SIEMENS

Process Instrumentation

Every drop of water and every unit of energy counts

Environmental: Water and District Energy

Answers for industry.

Instrumentation that puts you in control

Water and energy are at the heart of life and economic activity. Measurement of critical process parameters is key for

process management and sustainability throughout all phases of the plant life cycle.

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

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

A complete portfolio
We offer a complete portfolio of field instruments for flow, level, pressure and temperature measurement. Our strategic partner Hach Lange completes the portfolio with process liquid analytics like pH, conductivity, dissolved oxygen or turbidity sensors. Our technology is designed to fit your individual needs. We feel responsible for sustainable resource management and for efficient use of energy.

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

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

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

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.siemens.com/piaportal. 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 config-uration 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.siemens.com/pia-portal

Scan to explore the PIA Life Cycle Portal

Product range

Radar

	SITRANS Probe LR	SITRANS LR250	SITRANS LR560	SITRANS LG
Brief description	Compact 2-wire loop-powered, 6 GHz pulse radar transmitter with polypropylene rod antenna for level measurement up to a range of 20 m (65 ft).	2-wire loop-powered, 25 GHz pulse radar level transmitter with a full range of antennas: horn-/PVDF-/fully encapsulated flanged antenna up to 20 m (66 ft).	2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids in silos up to a range of 100 m (328 ft).	Guided wave radar series for liquids, solids, slurries, inventory, process control, aggressive materials and more.
Features and benefits	• Uni-Construction polypropylene rod antenna standard • Easy installation and simple start-up • Patented Sonic Intelligence® signal processing • Extremely high signal-to-noise ratio • Auto False-Echo Suppression of false echoes • Measuring frequency: 5.8 GHz (6.3 GHz for North America) • Programming using infrared Intrinsically Safe hand-held programmer, SIMATIC PDM or HART® handheld communicator • Communication: HART® • Approvals: CSA, FM, C-Tick, ATEX	• Smaller process connections and narrow beam allows installation anywhere on a vessel • Short blanking distance • Process Intelligence® for advanced echo processing • Reliable and accurate for extremely high signal and low noise yields • Full vessel capacity for high accuracy of low and high levels • Quick Start Wizard for easy configuration and operation in a few minutes • Infrared handheld programming or over a network using SIMATIC PDM via HART® or PROFIBUS PA • Graphical local user interface displays, echo profiles and diagnostic information • Communication: HART®, PROFIBUS PA, FOUNDATION Fieldbus • Approvals: ATEX, FM, CSA, C-Tick, INMETRO, IECEX, NEPSI	• High-frequency technology ensures reliable operation in dusty and vaporous environments • Lens antenna, eliminating large parabolic or horn antennas, providing a narrow 4° beam angle. Highly resistant to product buildup • Integrated air purge connection as standard for particularly difficult installations • Communication: HART®, PROFIBUS PA, FOUNDATION Fieldbus • Approvals: CSA, FM, FFC, C-Tick, IECEX, ATEX, INMETRO, NEPSI	• Versatile and reliable level measurement even with aggressive vapors, high temperatures and pressure, dust, steam, or material buildup • No setup required due to preconfigured sensor delivery • Measures level, level interface and volume in a wide range of applications from material storage to bypass pipes • Rod and cable lengths can be easily adjusted to fit your application
Typical applications	Level and volume measurement of aggressive liquids such as acids, lime and other slurries, alum, polymers, sodium hypochlorite <20 % etc. in chemical storage tanks in water and wastewater treatment plants.	Continuous level and volume monitoring of aggressive liquids and slurries in chemical storage and process vessels, e.g. acids / alkalis, polymers, sodium hypochlorite >20 %, chlorinates, buffer and mixing tanks in water and wastewater treatment plants.	Continuous level monitoring of bulk solids and powders such as lime and activated carbon in water and wastewater treatment plants for both batch and continuous operation.	Continuous level and volume monitoring of liquids and solids. Measurement in storage and process vessels in water and wastewater treatment plants.
	❯ More information: www.siemens.com/probelr	❯ More information: www.siemens.com/sitranslr250	❯ More information: www.siemens.com/sitranslr560	❯ More information: www.siemens.com/sitranslg

Ultrasonic			
SITRANS LR200	**SITRANS LUT400**	**SITRANS Probe LU**	**HydroRanger 200**

