

Is 80 GHz radar the right fit for your level application?

Choosing the optimal device for your process needs

Benefits at a glance

- High accuracy and reliability
- Versatile technology options
- Non-intrusive solutions
- Adaptability to challenging conditions
- Cost-effective



Micropilot FMR63B - 80 GHz radar sensor for hygienic applications

In industrial automation, precise and reliable level measurement is essential for maintaining process efficiency and safety. Suppose a customer is interested in various technologies, including radar and pressure measurement, to address the diverse challenges posed by different process conditions. This application note explores the benefits and limitations of 80 GHz radar technology, compares it with other radar frequencies and discusses alternative level measurement methods such as pressure and radiometric solutions.

The challenge In some instances, a customer may encounter industrial processes that present challenging conditions that complicate level measurement. High condensation, dust, foam and agitated processes can interfere with measurement

accuracy. Additionally, certain chemicals, such as ammonia, acetone and ethylene oxide, can absorb radar signals, rendering some technologies ineffective. Internal obstructions like I-beams and moving agitators further complicate measurements. Limited port availability on vessels and the need for non-intrusive measurement methods add to the complexity. For these customers, selecting the right technology to handle these diverse conditions is crucial for ensuring accurate and reliable level measurements.

Our solution To address these challenges, a customer may look at various level measurement technologies that are employed based on specific process conditions. 80 GHz radar technology utilizes a high frequency signal to achieve narrow beam angles and superior service with



For more information, [click here](#) or scan the QR code



Measuring level in a tank with the Micropilot FMR63B 80 GHz radar

low dielectric mediums. However, in environments with high dust or foam, or where signal absorption by chemicals is a concern, lower frequency radars (such as 26 GHz or 6 GHz) are more effective due to their robustness and wider beam angles.

Furthermore, pressure level measurement is particularly useful in foamy processes and for measuring suspended solids, as it ignores foam and provides accurate readings. Radiometric solutions offer a non-intrusive option for extreme conditions, using nuclear sources and detectors to measure through vessel walls without direct contact with the process media. Other technologies, such as capacitance, ultrasonic and microwave barriers, each offer unique advantages depending on the specific application.

Results By carefully selecting the appropriate level measurement technology based on the process conditions, a customer can achieve several benefits. Accurate and reliable measurements ensure process efficiency and safety, reducing the risk of errors and downtime. Non-intrusive and robust measurement methods minimize interruptions and maintenance requirements. Tailoring these cost-effective solutions to the requirements of each application helps optimize overall process performance.

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