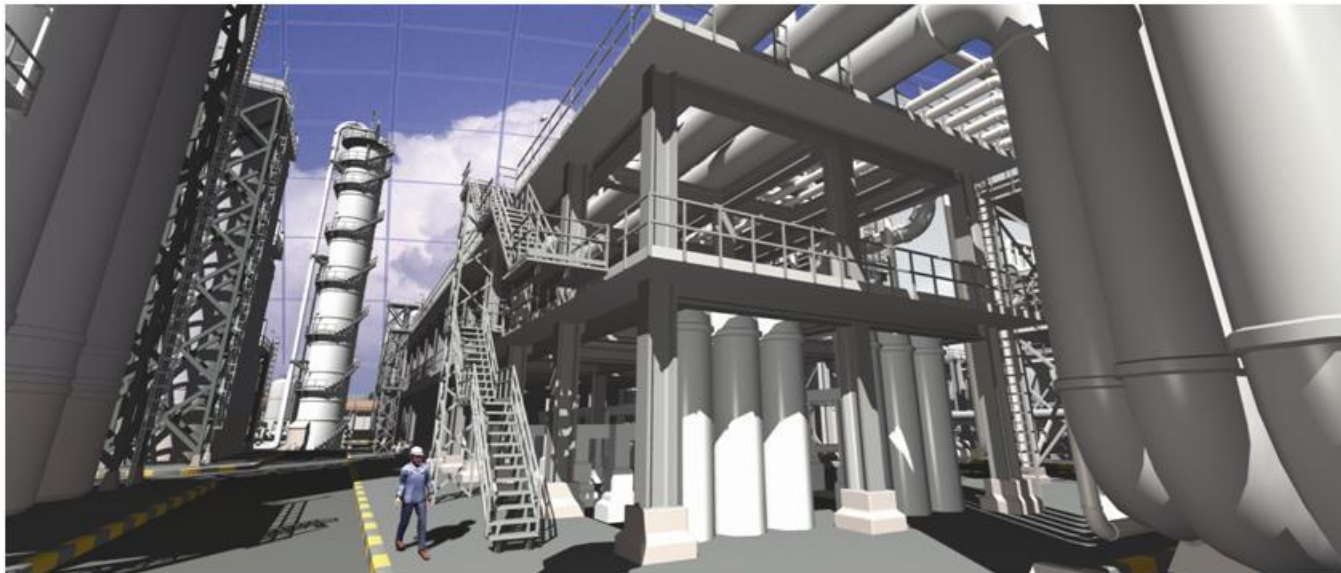


Wireless Location Tracking



With Emerson's Wireless Location Tracking solution, you can immediately locate anyone.

- Increase Plant Safety
- Increase Plant Security
- Scalable
- Secure and Reliable Communications
- Full Support Service

Introduction

Always knowing where your workforce or high value assets are currently located within the plant improves productivity and saves time. Emerson's [Wireless Location Tracking](#) solution enables you to locate specific people or high value assets anywhere in the plant site.

Providing full visibility to your workforce's locations whenever they are working inside hazardous areas of your plant improves safety and enables automatic enforcement of best practices for workforce safety.

Contractor movements and guest escort requirements can be enforced through electronic surveillance. Security personnel can be alerted to entry into a restricted or sensitive plant area by unidentified or unauthorized personnel.

Using IEEE 802.11abg standards-based technology, Emerson provides a fully secure, reliable Wi-Fi communication link between the RFID Asset Tags, the mesh access points distributed in your process areas, and the central control room.

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

Support for a location tracking solution installed by Emerson is provided through Emerson's SureService™ organization.

Benefits

Increase Plant Safety. Plant safety is increased by providing accurate location information of all plant personnel, contractors, and guests within the plant. In an emergency, first responders can be immediately sent to the location of an injured person.

