Process Instrumentation and Analytics
At the heart of your efficiency
Oil and gas industry
An energy transformation is underway. Hydrocarbons face increased competition from new sources of energy. Reserves are increasingly difficult to access. Partnering with Siemens gives the precision, integration and reliability that you need to help address these trends and ensure efficiency at the heart of your operations.

Right across the oil and gas value chain
Siemens offers solutions for your process instrumentation and analytics needs across the oil and gas industry value chain – from the upstream all the way through midstream pipelines and storage to downstream refining and distribution. You can be sure of better asset management. Our devices give you the measurement, maintenance and diagnostics functions you need to translate data and alerts into early and effective action.

A comprehensive solution
And you don’t need to look further than Siemens. We not only give you accuracy and reliability of process instrumentation and analytics measurement but also the reassurance of seamless integration with your planning, management control and other systems. As one of the world’s leading automation suppliers, Siemens can give you a one-stop shop solution for your automation requirements and also integrate that upwards into PCS and MES systems.

Our comprehensive portfolio gives you the reassurance that a dialogue with Siemens can be about what is right for the overall facility or operation and not limited to a conversation about an individual device or process.

Designed with your needs in mind
Our technology is designed to fit with the tough and often remote situations encountered in the oil and gas industries. Solutions such as remote-mounted transmitters, heavy-duty dust-tight enclosures and non-contacting sensors all mean that you can avoid accidents and hazardous situations.

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

Controlling cost, ensuring safety and delivering quality

We’re in an era where efficiency is more important than ever for the oil and gas industry. Our devices give you the precision you need to control cost, ensure safety and deliver quality.
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 www.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

www.usa.siemens.com/pia-portal
# Product range

## Level measurement

### Point Level

<table>
<thead>
<tr>
<th></th>
<th>Pointek CLS200</th>
<th>Pointek CLS300</th>
<th>Pointek CLS500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>Inverse frequency shift capacitance level switches with optional rod/cable choices and configurable output.</td>
<td>Inverse frequency shift capacitance level switches with optional rod/cable choices and configurable output.</td>
<td>Inverse frequency shift capacitance level switch for detecting interfaces, solids, liquids, toxic and aggressive chemicals in critical conditions of high temperature and pressure.</td>
</tr>
</tbody>
</table>
| **Features and benefits** | • Ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions  
• Unaffected by product buildup on the probe  
• Requires no metal container wall as reference capacitance  
• No vibrating mechanical components  
• Explosion-proof with IS probe | • Ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperature are present  
• Unaffected by product buildup on the probe  
• Requires no metal container wall as reference capacitance  
• Simple installation and maintenance  
• No vibrating mechanical components | • Patented Active-Shield technology so measurement is unaffected by material buildup in active shield section  
• 2-wire loop powered with solid-state switch or 4 to 20/20 to 4 mA output  
• Simple push-button calibration and integrated local display  
• Full function diagnostics  
• HART communications for remote commissioning and inspection  
• Microprocessor-based electronics provide one-point calibration |
| **Range** | • Rod: 5.5 m (18 ft)  
• Cable: up to 30 m (98 ft) | • Rod: 1 m (40")  
• Cable: 25 m (82 ft) | • 1 m (40") |
| **Accuracy** | • Repeatability 1% | • Repeatability 1% | – |
| **Process temperature** | • –40 ... 125 °C (–40 to 257°F) | • –40 ... 400 °C (–40 ... 752°F) | • –60 ... 400 °C (–76 ... 752°F) |
| **Process pressure** | • Rod: up to 25 bar g (365 psi g)  
• Cable: up to 10 bar g (145 psi g) | • Up to 35 bar g (511 psi g) | • Up to 150 bar g (2175 psi g) |
| **Typical applications** | Level and interface detection, overfill protection in tanks. Liquids, slurries, powders, granules, pressurized applications, hazardous areas. | Level and interface detection, overfill protection in tanks. Liquids, slurries, bulk solids, relatively high pressure and temperature, hazardous areas. | Foam or liquid/foam level, glycol regenerators, high-pressure coalescers, LNG applications. |

**More information:**  
- [www.siemens.com/pointekcls200](http://www.siemens.com/pointekcls200)  
- [www.siemens.com/pointekcls300](http://www.siemens.com/pointekcls300)  
- [www.siemens.com/pointekcls500](http://www.siemens.com/pointekcls500)
<table>
<thead>
<tr>
<th></th>
<th>SITRANS LVL100 / 200</th>
<th>SITRANS LVS100 / 200</th>
<th>SITRANS Probe LR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>Compact and standard vibrating point level switches for high or low levels of liquids and slurries.</td>
<td>Vibrating point level switches for high or low level detection of dry powder and granular bulk solids.</td>
<td>2-wire, 6 GHz pulse radar level transmitter for basic continuous monitoring of liquids in storage vessels.</td>
</tr>
</tbody>
</table>
| **Features and benefits** | - Proven vibrating level switch technology for liquids  
- Compact insertion length of 40 mm (1.57") for confined space applications  
- Fault monitoring for corrosion, loss of vibration or line break to the piezo drive  
- SIL 2 qualified for high level and dry run applications | - Compact design  
- Will switch at the correct level, even with low-density products  
- Rotatable enclosure  
- Self-cleaning fork  
- Remote electronics option | - Process Intelligence echo processing  
- Hermetically sealed shielded polypropylene rod antenna with threaded process connection |
| **Range** | 40 mm ... 4 m (1.57" ... 13 ft) | LVS100: 170 mm ... 4 m (6.7" ... 13 ft)  
LVS200: 165 mm ... 20 m (6.5" ... 65 ft) | 20 m (66 ft) |
| **Accuracy** | - Repeatability: 0.1 mm  
- Hysteresis approx. 2 mm with vertical installation  
- Switching delay approx. 500 ms (on/off) | - Switching delay 1 sec | ± the greater of 0.1% of range or 10 mm (0.4") |
| **Process temperature** | LVL100: 150°C max. (302°F)  
LVL200: 250°C max. (482°F) | 150°C max. (302°F) | –40 ... 80°C (–40 ... 176°F) |
| **Process pressure** | LVL100: –1 ... 64 bar g (–14.5 ... 928 psi g)  
LVL200: –1 ... 64 bar g (–14.5 ... 928 psi g) | Up to 10 bar g (145 psi g) | Up to 3 bar g (43.5 psi g) |
| **Typical applications** | Detection of high, low, demand levels in liquids, pump protection, hazardous areas and critical applications up to SIL 2. | Detection of high, low, demand levels in solids. | Drilling mud tanks. |

