



LFS1710

Conductivity Sensor

For various conductivity measurement applications

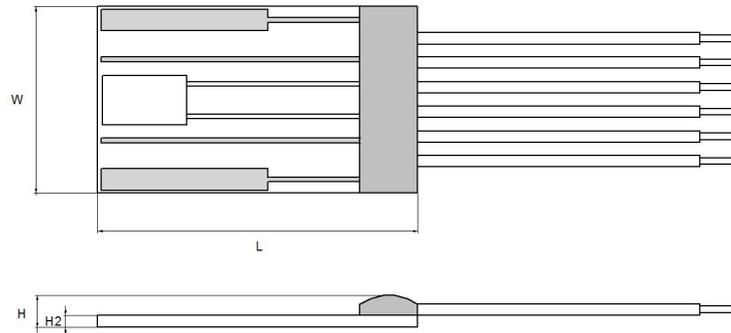
Benefits & Characteristics

- Wide conductivity and temperature range
- Fast response time
- Optimal accuracy
- Resistance to various chemicals¹⁾
- Excellent long-term stability
- Integrated RTD for temperature measurement and / or compensation
- 4 electrodes measurement²⁾
- Customer-specific sensor available upon request

1) Aggressive media can influence the long term stability. Chemical resistance of the sensor in the end application must be tested by the customer.

2) 2 electrode configuration available upon request

Illustration³⁾



3) For actual size, see dimensions

Technical Data

| | | |
|--|---|---|
| Conductivity range:* | 0.2 mS/cm to 200 mS/cm | |
| Cell constant ⁴⁾ :* | typical 0.44 cm ⁻¹ | |
| Measurement frequency range: | 50 Hz to 3 kHz | |
| Maximum excitation voltage (between pin 1 and pin 6): | < 0.7 Vpp (Electrolysis of the analyte has to be avoided) | |
| Operating temperature range: | -30 °C to +100 °C | |
| Temperature sensor:* | Pt1000 | |
| Temperature coefficient (Pt1000): | 3850 ppm/K | |
| Measuring current (Pt1000) ⁵⁾ : | 0.3 mA | |
| Temperature sensor accuracy (dependent on temperature range):* | IST AG reference | |
| | IEC 60751 F0.3 | B |
| | IEC 60751 F0.6 | C |
| Connection:* | Pt/Ni-wires, Ø 0.2 mm | |
| | Cu/Ag-wires, PTFE-insulated, AWG 30 | |

The LFS1710 supersedes the LFS117 which is no longer in production



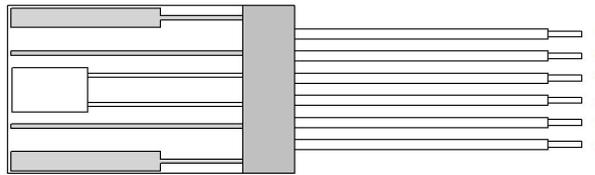
| | |
|--|---|
| Temperature dependence of resistivity: | according to IEC 60751: -50 °C to 0 °C $R(T) = R_0 \times (1 + A \times T + B \times T^2 + C \times (T - 100) \times T^3)$ 0 °C to 150 °C $R(T) = R_0 \times (1 + A \times T + B \times T^2)$ |
| | A = $3.9083 \times 10^{-3} \times \text{°C}^{-1}$ B = $-5.775 \times 10^{-7} \times \text{°C}^{-2}$ C = $-4.183 \times 10^{-12} \times \text{°C}^{-4}$ |
| | R_0 = resistance value in Ω at $T = 0 \text{ °C}$ T = temperature in accordance with ITS90 |
| Storage temperature: | -20 °C to +100 °C |
| Alternative construction:* | Customized over-mold |

4) Cell constant is strongly affected by external objects coming close to the front surface of the sensor.

5) Selfheating must be considered

* Customer-specific alternatives available

Pin Assignment



| | | | | | |
|-------|-------|-------|-------|-------|-------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| I_2 | V_2 | T_2 | T_1 | V_1 | I_1 |

I: applied current V: measured voltage T: temperature sensor

Order Information - 6W (Ni/Pt-wires, Ø 0.2 mm, 10 mm*)

| Size | Dimensions (L x W x H / H2 in mm) | F0.3 (class B) | F0.6 (class C) |
|---|---|------------------------|------------------------|
| Nominal resistance: 1000 Ω at 0 °C | | | |
| 1710 | $16.9 \pm 0.3 \times 9.9 \pm 0.3 \times 0.65 \pm 0.1 / 1.2 \pm 0.3$ | LFS1K0.1710.6W.B.010-6 | LFS1K0.1710.6W.C.010-6 |
| Order code | | 090.00074 | 090.00075 |

(*) Other wire lengths upon request

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Order Information - 2I (Cu/Ag-wires, PTFE-insulated, AWG 30, 70 mm*)

| Size | Dimensions (L x W x H / H2 in mm) | F0.3 (class B) | F0.6 (class C) |
|------------------------------------|--|------------------------|------------------------|
| Nominal resistance: 1000 Ω at 0 °C | | | |
| 1710 | 16.9 ±0.3 x 9.9 ±0.3 x 0.65 ±0.1 / 1.2 ±0.3 | LFS1K0.1710.2I.B.070-6 | LFS1K0.1710.2I.C.070-6 |
| Order code | | 090.00076 | 090.00077 |

(* Other wire lengths upon request

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