

CARBOTEC INNOVATION

The new generation of instruments for measuring dissolved CO₂ is based on ATR (Attenuated Total Reflection) technology. While transmitting a crystal, near infrared (NIR) light is reflected several times at the surface. The surface of the crystal is in contact to the carbonated liquid. Since the CO₂ in the liquid absorbs the specific wavelength of the transmitting light, each reflection decreases the intensity according to the CO₂ content. The sensor is of extreme precision and due to the lack of moving parts almost free of any maintenance.



Innovation. Dedication. Centec.

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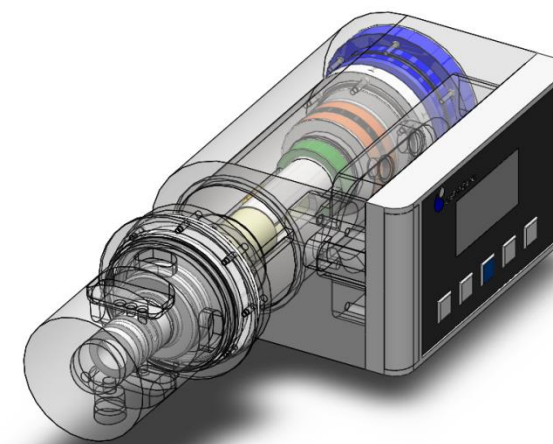
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Measurement of Carbon Dioxide Content

Centec Process Sensors



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

CARBOTEC

The Principle

CARBOTEC continuously measures the content of dissolved carbon dioxide in liquids. Designed for applications that require maximum sensitivity and high accuracy, this device is used in the food and beverage industry all around the world. Breweries and soft drink manufacturers determine and control the CO₂ content in their products with CARBOTEC. For measuring carbon dioxide, the carbonated liquid flows through the sensor head (measurement chamber). Several times per minute the chamber is closed and its volume is rapidly increased. This expansion generates a gas phase in the chamber. The large partial pressure difference of CO₂ forces the carbon dioxide out of the liquid into the gas. This fundamental scientific principle is described by "Henry's Law". Within seconds pressure equilibrium in the measurement chamber is reached. The equilibrium pressure differs from the pressure of a non-carbonated liquid according to the volume of dissolved CO₂ in the sample. Thus, the CO₂ content can be determined. Any temperature drifts of the measured signal are automatically compensated by an internal Pt100 sensor. After the measurement the sample is completely returned to the product without any loss.



CARBOTEC TR-PT
Transmitter Version

- Available as Transmitter Version with Local Display
- Highly Precise and Fast Measurement of Dissolved CO₂
- Several Short Measurement Cycles per Minute
- 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 CARBOTEC TR-PT

Measuring Range	0 - 10 g/l
Accuracy	± 0,05 g/l
Repeatability	± 0,01 g/l
Response Time	≤ 20 s
Pressure of Operation	max. 10 bar
Temperature of Operation	- 10 - + 100 °C
Temperature Compensation	Pt100
Material	1.4404/AISI 316L, EPDM (FDA), PTFE (FDA)
Connections	compatible to Varivent© Inline-Housings DN65 - DN150; others on request
Input	6 x digital (24 VDC)
Output	3 x digital (24 VDC) & 2 x analog (4 - 20 mA)
Profibus DP	option
Enclosure Rating	IP65
Power Supply	24 VDC