Brief description	2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries up to a range of 20 m (66 ft).	Compact, single-point, long-range ultrasonic controllers for continuous level, or volume measurement of liquids, slurries, and solids, and high-accuracy monitoring of open channel flow. ±1 mm high accuracy in standard operation. Measuring range up to 60 m.	2-wire loop-powered ultrasonic transmitter for level, volume and flow monitoring of liquids. Continuous level measurement up to 12 m (40 ft) range.	Versatile short to medium range up to 15 m (50 ft) ultrasonic single- and multi-vessel controller for use in a wide range of environmental industries.
Features and benefits	• Graphical local user interface (LUI) makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard • LUI displays echo profiles for diagnostic support • Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions • Programming using infrared Intrinsically Safe handheld programmer or over a network using SIMATIC PDM, Emerson AMS, or Field Device Tools, such as PACTware or Fieldcare via SITRANS DTM • Communication: HART®, PROFIBUS PA • Approvals: ATEX, CSA/FM, NEPSI, C-TICK, INMETRO, GOST	• Separated transceiver / transducer (Echomax) protects the electronics from extreme vibration • High-frequency, non-contacting ultrasonic transducer is free of electronic components and fully potted to provide long-term reliability • Energy-saving algorithms for minimizing pump operation during high-cost energy periods • Sonic Intelligence is standard and is proven to provide superior performance in difficult conditions • Communication: HART® • Approvals: MCERTs, CSA, FM, UL, C-Tick	• Integrated temperature compensation • ETFE or PVDF transducers for chemical compatibility • Patented Sonic Intelligence signal processing • Extremely high signal-to-noise ratio • Auto False-Echo Suppression for fixed obstruction avoidance • Level to volume or level to flow conversion • Programming using infrared Intrinsically Safe handheld programmer, SIMATIC PDM or HART® Communicator • Communication: HART®, PROFIBUS PA • Approvals: ATEX, FM, CSA, INMETRO, IECEX, C-Tick	• Single- or dual-point level monitoring • 6 relays standard • Auto False-Echo Suppression for fixed obstruction avoidance • Anti-grease ring / tide mark buildup • Differential amplifier transceiver for common mode noise rejection and improved signal-to-noise ratio • For up to 6 pumps, provides control, differential control and open-channel flow monitoring • Communication: Modbus RTU via RS485, Smart Linx Cards for PROFIBUS DP and SIMATIC PDM • Approvals: FM, CSA, MCERTS
Typical applications	Continuous level and volume monitoring of liquids and slurries in anaerobic digesters, storage and process vessels in water and wastewater treatment plants.	Open-channel flow monitoring in sewers, combined sewer overflow. Wet well level and pump control, storm water tank and level monitoring in holding tanks / vessels in water and wastewater treatment plants.	Level, volume and flow monitoring in open channels, non-foaming chemical storage vessels, simple process vessels, filter beds, chlorine contact chambers, clarifiers, sumps, etc. in water and wastewater treatment plants.	Level monitoring and control of wet wells, open-channel flow monitoring of flumes / weirs. Bar screen control, level monitoring and control of screenings / sludge storage hoppers, non-aggressive chemical storage, liquid storage, and dry solids storage tanks in water and wastewater treatment plants.
	❯ **More information:** www.siemens.com/sitranslr200	❯ **More information:** www.siemens.com/sitranslut400	❯ **More information:** www.siemens.com/probelu	❯ **More information:** www.siemens.com/hydroranger
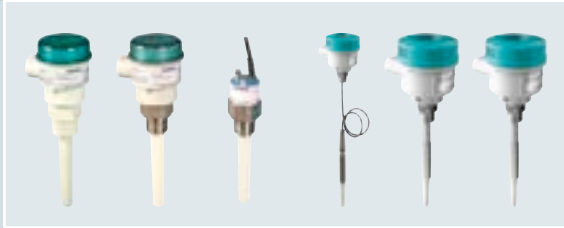
Ultrasonic	Hydrostatic Pressure		Point Level	
Echomax Transducers	**SITRANS P MPS**	**SITRANS LH100**	**SITRANS LVL100 / 200**	**SITRANS LVS100 / 200**

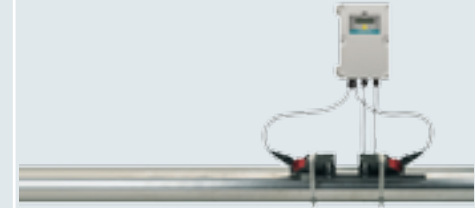|	Echomax Transducers	SITRANS P MPS	SITRANS LH100	SITRANS LVL100 / 200	SITRANS LVS100 / 200
Brief description	Range of ultrasonic transducers provides reliable continuous level measurement. Various models for a wide range of applications.	2-wire submersible pressure transmitter to measure hydrostatic pressure.	2-wire submersible pressure transmitter to measure hydrostatic pressure, compact version.	Compact vibrating fork for liquid slurry point level detection. Contactless electronic switch is especially suited for use in hazardous locations.	Vibrating fork for dry bulk solids point level detection up to 20 m (65 ft).
Features and benefits	• Narrow beam angle from 6 to 10° • Chemically resistant PVDF copolymer enclosure and CMS rubber face • Fully submersible • Integral temperature compensation • Max. cable length of 365 m • Choice of mounting brackets available for ease of installation • Approvals: ATEX, FM, CSA	• IP68 stainless steel housing (27 mm diameter) with a piezoresistive sensor and stainless steel diaphragm • Converts the level-proportional hydrostatic pressure into a standardized signal 4–20 mA • Accuracy ≦ 0.3 % • 2-wire compact design • Measuring range: Standard 2, 4, 5, 6, 10 and 20 m (60 ft H2O), on request from 1 to 200 m (600 ft H2O) • Communication: 4 – 20 mA • Approvals: ATEX, WRAS, ACS, GOST, DNV, BV, GL	• IP68 stainless steel housing (23,4 mm diameter) with a piezoresistive sensor and ceramic diaphragm • Converts the level-proportional hydro-static pressure into a standardized signal 4 – 20 mA • Accuracy ≦ 0.3 % • Measuring range: Standard 4, 5, 6, 10 and 20 m (60 ft H_2O), on request from 4 to 30 m (98 ft H_2O) • Communication: 4 – 20 mA • Approvals: ATEX, ICEEx	• Compact insertion length of 40 mm for tight spaces • Test function standard to confirm correct operation • Fault monitoring for corrosion, loss of vibration, or line break to the piezo drive • Independent of dielectric and other material conditions such as vapors, gases, bubbles, foam • Robust design with threaded piezo drive system to prevent failure in aggressive applications • Approvals: EHEDG, 3 A, FDA, WHG, ATEX, FM, CSA, SIL2, IECEx	• High or low level alarm • Compact design • Top, side, angle mount • Rotatable enclosure • Replaceable electronics • Interface model with detection of solids in liquids • Best-in-industry lowest density measurement below 5 g/l • Independent of dielectric and other material conditions such as vapors • Unaffected by external vibrations • Replaceable electronics • Short fork option for short insertion lengths • Remote electronics option • Communication: 4 – 20 mA • Approvals: FM, CSA, ATEX, C-Tick
Typical applications	Installation in tanks, vessels, hoppers, open space like in dam or in open channel along with ultrasonics controllers like SITRANS LUT, HydroRanger 200 to form complete ultrasonics level or flow measurement system.	Level monitoring in deep wells, very foamy sumps & wet wells, grease traps, irrigation canals, dams and reservoirs in water and wastewater treatment processes.	Level monitoring under harsh environmental conditions and for installation in tight spaces, e.g. in deep narrow wells, very foamy sumps & wet wells, grease traps, irrigation canals, dams and reservoirs in water and wastewater treatment processes.	High and low point level detection for liquid or slurries in various chemical and process water storage tanks and sumps in water and wastewater treatment plants.	High and low point level detection for bulk solids storage tanks such as lime, activated carbon, dry chlorine powder, etc. in water and wastewater treatment plants.
	❭ **More information:** www.siemens.com/echomax	❭ **More information:** www.siemens.com/sitranspmps	❭ **More information:** www.siemens.com/sitranslh100	❭ **More information:** www.siemens.com/pointlevel	❭ **More information:** www.siemens.com/pointlevel

