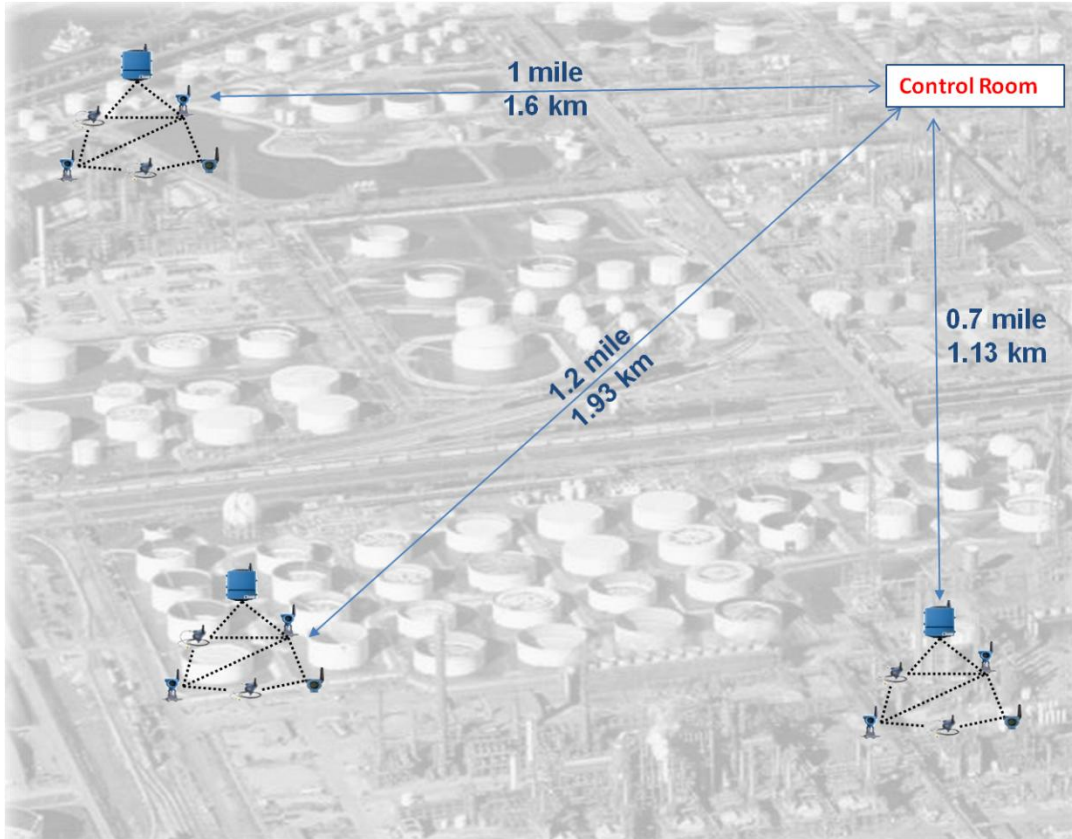


# Wireless Field Data Backhaul



An Emerson Smart Wireless Field Data Backhaul Solution integrates WirelessHART data from remote areas of your plant.

- Scalable
- Reduced Cost
- Safer Deployment
- Secure and Reliable Communications
- Full Support Service

Using IEEE 802.11abg standards-based technology, Emerson provides a fully secure, reliable Wi-Fi communication link between each of the remote Smart Wireless Gateways in your plant and the central control system.

This scalable Wi-Fi network can be shared by many Smart Wireless solutions for your plant-wide operations such as remote video monitoring, mobile worker, safety mustering, and location tracking.

Support for a field data backhaul solution installed by Emerson is provided through Emerson's Sure Service™ organization.

## Introduction

Emerson's *Wireless Field Data Backhaul* provides a cost-effective and seamless integration between a remotely located WirelessHART™ field instrument network and your process automation system.

## Benefits

**Scalable.** Emerson can provide a wireless network solution that exactly meets your needs today, while providing flexibility for future wireless mesh infrastructure growth as your needs expand. Emerson's Smart Wireless Plant Solutions can also scale to the types of applications you utilize in your wireless plant. For example, each Wi-Fi mesh node installed to backhaul WirelessHART data can also be used as a "hot spot" for your mobile workers to access live plant data, to wirelessly stream video data, or track personnel with Wi-Fi RFID tags.

**Reduced Cost.** When compared to the cost of engineering and trenching a fiber optic cable to each of the WirelessHART gateways, a wireless backhaul solution can be deployed for less cost when the gateway separated from the control room by large distances, difficult terrain, or bodies of water.

