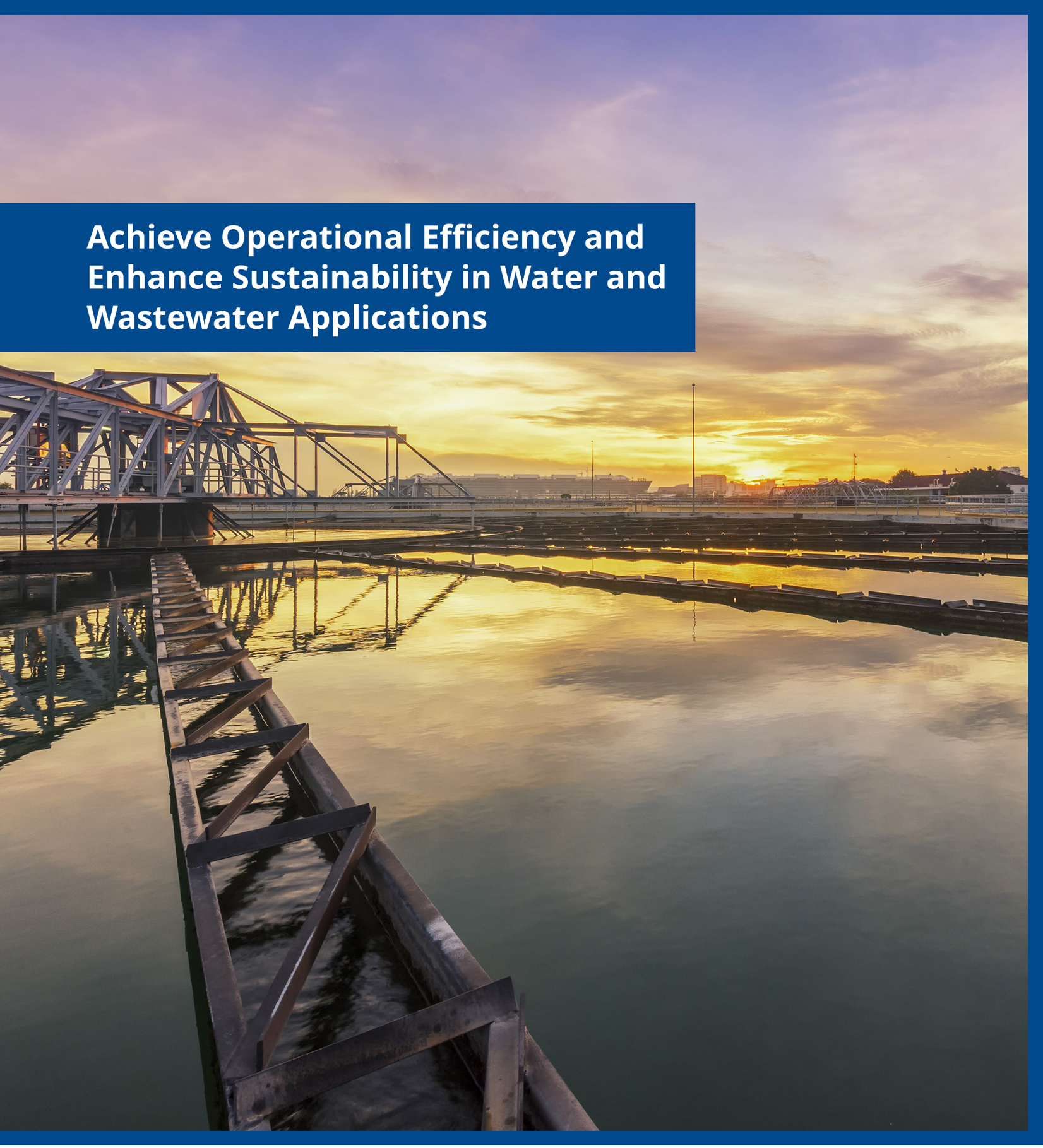
Achieve Operational Efficiency and Enhance Sustainability in Water and Wastewater Applications



Measurement Instrumentation

Technologies that help you reliably optimize processes and minimize energy use while complying with regulations.

