

Pressure

Rosemount 3051S Series of Instrumentation

- World's only Scalable SuperModule® Platform enables best integrated pressure, flow and level solutions
- Increase plant productivity with highest field performance, reliability and safety
- Technology innovation advancements include multivariable, wireless and advanced diagnostics



Rosemount 3051S Scalable MultiVariable™ Mass Flow Transmitter

- Dynamically calculate mass or volumetric, energy and totalized flow
- Real-time compensation for over 25 variables
- Customize application compensation with the Scalable Platform
- Easily configure flow and device parameters with Engineering Assistant™ Software



Rosemount 3051 Pressure Transmitter

- Proven industry standard with over 4 million installations
- Reduce engineering and installed costs with flexible Coplanar design
- Installation ready integral manifolds, flowmeters and level solutions
- Meet your application needs with extensive product offering



Rosemount 2051 Pressure Transmitter

- Differential, gage, absolute, flow or level measurements
- Selection of protocols, wetted materials and fill fluids
- Maximize installation flexibility with Coplanar Platform



Rosemount 2088 Pressure Transmitter

- Reliable and accurate gage or absolute measurement
- Lightweight, compact design enables easy installation



Rosemount 4600 Oil & Gas Panel Transmitter

- Available for pressure measurements up to 20,000 psi (1380 bar)
- All-welded Stainless Steel design for harsh environments



Rosemount 2090F Hygienic Pressure Transmitter

- Supports CIP/SIP service up to 284 °F (140 °C)
- Design conforms to 3-A Sanitary Standards



Rosemount 2090P Pulp & Paper Pressure Transmitter

- Available process connections include threaded or flush mount PMC
- Features compact size and rugged construction



Rosemount 3095 MultiVariable Mass Flow Transmitter

- Real-time fully-compensated mass flow based on three-in-one differential pressure, inline pressure and temperature measurements
- Improve performance and reduce maintenance costs with Ultra for Flow option
- Complies with ISO, AGA, ASME and API flow measurement standards



Rosemount Pressure Manifolds

- Enable “flangeless” valve integration with flexible Coplanar™ design
- Reduce costs with integral manifolds – factory assembled, leak-tested and calibrated
- Achieve 50% fewer possible leak points than conventional manifold/transmitter assemblies



Rosemount Innovative, Integrated DP Flowmeters

- Fully assembled and leak tested for out-of-the-box installation
- Lower installed costs with one integrated flowmeter
- Reduce straight pipe requirements
- Lower permanent pressure loss
- Achieve accurate measurement in small line sizes



Rosemount Liquid Level Transmitters and 1199 Seal Systems

- Reduce installed cost, improve performance and achieve better response time
- Comprehensive process connection, fill fluid, materials and direct mount or capillary connections offering
- Optimize and quantify total system performance with QZ option
- Operate at higher temperatures and harder vacuums



Pressure Product Selection Chart

Emerson provides a complete Rosemount pressure measurement family. Use the product selection chart below to evaluate and select the best solution for your application. Refer to the Flow Product Selection Chart or Level Product Selection Chart for more detailed product selection considerations.

Table Pressure-1. Pressure Product Selection Chart

Product Model		3051S	3051SMV	3051	2051	2088	Industry Solutions	4600	2090F	2090P	3095	
Performance	Accuracy (% of Span)	0.025%	0.04%	0.04%	0.075%	0.075%			0.25%	0.2%	0.2%	0.05%
	Stability	10 yr	10 yr	5 yr	2 yr	1 yr			3 yr	1 yr	1yr	10 yr
	Extended Warranty	12 yr	12 yr									12 yr
	Rangedown	200:1	200:1	100:1	100:1	20:1			40:1	20:1	20:1	100:1
	Ultra for Flow (% Reading)	0.04%	0.04%									0.05%
Functionality	Scalable Platform	●	●									
	MultiVariable		●									●
	Mass Flow Calculations		●									●
	Advanced Diagnostics	●										
	Safety Certification	●		●								
	Data Logging										●	
Output	HART / 4-20mA	●	●	●	●	●		●	●	●	●	
	WirelessHART - Integrated	●										
	FOUNDATION fieldbus	●		●	●						●	
	Profibus			●								
	Low Power (1-5V)			●	●	●						
MODBUS										●		
Application Solutions	Manifolds	●	●	●	●	●					●	
	Integrated Flowmeters	●	●	●	●						●	
	Liquid Level Configuration	●		●	●							
	Remote Seals	●	●	●	●	●					●	
	Oil & Gas Panel Transmitter						●					
	Hygienic Connections	●	●	●	●	●			●			
	Pulp & Paper Connections	●	●	●	●	●				●		

Selection Table Key	
●	Recommended
●	Suitable – Requires 1199 remote seal

Temperature

The Rosemount Temperature portfolio provides reliable solutions for a variety of temperature applications across your plant. Our integrated approach to the design and manufacturing of sensors, thermowells and transmitters ensures the most reliable and durable temperature measurement in every installation.

