

Guided Wave Radar in Hydrocarbon Product Separation

Solution Note

The SmartLine® Level Transmitter's guided wave radar measurement technology provides accurate performance in liquid interface level applications – delivering value across the plant lifecycle.

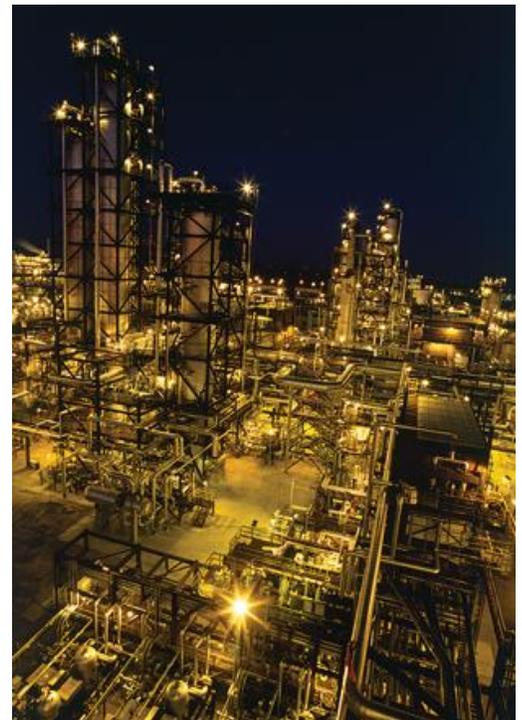
Throughout the oil and gas industry, the output quality of final products often depends on how well raw materials separate. Separation recovers additives, catalysts or solvents; extracts impurities; and routes media into different processing channels.

Interfaces are commonly found in diverse separation processes. Reliable data about actual interface level are crucial in operations such as hydrocarbon processing, where the oil/water interface must be reliably controlled.

The need for liquid interface level measurement arises whenever immiscible liquids—those incapable of mixing—reside within the same vessel.

Industry experience has shown that guided wave radar (GWR) provides an effective solution for liquid interface level measurement, including environments involving hydrocarbons. It is a top-down, direct measurement technology, as it measures the distance to the product surface.

Honeywell has the broad and deep experience and technology to address this need with its comprehensive solutions for hydrocarbon product separation applications.



FEATURES & BENEFITS

- ATEX, CCoE, CSA, US, FM, IEC Ex, NEPSI, KOSHA, and SAEx approvals
- Exceptional level tracking algorithm for accurate and reliable measurement
- Modular design
- Configuration software and DTMs included as standard. Easy programming via HART or FOUNDATION Fieldbus
- Comprehensive set of process connections and flanges
- Two-wire design saves on wiring and lowers installation costs
- SIL 2/3 and WHG certification

Solution

Changing density is a major issue when measuring level or interface using older technologies like displacers, which is more likely to occur due to variations in process or ambient conditions, and thus have more influence on the reliability and accuracy of density-based technologies.

Honeywell's SmartLine® Level Transmitters are designed for exceptional ease of use and reduced maintenance and inventory costs – delivering value across the plant lifecycle.

Fully electronic, continuous level measurement allows to measure both level and interface (separation) at the same time. Internal calculations allow to report measured level, distance, percentage, volume and mass (based on internally stored strapping tables, for the target tank)

In addition, SmartLine Connection Advantage with Experion® control system integration delivers transmitter messaging, maintenance mode indication and tamper alerts to improve field time to repair and control room communication, avoid unit trips, and make plant employees more efficient.

Applications

The SmartLine Level Transmitters are an optimal solution for hydrocarbon product separation applications. These robust devices help oil and gas companies reduce project costs and startup time, avoid unplanned downtime, improve product quality, reduce spare parts inventory, and shorten time to repair.

The SmartLine Level Transmitters simultaneously measure level and interface values, communicating them over analog 4 – 20 mA loop or through digital HART, or Foundation Fieldbus communication protocol. With their high accuracy and reliability, they easily meet demanding process tank level measurement requirements.

A key advantage of Honeywell's GWR solution is the internal level tracking algorithm, which makes fluctuations in pressure, temperature, and most vapor space conditions have no impact on measurement accuracy. Furthermore, no compensation is necessary for changes in dielectric, conductivity, or density of the fluid. The radar

devices have no moving parts, and as such, require minimal maintenance. They are easy to install and enable simple replacement of older technologies, even while there is liquid in the tank.



Figure 1: SmartLine Guided Wave Radar Level Transmitter

SmartLine Level Transmitter Features

Like all SmartLine instruments, the SmartLine Level Transmitters are modular in design, making it easy to replace or upgrade hardware in the field, even under power, without affecting overall performance or impinging on approval body certifications.

With advanced display and local configuration capabilities, the SmartLine Level Transmitter enables field operators to more efficiently perform tasks and solve problems. The advanced graphics display is capable of showing process data in graphical formats and communicating messages from the control room.

In addition to configuring with any handheld device via new Device Type Managers (DTMs), users can configure the transmitters through externally accessible buttons, even in an intrinsically safe environment. Whether on the bench or in the field, it is easy to configure, change tag information or switch languages without needing a handheld device.

The local SmartLine level display also provides stem plot with measurement values for the flange location, interface level, and ullage level. The complete echo curve is visible through user interfaces such as Honeywell's Experion or via the SmartLine level DTM with industry common configuration tools like Honeywell's Field Device Manager (FDM).

The SmartLine Level Transmitter employs a unique Application Validation Tool, to be used at the purchasing stage. The online Tool allows users to input technical data about their specific process tank and validate that the correct level transmitter application is delivered to the site ready to install. Plant personnel are able to involve Honeywell level experts through a joint, online collaborative engineering session using the tool. Documentation of the inputted tank design parameters and the transmitter configuration preserves engineering work electronically.

SmartLine Transmitter Family

The SmartLine Pressure, Temperature, Level and Multivariable Transmitters deliver total value across the entire plant lifecycle, from construction to operations to maintenance.

Smart Performance: SmartLine accuracy, stability and response time result in tighter process control, improving product yield and quality.

Smart Design: SmartLine's innovative modular design reduces complexity by allowing quick on-field replacement of parts without taking transmitters out of process and thereby reducing downtime, maintenance costs and spares inventory. SmartLine's universal terminals reduce costly wiring errors, troubleshooting and re-work by allowing loop wiring to be reversed. Rich advanced display and local configuration capabilities enable field operators to more efficiently perform tasks, solve problems and avoid errors with no need for a handheld device.

Smart User Experience: Smart messaging, maintenance and safety features as well as unique integration with Honeywell's Experion® control system reduce design and operator errors and enable faster intervention to avoid process upsets.

SmartLine Support Services

This product comes with worldwide, premium Technical Assistance Center (TAC) support services, which are part of the Total Care Field Instrumentation Services. The TAC services, along with the services provided by the local distributor, are designed to help customers improve and extend the usage of their field instrumentation, providing a safer, more reliable and more efficient operation.

Honeywell's Total Care Services bring 30 years of experience in terminals and the expertise of over 1,000 contracted customers around the world. Backed by the Honeywell Operating System, our support teams deliver greater in-depth domain and product expertise. We'll provide the right solution to critical issues—the first time—for a safer, more reliable and more efficient operation.

For More Information

To learn more about how Honeywell Level Transmitter technology can improve hydrocarbon product separation applications visit www.honeywellprocess.com/smartline or contact your Honeywell account manager, authorized distributor or system integrator.

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