

IPLOM Refinery Gets Highest Level Accuracy Using Emerson's Wireless Tank Gauging System

RESULTS

- Improved accuracy using hybrid system instead of HTG
- Increased flexibility for future modifications – easy to expand refinery network and include remotely located tanks
- Reduced maintenance
- Quick installation and commissioning
- Easy to send data from other instrumentation over the wireless network

APPLICATION

The refinery produces and stores premium quality petroleum products, such as diesel, virgin naphta, fuel oil, crude and bitumen. IPLOM originally used an HTG system for fiscal purposes, and to utilize tank storage to its maximum capacity.

CUSTOMER

IPLOM is a privately owned Italian refinery, relying on their main competitive strength – flexible production. It is located in Busalla, 18 km from their additional tank storage facility at the harbor of Genova. The refinery has a strategic location, right by the A7 highway, near several big cities in Northern Italy, and also close the Swiss border. It is in direct connection with the port, where oil arrives by tanker ships. This oil is either sent to the Fegino depot or straight to the refinery. One pipe in each direction transports products between the two locations. IPLOM produces 7000 tons of products per day – 50% is delivered to domestic and international end customers via road/rail, the rest is distributed via the dense Italian pipeline system. The total storage capacity is approximately 240.000 m³, 50 tanks in Busalla, and 12 in Fegino. There is a mixture of floating roof tanks and fixed roof tanks.

CHALLENGE

The refinery had an old HTG system, accurate for mass but not equally good for volume, which is the fiscal trade unit of today. This system was not supported anymore. In addition, it required periodical checking, heat tracing and insulation. The level value required for volume calculations was indirectly received via two pressure transmitters. The accuracy and stability of the level value was not satisfactory due to temperature drift. Except the need for improved level measurement performance, another challenge was to access signals from the whole storage area.

If IPLOM could get better level and volume measurements, the company would be able to control and operate their tanks more efficiently. With an increased Low to High level range, they would also gain more space for product blends.



“I believed in wireless transmission, and the technology has been proven in our most strategic measurement system”

Mr. Cristiano Cicardi, Instrument and Maintenance Coordinator IPLOM Refinery



The wireless system has proved very reliable despite long distances and obstacles like towers and distillation columns in the Line-of-Sight view.

SOLUTION

In 2011, IPLOM looked for an alternative to ensure high precision level measurements, and decided to try the Emerson's Smart Wireless Solution. Nine tanks were equipped with TankRadar Rex, one 3920 horn antenna gauge or one 3930 parabolic antenna gauge per tank, depending on nozzle availability.

Each gauge is connected to a Smart Wireless THUM Adapter which transmits data over the wireless network to a Smart Wireless Gateway, which communicates with their Yokogawa DCS system via Modbus TCP/IP.

Wiring and access to power were already in place, so the main reasons for going wireless was a quick and easy installation procedure, and the future flexibility to add tanks and measurement data from other devices, such as flow and temperature transmitters.

The experience so far has been very good. IPLOM receives virtually maintenance free, accurate and reliable level measurements. Eight more tanks are now in the process for the next upgrade phase.

Emerson Smart Wireless Solution

Emerson's Smart Wireless solution is based on IEC 62591 (*WirelessHART*), the industry standard for wireless field networks.

A *WirelessHART* device can transmit its own data as well as relay information from other devices in the network. The self-organizing mesh network automatically finds the best way around any fixed or temporary obstacle. Nodes can identify a network, join it, and self-organize into dynamic communication paths. Reliability actually increases when the network expands – the more devices, the more communication paths!

RESOURCES

Rosemount TankRadar Rex Technical Description, 703010En

Smart Wireless Tank Gauging from Emerson Brochure, 201026En

www.rosemount-tg.com/wireless

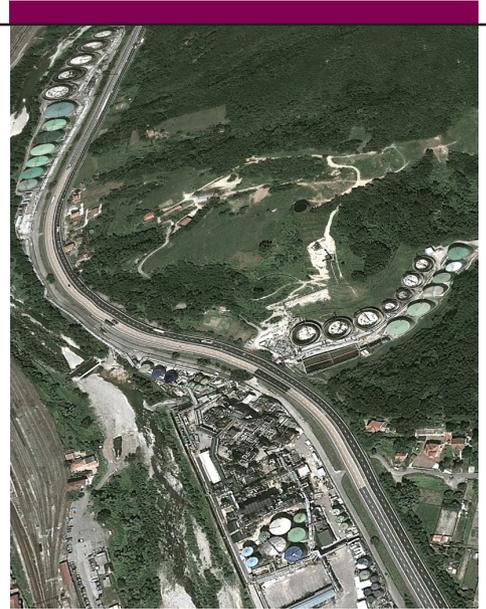
Technical details are subject to change without prior notice.

Emerson Process Management

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The tanks in Busalla are grouped in several clusters, spread over a large area, with the A7 highway as a divider. The refinery plans to gradually equip all tanks in the different locations with wireless level gauges.



TankRadar Rex installed with a Smart Wireless THUM Adapter.


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