



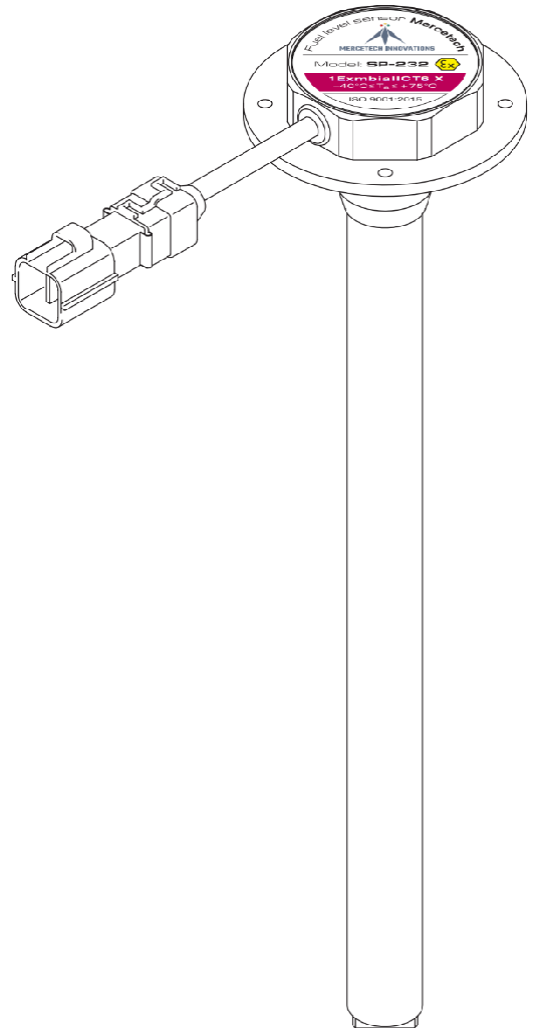
Mercetech Innovations Pvt ltd

ISO
9001:2015

FUEL LEVEL SENSOR

SP-232 model

Passport



GENERAL INSTRUCTIONS

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

During installation of the fuel level sensor (hereinafter – Sensor or Product) you should be guided by the installation manual. Before starting operation of the sensor, it is necessary to study the user manual. Both documents are 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 PRODUCT INFORMATION

The Sensor is designed to measure the fuel level in reservoirs and fuel tanks of vehicles.

Fuel level measurement is provided 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 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 wired interface.

The Sensor can be used with equipment that supports the EDE (LLS) communication protocol.

The Sensor has the electronic galvanic isolation of the interface and the power circuits.

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 200 cm.

MAIN TECHNICAL SPECIFICATIONS

| Parameter or characteristic name | Value | Note |
|--|--|---------------------------|
| Operating temperature range, °C | – 40 ... + 75 | |
| Degree of protection of the measuring head against the penetration of dust and moisture | IP67 | |
| Mode of operation | continuous | |
| Limits of the full scale level measuring error, % | ± 1.0 | |
| Bit depth of code for representation of measurement data, bit | 10;12;14;16 | level |
| | 8 | temperature |
| Power supply voltage, operational range, V | +9.5 ... +36 | nominal |
| Current consumption, mA, max | 25 | |
| Permissible impact of impulse voltage on the power circuit | + 120 V, long-term + 180 V, 1 sec. - 1000 V, long-term | |
| Permissible short-term impact of the potential difference between the signal ground and the body of the measuring head | ±1500 V, 1 sec. | |
| Digital interface | RS-232 | |
| Serial port exchange rate, bps | 2400, 4800, 9600, 19200, 38400, 57600, 115200 | configurable via software |
| Frequency interface (when using ES.700 matching device), Hz | 500...1500 | |
| Analog interface (when using FV-10 Frequency-to-Voltage converter), V | 0...10 | |
| Height of the measuring head above the tank surface, including the flange and gasket, mm, max | 26 | |

TERMS OF OPERATION

During Sensor operation, it is forbidden:

- to use Sensor not on purpose;
- connect to the interface of devices, which do not meet requirements of the operational documentation;
- expose to influence of aggressive environments;
- allow pulse voltage exposure through power-supply circuits with values exceeding the limits in Technical Specification table.

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 | Note |
|-----------------------|----------------|------|---|
| Sensor | EH.100 | 1 | Assembled with measuring head cable ~ 40 cm |
| Interface cable | EH.300 | 1 | ~7 m |
| Self-drilling screw | ES.004 | 1 | With hole for safety seal |
| Self-drilling screw | 9T64219-2 | 3 | Ø4,2x19 mm |
| Gasket | EH.002 | 1 | |
| Indicator seal | GARANT | 2 | With wire for sealing |
| Fuse holder with wire | GT1-4649 | 1 | |
| Fuse SI 0.1A | | 1 | |
| Cable tie | JS16020036 | 15 | 200x3.6 mm |
| Passport | EH.000-M-EN PS | 1 | |

Optional accessories and documentation

(available upon request)

| Name | Marking | Note |
|--------------------------------|----------------|------|
| Sensor to PC connect cable | IEC ES C.100 | |
| Matching device | ES.700 | |
| Frequency-to-Voltage converter | FV-10 | |
| CD with software | EA.000 CD3 | |
| Installation manual | EH.000-M-EN IM | |
| User manual | EH.000-M-EN UM | |

SENSOR INSTALLATION AND CONNECTION

Installation and sealing of the Sensor is carried out in accordance with the installation manual.

Using the supplied interface cable, connect the sensor to the vehicle controller and on-board network in accordance with the table below:

| Wire color | Purpose |
|-----------------------|------------------------|
| brown (red) | U ₊ (Power) |
| black | U ₋ (GND) |
| yellow-green (yellow) | TXD (RS-232) |
| blue (green) | RXD (RS-232) |

EXPLOSION SAFETY

SP-232 fuel level sensors are explosion-proof and have an explosion-proof marking “1ExmbiaIICT6 X” and can be used in explosion hazard zones of 1 and 2 classes (measuring head) and 0, 1, 2 classes (probe) according with normative documents regulating use of electric equipment in explosion hazard zones. “X” in the marking of explosion protection indicates special conditions for safe use of Sensors as follows:

- sensors must be connected to electrical circuits of electrical equipment that are powered only by a vehicle battery with a voltage of no more than 36 V and do not have electrical connections with electrical equipment that has other power sources;
- sensors must be connected to the power supply through a fuse with a rating of no more than 0.1 A.

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.

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