Electromagnetic

Pointek CLS100 / 200	Pointek ULS200	SITRANS F M MAG 1100	SITRANS F M MAG 3100
Brief description Compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces for interfaces, solids, liquids, slurries and foam.	Ultrasonic non-contacting switch with two detection points.	Electromagnetic flow sensor with stainless steel housing for chemical dosing.	Electromagnetic flow sensor in a rugged, fully-welded design, can be upgraded to IP68 on site to be buried.
Features and benefits • Tip-sensitive switch, unaffected by conductive or non-conductive buildup • Potted construction protects signal circuit from shock, vibration, humidity and / or condensation • High chemical resistance • Level detection independent of tank or pipe grounding • Insensitive to product buildup due to high-frequency oscillation • High sensitivity allows installation in a wide range of liquids, solids, slurries or interface applications • Integral LCD display allows for easy setup to configure detection threshold, even under the most demanding process conditions • Extended rod, cable and sanitary versions available • Standard version: 3 LED indicators for adjustment control, output status and power • Digital version: integral LCD display • Communication: PROFIBUS PA • Approvals: CSA, FM, ATEX, C-Tick, WHG, Pattern approval china	• Beam angle: 12° • 3-digit display • Programming using 2-push buttons • Approvals: ATEX, FM, CSA, C-Tick, INMETRO	• Compact wafer design meets EN 1092, DIN and ANSI flange standards • Corrosion-resistant AISI 316 L stainless steel sensor housing • Highly resistant liner and electrodes for aggressive media • Medium temperature rating up to + 200 °C (+ 390 °F) • IP67 / NEMA 4X / 6 enclosure rating • Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint • Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings • Approvals: ATEX-2GD Zone I, FM CL1 Div. 2	• Wide pressure range flanges: PN 6 to PN 100, ANSI Class 150 / 300, AS 2129 / AS 4087, AWWA or JIS • Wide range of electrode and liner materials including EPDM (drinking water approved) • Fully-welded construction that suits the toughest applications and environments • Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint • Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings • Approvals: Drinking water approvals and certificates according to national and international standards ATEX, FM, CSA
Typical applications High and low point level detection for clean & contaminated liquids and slurries holding tanks and sumps in water and wastewater treatment plants. Overspill and pump protection in wet wells.	Non-contact level detection of bulk solids, liquids and slurries stored in storage tanks and in sumps of water and wastewater treatment plants. Simple pump control applications.	Volume flow measurement for chemical dosing in water treatment processes, with a minimum electrical conductivity of 5 µS / cm.	Volume flow measurement for water, salt water and all liquids and chemicals with a minimum electrical conductivity of 5 µS / cm.
❯ **More information:** www.siemens.com/pointek	❯ **More information:** www.siemens.com/pointek	❯ **More information:** www.siemens.com/mag1100	❯ **More information:** www.siemens.com/mag3100

