

SIEMENS



Process Instrumentation and Analytics

Best-in-class products for precise process control in tough environments

Mining, Aggregates, Cement



Answers for industry.



At the heart of your efficiency and much, much more

Energy costs, skills shortages, environmental impact and, moreover, safety are big issues for cement, mining and aggregates companies.

Partnering with Siemens gives the precision, integration and reliability in process control and analytics to help address these issues.

Our process instrumentation and analytics devices are critical to your production cost, quality and safety. They put accuracy and reliability at the heart of your operations. And you have the reassurance of seamless integration with your management control and other systems. But they also give you much, much more.

In an era of increasing environmental regulation and rising energy costs, our process instrumentation delivers accurate monitoring of water consumption, advanced pump control, minimized air consumption and continuous emission monitoring (CEMs). The result is cost savings but also the fulfilment of compliance obligations.

Cost savings come through in many other ways too. Accurate control and measurement prevent failures and spillages, thus avoiding costly downtime or waste. At a time when skills shortages are a challenge for many companies, scarce engineering and other talent is not wasted in downtime or remedial work.

We also help you make the most of your human resources through easy installation and commissioning. Quick start wizards, devices that have easy-to-understand diagnostics and seamless integration with the distributed control system (DCS) all mean that you can focus your talent on your productivity. Start-up and commissioning is faster, maintenance is minimal, and day-to-day operation is smoother.

Our technology is designed to fit with the tough and often extreme conditions encountered in the mining, aggregates and cement industries. Solutions such as remote-mounted transmitters, heavy-duty dust-tight enclosures and non-contacting sensors all mean that you can avoid accidents and hazardous situations.

With Siemens you have the reassurance of best-in-class products and a partner who understands your industry.

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 configuration if you know the product you are seeking.
- “Guided selection” lets you to select the appropriate application, technology or industry and specify the measurement task based on the various relevant parameters for your particular application.

Advantages at a glance:

- Convenient product selection support with answers to typical questions
- A variety of selection possibilities: see the mining, aggregate or cement process 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/piaportal





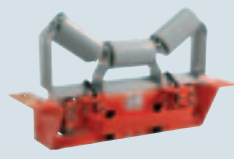

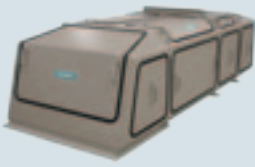
Scan to
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PIA Life
Cycle Portal



Product range





 Level measurement				
Radar				
				
	SITRANS LR560	SITRANS LR460	SITRANS LR250	SITRANS LR200
Brief description	2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids in silos to a range of 100 m (328 ft).	4-wire, 24 GHz FMCW radar level transmitter with extremely high signal-to-noise ratio and advanced signal processing for continuous monitoring of solids up to 100 m (328 ft).	2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft).	2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft).
Features and benefits	<ul style="list-style-type: none"> Unaffected by extreme dust, ambient noise, or high temperatures High-frequency 78 GHz FMCW technology allows for a compact design and narrow 4° beam angle for easy installation and setup Small diameter lens antenna is durable, maintenance-free, and eliminates large parabolic or horn antennas. It can be mounted on a tall standpipe away from extreme temperatures Integrated purge connection is standard for particularly sticky materials or air cooling HART, PROFIBUS PA, or FOUNDATION Fieldbus 	<ul style="list-style-type: none"> Unaffected by extreme dust, ambient noise, or high temperatures Extremely high signal-to-noise ratio for very difficult applications or extremely long ranges >50 m Programmable built-in relay is an additional high-level alarm for ultimate backup security Predictive maintenance functions ensure that maintenance demands are kept to a minimum Process Intelligence for reliable level measurement on every solids application in the cement industry Designed to work on low-dk products and materials with low bulk density 	<ul style="list-style-type: none"> Unaffected by extreme temperatures, vapor, or pressure Built-in Process Intelligence with quick-start wizard for easy setup and dynamic management of signals in the application, preventing interference from the agitators and vessel obstructions commonly found in waste fuel tanks PVDF antenna version for a broad range of chemical applications and standardization throughout the plant HART, PROFIBUS PA or FOUNDATION Fieldbus options available 	<ul style="list-style-type: none"> Unaffected by extreme temperatures, vapor, or pressure Cost-effective solution using either a horn antenna for large openings or a PTFE rod antenna for openings as small as 50 mm (2") Low-frequency microwave transmitter offering high immunity to buildup, extreme condensation, or extreme turbulence HART and PROFIBUS PA option for bus-enabled sites
Typical applications	<ul style="list-style-type: none"> All-round level measurement for dusty solids applications Cement, fly ash, raw materials, filler, gypsum silos Clinker cooler bed depth measurement Level in ore bunkers and lime additive silos 	<ul style="list-style-type: none"> Level measurement of the most challenging applications with long ranges and high dust concentrations Alumina powder Silos >50 m range 	<ul style="list-style-type: none"> Waste fuel logistics (i. e. solvents, used oils or combustible liquids) Level monitoring of chemicals used in mining processes 	<ul style="list-style-type: none"> Bitumen level monitoring Agitated process vessels in mining and aluminum facilities
	> More information: www.siemens.com/sitranslr560	> More information: www.siemens.com/sitranslr460	> More information: www.siemens.com/sitranslr250	> More information: www.siemens.com/sitranslr200




