Endress+Hauser Prosonic Flow G 300/500

AMA Innovation Award 2020
Prosonic Flow G 300/500

- Sizes: 1"/DN 25 to 12"/DN 300
- Pressure: Cl. 150/PN 16 to Cl. 600/PN 100
- Volume flow uncertainty: 0.5% / 1%
- Corrected volume uncertainty: 1% / 1.5%
- Robust against wet gas conditions
Prosonic Flow G 300/500: Redefines Ultrasonic Gas Measurement!

Enable High Plant Availability
- Highly robust gas specialist for challenging conditions
- Sensor & transducer design for wet gas conditions and varying compositions

Ensure Plant Safety
- Rupture disc
- Dual Seal concept conform to ANSI/ISA-12.27.01-2011

Optimize Productivity
- Standard calibration
  - Accredited ISO 17025 gas calibration with piecewise linearization
- Advanced Gas Analysis
  - Volume flow, corrected volume flow, mass flow, energy flow, calorific value, Wobbe index, etc.

Enable High Plant Availability
- Heartbeat Technology
  - Continuous self-diagnostics, device verification and process monitoring

Ensure Plant Safety
- SIL 2/3 rated
  - Completely developed in accordance with IEC 61508

Enable High Plant Availability
- Integrated temperature and pressure
  - Real time compensation for fluctuating conditions - fully integrated
Prosonic Flow G: Highly Robust Gas Specialist for Challenging Conditions

Innovative transducer design:
- Extremely effective sound transmission
- Titanium transducers
- 316L meter body
- Acoustical filter against pipe borne noise
- Large transducer to meter body gap to avoid acoustical short-circuit due to liquid collection
Pressure and temperature (p & T) are used to calculate normalized flow, the general customer preference:

- p & T seamlessly integrated to the electronics
- No outputs/inputs used for integration
- p & T are installed on the meter body: Pressure and leakage tested
- p & T also checked by Heartbeat Technology diagnostics
Prosonic Flow G: Advanced Gas Analysis

The Endress+Hauser Advanced Gas Analysis Package is superior in calculations using flow rate, speed of sound, pressure and temperature:

- Specialized algorithms for calculating additional parameters and measuring variables
- Energy flow measurement in natural gas, coal seam gas, coal bed methane and other gas mixtures are possible
- AGA NX19, AGA 5/ISO 6976, ISO 12213-2/3 and methane concentration calculations embedded
- Volume flow, corrected volume flow, mass flow, energy flow, calorific value, Wobbe index etc.
Each test group has tolerances and limits used to generate the Heartbeat verification report.

Additional variables are available for monitoring, for example: signal strength, acceptance rate, asymmetry, signal to noise ratio and turbulence.
Prosonic Flow G: SIL (Safety Integrity Level)

- First ultrasonic flowmeter completely developed in accordance with IEC 61508

- Safety relevant flow monitoring systems:
  - SIL 2 for single-channel service
  - SIL 3 for multi-channel service with homogeneous redundancy

- Manufacturer Declaration is integrated in our Functional Safety Manual
Prosonic Flow G: Gas Calibration Facility

- Diameter range 50 to 300 (2 to 12"")
- Flow range: 2...8700 m³/h
- Measurement uncertainty: ±0.25%
- Calibration pressure 350 mbar, closed loop system
- Master meters: ten different turbines and rotary pistons
- Transfer standards: two rotary pistons
- Accreditation according to ISO 17025 pending
Prosonic Flow G: Natural Gas Application in Abu Dhabi

- High-performance process control: Real-time pressure- and temperature compensated measuring values
- Cost saving installation: Reduction of instrumentation components by a factor of four
- Maximum reliability even with wet gas: Sensor design insensitive to liquids
- Calorific value measurement – real time assessment of gas quality (energy)!
- Reliable and accurate energy based billing
- Full access to process and diagnostic information with WLAN without process interruption
- Integrated verification: Heartbeat Technology
Thank You for Your Attention

Prosonic Flow G 300/500