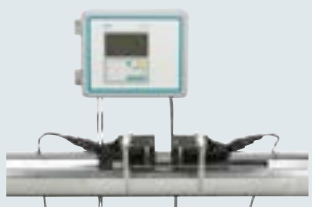| Electromagnetics			Ultrasonic
SITRANS F M MAG 5100 W	**SITRANS F M MAG 5000 / 6000 / 6000 I**	**SITRANS F M MAG 8000 / CT / Irrigation**	**SITRANS F US SONOKIT**
Brief description			
Electromagnetic flow sensor in a rugged, fully-welded design, can be upgraded to IP68 on site to be buried and flooded. Designed for the water and wastewater industry.	Electromagnetic flow transmitter for flow and volume measurement in combination with any electromagnetic flow sensor.	Battery-operated electromagnetic water meter for stand-alone water applications, optional built-in wireless communication module. Can be upgraded to IP68 on site to be buried and flooded.	Simple and accurate alternative to traditional flowmeters because it can be retrofitted onto existing pipelines. IP68 version for burial and flooding applications. It includes the FUS060 or FUS080 transmitter.
Features and benefits			
• Hard lining guarantees consistent accuracy throughout the entire pressure and temperature range • Integrated grounding and measuring electrodes • Increased low flow accuracy for water leak detection • Built-in length according to ISO 13359 • Designed for patented in-situ verification of the whole flowmeter using the SENSORPROM fingerprint • Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings • 0xD of straight pipe required upstream and downstream from the sensor • Approvals: according to regional and national standards, CT, OIML R49, MI 001, PTB K 7.2, BEV OE 12 / C040, MCERTS, WRAS, NSF/ANSI Standard 61, DVGW 270, ACS and BelgAqua	• Superior signal resolution for optimum turndown ratio • Automatic reading of SENSORPROM data for easy commissioning • User-configurable operation menu with password protection • Flow rate in various units • Totalizer for forward, reverse and net flow plus additional information • Multiple functional outputs for process control, minimum configuration with analogue, pulse / frequency and relay output (status, flow direction, limits) • Comprehensive self-diagnostic for error indication and error logging • Compact or remote version • Communication: HART®, Modbus RTU, PROFIBUS PA / DP, DeviceNet, FF	• Compact or remote solution • Flexible power supply – internal or external battery pack or line power supply with battery backup. 6 years battery life in typical revenue applications • Bidirectional measurement • Data logger with up to 26 months of recording and consumption profile • Alarm: Current consumption too high or too low • Advanced statistics and diagnostics • 0xD of straight pipe required upstream and downstream from the sensor • Communication: Wired Modbus, IrDA, Radio GSM / GPRS • Approvals: CT, MI 001 (cold water) OIML R49, MCERTS, WRAS, KTW, DVGW 270, ACS, Belgaqua, NSF/ANSI Standard 61, NMI 10 for SITRANS F M MAG 8000 Irrigation	• Cost-effective solution – contains all necessary components for retrofitting • Easy to install in pipeline sizes DN 100 to DN 4000 (4" to 160") – without process shutdown or flow interruption. • High accuracy – the bigger the pipe, the more accurate the result • Solid construction and no moving parts for a 100 % maintenance and obstruction free flowmetering • Automatic calculation of the calibration factor when pipe geometry data are entered in the transmitter • Battery-powered option with FUS080 • Communication: HART®; PROFIBUS PA, IrDA optical eye via Modbus RTU (FUS080 only) • Approvals: ATEX with FUS060
Typical applications			
For all water applications such as groundwater, drinking water, cooling water, wastewater, sewage and sludge applications. Installation in water networks for leak detection and billing.	Transmitter for all electrically conductive liquids and slurries. The rugged die-cast aluminum housing of the SITRANS F M MAG 6000I provides exceptional protection, even in the most rugged environment.	Water distribution network: Optimize water supply & reduce leakage. Revenue metering: CT approved meter for accurate billing. Irrigation: Long-term performance, maintenance-free fair billing.	Flowmeter for retrofit of all the following applications: Raw water intake for water treatment plants, water distribution systems, irrigation systems, hydro power stations, district heating and cooling plants, cooling systems, sewage treatment plants.
❯ More information: www.siemens.com/mag5100w	❯ More information: www.siemens.com/sitransfm	❯ More information: www.siemens.com/mag8000	❯ More information: www.siemens.com/sonokit
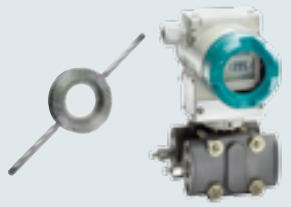
	SITRANS FUS380	SITRANS FUE380	SITRANS FUE950	SITRANS FST020
Brief description	Battery- or mains-powered 2-track flowmeter designed for water utility applications that do not require custody transfer approvals.	The 2-track SITRANS FUE380 is the custody transfer approved version of SITRANS FUS380.	Universal custody transfer approved energy calculator. It is designed for energy metering in hot water, chilled water and cooling / heating applications.	Basic clamp-on ultrasonic flowmeter, performing basic measurement tasks. Non-intrusive metering, easy installation and maintenance.
Features and benefits	• Battery-powered up to 6 years • Mains-powered with battery backup • High measuring frequency up to 15 Hz / 0.5 Hz (mains / battery) • 2-track measuring principle for optimum accuracy • Compact or remote transmitter installation • No pressure drop • Dynamic range Qi:Qs up to 1:400 • Communication: IrDA optical eye via Modbus RTU protocol	• Designed to provide accurate high-resolution energy measurement • Provides uncompromising performance for high-volume, water-based applications • Approved according to the MID directive and approved for custody transfer • Custody transfer sealed to ensure total data security • Approvals: MID MI–004 according EN1434, OIML R 75 class 2 • Communication: IrDA optical eye via Modbus RTU protocol	• To be used in combination with SITRANS FUS380 / FUE380 and alternatively MAG 5000 / 6000 / 8000 or FST020 • SITRANS FUE950 is modular in construction and can by order be fitted with optional modules • Suitable for 2- and 4-wire temperature sensor connection • Delivered with heat-/cooling approved PT500 sensor set (incl. sensor pockets) • Instantaneous values for energy and volume flow • Long battery lifetime (up to 16 years) • Option for 2 current outputs (4 ... 20 mA, passive) • Approvals: MID for CT energy metering (EN1434, heating) and PTB K7.2 (cooling) • Communication: pulse output, pulse input, current output, Optical M-Bus data reading in accordance with EN 1434	• No process shutdown for installation • Minimal maintenance: external sensors do not require periodic cleaning • No moving parts to wear or foul • No pressure drop or energy loss • Compact, integral design reduces installation cost • Wide-Beam technology ensures high performance • Zeromatic Path eliminates zero drift • Bidirectional flow operation • 1 MByte data logger with both site & data logger storage • Approvals: UL, ULc, C-Tick • Communication: BACnet MSTP, Modbus RTU, VT100, RS232
Typical applications	Flowmetering in water flow in district heating plants, chiller plants, boiler stations and local networks.	Flowmeter for custody transfer applications in district heating plants, local networks, boiler stations, substations, chiller plants and general water applications. Combined with the energy calculator FUE950 and a pair of temperature sensors, FUE380 can be used as part of an energy meter system with custody transfer requirements.	The energy calculator is used in combination with a flowmeter in applications like: Heatmetering in power stations, heatsystem substations, district heating networks, cooling as chilled water applications or combined cooling / heating applications.	District cooling applications, water leak detection and water monitoring applications, wastewater influent and effluent, processed sewage and sludge
	❯ **More information:** www.siemens.com/fus380	❯ **More information:** www.siemens.com/fue380	❯ **More information:** www.siemens.com/fue950	❯ **More information:** www.siemens.com/fst020

