Setting the standard with measuring systems

Process instrumentation, process analytics, weighing technology – The One-Stop Shop

usa.siemens.com/processautomation
How to optimize processes with our automation and instrumentation portfolio

High-quality processes are crucial in the process industry. Only then do you get the required results. And it is only then that plants work efficiently and therefore productively.

Process instrumentation and analytics as well as weighing technology all play a crucial role here. They measure, analyze, regulate and control industrial processes and thus contribute to increasing the efficiency of process plants and improving their product quality.

Benefit from the versatility of our holistic solutions for your process tasks – with integrated solutions from a single source. Benefit from the openness of the systems. And from constant innovations and comprehensive services.
In the areas of process instrumentation and process analytics as well as weighing and dosing systems, our main focus is on the process industries, such as the chemical, oil & gas and hydrocarbon processing, water and waste-water, pharmaceutical, mining, aggregates, cement, pulp and paper, food and beverage, and shipbuilding industries.
How to increase process efficiency and product quality

In field instrumentation, maximum precision and absolutely reliable measurement results are key. Only then can you increase the efficiency of your process plants and improve their product quality. Whether you’re dealing with pressure, temperature, flow or level, we offer you a globally unique range of transmitters for field instrumentation. Our comprehensive portfolio also includes weighing and batching systems, pneumatic valve positioners, process controllers and process recorders.
One-Stop Shop
Pressure measurement without ifs and buts: SITRANS P

SITRANS P is a complete range of measurement instruments for measuring relative pressure, differential pressure and absolute pressure. In addition to high measuring accuracy and ruggedness, the modular system features superb operating convenience and functionality as well as a perfect safety concept.

SITRANS P500 – Digital transmitter for high-precision applications with unparalleled specifications for overall performance and long-term stability

- Deviations from the characteristic curve of less than 0.03% of the calibrated measuring range for different pressure and level requirements
- Design of the measuring cells allows for use with media temperatures of up to 125 °C even without the use of a remote seal system
- Good step response time (T63) of only 88 ms ensures plant safety in critical applications
- Device configuration via standard HART® protocol-compatible tools or directly on-site with local operation and LCD display
- Graphics-enabled display shows curve and trend diagrams for goal-oriented process monitoring
SITRANS P310
• Suitable for installation in SIL 2 measuring circuits according to IEC 61508/IEC 61511
• Digital transmitter with built-in HART® diagnostic functions
• Comprehensive certificates and approvals, such as ATEX Ex i, Ex d, Ex nA/ic, FM, CSA
• Variants for relative pressure and differential pressure measurements

SITRANS P410
• Suitable for installation in SIL 2 measuring circuits according to IEC 61508/IEC 61511
• Digital pressure transmitter with increased measuring accuracy
• Built-in diagnostic functions for HART®, PROFIBUS PA or FOUNDATION Fieldbus communication
• For extreme chemical and mechanical loads as well as electromagnetic influences
• Additional safety features such as plant and self-monitoring, error diagnostics and notification of the next calibration date
• Unique self-test function for fail-safe operation

SITRANS P DS III
• Suitable for installation in SIL 2 measuring circuits according to IEC 61508/IEC 61511
• Digital pressure transmitter with numerous diagnostic and simulation functions for measuring relative, absolute and differential pressures as well as flow and fill levels
• HART®, PROFIBUS PA or FOUNDATION Fieldbus communication
• For extreme chemical and mechanical loads as well as electromagnetic influences
• Additional safety features such as plant and self-monitoring, error diagnostics and notification of the next calibration date
• Unique self-test function for fail-safe operation
Process Instrumentation | Pressure Measurement

SITRANS LH100/LH300
- Suitable for applications ranging from drinking water or wastewater up to corrosive liquids thanks to stainless steel enclosure
- Rugged submersible sensors for hydrostatic level measurement
- Installation possible in pipes with 1" inner diameter

SITRANS P200/210/220
- Single-range transmitter for relative, absolute and hydrostatic pressure
- Pressure sensors: Stainless steel sensors (SITRANS P210 and SITRANS P220) as well as sensors with ceramic membrane (SITRANS P200)
- Conversion of measured pressure into either 4–20 mA or 0–10 V signal

SITRANS P280
- WirelessHART® pressure transmitter for process monitoring or asset management
- Wireless data transmission
- Battery operated with extremely low power consumption
- Direct mounting possible on containers and pipes in remote parts of the plant as well as on moving or rotating devices thanks to compact and rugged design
SITRANS P compact
- Analog transmitter for absolute and relative pressure
- Hygienic design in accordance with EHEDG, FDA and GMP recommendations
- Stainless steel process connections and enclosure
- Measurement deviation ≤ 0.2%

SITRANS P300
- More than 90 different process connection variants offer the highest degree of flexibility
- Versatile communication connection via HART® protocol, PROFIBUS PA or FOUNDATION Fieldbus
- Fulfills EHEDG, FDA and 3A requirements
- Maximum measurement deviation of 0.075%
- Can be combined with flush-mounted absolute or relative pressure measuring cells
Because every degree matters: SITRANS T

SITRANS T products are the temperature measurement professionals, even in extreme conditions. Whether used in hot, cold or hazardous environments – the communicative SITRANS T meets all expectations. And whether you’re looking for sensors or transmitters for head, rail or field mounting – all are available individually or as complete measuring points. Our cost-effective SITRANS T transmitters offer high precision in every application and are quick and easy to connect to thermocouples or resistance thermometers. The SIMATIC PDM intelligent software package permits parameterization in just minutes, and input errors are avoided.
**Transmitters for head mounting**

**SITRANS TH100**
- Pt100 single input transmitter
- Diagnostics LED
- Supports four-wire Pt100
- 4–20 mA
- Low-cost and compact

**SITRANS TR320**
- Universal and HART® single input transmitter
- Diagnostics LED
- Supports four-wire RTD/TC/mV and resistances
- Supports Callendar-van-Dusen
- HART® 7 + SIL 2/3 (IEC 61508)
- 4–20 mA
- Interface for local HMI

**SITRANS TH420**
- HART® dual input transmitter
- Hot backup function
- Diagnostics LED
- Supports two four-wire RTD/TC/mV and resistances
- Supports Callendar-van-Dusen
- HART® 7 + SIL 2/3 (IEC 61508)
- Interface for local HMI

**SITRANS TH400**
- Fieldbus transmitter
- For PROFIBUS PA or FOUNDATION Fieldbus
- Configurable with SIMATIC PDM (PA) or AMS (FF)
- Extensive diagnostics and simulation functions
- Transmission of important device and process data over the bus cable

**SITRANS TW**
- Universal transmitter for four-wire system
- Cost-saving operational features
- Diagnostics LED

**Transmitters for rail mounting**

**SITRANS TH200**
- Pt100 single input transmitter
- Diagnostics LED
- Supports four-wire Pt100
- 4–20 mA
- Low-cost and compact

**SITRANS TH220**
- Universal and HART® single input transmitter
- Diagnostics LED
- Supports four-wire RTD/TC/mV and resistances
- Supports Callendar-van-Dusen
- HART® 7 + SIL 2/3 (IEC 61508)
- 4–20 mA
- Interface for local HMI
Transmitters for field installation

**SITRANS TF**
- IP66/67/68 degree of protection
- Used where there is excessive heat or vibration at the measuring point
- HART®/PA/FF communication
- Optional programmable digital display
- Can be used as a remote display without transmitter

**SITRANS TF280**
- WirelessHART® temperature transmitter for direct mounting on containers and pipes in remote parts of the plant as well as on moving or rotating devices thanks to the compact and rugged design
- Used for process monitoring or asset management
- Wireless transmission of measured process values
- Battery operated with extremely low power consumption

