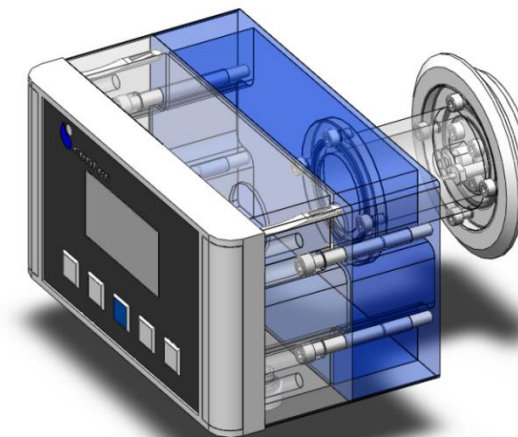


O₂ Measurement in Food and Beverage Manufacturing

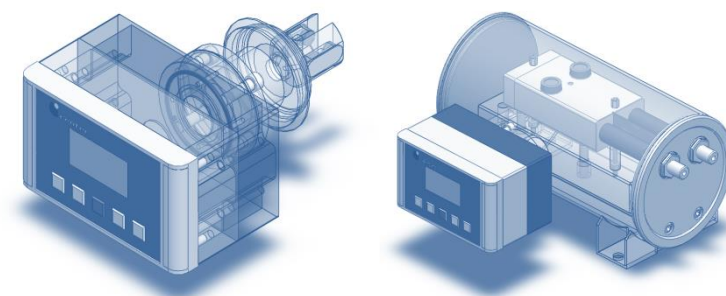
Application Report



Automated
process skids
and high precision
sensors from a
single source.
Centec.

The Centec Group

Centec is a privately owned group of companies. With a focus on the processing industries, we are rapidly growing in the major world markets. We have a global sales and service structure, with our own subsidiaries and a network of qualified distributors. Our international operations include mechanical, electrical and process automation engineering, with skid manufacture and pipework fabrication; as well as our own switch cabinet production. This infrastructure allows efficient logistics, short lead times and strict adherence to delivery deadlines. The quality of our products is excellent, so is the price-performance ratio.



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OXYTRANS

Description of the Application and Measurement Principle

The content of dissolved oxygen (DO) has a strong influence on the quality and taste of beer, beverages and various other food products. Excess O₂ can result in a significantly reduced shelf life. Therefore, breweries and other beverage and food companies continuously measure and control O₂ concentrations with highest precision throughout the entire manufacturing process. Typical applications in food and beverage industries include the determination of dissolved oxygen in deaerated water used for processing the final product.

An indicator layer on a small glass component (“optical window”) installed in the measuring head is illuminated with blue-green-light. When the indicator molecules absorb the incident light they are promoted to a higher energy state. After a certain time they convert back to their ground state during which a detectable red light is emitted. If O₂ is present the energy is transferred from the indicator molecules to the oxygen. By detecting the red light, OXYTRANS determines the O₂ content with highest precision.



OXYTRANS TR
Transmitter Version



OXYTRANS M
Portable Version

- Available as Transmitter and Portable Version with Local Display
- Highly Precise and Fast Measurement of O₂ in Liquids and Gases
- Optical Technology without Membrane and Electrolyte
- Short Response Time and Excellent Long-Term Stability
- Hygienic Execution and Full CIP Capability
- Easy Maintainable within a Few Minutes
- Outstanding Price-Performance-Ratio

| Technical Data | OXYTRANS TR | OXYTRANS M |
|--|---|---|
| Liquid Phase | I) 1 ppb - 2 ppm or II) 30 ppb - 50 ppm | I) 1 ppb - 2 ppm or II) 30 ppb - 50 ppm |
| Liquid Phase Measuring Range | I) ± 1 ppb or II) ± 30 ppb | I) ± 1 ppb or II) ± 30 ppb |
| Liquid Phase Accuracy | I) 0 - 4,2 % O ₂ or II) 0 - 50 % O ₂ | I) 0 - 4,2 % O ₂ or II) 0 - 50 % O ₂ |
| Gas Phase Measuring Range | I) ± 0,002 % O ₂ II) ± 0,03 % O ₂ | I) ± 0,002 % O ₂ II) ± 0,03 % O ₂ |
| Gas Phase Accuracy | t90 ≤ 10 s | t90 ≤ 10 s |
| Response Time | max. 12 bar | max. 12 bar |
| Pressure of Operation | - 5 - + 55 °C (option: + 98 °C) resistance: max. + 130 °C | - 5 - + 55 °C (option: + 98 °C) resistance: max. + 130 °C |
| Temperature of Operation | Pt100 | Pt100 |
| Temperature Compensation | 1.4404/AISI 316L, silicone (FDA), PTFE (FDA) compatible to Varivent© | 1.4404/AISI 316L, silicone (FDA), PTFE (FDA) |
| Material | Inline-Housings DN40 - DN150; DIN; ANSI; others on request | hoses of 6 mm diameter |
| Connections | input: 3 x digital (24 VDC) output: 3 x digital (24 VDC) & 2 x analog (4 - 20 mA) | manual and automatic with a logging time of 5 to 600 seconds; approx. 5.000 measurement values; PC software and USB-interface |
| Interface (OXYTRANS TR) | option | - |
| Datalogging (OXYTRANS M) | IP65 | IP65 |
| Profibus DP | 24 VDC | battery, rechargeable |
| Enclosure Rating | - | 1,65 kg |
| Power Supply | | |
| Weight | | |

The Centec production is certified according to ISO 9001.