

## DISSOLVED OXYGEN SENSOR COG-2

**COG-2** is a galvanic sensor designed for measurement of oxygen saturation in air and dissolved oxygen concentration in natural water, sewage or saline water. It is recommended to be used for deeper immersions. Standard cable length: 5 m. The metal weight holds the sensor on the appropriate level. The cable may be longer after individual agreement with the user. The sensor may be used for continuous measurements without additional head.

### Characteristic features:

- High measurement accuracy at an affordable price in comparison with offers of other manufacturers.
- Wide measuring range which enables usage in highly oxygenated (supersaturated) water.
- Long term signal stability facilitates work and lowers the costs of maintenance and usage.
- Large membrane surface prolongs the working time with one membrane before replacement.
- Easy maintenance and short calibration time make working easier.
- The sensor may work for many years provided that the periodical simple maintenance operations are carried out.
- For oxygen measurement in the air: one point calibration at 20.9 %; for oxygen measurement in the water: one- and two- point calibration - at 0 %, and next in the air – at 100 %.
- In case of measurement of the dissolved oxygen in the mg/l unit the temperature, salinity and atmospheric pressure influence needs to be taken into consideration. The Elmetron meters enable manual or automatic correction.
- High accuracy and repeatability of readings may be obtained by a slow flow of the sample in close proximity to the membrane (a few cm/s). Lack of the flow will result in lowering the reading value due to gradual oxygen consumption in proximity to the membrane. In vessels without flow a slow, circular movement imitates it and provides stability of the reading.
- Using the zinc as an anode material is less harmful for the environment than using a lead and enables conforming the RoHS directive requirements. Negatively charged silver cathode has higher resistance to contamination with sulphides, what makes the sensor very useful in measurements of heavily contaminated liquids such as industrial and municipal waste water.
- Gases such as chlorine, sulphur dioxide, hydrogen sulphide, amines, ammonia or carbon dioxide may cause interference in the measurements.
- The teflon foil membrane provides great chemical resistivity, high selectivity and good oxygen permeability. The membrane is mounted in a cap, which is easy to replace.
- The sensor is equipped with an internal temperature compensation system, which makes corrections dependent on the temperature and the membrane permeability.



*Cap with membrane*

- The sensor is equipped with a built-in temperature sensor (Pt-1000), there is no need to use additional temperature sensor.
- The sensor is adjusted to work with the Elmetron meters.

### The principle of operation:

The **COG-2** sensor works on the galvanic cell principle. It consists in silver cathode and zinc anode placed in the electrolyte solution, separated from the measured solution by the membrane, which is permeable for oxygen. The dissolved oxygen diffuses through the membrane and is reduced on the cathode, what generates voltage proportional to the partial pressure of the oxygen at current temperature.

### TECHNICAL DATA

Measuring range	0 ÷ 100% air 0 ÷ 600% water 0 ÷ 60 mg/l water
Accuracy	at calibration temperature: ± 1 %*
Temperature. measurement accuracy	in range 0 ÷ 40 °C: ±0.5 °C
Acceptable temperature of measured solution	0 ÷ 40 °C
Temperature compensation range	0 ÷ 40 °C (for mg/l measurement)
Signal of the probe for solutions (in 20 °C)	In 100 % O <sub>2</sub> saturation: 20 ÷ 25 mV in 0 % O <sub>2</sub> saturation: max 0.3 mV
Signal drift	0.2 % / 24 h
Time of response T <sub>90</sub>	below 1 minute
Internal compensation	yes (thermistor)
Built in temperature probe	yes, Pt-1000B
Cathode material	silver
Anode material	zinc
Membrane material	Teflon foil
Body and membrane cap material	PVC
Electrolyte	KCl 0.5 mol/l
Body diameter	18.0 ± 0.5 mm
Body length (to handle)	119.0mm ± 5 mm
Cable length	5 m
Connector	BNC-50 / RCA chinch (temp.)

\* By the difference ±5 °C, accuracy: ± 3%, by the difference ±10 °C accuracy: ±5%.

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