**SITRANS TS temperature sensors**

**SITRANS TS100**
- For multiple applications
- Supplied with directly installed cable
- ATEX and IEC EX approvals; can be operated in Zone 0
- Wide range of options thanks to modular principle

**SITRANS TS300**
- Clamp-on temperature sensor
- Design meets EHEDG recommendations and is therefore suitable for use in the food and beverage and pharmaceutical industries
- Replaceable measuring inserts
SITRANS TS200 compact design
• For multiple applications
• Compact design with directly installed fixed connection (M12, Lemo, etc.)
• ATEX and IEC EX approvals; can be operated in Zone 0
• Wide range of options thanks to modular principle

Transmitters for fiber-optic temperature measurement

SITRANS TO500
• Fiber-optic temperature transmitter
• Diameter of sensor measuring probe < 2 mm
• Up to 48 measuring points per sensor measuring probe
• Simple and low-cost installation thanks to rolled sensor measuring probe
Everything flows:
SITRANS F

Whether measuring gas, liquids or steam – choosing the right flowmeter is decisive for productivity. This is where the SITRANS F line comes in. Our portfolio contains the right flowmeter for every application and medium, with five different flow technologies available to suit a wide range of operating conditions: Coriolis, electromagnetic, ultrasonic, vortex and differential pressure.

SITRANS FC310
• Sizes from DN 15 to DN 150 in remote mounted and compact mounted transmitter configurations
• Solid performance with mass flow accuracy 0.1% of rate flow accuracy and density accuracy 0.5 kg/m³
• Robust frame construction isolates from external noise and vibrations and secures no twisting of the tubes
• Direct integration into automation systems
• Communication via Modbus RTU with SIMATIC as well as other PLCs and distributed control systems
• Transmitter design results in a very compact Coriolis system
SITRANS F C
Coriolis mass flowmeters
The SITRANS F C multivariable devices measure the direct mass flow rate of liquids and gases in almost any application. They deliver reliable and repeatable information on mass flow, volume flow, temperature, density, and concentration (e.g. Brix or Plato). They are available in sensor, transmitter, and flowmeter system versions, and fulfill requirements for high performance in oil & gas, chemical, food & beverage, pharmaceutical, and automotive applications.

SITRANS FC300
- Compact sensor with rugged, space-saving sensor design in stainless steel for all applications
- Optimal hygiene, safety, and CIP cleanability for the food & beverage industry as well as pharmaceutical applications, thanks to single-tube construction without internal welds, reductions, or flow splitters
- Easy installation using a Plug & Play interface

SITRANS FC330
- Innovative and user-friendly transmitter, with audit trails, trend curves, and advanced diagnostic functionalities
- Sizes from DN 15 to DN 150 in standard, remote- or compact-mounted
- Solid performance with mass flow accuracy 0.1% of rate flow accuracy and density accuracy 0.5 kg/m³
- Robust frame construction isolates from external noise and vibrations and secures no twisting of the tubes

SIFLOW FC070
- Quick installation and integration of the multiparameter transmitter into the SIMATIC system
- Among the most compact, space-saving, and versatile transmitters on the market

SITRANS F C MASS 2100 Low Flow
- Single tube in sizes from DI 1.5 to DI 15, with a wide selection of available connections
- Withstands pressure rates up to 1000 bar
- Ideal for a broad range of low-flow applications within the automotive, chemical and food & beverage industries

SITRANS FCS200 for CNG
- Fits in where space is crucial, providing extra flexibility in any compressed natural gas (CNG) application for both new installations and replacements
- Available in DN 10 to DN 25 and easy to install, with a wide range of different connections available
- Broad application fit within dispensers, compressors and distribution
- Easily adaptable as sensor is available with a wide range of standard gas process connectors to meet virtually any market requirement
SITRANS F M electromagnetic flowmeters

The task of an electromagnetic flowmeter from the SITRANS F M product family is to measure flow volume of electrically conducting fluids such as water, chemicals, food and beverage, slurries, sludge, paper stock and mining slurries with magnetic particles. The SITRANS F M product range is divided into three meter types:

**Modular pulsed DC meters**

**SITRANS F M DN 2 to DN 2000 (1/12” to 78”)**

- Full transmitter program MAG 5000/MAG 6000/MAG 6000 I compact- or remote-mounted
- Multiple I/O as standard and communication modules PROFIBUS PA/DP, DeviceNet FOUNDATION Fieldbus, HART® and Modbus RTU are available
- MAG 5100 W sensor designed for water and wastewater applications
- MAG 3100 P designed for process industry and the harsh requirements in the chemical industry
- MAG 3100/MAG 3100 HT sensor for general process industries
- MAG 1100/1100 HT sensor for general process industries
- MAG 1100 F [3] sensor for food and beverage and pharmaceutical industries

**Battery-operated water meters**

**MAG 8000 DN 25 to DN 1200 (1” to 48”)**

- Battery-powered solution that makes it easier than ever to install a reliable water meter virtually anywhere
- Battery lifetime up to 15 years*
- IP68 (NEMA 6P) enclosure and sensor painting according to ISO 12944 class C4M corrosivity for burial and submerged applications
- Easy installation without straight inlet/outlet
- Rich add-on communication modules: Modbus RTU, Encoder card, 3G/UMTS module

**MAG 8000 with 3G/UMTS module**

- Rich data transmission protocols supported by 3G module: SMS, secured e-mail and secured FTP
- Remote Qualification Certificate built into the 3G module enables comprehensive device diagnostics and off-site audits
- Configurable analog input for external ratiometric pressure transmitter in parallel with flow measurement (2-in-1 solution), or 4–20 mA alarm signal input for external tamper and flooding detector
- MAG 8000 clock synchronization with Internet NTP server featuring adjustable time zone setting ensures that measurement data is always accurately time-stamped
- Single SMS synchronizes the data transmission time for all MAG 8000 devices in field
- Real-time SMS notification for MAG 8000 alarms

**High-powered AC meters**

**TRANSMAG 2 / 911/E DN 15 to DN 1000 (1/2” to 40”)**

- Specially designed for heavy mining slurries with or without magnetic particles as well as the most difficult applications in the pulp and paper industry
- Low conductive medias ≥1 µS/cm (0.1 µS/cm depending on medium)
- No movable parts
- Stable zero point / pulsed alternating field – for accurate flow signal and excellent signal strength
- SmartPLUG concept
- Comprehensive self-diagnostics

*for 4 D-cell external battery pack
SITRANS F S ultrasonic flowmeters
Our ultrasonic flowmeters deliver extremely accurate results in a wide range of conductivities, viscosities, temperatures, densities and pressures. This makes them the optimal choice for measuring a variety of process industry applications. SITRANS F S ultrasonic flowmeters are available in inline and clamp-on versions. Both meter types can be used with homogeneous conductive and non-conductive liquids.

