

Ozone Sensors

series 51301



Industry leading sensor with easy air calibration process

Applications

In-line or at-line

Dissolved and gaseous applications

Semiconductor, power -steam, pharmaceutical and chemical industries

This electrochemical ozone sensor is ideal for high-precision measurements under harsh conditions. The measurement range varies from trace to saturation level (0.1 ppb to 400 ppm). Its concept and precise mechanical assembly ensure an optimal performance, a long life cycle and low maintenance costs.

Benefits

- Measurement gases in both dissolved and gaseous phase
- Detection limits 0.1 ppb – 400 ppm (dissolved) or 1 Pa – 40 kPa gaseous
- Low maintenance costs:
 - Interchangeable anode/electrode
 - Minimal membrane surface in contact with the sample reduces maintenance frequency
 - Large anode surface: the anode is less quickly consumed by the electrochemical reaction and must thus be changed less frequently
- Easy calibration process: single point calibration due to absolute zero
- An Eeprom stores the calibration parameters and avoids recalibration process if the sensor is connected to another Dextens instrument
- Temperature sensor is integrated in the cathode assembly, enabling a faster temperature reading
- Protection cap with special surface treatment: the sensor is very hygienic
- Stainless steel construction: ideal for harsh chemical conditions and high pressures

Very low detection limits

Very fast response time

Low maintenance costs

Easy air calibration process



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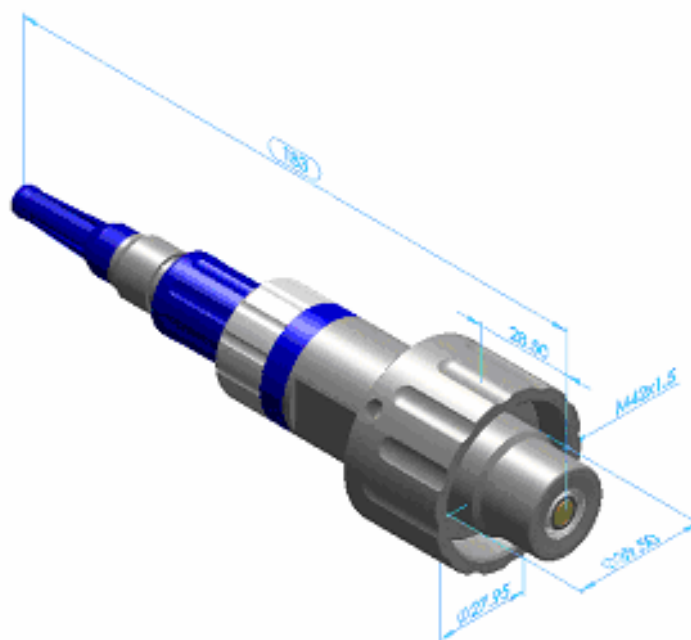
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Principle

This Ozone sensor is based on a Clark Cell and consists of a semi-permeable membrane, gold and silver electrodes immersed in an electrolytic solution. The membrane houses the electrolyte and acts as the barrier to the sample allowing only small molecular gases to pass through to contact the gold cathode and react. A platinum guard ring ensures the accuracy of reading by eliminating the effect of any ozone dissolved in the electrolyte contacting the cathode and therefore creating an additional signal. Only the ozone directly above the cathode permeates through the membrane and is measured.

Ozone molecules permeate through the membrane and enter the cell where it is reduced at the gold cathode. The cathode reacts as a catalyst and therefore remains untarnished. The current generated by reduction is directly proportional to the partial pressure of the ozone.



Technical Specifications

Membrane	Utilization of various membranes according to measuring range	
Membrane model number	82956	82952
Measuring range DO3	0.1ppb – 50ppm	20ppb – 400ppm
Measuring range PO3	1Pa - 10 kPa	4Pa - 40 kPa
Liquid flow rate	350 ml/min	100 ml/min
Linear flow	30 cm/sec	10 cm/sec
Gaseous flow rate	0.01 – 3 l/min	0.01 – 3 l/min
Response time (90% at 25°C)	30 sec	6 min
Accuracy	1% of the measured value or lowest value whichever is greater Absolute zero and low drift	
Temperature compensation	-5°C to + 60°C / 23°F to 140°F	
Pressure rating	100 bars or 1450 Psi	
Weight	0.6 kg	
Enclosure protection	IP68/NEMA6P	
Material in contact with sample	Stainless steel (ANSI 316L), PFA or Tefzel	
Sensor model number	Model 51302: Ø25mm - Model 51301: Ø28mm	
Sensor cable	3m standard length / optional extension up to 1000 m	