ROSEMOUNT™ TANK GAUGING SYSTEM

Always ready for your next challenge
Get precise net volume calculations and comply with the latest overfill standards now and in the future. With Emerson’s Rosemount Tank Gauging System you are always ready to handle the ever-increasing demands on efficiency, safety and accuracy.

+ Secure efficient operations
+ Raise the level of safety
+ Ensure precise measurement

WHAT IF YOU COULD MEET EVERY CHALLENGE TODAY AND TOMORROW?

Take control of your tank farm

Rosemount Tank Gauging System lets you stay on top of tank farm management.

+ Control your inventory—know the exact amount of products in the tanks. Inventory control is a crucial management tool, involving large assets
+ Measure precise batches and custody transfers between ship and shore as well as for pipeline transmission systems
+ Perform oil movement and operations functions. Use it for everyday operations, scheduling purposes and blending programs
+ Keep accurate track of leaks and prevent overfills to reduce environmental impact and the financial consequences of oil losses
FUTURE-PROOF

"As our terminal is located in the New York metropolitan area, the Rosemount Tank Gauging System’s reliability and overfill prevention capability are fundamental."

Craig Royston, General Manager, New York Terminals

Boost efficiency
Rosemount Tank Gauging System helps you increase plant performance and reduce downtime.
+ Get reliable and accurate tank information in real time
+ Utilize tank capacity efficiently, and fill tanks higher
+ Install new devices and replace existing equipment easily

Improve safety
With no moving parts and non-contact measurement, radar technology is fundamentally reliable.
+ Benefit from unique 2-in-1 solution for safety upgrades of existing tanks with a minimum of modification
+ Get API 2350 and IEC 61511 compliant solutions for automatic and manual overfill prevention systems
+ Make remote proof-testing without affecting the process

Increase accuracy
For decades, Rosemount radar level gauges have been the obvious choice when precision is critical.
+ Measure levels with an instrument accuracy of ±0.5 mm (0.02 in.)
+ Calculate precise net volumes by combining accurate level and average temperature measurement
+ Use for all tank storage purposes—from tank monitoring or operational control to custody transfer applications with full inventory management

Go wireless
There are many situations when wireless is the logical choice.
+ Connect with tanks that are divided by water, roads or other obstacles
+ Avoid excavation work—reduce risk, shorten installation time, and save cost
+ Create a redundant communication path quickly and easily—add a wireless network to your existing wired installation
Connect new equipment to your tank farm easily as Emerson’s Rosemount Tank Gauging System is open and scalable. You are always ready to expand your plant and replace damaged or outdated technology—with rugged and reliable equipment designed for all climates.

+ Maintain high plant efficiency
+ Comply with new regulations
+ Protect the value of your assets

System overview
Rosemount Tank Gauging System covers all your needs—from precise bulk liquid measurement to secure transmission and presentation of data.
Simplify tank farm automation
Use wireless communication to automate your bulk liquid tank content measuring. The solution is based on IEC 62591 (WirelessHART®).

Combine devices freely
Our Tankbus uses the open communication standard FOUNDATION™ fieldbus, allowing you to connect the gauging units you need on the tank. The Tankbus is two-wired, self-configuring and intrinsically safe allowing cabling without conduits. Communication from the Tank Hub to the control room can be made via our Modbus based fieldbus, other major fieldbus standards or wireless transmission.

Migrate legacy systems seamlessly
Replace outdated level gauges with high-performing gauges from Rosemount thanks to advanced emulation technology.

Stay in charge of operations
Control your plant with TankMaster—get real-time gross and net volume calculations based on the latest API and ISO standards as well as alarm, inventory and custody transfer functions. The user-friendly interface increases productivity and ease of plant management.

Measure density and mass
Create a hybrid inventory measurement system by connecting a pressure transmitter for real-time density and mass calculations in addition to net volume. Get all tank parameters from one system and reduce the need for manual sampling.

“It is like walking around in the tank farm but you’re standing in your office. All measurement points are centralized.”

+ Curt Åkesson, Instrument Engineer, St1
Get more precise tank gauging with Emerson’s Rosemount Tank Gauging System and benefit from better tank utilization, less inventory uncertainty and more accurate billing. No moving parts make the radar level gauges reliable, virtually maintenance-free and long lasting. The money you invest in the system is soon paid back and turned into years of profits.