	Ultrasonic		Point level	
				
	SITRANS Probe LU	SITRANS LUT400 and Echomax transducers	Pointek CLS200/300	SITRANS LVS200
Brief description	2-wire loop-powered ultrasonic transmitter for level, volume and flow monitoring of liquids in open channels, storage vessels and simple process vessels.	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.	Inverse frequency shift capacitance level switches with optional rod / cable choices and configurable output. They are ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present.	Vibrating fork level switch. Detects high, low or demand levels of dry bulk solids in bins, silos or hoppers. The liquid / solid interface version can also detect settled solids within liquids or solids within confined spaces such as feed pipes.
Features and benefits	<ul style="list-style-type: none"> • Cost-effective 2-wire loop-powered ultrasonic level device • Auto False-Echo Suppression for fixed obstruction avoidance • High signal-to-noise ratio provides accurate and reliable level measurement • Available with ETFE or PVDF to suit chemical conditions of the application • Field-proven Sonic Intelligence echo processing 	<ul style="list-style-type: none"> • A reliable continuous level device using proven ultrasonic technology • 3 relays for pump and process control • A separated transceiver / transducer protects the electronics from extreme vibration • The non-contacting ultrasonic transducer is rugged and fully potted to provide long-term reliability in a harsh environment • Sonic Intelligence is standard and is proven to provide superior performance in difficult conditions 	<ul style="list-style-type: none"> • Provides accurate and repeatable measurement, even in dusty, turbulent, and vapor-filled environments or situations with product buildup • Self-check and diagnostic alarms available allow better maintenance schedules and improve asset management • PROFIBUS PA communication • Requires little or no maintenance, despite the extreme process conditions 	<ul style="list-style-type: none"> • High resistance to mechanical forces • Strong vibration resistance to high bulk material loads • Rotatable enclosure • Suitable for low-density material: standard version, 20 g / l (1.3 lb / ft³); liquid / solid interface version, 50 g / l (3 lb / ft³), and low-density option min. 5 g / l (0.3 lb / ft³) • The unit is only tip-sensitive, meaning that it will remain reliable even when there is product buildup on the upper part of the sensor • Customer-specific lengths up to 20,000 mm (787") • Durable short fork option with 165 mm (6.5 ") insertion length
Typical applications	<ul style="list-style-type: none"> • Flotation cell control • Water level monitoring • Fuel level monitoring • Simple chemical tank level 	<ul style="list-style-type: none"> • Level control of material in the crusher or below the crusher • Open channel flow monitoring of discharge • Open bin or stock pile measurement 	<ul style="list-style-type: none"> • High-level detection in product bins • Suitable for liquids and solids 	<ul style="list-style-type: none"> • High-level detection in product bins • High-level detection on light, dusty solids
	› More information: www.siemens.com/probelu	› More information: www.siemens.com/sitranslut400	› More information: www.siemens.com/pointlevel	› More information: www.siemens.com/pointlevel

	 Level measurement		 Weighing and solids flow		
	Point level		Belt scales		Weighfeeders
					
	SITRANS LVL200	SITRANS LPS200	Milltronics MSI/MMI	Milltronics MCS	SITRANS WW300
Brief description	Vibrating level switch for use in all liquid and slurry applications such as overflow protection, high- or low-level detection and pump protection. For use in SIL-2 applications.	Rotating paddle switch technology for bulk solids. It has a rugged design for use in harsh conditions in the solids industry. It comes in a variety of configurations including compact, extended and cable extension.	Heavy-duty, high-accuracy single and multiple idler belt scale used for critical process and load-out control.	Modular designed, medium- to heavy-duty belt scale for process indication.	Medium- to high-capacity weighfeeder used for macro ingredient additives.
Features and benefits	<ul style="list-style-type: none"> Designed for industrial use in all areas of process technology for liquids and slurries Compact tuning fork insertion length of 40 mm (1.57") for confined space applications Can be used in difficult conditions including turbulence, air bubbles, foam generation, buildup, or external vibration Fault monitoring for corrosion, loss of vibration or line break to the piezo drive SIL 2 qualified for high-level and dry-run applications 	<ul style="list-style-type: none"> Proven paddle switch technology to detect the presence or absence of bulk solids materials with bulk densities as low as 15g/l (0.9 lb/ft) High integrity mechanical seal Unique friction clutch mechanism to increase motor life Rotatable enclosure Optional paddle for use with low-density materials Simple installation through existing process connection High-temperature model, up to 600°C (1112°F) and optional extension kit available 	<ul style="list-style-type: none"> Suitable for retrofit to existing conveyor systems offering accuracies to meet the requirements for custody transfer Typical approvals include NTEP, OIML, MID, Measurement Canada and others The MMI's proven use of parallelogram-style load cells results in fast reaction to vertical forces, ensuring instant response to product loading Stand-alone integration with BW500 / L or direct integration into SIMATIC S7 with the SIWAREX FTC module 	<ul style="list-style-type: none"> Unique modular design so it is easy to install on every conveyor in the plant Modifications to existing installations are kept to a minimum – making it economically viable for retrofits Stand-alone integration with BW500 / L or direct integration into SIMATIC S7 with the SIWAREX FTC module Integration with SIWAREX FTC allows the management of all belt scales on site in the Control System and the management of all scales centrally on one HMI 	<ul style="list-style-type: none"> Rugged, durable design for heavy-duty applications, available in open or enclosed construction with a design rate of up to 800T/hr Fast installation, easy to clean and easy to replace the "endless" belt keeps the maintenance downtime to an absolute minimum The accuracy of +/-0,5% allows precise dosing and ratio control of raw material Stand-alone integration with BW500 or direct integration into SIMATIC S7 with the SIWAREX FTC module The BW500 integrator has 2 PID controllers and all communication possibilities for seamless integration in every control system
Typical applications	<ul style="list-style-type: none"> High-level detection in liquids and slurries 	<ul style="list-style-type: none"> High-level alarm of hot mix asphalt ingredients High-level detection of solids 	<ul style="list-style-type: none"> Certified conveyor load out Solids flow control into the process Inventory monitoring 	<ul style="list-style-type: none"> Aggregate conveyor flow rate monitoring Control belt feed rates Mobile crushers 	<ul style="list-style-type: none"> Raw material blending, i. e. in cement production Control dry additive feed rates
	More information: www.siemens.com/pointlevel	More information: www.siemens.com/pointlevel	More information: www.siemens.com/msi	More information: www.siemens.com/weighing	More information: www.siemens.com/weighfeeders









