

Rosemount Measurement Technologies

Can ground-breaking instrumentation really affect the bottom line?



ROSEMOUNT



SERV' INSTRUMENTATION



EMERSON
Process Management



Maximizing productivity.



Improving quality. Reducing costs. Enhancing safety.

Better instrumentation is your means to achieving all these things. How? Because better instrumentation is more than just better measurement, it's your clear path to better measurement practices. The practices that, in turn, lead to a stronger bottom line. And there is no device more suited to deliver the best measurement practices than a Rosemount instrument.

Rosemount products are your path to a better bottom



A history you can rely on.

For over 47 years, Rosemount brand products from Emerson Process Management have been leading the process industries with best-in-class technologies. In



fact, right now more than 85,000 customers in 75 countries are entrusting their measurements to Rosemount devices.

Emerson has developed Rosemount technologies and products to fill almost every one of your process measurement needs: pressure transmitters that are unsurpassed and meet every conceivable application; temperature transmitters that are highly regarded all over the world; magnetic, vortex and differential pressure (DP) flowmeters that are setting industry standards; and radar-based level transmitters that are second to none.



line.

Practices make perfect.

But Rosemount products are more than the world's most advanced measurement instruments. With Rosemount instruments working for you, you are enabling the implementation of better measurement practices. And it is these practices that are allowing plants, mills and manufacturers around the world to become not only more efficient, but safer as well.



It is with these two objectives in mind that Rosemount instruments are continually pushing the limits of technology. They are the products you can trust to deliver the better measurements that let you attain a healthier, stronger bottom line.

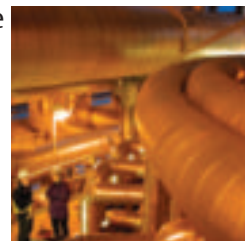
The breadth of Rosemount products provides you with the most comprehensive portfolio available. But what's more, you also have the full power of Emerson behind you, delivering the most complete solutions for all of your process needs.

More than the best products.

Emerson is the names you trust — Rosemount, Fisher®, Micro Motion® and DeltaV to name just a few. With these brands as its foundation, Emerson has built itself into the world-leader of state-of-the-art products for the process industries.

But as you know, all the technology in the world is nothing without the people skilled in its use. So we surround your projects with a global network of 3,500 high-performance Rosemount product experts with the capability to implement solutions locally. In all ways, from providing a full-time, onsite Program Manager to training your workforce, we will prepare you to capitalize on your project's potential, today and into the future.

Emerson and our Rosemount products are working for your success. Every innovation, each new product or service we create is done with the sole purpose of empowering you to do your job better. After all, it's your success that determines ours.



Rosemount technologies are powering the ultimate



The means to a better end.

Every day, you've got to make decisions that affect your process and the people working on it.

Oftentimes, the demands made on you seem in conflict. You have to sustain profitability, which means spending less while maintaining flexible production levels. Yet you also face increased operational liabilities with fewer people doing the same amount of work. You have to find ways that let them do more, while also ensuring the safety of their environment.

Enter the PlantWeb® digital plant architecture and the Rosemount technologies from Emerson that power it.

The brand to look for.

Rosemount instrumentation bearing the Powers PlantWeb mark has been engineered to deliver the true potential of any process manufacturing operation.

Designed for PlantWeb's digital plant environment, Rosemount devices, best installation practices and software tools enable you to run your operation more efficiently, safely and profitably by delivering new insights on process performance and asset health.



When integrated into PlantWeb and connected to the speed and accuracy of digital communications,

promise of automation.

Rosemount technologies create the diagnostic-rich environment that enables the most effective and efficient control strategies possible. You get a more robust regulatory control system by removing variability, and greatly improved plant availability by predicting and avoiding faults. Plus, it becomes the foundation for running truly embedded advanced control and optimization based on both process and equipment performance. All at a lower cost to you.

With Rosemount technologies powering the PlantWeb architecture, you gain the ultimate measurement practices that are allowing industry leaders worldwide to run at peak profitability, safety and reliability.



Move from reactive to predictive.

PlantWeb is ushering in the future of process automation today as the first, true digital plant architecture. Grown from a network of intelligent field devices and integrated software offerings, Emerson's PlantWeb is creating the diagnostics-enriched environment that enables predictive asset management, nimble and advanced control strategies plus world-class reliability.

With PlantWeb, you're no longer constrained by the typical DCS-centered information architecture. By employing the latest innovation in automation technologies, you'll

find you have far greater control than ever before.