EMERSON

Minimize Energy Use and Ensure Sustainable Water Management

With increasing financial constraints and a growing concern for environmental stewardship, plants face an array of issues including environmental management, plant performance, and fiscal responsibility, along with the need to find ways to improve operational efficiency and minimize costs.

For both drinking water and wastewater plants, Emerson's measurement technologies provide insight and decision support to help you ensure compliance with regulations and enhance sustainability.

During the first year of operation, we have seen that the Rosemount™ Flow Measurement technology brings unparalleled value to our applications by reducing maintenance activities and operational costs.

- Mediterranea delle Acque, Technology Manager

Water authority optimizes feed systems and saves 2200 man-hours per year through automation. With reduced operator intervention, the water treatment facility achieved a more consistent and higher quality end product.

- Water Treatment Facility in Colorado

Wastewater treatment facilities of all sizes can realize significant energy reduction by doing an informed selection of equipment suppliers, measurement technology, mounting technique, and maintenance strategy.

- Energy Solutions Company, Project Manager

Emerson’s product offering includes a complete line of pressure, temperature, flow, level, liquid analysis and wireless measurement instrumentation for water and wastewater applications that will help you reduce maintenance, optimize operations and minimize costs and water loss at your plants.

Extend asset life and lower maintenance costs

When you need to maintain service levels with declining budgets, the challenges can be daunting.
We can help you address your challenges by helping you digitalize your facility, reduce the cost of maintenance and comply with regulations - with products designed to make your life easier and help you operate efficiently and safely. Along with support from experts who understand your business, we have you covered.

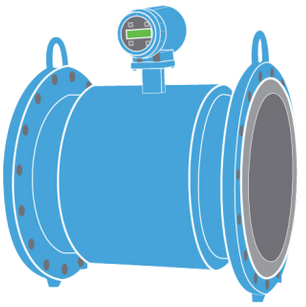
Optimize your operations with easy-to-use devices

Minimize operational costs and eliminate manual rounds with efficient high-performing devices from Emerson

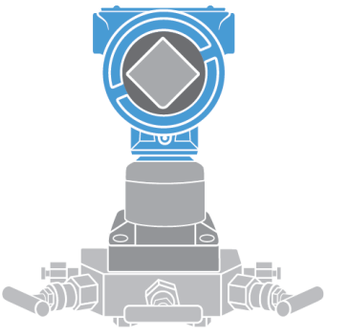
Achieve sustainable water management

Reduce water loss, comply with regulations and ensure sustainable water management processes

Reduce maintenance and gain efficiency with reliable solutions

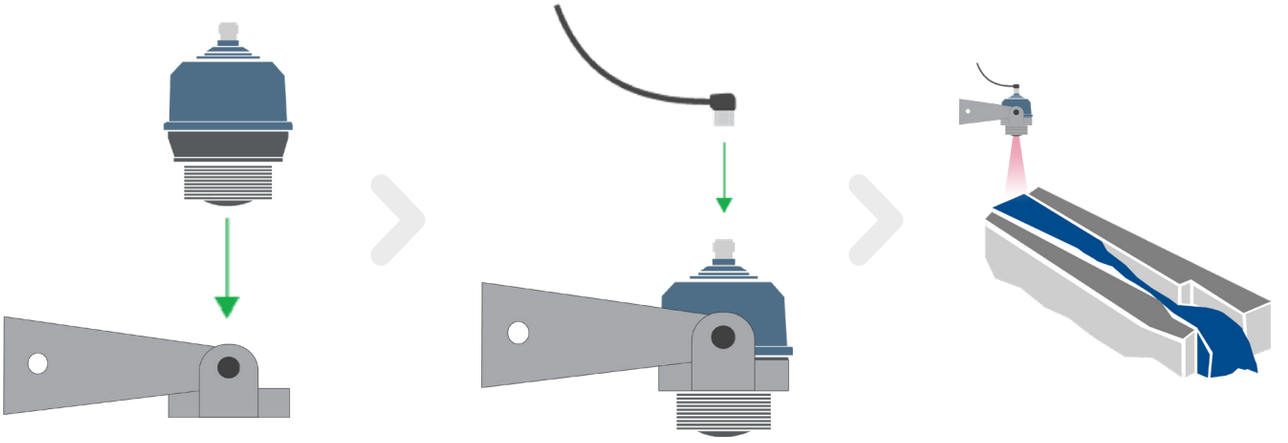


Rosemount 8750W utilizes Smart Meter Verification to validate the health of the flowmeter; elevating confidence in the measurement.



