

PROCESS INSTRUMENTATION

Best-in-class performance for day-to-day operation.

Digital innovation in ultrasonic flow – SITRANS FS230.
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SIEMENS

Digitize your productivity.

For the process industries, change is one of very few constants – making it challenging to stay profitable and ahead of the competition. To succeed you need high-performance instrumentation solutions that maximize the efficiency of your processes while minimizing operational expenses.

Building upon decades of experience in the field of ultrasonic flow measurement, Siemens has developed a state-of-the-art and cost-effective solution for virtually any liquid or gas application: the SITRANS FS230.

As one of the world's first digital clamp-on ultrasonic flowmeters, the FS230 harnesses the power of digital signal processing to bring you market-leading accuracy, noise immunity and reliability.

The FS230 simplifies and optimizes your day-to-day operation with an unparalleled data update rate, superior user-friendliness and a leading variety of options for customization, securing the highest measurement quality at the lowest cost.

In selecting Siemens as your preferred technology partner, you are ensured full system integration and around-the-clock technical service from our global network of instrumentation and automation experts 7 days a week. Siemens is the world's single-source leader of automation products engineered and manufactured for all industrial sectors.

With the SITRANS FS230, ultrasonic flow measurement has never been easier – or more innovative.

Siemens is a pioneer in the use of Lamb wave transducers for flow measurement. Our WideBeam® transit-time technology increases accuracy by reducing sensitivity to changes in the fluid.



See how ultrasonic measurement works.

The future is digital – making better decisions faster.

Digitalization is one of the most effective ways for the process industries to improve competitiveness. It allows decisions of never-before-seen quality to be made: fast, well-founded and based on facts. This creates new possibilities for systematic plant optimization throughout the entire life cycle. And it is precisely in this area that Siemens supports you – as an experienced partner and pioneer in the area of digitalization.

Today's digital revolution is opening exciting new doors for the process industries. By enhancing the flexibility and efficiency of manufacturing without any loss of quality, digitalization empowers companies to reduce time-to-market and gain a competitive edge.

Intelligent devices and systems generate valuable data with the potential to improve process transparency and enable smarter choices. Leveraged properly, this wealth of information makes it possible to maximize your plant's efficiency, respond more quickly to customer needs and boost your bottom line.

Having pioneered concepts like Totally Integrated Automation, Siemens is a driving and trendsetting force behind the movement toward digitalization in manufacturing. Our experience, know-how and portfolio of integrated solutions help to generate performance improvements across the entire value chain – starting on field level with digitally based process instrumentation.



Digitalization empowers the process industries to reduce time-to-market as well as energy and resource consumption. Join the digital revolution with intelligent instrumentation like the SITRANS FS230.

Minimize errors and maximize stability
One of the first digital clamp-on ultrasonic flowmeters on the market, the SITRANS FS230 digitizes the signal early in the measurement process for a high signal-to-noise ratio, enhanced measurement accuracy and reduced electromagnetic interference. As a result, it meets the most stringent electromechanical compatibility (EMC) standards worldwide.

The 100 Hz update rate from the digital to the transmitter makes it possible for the FS230 to detect small, rapid changes in flow. The high-speed update rate also allows for smaller calibration facilities and the possibility to calibrate with shorter volume runs.

Stay fully connected
The USB port and SIMATIC PDM compatibility make for easy access to all commissioning and operational data via any PC, without interrupting your processes. And the FS230 can be directly integrated into any process control system via HART or Modbus communication to enable plant-wide automation and optimization.

More about Siemens digital solutions.



SITRANS FS230 – **the versatile top performer.**

The SITRANS FS230 flow meter has been designed to deliver market-leading accuracy and data update speed while also ensuring unmatched noise immunity and simplicity in use. Based on a digital platform and driven by a powerful measurement algorithm, the FS230 features a range of innovations that will enhance operational efficiency.

Ingenuity for high precision and reliability
At the heart of the meter is the PerformancePLUS™ algorithm for fast and reliable signal processing, and the Digital Transducer Link (DSL), which digitizes the ultrasonic signal at the earliest stage of measurement for a strong signal-to-noise ratio.

The results: high accuracy of 0.5 to 1% of flow rate and repeatability of 0.25% according to ISO 11631 along with a very stable zero point and high resistance to process noise.

The 100 Hz data refresh brings you the ultimate in diagnostic and error handling efficiency, while the intelligent pipe configuration menu optimizes transducer placement and compensates effectively for various application conditions, including flow profile anomalies.

