

ROSEMOUNT MEASUREMENT INSTRUMENTATION



Operate at your full potential

ROSEMOUNT


EMERSON
Process Management



Measuring up to your measurement challenges

Discover how Rosemount® measurement solutions from Emerson Process Management™ can help you tackle your toughest operational challenges and meet your goals. Explore our full portfolio of solutions designed to enhance safety, reduce downtime and increase efficiency, so you can operate at your full potential.



TABLE OF CONTENTS

Unlocking Your Full Potential _____	4–5
Realizing Remarkable Results _____	6–8
Performance Beyond Measure _____	9
Global Support _____	10–11
Pressure Measurement Technologies _____	12–15
+ Pressure Transmitter Portfolio	
Differential Pressure Flow Measurement Technologies _____	16–21
+ Differential Pressure Flowmeter Portfolio	
+ Differential Pressure Flow Primary Element Portfolio	
Temperature Measurement Technologies _____	22–27
+ Temperature Transmitter Portfolio	
+ Temperature Sensor and Thermowell Portfolio	
Level Measurement Technologies _____	28–37
+ Differential Pressure Level Portfolio	
+ Radar Level Portfolio	
+ Level Detection and Alarm Portfolio	
+ Ultrasonic and Conductivity Portfolio	
Tank Gauging Portfolio _____	38–39
Smart Wireless Technologies _____	40–43
+ Rosemount Wireless Portfolio	



Extraordinary measures

Rosemount measurement solutions bring you robust insight to make the right decision when it counts — when safety, efficiency and profitability are on the line.

How do you unlock your full potential?

We see measurement differently at Emerson, and we're helping customers around the world see it differently, too — with advanced Rosemount measurement technology that empowers them to realize their full potential. To run a safer operation. Attain higher performance. Increase efficiency and profits.

That's how we measure success. Because it's not about the information. It's about what the information allows you to do. What are you trying to achieve? With uncompromising Rosemount quality, reliability and innovation, you can expect remarkable results. And that, by any measure, is extraordinary.

+ ROSEMOUNT 3051 WIRELESS FLOWMETER

Easily add a new measurement point with the industry-standard Rosemount 3051 Wireless Flowmeter. No cumbersome wiring is required and it installs between existing flanges.

MEETING THE INDUSTRY'S TOUGHEST MEASUREMENT CHALLENGES

SAFETY is your top priority, but keeping pace with increasing regulations brings added cost and risk to your business. Your processes are growing more complex and your environments more demanding. With Rosemount instrumentation, you'll have better information about what's going on in your process so that you can find better ways of protecting the safety of your people and equipment.

Process disruptions and **DOWNTIME** cost you now and later in lost productivity, lower output and less profit. With Rosemount instrumentation, you'll have the right information at the right time to avoid problems before they occur — so you can keep your plants running at the highest levels possible.

Efficiency matters when you're charged with achieving higher **PRODUCTIVITY** and output at lower costs. But streamlining your process is difficult if you can't identify where to implement changes. Armed with reliable information from Rosemount devices, you can uncover inefficiencies and identify your best opportunities for improvement — so you can bring the biggest returns to your bottom line.



REALIZE REMARKABLE RESULTS

When you invest in Rosemount instrumentation, you get much more than the world's most trusted measurement products. You harness the power of insight to run your operation to its full potential and achieve remarkable results.

Gain insight to meet increasing safety and regulatory demands

Maintaining compliance without paralyzing your operation is a tough challenge. Rosemount solutions bring you the information you need to protect your people and equipment as you push your processes to do more.

- + **Ensure your equipment performs**, no matter how demanding the environment, with instrumentation you can trust to make accurate, reliable measurements under the harshest conditions.
- + **Automate manual processes** to keep your people out of harm's way. With cost-effective Emerson Smart Wireless technology, it's possible — and practical — to collect difficult measurements without sending people into dangerous situations.
- + **Respond to changing regulatory standards** and stay in compliance. Rosemount instrument consultants and service personnel can help you select and integrate the latest measurement technologies that will bring your legacy infrastructure into compliance.

+ ROSEMOUNT 3051S SCALABLE SERIES OF INSTRUMENTATION

The no-equal Rosemount 3051S scalable pressure platform offers the most advanced and integrated transmitter innovations to help you improve plant performance.





Reduce process variability to prevent downtime

Meet your production targets by minimizing planned and unplanned downtime. Rosemount solutions help you identify potential threats and proactively schedule preventive maintenance before process upsets occur.

- + **Increase uptime** with consistently accurate, repeatable measurements and advanced diagnostics that enable you to detect variability or potential equipment malfunctions that could disrupt production.
- + **Prevent failures** that could slow or shut you down. Drawing on our technical expertise and best practices, you can implement improvements to run your operations more reliably.
- + **Enhance insight** with intuitive products and a user-friendly visual interface that enables both new and veteran staff to verify measurement health and resolve issues faster.

Human-Centered Design drives Rosemount product innovation

From intuitive, visual dashboards that allow operators to see and resolve issues quickly, to product designs that make it easier to install, commission and maintain devices in the field, Rosemount products continually raise the industry standard for innovation, performance and ease of use.

+ DEVICE DASHBOARD



Maximize the capabilities of your assets for greater productivity

Rosemount measurement solutions give you the information you need to run your operations closer to desired limits — for higher productivity and output. Our solutions will seamlessly integrate into your current structure so you can keep existing assets in service longer, and performing with greater efficiency.

+ Smart Wireless THUM™ Adapter

With the Emerson Smart Wireless THUM Adapter, you can easily upgrade any HART® device to wireless technology.



- + **Streamline your operations** by tapping the expertise of Emerson’s instrument consultants to provide recommendations for improvements that will bring the highest return to your business.
- + **Collect more information** about process efficiency without adding people or infrastructure. You can easily add new measurement points with Rosemount wireless devices or access stranded diagnostics or MultiVariable™ measurements with Emerson’s Smart Wireless THUM Adapter.
- + **Minimize risk** by partnering with an industry leader who has in-depth instrumentation experience, proven methodologies and best practices to ensure you achieve the results you want.

If you need it measured, we have the solution

The Rosemount brand offers you the highest quality and widest selection of products for measuring every application in every area of your operation.

PRESSURE TEMPERATURE LEVEL FLOW

- + Scalable wireless technology speeds installation and makes it easy to add future measurement points where you need them.





PERFORMANCE BEYOND MEASURE

The most trusted, field-proven products

Advanced products for the measurements that matter most to your business

- + **Trust your measurement quality** with the most accurate, reliable and long-lasting instruments in the world.
- + **Streamline purchasing and reduce inventory** with the most expansive and versatile portfolio of best-in-class measurement instrumentation from one source.
- + **Reduce system complexity** with common product architectures and familiar interfaces that minimize employee training and errors.
- + **Choose the best technologies** for your measurement goals with product selection support from knowledgeable sales representatives.

Innovative solutions to ease installation and provide trouble-free operation

- + **Save time and money** with fully tested, installation-ready equipment such as our innovative Differential Pressure Flowmeters, manufactured from 100% Rosemount components to deliver optimum performance.
- + **Eliminate significant maintenance issues** down the road with best practices to install devices correctly and ensure your staff knows how to operate and maintain them properly.

+ ROSEMOUNT 3051S ELECTRONIC REMOTE SENSOR (ERS™) SYSTEM

Achieve stable and repeatable measurements on tall vessels, towers and applications with wide-varying temperatures.



The people and capabilities to support you

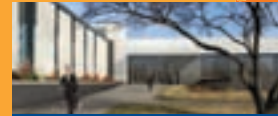
From our innovative product development process to our global manufacturing sites and customer care centers, we work to the highest standards in everything we do. Our worldwide facilities:

- + Are each ISO 9001:2008 Certified
- + Deliver product consistency through common manufacturing procedures, equipment and personnel training
- + Ensure the highest product quality through our quality management systems

You're assured of receiving consistent Rosemount quality and an exceptional service experience, no matter what you need or where you are.



Chanassen, MN, USA
Worldwide HQ



Eden Prairie, MN, USA



Boulder, CO, USA



Brenham, TX, USA



Sorocaba, Brazil



London, U.K.



Naestved, Denmark



G

- ★ Worldwide Headquarters
- Global Manufacturing and Support Center

Local Expertise

Solve your critical business problems with the help of our local sales, Lifecycle Services, and application support teams. Our highly trained salespeople speak your language, know your regional business climate, and will help you deploy proven, industry-leading technology and best practices at your site.

Order Management and Application Support

Get expert help no matter where you are located. Our customer care centers are staffed with trained engineers and business professionals to take care of all your requests. Whether you need help selecting the best technology, require in-depth application support, or have order-related inquiries, we have the experts to address your toughest challenges.

