# ANALOG CAPACITIVE FUEL SENSOR Introduction & Tutorial

Version 1.0

## 1. Introduction

Capacitive fuel sensor is used for preventing fuel leakage and theft as it monitors the fuel level in real-time. When an abnormal change of fuel level is detected, an immediate alert will be sent to inform vehicle owners of that incident.

The standard length of the tube is 75cm, can be trimmed to fit tanks of varying heights.

### 2. Picture



### 3. Specification

Operating voltage	10-32V DC (Normally 12/24V)
Working current	<15mA
Communication interface	Analog: Analog interface
IP rating	IP65
Working temperature	-40°C-85°C (-30-75°C recommended)
Installation position	Central sector inside the fuel tank
Calibration	By calibrator

# 4. Wiring diagram



5. Supported devices



# 6.1 Commands of X3

### • Function: Turn on fuel monitoring

### Command: ADT,ON,T#

T=5-3600 (unit: second), time interval of uploading, default=600s..



#### Function: Calibration

Command: ADCSET.A#

A=0: define current voltage as the voltage of empty tank.

A=100: define current voltage as the voltage of full tank.

	ADCSET,0#
OK!	
	ADCSET,100#
ОК!	

#### Function: Smoothing data report

Explanation: Mitigate the interference of abnormal fuel-level changes caused by jerk and vibration, thus the chart of fuel consumption can be more smooth.

Command: PSF,N#

N=1-100 (unit: pieces), the quantity of the data to calculate average, default=1pcs. Examples:

10

When N=1, smoothing function is turned off.

When N=3, uploaded fuel percentage =  $\frac{Sum of the last three percentages}{1}$ 

When N=10, uploaded fuel percentage =  $\frac{Sum of the last ten percentages}{1}$ 



#### • Function: Turn on the alert of fuel theft and refueling

Explanation: When the difference between two fuel percentages exceeds or equal to preset value, a fuel theft alert/refueling alert will be triggered.

Command: OILALM,A,T1,T2,C,H,M#

A=0, turn off alerts (DEFAULT).

A=1, turn on fuel theft alert.

A=2, turn on refueling alert.

A=3, turn on fuel theft alert and refueling alert.

T1=0-3600 (unit: second), the time interval of fuel monitoring when ACC is ON, default=5s. When T1=0, means "no monitoring when ACC is ON".

T2=0-3600 (unit: second), the time interval of fuel monitoring when ACC is OFF, default=5s. When T2=0, means "no monitoring when ACC is OFF"

C=1-300 (unit: pcs), the maximum quantity of local data storage (First in first out), default= 12pcs.

H=1~10000, the threshold of the difference of fuel percentages, unit: 0.01%, default=1000. The device can automatically compare the first percentage and the last percentage stored at local, if the difference is larger than preset value "H", a fuel theft alert/refueling alert will be sent. (Device can identify whether the percentage is increasing or decreasing).

- M=0, alert by platform only.
- M=1, alert by SMS & platform (DEFAULT).
- M=2, alert by SMS & platform & phone call.
- M=3, alert by platform & call.



# 6.2 Commands of GT06E & JM-VL02

### • Function: Turn on fuel monitoring

Command: ADT,ON,T#

T=5-3600 (unit: second), time interval of uploading, default=600s..



### Function: Calibration

Command: ADCSET,A#

A=0: define current voltage as the voltage of empty tank.

A=100: define current voltage as the voltage of full tank.



# 7. Platform

#### 1) Click "Report" on homepage.

Tracksolid	E Dashboard 🕀 Device	🚰 Account 🖽 Moni	itor 📴 Geo Fence 🖃	Video 🚖 Fleet (	٩		Hello, <b>test-on</b> ≰I Command <b>⊙</b> Help <b>o</b> g Settings		
My Account	Overview Rapid Sale	e Recharge Card	Mi Coins				Display this tab by default		
Account Details									
Messages (7)	49	95	527				_		
Virtual Account	E.) Stock		D Total				1111		
Model Name Alias					Monitor	Report			
Report									
	1	9	11	142			<u></u>		
	🙈 Online	C Offline	Expiring Soon	Expired					
					Geo Fence	Account	Device Management		
	200	127	6	21		L			
	- Activated					P <sup>a</sup>	-40		
	Activated	CK macuve	ZI Alerting Devices	Pollowing	Command	РОІ	Alerts		
				Descriptor			<b>14.05</b> 2 <b>1</b>		
	Account : test-c	on	Service Provider	r : Test					
	Account Type :	Sales	Contact : Test						
	Telephone : 150	188889999	Telephone : 400	-616-5931		Sc	an QR code to download App		
							4		
							_		

### 2) Click "Fuel consumption" on the left column.

Track	k soli	<b>æ</b>	🖻 Dashboard 🛛 🖨 Device	🚰 Account 🖽 Mor	iitor 🔁 Geo Fence 🔳 Video	⊜Fleet Q		Hello, <b>test-on</b> ≰I Command <b>i H</b> elp <b>o</b> \$ Settings
Report	•	Moving Overv	iew				0 Please no	ote that this report doesn't include today's data.
Motion Statistics	^	Yesterday	▼ 2020-09-24 00:00	2020-09-24 23:59	TEST-ON(Stock495/Total527)	Enter Device Name/IMEI	X Q Search	🛓 Export 🔒 Print
Moving Overview							Total: Total Mileage 0 kn	n , Overspeed 0 times, Stopover 0 times
Trips		No.	Device Name	IMEI	Model	Total Mileage ( km)	Overspeed(times)	Stopover(times)
Overspeed						. No data found.		
Parking	. 1							
Idling	. 1							
Ignition	. 1							
State Statistics	^							
Offline								
Online								
Device Statistics	^							
Device Overview								
Internal Battery	- 1							
External battery								
Fuel Consumption		-						
Temperature	-							A
Driving Behavior								
Positioning & Batter	у							

