1/2 Premium Diesel (10 350.877 x 855 KYAT Receipt No: 01471004 Receipting: 014/1004 Date/Time: 04-03-2020(19:55) Pump/Noz: 4/3 Product : Premium Diesel (10 Lit/Price: 114.943 x 870 kyAT 300,000 KYAT 100,000 KYAT Cash Total 2R 5818 2R 5818 See You Againi

Object: Period:

2020-02-18 00:00:00 - 2020-02-29 00:00:00

9K-4198 (Fuel)

| Time | Position | Before | After | Filled | Sensor |
|---|---|---|--|---|------------|
| 2020-02-19 17:25:42 | 16.936043 °, 96.087000 ° | 100.00 Liters | 360.00 Liters | 260 Litera | Fuel Level |
| 2020-02-26 17:15:55 | 22.754390°, 97.624820° | 176.72 Liters | 231.96 Liters | 99,24 üters | Fuel Level |
| And | Contraction and contraction of the contraction | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | 14983 1982-2928051. 0 09 100-520053. 0 100-520053. 0 100-520055. 0 100-520055. 0 100-520055. 0 100-520055. 0 100-520055. 0 100-52000 | 200722 20072 200722 200722 20072 20072 20072 200 | |

9 FAQ

1. Do you have installation Video guide

Yes, please check the link: <u>https://www.youtube.com/watch?v=7Xjg204mb1I&feature</u>

| 2. Is the AS10 capacitive fuel sensor suitable for small car? |
|---|
| Depends. The key information is what's the fuel tank height of small car. |
| Less than 200mm length, the fuel sensor will not work well. So the fuel tank height should be |
| greater than 200mm. |
| Besides, normally the shape of fuel tank in a small car is irregular size, the users need do |
| height-capacity calibration like below. |
| Liter Fuel sensor signal wire voltage |
| 0 0 |
| 5 X1 |
| 10 X2 |
| 15 X3 |
| 20 X4 |
| 25 X5 |
| |
| 60 5V |

3. I need longer fuel sensor greater than 700mm

Available, optional, up to 2500mm length, case by case discuss.

4. fifotrack provides AS10 capacitive Fuel sensor, ultrasonic fuel sensor, original fuel sensor, liquid sensor, what's the difference, how I choose?

AS10 fuel sensor is the priority among above options. It is an economic, mature, adaptable and safe solution. However, the AS10 fuel sensor can't cover all applications. If the customers have below problems:

- Customers refuse to drill a hole on the fuel tank, at the same time need high accuracy fuel monitoring, ultrasonic fuel sensor is recommended. However, the ultrasonic need higher installation skills and the price is around usd30 higher than the AS10 fuel sensor.

- Customers want to monitor the small car fuel. Both the AS10 fuel sensor and ultrasonic fuel sensor are not suitable for most small cars, so the original fuel sensor solution (using vehicle existing built-in fuel sensor) becomes a solution accepted by part of customers. However, this solution accuracy is around 90%, but cost is 0, only need buy GPS tracker itself.

- Customers have **stationary** big container like 5 meters height need to monitor level. The liquid sensor is the most suitable solution both on cost and installation convenience considerations. However the liquid sensor is not suitable for moving objects.

5. Can I use third-party GPS tracker with AS10 fuel sensor?

Yes, but not suggest.

fifotrack device has built-in firmware for fluctuation fuel data filtration, also we have fuel filling/fuel theft/fuel consumption data based on hardware statistics. So using our device can improve the fuel monitoring accuracy.

The third-party analog input design is different, also we are less familiar with their devices. So the support quality will be lower. It may affect the accuracy too.

6. Do you provide RS232 type fuel sensor?

Yes, We can provide it.

Default is AD type.

Our A300/A500/A600/A700/S60 models support the RS232 type fuel sensor.

Confirm your demands before place order please.

7. 1 tracker can support 2 fuel sensors?

Yes. A series models A100/A300/A500/A600/A700 support 2 fuel sensors

The Analog input2(AD2) need send below SMS command to fit the fuel sensor signal voltage.

000000,B34,2,0,5

8. What's the AS10 capacitive fuel sensor warranty?

We provide 2 years warranty.

Other suppliers normally only provide 1 year warranty.

The lifetime is much longer than 2 years, we have customers who have installed the fuel sensor for 6 years and still work well now.

9. Can I use water to test the fuel sensor in office?

Not suggest.

The water is conducting medium. It may affect the fuel sensor.

10. How to achieve the monitoring accuracy as possible as?

1. Familiar with the user manual and installation video, make sure the installation steps are correct.

2. Understand the factors which affect the accuracy, check chapter 8

3. Trust supplier (us), be patient, many factors affect the accuracy. The accuracy improvement process also is a communication process between partners. Make sure the data provided by you is correct, the behavior descriptions from you is reliable. Ready to put time on it and it is worthy.

If you have any questions or feedback, please send e-mail to info@fifotrack.com