	Solids flowmeters	Load cells	Weighing integrators	
				
	SITRANS WF300	SIWAREX Load cells	Stand-alone weighing integrators	PLC-based weighing modules
Brief description	Low- to medium-capacity flowmeters for various product sizes, densities, and fluidities.	Multiple ranges of load cells, suitable for almost any application.	<ul style="list-style-type: none"> • Milltronics BW500: Fully featured integrator for use with both belt scales and weighfeeders • Milltronics BW500 / L: Integrator for use in basic belt scale or weighbelt applications • Milltronics SF500: Fully featured integrator for use with solids flowmeters 	<ul style="list-style-type: none"> • SIWAREX WP231: Weighing module for SIMATIC S7-1200 or for stand-alone applications • SIWAREX FTA: Calibratable and versatile weighing electronics for SIMATIC S7 and PCS 7 • SIWAREX FTC: Versatile, flexible weighing module for conveyor scales, loss-in-weight scales and bulk flow-meters, integrated in SIMATIC S7 / PCS 7 • SIWAREX U and CS: Versatile and flexible weighing module for level monitoring, platform scales, integrated in SIMATIC S7 / PCS 7
Features and benefits	<ul style="list-style-type: none"> • The sensing element is mounted outside the process, keeping the maintenance to an absolute minimum • The standard version can measure from 0.2 to 40t/h however; larger versions are available to handle flow rates up to 300t/h • Typically, installations achieve an accuracy of +/-1% • Stand-alone integration with SF500 or direct integration into SIMATIC S7 with the SIWAREX FTC module • The SF500 integrator has 2 PID controllers and all communication possibilities for seamless integration in every control system 	<ul style="list-style-type: none"> • High accuracy of 3000d according to OIML R60 • Large measuring range from 3 kg to 500 t (6.6lbs to 551.2 tons) • High Temperature version up to 250°C available • Double Bridge version for increased safety available • Hermetically sealed, extremely long service life • Suitable for use in hazardous areas • Stainless steel or aluminum • Smart design mounting devices for simple and safe installation • Direct integration into SIMATIC S7 with SIWAREX U, SIWAREX CS, SIWAREX MS or SIWAREX FTA 	<ul style="list-style-type: none"> • Offer rate, totals, alarms, analogue outputs and digital communications • Differential speed detection with second speed sensor • Suitable for belt scale custody approval • Automatic zero and electronic span calibration • Alarms for rate, load, speed, or diagnostic error • On-board Modbus®, optional PROFIBUS DP, Allen-Bradley® RIO and DeviceNet™ • Comprehensive weighfeeder control functions • PID control and on-line calibration with optional analog I/O card • Moisture meter input with optional analog I/O card for calculation of dry weight 	<ul style="list-style-type: none"> • Complete integration of the SIWAREX weighing module into the SIMATIC system platform • Using standard SIMATIC components, it is simple to adapt the weighing system to your individual requirements • Standardized interfaces, totally integrated functions, and uniform tools enable cost-effective configuration • SIWAREX WP231 is programmable via the Totally Integrated Automation (TIA) Portal engineering platform
Typical applications	<ul style="list-style-type: none"> • Monitoring the finishing mill rejects to measure grinding quality • Feeding of raw meal • Truck loading 	<ul style="list-style-type: none"> • Silo weighing • Bagging machines • Weighing of concrete and asphalt mixer 	<ul style="list-style-type: none"> • Milltronics BW500 / L integrator for use with belt scales or weighfeeders • Milltronics SF500 integrator for use with solid flow-meter 	<ul style="list-style-type: none"> • Static weighing, batching, dosing, dynamic weighing, loss-in-weight
	› More information: www.siemens.com/sitranswf	› More information: www.siemens.com/weighing	› More information: www.siemens.com/weighing	› More information: www.siemens.com/weighing






