

# Refinery Fulfills Regulations and Saves \$1M with Unique Solution for Independent Safety Level Measurement

## Results

- Ten tanks upgraded with dual-level readings (primary and secondary) to meet mandatory guidelines
- Safety Integrity Level 3 (SIL 3) certified safety solution according to IEC 61508 standard
- Upgrade completed without any hot work or mechanical modifications and the tanks could remain in operation the entire time, saving approximately \$100,000 per tank



## Application

Oil & Gas bulk liquid storage.

## Customer

Fortune 500 company in India.

## Challenge

The customer is a diversified, integrated energy major with a presence in almost all the streams of oil, gas, petrochemicals and alternative energy.

One of the customer's refineries wanted to implement national and industry safety guidelines for ten aviation fuel storage tanks. Guidelines state that all tanks should have dual level measurements — one primary and one secondary — as a safeguard against tank overflow.

However, all ten tanks were in use and interrupting operations was unacceptable to the customer. Thus, a solution was needed to upgrade the instrumentation without taking the tanks out of service.

## Solution

The customer chose to install the Rosemount™ 5900S Radar Level Gauge on all ten tanks. It was the only solution that satisfied all customer requirements.

The Rosemount 5900S has a unique and patented 2-in-1 option, which features two radar gauges in one single housing. The 2-in-1 radar provides a safety level of SIL 3 with a hardware fault tolerance of 1, and at the same time provides dual level readings to the user interface such as a Distributed Control System (DCS) or the tank gauging inventory management software.

***“The Rosemount 5900S 2-in-1 Radar Level Gauge helps us to avoid tank shutdowns without compromising accuracy, safety or performance.”***

**Chief Manager  
Instrumentation**



*Rosemount 5900S 2-in-1 features two radar devices mounted in the same housing*

## REFINING

The 5900S 2-in-1 is in fact the only level gauge that is certified SIL 3 as a single device, i.e. without having to install multiple gauges and connecting them with “1-out-of-2” voting. For the refinery, this meant that safety regulations could be fulfilled without having to do any mechanical modifications to the tank.

The refinery storage tanks had only one tank opening suitable for level gauging. Adding more openings would require mechanical modifications of the tank and hot work like cutting and welding, which meant each tank would have to be emptied, de-gassed, and taken out of service. This was unacceptable to the customer both due to cost and operational reasons. But by choosing the 2-in-1 solution, the customer needed only to remove the old level gauge and install the Rosemount 5900S in its place. No hot work or mechanical modification was required, and the complete installation was done with the tank still in operation. Having no downtime meant significant costs savings compared to all alternative solutions – estimated at \$100,000 per tank.

### Resources

Emerson Automation Solutions Industries  
[Emerson.com/Refining](https://www.emerson.com/Refining)

Rosemount 5900S Radar Level Gauge  
[Emerson.com/Rosemount5900S](https://www.emerson.com/Rosemount5900S)

Flyer  
[Flyer Rosemount 5900S 2-in-1](#)

Data Sheet  
[Product Data Sheet Rosemount 5900S](#)

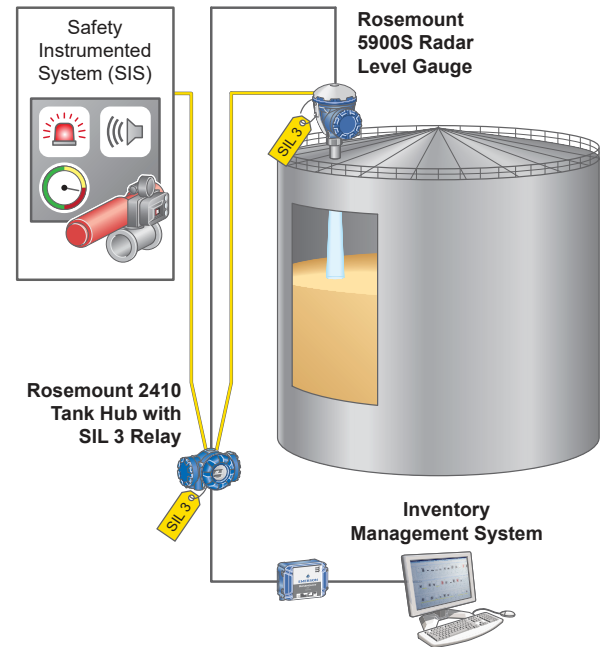
Video  
[Get Better Overfill Prevention with Emerson's Unique 2-in-1 Technology](#)

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00830-1100-5100 Rev AA

**ROSEMOUNT™**

**Not needing to take the tanks out of service for the upgrade saved the company approximately \$1,000,000.**



*Installing the Rosemount 5900S 2-in-1 allowed for dual level input to the inventory management system, while simultaneously a SIL 3 rated relay is connected to the safety 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](https://www.emerson.com/Rosemount-TankGauging)

  
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