- Predictive intelligence is captured closest to its source so you can quickly, proactively detect and prevent conditions that cause problems
- True digital architecture enables faster, more reliable communication of process variable and equipment health diagnostics
- Standards-based, open architecture allows flexible adaptation to any environment
- Approved standards are used at every level, including the advantages of FOUNDATION Fieldbus
- Better utilization of personnel, focusing their time on the most beneficial tasks
- Reliable data feeds both plant operations and business management systems



Solutions for today and into tomorrow.

The PlantWeb architecture combined with innovative Rosemount technologies is your blueprint for improving startups and optimizing plant performance. New projects and green-field facilities can now see much lower capital expenditures, while existing plants have an architecture that delivers drastically reduced operational expenditures.



When the pressure's on, we've got you covered.

Emerson's Rosemount brand is synonymous with reliability and dependability. Every innovation created is focused on how it serves the customer's needs, which has resulted in well over 8 million units being installed worldwide. It's this focus that ensures that Rosemount devices will enable the better measurement practices that improve your bottom line.

Just one way to improve the bottom line is by letting the 3051S simplify safety standard compliance and save you over 60% in total lifecycle costs. See how at Rosemount.com/Safety



The Next Evolution in Pressure Measurement

3051S Series of Instrumentation. Built on the innovative SuperModule™ design platform, the 3051S is the world's first scalable measurement architecture. Incorporating all the functionality of a complete pressure transmitter, the SuperModule provides the foundation for integrated pressure, level and flow solutions, allowing you to scale up from basic process measurement to advanced PlantWeb capabilities. In addition to delivering the benefits of true scalability, the SuperModule takes performance and reliability to new heights, offering an unprecedented 10-year stability and a 12-year warranty.

Reduced total cost of ownership. Enhanced safety and environmental compliance. Increased availability. Higher productivity. No matter how you look at it, the 3051S Series enables the better measurement practices that result in savings for you.



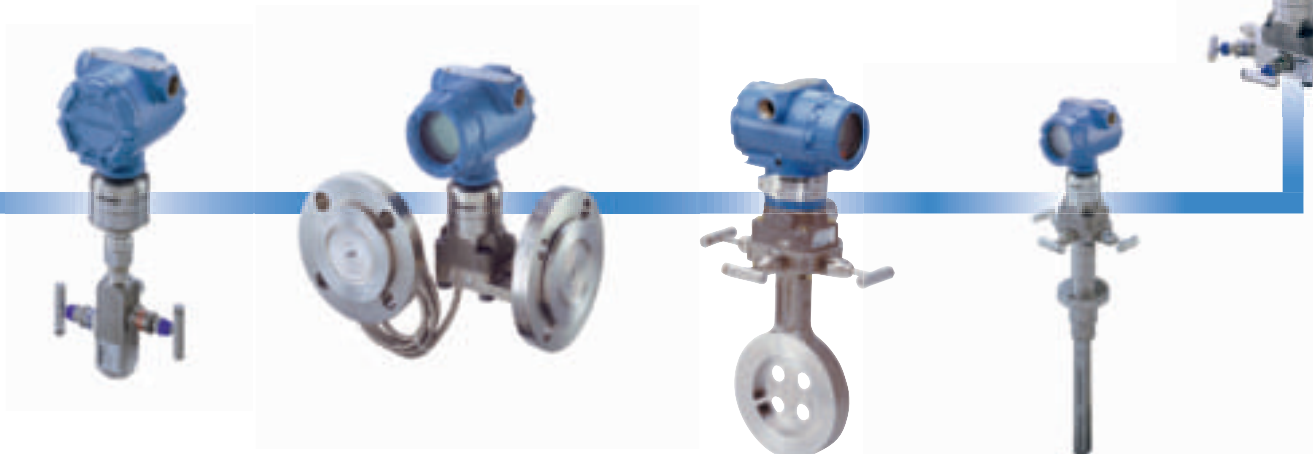
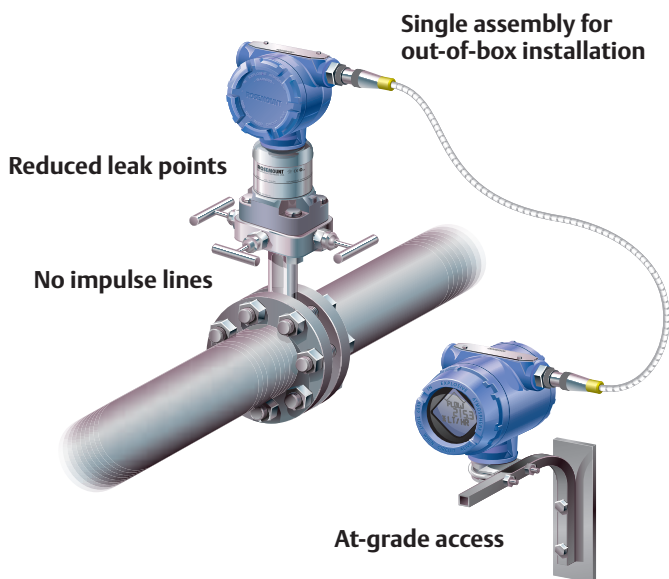
Pressure



The Rosemount 3051S Series of Instrumentation powers PlantWeb through a scalable architecture that provides advanced process diagnostics, plugged-line detection and control functionality that lead to reduced maintenance costs and increased plant availability.