Inline ultrasonic flowmeters
• Suitable for industrial applications with pipe sizes from DN 50 to DN 600 (2” to 24”) (larger sizes on request)
• Available as 2-path systems in combination with SITRANS FUS060 transmitter
• 1-path and 4-path systems on special request also available in combination with the SITRANS FUS060 transmitter
• Option between mild steel and stainless steel on request
• Sensors can be exchanged without interrupting operation

SONOKIT retrofit flowmeter type
• The SONOKIT system is designed for inline retrofitting on all existing pipelines up to DN 3000 (120”) as a 1-track or 2-track flowmeter
• Flexible SITRANS FUS060 transmitters with HART® or PROFIBUS PA (up to DN 3000/120”)
• The unique design enables installation on empty pipes or pipes under pressure without process shutdown
• Robust version can be buried and withstands constant flooding
• Outstanding accuracy; the bigger the pipe, the more accurate the result
• 4-path systems (up to DN 1500/60”) are also available on special request

SITRANS FUS380 and FUE380
• For the utility industry, the 2-track flowmeters, SITRANS FUS380 and FUE380, are designed to measure water flow in district heating plants, local networks, boiler stations, substations and other general water applications
• Also suitable for chiller plants (including glycol mixes without type approval)
• Custody transfer approvals for district heating custody transfer applications (MID MI-004). Sizes range from DN 50 to 1200 (2” to 48”)
• Battery or mains power enables installation where needed. Battery lifetime up to 6 years
• Ideal for energy metering together with the SITRANS FUE950 energy calculator
• With heatmeter type approval (MID MI-004)
Clamp-on ultrasonic flowmeters

The externally mounted sensors of SITRANS F S clamp-on ultrasonic flowmeters are quickly and easily installed on the outside of a pipe, making them the perfect choice for existing applications or where corrosive, toxic or high-pressure fluids rule out the option of cutting the pipe. The cost-efficient technology provides highly accurate measurement of liquids in pipes ranging from DN 6 to DN 10000 in size.

SITRANS FS230

- Digitally based system featuring market-leading accuracy of 0.5 to 1% of flow rate
- Best-in-class 100 Hz data update rate reliably detects even the smallest changes in flow
- WideBeam® transit-time technology allows for measurement of virtually any liquid, even those with high levels of aeration or suspended solids
- Large graphical display with intuitive navigation, multiple setup wizards and patented pipe configuration menu
- SensorFlash® microSD card stores all operational data for easy device transfer and servicing
- Certified for use in FM, ATEX and IECEx Zone 2 areas
- Application examples include raw and potable water, effluent, district heating and cooling, hydroelectricity and nuclear feed water

SITRANS FS220

- Cost-efficient system offering the most commonly required measurement functions
- Consistently high accuracy of 1% of flow rate and 0.25% repeatability according to ISO 11631
- Enhanced zero stability results in minimal need to set a zero point
- WideBeam® transit-time technology allows for measurement of virtually any liquid, even those with high levels of aeration or suspended solids
- Large graphical display with intuitive navigation, multiple setup wizards and patented pipe configuration menu
- SensorFlash® microSD card stores all operational data for easy device transfer and servicing
- Suitable for multiple sectors requiring budget-conscious liquid flow instrumentation, including water and wastewater, power, HVAC and chemical industries
SITRANS F X vortex flowmeters

Vortex flowmeters provide accurate volumetric and mass flow measurement of steam, gases, and both conductive and non-conductive liquids. The vortex flowmeter functions as an “all-in-one” solution with integrated temperature and pressure compensation together with an optional energy calculation. It is specially designed for applications that require reliable flow measuring independent of pressure, temperature, viscosity and density. This makes it well suited for such industries as chemical, HVAC & power, food & beverage, oil & gas, and pharmaceutical. SITRANS F X vortex flowmeters are available as flanged or sandwich versions in the following configurations:

**SITRANS FX300**
- Volumetric flowmeter. Measurement of steam, gases, and both conductive and non-conductive liquids. Temperature compensation for saturated steam included in basic version as standard.
- Mass flowmeter. With pressure and temperature compensation for mass and standard volume flow measurement of gases or superheated steam. Integrated temperature and pressure sensors.
- Option with pressure sensor and isolation valve allows the pressure sensor to be shut off for the purpose of pressure or leak testing of the pipeline or for being exchanged without interrupting the process.

**SITRANS FX330**
- Integrated pressure and temperature compensation for lower installation costs and increased accuracy.
- Integrated reduction of nominal diameter results in a large turndown ratio, reducing installation costs and potential for leakage.
- Provides redundant storage of all calibration and configuration data within the display memory and the electronics module.
- Designed from the ground up to be fully compliant with the IEC 61508 SIL 2 safety standard.
- Cost-efficient energy calculation including net heat measurement.

**SITRANS FX300 dual transmitter**
- Dual measurement for twofold reliability.
- Redundant system with two independent sensors and two converters.
SITRANS F O – differential pressure flowmeters

- Universal flow measurement for liquids, gases and vapors
- Always provide accurate results even with large bores, high temperature and extreme pressure
Always on the level

Indispensable in numerous applications in the process industries: Whether point level detection or continuous level measurement, our comprehensive offering has the right solution for your application.

SITRANS LR560 – The robust level transmitter for continuous monitoring of solids and liquids
- 2-wire, 78 GHz FMCW for ranges up to 100 m (328 ft)
- Very narrow 4-degree beam angle with 3” lens antenna
- Aiming flanges with purge, easy to install
- Process Intelligence integrated and plug and play performance
Continuous level measurement

Continuous level measurement constantly monitors dynamic processes. The measurements are transmitted as an analog signal or digital value. We offer a wide range of transmitters based on a variety of technologies, including ultrasonic, radar, guided wave radar, capacitance, gravimetric, and hydrostatic processes.

Sonic Intelligence and Process Intelligence

The signal processing technologies differentiate between the true echo from the material and false echoes from obstructions or electrical noise. The sophisticated software is supported by field data gained from more than a million applications. This in-depth knowledge and experience is built into the software’s advanced algorithms to provide intelligent processing of echo profiles. The result is a repeatable, fast, and reliable measurement.

Radar level measurement with intelligent signal processing

- Non-contacting and low-maintenance
- Microwaves require no carrier medium, for precise measurements even under harsh process conditions
- High performance and easy implementation using just a few parameter entries on the infrared handheld interface or via configuration tools such as SIMATIC PDM, SITRANS DTM/PACTware, or AMS

SITRANS LR460

- 4-wire, 24 GHz FMCW radar level transmitter to a range of 100 m
- For bulk solids in vessels and ideal for applications with extreme dust and high temperatures to 200 °C and with media with a low bulk density/low dielectric properties

SITRANS LR250

- 2-wire, 25 GHz pulse radar level transmitter to a range of 20 m
- For liquids and slurries in storage and process vessels with high temperatures and pressures
- Also for corrosive or aggressive materials and hygienic or sanitary requirements thanks to the new flanged and hygienic encapsulated antennas

SITRANS LR260

- 2-wire, 25 GHz pulse radar level transmitter to a range of 30 m with quick update time
- For solids and liquids in storage vessels with extreme levels of dust and in gas hazardous areas

SITRANS LR200

- 2-wire, 6 GHz pulse radar level transmitter for liquids
- Ideal for process vessels with turbulence, heavy deposit, as well as with high temperatures and pressures to a range of 20 m

SITRANS Probe LR

- 2-wire, 6 GHz pulse radar level transmitter to a range of 20 m
- For the simple monitoring of liquids and slurries in storage vessels with nominal pressure and temperature
Guided wave radar

This technology uses time domain reflectometry (TDR) to measure levels by guiding an electromagnetic pulse down a probe (solid rod, cable or coaxial probe) toward the material. When the pulse reaches the material surface, the change in dielectric value between the air and the material causes a portion of the pulse to reflect back toward the transmitter. Guided wave radar is unaffected by vapor, density, foam, dielectric fluctuations, temperature or pressure changes, and works well for short- and medium-range measurements of materials with low dielectric constants such as liquefied gases. The interface between two liquids (e.g. oil/water) can also be measured with both level and interface reported via various communication protocols.