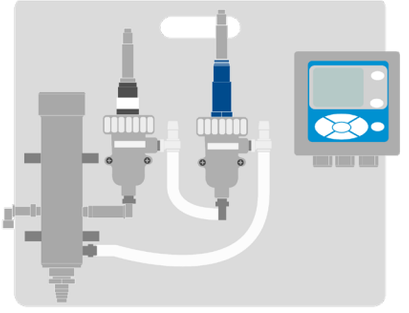
Rosemount 3051S Pressure Transmitters improve availability and eliminate unnecessary maintenance with advanced process intelligence.

Reduce complexity and automate processes to optimize your operations

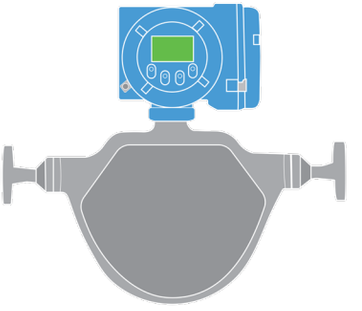


Rosemount 1208 provides full control and insight to your process. Innovative technology and smart algorithms eliminate the need for advanced user settings.

Minimize costs, reduce water loss and comply with regulations



Rosemount FCL Free Chlorine Measuring System avoids the continuing expense and inconvenience of reagent-based analyzers.



Micro Motion Coriolis Flow and Density Meters with Single Pipe Penetration provide flow, density, and concentration measurements for real-time analysis.

Level measurement

Gain accuracy and reliability to optimize your processes in drinking water and wastewater applications

The complete level measurement range for your water and wastewater management needs

Ensure sustainable operations

- Comply with regulations and enhance sustainability at your plant with reliable instrumentation
- Prevent overflows due to inaccurate or unreliable measurements from legacy technologies

Minimize costs with reliable instrumentation

- Optimize processes with maintenance and calibration-free instrumentation
- Reduce manual rounds and operating costs with robust instrumentation that withstands environmental conditions

Reduce complexity with easy-to-use devices

- Easy-to-commission and easy-to-use automation instrumentation helps you optimize your processes effortlessly
- Benefit from measurement instrumentation fit for outdoor installations, compact sizes and mounting brackets available

Reliable and continuous control of water level to avoid pump dry-running and overflows

Pump or lift stations are needed to transport water into the treatment plant, but also within the plant itself. Level measurement is needed to monitor the level inside the pump station and avoid both pump dry-running, and overflows.

The Rosemount 1208 Level and Flow Transmitter ensures continuous control and monitoring of water levels, and with a fully encapsulated UV-resistant PVDF design, it withstands flooding and harsh outdoor conditions.

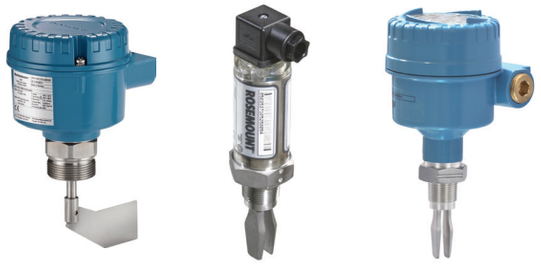
Optimize processes with radar technology for level and open channel flow measurements

Rosemount 1208 Level and Flow Transmitter

- Top-down non-contacting technology
- Reliable and accurate 80 GHz FMCW and Fast Sweep Technology
- Small and lightweight robust PVDF design
- Cost-effective and simple replacements with wirable M12 connector technology
- Plug and play installation
- Fully submersible
- Hybrid communication options with 4-20 mA/HART®/IO-link/switch output
- Food-grade material, approved for usage in contact with drinking water
- Parshall, Khafagi-venturi, or 30 point look-up for basic flow measurement

