Fuel Level Sensor

SP-BLE model

Passport

ER.000-M-EN PS

GENERAL INSTRUCTIONS

This passport must be in the place of registration of operational documentation. When filling out a passport, pencil entries, erasable entries, and erasures are not allowed. An incorrect entry must be carefully crossed out and a new one written next to it. New entries must be certified by the responsible person.

When installing and operating the SP-BLE fuel level sensor (hereinafter referred to as the "Sensor"), the installation and operating instructions should be followed. This document is available upon request.

⚠ WARNING	**Before installing the Sensor, fill the tank with water, or drain the fuel and lubricants and clean the tank until all flammable liquids and their vapors are completely removed!**

BASIC SENSOR INFORMATION

The Sensor is designed to measure the fuel level in reservoirs and fuel tanks of vehicles as well as in stationary fuel storage facilities. The Sensor can be used to measure the level of other non-electrically conductive liquids.

The fuel level is measured by a measuring head integrated into a single unit with a probe immersed in the fuel. The measuring probe performs the function of a capacitor, the capacity of which depends linearly on the fuel level in the tank.

The measuring head of the Sensor performs a linear conversion of the capacity of the measuring probe into a digital code of the fuel level, processing of the received digital data with averaging of the measurement results, measuring the temperature of the head and issuing data via the wireless BLE interface.

Fuel level data is output as a 16-bit value, and temperature data is output as an 8-bit value.

The Sensor is powered by a built-in XL-055F XENO lithium battery, the charge of which will last for at least five years.

If the Sensor length is not specified in the order, the fuel probe is supplied in a length of 75 cm. The length can be changed by special order from 15 to 300 cm.

TERMS OF OPERATION

When using the Sensor, it is prohibited to:
- use the Sensor not for its intended purpose;
- expose the Sensor to aggressive environments;
- expose the Sensor to mechanical influences that can damage its structure.

MAIN TECHNICAL SPECIFICATIONS

Name of specification or parameter	Value	Notes
The upper limit of the measurement range, mm	150...3000*	
Limits of the full scale level measuring error, %	± 1.0	
Resolution, mm	0.1	
Data sending period, sec.	1.2	
Reaction time to a change in the measured level, sec.	35	
Bit depth of code for representation of measurement data, bit	16	fuel level
	8	temperature
Mode of operation	continuous	
Time of continuous operation from the battery, years	5**	
Operating frequency range, GHz	2.400...2.485	
Radiation power, dBm	0	1 mW
Limit range of data reading, m	20***	
Supply voltage (lithium battery), V	3.6	
Height of the measuring head above the tank surface, including the flange and gasket, mm, no more	28	
Operating temperature range, °C	- 40 ... + 75	
Degree of protection of the measuring head against the penetration of dust and moisture	IP67	

* Determined by the length of the Sensor probe.

** Continuous operation time may decrease with frequent adjustments and updates of the built-in software.

*** Data reading maximum range is determined in the direct line of sight of the reader and the Sensor, in free space and with such a mutual orientation of the reader and the Sensor, at which the maximum level of the received signal is observed.

TRANSPORTATION AND STORAGE

Transportation of the Sensor is allowed in the manufacturer's packaging by all types of closed land and sea transport (in railway cars, containers, closed cars, holds, etc.).

Transportation in sealed heated compartments of aircraft is allowed.

When transporting Sensors in factory packaging by open transport, protect them from exposure of atmospheric precipitation, dust and dirt.

During transportation and storage, the requirements of the handling signs printed on the group transport packaging must be met.

DELIVERY SET

Main delivery set

Name	Marking	Q-ty	Notes
Sensor	ER.000	1	
Self-drilling screw	ES.004	1	With a hole for sealing
Self-drilling screw	9T64219-2	3	Ø4.2 x 19 mm
Gasket	EH.002		
Indicator seal	GARANT	2	With cable for sealing
Passport	ER.000-M-EN PS	1	

Optional accessories and documentation
(available upon request)

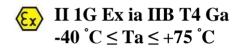| Name	Marking	Notes
BLE sensor reader	BR.000	BTRx/BR2x/BR4x/BRU2
Installation and Operation Manual	ER.000-M-EN IOM	

SENSOR INSTALLATION AND CONNECTION

Sensor installation and sealing is carried out in accordance with the Installation and Operation Manual.

The Sensor can be used directly with equipment that supports BLE technology. For equipment without BLE support, data from the Sensor can be received using a BLE sensor reader that can be connected via the RS-232 (BTR2/BR2x models), RS-485 (BTR4/BR4x model) or USB (BRU2 model) interfaces.

EXPLOSION SAFETY

SP-BLE fuel level sensors are explosion-proof and have an explosion-proof marking:

II 1G Ex ia IIB T4 Ga
-40 $^{\circ}$C ≤ Ta ≤ +75 $^{\circ}$C

Sensor can be mounted in class 0, 1, and 2 zones in accordance with normative documents that regulate the use of electrical equipment in explosive zones.

MANUFACTURER (SUPPLIER) WARRANTIES

The warranty period of operation of the Sensor is 12 months from the date of sale of the Sensor through a retail or wholesale trade network to the end user. If there is no mark of the trading organization on the date of sale in the warranty card, the warranty period is 18 months (calculated from the date of production of the Sensor by the manufacturer).

The specified warranty obligations are valid if the consumer complies with the requirements of the current operational documentation.

In case of violation of these requirements, or in the presence of damage from the intentional application of high-voltage electrical voltage to conductive parts of the Sensor, traces of aggressive environments or mechanical damage, the warranty obligations are considered to have lost their validity.