Environmental: Water

Every drop of water and every unit of energy counts
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-in-class products and a partner who understands your industry. Discover more in this brochure and at: [www.usa.siemens.com/pi](http://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

### Level measurement

#### Radar

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<th>Features and benefits</th>
<th>Typical applications</th>
<th>More information</th>
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<tr>
<td>SITRANS Probe LR</td>
<td>Compact 2-wire loop-powered, 6 GHz pulse radar transmitter with a full range of antennas.</td>
<td>Level and volume measurement of aggressive liquids such as acids, lime and other slurries, alum, polymers, sodium hypochlorite &gt;20 % etc. in chemical storage tanks in water and wastewater treatment plants.</td>
<td>usa.siemens.com/level</td>
</tr>
<tr>
<td>SITRANS LR250</td>
<td>2-wire loop-powered, 25 GHz pulse radar level transmitter with polypropylene rod antenna for continuous monitoring of liquids and slurries up to a range of 20 m (66 ft).</td>
<td>Continuous level and volume monitoring of aggressive liquids and slurries in chemical storage and process vessels, e.g. acids/alkalis, polymers, sodium hypochlorite &gt;20 %, chlorinates, buffer and mixing tanks in water and wastewater treatment plants.</td>
<td>usa.siemens.com/level</td>
</tr>
<tr>
<td>SITRANS LR200</td>
<td>2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries up to a range of 20 m (66 ft).</td>
<td>Continuous level and volume monitoring of liquids and slurries in anaerobic digesters, storage and process vessels in water and wastewater treatment plants.</td>
<td>usa.siemens.com/level</td>
</tr>
<tr>
<td>SITRANS LR560</td>
<td>2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids in silos up to a range of 100 m (328 ft).</td>
<td>Continuous level monitoring of bulk solids and powders such as lime and activated carbon in water and wastewater treatment plants for both batch and continuous operation.</td>
<td>usa.siemens.com/level</td>
</tr>
</tbody>
</table>

### SITUATION

- **Environment:** Water
- **Process Instrumentation**

**Brief**

- Approvals: CSA, FM, C-Tick, ATEX
- Communication: HART®
- Extremely high signal-to-noise ratio
- Easy installation and simple start-up
- Uni-Construction polypropylene rod antenna standard

**Features and benefits**

- Smaller process connections and narrow beam allows installation anywhere on a vessel
- Short blanking distance
- Process Intelligence® for advanced echo processing
- Reliable and accurate for extremely high signal and low noise yields
- Full vessel capacity for high accuracy of low and high levels
- Quick Start Wizard for easy configuration and operation in a few minutes
- Infrared handheld programming or over a network using SIMATIC PDM via HART® or PROFIBUS PA
- Graphical local user interface displays echo profiles and diagnostic information
- Communication: HART®, PROFIBUS PA, FOUNDATION Fieldbus
- Approvals: ATEX, CSA/FM, NEPSI, C-TICK, INMETRO, GOST

**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 liquids and slurries in anaerobic digesters, storage and process vessels in water and wastewater treatment plants.
- Continuous level monitoring of bulk solids and powders such as lime and activated carbon in water and wastewater treatment plants for both batch and continuous operation.

**More information**

- usa.siemens.com/level
<table>
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<tr>
<th>Guided Wave Radar</th>
<th>Ultrasonic</th>
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<tbody>
<tr>
<td>SITRANS LG</td>
<td>SITRANS LU150</td>
</tr>
<tr>
<td>SITRANS Probe LU</td>
<td>HydroRanger 200</td>
</tr>
</tbody>
</table>

**Brief description**

- **Guided wave radar series** for liquids, solids, slurries, inventory, process control, aggressive materials and more.
- **Ultrasonic**
  - 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.
- **HydroRanger 200**
  - 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**