Flow measurement

Pressure

	Ultrasonic clamp-on		Orifice plates	Vortex	Pressure measurement
	SITRANS FUS1010	SITRANS FUE1010	SITRANS P DS III / FO	SITRANS FX300	SITRANS P 200 / 210 / 220
Brief description	Advanced and highly accurate clamp-on ultrasonic flowmeter allows simultaneous measurement of up to 4 independent pipes and bidirectional flow operation.	Highly accurate ultrasonic clamp-on flowmeter for energy measurement. Wall mount or portable version.	Universal flow measurement for liquids, gases and vapors. Differential pressure with orifices always provide accurate results even with large bores, high temperature and extreme pressure.	Vortex flowmeters provide accurate volumetric and mass flow measurement of steam, gases and liquids, with integrated temperature and pressure compensation.	Compact single-range transmitters for absolute and gauge pressure. Measurement of process pressure, absolute pressure and hydrostatic pressure.
Features and benefits	• Operation in Wide-Beam transit-time or Doppler mode • Easy installation; external sensors, no need to cut pipe or stop flow • No pressure drop or energy loss • Wide turndown ratio • Choice of single channel or dual channel / dual path, with doppler capability. Four channel / four beam optional • Zeromatic Path automatically sets zero without stopping flow and reduces zero drift, even at low flow • 1 MByte data logger with logger storage • Approvals: INMETRO, CSA, FM, ATEX, C-Tick, HART®, BacNET MSTP/BACNet IP, Modbus RTU/TCPIP, Ethernet IP • Communication: RS232	• Measurement at low flow rates and low differential temperature • Various output options including energy rate and total consumption • Single channel or dual channel • Detection of aeration and cavitation • Approvals: FM, CSA, (portable version: UL, ULc) • Communication: RS232, Modbus (wall mount only) • Datalogger integrated	• Very robust and available in a wide range of nominal diameters • Suitable for wide ranges of temperature and pressure • No calibration required as the process is standardized • The electronics required in addition can be used over a long distance from the measuring location	• Compact or remote design (max. 15 m) • Single or dual transmitter version • Flow, pressure and temperature reading at one single point • Accuracy: ± 0.75 % ... 2.5 % (depending on media) • Fully-welded stainless steel construction; high corrosion, pressure and temperature resistance • Isolation valve to protect pressure sensor during pressure / leak testing in the pipe • Communication: HART® • Approvals: FM, ATEX, IEC Ex	• Piezoresistive measuring cell with ceramic diaphragm (P200) or SS diaphragm (P210 / 220) • Fixed-range transmitter • Measuring range starting at 100 mbar up to 600 bar • For aggressive and non-aggressive gases, vapors and liquids • High measuring accuracy < 0.25 % • Rugged stainless steel enclosure • Compact design • EPDM gaskets for drinking water • Ingress protection up to Fully IP67 • Available in explosion-protected design according to ATEX
Typical applications	Revenue grade thermal energy submetering; energy efficiency distribution monitoring, with a real-time coefficient of performance (COP) for HVAC systems. Water leak detection systems.	Perfect match for chiller efficiency analysis, real-time COP for HVAC systems, chilled and hot water submetering, glycol rate control.	Air, compressed air, biogas, steam flow measurement.	Consumption measurement in compressed air systems and other industrial gases or steam installations.	Cost-optimized pressure measurement for compressors, steam lines from boiler, chemical storage tanks, pump suction and discharge pressure in booster pumping stations.
	❯ More information: www.siemens.com/fus1010	❯ More information: www.siemens.com/fue1010	❯ More information: www.siemens.com/sitransfo www.siemens.com/sitranspds3	❯ More information: www.siemens.com/sitransfx300	❯ More information: www.siemens.com/p200

