



- Customer** oil company
- Machinery** fuel tankers: tractor units with one or two tanks
- Task** monitoring fuel volume and level in tanks
- Solution** DUT-E 2Bio S7 level sensors, telematics device
- Result** monitoring fuel remaining in tanks, preventing theft during transportation

CUSTOMER

The company imports and distributes petroleum products and is owned by the Ministry of Energy of Sudan. It owns a network of filling stations and a fleet of fuel tankers for petroleum product delivery.

The company's main role is to support fuel supply to remote regions of the country.

 **2000** employees

 **200** fuel tankers

 **250** filling stations

MACHINERY



Fuel tanker with a tractor unit

Fuel tankers are designed to transport gasoline and diesel fuel. Vehicles with a 6×4 wheel arrangement are used as tractor units. The engines are diesel with power up to 480 hp.

The tractor unit tows one or two fuel tanks with a capacity of up to 45,000 L. A tank may have one or two compartments for transporting different types of fuel.

TASK



Fuel level measurement with a dipstick

Before the project, fuel volume during loading into the tanker and discharge at the unloading site was measured with a dipstick. This is a manual control method: the driver or operator opens the tank hatch, lowers the dipstick and determines the fuel level by the marks.

Measurement takes a lot of time, and additional error occurs due to tank tilt and thermal expansion of the fuel.



Fuel theft is possible in remote areas

When transporting fuel, tankers travel long routes through remote areas. Fuel may be stolen by third parties. During movement, the dispatcher cannot see the current fuel volume in the tank and cannot quickly detect theft.

The client's key tasks were to:

- **accurately control fuel volume during loading and discharge;**
- **prevent fuel theft en route.**

SOLUTION

The basis of Technoton's fuel monitoring system is the DUT-E 2Bio S7 wireless fuel level sensors with a third electrode for accurate fuel level detection. Data from the sensors is transmitted to the Teltonika telematics device and then to the telematics service.

Easy transportation and quick installation

Technoton supplies DUT-E 2Bio S7 and additional 1,000 mm sections, which simplifies transportation. On site, the sensor is extended to the required length. Data is transmitted to the telematics device via Bluetooth without cable routing.

Explosion protection and accuracy when changing fuel

DUT-E 2Bio S7 works with diesel fuel and gasoline and has an explosion-proof certificate. The third electrode detects a fuel change and automatically corrects the readings.

Filling and drain control

The sensor detects fillings and drains. If there is no connection, the event is stored in memory and transmitted later.

Data collection by one telematics device

The Teltonika telematics device collects data from all sensors and sends it to the telematics service. The data includes:

- fuel level, volume and temperature in each compartment online;
- fuel movement reports for any period;
- filling and drain alerts.



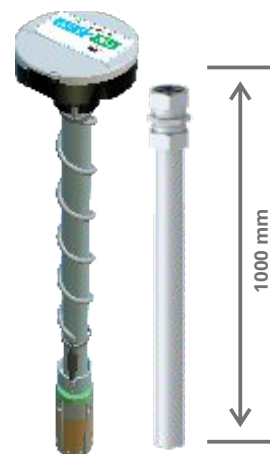
Monitoring system components: ① DUT-E 2Bio S7 fuel level sensors
② Teltonika telematics device with Bluetooth interface



Sensor installed on the tank



Sensor sealing



DUT-E 2Bio S7 sensor and additional section

Hleb Iljuška, Sales Manager, Technoton

"The client's key task was accurate fuel level control, including when the fuel in a compartment changes.

DUT-E 2Bio S7 sensors are equipped with a third electrode that automatically corrects readings when the fuel changes. Unlike sensors from other manufacturers, correction is performed when any volume of fuel is added, regardless of whether the compartment is partially or completely filled. Sensor recalibration is not required. The measurement accuracy fully satisfies the client."



RESULT

Technoton's fuel monitoring system has been installed on more than 100 tanks. The client received accurate fuel accounting in each tank compartment during loading, transportation and unloading. Data is transmitted to the telematics service and makes it possible

to see the actual fuel volume during a trip. The system records fuel fillings and drains. The client receives drain notifications. **Fuel theft during transportation has stopped.** Installation of the system on all the client's fuel tankers is planned.

Technical Specialist of the Customer company*

"We chose Technoton's fuel monitoring system for two reasons.

- DUT-E 2Bio S7 sensors provide **high measurement accuracy**. A dipstick check showed that the error does not exceed 1%, even when the fuel in the tank compartment changes from diesel fuel to gasoline or vice versa.
- The sensors have an **explosion-proof certificate** and are suitable for measuring the level and volume of both diesel fuel and gasoline."

** Details are withheld to comply with GDPR requirements. Additional information may be disclosed upon signing an NDA and with partner's consent.*