**More information:**
www.siemens.com/sitranslvl100  
www.siemens.com/sitranslvl200

www.siemens.com/sitranslvs100  
www.siemens.com/sitranslvs200

**More information:**
www.siemens.com/sitransprobelr
<table>
<thead>
<tr>
<th><strong>Level measurement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Radar</strong></td>
</tr>
<tr>
<td><strong>SITRANS LR200</strong></td>
</tr>
<tr>
<td><strong>Brief description</strong></td>
</tr>
<tr>
<td><strong>Features and benefits</strong></td>
</tr>
<tr>
<td><strong>Range</strong></td>
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<tr>
<td><strong>Accuracy</strong></td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
</tr>
<tr>
<td><strong>Process pressure</strong></td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
</tr>
</tbody>
</table>

More information: [www.siemens.com/sitranslr200](http://www.siemens.com/sitranslr200)  
More information: [www.siemens.com/sitranslr250](http://www.siemens.com/sitranslr250)  
More information: [www.siemens.com/sitranslr560](http://www.siemens.com/sitranslr560)
<table>
<thead>
<tr>
<th>Guided wave radar</th>
<th>Capacitance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SITRANS LG250</strong></td>
<td><strong>SITRANS LG270</strong></td>
</tr>
<tr>
<td><strong>Brief description</strong></td>
<td>Guided wave radar transmitters for level, level/ interface, and volume measurement of liquids and solids.</td>
</tr>
</tbody>
</table>
| **Features and benefits** | • Advanced Diagnostics available for high degree of safety  
• Simple menu-driven display offers ease of setup  
• Large range of options offers reliability in most continuous measurement applications  
• Ease of maintenance through module design and field replaceable and adjustable probe options  
• Suitable for extreme pressure and temperature conditions  
• Highly immune to buildup/ replaceable probes/ measures low dk/ able to determine dk of application | • Advanced Diagnostics for high degree of safety  
• Simple menu-driven display offers ease of setup  
• Large range of options offers reliability in most continuous measurement applications  
• Ease of maintenance through module design and field replaceable and adjustable probe options  
• Universally applicable in liquids, interface, slurries and solids  
• Highly immune to buildup  
• Steam compensation/ low dk | • Patented Active-Shield technology  
• Easy installation through push-button calibration  
• Integrated local display  
• Full-function diagnostics  
• Inverse frequency approach provides high resolution |
| **Range** | 300 mm ... 75 m (11.811” ... 246 ft) | 300 mm ... 60 m (11.811” ... 197 ft) | Rod: 0.3 ... 5.5 m (1 ... 18 ft)  
Cable: 1 ... 35 m (3 ... 115 ft) |
| **Accuracy** | ±2 mm (0.08”) | ±2 mm (0.08”) | – |
| **Process temperature** | −40 ... 200 °C | −196 ... 450 °C (−321 ... 842 °F) | −50 ... 200 °C (−58 ... 392°F)  
−200 ... 200 °C (−328 ... 392°F): special order |
| **Process pressure** | −1 ... 100 bar (−100 ... 40,000 kPa) – vessel pressure | −1 ... 400 bar (−100 ... 40,000 kPa) – vessel pressure | Up to 150 bar (2175 psi) |
| **Typical applications** | Highly flexible solution for liquid level and interface applications.  
Extremely versatile solutions for storage, separation of materials or difficult ammonia applications. | Extreme conditions including high temperature and high pressure applications: harsh applications in chemical, HPI and energy industries i.e. LPG gas tanks, steam boilers and distillation columns. | Level measurement in liquids, vapors and foam under extreme operational conditions, interface detection (e.g. oil, water, gas) LNG. |

More information: [www.siemens.com/lg](http://www.siemens.com/lg)  
More information: [www.siemens.com/lg](http://www.siemens.com/lg)  
More information: [www.siemens.com/lc500](http://www.siemens.com/lc500)
## Flow measurement

### Clamp-on ultrasonic

<table>
<thead>
<tr>
<th>SITRANS FUH1010 (Oil)</th>
<th>SITRANS FUG1010</th>
<th>SITRANS FUT1010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>For hydrocarbon applications. Available in three versions: Standard Volume, Precision Volume and Interface Detector. It demonstrates high-level performance under a wide range of viscosities.</td>
<td>SITRANS FUG1010 advantages include, tolerance of challenging wet gas conditions. It also measures standard volume flow for fixed gas compositions without needing a separate flow computer.</td>
</tr>
<tr>
<td><strong>Features and benefits</strong></td>
<td><strong>Standard volume</strong>&lt;br&gt;• Exceptional repeatability is maintained, independent of changes in temperature, density or viscosity</td>
<td><strong>Precision volume</strong>&lt;br&gt;• Prompt measurement is maintained with automatic &quot;Reynolds Number&quot; compensation for temperature and viscosity changes</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>±0.5 to 1.0% at ≥0.3 m/s (1 ft/s)</td>
<td>±1–2% of actual volume reading</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>Measuring range ±12 m/s (±40 ft/s) bidirectional</td>
<td>±30 m/s (±100 ft/s) bidirectional</td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
<td>Ambient temperature –18 ... 60 °C (0 ... 140 °F)</td>
<td>Ambient temperature –18 ... 60 °C (0 ... 140 °F)</td>
</tr>
<tr>
<td><strong>Process pressure</strong></td>
<td>–</td>
<td>Typical minimum pressure: 7 ... 10 bar (100 ... 145 psi)</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>Flow measurement on hydrocarbon liquids, interface detection, product identification, auto batch control, pig detection etc.</td>
<td>Ideal for natural and process gas applications, including allocation, production, storage and gas-fired power station applications.</td>
</tr>
</tbody>
</table>

More information:
- [www.siemens.com/fusclampon](http://www.siemens.com/fusclampon)
- [www.siemens.com/fusclampon](http://www.siemens.com/fusclampon)
- [www.siemens.com/fusclampon](http://www.siemens.com/fusclampon)
## Coriolis

