



PROCESS INSTRUMENTATION & ANALYTICS

# Because every **drop counts**

A full range of solutions for water applications.

[usa.siemens.com/pi-water](https://usa.siemens.com/pi-water)

**SIEMENS**

# Instrumentation that puts you in control of your applications

**Water is at the heart of life and economic activity. Accurate measurement of water processes – with easy accessibility to the digital world – is critical for optimizing efficiency and sustainability throughout the life cycle of your plant.**

Take control of any water application with process instrumentation from Siemens. We offer not only accuracy and reliability of measurement, but also full integration of our field devices with a wide range of powerful digital tools – bringing you to a new, higher level of process management.

## **A complete portfolio**

Siemens brings you a dedicated portfolio of instrumentation that meets the strictest requirements of diverse water industry applications, including certifications and flexible communication options to connect you with the digital world. From flow, level and pressure to temperature, positioning and weighing, our measurement devices are engineered with special features to ensure continuous operation even in challenging process conditions. Custody transfer approvals guarantee accurate billing of the world's most precious asset: water.

Our strategic partner Hach completes the offering with solutions for higher quality water analysis. Combined, the expert know-how of Siemens and Hach supports you in operating your plant at maximum cost effectiveness.

## **More efficient operations with digital tools and service**

Our COMOS software tool integrates all stages of your project, while the PIA Life Cycle Portal makes it easy to select and configure the right devices. The Interoperability Lab provides compatibility checks for smoother incorporation into control systems.

Siemens puts advanced service options right at your fingertips with SIMATIC PDM, providing on-site or remote access to all parameters, diagnostics and maintenance information of both stationary and mobile devices. Make the most of your intelligent field instruments with the SITRANS Library, which unlocks smart features with minimal programming effort.

You can access the PIA Life Cycle Portal around-the-clock at [usa.siemens.com/pia-portal](http://usa.siemens.com/pia-portal). It offers you active support to find the best solution from the extensive Siemens portfolio of sensors and process analytical products. The portal can be used to see how different solutions can be put to use in process and factory automation. You can choose between several selection access options to find the appropriate product solution for your specific requirements:

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



[www.siemens.com/pia-portal](http://www.siemens.com/pia-portal)

# Solutions to **match your needs**

From water treatment to desalination to water networks, we have process instrumentation and analytic solutions to meet your needs. The following pages will provide you with the best instrumentation solution for your application. To find more about our key products for the water industry, including case studies, references and interactive process charts, please visit: [www.siemens.com/pi-water](http://www.siemens.com/pi-water)