- **Guided wave radar**
  - Versatile and reliable level measurement even with aggressive vapors, high temperatures and pressure, dust, steam, or material buildup.
  - Measures level, level interface and volume in a wide range of applications from material storage to bypass pipes.
  - Rod and cable lengths can be field adjusted to fit your application.
  - Quick Start Wizard for easy configuration and operation in a few minutes.
- **Ultrasonic**
  - Sonic Intelligence provided highly reliable measurement.
  - Easy to install and maintain.
  - Easy two-button programming.
  - PVDF transducer.
  - Patented Sonic Intelligence echo processing.
  - Integral temperature compensation.
  - 4 to 20 mA output.
  - General Purpose.
- **HydroRanger 200**
  - Single- or dual-point level monitoring.
  - 6 relays standard.
  - Auto False-Echo Suppression for fixed obstruction avoidance.
  - Anti-grease ring/tide mark buildup.
  - Differential amplifier transceiver for common mode noise rejection and improved signal-to-noise ratio.
  - For up to 6 pumps, provides control, differential control and open-channel flow monitoring.
  - Communication: Modbus RTU via RS485, Smart Linx Cards for PROFIBUS DP and SIMATIC PDM.
  - Easy to use HMI display with local four-button programming, menu-driven parameters, and Wizard support for key applications.
  - Approvals: FM, CSA, MCERTS.

**Typical applications**

- **Guided wave radar**
  - 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 plants.
- **Ultrasonic**
  - Level, volume and flow monitoring in open channels, non-foaming chemical storage vessels, simple process vessels, filter beds, chlorine contact chambers, clarifiers, sumps, etc. in water and wastewater treatment plants.
- **HydroRanger 200**
  - Level monitoring and control of wet wells, open-channel flow monitoring of flumes/weirs. Bar screen control, 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.

➤ More information: usa.siemens.com/level

More information: usa.siemens.com/level

More information: usa.siemens.com/level

More information: usa.siemens.com/level
## Level measurement

### Ultrasonic

<table>
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<tr>
<th>SITRANS LUT400</th>
<th>Echomax Transducers</th>
<th>SITRANS LH100</th>
<th>SITRANS LVL100/200</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>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.</td>
<td>Range of ultrasonic transducers provides reliable continuous level measurement. Various models for a wide range of applications.</td>
<td>2-wire submersible pressure transmitter to measure hydrostatic pressure, compact version.</td>
</tr>
<tr>
<td><strong>Features and benefits</strong></td>
<td>• Separated transceiver/transducer (Echomax) protects the electronics from extreme vibration and provides long-term reliability. • High-frequency, non-contacting ultrasonic transducer is free of electronic components and fully potted to provide superior performance in difficult conditions. • Sonic Intelligence is standard and is proven to provide an improved accuracy of ±1 mm. • Communication: HART® • Approvals: MCERTs, CSA, FM, UL, C-Tick</td>
<td>• Narrow beam angle from 6 to 12° • Chemically resistant PVDF copolymer enclosure and CMS rubber face • Fully submersible • Integral temperature compensation • Max. cable length of 365 m (1200 ft) • Choice of mounting brackets available for ease of installation • Approvals: ATEX, FM, CSA</td>
<td>• IP68 stainless steel housing (23.4 mm diameter) with a piezoresistive sensor and ceramic diaphragm • Converts the level-proportional hydrostatic pressure into a standardized signal 4 – 20 mA • Accuracy 0.3% • Measuring range: Standard 4, 5, 6, 10 and 20 m (60ft H₂O), on request from 4 to 30 m (98 ft H₂O) • Communication: 4 – 20 mA • Approvals: ATEX, ICEEx</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>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.</td>
<td>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.</td>
<td>Level monitoring under harsh environmental conditions and for installation in tight spaces, e.g. in deep narrow wells, very foamy sumps &amp; wet wells, grease traps, irrigation canals, dams and reservoirs in water and wastewater treatment processes.</td>
</tr>
</tbody>
</table>

[More information: usa.siemens.com/level](usa.siemens.com/level)
### Flow measurement