SITRANS LG series:

SITRANS LG240
• For use in hygienic and corrosive applications

SITRANS LG250
• Highly flexible solution for liquid level and interface applications. Extremely versatile for many applications

SITRANS LG260
• Ideal for measuring the level in medium-range solids applications, including grains, plastics, and cement

SITRANS LG270
• Offers configuration options for extreme conditions, including high temperature and high pressure applications

All versions include:
• Automatic buildup adjustment
• Remote display and electronics options
• 2 mm accuracy
• Backlight with full graphic display, top or side mountable
• SIL 2/3 approved
• Field replaceable probes
• Quick setup wizards
• USB service port option

Ultrasonic level measurement

Whether short or long range – our market-leading ultrasonic level measurement is an extremely cost-effective solution. It’s also suitable for harsh environmental conditions such as vibrations or dust. The non-contacting technology is used in numerous industries to monitor liquids, bulk solids, and slurries.

SITRANS LUT400
• Compact, single-point, ultrasonic controllers for continuous level or volume measurement of liquids, slurries, and bulk solids, and high accuracy monitoring of open channel flow
• Industry-leading 1 mm accuracy, setup time of less than a minute
• Intuitive navigation via the local user interface
• Compatible with the entire line of Siemens Echomax ultrasonic sensors with a 0.3 to 60 m range
HydroRanger 200
• Level controller for up to six pumps, including pump control, differential control, and open-channel flow monitoring

SITRANS Probe LU
• 2-wire, loop-powered ultrasonic transmitter for level/volume/flow monitoring of liquids in storage vessels, simple process vessels, and open channels up to 12 meters (39.4 ft) tall

SITRANS LU150 / SITRANS LU180
• Suitable for general applications with liquids, slurries, and bulk solids in open or closed vessels up to 5 m (16.4 ft) tall
• Compact, short-range ultrasonic level transmitter
• General purpose or intrinsically safe, two-wire, 4 to 20 mA loop-powered
Point level detection
We offer you a comprehensive portfolio for extremely reliable and precise point level detection. Our wide selection includes ultrasonic, rotating, and vibrating level switches as well as RF capacitance switches with inverse frequency shift technology that are cost-effective and suitable for virtually all applications, from bulk solids to liquids.

Vibrating, rotary paddle
- Especially suitable for low bulk density applications
- Ideal for use in harsh and abrasive environments, thanks to their rugged design
- For detecting high, low, and demand levels in solids, liquids, and slurry applications
- A wide variety of configuration options makes them suitable for any environment
- Simple to use with no complicated setup or configuration
- Stainless, aluminum and plastic enclosure options and high-grade steel process connections provide exceptional resistance to mechanical forces, a long service life, and low cost of ownership
- Options for SIL 2

SITRANS LPS200
- Rotary paddle switch that detects solids with densities as low as 15 g/l
- Motor protection
- SIL 2 certification for best-in-class reliability and performance
- Options for fail-safe rotation monitoring and alarming

SITRANS LVS100 and LVS200
- Vibrating level switches that detect solids with densities as low as 5 g/l
- Best-in-class sensitivity detection
- Options for buildup monitoring

Pointek ULS200 Ultrasonic
- Non-contacting ultrasonic level switch with two switch points
- Ideal for sticky materials and an effective solution for bulk solids, liquids and slurries

SITRANS LVL100 and LVL200
- Vibrating level switches for liquid and slurry applications, including high, low, and demand level alarms and pump protection
- Wide application range including high temperatures and pressures, hygienic versions, large variety of enclosure materials, SIL 2 options and remote testing
RF Capacitance
Pointek RF capacitance point level switches measure interfaces, solids, liquids, slurries and foam. The inverse frequency shift technology provides accurate and reliable measurement results even in dusty, turbulent and vaporous environments or in applications with product buildup. Small changes in level create large changes in frequency. Consequently, Pointek devices have greater sensitivity and consistently outperform conventional devices. With their rugged aluminum or chemically resistive plastic enclosures and wide variety of process connections, Siemens Pointek switches are compatible with most applications.

Pointek CLS100
• Suitable for level detection in constricted spaces
• Sensguard protection of probe for harsh and abrasive environments and chemically resistive probe types available
• Compact 2-wire or 4-wire switch

Pointek CLS200 and CLS300
• Suitable for level detection in demanding conditions with high pressures and temperatures
• Suitable for aggressive applications including very high temperatures and pressures
• SIL 2 options
• Smart PROFIBUS versions with digital display
• Remote operation via PROFIBUS for status and function testing
• Remote detection of buildup and monitoring of other process condition changes
**Continuous capacitance**

Our unique inverse frequency shift approach to capacitance technology ensures accurate, reliable and repeatable measurements, even in dusty, turbulent and vaporous environments or in situations with product buildup. Because even a small level change creates a large change in frequency, our instruments provide better resolution and consistently outperform conventional devices. With special features such as Active-Shield technology, they protect the measurement from the effects of moisture, vapors, foam, temperature and pressure variations, and buildup. Together with the modular probe options available on various models, they offer practical solutions to a wide variety of continuous level and interface applications.

**SITRANS LC300**
- Ideal for standard and industrial applications in the chemical, hydrocarbon processing, food and beverage, mining, aggregate and cement industries

**Hydrostatic**

Low-cost level measurement for direct mounting or mounting with remote seals on tanks and vessels

**SITRANS LH100 and SITRANS P DS III**
- Suitable for a wide range of applications in the chemical and petrochemical industries
- Highly resistant to extreme chemical and mechanical loads as well as electromagnetic interference
Gravimetric
Gravimetric level measurement with SIWAREX weighing technology offers highly precise measurement without material contact independent of medium temperature, tank shape, built-in parts, or material characteristics.

SIWAREX WP321
• Technology module for the SIMATIC ET 200SP distributed I/O system
• For level measurements in silos and bunkers; convenient and seamless integration of platform scales directly into the automation environment
The diagnosis: first class

They ensure safe and trouble-free procedures in a wide variety of process industries around the world: positioners precisely control the entire range of valves and master even special tasks with absolute reliability. At the same time, we have continued to expand our proven range of products throughout the years – always based on your needs.
SIPART PS2

- Most widely used positioner for linear and part-turn actuators
- Generates diagnostic data for itself, its environment as well as valve and actuator
- Easy installation and fast commissioning
- Reduced maintenance required in the plant
- Safe process control
- Versions with external non-contacting travel sensors
- High flexibility in the range of stroke from 3 up to 200 mm
- Communication via PROFIBUS PA, FOUNDATION Fieldbus or HART®
- Ex d explosion-proof version
- Makrolon, aluminum or stainless steel enclosure

- Fail-in-place function: Prevent valves from closing during a power failure. Alternatively, the fail-safe function makes sure that the valve moves to the safety position
- Integrated booster option for quick control of large drives
- Extended diagnostic options such as Valve Performance Tests (VPT) detect the maintenance requirements of the valve during scheduled plant standstills
- Low operating costs thanks to minimal air consumption

- High functional safety in emergency situations. The following valve and actuator failures can be detected: Sluggish valve movement, pneumatic leakage (e.g. tear in membrane), pipe blockage or valve plug tear with continuous processes (C processes), valve seat or valve plug wear, deposits or caking at the valve seat or valve plug, stuffing box stiction, "Partial Stroke Test" (PST) for open/closed valves (e.g. safety valves) and for servo solenoid valves
- 316L stainless steel enclosure for nearshore, offshore as well as oil and gas applications in hazardous areas
Early detection protects your process

Process protection devices can be used as early warning systems to avoid costly interruptions and breakdowns of equipment. They detect flow problems, blockages, screen faults, machinery slowdowns, or burst filter bags. Their rugged construction makes them impervious to dust, dirt, buildup, and moisture. Installed in a million control applications in industrial processes and in mechanical and systems engineering and other areas, the SIPART DR series is your solution for process control. The compact controllers with continuous output signal or step contact output have been specially designed for space-saving panel mounting.