# Drinking Water



Flow



Level



Pressure



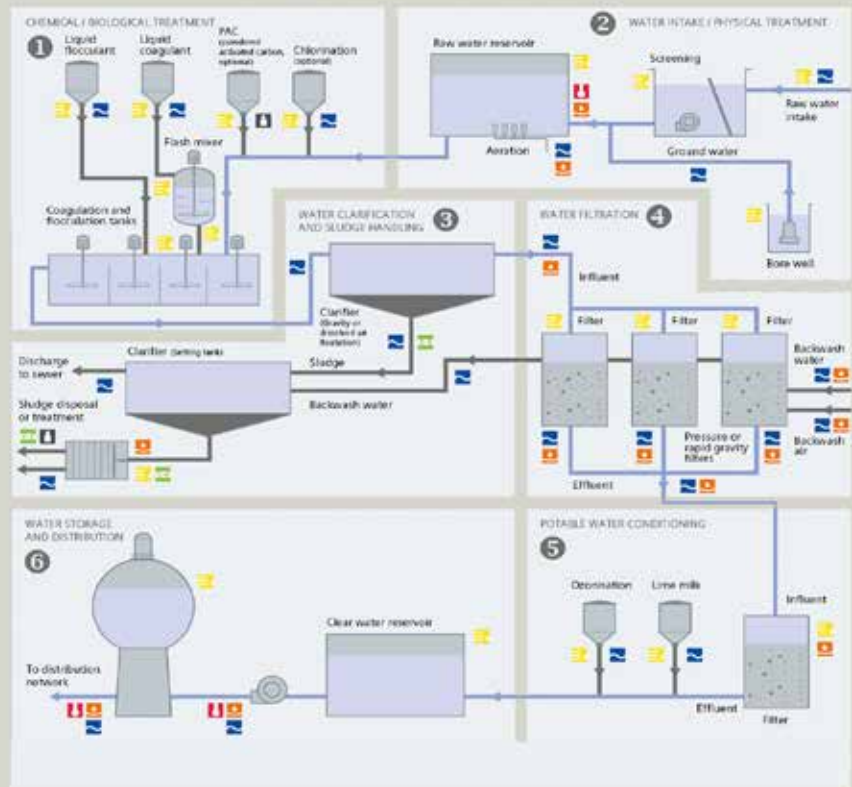
Temperature



Weighing




Process Protection

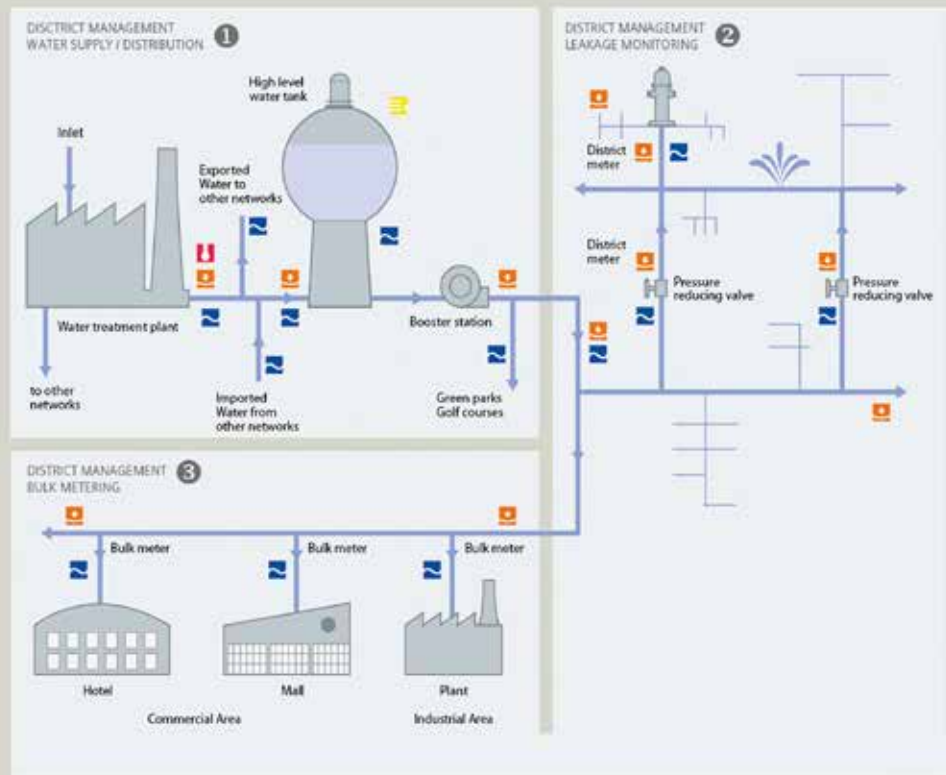


## Drinking Water

	Chemical Biological Treatment	Water Intake Physical Treatment	Water Clarification & Sludge Handling	Water Filtration	Potable Water Conditioning	Water Storage & Distribution
	1	2	3	4	5	6
<b>FLOW</b>						
SITRANS MAG1100/FM120	X					
SITRANS MAG5100W / FM520		X	X	X	X	X
SITRANS MAG5000 / 6000/ FMT020		X	X	X		X
<b>LEVEL</b>						
SITRANS LT500 HydroRanger - Radar	X	X				
SITRANS LT500 HydroRanger - US	X	X				
SITRANS Probe LU240	X	X	X	X	X	X
POINTEK CLS200	X	X	X	X	X	
SITRANS LT510	X					
SITRANS LR550					X	
<b>PRESSURE</b>						
SITRANS P320		X	X	X	X	X
SITRANS P200/210/220						X
<b>WEIGHING</b>						
MSI			X			
<b>PROCESS PROTECTION</b>						
WM300 Motion Failure Alarm			X			

