

**SIEMENS**

*Ingenuity for life*



Leading accuracy.  
Fastest update rate.

SITRANS F C digital Coriolis solutions.

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# 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 F C flow systems simplify your day-to-day operation thanks to innovative features like an easy-to-navigate graphical interface, a removable SensorFlash® microSD card and an integrated USB service port. And with Siemens, a trusted technology partner with satisfied customers around the world, you are ensured consistently top quality complemented by worldwide expert-level support for full system integration.

With SITRANS F C, Coriolis flow measurement has never been easier – or more innovative.



Embrace the benefits of digitalization with SITRANS F C. 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.



By choosing a SITRANS F C digital Coriolis solution from Siemens, you can optimize your entire process for increased productivity, enhanced efficiency and a better bottom line across virtually every industry.



Business is built on trust, and Siemens has all the qualities of a truly reliable solution partner. Our global network of instrumentation and automation experts is there whenever you need it – 24/7. Optional commissioning and other service packages from experienced product specialists can be ordered directly from the 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 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 the concept of 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 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 F C portfolio.

#### Minimize errors and maximize stability

Next-generation SITRANS F C flowmeters digitize the signal at the earliest stage of the measurement process, resulting in a very 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, most rapid 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. And, 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 F C solution can also be integrated seamlessly into any control system via HART 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.



More about  
Siemens  
digital  
solutions.



# The versatile top performers.

## SITRANS FCT010 and FCT030.

The universal SITRANS F C 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 down to 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 F C transmitter program includes the right solution for every application, with a modular design for convenient installation and a choice of wall-mount, compact 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 F C transmitters. The SensorFlash® 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 SensorFlash® 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.





**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 flow – ideal even for fast-moving batching, dosing and filling processes.

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. And a set of advanced diagnostic tools facilitates preventative maintenance.

**In addition, the F C transmitter program brings you:**




- Shared 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
- Low power consumption of only 10 W for improved energy efficiency

Technical details	SITRANS FCT010	SITRANS FCT030 Field housing	SITRANS FCT030 Wall mount
Configuration	Compact or remote	Compact or remote	Remote
Communication	Modbus RS485	Profibus DP and PA, Modbus RS485, HART	
I/O	1 communication	1 communication + 3 optional	
HMI	No HMI	Advanced HMI with multiple language support	
Power supply	DC	Self-switching AC/DC. Automatically detects supply voltage	
Special features	Aerated flow filtering	Aerated flow filtering, high-speed datalogging, advanced diagnostics, dosing and fraction	

# One platform. Infinite solutions.

With the digital SITRANS F C 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.



					
	MASS 2100	FC300	MASS 2100		
Sensor sizes mm (inch)	DI 1.5 (1/16")	DN 4 (1/4")	DI 3 (1/8")	DI 6 (1/4")	DI 15 (1/2")
Configuration	Remote	Remote	Compact or remote		
Accuracy	0.10%				
Repeatability	0.05%				
Density accuracy	0.5 kg/m <sup>3</sup>				
Flow range kg/h (lbs/h)	30 (66)	350 (770)	250 (550)	1,000 (2,200)	5,600 (12,350)
Material	Wetted parts: 316 L or Hastelloy C22 Enclosure: 316 L stainless steel				
Pressure rating bar (psi)	365 (5,292)	410 (5,950)	350 (5,075)	410 (5,950)	200 (2,900)
Temperature rating °C (°F)	-50 to +180 (-58 to +356)	-40 to +180 (-40 to 356)	-50 to +180 (-58 to 356)		
Sensor enclosure rating	IP67 (NEMA 4X)				
Approvals	Hazardous: ATEX, IECEx, cULus		Hazardous: ATEX, IECEx, cULus, cCSAus		





The robust frame and housing construction isolates the Coriolis sensor body from plant vibration and maximizes resistance to process noise.

True plug-and-play functionality, including multiplex electrical connectors, reduces the amount of time and effort required for installation.

The SITRANS F C sensor program includes solutions for pipe sizes from DI 1.5 to DN 150 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.



FCS300					
DN 15 (1/2")	DN 25 (1")	DN 50 (2")	DN 80 (3")	DN 100 (4")	DN 150 (6")
Compact or remote					
±0.10% or ±0.20%					
±0.05%					
2 or 10 kg/m <sup>3</sup>					
8,000 (17,600)	35,000 (77,000)	90,000 (198,000)	250,000 (550,000)	520,000 (1,146,404)	860,000 (1,895,975)
Wetted parts: 316 L stainless steel, C4 (2.4610) nickel alloy or C22 (2.4602) nickel alloy					
Enclosure: 304 L stainless steel					
100 (1,450)			100 (1,450)		
-50 to +205 (-58 to +400)			-50 to +205 (-58 to +400)		
IP67 (NEMA 4X)					
Hazardous: ATEX, IECEx, cCSAus Hygienic: EHEDG (DN 25 to 80)				Hazardous: ATEX, IECEx, cCSAus	

# Constructed for excellence. SITRANS FC330.

The SITRANS FC330 is a remarkable digital Coriolis flow solution that combines the compact SITRANS FCS300 sensor with the state-of-the-art SITRANS FCT030 transmitter.

Our goal in developing the FC330 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.

## Robust and compact

The SITRANS FCS300 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.

Its robust frame and housing guarantee superior resistance to external vibrations, creating an ideal measurement environment with no twisting.

The sensor's tube is designed with a short length and large diameter, minimizing pressure loss and allowing for a significantly higher mass flow rate through the meter. You benefit from a high turndown ratio of greater than 100:1 along with added flexibility in application sizing and configuration.

