

▶ Biogas always under control



KROHNE

▶ *achieve more*

▶ OPTISONIC 7300 Biogas – Reliable and precise ultrasonic flowmeter for biogas and landfill gas

KROHNE's OPTISONIC 7300 Biogas 2-beam ultrasonic flowmeter determines the flow of biogas with maximum reliability, precision and durability. Thanks to the newly designed titanium transducers and innovative signal processing, biogas – known as a gas that is notoriously difficult to quantify – can now be measured safely and reliably even at low pressure with an accuracy of 1 % of the measuring value. The measurement result is not affected by changing methane content or high levels of CO₂. In addition, high humidity or gas that is saturated with water (even condensation) no longer create any limitations.



OPTISONIC 7300 Biogas

Measurement of methane content and standard volume

One of the special features of the ultrasonic flow measuring principle is that it can measure the methane content; the latter can be calculated from the velocity of sound, which is customarily available in an ultrasonic flowmeter, and the temperature of the biogas. This provides a better overview of the fermentation process, allowing for better control of the use of the biogas. By connecting an additional pressure transmitter, the standard volume of the gas can also be calculated by the flowmeter. This enables the gas volumes to be balanced through different stages in the process.

Insensitive to other components in the gas

Historically, biogas flow measurement has presented challenges. This was due to the nature of the gas which appears at low pressure, is wet (saturated) and contains H_2S , which can cause corrosion. The flow sensor of the OPTISONIC 7300 Biogas is designed in such a way that it will operate at atmospheric pressure and water vapour in the gas or condensation will not interfere with the ultrasonic measurement. The all stainless steel flow sensor body and titanium transducers resolve the problem of H_2S corrosion.

Durable and reliable

Following the initial calibration, the device provides exact measuring results with an accuracy of 1 % – without any maintenance or subsequent calibration. The extensive diagnostics provided by the OPTISONIC 7300 Biogas allow for continuous monitoring of the status and proper functioning. The flow sensor is an entirely welded construction with titanium transducers that have been proven in many harsh industrial applications. In particular, the transducer cables are securely fitted in stainless steel conduits so that damage during operation cannot occur.

Highlights:

- Reliable measurement of dry and humid (saturated) biogas with variable CO_2 content
- Measurement of methane content
- Integrated calculation of standard volume with optional pressure sensor
- Insensitive to corrosive components in the gas such as H_2S
- Large measurement range (100:1); starts measuring from zero flow; accurate from 1 m/s
- Available sizes: DN50, DN80, DN100, DN150, DN200
- Measuring accuracy: 1 % of the measured value
- Evaluation unit can be mounted either compactly or remotely
- Ex-approval for zone 1
- Output: 4...20 mA, HART®, Modbus (optional)

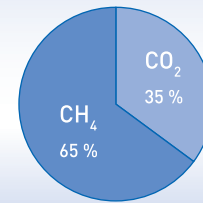
Contact

KROHNE Messtechnik GmbH
Ludwig-Krohne-Str. 5
47058 Duisburg
Germany
Tel.: +49 203 301 0
Fax: +49 203 301 103 89
info@krohne.de

Measurement of methane content

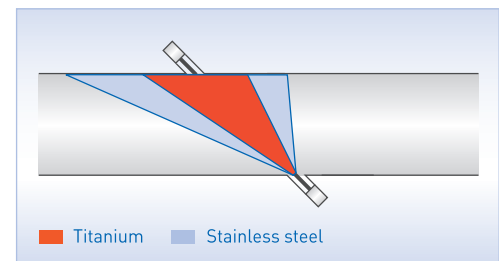
OPTISONIC 7300 Biogas enables the online measurement of methane content in biogas.

Typical biogas composition



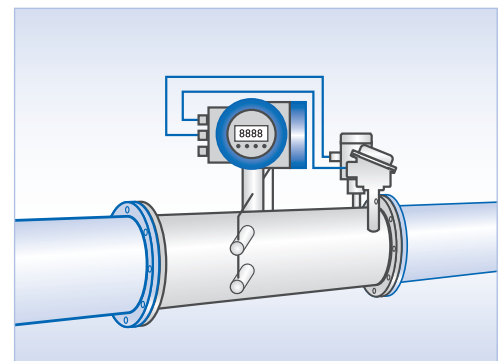
Focused sensor signal

The flowmeter is ideally suited to measure gas with high and fluctuating CO_2 content, due to the signal of KROHNE's titanium transducers which are better focused than ones in stainless steel.



Pressure- and temperature-compensated volume measurement

In combination with temperature and (optional) pressure sensors, OPTISONIC 7300 Biogas measures the standard volume of gas.



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