



**Achieve the quality and consistency
you need with advanced technology**

**Rise Above Market Challenges with
Innovative Food & Beverage Solutions**





Leverage extensive automation solutions expertise and a complete hygienic product portfolio to optimize your production process.

Maximize product quality batch after batch

The food and beverage industry continually faces market challenges due to increased demand for product differentiation, while trying to improve operational efficiency and reducing costs. Meeting these needs requires balancing profitability of core products without reducing productivity in others. Companies must seek new ways to achieve operational excellence to remain competitive in today's rapidly changing environment.

Achieve greater levels of operational efficiency to more effectively respond to market demand with Emerson's portfolio of innovative automation technologies and services. Our world-class expertise in measurement instrumentation, asset management, and quality assurance technologies can help you accomplish your goals.

Executives in the industry are managing asset intensive enterprises “at the mercy of global commodity markets, and face both low margins and high demand variability.” Companies must seek new ways of achieving operational excellence. – Manufacturing.net, Achieving Operational Excellence in Food & Beverage



“68% [of food and beverage manufacturers] are increasing their technology investments in the next 12 months” to “improve product quality, improve product safety, and reduce operations costs.” – RSM, 2017 Food and Beverage Monitor – Insights into Trends and Chances in the Food and Beverage Industry



“The US market for food and beverage processing machinery was estimated to have been worth \$5.3 billion in 2016. Revenues are forecast to grow at a compound annual growth rate (CAGR) of 2.8% to reach \$6.1 billion in 2021.”

- PMMI, Global Trends – Food & Beverage Processing Report 2018



Food and beverage manufacturers must keep up with consumer demand for core and new products to stay competitive

Manufacturers are faced with demands to increase capacity and reduce production costs while demonstrating environmental stewardship. This can be challenging due to an evolving market which requires high levels of quality and increased product variety. Rise above market challenges with innovative solutions from Emerson. By partnering with Emerson, producers gain access to tools and critical insights required to maximize production, ensure quality, increase reliability, and improve sustainability to stay competitive and drive profitability.



Overcome production challenges with precise process control and increased flexibility

- Shorten changeover time and improve process inefficiencies with scalable solutions to maximize throughput
- Improve profitability as operations grow in size and complexity by reducing production costs with advanced automation

70% of producers want their next generation of food manufacturing equipment to be more flexible and enable faster changeovers to handle the wide range of products SKUs.

– PMMI, Trends and Advances in Food Packaging and Processing 2019



Improve quality and meet regulatory compliance with more effective and efficient production equipment

- Optimize production processes while ensuring compliance with manufacturing regulations by using certified hygienic solutions, designed to minimize contamination risk and assure product safety
- Protect processes from costly loss, contamination, and leaks with online measurements, leak detection, and insights

Food manufacturers are advancing the use of integrated technology. 34% of food manufacturers “have fully integrated lines in both processing and packaging.”

– PMMI, Trends and Advances in Food Packaging and Processing 2019



Improve reliability and increase uptime with innovative automation technologies and services

- Enable greater levels of operational efficiency to more effectively respond to consumer demand from raw materials, to product formulation, and bottling/packaging
- Reduce the frequency, duration, and impact of planned and unplanned events with enhanced insights and analytics into equipment and processes

The beverage industry is faced with “small margins and enormous pressure to keep down prices – and, therefore, production costs.” Manufacturers must find sustainable ways to increase productivity through automation or other means as wages rise.

- Food Processing, 2020 Food and Beverage Industry Outlook



Maximize production to meet market demands

Reduce changeover time while driving efficiency to maximize production with innovative solutions to help you increase throughput and meet market demands. [Learn more.](#) ► p6

Improve quality while minimizing loss

Improve quality while reducing regulatory compliance and contamination risks by measuring quality parameters on-line to address concerns before out-of-spec products are created. [Learn more.](#) ► p8

Increase reliability to achieve production targets

Increase reliability by reducing the frequency, duration, and impact of planned and unplanned events to achieve production targets and reduce costs. [Learn more.](#) ► p10



Effectively clean process equipment with enhanced procedures

Ensure the health and safety of consumers with accurate, reliable, and long-lasting solutions to maximize efficiency during cleaning and sanitization processes. [Learn more. ► p12](#)

Global service capabilities and resources from a trusted partner

Dependably define, execute, and support your service strategy throughout the lifecycle of your operation while ensuring your workforce is up to the task. [Learn more. ► p14](#)

Maximize production to meet market demands

With significant shifts in consumer preference toward more unique solutions, manufacturers must find ways to reduce changeover time while driving efficiency to maximize production. Technology plays a large role in increasing flexibility and providing critical insights for operations to increase throughput and meet market demands.



