Leading accuracy. Fastest update rate.
SITRANS FC digital Coriolis solutions.
Digitize your productivity.

From the smallest dose of chemicals to the massive quantities of bunker fuel pumped into a cargo ship, the Siemens Coriolis flowmeter portfolio harnesses the power of digital signal processing to bring you market-leading accuracy, a best-in-class update rate and unmatched customization flexibility for applications of every size and scope.

SITRANS FC flow systems simplify your day-to-day operation thanks to innovative features like an easy-to-navigate graphical interface, and an integrated USB service port. Since every solution is manufactured in one of the world’s most advanced Coriolis factories, you are ensured consistently top quality complemented by worldwide expert-level support for full system integration. With SITRANS FC, Coriolis flow measurement has never been easier – or more innovative.

Embrace the benefits of digitalization with SITRANS FC. Our Coriolis transmitter platform is driven by powerful digital signal processing technology, delivering true multiparameter measurements with the highest levels of accuracy and reliability. And their modular design ensures easy integration with any Siemens Coriolis sensor for maximum versatility.
All SITRANS FC flow systems are manufactured in a highly automated environment. Our production robots can position and assemble up to 250 kg (551 lbs) with precision of 5 μm (0.2 mils) in the laser welding station, while in-house electrolytic surface treatments and electropolishing ensure a perfect finish.

In selecting Siemens as your technology partner, you are assured around-the-clock technical support from our global network of instrumentation and automation experts 24 hours a day 7 days a week. Optional commissioning and other service packages from experienced product specialists can be ordered directly from the Siemens on line PIA Life Cycle Portal.
The future is digital – making better decisions faster.

Today’s digital revolution is opening exciting new doors for the process industries by enhancing the flexibility and efficiency of manufacturing without any 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 the concept of Totally Integrated Automation, Siemens is a driving 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 at the field level with digitally based process instrumentation.

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.
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 FC portfolio.

Minimize errors and maximize stability
Next-generation SITRANS FC flowmeters digitize the signal at the earliest stage of the measurement process, resulting in a strong signal-to-noise ratio. You benefit from exceptional measurement accuracy along with high resistance to process noise and a stable zero point.

The 100 Hz update rate from the digital sensor interface to the transmitter and PLC makes it possible for Siemens Coriolis systems to detect even the smallest changes in flow – changes typically averaged by analog devices. This high-speed signal processing is key for optimizing your operations, particularly fast-moving and dynamic applications such as batching, dosing and filling.

Stay totally connected
The removable SensorFlash® microSD card and built-in USB port make for easy access to datalogging and all device data via any PC, without interrupting your process. Once the flowmeter is connected, the powerful SIMATIC PDM software tool can be used to enhance meter performance with a variety of options for configuration, parameter assignment, commissioning, diagnostics and maintenance.

Your SITRANS FC solution can also be integrated seamlessly into any control system via HART, Profinet or Modbus communication to enable plant-wide automation. For applications requiring fast data exchange, the fully digital PROFIBUS DP and PA communication protocols are also available to maximize process transparency and productivity.
The versatile top performers.

SITRANS FCT010 and FCT030.

The SITRANS FC transmitter program 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, Siemens Coriolis transmitters are individually configurable to deliver true multiparameter measurements – including mass flow, volume flow, density, temperature and fraction (e.g. Brix and Plato) – and feature a range of innovations to enhance your operational efficiency.

Ingenuity for high precision and reliability
At the heart of the transmitters is the PrecisionPLUS™ algorithm, providing fast and reliable signal processing, and the Digital Sensor Link (DSL), which digitizes the Coriolis signal at the earliest stage of measurement for a strong signal-to-noise ratio. The results: exceptional accuracy of 0.1% and repeatability of 0.05% along with a stable zero point and high resistance to process noise. The 100 Hz data refresh rate brings you the ultimate in diagnostic and error handling efficiency. The flexible FC transmitter program includes the right solution for every application, with a modular design for convenient installation and a choice of wall-mount, integral or remote configuration for most sensor sizes.

