

Radar level transmitters provide reliable raw-product inventory information

Process Instrumentation



SITRANS LR200 radar level transmitter with programmer

A manufacturing plant in the Western United States produces camera film and photo paper. They have 18 outside storage tanks where they store the chemicals used to make their products. Inside the plant, there are 20 bullet-shaped process tanks that are used to mix the chemicals and inks. Both the process and storage tanks require level measurement.

The outside tank levels are important to determine when raw product inventory is needed. The customer relies on the level measurement to alert them when to order more chemicals for their production. The inside process tanks require accurate level measurements of the different chemicals that are being mixed to create the correct compound critical for production of the finished product.

Challenge

The company was previously using old ultrasonic transducers for measuring the levels in the outside storage tanks. The transducers were fitted with Teflon-faced flanges to prevent the chemicals from penetrating the flange seal and damaging the transducers. However, even with a Teflon face, the chemical vapors were able to get through the flanges. The customer had to replace the transducers on a regular basis.

The customer had also been using ultrasonic level transducers on the inside process tanks and was frequently having problems with the accuracy. Furthermore, because of the dish-shaped bottoms in the process tanks, the ultrasonic transducers were not able to provide a reliable measurement when the tanks were empty.

Solution

The local Siemens representative demonstrated the capabilities and benefits of using the Siemens SITRANS LR200 radar level transmitter on their outside storage tanks. In a field trial, a SITRANS LR200 transmitter with a Teflon rod antenna and SS shield replaced one of the ultrasonic level transducers on a storage tank and has operated flawlessly since initial installation. The rod design of the antenna helps prevent moisture build-up due to the temperature changes in the high elevation location of the plant. The liquid build up on the antenna simply drops off because of the tapered design of the antenna. As a result, there is virtually no signal degradation. Also, with the radar transmitter, there is no need for sound velocity correction as it is done with ultrasonic transmitters when vapors are present inside the tanks. The customer is currently replacing all of the older ultrasonic transducers, as they fail, with new LR200 radar level transmitters on all their outside storage tanks.

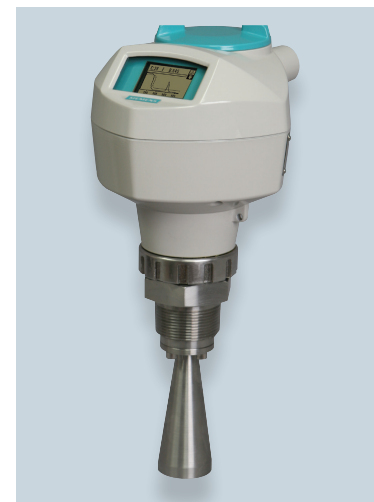
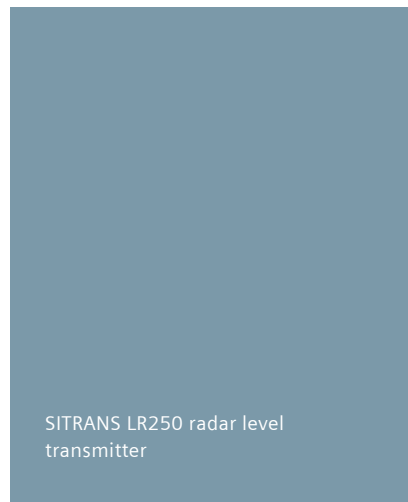
The SITRANS LR250 radar level transmitter, with its four-inch horn antenna, allows the customer to use the entire capacity of the inside process tanks and is providing an accurate reading that the customer can rely on. Using a trial unit of the LR250 instrument, the representative was able to show that the transmitter was providing a reliable reading during the process tank fill and empty cycles, and the SITRANS LR250 transmitter was able to measure the level correctly even in the dished-bottom section of the tank. The LR250 transmitter's Auto False-Echo Suppression feature is used to ignore signals from the mixing blades, while the ultrasonic transducers would occasionally "lock" on that signal. After successfully testing the LR250 transmitter, the customer is now replacing all the older ultrasonic transducers with the LR250 radar level transmitters on each of the inside process tanks.

Benefits

- **Customer Service**
Siemens local representatives provide expert service and support, including: consultation, startup and configuration support.
- **Cost Savings**
Reliable instrument performance means the customer is no longer constantly tuning or replacing instruments, saving time and money.
- **Easy to Use**
The radar transmitter's graphical local user interface (LUI) makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard. The LUI also displays echo profiles for troubleshooting and diagnostic support.
- **Increased Accuracy**
Process Intelligence signal processing provides improved measurement reliability, and Auto False-Echo suppression avoids false signals from the mixing blades in the process tanks.

About the SITRANS LR200 Radar Level Transmitter

The SITRANS LR200 instrument is a 2-wire, 6 GHz pulse radar level transmitter for continuous measurement of liquids and slurries in storage and process vessels, including high temperature and pressure, to a range of 20 meter (66 feet). Its unique design allows safe and simple programming using the Intrinsically-Safe handheld programmer without having to open the instrument's lid. It also features a built-in alphanumeric display in four languages.



Built for harsh environments, SITRANS LR200 features safety approvals for hazardous areas including explosion proof and intrinsically safe. Field proven around the world, the SITRANS LR200 transmitter is ideal for chemical, pharmaceutical or hydrocarbon processing-plant applications. Its Uni-Construction Teflon® rod antenna offers excellent chemical resistance and is hermetically sealed. Process Intelligence echo processing means "plug and play" performance without the fine tuning required of other devices.

About the SITRANS LR250 Radar Level Transmitter

SITRANS LR250 is a 2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels, including high temperature and pressure, to a range of 20 meter (66 feet). It includes a graphical local user interface (LUI) that improves setup and operation by including an intuitive Quick Start Wizard, and echo profile displays for diagnostic support. Startup is easy using the Quick Start wizard with a few parameters required for basic operation. The 25 GHz frequency creates a narrow, focused beam allowing for smaller horn options and decreasing sensitivity to obstructions.

SITRANS LR250 instrument's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid. It also provides reliable measurements on low dielectric media, and in small vessels, as well as tall and narrow vessels.

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