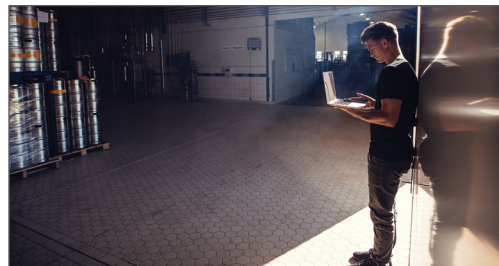
What's your opportunity?

- Maintain production efficiency and reduce downtime with reliable measurement instrumentation
- Simplify supply chain and production scheduling/planning with tighter inventory control
- Optimize process throughput by tracking key process parameters
- Straightforward user interfaces streamline reconfiguration for process changeovers
- Improve operational efficiency with fast-fill capabilities from flow technologies



Achieve faster and more effective operations with help from Emerson.

Maximize resource efficiency with automation technologies designed to reduce manual labor and shorten changeover time. This enables your workforce to focus on higher priority tasks while gaining critical insights into your operations.



Services offered...

- Pervasive sensing provides measurement and interpretation of real-time data
- Get new installations online quickly with start-up and commissioning services

Featured Solutions



Maintain precise and repeatable pressure measurements with the [Rosemount™ 3051HT Pressure Transmitter](#) designed for hygienic applications.

- Best-in-class reference accuracy and measurement stability extends calibration frequencies to reduce maintenance costs
- Easily integrate into existing installations with a variety of available process connections



Receive accurate process temperature data without thermowells or process penetration with [Rosemount X-Well™ Technology](#).

- Simplify measurement point specification, installation, and maintenance
- Eliminate risk of process contamination with no process contact or leak points



[Rosemount 5408 Level Transmitter - Non-Contacting Radar](#) provides easy to use continuous level measurement of both liquids and solids.

- Two-wire FMCW technology maximizes radar signal strength to produce a more robust, reliable measurement
- Intuitive software interface guides the operator through installation, commissioning and troubleshooting



A level switch that's easy-to-install with no on-site calibration, the [Rosemount 2120 Vibrating Fork Level Switch](#) provides reliable, rapid and repeatable point level measurement for high/low level alarm, overflow prevention and pump control/ protection.

- Single-piece fast-drip fork design is resistant to build-up and has an adjustable switch delay preventing false switching in turbulent conditions



Ideal for hygienic process-control applications, [Micro Motion H-Series Hygienic Coriolis Flow and Density Meters](#) are accurate, low frequency meters with a compact, drainable, cleanable design.

- Precision flow accuracy enables tighter set points on critical batching and blending processes
- Direct mass measurement enables plant wide mass-balancing by eliminating volumetric inaccuracies caused by temperature and density changes



Specifically designed for food and beverage applications, the [Rosemount 8721 Hygienic Magnetic Flow Meter Sensors](#) offer safe, hygienic and reliable performance.

- All-welded construction provides a hermetic seal that protects against moisture and other contaminants from wash down
- Obstructionless design features no moving parts to maintain or repair while advanced in situ diagnostics enable verification without removing the flow meter from the line



Featuring best-in-class performance and measurement stability, the [Rosemount 3051S Electronic Remote Sensor \(ERS\)™ System](#) is engineered with flexible, digital architecture.

- ERS System calculates differential pressure electronically using two synchronized pressure sensors linked together with an electrical cable
- Easy to install solution provides level measurements with a faster response time than traditional systems



The [Rosemount Hx338+ Steam Sterilizable pH Sensor](#) is equipped with a unique pre-pressurized pH reference technology to stop contamination between batches, preventing extractables and leachables.

