



MONITORING SYSTEMS

FUEL CONSUMPTION MONITORING

OR HOW MANAGING THE FLEET WILL INCREASE YOUR PROFIT

TOTAL FLEET CONTROL IN REAL TIME

FUEL CONSUMPTION MONITORING SYSTEM OPERATION PRINCIPLE :

2

1

Escort TD fuel level sensor is installed to a tank collecting data on fuel drains/refueling.

2

Fuel level readings are transmitted by the Escort TD to a GPS/Glonass tracker installed in a driver's cabin. GPS/Glonass tracker is a data receiving/ transmitting device providing the vehicle geolocation at any time.

3

Data is transmitted via GSM.

4

Data from a tracker is transmitted to a server and processed. The system owners are then able to monitor received data from their mobile phones or computers at any time.





**FUEL MONITORING SYSTEMS BY ESCORT
WILL HELP YOU OBTAIN:**

1

10-30% decrease
of fuel costs

2

10% decrease
of maintaince costs

3

10-30% in mileage
reduction

5

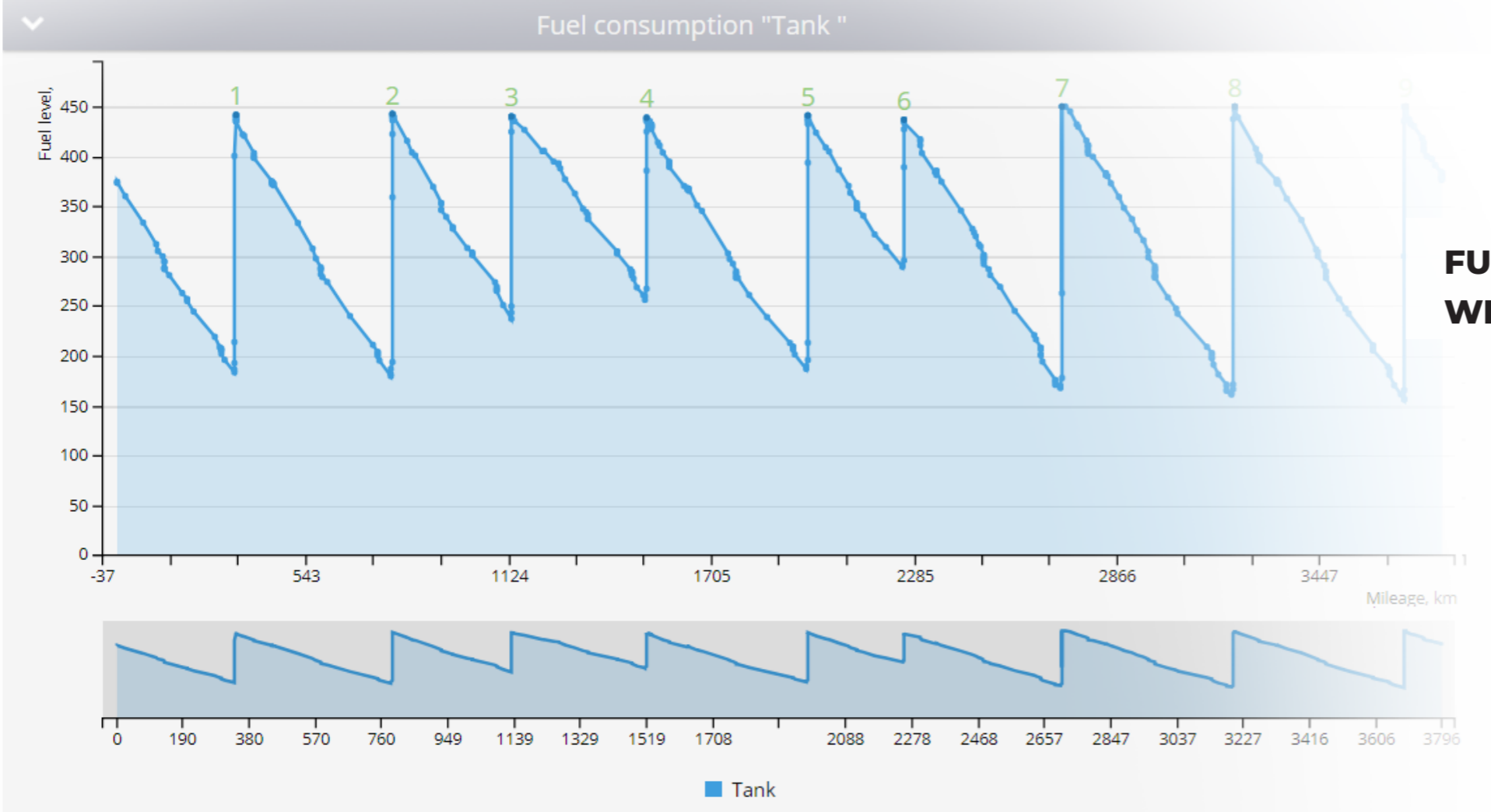
**BY MEANS OF FLEET MONITORING
SYSTEM YOU WILL PREVENT:**

1

fuel theft

2

transport use for personal
purposes



monitoring systems

FUEL MONITORING SYSTEMS BY ESCORT WILL HELP YOU OBTAIN:

1

Fuel theft

2

False or incomplete
fillings

7

3

Fuel theft from diesel
engine return pipe

4

Unwanted filling stations
use

Fillings and drains							
#	Time	Filling / Drain	Volume, %	Start volume, %	End volume, %	From start, km	Address
1	Dec 3, 2017 15:01:43	Filling	258.3	183.3	441.6	342.1	SDV Marine, Eastern Bypass, Port Harcourt, Nigeria
2	Dec 4, 2017 20:46:41	Filling	262.9	179.7	442.5	788.6	Eket-Port Harcourt Expy, Nigeria
3	Dec 5, 2017 02:10:00	Filling	202.8	237.2	440	1132.5	Eket-Port Harcourt Expy, Nigeria

ESCORT TD

FUEL LEVEL SENSORS



All Escort products are safe, reliable and comply with the highest quality standards of GOST-R certification system, EAC customs union and **CE** Escort products are easy to set up, user-friendly and compatible with a wide range of monitoring systems.



Our upgraded thermocompensation algorithm adjusts the fuel level reading in accordance to ambient temperature with accuracy of 99%. Self-diagnostics reports on the presence of water or sediment by means of specific code message.



Escort TD Sensors provide normal operation in temperature range -60/+80C, have galvanic isolation of the entire casing. Improved protection from polarity reversal, electromagnetic interference and power supply fluctuations.



Electronic circuit is protected by shock-proof case made of high quality polyamide plastic. Sensor head is fully hermetic, featuring IP67 dust-and-water proof mark in accordance with IEC60529 standard.



Sensors fit to any tank depth from 15 cm to 6 m.



ESCORT TD-BLE

WIRELESS FUEL LEVEL SENSOR



First ever wireless FLS featuring Bluetooth Low Energy (BLE)

- ✓ OExiaIBT6 X explosion proof certification
- ✓ Decreased installation time
- ✓ Elimination of a vandalism cases due to absence of wires
- ✓ Lithium-Thionyl Chloride battery with life span of 7 year
- ✓ Body is made of an exceptionally durable glass-filled poliamide, robust, hermetic and impact proof.
- ✓ Set-up using your smartphone.



Escort TD-BLE Fuel level sensor can operate for a several years on one battery, thanks to the Bluetooth Low Energy protocol. All the data is still being transferred with the same reliability and stability as if by wire. Escort TD-BLE mass production has started in the year 2018.

TECHICAL SPECIFICATIONS:

Operation mode	digital
Digital Mode: -Interface -Communication Protocol	Bluetooth LE (BLE) Escort BLE
Measuring error	maximum 1%
Range (at normal conditions in the absence of interference and obstacles when working with the base)	up to 100 m
Receiver Sensitivity / Transmitter Power	-90 dB/0 dB
Ingress protection by GOST 14254	IP 67
Electric shock protection according to GOST 12.2.007.0	class III
Operation conditions: -Operating temperature -Atmosphere pressure	-40...+85 C ° 84...106,7 kPa
Overall dimensions	no more 80x80 (L+38) mm, where L – length of tubes
Measuring tubes	from 15cm to 6m



TD 500 FUEL LEVEL SENSOR



4 CONNECTION INTERFACES: RS-485, Analog, Frequency, Impulse

- ✓ OExiallBT6 X explosion proof certification
- ✓ Certification of conformity GOST-R
- ✓ Approval certificate of measuring instruments
- ✓ Customs Union certificate
- ✓ Declaration of CE-comformity
- ✓ CAN-bus interface model is optional
- ✓ Readings transmission in liters/percents is optional

» The first in fuel level sensors line developed by our company.

Produced since 2009. There are more than 170 thousands units sold to date. Escort TD 500 is designed specifically for potentially explosive areas.