A direct impact on the bottom line. An example of a better measurement practice enabled by the Rosemount 3051S Series is the direct-mount integrated DP flowmeter. Direct mounting reduces installed costs up to 30%, eliminates high maintenance impulse lines as well as improves measurement accuracy. Yet you still retain easy access to the transmitter with the remote mount display and interface. And with a wide range of integrated pressure, level and flow instruments, you can adopt the best measurement practices for all of your applications.

Protecting your investment. With the scalable 3051S SuperModule platform, you now have the flexibility of tailoring your instrumentation to meet each of your application needs today while ensuring you meet the emerging requirements of the future. The 3051S allows you to enhance functionality or change output protocols in the field, protecting your investment from obsolescence. An example of this is certification to the new IEC 61508 safety standards. As an industry first, you get world-renowned Rosemount reliability and safety certification in one scalable platform, meaning you can use the same proven instruments in both basic process control and critical safety instrumented systems.





Complete Pressure Offering

3051 Pressure Transmitter Family

- Industry standard delivering unmatched performance and reliability
- Scalable platform with HART, FOUNDATION Fieldbus, process diagnostics and safety certification
- Coplanar™ design integrates manifolds, seals and primary elements into a single assembly



Industry-specific Pressure Offering

Emerson has taken its industry-leading pressure transmitter technologies and customized them to meet the needs of your specialized applications. For oil & gas, pharmaceutical, food & beverage and critical HVAC systems, we provide best-in-class transmitters that are not only the best devices suited to provide superior performance and reliability, but also lower your total cost of ownership.

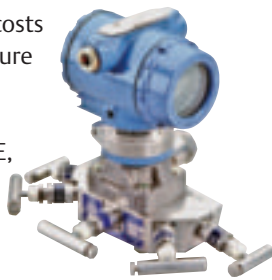
Engineered Application Components

Our pressure transmitters are available with flanges, manifolds, diaphragm seals and primary elements in a single installation-ready solution for pressure, level and flow applications.

- Direct-mount assemblies engineered for the highest safety and performance
- Leak tested for out-of-box installation
- Available with documentation for calibration and materials traceability
- Complete range of process connections and material options

3095MV MultiVariable™ Mass Flow Transmitter

- Provides real-time fully Compensated Mass Flow
- Reduces maintenance costs
- Measures DP, line pressure and also accepts temperature input
- Complies to AGA, ASME, ISO and API standards



1151 Smart Pressure Transmitter

- Proven reliability for over three decades
- Continuously improved since introduction to:
 - 0.1% accuracy
 - 50:1 rangeability



2088 Absolute/Gauge Smart Pressure Transmitter

- 0.1% accuracy with 50:1 rangeability
- Optional HART low-power with 1-5Vdc output
- Lightweight, small compact design allows cost effective direct mounting



4600 Oil & Gas Pressure Transmitter

- Compact lightweight, all-welded stainless steel design ideal for panel mounting
- Available for pressure measurements up to 20,000 psi (1,380 bar)
- 3-year stability reduces maintenance costs
- HART Smart capabilities allow effortless field adjustments and troubleshooting



4500 Sanitary Pressure Transmitter

- Compact design for pharmaceutical and biotechnology skids
- Smooth, crevice-free design minimizes cleaning and wipe-down time
- Performs reliably after hundreds of SIP/CIP cycles



1810 Flush Mount Pressure Transmitter

- Designed for process clogging applications in the pulp and paper industry
- HART Smart capabilities with high accuracy



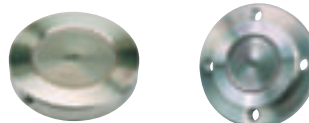
Manifolds

- Integral coplanar, traditional and pressure styles
- Allows direct mounting
- 50% fewer process seals than conventional assemblies



Diaphragm Seal Systems

- Flanged, threaded, extended and sanitary
- Available as a direct-mount tuned system that
 - Reduces installed costs by 20%
 - Improves total performance by 10%
- Suitable for extreme ranges of temperature and vacuum applications
- Software allows you to select the right seal the first time



Primary Elements

- Annubar® Averaging Pitot Tube
- Compact Orifice
- Integral Orifice
- Orifice Plate Systems



Rely on Rosemount products when only the best

Rosemount DP Flow products are bringing time-tested technologies into a new realm of capability. By combining primary element innovations with the best practices in selection and installation, you achieve better measurement along with a reduction in installation and operating costs. And with over 40 years of field experience to back them up, results are guaranteed. Whatever your application need, you can be sure we've got you covered.

