

Rosemount Custody Transfer System

Accuracy driven profit



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Built on Emerson's existing and widely used Overflow Control technology, Rosemount Custody Transfer System is the most accurate and reliable fiscal measurement system for LNG carriers. For years our technology has been used onboard tankers and in overflow systems. From this, we have developed a dual radar solution using a single still pipe and antenna, providing precise data and uninterrupted system uptime to maximise profitability during the loading and discharging process.



Rosemount Custody Transfer System

To verify the seller-buyer agreement and maintain a profitable business, it's vital that LNG carriers can measure custody transfer with absolute precision.

The Rosemount Custody Transfer System offers the perfect solution, featuring a primary and secondary measurement system. The systems are fully integrated, independent and failsafe. Using our established LNG Overflow Control technology, a single still pipe keeps hardware and maintenance to a minimum while sophisticated data processing tools drive efficiency and control.

Dual radar precision

Radar technology is universally recognised as the most accurate way for shipowners to measure the amount of LNG in storage. Should the radar system fail, the only option has been to rely on a secondary float system. However, with several moving parts that can break under cryogenic conditions, float systems are considered problematic and may require difficult gas free maintenance inside the tank.

The Rosemount CTS provides an additional, integrated yet completely separate radar unit, rather

than a secondary float system. Not only does this ensure that periodic verification can be made for both systems simultaneously but, in the unlikely event of an error or damage to the primary system, shipowners can maintain 100% accuracy and uptime throughout the loading and discharging process.

State-of-the-art reliability

As the most reliable fiscal measurement solution on the market, the unique design of the Rosemount CTS ensures that no failures in the primary radar system can affect the secondary system. Both radar units have separate electronics and cabling that connects them to the central cabinet, which also features independent power supplies, processing units and service displays.

Automated software routinely self-tests the system for errors and, should a tank sensor reading be suspected as faulty, users are instantly notified and are able to quickly switch over to a secondary sensor via the Operator Workstations. The system generates precise data readings with full data logging and diagnostic reports for quick system checks and recovery with no disruption to operations.

A history of quality

Emerson is known worldwide for delivering superior, customer-specific solutions.

In the 1970s, we developed the first Rosemount TankRadar level gauges and have gone on to revolutionise custody transfer systems and dual measurement technology for the marine sector. We have since become the market leaders, providing a range of flexible, scalable solutions both as new installations and retrofits.

Since 2000, we have been creating sophisticated measurement systems that use 2 or 3 radars in the same antenna known as 2-1 and 3-1. These include extremely accurate and reliable 2-1 radar solutions for Overflow Control systems onboard LNG tankers, which we have now successfully integrated into the custody transfer process.

We take great measures to ensure the highest quality standards at all times. During the installation of our Rosemount Custody Transfer System, every instrument is certified by qualified 3rd parties and, as with all our systems and solutions, is fully supported by our global service network.

Today, with hundreds of ships worldwide using thousands of our state-of-the-art radar systems, no one knows LNG CTS like Emerson.

Single pipe technology

The Rosemount CTS is the only dual measurement system for LNG carriers that uses a single still pipe. Fully integrated under one cover, it includes a dual radar level gauge, dual pressure sensors and up to 6+6 temperature spot sensors in the same tank.

With less hardware, a single tank penetration and fewer pipe support brackets welded to the pump tower, the system is more efficient to maintain, install and requires minimal deck space. The uniquely designed Array Attenuator, located below the still pipe, enables accurate and reliable data readings down to significantly lower liquid levels than with conventional secondary float level systems.

Integrated reporting and analysis

Designed specifically for LNG carriers, the solution integrates easily into any automation system. Both the primary and secondary systems are able to generate detailed reports with key operational data, such as tank level, draft, trim and list, temperature and pressure, how much LNG has been transferred, how much is currently in storage or how much has been consumed during transportation.