Project Management

Whether you're expanding an existing facility or designing a new one, you need to keep your projects on time and on budget. The Rosemount Project Management Office is here to help you throughout your project lifecycle. We apply best-practice project management with robust gated processes so that you can reduce project complexity and mitigate project risks.



GLOBAL SUPPORT



Beijing, China

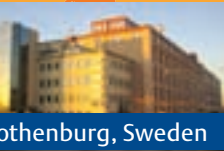
Busan, South Korea

Shanghai, China

Singapore

Mumbai, India

Chelyabinsk, Russia



Gothenburg, Sweden



Karlstein, Germany



Wessling, Germany



Jubail, Saudi Arabia



Dubai, U.A.E.

+ Sales and service offices located in 165 different countries

Lifecycle Services

With tight budgets and limited resources, installing, maintaining, and calibrating measurement devices in complex applications is becoming increasingly difficult. With Rosemount Lifecycle Services, our local teams leverage their process measurement expertise to help you avoid unplanned downtime and meet your production goals. From instrumentation installation and commissioning through repairs and replacements, Emerson's factory-trained certified technicians help you run your process better.

Delivery Capabilities

When your process is down, it's imperative to get new or replacement parts as soon as possible. By ordering Rosemount products, you'll be back online quickly. Our lean manufacturing processes and global presence allow us to build our products to your specifications and within your delivery requirements. The majority of our product portfolio is available in two weeks or less, with many items eligible for same- and next-day shipment.



+ Find our world-class facilities, sales offices and service locations by visiting Rosemount.com and clicking on "Contact Us."

PRESSURE MEASUREMENT TECHNOLOGIES

You are challenged to improve productivity and safety while lowering your total costs. With Rosemount pressure measurement technologies, which are backed by a 50-year heritage of success and over 15 million installed devices, you can minimize downtime and inefficiencies and achieve better results. Using the industry's broadest offering of pressure, level and flow solutions, you will run at your full potential, reducing your risk and guaranteeing maximum returns.

Innovation for reliability, performance and safety

- + Achieve **unparalleled productivity** and **reduce risk** with industry-leading pressure, flow and level solutions
- + Experience **field-proven performance** and **reliability** in even the harshest environments
- + **Start up faster** and **operate longer** with installation-ready devices that are easy to use and maintain
- + **Maximize your success** with innovative diagnostics and MultiVariable technologies that improve process insight, provide predictive intelligence and increase capabilities at every measurement point

+ FOR MORE INFORMATION, VISIT
www.Rosemount.com/Pressure



Extending pressure measurement to flow and level applications

- + **Speed up project execution and minimize installation time** by using our fully assembled, leak-tested and configured Differential Pressure Flowmeter and Differential Pressure Level solutions
- + **Reduce engineering and installation costs** with our innovative Coplanar™ platform
- + **Improve safety and reduce maintenance** by eliminating potential leak points with our installation-ready solutions



Advanced intelligence drives better decisions

- + **Improve plant uptime** through early detection of process and electrical loop abnormalities with Advanced Diagnostics
- + **Optimize process control and energy usage** with MultiVariable capabilities
- + **Increase your monitoring reach and eliminate operator rounds** by using Smart Wireless solutions

+ LEARN MORE



Rosemount 3051S Series of Instrumentation



Rosemount 3051 Pressure Products



Rosemount 2051 Pressure Products



Rosemount Instrument Manifolds

PRESSURE TRANSMITTER PORTFOLIO



Rosemount 3051S Series of Instrumentation

- + Achieve the highest field reliability, performance and safety with our transmitters' hermetically sealed stainless steel SuperModule™ platform
- + Enhance SIL 2/3 safety and extend proof test intervals through certified diagnostic coverage from your process to the control room
- + Optimize performance and reliability with the world's only scalable platform backed by 10-year stability and a 12-year limited warranty
- + Extend your leadership with superior innovations including Smart Wireless Solutions, MultiVariable Flowmeters, Electronic Remote Sensors and Advanced Diagnostics



Rosemount 3051S Wireless Pressure Transmitter

- + Extend your monitoring reach easily and affordably for a decade of maintenance-free performance
- + Deploy industry-leading reliability and safety to IEC-approved WirelessHART® technology
- + Measure pressure, flow and level with one platform



Rosemount 3051S MultiVariable Flowmeter

- + Simplify mass and energy flow measurement
- + Eliminate guesswork with easy, two-step configuration
- + Improve control of raw materials, combustion, reactions and blending



Rosemount 3051S Electronic Remote Sensor System

- + Improve control on tall vessels and distillation towers
- + Simplify installation with a digital architecture
- + Increase process insight with MultiVariable measurements
- + Eliminate need for a separate vapor space measurement



Rosemount 3051S Tuned-System™ Assembly

- + Minimize maintenance and parts by eliminating wet or dry leg level installations
- + Reduce installed costs by 20% while improving performance by 30%
- + Lower project risk with QZ Remote Seal System Performance Report



Rosemount 3051S with Advanced Diagnostics

- + Stay on top of the health of your process and spot problems before they impact production
- + Detect degraded electrical loop integrity issues before they affect your operation
- + Expand diagnostics coverage to safety applications and prevent unplanned downtime

Rosemount 3051 Pressure Products

- + Reduce risk with the industry standard and proven leader with over **7 million installations**
- + **Reduce installation and engineering costs** with integrated pressure, differential pressure flowmeter and differential pressure level solutions
- + **Improve productivity** with the Local Operator Interface
- + **Increase installation reliability** with Power Advisory Diagnostics
- + Meet your safety application requirements with **SIL 2/3 certification** to international standard IEC 61508



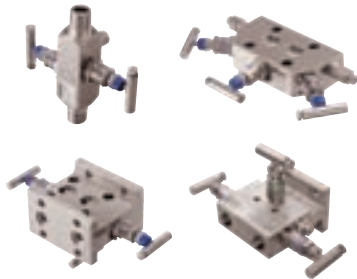
Rosemount 2051 Pressure Products

- + **Increase confidence** in your measurements by using more reliable differential, gage and absolute pressure transmitters
- + Upgrade to the **Coplanar platform** for easy integration of primary elements, manifolds and remote seal solutions
- + Get exactly what your application demands with a **broad family** of measurement capabilities



Rosemount Instrument Manifold Solutions

- + Choose from a **wide breadth** of integral, conventional and in-line connections
- + Install **out of the box** with fully assembled, calibrated and leak checked solutions
- + **Lower installed costs** by up to 30%
- + **Reduce potential leak points** by 50% through elimination of the transmitter flange with the integral Coplanar design



Rosemount 2088 Pressure Transmitter

- + Get **proven reliability** in gage and absolute pressure applications
- + **Configure quickly and easily** with its Local Operator Interface



Rosemount 4600 Panel Mount Transmitter

- + **Reduce footprint** off-shore with its light-weight, all-welded stainless steel package
- + Measure pressures up to **20,000 psi (1379 bar)**



DIFFERENTIAL PRESSURE FLOW MEASUREMENT TECHNOLOGIES



If you're struggling with inaccurate or complex flow measurement, you could be running below your potential and spending too much time maintaining your flow points. What if you could utilize proven flow technologies to achieve better measurements with less time and effort? Rosemount's proven, innovative differential pressure flow portfolio offers superior, patented technologies that will increase your system's performance while simplifying installation and maintenance.

Diverse solutions to meet your needs

- + **Achieve superior flow performance** even in demanding and critical applications — driven by advanced primary element and MultiVariable technology
- + **Save time and reduce costs** with innovative flowmeter solutions that install quickly and require less maintenance
- + **Enhance energy management** with MultiVariable flow technology that effectively balances energy production and usage

+ **FOR MORE INFORMATION, VISIT**
www.Rosemount.com/Flow





Innovative technology

- + **Improve results** with our Annubar®, Conditioning Orifice, Integral Orifice and MultiVariable innovations
- + **Reduce variability** with our enhanced primary element and MultiVariable capabilities
- + **Increase process uptime** with robust and reliable flowmeter platforms



Best practices for unparalleled results

- + **Optimize technology selection and installation** with our easy-to-use selection and sizing tools and task-optimized device dashboards
- + **Reduce risk and save engineering time** with help from Emerson’s flow consultants — available worldwide

