



**Process Instrumentation** 

## **Environmental: Water**

Every drop of water and every unit of energy counts



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#### Environment: Water | Process Instrumentation





## Instrumentation that puts you in control

Water is at the heart of life and economic activity. Measurement of critical process parameters is key for process management and sustainability throughout all phases of the plant life cycle.

Siemens instrumentation offers you the technology to put you in control. We not only give you accuracy and reliability of measurement but also the reassurance of seamless integration from the planning and engineering phase to operation and modernization. Siemens Totally Integrated Automation (TIA) ensures that the data and alerts from your instrumentation and process analytics devices are translated into early and effective action.

### Faster and more efficient processes and operations in the water industry

To save time and money, processes need to be simplified and run efficiently. Integrated engineering with COMOS and SIMATIC PCS 7, the Consultant DVD and the Industry Library from Siemens offer outstanding solutions.

### A complete portfolio

We offer a complete portfolio of field instruments for flow, level, pressure and temperature measurement. Our technology is designed to fit your individual needs. We feel responsible for sustainable resource management and for efficient use of energy.

Besides inline flow measurement, clamp-on technology, ideal for retrofit installations, extends the standard offering. Custody transfer-approved instruments guarantee accurate billing of water or heating/cooling energy. Battery-operated meters and wireless technology enable you to control stand-alone devices in remote or inaccessible locations, giving you reliable information from the field as well as reduced cabling or other infrastructure costs.

### Siemens Process Instrumentation is part of the Siemens Environmental Portfolio

This covers all Siemens products that are of extraordinary benefit for the environment and for our customers. Siemens flowmeters for water applications and valve positioners for compressed air applications are certified products.

With Siemens you have the reassurance of best-inclass products and a partner who understands your industry. Discover more in this brochure and at: www.usa.siemens.com/pi

## PIA Life Cycle Portal

The PIA Life Cycle Portal is a web-based application for easy and convenient product

selection and configuration.

### How to get access

You can access the PIA Life Cycle Portal around-the-clock at usa.siemens.com/pia-portal. It offers you active support to find the best solution from the extensive Siemens portfolio of sensors and process analytical products. The portal can be used to see how different solutions can be put to use in process and factory automation.

You can choose between several selection access options to find the appropriate product solution for your specific requirements:

- Direct access sends you straight to a specific configuration if you know the product you are seeking.
- "Guided selection" lets you to select the appropriate application, technology or industry and specify the measurement task based on the various relevant parameters for your particular application.

### Advantages at a glance:

- Convenient product selection support with answers to typical questions
- A variety of selection possibilities: see the sample processes and simply select from the recommended process instrumentation and analytics products
- Project lists for an order enquiry can be quickly created
- Different possibilities for processing data and information
- No separate installation needed
- Product selection for spare parts
- The latest product data and information for Siemens process instrumentation and analytics