#### Electromagnetic

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS LVS100/200</td>
<td>Compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces</td>
<td>Tip-sensitive switch, unaffected by conductive or non-conductive buildup, Potted construction protects signal circuit</td>
<td>High or low level alarm, Compact design, Rotatable enclosure, Replaceable electronics, Interface model with detection of solids in liquids, Best-in-industry lowest density measurement below 5 g/l, Independent of dielectric and other material conditions such as vapors, Unaffected by external vibrations, Replaceable electronics, Short fork option for short insertion lengths, Remote electronics option, Communication: 4 – 20 mA, Approvals: FM, CSA, ATEX, C-Tick, Digital version: integral LCD display, Standard version: 3 LED indicators for adjustment control, output status and power, Communication: PROFIBUS PA, Approvals: CSA, FM, ATEX, C-Tick, WHG, Pattern approval china</td>
</tr>
<tr>
<td>Pointek CLS100/200</td>
<td>Vibrating fork for dry bulk solids point level detection up to 20 m (65 ft)</td>
<td>High or low level alarm, Compact design, Top, side, angle mount, Rotatable enclosure, Replaceable electronics, Interface model with detection of solids in liquids, Best-in-industry lowest density measurement below 5 g/l, Independent of dielectric and other material conditions such as vapors, Unaffected by external vibrations, Replaceable electronics, Short fork option for short insertion lengths, Remote electronics option, Communication: 4 – 20 mA, Approvals: FM, CSA, ATEX, C-Tick, Digital version: integral LCD display, Standard version: 3 LED indicators for adjustment control, output status and power, Communication: PROFIBUS PA, Approvals: CSA, FM, ATEX, C-Tick, WHG, Pattern approval china</td>
<td></td>
</tr>
<tr>
<td>SITRANS F M MAG 1100</td>
<td>Electromagnetic flow sensor with stainless steel housing for chemical dosing.</td>
<td>Compact wafer design meets ANSI, EN 1092 and DIN flange standards, Corrosion-resistant AISI 316 L stainless steel sensor housing, Highly resistant liner and electrodes for aggressive media, Medium temperature rating up to + 200 °C (+390 °F), IP67/NEMA 4X/6 enclosure rating, Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint, Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings, Approvals: FM CL1 Div. 2, ATEX 2G D sensor Ex de ia IIB T3 - T6</td>
<td></td>
</tr>
<tr>
<td>SITRANS F M MAG 3100</td>
<td>Electromagnetic flow sensor in a rugged, fully-welded design, can be upgraded to IP68 on site to be burned.</td>
<td>Wide pressure range flanges: ANSI Class 150 / 300, AWWA, PN 6 to PN 100, , AS 2129 / AS 4087 or JIS, Wide range of electrode and liner materials including EPDM (drinking water approved), Fully-welded construction that suits the toughest applications and environments, Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint, Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings, Approvals: Drinking water approvals including NSF/ ANSI Standard 61, and certificates according to national and international standards FM, CSA, ATEX, IEC Ex</td>
<td></td>
</tr>
</tbody>
</table>

**Typical 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.

**More information:**

- [usa.siemens.com/level](usa.siemens.com/level)
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- [usa.siemens.com/mag](usa.siemens.com/mag)
- [usa.siemens.com/mag](usa.siemens.com/mag)
<table>
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<tr>
<th>SITRANS F M MAG 5100 W</th>
<th>SITRANS F M MAG 5000/6000/6000 I</th>
<th>SITRANS F M Verificator</th>
<th>SITRANS F M MAG 8000 / CT/Irrigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>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.</td>
<td>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 &amp; 1100F, MAG3100 &amp; 3100P, and MAG5100W sensors.</td>
<td>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.</td>
</tr>
</tbody>
</table>
| **Features and benefits** | • Hard rubber lining guarantees consistent accuracy throughout the entire pressure and temperature range  
• Integrated Hastelloy C grounding and measuring electrodes  
• Increased low flow accuracy for water leak detection  
• Built-in length according to ISO 13359  
• Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint  
• Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings  
• 0xD of straight pipe required upstream and downstream from the sensor  
• Approvals: according to regional and national standards. CSA Class I, Div 2 and FM Class I, Div 2  
• Superior signal resolution for optimum turndown ratio  
• Automatic reading of SENSORPROM data for easy commissioning  
• User-configurable operation menu with password protection  
• Flow rate in a wide range of units  
• Totalizer for forward, reverse and net flow plus additional information  
• Multiple functional outputs for process control, minimum configuration with analogue, pulse/frequency and relay output (status, flow direction, limits)  
• Comprehensive self-diagnostic for error indication and error logging  
• Compact or remote version  
• Communication: HART®, Modbus RTU, PROFIBUS PA/DP, DeviceNet, FF | • In-situ check of performance without interrupting the flow meter installation  
• Verification of the sensor, the transmitter and the interconnecting cable when the transmitter is remotely mounted  
• Fully automated – no manual set up or data input – with predefined factory accept levels  
• No expensive removal or installation costs  
• 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. | • Compact or remote solution  
• Flexible power supply – internal or external battery pack or line power supply with battery backup.  
6 years battery life in typical revenue applications  
• Bidirectional measurement  
• Data logger with up to 26 months of recording and consumption profile  
• Alarm: Current consumption too high or too low  
• Advanced statistics and diagnostics  
• 0xD of straight pipe required upstream and downstream from the sensor  
• Communication: Wired Modbus, IrDA, Radio GSM/GPRS  
• Approvals: CT, NSF/ANSI Standard 61, MI 001 (cold water) OIML R49, MCERTS, WRAS, KTW, DVGW 270, ACS, Belgaqua, NMI 10 for SITRANS FM MAG 8000 Irrigation  
• Approvals: ATEX with FUS060  
• Communication: HART®; PROFIBUS PA, IrDA optical  
• Current, voltage, status alarm, frequency outputs and force output, freeze process values, zero point adjustment  
• Digital input: Voltage 15 … 30 V DC (2 … 15 mA); Relay: Type SPDT dry contact relay  
• 1 MByte data logger with logger storage  
• Choice of single channel or dual channel / dual path, 4-path sensor technology available on request  
• 2-path measuring principle for optimum accuracy  
• Wide turndown ratio  
• Robust design for industrial applications  
• 4-path sensor technology available on request  
• 2-path measuring principle for optimum accuracy  
• Wide turndown ratio  
• Robust design for industrial applications  
• 4-path sensor technology available on request  
• 2-path measuring principle for optimum accuracy  
• Wide turndown ratio  
• Robust design for industrial 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 6000I 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 remove the Magmeter from the process line. The Verificator works with the MAG5000/6000 transmitters and MAG 1100 & 1100F, MAG3100 & 3100P, and MAG5100W sensors. | 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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### Ultrasonic