Unique support tools and tailoring
User-friendliness and customization options at every stage of installation, commissioning and day-to-day operation are distinguishing qualities of all FC transmitters. The Sensor-Flash® 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.

So simple to use
Experience easy handling with a large, fully graphical display. Intuitive navigation and multiple setup wizards offer you full support from the very first moment.

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

Fully customizable
Take advantage of numerous programmable I/O, communication and approval options. Configure your alarms, 3 totalizers to create batches and up to 6 different parameters on one screen.
The audit trail feature automatically stores up to 100 records per log of each change made to a value or setting, including the time and method. The graphical interface provides intuitive menu navigation with the ability to display trend curves and define up to 6 user-configurable parameters on the same screen. An on-board set of advanced diagnostic tools facilitates preventative maintenance.

In addition, the FC transmitter program brings you:
- Low power consumption of only 10 W for improved energy efficiency
- Standardized HMI with other devices across the Siemens Process Instrumentation portfolio to reduce training needs
- Cable tunnels for each I/O to ensure failsafe installation even when cables are thick
- Wago Cage Clamps for lifelong, maintenance-free hold of wires

### Technical details

<table>
<thead>
<tr>
<th>Technical details</th>
<th>SITRANS FCT010</th>
<th>SITRANS FCT030 Field housing</th>
<th>SITRANS FCT030 Wall mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Integral or remote</td>
<td>Compact or remote</td>
<td>Remote</td>
</tr>
<tr>
<td>Communication</td>
<td>Modbus RS485</td>
<td>Profibus DP and PA, Modbus RS485, HART</td>
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<tr>
<td>I/O</td>
<td>1 communication</td>
<td>1 communication + 3 optional</td>
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<tr>
<td>HMI</td>
<td>No HMI</td>
<td>Advanced HMI with multiple language support</td>
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<tr>
<td>Power supply</td>
<td>DC</td>
<td>Self-switching AC/DC. Automatically detects supply voltage</td>
<td></td>
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<tr>
<td>Special features</td>
<td>Aerated flow filtering</td>
<td>Aerated flow filtering, high-speed datalogging, advanced diagnostics, dosing and fraction flow : AKA “percentage mix”</td>
<td></td>
</tr>
</tbody>
</table>
One platform. Infinite solutions.

With the digital SITRANS FC program, you can customize a flow system to your exact needs now – and adapt it easily to changing requirements in the future. A standardized interface creates modularity between all of our Coriolis sensors and transmitters, securing the highest levels of flexibility and competitiveness for almost every flow measurement challenge and operating environment.

<table>
<thead>
<tr>
<th>Sensor sizes mm (inch)</th>
<th>MASS 2100</th>
<th>FC300</th>
<th>MASS 2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/16”</td>
<td>1/4”</td>
<td>1/8”</td>
<td>1/4”</td>
</tr>
<tr>
<td>Configuration</td>
<td>Remote</td>
<td>Remote</td>
<td>Integral or remote</td>
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<tr>
<td>Accuracy</td>
<td>0.10%</td>
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<tr>
<td>Repeatability</td>
<td>0.05%</td>
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<tr>
<td>Density accuracy</td>
<td></td>
<td></td>
<td>0.5 kg/m³</td>
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<tr>
<td>Flow range kg/h (lbs/h)</td>
<td>30 (66)</td>
<td>350 (770)</td>
<td>250 (550)</td>
</tr>
<tr>
<td>Material</td>
<td>Wetted parts: 316 L or Hastelloy C22</td>
<td></td>
<td></td>
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<tr>
<td>Enclosure</td>
<td>316 L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure rating bar (psi)</td>
<td>365 (5292)</td>
<td>410 (5950)</td>
<td>350 (5075)</td>
</tr>
<tr>
<td>Temperature rating °C (°F)</td>
<td>-50 to +180 (-58 to +356)</td>
<td>-40 to +180 (-40 to 356)</td>
<td>-50 to +180 (-58 to 356)</td>
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<tr>
<td>Sensor enclosure rating</td>
<td>IP67 (NEMA 4X)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>Hazardous: ATEX, IECEx, cULus</td>
<td>Hazardous: ATEX, IECEx, cULus, cCSAus</td>
<td></td>
</tr>
</tbody>
</table>
One of the most prominent identifying marks of Siemens Coriolis sensors, their robust frame construction isolates the sensor body from plant vibration and maximizes resistance to process noise.