# Water Networks

-  Flow
-  Level
-  Pressure
-  Temperature
-  Weighing

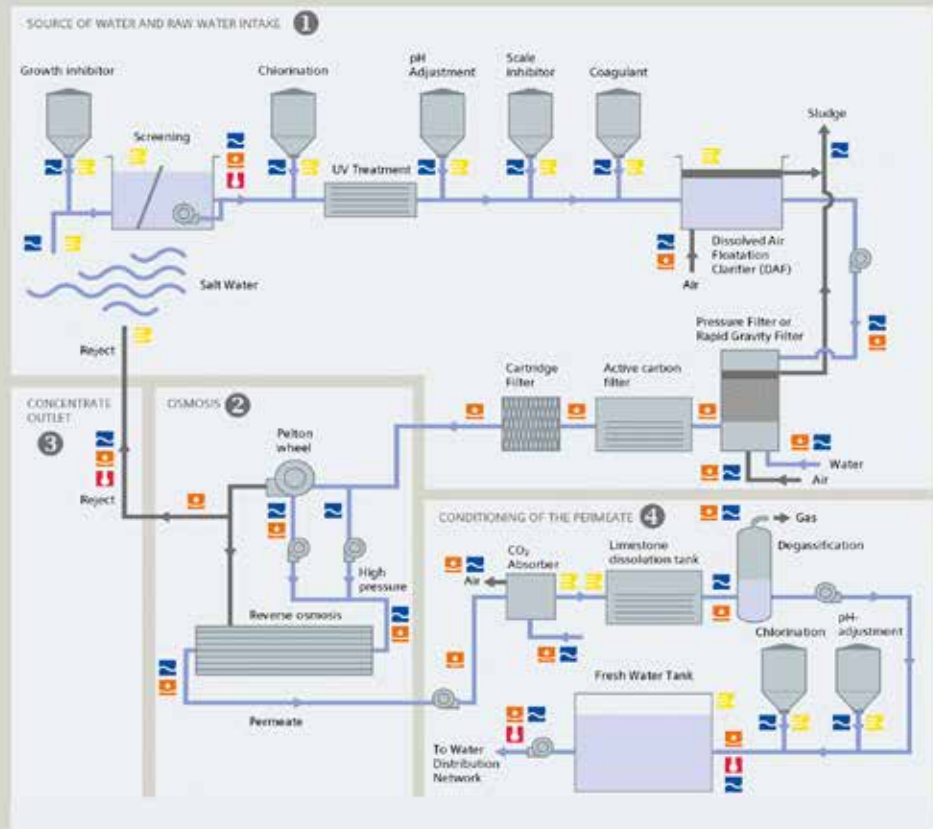


## Water Networks

	District Management Water Supply Distribution	District Management Leakage Monitoring	District Management Bulk Metering
	1	2	3
<b>FLOW</b>			
SITRANS MAG5100W / FM520	X		
SITRANS MAG5000 / 6000/ FMT020	X		
SITRANS MAG8000	X	X	X
<b>LEVEL</b>			
SITRANS LT500 HydroRanger mA inputs / radar sensors version	X		
SITRANS LT500 - US	X		
SITRANS Probe LU240	X		
<b>PRESSURE</b>			
SITRANS P200/210/220	X	X	X



# Desalination

-  Flow
-  Level
-  Pressure
-  Temperature
-  Weighing



## Desalination

	Source of Raw Water	OSMOSIS	Concentrate Outlet	Conditioning of the Permeate
	1	2	3	4
<b>FLOW</b>				
SITRANS MAG1100/FM120	X			X
SITRANS MAG5100W / FM520	X	X	X	X
SITRANS MAG5000 / 6000/ FMT020	X	X	X	X
SITRANS FS220	X	X	X	X
SITRANS FC440	X			X
<b>LEVEL</b>				
SITRANS LT500 HydroRanger - radar	X			
SITRANS LT500 HydroRanger - US	X			
SITRANS LR110/120	X			
ECHOMAX XRS-5	X			X
ECHOMAX XPS	X			X
SITRANS Probe LU240	X			X
POINTEK CLS100	X			X
POINTEK CLS200	X			X

