

The Siemens logo is displayed in a white box in the top left corner of the page. The background of the entire page is a low-angle photograph of several tall, industrial silos or chimneys, with a blue sky and light clouds visible in the background.

SITRANS LR560

Level measurement simplicity in fly ash silo



A supplier of cement and cement-blended products to a wide variety of industries and major retail outlets in Australia offers a range of bagged cement, drymix products, and building-related products.

Looking to improve technology for level measurement in their fly ash silo, the company decided to trial SITRANS LR560 solids level measurement radar transmitter from Siemens. A byproduct of coal-fired electric generating plants, fly ash is used in cement production to improve cement's performance and quality by increasing strength.

Challenge

Extremely dusty filling cycles have been a challenge for level measurement with ultrasonic technology, as signal loss often occurs due to severe attenuation. Cement production facilities are known for extreme environments, including everything from dust, high temperatures, and mechanical wear and tear.

Due to these dusty environments, level measurement in fly ash silos is often quite difficult, especially since most level measurement sensors are located at the top of

[siemens.com/sitransLR560](https://www.siemens.com/sitransLR560)



SITRANS LR560 operates at 78 GHz and uses a small lens antenna so installation is kept simple and cost-efficient.

the silos – some of which are close to 80 meters (262 ft) in height.

Solution

Developing solutions for the cement industry for over 100 years, Siemens provides a full range of process instrumentation, and is well aware of the level measurement challenges in a cement processing plant. Siemens introduced 25 GHz radar technology for solids in early 2000. A non-contacting technology, radar uses electromagnetic waves traveling at the speed of light to determine the distance to the target. Radar is nearly unaffected by intense dust and extreme temperatures, and is therefore most suitable for the cement industry.

Siemens' newest addition to radar level measurement for solids, the SITRANS LR560, uses 78 GHz frequency to measure level reliably in applications with extreme dust and high temperatures, and over the long ranges customary in the cement industry. The SITRANS LR560 was installed in one of the company's fly ash silos through a 3" ANSI flange with a small nozzle lifting the radar approximately 450 mm (17") above the roof of the silo. The radar was aimed toward the center/outlet of the silo.

Initial programming was done using the Local Display Interface (LDI) and the Quick Start Wizard. Operators appreciated SITRANS LR560's trouble-free setup and simple commissioning. They could review the return echo profile while on top of the vessel without the need for a computer, and verified the SITRANS LR560 was working perfectly in this demanding and dusty application.

Benefits

This silo is particularly active and continuously cycles between empty and full. Reliably monitoring inventory lev-



The company's operators can read their silo's echo profile on SITRANS LR560's Local Display Interface (LDI).

els of materials such as fly ash means that cement production can be planned efficiently, and raw materials levels can be maintained.

As well, upon subsequent inspections, the SITRANS LR560's lens antenna was found to be completely clean, without any need to use the air purging capability that comes standard on the device. Reliability and minimal need of maintenance have significantly reduced safety hazards to employees as daily trips to the top of the silos have been eliminated.

"Siemens' latest radar transmitter, the SITRANS LR560, has proven very reliable and robust in some of the toughest silo measurement applications," says Tim Little, Product Manager for Radar at Siemens. "The 2-wire transmitter reduces installation costs with its smaller, lighter design, while providing valuable real-time silo measurements critical to our customers' production needs."

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