- Reference features a triple barrier junction to maintain a drift-free pH signal and fight poisoning ions

Additional products

- [Rosemount TF396 Non-Glass ISFET pH Sensor](#)
- [Rosemount 68Q Sanitary Temperature Sensor](#)
- [Micro Motion Fork Density Meter](#)
- [Smart Meter Verification](#)



For more information, visit www.Emerson.com/RosemountFoodAndBeverage

Improve quality while minimizing loss

Consumers expect the highest quality when it comes to food and beverage products they purchase. Automation has driven product variability down over time, but even with these improvements it can still take extensive time for producers to respond to quality issues. Measuring quality parameters on-line can help address issues before out-of-spec products are created. Minimizing out-of-spec product and preventing errors from leaving the plant are critical for improving quality and reducing regulatory compliance risks.



What's your opportunity?



- Gain real-time process alerts to raise awareness to unfavorable process conditions
- Detect leaks in finished packaging to ensure optimal quality and minimize opportunities for contamination
- Monitor critical process conditions to ensure consistent product quality
- Reduce product scrap or product requiring reprocessing
- Control process temperatures with uninterrupted steam supply

Safeguard your operations with accurate and consistent measurements from Emerson.



Reduce product loss with innovative solutions that provide product quality assurance with enhanced insights into your process. Our technology ensures the highest quality and consistency batch after batch so your customers know what to expect.



Services offered...

- Catch mistakes before they are passed down the production line with real-time process data
- Maintain consistent product quality by ensuring dry steam is reliably available

Featured Solutions



The [Rosemount CT4215 Packaging Leak Detection System](#) is an in-line leak detection system that accurately tests 100% of products on your line after filling – whether it's wooden casks prior to the maturation process or bottles and cases.

- Measures up to 200 bottles or packs per minute
- Detect leaks from wooden casks or bottles without disruption
- Engineered with patented Quantum Cascade Laser (QCL) technology
- Designed with a small footprint, it is easy to install and configure, and offers lifetime low maintenance costs



The [Plantweb™ Insight Steam Trap Application](#) provides real-time information about steam trap conditions, energy usage, emissions and leak detection.

- The application utilizes data from the [Rosemount 708 Wireless Acoustic Transmitter](#) to continuously determine steam trap status
- Quickly identify steam traps that require attention: Blow through, plugged, and flooded failure modes are immediately displayed helping to improve efficiency
- Prioritize maintenance with calculated insights from a steam trap status algorithm



Accurately monitor process temperatures and alert variable or unsafe conditions with [Rosemount 68Q Hygienic Temperature Sensor](#). This is an industry-standard, resistance temperature detector (RTD).

- Engineered for flexible and reliable temperature measurements in hygienic process environments
- RTD is designed with a Tri Clamp® sanitary endcap configuration for easy installation and its aseptic process connection is suitable for clean-in-place (CIP), dead-pocket free, measurement applications



The [Rosemount 2110 Vibrating Fork Level Switch](#) is equipped with 3-A and EHEDG standards and FDA approved materials offering reliable level detection with minimal maintenance for applications in narrow spaces.

- Ideal for simple fast-fit applications and basic overflow prevention
- It has no moving parts, requires no calibration, and is virtually unaffected by process conditions
- Compact hygienic stainless steel housing and plug-socket connection



Featuring an innovative new integral transmitter, the fast-response, direct-insertion [Micro Motion FDM Fork Density Meter](#) offers installation flexibility with continuous, real-time density and concentration measurement in pipelines, bypass loops and tanks.

Additional products

- [Rosemount 326L Level Transmitter – Guided Wave Radar](#)
- [Smart Meter Verification](#)
- [Micro Motion Advanced Phase Measurement](#)
- [Micro Motion ProcessViz Software](#)



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Increase reliability to achieve production targets

Manufacturers are driven by consumers not only to maintain high levels of consistency with existing products, but also to develop and deliver new, experimental products. Maintaining product consistency and running new production lines requires reliable operations to remain competitive and deliver returns to fund new developments. Increasing reliability means reducing the frequency, duration and impact of planned and unplanned events. It is critical in achieving production targets and reducing costs.



What's your opportunity?

- Increase reliability with real-time monitoring on your equipment and processes to shift from reactive to proactive maintenance
- Smart instrumentation can self-diagnose to provide early indication of issues
- Condition monitoring solutions deliver needed information for accurate diagnosis and resolution often before downtime occurs



Improve process control, reduce product variability, and increase uptime with Emerson.

Dependable instruments with high accuracy and long-term stability can keep your process in spec and even improve overall equipment effectiveness. Overcome challenges from unplanned downtime by utilizing asset monitoring to identify potential issues and engage in predictive maintenance strategies.



