

Application Note

Wireless Pressure Sensing for Fluid Level Monitoring in Storage Tanks and Reservoirs

Used to accurately measure pressure to determine tank fluid levels

Background

Liquid reservoirs and storage tanks are found throughout the industrial environment. They can be located in machine shops that use liquid coolant for their high precision fabrication centers, and may also be found in the rugged and harsh atmosphere of the oil and gas processing facilities. Some may even be used in close proximity to drilling and hydraulic fracturing operations, housing slurries, or casing mud. Even though their location and application may change, users of storage tanks and reservoirs need to know the fluid level housed within them. Knowing when a tank is full, or nearly empty, could be the difference between running smoothly and costly downtime.

As the liquid in the tank is dispensed, the level of the fluid decreases. As tanks are typically made of sheet metal or other opaque material, customers need a way to detect the level of the fluid other than sight. This can be accomplished by several different methods; however, one method is using a pressure sensor installed near the bottom of the tank. The pressure reading from that sensor can be used to derive the level of the fluid in the tank. Simply put, as the fluid level increases, the pressure measured by the pressure sensor also increases. As the level decreases, the pressure recorded by the sensor also decreases. However, these storage tanks can often be located in remote areas, or where running wiring or cabling such a sensor can be difficult.



Wireless Pressure Sensor, WPS Series

Solutions

The Honeywell WPS Series Wireless Pressure Sensor typically installs easily with minimal modification. The small housing with easy-to-read LCD display fits into areas where other wireless pressure sensors cannot. With the WPS Series, the customer no longer needs to worry about running complex conduit lines to fluid storage tanks in any location in their facility. Large process facilities often have storage tanks that were built with no fluid level indication systems. With Honeywell's WPS Series Wireless Pressure Sensor, retrofitting tanks requires minimal effort when compared to wired solutions. Some customers may have tanks located far from central control systems. Running wires and cables to these locations could be expensive. Since the WPS Series does not require wires, the customer may now be able to reach areas and tanks they have not been able to in the past through the use of Honeywell WPS Series pressure sensors.



Large, industrial oil tanks in a remote location.

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Wireless Pressure Sensor, WPS Series

Features

- Accurately measures absolute or gage pressures from 0 psi to 50 psi through 0 psi to 10,000 psi
- Wireless design: Radio (license-free and global) P2P (Point-to-Point) or ISA100 Wireless™ compliant provide increased reliability, flexibility, and security in wireless transmission
 - P2P: WPAN 802.15.4, 2.4 GHz; up to 305 m [1000 ft] line-of-sight communication range when used with Honeywell's Wireless Multi-Protocol Receiver Module (WMPR Series), sold separately.
 - ISA100: 2.4 GHz; up to 305 m [1000 ft] line-of-sight communication range when used with a compliant ISA100 Wireless system
- Variety of inputs with simple and universal PLC connections
- Designed to enable the ability to reconfigure and network multiple interfaces with personalized addresses that allows for adding, subtracting, and/or relocating wireless devices
- Agency approvals and standards: 20 dBm: FCC 15.247, Industry Canada RSS 210 Issue 8, ACMA (C-Tick mark); 8 dBm: ETSI EN 300 328 V1.8.1 (CE mark)
- Powered by two 3.6 Vdc "D" size Lithium Thionyl batteries
- Total Error Band ± 2 %FSS max.
- Rugged housing with IP67 sealing
- Barrier diaphragm constructed with 316L, Hastelloy® C-276
- Process head manufactured from 316SSL
- All components packaged in a single, small plastic enclosure
- Large LCD screen simplifies viewing
- Off-the-shelf batteries simplify replacement
- Temperature range -40 °C to 70 °C [-40 °F to 158 °F]

Find Out More

To learn more about Honeywell wireless solutions, contact a Honeywell representative today at **1-800-537-6945**, e-mail info.sc@honeywell.com, or visit sensing.honeywell.com

Sensing and Productivity Solutions

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

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