### usa.siemens.com/pia-portal



# Product range

	Radar				
	SITRANS Probe LR	SITRANS LR250	SITRANS LR200	SITRANS LR560	
Brief description	Compact 2-wire loop-powered, 6 GHz pulse radar transmitter with polypropylene rod antenna for level measurement up to a range of 20 m (65 ft).	2-wire loop-powered, 25 GHz pulse radar level transmitter with a full range of antennas: horn-/PVDF-/fully encapsulated flanged antenna up to 20 m (66 ft).	2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries up to a range of 20 m (66 ft).	2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids in silos up to a range of 100 m (328 ft).	
Features and benefits	<ul> <li>Uni-Construction polypropylene rod antenna standard</li> <li>Easy installation and simple start-up</li> <li>Patented Sonic Intelligence® signal processing</li> <li>Extremely high signal-to-noise ratio</li> <li>Auto False-Echo Suppression of false echoes</li> <li>Measuring frequency: 5.8 GHz (6.3 GHz for North America)</li> <li>Programming using infrared Intrinsically Safe hand- held programmer, SIMATIC PDM or HART® handheld communicator</li> <li>Communication: HART®</li> <li>Approvals: CSA, FM, C-Tick, ATEX</li> </ul>	<ul> <li>Smaller process connections and narrow beam allows installation anywhere on a vessel</li> <li>Short blanking distance</li> <li>Process Intelligence® for advanced echo processing</li> <li>Reliable and accurate for extremely high signal and low noise yields</li> <li>Full vessel capacity for high accuracy of low and high levels</li> <li>Quick Start Wizard for easy configuration and opera- tion in a few minutes</li> <li>Infrared handheld programming or over a network using SIMATIC PDM via HART® or PROFIBUS PA</li> <li>Graphical local user interface displays, echo profiles and diagnostic information</li> <li>Communication: HART®, PROFIBUS PA, FOUNDATION Fieldbus</li> <li>Approvals: ATEX, FM, CSA, C-Tick, INMETRO, IECEX, NEPSI</li> </ul>	<ul> <li>Graphical local user interface (LUI) makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard</li> <li>LUI displays echo profiles for diagnostic support</li> <li>Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions</li> <li>Programming using infrared Intrinsically Safe hand- held programmer or over a network using SIMATIC PDM, Emerson AMS, or Field Device Tools, such as PACTware or Fieldcare via SITRANS DTM</li> <li>Communication: HART<sup>®</sup>, PROFIBUS PA</li> <li>Approvals: ATEX, CSA/FM, NEPSI, C-TICK, INMETRO, GOST</li> </ul>	<ul> <li>High-frequency technology ensures reliable operation in dusty and vaporous environments</li> <li>Lens antenna, eliminating large parabolic or horn antennas, providing a narrow 4° beam angle. Highly resistant to product buildup</li> <li>Integrated air purge connection as standard for particularly difficult installations</li> <li>Communication: HART®, PROFIBUS PA, FOUNDATION Fieldbus</li> <li>Approvals: CSA, FM, FFC, C-Tick, IECEX, ATEX, INMETRO, NEPSI</li> </ul>	
Typical applications	Level and volume measurement of aggressive liquids such as acids, lime and other slurries, alum, polymers, sodium hypochlorite <20 % etc. in chemical storage tanks in water and wastewater treatment plants.	Continuous level and volume monitoring of aggressive liquids and slurries in chemical storage and process vessels, e.g. acids/alkalis, polymers, sodium hypo- chlorite >20 %, chlorinates, buffer and mixing tanks in water and wastewater treatment plants.	Continuous level and volume monitoring of liquids and slurries in anaerobic digesters, storage and process vessels in water and wastewater treatment plants.	Continuous level monitoring of bulk solids and pow- ders such as lime and activated carbon in water and wastewater treatment plants for both batch and con- tinuous operation.	
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	Guided Wave Radar	Ultrasonic		
	SITRANS LG	SITRANS LU150	SITRANS Probe LU240	HydroRanger 200
Brier description	Guided wave radar series for liquids, solids, slurries, inventory, process control, aggressive materials and more.	2 wire, 4 to 20 mA loop powered transmitter is ideal for liquids, slurries, and bulk materials in open or closed vessels to 5 m (16.4 ft).The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications.	2-wire loop-powered ultrasonic transmitter for level, volume and flow monitoring of liquids and slurries. Continuous Level measurement up to 12 m (40 ft) range.	Versatile short to medium range up to 15 m (50 ft) ultrasonic single- and multi-vessel controller for use in a wide range of environmental industries.
Features and benefits	<ul> <li>Versatile and reliable level measurement even with aggressive vapors, high temperatures and pressure, dust, steam, or material buildup</li> <li>Measures level, level interface and volume in a wide range of applications from material storage to bypass pipes</li> <li>Rod and cable lengths can be field adjusted to fit your application</li> <li>Quick Start Wizard for easy configuration and operation in a few minutes</li> </ul>	<ul> <li>Sonic Intelligence provided highly reliable measurement</li> <li>Easy to install and maintain</li> <li>Easy two-button programming</li> <li>PVDF transducer</li> <li>Patented Sonic Intelligence echo processing</li> <li>Integral temperature compensation</li> <li>4 to 20 mA output</li> <li>General Purpose</li> </ul>	<ul> <li>Integrated temperature compensation</li> <li>ETFE or PVDF transducers for chemical compatibility</li> <li>Process Intelligence Intelligence signal processing</li> <li>Low power and current startup</li> <li>Extremely high signal-to-noise ratio</li> <li>Auto False-Echo Suppression for fixed obstruction avoidance</li> <li>Level to volume or level to flow conversion</li> <li>Programming via 4-button HMI, Simatic PDM or HART Communicator</li> <li>Communication: HART</li> <li>Approvals: ATEX, FM, CSA, INMETRO, IECEX, C-Tick</li> </ul>	<ul> <li>Single- or dual-point level monitoring</li> <li>6 relays standard</li> <li>Auto False-Echo Suppression for fixed obstruction avoidance</li> <li>Anti-grease ring/tide mark buildup</li> <li>Differential amplifier transceiver for common mode noise rejection and improved signal-to-noise ratio</li> <li>For up to 6 pumps, provides control, differential control and open-channel flow monitoring</li> <li>Communication: Modbus RTU via RS485, Smart Linx</li> <li>Cards for PROFIBUS DP, ProfiNet, DeviceNet, Modbus TCP/IP, Ethernet/IP and SIMATIC PDM</li> <li>Easy to use HMI display with local four-button programming, menu-driven parameters, and Wizard support for key applications</li> <li>Approvals: FM, CSA, MCERTS</li> </ul>
1ypıcal applications	Continuous level and volume monitoring of liquids such as ammonia. Measurement in storage and process vessels in water and wastewater treatment plants.	Level in chemical small storage vessels, filter beds, liquid storage vessels, in water and wastewater treatment plats	Level, volume and flow monitoring in open channels, non-foaming chemical storage vessels, simple process vessels, filter beds, chlorine contact chambers, clari- fiers, sumps, etc. in water and wastewater treatment plants.	Level monitoring and control of wet wells, open-chan- nel flow monitoring of flumes/weirs. Bar screen con- trol, level monitoring and control of screenings/sludge storage hoppers, non-aggressive chemical storage, liquid storage, and dry solids storage tanks in water and wastewater treatment plants.