<table>
<thead>
<tr>
<th></th>
<th>SITRANS F C MASS 2100</th>
<th>SITRANS F C MASS 6000 Ex d</th>
<th>SITRANS FC430</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>Coriolis mass flowmeters for exact mass flow, volume flow, density and temperature measurements.</td>
<td>Transmitter for coriolis flowmeter for the measurement of mass flow, volume flow, Brix, Plato, density, temperature and fraction flow. Functions include dosing of liquids and gases.</td>
<td>Complete flowmeter system for a variety of liquid and gas applications. Provides multiparameter and high accurate measurement of mass flow, density, temperature and fraction.</td>
</tr>
</tbody>
</table>
| **Features and benefits** | • Accuracy of density measurements better than 0.001 g/cm³  
• Single-bended pipe without internal welding seams  
• Maximum pipe wall thickness for optimal service life, corrosion resistance and high pressure resistance  
• Balanced pipe construction for optimal performance | • High zero stability, excellent dynamic response to variations of flow  
• Multiparameter outputs, individually configurable to mass flow, volume flow, density, temperature or fraction flow, e.g. Brix or Plato  
• Fast batch mode and short response time with an update rate of 30Hz  
• SENSORPROM technology automatically configures the transmitter during start-up | • Offers high accuracy over a range of flow rates  
• Multiparameter measurement enables simultaneous monitoring of density leading to higher dosage quality  
• Coriolis technology enables measurement of non-conducting liquids  
• Advanced communications allow access to the multiple measuring parameters being measured  
• Available in compact or remote versions |
| **Range** | – | – | – |
| **Accuracy** | < 0.1% of mass flow | Typically ≤ 0.1% of actual mass flow | ±0.10% |
| **Process temperature** | −50 ... 180°C (−58 ... 356°F) | – | −50 ... 200°C (−58 ... 392°F) |
| **Process pressure** | – | – | Measuring tubes:  
• Stainless steel up to 100bar (1450 psi)  
• Hastelloy C22 up to 160bar (2320 psi) |
| **Typical applications** | Liquids and gases, dosing, multiparameter measurement incl. mass flow rate, volume, density, fraction flow and temperature. | – | Custody transfer, according to OIML R117 (liquids other than water); safety-critical applications up to SIL 3. |

**More information:**
- [www.siemens.com/sitransfmass2100](http://www.siemens.com/sitransfmass2100)
- [www.siemens.com/sitransfmass6000](http://www.siemens.com/sitransfmass6000)
- [www.siemens.com/sitransfc430](http://www.siemens.com/sitransfc430)
# Flow measurement

<table>
<thead>
<tr>
<th>Flow measurement</th>
<th>Coriolis</th>
<th>Electromagnetic</th>
</tr>
</thead>
</table>

## SITRANS FCS200 sensor

**Brief description**
- Ultra-compact sensor that fits in where space is crucial, providing extra flexibility in any compressed natural gas (CNG) application.

**Features and benefits**
- Wide range of different connections available
- Fast fueling due to high capacity
- Flexible sensor program as it is available in three sizes ensuring a broad application fit within dispensers, compressors and distribution
- Enhanced safety due to standard built-in rupture discs, which reduce personal hazard in the event of pipe fracture
- SENSORPROM enables true Plug & Play installation
- High accuracy

**Range**
- Measuring range 250 ... 30,000 kg/h (9.2 ... 1,102.3 lbs/min)

**Accuracy**
- 0.5%
- ≤ 0.15% of rate
- 0.2% ±1 mm/s (0.04 inch/s)

**Process temperature**
- Ambient temperature: –40 ... 60°C (–40 ... 140°F)
- Medium temperature: –40 ... 125°C (–40 ... 257°F)

**Process pressure**
- Max 350 bar (5076 psi)
- Max 100bar (1450 psi)

**Typical applications**
- CNG (compressed natural gas)

**More information:**
- [www.siemens.com/fcs200](http://www.siemens.com/fcs200)

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## SITRANS F C MC2

**Brief description**
- Accuracy better than 0.15% of the mass flow rate. The meter is easy to install and is recognized for its high accuracy and wide turndown which is paramount in many applications.

**Features and benefits**
- Parallel S-tube design and optimal oriented inductive sensors enhances accuracy and turndown range
- Rigid enclosure design reduces the influence from pipeline vibration and thermal stress
- SENSORPROM enables cost-efficient installation and commissioning
- Enhanced safety with superior safe Ex-design
- EEEx em [ib] IIC T2-T6, ≥ DN 50: II 2 G EE Ex em [ib] IIC T2-T6

**Range**
- Standard version: 2,130 ... 510,000 kg/h (78 ... 18,739 lbs/min)
- Hygienic version: 230 ... 113,400 kg/h (8.45 ... 4,167 lbs/min)

**Accuracy**
- ≤ 0.15% of rate
- 0.5% of flow rate

**Process temperature**
- –50 ... 180 °C (–58 ... 356 °F)

**More information:**
- [www.siemens.com/sitransf](http://www.siemens.com/sitransf)

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## SITRANS F M MAG 6000 I/6000 I Ex de

**Brief description**
- Microprocessor-based transmitter engineered for high performance, easy installation, commissioning and maintenance.

**Features and benefits**
- Superior signal resolution for optimal turndown ratio
- Built-in advanced batch control
- Comprehensive diagnostic and service menu enhancing trouble-shooting and meter verification
- SENSORPROM technology facilitates easy setup and replacement with automatically re-programming of any new transmitter
- USM II platform enables fitting of add-on bus modules without loss of functionality and all modules can be fitted as true Plug & Play

**Range**
- max 40 bar (580 psi)

**Accuracy**
- ±0.75% of flow rate
- ±1% of flow rate

**Process temperature**
- Ambient temperature: –40 ... 100 °C (–40 ... 212 °F)

**More information:**
- [www.siemens.com/sitransfm](http://www.siemens.com/sitransfm)

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# Flow measurement

<table>
<thead>
<tr>
<th>Flow measurement</th>
<th>Coriolis</th>
<th>Electromagnetic</th>
</tr>
</thead>
</table>

## SITRANS FUS060 sensor

**Brief description**
- Designed for remote installation in hazardous as well as non-hazardous environments
- Excellent chemical resistance also during high process temperature
- PERFORMANCE sensors enable simple installation, commisioning and maintenance
- SENSORPROM fingerprints

