

Reduce Operations and Maintenance Costs with Guided Wave Radar Diagnostics and Wireless Communication

POTENTIAL RESULTS

- Reduce operations costs
- Decrease maintenance costs
- Minimize risk of lost throughput
- Decrease safety risks
- Reduce project costs



APPLICATION

Diagnostic monitoring for level measurements

CHALLENGE

In process vessels with sticky materials or slurries, measurement equipment can quickly become coated with process materials which can jeopardize the measurement reliability. In some processes, it may be critical to monitor for changing surface conditions such as unwanted foam, boiling, or emulsions. Plant personnel want to proactively monitor for these conditions without needing to go on site.

Traditionally operators have limited visibility to process material build up and changing surface conditions. Advanced measurement devices may have diagnostic capabilities to monitor these conditions, but the retrieval of this information becomes another hurdle. If an analog system is used, only the level measurement is accessible thereby restricting the use of valuable diagnostic information. In these situations, plant personnel use manual methods to determine if unwanted surface conditions are present. If probe coating or unwanted surface conditions are not diagnosed, the vessel can overflow or run dry leading to a variety of undesirable consequences. These can include spills with associated cleanup costs, risk of fines, and risk to personnel safety. It can also lead to equipment damage, increasing maintenance costs and process downtime. Additionally, product quality is at risk which leads to waste, rework, and decreased throughput. Lastly, manual methods of process monitoring consume valuable time and may present a safety risk to plant personnel.



Figure 1: Foam and other unwanted surface conditions may require routine monitoring

SOLUTION

To solve issues of inaccessible or unmonitored diagnostics, these sites can install a Rosemount 5300 Guided Wave Radar with a Smart Wireless THUM™ Adapter. By attaching the THUM adapter to the Rosemount 5300, all multivariable, diagnostic and configuration data is available to the host through a Smart Wireless gateway. The Rosemount 5300 with Signal Quality Metrics provides diagnostic information which directly relates to coating on the probe and to changing surface conditions. These values can be assigned as process variables and tracked over time. By accessing the Radar's diagnostic information with a THUM adapter, the level measurement and diagnostic values can be simultaneously delivered to the control room without the expense of adding new signal wires or upgrading an analog host. Signal Quality can be remotely monitored while remaining in service and alarms can be triggered to schedule cleaning or detect unwanted surface conditions.

By tracking Signal Quality Metrics, plant personnel can know if ideal operating conditions are being maintained. They can automatically monitor for process build up on the probe and for unwanted surface conditions. This added awareness combined with reliable level measurements brings many benefits. It reduces operations costs by reducing the risk of overfills and associated fines and cleanup costs. It also reduces the risk of shutdowns due to material shortages or equipment damage. It lowers maintenance costs by enabling a preventative maintenance program that reduces or eliminates manual checks. Additional monitoring of process quality reduces risk of waste and rework. Lastly, project costs are reduced by eliminating the need to add new signal wires or upgrade an analog control host to access the diagnostic information provided by the Rosemount 5300 Guided Wave Radar transmitter.



Figure 2. Rosemount 5300 with Smart Wireless THUM Adapter

RESOURCES

Rosemount 5300 Series Guided Wave Radar

<http://www.emersonprocess.com/rosemount/products/level/m5300b.html>

Emerson Smart Wireless

<http://www.emersonprocess.com/rosemount/smartwireless/index.html>

Smart Wireless THUM™ Adapter for Rosemount Process Level Transmitter

Applications

<http://www2.emersonprocess.com/siteadmincenter/PM%20Rosemount%20Documents/00840-0100-4026.pdf>

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