

TC Sensor

for CO₂, H₂ and N₂ measurement



- Very fast response time
- Easy air calibration process
- Low maintenance costs

Precise, robust, easy to maintain

This thermal conductivity sensor is ideal for high-precision measurements in both dissolved and gaseous phases. Built in stainless steel, the sensor is ideal for harsh plant conditions and high pressures. The measurement range varies from trace to saturation level. Its concept and precise mechanical assembly ensure an optimal performance, a long life cycle and low maintenance costs.

Applications

- In-line and package analysis
- Dissolved and gaseous applications
- Beverage production
- Power -steam industry
- Pharmaceutical industry

Low detection limits

- Very low detection limits in dissolved and gaseous applications
- Low drift

Precise

- CO₂, H₂ or N₂ concentrations are measured continuously
- The presence of other gases in the environment does not affect the measurements.

Low maintenance costs

- One single annual maintenance is necessary
- Resistant to high temperature and cleaning in place (CIP)

Easy calibration process

Fast response time +/- 30 sec.

Hygienic

- Hygienic membrane cap

Robust

- Stainless steel construction: ideal for harsh chemical conditions and high pressures



TC sensor

Dimensions



The sensor operates on the following principle: the gas to measure diffuses from the sample into a micro volume contained in the sensor through a semi-permeable membrane, and comes into contact with a gas thermal conductivity detector. The temperature and the change in thermal conductivity induced by the presence of the gas is measured.

The duration of a single measurement is too short to get a reliable measure: successive measurements are made, which induce each time a conductivity curve. The average slope of each measurement curve determines the average conductivity, which gives the gas concentration of the sample. To perform the successive measurements, it is necessary to purge the gas enclosed in the micro-volume (every 10 seconds). This purge is done by injecting a purge gas, which is different from the sample to be measured (for instance N₂ for a CO₂ measurement). A purge valve controlled by an electronic card drives this process. After each purge, the gas to be measured diffuses again through the membrane into the sensor and a new measurement is performed.

Technical Specifications

Sensor Model	CO2	H2		N2
Sensor serial number	52401	52201	52201	52501
Membrane model number	90956	90956	90952	90956
Measurement range at 25°C	0-15 g/kg 0-10 bar	0-2 ppm 0-1.5 bar	0-10 ppm 0-12 bar	0-350 ppm 0-20 bar
Linear flow rate	50 cm/sec	N/A	N/A	150 cm/sec
Accuracy	1% of the measured value or lowest value whichever is greater			
Temperature compensation	0°C to + 50°C / 32°F to 113°F			
Temperature range	CIP or SIP resistant up to 120°C / 248°F			
Pressure range	0 – 20 bars			
Cycle time	20 sec			
Recommended purge gas	N2 or air	N2 or air	N2 or air	CO2 or air
Weight	0.6 kg			
Enclosure protection	IP65			
Material in contact with sample	ANSI 316L, PFA or Tefzel			
Sensor cable	3m standard length / optional extension up to 1000 m			

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