#### 3) Select the account and time period and input the device IMEI number.

Tracksol	P 回Deshboard 白Device 曾Account ①Monitor 認Geo Fence ■Video 会Fleet Q	Hello, <b>test-on</b> ≰Command <b>⊘</b> Help <b>©</b> Settings
Report	Fuel Consumption	
Motion Statistics A	user-defined v 2020-09-25 16:00 2020-09-25 19:40	
Moving Overview	TEST-ON(Stock495/7otal527)         •         351510090935365         ¥         Q         Q Search	🛓 Export 🔒 Print
Trips	No. Device Name Fuel Tank Shape IMEI Model Update Time Oil Amount	Operation
Overspeed	ل No data found.	
Parking		
Idling		
Ignition		
State Statistics		
Offline		
Online		
Device Statistics		
Device Overview		
Internal Battery		
External battery		
Fuel Consumption		
Temperature		Δ
Driving Behavior		
Positioning & Battery		

### 4) Click "View Chart" or "Export",

Tracksoli	Dashboard 🖨 Device	😁 Account 🖽 Monitor 👔	길 Geo Fence 🗖 Video	A Fleet			Hello, <b>test-on</b> ≰I Command <b>⊋</b> Help <b>⊄</b> \$ Settings
Report	Fuel Consumption						
Motion Statistics	user-defined <b>v</b> 2020-09-25 16:00	2020-09-25 19:40					
Moving Overview	TEST-ON(Stock495/Total527)	351510090935365	х	Q Q Search			📥 Export 🖨 Print
Trips	No. Device Name	Fuel Tank Shape	IMEI	Model	Update Time	Oil Amount	Operation
Overspeed	1 X3-35365		351510090935365	Х3	2020-09-25 19:40:55	18.24L(45.6%)	View Chart
Parking	2 X3-35365		351510090935365	Х3	2020-09-25 19:40:50	18.24L(45.6%)	View Chart
Idling	3 X3-35365		351510090935365	Х3	2020-09-25 19:40:45	18.24L(45.6%)	View Chart
Ignition	4 X3-35365		351510090935365	Х3	2020-09-25 19:40:40	18.24L(45.6%)	View Chart
State Statistics	5 X3-35365		351510090935365	X3	2020-09-25 19:40:35	18.24L(45.6%)	View Chart
Offline	6 X3-35365		351510090935365	X3	2020-09-25 19:40:30	18.24L(45.6%)	View Chart
Online	7 X3-35365		351510090935365	X3	2020-09-25 19:40:25	18.24L(45.6%)	View Chart
Device Statistics	8 X3-35365		351510090935365	Х3	2020-09-25 19:40:20	18.24L(45.6%)	View Chart
Device Overview	9 X3-35365		351510090935365	Х3	2020-09-25 19:40:15	18.24L(45.6%)	View Chart
Internal Battery	10 X3-35365		351510090935365	X3	2020-09-25 19:40:10	18.24L(45.6%)	View Chart
External battery		10	v < 1 2	3 4 5 9 10	> Go		
Fuel Consumption							
Temperature							0
Driving Behavior							
Positioning & Battery							

### 5) Then you can view the fuel consumption graph.



### 6) Or export a fuel consumption report.

	А	В	С	D	E	F	G	Н	1	J	K	L	M	N	0	Р
		Fuel Consumption Report(from 2020-09-25 17:00 to 2020-09-25 18:40)														
1																
2	No.	Device name	Fuel tank shape	Device IMEI	Model	Update time	Oil amount									
3	1	X3-35365		351510090935365	Х3	2020-09-25 18:40:58	25.68L(64.2%)									
4	2	X3-35365		351510090935365	Х3	2020-09-25 18:40:53	25.68L(64.2%)									
5	3	X3-35365		351510090935365	X3	2020-09-25 18:40:48	25.68L(64.2%)									
6	4	X3-35365		351510090935365	X3	2020-09-25 18:40:43	25.68L(64.2%)									
7	5	X3-35365		351510090935365	X3	2020-09-25 18:40:38	25.68L(64.2%)									
8	6	X3-35365		351510090935365	X3	2020-09-25 18:40:33	25.68L(64.2%)									
9	7	X3-35365		351510090935365	X3	2020-09-25 18:40:28	25.68L(64.2%)									
10	8	X3-35365		351510090935365	X3	2020-09-25 18:40:23	25.68L(64.2%)									
11	9	X3-35365		351510090935365	X3	2020-09-25 18:40:18	25.68L(64.2%)									
12	10	X3-35365		351510090935365	X3	2020-09-25 18:40:13	25.68L(64.2%)									
13	11	X3-35365		351510090935365	X3	2020-09-25 18:40:08	25.68L(64.2%)									
14	12	X3-35365		351510090935365	X3	2020-09-25 18:40:03	25.68L(64.2%)									
15	13	X3-35365		351510090935365	X3	2020-09-25 18:39:58	25.68L(64.2%)									
16	14	X3-35365		351510090935365	X3	2020-09-25 18:39:53	25.68L(64.2%)									
17	15	X3-35365		351510090935365	X3	2020-09-25 18:39:48	25.68L(64.2%)									
18	16	X3-35365		351510090935365	X3	2020-09-25 18:39:43	25.68L(64.2%)									
19	17	X3-35365		351510090935365	X3	2020-09-25 18:39:38	25.68L(64.2%)									
20	18	X3-35365		351510090935365	X3	2020-09-25 18:39:33	25.68L(64.2%)									