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TECHNOTON

STARCOM Systems

Partner: Starcom Systems, Israel

Task: fuel level measurement in cisterns of truck tankers

Vehicles: MAN, MB, FAW truck tankers

Solution: DUT-E 2Bio differential fuel level sensors

Result: 60% costs reduction for cargo transportation insurance

PARTNER

Starcom Systems is one of the global leaders in complex telematics projects development and implementation. Starcom Systems solutions cover various fields - road transportation, container shipping by sea and rail, perishable goods transportation, animal farming, healthcare, banking etc.

Starcom Systems is traded on London Stock Exchange.

150 distributors

50+ countries of operation

15+ years in telematics

VEHICLES

MAN, MB, FAW truck tankers. They belong to a company from North Africa, which refines crude oil to petroleum products, and delivers products to fuel stations and fuel storage units of road builders. In the same compartment of cistern different fuel types can be transported depending on the day: diesel, gasoline, kerosene.

Totally over 1000 truck tankers of various design are involved in fuel transportation: three-axle vehicles with cistern, two-axle freight trucks with three-axle semi-trailer, three-axle vehicles with cistern and a second one on the trailer. Total volume of oil products, that are carried is from 15 to 45 cubic meters.

TASK

Fuel is transported over long distances: from 100 to 1000 km. But it often happens that some part of fuel is not delivered to the endpoint. Unfortunately, some roguish drivers steal fuel by discharging high-quality fuel and by adding extraneous liquids to fuel in the tank or fill the tank with various illegal liquids to keep fuel theft hidden. Actions like that directly cause loses to fleet owner and entail reputation risks.

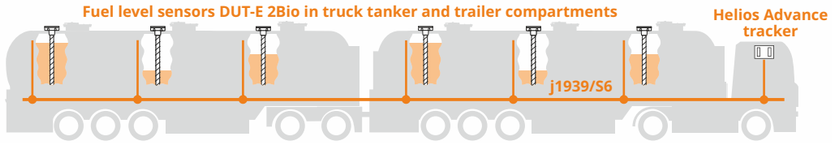
Transportation company has to provide cargo insurance, because there is no opportunity to ensure high-level cargo security while shipping. But the problem is that insurance companies set out so high prices, so that it strongly lowers profitability of transportation.

Fuel tank monitoring allows reducing risks of fuel theft when freighting. The system notifies on fuel draining and fuel replacement in cistern in real-time, thus ensuring fuel theft prevention. So much the more insurance companies are ready to lower prices by several times for vehicles, equipped with fuel tank monitoring system.

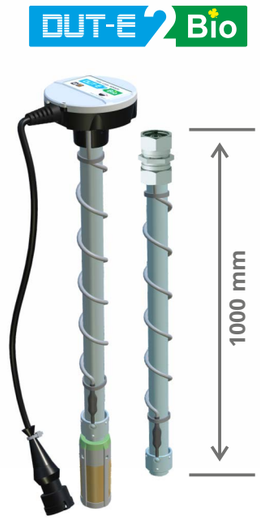
SOLUTION

DUT-E 2Bio fuel level sensor provides high accuracy of fuel volume measurement no matter what fuel type is. In case fuel tank was filled with gasoline instead of diesel fuel, measurement inaccuracy won't get higher than 1%. That means, that you don't have to re-calibrate sensors, make changes to fuel tank table and carry out additional adjustment of the telematics unit anymore. Messages on fuel type/quality change are sent to the tracker, which notifies fleet manager of this Event via e-mail or SMS. The efforts of roguish drivers to steal or change fuel won't go unnoticed.