Increase Plant Security. Personnel, contractors, and guests can be tracked throughout the plant site preventing unauthorized entry into secure areas. Best practices that require a guest to have an escort at all times can be electronically enforced. Onsite contractors authorized to move within the plant unescorted can have their movements electronically tracked – instantly alerting security personnel if the contractor strays outside the areas they are permitted to be in.

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 access point installed to communicate asset locations back to the central control room can also backhaul remote WirelessHART™ data, or be used as a "hot spot" for your mobile workers to access live plant data, or stream video data back to the control room.

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 SureService provides full 24/7 support for customers who have purchased and deployed a wireless location tracking solution from Emerson.

Personnel & Asset 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.

Good: Chokepoints within the plant are monitored throughout the plant using RFID annunciators. When an asset tag passes through the chokepoint, it's location in the real-time tracking database is updated to reflect the new plant area the asset tag has entered. Operators viewing an onscreen dashboard map of the site can see which area a specific asset is located within, allowing them to direct field personnel to its approximate location.

Better: A pervasive Wi-Fi mesh infrastructure is installed throughout the plant site allowing for Received Signal Strength Indication (RSSI) calculation to estimate personnel or asset locations within an approximate area – determined by the density of the environment and number of access point deployed. This allows for more accurate location information to be displayed to central control room operators – so they can direct field personnel to a specific asset's approximate location. In the event of a plant upset, the field worker located closest to the process asset disruption can be directed to address the issue.

Additionally, with a pervasive Wi-Fi location tracking solution, *Distress Alerting* is possible. When a personal RFID tag's panic button is pressed, it can send an immediate alert over the Wi-Fi network along with the approximate location of the person in distress.

Best: Time Delay of Arrival (TDOA) receivers are installed within the pervasive Wi-Fi mesh network to more accurately pinpoint the RFID tag's signal and locate the asset's tag more precisely than with RSSI alone.

A pervasive TDOA location tracking solution makes an *Injury Alerting* solution possible. When a person is not in motion for a certain amount of time the location tracking system can immediately alert the control center of the potential problem – allowing first responders to be immediately dispatched to the incapacitated person's exact location.

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 location tracking solution.

Site Assessment

Emerson engineers visit your plant site to conduct an RF study, determine access point locations and collect other on-site information.

Network Design and Planning

Based on the site survey results and your location 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 location tracking equipment and wireless mesh network equipment based on the detailed network design.

System Commissioning

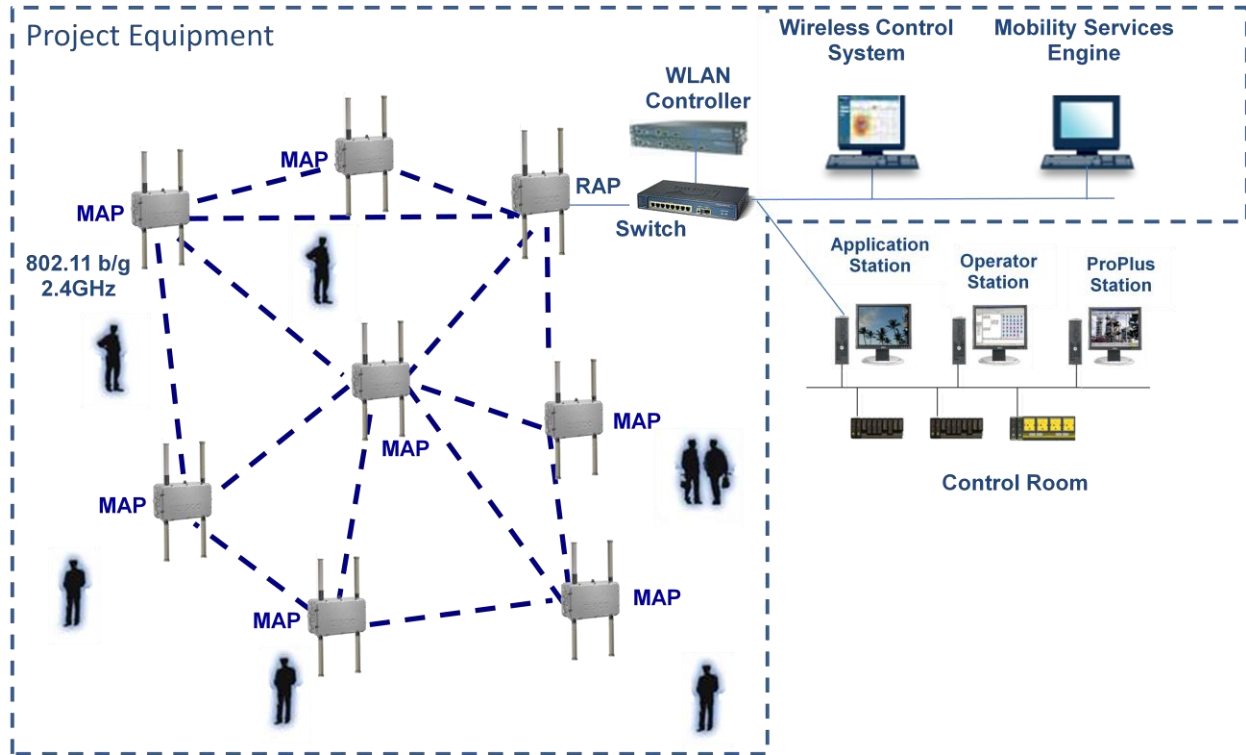
The location tracking system and wireless mesh network are brought online and commissioned onsite. Complete site acceptance testing is performed with your engineers.

