Tank monitoring challenges solved with Siemens radar level transmitters

**Situation**
An electrical contractor in the Upper Midwest United States provides oilfield tank monitoring for several oil companies. They supply level measurement and control in nearly 400 barrel tanks containing crude oil and/or produced salt water.

**Challenge**
The contractor had previously used competitive brands of non-contact radar, guided wave, and buoyancy level measurement devices. They had experienced constant reliability problems requiring multiple site visits to tune out false signals on the level measurement devices. The transmitters were mounted through existing tank openings, and the competitive units needed to be wrapped to insulate the electronics from the cold so they would continue to function.

**Solution**
The local Siemens representative demonstrated to the customer that the SITRANS LR250 radar level transmitter would solve his problem. The LR250 instrument was installed and the customer quickly learned how easily the device can be configured using the local setup utility, or by using SIMATIC PDM monitoring and commissioning software. Cold weather performance of the LR250 transmitter has been flawless, even with temperature swings to 45 degrees below zero. These extreme conditions can create ice buildup inside the tank, and because many of the LR250 transmitters are mounted less than 6 inches away from the wall, through the existing process connections, the ice buildup can cause false readings. The LR250 transmitter, because of its high signal-to-noise ratio, can ignore these false readings without customer intervention. In extreme cases, the ice buildup can be ignored by using the LR250 instrument’s Automatic False Echo Suppression.

Previous level measurement problems have all been eliminated. The contractor’s Automation Specialist describes the LR250 radar level transmitter as “bulletproof” with a “set them and forget them” technology.
Benefits

- **Simple operation and programming saves time:**
  - Graphical local user interface (LUI) makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard.
  - Programming using infrared Intrinsically Safe handheld programmer or over a network using SIMATIC PDM, Emerson AMS, or Field Device Tools, such as PACTware or Fieldcare via SITRANS DTM.

- **Diagnostic support saves time:**
  - LUI (local user interface) displays echo profiles for diagnostic support

- **Easy and convenient mounting options:**
  - 25 GHz high frequency allows the use of small horn antennas for easy mounting in nozzles.
  -Insensitive to mounting location and obstructions, and less sensitive to nozzle interference
  -Short blanking distance for improved minimum measuring range down to 2 inches from the end of the horn

- **Convenience of communication options:** Communication using HART® or PROFIBUS PA, or FOUNDATION Fieldbus™

- **Superior reliability provides confidence in the measurement:**
  - Patented Process Intelligence delivers a superior signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions.

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 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 just 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. Its unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument’s lid.

The LR250 transmitter is ideal on low dielectric media, and in small vessels, as well as tall and narrow vessels.