The SITRANS FC sensor program includes solutions for pipe sizes from DI 1.5 to DN 150 (1/16th to 6 inches) and for a wide range of media and flow rates. Whether you are measuring drops per hour in a pharmaceutical dosing process, kilograms per minute of crude oil, or anything in between – our dedicated portfolio has you covered.

### FCS400

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<tr>
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<th>1/2&quot;</th>
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</table>

**Wetted parts:** 316 L stainless steel or Hastelloy C22

**Enclosure:** 304 stainless steel

**Wetted parts:** 316 L stainless steel

**Enclosure:** 304 stainless steel

**IP67 (NEMA 4X)**

- Hazardous: ATEX, IECEx, FM, cCSAus
- Hygienic: 3A, EHEDG
- Safety: SIL 2/3
By combining the state-of-the-art SITRANS FCT030 transmitter with the ultra-compact SITRANS FCS400 sensor, Siemens has developed a remarkable digital Coriolis flow solution: the SITRANS FC430.

Our goal in designing the FC430 was to enhance your productivity by increasing the efficiency of your operations. The result is a cutting-edge flowmeter at the top of its class in accuracy and reliability – yet space-saving and easy to work with.

**Compactness and design**
The SITRANS FCS400 is one of the most compact Coriolis sensors on the market. Its small size simplifies installation and replacement, and also allows you to optimize your plant layout by fitting multiple units into tight spaces.

It’s robust frame guarantees superior resistance to external vibrations, creating an ideal measurement environment. The enclosure pressure rating provides for a burst pressure in excess of 2320psi.

From its short tube length and large bore to its cylindrical frame shape and hemispherical flow manifolds, the FCS400 has been designed from the ground up with the hallmarks of superior performance and reliability: a stable zero point, low pressure loss and resistance to process noise.

**The FCS400 sensor also offers:**
- Size options from 1/2 to 6 inches for application and installation flexibility
- Standard purge connectors on the secondary enclosure for enhanced monitoring and safety
- Fully rotatable pedestal (0 - 180°) featuring a simple one-bolt release clamp for easy access from all sides
- Custody transfer approvals
High precision, low maintenance

The SITRANS FC430 flow system features not only market-leading standard accuracy of 0.1% of flow rate, but also best-in-class density accuracy of 0.5 kg/m³.

The ingenious meter can also reliably measure a variety of liquids containing 1/2 to 6 inches aeration due to its advanced driver circuit and high-speed 100 Hz signal update rate.

To maximize performance, traceability and quality, every single device is wet-calibrated to the market’s highest confidence level of Sigma 95.

With the FC430 solution you also get:

- Flexibility for direct integration into DCS automation systems via HART/PROFIBUS/Modbus or to serve as a standalone solution
- High turndown ratio to ensure consistent measurement across a wide range of flow rates
- High-performance monitoring of fast batching, dosing and filling applications
- Option for remote sensor configuration, providing the opportunity to optimize transmitter placement
- Low cost of ownership and maintenance-free design with no moving parts or wear

Hemishape™

The unique design of the SITRANS FCS400 sensor’s hemispherical flow manifold secures low pressure loss and prevents cavitation or separation of fragile fluids, making it ideal for hygienic applications. The manifold is EHEDG/3A approved with an extra-smooth surface for easy cleaning and minimum abstraction of flow.

CompactCurve™

At the heart of the sensor’s compact design is the CompactCurve™ tube shape, which results in market-leading accuracy of 0.1% and high sensitivity for optimal measurement of even very low flows. The thick tube walls protect against corrosion and enhance reliability.
The perfect fit for tight spaces.