Simple to use
Experience easy handling with a large, fully graphical display. Intuitive navigation, a built-in pipe configuration menu and multiple setup wizards offer you full support from the very first moment.



Service in a flash
Enjoy the benefits of the innovative TransducerFlash®.
In addition to storing all settings, calibration data and certificates, it provides comprehensive audit trails with quick information transfer for more efficient service and less downtime.



Fully customizable
Take advantage of a broad range of programmable I/O, communication, FM approved hazardous area approval – then configure your alarms, 3 totalizers and up to 6 different views at once.







Rapid response time
Enhance your measurement precision and reliability with the best-in-class 100 Hz data update rate – enabling fast detection of and response to even the smallest changes in your flow process.

Unique support tools and tailoring
The SITRANS FS230 offers user-friendliness and customization options at every stage of installation, commissioning and day-to-day operation.

The TransducerFlash® microSD card gives you access to all product data, certificates, operating instructions and audit trails directly from a PC or via the transmitter's USB port, and also makes it easy to transfer settings between devices.

The graphical interface features intuitive menu navigation with the ability to display up to 6 user-configurable parameters on the same screen, along with a comprehensive set of diagnostic tools to improve your monitoring ability and streamline your operations.

In addition, the FS230 brings you:

- Low power consumption of 10 W or less for improved energy efficiency
- Easily accessible USB user interface for easy servicing and increased up time
- Compliance with current electro-mechanical compatibility (EMC) standards
- Optional commissioning and other service packages from Siemens experts, with straightforward ordering directly from the PIA Life Cycle Portal

SITRANS FS230 wall-mount or industrial transmitter

Configuration	Wall-mount enclosure, 1- to 4-paths
Communication	HART 7.5 or Modbus; compatible with SIMATIC PDM
Material	Aluminum
Enclosure rating	IP66/67, NEMA 4X
I/O	Up to 6 channels combining analog, relay or digital outputs and binary input + RTD
Display	Fully graphical display, 240 x 160 pixels
Power supply	24 to 90 V DC, 100 to 240 V AC (universal power supply)

Exceptional performance and outstanding cost savings. With the SITRANS FS230, you never need to compromise.

By combining an innovative transmitter with dependable SITRANS FSS200 transducers, Siemens has developed an exceptional clamp-on ultrasonic flow solution. The FS230 offers outstanding cost savings without sacrificing the high levels of accuracy and reliability required to run your processes at peak efficiency.

To cover the widest possible range of applications and challenges, Siemens offers 3 different types of clamp-on ultrasonic transducers in multiple sizes: WideBeam® (High Precision), Universal and High Temperature.

The WideBeam® advantage
Siemens has WideBeam® transit-time transducer technology to improve signal detection. It increases measurement accuracy by using the resonant frequency of the pipe to transmit ultrasonic waves through the flowing liquid, with the pipe wall acting as a waveguide.

WideBeam® produces a particularly strong, focused signal that optimizes the signal-to-noise ratio, reduces sensitivity to changes in temperature, density or viscosity and resists the effects of beam blowing.





SITRANS FSS200 clamp-on ultrasonic transducers are easy to install and require virtually no maintenance since they never come into contact with the medium.

High precision, low maintenance

Not only does the SITRANS FS230 flow system feature market-leading accuracy of 0.5 to 1% of flow rate for liquids and gases, but it's also capable of handling applications containing up to 12% aeration or suspended solids as well as wet gas conditions without any significant reduction in performance. Typical applications include wastewater treatment, paper manufacturing, liquid and gas hydrodynamical processing and transport, many processes that involve mixing, and meter checking as well as pipeline metering and lost and accounted for flow analysis.

Unlike most other flow measurement technologies, the FS230 keeps your cost of ownership low since the transducers never touch the flow, have no moving parts and can be mounted easily on liquid flow pipe sizes as large as 394" in 30" or larger gas pipe sizes without process downtime. This makes the FS230 a perfect choice for flow measurement on existing pipelines as well as for corrosive, toxic or high-pressure flows.

With the SITRANS FS230 you also get:

- High turndown ratio to ensure consistent measurement across a wide range of flow rates
- Multiple path configuration options for increased accuracy, particularly in less-than-ideal piping geometry
- Bidirectional flow capability without the need for multiple meters or user intervention
- No pressure drop, which reduces energy usage and minimizes drag on pumping systems

See how easy installation can be.

