

## Application Note

# Limitless™ Wireless Solutions in Industrial Tank Level Monitoring

### Background

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Tank level monitoring, especially at remote tank farms, can be challenging. Trenching to lay wire, repairing old wire or replacing stolen copper wire is very expensive at farms where tanks are spread out and cover a vast area. Traditionally, labor or a control wire connecting a sensor to a data collection or monitoring system were the only choices in tank level monitoring.

There is now a reliable wireless solution available for companies who want maximum control over valuable product such as chemicals, diesel, oil or any other liquid at an affordable cost.

### Solutions

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Compared to traditional wired switches, Honeywell's Limitless™ platform of wireless solutions offer far greater flexibility in terms of remote actuation, faster response, flexibility, and a much-reduced cost over wired options. The Limitless™ line of products eliminates the wires from, and minimizes the challenges posed by, remote tank farm environments.

For the tank level monitoring application, a Limitless™ switch is mounted to a float on the side of the tank. The purpose of the float is to detect when the tank is reaching its upper limit. When the liquid pushes the float up, the Limitless™ switch transmits the 'change of state' to the Limitless™ receiver. The Limitless™ receiver communicates this change to a PLC or other

*Chemical tanks in remote locations can pose extensive monitoring challenges.*



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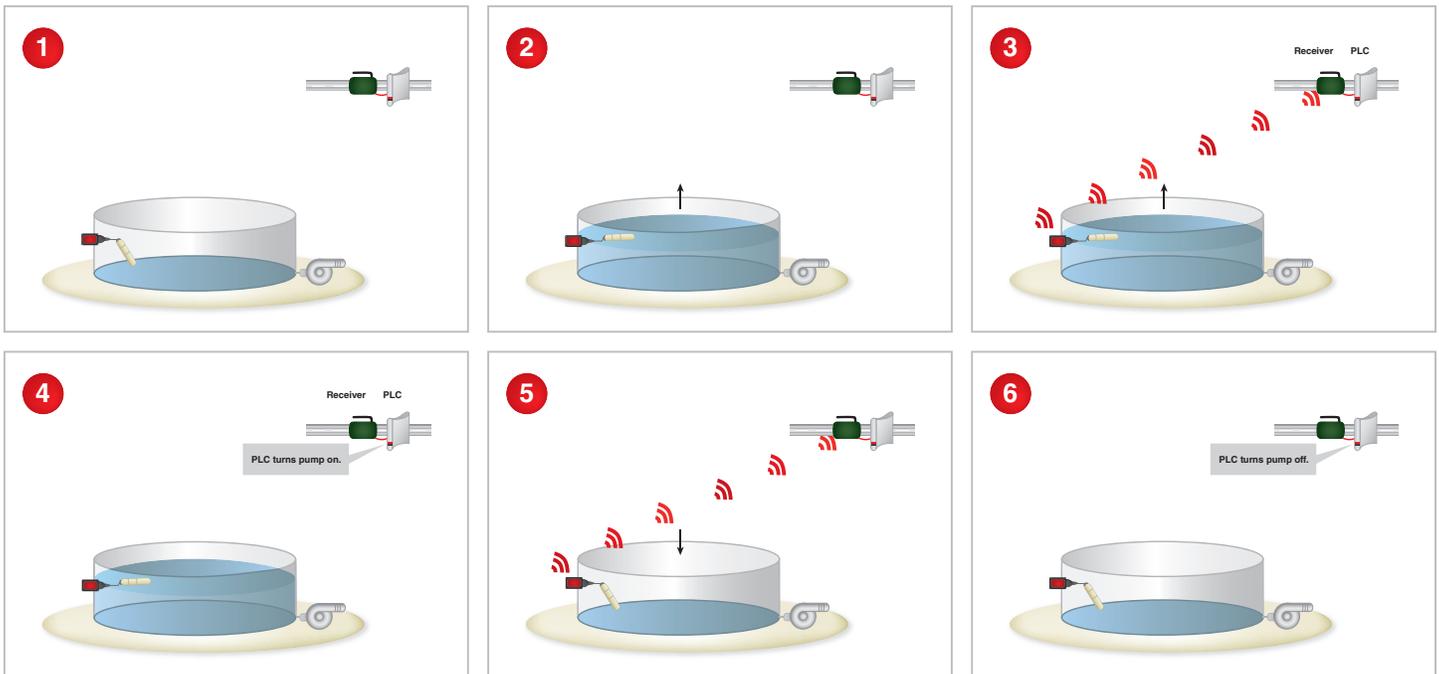
controller, which remotely remedies the tank level by turning on the tank's pump. As the level in the tank drops, the switch again communicates the 'change of state' to the Limitless™ receiver, which in turn, communicates it to the PLC to take appropriate action.

