Industrial Networking for Control and Automation

Implementing a Robust Industrial Automation Network

![antaira making connectivity simple...]

The Trend of Industrial Networking in Manufacturing and Process Automation

Process Automation

Material Handling

Machine Vision

Food & Beverage

Agriculture

Overview

Manufacturing and process automation is growing exponentially within the industrial automation world, in order to improve productivity and efficiency with minimal human intervention. The most popular benefits of implementing an industrial networking solution is improving real-time remote management, saving future maintenance labor costs, and decreasing production downtime. However, it is also used to assist in saving energy, offer advanced event handling, and improve the production or process quality, accuracy and precision.

Although a number of facilities have already been established as being fully automated, many of the control systems still include legacy equipment in the production areas. Traditional control or monitoring systems can be inflexible and difficult to integrate because many independent machines have limited connectivity to the Ethernet TCP/IP network. The greatest challenge for the industry though, is how to network these legacy devices with new Ethernet-based equipment to meet the demand for increased productivity. Besides growing accuracy expectations, safety and reliability are also becoming extremely important. Antaira provides a wide range of industrial Ethernet networking solution products that support manufacturing and process automation that are easier, safer, and more cost-effective to maintain and operate.
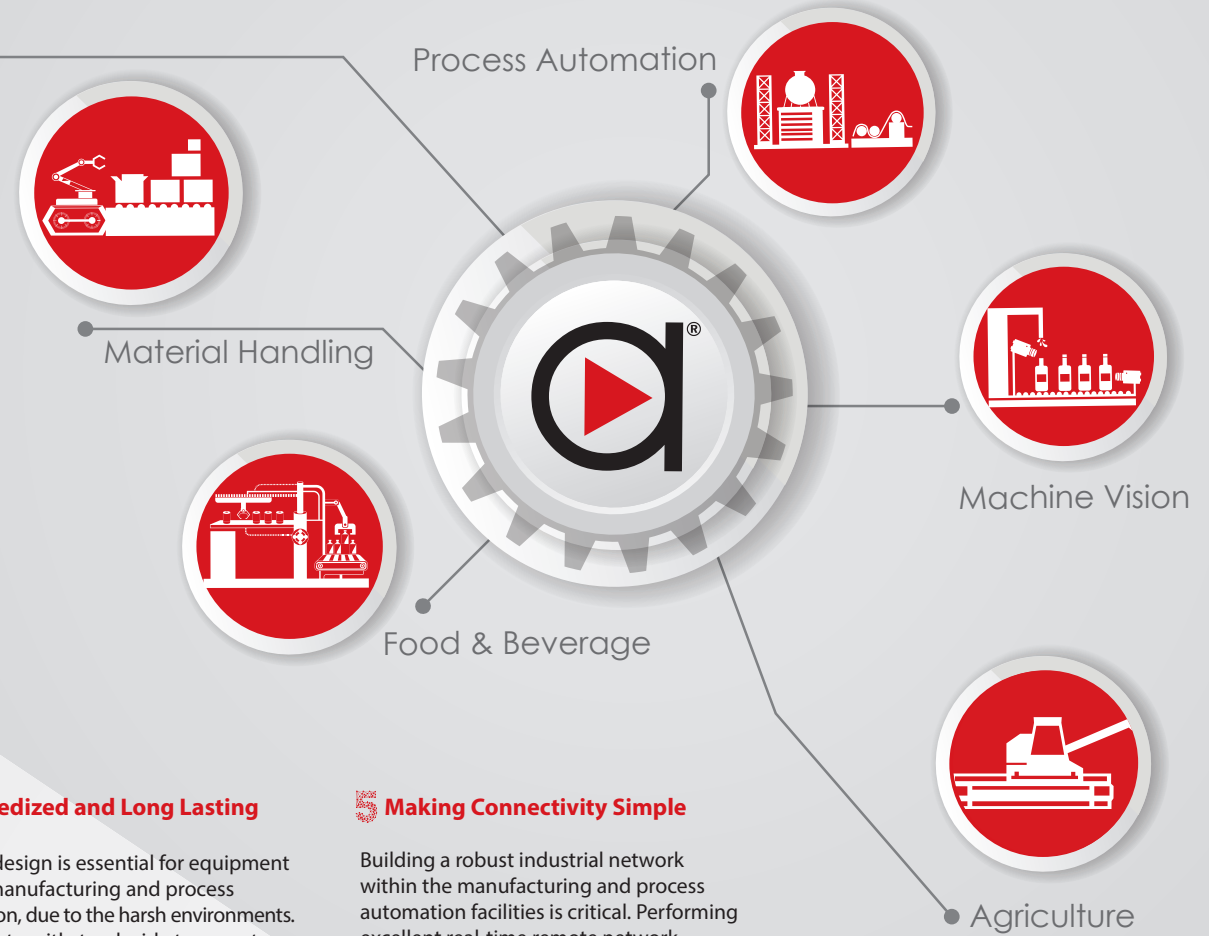
Antaira's 5 Key Industrial Networking Solutions and Benefits