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	Evel measurement			
	Ultrasonic		Hydrostatic Pressure	Point Level
	SITRANS LUT400	Echomax Transducers	SITRANS LH100	SITRANS LVL100/200
Brief description	Compact, single-point, long-range ultrasonic controllers for continuous level, or volume measurement of liquids, slurries, and solids, and high-accuracy monitoring of open channel flow. ±1 mm high accuracy in standard operation. Measuring range up to 60 m.	Range of ultrasonic transducers provides reliable continuous level measurement. Various models for a wide range of applications.	2-wire submersible pressure transmitter to measure hydrostatic pressure, compact version.	Compact vibrating fork for liquid slurry point level detection. Contactless electronic switch is especially suited for use in hazardous locations.
Features and benefits	<ul> <li>Separated transceiver/transducer (Echomax) protects the electronics from extreme vibration</li> <li>High-frequency, non-contacting ultrasonic transducer is free of electronic components and fully potted to provide long-term reliability</li> <li>Energy-saving algorithms for minimizing pump operation during high-cost energy periods</li> <li>Sonic Intelligence is standard and is proven to provide superior performance in difficult conditions</li> <li>Communication: HART<sup>®</sup></li> <li>Approvals: MCERTs, CSA, FM, UL, C-Tick</li> </ul>	<ul> <li>Narrow beam angle from 6 to 12°</li> <li>Chemically resistant PVDF copolymer enclosure and CMS rubber face</li> <li>Fully submersible</li> <li>Integral temperature compensation</li> <li>Max. cable length of 365 m (1200 ft)</li> <li>Choice of mounting brackets available for ease of installation</li> <li>Approvals: ATEX, FM, CSA</li> </ul>	<ul> <li>IP68 stainless steel housing (23,4 mm diameter) with a piezoresistive sensor and ceramic diaphragm</li> <li>Converts the level-proportional hydrostatic pressure into a standardized signal 4 – 20 mA</li> <li>Accuracy 0.3%</li> <li>Measuring range: Standard 4, 5, 6, 10 and 20 m (60 ft H<sub>2</sub>O), on request from 4 to 30 m (98 ft H<sub>2</sub>O)</li> <li>Communication: 4 – 20 mA</li> <li>Approvals: ATEX, ICEEx</li> </ul>	<ul> <li>Compact insertion length of 40 mm for tight spaces</li> <li>Test function standard to confirm correct operation</li> <li>Fault monitoring for corrosion, loss of vibration, or line break to the piezo drive Independent of dielectric and other material conditions such as vapors, gases, bubbles, foam</li> <li>Robust design with threaded piezo drive system to prevent failure in aggressive applications</li> <li>Approvals: EHEDG, 3 A, FDA, WHG, ATEX, FM, CSA, SIL2, IECEx</li> </ul>
Typical applications	Open-channel flow monitoring in sewers, combined sewer overflow. Wet well level and pump control, storm water tank and level monitoring in holding tanks/vessels in water and wastewater treatment plants.	Installation in tanks, vessels, hoppers, open space like in dam or in open channel along with ultrasonics controllers like SITRANS LUT, HydroRanger 200 to form complete ultrasonics level or flow measurement system.	Level monitoring under harsh environmental conditions and for installation in tight spaces, e.g. in deep narrow wells, very foamy sumps & wet wells, grease traps, irrigation canals, dams and reservoirs in water and wastewater treatment processes.	High and low point level detection for liquid or slurries in various chemical and process water storage tanks and sumps in water and wastewater treatment plants.
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			Flow measurement	
			Electromagnetic	
	SITRANS LVS100/200	Pointek CLS100/200	SITRANS F M MAG 1100	SITRANS F M MAG 3100
description	Vibrating fork for dry bulk solids point level detection up to 20 m (65 ft).	Compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces for interfaces, solids, liquids, slurries and foam.	Electromagnetic flow sensor with stainless steel housing for chemical dosing.	Electromagnetic flow sensor in a rugged, fully-welded design, can be upgraded to IP68 on site to be buried.
and benefits	<ul> <li>High or low level alarm</li> <li>Compact design</li> <li>Top, side, angle mount</li> <li>Rotatable enclosure</li> <li>Replaceable electronics</li> <li>Interface model with detection of solids in liquids</li> <li>Best-in-industry lowest density measurement below 5 g/l</li> <li>Independent of dielectric and other material conditions such as vapors</li> <li>Unaffected by external vibrations</li> <li>Replaceable electronics</li> <li>Short fork option for short insertion lengths</li> <li>Remote electronics option</li> <li>Communication: 4 – 20 mA</li> <li>Approvals: FM, CSA, ATEX, C-Tick</li> </ul>	<ul> <li>Tip-sensitive switch, unaffected by conductive or non-conductive buildup</li> <li>Potted construction protects signal circuit from shock, vibration, humidity and/or condensation</li> <li>High chemical resistance</li> <li>Level detection independent of tank or pipe grounding</li> <li>Insensitive to product buildup due to high-frequency oscillation</li> <li>High sensitivity allows installation in a wide range of liquids, solids, slurries or interface applications</li> <li>Integral LCD display allows for easy setup to configure detection threshold, even under the most demanding process conditions</li> <li>Extended rod, cable and sanitary versions available</li> <li>Standard version: 3 LED indicators for adjustment control, output status and power</li> <li>Digital version: integral LCD display</li> <li>Communication: PROFIBUS PA</li> <li>Approvals: CSA, FM, ATEX, C-Tick, WHG, Pattern approval china</li> </ul>	<ul> <li>Compact wafer design meets ANSI, EN 1092 and DIN flange standards</li> <li>Corrosion-resistant AISI 316 L stainless steel sensor housing</li> <li>Highly resistant liner and electrodes for aggressive media</li> <li>Medium temperature rating up to + 200 °C (+ 390 °F)</li> <li>IP67/NEMA 4X/6 enclosure rating</li> <li>Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint</li> <li>Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings</li> <li>Approvals: FM CL1 Div. 2, ATEX 2G D sensor Ex de ia IIB T3 - T6</li> </ul>	<ul> <li>Wide pressure range flanges: ANSI Class 150 / 300, AWWA, PN 6 to PN 100, , AS 2129 / AS 4087 or JIS</li> <li>Wide range of electrode and liner materials including EPDM (drinking water approved)</li> <li>Fully-welded construction that suits the toughest applications and environments</li> <li>Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint</li> <li>Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings</li> <li>Approvals: Drinking water approvals including NSF/ ANSI Standard 61, and certificates according to national and international standards FM, CSA, ATEX, IEC Ex</li> </ul>
applications	High and low point level detection for bulk solids storage tanks such as lime, activated carbon, dry chlorine powder, etc. in water and wastewater treatment plants.	High and low point level detection for clean & contaminated liquids and slurries holding tanks and sumps in water and wastewater treatment plants. Overspill and pump protection in wet wells.	Volume flow measurement for chemical dosing in water treatment processes, with a minimum electrical conductivity of 5 µS/cm.	Volume flow measurement for water, salt water and all liquids and chemicals with a minimum electrical conductivity of 5 µS/cm.
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Brief

