Fuel Monitoring in Large Stationary Tanks

Overview of fuel control systems

Fueling the World, Shaping the Future

Fuel Monitoring

About Us

NIKOLIN has been operating in the fuel monitoring industry since 2010.
Our core business is the production of fuel level sensors. We offer high-precision capacitive fuel level sensors that have been used for many years in a variety of climatic conditions, from the harsh Siberian climate and the hot African climate to the equatorial countries of Central America.

NIKOLIN has been exporting fuel level sensors to more than 25 countries for many years. NIKOLIN sells the necessary equipment for fuel consumption monitoring on-site. This equipment reduces fuel costs by an average of 30%. NIKOLIN sensors are manufactured using only high-quality components and materials. All sensors undergo rigorous testing in several stages before being released for sale.

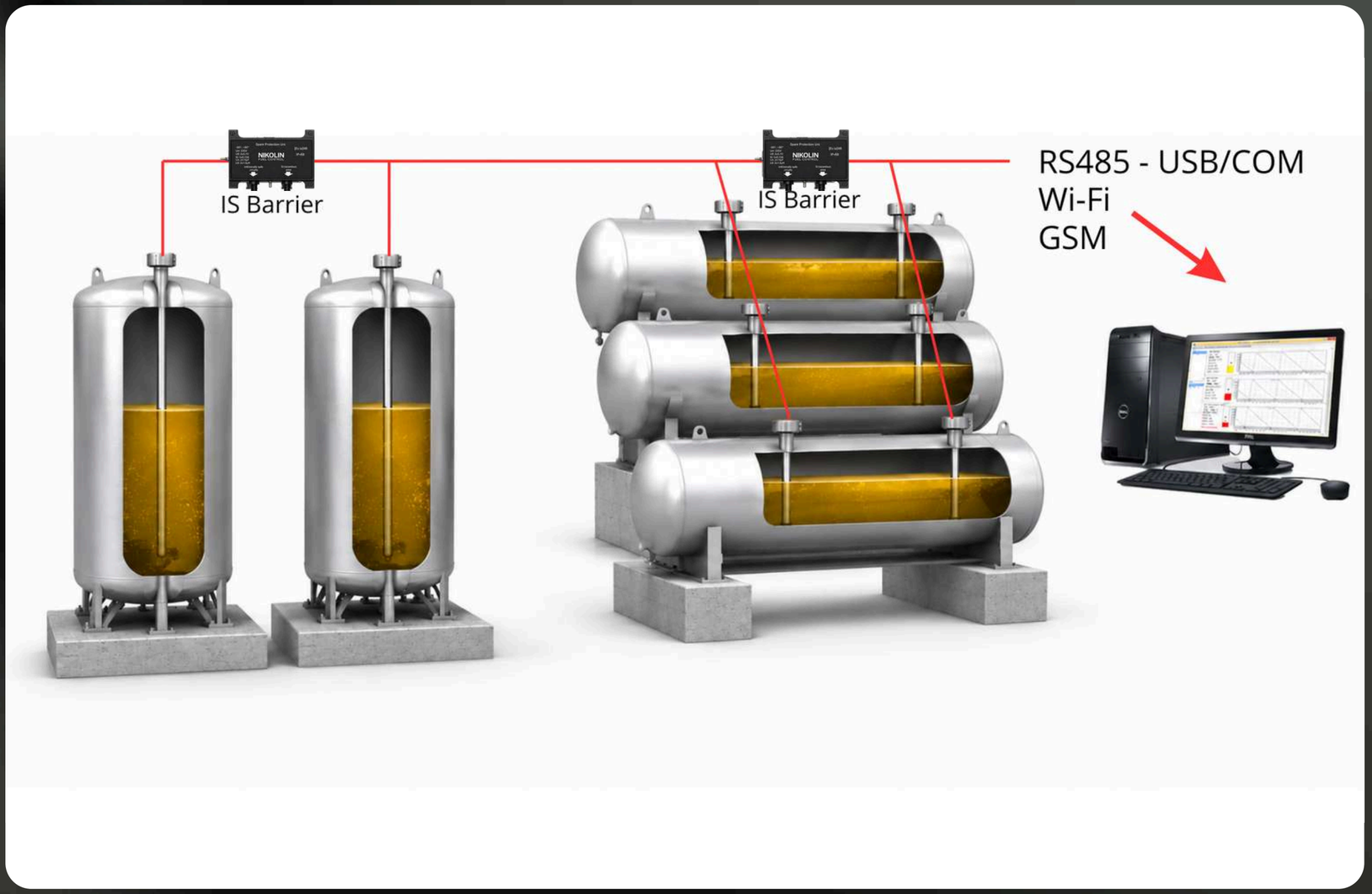
NIKOLIN
FUEL CONTROL

Operating Principle of the Fuel Monitoring System for Large Stationary Tanks

The system consists of four components:

1. High-precision professional capacitive fuel level sensor with digital output.
2. Intrinsic safety unit
3. **GPS tracker**
4. Software that allows you to track data in real time.

