Rosemount Custody Transfer System

Daniel Johansson
Manager Product and Project
Marine Tank Gauging
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Emerson Marine Solutions Global Presence

- Naestved, Denmark
- Boulder, CO, USA
- Gothenburg, Sweden
- Helsinki, Finland
- Busan, South Korea
- Singapore
- Athens, Greece
- Dubai, UAE
- Shanghai, China

- Emerson MTM Manufacturing & Sales
- Emerson MTM Sales
- Sales & Service Agents
- Service Agents
- Distributors
Marine Tank Management

Core Offerings

- Cargo Monitoring
- Tank Level Gauging
- Valve Remote Control
- Marine Automation
- Auxiliary Measurement
- Fuel Efficiency
Rosemount® CTS

System features
Custody Transfer System is the cash register for seaborn LNG trade

- CTS system, supplied by Rosemount gives the customer information on Loaded/Unloaded volume

From GIIGNL Handbook, 2017 Edition
**Rosemount Custody Transfer System**

**Dual Radar Technology**

**Solution**

- Radar technology the most accurate way to monitor LNG levels during loading and discharging

- Rosemount CTS *2-in-1* is built on existing dual radar channel technology providing precise data and uninterrupted system uptime

- Radar technology for primary and secondary measurement
  - 2 independent level channels + pressure and temperature in *a single mechanical installation*.
  - Each system is independent and has its own backup and service display
Rosemount Custody Transfer System
One Additional System, No Additional Mechanical Installation

- Same pipe solution

  - In-tank installation:
    - *Proven* equipment and methods
    - No new installation requirements on shipyards

  - Single mechanical installation but two independent systems
    - Dual radar gauge, dual pressure sensors and up to 6+6 temperature spot sensors in each tank

- Independent power supply
- Independent cabling
Cabinets and Workstations

- Both independent systems will be installed in the same signal cabinet, still they will be 100% independent and galvanically isolated.

- The system can have up to two service panels for backup and analysis.
Approval Chain

- Recorded Results stored in Field Data Sheet (FDS)
  - Witnessed by Sworn Surveyor

- FAT – CTS Accuracy Tests
  - Level Accuracy
  - Pressure Accuracy
  - Temperature Accuracy

- SAT – CTS Accuracy Tests
  - FDS with data from FAT
  - Level Accuracy
  - Pressure Accuracy
  - Temperature Accuracy
CTS Radar Verification

- Mount the radar gauge
  - Measure Ld with Laser
  - Calculate Expected Ullage from Ltot – Lglenn – Ld
  - Compare Expected Ullage with Radar Measurement

\[
\text{Ltot} = \text{Expected Ullage} + \text{Lglenn} + \text{Ld}
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\text{Expected Ullage} = \text{Ltot} - \text{Lglenn} - \text{Ld}
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