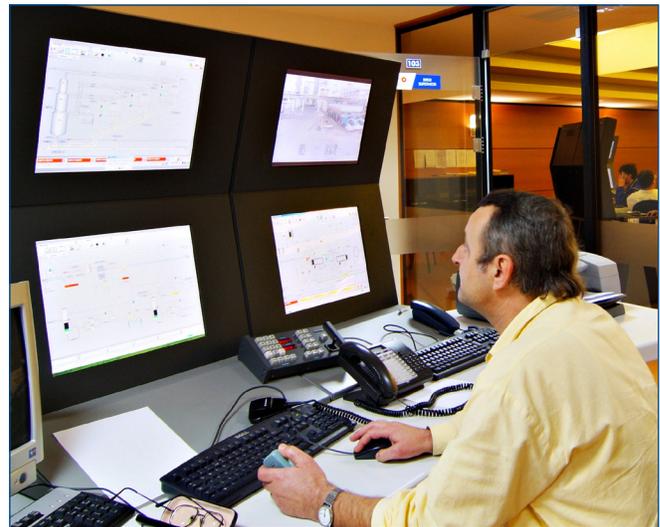


Wireless Remote Video Monitoring

- Increase plant safety
- Comply with regulations
- Scalable
- Reduced cost
- Secure and reliable communications
- Full support service



An Emerson Smart Wireless Remote Video Monitoring Solution brings visual information into your control room.

Introduction

Video surveillance is becoming an indispensable part of process plant safety, security and operations. Using wireless technology, mission-critical video feeds can now be delivered to the control room, office buildings and other areas in the plant in a highly flexible way that is not possible with a wired solution.

Emerson's Wireless Remote Video Monitoring provides a cost-effective and fast approach for process plant security surveillance and operations monitoring. The solution uses high data throughput mesh Wi-Fi technology to transfer video data. Additionally, the system can be deployed much faster and with reduced deployment complexity.

Versions 9 and later of DeltaV Operate support video integration through an ActiveX control.

Using IEEE 802.11a/b/g/n standards-based technology, Emerson provides a fully secure, reliable Wi-Fi communication link between the video cameras in your plant 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 location tracking.

Support for a remote video monitoring solution installed by Emerson is provided through Emerson's SureService™ organization.

Benefits

Increase plant safety: Video monitoring provides 24x7 surveillance of the plant and its operations and enables faster response and earlier detection of dangerous situations to workers.

Comply with regulations: Digital video recording of visual data on flare, smoke stack or other emissions provides evidence of regulation compliance to local authorities. Video evidence of an emission's duration can reduce regulatory fines to the shortest period possible by showing when the emission started and ended.

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 communicate video 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 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 video cameras, a wireless remote video solution can be deployed for less cost. Moving or adding wired cameras is cost prohibitive, especially when compared to the flexibility of a wireless solution.

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

Video Monitoring Applications

Plant Surveillance

Use wireless video to monitor plant fence lines, entrances, or remote tank farms for enhanced security or to comply with regulatory requirements.

Workforce Safety

Video cameras can be installed to monitor workers in hazardous areas within the plant or in remote tank farms during normal operations to monitor their safety. Video images can be checked prior to sending a worker into a potentially hazardous or remote part of the plant to ensure that they are not being placed in danger.

Process Monitoring

Live video feeds can augment the operator's control of volatile processes. Video analytics that monitor the pixel image of the camera can trigger process automation alarms to alert the control room operator to an abnormal situation based on video camera data.

Emissions Monitoring

Visually recorded information of emissions can serve as evidence of emissions for regulatory compliance and can reduce potential fines in the absence of other verifiable data.

All the plant's video information can be recorded and stored on a central server that can store days, weeks or even months of video data depending on your needs or to comply with emissions regulations. Data can be permanently stored offline on optical disks if required.

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 remote video monitoring 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 video 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 video cameras and wireless mesh network equipment based on the detailed network design.

System Commissioning

The video recording system and 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 lifecycle services through our engineering centers and global service organizations. Emerson's wireless lifecycle services are designed to help you maintain system uptime, apply wireless technology for better business results and preserve your intellectual and capital investment.



Pan Tilt Zoom Camera.

The screenshot displays the DeltaV Operate software interface. At the top, it shows 'DIGITALPLANT' and 'Username ADMINISTRATOR' with a timestamp of '3:52:19 PM'. The main area features a process flow diagram on the left and a video feed on the right. The diagram includes a tank labeled 'T-103' with 'OIL MIX' and 'WATER' layers, and two temperature sensors: 'TT-103W Sensor 1 76.40 °F' and 'Sensor 2 76.67 °F'. Below the tank is a red icon of a person with a plus sign. The flow continues through pumps and valves to 'OIL TO T-101' (0.0 GPM) and 'H2O TO T-102' (0.0 GPM). A 'Zoom' control is visible next to the video feed. In the bottom right corner, there is a data table:

THUM-250	
Electronics Temperature	23.50 °F
DVC-6000	
Travel	44.94
Travel Set Point	44.84
Pressure A	9.23 psi

DeltaV Operate with integrated video.