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 RSSI Wireless Location Tracking solution architecture

Asset Tracking Equipment

Wi-Fi Active RFID Tags

The RFID tags communicate their location through the Wi-Fi mesh network. A variety of tags are available including those that have call buttons to signal an emergency for the wearer.

RFID Asset Tag Annunciators

By placing RFID annunciators at chokepoints within the process plant, personnel entering and leaving different areas of the plant can be tracked.

TDOA Receivers

When precise asset tracking is required, TDOA receivers are deployed as part of a pervasive Wi-Fi mesh solution to calculate the exact location of personnel and assets in real-time.

Asset View Monitoring Application

This web-based application allows any user to visually see the locations of assets and personnel on a display map. Specific personnel movements can be tracked in real-time on the graphical display. Operators have ready access to contact information for field personnel or physical characteristics of physical assets simply by clicking on the asset's onscreen icon.

Mobility Services Engine

This server is where location calculations are performed, rules for location alerts are executed, and configuration of user and asset data is stored.

Wireless Equipment

Wireless Mesh Access Point (MAP)

The MAPs deployed in your plant are Class I, Div 2 or ATEX Zone 2 certified equipment. The IEEE 802.11a 5 GHz radio in the MAP is utilized to wirelessly connect the communications of the wireless clients 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 wireless LAN controllers. This software provides network management including diagnostics and troubleshooting tools to keep the wireless 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/systems/reach

Or call us at:

Asia Pacific: 65.777.8211

Europe, Middle East: 41.41.768.6111

North America, Latin America: +1 800.833.8314 or +1 512.832.3774

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.

Intrinsically safe asset tags are available.

Additional Wireless Plant Solutions

- Field Data Backhaul. Using the same Wi-Fi MAPs for your location tracking solution, Emerson can wirelessly connect your remote Smart Wireless field instruments back to your central control room.
- 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 location tracking solution can also serve as Wi-Fi mustering stations if installed in a mustering area and combined in a safety mustering solution.

For large power, water, and wastewater applications

contact Power and Water Solutions at:

www.EmersonProcess-powerwater.com

Or call us at:

Asia Pacific: 65.777.8211

Europe, Middle East, Africa: 48.22.630.2443

North America, Latin America: +1 412.963.4000

© Emerson Process Management 2009. All rights reserved. For Emerson Process Management trademarks and service marks, go to: <http://www.emersonprocess.com/home/news/resources/marks.pdf>.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the design or specification of such products at any time without notice.