Temperature measurement

	SITRANS P250	SITRANS P300	SITRANS P DS III	SITRANS TS sensors	SITRANS TH, TR, TF transmitters
Brief description	Differential pressure transmitter for liquids and gases.	Digital pressure transmitter for gauge, absolute pressure and level measurement.	Advanced digital pressure transmitter for gauge, absolute and differential pressure, level and flow measurement.	SITRANS TS temperature sensors for a wide range of temperature applications.	Portfolio of temperature transmitters for head, rail or field mounting, for connection to many different thermocouples, resistance thermometers, as well as mV and resistance sensors.
Features and benefits	• Piezoresistive measuring cell with ceramic diaphragm • Measuring range from 0.1 to 25 bar • For aggressive and non-aggressive gases, vapors and liquids • Fixed measuring ranges • Compact design • Accuracy < 1 % • Also with sealing material EPDM	• Piezoresistive measuring cell, oil-filled • Measuring range from 10 mbar to 400 bar • High measuring accuracy up to 0.075 % • Configuration through push buttons and LCD, HART® or PROFIBUS PA • Ingress protection up to IP68 • Front flush mounted membrane and housing made of stainless steel • FDA-compliant filling oils • Excellent surface quality (Ra value ≤ 0.8 µm for process wetted parts) • Communication: 0–20 mA, HART®, PROFIBUS PA or FF • Approvals: EHEDG, 3 A	• Piezoresistive measuring cell, oil-filled • Measuring range from 1 mbar up to 700 bar • Separate replacement of measuring cell and electronics without recalibration • High measuring accuracy up to 0.075 % • High long-term stability up to 0.125 % per 5 years • Configuration through push buttons / LCD • Ingress protection up to IP68 • Extensive diagnostics and simulation functions with PDM • Communication: 0–20 mA, HART®, PROFIBUS PA, PROFIsafe or FF • Approvals: ATEX, FM, CSA, NEPSI, FDA, EHEDG	**SITRANS TS100** • Cable thermometers with different electrical connection options • Ideal for unfavorable space conditions **SITRANS TS200** • Compact thermometer with misc. plugs • Ideal for unfavorable space conditions **SITRANS TS300** • Hygiene-based design for in-pipe or clamp-on measurement **SITRANS TS500** • Modular system of tubular or barstock thermowell, extension, connection head with optional transmitter and display • Available in explosion-protected design according to ATEX and IECEx	**SITRANS TH** • Installation in connection head Form B • Galvanic insulation and fault detection • EMI-resistant transmission of the signal **SITRANS TR/TW** • 2-wire or 4-wire rail-mount **SITRANS TF** • Die-cast aluminum or stainless steel housing • LCD display • Available in explosion-protected design according to ATEX and IECEx • 4–20 mA, HART®, PROFIBUS PA, FOUNDATION Fieldbus, WirelessHART®
Typical applications	Cost-optimized flow measurement, monitoring and differential pressure measurement.	Pressure measurement in raw water intake, sludge line, grit wash water, methane gas, chemical storage, industrial utility applications, desalination and irrigation.	Various pressure, level and flow measurement in water/wastewater plants, chemical storage and other utility installations. Desalination & irrigation installations.	For all temperature applications, e.g. surfaces, bearings, machinery, equipment, in vessels and pipes.	For all temperature applications.
	❯ **More information:** www.siemens.com/sitransp250	❯ **More information:** www.siemens.com/sitransp300	❯ **More information:** www.siemens.com/sitranspds3	❯ **More information:** www.siemens.com/sitransts	❯ **More information:** www.siemens.com/sitranst
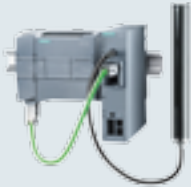
Weighing		Communication and software		
Weighfeeders	**Belt scales**	**Remote displays**		
SITRANS weighfeeders	Milltronics MSI	SITRANS RD100 / 200	SITRANS RD300	SITRANS RD500
Brief description				
SITRANS WW100 and WW200 weighfeeders provide continuous feed rate control of lime for slaking in water purification processes. With dust-tight enclosure options and high temperature belt these proven weighfeeders ensure uninterrupted control for optimum process quality.	The Milltronics MSI belt scale has more approvals than any other belt scale on the market with general, food, hazardous and trade approvals.	SITRANS RD100 is a loop-powered remote display, and RD200 is a universal remote digital display for Probe LU, Probe LR, SITRANS P MPS to install at areas with easier access.	Dual-line, panel mount, remote digital display for process instrumentation for Probe LU, Probe LR, SITRANS P MPS to install at areas with easier access.	Remote data manager providing remote monitoring through data logging, web access and alarming for instrumentation.
Features and benefits				
• ±0.25 – 0.5 % accuracy over a 10 – 100 % capacity rate range • Compact design for easy retrofit or new installations • Painted mild steel, or stainless steel options • Dust-tight easy-open enclosure options • Self-cleaning belt support pans or bars • Up to 100 tph flow rate capacity • Complete process control with Milltronics BW500 integrator • Communication (BW500): 4 – 20 mA, Modbus ASCII, Modbus RTU, Modbus TCP / IP, Ethernet / IP, PROFINET, PROFIBUS DP, DeviceNet • Approvals: Hazardous rated component options available	• ±0.5 % accuracy over a 20 – 100 % capacity rate range • Single idler compact design for easy retrofit or new installations • Painted mild steel, galvanized or stainless steel options • Proven triple-beam parallelogram stainless steel load cells • Up to 12,000 tph flow rate capacity • Complete process control with Milltronics BW500 integrator • Communication (BW500): 4 – 20 mA, Modbus ASCII, Modbus RTU, Modbus TCP / IP, Ethernet / IP, PROFINET, PROFIBUS DP, DeviceNet • Approvals: CSA, FM, Atex, IEC Ex, GOST-R Ex	• Make measurement data visible and accessible from a remote location. • Compatible with all types of field instruments in varying process conditions • Easy to set up and program • SITRANS RD200 includes freely available logging and monitoring software, allowing multiple displays to be monitored from one PC • SITRANS RD200 has optional large display with 35 mm (1.2") high LED	• Easy-to-read, dual-line display with eight brightness levels • Flexible outputs with up to eight relays and eight digital I / O for process control alarming	• Integrated web and ftp server, email and sms for alarming, and up to 2 GB for data logging of instrumentation • Simple access to data remotely installed instrumentation • Collects and sends sensor data to logistics systems providing up-to-date, timely, and accurate information. Ethernet or Modem (PSTN / GSM / GPRS) carries data to your desktop without the need of additional software.
Typical applications				
Lime slaking.	Solids sludge transport on conveyors.	Remote process monitoring.	Remote process monitoring.	Remote monitoring of inventory levels, process and environmental applications, provides web access to most types of field instrumentation, including flow, level, pressure, temperature measurement and weighing.
❭ **More information:** **www.siemens.com/weighing**	❭ **More information:** **www.siemens.com/weighing**	❭ **More information:** **www.siemens.com/sitransrd**	❭ **More information:** **www.siemens.com/sitransrd**	❭ **More information:** **www.siemens.com/sitransrd500**

Telecontrol	Software	
Industrial Remote Communication / Telecontrol	**SIMATIC PDM**	**SITRANS Library**