## The FCS300 sensor also offers:

- Size options from DN 15 to 150 for a broad selection of applications
- Self-draining tubes built to resist fluid and solid residue
- Fully rotatable pedestal (0 - 180°) featuring a simple one-bolt release clamp for easy access from all sides
- High-performance design that meets NACE-MR 175 standards
- Stable zero point





The adaptable SITRANS FC330 fits in almost anywhere. Customize your system with standard, hygienic or NAMUR sensors along with a wide range of approvals, configurable I/Os and process connections, including flanged, pipe-thread, hygienic thread and hygienic clamp.

### High precision, low maintenance

The SITRANS FC330 flow system features market-leading standard accuracy of 0.1% of flow rate and best-in-class density accuracy of 2 kg/m<sup>3</sup> for enhanced quality control. It is also capable of measuring two homogeneously mixed substances passing through the same medium, known as fraction flow. The FC330 comes complete with 18 different preprogrammed fraction flow settings, including Brix, Plato, alcohol percentage and Baume.

The ingenious meter can also reliably measure a variety of liquids containing up to 10% aeration due to its advanced driver circuit and high-speed 100 Hz signal update rate.

### With the FC330 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

### Hygienic flow manifold

The 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 approved with an extra-smooth surface for easy cleaning and minimum abstraction of flow.



### High-performance tube shape

The sensor's tube shape 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.



# Just the right fit for tight spaces.

## SITRANS FC310.

Fit more meters into less space and reduce skid size without compromising performance. The SITRANS FC310 is a combination of the compact yet sophisticated SITRANS FCT010 transmitter and SITRANS FCS300 sensor. It has been developed for applications where space is at a premium and dedicated performance is preferred, offering market-leading 0.1% accuracy and unmatched reliability.

Its all-in-one design means streamlined installation, easy integration into your control system, and optimal cost efficiency since you only pay for what you really need.

### Quality built right in

The built-in functionalities of the SITRANS FCT010 allow for installation almost anywhere. And despite its smaller footprint, the FCT010 is engineered with advanced digital signal processing technology to produce highly precise multi-parameter measurements. The transmitter offers continuous process and metering diagnostics and is robust enough for use in hazardous environments as a result of its intrinsically safe interface.

### Seamless integration frees up space and time

With the FC310, 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



Explore the  
Coriolis  
principle.



# Because every drop counts.

## SITRANS F C 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 unmatched 100 Hz update rate ensures immediate step response in dynamic applications.

The SITRANS F C low-flow portfolio offers you 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 F C 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 F C 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")

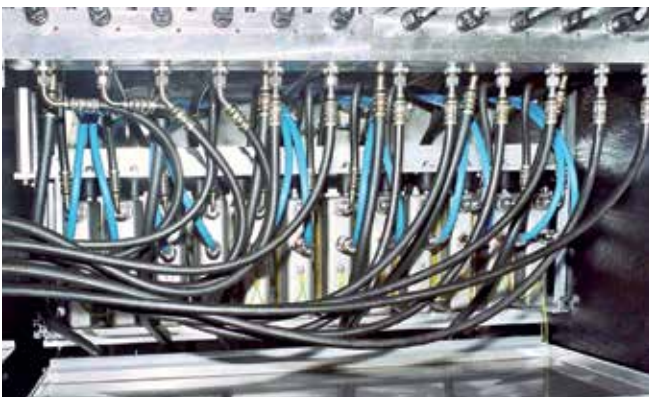
The SITRANS FC300 is a highly versatile sensor thanks to its rigid construction and compact inline design, making it ideal for applications that require multiple sensors to fit into small spaces. Its low weight and plug-and-play interface simplify installation, while its rugged stainless steel enclosure protects against corrosion and sets new standards in system integration.



With SITRANS F C, you benefit from our many years of experience in the lab and the field – all of which add up to a robust portfolio of sensors and transmitters for every low-flow application.

### SITRANS F C MASS 2100 DI 3 - DI 15 (1/8" - 1/2")

The SITRANS F C MASS 2100 DI 3-15 is 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 F C 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 ensures a wide dynamic range.

# Customized solutions for every industry.

## Cost-efficient carpet dyeing

To ensure that their coloring agents are correctly proportioned, Lano Carpets, producing 20,000 m<sup>2</sup> of tufted carpet every day, uses a SITRANS F C solution 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.



At Lano Carpets the inline mixer can handle any color with the help of a SITRANS F C 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.

## 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 less than 5% shift. The company integrated SITRANS F C 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
- Limited pressure loss
- 0.1% measurement accuracy despite slow flow and high viscosity of approximately 40,000 mPa•s

## 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 digital Coriolis flowmeter from Siemens instead.

The solution soon proved that its durable construction rendered it 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 Coriolis meters.

### Key customer benefits include:

- Minimized effects from pipe vibrations and fluctuating measurement parameters
- Never-before-achieved level of 0.1% precision
- Rapid increase in productivity due to in-situ flow measurement and real-time readings



The SITRANS F C program is up for the challenges faced by a broad array of industries. Satisfied customers around the world know that they can rely on Siemens for dependable products and support – even in the toughest situations.

#### 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 a Siemens Coriolis flow system 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 compact SITRANS F C 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 SITRANS F C.

The flowmeter's 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.

Siemens Coriolis flowmeters are integrated into separator skids connected to multiple wellheads managed by one oil and gas corporation. The meter measures the oil with market-leading precision, increasing output quantity and quality.



# Measuring everything that matters: [siemens.com/processinstrumentation](https://www.siemens.com/processinstrumentation)

**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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