Services offered...

- Reliability consulting services drive enterprise-wide adoption of technologies and analytics
- Condition monitoring of assets keeps critical machinery online

Featured Solutions



Improve process consistency and increase availability with the [Rosemount 3051HT Pressure Transmitter](#).

- Batch to batch repeatability testing ensures that pressure measurements will stay within specification even after being subjected to routine, high temperature cleanings
- Proactively detect electrical loop issues before they impact your operations with Loop Integrity Diagnostics



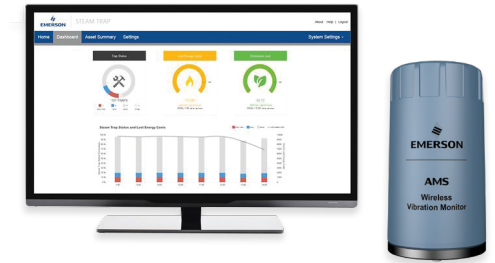
The compact and hygienic [Rosemount 326P Pressure Transmitter](#) is dedicated to measuring pressure and hydrostatic level in the food and beverage industry. It comes with an all-stainless steel construction plus a broad offering of modular industry standard process connections.

- Easy to install and commission
- 4-20 mA and switch outputs
- Modular process connections for application flexibility



Proper temperature of your process is critical and can be monitored or controlled utilizing the compact and hygienic Rosemount [326T](#) and [327T](#) Temperature Transmitters.

- Reduce process disruption with Hot Backup™ capability to prevent primary sensor failure and increase confidence in changing conditions with temperature drift diagnostic (Rosemount 327T only)
- 4-20 mA outputs and IO-Link connectivity



Leverage in-depth monitoring of industrial pumps with the [Plantweb Insight Pump Application](#). This application displays real-time pump status and alerts using machine learning based on asset models and analytics.

- Connect the [AMS Wireless Vibration Transmitter](#) with the Plantweb Insight Pump Application to obtain vibration information, especially in hard-to-reach or cost prohibitive locations



The [Rosemount 1408H Non-Contacting Level Transmitter](#) has been specifically designed for the food and beverage industry and it features a polished stainless steel housing.

- Compact form factor and 80 GHz FMCW technology for space-constrained and small tank installations
- Fast Sweep Technology to maximize reliability and accuracy without any dead zone
- Unique design to withstand CIP/SIP cleaning
- 4-20 mA outputs and IO-link connectivity
- Maintenance-free solution unaffected by any process conditions
- G1" process connection is compatible with full suite of hygienic process connection adapters



Achieve absolute measurement confidence in your Micro Motion Coriolis meters without interrupting the process with [Smart Meter Verification](#) – reducing downtime, lengthening calibration cycles, and increasing operational certainty.

- Detect non-uniform coating, corrosion, and other challenges to strengthen preventative maintenance programs and the implementation of Industry 4.0 (IIOT) strategies
- Verification results are recognized by agencies, including FDA and EPA, as a valid work practice in lieu of calibrations



A full range of [Rosemount Magnetic Flow Meters](#) designed for general purpose, utility and process applications, including clean fluids, steam and utility water.

- Designed with no hidden parts and no obstruction to the process flow, the flow meters can be easily inspected and cleaned
- All-welded construction provides a hermetic seal that protects against moisture and other contaminants

Additional products

- [Rosemount IO-Link Masters](#)
- [Micro Motion H-Series Hygienic Coriolis Flow and Density Meters](#)
- [Micro Motion ProcessViz Software](#)
- [Rosemount 2120 Level Switch - Vibrating Fork](#)



For more information, visit www.Emerson.com/RosemountFoodAndBeverage

Effectively clean process equipment with enhanced procedures

Clean-in-Place (CIP) procedures certify that process equipment and pipework are clean/sterile and ready for the next process to be run. CIP processes can present measurement challenges which induce energy loss and create waste that ultimately lead to higher operating costs. Emerson's measurement instrumentation provides the most accurate, reliable, and long-lasting technology to ensure your process equipment is clean/sterile and ready for the next process to be run.



What's your opportunity?

- Ensure effective sterilization with accurate, repeatable instrumentation that withstands harsh conditions
- Automate and record detergent strength measurements throughout the CIP process
- Determine CIP cycle time based on process conditions and not worse case scenarios
- Identify process inefficiencies throughout your facility by tracking steam, water, and waste water



Ensure your equipment is clean and sterile for your next process with help from Emerson.