+ LEARN MORE



Rosemount Annubar Flowmeters and Primary Elements



Rosemount Conditioning Orifice Flowmeters and Primary Elements

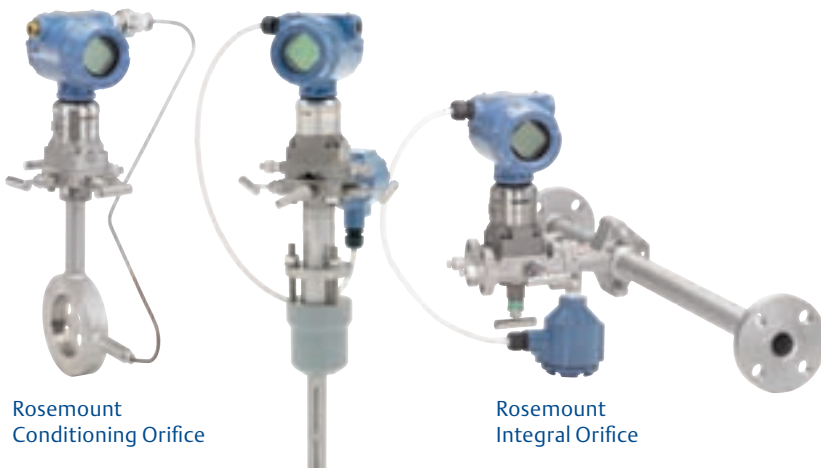


Rosemount Integral Orifice Flowmeters and Primary Elements



Rosemount MultiVariable Transmitters

DIFFERENTIAL PRESSURE FLOWMETER PORTFOLIO



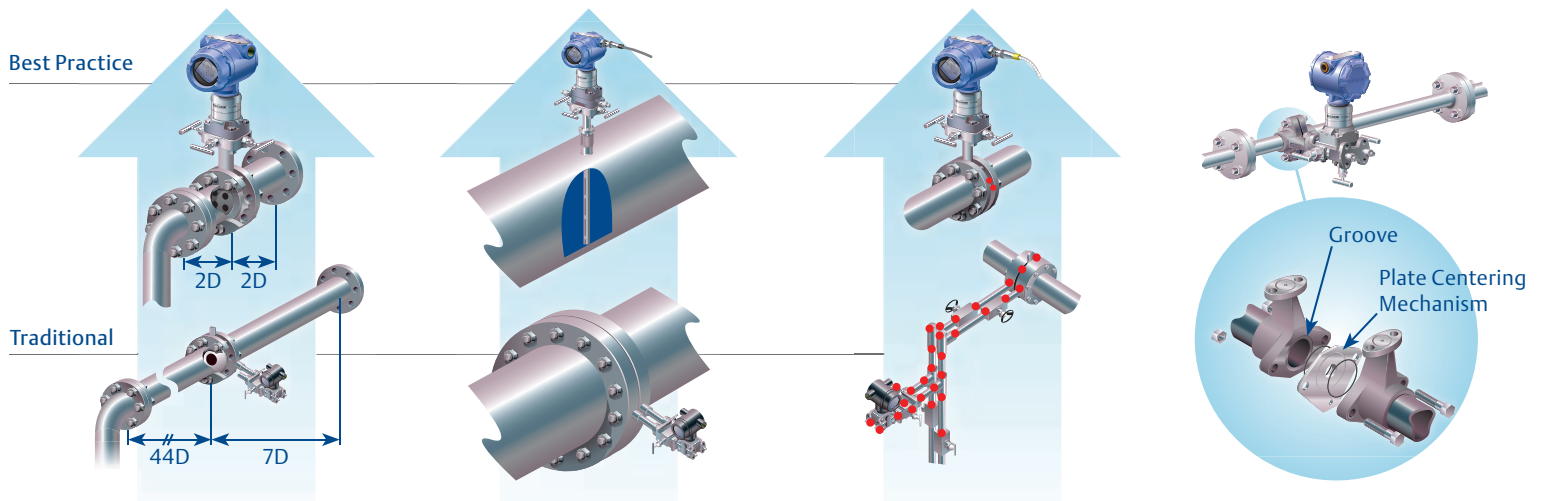
Rosemount Conditioning Orifice

Rosemount Annubar

Rosemount Integral Orifice

Rosemount flowmeters deliver reliable results

- + Save time and money with Rosemount flowmeters that are fully configured, leak-tested and ready to install
- + Reduce maintenance costs and eliminate flow errors by eliminating potential leak points



Rosemount Conditioning Orifice Flowmeter Series

- + Shrink footprint, weight and costs with a 90% reduction in straight-pipe requirements
- + Simplify engineering to reduce the time and cost needed to add new flow points

Rosemount Annubar Flowmeter Series

- + Reduce energy loss up to 95%
- + Simplify installation and reduce costs with insertion technology, especially in large lines

Rosemount Compact Flowmeter Series

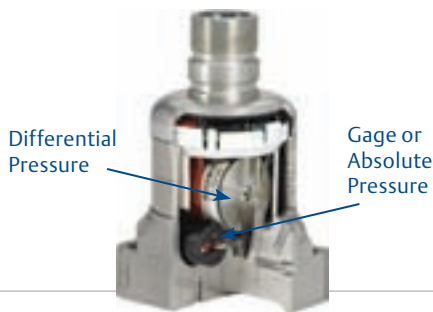
- + Reduce capital costs by 55% with a design that mounts between existing flanges
- + Cut potential leak points by 70%

Rosemount Integral Orifice Flowmeter Series

- + Achieve accurate measurement in line sizes up to 40mm (1.5") with honed pipe sections
- + Ensure precise plate centering

Rosemount 3051SMV MultiVariable Mass Flow Technology

- + Optimize energy mass balancing and improve billing accuracy through full compensation of 25 different parameters at 22 flow updates/second
- + Save 55% in installation costs with 3-in-1 measurement capabilities
- + Tighten flow control over a wider operating range with *Ultra for Flow*, the industry's first %-of reading differential pressure transmitter specification



MultiVariable SuperModule Platform

- + Achieve the highest level of reliability and performance with our patented Saturn Sensing technology packaged in the hermetic, stainless steel SuperModule platform
- + Simplify calibration with the industry's only true "gage" static pressure sensor

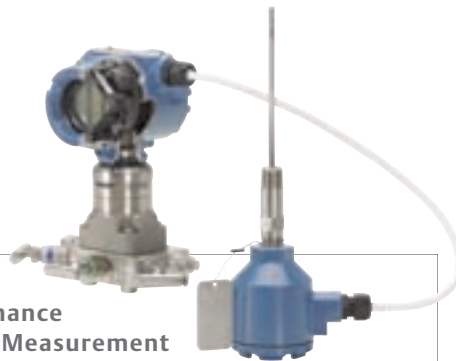
Superior Software

- + Get the data you need to optimize your operation, including mass, volumetric, energy and totalized flow
- + Stay compliant with industry standards, including API, ISO 5167, AGA Report #3 and #8 and ASME MFC-3M
- + Gain insight with status and quality reported on all process variables
- + Correct for Joule Thompson effect



High-Performance Temperature Measurement

- + Improve accuracy by 75% with sensor matching using Callendar-Van Dusen constants
- + Get earlier notification of potential failures through user-specified temperature limits
- + Ease installation with an industry-standard RTD cable



Easy-to-Use Engineering Assistant Configuration Tool

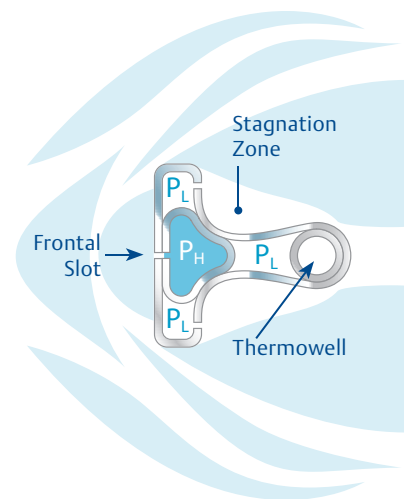
- + Get started faster with Windows® navigation and graphical interface
- + Complete your flow configuration in two easy steps
- + Reduce engineering time with our comprehensive fluids and primary element database
- + Instantly validate flow configuration with test calculations



DIFFERENTIAL PRESSURE FLOW PRIMARY ELEMENT PORTFOLIO

Rosemount Annubar Solutions

- + **Reduce energy costs** with lower permanent pressure loss
- + **Measure flow cost effectively** in line sizes up to 2400mm (96") with insertion technology
- + **Eliminate pipe penetrations** with our integral thermowell
- + **Reduce process variability** with the patented T-shaped design that reduces noise and improves low flow performance
- + **Increase accuracy** and measure 70% more of the velocity profile with the frontal slot design



Rosemount Pak-Lok, Flanged and Flange-Lok Mounting

- + Ensure reliable operation with the Pak-Lok patented compression design that firmly secures the sensor
- + Operate at pressure ratings up to 2500# ANSI with Flanged design
- + Further streamline flanged installations with Flange-Lok compression sealing



Rosemount Flo-Tap Mounting

- + Add a flow measurement point without process shutdown
- + Ensure quick and easy removal for pipe or line maintenance
- + Effortlessly and safely insert and retract under pressure with gear-assisted mechanisms



