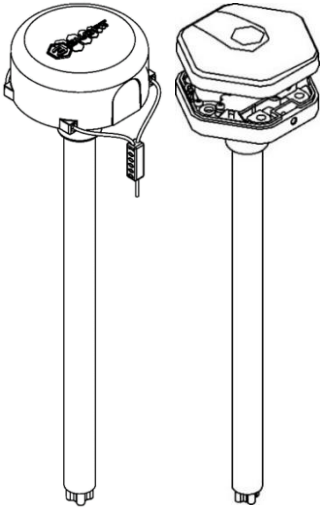
Capacitive fuel level sensor Escort TD-BLE

Datasheet



Serial number S
Date D
MAC-address M

1 GENERAL INFORMATION

Device full designation:	Capacitive fuel level sensor ESCORT TD-BLE
Device short designation:	TD-BLE
Device code designation:	
Unit serial number:	S
Date of production:	D
Manufacturer:	

2 GENERAL INFORMATION

2.1. The capacitive fuel level sensor ESCORT TD-BLE (hereinafter - the 'Sensor', 'Device' or "TD-BLE") is designed to measure the level of light petroleum derivatives in the tanks of vehicles, machinery units and storage tanks.

2.2 The Device converts the fuel level readings into digital code. The Sensor transmits the level readings via Bluetooth (LE) channel in accordance with the ESCORT BLE protocol.

2.3 The Device has an autonomous power supply which is a replaceable lithium thionyl chloride non-rechargeable battery that does not require any maintenance. Applicable in explosive zones of 0, 1 and 2 (IEC 60079-10-1-2011) classes IIA JIB 31610-10-1-2022 as per explosion proof mark.

2.4 SPECIAL CASES OF APPLICATION

— **The X symbol in the Ex mark (see Table 1) confirms that when operating the sensor the following rules and requirements are to be followed and met:**

— **The battery replacement must be executed outside the explosive zone.**

— **The sensor must be installed and operated in a way that excludes the possibility of the friction induced sparks that may be the result of the measurement part coming into contact with other objects.**

— **To avoid electrostatic charge, the external surfaces of the Device must be cleaned only with damp pieces of cloth.**

2.5 DO NOT USE THE SENSOR IN CONDUCTIVE LIQUIDS (WATER, DAIRY PRODUCTS).

2.6 DO NOT DISASSEMBLE THE SENSOR!

2.7 DO NOT USE THE DEVICE UNDER THE OPERATING CONDITIONS DIFFERENT FROM THE STATED IN THE PRESENT DATASHEET!

2.8 AVOID PHYSICAL DAMAGE TO THE DEVICE, ITS PARTS OR WIRES DURING THE INSTALLATION AND USE

3 DATASHEET

Table 1. ESCORT TD-BLE technical specs

Spec	Value
The margin of error, not more than	1% of MRV (maximum range value)*
Operating mode	digital
Digital outputs: - Communication interface - Data exchange protocol	Bluetooth LE (BLE) Escort BLE
Range (under normal operating conditions in the absence of interference and obstacles when working with the base), m, no less than	10
Advertising package transmission interval, sec	3
Receiver sensitivity / transmitter power, dBm	-96 / 4
Ingress protection marking	IP69S
Electric shock resistance rating in accordance	Class III
Explosion protection type	«ia» level intrinsically safe circuit
Explosion proof mark	0Ex ia IIB T6 X
Operable in explosive liquids	categories IIA, IIB,
Operable in explosive zones as per IEC 60079–10–1–2013	0 ; 1 and 2
* MRV – maximum value of measurement range (1023 or 4095)	

Table 1 continuation

Spec	Value
Operating conditions: - operating temperature range, °C - extreme operating temperature range, °C - operating atmosphere pressure, kPa - extreme operating atmosphere pressure, kPa	from -45 to +50 from -60 to +85 from 84 to 106.7 from 57 to 110
Battery voltage, V, not more than	3.6
Angle measurement range**	0°...180°
Angle measurement margin of error***	±5°
Operating frequencies, GHz	2.402- 2.480
Dimensions, mm, not more than: Mark I Mark II and III	 87,5x(L*** +39) 97x88x(L***+33)
The modifiable length of measurement part, mm, not more than	see the sticker (can be found in the Datasheet): - vehicles; 150÷2500; - stationary tanks; 150÷6000
Weight, kg, not more than	0,5+0,4xL*,
* - for the variation with accelerometer ** – tilt angle relative to the horizontal plane L*** - the measurement part's length in mm	