**Features and benefits**
- SENSORPROM enables cost-efficient installation and commissioning
- SENSORPROM fingerprints
- EEx em [ib] IIC T2-T6, ≥ DN 50: II 2 G EE Ex em [ib] IIC T2-T6

**Range**
- Standard version: 2,130 ... 510,000 kg/h (78 ... 18,739 lbs/min)
- Hygienic version: 230 ... 113,400 kg/h (8.45 ... 4,167 lbs/min)

**Accuracy**
- ≤ 0.15% of rate
- 0.2% ±1 mm/s (0.04 inch/s)

**Process temperature**
- Ambient temperature: –40 ... 100 °C (–40 ... 212 °F)
- Medium temperature: –20 ... 130/150 °C (–4 ... 266/302 °F)

**Process pressure**
- Max PN40 and CL300 pressure rating
- Max 40 bar (580 psi)

**Typical applications**
- On/offshore industries.
- Optimal solution for fiscal metering as it meets requirements of well-defined specifications.
- Ideal for challenging applications within the oil flow, distribution and processing sectors.
- Ideal for demanding applications in the chemical and process industries. It has PTFE or PFA liners and Hastelloy C276 electrodes being the ideal combination.

**More information:**
- [www.siemens.com/sitransfus060](http://www.siemens.com/sitransfus060)

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## SITRANS F US SONO 3100 sensor

**Brief description**
- Flowmeter system consisting of a SITRANS FUS060 transmitter and SITRANS FUS060 sensor with O-ring or flange transducers.
- Combines three measuring instruments in one device without additional equipment, installation or cabling costs
- Comes in sizes from DN 100 to DN 600 (4” to 24”), (others on request)

**Features and benefits**
- Superior signal resolution for optimal turndown ratio
- Built-in advanced batch control
- Comprehensive diagnostic and service menu enhancing trouble-shooting and meter verification
- SENSORPROM technology facilitates easy setup and replacement with automatically re-programming of any new transmitter
- USM II platform enables fitting of add-on bus modules without loss of functionality and all modules can be fitted as true Plug & Play

**Range**
- Standard version: 2,130 ... 510,000 kg/h (78 ... 18,739 lbs/min)
- Hygienic version: 230 ... 113,400 kg/h (8.45 ... 4,167 lbs/min)

**Accuracy**
- ≤ 0.15% of rate
- 0.2% ±1 mm/s (0.04 inch/s)

**Process temperature**
- Ambient temperature: –40 ... 100 °C (–40 ... 212 °F)
- Medium temperature: –20 ... 130/150 °C (–4 ... 266/302 °F)

**Process pressure**
- Max 100bar (1450 psi)

**Typical applications**
- Flow measurement, water injection & frac water reclaim and delivery applications, industrial water treatment

**More information:**
- [www.siemens.com/sitransfus](http://www.siemens.com/sitransfus)
<table>
<thead>
<tr>
<th>Vortex</th>
<th>Inline ultrasonic</th>
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</thead>
<tbody>
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<td><strong>SITRANS F M MAG 3100 P</strong></td>
<td><strong>SITRANS FX300</strong></td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td><strong>Features</strong></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Vortex flowmeter with accurate volumetric and mass flow measurement of steam, gases and liquids as an all-in-one solution with integrated temperature and pressure compensation.</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>• Maintenance-free due to fully welded sensor construction providing excellent stability and reliability</td>
</tr>
<tr>
<td></td>
<td>• Combines three measuring instruments in one device without additional equipment, installation or cabling costs</td>
</tr>
<tr>
<td></td>
<td>• Saves downtime because of isolation valve, which makes an exchange of pressure sensor possible without interrupting the process</td>
</tr>
<tr>
<td></td>
<td>• Easy installation because of Plug &amp; Play</td>
</tr>
<tr>
<td></td>
<td>• Redundant system as a dual transmitter version is available</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>–</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>0 ... 10 m/s (0 ... 32 ft/s)</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>0.2% ±1 mm/s (0.04 inch/s)</td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
<td>Ambient temperature: –40 ... 100°C (–40 ... 212°F)</td>
</tr>
<tr>
<td></td>
<td>Medium temperature: –20 ... 130/150°C (–4 ... 266/302°F)</td>
</tr>
<tr>
<td><strong>Process pressure</strong></td>
<td>Max 40 bar (580 psi)</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>–</td>
</tr>
<tr>
<td><strong>More information:</strong></td>
<td>More information:</td>
</tr>
</tbody>
</table>

**SITRANS F US SONO 3100 / FUS060**

- **Brief description:** Sensor is designed to meet the most common specifications within the chemical and process industries. It has PTFE or PFA liners and Hastelloy electrodes being the ideal combination.
- **Features and benefits:**
  - Designed to allow patented MAG in-situ verification using the SENSORPROM fingerprints
  - Approved for hazardous areas

- **Range:**
  - Max 40 bar (580 psi)
  - Max PN40 and CL300 pressure rating

- **Accuracy:**
  - Steam and gases: ±1%
  - Liquids: ±0.75%

- **Temperature:**
  - Ambient temperature: 28 ... 13,200 m³/h (depends on size)
  - Liquid: ±0.5% of flow rate

- **Process temperature:**
  - Ambient temperature: –20 ... 200 °C (–4 ... 392 °F)
  - Medium temperature: –20 ... 200 °C (–4 ... 392 °F)

- **Typical applications:**
  - Volume and mass flow measurement of steam, liquids (e.g. crude oil) and gases (e.g. off-gas).

