



LFS1K0.1505



Conductivity sensor

For various conductivity measurement applications

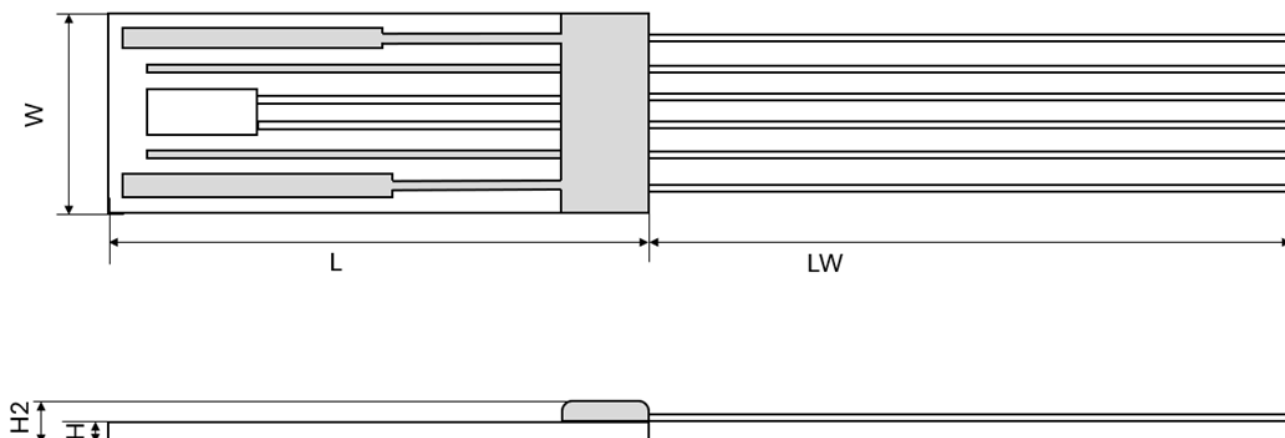


Benefits & characteristics

- Integrated RTD for temperature measurement and / or compensation¹
- Wide conductivity and temperature range
- Fast response time
- High accuracy
- Resistance to various chemicals²⁾
- Excellent long-term stability
- Four-electrode measurement



Illustration³



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 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	$R(T) = R_0 \times (1 + A \times T + B \times T^2)$
		$A = 3.9083 \times 10^{-3} \times ^\circ\text{C}^{-1}$
		$B = -5.775 \times 10^{-7} \times ^\circ\text{C}^{-2}$
		$C = -4.183 \times 10^{-12} \times ^\circ\text{C}^{-4}$
		$R_0 = \text{resistance value in } \Omega \text{ at } T = 0 \text{ } ^\circ\text{C}$
		T = temperature in accordance with ITS90
Storage temperature:	-20 °C to +100 °C	

* Customer-specific alternatives available

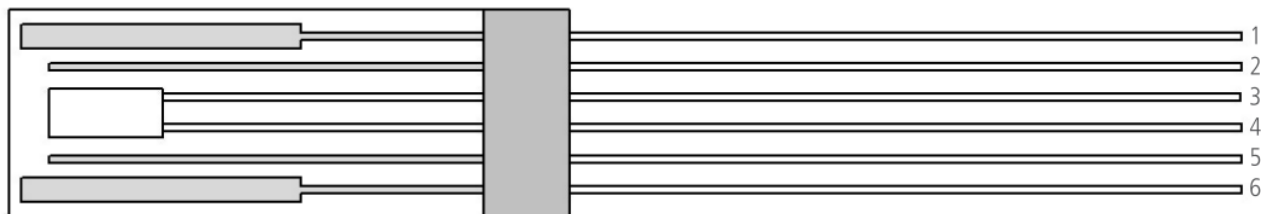
⁴ Extended range from 10 µS/cm to 200 mS/cm possible with cell constant correction

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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