SITRANS AS100 – Acoustic sensor used for solids flow detection, featuring a compact, stainless steel construction for harsh environments and non-invasive mounting

- Detection of high-frequency acoustic emissions from friction or the impact of dust, powders, granules, and other solids
- Signaling of flow/no flow or high/low flow
- Compatible with SITRANS CU02, which processes signals from the sensor
- Provision of relay and analog outputs for connection into a process, or direct connection to a PLC analog output
Acoustic sensors
Non-invasive acoustic sensors detect inaudible, high-frequency acoustic emissions generated by friction and impact, caused by materials in motion.

SITRANS DA400
- Acoustic analyzer for the condition monitoring of oscillating displacement pumps
- Simultaneous and continuous monitoring of up to four independent delivery valves
- Easy system operation and configuration either locally by LCD and keyboard or via PROFIBUS DP/PA

Motion sensors
Non-contacting motion sensors detect changes in motion and speed of conveying, reciprocating, and rotating machinery.

Milltronics MFA 4p
- Plant protection through the detection of absence of motion, as well as underspeed or overspeed conditions
- Probes usable in hazardous, high-temperature, and harsh conditions, thanks to its superior design
- With MSP or XPP probes

SITRANS WM100
- For detecting the absence or presence of motion of rotating, reciprocating, and conveying equipment
- Heavy-duty alarm switch

Process controllers
SIPART DR controllers are outstanding thanks to their extreme reliability and ease of use. Various software packages are available to make their handling easy and intuitive and to extend their scope of application. The standard version already offers comprehensive controller hardware that can be upgraded quickly and easily for specific applications by means of a large number of optional input and output modules. Plug-in modules for communications over RS 232/RS 485 or PROFIBUS DP are also available.

Process recorders
SIREC D200, 300, 400 display recorders are used for continuous monitoring of process quantities, plant maintenance, process optimization, or troubleshooting. With these, we offer you a full line of state-of-the-art solutions for the most demanding requirements.
Expand as you go

Integrated communication down to the field level is becoming an increasingly important factor for the success of our customers. Availability of the instruments in automation solutions at all times is necessary to gather information about the state of the plant from the existing data, and to derive the correct maintenance measures with regard to time and scope. This is not a problem with our modern solutions. Even proven plants that have been running for many years can be expanded with a small investment in such a way that the most important data is available – not only locally, but with secure worldwide access if required.

SIMATIC 3010C/RTU3030C – The compact remote terminal units monitor remote measuring points, even in locations where no power supply exists.

- Easy configuration using a web browser instead of programming
- Flexible power supply from batteries, solar energy or 24 V DC
- Energy-optimized operation and integrated energy management for connected analog and digital sensors
- Secure communication (TeleControl Basic protocol, SINAUT ST7, DNP3 and IEC 60870-5-104) via the integrated UMTS modem (RTU3030C) or via LAN port (RTU3010C) in addition to a SCALANCE S or SCALANCE M.
- Extended temperature range from –40 to +70 °C as well as optional additional enclosure in IP68
Remote digital display
The universal remote digital displays allow remote display of and access to measurement data.

SITRANS RD100 and RD200
• Suitable for level, flow, pressure, temperature and weighing applications
• Can be used in a large variety of environments (low/high temperatures, hazardous areas)
• Simple programming and installation

SITRANS RD300
• Ideal for flow rate, total and control applications as well as for use with most field devices
• Data logged and displayed on the PC with the free RD software

Remote data manager
Remote data managers facilitate remote monitoring through data logging, web access and alarm event processing of the integrated devices.

SITRANS RD500
• Remote monitoring of inventory levels as well as process and environmental applications
• Collection and saving of measured values for flow, level, pressure, temperature and weighing
• Integrated web server for easy configuration without programming
• E-mail and text message notifications for alarm messages
• Flexible data transmission worldwide

SITRANS AW200
• Connection option of up to four HART® devices in multi-drop mode
• Support of 4–20 mA devices without HART®
• Power supply of the connected field device via an integrated battery

WirelessHART® components
WirelessHART® enables the integration of measuring points that could not be implemented before due to the operating environment or for economic reasons. In addition to the SITRANS TF280 transmitters for temperature measurement and SITRANS P280 for pressure measurement, the SITRANS AW210 and SITRANS AW200 WirelessHART® adapters integrate instruments with HART® capability as well as analog devices that do not support HART® communication. Access to diagnostic data can be implemented with these adapters at low costs in most cases, especially when the control system does not support integrated HART® communication.

SITRANS AW210
• Access to all online values (process values/diagnostic information) and parameters of the connected devices
• Supply via 4–20 mA loop when used in a maintenance environment
• Use in hazardous areas even with Ex d
• Possible to connect up to eight HART® devices in multi-drop mode
• Support of 4–20 mA devices without HART®

IE/PB Link PN IO
• Can constitute the gateway between PROFINET and PROFIBUS
• From the IO-controller viewpoint, all DP slaves are treated like IO devices with a PROFINET interface
• Use as a data records router for the parameter assignment of field devices via SIMATIC PDM (Process Device Manager) in all plants with PROFIBUS DP
How to meet all your weighing and dosing requirements

Weighing and dosing processes are of great significance in many areas of industrial production. Whether for filling food and beverages containers or preparing recipes for chemicals and pharmaceutical products: With our solutions you can count on absolute reliability and highest precision.
Available for all requirements

The flexible design of our products makes it possible to implement weighing solutions from simple platform scales and gravimetric level measurement up to highly complex automatic scales with minimal conversion costs. Using SIWAREX load cells and electronic modules for weighing systems together with Siemens Milltronics belt scales and SITRANS weigh feeders and solids flowmeters, you can design an optimal system for practically every task.
End-to-end automation
Whether central or distributed: our electronic weighing systems set standards. We offer integrated solutions for seamless integration into the SIMATIC automation system under the name SIWAREX. The weighing system can be easily adapted to meet your individual requirements with the SIMATIC standard components. Moreover, standardized interfaces, integrated functions and uniform tools allow for cost-effective configuration. Whatever your choice, you can count on a high degree of precision with SIWAREX and benefit from certifications according to OIML as well as a finely graded range of functions.

SIWAREX WP231
- Weighing module for level monitoring of silos and bunkers, use in platform scales as well as for weighing in hazardous areas
- Can be fully integrated into SIMATIC S7-1200 and therefore also programmed in the TIA Portal
- Can be operated without SIMATIC CPU
- Certified according to OIML R-76
- Legal for trade, NAWI

SIWAREX WP241
- Electronic weighing system especially designed for belt scale applications
- Simulation mode allows for a full function test even without a connected belt scale
- Full integration into SIMATIC S7-1200 and TIA Portal, stand-alone operation without SIMATIC CPU is possible
- Factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces

SIWAREX WP251
- Electronic weighing system for completely independent control of dosing and filling tasks
- Trace function: All saved process values and corresponding states can be displayed, analyzed and, if required, edited in spreadsheet programs with SIWATOOL V7
- Full integration into SIMATIC S7-1200 and TIA Portal, stand-alone operation without SIMATIC CPU is possible
- Factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces
- Certified according to OIML R-76, R-61 and R-51
- Legal for trade, NAWI, AWI, CWI

SIWAREX WP321
- For level measurements in silos and bunkers; convenient and seamless integration of platform scales directly into the automation environment
- Technology module for the SIMATIC ET 200SP distributed I/O system
- Easy commissioning by HMI or by SIWATOOL (no prior knowledge of SIMATIC required)
- The “ready to use” example application enables a fast development and implementation of customer- and industry-specific solutions
- Seamless integration into PCS 7 via dedicated add-on package
- Up to 600 Hz sample time
Load cells
The SIWAREX load cells are continuous measuring instruments designed for use in many areas. They meet the requirements of heavy and basic industries, and have proven themselves in food, chemical and petrochemical applications.