**Flowmeter system consisting of a SITRANS FUS060 transmitter and SITRANS F US SONO 3100 sensor with O-ring or flange transducers.**

**More information:**
- www.siemens.com/sitransfm
- www.siemens.com/sitransfx300
- www.siemens.com/sitransfus
### Pressure measurement

<table>
<thead>
<tr>
<th>SITRANS P DS III</th>
<th>SITRANS P500</th>
<th>SITRANS P280</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>Series of digital pressure transmitters for measuring gauge pressure, absolute pressure, differential pressure, flow and level.</td>
<td>Advanced pressure transmitter for measuring differential pressure, flow and level with highest measuring accuracy.</td>
</tr>
</tbody>
</table>
| **Features and benefits** | • Remote mounting capability allows isolation from high temperatures and vibration sources  
• Local display and local programming with push buttons, accessible without opening the enclosure  
• Robust design  
• Advanced communications and predictive maintenance functions enable optimization of maintenance cycles | • High measuring accuracy  
• Very fast response time and extremely good long-term stability  
• High reliability even under extreme chemical and mechanical loads  
• For aggressive and non-aggressive gases, vapors and liquids  
• Extensive diagnosis and simulation functions which can be used both on site as well as via HART  
• Optional separate replacement of measuring cell and electronics without recalibration  
• Short process flanges enable space-saving installation | • Supports the WirelessHART standard for a flexible pressure measurement  
• Enables cost savings on wiring for locations with difficult installation conditions, like in remote areas of plants, and on moving or rotating equipment  
• Device meets IP65 degree of protection  
• Powered by an internal battery and designed for ultralow power consumption |
| **Range** | • 1 mbar (0.4 inch H₂O) ... 700 bar (10,150 psi) | • 0 to 1.25 mbar (0 to 0.2 psi) ... 0 to 32 bar (0 to 464 psi) | • 0 to 1.6 bar (0 to 23 psi) ... 0 to 320 bar (0 to 4,641 psi) |
| **Accuracy** | • ≤ 0.075% | • ≤ 0.03% | • ±0.25% of full scale; max. ±0.25% of sensor’s span |
| **Process temperature** | • –40 ... 100 °C (–40 ... 212 °F) | • –40 ... 125 °C (–40 ... 257 °F) | • –40 ... 85 °C (–40 ... 185 °F) |
| **Process pressure** | • Max 700 bar (10,150 psi) gauge pressure  
• Max 30 bar (435 psi) (PN420) differential pressure | • Max 32 bar (464 psi) (PN160) differential pressure | • Max 320 bar gauge pressure  
• Max 320 bar (4,641 psi) absolute pressure |
| **Typical applications** | Flow measurement with orifice plate, feed water applications. | Wellhead control topsides and hydraulic power units. | Wireless pressure measurement. |

More information:  
- [www.siemens.com/sitranspds3](http://www.siemens.com/sitranspds3)  
- [www.siemens.com/sitransp500](http://www.siemens.com/sitransp500)  
- [www.siemens.com/sitransp280](http://www.siemens.com/sitransp280)
### Temperature measurement

<table>
<thead>
<tr>
<th>SITRANS TH Family</th>
<th>SITRANS TF</th>
<th>SITRANS TF280</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>Series of head-mounted transmitters for a variety of applications.</td>
<td>Field transmitter for harsh industrial applications.</td>
</tr>
<tr>
<td><strong>Features and benefits</strong></td>
<td>Measures temperature with a linear output signal</td>
<td>Rugged two-chamber enclosure in die-cast aluminum or stainless steel with degree of protection IP67</td>
</tr>
<tr>
<td></td>
<td>High accuracy across entire ambient temperature range</td>
<td>Universal sensor input for resistance thermometer, thermocouple element, Ohm or mV signal</td>
</tr>
<tr>
<td></td>
<td>Reduces plant noise</td>
<td>SIL 2, SIL 2/3</td>
</tr>
<tr>
<td></td>
<td>Alarm signal for sensor break or short circuit according NAMUR 43</td>
<td>Wide range of approvals for use in potentially explosive atmospheres. &quot;Intrinsically safe, non-sparking and flameproof&quot; type of protections</td>
</tr>
<tr>
<td></td>
<td>Explosion-protected executions for US, Canada and Europe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slim design, ideal for upgrade of installed PT100 probes with a 20 mA signal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rugged design, fully potted electronic</td>
<td></td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>–40 ... 85 °C (–40 ... 185 °F)</td>
<td>–40 ... 85 °C (–40 ... 185 °F)</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>Analog accuracy 0.02% of measurement range</td>
<td>Analog accuracy 0.02% of measurement range</td>
</tr>
<tr>
<td></td>
<td>Digital accuracy 0.1 °C for PT100</td>
<td>Digital accuracy 0.1 °C for PT100</td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
<td>Depends on different RTD or TC sensor input</td>
<td>Depends on different RTD or TC sensor input</td>
</tr>
<tr>
<td><strong>Process pressure</strong></td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>Head-mounted transmitter with wide range of applications.</td>
<td>Field transmitter for field mount transmitter for tough conditions and modern process industries which require high accuracy stability and reliability.</td>
</tr>
</tbody>
</table>

More information:
- [www.siemens.com/sitransth](http://www.siemens.com/sitransth)
- [www.siemens.com/sitransf](http://www.siemens.com/sitransf)
- [www.siemens.com/sitransf280](http://www.siemens.com/sitransf280)
## Temperature measurement

**SITRANS TS Series**
Temperature sensor for a wide range of measuring goals from basic applications to solutions in harsh environments.

**Features and benefits**
- Exchangeable during operation
- Wide application range due modular design
- Explosions protection according to ATEX and IEC EX intrinsic safety, flameproof and non-sparking
- With optional local indicator
- Use of standard components even for individual configurations

**Range**
- Standard: –40 ... 80 °C (–40 ... 176 °F); option: –40 ... 100 °C (–40 ... 212 °F)
- Measuring point connection head: 30° ... 100°/3 ... 130 mm (0.12 ... 5.12") (larger strokes on request)

**Accuracy**
- –

**Process temperature**
- Measuring point connection head: Pt 100 Basic: –30 ... 400°C; Pt 100 extended: –196 ... 600°C
- Thermocouple –196 ... 1100 °C (depends on type of TC)
- –40 ... 100 °C (85 °C with transmitter)

**Process pressure**
- Depending on thermowell diam. and lengths:
  - Up to 75 bar (1,088 psi) (type 2 and 3)
  - Up to 500 bar (7,252 psi) (form 4), depending on material

**Typical applications**
- Measurement in pipes and vessels.

**More information:**
- [www.siemens.com/sitrans](http://www.siemens.com/sitrans)

## Positioning

**SIPART PS2**
Positioner for linear and part-turn actuators. Optional a non-contacting sensor for extreme vibrations and remote applications.