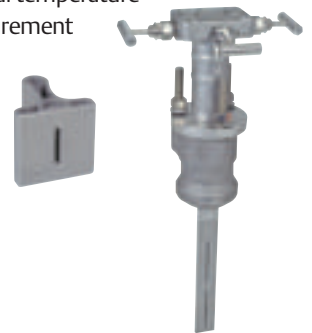
Emerson Process Management can actually help you calculate how improvements in best practice can deliver installed cost, energy and performance savings. Find out at Rosemount.com/products/flow



Innovative Primary Elements

The innovative designs of Rosemount primary elements enable much greater performance and reliability. And our complete offering of primary elements provides flexibility in your application.

- Annubar® Averaging Pitot Tube**
- Unprecedented $\pm 0.75\%$ accuracy
 - Frontal slot improves averaging
 - Stagnation zone reduces noise
 - Integral temperature measurement



Best Practices for Better Measurements

DP Flow measurement can be optimized by following best practice recommendations. The Rosemount DP Flow offering is engineered to take full advantage of these practices, resulting in significant savings in installation, operation and maintenance costs.

Complete Flowmetering Capability

Rosemount DP flowmeters offer reliability and performance in a complete package. The flowmeter arrives leak-tested, calibrated and ready-to-install. Reducing both installation time and total costs, while enhancing environmental compliance at the same time.

3051SFA ProBar® Flowmeter



will do.

Differential Pressure Flow



The Rosemount DP Flow offering powers PlantWeb through a scalable architecture, advanced diagnostics and MultiVariable capabilities. This reduces operational and maintenance expenditures while improving throughput and utilities management.

Compact Orifice

- Mounts between standard flanges
- Integrated connection system
- Centering ring simplifies installation
- Conditioning Plate Option: 2D of straight run and +/-0.5% accuracy



Integral Orifice

- Precision bore matching
- Self-centering plate
- Honed pipe sections
- Wide variety of process connections

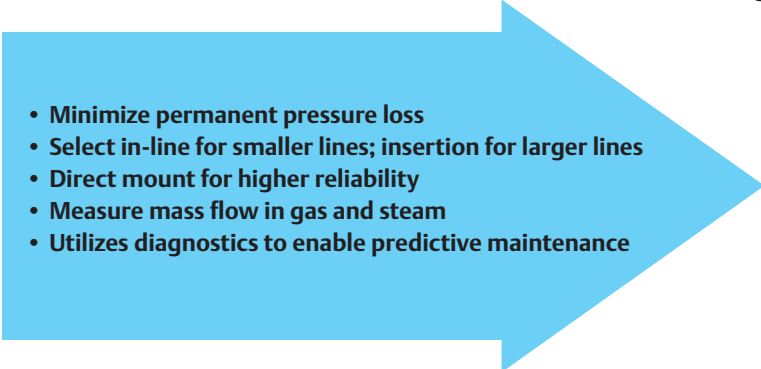
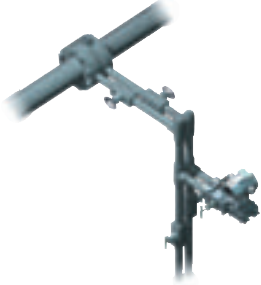


Orifice Plate Systems

- Complete line of orifice plates, flange unions and meter runs
- Meets AGA and ISO standards
- Conditioning Orifice plate: 2D of straight run and +/- 0.5% accuracy



Traditional Installation



- Minimize permanent pressure loss
- Select in-line for smaller lines; insertion for larger lines
- Direct mount for higher reliability
- Measure mass flow in gas and steam
- Utilizes diagnostics to enable predictive maintenance

50% Reduction in Installed Cost



96% Reduction in Annual Energy Cost



3095MFA Mass ProBar® Flowmeter



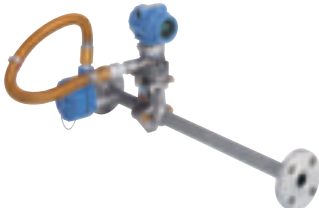
Compact Orifice Flowmeters 3051SFC 3095MFC



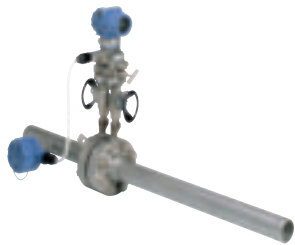
3051SFP ProPlate® Flowmeter



3095MFP Mass ProPlate® Flowmeter



Engineered Assemblies for Custom Applications



For maximized returns through innovation, we're on

Rosemount magnetic and vortex flow instruments incorporate the most comprehensive line of technologies for achieving better measurement practices across all of your applications.

