

Honeywell Process Solutions



Choosing the Right Industrial Wireless Network

The decision to implement wireless technology in your industrial facility is a strategic choice, enabling an infrastructure that will provide significant benefits for your company beyond avoiding the wiring costs. The right decision will help improve safety, optimize the plant and ensure compliance. Wireless is a complex enabling technology that requires deliberate consideration before broad deployment in an industrial facility. This document outlines questions to consider as you make this decision.

Imagine the Possibilities

Wireless technology provides a low-cost solution for unlocking value in the plant and for enabling a mobile and more productive workforce. The possibilities are endless. Imagine sensors gathering data where traditional devices cannot reach, providing more real-time data to make knowledgeable decisions. Imagine a wireless network delivering on the promise of lower installed costs. Industrial users expect a secure and reliable network that supports multiple types of wireless-enabled applications that will:

- Keep people, plant and the environment safe
- Improve plant and asset reliability
- Optimize a plant through efficient employees and processes
- Comply with industrial and environmental standards



These wireless-enabled solutions will reap operational and safety benefits through the following applications:

Keep people, plant and the environment safe
<ul style="list-style-type: none"> • A real-time location system throughout the facility to monitor employee locations and ensure safe procedural operations • Safety shower monitoring • An infrastructure that supports emergency responders • Wireless leak detection and repair support • Integration with existing control and safety systems
Improve plant and asset reliability
<ul style="list-style-type: none"> • Continuous wireless monitoring of equipment and field devices for diagnostic equipment health assessments • Mobile worker device commissioning and configuring with automated field operator rounds and access to on-line data, reports and manuals • Equipment health management visualization, such as computerized maintenance management system, inventory management and document management • Utilizing previously unreachable data in existing control system and advanced process control applications
Optimize a plant through efficient employees and processes
<ul style="list-style-type: none"> • Mobile operators operating their desktop applications and their control room displays on handheld computers • Input/output modules and sensors to monitor real measurements in plant versus inferred values or for remote control • Sensors for upgrading tank instrumentation • Voiceover IP for communicating among all field workers equipped with Wi-Fi devices • Continuous wireless corrosion detection to ensure integrity of piping systems
Comply with industrial and environmental standards
<ul style="list-style-type: none"> • Emissions monitoring • Leak detection and repair support

Current and Future Landscape

As with most emerging technologies, today's market offers proprietary wireless-enabled solutions that tactically solve industrial business needs, but may not meet requirements for the future. Key implementation issues that must be addressed include handling multiple types of devices from just a few to thousands, operating in noisy radio frequency environments, sending data reliably and when needed, predictable power management and solid security. To help keep up with the development activity and help users find the best solution for their unique application, several organizations are drafting recommendations or standards as well as offering open solutions.

For example, the Instrumentation, Systems and Automation Society's (ISA) SP100 initiative, chartered early in 2005, represents an opportunity to create a roadmap for implementing wireless systems in the automation and control environment through defining and publishing a set of standards, recommended practices and technical papers. The SP100 group brings together representatives from supplier, end user and R&D communities to create a balanced set of guidelines.

Emerging standards represent one criterion from which to make the wireless technology choice. However, with various solutions existing and on the horizon, an opportunity exists today to start taking advantage of the benefits available with wireless-enabled applications.

Getting Ready for Wireless

Many industrial facilities are already deploying wireless networks for targeted requirements. To help plants get ready for the future, the list below presents considerations and questions to ask in preparing for how this emerging technology can enable robust business results.

Functionality and Applications – Consider how many different functions are more efficient with wireless technology.

- Are you willing to deploy multiple wireless networks to manage and maintain or do you just want one strategic network? (Many users have multiple uses but want just one wireless network to deploy and manage.)
- Will you consider some simple control applications?
- Do you want to enable your field workers with wireless handheld devices to access data and interact with various servers in the facility?
- Will you want first responders to utilize your wireless network in case of an emergency?

It is important to first scope out your current and future wireless needs, and make a strategic decision on the selection of your wireless network based on these needs.

Multi-speed Support – Do you have requirements for information to reach the control room quickly for some applications and less quickly for others? Can you afford to have your alarms transmitted back at the same rate as monitoring information?

- Will you do low-speed monitoring as well as high-speed monitoring for certain process measurements?

Reliability – Can your operations survive without the information conveyed wirelessly? Most can today, but as you look forward and really embrace wireless, your future applications will require a more reliable network. Also, most wireless solutions are using the unlicensed Instrument, Scientific and Medical (ISM) frequency bands which provide limited bandwidth for your plant.