DeltaV Operate with Live Video Integration

New with DeltaV versions 9 or later, Emerson Wireless Services can embed live video through an ActiveX control that allows the operator to pan, tilt, or zoom the camera view through the Operate interface or even switch camera video feeds. The benefits of having a live video feed embedded within an operator display are many and include:

Safety

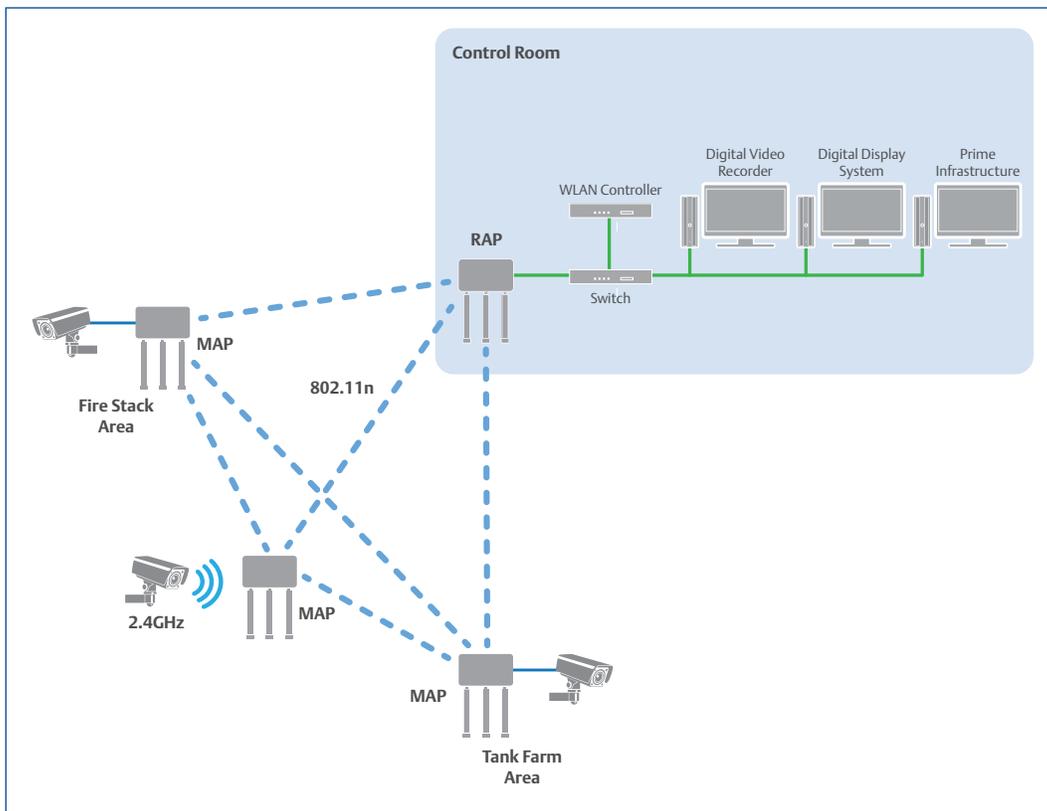
Enables an additional “all-clear” visual before the execution of a process start-up, shut-down, or turn-around. Allows operators to monitor hazardous areas alongside process information.

Security

In cases of plants that are lightly staffed, an operator can be a pair of additional eyes on the process area, remote plant areas, or site perimeter.

Productivity

Live visual of the process being controlled (e.g. boiler) alongside the process measurements.



Example Wireless Remote Video Monitoring solution architecture.

Video Equipment

The video images of all the cameras can be configured to support a variety of image resolutions and video frame rates which affects the wireless bandwidth required to transmit the video stream and the amount of disk storage required to keep the video images online.

Fixed IP Cameras

There are several color, high resolution video cameras to choose from that can be installed within the plant. Fixed cameras are required for video analytic capabilities and are less expensive than point-tilt-zoom (PTZ) cameras.

Point-Tilt-Zoom Cameras

Typically housed in domed enclosures, these cameras offer the user the ability to visually survey a large area with a single camera.

Digital Video Recorder (DVR) Server

All video images are centrally recorded, stored and served to other applications from the DVR server which is typically located on the plant's office network.

Digital Display System

This workstation runs the video display software that enables the user to monitor many video feeds simultaneously. From this multi-video display, a single camera can be selected to enable the operator to change the camera's direction or to display historical video data.

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 Smart Wireless Gateway is installed near the MAP with a wired Ethernet connection. The MAP wirelessly connects the video stream back to the plant network. The MAP's IEEE 802.11n 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. The Smart Wireless Gateway 1552WU can also be part of the Wireless Remote Video Monitoring solution as compatible equipment for the Wi-Fi infrastructure.

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.

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.

Class 1 Div 1 or 2 and ATEX Zone 1 or 2 cameras are available.

Additional Wireless Plant Solutions

- **Field Data Backhaul:** Using the same Wi-Fi MAPs for your video monitoring, Emerson can wirelessly connect your remote Smart Wireless field instruments back to your central control room.
- **Mobile Workforce:** 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.

Smart Wireless Gateway 1552WU

Emerson offers a full portfolio of Smart Wireless instrumentation solutions enabled by the self-organizing WirelessHART network. The Smart Wireless Gateway 1552WU manages the wireless field instrument network communications and security. The 1552WU is also a fully functioning Wi-Fi Mesh Access

Point integrated into any larger controller-based plant wireless solution.

For any further information related to the Smart Wireless Gateway 1552WU, please refer to its Product Data Sheet.



1552WU with 5GHz Wi-Fi omni antennas and remote mounted WirelessHART omni antenna.

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.emerson.com/wireless>.

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