1 Scalability and Flexibility

The maturity of Ethernet technology has significantly improved data transmission of manufacturing and process automation equipment. This is because data can be accessed anywhere to achieve remote access, control, and monitoring, as well as, manage any real-time response to emergencies.

Antaira provides a wide array of industrial Ethernet networking solution products, including industrial Ethernet switches, Ethernet fiber media converters, industrial wireless devices, and serial-to-Ethernet or wireless device servers. Antaira offers product line solutions integrated with serial, LAN and WLAN (IEEE802.11), and are available in a variety of port configurations with 10/100MB or Gigabit copper, fiber, SFP and PoE technologies.

2 Reliability

Reliability is a key factor within the manufacturing and process automation industries. Production network downtime is one of the greatest concerns within these industries, because downtime can result in a variety of unpredicted and defective goods. Networking equipment must be held to the highest industrial standards to ensure damage resistance from vibration or harsh environments and constant operation. Antaira's industrial networking solution products have passed a variety of certifications specifically designed and developed for industrial automation's harsh environment requirements. Plus, Antaira's networking solution product equipment provides built-in high EFT and ESD protection to ensure uninterrupted data transmission between the equipment and the network.

3 Self-Healing Redundant Network

Most manufacturing and process automation facilities operate in harsh environments, where unexpected events can cause downtime and/or failure of systems and the network. A robust redundancy network can ensure systems and production are functional at all times. Antaira's industrial managed Ethernet switches and latest serial device servers support various redundancy features to maximize the communication system availability and instantaneous response. A built-in network redundant protocol provides a ring redundancy network topology to re-route data communication to the back path, continuously providing non-stop networking 24/7. Antaira provides support for the open standard ERPS (Ethernet Ring Protection Switches) to endure fast network recovery and compatibility with other manufacturers.

4 Ruggedized and Long Lasting

Rugged design is essential for equipment used in manufacturing and process automation, due to the harsh environments. An ability to withstand wide temperature changes, vibration, and external damage such as chemical corrosion is therefore required. Antaira's industrial networking solution products are designed with IP30/40/50/67 rated weatherproof housing, robust metal casing, wide operating temperature tolerance, and vibration proofing, making them suitable for use in the toughest industrial environments. In addition, all Antaira's industrial networking solution products are designed and developed with high MTBF and EMI noise immunity.

5 Making Connectivity Simple

Building a robust industrial network within the manufacturing and process automation facilities is critical. Performing excellent real-time remote network management is a great challenge to many engineers or network planners within these industries. Antaira's industrial managed Ethernet switches, industrial wireless devices, and industrial serial device servers are pre-loaded with a user friendly (ease-of-use) web console interface to allow for easy adoption, as well as, quick setup and deployment to perform real-time and remote network management. Antaira not only provides simple connectivity solutions to support industrial automation applications, but also a lower cost of ownership.

Industrial Networking Product Solutions

Industrial Ethernet Switches

Managed   **M12**   **Unmanaged**

PoE & Non-PoE Models Available

Industrial Wireless (IEEE 802.11)

Panel Mounts   **Outdoor IP67**

Industrial Media Converters

100Mbps Fiber   **Gigabit Fiber**

PoE & Non-PoE Models Available

Serial Connectivity

Serial Device Servers   **Serial to Wireless Device Servers**   **USB to Serial Hubs**

