Conductivity Sensor

TEMPERATURE

HUMIDITY

FLOW

General Information

The conductivity sensor was developed for measuring conductivity in an electrolyte. The measurement value of the sensor correlates with the concentration of ions in the solution. Because of this principle, conductivity is often used as a criterion for water quality, measuring the amount of nutrients or impurities. The temperature sensor on the element offers temperature compensation and is located directly at the measurement point for assured accuracy. With thin-film technology, it is possible to develop customized conductivity sensors for specific applications.

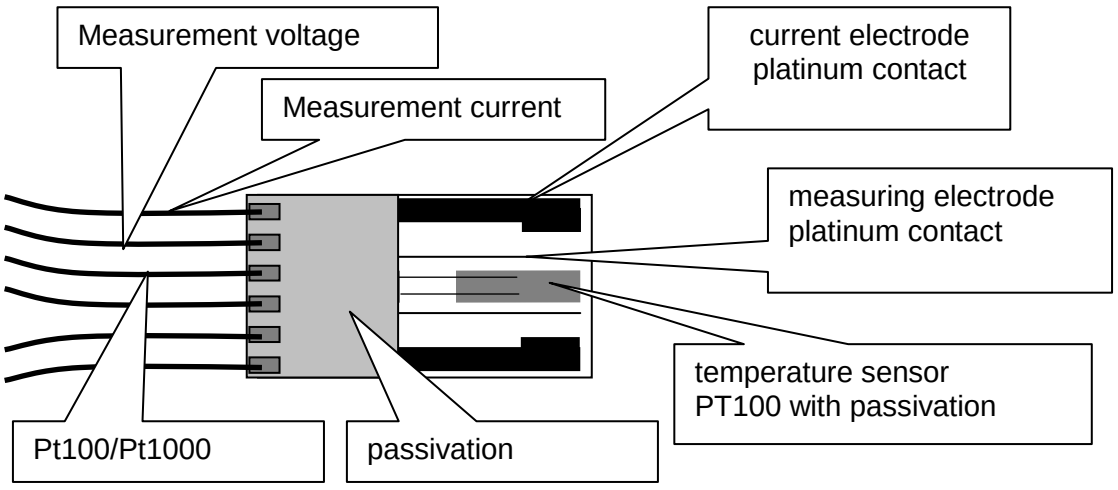
Sensor Construction

The conductivity sensor consists of a photo-lithographically structured, high-purity platinum coating arranged in the shape of a meander. The platinum thin-film structures are laser trimmed to form resistive paths with precisely defined nominal values for the temperature sensor and electrodes. Except for the platinum measuring surface, the sensors are covered with a glass passivation layer to protect against mechanical and chemical damage. The bonded leadwires, which are additionally covered with a drop of glass, make electrical contacts to the resistive structure.

Technical Data

Mechanical dimensions:	e.g. 7mm x 10mm x 0.65mm
Substrate:	Al_2O_3 (aluminum oxide)
Working Temperature:	0°C to +90°C
Storage Temperature:	-30°C to +150°C
Range of conductivity:	~5µS/cm to ~20mS/cm (depending on the type and size)
Cell constant:	~0.5cm^{-1} (depending on the type and size)
Temperature sensor:	Pt100 or Pt1000, DIN EN 60751, class B
Measuring Electrode:	2 platinum electrodes
Current Electrode:	2 platinum electrodes
Electrical connection:	6 wire, Cu/Ag, AWG 30, isolated
Measurement frequency:	300 to 3000 Hz, sinus- or triangle form
Measurement current:	≤ 5mA AC, max. 7mApp
Measurement voltage:	≤ 4V AC (≤ 6Vpp)
Inadmissible electrolytes:	hot nitro hydrochloric, cyanides, halogens, sulfur, alkalis or other chemical substances that can attack platinum

Design Example



INNOVATIVE SENSOR TECHNOLOGY

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