Electromagnetics





				
	SITRANS F M MAG 3100	SITRANS F M MAG 5000/6000	SITRANS F M MAG 8000	SITRANS F M TRANSMAG 2
Brief description	Electromagnetic flow sensor with a large variety of liners, electrode material and with grounding electrodes as standard.	Microprocessor-based transmitter. SITRANS F M MAG 6000 for high-accuracy applications and with the benefits of easy installation, commissioning and maintenance.	Battery-powered flowmeter with GSM / GPRS communication and built-in data logging.	High-powered flowmeter consisting of the SITRANS F M TRANSMAG 2 transmitter and the sensor SITRANS F M 911 / E being the best choice for special applications such as pulsating flow, media with low conductivity and high percentage of solids.
Features and benefits	<ul style="list-style-type: none"> • Flexible design with wide range of materials • Easy "plug and play" installation and servicing of flowmeter • Highly resistant liner material to both abrasive and chemical media 	<ul style="list-style-type: none"> • Cost-effective transmitter with good performance • SENSORPROM technology facilitates easy transmitter setup without loss of data and accuracy • Multiple functional output for process control • Up to 300m remote-mounted electronic as option • Wide range of communications modules like PROFIBUS PA, FF, Modbus, HART available • SITRANS F M MAG 6000: 0.2% high accuracy 	<ul style="list-style-type: none"> • Simple meter placement anywhere, IP68 (NEMA 6P) design for even buried underground, or submarine under water • Zero maintenance, no moving parts and up to 10-year battery life • Intelligent meter, capable of leak detection, data logging and advanced statistics and diagnostics • Remote capabilities to stay up-to-date on measurement data through optional GSM / GPRS Wireless Communication Module without on-site reading 	<ul style="list-style-type: none"> • The patented pulse alternating field technology delivers a much stronger magnetic field compared to conventional DC electromagnetic flowmeters, with special design to eliminate magnetic influence from material • Broad range of liner and electrode materials for extreme process medias • Comprehensive self-diagnostic with self-monitoring and internal simulation
Typical applications	<ul style="list-style-type: none"> • General purpose flow measurement in minerals, aggregates and cement processes 	<ul style="list-style-type: none"> • To be combined with the flow sensors MAG 1100, 3100 and 5100W • Mine water management • Processing chemicals and light to medium slurry flow • Custody transfer applications: OIML R49, MI-001 	<ul style="list-style-type: none"> • Water flow monitoring in remote locations, i. e. in quarries, leaching 	Mining industry, Pulp and Paper industry: <ul style="list-style-type: none"> • High-concentrated paper stock > 3% • Heavy mining slurries • Mining slurries with magnetic particles • Low conductive medias $\geq 1 \mu\text{S/cm}$ ($0.1 \mu\text{S/cm}$ depending on medium)
	> More information: www.siemens.com/mag3100	> More information: www.siemens.com/sitransfm	> More information: www.siemens.com/mag8000	> More information: www.siemens.com/transmag

	Clamp-on ultrasonic	Coriolis	Vortex
			
	SITRANS FUS1010 Clamp-on	SITRANS FST020	SITRANS FC430
Brief description	Versatile clamp-on ultrasonic flowmeter. Can operate in either WideBeam transit time or Doppler mode.	Clamp-on ultrasonic flowmeter with basic functionalities.	Flowmeter system protected in a pressure-rated stainless steel enclosure with two purge ports to support a pressure guard in non-Ex applications.
Features and benefits	<ul style="list-style-type: none"> • Transit time and Doppler makes it a versatile flowmeter • Suitable for a wide range of operating conditions • Easy installation and minimal maintenance • Wide turn-down ratio • Measurement of up to four channels with one device • Available as a portable weatherproof check metering kit • Ideal for performance verification of any brand or type of flowmeter 	<ul style="list-style-type: none"> • Transit time for measurement of clean liquids • Easy installation and minimal maintenance • Ideal for low-end flow measurement needs • Simple inexpensive flow measurement 	<ul style="list-style-type: none"> • Offers high accuracy over a wide range of flow rates • Multi-parameter measurement enables simultaneous monitoring of density leading to higher chemical dosing quality • Coriolis technology enables measurement of non-conducting liquids
Typical applications	<ul style="list-style-type: none"> • Accurate measurement of pure liquids as well as slurries typically found in the mining, aggregate and cement industries 	<ul style="list-style-type: none"> • Monitoring the flow rate of water or slurry without having to install a sensor directly in the process 	<ul style="list-style-type: none"> • Measuring reagent and flocculent dosage rates in flotation cells • Measuring the flow of milling agents and grinding additives • Monitoring flow in solvent extraction operations
	<p>› More information: www.siemens.com/fus1010</p>	<p>› More information: www.siemens.com/fst020</p>	<p>› More information: www.siemens.com/fc430</p>
			<p>› More information: www.siemens.com/flow</p>

