

Portable Optical O₂ Measurement in Liquids and Gases



OXYTRANS M

The Principle

OXYTRANS M is a portable optical oxygen sensor for measurement of O₂ in e. g. deaerated water, wort, beer, beverages, liquid food, CO₂ and protective gases. The instrument is designed for applications requiring maximum sensitivity and highest accuracy. The measurement technology is based on the radiationless redistribution of excitation energy via molecular interaction. In the measuring head a small glass component with a thin layer of indicator molecules is installed, the optical window. The indicator molecules are illuminated with blue-green light produced by an LED in the sensor. They absorb the incident light and are promoted to a higher energy state. After a certain time the molecules convert back to their ground state, during which red light is emitted. The red light is detected inside in the sensor. If O₂ molecules are present the energy is transferred from the excited indicator molecules to the oxygen. The detected signal decreases with increasing concentration of O₂ molecules in the product. Other gases don't absorb this energy, so they have no impact on the measurement result.

Technical Data

Liquid Phase Measuring Ranges	I) 1 ppb - 2 ppm	II) 30 ppb - 35 ppm
Accuracies	I) ± 1 ppb	II) ± 30 ppb
Gas Phase Measuring Ranges	I) 0 - 4,2 % O ₂	II) 0 - 50 % O ₂
Accuracies	I) $\pm 0,002$ % O ₂	II) $\pm 0,03$ % O ₂
Response Time	t ₉₀ ≤ 10 s	
Pressure of Operation	max. 12 bar	
Temperature of Operation	- 5 - + 55 °C (Pt100) option: + 98 °C	
Material	1.4404/AISI 316L, silicone (FDA), PTFE (FDA)	
Datalogging	manual/automatic with a logging time of 5 to 600 s; about 5.000 measurement values; PC software/USB-interface	
Enclosure Rating	IP65	
Power Supply	battery, rechargeable	

Highlights

Optical technology, no electrolyte and membrane changes
Short response time and excellent long-term stability
Sturdy aluminum housing; low weight of just 1.65 kg

The Centec Group

Centec offer fully automated, skid-mounted process units and high precision measurement technology from a single source. Our systems and sensors are engineered to perfectly meet the most demanding requirements of the brewery, beverage, food and pharmaceutical industries. With a team of experienced engineers, we aim to create quantifiable added value for our customers. We are your partner from planning and design through to commissioning of your plant.



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