4 SCOPE OF DELIVERY

Table 2. ESCORT TD-BLE SCOPE OF DELIVERY

Item	Nr.	S/ Nr.	Notes:
Mark I			
The capacitive fuel level sensor ESCORT TD-BLE	1		
DATASHEET	1		
Installation kit :			
Bottom detent	1*		
Centrator	1		
Gasket	1		
Multilock Cable SEAL 1 8	1		
Self-tapping screws 5,5x51	4		
Mark II			
The capacitive fuel level sensor ESCORT TD-BLE	1		
DATASHEET	1		
Installation kit:			
Bottom detent	1*		
Centrator	1		
Seal	1		

Table 2 continuation

Item	Nr.	S/ Nr.	Notes:
Cap	1		
Rubber gasket	1		
Seal-tech plastic seal with unique number”	1		
Self-tapping screws 5,5x51	6		
Mark III			
The capacitive fuel level sensor ESCORT TD-BLE	1		
DATASHEET	1		
Installation kit:			
Bottom detent	1*		
Centrator	1		
Seal	1		
Cap	1		
Rubber	1		
Seal-tech plastic seal with unique number”	1		
Self-tapping screws 5,5x51	6		
* - the bottom detent is provided along with the Devices that have the measurement part of 2m+.			

5 PRECAUTIONARY MEASURES

5.1 During the installation, operation and maintenance of the Device follow general safety instructions for electric devices and equipment.

5.2 The battery replacements must be executed while wearing gloves with anti-static properties!

5.3 The lithium thionyl chloride batteries (LI-SOCL2) must be used - LS14500. SAFT company's batteries are recommended.

5.4 Do not open if in explosive zone.

6 SERVICE AND SHELF LIFE, WARRANTY

6.1 Warranty period is 3 years after the Device is shipped to the customer. The shelf life is not more than 12 months (included in the 5 year warranty).

6.2 Service life– 7 years.

6.3 The manufacturer guarantees that the Device meets all specifications and requirements if the user adheres to transportation, storage and operation requirements.

6.4 If any defect is found, contact the manufacturer.

6.5 The warranty does not cover any defects caused by the customer's failure to meet the operation, storage and transportation requirements.

6.6 The manufacturer reserves the right to make changes in the product's design and in its scope of delivery without prior notice to the customer.

6.7 The warranty does not cover the power supply unit of the Device.

7 DATE OF MANUFACTURE AND ACCEPTANCE CERTIFCATE

Capacitive fuel level sensor ESCORT TD– BLE s/n _____S_____ is manufactured in accordance with the current technical documentation and is declared to be ready for operation.

Date of production_____D_____

Head of QA

Signature _____/_____/
signature full name

_____
year, month, date

---

cut here before export

The general manager

_____
the shipment document designation

Signature

_____/_____/
signature full name

_____
year, month, date

The customer (if applicable)

Signature

_____/_____/
signature full name

_____
year, month, date

8 PACKING CERTIFICATE

Capacitive fuel level sensor ESCORT TD– BLE s/n_____S_____

Packed _____
Manufacturer's name or ID code

In accordance with the requirements of the effective technical documentation.

Date of packing_____

Packed by _____ _____ / _____/
job title signature full name

_____
year, month, date

Approved by _____ _____ / _____/
job title signature full name

_____
year, month, date

9 INSTALLATION CERTIFICATE

Capacitive fuel level sensor ESCORT TD– BLE s/n _____S_____ is installed in accordance with the current technical documentation for the device:

Name	serial number / public number

signature	Full name	day, month, year

Notes

10 MAINTENANCE NOTES

10.1 Primary verification

Date	Conclusion	Signature of the verification officer	Stamp of the verification officer

10.2 Periodic verification

Date	Conclusion	Signature of the verification officer	Stamp of the verification officer

11 TRANSPORTATION AND STORAGE

11.1 The Device shall be transported in the original packaging in enclosed vehicles or craft. To store in a dry place at a temperatures of +5 to +40°C and humidity up to 80%. Conductive dust, aggressive substances and their vapors causing corrosion of parts and destruction of electrical insulation of the product are not allowed in storage rooms.