Our company has implemented these projects in various countries. The main ones were in Russia, Belarus, Saudi Arabia, South Africa, and elsewhere.



Fuel Level Sensor for Stationary Tanks

The benefits you get with our fuel level sensors:

- Capacitive fuel level sensors are a highly professional measuring device with a maximum accuracy of over 99%.
Compared to float or ultrasonic sensors, where the error can reach 10-30%.
- The main advantage of our sensors is their excellent price-to-quality ratio.
- Accuracy of over 99%.
- Vandal-resistant metal housing.
- Manufactured from tubing with a diameter of 25 mm and a wall thickness of 1.5 mm. For comparison, standard fuel level sensors from other manufacturers typically feature tubing with a diameter of 20 mm and a wall thickness of 1 mm.
- Nikolin sensors feature a highly rigid construction, as they are designed for use in large mobile tanker trucks, where fluctuations in fuel level and the pressure exerted on the sensor during vehicle movement are substantial.
- Rugged sensor design: IP66 protection, durable housing, and aluminum alloy tubes.
- Robust and reliable connection of all sensor components.
- Variety of interfaces.
- High accuracy: resolution of 4096 points along the measured length.
- Internal averaging of fuel data.
- We can record a calibration curve (level - volume) in the sensor, turning it into a fuel volume sensor.
- Stable and clean output signal.
- Built-in power regulator.
- Can be trimmed without recalibration.
Cut to any length using a calibrator (no need for a laptop connection) or a USB adapter.
- Output signal short-circuit protection.
- The kit includes everything needed for installation and connection.
We can offer sensors of any length up to 12,000 mm.

SPECIFICATION
Fuel Level Sensor
(RS-485 / RS-232)

Product Name	Meaning
Food	
Supply voltage	10…30
Current consumption, mA	20
RS-232 interface (RS-485)	
Data transfer protocol	Modbus, Omnicomm
Baud Ratedefault bit / s	19200
Supported speed data bit / s	9600, 14440, 19200 38400, 57600, 115200
Parity	no
Stop bit	1
level Measurement	
Lower Limit controlled fuel level of the tank bottom, mm	from 20
The upper limit measurement, mm	from 200 до 4000
Basic reduced error of measurement of the level% of the length of the sensor	± 1
Further reduced temperature error,% *	no more ± 1
General characteristics	
Overall dimensions, mm	L x 70 x 70
Weight, kg	from 0,3 до 3
Continuous operation	not limited
Operating Temperature Range, ° C	from -40 до +70
Relative humidity Ambient a temperature not exceeding +40 ° C,%	no more 95

* Additional reduced error takes into account the effects of ambient temperature from - 40 ° C to + 70 ° C.

GPS Tracker

Teltonika FMB 125

SPECIFICATION

1. Supply voltage, V 10–30
2. Dimensions, mm 65 × 57 × 21
3. Operating temperature, °C -40 to +85
4. GNSS antenna type Built-in
5. GSM antenna type Built-in
6. Weight, g 55
7. Accelerometer Yes
8. RS-485 Yes
9. RS-232 Yes
10. Digital inputs 1
11. Analog input 1
12. Digital outputs 1
13. CAN 2.0 Via adapter
14. Bluetooth Yes
15. OBD-II No
16. SMS Yes
17. Backup battery Yes
18. Number of SIM cards 2
19. Protection class IP41
20. GSM, MHz 850, 900, 1800, 1900
21. Data transmission 2G
22. Odometer No
23. OEM (PID) support No
24. 1-Wire Yes

Intrinsically Safe Barrier

Features and benefits:

Reliable protection of power and signal lines;
Easy connection to the sensor's power supply;
Compact housing, easy to install;
Compatible with monitoring systems.

