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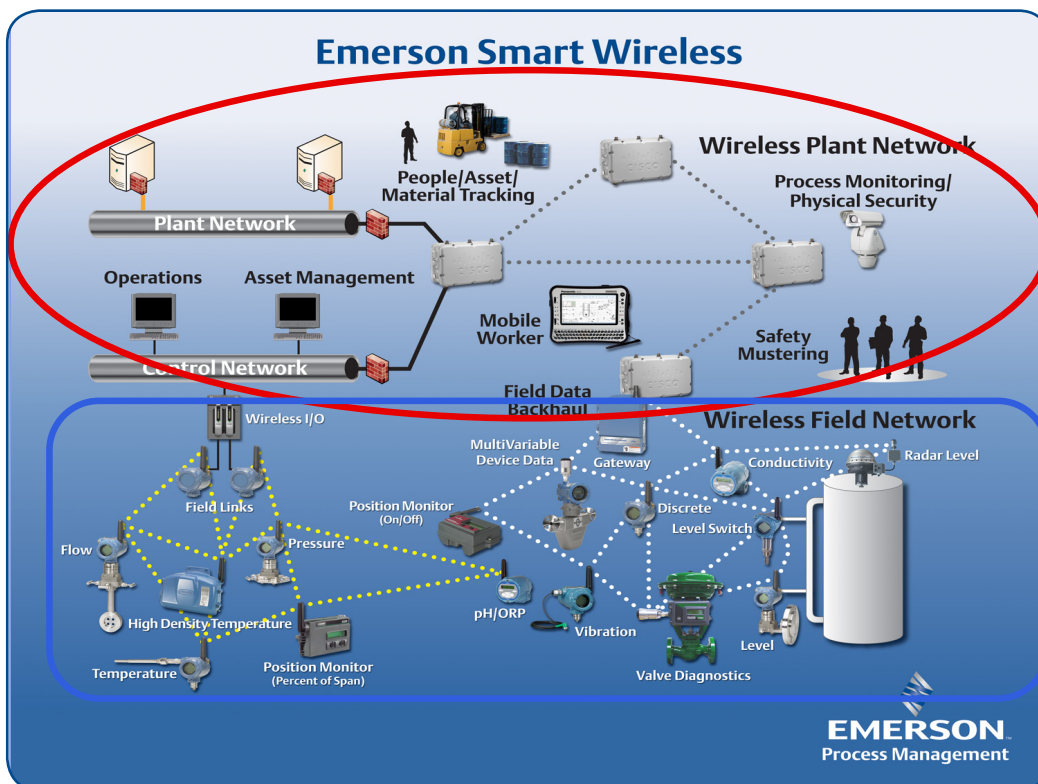
Wireless Solutions for Improving Plant Performance

Our Wireless Solutions provides improvement opportunities throughout the plant impacting areas such as Safety, Environmental, Reliability, Efficiency and Productivity by providing best-in-class: Engineering, Services and WirelessHART Field Instruments/Plant Wireless Systems.

Wireless portfolio can be divided into two areas:

1. **Wireless Field Network** – Utilizes WirelessHART in the Emerson instrumentation
2. **Wireless Plant Network** – WIFI Solutions (Cisco/Prosoft)

This diagram illustrates Emerson's vision for Smart Wireless Solutions in plants. Starting at the bottom and working our way up, you can see it can begin with wireless field devices. These wireless field devices can be in your plant, or at remote sites. The wireless field devices, which might be wireless transmitters, THUM adapters to existing devices or wireless valves position monitors, communicate back to a Smart Wireless gateway which collects the data and can then be tied into your process automation system or asset management system. The vision also shows how these Smart Wireless gateways can be tied back directly to the control system, as shown on the left, or they can utilize the wireless infrastructure to pass data back, as shown on the right (also known as a 'backhaul').



- **Emerson Customer Wireless Websites:** www.emersonprocess.com/smartwireless
- **Emerson Internal Wireless Website:** <http://intra.emersonprocess.com/wireless/>
- **Wireless Business Unit Manager:** Steve Zinda, Mobile – 414-303-6868

1. Wireless Field Network - WirelessHART

Novaspect's Smart Wireless solutions help you touch more of your plant with predictive intelligence than ever before...with an installed cost savings of up to 90% over wired technologies. You can eliminate "blind spots" in your plant where it was previously too difficult or expensive to install wired instruments.

Smart Wireless seamlessly scales and integrates with your wired network. Self-organizing to provide near perfect reliability, Emerson Smart Wireless offers unparalleled ease of use. Installing and commissioning its open, WirelessHART standard-based wireless technologies can be a snap...going from box to fully commissioned in minutes.

Sample of Products:

- 1420 Gateway
- 9420 Vibration
- 4310/4320 Position
- THUM
- 708 Acoustic
- 248/648/848 Temp.
- 3051 Pressure
- AMS Wireless Snap-on

Sample of Solutions:

- Safety Shower/Eye Wash monitoring
- Fan and pump monitoring
- Manual valve monitoring
- Capturing stranded diagnostics

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Technology

WirelessHART

The newest version of the HART protocol, HART 7, moves this field-proven technology into the world of wireless communication with the introduction of the WirelessHART standard. WirelessHART encompasses evolutionary enhancements that build on the solid foundation of HART technology used in more than 24 million installed devices worldwide. This standard is based upon International Industrial Standard IEC 62591.

Self-organizing, adaptive, mesh routing

- No wireless expertise required. Devices automatically find multiple, efficient communication paths
- Network continuously monitors paths for degradation and repairs itself
- Adaptive behavior provides reliable, hands-off operation and simplifies network deployments, expansion and reconfiguration
- Supports both star and mesh topologies

Industry Standard Radio with Channel Hopping

- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 16 radio-channels
- Continually “hop” across channels to avoid interference and increase reliability
- Frequency hopping spread spectrum (FHSS) technology delivers high reliability in challenging radio environment

Self-healing network

The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, the device has already established paths and data continues to flow. The network will then lay in additional paths as needed for that device.

Seamless integration to existing hosts

Using Modbus Serial, Modbus TCP, or OPC, Smart Wireless integrates directly into your existing automation architecture, without the need for upfront engineering, site surveys or special commissioning. And to your operators and maintenance staff, each Smart Wireless device looks and behaves like a wired one, no matter how many you install.

Look for the “Smart Wireless Field Network” Sales Brochure at the following:

<http://www2.emersonprocess.com/en-US/plantweb/wireless/articlesresources/Pages/Articles.aspx#whitepaper>

2. Wireless Plant Network – WIFI

Wireless is a seamless extension of the wired architecture. The WirelessHART Field Network connects and integrates wireless field devices. And the Wireless Plant Network provides the coverage and connection for applications like mobile workers, video and location tracking.

Both the Wireless Field and Wireless Plant Networks are based on industry standards including Wireless HART at the Field Network level and IEEE 802.11 at the Plant Network level. Both networks are fully scalable and enable a full scale, plant wide implementation or the ability to start with a small field network. The Plant Wireless IEEE 802.11 standard is driven by the IT community because it applies to many industries.

The Wireless Plant Network provides a platform on which to deploy many applications in the Business and Plant Management and Workforce Productivity categories.

Sample of Products:

- Cisco
- Prosoft

Sample of Solutions:

- Field Data Backhaul
- Mobile Worker
- Video (security and process)
- Asset and People Tracking
- I/O and Control System Bridging

Look for the “Smart Wireless Solutions for Plant Operations” Sales Brochure at the following:

<http://www2.emersonprocess.com/en-US/plantweb/wireless/articlesresources/Pages/Articles.aspx#whitepaper>

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