Rosemount magnetic and vortex flowmeters help reduce your installation and operating costs. In fact, the Reducer™ Vortex is one example where you can save up to 40% per installed meter. To see how Rosemount flow products can impact your bottom line, visit Rosemount.com/Products/Flow



Magnetic Flowmeter Offering



8712 Magnetic Flowmeter Remote Transmitter

- Transmitter designed for remote installations
- Easiest-to-use, local operator interface reduces start-up time
- Multiple coil-drive frequencies and digital-signal processing reduce process variability

Industry-specific Magmeter Solutions



8721 Magnetic Flowmeter Hygienic (Sanitary) Style Flowtube

- All-welded flowtube designed for food, beverage and pharmaceutical applications
- Contact surfaces constructed of FDA-approved materials that comply with 3-A and EHEDG standards
- Lightweight compact design makes installation easy

Vortex Flowmeter Offering



8800C Wafer Vortex Flowmeter

- Superior vibration immunity
- Non-clog design
- Non-wetted, replaceable sensor
- Lightweight, cost-effective solution
- Meter can be easily validated using flow simulation capabilities

Innovative Vortex Flowmeter Solutions



8800CR Reducer™ Vortex Flowmeter

- Flange vortex flowmeter with integral reducers
- Reduces cost by eliminating the need for field assembly of reduced piping
- Size Vortex like an Orifice Plate™: both Reducer and standard vortex have a common face-to-face, providing the flexibility to size the meter without changes to the piping



Rosemount Magnetic Flowmeters power PlantWeb with patented diagnostic information to accelerate start-up time and maximize uptime. Diagnostics include grounding and wiring fault, high-process noise, electrode signal fault, low signal-to-noise and empty pipe.

8732/8742 Magnetic Flowmeter Integral Transmitter

- Dual compartment, explosion-proof design meets the most stringent international standards and ensures reliability in the harshest of environments
- Through-the-glass, local operator interface makes changes in the field both safe and easy
- Available in integral or remote-mounted designs



8711 Magnetic Flowmeter Wafer Style Flowtube

- Lightweight, easy-to-install flowtube for many common flow applications
- Wide range of sizes and electrode materials
- Cost-effective design



8705 Magnetic Flowmeter Flange Style Flowtube

- All-welded flowtube ensures reliability in the harshest environments
- Widest range of sizes, lining materials and electrode materials
- ISO Lay Lengths



8707/8712H Magnetic Flowmeter High-signal System

- High-signal System reduces process variability by providing the most stable flow output available
- Can handle the noisiest applications found in the pulp & paper and the mining industries



8800C Flange Vortex Flowmeter

- Superior vibration immunity
- Non-clog design
- Non-wetted, replaceable sensor
- Wide range of flanges available
- Meter can be easily validated using flow simulation capabilities



8800CD Dual Vortex Flowmeter

- Flange vortex flowmeter with redundant electronics and sensors for SIS and other applications where redundancy is critical



8800C Weld-in Vortex Flowmeter

- Completely gasket-free design creates the most reliable vortex flowmeter available on the market
- Flange gaskets are eliminated by welding the flowmeter directly into your process piping



Get a better read on where your process is going.

We proudly provide the broadest array of temperature solutions for industrial applications. Whether you require solutions for monitoring applications or more critical control and safety points, we have the temperature technologies to maximize your ROI.

You can realize this greater ROI with the 848T Temperature transmitter. It provides the lowest installed cost solution for your temperature monitoring applications. To see what you could be saving, visit Rosemount.com/Products/Temperature/m848t.html



Innovations in Temperature Monitoring



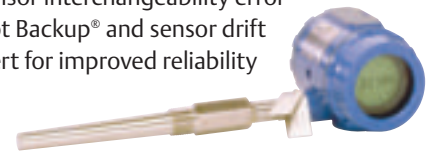
848T Eight-input Temperature Transmitter with FOUNDATION Fieldbus

- Unique capability of accepting and communicating eight simultaneous sensor inputs
- Diagnostics and calculation capabilities
- Mounts anywhere in your plant

Standard Temperature Transmitters

3144P Smart Temperature Transmitter

- The ultimate transmitter for critical, control and safety applications
- Superior accuracy, reliability and stability
- Multi-sensor capability compensates for redundant measurements
- Transmitter-Sensor Matching to eliminate sensor interchangeability error
- Hot Backup® and sensor drift alert for improved reliability



Temperature Sensors

RTDs

- For applications requiring high accuracy, reliability and stability
- Sensor matching available to complement the error-reducing capabilities of the 3144P and 644 transmitters



Temperature



The 3144P powers PlantWeb by eliminating detrimental sensor errors and communicating critical process data with temperature diagnostics and PlantWeb alerts.