SITRANS FSS200 transducers	WideBeam®	Universal	High Temperature
Installation (architecture)	Clamp-on		
Media	Conductive and non-conductive liquids and gases		
Pipe sizes	0.5" to 394" (0.5 - 530" or larger) for gas		
Transducer materials	Size C/D - Polyetherimide, stainless steel Size A/B - Polyetherimide, stainless steel, aluminum (optional)	Size C/D/E - Polyetherimide, stainless steel Size A/B - Polyetherimide, stainless steel, aluminum (optional)	Stainless steel
Temperature range	-40 to 250 °F	-40 to 250 °F	-40 to 450 °F
Pipe material	Steel and carbon steel	Most non-steel	Steel and non-steel

Built-in flexibility for every industry.

Business is based on trust
A successful partnership has many facets. Being there when you're needed. Providing support even in the toughest situations. Adapting to meet changing priorities.

Siemens has all of the qualities that make us a reliable partner. And the results speak for themselves: dependable solutions tailored precisely to your requirements.

Maintaining quality control. Keeping operating and usage costs to a minimum. Protecting public safety. Liquid and gas flow measurement serves a variety of critical roles for the process industries – and the SITRANS FS230 is up for the challenges faced by a broad array of industries, including water and wastewater, HVAC and power, hydrocarbon, food and beverage, pharmaceutical, chemi- cal, mining, and pulp and paper.

Cost-reducing simplicity – Water and wastewater
The versatile SITRANS FS230 can be installed on any pipe size and material. Its accurate, non-intrusive volumetric measurement helps to reduce water wastage and better comply with strict regulations while also benefiting you with significant cost savings. The non-intrusive transducers make installation simple, with no need for pipe alterations or process shutdown.

Key application areas for the FS230 include raw and potable water, low-flow chemical dosing, raw sewage and effluent, mixed liquor and sludges, consumption monitoring, billing, and plant testing and surveying.

Optimized energy efficiency – HVAC and power
Its rugged design and innovative engineering enable the SITRANS FS230 to provide precise measurements even in installations with low flow rates. The FS230 can be further optimized by using the pipe configuration menu or by applying the dual-path function to improve performance in convoluted piping configurations.

Within the HVAC industry, key application areas for the FS230 include district heating and cooling, hot and chilled water sub-metering, condensate water, thermal storage and lake source cooling. The FS230 also supports many power industry applications such as coolant, hydroelectricity, penstocks and nuclear feed water.



The SITRANS FS230 adapts easily to the needs of numerous liquid and gas applications spanning the process industries – from hydrocarbon flow to hydroelectric power generation.



Precision and safety – Hydrocarbon industry
Featuring high measurement accuracy, rugged design and best-in-class Ex approvals, the SITRANS FS230 is built to meet the toughest demands of the hydrocarbon industry. Other distinct advantages include scraper and interface detection, advanced diagnostic functions, high-speed 100 Hz signal processing, measurement of standard/normal or gross volume flow, operation on a wide range of pipe sizes and HART or Modbus communication options.

For additional verification purposes in the gas industry, a speed of sound calculation in compliance with the American Gas Association's AGA-10 standard is incorporated into the software. An internal AGA-9 compliant table for fixed gas composition is also available for standard volume computation.

Other benefits include enhanced pig detection with updated algorithms that will detect pigs with high accuracy, and three resettable totalizers.

The transmitter comes standard as IP66/67 and the FSS200 transducers come standard as IP68, which means the system stands up to even the most challenging environments. Because it is capable of market-leading precision under a wide range of flow viscosities, the FS230 offers a competitive edge for blending applications involving multiple liquids. And the FSS200 transducers come in corrosion-resistant stainless steel.

Key application areas for the FS230 include a diverse variety of upstream, midstream and downstream processes.

With the SITRANS FS230 you also get:

- Guaranteed safety with best-in-class Ex approvals (transmitter: FM/FMc Class1 Div1, 2, Zone 0, 1, 2, transducer: Zone 0, 1)
- Measurement on pipelines from 0.5" to 33 feet
- Measurement on pipelines carrying multiple products
- ATEX, FM, IECEx and FM Canada approvals on all transducers and transmitters, making installation possible in a variety of hazardous locations
- Available high-precision mounts for an even greater level of protection in adverse conditions

Liquid and gas hydrocarbon applications demand a flow solution that can perform in highly dynamic, often harsh conditions. The rugged SITRANS FS230 is up for the challenge.

Measuring everything that matters:

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Siemens Process Instrumentation offers best-in-class measurement and seamless integration into your automation system. We are the total solution provider for flow, level, pressure, temperature, weighing, positioners and more.

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