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Clamp-on Ultrasonic Gas Flow Meters

Thanks to the WideBeam ultrasonic transit-time measurement principle and 100 Hz data update rate developed by Siemens, the SITRANS FS230 clamp-on ultrasonic gas flow meter tolerates most wet gas conditions. Most competing meters would be incapable of operation in such challenging environments, but the SITRANS FS230 can perform accurately even when moisture is present. WideBeam technology provides accuracy and reliability in numerous field installations around the world.

The SITRANS FS230 is ideal for most natural, specialty and process gas industry applications, including:

- Allocation
 - Flow survey verification
 - Production
 - Storage
 - Gas-fired power stations
- Check metering
 - Lost and unaccounted for (LAUF) analysis

As with any other clamp-on flow device from Siemens, it is not necessary to cut the pipe or shut down operations to install the flow meter; the sensors are quickly and easily mounted on the outside of the pipe, minimizing maintenance expenses and preventing deposits from forming.



SITRANS FS230 clamp-on ultrasonic gas flow meters provide several benefits:

- Transit-time technology ensures excellent accuracy and tolerance of most wet gas conditions
- Data extraction and analysis through AGA-8 compliant Si-Ware diagnostics tool and AGA-10 compliance for software accuracy verification
- Can be paired with Hi-Precision Mounts for permanent and direct burial installations
- Single and dual versions accommodate various flow profiles
- Easy installation and commissioning

Quality-assured features

The Si-Ware diagnostic software provides the SITRANS FS230 with diagnostic capabilities that deliver crucial information about the application and meter performance. This data can be extracted and downloaded to a PC for analysis and systems check.

For additional verification purposes, a speed of sound calculation in compliance with the American Gas Association's AGA-10 standard is incorporated into the software. In addition, an internal AGA-8 compliant table for fixed gas composition is available for standard volume computation.

When installation conditions require it, the sensors can be delivered in rugged stainless steel Hi-Precision Mount enclosures for permanent direct burial. For additional protection the sensors can be sealed with denso couplant or RTV silicone.

Benefits of the FS230 clamp-on ultrasonic gas flow system

100Hz output – Ability to react to sudden changes in velocity, speed of sound in applications such as compressor stations. This allows the use of small volume provers for in-situ flow validation by measuring the smallest variations in flow 100 times every second

Market-leading accuracy and repeatability – Accuracy of 0.5% to 1.0% of flow rate for all media/pipe sizes and repeatability of 0.25% according to ISO 11631

Available internal AGA 8 gas tables – Simplifying correction for temperature and pressure variations in gas flow

Pipe configuration menu (disturbed flow) – This patented feature enables upstream and downstream pipe diameters and obstructions to be programmed into the meter to improve accuracy

Enhanced pig detection – New algorithm detects pigs with high accuracy

Three resettable totalizers – Allows simultaneous totalizing for daily, monthly and annual lease production

SensorFlash® 4GB MicroSD card storage – Certificates, calibration data, sensor parameters and events can be logged every 10ms for easy servicing and record-keeping (can be upgraded to 32GB)

Micro USB plug – Easily connect via micro USB, to utilize FS230 software and SIMATIC PDM for uploading AGA tables, downloading diagnostics, etc.

Easy to read and use graphic Human Machine Interface – Offers intuitive menu-driven navigation as well as step-by-step setup and troubleshooting wizards, with up to 6 user-configurable views on display at a time

The WideBeam principle

All SITRANS FS230 clamp-on flow meters employ transit-time technology, in which the pipe wall is utilized as an amplifier to optimize the signal-to-noise ratio. This increases precision by reducing sensitivity to any change in the medium type or pressure. It also renders the flow meter immune to most pressure-reducing valve noises. The WideBeam principle works with steel, aluminum, titanium and plastic pipes.

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