

Optical O₂ Measurement in Liquids and Gases

OXYTRANS TR



The Principle

OXYTRANS TR is an 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 \leq 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)	
Input	3 x digital (24 VDC)	
Output	3 x digital (24 VDC) & 2 x analog (4 - 20 mA) option: Profibus DP	
Enclosure Rating	IP65	
Power Supply	24 VDC	

Highlights

Optical technology; no electrolyte and membrane changes
Short response time and excellent long-term stability
Hygienic execution; various flange connections

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.



ProDetec Pty.Ltd.

P. +61 (02) 9620 8700

F. +61 (02) 9620 8755

E. info@prodetec.com.au

A. 17/38 Powers Rd,
Seven Hills NSW 2147

www.prodetec.com.au

Centec
Gesellschaft für Labor- & Messtechnik mbH
Wilhelm-Röntgen-Strasse 10
63477 Maintal. Germany

+49 6181 1878-0

+49 6181 1878-50

info@centec.de

centec.de
centec.cz
centec-uk.com
centec-usa.com
centecrrr.com