12 DISPOSAL REQUIREMENTS

12.1 The Device shall be disposed by the user in accordance with the regulations applicable the country where the Device is operated.

12.2 The Device does not contain any parts (PCB or plastic housing) that may cause environmental damage and are subject to disposal in accordance with special requirements.

12.3 The Device does not contain precious metals in the amount to be declared and accounted for.

13 INSTALLATION SPECIFICS (ON VEHICLES)

13.1 The length of the measurement tubes of the Sensor must be specified when placing the order.

13.2 If necessary, the tubes can be cut with a hacksaw, however, avoid metal shaving getting inside the tubes. The min length to cut the Sensor must be not shorter than 150 mm. If the Sensor is cut shorter, it will still work fine, however, in case of installing the Sensor that short in a vehicle's tanks getting comprehensible reports is highly unlikely due to the magnitude of fuel fluctuations inside such Sensor's tubes during the movement.

13.3 Be sure to insert the plastic centrator into the tubes (see. Annex 4).

13.4 The ESCORT TD-BLE can be configured using an app for Android and iOS devices or a configurator for PC (Windows 8 or newer is required as well as the Bluetooth module that supports BLE standard). More information can found in the User Manual of the Device.

13.5 If the Device has the accelerometer, it is necessary to enable the transmission of the tilt angle reading (more information on the wiki page).

13.6 When installing the Device, follow the recommendations provided in Annexes 1-4.

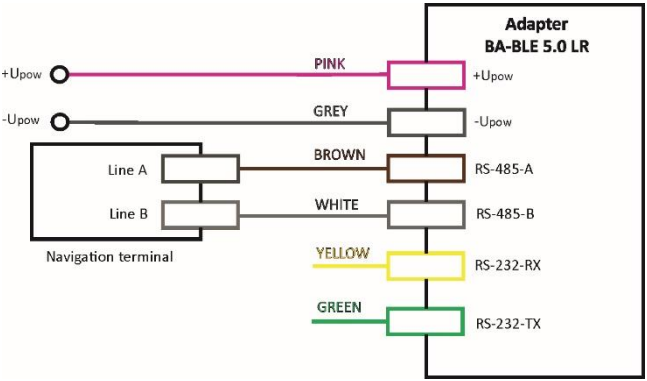
13.7 Install the Sensor in the tank placing the gasket from the installation kit between the sensor's flange and the tank's top surface. If necessary, apply automotive neutral (non-acidic) oil-resistant sealer.

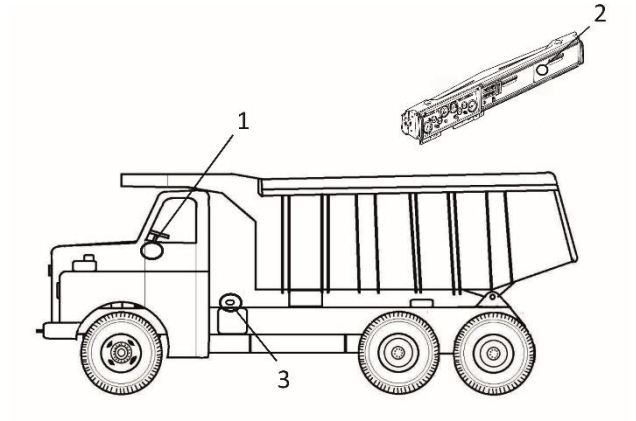
13.8 Install and connect the BA-BLA Bluetooth adapter in the vehicle's cabin. For more information, see the User Manual.

ATTENTION! The 'Full' calibration value must be set when the measurement tubes of the Sensor are filled with fuel up to the drainage holes.

Attention! When installing a sensor with two-meter-long tubes and longer, it is vital to install the bottom detent from the installation kit in accordance with the Annex 3.