Desalination				
	Source of Raw Water	OSMOSIS	Concentrate Outlet	Conditioning of the Permeate
	1	2	3	4
 <b>PRESSURE</b>				
SITRANS P320	X	X	X	X
SITRANS P200/210/220	X	X	X	X
 <b>Temperature</b>				
SITRANS TH100	X		X	X
SITRANS TH320	X		X	X
SITRANS TH420	X		X	X
SITRANS TR320	X		X	X
SITRANS TR420	X		X	X
SITRANS TF320	X		X	X
SITRANS TF420	X		X	X

# A comprehensive portfolio **for all applications**

Siemens process instrumentation has a comprehensive, proven product portfolio. This overview shows the entire spectrum of our process instrumentation and analytics portfolio for the water industry.

## Level

Whether you are measuring liquids, slurries, or bulk solids in drinking water, water networks or desalination, Siemens provides level measuring technology for both continuous and point level measurements. Siemens offers a comprehensive range of ultrasonic, radar, guided wave radar, capacitance, hydrostatic, differential pressure, and electro-mechanical type level measuring technologies.

### Level Measurement | Point Level

SITRANS LCS 100 and Pointek CLS200 are versatile point level switches designed to detect liquids, solids, slurries, foam, and interfaces. These switches feature compact designs suitable for confined spaces, with options for plastic or stainless-steel process connections and flexible rod and cable probe extensions.

### Level Measurement | Continuous

SITRANS Probe LU240 is a 2-wire loop powered ultrasonic transmitter for level, volume and flow monitoring of liquids in open channels, storage vessels and simple process vessels.

The SITRANS LT500 is a versatile level monitor/controller suitable for single and multi-vessel applications across a wide range of water and wastewater level and open channel flow applications. The mA HART version can be paired with SITRANS LR110, LR120, or any mA signal-generating level device. The ultrasonic version is compatible with EchoMax or legacy transducers and can accept input from any 4-20 mA device, making it a dual technology instrument.

Echomax® XRS-5 ultrasonic transducer provides reliable, continuous level monitoring of liquids and slurries in narrow lift stations/ wet wells, flumes, weirs and filter beds.

Echomax® XPS transducers use ultrasonic technology to measure level in a wide range of liquids and solids.

SITRANS LR100 series are 80 GHz compact radar transmitters with Bluetooth wireless technology. For level measurement of liquids or solids.

The SITRANS LR500 series features 80 GHz radar level transmitters for continuous monitoring of liquids, slurries, and solids in storage and process up to a range of 394 ft. They offer a graphical local user interface with a Quick Start Wizard for easy setup and echo profile displays for diagnostics and also accessible via Bluetooth technology.

SITRANS LR510 threaded lens antenna provides continuous monitoring of liquids, including corrosive liquids, and slurries to a range of 98 ft. The small process connection makes it ideal for applications with challenging mounting conditions.

SITRANS LR550 polymeric horn antenna provides continuous monitoring of solids or liquids to a range of 394 ft. The lightweight design is suitable for open air applications and inventory measurement of basic materials in silos and vessels, or river level monitoring.



Siemens offers a wide range of electronic flow measuring technologies based on principles of Electromagnetic, Coriolis, Clamp-on Ultrasonic, Differential Pressure, Vortex and Variable Area to measure liquids, slurries, gases and steam flows. Electromagnetic flow measuring technology is the most used technology to measure flow in the water industry.

### Flow Measurement | Electromagnetic

SITRANS F M MAG 1100 and FM120 are wafer design sensors in stainless steel with highly resistant liners and electrodes and is designed for the general industry environment. The flangeless wafer design meets all flange standards.

The SITRANS F M MAG 5100 W and FM520 with their patented liners of NBR and EPDM is an ideal sensor for waste water applications.

SITRANS F M MAG 3100 and FM320 are electromagnetic flow sensors with a large variety of liners, and electrode materials ensuring a perfect fit for almost every flow application.

The SITRANS FMT020 is a microprocessor-based transmitter engineered for high performance, easy installation, commissioning and maintenance, and works with the FMSx00 sensors with either  $\pm 0.4\%$  or  $0.2\%$  accuracy and can be fitted with optional plug-in communication modules.