Rosemount Compact Annubar Primary Element

- + Easily install between existing raised-face flanges in line sizes from 12mm to 200mm (0.5" to 8")
- + Replace existing orifice plates to reduce permanent pressure loss



Rosemount Severe Service Primary Element

- + Meet the rigorous requirements for high-velocity and extreme flow conditions with a reliable solution
- + Improve boiler efficiency with a solution that meets critical main steam line requirements
- + Use bi-directional measurement to eliminate the need for two flowmeter assemblies

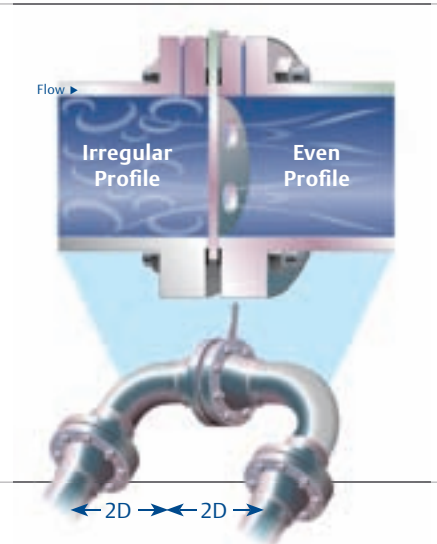


Rosemount Orifice Solutions

- + Measure flow accurately and cost effectively with orifice technology, the world's most commonly specified flow device
- + Reduce procurement costs through easy specification and ordering
- + Upgrade existing flow points with Conditioning Orifice technology

Rosemount Conditioning Orifice Technology

- + Accurately measure flow with an innovative design, regardless of swirl and irregular flow profiles due to upstream disturbances
- + Reduce straight run requirements by 90% while improving performance by 30%
- + Retrofit and upgrade existing applications without piping modifications
- + Reduce installed costs and plant footprint by eliminating the need for long straight runs



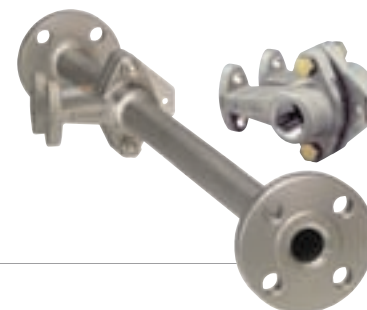
Rosemount Compact Orifice Primary Element

- + Increase reliability with a single package that combines manifold, connection hardware and the orifice plate
- + Easily install between existing raised-face flanges in line sizes from 12mm to 300mm (0.5" to 12")
- + Improve orifice plate alignment with an integral centering ring
- + Eliminate additional pipe penetrations with integral thermowell
- + Reduce piping requirements with the Conditioning Orifice option



Rosemount Conditioning Orifice Plate

- + Easily retrofit and upgrade existing applications where straight-pipe run is insufficient
- + Ensure application flexibility in line sizes from 50mm (2") to 600mm (24")
- + Meet installation requirements with paddle and universal plate styles
- + Improve flow performance by more than 25%



Rosemount Integral Orifice Primary Element

- + Maximize performance through self-centering plate design and precision-honed pipe sections
- + Effortlessly install a fully integrated package — including temperature measurement — in line sizes from 12mm to 40mm (0.5" to 1.5")

TEMPERATURE MEASUREMENT TECHNOLOGIES

If you're looking for new efficiencies or ways to improve your bottom line, temperature — the most commonly measured variable — can provide you with opportunities across your operations. Turn to Rosemount temperature technologies for the innovative solutions that will stand up in extreme conditions, minimize temperature swings and optimize your process. Our temperature instrumentation delivers reliable and accurate measurements in the toughest applications, helping you maintain ideal temperature levels and keep your materials and operation flowing smoothly.

Innovative Rosemount temperature technologies

- + **Get exactly what you need** — choose from our broad portfolio of transmitters, sensors, thermowells and more, and build the exact solution for your specific needs
- + **Gain rock-solid reliability** — our devices are proven to work day in and day out, in the most extreme conditions, so you can install them without worry and focus on other areas of your operation



+ FOR MORE INFORMATION, VISIT
www.Rosemount.com/Temperature



Find the right fit for every application

- + **Reduce infrastructure costs** by using High Density Transmitter technologies to economically measure hundreds of temperature points
- + **Achieve accurate and reliable measurements** in even the harshest conditions with ultra-rugged Rosemount sensors
- + Easily **expand your instrument network** into the most hard-to-reach applications with wireless temperature technologies



Make better decisions

- + **Gain process insights and improve uptime** with the advanced design and intelligent capabilities of Rosemount Single Point Transmitters
- + **Minimize downtime** by leveraging Advanced Diagnostics for early detection of abnormal device or process conditions
- + **Optimize process control** and material and energy usage with Rosemount multi-point sensing capabilities



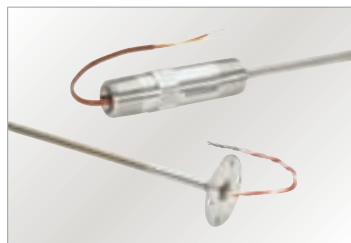
+ LEARN MORE



Rosemount Single Point Transmitters



Rosemount High Density Transmitters



Rosemount Temperature Sensor and Thermowell Technologies



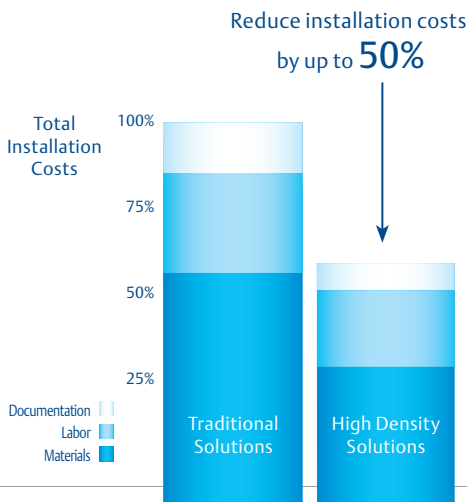
TEMPERATURE TRANSMITTER PORTFOLIO

Rosemount High Density Temperature Products

- + Easily measure multiple points with one transmitter, or hundreds of points within a network, at a lower lifecycle cost than traditional installations
- + Improve performance with robust signal processing from a transmitter that is mounted close to the measurement point
- + Connect stranded instruments or sensors — RTD, thermocouple, 4-20mA or 0-10v



Rosemount 848T Temperature Transmitter



High Density, Real Savings

- + Reduce costs by having less to design, install and maintain throughout the life of your facility



Robust and Reliable

- + Gain performance and reliability improvements over wired direct, multiplexer and remote I/O solutions



Measurement Validation Diagnostic

- + Prevent unnecessary downtime by distinguishing valid data from erroneous readings

Rosemount Single Point Temperature Products

+ Achieve superior temperature measurement with a comprehensive and versatile portfolio

Rosemount 3144P Temperature Transmitter



- + Improve uptime by detecting sensor failures with Advanced Diagnostics
- + Optimize your process with industry-standard reliability and performance
- + Reduce maintenance with 5-year stability
- + Enhance safety with SIL 2/3 certification to international standard IEC 61508
- + Reduce risk with field-proven reliability in the harshest environments

Rosemount 648 and 248 Wireless Temperature Transmitters



- + Maximize your monitoring points by using Smart Wireless solutions
- + Gain immediate indication of your process with the LCD
- + Reach to the far corners of your operation with extended range antenna

Rosemount 644 Temperature Transmitter

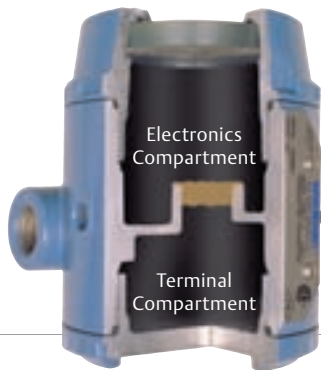


- + Start up faster with Local Operator Interface
- + Enhance safety with SIL 2/3 certification to international standard IEC 61508
- + Reduce inventory by standardizing on one modular platform

Rosemount 248 and 148 Temperature Transmitters



- + Reduce commissioning time by upgrading to HART protocol
- + Install easily with head-mount and rail-mount designs
- + Increase your monitoring points with basic functionality