	 Process protection		 Pressure		
	Motion sensors		Acoustic sensors	Pressure measurement	
					
	Milltronics MFA 4p and MSP-12	SITRANS WM100	SITRANS AS100	SITRANS P DS III	SITRANS P280
Brief description	Motion failure alarm controller and probe, highly sensitive single setpoint motion sensor system.	Heavy-duty zero-speed alarm switch.	Acoustic sensor used for solids flow detection.	Series of digital pressure transmitters for measuring gauge pressure, absolute pressure, differential pressure, flow and level.	WirelessHART pressure transmitter that provides all measured process values as well as diagnostic information, parameters, and functions via radio.
Features and benefits	<ul style="list-style-type: none"> Designed specifically for the primary industries 100 mm sensing range allows detection on machinery with poor tolerances such as bucket elevators The sensor is capable of penetrating stainless steel and detecting a ferrous target behind, which is particularly suited to screw conveyor applications 	<ul style="list-style-type: none"> Rugged, low maintenance suitable for tough environments Non-contacting design eliminates the need for lubricating, cleaning and part replacement It alarms to minimize spillage, prevent extensive damage or even fire caused by belt slippage at the head pulley and warn against conveyor malfunction 	<ul style="list-style-type: none"> Detects and reacts instantly to changes in solids flow to warn of blockages, product absence, or equipment failure such as burst filter bags. Operating with a SITRANS CU02 control unit, the system detects conditions of high flow, low flow or no flow Designed to be mounted on the outside of the pipe without contact to the material 	<ul style="list-style-type: none"> Remote mounting capability allows isolation from high temperatures and vibration sources Local display and local programming with push buttons, accessible without opening the enclosure Robust design, suitable for installations in the cement industry Advanced communications and predictive maintenance functions enable optimization of maintenance cycles High accuracy and turn-down of 1:100 	<ul style="list-style-type: none"> Supports the WirelessHART standard for a flexible temperature measurement Enables cost savings on wiring for locations with difficult installation conditions, like in remote areas of plants, and on moving or rotating equipment Device meets IP65 degree of protection Powered by an internal battery and designed for ultralow power consumption
Typical applications	<ul style="list-style-type: none"> Motion sensing on tail pulleys, driven pulleys, motor shaft sensing, screw conveyor flights, bucket elevators 	<ul style="list-style-type: none"> Motion sensing on tail pulleys, driven pulleys, motor shaft sensing, screw conveyor flights, bucket elevators 	<ul style="list-style-type: none"> Burst filter bag detection Detection of blockages in pneumatic conveyor systems Ensure that mechanical conveying systems maintain their set speed 	<ul style="list-style-type: none"> Pressure monitoring in the preheater tower Pressure measurement on filters Monitoring pressure during mineral separation Density measurement in thickeners and hydro classifiers 	To communicate pressure measurement data: <ul style="list-style-type: none"> from a remote location like the quarry from a moving machine
	> More information: www.siemens.com/mfa4p	> More information: www.siemens.com/processprotection	> More information: www.siemens.com/processprotection	> More information: www.siemens.com/pressure	> More information: www.siemens.com/wirelesshart

	 Temperature			 Positioning	 Gas analysis
	Temperature measurement			Valve positioner	Continuous gas analysis
					
	SITRANS TF	SITRANS TF280	SITRANS TS500	SIPART PS2	ULTRAMAT 23
Brief description	Complete range of temperature measurement devices.	WirelessHART temperature transmitter that provides all measured process values as well as diagnostic information, parameters, and functions via radio.	Modular temperature sensor line for standard to heavy-duty applications	Positioner for linear and part-turn actuators.	Continuous gas analyzer. ULTRAMAT 23 can measure up to 3 infrared sensitive gases such as CO, CO ₂ , NO, SO ₂ , NH ₃ , as well as CH ₄ and other hydrocarbons and oxygen using an electrochemical or paramagnetic Oxygen measuring cell
Features and benefits	<ul style="list-style-type: none"> Remote mounting capability allows isolation from high temperatures and vibration sources Local display and local programming Advanced communications and predictive maintenance functions enable optimization of maintenance cycles 	<ul style="list-style-type: none"> Supports the WirelessHART standard for a flexible temperature measurement Enables to save costs on wiring for locations with difficult installation conditions, like for mounting in remote areas of plants Housing meets IP65 degree of protection Very high security level for wireless data transmission Powered by an internal battery and is designed ultralow power consumption 	<ul style="list-style-type: none"> Available as RTD (Pt100) and thermocouple The modular system allows exchangeability and big variety International approvals for IEC-Ex and ATEX for Ex d, Ex i and Ex n in Gas and Dust Optional transmitter and local display allows good interoperability and reduces EMI risks 	<ul style="list-style-type: none"> The industry benchmark for linear and rotary valves, double- and single-acting actuators Advanced diagnostics including predictive maintenance allow operators to plan in advance of failures Saves energy because it does not allow air to pass when idle Full range of communication via HART, PROFIBUS PA or FOUNDATION Fieldbus 	<ul style="list-style-type: none"> A cost-effective method of monitoring CO, NOx, SO₂ plus O₂ with just one analyzer Extractive measurement principles to suit application needs No calibration gases required. Auto-calibration with ambient air High selectivity due to multi-layer detectors, e.g. low cross sensitivity to water vapor Cleanable sample cells: Cost savings thanks to reuse after contamination Menu-assisted operation in plain text
Typical applications	<ul style="list-style-type: none"> Bitumen temperature measurement in storage tanks Temperature monitoring in preheater tower 	To communicate temperature measurement data: <ul style="list-style-type: none"> from a remote location like the quarry from a moving machine 	<ul style="list-style-type: none"> Pipes and vessels Storage tanks 	<ul style="list-style-type: none"> Controlling airflow to flotation cells Air control of pneumatic conveyors 	<ul style="list-style-type: none"> Monitoring exhaust gases leaving the stack Monitor CO, O₂ for process optimization
	> More information: www.siemens.com/temperature	> More information: www.siemens.com/wirelesshart	> More information: www.siemens.com/temperature	> More information: www.siemens.com/sipartps2	> More information: www.siemens.com/ultrammat23