The SITRANS F M MAG 5000 / 6000 are microprocessor-based transmitters engineered for high performance, easy installation, commissioning and maintenance, has a measuring accuracy of either  $\pm 0.4\%$  or  $\pm 0.2\%$  of the flow rate and can be fitted with optional plug-in communication modules.

The SITRANS F M MAG 6000 I and the SITRANS F M MAG 6000 I Ex de transmitters have an measuring accuracy of  $+ 0.2\%$  of the flow rate and are designed to meet the demands of the process industry.

### Flow Measurement | Coriolis

SITRANS FC440 is a compact coriolis mass flowmeter sensor suitable for flow measurement of all kinds of liquids and gases. The sensor offers superior performance in terms of flow accuracy, turn-down range and density accuracy.

The SITRANS FCT020 and FCT040 transmitters are based on the latest developments within digital signal processing technology and delivers true multi parameter measurements i.e. mass flow, volume flow, density, temperature and fraction.

The digitally based SITRANS FC440 flowmeter features market-leading compactness, very high accuracy of  $0.1\%$ , low pressure loss, extremely stable zero point and best-in class data high-speed signal transfer.

### Flow Measurement | Differential Pressure

Differential pressure measurement is a universal flow measurement for liquids, gases and vapors. Primary differential pressure devices, like orifice plates and venturis, are suitable for non-corrosive and corrosive gases, vapors and liquids.

### Flow Measurement | Clamp-on

The SITRANS FS230 digital clamp-on ultrasonic flowmeter is a process-optimizing solution for measuring flow in virtually any liquid application. Designed to provide both exceptional performance and reliability.

The SITRANS FST220 performs basic flow functionalities and is an optimal and affordable alternative to more complex flow solutions. It features one-channel configuration options and a user-friendly design for quick and easy setup.



## Pressure

Siemens offers a comprehensive range of pressure transmitters to measure absolute, gauge, differential and hydrostatic pressure for level, flow, pressure and head loss measuring applications in wastewater industry. The product highlight is SITRANS P320 that has outstanding accuracy, robust long-term performance and large installed base in the water industry.

### Pressure / Level Measurement

The SITRANS P320 series includes digital pressure transmitters for measuring gauge pressure, absolute pressure, differential pressure, flow and level.

The SITRANS P200, P210 and P220 are compact single-range-transmitters for measurement of absolute and gauge pressure with a 4...20-mA- or 0...10-V output signal.

## Temperature

### Temperature Measurement | Head Transmitter

Siemens temperature transmitters SITRANS T covers head, rail and field transmitters. They support all common RTDs, thermocouples, resistance and millivolt-sensors and specific sensors to match all applications in the water industry.

SITRANS TH100 is designed to support all common RTDs. Setup is quick and easy with the transmitter-modem and SIPROM T software.

SITRANS TH320 single-sensor transmitter with HART- protocol is designed to support all common thermocouple, RTD and millivolt inputs. Setup is quick and easy with SIMATIC PDM or handheld communicator.

SITRANS TH420 dual-sensor transmitter with HART protocol adds support for two temperature inputs. Hot backup and drift detection functionality ensures that measurements are reliable and precise.

### SITRANS TF Category: Temperature Measurement | Field Transmitter

SITRANS TF is made of rugged die-cast aluminum or long-lasting stainless steel, in both single-chamber and dual-chamber housing configurations. It transforms resistance thermometers, thermocouples, Ohm and mV signals into a load independent DC current corresponding to the sensor characteristics. The included smart display allows for local transmitter configuration. Set the measuring range, sensor type and more all from the on-board pushbuttons.

### Temperature Measurement | Temperature Sensors

The industry-grade SITRANS TS500 temperature sensor supports a wide range of measuring from basic applications to solutions in harsh environment.



## Weighing

The comprehensive Siemens weighing portfolio includes belt scales, weighfeeders, solids flowmeters and static weighing. Milltronics MSI belt scales are a preferred solution for continuous weighing.

### Belt Weighing | Belt Scales

Milltronics MSI is a heavy-duty, high accuracy full frame single idler belt scale used for process and load-out control. Milltronics MSI belt scale provides continuous in-line weighing on a variety of products in primary and secondary industries.