3420 Fieldbus Interface Module

- Enables temperature process monitoring with advanced Fieldbus instruments in systems without Fieldbus capabilities
- Ideally complements the 848T transmitter's multi-sensor capabilities



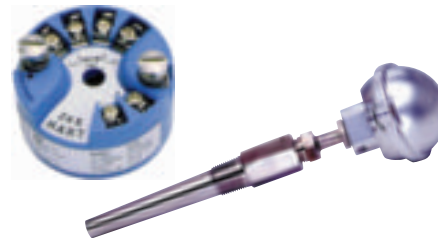
644 Smart Temperature Transmitter

- Highly accurate transmitter for control & safety applications
- Available in a variety of mounting styles, field housings, and communication protocols
- Transmitter-Sensor Matching to eliminate sensor interchangeability errors



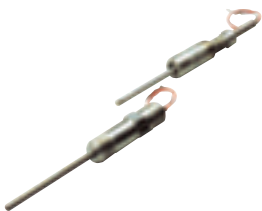
248 Temperature Monitoring Assembly

- Easy-to-order and install
- Integral sensor specification
- Ambient temperature compensation



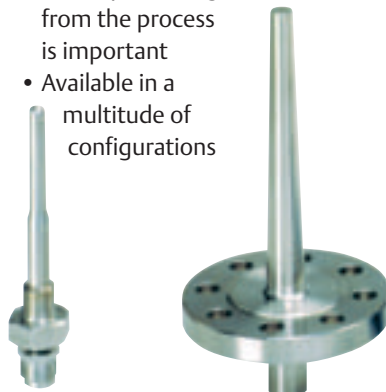
Thermocouples

- Ideal for applications exposed to temperatures above 600° C
- Types J, K, E and T available in a wide range of accessories and connection hardware



Thermowells

- Suitable for critical applications where protecting the sensor from the process is important
- Available in a multitude of configurations



Multipoint Sensors

- Ideally suited for temperature-profiling applications such as tanks, fractionation towers and chemical reactors
- Up to 60 measurement points per sensor
- Easy-to-install alternative to single-point sensors

Sanitary Sensors

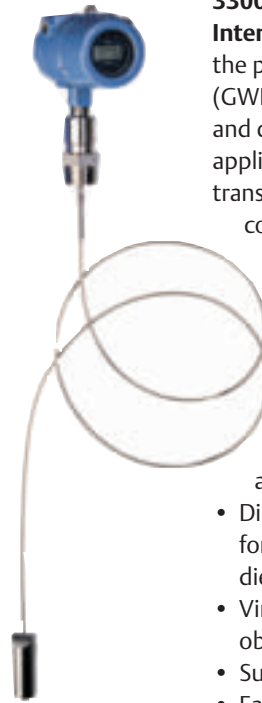
- Accuracy, reliability and flexibility for sanitary processes
- Smoothly contoured design and special surface finish for clean applications



Every innovation has purpose and that purpose

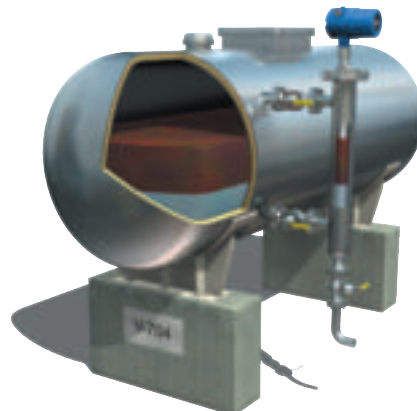
Emerson has invested heavily in the production of our new line of radar transmitters. With this comprehensive line, you can improve your process using the most suitable radar transmitter for your different types of process vessels and tanks. And no matter which instrumentation you choose, it's backed by the innovative technologies that are improving both throughput and safety.