**Safer Deployment.** Trenching a fiber optic cable in a live process area puts workers in the process area for long periods of time – exposing them to potential hazards and risking disruptions to process operations.

**Secure and Reliable Communications.** All communications on the wireless plant network are fully secure using AES 128-bit encryption. The integrity of the wireless communication network is continuously monitored and alerts can be sent to administrators if degradation of the wireless signal is detected.

**Full Support Service.** Emerson Sure Service provides full 24/7 support for customers who have purchased and deployed a wireless backhaul solution from Emerson.

## WirelessHART Field Network Integration

Emerson's Smart Wireless Gateway connects the WirelessHART field instrument network through the wireless plant network to your control system.

## Third Party Process Automation Integration

Emerson can work with you to create a control strategy and provide an integrated solution between the Smart Wireless Gateway and a third party control system with OPC connectivity to the Smart Wireless Gateway.

## DeltaV v9 and earlier

Emerson can integrate the Smart Wireless Gateway through the wireless plant network to DeltaV version 9 and earlier in one of two ways:

- Modbus® TCP – Mynah™ Virtual I/O Module
- OPC™ Server connection to the gateway

## DeltaV v10 and later

Beginning with DeltaV version 10 and later, the Smart Wireless Gateway is a native DeltaV node. The gateway is autosensed and commissioned on the area control network just as a controller is today. Additionally, all the Smart Wireless devices joined to the gateway's network are autosensed by DeltaV, allowing for easy drag and drop assignment of the devices to your control strategy.

Emerson extends the DeltaV control network through the wireless plant network to natively join the Smart Wireless Gateway to the DeltaV control system.

## Wireless Engineering Services

Wireless engineering services are critical to the success of a wireless plant network deployment. Emerson offers a comprehensive services portfolio to help you design and deploy a Wireless Field Data Backhaul solution.

## Site Assessment

Emerson engineers visit your plant site to conduct a Radio Frequency (RF) study, determine access point locations and collect other on-site information.

## Network Design and Planning

Based on the site survey results and your control system requirements, Emerson engineers design the overall wireless mesh architecture including the detailed network infrastructure, network monitoring tools, and integrated security.

## Physical Network Installation Management

Engineers work with you to install the wireless mesh network equipment based on the detailed network design.

## System Commissioning

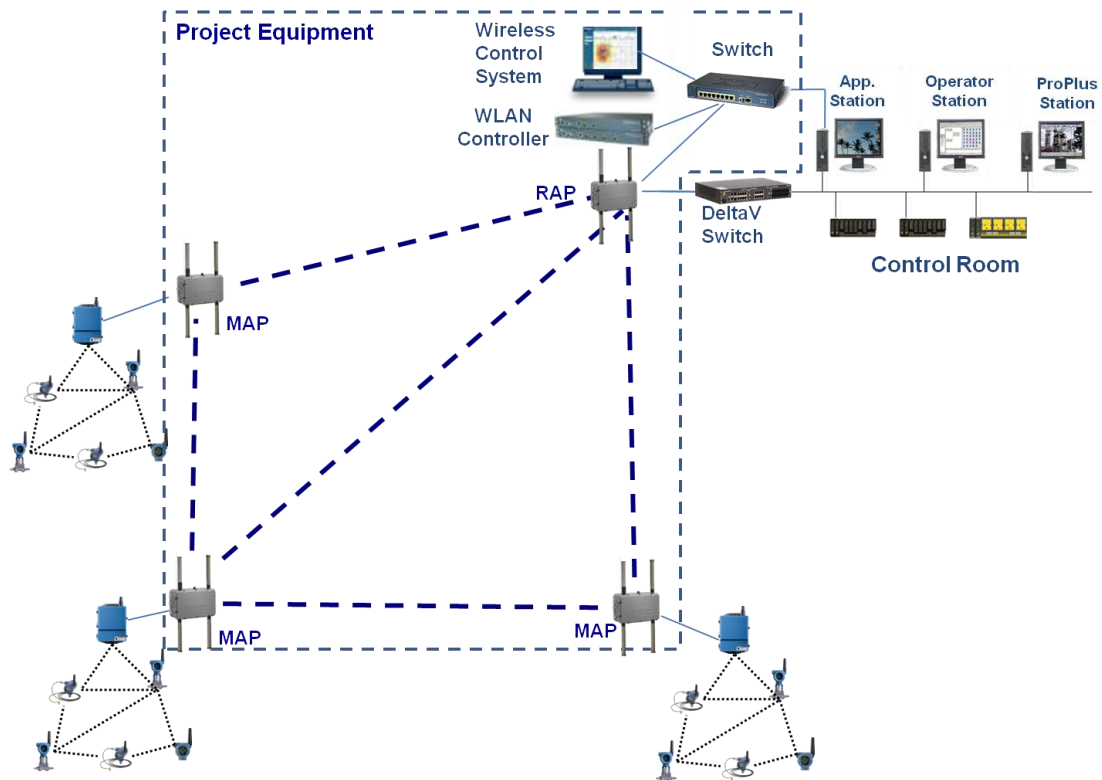
The wireless mesh network is brought online and commissioned onsite. Complete site acceptance testing is performed with your engineers.