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<th>Model</th>
<th>Description</th>
<th>Features and Benefits</th>
<th>Typical Applications</th>
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<tbody>
<tr>
<td>SITRANS F US SONOKIT</td>
<td>Simple and accurate alternative to traditional flowmeters because it can be retrofitted onto existing pipelines. IP68 version for burial and flooding applications. It includes the FUS060 or FUS080 transmitter.</td>
<td>- Cost-effective solution – contains all necessary components for retrofitting&lt;br&gt;- Easy to install in pipeline sizes DN 100 to DN 4000 (4” to 160”) – without process shutdown or flow interruption.&lt;br&gt;- High accuracy – the bigger the pipe, the more accurate the result&lt;br&gt;- Solid construction and no moving parts for a 100% maintenance and obstruction free flowmetering&lt;br&gt;- Automatic calculation of the calibration factor when pipe geometry data are entered in the transmitter&lt;br&gt;- Battery-powered option with FUS080&lt;br&gt;Communication: HART®, PROFIBUS PA, IrDA optical eye via Modbus RTU (FUS080 only)&lt;br&gt;Approvals: ATEX with FUS060</td>
<td>Flowmeter for retrofit of all the following applications:&lt;br&gt;- Raw water intake for water treatment plants, wastewater Influent and effluent, ground applications, wastewater Influent and effluent, processed sewage and sludge.</td>
</tr>
<tr>
<td>SITRANS Sono 3100/3300</td>
<td>In-line Ultrasonic flow measurement for flow and volume measurement of water and waste water.</td>
<td>- Line sizes ranging from 2” to 24”&lt;br&gt;- 2-path measuring principle for optimum accuracy&lt;br&gt;- 4-path sensor technology available on request&lt;br&gt;- Sensors can be replaced under pressure (3100)&lt;br&gt;- Robust design for industrial applications&lt;br&gt;- No pressure drop&lt;br&gt;- Dynamic range Q:QS up to 1:400&lt;br&gt;- Communication: Profibus PA, HART, analog outputs</td>
<td>Raw water intake for water treatment plants, ground water, drinking water, treated wastewater.</td>
</tr>
<tr>
<td>SITRANS FS230</td>
<td>Advanced and highly accurate clamp-on ultrasonic flowmeter allows non-intrusive flow measurement and bidirectional flow operation.</td>
<td>- Operation in Wide-Beam transit-time&lt;br&gt;- Easy installation; external sensors, no need to cut pipe or stop flow&lt;br&gt;- No pressure drop or energy loss&lt;br&gt;- Wide turndown ratio&lt;br&gt;- Choice of single channel or dual path.&lt;br&gt;- Zeromatic Path automatically sets zero without stopping flow and reduces zero drift, even at low flow&lt;br&gt;- 4GB SD card for storage and data logging&lt;br&gt;Combination Approval: ATEX, IECEx, FM, FM Canada&lt;br&gt;- Sensor Zone 0, 1, 2 (Div 1,2)&lt;br&gt;- Transmitter with integrated DSL Zone 2 (Div 2)&lt;br&gt;- Current output: 0 ... 20 mA or 4 ... 20 mA&lt;br&gt;- Digital output: Pulse 41.6 μs … 5 s pulse duration; Frequency 0 ... 10 kHz, 50% duty cycle, 120% overscale provision&lt;br&gt;Relay: Type SPDT dry contact relay&lt;br&gt;Diode 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&lt;br&gt;- SD card functions: Parameter change log, Configurable data logger, FW update log, Diagnostic log, Error and alarm log, Parameter backup&lt;br&gt;- 100 Hz update rate for all output on all primary process values</td>
<td>Water leak detection and water monitoring applications, wastewater Influent and effluent, processed sewage and sludge.</td>
</tr>
<tr>
<td>SITRANS FUS1010</td>
<td>Advanced and highly accurate clamp-on ultrasonic flowmeter allows simultaneous measurement of up to 4 independent pipes and bidirectional flow operation.</td>
<td>- Operation in Wide-Beam transit-time or Doppler mode&lt;br&gt;- Easy installation; external sensors, no need to cut pipe or stop flow&lt;br&gt;- No pressure drop or energy loss&lt;br&gt;- Wide turndown ratio&lt;br&gt;- Choice of single channel or dual channel / dual path, with doppler capability. Four channel / four beam optional&lt;br&gt;- 1 MByte data logger with logger storage&lt;br&gt;Approvals: Transmitter - N1 Class I, Div 2, 5 Class II, Div 2.; Sensor I.S. Class I, II, Div 1&lt;br&gt;- Current, voltage, status alarm, frequency outputs and communications including HART, BACnet MSTP/ BACnet IP, Modbus RTU &amp; TCP/IP, Ethernet IP, Johnson N2 and VT100 RS 232</td>