Find out how Rosemount 3300 can reduce installation cost by providing you with MultiVariable outputs with both level and interface at [Rosemount .com/Products/Level](http://Rosemount.com/Products/Level)



- 3300 Series Guided Wave Radar Level and Interface Transmitters.** The new 3300 Series is the perfect choice among Guided Wave Radar (GWR) level transmitters. It provides reliable and cost-effective measurement in a number of applications where other types of loop-powered transmitters cannot be used. GWR technology combined with advanced signal processing enables both level and interface measurement data from the same transmitter.
- Multivariable™ output from one device minimizes process penetrations, reducing installation costs
 - Detachable head allows replacement of electronics without breaching the tank atmosphere
 - Direct-level measurement means no compensation for changes in temperature, pressure, density, dielectric or conductivity
 - Virtually unaffected by dust, vapor, interfering obstacles and turbulence
 - Suitable for small or odd shaped tanks
 - Easy configuration using PC setup software with installation wizard, AMS™ Suite: Intelligent Device Manager, or a 375 Field Communicator
 - Cut-to-fit probes facilitate easy installation

A Broad Variety of Applications



To give the most cost-effective and reliable solution in a large number of process applications, Rosemount radar level transmitters include contacting and non-contacting radar, high and low frequency radar plus a large number of antenna types.

is you.

Radar Level



Rosemount MultiVariable Radar Transmitters power PlantWeb with digital Level, Interface, Volume and Temperature outputs.



5600 Series Radar Level Transmitter. The 5600 Series is an intelligent non-contacting general purpose radar level transmitter using 10GHz Frequency Modulated Continuous Wave (FMCW) technology. Its high-performance microprocessor allows for smart echo-tracking features. Combined with its extremely high signal to noise ratio, the radar transmitter can detect and evaluate all echoes within the tank or vessel. From easy to complex process situations, the 5600 Series supports and assists in the successful configuration across most process level applications.

- Extremely reliable and accurate level measurement increases process uptime even in the toughest conditions
- Up to 6 Resistance Temperature Detector (RTD) inputs
- High flexibility with interchangeable transmitter heads and antennas
- Virtually maintenance-free with no moving parts and no contact with the liquid
- Intelligent software support for easy configuration using the PC setup software, LOI (local operator interface), AMS Device Manager or the 375 Field Communicator
- HART, 4-20mA or FOUNDATION Fieldbus outputs
- Wide selection of antennas and antenna materials



APEX™ and APEX Sentry™ Radar Level Transmitters. APEX measures level using high frequency 24GHz technology. This technology provides a narrow beam-width that increases mounting flexibility and reduces unwanted reflections from vessel obstacles for mounting. The primary output of the transmitters is a 4-20mA signal superimposed with a digital HART signal. It can also accept one Resistance Temperature Detector (RTD) input. The 375 Communicator, AMS Device Manager or Radar Configuration Tools can be used to configure the APEX to display level or standard volume.

- Installs easily with five-step configuration using a 375 Field Communicator, AMS Device Manager or LOI
- Saves money by eliminating potentially costly tank modifications such as moving or resizing tank flanges
- Smaller antenna diameters suitable for mounting on valves, taller nozzles or smaller openings
- Virtually maintenance-free with no moving parts and no contact with the liquid



Easier installation
+ Less maintenance
+ Higher availability
= Improved Bottom Line!



We've got the perfect answer for every application.

Rosemount DP Level products are unsurpassed in breadth, capability and performance. Through on-going investments, these DP level products are more reliable and easier-to-use than ever before and still meet the requirements for the toughest measurement challenges. From the simplest to the most difficult tank configurations, these products are delivering better measurement around the world.

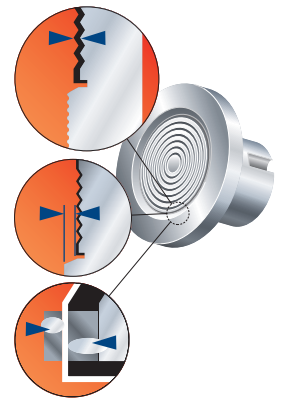
Rosemount Tuned-Systems can reduce installed costs by 20%. For more information on how Rosemount DP Level products can impact your bottom line, visit Rosemount.com/DPLLevel



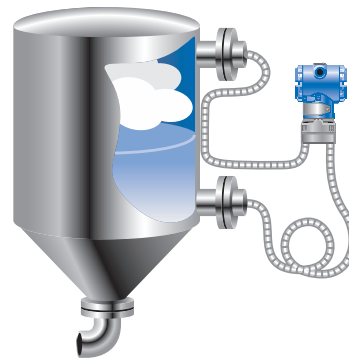
Advanced Technology

Robust Seal Construction

- Back-up diaphragm protects seal integrity
- Recessed diaphragm reduces handling damage
- Advanced weld techniques improve reliability



Better Measurement Practices



- Minimize capillary length
- Direct-mount transmitter
- Use larger ID capillary for best response

Most Complete Product Offering

The Rosemount 1199 Remote Seal published offering includes over 25 seal types and 17 materials to meet all of your application needs. And when required, we can create a special seal configuration to meet your unique and exact requirements.