Features

Typical

### Flow measurement

	SITRANS F M MAG 5100 W	SITRANS F M MAG 5000/6000/6000 I	SITRANS F M Verificator	SITRANS F M MAG 8000/CT
Brief description	Electromagnetic flow sensor in a rugged, fully-welded design, can be upgraded to IP68 on site to be buried and flooded. Designed for the water and wastewater industry.	Electromagnetic flow transmitter for flow and volume measurement in combination with any electromagnetic flow sensor. Can be used with sensors including MAG1100, MAG3100 and MAG5100W.	The Verificator provides the ability to confirm accurate performance of your Siemens Magnetic Flow Meter. The Verificator works with the MAG5000/6000 transmitters and MAG 1100 & 1100F, MAG3100 & 3100P, and MAG5100W sensors.	Battery-operated electromagnetic water meter for stand-alone water applications, optional built-in wireless communication module. IP68 designs allow the sensor to be buried and flooded.
Features and benefits	<ul> <li>Hard rubber lining guarantees consistent accuracy throughout the entire pressure and temperature range</li> <li>Integrated Hastelloy C grounding and measuring electrodes</li> <li>Increased low flow accuracy for water leak detection</li> <li>Built-in length according to ISO 13359</li> <li>Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint</li> <li>Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings</li> <li>OxD of straight pipe required upstream and downstream from the sensor</li> <li>Approvals: according to regional and national standards. CSA Class I, Div 2 and FM Class I, Div 2</li> </ul>	<ul> <li>Superior signal resolution for optimum turndown ratio</li> <li>Automatic reading of SENSORPROM data for easy commissioning</li> <li>User-configurable operation menu with password protection</li> <li>Flow rate in a wide range of units</li> <li>Totalizer for forward, reverse and net flow plus additional information</li> <li>Multiple functional outputs for process control, minimum configuration with analogue, pulse/frequency and relay output (status, flow direction, limits)</li> <li>Comprehensive self-diagnostic for error indication and error logging</li> <li>Compact or remote version</li> <li>Communication: HART®, Modbus RTU, PROFIBUS PA/DP, DeviceNet, FF</li> </ul>	<ul> <li>In-situ check of performance without interrupting the flow meter installation</li> <li>Verification of the sensor, the transmitter and the interconnecting cable when the transmitter is remotely mounted</li> <li>Fully automated – no manual set up or data input – with predefined factory accept levels</li> <li>No expensive removal or installation costs</li> <li>Full verification report to confirm meter performance according to quality standard ISO 9001 and management standard ISO 14001 suitable for third party agencies looking for confirmation that the meter has been tested and confirmed accurate to its original specifications.</li> </ul>	<ul> <li>Compact or remote solution</li> <li>Flexible power supply – internal or external battery pack or line power supply with battery backup. 6 years battery life in typical revenue applications</li> <li>Bidirectional measurement</li> <li>Data logger with up to 26 months of recording and consumption profile</li> <li>Alarm: Current consumption too high or too low</li> <li>Advanced statistics and diagnostics</li> <li>0xD of straight pipe required upstream and downstream from the sensor</li> <li>Communication: Wired Modbus, IrDA, Radio GSM/GPRS</li> <li>Approvals: CT, NSF/ANSI Standard 61, MI 001 (cold water) OIML R49, MCERTS, WRAS, KTW, DVGW 270, ACS, Belgaqua</li> </ul>
Typical applications	For all water applications such as groundwater, drinking water, cooling water, wastewater, sewage and sludge applications. Installation in water networks for leak detection and billing.	Transmitter for all electrically conductive liquids and slurries. The MAG5000 and MAG6000 are compatible with the Siemens Verificator. The rugged die-cast aluminum housing of the SITRANS F M MAG 60001 provides exceptional protection, even in the most rugged environment, including versions suitable for FM CL1 Div 1 installations.	The Verificator is routinely used to confirm the performance of the Siemens Magmeter and Transmitter without the need to remove the Magmeter from the process line. The Verification process can extend or eliminate the need to have the flow meter calibrated by either the manufacturer or a third party agency.	Water distribution network: Optimize water supply & reduce leakage. Revenue metering: CT approved meter for accurate billing. Irrigation: Long-term performance, maintenance-free fair billing.
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	Coriolis	Ultrasonic	
	SITRANS FCS300	SITRANS FS220	SITRANS FS230
Brief description	The flow measuirng principle is based on the Coriolis Effect. The Coriolis Effect will act on the vibrating tubes and cause deflection which can be measured as a phase shift between pick-ups 1 and 2. The phase shift is proportional to the mass flow rate.	Basic clamp-on ultrasonic flowmeter, performing basic measurement tasks. Non-intrusive metering, easy installation and maintenance.	Advanced and highly accurate clamp-on ultrasonic flowmeter allows non- intrusive flow measurement and bidirectional flow operation.