<td>Water leak detection and water monitoring applications, wastewater Influent and effluent, processed sewage and sludge.</td>
</tr>
<tr>
<td>Flow measurement</td>
<td>Pressure measurement</td>
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<tr>
<td><strong>Ultrasonic</strong></td>
<td><strong>Pressure</strong></td>
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<tr>
<td>SITRANS FS220</td>
<td>SITRANS FX300</td>
<td></td>
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<tr>
<td>Basic clamp-on ultrasonic flowmeter, performing basic measurement tasks. Non-intrusive metering, easy installation and maintenance.</td>
<td>Vortex flowmeters provide accurate volumetric and mass flow measurement of steam, gases and liquids, with integrated temperature and pressure compensation.</td>
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<tr>
<td><strong>Features and benefits</strong></td>
<td><strong>Features and benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No process shutdown for installation</td>
<td>• Piezoresistive measuring cell with ceramic diaphragm (P200) or SS diaphragm (P210/220)</td>
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<tr>
<td>• Minimal maintenance: external sensors do not require periodic cleaning</td>
<td>• Fixed-range transmitter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 100 Hz update rate for all output on all primary process values</td>
<td>• Measuring range starting at 100 mbar up to 600 bar</td>
<td></td>
<td></td>
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<tr>
<td>• No moving parts to wear or foul</td>
<td>• For aggressive and non-aggressive gases, vapors and liquids</td>
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<tr>
<td>• No pressure drop or energy loss</td>
<td>• High measuring accuracy up to 0.075 %</td>
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<tr>
<td>• Compact, integral design reduces installation cost</td>
<td>• Configuration through push buttons and LCD, HART® or PROFIBUS PA</td>
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<tr>
<td>• Wide-Beam technology ensures high performance</td>
<td>• Ingress protection up to IP68</td>
<td></td>
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<tr>
<td>• Zero-merit Path eliminates zero drift</td>
<td>• Optional transmitter and display</td>
<td></td>
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<tr>
<td>• Output: Current 4...20 mA (Isolated) Pulse: 41.6 μs...5 s pulse duration, Frequency: 0...12.5 kHz (50% duty cycle)</td>
<td>• Piezoresistive measuring cell, oil-filled</td>
<td></td>
<td></td>
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<tr>
<td>• 4GB SD card for storage and data logging</td>
<td>• Measuring range from 10 mbar to 400 bar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Approvals: UL, cUL, CE</td>
<td>• High measuring accuracy up to 0.075 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Communication: Modbus RTU</td>
<td>• Configuration through push buttons and LCD, HART® or PROFIBUS PA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td><strong>Typical applications</strong></td>
<td></td>
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</tr>
<tr>
<td>Water leak detection and water monitoring applications, wastewater influent and effluent, processed sewage and sludge.</td>
<td>Consumption measurement in compressed air systems and other industrial gases or steam installations.</td>
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<tr>
<td>Compact and economical pressure measurement in clean water and waste water process.</td>
<td>Pressure measurement in raw water intake, sludge line, grit wash water, methane gas, chemical storage, industrial utility applications, desalination and irrigation.</td>
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</tbody>
</table>

