

SIEMENS

SITRANS LR250

Increase safety and reduce maintenance with new radar antenna



When it comes to handling toxic chemicals, a US industrial coating manufacturer has always made the safety of its employees and the protection of the environment its top priorities.

Recently, thanks to collaboration between the company and Siemens, both of these goals were met through the use of the SITRANS LR250 radar transmitter for liquids level measurement.

This manufacturer in Northern Texas produces the kind of durable protective casings used on automotive parts, industrial coils, and off-road equipment. The company is highly regarded in the transportation, oil, and recreation industries for its flexibility in

outstripping consumer demand and meeting custom orders.

Challenge

Recently, the company installed a 24-foot tall chemical storage tank to hold Toluene diisocyanate (TDI), a highly toxic compound and a key ingredient in the company's trademark resin.

To measure the chemical's level within the tank, technicians installed an ultrasonic transmitter from a different vendor. When the wetted seal on this transmitter degraded within only a few months, another unit was installed. When this seal failed as well, Siemens stepped in to solve the problem.

[siemens.com/radar](https://www.siemens.com/radar)



Installing the SITRANS LR250 was very easy on one of the chemical storage tank's existing process connections.

Solution

The local Siemens representative proposed a test using SITRANS LR250, a non-contacting radar transmitter with a new flanged encapsulated antenna (FEA).

The SITRANS LR250 operates at 25 GHz. This higher frequency yields a higher signal-to-noise ratio than radar devices operating at a lower frequency. The resulting narrow signal makes it easy to install the non-contacting radar transmitter practically anywhere on top of the tank, since interference from long nozzles or the tank wall is minimal.

The new flanged antenna excels at level measurement of highly corrosive chemicals. This new antenna configuration completely isolates the process from the radar transmitter.

Since workers were exposed to dangerous fumes every time the tank was opened, it was agreed that the test would last six months, at the end of which the SITRANS LR250 would be removed and visually inspected. In addition, a backup system would evaluate the transmitter performance to confirm first that the signal wasn't degrading and that the device was consistently calculating the correct material level.

To do this, the validity of the signal was evaluated using diagnostic software tool SIMATIC Process Device Manager (PDM). Technicians confirmed the level by routing the 4-20 mA transmitter output to a SITRANS RD200 remote display where they could observe readings easily and without climbing any storage vessels.

Benefits

Over the six-month period, the backup system confirmed that the SITRANS LR250's signal profile indicated a clear and



SITRANS LR250's fully encapsulated horn antenna with a TFM 1600 PTFE lens is easy to clean and reduces buildup.

accurate level measurement, which was consistently tracked by the device.

As well, when technicians removed SITRANS LR250 from the tank and visually inspected the transmitter, they were amazed to discover that the lens was completely intact.

Thanks to its new partnership with Siemens, this company is now able to achieve its top two priorities: from an environmental perspective, the manufacturer can avoid messy spills caused by overfilling.

From a safety perspective, the company no longer needs to send workers to the top of the vessel to physically check the level of the material in the tank, or to open the container to replace malfunctioning equipment.

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