Features and benefits	<ul> <li>Advanced transmitter functionality</li> <li>Up to 4 I/Os</li> <li>HART, Profibus DP/PA and Modbus</li> <li>Fully graphical display</li> <li>Tube Sizes: 1/16th inch to 6 inches</li> <li>Advanced diagnostic functionalities</li> <li>Advanced aerated flow filtering</li> <li>Customization of views</li> <li>Trend curves</li> <li>USB service interface</li> <li>Integrated fraction tables(e.g. Brix, % Alcohol, Plato)</li> </ul>	<ul> <li>No process shutdown for installation</li> <li>Minimal maintenance: external sensors do not require periodic cleaning</li> <li>100 Hz update rate for all output on all primary process values</li> <li>No moving parts to wear or foul</li> <li>No pressure drop or energy loss</li> <li>Compact, integral design reduces installation cost</li> <li>Wide-Beam technology ensures high performance</li> <li>Zeromatic Path eliminates zero drift</li> <li>Output</li> <li>Current 4 20 mA (Isolated)</li> <li>Relay Programmable Form C 250 mA</li> <li>Pulse: 41.6 µs5 s pulse duration, Frequency:</li> <li>012.5 kHz (50% duty cycle)</li> <li>4GB SD card for storage and data logging</li> <li>Approvals: UL, CUL, CE</li> <li>Communication: Modbus RTU</li> </ul>	<ul> <li>Operation in Wide-Beam transit-time</li> <li>Easy installation; external sensors, no need to cut pipe or stop flow</li> <li>No pressure drop or energy loss</li> <li>Wide turndown ratio</li> <li>Choice of single channel or dual path.</li> <li>Zeromatic Path automatically sets zero without stop-ping flow and reduces zero drift, even at low flow</li> <li>4GB SD card for storage and data logging</li> <li>Combination Approval: ATEX, IECEx, FM, FM Canada - Sensor Zone 0, 1, 2 (Div 1,2)</li> <li>Transmitter with integrated DSL Zone 2 (Div 2)</li> <li>Current output: 0 20 mA or 4 20 mA Digital output: Pulse 41.6 µs 5 s pulse duration; Frequency 0 10 kHz, 50% duty cycle, 120% overscale provision</li> <li>Relay: Type SPDT dry contact relay</li> <li>Digital input: Voltage 15 30 V DC (2 15 mA); Current 4 20 mA - Functionality Reset totalizer 1, 2 and 3, force output, freeze process values, zero point adjustment Communication: HART 7.5, Modbus RTU RS 485</li> <li>SD card functions: Parameter change log, Configurable data logger, FW update log, Diagnostic log, Error and alarm log, Parameter backup</li> <li>100 Hz update rate for all output on all primary process values</li> </ul>
Typical applications	Coriolis flowmeters are suitable for applications within the entire process industry where there is a demand for accurate flow measurement. The meter is capable of measuring both liquid and gas flow and can be applied in Water & Waste Water for dosing of chemicals for water treatment.	Water leak detection and water monitoring applications, wastewater Influent and effluent, processed sewage and sludge.	Water leak detection and water monitoring applications, wastewater Influent and effluent, processed sewage and sludge.
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	Flow measurement	Pressure		
	Vortex	Pressure measurement		
	SITRANS FX300	SITRANS P 200/210/220	SITRANS P300	SITRANS P320
Brief description	Vortex flowmeters provide accurate volumetric and mass flow measurement of steam, gases and liquids, with integrated temperature and pressure compensation.	Compact single-range transmitters for absolute and gauge pressure. Measurement of process pressure, absolute pressure and hydrostatic pressure.	Digital pressure transmitter for gauge, absolute pressure and level measurement.	Advanced digital pressure transmitter for gauge, absolute and differential pressure, level and flow measurement. Integral square root extractor for venturi flow.
Features and benefits	<ul> <li>Compact or remote design (max. 15 m)</li> <li>Single or dual transmitter version</li> <li>Flow, pressure and temperature reading at one single point</li> <li>Accuracy: ± 0.75 % 2.5 % (depending on media)</li> <li>Fully-welded stainless steel construction; high corrosion, pressure and temperature resistance</li> <li>Isolation valve to protect pressure sensor during pressure/leak testing in the pipe</li> <li>Communication: HART<sup>®</sup></li> <li>Approvals: FM, ATEX, IEC Ex</li> </ul>	<ul> <li>Piezoresistive measuring cell with ceramic diaphragm (P200) or SS diaphragm (P210/220)</li> <li>Fixed-range transmitter</li> <li>Measuring range starting at 100 mbar up to 600 bar</li> <li>For aggressive and non-aggressive gases, vapors and liquids</li> <li>High measuring accuracy &lt; 0.25 %</li> <li>Rugged stainless steel enclosure</li> <li>Compact design</li> <li>EPDM gaskets for drinking water</li> <li>Ingress protection up to Fully IP67</li> <li>Available in explosion-protected design according to ATEX</li> </ul>	<ul> <li>Piezoresistive measuring cell, oil-filled</li> <li>Measuring range from 10 mbar to 400 bar</li> <li>High measuring accuracy up to 0.075 %</li> <li>Configuration through push buttons and</li> <li>LCD, HART® or PROFIBUS PA</li> <li>Ingress protection up to IP68</li> <li>Front flush mounted membrane and housing made of stainless steel</li> <li>FDA-compliant filling oils</li> <li>Excellent surface quality (Ra value ≤ 0.8 µm for process wetted parts)</li> <li>Communication: 0–20 mA, HART®, PROFIBUS PA or FF</li> <li>Approvals: EHEDG, 3 A</li> </ul>	<ul> <li>Piezoresistive measuring cell, oil-filled</li> <li>Measuring range from 0.01 psi to 10153 psi</li> <li>High measuring accuracy up to 0.065%</li> <li>High long-term stability up to 0.125 % per 5 years</li> <li>Separate replacement of measuring cell and electronics without recalibration</li> <li>Configuration through push buttons / LCD</li> <li>Ingress protection up to IP68</li> <li>Extensive diagnostics and simulation functions with PDM</li> <li>Communication: 0–20 mA, HART®</li> <li>Approvals: FM, SIL, CSA, IECEX, ATEX, NSF/ANSI 61 NSF/, ANSI 372</li> </ul>
Typical applications	Consumption measurement in compressed air systems and other industrial gases or steam installations.	Compact and economical pressure measurement in clean water and waste water process.	Pressure measurement in raw water intake, sludge line, grit wash water, methane gas, chemical storage, industrial utility applications, desalination and irrigation.	Various pressure, level and flow measurement in water/wastewater plants, chemical storage and other utility installations. Desalination & irrigation installations.
	> More information: usa.siemens.com/flow	> More information: usa.siemens.com/pressure	> More information: usa.siemens.com/pressure	More information:     usa.siemens.com/pressure