Based on 802.15.4 point-to-point communications and configuration for up to 14 devices to communicate with one receiver module, the Limitless™ line of products come in multiple configurations and are customizable to a wide variety of applications. The receiver can be up to 1000 feet (305 m) away

from the actual switch, depending on the antenna chosen, topology, obstructions, antennas, cables, etc.

A wireless switch and receiver offers easy trouble-shooting, flexibility, reliability, security and user-friendly attributes, along with reduced maintenance and much lower installation costs.

*With an operating range of 305 m [1000 ft], Limitless™ switches and receivers may be used to remotely signal the tank level.*



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Limitless™ WGLA Series Global Limit Switch	Limitless™ WLS Series Heavy-Duty Limit Switch	Limitless™ WPMM Series Monitor	Limitless™ WDRR DIN-Rail Receiver
			
<b>Benefits</b>			
<ul style="list-style-type: none"> <li>• Enables wireless presence/absence detection in applications/machinery where wiring is challenging or not feasible</li> <li>• Integration of existing wireless technology with the superior reliability of Honeywell's MICRO SWITCH™ limit switch series</li> <li>• Ability to reconfigure and network multiple switches, easily allowing addition, subtraction or relocation of Limitless™ switches</li> <li>• Reduces installation/maintenance costs with no wires, conduit, strain relief, clips, connectors or connection boxes</li> <li>• RF board operating in 2.4 GHz globally license-free frequency band; WPAN 802.15.4</li> <li>• In excess of 305 m [1000 ft] line-of-sight communication</li> </ul>			
<ul style="list-style-type: none"> <li>• EN50041 metal enclosure</li> <li>• IP67; NEMA 1, 4, 12, 13</li> <li>• Multiple operating heads and lever options</li> <li>• -40 °C to 85 °C operating temperature (side rotary); -25 °C to 85 °C operating temperature (all other actuators)</li> </ul>	<ul style="list-style-type: none"> <li>• EN50041 metal enclosure</li> <li>• IP67/IP68; NEMA 1, 3, 4, 6, 6P, 12, 13</li> <li>• Unique all-metal drive train</li> <li>• Twin shaft seals (rotary)</li> <li>• Zinc head and body are phosphate treated and epoxy finished making it less susceptible to effects from environmental exposure</li> <li>• Full complement of operating heads and levers</li> <li>• -40 °C to 85 °C operating temperature; -30 °C to 85 °C operating temperature (wobble sticks)</li> </ul>	<ul style="list-style-type: none"> <li>• Provides a visual, audio and NPN, PNP, totem pole, or relay output based on a signal received from a Limitless™ input</li> <li>• Up to sixteen configurable outputs for up to 16 Limitless™ inputs</li> <li>• Field pairing allows for rapid configuration</li> <li>• Snap-in panel or screw-mount design</li> <li>• -40 °C to 85 °C operating temperature</li> </ul>	<ul style="list-style-type: none"> <li>• Selectable NPN, PNP, totem pole or relay out</li> <li>• 14 configurable normally open or normally closed outputs for up to 14 Limitless™ inputs</li> <li>• Field pairing allows for rapid adding or subtracting inputs for quick configuration</li> <li>• DIN-Rail or screw-mount design</li> <li>• -20 °C to 70 °C operating temperature (all other actuators)</li> </ul>

### Find Out More

To learn more about Limitless™ wireless limit switches, contact a Honeywell representative today at **1-800-537-6945** or visit **[www.honeywell.com/limitless](http://www.honeywell.com/limitless)**

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