Enabling Agricultural Automation with Industrial Devices

ARX-7235-AC-PD-T

LMP-1802G-M12-10G

GIGE VISION CAMERAS

WEED LASER
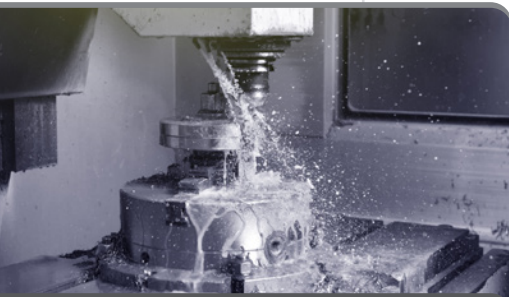
Overview

Farming, which is the backbone of the American economy, has been changing drastically over the years. No longer are farms owned by families trying to work the land for a living. Large corporations have been buying up land or the rights to farm the land which has brought a new mindset to the operation. Similar to the mass production during the industrial revolution for manufactured products, agricultural automation has been reducing costs to grow and harvest foods. Moving from small tractors to large combines has made a huge difference. Now, a new pressure is upon the agricultural industry, lack of cheap labor. The backbreaking work of being in a field to harvest and the difficulty of picking produce is becoming more challenging when there are fewer people to harvest increasingly larger fields. America is turning to autonomous automated machines to work the fields using artificial intelligence.
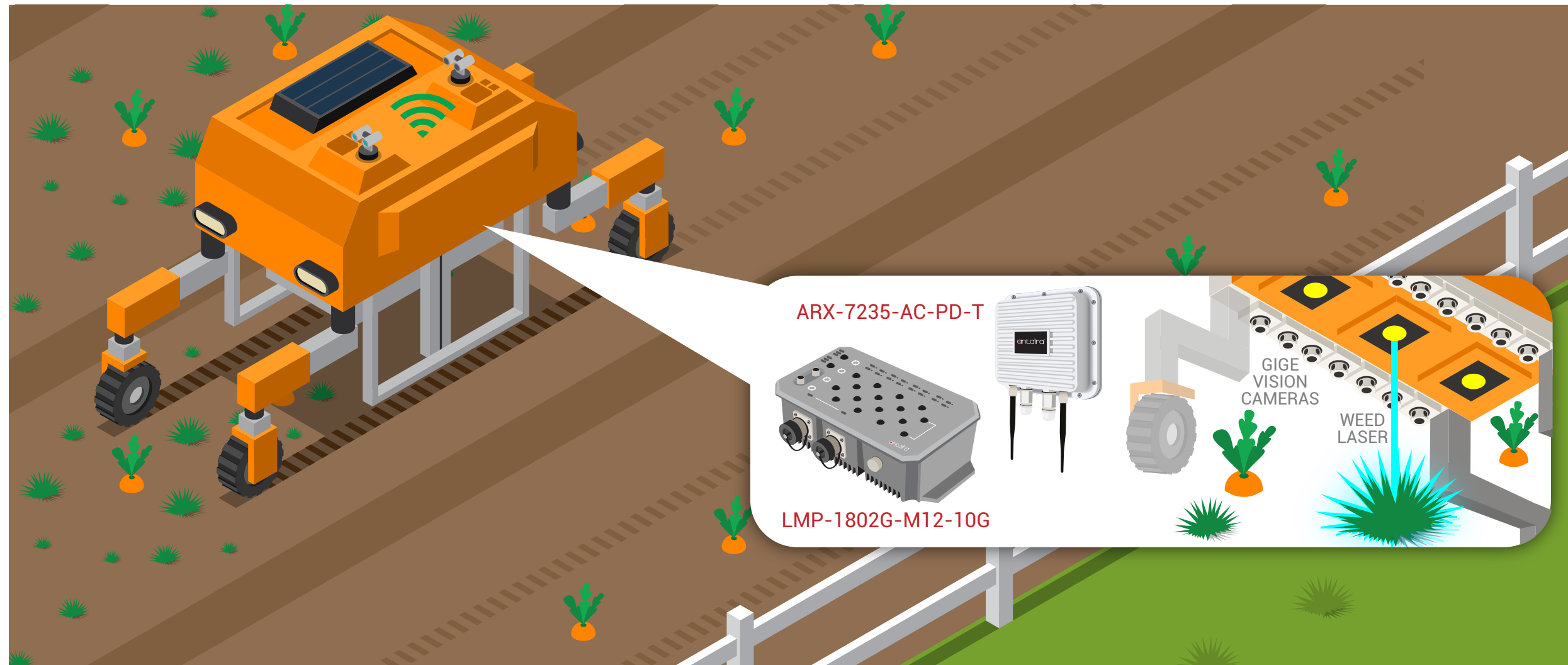
Application

Autonomous Agriculture Vehicles are being designed across several sub industries to cover the gaps where human labor is not available or is too expensive. High-speed, high-definition cameras are used to examine the plants and terrain. These images are sent to a processor that can analyze them and by sending commands to robotic arms or lasers to pick fruit, pull weeds or plant seeds. There is a great deal of data being sent back-and-forth and this requires high-speed, in some cases 10 gigabits per second for data. In addition to the need for high-speed data, the farm field is a harsh environment for electronics, and requires resistance to vibration and shock.