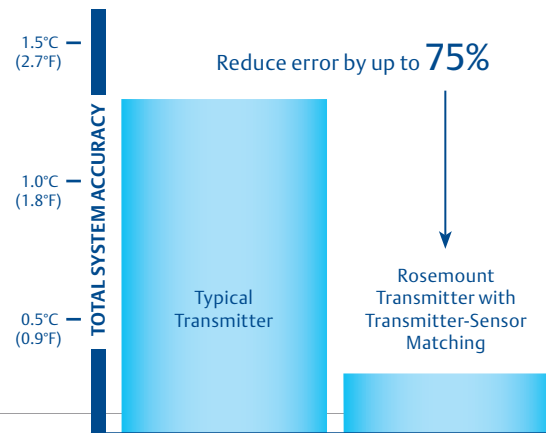
Reliable Technology

- + Dual-compartment housing design with enhanced Electromagnetic Interference (EMI) immunity, and isolation from the environment ensure measurements you can trust



Advanced Diagnostics

- + Spot trouble and identify improvement areas with Thermocouple Degradation, Hot Backup™ feature, Minimum-Maximum Tracking and Sensor Drift Alert



Ultimate Accuracy

- + Run closer to set points with our calibrated sensors and transmitters with Transmitter-Sensor Matching functionality

TEMPERATURE SENSOR AND THERMOWELL PORTFOLIO



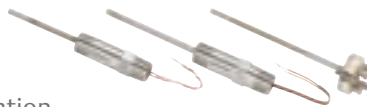
With the budget, scheduling and operational pressures you're under, you need to deploy the right solutions, right away. Optimal temperature measurement is achieved when the ideal sensor is combined with the ideal transmitter for each application. Rosemount Temperature Sensors feature a superior design, durability and fit-for-purpose, to address your wide range of applications.

General Use Sensors and Thermowells

Standard temperature applications require a wide range of sensing solutions possessing high quality, reliability and performance:

Rosemount RTDs and Thermocouples

- + Rugged sensors for all applications including high/low temperatures, high accuracy, and high vibration



Rosemount Thermowells

- + Machined and tubular thermowell designs available with a wide range of materials, process connections, certifications and testing



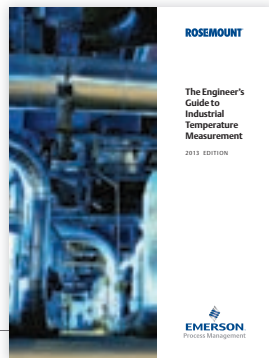
Complete Temperature Assemblies

- + Factory assembled and calibrated measurement system, customizable with thermowell, sensor and transmitter options



Designed for Reliability

- + Improve reliability with advanced sensor designs and strain-relief construction which resist thermal expansion, mechanical fatigue and vibration



Temperature Expertise

- + Learn wide-ranging temperature technology, selection and applications expertise with *The Engineer's Guide to Industrial Temperature Measurement*



Engineering Calculations

- + Ensure the best fit in every application with industry-leading thermowell calculations, advanced testing and sensor calibrations

Non-Intrusive, Profiling, High Temperature and Hygienic Sensors

Achieve superior accuracy and long service life across the multitude of different temperature applications, even in the most extreme conditions, with Rosemount sensors.



Rosemount 85 Pipe Clamp Non-Intrusive Sensor

- + Avoid costly process intrusions for temperature monitoring
- + Pair with wireless transmitters for easy-to-install pipe measurement



Rosemount Multipoint Profiling Sensors

- + Take up to 60 measurements in a single assembly with one process penetration
- + Efficiently and cost effectively measure profiles in towers, tanks and reactors



Rosemount High Temperature Thermocouples

- + Withstand harsh process conditions with a selection of thermocouples and protection tubes
- + Leverage Rosemount Sapphire Sensor technology for extreme conditions, including gasification processes



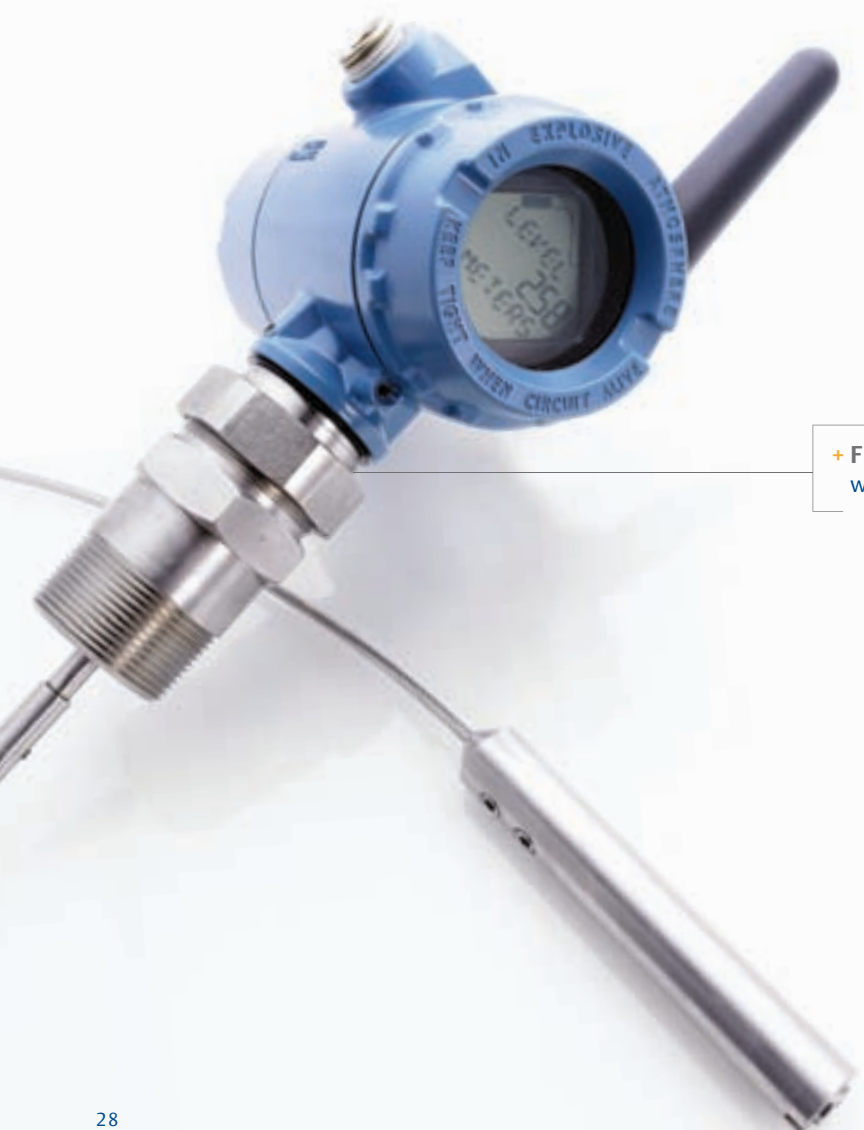
Rosemount Hygienic Sensors

- + Choose from a wide range of process connections for sanitary and hygienic applications

LEVEL MEASUREMENT TECHNOLOGIES



Without reliable and accurate level measurement, you run the risk of losing productivity and missing your quality targets — or worse. You could be damaging your equipment and subjecting your personnel to potential leaks and your business to potential fines, especially if you're processing hazardous materials. Use robust Rosemount level measurement technologies to get better insight into your process, so you can optimize your systems and anticipate and correct problems sooner — increasing safety, improving efficiency and enhancing regulatory compliance.



The right product for your application

- + Choose from the **comprehensive Rosemount portfolio** of level technologies to fit your application needs
- + Leverage **over 50 years of industry expertise** to specify the right solution



+ FOR MORE INFORMATION, VISIT www.Rosemount.com/Level



+ LEARN MORE

Rosemount Differential Pressure Level Products



Rosemount Guided Wave Radar Products

Innovation built-in

- + **Maximize process uptime** with advanced sensor technologies that deliver superior performance
- + **Increase reliability** and reduce measurement uncertainty through our proven, robust mechanical designs
- + **Improve measurement performance** and capability with intelligent device software



Make better decisions

- + **Gain more efficient control** by using diagnostic data for predictive maintenance
- + **Improve decision-making** with task-optimized user-interface dashboards that provide real-time data
- + **Optimize performance** and increase productivity with advanced, easy-to-use configuration and service tools