SIWAREX load cells
- Suitable for operation in hazardous areas
- Large measuring range from 0.3 kg to 500 t
- Hermetically sealed for maximum service life
- Options with redundant design and for high temperature ranges are available
- Smart-design fastening parts for simple and safe installation
- High degrees of protection (IP)

Weighing terminals

SIWAREX WT231
- Combination of powerful SIWAREX WP231 weighing electronics and Touch Panel with application-specific user interface in one product
- Stand-alone solution independent of automation solution and therefore ready to use
- All settings and parameters for applications in the areas of level measurement and platform weighing machines can be made via the Touch Panel
- Comprehensive diagnostics options, such as checking the weight course and monitoring and reporting limits
- Diverse factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces

SIWAREX WT241
- Combination of flexible, high-resolution belt scale weighing module and Touch Panel with application-specific user interface
- Stand-alone solution independent of automation system and therefore ready to use
- Simulation mode allows for complete application test – even without a connected belt scale or speed sensor
- Flexible parameterization of digital inputs and outputs for a wide range of functions
- Diverse factory-provided interfaces such as Modbus TCP/IP and Modbus RTU as well as digital and analog interfaces
Integrators for dynamic weighing systems

Milltronics BW500, SF500, SIWAREX FTC and WP241 electronic transmitters process the sensor signals into operating data for continuous in-line weighing and material flow measurements.

- BW500/L offers economical and basic operation with belt scales
- Milltronics BW500 and SF500 can take over control functions that are traditionally handled by higher-level controllers, such as PID or batch controllers
- The Milltronics transmitters offer direct display of flow rate and total material flow for solid flowmeters, and show the flow rate, total flow and speed for belt scales and weigh feeders

Belt scales

Milltronics MSI is an extremely robust, single-idler precision belt scale that provides continuous weighing of a variety of products in both the primary and secondary industries.

- Milltronics belt scales weigh raw materials, check inventories and monitor production processes
- Market-leading performance under harsh conditions
- Easy installation and low maintenance overhead (no moving parts)
- Repeatable accuracy in productive operation, as well as minimal hysteresis and maximum linearity independent of horizontal forces thanks to unique parallelogram design of the load cells
- Overload protection for the load cells
- More approvals than any other belt scale in the world

SITRANS weigh feeders

- Highest weighing accuracy ensures optimization of mixing, process sequences and balance calculations
- Reliable and continuous performance
- Virtually maintenance-free
- From light to heavy industrial-grade applications, engineered to customer requirements

Solid flowmeters

- For continuous measurement of the throughput of dry bulk materials, free-flowing powders or granulates
- Also for critical functions such as batch loading processes and mixing processes
For efficient gas composition analysis

Innovative analysis technology. Customized system design. Sound knowledge of customer applications. As a leading supplier of process analyzers and process analysis systems, we offer our global customers our analytical experience for front end engineering to design the optimum solutions for their gas analysis. We also offer our comprehensive after sales technical support to maximize life cycle benefits.
Processes under control

From flue gas monitoring in incinerators and power plants up to gas analysis in the chemical industry, the emission monitoring of combustion engines or the monitoring of rotary kilns in cement works – our high-precision, reliable analyzers get the job done even for corrosive gas streams.

Our comprehensive range of process analytic products meets all your requirements for complete measuring instrument solutions. Device operation is menu-driven and designed in accordance with NAMUR guidelines.

The Series 6 is the standard for flexibility in gas analytics. Depending on the measuring task, the Series 6 can be individually adapted to the respective requirements.

- Proven reliability of analytical technology for clean or corrosive gas streams
- Reliable measurement, optimized for numerous applications with internal correction of cross-interference
- An analyzer consisting of a basic device and one or two analyzer modules
- Available either as a 19” rack version or with wall mounting housing
- The communication interfaces can be adapted to the respective process environment or process control system
The Series 6 for continuous gas analysis let you accommodate up to two modules in a single wall mount and one module in a 19" rack-mounted enclosure.

Overview of wall- and rack-mounted enclosure options:

- The wall and rack enclosure with IP65 degree of protection has FM, CSA and ATEX approval
- With its Ex p degree of protection, the pressurized wall unit can be operated in combination with an approved purging unit in Div. I and Zone I, with combustible or non-combustible sample gases
- The gas-tight unit can be operated in a Div. 2 or Zone 2 with measurement gases whose concentration is below the lower explosive limit (LEL)
- The 19" rack housing can be operated with a suitable outer housing in a Div. 2 or Zone 2 with combustible or non-combustible gases

ULTRAMAT 6

- For boiler combustion control, vent gas or process gas measurement for bio gas and in steel and chemical plants.
- High measurement accuracy with complex gas mixtures according to dual-beam NDIR method
- Sample is not coming in contact with measuring sensor
- Integrated option to compensate for interfering gas correction

OXYMAT 6

- For measurement of oxygen concentrations
- From smallest measuring range of 0-0.5% up to 0-100%
- Extremely high measuring accuracy with paramagnetic alternating pressure principle
- Sample is not coming in contact with measuring sensor
- For ambient temperatures up to 50 °C

CALOMAT 6

- Thermal conductivity detector for quantitative determination of H₂ and He in binary or quasi-binary gas mixtures
- Wide range of applications with up to three applications per module
- Measuring range 0–0.5% up to 0–100%

OXAMAT 6

- Measures total hydrocarbon concentration in the air or in gas mixtures even with high boiling points
- Ideal solution for almost all measurement needs – from emission monitoring to measurement of hydrocarbon traces in pure gas analyses up to measurement of high hydrocarbon concentrations even in the presence of corrosive gases
Specific analyzer configurations are available to provide more economical or fewer number of analyzers for specific measurements that are utilized more often.

**ULTRAMAT 23**
- For a variety of standard applications, such as emission monitoring, combustion optimization or ambient air monitoring
- Innovative multi-component gas analyzer
- For measuring up to three infrared-sensitive gases by means of the NDIR principle, as well as oxygen through the use of electrochemical or paramagnetic oxygen measuring cells
- Calibration using ambient air eliminates the need for expensive calibration gases
- Also available with installed H₂S

**CALOMAT 62**
- For measuring the concentration of gas components such as H₂, Cl₂, HCl or NH₃ in binary or quasi-binary mixtures
- Uses the principle of thermal conductivity (TCD) and is especially designed for measurements in corrosive gases, such as chlorine

**OXYMAT 61**
- Oxygen analyzer for standard applications
- Economical
- Can be operated with ambient air as the reference gas that is passed to the analyzer unit by the built-in pump

**OXYMAT 64**
- Gas analyzer for measurement of very low oxygen concentrations
- In non flammable or hydrocarbon gases
- For air separation systems or technical gas production

**OXYMAT 61**

**ULTRAMAT/OXYMAT 6**
- Combines the features of the ULTRAMAT 6 and OXYMAT 6 in a 19" analyzer
- Extremely space-saving and compact design
Process gas analysis – Extractive
With extractive measuring procedures, the sample to be analyzed is extracted from the process line and supplied preconditioned to the analyzer via a sample line and a sample preparation system for a wide variety of measurements sensor for biogas applications

ULTRAMAT 6
• Can be used from emissions monitoring to process control, even with highly corrosive gases
• Analyzer in 19” rack design or field housing
• Measurement of up to four infrared-sensitive components in a single unit

Ex versions
• Possible with an additional monitoring unit for CALOMAT, OXYMAT and ULTRAMAT gas analyzers in field housings
• Measurement of non-flammable and flammable gases

SIPROCESS UV600
• UV gas analyzer
• Particularly suitable for measurement of very low concentrations of NO, NO₂, SO₂ or H₂S
• Measurement of up to three components in one analyzer
• Simultaneous measurement of NO and NO₂ allows determination of the NOₓ total concentration

NOXMat 600
• Chemiluminescence gas analyzer
• Utilized for emission monitoring
• Measurement of NO and NOₓ at sub ppm concentrations
• Auto Ranging and Auto Calibration
Process gas analysis – In-situ or Extractive with Tunable Diode Laser (TDLS)

The laser can perform in-situ physical measurements even in the process gas line. In contrast to extractive gas analysis, a sample is not extracted. If that is not possible, the measurement is performed extractive in a process slip stream. Process data can be generated without coming in to contact with the sample and in real time.