## Remote Monitoring Displays

Remote digital displays make measurement data visible and accessible from remote locations. They are easy to set up and program and can be used with all types of field instruments in varying process conditions.



## Gas Analysis

Siemens offers a comprehensive range of products and systems for process analytics. It includes continuous gas analyzers for stand-alone and system solutions.



## Process Protection

Siemens Motion Sensors detect changes in the motion and speed of rotating, reciprocating or conveying equipment. It warns of equipment malfunction and signals through contacts to shut down machinery in case of a slowdown or failure. Its reliability makes it a cost-effective way to protect valuable process equipment. This versatile unit can be used on screw conveyor flights, conveyor belts pulleys, motor shafts and pumps. A wide range of probes are available to suit specific needs, including high temperatures and corrosive installations.



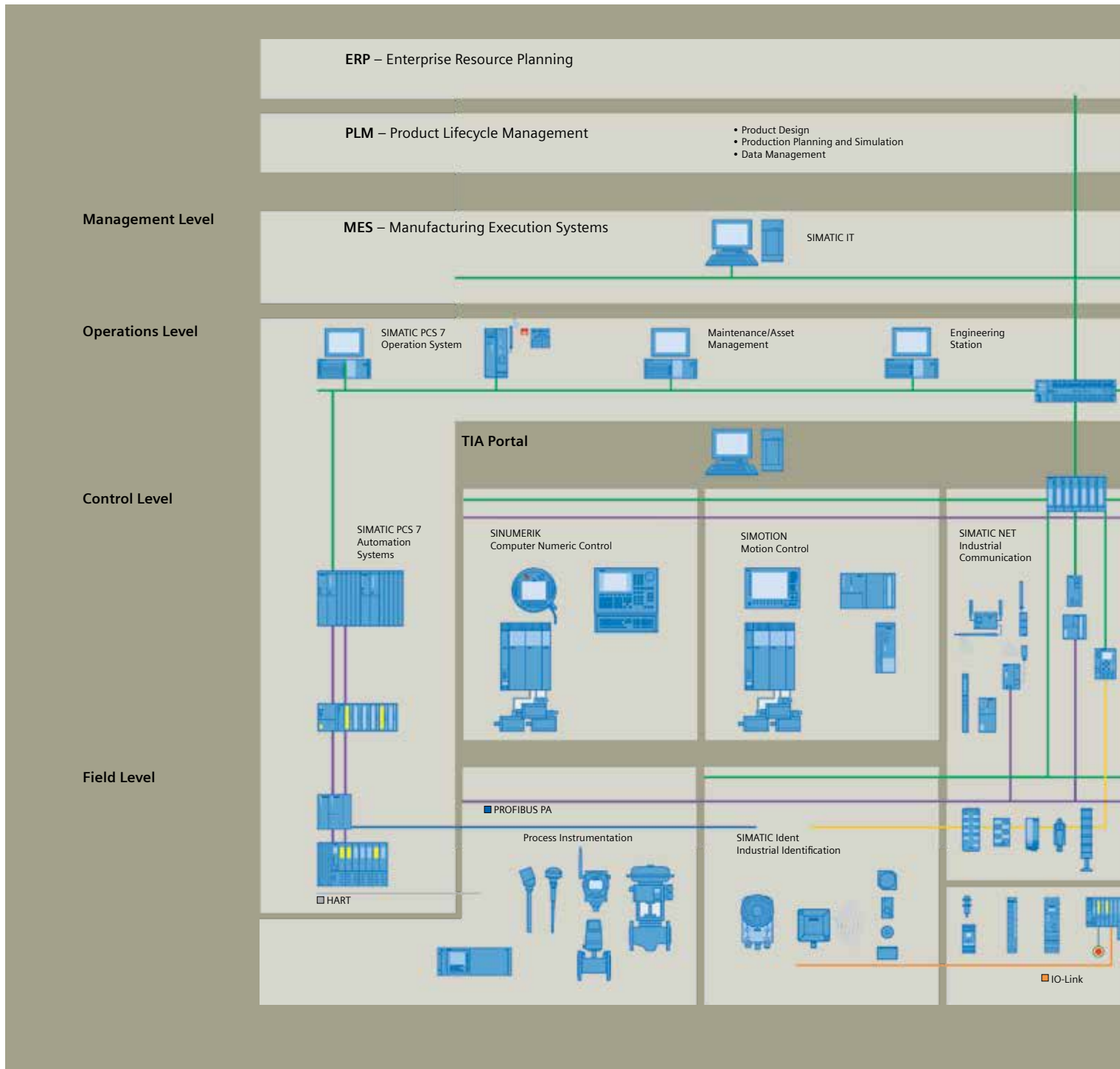
# Totally Integrated Automation

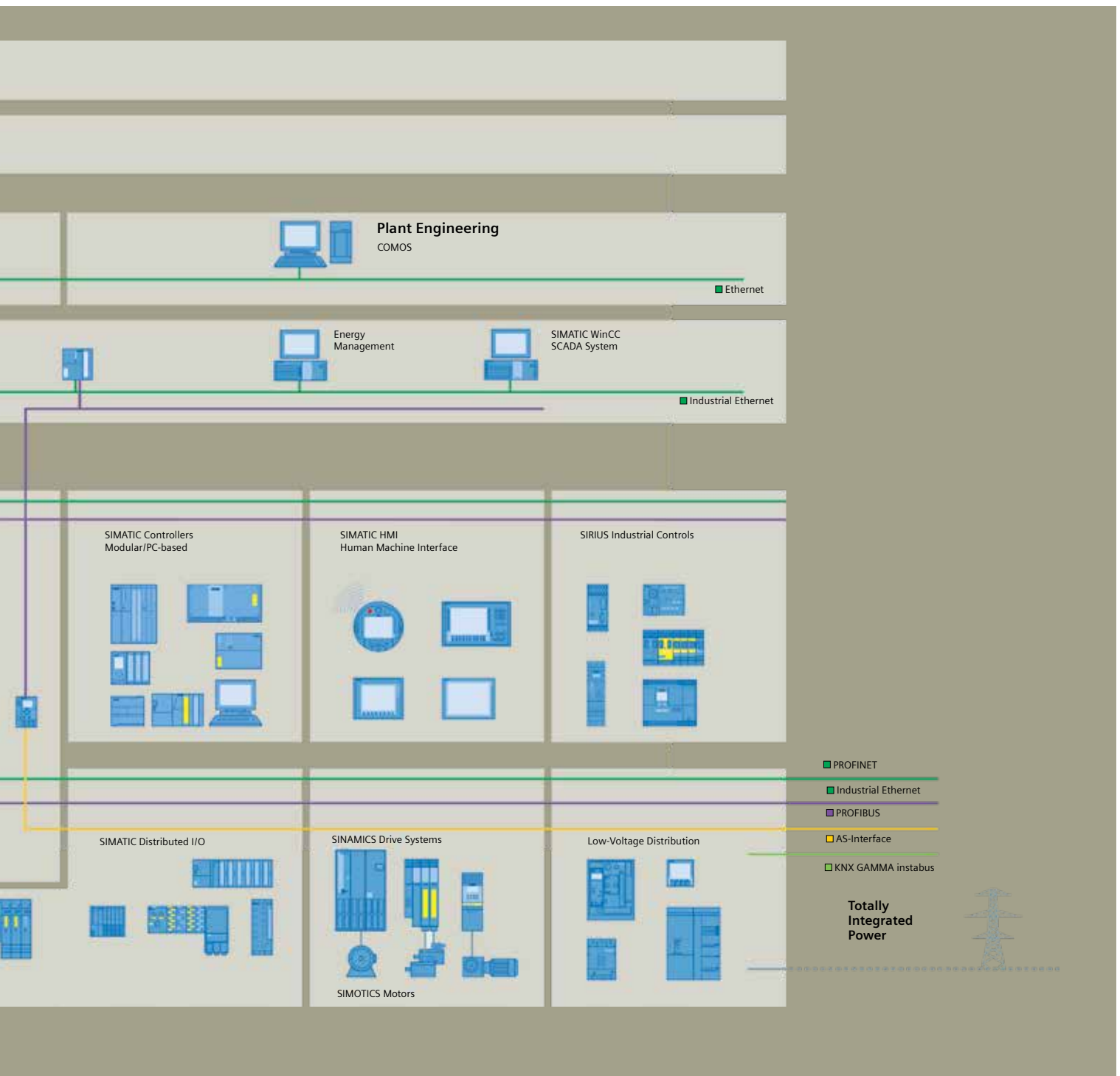
## Products from the controller level to the field level

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.







