Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Prosonic Flow B 200

For reliable flow measurement of biogas without limitations

- Specially designed ultrasonic flowmeter for measuring biogas, landfill or digester gas
- One-of-a-kind – direct measurement of the methane content in the pipe
- High measuring accuracy (1.5% o.r.) and operable flow range (30:1)
- No pressure loss
- Can be used without limitations with low process pressure, fluctuating process conditions, and moist or contaminated gases
- Fully traceable measurement results with accredited calibration facilities according to ISO/IEC 17025
- Worldwide sales and service network with expert support

Endress+Hauser

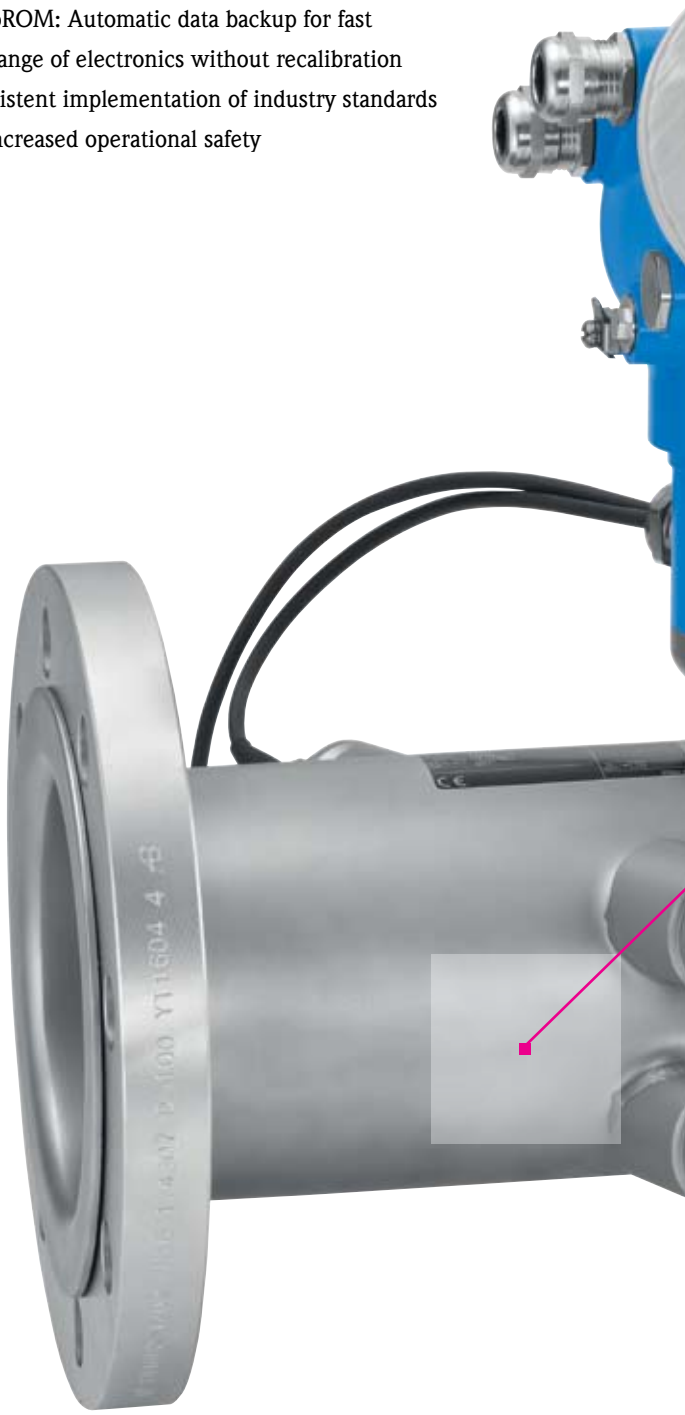
People for Process Automation

Customized easiness

Process monitoring requirements are becoming more complex and the need for maximum product quality is continually increasing. Therefore, now even more than ever, you can count on us for flow measuring technology that completely fills your needs for simplicity and reliability.