**SITRANS SL**
- Reliable measurement of gas concentrations even with values close to zero range through patented technology
- Often utilized for measurement of O$_2$
- Diode laser gas analyzer for measurement of flue and process gas concentrations in the chemical industry, including in hazardous areas
- User interface directly at sensor with built-in local user interface
- Integrated reference cells facilitate “laser locking” completely independent of the process gas concentration, resulting in extremely stable operation, negligible drift and long maintenance intervals
- Ideal for single measurements in harsh environments
Analytical measurement is achieved by in-situ or extractive. In-situ measurement of the process gas is directly across the actual process pipe, duct, tank or fire box. Consequently gases can be measured under extreme conditions. Extractive measurement is achieved by diverting the gas to be measured to a spool piece. Gas measurements with diode lasers are characterized by exceptional selectivity and flexibility. Neither high process temperatures nor high and varying concentrations of particles in the gas influence the quality of the results.

LDS 6
- Combines the compact, maintenance-friendly design, simple operation and network capability of the 6 series analyzers with the proven, exceptional performance of in-situ or extractive gas analysis using tunable diode laser spectrometers (TDLS) and fiber optics communication
- Precise, reliable measurement of gases even under extreme conditions, e.g. up to 1200 °C or with very high dust concentrations
- Measurement of O₂, NH₃, HCl, HF, H₂O, CO or CO₂ in flue gas, e.g. before and after gas purification
- Applications in the chemical and petrochemical industries, in steel and metal production, and in cement and paper plants
Innovative and powerful
gas chromatographs

The application of Siemens’ MAXUM gas chromatographs provides the user with a number of benefits resulting from our innovative technologies combined with years of experience in the field of process gas chromatography. The flexibility of our products enables us to custom engineer the perfect solution for any application. The powerful and efficient chromatographs, integrated turnkey solutions and with technical support throughout the life cycle, solve a wide variety of measuring tasks in a number of sectors such as the chemical, petrochemical, oil and gas, and energy industries.

MAXUM edition II is the result of decades of experience and technological developments. It sets the standard in the industry when it comes to flexibility, versatility and reliability.

- Simplicity and maintainability through modularity
- Communication versatility, even redundant
- Exceeds expectations for reliable on-line measurement in harsh process environments.
MAXUM edition II

- Areas of application: gas processing, refinery, petro chemical and chemical industry, energy and automotive industries as well as environmental emission such as flare, cooling tower emission and ambient air monitoring
- Rugged with specially designed hardware and software, simultaneous applications
- The modular analyzer design permits continuous innovation and providing the latest features and benefits
- Large airbath, independent dual airless oven as well as dual airless modular oven
- Parallel chromatography simplifies complex analytical systems and significantly reduces analysis times
- High sensitive thermal conductivity detector reduces needs for flame ionization and flame photometric detectors
- MAXUM with modular analytical design provides unsurpassed analytical maintainability
- The modular design enables fast maintenance and higher analyzer availability during measurement and process optimization
- Up to 4 modular column trains with high sensitive thermal conductivity detector
- Exchangeable with identical module for quick return to on-line measurement with high probability of successful repair
- Open network with TCP/IP and Ethernet for communication with PC workstations, other chromatographs or a process control system
- Economical measurement solution with minimum installation requirements
Analytical application sets trend toward standardization

The same application is required time and again in different branches of industry. To minimize effort, we have developed standardized system solutions for industry-specific applications. These complement the range of individual system solutions. Ready-to-use systems also help minimize the technical risk for customers.
CEMS
- Efficient emission measuring system for continuous measurement of CO, NO, NO₂, N₂O, SO₂, CO₂, and O₂
- The proven ULTRAMAT analyzers are at the core of the system
- High degree of flexibility through modular design

Standardized System Solutions
- Pre engineered and standardized solutions
- Sample systems for single or dual streams
- Cabinets for continuous gas analyzers or process gas chromatographs
- General purpose or electrical hazardous area
- Defined with bill of material
- Economical and fast turn around time

Set GGA
- The GGA Set is a complete solution for monitoring hydrogen-cooled turbo generators
- Easy handling based on two redundant analyzers
- Cost-efficient solution that is safe to operate and has low initial investment costs
- High-precision and reliable purity monitoring of hydrogen with the CALOMAT 6 analyzer
- Measurement of CO₂ and argon as an inert gas is possible

Set BGA
- The BGA solution is based on the four-component ULTRAMAT 23 gas analyzer
- Safe monitoring and measurement of the biogas from landfills, digesters or fermenters
- Major components CH₄ and CO₂ and critical associated components O₂ and H₂S
- Economical and flexible analyzer for interfacing of multiple measuring points can be configured
- Very rugged and durable industrial design
How key industries benefit from single-source analyzers

Siemens offers to provide not just measuring solutions, but to also assist you in engineering, designing, supplying, installing and commissioning measurement solutions for complete industrial plants, and commissioning measurement solutions for complete industrial plants. Our “one-stop shop” concept supports selection of all process products all the way up to integration with your process control system. Additional industrial components and systems are easily incorporated into the overall plant and ensure smooth process flows. In addition, user-friendly documentation of the plant ensures seamless after-sales service.
Overview of our services portfolio:

- Customized services and solutions from front-end engineering and design (FEE) determining jointly the best life cycle measurement solutions
- Plant engineering and scheduling by an experienced project management team
- Experts assist you in the selection and utilization of the field instruments
- Support during the approval phase
- Preliminary and detailed planning with state-of-the-art tools and complete documentation
- System assembly and testing in own system houses in the United States, Germany and Singapore
- Experience with all relevant national and international standards
- Commissioning in the field and start-up by specialists all around the world
- Remote maintenance, on-site service, and spare parts supplies

Enabling your Success

Lifecycle Support around the clock

- Proper maintenance and system availability go hand-in-hand. Siemens has strong commitment to quality maintenance support throughout the measurement system life time. Whatever your specific maintenance philosophy, availability requirements and in-house maintenance resources, there is a Siemens service product and solution designed to meet your needs.
- 24/365 technical phone support
- On-demand, scheduled and embedded site support by dedicated analyzer technician
- Field installation, start-up and commissioning
- Reapplication and optimization of measurement systems
- Spare parts
- Factory repair of analyzers and parts
- Continuous training classes from Basic to Expert level
Keeping a clear overview with the Analyzer System Manager

Operators of industrial plants often wonder whether unusual measured values are the result of a plant problem or whether they have been generated by an analyzer not performing well. The Analyzer System Manager offers comprehensive data collection and validation functions that provide definite pointers to help with this situation.

