

# Oxygen Sensors

series 51101



## Industry leading sensor with longest service intervals and lowest maintenance costs

### Applications

In-line, portable and package analysis

Dissolved and gaseous applications

Beverage production, semiconductor, power-steam, pharmaceutical and chemical industries



This electrochemical oxygen 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

- Detection limits < 0.1 ppb (dissolved) or 0.5 ppm (v/v) 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
- CO<sub>2</sub> insensitive configurations during oxygen measurement
- Protection cap with special surface treatment: the sensor is very hygienic
- Stainless steel construction: ideal for harsh chemical conditions and high pressures

< 0.1 ppb detection limits

Very fast response time

Low maintenance costs

Easy air calibration process

Dextens SA  
Ch.des Aulx 18 – 1228 Plan-les-Ouates - Switzerland  
Phone: ++41 22 884 83 06 – Fax : ++41 22 794 66 65  
E-mail : [info@dextens.ch](mailto:info@dextens.ch) [www.dextens.ch](http://www.dextens.ch)

**Dextens**

# Oxygen Sensors

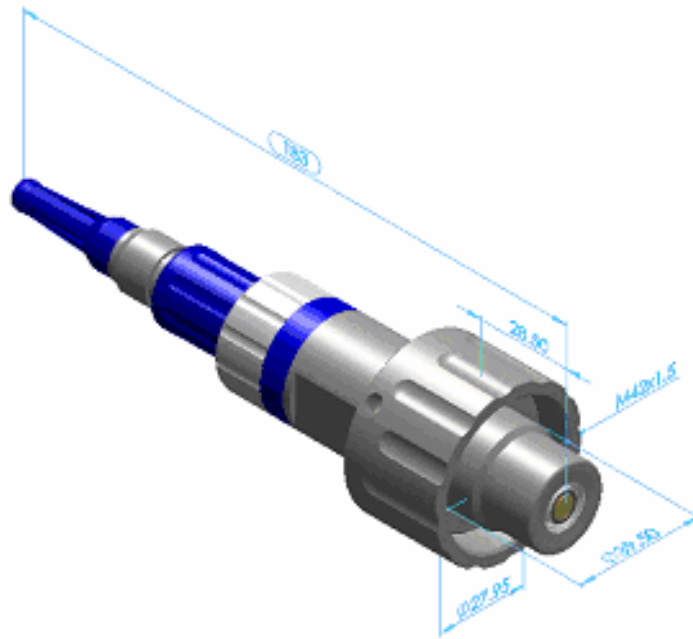
series 51101

## Principle

This Oxygen 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 silver guard ring ensures the accuracy of reading by eliminating the effect of any oxygen dissolved in the electrolyte contacting the cathode and therefore creating an additional signal.

Only the oxygen directly above the cathode permeates through the membrane and is measured. Oxygen 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. Hydroxyl ions (OH-) are formed by the reduction of the O<sub>2</sub> molecule and a current is generated. The current is directly proportional to the partial pressure of the O<sub>2</sub> present. This current is then measured and displayed by the instrument.



## Technical Specifications

| Membrane                        | Utilization of various membranes according to measuring range                                |                 |                 |
|---------------------------------|--|-----------------|-----------------|
| Membrane model number           | 82956  | 82952           | 82935           |
| Measuring range DO <sub>2</sub> | 0.1ppb – 20ppm   | 1ppb – 100ppm   | 10ppb – 400ppm  |
| Measuring range PO <sub>2</sub> | 0 - 4 bars   | 0 – 2 bars      | 0 – 10 bars     |
| Liquid flow rate                | 180 ml/min   | 50 ml/min       | 25 ml/min       |
| Linear flow                     | 200 cm/sec   | 30 cm/sec       | 20 cm/sec       |
| Gaseous flow rate               | 0.005 – 3 l/min  | 0.005 – 3 l/min | 0.005 – 3 l/min |
| Response time (90% at 25°C)     | 7.2 sec  | 38 sec          | 2.5 min         |
| Accuracy                        | 1% of the measured value or lowest value whichever is greater<br>Absolute zero and low drift |                 |                 |
| Temperature compensation        | -5°C to + 60°C / 23°F to 140°F   |                 |                 |
| Temperature range               | CIP or SIP resistant up to 120°C / 248°F   |                 |                 |
| Pressure rating                 | 300 bars or 4350 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 51102: Ø25mm - Model 51101: Ø28mm  |                 |                 |
| Sensor cable                    | 3m standard length / optional extension up to 1000 m   |                 |                 |

Dextens SA

Ch.des Aulx 18 – 1228 Plan-les-Ouates - Switzerland

Phone: ++41 22 884 83 06 – Fax : ++41 22 794 66 65

E-mail : [info@dextens.ch](mailto:info@dextens.ch)

[www.dextens.ch](http://www.dextens.ch)