Increase safety and eliminate overfills

Rosemount 2100 and Rosemount 2500 Level Switches



- Point level detection for alarm, monitoring and control of liquid and solid media
- Sediment detection for sand interface
- Extended for length up to 10ft (3m)
- Offers 4-20mA, HART® and switching output communication
- Requires minimum installation and no calibration
- SST wetted parts with ECTFE/PFA coating for corrosive application

Liquid Analysis

Instrumentation for drinking water

Optimize operations with reliable liquid analysis

- Critical to many applications across your water treatment facility, effective liquid analysis monitors and controls: drinking water to ensure quality, wastewater to stay compliant, water purification to protect capital assets, sanitation systems to optimize processes, and much more
- Dependable, accurate liquid analysis makes the difference for yielding profitable and productive processes, and Emerson experts will work with you to help make any necessary improvements and find a solution to any liquid analysis problem
- Emerson's global reach and proven technology offers a comprehensive range of transmitters, and sensors for maintaining and controlling even the most demanding water treatment applications

Drinking water plants require a wide range of liquid analysis instrumentation to produce clean and safe drinking water. Turbidity sensors measure water clarity. Free chlorine, chloramine, or total chlorine sensors measure disinfection residuals. Chlorine or ozone sensors monitor primary disinfectant levels and pH sensors measure the acidic or basic nature of the water. Rosemount liquid analysis technologies provide confidence in water quality throughout your process.

Help ensure water quality and regulatory compliance while controlling costs

Rosemount FCL Free Chlorine System

- Reagentless free chlorine system including continuous pH measurement and correction
- Eliminates costly and messy reagents, lowering operating costs
- Full-color display pinpoints warnings and diagnostics
- Complete with data logger so data can be easily downloaded in Excel format using USB drive

Rosemount T56 Turbidity System

- Continuous monitoring of water turbidity in drinking water applications
- Compliant with U.S. EPA 180.1 and ISO 7027 Standards
- NTU measuring range allows for greater resolution and confidence in the reading
- No wiring needed, allowing for quick start-up and easy maintenance

Reduce operating costs and minimize maintenance

Rosemount 56 Transmitter

- 4-wire transmitter capable of two simultaneous pH, conductivity, dissolved oxygen, chlorine, or ozone measurements in any combination
- Full-color display pinpoints warnings and diagnostics
- Process data can be downloaded in Excel format using a USB drive

Rosemount pH Sensors

- Wide variety of sensors to comply with the standards of the water treatment industry
- Threaded housing, allowing for submersible installation
- Rosemount 3900 pH sensor is solution ground to minimize stray current and increase measurement accuracy
- Rosemount 3900 pH sensor is compatible with a low-flow panel, allowing for high-purity water applications

Increase productivity and help maintain water quality

Rosemount Dissolved Ozone, Dissolved Oxygen and Chlorine Sensors

- Rosemount 499AOZ , Rosemount 499ADO, and Rosemount 499ACL sensors for measure dissolved ozone, dissolved oxygen and chlorine
- Rugged and robust design allows for easy maintenance
- Oxidation-reduction reaction principle for repeatable water purity calculations
- Suitable for monitoring of disinfection processes in water treatment processes

Rosemount Conductivity Sensors

- Comply with standards for clean water and high suspended solids
- No calibration necessary
- Reinforced metal frame gives the Rosemount 228 Toroidal Conductivity Sensor high vibration tolerance
- Rosemount 400 and 228 Conductivity Sensors are available with high temperature option up to 200°C

Flow measurement

Cost-effective solutions in conventional and challenging applications

Enable increased plant availability, decrease costs and enhance safety

Gain reliability and advanced process insight

- Process diagnostics provides advanced notice of operational problems

Reduce operation and maintenance costs

- Robust meter designs for long-term operation with no maintenance needs
- Long-life specifications of measurement stability provide peace of mind

Ensure compliance and increase efficiency

- Smart Meter Verification allows proves function of meter without removal from line
- Low or no-obstruction designs minimize pumping loses

Optimizing feed systems and reducing cost with Micro Motion flowmeters

A water authority in the U.S. needed to optimize and automate their collection and distribution systems. The process demanded high accuracy at low flow rates, with better repeatability. The water authority chose Micro Motion Coriolis flowmeters for each of its systems. The meters proved to be highly accurate at flow rates as low as 0.1 gallons per hour. Even with a polymer viscosity of 500 cP, an acceptable pressure drop was obtained.