	Gas analysis			Communication and software	
	Continuous gas analysis	Tuneable diode laser spectrometer (TDLS)	Analytical application sets	Remote displays	
					
	Set FLK	LDS6/SITRANS SL	Gasmert CEMS	SITRANS RD100/200	SITRANS RD500
Brief description	Gas sampling system designed for continuous sampling of flue gas in cement rotary kilns.	High-performance diode laser gas analyzer for process control.	Standardized emission monitoring system which covers all requirements associated with sampling, sample preparation, and gas analysis.	Universal remote display for level, flow, pressure, temperature, weighing, and other process instruments.	Remote data manager providing remote monitoring through data logging, web access, and alarming for instrumentation.
Features and benefits	<ul style="list-style-type: none"> • Extractive measurement at cement kiln inlet enables an accurate picture of kiln gas composition. Continuous in-situ analysis of gases allows detailed assessment of burner control, fuel requirements and product quality • Stable kiln control safeguards product quality and prevents the emission of toxic materials into the environment • Synthetic liquid coolant allows the sample gas to remain above its acid dew point, avoiding condensation in the sampling line and reduces the need for maintenance • A proven oval probe design coupled with an emergency retraction mechanism ensures reliable long-term operation 	<ul style="list-style-type: none"> • Offers laser spectrometry at up to three measuring points, giving extremely high levels of accuracy and speed • Delivers great results even in high-temperature and dusty environments • Little installation efforts, no sampling lines • Very fast measurement, approximately 1 s update time • Integrated self-calibration loop reduces the maintenance to a minimum. No field calibration required 	<ul style="list-style-type: none"> • Consists of FTIR plus optional O₂ and FID analyzers as well as sampling unit and industrial PC. It can be easily operated and maintained by the local plant engineers • As a standardized system it is cost-effective in purchase and operation • Depending on hardware and software configuration continuous emission monitoring compliant to European or EPA Guidelines is supported 	<ul style="list-style-type: none"> • SITRANS RD100 is NEMA 4X/IP67 enclosed for indoor and outdoor applications, in hot or cold environments, and in safe or hazardous areas • SITRANS RD200 is a universal input, panel mount, remote digital display for remotely collecting, logging, and presenting data from as many as 100 displays to your local computer 	<ul style="list-style-type: none"> • SITRANS RD500 supports report and alarm events via e-mail, SMS, and FTP transfer • Web server provides worldwide access to instrument data log and RD500 configuration and setup
Typical applications	<ul style="list-style-type: none"> • Measurement of CO, O₂, NO_x and optional SO₂ in the kiln to optimize the fuel efficiency of the kiln 	<ul style="list-style-type: none"> • Combustion control • Emission monitoring • Safety applications • Coal storage 	<ul style="list-style-type: none"> • Continuous emission monitoring 	<ul style="list-style-type: none"> • Remote display of process data 	<ul style="list-style-type: none"> • Remote monitoring • Inventory management
	<p>› More information: www.siemens.com/flk</p>	<p>› More information: www.siemens.com/lDs6 www.siemens.com/sitranssl</p>	<p>› More information: www.siemens.com/gasmertcems</p>	<p>› More information: www.siemens.com/sitransrd</p>	<p>› More information: www.siemens.com/sitransrd500</p>