SITRANS FC410.

Fit more meters into less space and reduce skid size with-out compromising performance. The SITRANS FC410 is a combination of the compact yet sophisticated SITRANS FCT010 transmitter and SITRANS FCS400 sensor. It has been developed for applications where space is at a premium and dedicated performance is preferred, offering market-leading 0.1% of rate accuracy and unmatched reliability.

Quality built right in
The built-in functionalities of the SITRANS FCT010 allow for installation almost anywhere, despite its smaller footprint, the FCT010 have advanced digital signal processing technology to produce highly precise multi-parameter measurements. The transmitter offers continuous on line diagnostics and is robust enough for use in hazardous environments.

Seamless integration frees up space and time
With the FC410, direct integration into your control system has never been easier or more economical. It can be incorporated with minimal effort into skids, multifunctional prepared assemblies and plant operations – either new or as a drop-in replacement.

The dedicated flowmeter solution uses multidrop-addressable Modbus RTU RS485, a highly time-efficient communication protocol that is easy to program and diagnose. Its fully configurable byte order supports all PLC types with no additional ordering options necessary.

Your benefits
• New installations require only a one-time PLC configuration, and no individual programming is needed if additional meters are added
• No PLC reprogramming is necessary for replacement installations, as byte-wise data formatting allows for standardization to all existing PLC data requirements
• Installation time is minimized due to standard multiplug connections and streamlined wiring

See how easy it is to install the SITRANS FC410 anywhere.
Because every drop counts.

**SITRANS FC Low Flow.**

Digitize and enhance your low-flow performance with a Coriolis solution from Siemens. You benefit from market-leading accuracy for mass flow, density and fraction measurement – along with world-class reliability resulting from high immunity to process noise, low pressure loss and a stable zero point. The 100 Hz data update rate ensures immediate step response in dynamic applications.

The SITRANS FC low-flow portfolio offers the flexibility to pair a SITRANS FCT030 or FCT010 digital transmitter with one of three intelligent sensors. Each sensor meets the needs of specific processes requiring precise measurement at the lowest flow rates – including batching, dosing and filling of both liquids and gases.

**SITRANS FC MASS 2100 DI 1.5 (1/16")**
In mini-plant applications, for research and development and in industries where accurate recipe control means everything, the SITRANS FC MASS 2100 DI 1.5 is a superior choice. Its single continuous tube design with no internal welds, reductions or flow splitters results in optimal hygiene, safety and SIP/CIP cleanability. The large wall thickness extends the lifetime of the meter with added corrosion resistance and durability in high-pressure environments.

**SITRANS FC300 DN 4 (1/6")**
The SITRANS FC300 is a highly versatile sensor with rigid construction and compact inline design, making it ideal for applications that require multiple sensors to fit into small spaces. Its low weight and plug-and-play interface simplify installation, while its rugged stainless steel enclosure protects against corrosion.

By choosing SITRANS FC Coriolis flowmeters – a trusted technology from a trusted name – you can optimize your entire process for increased productivity, enhanced efficiency and a better bottom line. Our years of experience in the lab and the field add up to a robust portfolio of sensors and transmitters for just about any flow application.

**SITRANS FC MASS 2100 DI 3 - DI 15 (1/8" - 1/2")**
The SITRANS FC MASS 2100 DI 3, 6, 15 are well suited for processes ranging from mini-plants in the pharmaceutical industry to harsh environments within the chemical and oil and gas industries. Its, full-bore design maintains the same internal diameter throughout the entire sensor for improved overall flow capacity and reduced pressure loss. The sensor is self-draining in horizontal configurations, and integral heating is available to prevent solidification of sensitive fluids during downtimes.

12 SITRANS FC300 Coriolis flowmeters improve the performance of test benches for the automotive industry. The rugged construction and precisely trimmed pipe loops render the sensor insensitive to process noise, vibrations and water hammers. The resulting stable zero point optimal performance across the flow range.
Customized solutions for every industry.