- Have you developed a plan for how you are going to use the ISM bands in your industrial facility? This consideration will help a plant ensure solid wireless operations. Sub-optimized ISM bands will lead to reduced scalability and reliability, limiting your wireless usage, much like a wiring conduit that is already full.

Security – Security is essential to protect against malicious intent and to protect your intellectual property, your bottom line and your people.

- So what security do you need? How much is enough?
- Do you need just one security system or many?

These are important considerations as you strategically deploy an industrial wireless network. You most likely will want to have just one wireless security approach. This gives you just one system to manage and provides you the opportunity to pick the best available solution to match your wireless uses today and into the future.

Self-contained and Predictable Power Management - When most users consider wireless deployments, they understand the upside of no wiring and the cost advantage, but they also envision the downside of having to change many batteries in industrial devices throughout the facility. Device power management is a very important consideration when selecting a wireless network.

- How long do you want your wireless devices to be self-powered? Do your wireless devices require add-on products to maintain and install in order to meet your reporting rate needs?
- What level of a predictable maintenance schedule do you require?

This is a complex question because the answer must consider the power source, the device needs and how often the device communicates. Most users will require a device that is self-powered for at least three years and at best, for the lifetime of the device. This is a reasonable demand when selecting a wireless network.

Scalability – Planning for future growth and considering what happens when your wireless demands are for several thousand devices must be a consideration in selecting your network.

- How many devices can your network handle?
- Will that be enough for the lifetime of your wireless network?
- What happens when you go beyond the limit of your network capacity? Can your network expand?

Are you prepared to go wireless? Some questions to consider:

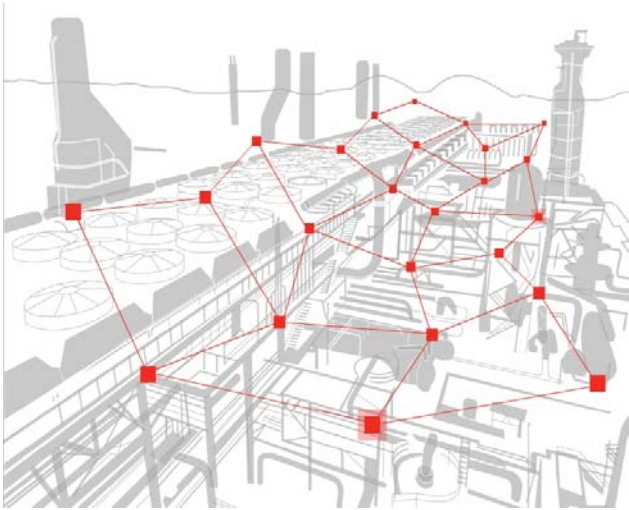
- Do you want to enable your field workers with wireless handheld devices to access data and interact with various servers in the facility?
- Can your operations survive without the information brought wirelessly?
- Do you want to manage just one wireless security system or many?
- How long do you want your wireless devices to be self-powered?
- How many devices do you want your network to handle now and in the future?
- How many application interfaces will need the wireless data?

Many users begin with very limited wireless needs but as they begin to see the benefits of wireless technology, their needs grow exponentially.

Investment Protection and Application Integration – Many plants reap benefits from having previously deployed multiple application interfaces and wireless products throughout the facility. These interfaces can include Modbus, OPC, HART, FOUNDATION Fieldbus, Profibus, Ethernet and many others. How many of these have you deployed in your facility? Usually, plants contain multiple application interfaces driven by different departments. Many users also want information coming from their wireless devices to utilize these existing legacy applications and protocols. When selecting a strategic wireless network you must have the ability to easily interface with all your legacy applications that will require wireless data. This is very important because this network will service your whole operation, not just one department.

- Can your wireless network serve many application interfaces?
- Will your next choice support your existing wireless devices?

Choices – As you select your strategic wireless network, you will need product choices. This opportunity for choice provides ideal pricing alternatives and best-in-class products. When a standard is developed or open solutions are offered, many suppliers adhere to those technology specifications and offer choices for customers in the devices they deploy in the network, as well as the applications that can run in the network.



There are many aspects to consider as you deploy wireless in your industrial facility. Deploying this enabling technology is a strategic decision.

Consider all the areas discussed above in a comprehensive wireless solution for your facility. Industrial wireless networks that do not address each area satisfactorily may not fit your long-term strategic use of wireless technology.

And, consider open solution offerings from suppliers who meet the needs discussed in this document. Honeywell is one of these suppliers, committed to offering a system designed for industrial users that meets their needs today and into the future.

For More Information

To learn more about Honeywell's wireless solutions, visit www.honeywell.com/ps/wireless or contact your Honeywell account manager.

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