Application:
Used in large stationary fuel tanks and on vehicles transporting hazardous materials (including gasoline, diesel fuel, and chemicals).

SPECIFICATION

BIS - is a protective module. Eliminates the risk of fire in areas with gas or vapors.

Technical Specifications of the BIS Intrinsic Safety Barrier:

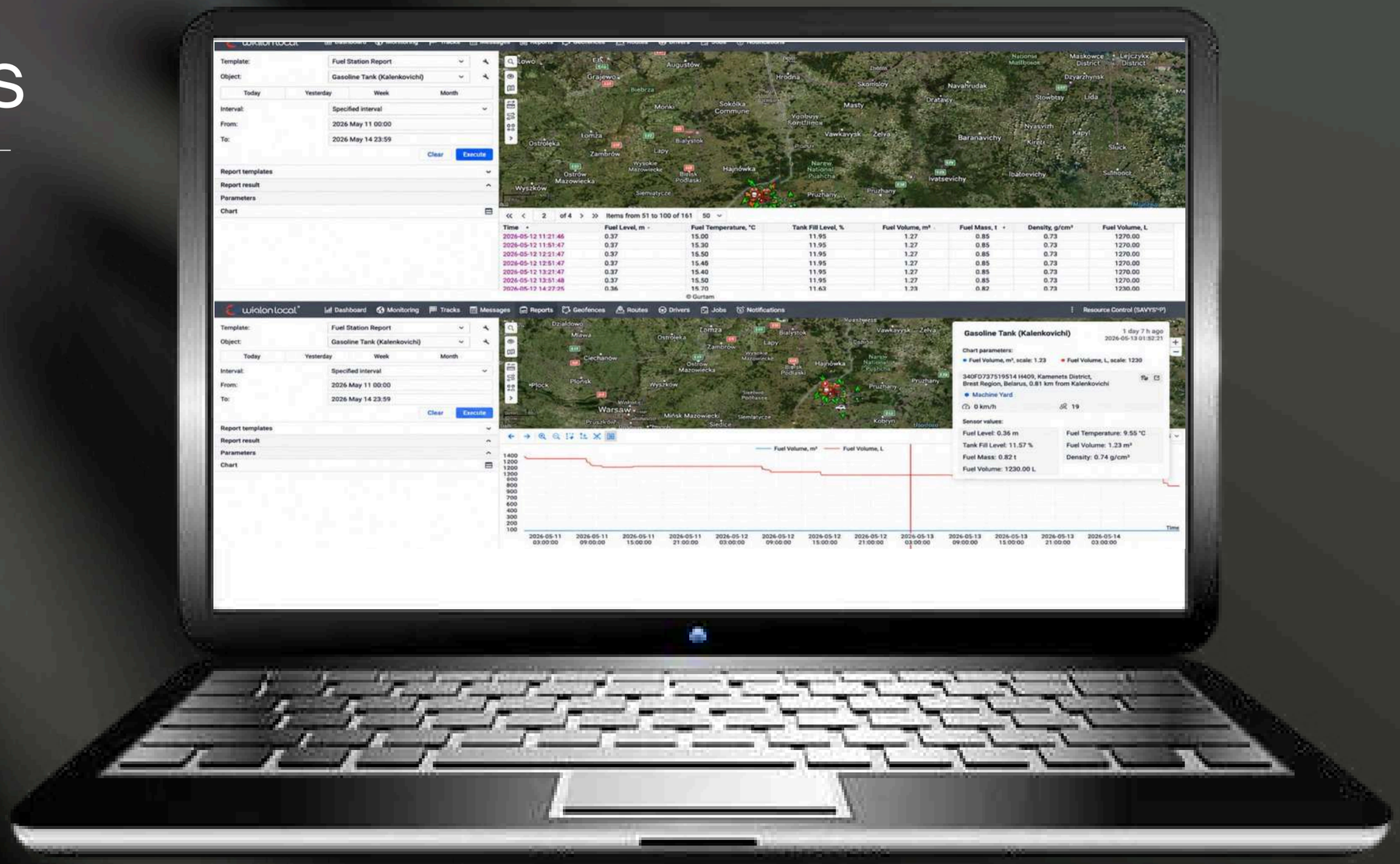
Characteristics	Value
Supply voltage:	+8 to +50 V
Operating temperature range:	60 to +80 °C
Degree of protection against dust and moisture ingress:	IP69K
Overall dimensions (excluding cables)	138 × 115 × 56 mm
Mass, not more than	0.9 kg
Average service life:	12 years