Positioner	Temperature		
	Temperature measurement		
SIPART PS2	SITRANS TS sensors	SITRANS TH, TR, TF transmitters	
Pneumatic, digital valve positioner with unique low air bleed design.	SITRANS TS temperature sensors for a wide range of temperature applications.	Portfolio of temperature transmitters for head, rail or field mounting, for connection to many different thermocouples, resistance thermometers, as well as mV and resistance sensors.	
<ul> <li>Almost zero air bleed at steady state (HYPERLINK "http://www.usa. siemens.com/cost-of-air" Cost of Air Calculator)</li> <li>Controls any style of pneumatic actuator</li> <li>Advanced valve diagnostics included, just turn them on</li> <li>Pushbuttons and display included, no additional setup equipment required</li> <li>Over 300+ mounting kit solutions</li> <li>Optional Remote Mount, Wear-Free Position Detection, Integral High Flow (Cv)</li> </ul>	<ul> <li>SITRANS TS500</li> <li>Modular system of tubular or barstock thermowell, extension, connection head with optional transmitter and display</li> <li>Replaceable measuring insert makes it possible to conduct maintenance work even without shutting down operations.</li> <li>Available in explosion-protected design according to ATEX and IECEx</li> </ul>	SITRANS TH • Installation in connection head Form B • Galvanic insulation and fault detection • EMI-resistant transmission of the signal SITRANS TR • 2-wire rail-mount SITRANS TF • Die-cast aluminum or stainless steel housing • LCD display • Available in explosion-protected design according to ATEX and IECEx • 4–20 mA, HART®, PROFIBUS PA, FOUNDATION Fieldbus, WirelessHART®	
For all pneumatic control valve and on/off valve applications.	For all temperature applications, e.g. surfaces, bearings, machinery, equipment, in vessels and pipes.	For all temperature applications.	
> More information: usa.siemens.com/pressure	> More information: usa.siemens.com/temperature	> More information: usa.siemens.com/temperature	

