

# Terminal Operator in China Achieved Increased Measurement Reliability and Reduced Maintenance with 2-in-1 Technology and Tank Gauging Emulation

## Results

- Emulation enabled successful two-phased upgrade of old equipment from other vendors, including both control room and field equipment
- Quick and safe installation during planned operation shutdowns aligning with customer expectations and requirements
- Reduced site maintenance costs by 50%
- Achieved high accuracy, redundancy and SIL 3 safety standard with 2-in-1 technology



## Application

Bulk liquid storage of gasoline, diesel, jet fuel, fuel oil and liquefied petroleum gas operations.

## Customer

A major wholesale distributor of petroleum and petroleum products based in China.

## Challenge

The customer's core business is trading petroleum, diesel oil, aviation fuel, fuel oil and liquefied petroleum gas. Having developed its business for over 20 years, the customer now owns 42 filling stations, 2 oil terminals with storage capacity of 374,500 cubic meters and 16 vessels with carrying capacity of 68,600 metric tonnes/75,619 tons. At one of the customer sites, 36 tanks had servo- and radar-based equipment from other vendors in use for almost 10 years, which had been causing frequent maintenance challenges and large accuracy deviations. In order to facilitate site operations the customer was in need of maintenance-free, accurate and reliable equipment with only a 3-day scheduled plant shutdown window to begin exchanging the old equipment in a two-phase replacement installation. In order to complete the two-phase installation, installations were required to be conducted during planned operations shutdowns.

## Solutions

The Rosemount™ Tank Gauging system was installed in order to address the customer's interest in virtually maintenance-free solutions as well as robust and reliable technology. During the 3-day plant shutdown, the first phase of the two-step phase was conducted, namely, the replacement of the control room equipment. Thanks to the emulation capabilities of the Rosemount Tank Gauging system, the control room equipment could be replaced while still utilizing tank equipment from the other vendor and allowing for a seamless connection throughout the tank site system instrumentation while taking the customer's plant operation schedule into consideration. The Rosemount 2460 System Hub was installed quickly

***“For custody transfer accuracy precision measurement remains the key. The Rosemount 5900S 2-in-1 was the best choice because we could make use of the higher safety requirements for the entire terminal including SIL 3 capability.”***

Technical Chief Manager



*The Rosemount 5900S 2-in-1 has two radar level units that are galvanically separated and fully independent*

## TERMINALS

and efficiently and considered a trial installation, where its emulation capabilities showed the customer how much an Emerson solution could improve their daily operations.

In the next step of the two-step phase installation, the tank instrumentation from the other vendor was completely removed when the Rosemount 5900S 2-in-1 Radar Level Gauge was installed along with the Rosemount 2410 Tank Hub. This was conducted during the scheduled plant shutdowns, where the emulation capabilities once again showcased the seamless ease-of-use of the Rosemount Tank Gauging system. Old equipment which had not yet been displaced could still be utilized and controlled via the control room and DCS, allowing for the installation process to be adapted to the customer's plant operation schedule.

Thanks to the OIML certified accuracy of  $\pm 0.5$  mm (0.02 in.) the customer's requirement of highly accurate equipment was met, as well as the need for a maintenance-free solution, saving the customer about 50% in site maintenance costs. With the Rosemount 5900S 2-in-1, the SH/T-3184-2017 standard requirements for SIL 3 safety were met, as well as the need for redundancy, once again meeting one of the customer's prioritized needs.

### Resources

Tank Gauging Emulation

[Emerson.com/TankGaugingEmulation](https://emerson.com/TankGaugingEmulation)

Rosemount 5900S Radar Level Gauge

[Emerson.com/Rosemount5900S](https://emerson.com/Rosemount5900S)

Rosemount 2460 System Hub

[Emerson.com/Rosemount2460](https://emerson.com/Rosemount2460)

Brochure

[Rosemount Tank Gauging System](#)

Flyers

[Tank Gauging Emulation](#)

[Rosemount 5900S 2-in-1 Overfill Prevention Technology](#)

[Rosemount Tank Gauging System](#)

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***“Maintenance costs were reduced by 50% by replacing equipment from other vendors in a step-by-step installation process thanks to the emulation capabilities of the Rosemount Tank Gauging system.”***

Technical Chief Manager



Rosemount 2460 System Hub

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For more information, visit

[Emerson.com/Rosemount-TankGauging](https://emerson.com/Rosemount-TankGauging)

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