	Software	WirelessHART communication components		RFID
				
	SIMATIC PDM	SITRANS AW210	IE/WSN-PA LINK	SIMATIC RF600
Brief description	Universal, vendor-independent tool for the configuration, parameterization, commissioning, diagnostics and maintenance of intelligent field devices and field components.	WirelessHART adapter for integration of a wide range of field devices into a WirelessHART network.	WirelessHART gateway for connecting a WirelessHART network to Industrial Ethernet.	RFID tag and reader technology for covering even large facility areas.
Features and benefits	<ul style="list-style-type: none"> • Available as point-to-point or as an integrated part of SIMATIC S7 / PCS 7 • Allows the user to configure field devices by different manufacturers using a single user interface and access the instruments on every level of the automation hierarchy • Process device data can be easily set, changed, checked for plausibility, managed and simulated • Monitors selected process values, alarms and status signals of devices online • 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 	<ul style="list-style-type: none"> • HART / 4...20 mA wireless signal transfer • No extra wiring costs with loop power supply • Up to eight devices connected in multi-drop mode • Configurable with standard tools support EDD – e.g. SIMATIC PDM, HART handheld communicator • Good and simple retrofitting or extension solution for wired devices • Features an extremely high degree of security for wireless data transmission • Can be used in hazardous areas • Integrated power management enables efficient usage of external batteries • By installing the SITRANS AW210 on an existing analog-wired HART device, users can utilize all diagnostic information at the maintenance station without the risk of impaired operation 	<ul style="list-style-type: none"> • Connects up to 100 WirelessHART devices • Approved for operation in hazardous areas in Zone 2 • Open TCP / IP communication and Modbus TCP via the Ethernet interface • Integrated Web interface allows simple configuration of LINK and network as well as monitoring • State-of-the-art security for wireless network and data communication 	<ul style="list-style-type: none"> • RF600 readers are equipped with robust IP65 housing, and effective in a wide range of temperatures • High reading speed: Fast-moving tags are reliably detected, suitable for handling even hundreds of trucks a day • Flexibility and versatility due to compact designs and remote antennas • Flexible system integration via PROFIBUS, PROFINET or Ethernet, easy and direct SIMATIC integration
Typical applications	<ul style="list-style-type: none"> • Configuration, parameterization, commissioning, diagnostics and maintenance of intelligent field devices and field components 	<ul style="list-style-type: none"> • Integration of field devices into a WirelessHART network 	<ul style="list-style-type: none"> • Connecting a WirelessHART network to Industrial Ethernet 	<ul style="list-style-type: none"> • Loading efficiency • Management of truck traffic flow throughout the facility
	<p>› More information: www.siemens.com/simatic-pdm</p>	<p>› More information: www.siemens.com/wirelesshart</p>	<p>› More information: www.siemens.com/wirelesshart</p>	<p>› More information: www.siemens.com/rf600</p>