TECHICAL SPECIFICATIONS

Measured medium	Gazoline, diesel
Explosion-proof mark	OExiallBT6 X
Analog signal type	PWM
Digital output resolution	0,1%
Analog output resolution	0,25%
Analog output range	0,2 - 5 V
Frequency output range	300 - 4395 Hz
Impulse output range	2 - 1025 impulses
Measuring error, maximum	1%
Nonlinearity value, maximum	1%
Power supply voltage	9... 36 V
Power supply current, maximum	30 mA
Ingress protection	IP67
Operational temperature range	-60... +85 C °

TD 100 FUEL LEVEL SENSOR



2 CONNECTION INTERFACES:
RS-485, Frequency

- ✓ Certification of conformity GOST-R
- ✓ Customs Union certificate
- ✓ Cable disconnect/breakage alert

➤ **Produced since 2014. Over 60 thousand vehicles have been equipped to date.**

Escort TD 100 is in essence a simplified flagship model TD 500, featuring only two but the most commonly used interfaces.

TECHICAL SPECIFICATIONS

Measured medium	Gazoline, diesel
Digital output resolution	0,1%
Frequency output range	300 - 4395 Hz
Measuring error, maximum	1%
Nonlinearity value, maximum	1%
Power supply voltage	7 - 80 V
Power supply current, maximum	30 mA
Ingress protection	IP67
Operational temperature range	-60... +85 °C

TD 150 FUEL LEVEL SENSOR



3 CONNECTION INTERFACES:
RS-485, Frequency, Analog

- ✓ Certification of conformity GOST-R
- ✓ OExiallBT6 X explosion proof certification
- ✓ Customs Union certificate
- ✓ Declaration of CE-comformity
- ✓ Cable disconnect/breakage alert

» Escort TD 150 was released in 2017 as a response to the customers’ needs.

Next step of Escort fuel level sensors evolution. The major feature of TD 150 is an additional analog output with a twice expanded voltage range.

TECHICAL SPECIFICATIONS

Measured medium	Gazoline, diesel
Digital output resolution	0,1%
Analog output resolution	0,25%
Frequency output range	300 - 4395 Hz
Analog output range	0,2 - 9 B
Measuring error , maximum	1%
Nonlinearity value, maximum	1%
Power supply voltage	7 - 80 V (starting from sn 15520)
Power supply current, maximum	30 mA
Ingress protection	IP67
Operational temperature range	-60... +85 C °
Explosion-proof mark	OExiallBT6 X

TD 600 FUEL LEVEL SENSOR



5 CONNECTION INTERFACES: RS-485, RS-232, Analog, Frequency, Impulse

- ✓ Certification of conformity GOST-R
- ✓ Customs Union certificate

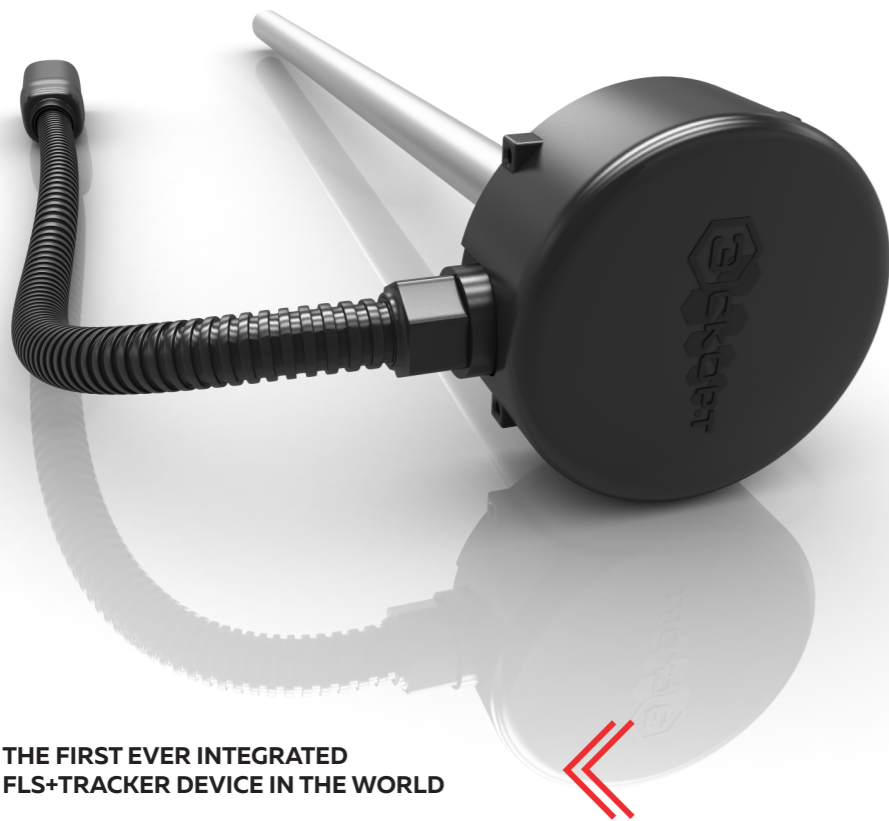
» **Escort TD 600 is the most versatile FLS in our product line.**

Designed in 2017 in accordance with European market demand. TD 600 model is designed on the base of TD 500. Featuring RS-232 interface.