**Features and benefits**
- Maximum flexibility for any application
- Push buttons, display, binary input, diagnostics as standard
- Easy and fast commissioning
- Extremely low air consumption
- Modular extension of modules and spare parts
- Usable for all environments
- Communication via HART, PROFIBUS PA or FOUNDATION Fieldbus
- International certified

**Range**
- 30° ... 100°/3 ... 130 mm (0.12 ... 5.12") (larger strokes on request)

**Accuracy**
- –

**Process temperature**
- Process temperature is related to the valve and actuator

**Process pressure**
- –

**Typical applications**
- Control Valves, On/Off Valve.

**More information:**
- [www.siemens.com/sipartps2](http://www.siemens.com/sipartps2)

## Weighing

**SIWAREX WL270 and SIWAREX U**
Weighing modules for all simple weighing and force measuring tasks.

**SIWAREX WL270**:
- Wide load range from 2 to 500 t
- Legal for trade
- uniform design technology and consistent communication
- High resolution of 65,000 parts and an accuracy of 0.05%
- Supports theoretical adjustment without adjustment weights
- Can be used for Ex-applications

**SIWAREX U**
- C3 to OIML R60; 3,000 intervals WL270 K with 0.1%
- Can be used for Ex-applications
- Uniform design technology and consistent communication
- Legal for trade
- High resolution of 65,000 parts and an accuracy of 0.05%
- Supports theoretical adjustment without adjustment weights
- Can be used for Ex-applications

**Range**
- Maximal sample temperature 120 °C (248 °F)
- Maximal sample pressure 10 ... 60 kPa

**Accuracy**
- SIWAREX U: 0.05%
- SIWAREX WL270: C3 to OIML R60; 3,000 intervals WL270 K with 0.1%

**Process temperature**
- Depends on the conditions; ideally < 0.1%

**Process pressure**
- Free configurable; depends on application

**Typical applications**
- Weighing modules for all simple weighing and force measuring tasks.

**More information:**
- [www.siemens.com/siwarex](http://www.siemens.com/siwarex)
- Gravimetric measurement of level in tanks, truck weighing in loading areas.

**More information:**
- [www.siemens.com/siwarex](http://www.siemens.com/siwarex)
## Gas analysis

### Process gas chromatography

<table>
<thead>
<tr>
<th>SITRANS CV</th>
<th>MicroSAM</th>
<th>MAXUM edition II</th>
</tr>
</thead>
</table>
| **Features and benefits** | • Fast analysis through innovative MEMS technology  
• Precision through valveless live injection and switching  
• High separation performance through narrow-bore capillary columns  
• Low detection limits through powerful detectors  
• High linearity over the entire measuring range saves calibration gases  
• Easy and safe operation using CVControl software | • Lower operational costs due to reduced power and utility gas requirements; no instrument air necessary  
• Option of mounting in the field  
• Cost-effective installation, minimal infrastructure requirements  
• Precise measurement results thanks to multidetection. Thermal conductivity detectors monitor the entire separation path  
• Use of MAXUM edition II software reduces training requirements  
• Simple remote control with Windows-based software and Ethernet | • Use one MAXUM edition II to get the functionality of several GCs  
• Separate complex analytical tasks into simple parallel tasks  
• Cost of ownership: Flexible oven concept results in low consumption of air and energy  
• Numerous oven configurations  
• Wide range of detectors including FID, TCD, FPD, PDD (HID, PID, or ECD mode) |
| **Range** | • Fix configurations for energy measurements | • Free configurable; depends on application | • Free configurable; depends on application |
| **Accuracy** | • Depends on the conditions; ideally < 0.1% | • Depends on the conditions; ideally < 0.1% | • Depends on the conditions; ideally < 0.1% |
| **Process temperature** | • Maximal sample temperature 120°C (248 °F) | • Maximal sample temperature 120°C (248 °F) | • Gas and liquid sample: maximum sample temperature 122°C (252 °F), higher temperature optional |
| **Process pressure** | • Appr. 60 kPa depends on the analytical methods  
(200 kPa below carrier gas pressure minimum) | • Maximal sample pressure 10 ... 60 kPa | • Minimum sample pressure 14 kPa (gas sample), 100 kPa (liquid sample), maximum sample pressure 517 kPa (gas sample), 5000 kPa (liquid sample) (lower and higher pressure optional) |
| **Typical applications** | Analysis of natural gas quality and its physical properties, calorific value measurement, fiscal metering. | Analytical process monitoring and control. | Chemical composition analysis of gases and liquids in refining and hydrocarbon processing industries. |

More information:  
www.siemens.com/sitranscv  
www.siemens.com/microsam  
www.siemens.com/maxum
Gas analysis

Continuous gas analysis

<table>
<thead>
<tr>
<th>Extractive – OXYMAT 6/61</th>
<th>In-situ – SITRANS SL, LDS 6</th>
<th>Extractive – ULTRAMAT 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>Oxygen measurements in gases based on the paramagnetic alternating pressure method.</td>
<td>In-situ gas analyzers for measurement of gas concentrations directly in the process scan even under extreme conditions.</td>
</tr>
<tr>
<td><strong>Features and benefits</strong></td>
<td>• Paramagnetic alternating pressure principle: Small measuring ranges absolute linearity • Detector element has no contact with the sample gas: Suitable for use in harsh environments, long service life • EEx(p) for zones 1 and 2 according to ATEX 2 G and ATEX 3 G (OXYMAT 6 field device only) • Open interface architecture (RS 485, RS 232, PROFIBUS)</td>
<td>• Real-time measurement • Extremely rugged design • High long-term stability through built-in maintenance-free and process-independent reference gas cell • No field calibration required • Suitable for connection to Ex sensors in accordance with II 1 G Ex ia op is IIC T4 Ga, II 1 D Ex ia op is III C T135 °C Da</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>• Smallest measuring range: 0–0.5% (OXYMAT 6); 0–2% (OXYMAT 61)</td>
<td>• O₂: LDS 6: 0–5% (0–600 °C), 0–15% (600–1200 °C); 0–100%; SITRANS SL: 0–1%, 0–100%</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>&lt; 1% (detection limit)</td>
<td>• O₂: LDS 6: 2% / 5%, depending on sample gas component and application code</td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
<td>• Below the gas dew point, but 0 ... 50 °C (32 ... 122 °F) (OXYMAT 6 heated field-housing version: max. 145 °C [293 °F])</td>
<td>• O₂: 0 ... 600 °C (32 ... 1112 °F), 600 ... 1200 °C (1112 ... 2192 °F) (LDS 6 only)</td>
</tr>
<tr>
<td><strong>Process pressure</strong></td>
<td>• OXYMAT 6: 500 ... 1500 hPa; field version: 500 ... 3000 hPa • OXYMAT 61: 800 ... 1200 hPa</td>
<td>• O₂: LDS 6: 950 ... 1050 hPa, 950 ... 5000 hPa (0 ... 200 °C) SITRANS SL: 900 ... 1100 hPa, 700 ... 5000 hPa (0 ... 200 °C)</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>Process control, plant safety monitoring, gas analysis, emission monitoring</td>
<td>Concentration measurement in combustible gases, safety monitoring, oxygen monitoring in tanks, pipes, flares, FCCs.</td>
</tr>
</tbody>
</table>