Antaira's M12 series of switches do all of the above, as well as provide dust and water tight connections allowing the industrial switch to be mounted in places where few other devices would survive. While this solution would run all on its own, a wireless radio can be added to the solution to transmit the general health of the vehicle when it returns to the barn for refueling or recharging.

Challenges

- High-speed connectivity is required to move the data from the cameras to the processor back to the actuators performing the various tasks
- Vibration and shock resistance helps maintain a working system when rolling across farm fields all day
- M12 connectors keep dust and water away from sensitive connections
- Creating a partnership so critical information is quickly available for the design of the network
- Having a network switch that doesn't need to be in an enclosure for protection allows for quick maintenance or design change
- PoE provided by the switch to power the cameras - special low voltage PoE switches must be used
- Provide statistics and health information of the vehicle

Application Requirements

- IP67 rated switch
- 10 gigabit fiber
- Vibration and shock resistance
- High working temperature design
- 12-24 volt DC input power
- Wireless connectivity when back at the barn

Antaira's Solutions & Benefits

Antaira's IP67 M12 Industrial Switch provides a robust, rock solid solution for applications in the toughest environments. Its durable aluminum case is built for extreme environments where most switches would fail. The 10 gig fiber connections deliver the streams of data from the cameras back to the processor. At the same time, the M12 PoE ports not only provide a solid vibration- resistant connection, but also are capable of powering the PoE cameras. The managed features of the M12 switch complete the package by providing information about the health of the network allowing for repairs before failures occur.

Antaira's Industrial (IEEE 802.11) Wireless Device provides wireless connectivity in harsh industrial environments. Our line of wireless products provide solutions for all applications from simple cost- effective solutions to robust hardened solutions for long-range transmissions. The APX-7235 model is a perfect fit for this application with its hardened aluminum case which allows it to be installed almost anywhere. Additionally, the two radio systems (both 2.4 and 5 gigahertz) and high-speed CPU allow for a multitude of application designs. This is especially important when working on prototype autonomous vehicles.

Key Products

LMP-1802G-M12-10G-67-24-T
18-Port Industrial M12 IP67 Waterproof Gigabit PoE+ Light Layer 3 Managed Ethernet Switch
- Shock, free fall, and vibration resistant
- 16-Port 10/100/1000 Ethernet with IEEE 802.3af/at compliant with 30W/Port
- 2-Port 1G/10G SFP Slots
- PoE ping alarm function for PoE ports power recycle
- Redundant power input design; 24-55VDC
- Operating Temp: -40C to 70C

ARX-7235-AC-PD-T
Industrial Outdoor IP67 Metal Housing IEEE 802.11a/b/g/n/ac Wireless Access Point / Client / Bridge / Repeater / Router / NAT/ VPN with PoE PD
- High Speed WLAN Supports Up to 867Mbps
- Dual Band (2.4GHz/5GHz concurrent)
- PD (Powered Device) IEEE 802.3af/at Compliant
- Industrial MIMO Wireless Solution (Dual 2Tx/2Rx)
- Supports Ethernet Gigabit WAN/LAN Port
- Operating Temp: -40C to 70C