# Device integration from the field to the world

These days, it's an absolute must that your process instruments are always accessible – whether a device is local, the centerpiece of a plant or on the other side of the globe. Siemens provides you with the components you need to stay connected and in control.

## **Communication Protocols**

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. Our process instruments support all major industry standards for modern fieldbus communication, including HART, PROFIBUS, PROFINET, FOUNDATION Fieldbus and Modbus – making them suitable for use in all automation systems.

## **SIMATIC PDM (Process Device Manager)**

SIMATIC PDM is a flexible tool for operation of more than 4,000 different field devices and other automation components over the entire lifecycle of your plant. Featuring a graphical user interface and intuitive Quick Start wizards for configuration, parameterization, diagnostics and maintenance, PDM can be connected directly to a local field device or universally implemented as a central Maintenance Station.

## **SITRANS Library**

Intelligent process instruments are equipped with smart features previously accessible only with additional programming effort. This gap is being closed by SITRANS Library. Offering device-specific faceplates, SITRANS Library software facilitates the integration of these specialized functions into the SIMATIC PCS 7 process control system for easier operation, faster troubleshooting and a new degree of transparency.

## **Insights Hub**

To maximize the efficiency of a process or plant, operators must be able to turn real-time data into actionable insights. Insights hub is an open and secure IIoT platform allowing users to create apps that use operational data for predictive maintenance and resource optimization. This data is captured on-site by your instruments and transferred to the Insights Hub, where it can be accessed 24/7 by authorized users.



## Sales and support

### Custom engineering

Siemens brings a wealth of engineering expertise together with an expansive portfolio of products and services. This winning combination enables us to design innovative and cost-effective solutions to resolve your most challenging applications in the process industries.

### Service around the world

Plants must function reliably at all times – which makes effective, efficient process instrumentation and analytics an indispensable requirement. You also need to be certain of fast and competent service from your supplier. Siemens is a global company that reacts locally. Whether you require consulting, quick delivery or installation of new devices, the Siemens network of specialists is available to you around the world, wherever your location.

### Siemens Industry Online Support (SIOS)

Our online support system offers rapid, comprehensive assistance regardless of time or location. Manuals, technical data, certificates, downloads, support requests: we have it all.

Explore SIOS at: <http://support.industry.siemens.com>

## Process Instrumentation Training

With Siemens Process Instrumentation you are in complete control of your water operations. That's why it's so important that your team be fully trained to maintain and handle any situation that may arise. Our comprehensive training classes are led by field-proven and experienced instructors who combine extensive application and instrumentation knowledge with many years of training experience.

Our 3 day, comprehensive, hands on water class provides students with the technical knowledge required to specify, apply, install, and maintain process instruments utilized in drinking water applications.

Want to learn even more? Our technology focused courses delve deeper into a wide array of specific topics, including pressure, temperature, level, valve positioners, loop controllers, flow, weighing and industrial communications.

Classes are offered throughout the year at various locations or through our mobile training platform we can bring the class right to you!

For more information please send an email to [piatraining.industry@siemens.com](mailto:piatraining.industry@siemens.com), or call 1-800-365-8766, Prompt 5.

**Measuring everything that matters:**

***usa.siemens.com/pi***

Siemens Process Instrumentation offers best-in-class measurement and seamless integration into your automation system. We are the total solution provider for flow, level, pressure, temperature, weighing, positioners and more.

**Legal Manufacturer**

Siemens Industry, Inc.  
100 Technology Drive  
Alpharetta, GA 30005  
United States of America  
Telephone: +1 (800) 365-8766  
usa.siemens.com/pi  
Order No. PIBR-00037-0325  
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