Our new generation of flowmeters is based on a uniform technology concept. For you, this means saving time and money as well as having maximum process reliability:

- Clear, intuitive operation
- Modular device concept for spare parts and components
- Standardized device and process diagnostics
- HistoROM: Automatic data backup for fast exchange of electronics without recalibration
- Consistent implementation of industry standards for increased operational safety

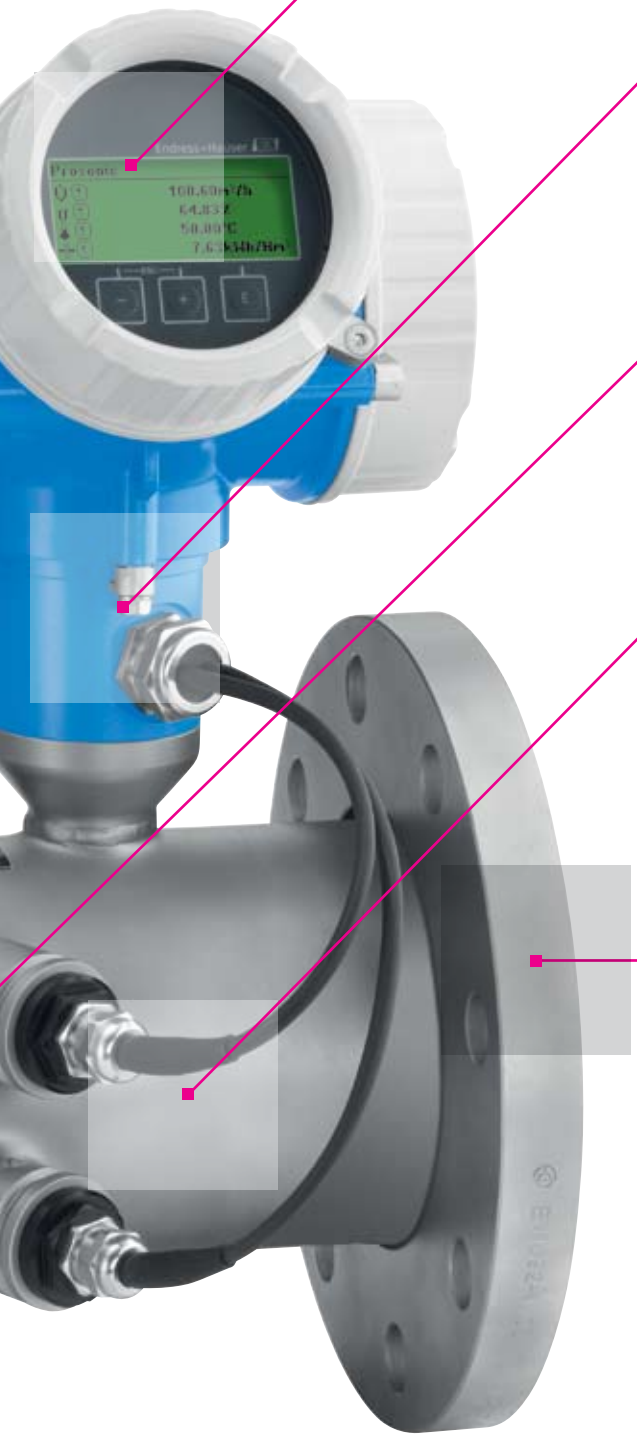


Reliable measuring technique for biogas

The biogas market is booming. No wonder, as the gas obtained from fermentation of organic garbage, liquid manure, sewage sludge or leftover plant materials can be used in a variety of beneficial ways – including fueling vehicles or generating heat and electricity in combined heat and power plants. Today, biogas is a synonym not only for green energy, but also for responsible management of organic waste.

For biogas plants to work properly, various process parameters have to measured around the clock. In addition to the gas composition, the pressure and the temperature, this primarily includes measuring the gas volume generated. Prosonic Flow B 200 is an ultrasonic flowmeter specially developed for this purpose, which can measure the volume flow of biogas, landfill or digester gas with high accuracy, even under greatly fluctuating operating conditions. Compared to conventional measurement methods, ultrasonic flow measurement also has numerous benefits:

- High measuring accuracy and operable flow range
- No pressure loss
- Maintenance-free, as there are no moving parts
- Short inlet and outlet runs
- Measurement possible even with minimum operating pressure
- Independent of gas composition and moisture content



Easy operation / data backup

- Fast and reliable commissioning with the uniform Endress+Hauser operating concept
- Direct display of:
  – Explanatory texts during operation (tool tips)
  – Troubleshooting measures in the event of an error
- HistoROM: Automatic data backup for fast exchange of electronics without recalibration
- Display module with backup and transfer function for configuration data

