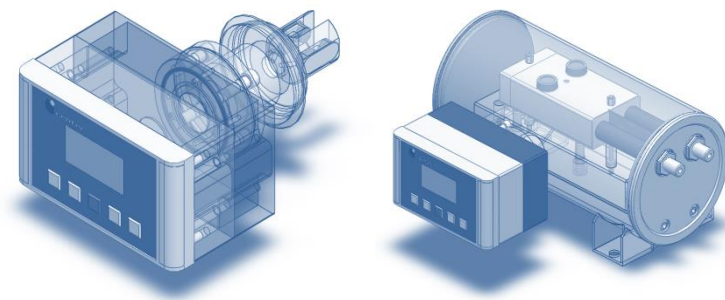


The Centec Group

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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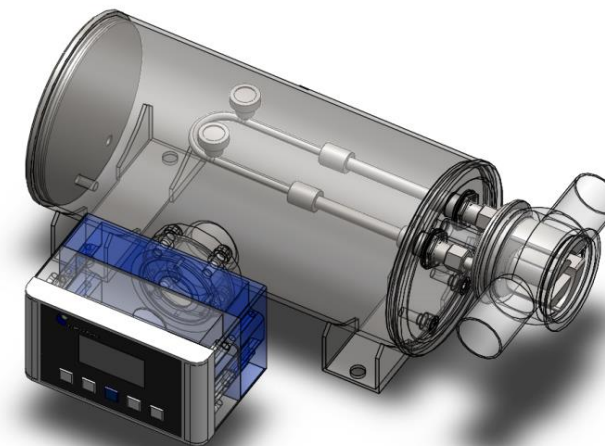
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BEERMONITOR

Extract and Alcohol Measurement after Fermentation

Application Report



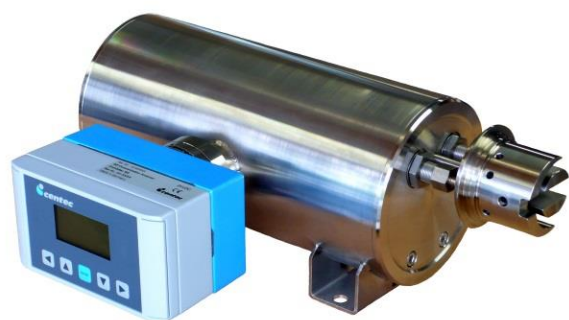
Automated
process skids
and high precision
sensors from a
single source.
Centec.

BEERMONITOR

Application and Measurement Principle

Brewing is divided into milling, malting, mashing, lautering, boiling, fermenting, storage, filtering and filling. Fermentation begins after yeast is added to the cooled wort. During this stage fermentable sugars are metabolized mainly into alcohol and CO₂. By combined measurement of density and sound velocity, both extract and alcohol can be determined. This is done after filtering, before filling and during optional blending. While the BEERMONITOR allows calculating the Original Gravity (OG), the PLATOMONITOR is used for OG determination only.

For density measurement, the liquid flows through a U-shaped tube. While the tube is electronically excited to oscillate at resonance, the oscillation frequency is observed. Any change in the fluid density has an impact on the detected signal and can thus be identified. At the same time, the speed of a sound pulse between a transmitter and a receiver is measured. The sound pulse is created by piezo-elements and moves perpendicular to the product flow. Based on the correlation between concentration and density resp. sound velocity, the concentration of the 3-component liquid is calculated.



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		
Transmitter Version	10 x digital (24 VDC) & 2 x analog (4 - 20 mA)	6 x digital (24 VDC)
Output		
Transmitter Version	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