DUT-E 2Bio differential fuel level sensor is installed in each compartment of a cistern. The height of cisterns varies from 1500 to 2000 mm. To reduce transportation costs DUT-E 2Bio is supplied with 1000mm length and with additional sections 500 and 1000mm. **Adjustment of DUT-E 2Bio probe length occurs in few minutes during sensor installation.**



The number of compartments can reach six on truck tankers with trailers. That's why DUT-E 2Bio fuel level sensors with CAN j1939/S6 interface, based on S6 Technology are used. All sensors together with Helios Advance tracker are united in a single network with power supply and configuration of hardware from one point. Each sensor has a unique address in the network. This provides an opportunity to see both the total volume of fuel in the fuel tanker and trailer, and also level, volume and temperature of fuel in each compartment.



Differential fuel level sensor and additional section

Gregory Voleiko, Technoton Head of Sales Departments

"The main goal of the project – to exclude illegal fuel draining and replacement of fuel with cheaper liquids in a cistern. Third measuring electrode of DUT-E 2Bio detects fuel types by predefined pattern, measures fuel level and volume in each compartment of cistern, and sends alarms on fuel drain/change. Core features of DUT-E 2Bio:

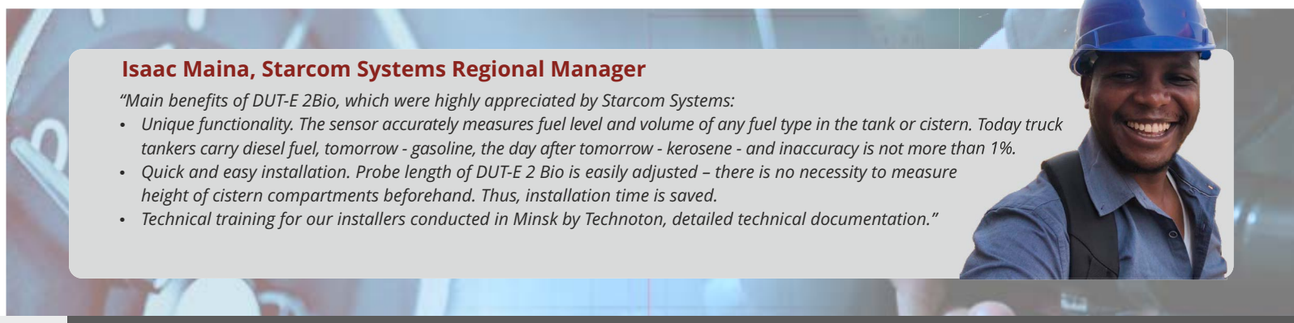
- *possibility of length cutting/extension of measuring tube - savings on delivery to the installation site;*
- *S6 Technology – easy mounting and configuration, possibility to create a network of several sensors connected to one CAN-port of telematics device."*

RESULT

DUT-E 2 Bio fuel level sensors were installed to more than 1,000 fuel trucks. Totally 2,200 sensors were mounted over a short period since March 2019, so that carrier didn't incur costs caused by vehicle idling. Due to the simplicity of a truck tanker fuel monitoring system, based on S6 Technology and Helios tracker with CAN interface, the total costs of the project was not high. Now fuel level sensors have already proven their quality and have shown high accuracy of measurement and reliability. As a result, a shipper has decided to equip all the new truck tankers with fuel tank monitoring system, based on DUT-E 2Bio and Helios Advance tracker.

Effects of implementing telematics system:

1) 60% costs reduction for cargo transportation insurance;
2) fuel drain volume reduction by more than 2 times;
3) excluded illegal fuel change.



Isaac Maina, Starcom Systems Regional Manager

"Main benefits of DUT-E 2Bio, which were highly appreciated by Starcom Systems:

- *Unique functionality. The sensor accurately measures fuel level and volume of any fuel type in the tank or cistern. Today truck tankers carry diesel fuel, tomorrow - gasoline, the day after tomorrow - kerosene - and inaccuracy is not more than 1%.*
- *Quick and easy installation. Probe length of DUT-E 2 Bio is easily adjusted – there is no necessity to measure height of cistern compartments beforehand. Thus, installation time is saved.*
- *Technical training for our installers conducted in Minsk by Technoton, detailed technical documentation."*