



# Reliable level measurement increases quality and consistency in commercial soup production

## Situation

A company in the Northwest US makes a variety of soups that are sold to restaurants and commercial institutions.

The soups are made in 960 gallon kettles and cooked as ingredients are added. Material agitation is performed at various times throughout the cooking process in order to ensure that all of the ingredients are mixed properly and that there is a consistent amount of ingredients throughout the kettle. This ensures that when the soup is packaged, each container will have approximately the same amount of solid and liquid ingredients. Once the soup is properly cooked, it is pumped to a package machine and conveyed to inventory.

## Challenge

The plant manager was looking for a better way to monitor the level in the soup kettles. The soup making process involves monitoring and controlling the

speed of two different material agitators in the kettle. As ingredients are added, the speed of the agitators is increased or decreased depending on the level reading. The level reading is important because it is used to control the agitators, which, in turn, ensure that the ingredients are mixed properly to provide consistent product quality throughout the entire batch.

Before the Siemens representative recommended a better option, the company had been making (and guessing) the level measurements manually. Production employees would lift the lid and expose themselves to potential injury and possible contamination of the product.

The customer had used load cells in the past, but had problems with water ingress into the cells. They also didn't want to lift the kettle in order to install the load cells because this would interfere with production schedules.

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## Solution

The local Siemens representative provided the customer with a site survey of the process, and counseled the customer on the different level technologies available with the advantages/disadvantages inherent in each. Once it became clear that a non-contacting level solution was the best overall choice for this customer, the representative suggested they try the Siemens LR250 Radar level transmitter, and performed a "live" test with the instrument to prove that this technology would solve the customer's problem best.

The LR250 radar level transmitter is mounted on top of each kettle to monitor the material level of the soup as it is being cooked. It is connected to the kettle with a custom removable flange/coupling.

The instrument sends a 4-20 mA signal based on inches of level to a PLC, which, in turn, controls the agitator speed to ensure proper mixing. The 4-20 mA signal is scaled in the PLC so that inches of product are converted to gallons of product in the kettle.

The customer is now getting improved quality and consistency in their product without manual intervention by employees opening the kettle lids and risking contamination and/or injury. There is no longer a problem of some employees "guessing" differently than others as to the product level.

### About the SITRANS LR250 Radar Level Transmitter

The SITRANS LR250 instrument 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 ft. 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. Start-up 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. The SITRANS LR250 instrument's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the transmitter lid.

### Benefits

- Ease of use: Plug and Play setup, easy mounting in nozzles, and virtually no restrictions due to location, obstructions, and nozzle interference.
- Superior design and performance: echo profiles for diagnostic support, short blanking distance for an improved minimum measuring range; improved measurement, reliability and Auto False-Echo Suppression of fixed obstructions.
- Greater value in the solution based on pre-and post-sales support.
- Convenient Communication using HART® or PROFIBUS PA
- Greater safety and convenience from programming flexibility.

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