Brief

Features

Typical

	Weighing		Process Protection	
	Weighfeeders	Belt scales	Motion Sensing	
			SIEMENS NUTRING MAD	
	SITRANS weighfeeders	Milltronics MSI	MFA4p Motion Failure Alarm	WM100 Zero Speed Switch
Brief description	SITRANS WW100 and WW200 weighfeeders provide continuous feed rate control of lime for slaking in water purification processes. With dust-tight enclosure options and high temperature belt these proven weighfeeders ensure uninterrupted control for optimum process quality.	The Milltronics MSI belt scale has more approvals than any other belt scale on the market with general, food, hazardous and trade approvals.	Non- contacting, single setpoint motion sensor alarm unit, used with MSP and XPP motion sensing probes.	Heavy-duty stand-alone zero-speed alarm switch
Features and benefits	<ul> <li>±0.25-0.5% accuracy over a 10-100% capacity rate range</li> <li>Compact design for easy retrofit or new installations</li> <li>Painted mild steel, or stainless steel options</li> <li>Dust-tight easy-open enclosure options</li> <li>Self-cleaning belt support pans or bars</li> <li>Up to 100 tph flow rate capacity</li> <li>Complete process control with Milltronics BW500 integrator</li> <li>Communication (BW500): 4-20 mA, Modbus ASCII, Modbus RTU, Modbus TCP/IP, Ethernet/IP, PROFINET, PROFIBUS DP, DeviceNet</li> <li>Approvals: Hazardous rated component options available</li> </ul>	<ul> <li>±0.5% accuracy over a 20-100% capacity rate range</li> <li>Single idler compact design for easy retrofit or new installations</li> <li>Painted mild steel, galvanized or stainless steel options</li> <li>Proven triple-beam parallelogram stainless steel load cells</li> <li>Up to 12,000 tph flow rate capacity</li> <li>Complete process control with Milltronics BW500 integrator</li> <li>Communication (BW500): 4 – 20 mA, Modbus ASCII, Modbus RTU, Modbus TCP/IP, Ethernet/IP, PROFINET, PROFIBUS DP, DeviceNet</li> <li>Approvals: CSA, FM, Atex, IEC Ex, GOST-R Ex</li> </ul>	<ul> <li>4 inch sensing gap allows probe to be located away from moving machinery reduces the risk of damaging the probe</li> <li>Setpoint adjustment 2 to 3000 PPM (pulses/minute) for used in a wide range of applications</li> <li>Highly sensitive probe can be mounted external to the process</li> <li>Rugged design for long life</li> </ul>	<ul> <li>4 inch sensing gap allows probe to be located away from moving machinery reduces the risk of damaging the probe</li> <li>Highly sensitive probe can be mounted external to the process</li> <li>Rugged design for long life</li> </ul>
Typical applications	Lime slaking.	Solids sludge transport on conveyors.	Detect stopped or slipping screw conveyors, belt conveyors, rotary vane feeder, or rotating shafts.	Detect stopped screw conveyors, belt conveyors, rotary vane feeder, or rotating shafts.
	> More information: usa.siemens.com/weighing	> More information: usa.siemens.com/weighing	> More information: usa.siemens.com/pi	> More information: usa.siemens.com/pi

### Ommunication and software

#### **Remote display**

	SITRANS RD100/200	SITRANS RD300	SITRANS RD500
Brief description	SITRANS RD100 is a loop-powered remote display, and RD200 is a universal remote digital display for Probe LU240, Probe LR, SITRANS P MPS to install at or in areas with easier access.	Dual-line, panel mount, remote digital display for process instrumentation for Probe LU240, Probe LR, SITRANS P MPS to install at or in areas with easi- er access.	Remote data manager providing remote monitoring through data logging, web access and alarming for instrumentation.
Features and benefits	<ul> <li>Make measurement data visible and accessible from a remote location.</li> <li>Compatible with all types of field instruments in varying process conditions</li> <li>Easy to set up and program</li> <li>SITRANS RD200 includes freely available logging and monitoring software, allowing multiple displays to be monitored from one PC</li> <li>SITRANS RD200 has optional large display with 35 mm (1.2") high LED</li> </ul>	<ul> <li>Easy-to-read, dual-line display with eight brightness levels</li> <li>Flexible outputs with up to eight relays and eight digital I/O for process control alarming</li> </ul>	<ul> <li>Integrated web and ftp server, email and sms for alarming, and up to 2 GB for data logging of instrumentation</li> <li>Simple access to data remotely installed instrumentation</li> <li>Collects and sends sensor data to logistics systems providing up-to-date, timely, and accurate information. Ethernet or Modem (PSTN/GSM/GPRS) carries data to your desktop without the need of additional software.</li> </ul>
Typical applications	Remote process monitoring.	Remote process monitoring.	Remote monitoring of inventory levels, process and environmental applications, provides web access to most types of field instrumentation, including flow, level, pressure, temperature measurement and weighing.
	> More information: usa.siemens.com/pi	> More information: usa.siemens.com/pi	> More information: usa.siemens.com/pi