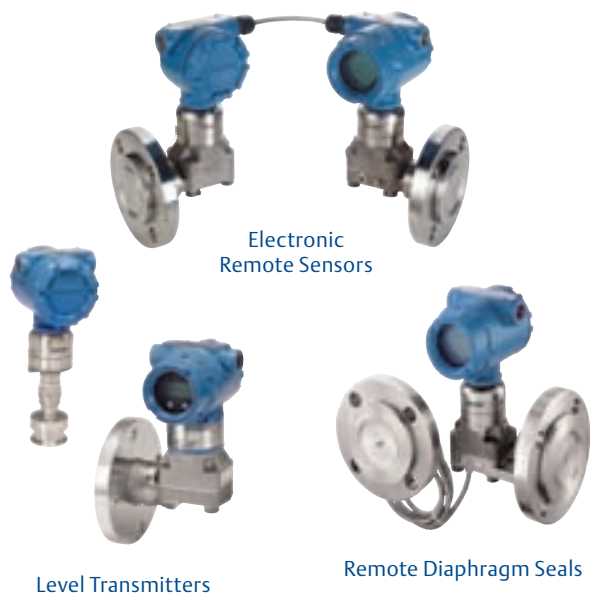
Rosemount Non-Contacting
Radar Products

Rosemount Ultrasonic
Products

Rosemount Point Level
Detection Products

Rosemount Tank Gauging
Products

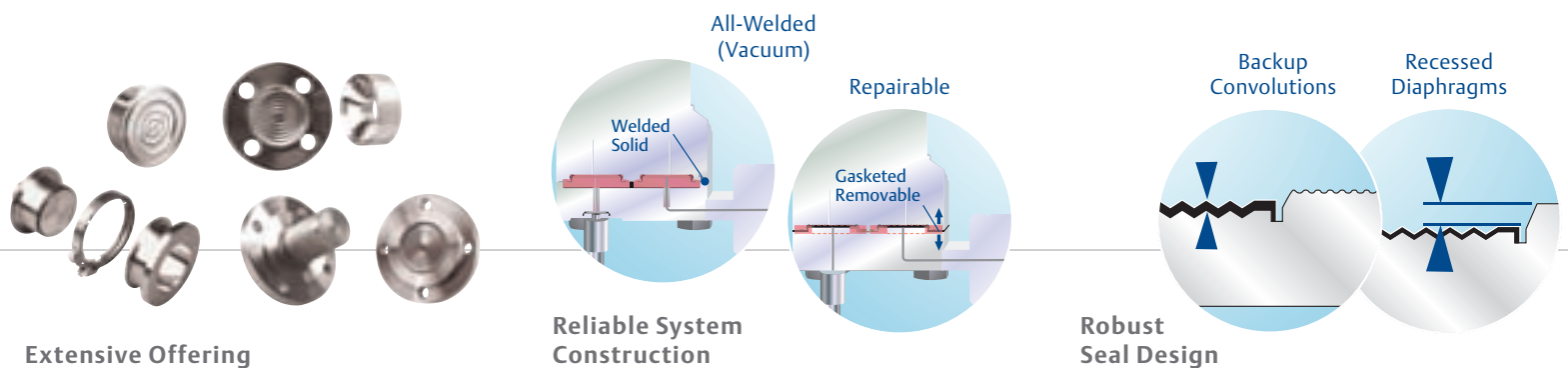
DIFFERENTIAL PRESSURE LEVEL PORTFOLIO



Versatility to meet your needs

- + Use **common technology** to measure level, density, interface, pressure or flow
- + Simplify your measurement with a **proven, easy-to-install technology** that can be isolated by valves
- + Achieve **worry-free installations** unaffected by vapor space changes, surface conditions, foam, corrosive fluids or internal tank equipment

Rosemount 1199 Seal Systems



- + Connect to your vessel with a broad offering — from flanged to hygienic
- + Handle the rigors of highly corrosive, dirty or viscous fluids

- + Ensure stability and long-term performance with a hermetic, leak-tight system
- + Operate reliably at high temperatures and pressures — from full vacuum to ANSI class 2500

- + Improve performance with seals that have backup convolutions to minimize oil volume and measurement drift
- + Eliminate handling damage with recessed diaphragms

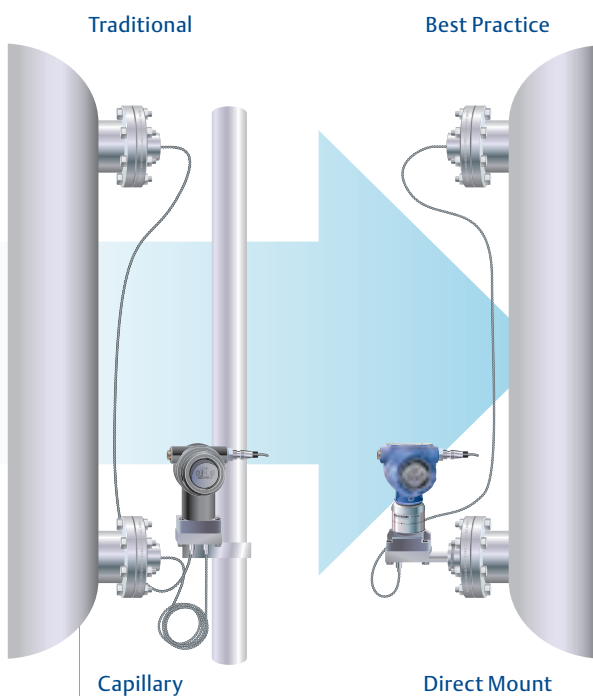


Reach new heights with Electronic Remote Sensors

- + **Improve performance** on tall vessels with synchronized digital differential pressure measurement
- + **Streamline installations** by eliminating impulse piping, heat tracing and other mechanical components
- + **Gain greater process insight** with MultiVariable measurement
- + **Easily integrate in your system** with single 2-wire 4-20mA HART loop



LEVEL



Rosemount 3051S Electronic Remote Sensor (ERS) System

Tuned-System Assemblies optimize results

- + **Reduce installed costs 20%** by eliminating excess capillary and transmitter mounting hardware
- + **Improve performance** by up to 30%
- + **Decrease measurement time response** by up to 80%

Prove it with Instrument Toolkit® Software

- + **Reduce engineering costs and time** spent specifying and configuring
- + **Optimize performance** by validating the required configuration for your specific application
- + **Reduce risk** with our industry-first remote seal system performance report



RADAR LEVEL PORTFOLIO

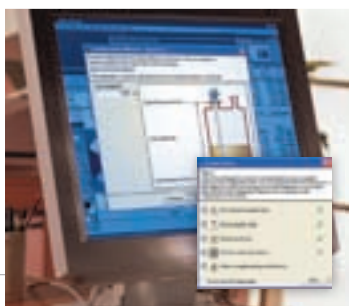


You need precise, reliable level data, particularly when operating in harsh environments. Rosemount radar level transmitters are virtually immune to changing conditions such as density, vapor, turbulence, pressure and temperature. They'll help you anticipate problems and take corrective action sooner, preventing downtime, spills and safety incidents.



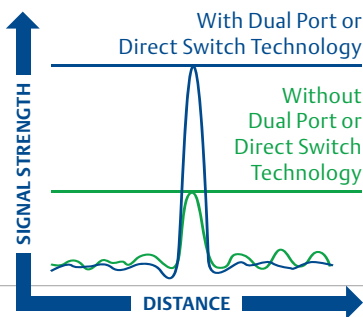
Guided Wave Radar

- + Achieve **highly accurate and reliable** direct level and interface measurements
- + **Gain maximum reliability**, even in harsh environments
- + **Your best choice for chamber applications** and for replacing older technologies
- + The **first fully integrated wireless** guided wave radar



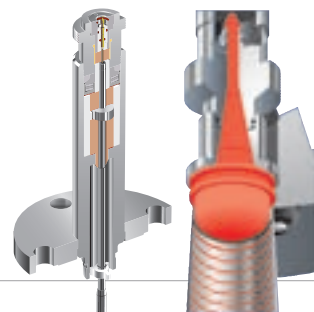
Easy Operation and Reduced Startup Costs

- + Install in new and existing systems easily
- + Reduce installation and wiring costs with MultiVariable capability
- + Ensure simple configuration with user-friendly guided setup
- + Streamline commissioning with measure-and-learn functionality and extensive online support



Microwave Innovations for Best Performance and Uptime

- + Handle challenging applications with superior capability and market-leading reliability
- + Gain insight to in-tank challenges with advanced signal logic
- + Designed to match your specific process conditions
- + Achieve reliable overflow protection with advanced high-level detection functionality



Robust Design Reduces Cost and Increases Safety

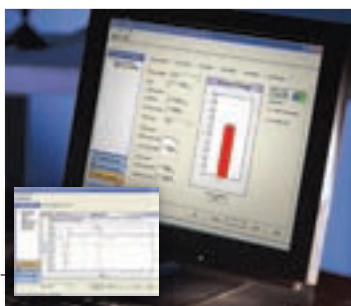
- + Achieve robust leak prevention under extreme process conditions with proven process seal
- + Increase reliability with robust, shock-resistant and vibration-proof designs and heavy-duty probes
- + Minimize maintenance with condensation- and dirt-resistant antennas
- + Meet requirements for safety-instrumented systems