Cost-efficient carpet dyeing
To ensure that their coloring agents are correctly proportioned, Lano Carpets, producing 20,000 m² of tufted carpet every day, uses the SITRANS FC410 as part of their continuous dye production process.

The Siemens Coriolis flowmeter provides maximum precision for the pump control system and ensures that switching to a new color is virtually automatic, with significantly reduced product loss compared to the former solution.

Optimizing silicone dosing operations – Chemical industry
To improve the efficiency of their demanding silicone production process, Delta Application Technics designed new machines that guarantee constant supervision with minimal shift. The company integrated SITRANS FC MASS 2100 DI 15 flowmeters to obtain automatic measurements and record production values.

With the Siemens solution in place, the company can now determine the quantity of silicone for each ingredient injected along with the pump velocity and the pressure, density and temperature of silicones employed.

Key customer benefits include:
• Optimized traceability of the production process
• Reduced pressure loss
• 0.1% of rate measurement accuracy despite slow flow and high viscosity

Increasing production of drilling fluid – Oil & gas industry
For many years, an oilfield services plant that manufactures chemical mixtures for drilling fluid relied on load cells to measure the chemicals in the mixing house.

As the load cells used up a significant amount of valuable floor space, required regular recalibration and slowed down operations, the company installed a SITRANS FC430 flowmeter instead.

The Siemens solution soon proved that its durable construction rendered it relatively immune from process noise, and that its’ accuracy was repeatable over an extended duration. Before long, the company decided to exchange all load cells with FC430s.

Key customer benefits include:
• Minimized effects from pipe vibrations and fluctuating measurement parameters
• Never-before-achieved level of accuracy precision
• Rapid increase in productivity due to in-situ flow measurement and real-time readings

At Lano Carpets the inline mixer can handle any color with the help of the SITRANS FC410 Coriolis flowmeter. A SIMATIC WinCC display allows operators to supervise the process and ensure its stability, so that every color shade can be accurately reproduced and the risk of error eliminated.
Improving quality control for vaccines - Food & beverage/Pharma industries

To achieve the critical goal of scaling up production without compromising performance, Epitopix, a producer of vaccines, incorporated the SITRANS FC430 flowmeter into the blending process.

Epitopix now depends on the compact and modular footprint of the Siemens solution to establish a normal product density profile by monitoring oil density and volumetric flow as the water phase is blended in. Data derived from the meter helps to determine when fluid addition rates or the mixer speed should be adjusted.

Key customer benefits include:
- Easy fit into the small manufacturing area
- High 0.1% measurement performance
- Simple-to-use HMI complete with setup wizards
- Outstanding technical support

Enhancing wellhead output – Affiliated industries/OEMs

Requiring more efficient treatment of raw oil in the field, a large oil and gas corporation needed a solution to better manage the consumption, pumping time, content and quality of oil flowing from multiple wellheads.

They commissioned a series of custom-built skids including SITRANS FC410 flowmeters, which provide highly accurate measurements and valuable insight into how the separators on the skid should be adjusted for maximum effectiveness.

Key customer benefits include:
- Significant increase in the output of high-quality raw oil free from particles or entrained gas
- Multiparameter measurement of volume, density, temperature and oil-water fraction
- Efficient data transfer to the control system via Modbus communication

Smooth-running separation

To measure the weight of grease and water separated from re-melted margarines as accurately as possible, Vandemoortele, a producer of high-value frozen bakery products, decided to switch to the SITRANS FC430.

Its performance and reliability are quickly helping to save money and reduce pollution. The intuitive HMI and highly responsive support from Siemens technical experts are also appreciated.

The SITRANS FC410 Coriolis flowmeter is integrated into separator skids that are connected to multiple wellheads managed by one oil and gas corporation. The FC410 measures the oil with market-leading precision, increasing output quantity and quality.
Measuring everything that matters: usa.siemens.com/pi

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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