WiFi
Ethernet
Fiber
Serial

STE-6104C-T-V2

AMS-7131

LMX-1002G-SFP

STW-612C

Overview

Beverage manufacturing is one of the most efficient manufacturing processes in the world, and bottling facilities are on the top of that list. However, bottling facilities differ from many other beverage processes because of the types of bottling lines they operate, and the types of products they use. Most facilities are incorporated with a complete line of processes from bottle stretch blow molding, water treatment, bottling stations, labeling and packaging lines. All processes have different types of legacy or Ethernet based equipment that aid in production, and require networking to exchange real-time data between each process and the control room.
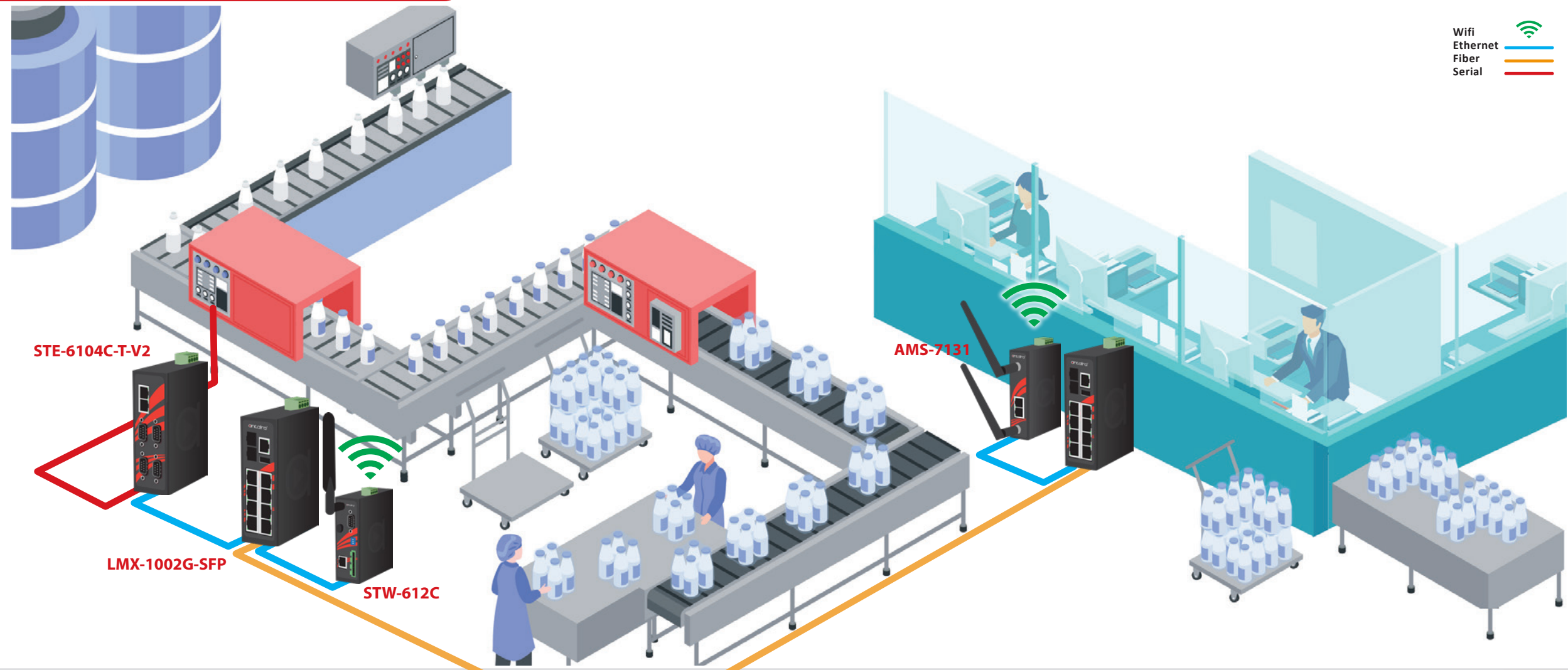
Application

Today, equipment suppliers are providing new Ethernet-based equipment and IP based application software and no longer provide support for legacy serial-based devices. With this mixture of serial and Ethernet based equipment, it is difficult to monitor production processes. A serial-to-Ethernet device server using a Real COM driver or an IP socket tunnel can provide connectivity for legacy equipment over an Ethernet infrastructure. A reliable Ethernet network has become a critical part of a bottling plant's infrastructure, which can be complicated due to harsh environments. Industrial managed Ethernet switches with fiber-optic solutions can be used to overcome this concern, because of their reliability, long lasting industrial grade design, and data transmission immunity. Layer 2 managed switches with data routing software can also increase the determinism of a bottling plant's control network. A built-in ring redundancy feature helps limit any downtime concerns, and event handling software functions can send out alert emails to improve real-time monitoring and management. Furthermore, some production areas in the facility might have cabling restrictions. In these instances, industrial wireless (IEEE 802.11) equipment can be considered, not only for its flexibility with regard to how fast a network can be created but also for its built-in data management software.

Challenges

• Extreme temperature and humidity concerns
• Open network technology standard
• Legacy equipment
• Real-time data transmission
• EMI (Electromagnetic Interference) environment
• Redundant network for 24/7 operation
• Long lasting MTBF equipment

Application Requirements

• Harsh environment industrial grade networking equipment
• Capability to connect legacy serial devices to the TCP/IP network
• Fiber optics to prevent EMI
• Rugged wireless communication solution
• Reliable data routing with built-in network management software
• Self-healing redundant network support
• Shock & vibration resilience
• High MTBF and wide temperature range support

Antaira's Solutions & Benefits

• **Antaira's Serial Device Server Series** provides single or multiple RS232/422/485 connections bridging legacy serial measurement equipment to transmit data back to the CMMS (Control Management Maintenance Software) by Real COM or socket tunneling via a hardwired or wireless connection.