Versatile and flexible to fit your application

- + Choose from a **diverse selection** of materials, process connections, accessories, probe/antenna styles and temperature and pressure ranges
- + Get maximum coverage with **high and low frequencies**
- + Isolate your instrument **without disrupting the process** with the Rosemount 9901 chamber
- + Get direct level measurement **virtually unaffected by process conditions** such as varying density and conductivity
- + **Access rich process information** with the Smart Wireless THUM Adapter

Non-Contacting Radar

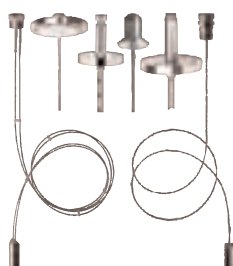
- + Address your in-tank challenges with **highly accurate and reliable** direct level measurements
- + Meet your needs for a solution for **dirty liquids, coating and corrosive applications**



Minimal Maintenance and Predictive Tools Lower Costs

- + No moving parts means no need to re-calibrate
- + Reduce trips to the field with advanced process and device health diagnostics
- + Eliminate downtime with efficient software tools for process insight and online troubleshooting

Probe Options for Guided Wave Radar



Antenna Options for Non-Contacting Radar



Accessories



LEVEL DETECTION AND ALARM PORTFOLIO

Between environmental and safety regulations that increasingly drive monitoring of all tanks, and the constant push to minimize operational costs, you need reliable, affordable level detection. Rosemount liquid level switches handle a wide range of applications — from overfill duties to critical alarm functions. And with the world’s first fully integrated wireless level switch, Emerson takes point level measurement to the next level.



Overfill Protection

- + Get fast response and reliable control with 1 second update rates
- + Meet your safety application requirements with SIL 2 certification to international standard IEC 61508



Innovative Designs

- + Get faster response time in viscous fluids with “fast drip” fork
- + Prevent false switching with adjustable switching delay
- + Minimize intrusion into the vessel or pipe with short fork design



Advanced Vibrating Fork Diagnostics

- + Continuously monitor your instrument health with built-in diagnostics
- + Increase reliability with fork corrosion and build-up coating detection
- + Experience easy configuration using Communicator or AMS alerts



Vibrating Fork Level Switches

- + Keep your tank level exactly where it should be with **high, overflow and low alarms**
- + Stay on top of potential damage and fork corrosion before it becomes a problem, with **continuous monitoring**
- + Keep expenses down with **fast, low-cost installation**
- + Enjoy **virtually no maintenance**, with no moving parts or crevices
- + Reap all the benefits of wireless with the **first fully integrated** IEC-approved *WirelessHART* liquid point level device
- + No need to change site wiring or control systems with **choice of outputs**



Float Level Switches

- + Increased flexibility with side- or top-mounting models and chambers for external mounting
- + Ensure long life with robust construction
- + Deliver high pressure and temperature capabilities
- + Meet hazardous area requirements with international certifications
- + Enable wireless capability with the Rosemount 702 Wireless Discrete Transmitter
- + Increase reliability with unique three-magnet switching system for vertical float and displacer switches

Quality and Safety Assured

- + Be confident in your devices, knowing they are designed to ASME piping codes and have full penetration welding to approved procedures
- + Choose from fully certified construction materials

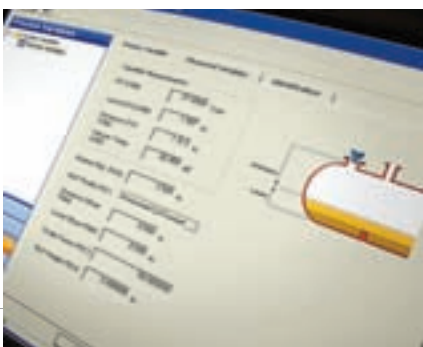
ULTRASONIC AND CONDUCTIVITY PORTFOLIO



When your conditions call for a simple, cost-effective non-contacting level solution, our ultrasonic transmitters are the ideal choice. For suspended solids, sludge blanket and open-channel flow monitoring, our market-leading water and effluent treatment instrumentation will optimize your process while keeping your plant environmentally compliant.

Ultrasonic level and control

- + **Reduce maintenance** with reliable non-contacting measurement
 - + Keep commissioning costs low with **simple installation and local or remote configuration**
 - + Handle corrosive liquids and atmospheres with **inert wetted materials**
-
- + **Take level measurements** and control pumps in wet wells and sumps up to 12m (39 ft.) deep
 - + **Easily configure with on-board data logging** for Open Channel Flow applications
 - + **Prevent accidental damage and premature failure** from flooding with sealed unit



Advanced Diagnostics

- + Monitor measurement conditions with signal quality diagnostics and enhance preventive maintenance and troubleshooting
- + Minimize troubleshooting with sophisticated echo detection and processing algorithms



Universal Control

- + Interface with any analog or HART transmitter
- + Save time on configuration and reduce commissioning costs with pre-programmed tank shapes
- + No separate power supply or costly barriers required
- + No external recording equipment with on-board data logging needed



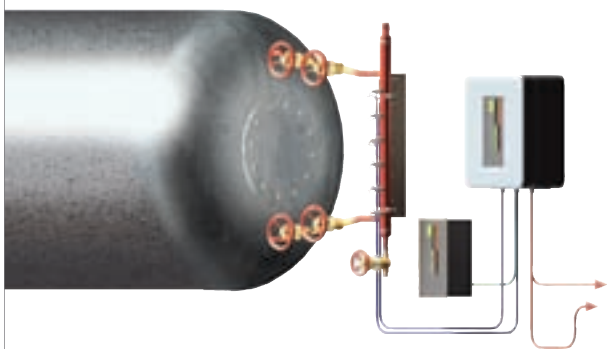
Suspended Solids Density Monitoring and Control

- + Measure density of primary and secondary sludge and industrial slurries
- + Measure in-line or in-tank suspended solids
- + Operate in tough application conditions with rugged stainless steel sensors
- + Reduce configuration and commissioning time with simple menu-driven calibration

Hydrastep Electronic Gauging System



- + Reliably and continuously monitor steam drum level
- + Never miss an incident with exceptional reliability
- + Minimize your costs with zero required maintenance
- + Have peace of mind knowing your system is **installed and proven** in over 6,000 critical applications globally



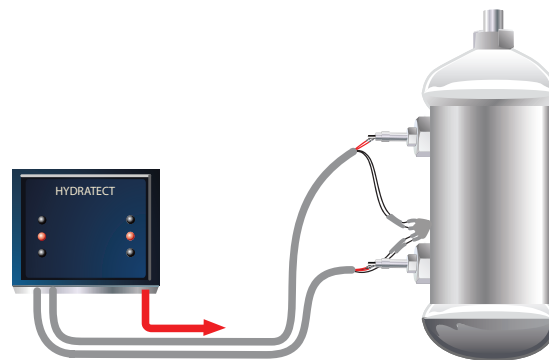
Proven Design

- + Fault tolerant — no single fault will cause system failure or loss of monitoring
- + Trips boiler when low water conditions occur — probability of missing an actual trip is less than 1 in 300 million
- + Will not trip the boiler on a false alarm

Hydratect Steam/Water Detection System

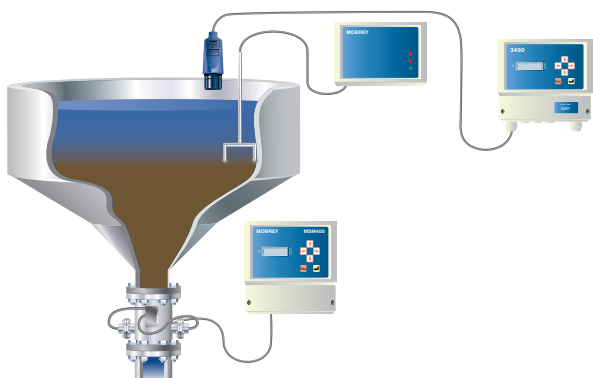


- + Reliably detect water or steam in lines, columns and condensate pots
- + Eliminate the need for routine testing through superior reliability and fault-tolerant operation
- + Prevent turbine water damage with **Turbine Water Induction Protection (TWIP)**



Best Performance

- + Save time with self-checks that make routine testing unnecessary
- + Fault tolerant — no single fault will cause system failure or loss of monitoring



Specialized water and effluent treatment capability

- + Ideal for level, flow, interface and suspended solids measurements
- + Increase efficiency with **sophisticated echo detection** and processing algorithms
- + Increase ease of use with **standard programming menus** across the range

TANK GAUGING PORTFOLIO

Your responsibility to improve efficiency, safety and accuracy in all types of tank storage facilities and refineries can be as demanding as the environments in which you work. Based on open and scalable technology, Rosemount Tank Gauging systems are easy to adapt to current and future needs so you can achieve the results you need and the peace of mind you deserve.