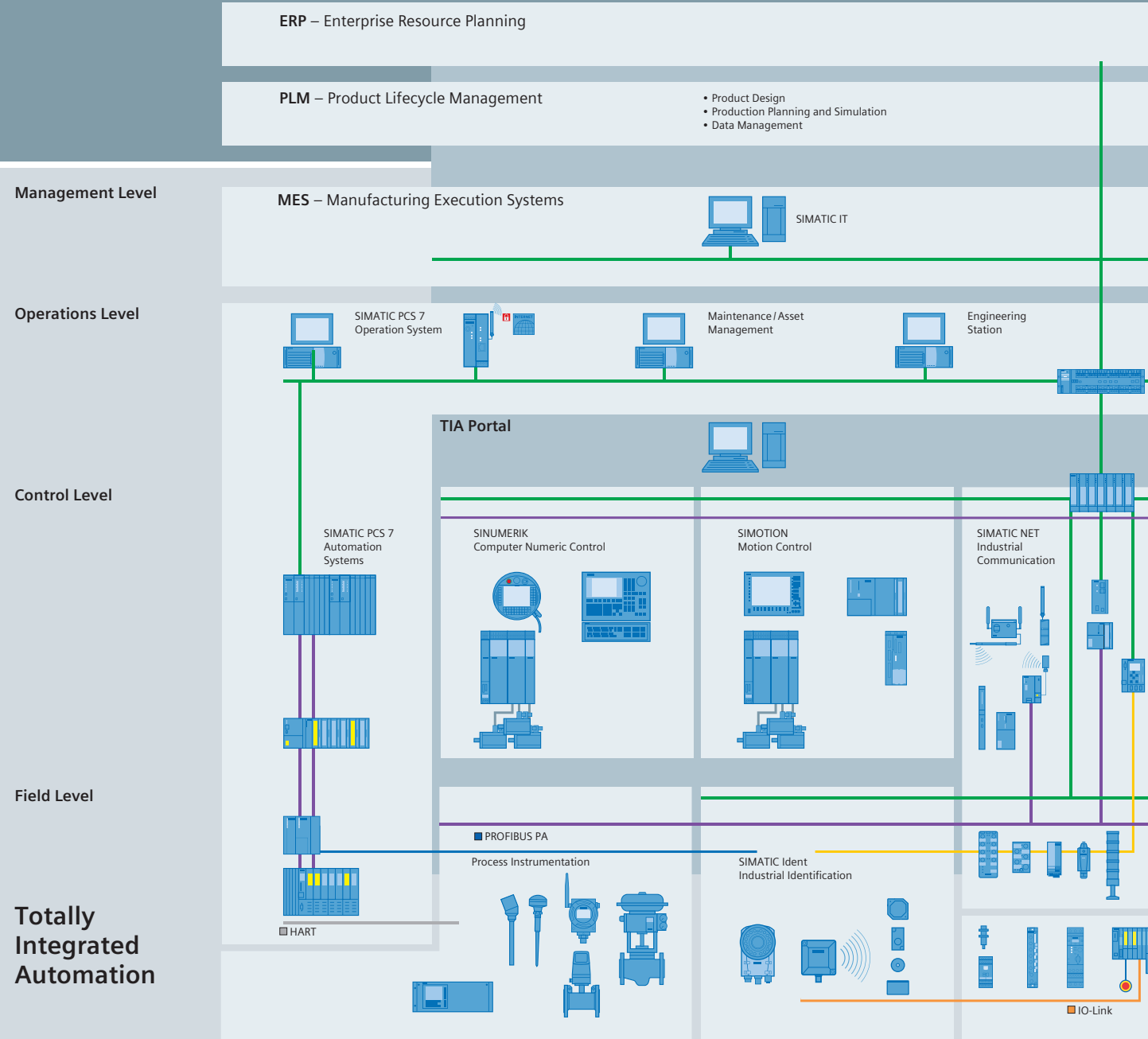
Totally Integrated Automation

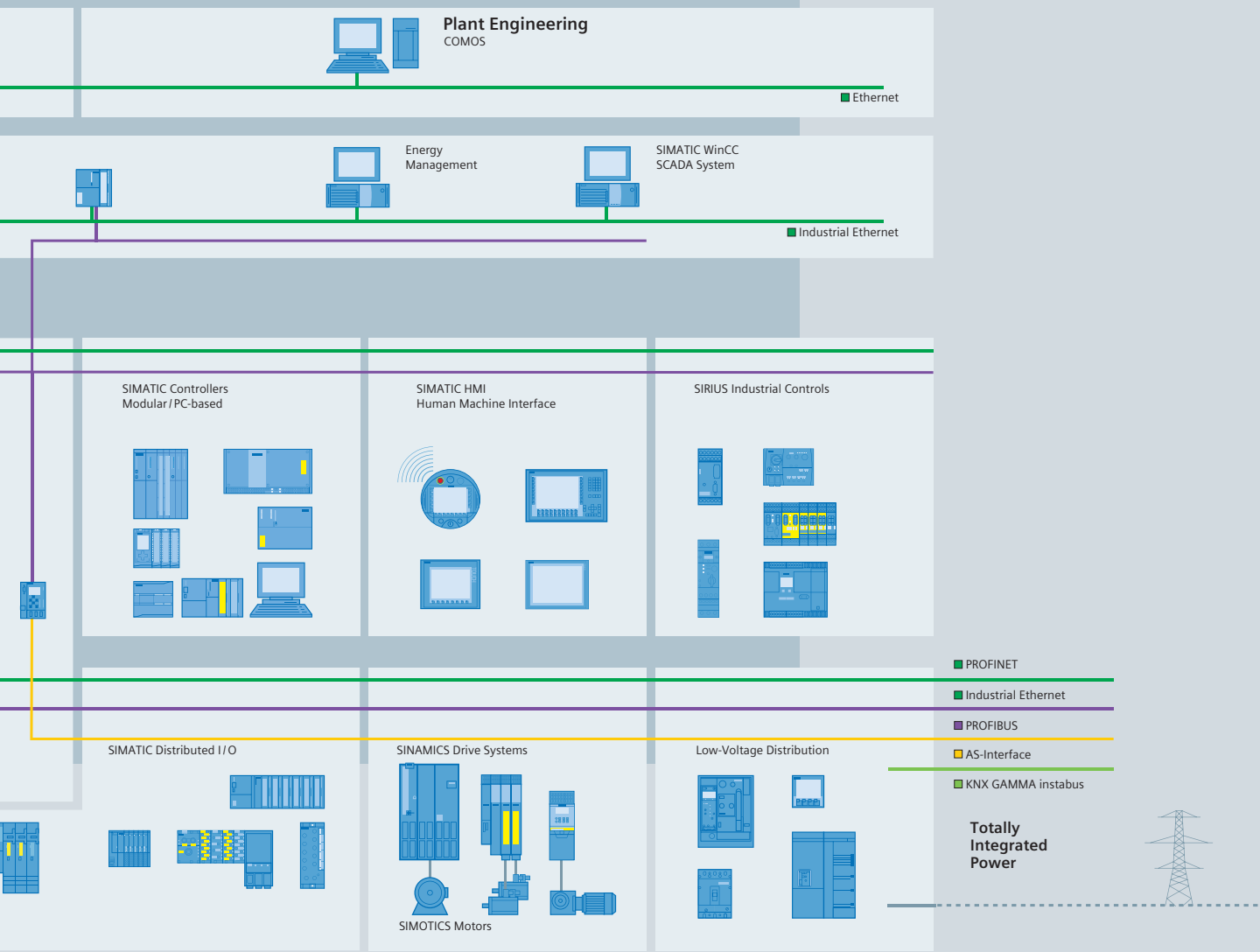
Products from the controller level to the field level

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. From the goods receiving area to the finished goods warehouse.

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

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





Example: CEMAT. The leading process control system for the cement industry is based on SIMATIC PCS 7 and offers all the performance features and functions of the process control system.

More information:

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