• **Antaira's Industrial Managed Ethernet Switch Series** provides Layer 2 and some Layer 3 networking features while also providing fiber connection support. The built-in ring redundant feature allows users to build self-healing network architectures to limit network downtime concerns. Plus, the event handling functions allow users to have immediate event notices to improve remote monitoring and management.

• **Antaira's Industrial (IEEE 802.11) Wireless Series** provides rugged wireless access point and client solutions for a seamless wireless network infrastructure but is also compatible with other manufacturers. Legacy measurement equipment networked with serial-to-wireless device servers can continuously communicate wirelessly with the main factory network.

Key Products

STW-612C
2-Port RS-232/422/485 Serial to Wireless Device Server
• 3-way communication allows any serial & ethernet device to connect to a wireless network simultaneously
• Supports virtual COM, TCP/UDP & tunneling modes
• Configuration via web console, telnet or windows utility

STE-6104C-T-V2
4-Port Serial Device Server
• 4-Port Industrial Serial to Ethernet Device Server
• 4*RS232/422/485 (software selectable)
• Dual LAN for network or data redundant application
• Supports virtual COM, TCP/UDP server or client, and tunneling modes

AMS-7131
Industrial Wireless AP/Client/Bridge/Repeater
• Industrial 802.11a/b/g/n WiFi AP/Client/Bridge/Repeater
• Built-in 2*10/100Tx for daisy chain application
• IEEE 802.11a/b/g/n link up to 300MBps
• Wireless security support: WPA, WPA2, TKIP, AES

LMX-1002G-SFP
10-Port Industrial Gigabit Light Layer 3 Managed Ethernet Switch
• 10-Port Industrial Gigabit Light Layer 3 Managed Ethernet Switch
• Network redundancy: RSTP/MSTP and G.8032 ring protection <50ms
• Network management: SNMP, QoS, CoS/ToS, VLAN, IGMP support

STW-612C

AMS-2111

STE-501C

Wifi
Ethernet
Fiber
Serial
PoE

LMP-0601G-SFP-24-V2

Overview

Machine vision is the technology and method used to provide image based automatic inspection and analysis for applications that have been implemented in industrial automation for years. Manufacturing inspection processes such as sub-assembly qualification, component verification, object positioning, or packaging inspection can trigger mechanisms to execute a pass or fail decision. Machine vision systems will employ one or more high resolution cameras for single measurement or verification engaging high-speed image data processing to check the images. Large amounts of critical data are transferred across a network in the process. It is critical for a manufacturer to network mixed-interface equipment together to execute real-time data exchange for machine vision applications.
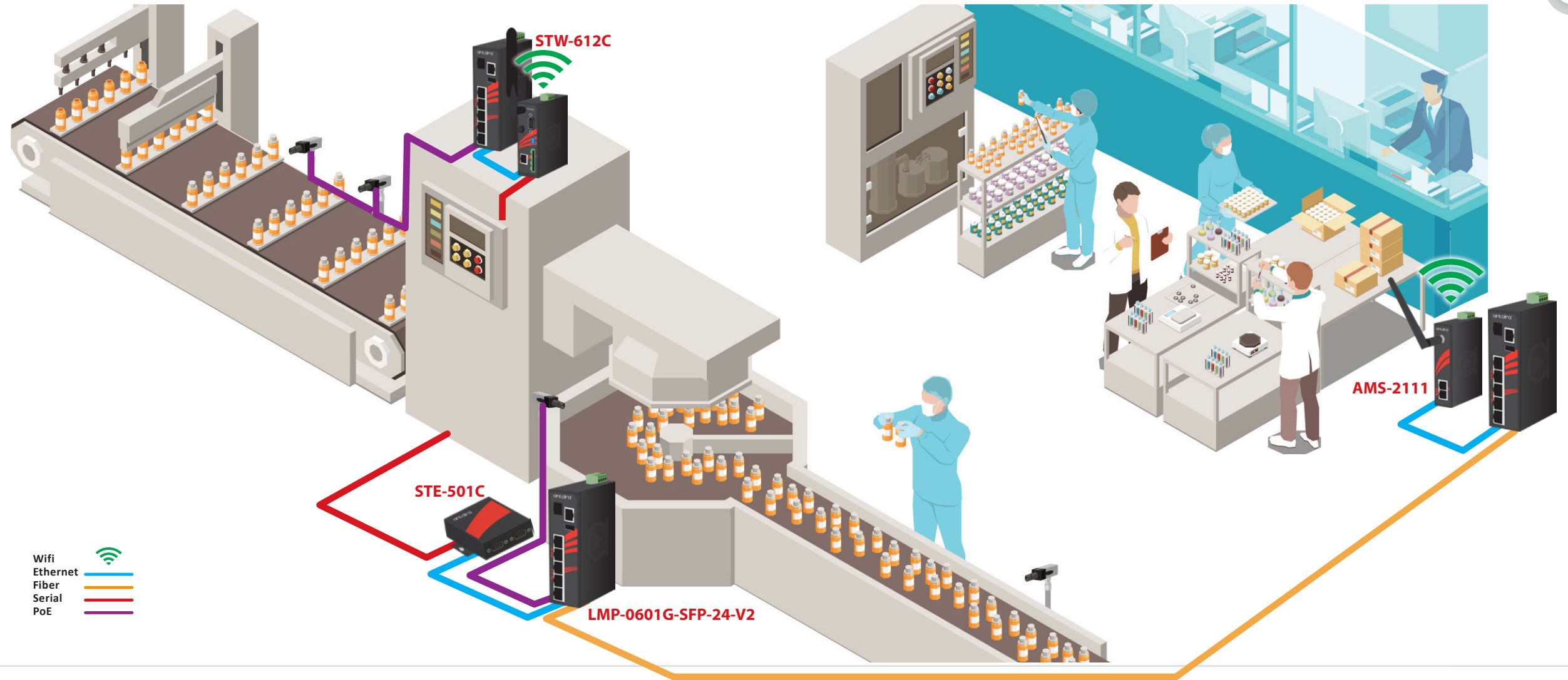
Application