Increase efficiency in your asset management with flow measurement solutions

Rosemount Annubar™ Flow Meters

Maximize operational and energy savings with Rosemount Annubar Averaging Pitot Tube Flow Meters

- Insertion style minimizes installed cost and pressure loss
- Fully compensated mass flow measurement
- Available for all line sizes 2-96+”

Micro Motion ELITE CMFS Meter

Reliable mass flow, density, and concentration, measurement in one meter for ultimate performance in even the most demanding field and plant applications.

- ±0.0002 g/cm^3 liquid density accuracy
- Entrained gas diagnostic
- 30:1 flat spec optimum turndown and scalability
- Immune to process, mounting, and environmental effects

Get obstructionless, bi-directional, highly accurate volumetric flow measurement

Rosemount Magnetic Flow Meters

Provides an obstruction-less, cost-effective, and bi-directional highly accurate volumetric flow measurement

- Up to 0.20% of volumetric flow rate accuracy over 13:1 flow turndowns, 0.50% over 40:1 flow turndown
- Available in standard line sizes .5” to 48” (15mm to 1200mm)
- Wide selection of liner materials and electrodes
- Advanced Diagnostics and Smart Meter Verification allow for improve plant availability and throughput

Pressure measurement

Gain the process insight to optimize every point

The industry standard for reliability

For more than 50 years, Emerson's Rosemount pressure instruments have led the way in providing innovative solutions to critical measurement challenges in harsh environments.

Improve Performance and Safety
Pressure transmitters and transducers with industry-leading performance help improve operations. And the Rosemount Seal System offers transmitter protection, thus helping to provide reliable and remote measurements.

Gain Greater Process Insight
Industry-proven sensors designed for improved process pressure readings help eliminate the need for bourdon tubes and mechanical parts

With more than 20 million devices installed worldwide, Emerson pressure instruments deliver proven performance to help you enhance safety and operate at higher levels of efficiency.

Innovation for quality, performance and safety

- **Accelerate project execution and reduce costs** with leak-tested, installation-ready assemblies based on the compact design of the Rosemount Coplanar™ platform.
- **Drive better decision-making** through early detection of abnormal situations with Process Intelligence and Plugged Impulse Line diagnostics
- **Reduce maintenance** by controlling closer to setpoint with the Ultra for Flow performance class and extending calibration intervals with 15-year stability.
- **Help protect the safety of your people, facility, and the environment** by detecting wiring failures with the Loop Integrity diagnostic and by eliminating operator rounds with the Rosemount Wireless Pressure Gauge.

Achieve industry leading reliability and safety with pressure instrumentation

Pressure Transmitters

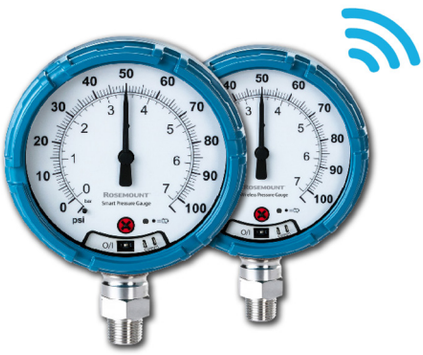
- Enhance efficiency with the Rosemount 3051 Transmitter Series.
- Reliable, ready-to-install, flow, level, and pressure solution.
- Enhance monitoring of your entire operation, even in remote and hard-to-reach locations, thanks to wireless capabilities

Reduce maintenance and improve safety

Rosemount 1199 Diaphragm Seal System

- Offers transmitter protection against hot, cold, corrosive or erosive processes
- Wide variety of seals meet varying process requirements and specifications, including industry-specific applications
- Eliminates need for mounting hardware to reduce installation costs

Rosemount Pressure Gauges



- Designed with proven sensor technology to help reduce maintenance and improve safety.
- These solutions resist failures caused by vibration, overpressure and other extreme factors
- The Wireless Pressure Gauge can deliver process data remotely via a WirelessHART® network.