Single Point Temperature Transmitters

Rosemount Single Point temperature transmitters deliver exceptional results by utilizing innovative designs and advanced diagnostics. A comprehensive and versatile portfolio provides solutions for every single point temperature measurement need.

- Advanced diagnostics: Hot Backup, Sensor Drift Alert, and Thermocouple Degradation Diagnostics
- Reliable dual compartment housings for harsh process and environmental conditions
- Unmatched measurement system accuracy with Transmitter-Sensor Matching



High Density Temperature Transmitters

Multiple temperature measurements within close proximity require an innovative solution with proven technology. Rosemount high density products provide a reliable and cost-effective way to solve your temperature-intensive application.



General Use Temperature Sensors

Rosemount General Use Sensors and Thermowells can provide a complete solution for your temperature measurement needs. Our sensors and thermowells deliver superior durability to complement Rosemount transmitters.



Application and Industry Solution (AIS) Temperature Sensors

The most difficult temperature applications require advanced sensor designs. Rosemount AIS sensors offer the best performance for challenging process environments and unique installations.






Table 1. Temperature Transmitter Product Selection Chart

Models	Application		Functionality								Housing				Available Outputs				
	Single Point	High Density	Sensor Inputs	RTD Inputs	Thermocouple Inputs	LCD Display	Hot Backup [®]	Sensor Drift Alert	Safety Certified	Transmitter Sensor Matching	Integral Transient	Dual-Compartment	Head Mount	Rail Mount	Other	HART	FOUNDATION fieldbus	Wireless	PC-Programmable
3144P			2	X	X	X	X	X	X	X	X	X	-	-	-	X	X	-	-
648			1	X	X	X	-	-	-	X		X	-	-	-	X	-	X	-
644			1	X	X	X	-	-	-	X	X	-	X	X	-	X	X	-	-
248			1	X	X	-	-	-	-	-	-	-	X	X	-	X	-	-	-
148			1	X	X	-	-	-	-	-	-	-	X	-	-	-	-	-	X
848T			8	X	X	-	-	-	-	-	X	-	-	X	-	-	X	-	X
848T Wireless			4	X	X	-	-	-	-	-	-	-	-	-	X	X	X	-	-

 = Recommended  = Available  = Not Available  Not Applicable

Table 2. Temperature Sensor Selection Chart

Models	Style		Technology		Specifications			
	U.S.	European DIN / Metric	RTD	Thermocouple	Temperature Range °C (°F)	Use with Transmitter-Sensor Matching	Measurement Points	Comments
68	X	-	X	-	-50 to 400 (-58 to 752)	X	1	Thin-film RTD
78	X	-	X	-	-200 to 600 (-328 to 1112)	X	1 or 2	Wire-wound RTD
68Q	X	-	X	-	-50 to 200 (-58 to 392)	X	1 or 2	Sanitary RTD
183	X	-	-	X	-180 to 1150 (-292 to 2102)	-	1 or 2	U.S. Style Thermocouple
1080/ 1082	NA	NA	X	X	-40 to 800 (-40 to 1472)	X	2 to 60	Multipoint sensor for temperature profiling
65	-	X	X	-	-196 to 600 (-321 to 1112)	X	1 or 2	DIN style RTD
65Q	-	X	X	-	-50 to 250 (-58 to 482)	X	1 or 2	Sanitary RTD
65B	-	X	X	-	-50 to 250 (-58 to 482)	X	1 or 2	Sanitary RTD
185	-	X	-	X	-40 to 1000 (-40 to 1832)	-	1 or 2	DIN style thermocouple
1075	-	X	-	X	0 to 1700 (32 to 3092)	-	1	High Temperature Thermocouple

 = Available  = Not Available  Not Applicable

Level

Differential Pressure

Rosemount 3051S_L, 3051L, and 2051L DP Liquid Level Transmitters

- Reduce installed cost by 20%, improve performance by 30% and achieve better response time by 80% with Tuned-System™ Assemblies
- Optimize and quantify total system performance with QZ option
- Operate at higher temperatures and harder vacuums



Rosemount 1199 Seal DP Systems

- Connect to virtually any process with a comprehensive offering of process connections, fill fluids, direct mount or capillary connections, and materials
- Extend life and improve performance with back-up diaphragm pattern
- Protect your investment from installation or gasket damage with recessed diaphragm design



Guided Wave Radar (GWR)

Rosemount 5300 Series Superior Performance GWR Level and Interface Transmitter

- Handles even the most challenging applications reliably including process vessels, control and safety
- Microwave innovations allow use over longer ranges, with lower dielectrics and higher accuracy
- Enhanced configuration and diagnostic information through RadarMaster and EDDL-based user interface
- Probe end projection function provides reliable measurements during times of low signal strength



