



MERCETECH INNOVATIONS

Mercetech Innovations Private Limited
ISO 9001:2015

FUEL LEVEL SENSOR

SP2-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 SP2-BLE fuel level sensor (hereinafter referred to as the “Sensor”), the installation and operating instructions should be followed. This document is available upon request.



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, fuel tanks of vehicles and in stationary fuel storage facilities. The sensor can be used to measure the level of other non-electrically conductive liquids.

 A measuring head that is incorporated into a single unit and has a probe submerged in fuel is used to determine the fuel level. The measuring probe functions similarly to a capacitor, whose capacity is directly proportional to the tank's fuel level.

 The sensor's measuring head converts the measuring probe's capacity linearly into a digital code for the fuel level, processes the digital data it receives by averaging the measurement results, measures the head's temperature, and transmits data via a wireless Bluetooth Low Energy (BLE) interface.

 Temperature and fuel level data are output as 8-bit and 16-bit values, respectively.

 A built-in XL-055F XENO lithium battery powers the sensor, and its charge lasts for at least five years.

 The gasoline probe comes in a length of 75 cm if the sensor length is not specified in the order. By special order, the length can be altered from 15 to 300 cm.

TERMS OF OPERATION

When using the sensor, it is prohibited to:

-  DON'Ts use the Sensor not for its intended purpose
-  DON'Ts expose the Sensor to aggressive environments
-  DON'Ts 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



All forms of closed land and sea transportation (in railway cars, containers, closed cars, holds, etc.) are permitted for the sensor's transportation inside the manufacturer's packaging.



It is permitted to travel in heated, sealed aircraft compartments.



Sensors in factory packaging should be shielded from dust, dirt, and precipitation when being transported in an open manner.



The handling signs printed on the group transport packaging must be followed during storage and transit.

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



The Installation and Operation Manual is followed for installing and sealing sensors.



Devices that support BLE technology can be utilised directly with the sensor.



for devices that do not support BLE, A BLE sensor reader can be linked via the RS-232 (BTR2/BR2x models), RS-485 (BTR4/BR4x models), or USB (BRU2 models) interfaces to receive data from the sensor

EXPLOSION SAFETY



SP2-BLE fuel level sensors are explosion-proof and have an explosion-proof marking:



II 1G Ex ia IIB T4 Ga
-40 °C ≤ Ta ≤ +75 °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.