The latest generation of machine vision systems offer substantial improvements by providing Ethernet connectivity and tools to communicate directly with PLCs, robot controllers, PCs and human machine interfaces (HMIs). However, there are still serial-based equipment such as sensors and readers that are not easily networked. Also, production processes may need to network multiple machine vision systems together to coordinate processes on the production line. Building a well-engineered industrial network infrastructure will increase flexibility, scalability, and reliability in harsh environments, commonly found on these production lines and to allow mixed-model processing within machine vision systems.

Industrial networking solution products with network redundancy features allow manufacturers to perform not only 24/7 operation, but also excellent remote management of machine vision equipment. In addition, user-friendly network communication and management software can support high image data processing pertinent to machine vision applications.

Challenges

• Harsh environment
• Mixed measurement devices and communication interfaces
• Bandwidth for high-level image data processing
• Automatic pass/fail inspection
• Cabling restrictions
• Remote access, control, and monitoring

Application Requirements

• Harsh environment industrial grade networking devices
• Capability to connect legacy serial devices to the TCP/IP network
• High bandwidth connectivity with Jumbo Frame support
• Low power voltage input support (12-36 volt)
• Fiber optics to prevent EMI
• Rugged wireless communication
• Reliable data routing with built-in network management software
• Self-healing redundant network support
• High MTBF and wide temperature range support
• Ease of use and rapid deployment

Antaira's Solutions & Benefits

• **Antaira's Serial Device Server Series** provides single or multiple RS232/422/485 connections allowing legacy serial measurement equipment to exchange data with machine vision systems by Real COM, socket or tunneling via a hardwired or wireless connection.

• **Antaira's Industrial PoE Gigabit Managed Ethernet Switch Series** provides Layer 2 and some Layer 3 networking features while also providing fiber connection support and allows users to build a self-healing redundant network to limit any network downtime concerns, and increase determinism within the control network. The built-in event handling functions allow users to have immediate event notices to improve remote monitoring and management.

• **Antaira's Industrial (IEEE 802.11) Wireless Series** provides access point/client/bridge/repeater functions to allow users to have the flexibility to implement wireless infrastructure networks to connect measurement with processing devices and all other devices on the network.