Maximize efficiency during cleaning and sanitation processes while ensuring consumer health and safety. Effectively clean your facility's lines and vessels by monitoring key process parameters and maintaining tight process control.



Services offered...

- Increase energy efficiency in steam processes by using the Plantweb Insight Steam Trap Application
- Save time and resources in CIP processes with conductivity measurement

Featured Solutions



Reduce measurement uncertainty and complexity by calculating compensated mass flow measurements of saturated steam with the [Rosemount 3051S MultiVariable™ Flow Transmitter](#).

- Achieve precise differential pressure, static pressure, and process temperature measurements using a single versatile device
- Multivariable design simplifies installation and offers cost savings by reducing pipe penetrations, impulse piping, and connection systems



Decrease energy costs, simplify installation, and increase flow measurement accuracy with [Emerson's Rosemount Annubar™ and Conditioning Orifice Plate Flow Meters](#).

- The lower permanent pressure loss achieved by Annubar primary elements results in up to 50% energy savings
- Conditioning Orifice technology reduces straight run requirements by 90%, reducing material, labor, and procurement costs
- Flow meters arrive fully configured and leak tested for faster start-ups



With unmatched flow and density measurement for liquids, [Micro Motion H-Series Hygienic Coriolis Flow and Density Meters](#) provide a full range of the most accurate flow measurement available. Monitor mass flow, volume, temperature and product concentration from a single, compact, and drainable instrument with a cleanable design.

- Reliable performance under extreme process conditions with low operating frequency
- Smart Meter Verification available to check the meter integrity can be used to extend calibration intervals



Obtain real-time information about steam trap conditions, energy usage, emissions and leak detection with the [Plantweb Insight Steam Trap Application](#).

- Solution seamlessly integrates with existing infrastructure enabling prioritized maintenance with calculated insights from a steam trap status algorithm
- Reduce energy costs and maintenance hours with the [Rosemount 708 Wireless Acoustic Transmitter](#) which provides accurate acoustic level, temperature, and device data, event status, and leak detection via the *WirelessHART* network.



The [Rosemount 410VP - PUR-Sense™ Four-Electrode Conductivity Sensor](#) (left) and the [Rosemount 225 PUR-Sense Toroidal Conductivity Sensor](#) (right) are intended for use in many hygienic applications where a sanitary design is required.

- Sensors are ideal for measuring the concentration of CIP solutions, detecting product/water interfaces, checking product quality, and monitoring effluents in chromatographic separations



The [Rosemount 56 Dual Channel Transmitter](#) is advanced with a large, customizable screen provides at-a-glance view of two liquid measurements, diagnostics, and temperature readings

- Intuitive, easy-to-use design reduces configuration, installation, and maintenance time

Additional products

- [Rosemount 403 PUR-Sense Conductivity Sensor](#)
- [Rosemount 326T Temperature Transmitter](#)



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Global service capabilities and resources from a trusted partner

Emerson's measurement instrumentation portfolio applies industry expertise and innovative solutions to your business challenges. Our global network of resources and service capabilities is the partner of choice for companies like yours. We have the expertise to help you dependably define, execute, and support your service strategy throughout the lifecycle of your operation while ensuring your workforce is up to the task.



Consulting Services

- Envision the value of innovative technologies
- Accelerate a sustainable competitive edge



Project Services

- Improve project performance to meet or exceed start-up and long-term goals
- Increase competitive advantage through cost-effective modernization



Lifecycle Services

- Extensive global channel to support you anytime, anywhere
- Leverage technical expertise to operate safely, improve asset reliability, and optimize process capabilities



Training Services

- Empower new and existing workforce with training opportunities
- Courses are available online, on-site, or hands-on





Emerson can provide innovation solutions across your plant from project kick-off through operations to maximize performance.

Get started



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Emerson delivers time-tested and innovative food & beverage solutions designed to help you maximize production, ensure quality, increase reliability, and improve sustainability.

Contact us now for world-class technologies and post-sales support through our services to maximize your production capacity, reduce your production costs and associated product losses, and achieve a step change in reaching your sustainability targets. Getting started is easy.

Visit us: [Emerson.com/RosemountFoodAndBeverage](https://www.emerson.com/RosemountFoodAndBeverage)

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