More information:
- www.siemens.com/oxymat6
- www.siemens.com/oxymat61
- More information:
  - www.siemens.com/lds6
  - www.siemens.com/sitranssl
- More information:
  - www.siemens.com/ultramat6
### Features and description

#### Continuous gas analysis
- **In-situ** – SITRANS SL, LDS 6
- **Extractive** – ULTRAMAT 6

#### Open interface architecture
- RS 485, RS 232, PROFIBUS
- ATEX 3 G (OXYMAT 6 field device only)

#### Accuracy
- OXYMAT 61: 800 ... 1200 hPa
- OXYMAT 6: 500 ... 1500 hPa; field version: 500 ... 3000 hPa
- Heated field-housing version: max. 145 °C (293 °F)

#### Concentration measurement in combustible gases, safety monitoring
- Below the gas dew point, but 0 ... 50 °C (32 ... 122 °F) (OXYMAT 6)

#### Smallest measuring range
- OXYMAT 6: 0–0.5% (0–2%); OXYMAT 61

#### Gas analysis
- Oxygen monitoring in tanks, pipes, flares, FCCs.

#### Integration of power-independent or isolated measurement points.

### Communication and software

<table>
<thead>
<tr>
<th>SITRANS AW200</th>
<th>SITRANS AW210</th>
<th>SIMATIC PDM</th>
<th>SITRANS RD500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description</strong></td>
<td>Battery-powered WirelessHART adapter to integrate devices with standard wired HART or 4 ... 20 mA.</td>
<td>WirelessHART adapter to integrate standard wired HART or 4 ... 20 mA devices into a WirelessHART network.</td>
<td>Tool for configuration, parameterization, commissioning, diagnostics and maintenance of field devices.</td>
</tr>
<tr>
<td><strong>Features and benefits</strong></td>
<td>• Connects up to four HART devices in multdrop mode. • All four HART process variables of every connected device are transmitted without any loss of accuracy. • Connects one 4 ... 20 mA device w/o HART. • Configurable with standard tools support EDD – e.g. SIMATIC PDM, HART handheld communicator. • Power-up single connected device with the internal battery or devices can be powered externally.</td>
<td>• Connects up to eight HART devices in multdrop mode. • All four HART process variables of every connected device are transmitted without any loss of accuracy. • Connects one 4 ... 20 mA device w/o HART. • Configurable with standard tools support EDD – e.g. SIMATIC PDM, HART handheld communicator. • Adapter and field devices powered externally. • Can be used in hazardous areas.</td>
<td>• Allows the user to configure field devices of different manufacturers using a single user interface. • Process device data can be easily set, changed, checked for plausibility, managed and simulated. • Monitors selected process values, alarms and status signals of devices online. • Allows backup parameters and diagnostics. • As point-to-point or as integrated part of control system.</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Process pressure</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>Integration of power-independent or isolated measurement points.</td>
<td>Increase transparency via WirelessHART if wired HART communication is not supported by the infrastructure.</td>
<td>Configuration, parameterization, commissioning, diagnostics and maintenance of field devices.</td>
</tr>
</tbody>
</table>

### More information:
- [www.siemens.com/sitransaw200](http://www.siemens.com/sitransaw200)
- [www.siemens.com/sitransaw210](http://www.siemens.com/sitransaw210)
- [www.siemens.com/simatic-pdm](http://www.siemens.com/simatic-pdm)
- [www.siemens.com/sitransrd500](http://www.siemens.com/sitransrd500)
<table>
<thead>
<tr>
<th>Communication and software</th>
<th>Industrial Ethernet Switches – SCALANCE X</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCALANCE XR-500</strong></td>
<td><strong>SCALANCE XM-400</strong></td>
</tr>
<tr>
<td><strong>Brief description</strong></td>
<td>Fully/ partly modular, high-performance, layer 3 19” rack switches (routers) for the setup of electrical and/or optical networks.</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>• Gigabit Ethernet (IEEE 803.2)</td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
<td>• 0 ... 60 °C (32 ... 140 °F)</td>
</tr>
<tr>
<td><strong>Transmission rate</strong></td>
<td>• 10/100/1000 Mbit/s</td>
</tr>
<tr>
<td><strong>Ports</strong></td>
<td>• Up to 52 ports by using 4-port media modules (CU/FO)</td>
</tr>
<tr>
<td></td>
<td>• Up to 12 PoE ports</td>
</tr>
<tr>
<td></td>
<td>• Media module options with fixed FO ports or SFP</td>
</tr>
<tr>
<td></td>
<td>• Various SFP options</td>
</tr>
<tr>
<td><strong>Important features and benefits</strong></td>
<td>• Flexibility in network expansions and modifications</td>
</tr>
<tr>
<td></td>
<td>• High availability due to redundant power supply, redundancy functions design and easy device replacement</td>
</tr>
<tr>
<td></td>
<td>• VLAN, SNMP, PROFINET diagnostics, email notification</td>
</tr>
<tr>
<td></td>
<td>• Easy upgrading of layer 3 functions</td>
</tr>
<tr>
<td><strong>Distances up to</strong></td>
<td>• Up to 200 km (124 mi), depending on media modules/SFPs</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>• Onshore and offshore productions (e.g. wellhead/gas field monitoring and control), setup of plant networks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Industrial Ethernet Switches – RUGGEDCOM</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td><strong>RX5000</strong></td>
</tr>
<tr>
<td><strong>Brief description</strong></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
</tr>
<tr>
<td><strong>Transmission rate</strong></td>
</tr>
</tbody>
</table>
| **Ports** | • Up to 96 ports (10/100 TX)  
• Up to 10 Gigabit uplinks  
• Up to 24 Gigabit ports  
• Up to 48 optical ports (100FX) | • Up to 24 ports (100FX, 10/100TX, 10FL/100SX)  
• Up to 8 Gigabit Ethernet  
• Up to 24 serial ports | • 28 Gigabit ports (100FX or 1000SX, 10/100/1000TX) |
| **Important features and benefits** | • Designed for harsh environmental demands  
• 19" rack design  
• High port density routing and switching platform | • Hot-swappable dual redundant power supplies  
• 19" rack switch  
• Rugged and modular  
• Layer 2 and layer 3 switch and router  
• Optional redundant power supply | • Hot-swappable dual redundant power supplies  
• 19" rack switch  
• Reduces rack space needs  
• Increases network availability |
| **Distances up to** | 90 km (55.9 mi) | 90 km (55.9 mi) | 70 km (43.5 mi) |
| **Typical applications** | Utility and industrial network applications | Electric power utilities, the industrial plant floor, rail and traffic | Electric power utilities, the industrial plant floor, rail and traffic |