	Telecontrol	Software	
Brief description	With its Telecontrol and Teleservice solutions, Industrial Remote Communication provides reliable and efficient remote access to machines, plants and mobile applications.	Universal, non-proprietary tool for the configuration, parameterization, commissioning, diagnostics and maintenance of intelligent field devices (sensors and actuators) and field components (remote I / Os, multiplexers, control room devices, compact controllers).	The SITRANS Library consists of function blocks, block icons and faceplates for a growing number of field instruments out of the families SITRANS and SIPART. Target systems are SIMATIC PCS 7 and SIMATIC PLCs in parallel with SIMATIC WinCC and panels. Automation solutions can be implemented just by using already existing features and diagnostics information available in the instruments.
Features and benefits	Solutions for small systems with minimal functional scope (TeleControl Basic) as well as for extensive process plants (TeleControl Professional). Can be implemented independently and also combined. TeleControl Basic: • Simple monitoring and control tasks, transmission of process data, remote diagnosis and maintenance via GPRS and DSL. Well suited to both small applications and large-scale projects. TeleControl Professional: • Enhanced SCADA solution for extensive applications. For complex telecontrol tasks in distributed processes with high demands on availability, redundancy and data security.	• Available as point-to-point or as an integrated part of SIMATIC S7 / PCS 7 • Allows the user to access any instrument or field device • Permits the plant to back up parameters as well as access programming information or diagnose potential problems from a handheld, a field PC or a workstation connected to the central control system	Devices supported: • SITRANS F M MAG 6000 • SITRANS LUT400 • SIPART PS2 with PROFIBUS PA and 4–20 mA / HART® interface Customer advantages are: • Same look and feel like standards in SIMATIC PCS 7 • No additional training for operators • Usage of features in field devices without additional cost: customers use what they already have paid for
Typical applications	TeleControl Basic: Remote control of distributed processes in the water supply, water treatment, irrigation or flood protection. TeleControl Professional: Ideal for demanding process control in the water supply and wastewater treatment where outstations (RTUs) are connected over long distances.	Configuration, parameterization, commissioning, diagnostics and maintenance of intelligent field devices and field components.	• Innovative dosing using the dosing feature of SITRANS F M MAG 6000 at lower cost • Fast and flexible operation of valves with SIPART PS2 with a much higher degree of transparency

❯ **More information:**
www.siemens.com/industrial-remote-communication

❯ **More information:**
www.siemens.com/process-instrumentation

❯ **More information:**
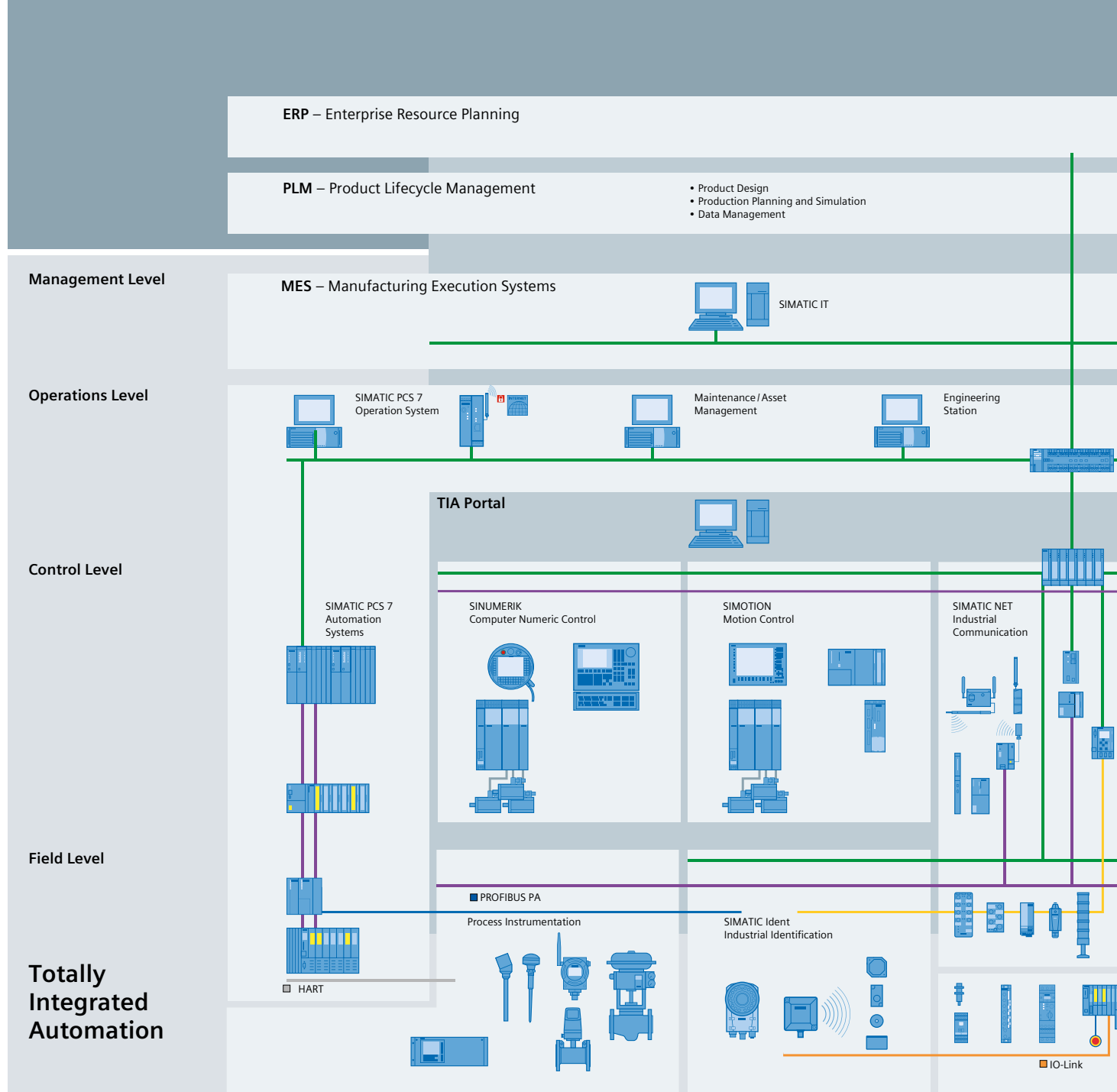**www.siemens.com/sitranslibrary**