Intrinsically Safe Electrical Parameters of the BIS-MX Intrinsic Safety Barrier:

Parameter	Value	
	Outputs 2, 5	Outputs 3, 6
External capacitance Co, μF (max.)	2 × 15	
External inductance Lo, mH (max.)	2 × 1.0	
Maximum input voltage Um, V (min.)	250	
Maximum output voltage Uo, V (max.)	2 × 6.95	2 × 6.5
Maximum output current Io, A (max.)	2 × 0.463	2 × 0.127

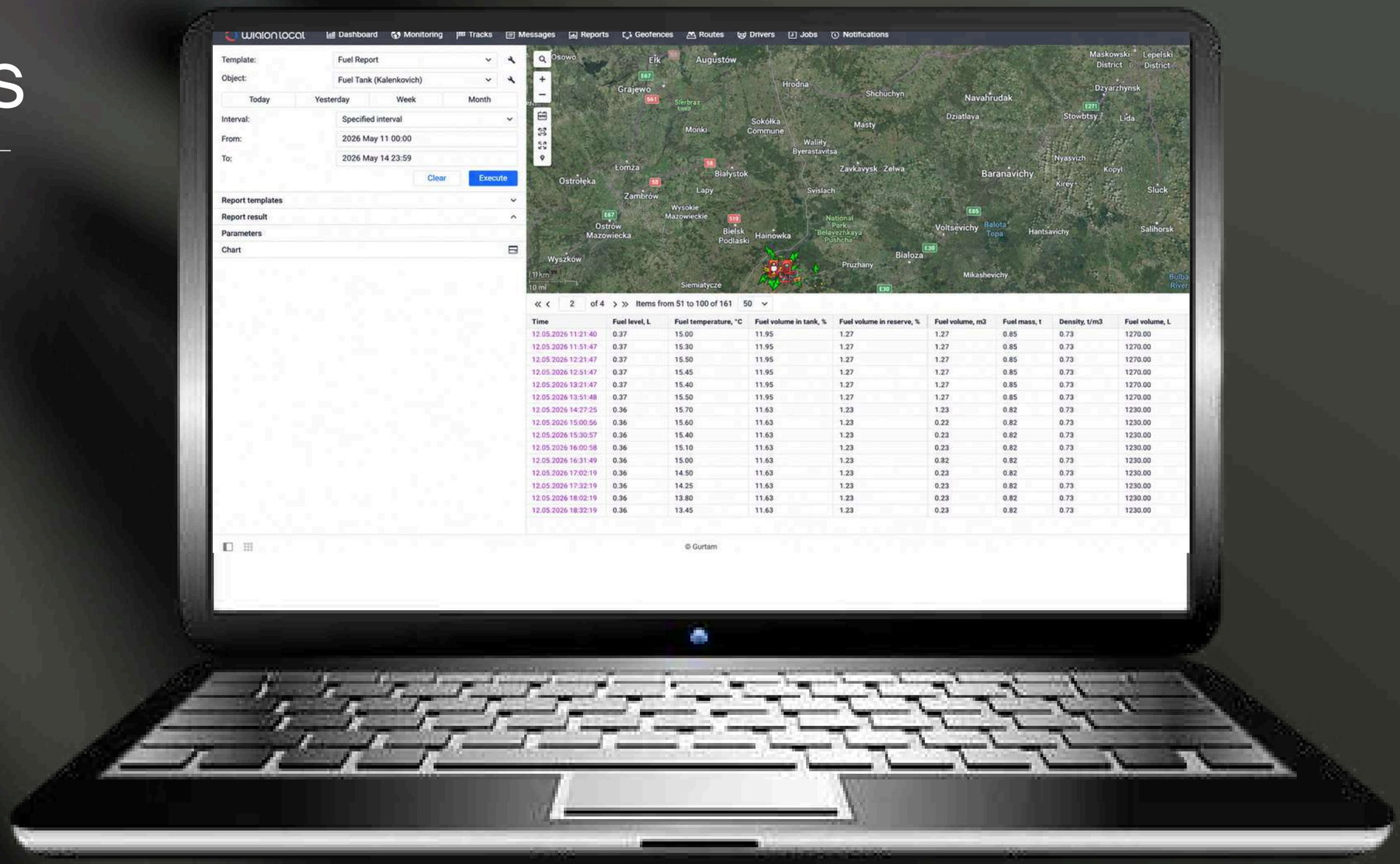
Fuel control technologies