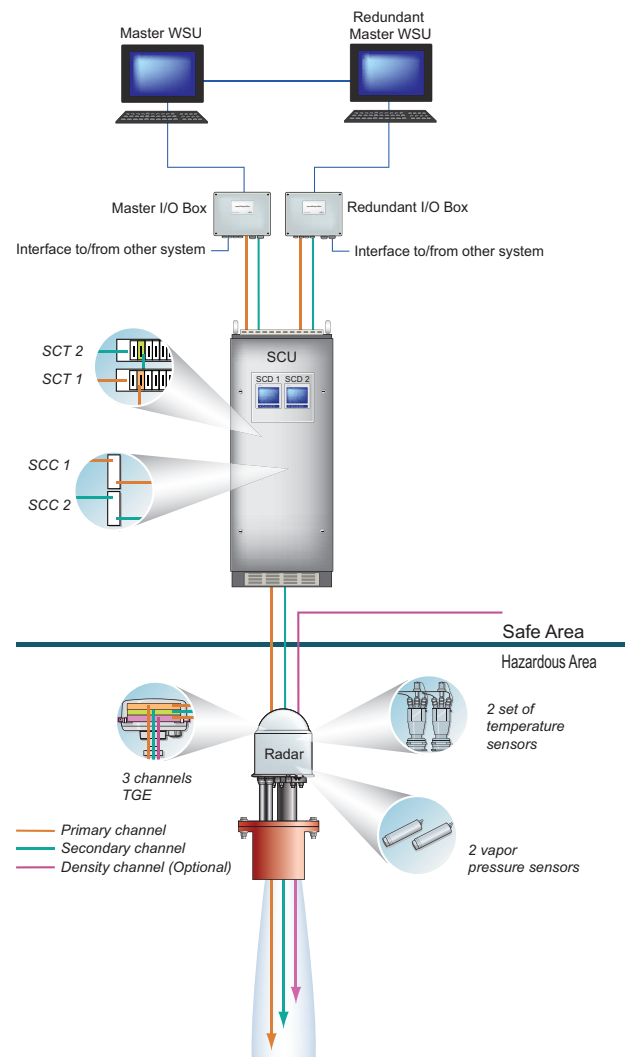
Flexible and scalable

The Rosemount CTS is a cost-effective, flexible system that can be tailored to meet individual requirements, including ship-specific protocols, interfaces and loading procedures. It can be fitted as a single channel radar system, as required, with the option of upgrading to a dual channel measurement system at a later date.

It is also an ideal solution for older vessels in need of an upgrade to their existing custody transfer technology. Retrofitting a single or dual radar system is a simple process that uses existing tank penetrations and can be performed during regular service dockings.

Integrated density profile solution

The optional integrated density profile solution is typically used in floating storage LNG applications providing decision support and determination of any stratification in the LNG tanks. The solution also provides basis of comparison and verification of the data reported from the LNG terminal. The density profile solution is independent from the primary and secondary radars, to eliminate any risk of influencing the accuracy of the custody transfer measurements.



A unique LNG CTS solution:

- ▶ *No extra tank penetration or in-tank installations*
- ▶ *Primary and secondary systems are verified in the same measurement*
- ▶ *Both systems share data so back-up can be achieved on sensor level*
- ▶ *Both systems are installed in a common cabinet in the Cargo Control Room*
- ▶ *All functions require a single connection box per tank with two cable inlets*
- ▶ *Level, pressure and temperature connections for both systems in one enclosure per tank*
- ▶ *Each system has its own backup and service display in the Supply and Communication Unit cabinet*
- ▶ *Built on existing dual radar channel technology*
- ▶ *One point of contact for spares and maintenance*

Service and support

Our customers are world-class businesses who expect world-class solutions. At Emerson we meet these expectations by delivering excellence and value at every stage, from initial consultation to final installation, including dedicated after-sales services.

We work closely with customers and leading industry bodies to ensure all our products meet specific user and regulatory requirements, with rigorous testing procedures to guarantee strict quality and safety standards. Our global support network, found in all major locations within the LNG industry, is on-hand to provide round-the-clock support.

Radar-based Overfill and High Level Alarm systems

As part of our extensive portfolio of tried-and-tested radar measurement solutions for LNG vessels, the Rosemount OFC is a sophisticated 2-1 High Level and Overfill alarm system that replaces outdated float level switches.

Check out our OFC datasheets for more information.



Expertise within Marine Solutions

Emerson is a world-leading provider of marine solutions with engineering excellence, decades of industry experience and global presence supporting any ship anywhere. All marine systems and solutions are designed especially for the harsh marine environments, engineered and manufactured in-house by our skilled teams of marine engineers. Emerson is well-known in the industry and has more than 50 years' experience with a large installed base and covers well-known marine brands such as Rosemount, Micro Motion and Damcos. Supporting marine customers from a global network of sales and service hubs along the maritime highway.

To learn more about Emerson's marine solutions, visit **[Emerson.com/marine](https://www.emerson.com/marine)**

To contact Emerson's marine experts, visit **[Emerson.com/marinecontacts](https://www.emerson.com/marinecontacts)**

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