More information:  
[www.siemens.com/ruggedcom/switches](http://www.siemens.com/ruggedcom/switches)
<table>
<thead>
<tr>
<th>Communication and software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industrial Ethernet Switches – RUGGEDCOM</strong></td>
</tr>
</tbody>
</table>

**RS900**

<table>
<thead>
<tr>
<th>Brief description</th>
<th>9-port utility grade, fully managed Ethernet switch, specifically designed to operate reliably in electrically harsh and climatically demanding environments.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>• Industrial Ethernet</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>• –40 … 85°C (–40 … 185°F)</td>
</tr>
<tr>
<td>Transmission rate</td>
<td>• 10/100 Mbit/s</td>
</tr>
<tr>
<td>Ports</td>
<td>• 6 ports (Base10/100BaseTX) • Option for 3 additional copper ports • Option for 3 additional fiber ports</td>
</tr>
<tr>
<td>Important features and benefits</td>
<td>• Hot-swappable dual redundant power supplies • 19&quot; rack switch • Reduces rack space needs • Increases network availability</td>
</tr>
<tr>
<td>Distances up to</td>
<td>• 90 km (55.9 mi)</td>
</tr>
<tr>
<td>Typical applications</td>
<td>• Electric power utilities, the industrial plant floor, rail and traffic</td>
</tr>
</tbody>
</table>

**SCALANCE W786**

<table>
<thead>
<tr>
<th>Industrial Wireless LAN access point for use outdoors, for setting up Industrial Wireless LANs (IWLAN) with 2.4 GHz or 5 GHz.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Operating temperature</td>
</tr>
<tr>
<td>Transmission rate</td>
</tr>
<tr>
<td>Ports</td>
</tr>
<tr>
<td>Important features and benefits</td>
</tr>
<tr>
<td>Distances up to</td>
</tr>
<tr>
<td>Typical applications</td>
</tr>
</tbody>
</table>

**SCALANCE W788**

<table>
<thead>
<tr>
<th>Industrial Wireless LAN access point for use indoors, for setting up Industrial Wireless LANs (IWLAN) with 2.4 GHz or 5 GHz.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Operating temperature</td>
</tr>
<tr>
<td>Transmission rate</td>
</tr>
<tr>
<td>Ports</td>
</tr>
<tr>
<td>Important features and benefits</td>
</tr>
<tr>
<td>Distances up to</td>
</tr>
<tr>
<td>Typical applications</td>
</tr>
</tbody>
</table>

More information:  
[www.siemens.com/ruggedcom/switches](http://www.siemens.com/ruggedcom/switches)  
[www.siemens.com/iwlan](http://www.siemens.com/iwlan)  
[www.siemens.com/remote-networks](http://www.siemens.com/remote-networks)  
[www.siemens.com/ruggedcom](http://www.siemens.com/ruggedcom)  
[www.siemens.com/industrialsecurity](http://www.siemens.com/industrialsecurity)
<table>
<thead>
<tr>
<th>Modems and Router – SCALANCE M</th>
<th>Industrial WAN – RUGGEDCOM</th>
<th>Industrial Security – SCALANCE S</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCALANCE M874</strong></td>
<td><strong>RUGGEDCOM WIN</strong></td>
<td><strong>SCALANCE S623</strong></td>
</tr>
<tr>
<td><strong>Brief description</strong></td>
<td>IP-Router for the connection to remote networks via public communication infrastructures, i.e. mobile radio networks.</td>
<td>High-power broadband wireless product portfolio designed for private networks with carrier-grade 4G technology to critical infrastructure applications in harsh environments.</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>• Mobile Radio (2–2.5 G, 3 G)</td>
<td>• IEEE 802.16e</td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
<td>• –20 ... 60 °C (–4 ... 140°F)</td>
<td>• –40 ... 65 °C (–40 ... 32°F)</td>
</tr>
<tr>
<td><strong>Transmission rate</strong></td>
<td>• 10/100 Mbit/s</td>
<td>• 10/100 Mbit/s</td>
</tr>
<tr>
<td><strong>Ports</strong></td>
<td>• 1 x R-SMA • RJ45</td>
<td>• N-Connect • PoE • M12</td>
</tr>
<tr>
<td><strong>Important features and benefits</strong></td>
<td>• VPN (IPSec) • Firewall • NAT</td>
<td>• MIMO technology (Multiple Input, Multiple Output) • Installation outdoors • Reliable and rugged (IP67)</td>
</tr>
<tr>
<td><strong>Distances up to</strong></td>
<td>• Worldwide, depending on mobile radio network availability</td>
<td>–</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>• Pipelines, compressors and pumping stations (e.g. SCADA Pipeline / Telecontrol)</td>
<td>• Onshore and offshore productions, e.g. interconnection of oil rigs, installation on poles, walls</td>
</tr>
</tbody>
</table>

**More information:**
- [www.siemens.com/remote-networks](http://www.siemens.com/remote-networks)
- [www.siemens.com/ruggedcom](http://www.siemens.com/ruggedcom)
- [www.siemens.com/industrialsecurity](http://www.siemens.com/industrialsecurity)
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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.

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