



ROSEMOUNT™ TGU 53 FOR MARINE ALTERNATIVE FUEL

Best in class radar for reliable and accurate fuel measurement for LNG, LPG and Ammonia

Emerson is your trusted partner when it comes to radar-based fuel measurement systems. We have over 50 years of experience measuring tank levels onboard ships. We offer packages for measurement on a variety of different alternative fuel tanks. This scope mainly intended for membrane tanks range from fuel tank raw data output that can be used for a Fuel Gas Supply System (FGSS) to complete tailor-made solutions from tank to control room.

The main advantages of using radar solutions for LNG, LPG and Ammonia fuel tank gauging are:

- Market leading radar accuracy with a 99,73% conformance level
- Safe to service from outside the tank
- Dual channel measurement with one still pipe
- Continuously compensates for altered gas conditions
- Keep track of inventory levels by transferring tank level data to any other system.
- Fully compliant with the International Code of Safety for Ships Using Gases or Other Low-flashpoints Fuels (IGF Code)



Rosemount TGU 53

Rosemount TGU 53 Tank Radar Gauge

The Rosemount TGU 53 is a premium Tank Radar Gauge suited for installation on LNG, LPG and ammonia fuel tanks. The unit is equipped with a cone antenna and measures the level of the liquefied gas through a still pipe. The Rosemount TGU 53 is designed to incorporate optional dual measurements of level, temperature, and pressure all in the same integrated unit opting for a small footprint on top of the tank, The Rosemount TGU 53 is designed to face the harsh conditions out at sea day in and day out and still deliver world-class measurements.

Dual Channel Measurement and Redundancy

One Rosemount TGU 53 can measure two levels independently using separate electronic boards, connected to the same antenna and with the same still pipe. This enables redundant fuel levels to be measured with only one single still pipe installation in a tank.

Dual Self-Adjusting Function

The unique Dual Self-Adjusting function with built-in redundancy ensures that the system continuously compensates for altered gas conditions. Gas composition and its density can, if overlooked, influence the propagation speed of the radar signal and thus the accuracy of the measurement.

FMCW technology with better accuracy over the whole measuring range

The FMCW technology together with high bandwidth gives an ultra-accurate measurement in the most demanding applications. No accuracy is lost along the way using a fully digital field bus. It is possible to have the system calibrated through the use of an innovative reference tool to have the system calibrated with complete traceability at all times in accordance with the Bureau of Weights and Measures (BIPM).

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Rosemount Supply and Communication Unit - SCU

The Rosemount SCU is the central cabinet for the connection of the tank measurement transmitters. All the information from the TGUs is processed in the SCU. With the optional use of the TGU with two or three independent channels, it is possible to configure a SCU with a redundant level interface and computers and thus get a compact and efficient installation. The cabinet is equipped with digital relay outputs and can be installed with a dedicated alarm panel. The SCU can be connected directly to a 3rd party system such as the ship's automation system or a Fuel Gas Supply System or Emerson's workstation.



Rosemount Supply and Communications Unit

Service and Communications Display - SCD

The SCD is located in the SCU, offering a window for the crew into the system for tank data monitoring. From the display, advanced analyses and diagnostic functions can be performed to quickly resolve problems or to quickly transfer information to our Service Engineers for remote assistance. It is possible to have redundant monitoring of fuel level. Advanced diagnostics with intuitive inboard troubleshooting. In case of malfunction many parts are plug and play replacements.

Overflow detection sensor

The Rosemount 5408 level transmitter is an excellent fit for overflow detection. The transmitters build on two-wire FMCW technology which offers up to 30 times better sensitivity than a pulse device. In addition, the sensor comes with its own 4–20 mA output and can be connected to any system to handle alarm relays and emergency shut down (ESD) functions.



Rosemount 5408

Key Features:

- Safely replace electronics outside the tank
- Measurement supervision constantly searching for rising level in the overflow prevention zone
- Available as SIS is SIL 2 Certified to IEC 61508

System Overview