Rosemount 3300 Series Versatile GWR Level and Interface Transmitter

- Handles most liquid storage and monitoring applications
- First 2-wire level and interface transmitter with field proven reliability



Non-Contacting Radar

Rosemount 5400 Series Superior 2-wire Radar Level Transmitter

- Market leading signal software logic to handle dynamic tank environments
- High and low frequencies available for maximum application coverage
- Enhanced EDDL-based user interface provides visualization of configuration and diagnostic information
- Innovative design puts more power on the surface than any other 2-wire radar transmitter



Rosemount 5600 Series 4-wire Radar Level Transmitter

- Power of 4-wire provides maximum sensitivity and performance for solids, challenging reactors, rapid level changes and extreme process conditions
- Market leading signal processing capacity to handle challenging tank environments



Ultrasonic

Rosemount 3100 Series Ultrasonic Process Level Transmitters

- Reliable liquid level measurement up to 36 ft. (11 m)
- Top down non-contacting measurement minimizes maintenance costs
- Local operator interface or remote programming for fast and efficient commissioning
- Two on-board relays for control and/or alarm duties
- Inert wetted materials for corrosive liquids and vapors



Rosemount 3107 and 3108 Sealed Ultrasonic Level Transmitters

- Level measurement and pump control in sumps and wet wells up to 39 ft. (11 m) deep
- Open Channel Flow measurement in most flow structures
- Sealed NEMA type 6P (IP68) to survive flooding
- Sophisticated software eliminates false echoes



Vibrating Fork Switches

Rosemount 2160 WirelessHART™ Vibrating Fork Level Switch

- World's first WirelessHART liquid level switch ideal in locations previously inaccessible or too costly for wired devices
- Integral power module eliminates the need for any site wiring
- PlantWeb functionality with advanced diagnostics and PlantWeb alerts



Rosemount 2130 Extreme Temperature Vibrating Fork Level Switch

- -94 to 500 °F (-70 to 260 °C) extended operating temperature range
- Built-in diagnostics continuously monitor instrument health



Rosemount 2120 Standard Vibrating Fork Level Switch

- Choice of switch outputs includes intrinsically safe and relay
- DIBt/WHG Overfill protection certification
- Flanged, threaded and extended length options



Rosemount 2110 Compact Vibrating Fork Level Switch

- Designed to meet the requirements of the high volume OEM market
- Stainless Steel housing and wetted parts
- Fast fit plug and socket wiring connection



Chambers

Rosemount 9901 Chambers

- High quality chambers for external mounting of level measurement and control instrumentation on process vessels
- PED compliant design in accordance with ASME B31.3 or as option ASME B31.1
- Uses only certified and traceable materials and is manufactured using full penetration welds
- Hydro tested on completion, with a full range of NDT or customer inspection options available



Table Level-1. Level Product Selection Chart

Application and Installation Considerations		●	Recommended			
		●	May be suitable			
		X	Not recommended			
		Continuous Level			Point Level	
		Pressure	Radar	Guided Wave Radar	Ultra-sonic	Vibrating Fork
Level		●	●	●	●	●
Interface (Liquid/Liquid)		●	X	●	X	X
Volume		●	●	●	●	X
Density		●	X	X	X	X
Mass		●	X	X	X	X
Open Channel Flow		X	●	●	●	X
Process Medium Characteristics						
Changing Density		●	●	●	●	●
Changing Dielectric		●	●	● ¹	●	●
Wide pH Variations		●	●	●	●	●
Pressure and Temperature Changes		●	●	●	●	●
Condensing Vapors		●	●	●	●	●
Bubbling / Boiling Surfaces		●	●	●	●	●
Foam		●	●	●	●	●
Liquid with Dielectric < 1.9		●	●	●	●	●
Coating Liquids		●	●	●	●	●
Viscous Liquids		●	●	●	●	●
Crystallizing Liquids		●	●	●	●	●
Solids, Granules, Powders		X	●	●	X	X
Sludge and Slurries		●	●	●	●	●
Tank Environment Considerations						
Top Down Connection		X	●	●	●	●
Bottom or Side Connections, Direct to Vessel		●	X	X	X	●
Stilling Wells or Bypass Connections		●	●	●	●	●
Device Will Be Close to Tank Wall / Disturbance Object		●	●	●	●	●
High Turbulence		●	●	●	X	●
Long and Narrow Mounting Nozzles		●	●	●	X	●
Angled or Slanted Surface		●	●	●	●	X
High Empty and Fill Rates		●	●	●	●	●
Internal Obstructions		●	●	●	●	●
Agitation		●	●	●	●	●
Non-metallic Vessel		●	●	●	●	●
Nozzle in Center of Tank		●	X	●	X	●
Valves or Isolation Required		●	●	● ²	X	● ²

(1) For overall level applications a changing dielectric has no effect on the accuracy; for interface applications a changing dielectric in top fluid will degrade accuracy.

(2) Mount instrument in external Rosemount 9901 Chamber.