

Cutting The Cord

While less glamorous than its consumer counterpart, wireless capabilities in the industrial sector continue to grow in importance.

Although the industrial applications for wireless capabilities are not as spectacular as the cell phones, iPods and other consumer gadgets that we correlate with wireless communication, developments in this marketplace have had a tremendous impact on enhancing production capabilities. Wireless is a term used to describe telecommunications in which electromagnetic waves (rather than some form of wire) carry the signal over part or all of the communication path.

The most significant, and also most obvious, benefit of implementing wireless functionality into industrial products is the elimination of cables. They not only limit mobility, but also the potential to realize a piece of equipment's true capabilities. With remote monitoring being such a building block of preventive maintenance and efficiency-focused plant operational strategies, monitoring and communication limitations (due to the reliance on cables) can place manufacturers at a significant disadvantage.

An added benefit is the ability to access information from machinery located in all parts of a facility. This is key, as plant engineers can save a great deal of floor space by not having to accommodate monitoring systems and/or responsibilities. In contrast, with the implementation of wireless capabilities, equipment can be positioned with greater consideration given to workflow, ergonomics and spatial efficiency.

Some point to the convenience of wireless-embedded products in the industrial setting as being dependent upon the number of access points that are made available, which, in turn, help improve the quality of transmissions. With a cell phone, if the signal is interrupted, the call is dropped, and other than the inconvenience associated with that communication disruption, no critical data is lost, and the cell phone or PDA in question can still function. In the industrial realm, these interruptions can be disastrous.

That's why these industrial products utilize deterministic wireless. Deterministic means that there is a guaranteed response time to ensure the message is received in the specified or allotted amount of time. That's why to ensure these signals are generated and received accordingly, industrial networks and equipment utilize frequency-hopping capabilities.

Preventive maintenance has emerged as a leading application for wireless products in the industrial setting, which lends well to recent developments in sensors and transmitters for tracking operating or environmental temperatures, motor speeds

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and/or torque or stress factors on other critical internal components. Level analysis for both liquid and dry material has been another area in which wireless products have been successfully implemented.

As this technology progresses, much of it will probably originate on the consumer product side. But as it becomes more refined, wireless capabilities will play a huge role in helping designers provide more efficiently operating products and equipment.

Whether that application be with RFID inventory and logistics controls, machine-to-machine communications, control data monitoring or preventive maintenance programs, the ability to process information more efficiently will play a significant part in the success of industrial operations around the world. This will prove especially true as we continue to compete in an economy that recognizes fewer and fewer borders.

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