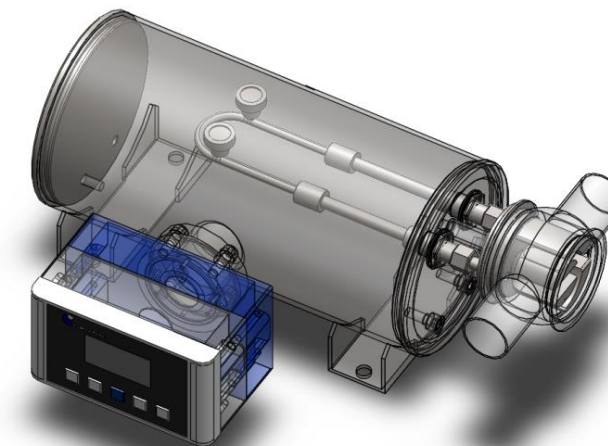


COMBITEC

Determination of Concentration by Density & Sound Velocity

Centec Process Sensors



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

COMBITEC INNOVATION

Designed for the specific needs of breweries, the BEERMONITOR has a proven track-record. This special type of COMBITEC is used in different parts of the brewery to simultaneously measure Original Gravity, extract and alcohol concentrations with extreme precision:

Technical Data BEERMONITOR

Original Gravity	
Measurement Range	0 - 25 °Plato
Accuracy	± 0,03 °Plato
Reproducibility	± 0,01 °Plato
Extract	
Measurement Range	0 - 10 mass %
Accuracy	± 0,02 mass %
Reproducibility	± 0,01 mass %
Alcohol	
Measurement Range	0 - 12,5 vol.%
Accuracy	± 0,02 vol.%
Reproducibility	± 0,01 vol.%

Innovation. Dedication. Centec.

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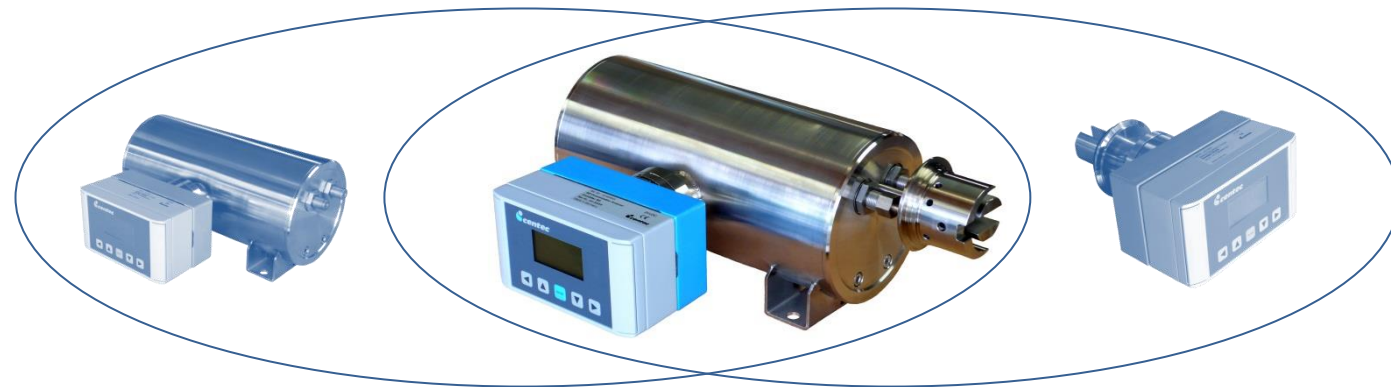
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COMBITEC

The Principle

COMBITEC combines the functionality of both RHOTEC and SONATEC. In various industries and around the world this device simultaneously measures density and sound velocity in 3-component liquids with highest sensitivity and accuracy. 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 density has an impact on the detected signal and can thus be identified. At the same time the instrument measures the speed of a sound pulse between a transmitter and a receiver. The sound pulse is created by piezo-elements and moves perpendicular to the product flow. As a specific property of each liquid, the correlation between concentration and density resp. sound velocity can be described by a mathematical polynomial. With decades of experience and own laboratory facilities, we have particular knowledge about these polynomials for a huge number of products. Any temperature drifts of the measured signal are automatically compensated for by an internal Pt1000 sensor. COMBITEC displays various units, e.g. vol.%, mass %, °Brix and °Plato.



COMBITEC
Transmitter Version

- Available as Transmitter Version with Local Display and as Sensor
- Highly Precise and Fast Determination of the Concentration
- Based on Density and Sound Velocity Measurement
- Applicable for a Huge Number of Liquids in Various Industries
- Short Response Time and Excellent Long-Term Stability
- Hygienic Execution, Full CIP Capability and Maintenance Free
- Outstanding Price-Performance-Ratio

Technical Data COMBITEC

Measuring Range	
Density	0 - 3 g/cm ³
Sound Velocity	400 - 3.000 m/s
Accuracy	
Density	± 0,0001 g/cm ³
Sound Velocity	± 0,05 m/s
Repeatability	
Density	± 0,0001 g/cm ³
Sound Velocity	± 0,01 m/s
Response Time	≤ 1 s
Pressure of Operation	max. 16 bar
Temperature of Operation	- 25 - + 125 °C
Temperature Compensation	Pt1000
Material	1.4404/AISI 316L; Hastelloy C276; Monel 400; Incoloy 825; others on request compatible to Varivent®
Connections	Inline-Housings DN40 - DN150; others on request
Input	10 x digital (24 VDC) &
Transmitter Version	2 x analog (4 - 20 mA)
Output	5 x digital (24 VDC) &
Transmitter Version	2 x analog (4 - 20 mA)
Profibus DP	
Transmitter Version	option
Sensor (w/o local display)	standard
Enclosure Rating	IP65
Power Supply	24 VDC