More information:
- SITRANS P200/210/220 [usa.siemens.com/pressure](http://usa.siemens.com/pressure)
### Positioner

**Brief description**
- Advanced digital pressure transmitter for gauge, absolute and differential pressure, level and flow measurement. Integral square root extractor for venturi flow.
- Piezoresistive measuring cell, oil-filled
- Measuring range from 0.01 psi to 10153 psi
- High measuring accuracy up to 0.065%
- High long-term stability up to 0.125 % per 5 years
- Separate replacement of measuring cell and electronics without recalibration
- Configuration through push buttons / LCD
- Ingress protection up to IP68
- Extensive diagnostics and simulation functions with PDM
- Communication: 0–20 mA, HART®, PROFIBUS PA, FOUNDATION Fieldbus
- Approvals: FM, SIL, CSA, IECEx, ATEX, NSF/ANSI 61 NSFI, ANSI 372

**Features and benefits**
- Almost zero air bleed at steady state ([HYPERLINK "http://www.usa.siemens.com/cost-of-air" Cost of Air Calculator])
- Controls any style of pneumatic actuator
- Advanced valve diagnostics included, just turn them on
- Pushbuttons and display included, no additional setup equipment required
- Over 300+ mounting kit solutions
- Optional Remote Mount, Wear-Free Position Detection, Integral High Flow (Cv)

**Typical applications**
- Various pressure, level and flow measurement in water/wastewater plants, chemical storage and other utility installations. Desalination & irrigation installations.

**More information:** [usa.siemens.com/pressure](http://usa.siemens.com/pressure)

### Temperature

**Temperature measurement**

**Temperature measurement**

**SITRANS P DS III P310 and P410**
- Pneumatic, digital valve positioner with unique low air bleed design.

**SIPART PS2**
- SITRANS TS temperature sensors for a wide range of temperature applications.

**SITRANS TS sensors**
- 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.

**SITRANS TH, TR, TF transmitters**
- SITRANS TS500
  - Modular system of tubular or barstock thermowell, extension, connection head with optional transmitter and display
  - Replaceable measuring insert makes it possible to conduct maintenance work even without shutting down operations.
  - Available in explosion-protected design according to ATEX and IECEx

**SITRANS TH**
- Installation in connection head Form B
- Galvanic insulation and fault detection
- EMI-resistant transmission of the signal

**SITRANS TR/TW**
- 2-wire or 4-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®

**SITRANS TH**
- For all temperature applications, e.g. surfaces, bearings, machinery, equipment, in vessels and pipes.

**More information:** [usa.siemens.com/temperature](http://usa.siemens.com/temperature)

**More information:** [usa.siemens.com/temperature](http://usa.siemens.com/temperature)
### Weighing

<table>
<thead>
<tr>
<th>Weighfeeder</th>
<th>Belt scales</th>
<th>Remote displays</th>
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</thead>
<tbody>
<tr>
<td>SITRANS weighfeeder</td>
<td>Miltronics MSI</td>
<td>SITRANS RD100/200</td>
</tr>
<tr>
<td>SITRANS WW100 and WW200 weighfeeder provide continuous feed rate control of lime for slaking in water purification processes. With dust-tight enclosure options and high temperature belt these proven weighfeeder ensure uninterrupted control for optimum process quality.</td>
<td>The Miltronics MSI belt scale has more approvals than any other belt scale on the market with general, food, hazardous and trade approvals.</td>
<td>SITRANS RD100 is a loop-powered remote display, and RD200 is a universal remote digital display for Probe LU, Probe LR, SITRANS P MPS to install at or in areas with easier access.</td>
</tr>
</tbody>
</table>