		Service & Support	Software	
				A SUBJECT Supervised     E
		Service & Support	SIMATIC PDM Maintenance Station	SITRANS Library
	Brief description	Siemens Process Instrumentation provides a complete line of service and Advantage+ programs to keep your operation running with superior performance.	SIMATIC PDM Maintenance Station V3.0, Siemens offers an optimal tool for efficiently monitoring the condition of smart field devices, irrespective of the automation or control systems used. SIMATIC PDM is a universal, non-proprietary tool for the configuration, parameterization, commissioning and monitoring of smart field devices. The maintenance station is based on the SIMATIC DCS PCS 7 maintenance system but is now available as a standalone system. MS can run independently of the both the customers' automation control projects as well as with complete autonomy from the PLC/DCS process control systems being used.	The SITRANS Library consists of function blocks, block icons and faceplates for a growing number of field instruments out of the families SITRANS and SIPART. Target systems are SIMATIC PCS 7 and SIMATIC PLCs in parallel with SIMATIC WinCC and panels. Automation solutions can be implemented just by using already existing features and diagnostics information available in the instruments.
	Features and benefits	ServicesAdvantage+• Start-up• Advantage+ Support• Calibration• Advantage+ Shipping• Troubleshooting• Advantage+ Stock• Training• Advantage+ Extended Warranty	<ul> <li>Same functions and user interface as the SIMATIC PCS 7 Maintenance Station</li> <li>Possibility of data collection, analysis and processing in the cloud</li> <li>Operation is independent of the technological project and the automation system used</li> <li>Compact, flexible and expandable maintenance station</li> <li>Multiple maintenance stations per project possible</li> <li>Supports various communication types and gateways between bus systems, such as Ethernet, PROFINET, PROFIBUS DP/PA and HART</li> <li>Parameterization and Maintenance Station detailed diagnostics of the field devices via integrated SIMATIC PDM</li> <li>One station can aggregate data of multiple automation projects</li> </ul>	<ul> <li>Devices supported:</li> <li>SITRANS F M MAG 6000</li> <li>SITRANS LUT400</li> <li>SIPART PS2 with PROFIBUS PA and 4–20 mA/HART® interface</li> <li>Customer advantages are:</li> <li>Same look and feel like standards in SIMATIC PCS 7</li> <li>No additional training for operators</li> <li>Usage of features in field devices without additional cost: customers use what they already have paid for</li> </ul>
	Typical applications	<ul> <li>All field applications, start-up and services</li> <li>Advantage+ Shipping: standard shipping covers basic freight charges, duties and taxes</li> <li>Advantage+ Stock: offers quick delivery for unexpected needs</li> <li>Technical Support Hotline</li> <li>Mobile App for Siemens Industry Online Support</li> </ul>	<ul> <li>Stand-alone maintenance station for diagnostics and condition monitoring of field devices with EDD/DD/FDI technology</li> <li>Stand-alone maintenance station for small and medium-sized facilities (up to 500 field devices per maintenance station) in process and production automation</li> <li>Subsystem-specific use in large facilities</li> <li>Central data access point of plant data for cloud based apps</li> <li>Permits simultaneous access for 30 independent PDM web-clients users</li> </ul>	<ul> <li>Innovative dosing using the dosing feature of SITRANS F M MAG 6000 at lower cost</li> <li>Fast and flexible operation of valves with SIPART PS2 with a much higher degree of transparency</li> </ul>
		> More information: usa.siemens.com/pisupport	> More information: usa.siemens.com/simatic-pdm	> More information: usa.siemens.com/library

#### Environment: Water | Process Instrumentation

## Totally Integrated Automation

### Products from the controller level to the field level

With Totally Integrated Automation (TIA), Siemens is the only provider of an end-to-end integrated portfolio of products and systems for the automation of the entire production workflow.

Totally Integrated Automation reduces the complexity of the automation solution and enables what really counts: the practical combination of optimally coordinated individual components – without interface problems.

Totally Integrated Automation integrates not only the production process but all parts of the company – from the field level to the management level. The result: a perfectly coordinated overall concept that enables higher productivity.



Example: SIMATIC PCS 7. The innovative process control system offers numerous options for connecting I / Os as well as for sending and receiving process signals via sensors and actuators.



## Process Instrumentation Training

With Siemens Process Instrumentation you are in complete control of your water and wastewater operations. That's why it's so important that your team be fully trained to maintain and handle any situation that may arise. Our comprehensive training classes are led by field-proven and experienced instructors who combine extensive application and instrumentation knowledge with many years of training experience.

Our 3 day, comprehensive, hands on water and wastewater class provides students with the technical knowledge required to specify, apply, install, and maintain process instruments utilized in both drinking water and waste water applications.

Want to learn even more? Our technology focused courses delve deeper into a wide array of specific topics, including pressure, temperature, level, valve positioners, loop controllers, flow, weighing and industrial communications.

Classes are offered throughout the year at various locations or through our mobile training platform we can bring the class right to you!

For more information please send an email to *piatraining.industry@siemens.com*, or call 1-800-365-8766, Prompt 5.





#### **Siemens Industry, Inc.** 100 Technology Drive Alpharetta, GA 30005

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