Examples of reports



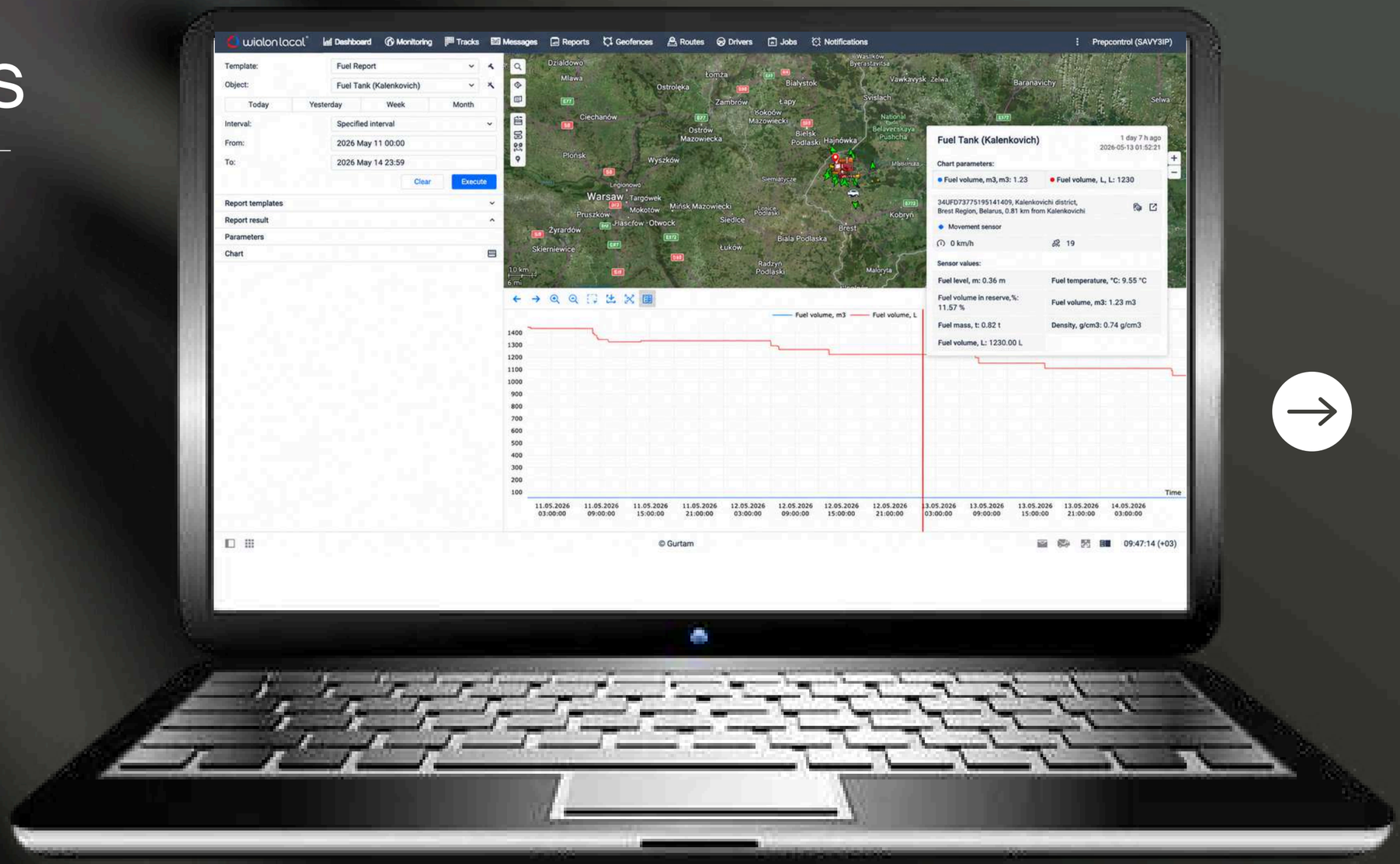
Fuel control technologies

Examples of reports



Fuel control technologies

Examples of reports



Thank You

Get In Touch

Thank you for your interest in our products. If you would like to discuss details or collaborate, please contact us using the information below.

Nikolin Co.

www.nikolin.spb.ru

com.dir@nikolin.spb.ru

Engels Ave., 34, office 419,
St. Petersburg, Russia,