Reduce **complexity** and increase **efficiency** with certified system solution for **cryogenic** and refrigerated **storage tanks**

**Unique System Features**

- Support for measurement redundancy
- Very accurate level measurement
- Possibility to use 2oo3 voting
- Very accurate temperature measurements
- Cool-down and leak detection sensors
- Level, temperature and density profile device for stratification detection

**When Accurate and Reliable Measurements are Critical**

In cryogenic containment tanks, it is critical to have measurements that will not fail. Radar technology provides a robust and virtually maintenance free level solution, offering highly accurate and reliable measurements at long range. It also has the ability to overcome difficulties associated with cryogenic storage such as vapor spaces, low dielectric constants, and thermal effects.

**When Safety is a Concern**

- Use reliable radar technology for level measurements and overfill prevention
- Identical separation reduces complexity and the likelihood of human errors
- Remote proof-testing from the control room saves time and improves safety
- Certified integrated instrumentation solution from one supplier
- No need for additional devices enables easy safety calculations

IEC 61511-2: “Separation between the SIS and the BPCS may use identical or diverse separation.” Identical separation means using the same technology from the same or a different manufacturer.

“**75 percent** of accidents in industry are traceable to organizational and **human factors**. In this context, the Buncefield **incident** provides a case in point. Buncefield had redundant and diverse technology for **overfill prevention**, but the high-level alarm was inoperable due to human error.”
System Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tr>
<td>Measurement Redundancy</td>
<td>Includes both level and temperature redundancy. For level, primary and secondary gauges support the Basic Process Control System (BPSC), and a third provides information on the Overfill Prevention System (OPS).</td>
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<td>2oo3 Voting</td>
<td>2oo3 voting means an alarm is triggered when two out of three level gauges indicate abnormal conditions, thereby avoiding false alarms and unnecessary operation stops. With an extra gauge there is always a spare at hand.</td>
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<td>Instrument Accuracy, Level</td>
<td>Rosemount 5900S: ±0.5 mm (0.020 in.).</td>
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<td>Temperature Measurement</td>
<td>Rosemount 2240S temperature transmitter with Rosemount 566 Multiple Spot Temperature Sensor. The DIN Class A sensor elements may be calibrated for even higher accuracy. The same temperature transmitter may be used with the Rosemount 614 sensor, specifically designed to measure tank wall and isolation space temperatures for cool-down control and leak detection purposes. A Level Temperature and Density (LTD) profile device is used to detect stratification and provide data that can be used to prevent roll-over incidents.</td>
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<tr>
<td>Remote Proof-testing</td>
<td>Rosemount TankMaster inventory management software supports proof-testing from the control room, which means time consuming and potentially dangerous tank climbing is avoided.</td>
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