

WIRELESS TECHNOLOGY FOR CONVEYOR SYSTEMS

An Application Note





Background

Conveyor systems play a critical role in manufacturing, distribution, warehouse, solid waste recycling, material handling and packaging centers. Conveyor systems are capable of gathering, routing, sorting and transporting thousands of parcels, products and packaging types from one location to another in a very timely, efficient and economical way. Conveyor systems can be complicated and challenging to maintain due to the time required to perform maintenance, service and inspection related tasks. Various mechanical linkages and moving parts such as pulleys, belts, rollers and motors that power the conveyor add additional complexity to ongoing maintenance.

For example, a company operates multiple distributions centers where packages of various shapes and sizes are sorted, routed and transported to different locations within the distribution center. Most motor-driven conveyor systems are 500 to 700 feet in length. The company faced challenges when performing troubleshooting, maintenance and service related tasks efficiently on these systems.

Typically, a two person crew is dispatched to perform troubleshooting and servicing on conveyor systems. One technician stands at the main power supply while the other technician moves around the conveyor system, inspecting the various moving components and mechanical linkages of the system. If the mobile technician

finds an issue with a component, the stationary technician turns off the power for servicing then “jogs” the conveyor (starting, running and stopping the system a few times). The mobile technician remains at the faulty component section of the conveyor for visual inspection ensuring that the implemented fix is good and permanent. In a situation where a two person crew is not available for troubleshooting and servicing, the job would take significantly more time for a technician as he/she would need to walk back and forth between the main power supply and the faulty component section. If the conveyor system broke down during peak operation, the company could face additional financial implications due to the prolonged downtime.

The Solution

A Honeywell Limitless™ wireless system was installed using a WOI Series operator interface with a pushbutton switch and WDRR Series receiver. With the ability to start and stop the conveyor system from anywhere along its route, the company was able to eliminate the inter-dependency of the two person maintenance crew and minimize the time required for general servicing and troubleshooting tasks.

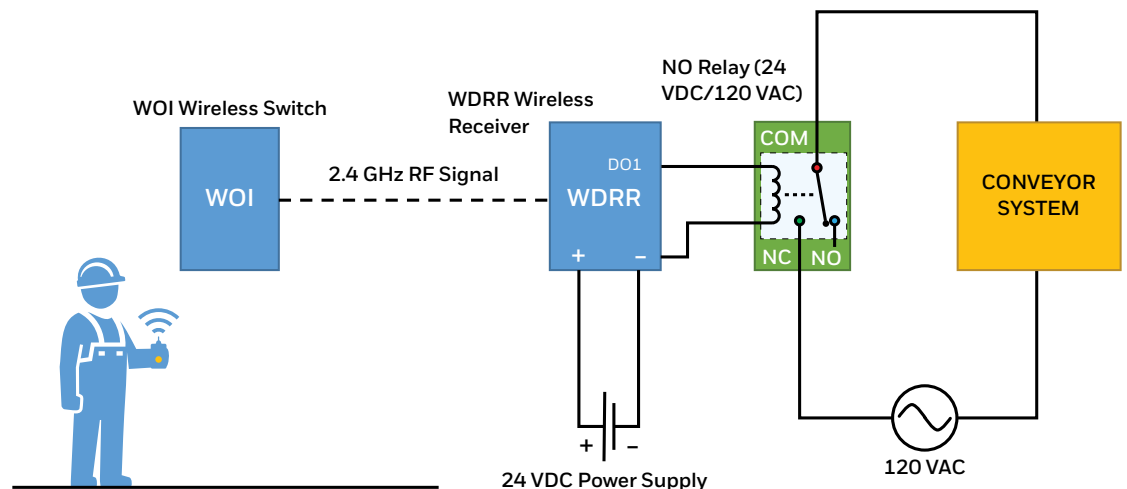
Key reasons the Honeywell Limitless wireless system was selected:

- Operator interface is battery operated, with a pushbutton switch and latching push/pull contacts
- Battery-powered devices have a battery life expectancy of at least one year
- Wireless receiver has multiple discrete output terminals
- System supports a maximum signal range of 1,000 feet between the wireless switch and receiver

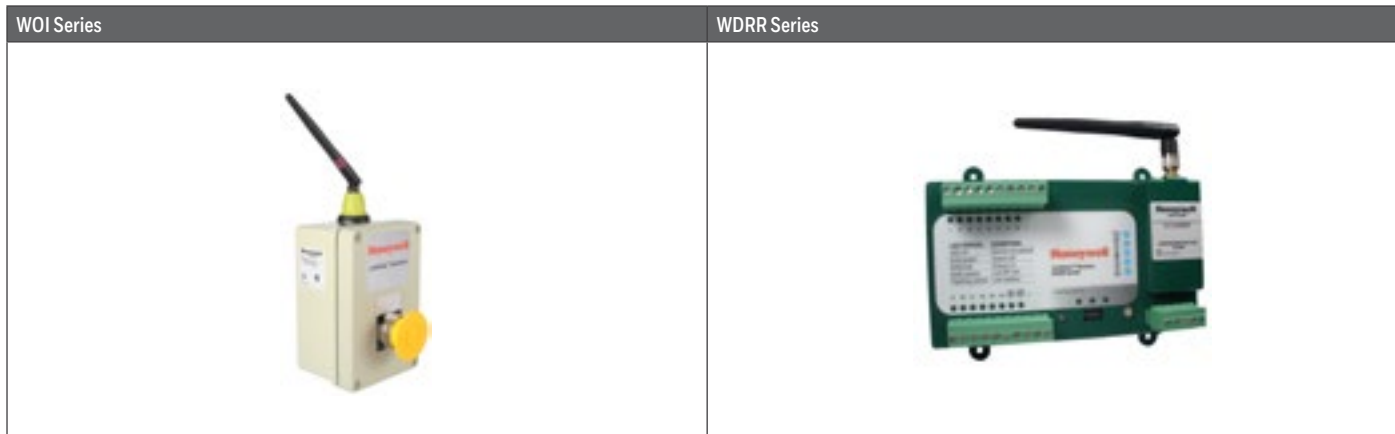
Honeywell's WOI Series wireless operator interface is battery operated and comes with both latching push/pull contact and momentary contact versions. The WOI's power supply uses one 2/3 AA, 3.6 Vdc Lithium Thionyl Chloride battery with a life expectancy of approximately 1.5 years with a 30 sec health status update setting.

Honeywell's WDRR Series wireless receiver has 14 discrete output terminals that can be configured for either PNP, NPN or Relay outputs. The signal range between a wireless transmitter (WOI) and a wireless receiver (WDRR) with 2dB antenna on each device and a direct line of sight is 1,000 feet. With higher gain antennas, it is possible to increase the signal range.

Figure 1: Wiring schematic of the conveyor system equipped with Honeywell's wireless products



As depicted in Figure 1, the WOI Series operator interface will be held by a technician as he/she moves around the conveyor system. The WDRR Series discrete output terminal is synced to the respective WOI switch and hardwired to a power supply circuit of the conveyor system via a relay. When the technician actuates the WOI wireless switch, the WDRR discrete output is activated and either makes or breaks the power supply circuit. This setup would enable a technician to turn the conveyor system on or off from anywhere along the conveyor perimeter to perform maintenance and troubleshooting tasks independently and efficiently.



For complete product information including datasheets, CAD models, installation instructions and up to-date distributor inventory, visit <https://sensing.honeywell.com/wireless>

Warranty/Remedy

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- Asia Pacific +65 6355-2828
- Europe +44 (0) 1698 481481
- USA/Canada +1-800-537-6945

Honeywell Sensing and Internet of Things

9680 Old Bailes Road
 Fort Mill, SC 29707
www.honeywell.com

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