Historical, current and statistical data indicate the maintenance required for the analyzers and the trustworthiness of the measurement at any time.
Operator control and monitoring system for optimizing the analyzer landscape in new and existing plants. PC-based system for monitoring, testing and management of gas chromatographs, gas analyzers and status signals in subsystems or complete plants.

Software
Analyzer System Manager

Collection and aggregation of important analyzer key performance indicators over a variety of traditional communication interfaces and storage in a central database

- Access to measured value trends, device status data and statistical evaluations, etc. as well as test routines to validate results
- Views of sample preparation systems and analysis shelters with status information/measured values of installed sensors
- Comprehensive reporting module for evaluation documentation
- State-of-the-art network solutions in a client-server architecture support even complex plant structures with distributed workstations
- Aggregated data and statistical values visually presented provide a helpful tool to confirm proper analyzer and measurement system performance, permits to detect upcoming performance issues and maintenance tasks to confirm correct control and quality data.
How to implement multiple standards with just one solution

Depending on industry and region, multiple communication protocols are often used – even in the most modern automation solutions. The largest variety can be found when connecting the field level to the control level. It is imperative to connect these different protocols seamlessly with one another and ensure transparent transitions for users. We provide a large variety of hardware and software components to ensure you always find the optimum solution.
Device integration from the field to the world

Our process instruments support all major industry standards for modern fieldbus communication, such as HART®, PROFIBUS, FOUNDATION Fieldbus and Modbus, and are therefore suitable for use in all automation solutions. Additional benefits are provided by our SIMATIC PCS 7 process control system and the SITRANS Library, including increased transparency and integration of specific functions for our devices from the SITRANS and SIPART product families that already exist in your plant. These days, it is an absolute must that each device is accessible at all times. Whether the device is local, the centerpiece of a plant or on the other side of the globe – flexibility, security and control at all times are no longer just optional extras. We can provide you with the components you need to accomplish this goal.
SITRANS Library

- Easy use of device-specific functions and data from devices of the SITRANS and SIPART product families, such as dosing or totalizers in solutions with SIMATIC PCS 7
- Library with device-specific function blocks, block symbols and faceplates
- Fully compatible with SIMATIC PCS 7 Standard Advanced Process Library (APL) throughout the entire life cycle, from engineering to running of the plant

Central maintenance even for third-party systems

SIMATIC PDM (Process Device Manager)

SIMATIC PDM, with its more than 4,000 integrated field devices, also comes into its own as a central maintenance station in control solutions from other manufacturers.

- Connection to existing PROFIBUS segments over IE/PB Link PN IO
- Direct connection to HART® devices with a HART® modem, HART® multiplexer or WirelessHART® SITRANS AW210 adapter
- Supports all important industry standards for modern fieldbus communication, such as HART®, PROFIBUS, FOUNDATION Fieldbus and Modbus
- Client-server architecture enables flexible use with consistent data management that is always up-to-date. On the client only an Internet browser is required
- PDM V9.1 supports FDI packages

Secure worldwide accessibility of devices and systems

Global communication requires a high level of security. Key aspects of transmitted data are confidentiality, authenticity, sender verification and availability. Virtual Private Networks (VPN) with the highest level of encryption are often used. With SINEMA RC it is easy to set up such a global infrastructure due to the availability of all necessary components for wireless and wired-based communication. This means you can access your units and plants installed around the world in no time.

SINEMA RC (Remote Connect)

- Management platform for remote networks enables easy remote access for teleservice or remote maintenance
- Establishment of encrypted connections with OpenVPN with just one mouse click
- Protocol-independent, IP-based communication
- Virtual Network Computing (VNC) enables customer service control and problem analysis on site
Fieldbuses

Introduction to the digital world

Distributed automation solutions based on open fieldbuses are standard today in many sectors of the production and process industries. Only in conjunction with fieldbuses can the advantages of digital communication be fully realized, including better transmission of measured values while maintaining the original accuracy, diagnostic options and remote parameterization. Field devices are optimally integrated into the entire plant thanks to modern fieldbus communication such as HART®, PROFIBUS and FOUNDATION Fieldbus as well as Modbus TCP and RTU. Since the devices are integrated into SIMATIC PCS 7 Asset Management, users have access to diagnostic information from the field devices at all times, enabling them to optimize maintenance and unplanned service of their plants and prevent downtime.

PROFIBUS
- Industry standard IEC 61158 for numerous applications in the production and process industries
- PROFIBUS DP as fast system bus for connection of remote I/O stations, such as ET 200
- PROFIBUS PA for use in hazardous area with simultaneous supply of the devices
- PROFIsafe for secure communication (safety levels up to SIL 2) parallel to standard communication on one cable

PROFINET
- PROFIBUS International open Industrial Ethernet standard for automation
- Enables synchronization, real-time and deterministic communication of the fastest processes
- Allows for seamless integration of other fieldbus systems like PROFIBUS DP

FOUNDATION Fieldbus
- Open standard of the FieldComm Group (FCG)
- In addition to actuators, field devices for measurement of pressure, temperature, flow and level are available for the intrinsically safe FF bus

HART® – Field communication protocol
- Industry standard IEC 61158 with more than 30 million installed devices
- Expands the analog 4–20 mA current loop with industry-standard digital communication
- Combination of proven analog transmission of measured values and simultaneous digital communication with bidirectional, acyclic transmission
- Transmission of diagnostics, maintenance and process information from field devices to host systems

WirelessHART®
- Wireless standard based on the HART® protocol since HART® V7.0
- Transmission of up to eight process values without loss in accuracy
- Complete wireless access to diagnostic and maintenance information as well as parameters over the wireless network
- The latest security technologies for protection of network and data
- Ideal for measurements of moving, rotating or hard-to-reach equipment such as tanks and silos or for temporary measurement applications

Modbus RTU
- Industry standard IEC 61158
- For widely distributed serial industrial communication
- Supported by SIMATIC PDM
- Data are transmitted cyclically between the Modbus master and one or more Modbus slaves

Modbus TCP
- Industry standard IEC 61158
- Multi-master system
- Homogenous transition from Modbus TCP to lower-level Modbus RTU networks possible (Modbus RTU device address must always be specified in addition to the IP address)
- Modbus RTU devices are usually integrated into the SIMATIC PCS 7 via Modbus TCP and a type CM101 converter
- Central accessibility of all Modbus RTU devices downstream from a CM101 using SIMATIC PDM and SIMATIC PCS 7 controllers simultaneously
SITRANS DTM

Two technologies are available today for the description and integration of field devices and other automation components: the Electronic Device Description Language (EDDL) and the so-called Field Device Tool (FDT). A device described with EDDL is represented as EDD; a software component developed with FDT is represented as a Device Type Manager (DTM). A DTM can represent one or more devices. Parameterization of the Field Device Tool/Device Type Manager (FDT/DTM) technology for Siemens devices observing international standards.

- SITRANS DTM is a certified DTM
- Supports many devices from the SITRANS product family
- Uses EDDs for the devices and provides all required aspects of the device integration via the FDT interface
- Can be used in so-called FDT Frame applications such as FieldCare or PACTware

Totally Integrated Automation – TIA

In light of the growing complexity of machines and plants along with rising engineering costs, efficient engineering is a key factor for success in the manufacturing industry. Totally Integrated Automation, industrial automation from Siemens, makes engineering efficient. The open system architecture covers the entire production process and ensures the efficient interaction of all automation components. This is achieved with consistent data management, global standards, and uniform hardware and software interfaces. These common features minimize the engineering overhead, thus reducing costs, shortening the time-to-market and increasing flexibility.