Totally Integrated Automation

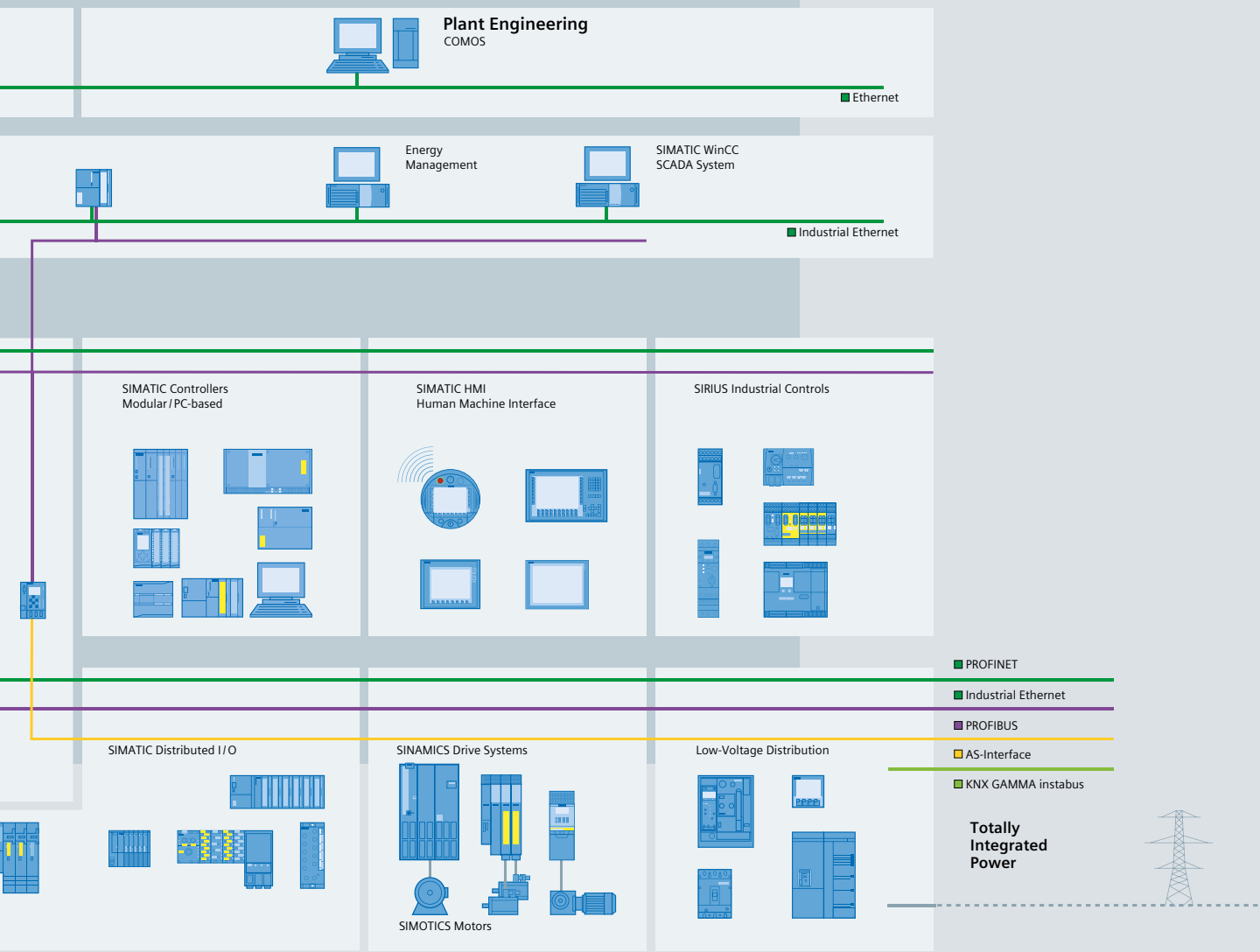## Products from the controller level to the field level

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

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

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

ERP – Enterprise Resource Planning

PLM – Product Lifecycle Management
- Product Design
- Production Planning and Simulation
- Data Management

Management Level

MES – Manufacturing Execution Systems

SIMATIC IT

Operations Level

SIMATIC PCS 7 Operation System

Maintenance / Asset Management

Engineering Station

TIA Portal

Control Level

SIMATIC PCS 7 Automation Systems

SINUMERIK Computer Numeric Control

SIMOTION Motion Control

SIMATIC NET Industrial Communication

Field Level

PROFIBUS PA

Process Instrumentation

SIMATIC Ident Industrial Identification

HART

IO-Link

Totally Integrated Automation

Plant Engineering
COMOS

■ Ethernet

Energy
Management

SIMATIC WinCC
SCADA System

■ Industrial Ethernet

SIMATIC Controllers
Modular / PC-based

SIMATIC HMI
Human Machine Interface

SIRIUS Industrial Controls

■ PROFINET

■ Industrial Ethernet

■ PROFIBUS

SIMATIC Distributed I / O

SINAMICS Drive Systems

Low-Voltage Distribution

■ AS-Interface

■ KNX GAMMA instabus

**Totally
Integrated
Power**

SIMOTICS Motors

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

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More information:
www.siemens.com/sensors/industries