Flush Flanged

Differential Pressure Level



Rosemount DP Level products power PlantWeb through the 3051S scalable platform. This flexible platform provides you with digital communications, PlantWeb alerts and scaled variable functionality.

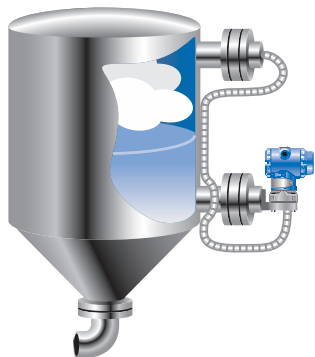


Optimized Construction

- All-welded design with no threads or gaskets
- 100% helium leak-tested
- Advanced fill fluid preparation and manufacturing techniques
- Handles tough applications including full vacuum

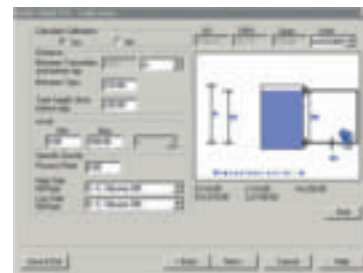
Expanded Level Capabilities

- Scaled variable for level reading
- Process alerts
- Remote display and interface for easy access

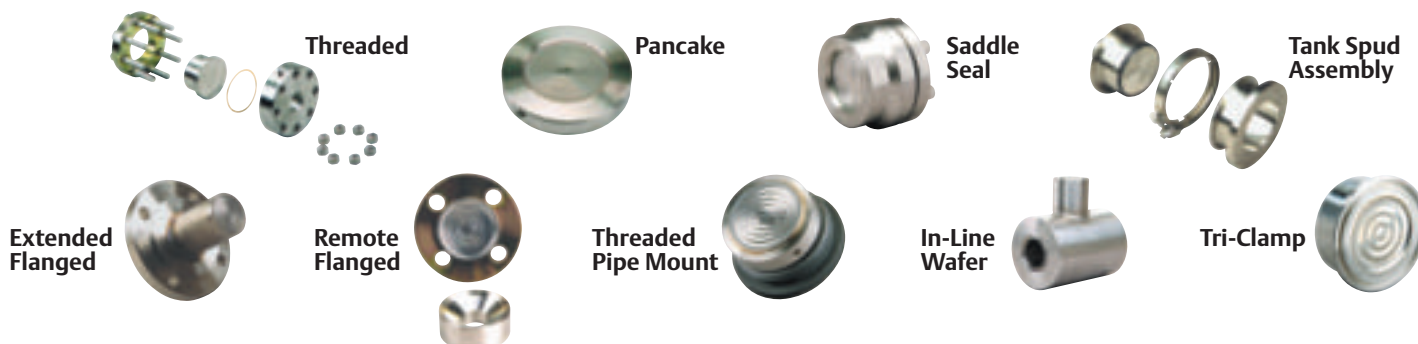


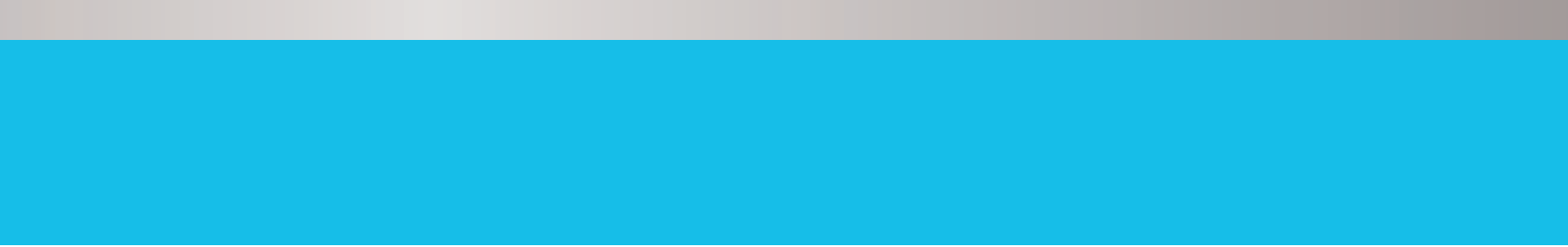
Tuned Systems for Best Performance

- Reduces installed costs by 20%
- Improves performance
- Minimizes response time



Software Tools pre-validate configuration









SERV' INSTRUMENTATION

Mesure et Contrôle vos fluides

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Process Management