WHEN EVERY DROP COUNTS, YOU CAN COUNT ON RADAR TECHNOLOGY

Rosemount Tank Gauging System is accuracy certified for custody transfer by the International Organization of Legal Metrology (OIML) and many national institutes such as CMI, GOST, LNE, NMi and PTB.

Strengthen accuracy with radar level gauges
Choose non-contacting gauges with instrument level measurement accuracy of ±0.5 mm (0.02 in.) and get precise data for custody transfer, inventory management and loss control. Combine with precise multiple spot temperature for exact net volume calculations.

Rosemount 5900S
±0.5 mm (0.02 in.)

Rosemount 5900C
±2.0 mm (0.079 in.)

Unfold and inspect
Both 5900S and 5900C are available in an openable version enabling sampling and verification hand dips in one single pipe.
“We don´t take any risks. A stop in operation is not an option, so we use the 2003 principle for safety and maintenance purposes.”

+ Benny Johansson, Terminal Manager LNG, Gasum

Get stable temperature measurement
Use the ultra-stable 2240S temperature transmitter with temperature conversion accuracy of ±0.05°C (±0.09 °F). Connect up to 16 four-wire temperature elements and add an integrated free water level sensor. For highest precision net volume measurement, use Emerson’s calibrated multiple spot sensors.

Solve contamination challenges
Install Rosemount radar level gauges with parabolic antennas and get reliable measurements in bitumen tanks—one of the toughest level applications in the oil industry. The antenna in the picture measures accurately and reliably despite having been exposed to blown bitumen, which is heated to over 220°C (430°F), for several months.

Measure accurately in old still-pipes
Use 5900S with still-pipe array antenna and benefit from Low Loss Mode technology transmitting radar waves in the pipe center. This eliminates signal and accuracy degradation due to rust and product deposits inside the pipe.

Parabolic antenna
+ Best choice in tanks without still-pipe
+ Demanding environments with sticky or condensing liquids

Still-pipe array antenna
+ New or existing still-pipes
+ Crude oil tanks with floating roofs
+ Gasoline tanks with/without inner floating roof

LPG/LNG antenna
+ Pressurized or cryogenic liquefied gas
+ Strong echo even under surface boiling conditions
+ Measurement verification with closed tank via reference device

Horn/Cone antenna
+ For use in smaller nozzles without pipes
+ From 4 in. to 8 in.
Meet the demands for increased safety from lawmakers, corporate management and members of the community. The features and flexibility of Rosemount Tank Gauging System allow you to fulfill existing and future requirements.

**Achieve SIL 2 or SIL 3 overfill safety**

Use a 5900S radar level gauge (available with 2-in-1 functionality) for overfill and dry-run prevention and combine with other radar devices, switches and tank hubs. Perform remote proof-testing in just a few minutes without affecting tank operations.

- **5900S + 5900S/5900C**
  - Dual radar gauges for level and overfill measurements
  - Each device is IEC 61508 certified SIL 2 capable
  - Single device type minimizes need for training and spare parts

- **5900S (2-in-1)**
  - Two radar gauges in one housing for seamless safety upgrade
  - Independent level and overfill measurements
  - Certified IEC 61508 SIL 2 or SIL 3 capable

- **5900S + 5408/5300**
  - Radar level gauge combined with radar level transmitter to reduce cost
  - Independent level measurement and continuous high-level alarm
  - Up to SIL 2 in non-redundant configurations

- **5900S + 2100 Series**
  - Radar level gauge and point level switch
  - Up to SIL 2 in non-redundant configurations

- **Ensure continuous overfill surveillance**
- **Protect plant assets and human lives**
- **Reduce the risk of environmental pollution**
“Safety is a must. That is why we spend money on state-of-the-art tank gauging.”

+ İbrahim Ünlü, Terminal Manager, Altintel

Create automated overfill prevention

Connect your Rosemount radar tank gauges to emergency shutdown devices and logic solvers—get a powerful overfill prevention solution in line with standards such as API 2350.

Simplify installation on still-pipes

Floating roof and LPG tanks often have only one suitable still-pipe for installation. Reduce installation costs with the 2-in-1 5900S gauge and get dual redundant level measurement and an overfill alarm with one tank opening.

