

# 2-in-1 Overfill Prevention Technology

## Dual independent radar tank gauging

### WHAT IF...

you could get **API 2350**  
and **IEC 61511** compliant  
**overflow prevention** and level  
measurement using **just one**  
tank nozzle?



### CHALLENGES



Tank overfills are a major concern in the bulk liquid storage industry. They are a serious potential hazard to your plant assets, the environment and to human lives.

Historical industry data from an independent insurance company indicates that statistically one overflow occurs every 3,300 fillings<sup>(1)</sup>.

Mechanical installation of an independent overflow prevention level sensor may be prohibitive due to cost, especially when an additional measurement pipe is required in a floating roof tank.

### OUR SOLUTIONS



*The two radar level units are galvanically separated and fully independent.*



*Rosemount™ 5900S Radar Level Gauge.*

The Rosemount 5900S Radar Level Gauge with 2-in-1 technology works simultaneously as an Automatic Tank Gauge (ATG) and as a sensor in an independent Automatic Overfill Prevention System (AOPS).

- Fulfills requirements on independence and technology diversification according to IEC 61511 and API 2350
- Continuous back-up level measurement with highest custody transfer accuracy
- Installation cost savings by using the same tank nozzle for both measurement and overflow prevention
- Proof testing can be carried out automatically from the control room

1. Marsh and McLennan Companies, 2011

# HOW IT WORKS

## Use two level gauges per tank

The Rosemount 5900S Radar Level Gauge with 2-in-1 technology provides dual level data using only one housing and a single tank nozzle. The level output from the safety layer sensor is available as backup level measurement for day-to-day operations. Installation time is reduced, not least in tanks with only one available tank opening, such as floating roof tanks with still-pipes and LPG tanks.

- Always in continuous operation so you know that it works
- No moving parts
- No contact with the liquid



## Certified for use in two independent protection layers

The overfill prevention technology of 2-in-1 radar level gauges is based on the foundation that the antenna has a very low failure rate in comparison with the electronics. The antenna is a non-moving mechanical part with approximately the same Mean Time Between Failures (MTBF) as the tank itself. As a result, the 2-in-1 solution has been verified by independent accredited third parties to be compliant with both IEC 61511 and API 2350 when used simultaneously in both the Basic Process Control System (BPCS) and SIS protection layers. See references below <sup>(2)</sup>.

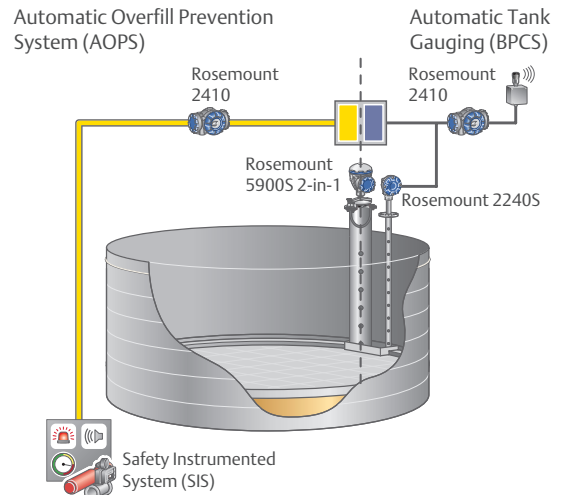
## Proof testing

Proof testing is a critical procedure for any overfill prevention system. When using 2-in-1 continuous level measurement, the proof test can be executed remotely from the control room in a few minutes, and without affecting tank operations. This reduces labor and the tank's down-time, but more importantly, it reduces the overall risk. There is no more need for 'bucket-tests' with hazardous liquids requiring a visit to the tank and access to the level sensor while the tank is taken out of operation.

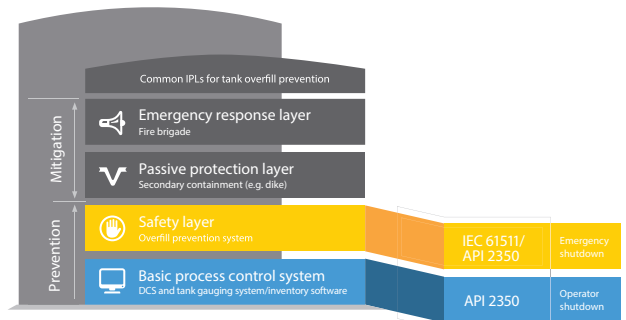
2. Exida open letter "Clarification that a single Rosemount 5900 2-in-1 can serve as level sensors in two independent protection layers (i.e. BPCS and SIS)", February 2015 PEMY Consultant Report 925-345-1294, April 2015

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BPCS communication of tank gauging data can be wired or WirelessHART®.



The first line of defense against overfills is the Basic Process Control System.

## Consider it Solved.

Emerson™ Automation Solutions supports you with innovative technologies and expertise to address your toughest challenges. For more information, visit [Emerson.com/Rosemount-TankGauging](http://Emerson.com/Rosemount-TankGauging)