Maximum safety via industrial standard

- Fulfills all requirements of the biogas industry
- Self-monitoring and error diagnostics complying with NE107 (NAMUR)
- World-wide recognized Ex approvals

Sensor technology proven in use

- Robust sensor – suitable for moist, dirty or corrosive gases
- Lap-joint flanges for quick and versatile installation
- Continuous measurement of the methane content (CH_4) enables a quick reaction to problems in the process

Guaranteed measuring accuracy

- Excellent measuring accuracy
  – independent of the gas composition
  – across the entire operable flow range (4 to 20 mA)
- Every meter is tested on the world's most modern calibration facilities (accredited to ISO/IEC 17025)
- All test equipment is fully traceable to national and international standards

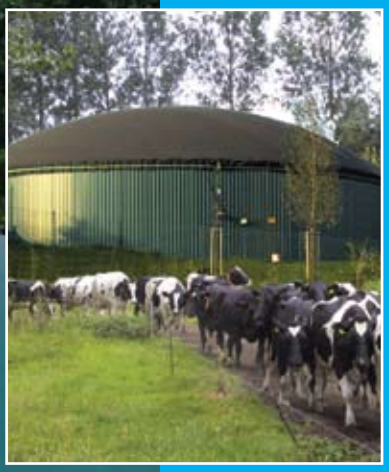
100% system integration

- Seamless integration into existing process control systems as it is a true two-wire device – no need for power converters
- Can be integrated into HART Multidrop applications at any time

Proven two-wire technology

Two-wire measurement technology – i.e. loop-powered design – offers important advantages over four-wire technology:

- Lower costs due to reduced cabling and installation time
- Easy and seamless system integration into existing infrastructures
- Unlimited use in the Ex area due to intrinsically safe design (Ex ia)



Continuous monitoring of the methane content

Fermentation processes are not always uniform. The operating conditions, which in some cases fluctuate greatly, result in different levels of methane content (CH_4) in the biogas, which has to be monitored continously.

With Prosonic Flow B 200, it is now possible – thanks to the integrated temperature sensor and highly accurate sound velocity measurement – to simultaneously measure the methane content directly in the pipe, without the need for additional devices. This one-of-a-kind feature enables around-the-clock measurement of gas flow and gas quality. This allows the operator of a biogas plant to react to problems in the fermentation process quickly and in a targeted manner.

Prosonic Flow B 200 also calculates additional characteristic values that are available as a signal for process control:

■ Corrected volume ■ Heating output ■ Wobbe index (an indicator of fuel gas quality)

Technical data

Prosonic Flow 200 (transmitter)

■ Display	4-line, push buttons or optical keys
■ Operation	– Via the local display – Via an instrument configuration software, e.g. “FieldCare” from Endress+Hauser
■ Power supply	18 to 30 V DC
■ Ambient temperature	–40 to +60 °C (–40 to +140 °F)
■ Degree of protection	IP 66 and IP 67 (NEMA 4X)
■ Design	Compact (aluminium or stainless steel housing)
■ Galvanic isolation	All circuits for outputs and power supply are galvanically isolated from each other
■ Outputs	Current output (4–20 mA, HART), pulse/frequency/status
■ Communication	HART, PROFIBUS PA
■ Ex approvals	ATEX, IEC, cCSAus
■ Ignition protection type	Intrinsically safe (Ex ia), flame-proof (Ex d)

Prosonic Flow B (sensor)

■ Nominal diameters	DN 50 to 200 (2 to 8")
■ Process connections	Lap-joint flanges: EN, ASME
■ Process pressure	10 bar
■ Process temperature	0 to +80 °C (32 to 176 °F)
■ Degree of protection	IP 67 (NEMA 4X)
■ Measured error	Volume flow: ±1.5% o.r. (within 3 to 30 m/s) Methane concentration: ±2% o.f.s.
■ Operable flow range	30:1
■ Materials	1.4404/316L (stainless steel)
■ Pressure loss	Negligible
■ Approvals	PED

Subject to modification

The Prosonic Flow B 200 measuring system fulfills the EMC requirements according to IEC/EN 61326 and NAMUR NE21. It also conforms to the requirements of the EU and ACMA directives and thus carries the CE and ✓ mark.

Photos: Courtesy of EnviTec Biogas AG, HAASE Energietechnik AG, Neumünster

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