Wireless Technology

Digital transformation starts here

Cost-effective, easy to integrate

- Non-intrusive, self-organizing networks can be deployed in minutes
- Wireless technology features less cabling, faster commissioning and calibration-free devices
- Reduce installation time and costs by over 50%

Reliability in challenging conditions

Robust network monitoring and management allow you to:

- Ensure 99% data reliability
- Identify trouble spots
- Minimize downtime
- Cost-effectively optimize your operation

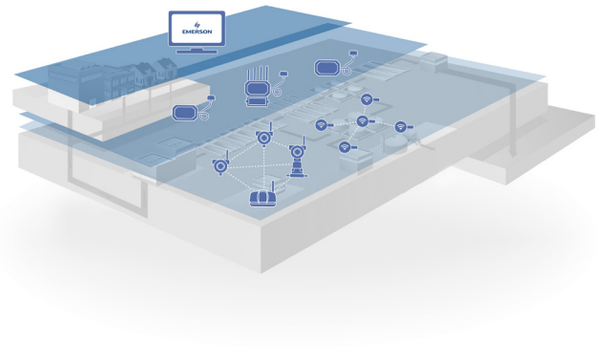
Protect your people and increase productivity

- Eliminate time-consuming manual rounds, which can jeopardize safety
- Detect problems before they occur and proactively prevent abnormal situations
- Monitor hazardous areas which were previously inaccessible

Scalable solutions to meet the needs of your facility today and tomorrow

To operate your site safely, reliably, and securely, you need a stream of timely data — without sending personnel into the field more often than necessary. Emerson's wireless technology gives you visibility to detect problems before they occur, transforming your operation into a proactive facility.

Wireless solutions for water and wastewater applications include key components that all work together to deliver a secure, consistent and reliable wireless infrastructure scalable to fit any need from a single application through plant-wide implementation.



Waste Treatment Facility Realizes ROI and Improves Odor Control with Emerson Wireless Networks

The results

- Immediate ROI, based on wiring costs alone
- Reduced operating costs
- Improved odor control
- Reduced ongoing maintenance
- Fast, easy installation

The Stamford Water Pollution Control Authority (SWPCA) of Stamford, Connecticut was looking for a cost-effective way to improve odor control and reduce operations costs by increasing the efficiency of key process areas.

The existing plant wiring and conduit system was in various states of disrepair and deterioration, mostly due to the aggressive environment of the plant, so SWPCA also sought to replace the failed wiring and bring new measurements online for a new blower and upgraded aeration system.

SWPCA installed a WirelessHART® instrument network and a wireless plant network to provide secure, reliable measurements and communications across the plant. This consisted of wireless pressure transmitters, vibration transmitters, and dual-input discrete transmitters.

The WirelessHART instrument network communicates with an Emerson wireless gateway, which can be connected to a variety of hosts. At SWPCA, the gateway was wired to a wireless access point and integrated into a new Wi-Fi network.

Installation time and costs for this solution were dramatically less than replacing the existing wiring. The network installation and setup took less than two days, as opposed to a comparable wired installation which would have taken two weeks.

Another benefit was the added layer of digital communications and diagnostics that weren't available before. Emerson wireless technology enables operators to access detailed information for the repair or adjustment of equipment without leaving the equipment location, which creates greater efficiencies and long-term savings.

"The Emerson solution provides solid, reliable, secure communications. It is easy to set up, and any problems were quickly resolved. The instruments are 100% reliable, even covered in snow. This network is solid as a rock."

Dan Capano
President, Diversified Technical Services

Emerson’s field-proven instrumentation technologies will help you achieve operational excellence and minimize energy use, while enhancing equipment reliability and operator effectiveness

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