Stay safe and sleep well

Use two separate radar level gauges to compare the results and immediately spot if one gauge is not working. Add on a temperature-compensated leak alarm for early detection of small and gradual spills, which may occur due to corrosion. Download our comprehensive overfill prevention engineering guide at https://go.emersonautomation.com/rmt-en-level-resources
INCREASE YOUR POWER IN TANK INVENTORY MANAGEMENT

Get a critical real-time overview of the Rosemount gauging system tank data, inventory and custody transfer, configuration, service and setup with TankMaster software (based on Windows™). Access information anywhere, anytime through the easy-to-use interface.

Operate tanks with full overview
- See customized views with graphic plant layout
- Handle alarms via screen, e-mail or text message
- Use powerful batch handling to control transferred volumes
- Record and trace operations with audit logs and reporting

Calculate inventory and custody transfer
Base all net volume calculations on major industry standards such as API and ISO. Rest assured that metrological data stay confidential.
“To save time, we sometimes load seven tanks on a ship at the same time. TankMaster gives us uninterrupted on-line level data—necessary to do things right.”

Nor Bin Taib, General Manager, Port Klang Terminal

Integrate with legacy host systems, DCS and enterprise systems

- Get OPC server with browser for easy interface
- Enable SCADA/DCS communication via Modbus and OPC
- Use TankMaster network with redundant server and client PCs
- Integrate with legacy tank gauging systems by taking in and displaying data from other vendors’ gauges

Always have data at hand

- Improve services by letting customers access real-time inventory information
UPGRADE YOUR TANK GAUGING EASILY

Go for measurement solutions that allow you to easily replace current devices with new ones and transmit information securely without installing field wiring.

- Reduce installation costs and disturbances
- Improve technical level step by step
- Increase efficiency without heavy investments

Automate your tank farm
Maximize safety and operational performance while minimizing installation costs.
Go for a wireless tank gauging solution designed for your bulk liquid storage plant.

- Eliminate the need for long distance field wiring
- Reduce installation costs by up to 70 percent
- Get tank data from tanks previously out of reach
I believe in wireless transmission, and the technology has been proven in our most strategic measurement system.”

- Cristiano Cicardi, Instrument and Maintenance Coordinator, IPLOM

**Move forward with gauge emulation**

Add Rosemount tank gauging devices to your existing system by emulating the previous vendor’s field bus communication. Replace your tank management software with Rosemount TankMaster for seamless and trouble-free communication with all installed devices.

- Avoid rewiring or trenching — upgrade bit by bit
- Improve precision and efficiency with modern devices
- Lower the risk of interruptions and disturbances

**Reduce wiring costs on tanks**

Use our two-wired bus-powered Tankbus, based on self-configuring Foundation™ Fieldbus, for smooth and easy start-up. No expensive cable conduits are required as the tank units are intrinsically safe. Daisy-chain configuration reduces the need for junction boxes. Communicate with the control room via our Modbus based fieldbus, other major fieldbus standards or Emerson wireless transmission. All gauges, except for pressurized tanks, can be installed without taking the tank out of service.
COUNT ON THE BEST IN BUSINESS

Put your trust in the inventor of radar tank gauging who installed the first radar level gauge in 1975 and today delivers more tank gauging systems worldwide than anyone else. Talk to our people in technical and sales support and get access to knowledge from highly trained service engineers in more than 80 countries.

+ Use products and people from the world market leader
+ Benefit from decades of experience in radar tank gauging
+ Secure availability to high-quality service and support

Works everywhere

Use Rosemount Tank Gauging System from Emerson for all kinds of tanks: pressurized and non-pressurized, with fixed or floating roofs, with or without still-pipes.

The picture shows jet fuel storage at Los Angeles International Airport (LAX) using a Rosemount 5900S radar level gauge with an 8 inch still-pipe. Examples of applications:

+ Refineries
+ Tank terminals
+ Fuel depots
+ LNG plants
+ LPG plants
+ Distillers
+ Chemical storage
+ Food and beverage

The pioneer in radar-based tank gauging

We introduced the world’s first tank gauging system in 1975, and continued breaking new ground...
Since oil movement is the core business of our company, we want the most reliable and safe system for just-in-time delivery to refineries.

— Technical Assets Manager, Oil Distribution Terminal

Learn more
Get in touch with your local sales representative if you have any questions or want to book a meeting.
Emerson supports customers 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 process.

For more information about Rosemount Tank Gauging System, visit Rosemount.com/TankGauging