

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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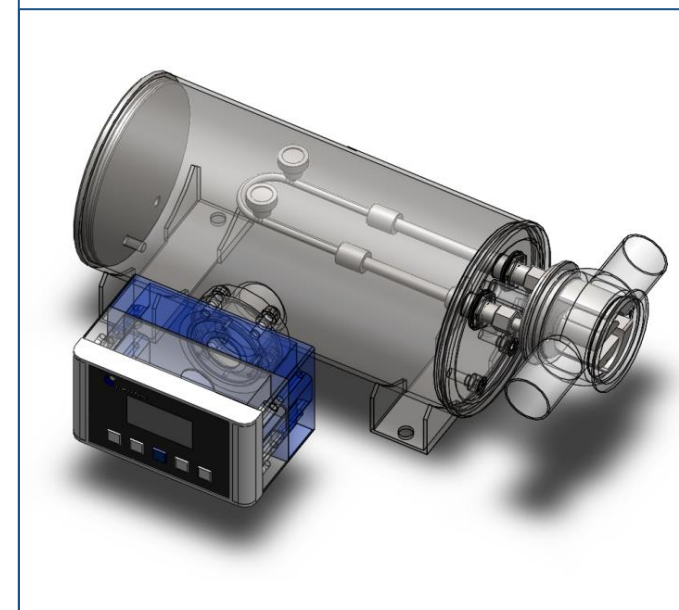
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BEERMONITOR

Determination of Alcohol and Extract During Fermentation

Centec Process Sensors

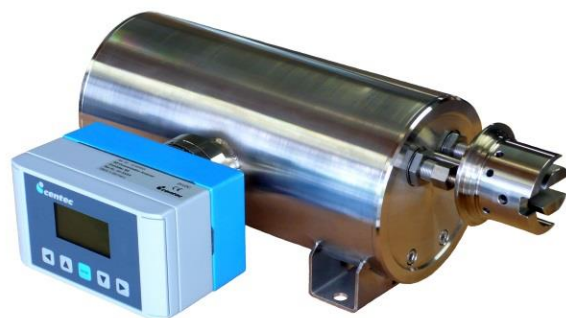


Automated
process skids
and high precision
sensors from a
single source.
Centec.

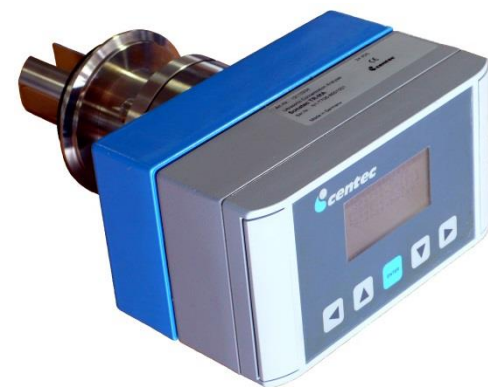
BEERMONITOR

The Principle

The BEERMONITOR is a special type of COMBITEC sensor. Before fermentation there exists a 2-component system – a mixture of water and extract. The concentration of this liquid can be determined by measuring density or sound velocity. During fermentation the sugars in the wort are converted into alcohol and CO₂. Thus, a 3-component system consisting of water, extract and alcohol emerges. By a combination of fluid density sensing and sound velocity measurement, alcohol and extract content can be separately determined. This allows calculating the degree of fermentation and the Original Gravity (OG) with extreme precision (“Balling’s Formula”). OG is a crucial factor for the alcohol content and the character of the finished beer and needs to be controlled with care. The increasing CO₂ content is automatically compensated for by CO₂ measurement with CARBOTEC. OG can also be determined by just measuring sound velocity. During fermentation the sound velocity does virtually not change. As a special type of SONATEC, the PLATOMONITOR is an economic instrument for OG calculation without extract and alcohol measurement. However, compared to the BEERMONITOR its accuracy is slightly lower.



BEERMONITOR
based on COMBITEC
for extract, alcohol, OG



PLATOMONITOR
based on SONATEC
for OG only

- Available as Transmitter Version with Local Display and as Sensor
- Highly Precise and Fast Determination of Alcohol, Extract and OG
- Based on Density and Sound Velocity Measurement
- Designed for the Specific Needs of Breweries
- Short Response Time and Excellent Long-Term Stability
- Hygienic Execution, Full CIP Capability and Maintenance Free
- Outstanding Price-Performance-Ratio

Technical Data	BEERMONITOR	PLATOMONITOR
Original Gravity		
Measurement Range	0 - 25 °Plato	0 - 25 °Plato
Accuracy	± 0,03 °Plato	± 0,05 °Plato
Extract		
Measurement Range	0 - 10 mass %	not measured
Accuracy	± 0,02 mass %	
Alcohol		
Measurement Range	0 - 12,5 vol.%	not measured
Accuracy	± 0,02 vol.%	
Response Time	≤ 1 s	≤ 1 s
Pressure of Operation	max. 16 bar	max. 16 bar
Temperature of Operation	- 25 - + 125 °C	- 25 - + 125 °C
Temperature Compensation	Pt1000	Pt1000
Material	1.4404/AISI 316L; Hastelloy C276; Monel 400; Incoloy 825; others on request	1.4404/AISI 316L; Hastelloy C276; Monel 400; Incoloy 825; others on request
Connections	compatible to Varivent® Inline-Housings DN40 - DN150; others on request	compatible to Varivent® Inline-Housings DN40 - DN150; others on request
Input	10 x digital (24 VDC) & 2 x analog (4 - 20 mA)	6 x digital (24 VDC)
Output	5 x digital (24 VDC) & 2 x analog (4 - 20 mA)	3 x digital (24 VDC) & 2 x analog (4 - 20 mA)
Profibus DP		
Transmitter Version	option	option
Sensor (w/o local display)	standard	standard
Enclosure Rating	IP65	IP65
Power Supply	24 VDC	24 VDC