ANNEX 1 BA-BLE Adapter installation



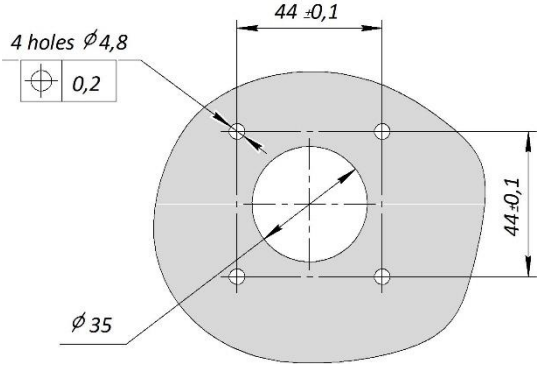


1 - Adapter placed in the vehicle’s cabin

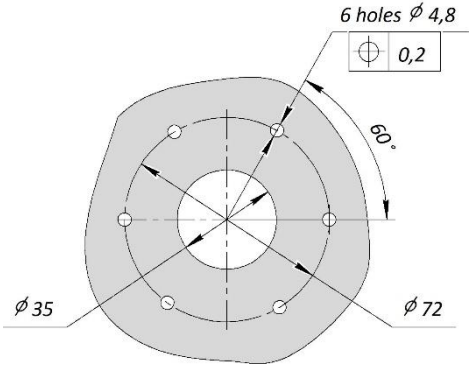
2 - Adapter installed on the dashboard of the vehicle.

3 - The Sensor installation in a tank

ANNEX 2 Mounting dimensions



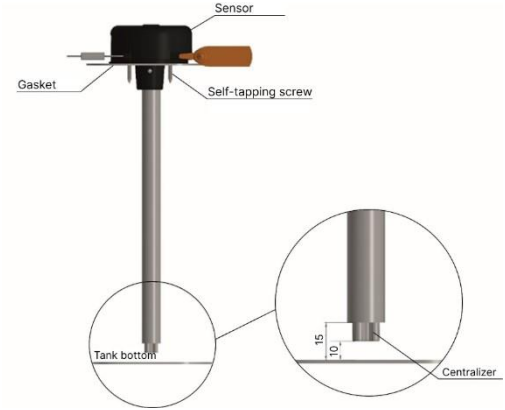
Mark I



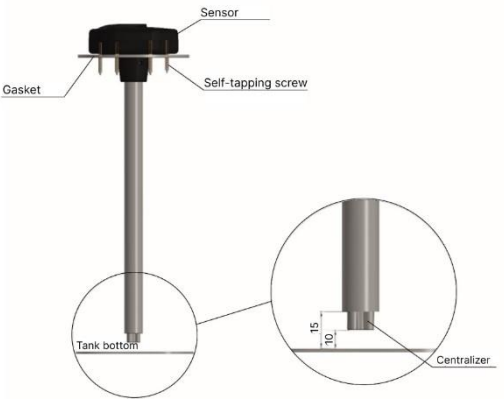
Mark II and III

The Ø is given for the self-tapping screws from the the installation kit

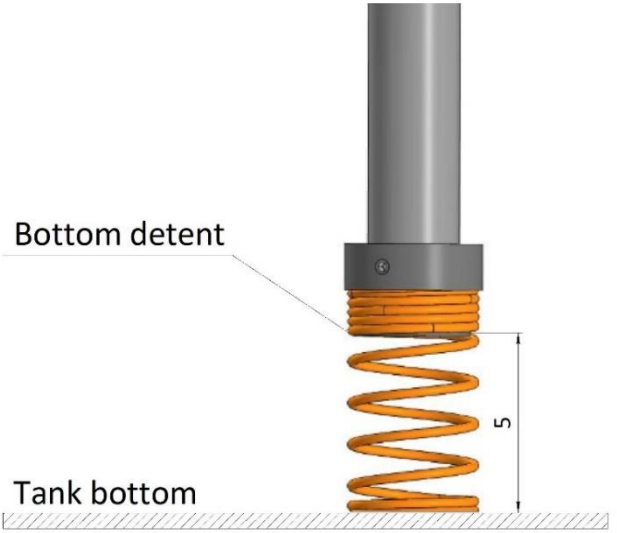
ANNEX 3 Installation in a tank



Mark I

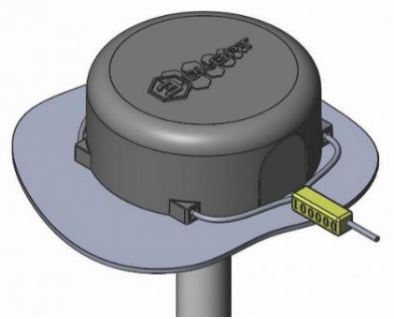


Mark II and III



Bottom detent installation

ANNEX 4 Sealing



Mark I



Mark II and III