### Brief Description

- **SITRANS weighfeeder**
  - ± 0.25 – 0.5 % accuracy over a 10 – 100 % capacity rate range
  - Compact design for easy retrofit or new installations
  - Painted mild steel, or stainless steel options
  - Dust-tight easy-open enclosure options
  - Self-cleaning belt support pans or bars
  - Up to 100 tph flow rate capacity
  - Complete process control with Miltronics BW500 integrator
  - Communication (BW500): 4 – 20 mA, Modbus ASCII, Modbus RTU, Modbus TCP/IP, Ethernet/IP, PROFINET, PROFIBUS DP, DeviceNet
  - Approvals: Hazardous rated component options available

- **Miltronics MSI**
  - ± 0.5 % accuracy over a 20 – 100% capacity rate range
  - Single idler compact design for easy retrofit or new installations
  - Painted mild steel, galvanized or stainless steel options
  - Proven triple-beam parallelogram stainless steel load cells
  - Up to 12,000 tph flow rate capacity
  - Complete process control with Miltronics BW500 integrator
  - Communication (BW500): 4 – 20 mA, Modbus ASCII, Modbus RTU, Modbus TCP/IP, Ethernet/IP, PROFINET, PROFIBUS DP, DeviceNet
  - Approvals: CSA, FM, Atex, IEC Ex, GOST-R Ex

### Features and Benefits

- **SITRANS RD100/200**
  - Make measurement data visible and accessible from a remote location.
  - Compatible with all types of field instruments in varying process conditions
  - Easy to set up and program
  - SITRANS RD200 includes freely available logging and monitoring software, allowing multiple displays to be monitored from one PC
  - SITRANS RD200 has optional large display with 35 mm (1.2”) high LED

- **SITRANS RD300**
  - Easy-to-read, dual-line display with eight brightness levels
  - Flexible outputs with up to eight relays and eight digital I/O for process control alarming

- **SITRANS RD500**
  - Integrated web and ftp server, email and sms for alarming, and up to 2 GB for data logging of instrumentation
  - Simple access to data remotely installed instrumentation
  - 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.

### Typical Applications

- **SITRANS weighfeeder**
  - Lime slaking.

- **Miltronics MSI**
  - Solids sludge transport on conveyors.

- **Remote displays**
  - 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

- More information: usa.siemens.com/weighing
- More information: usa.siemens.com/weighing
- More information: usa.siemens.com/pi
- More information: usa.siemens.com/pi
- More information: usa.siemens.com/pi
## Typical Features and Benefits

### Weighfeeders
- Belt scales
- Remote displays
- Optimum process quality.
- Weighfeeders ensure uninterrupted control for options and high temperature belt these proven
- **Communication (BW500):** 4 – 20 mA, Modbus ASCII, 4 – 20 mA, Modbus ASCII, Modbus RTU, Modbus TCP / IP, Ethernet / IP, PROFINET, PROFIBUS DP, DeviceNet
- **Up to 100 tph flow rate capacity**
- Self-cleaning belt support pans or bars
- Dust-tight easy-open enclosure options
- Painted mild steel, or stainless steel options
- **± 0.25 – 0.5 % accuracy over a 10 – 100 % capacity**

### Applications
- Continuous feed rate control of lime for slaking in
- SITRANS weighfeeders
- Milltronics MSI
- SITRANS RD100 / 200
- SITRANS RD500

### Approvals
- **Approvals:** Hazardous rated component options available
- CSA, FM, Atex, IEC Ex, GOST-R Ex
- **Rate Range:**
  - SITRANS RD200: ± 0.5 % accuracy over a 20 – 100 % capacity
  - SITRANS RD100: ± 0.25 – 0.5 % accuracy over a 10 – 100 % capacity

### Additional Features
- **Collects and sends sensor data to**
- Universal remote digital display for remote display, and RD200 is a SITRANS RD100 is a loop-powered probe LU, Probe LR, SITRANS P
- MPS to install at or in areas
- Probe LU, Probe LR, SITRANS P
- Simple access to data remotely installed
- Integrated web and ftp server, email
- Make measurement data visible and accessible from a remote location.
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.
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 7.
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