+ **FOR MORE INFORMATION, VISIT**
www.Rosemount-tg.com



Wireless Rosemount Tank Gauging System

- + Greatly reduce field wiring and expenses for infrastructure, design and labor required for installation and commissioning
- + Eliminate hot work and minimize production downtime

Highly precise tank instrumentation

- + Know the precise level of your tanks at all times with Rosemount non-contact radar gauges with level measurement accuracy of ± 0.5 mm (0.02 in.)
- + Get certified legal metrology data for custody transfer according to OIML R85:2008 and national standards
- + Access instant net volumes by having integrated high precision average temperature sensors



Rosemount 5900S with Still-Pipe Array Antenna

- Get the highest accuracy with this versatile solution for:
- + New or existing still-pipes
 - + Crude oil tanks with floating roofs
 - + Gasoline tanks with or without inner floating roofs



Rosemount 5900S with LPG/LNG Antenna

- + Achieve unparalleled accuracy for pressurized or cryogenic liquefied gas
- + Strong echo even under surface boiling conditions



Rosemount 2240S Multi-Input Temperature Transmitter

- + Connect to sensor with up to 16 RTD temperature elements for highly precise average temperature and temperature profiling
- + Measure water bottom level with the optional capacitance-based level probe



Rosemount 5900S with Parabolic Antenna

- + Take accurate measurements even in environments with sticky or condensing liquids such as asphalt
- + Best choice in tanks without still-pipe

Taking safety to a higher level

Rosemount Tank Gauging systems provide a wide range of overfill prevention options to choose from, as well as compliance with standards such as API 2350.

+ FOR MORE INFORMATION, VISIT www.api-2350.com



Rosemount 5900S + 5900S

- + Dual radar gauges for level and overfill measurements
- + SIL 2 certified with the possibility to achieve SIL 3 safety level



Rosemount 5900S (2-in-1)

- + Features two radar gauges – independent level and overfill measurements – in one housing
- + SIL 2 and SIL 3 safety certified



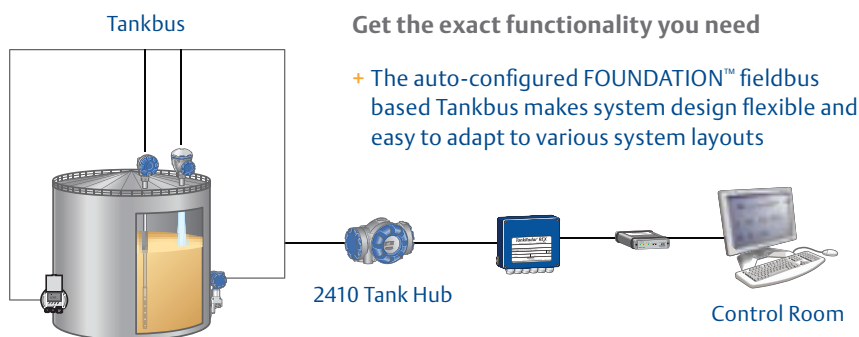
Rosemount 5900S + 5300/5400

- + A radar level gauge and radar level transmitter – offering independent level and continuous high-level alarm
- + Suitable for SIL 2 safety



Rosemount 5900S + 2120

- + A radar level gauge and point level switch
- + Suitable for SIL 2 safety



Get the exact functionality you need

- + The auto-configured FOUNDATION™ fieldbus based Tankbus makes system design flexible and easy to adapt to various system layouts



Powerful inventory management software keeps you in full control

TankMaster allows operations overview and planning for the entire tank farm.

- + **Increase productivity** and ease of overall plant management
- + **Quickly access overview, as well as detailed views**, of all real-time and historical tank gauging data
- + **Have confidence that calculations of inventory and custody transfer quantities** are performed according to American Petroleum Institute (API), International Standards Organization (ISO), and other industry standards

SMART WIRELESS TECHNOLOGIES



You're challenged to do more with fewer resources, to increase productivity while maintaining a tight budget. Adding measurement points has traditionally driven up your costs and can increase your risk by requiring crews to make more trips into potentially hazardous areas.

To operate your sites safely, efficiently, and cost effectively, you need a reliable stream of timely information—without sending personnel into the field more often than necessary. With Emerson's Smart Wireless technology, you can easily add data points across your operation, reducing maintenance costs and the number of safety, health, and environmental incidents. Smart Wireless is quick and easy to install, requires minimal infrastructure costs and delivers a steady stream of data — keeping you informed and on top of your operation.

- + **Find a solution for every application need** with our complete wireless product portfolio
- + **Simplify network deployments** through our robust networking capabilities and unparalleled ease of use
- + Ensure all of your instrumentation works together with **IEC 62591 WirelessHART**
- + **Secure wireless networks** with integration into every host system



WirelessHART

With Emerson Smart Wireless, you can count on faster installation, easier maintenance, and increased insight into the intricacies of your operation while eliminating manual operator rounds that can jeopardize worker and plant safety.



+ **FOR MORE INFORMATION, VISIT**
www.emersonprocess.com/smartwireless



Smart Wireless Gateways

- + Easily connect wireless devices to your host system
- + Receive industry-leading security, scalability and data reliability
- + Get redundancy that guarantees system availability



Smart Wireless THUM Adapter

- + Add wireless capabilities to your wired HART devices*
- + Tap into the rich diagnostic and process data in your wired HART instrumentation
- + Overcome the limitations of outdated legacy control systems
- + Increase process visibility to prevent trouble and run a safer, more productive operation

*Devices compliant with HART 5 or later



SmartPower™ Solutions Power Modules

- + Perform routine maintenance in hazardous areas with Intrinsically Safe Power Modules
- + Enjoy predictable power module life of up to 10 years
- + Use in harsh environments
- + Replace simply and easily with keyed connection



AMS Wireless SNAP-ON™ Application

- + Easily plan, customize and manage your wireless network with the application's drag-and-drop design simplicity
- + Leverage analytical tools for insights to help maximize process performance
- + Free up your crew for higher-priority tasks

Reducing variability and increasing throughput

Inaccurate measurements take a toll on your operation, throughput and profits. You need wireless solutions that allow you to run consistently and reliably. Emerson Smart Wireless, with its proven capability to work in even difficult applications, can give you a deeper, more holistic view of your process and increase your monitoring power. With Emerson Smart Wireless, you can identify trouble spots, minimize downtime and cost effectively optimize your operation.

- + **Lower your installation costs** — up to 50% savings in installation cost per measurement point
- + **Easy, fast and intuitive** — get a Smart Wireless network up and running in minutes
- + **Eliminate site surveys** — Emerson's field network devices are self-organizing, so there's no need for a site survey — no matter how dense or obstructed the area may be
- + **Start anywhere, go everywhere** — with our broad offering, it doesn't matter how you decide to get started; Emerson Smart Wireless networks can easily be expanded to meet the needs of your operation

ROSEMOUNT WIRELESS PORTFOLIO



Gain insight by monitoring more pressure, level, flow and temperature points throughout your operation with the versatile Rosemount Wireless product offering. With Smart Wireless you can easily add measurement points, especially in hard-to-reach locations. Our reliable wireless devices deliver unsurpassed quality and longevity because they are based on the same field-proven technology available in our wired platform.

Asset protection

Unexpected equipment failures cost you time and money and jeopardize your team's safety. Adding critical automation technologies to detect trouble is often limited by physical, technical or economic barriers — until now.

Adding Smart Wireless monitoring points **easily** and **cost effectively** helps extend the life of your assets and reduces equipment failure. With Smart Wireless, you can go into areas you couldn't monitor before and track more assets, all at a lower cost.



Rosemount Wireless Pressure, Flow and Level Transmitters

- + Reduce deployment time and ensure a problem-free installation with Rosemount Wireless Pressure, Differential Pressure Flow and Differential Pressure Level solutions
- + Leverage the scalable Rosemount Wireless Pressure portfolio across your entire operation
- + Enhance process insight, minimize variability and reduce maintenance and downtime



Rosemount Wireless Temperature Transmitters

- + Increase visibility into your process and run a smarter operation through efficient temperature measurements
- + Choose from a complete portfolio of wireless temperature solutions for any use, including non-intrusive and high-density applications



Rosemount 3308 Wireless Guided Wave Radar

- + Use the world's first fully integrated wireless guided wave radar to easily automate level monitoring in locations previously inaccessible or too costly to measure
- + Take advantage of its reliability, ruggedness, accuracy and low maintenance
- + Get data you can leverage to heighten performance — in virtually any process condition



Consider it Solved.

Emerson Process Management supports you with innovative technologies and expertise to address your toughest challenges. Rosemount measurement instrumentation and the many other Emerson brands represent the many ways we're helping you do more and get more from your processes.

For more information on Rosemount measurement instrumentation, visit www.Rosemount.com

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