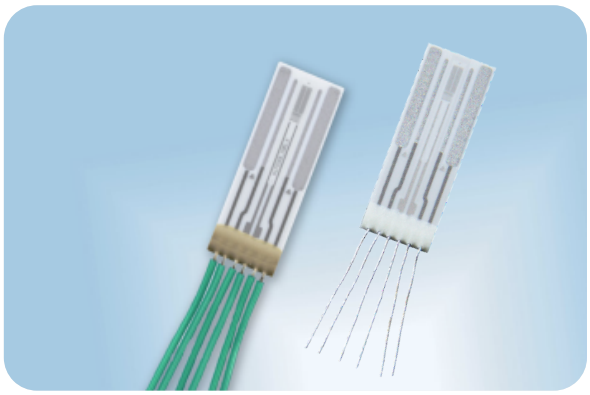
# LFS1K0.1505

## Conductivity sensor

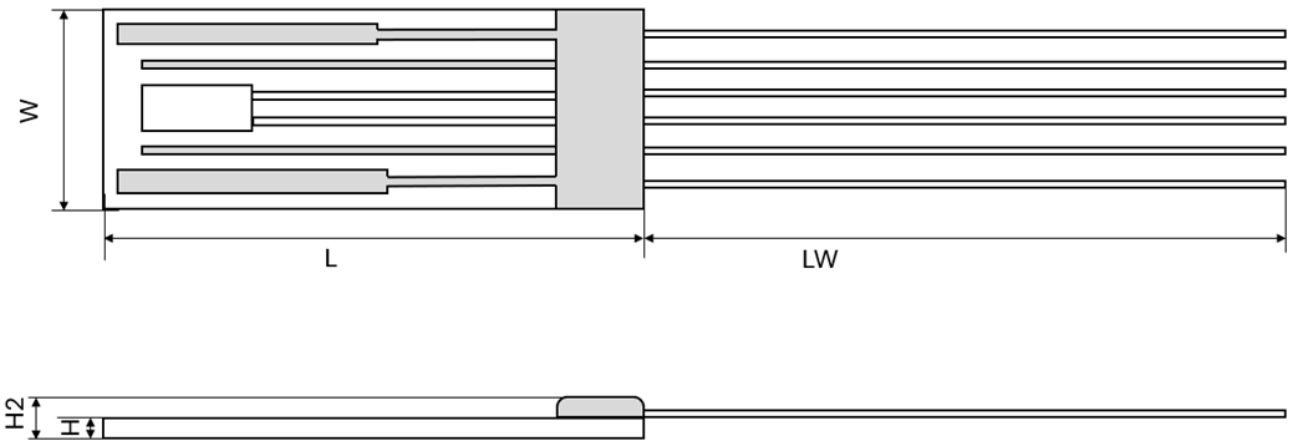
### For various conductivity measurement applications

## Benefits & characteristics

- Integrated RTD for temperature measurement and / or compensation[1]
- Wide conductivity and temperature range
- Fast response time
- High accuracy
- Resistance to various chemicals [2)]
- Excellent long-term stability
- Four-electrode measurement



## Illustration [3]




| L | W | H | H2 | LW |
|---|---|---|---|---|
| Length | Width | Substrate height | Total height | Wire length |
| ± 0.1 mm | ± 0.1 mm | ± 0.1 mm | ± 0.3 mm | LW < 30 mm: ± 1 mm<br>LW ≤ 30 mm: ± 1.5 mm |

[1] Without integrated RTD, see data sheet Conductivity LFS1505.2L.20-4
[2] Aggressive media can influence the long-term stability. Chemical resistance of the sensor in the end application must be tested by the customer
[3] for actual size see dimensions in order information

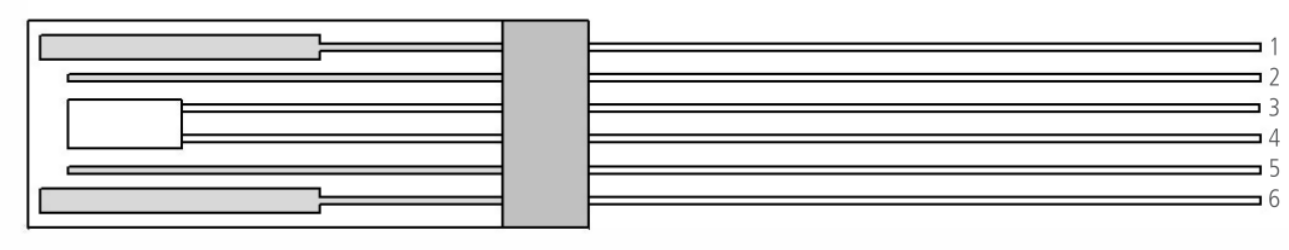
## Technical data

| | | |
|---|---|---|
| Conductivity range:[4] | 100 µS/cm to 200 mS/cm | |
| Cell constant: [5] * | typical 0.68 $cm^{-1}$ | |
| Measurement frequency range: | 100 Hz to 10 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: * | 1000 Ω nominal resistance at 0°C | |
| Temperature coefficient (Pt1000) | 3850 ppm/K | |
| Measuring current (Pt1000) [6] | 0.3 mA | |
| Temperature sensor accuracy (dependent on temperature range): * | | iST 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 | |
| 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 | $R(T) = R_0 \times (1 + A \times T + B \times T^2)$ |
| | | $A = 3.9083 \times 10^{-3} \times °C^{-1}$ |
| | | $B = -5.775 \times 10^{-7} \times °C^{-2}$ |
| | | $C = -4.183 \times 10^{-12} \times °C^{-4}$ |
| | | $R_0$ = resistance value in Ω at T = 0 °C |
| | | T = temperature in accordance with ITS90 |
| Storage temperature: | -20 °C to +100 °C | |

* Customer-specific alternatives available

[4] Extended range from 10 µS/cm to 200 mS/cm possible with cell constant correction
[5] Cell constant is strongly affected by external objects coming close to the front surface of the sensor.
[6] Self-heating must be considered

## 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

| Order code | Product name | Dimensions L x W x H / H2, LW [mm] | Temperature sensor Class |
|---|---|---|---|
| **6W Ni/Pt wires, Ø 0.2 mm** | | | |
| 103856 | LFS1K0.1505.6W.B.010-6 | 14.9 x 5.5 x 0.6 / 1.1, 10 | F0.3 (class B) |
| 103857 | LFS1K0.1505.6W.C.010-6 | 14.9 x 5.5 x 0.6 / 1.1, 10 | F0.6 (class C) |
| **2I Cu/Ag-wires, PTFE-insulated, AWG 30** | | | |
| 103858 | LFS1K0.1505.2I.B.070-6 | 14.9 x 5.5 x 0.6 / 1.1, 70 | F0.3 (class B) |
| 103859 | LFS1K0.1505.2I.C.070-6 | 14.9 x 5.5 x 0.6 / 1.1, 70 | F0.6 (class C) |

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