TECHICAL SPECIFICATIONS

Measured medium	Gazoline, diesel
Digital output resolution	0,1%
Analog output resolution	0,25%
Frequency output range	300 - 4395 Hz
Analog output range	0,2 - 9 V
Impulse output range	2 - 1025 impulses
Measuring error , maximum	1%
Nonlinearity value, maximum	1%
Power supply voltage	7 - 80 V (starting from serial number 10776)
Power supply current, maximum	30 mA
Ingress protection	IP67
Operational temperature range	-60... +85 C °

TD ONLINE FUEL LEVEL SENSOR



THE FIRST EVER INTEGRATED
FLS+TRACKER DEVICE IN THE WORLD

- ✓ Geopositioning and tracking by means of in-built GPS/Glonass-tracker
- ✓ Driving behavior rating by means of in-built accelerometer
- ✓ In-built engine on/off detector requiring no special wiring
- ✓ Engine state monitoring by supply voltage
- ✓ Up to 7 extra sensors are connectable via RS-485
- ✓ Removable SIM-cart of Nano type allows free mobile operator selection
- ✓ Extra cover made from polyamide provides superior damage proof

» **Produced since 2013 providing plenty of extra features.**

Escort TD Online is a unique patented solution combining a classic fuel level sensor of capacitive type and tracker in one compact case.

TECHICAL SPECIFICATIONS

Digital output resolution	0.1%
Measuring error , maximum	1%
Ingress protection according to GOST 14254	IP67
Electric shock protection according to 12.2.9970.0	3rd class
Power supply voltage	12 – 36 V
GPS/Glonass receiver band number	32
Connection standard	GSM 900 / 1800
Transmitting power, Wt	2
Black box capacity, records	32000
RS-485 baudrate	19200 bits/sec
Operational temperature range	-60... +85 C °
Dimensions	Lx80x80

DIGITAL INDICATOR I4



- ✓ Can display the fuel remaining both in a separate tank, and the total volume as well
- ✓ Frequency output
- ✓ Up to 4 sensors connectable at once

➤ Digital indicator I4 displays the current volume of fuel remaining in the vehicle’s tank.

TECHICAL SPECIFICATIONS

Input interface	RS-485
Communication protocol	LLS, 19200 bit/sec
Displayed value range	0 – 9999 l
Tare calibration table, raws	40 for each sensor
Number of contactable sensors	4
Ingress protection according to GOST-1425-96	IP54
Electric shock protection according to 12.2.007.0	3rd class
Power supply voltage	9... 36 V
Operational temperature range	-60... +85 C °

FUEL MONITORING ON DIESEL GENERATORS

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For diesel generators the Escort Company recommends installing a fuel level sensor Escort TD-Online with built-in GPS/ GLONASS module and removable SIM-card.

Thanks to this setup, the user receives full information without any additional installation costs and setting up a GPS tracker. Moreover, there is no need to look for a suitable place for the hidden installation of a GPS tracker. Escort monitoring system allows to:

- ✓ significantly reduce time of equipment installation
- ✓ track an object
- ✓ control the engine state without connecting additional wires
- ✓ obtain accurate fuel level in the tank at any time
- ✓ provide timely refueling of the generator tank
- ✓ be alerted on critically low fuel level in the generator tank

- ✓ Identify fuel theft
- ✓ calculate the amount of fuel spent
- ✓ automatically generate accounting reports
- ✓ change the transmitting settings remotely
- ✓ reduce the cost of purchasing fuel and lubricants.

STORAGE TANKS FUEL MONITORING

FUEL MONITORING OF FUEL TANKERS

For use in potentially explosive zones, we offer fuel level sensor Escort TD 500 and TD 150 with the explosion proof certificate. The monitoring system allows to:

- ✓ know the exact amount of fuel in the tank, to identify wrong fuel dispenser readout while refueling
- ✓ control the refueling process on a fuel station
- ✓ identify theft, including the refueling process
- ✓ prevent fuel drains through manhole and frauds with distributing gun counter
- ✓ determine the quality of fuel in the tank, attempts to dilute fuel with water
- ✓ prevent falsification of figures without refueling.



For full control of the fuel amount, fuel level sensors should be installed to each tanker section on such vehicles.



MONITORING SYSTEMS

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+7 495 108 68 33