## Training

Emerson will work with you to specify a training curriculum that meets your specific needs.

## Support

Emerson delivers SureService® wireless life-cycle services through our engineering centers and global service organizations. Emerson's wireless life cycle services are designed to help you maintain system uptime, apply wireless technology for better business results and preserve your intellectual and capital investment



Example Wireless Field Data Backhaul solution architecture

## Wireless Equipment



### Smart Wireless Gateway

Emerson Process Management offers a full portfolio of Smart Wireless instrumentation solutions enabled by the self-organizing WirelessHART network. The Smart Wireless Gateway manages the wireless field instrument network communications and security.

Configuration management of the wireless field network is achieved either through version 10 of DeltaV system and AMS Intelligent Device Manager or through the Gateway's web server interface when integrated with older control systems.



### Smart Wireless Field Instruments

Rosemount™ offers a plethora of Smart Wireless field instruments including: temperature, pressure, vibration, pH meters, valve positioners, level, flow, discrete, and THUM adapter.

## Wireless Mesh Access Point (MAP)

The MAPs deployed in your plant are Class I, Div 2 or ATEX Zone 2 certified equipment. The Smart Wireless Gateway is installed near the Mesh AP with a wired Ethernet connection. The IEEE 802.11a 5 GHz radio in the MAP is utilized to wirelessly connect the Gateway back to the plant network. The MAP's client IEEE 802.11b/g 2.4GHz radio can also be enabled to give your field personnel "hot spot" Wi-Fi access to your plant or office network applications. The Root AP (RAP) connects the wireless network to the wired one.

## Managed Switch

The managed switch is the device which connects the wireless network with the wired network. The Wireless LAN Controller and Wireless Control System are also connected through the managed switch.

## Wireless LAN Controller

The Wireless LAN Controller is the device that is responsible for network-wide wireless functions such as security policies, intrusion prevention, RF management, Quality of Service (QoS), and mobility.

## Wireless Control System

The optional Wireless Control System allows network managers to design, control, and monitor enterprise wireless networks from a single location, simplifying operations. It oversees a series of WLAN controllers. This software provides network management including diagnostics and troubleshooting tools to keep the network running smooth.

## Ordering Information

For inquiries and ordering information, please contact your local Emerson sales office. Prior to order acceptance, Emerson will issue a written proposal for your review and approval to ensure that scope, deliverables, timing, and budget meet your needs and expectations. For more information, please visit our website at <http://www.EmersonProcess.com/SmartWireless>

To locate a sales office near you, visit our website at:

[www.EmersonProcess.com/SmartWireless](http://www.EmersonProcess.com/SmartWireless)

Or call us at:

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Europe, Middle East: 41.41.768.6111

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+1 512.832.3774

## System Compatibility

WirelessHART integration is supported for all DeltaV versions 5 and later and with most third party process automation systems.

## Certifications

Emerson can deploy Class 1 Div 2 or ATEX Zone 2 certified MAPs as a standard solution, or we can provide Class 1 Div 1, ATEX Zone 1 MAPs as an engineered project solution if required.

## Additional Wireless Plant Solutions

- **Mobile Worker.** Depending on your needs, Emerson can provide Wi-Fi access throughout your process plant or just in specific locations to connect field personnel with Wi-Fi enabled PDAs or laptops to plant or office network applications.
- **Video.** Easily add video cameras in remote areas of your plant to monitor the process or site for emissions, safety and security.
- **Safety Mustering.** The MAPs installed as part of the field data backhaul solution can also serve as Wi-Fi mustering stations if installed in a mustering area and combined in a safety mustering solution.
- **Location Tracking.** Plant personnel can be tracked throughout the plant site with varying degrees of accuracy depending on your site's needs. Emerson's location tracking solution is flexible to provide a good, better, or best capability depending on your site's needs and budget.

For large power, water, and wastewater applications

contact Power and Water Solutions at:

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