

# What is the best technology to measure the level of aggregate materials?

A large pile of aggregate material, likely sand or gravel, is being poured from a conveyor belt structure. The pile is conical and sits on a larger, lower pile of the same material. The background is a clear blue sky. A white line graphic underlines the title and points down towards the pile.

SITRANS LU ultrasonic level devices offer the best technology for continuous level measurement of solid materials in open air applications.

Answers for industry.

**SIEMENS**

# The right solution for level measurement in mining, aggregate and cement applications

From coal and gravel to sand – the best technology to measure solids in open air is ultrasonic. Ultrasonic technology can be used safely and legally in open air applications, and can accurately measure level up to a range of 60 meters (200 ft). Whether you need one measuring point or multiple points, you can achieve operational efficiency using any one of our solutions:

SITRANS Probe LU is the **most economical choice**, with the ultrasonic transmitter and level sensor in one instrument. Add the SITRANS RD200 for level readings at an alternative location. For control flexibility, integrate with a PLC.

For applications that require a **local control solution**, the ultrasonic MultiRanger with an Echomax transducer provides optimal material handling.

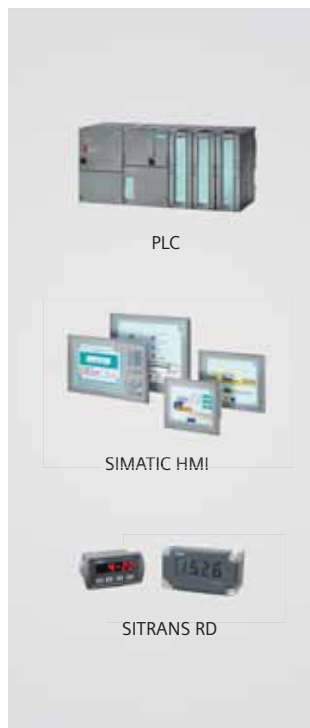
For **monitoring level for long ranges** up to 60 m (200 ft) choose SITRANS LU with a choice of one, two or ten measuring points.

No matter what you choose, you always get:

- Sonic or Process Intelligence – our field-proven echo-processing algorithms guarantee the most reliable performance available in the market.
- Unmatched beam angle – stronger pulse and sensitivity in a compact beam angle make our

ultrasonic transducers the most powerful in the industry.

- SIMATIC NET and SINAUT – Siemens industrial communication products and systems ensure company-wide efficiency. The SINAUT system provides efficient and flexible remote execution of automated monitoring and controlling systems. SIMATIC NET is based on proven standards, so you can implement powerful, integrated data networks with support for HART, PROFIBUS and Modbus.
- Million in one – our products have the field experience of over a million points of level built into every unit.
- Global network – sales and support in your neighborhood. Our extensive global reach means you get sales and support when and where you need it.



With Totally Integrated Automation (TIA), Siemens provides a comprehensive, integrated product and system spectrum for the efficient automation of the entire production process. TIA enables realization of perfectly tailored automation solutions to meet all individual production requirements.

Thanks to the uniquely integrated qualities of TIA, companies are able to optimize their production processes, accelerate time to market, and reduce production costs – while maintaining a high level of investment security and minimizing overall project complexity.

The SITRANS RD series offers remote digital displays and a remote data manager.

	SITRANS Probe LU	MultiRanger 100/200	SITRANS LU01/02/10
			
	2-wire, loop powered ultrasonic transmitter for level, volume, and flow monitoring of liquids in storage vessels, simple process vessels and open channels.	Ultrasonic level controller for up to six pumps provides control, differential control, and open channel flow monitoring.	Ultrasonic long-range level monitor for up to 60 m (200 ft). LU01: single point LU02: dual point LU10: 10 point
<b>Range</b>	6 m: 0.25 to 6 m (0.8 to 20 ft) 12 m: 0.25 to 12 m (0.8 to 39 ft)	0.3 to 15 m (1 to 50 ft), transducer and material dependent	0.3 m (1 ft) to 60 m (200 ft), transducer and material dependent
<b>Process temperature</b>	-40 to 85 °C (-40 to 185 °F)	Transducer dependent	Transducer dependent
<b>Pressure</b>	0.5 bar g (7.25 psi g)	Transducer dependent	Transducer dependent
<b>Beam angle</b>	10°	XRS-5: 10° or XPS-15: 6°	Transducer dependent
<b>Accuracy</b>	± the greater of 0.15% of range or 6 mm	± the greater of 0.25% of range or 6 mm	± the greater of 0.25% of range or 6 mm
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• 4 to 20 mA/HART</li> <li>• PROFIBUS PA</li> <li>• Intrinsically Safe (optional)</li> </ul>	<ul style="list-style-type: none"> <li>• Six relays standard</li> <li>• Two 4 to 20 mA outputs (isolated)</li> <li>• One or three relays optional, single channel level reading only</li> </ul>	<ul style="list-style-type: none"> <li>• 4 form C (SPDT) relays (5A at 250 V AC) (LU01, LU02)</li> <li>• Up to 20 relays (LU10)</li> <li>• 4 to 20 mA (isolated)</li> </ul>
<b>Communications</b>	<ul style="list-style-type: none"> <li>• HART or PROFIBUS PA</li> <li>• EDD for SIMATIC PDM for remote configuration and diagnostics</li> </ul>	<ul style="list-style-type: none"> <li>• Built-in Modbus RTU or ASCII via RS-485</li> <li>• Compatible with SIMATIC PDM via Modbus RTU</li> </ul>	<ul style="list-style-type: none"> <li>• RS-232/RS-485</li> <li>• PROFIBUS DP, Allen-Bradley® RIO optional</li> </ul>
<b>Approvals</b>	CE, ATEX, FM, CSA, C-TICK	CE, FM, CSA, C-TICK	CE, ATEX, FM, CSA
<b>Features</b>	<ul style="list-style-type: none"> <li>• High signal-to-noise ratio</li> <li>• Sonic Intelligence echo processing</li> <li>• Auto False-Echo Suppression</li> <li>• Level-to-volume or level-to-flow conversion</li> <li>• Infrared Intrinsically Safe (IS) handheld programmer</li> <li>• ETFE or PVDF copolymer transducer</li> </ul>	<ul style="list-style-type: none"> <li>• Sonic Intelligence</li> <li>• Single or dual point</li> <li>• Controls up to six pumps</li> <li>• Screen rake automation</li> <li>• Open channel flow monitor</li> <li>• Volume conversion</li> <li>• High level back-up alarm input</li> <li>• One mA input</li> <li>• Two discrete inputs</li> </ul>	<ul style="list-style-type: none"> <li>• Sonic Intelligence</li> <li>• High/low alarm</li> <li>• Multi-point measuring: 2 (LU02); 10 (LU10)</li> <li>• Differential or average measurement (LU02 and LU10)</li> <li>• Volume conversion</li> <li>• Priority scanning (LU10)</li> <li>• Programmable with handheld programmer or PC</li> </ul>

### Ultrasonic technology key applications:

- crusher control
- sand and gravel level
- hoppers
- ore bunker
- additives
- gypsum bins
- flotation cells



## Get more information

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