Key Products

STE-501C/502C
1/2 Port RS232/422/485 Serial Device Server
• Supports virtual COM, TCP/UDP server or client, and tunneling modes
• Configuration via web console, telnet, or windows utility
• Shock, free fall and vibration resistant

STW-612C
2-port RS-232/422/485 Serial to Wireless Device Server
• Built in 3-way communication to simultaneously connect serial & Ethernet devices over a wireless network
• Supports virtual COM, TCP/UDP server or client, and tunneling modes
• Configuration via web console, telnet, or windows utility

AMS-2111
Industrial IEEE 802.11b/g/n Wireless
• Supports IEEE 802.11 b/g/n
• Compact Industrial Grade Design
• Tx Power (EIRP) 21 dB for 2.4GHz

LMP-0601G-SFP-24-V2
6-Port Industrial Gigabit PoE+ Light Layer 3 Managed Ethernet Switch
• 6-Port Industrial Gigabit PoE+ Managed Ethernet Switch
• 4*10/100/1000Tx (30W/Port) +
1*10/100/1000tx + 1*100/1000 SFP slot for fiber
• Redundant ring network support: RSTP/MSTP and G.8032 ring protection <50ms
• Redundant low power input 12-36VDC (w/voltage booster))

Building an Efficient and Reliable Material Handling Network

ARY-7235-AC-PD

STW-612C

LMP-1002G-SFP-T

STE-501C

ARS-7235-AC

Wifi
Ethernet

Overview

Material handling consists of pallet rack systems, shelving systems, complex conveyor belts, automated storage and retrieval systems (AS/RS), sortation systems, picking systems, and automatic guided vehicles, all of which help to interconnect different processes to deliver the final product. Due to the automated nature of the whole production process, material handling systems must respond with timeliness and fulfill all requirements of each process and system. A robust Ethernet network is a major criterion to ensure all the process areas can have peak efficiency and real-time data exchange on the material handling network.

Application

It is critical for manufacturers to implement a proficient network, because most material handling systems, machines, and equipment come with mixed communication interfaces and are not efficiently networked together. For example, AS/RS systems rely on a networked front-end computer terminal for status reports, and it is difficult for a control room to monitor field device status if downtime occurs. A serial-to-Ethernet device server can be networked instantly with field legacy equipment to improve the efficiency and real-time monitoring. Due to the scope of the material handling facility, PoE or IP-based video cameras can be networked for safety and real-time process monitoring. Network downtime is also a major concern for process data exchange. A redundant ring network provides fast network recovery if any unexpected link failure occurs.
Instead of a hardwired infrastructure, a wireless solution for device networking can be considered to overcome the immense facility or cabling restrictions.

Challenges

• Temperature or humidity concerns
• Wide area coverage
• Cabling restrictions
• Mixed communication interface equipment
• Real-time data transmission among individual process sections
• EMI (Electromagnetic Interference) environment
• Redundant network for 24/7 operation
• High MTBF network equipment

Application Requirements

• Harsh environment industrial grade networking devices
• Capability to connect legacy serial devices to the TCP/IP network
• Rugged wireless communication
• Reliable data routing with built-in network management software
• Self-healing redundant network support
• Shock & vibration resilience
• High MTBF and wide temperature range support

Antaira's Solutions & Benefits

• **Antaira's Serial Device Server Series** provides single or multiple RS232/422/485 connections allowing legacy serial measurement equipment to exchange data with machine vision systems by Real COM, socket or tunneling via a hardwired or wireless connection.

• **Antaira's Industrial PoE Gigabit Managed Ethernet Switch Series** provides Layer 2 and some Layer 3 networking features while also providing fiber connection support and allows users to build a self-healing redundant network to limit any network downtime concerns, and increase determinism within the control network. The built-in event handling functions allow users to have immediate event notices to improve remote monitoring and management.

• **Antaira's Industrial (IEEE 802.11) Wireless Series** provides access point/client/bridge/repeater functions to allow users to have the flexibility to implement wireless infrastructure networks to connect measurement with processing devices and all other devices on the network.

Key Products

STE-501C/502C
1/2-Port RS-232/422/485 (Software Selectable) Serial Device Server
• 1-Port 10/100Tx LAN for network
• Supports virtual COM, TCP/UDP server or client, and tunneling modes

STW-612C
2-Port RS-232/422/485 Serial Wireless (IEEE 802.11b/g/n) Device Server
• Built in 3-way communication to simultaneously connect serial & Ethernet devices over a wireless network
• Supports virtual COM, TCP/UDP server or client, and tunneling modes

ARS-7235-AC
Industrial Wireless IEEE 802.11a/b/g/n AP/Client/Bridge / Repeater
• Industrial 802.11a/b/g/n/ac Wireless Router/AP/Client/Bridge/Repeater
• Features dual independent radios
• Wireless security support: WPA, WPA2, WPA3, WEP, TKIP, AES

LMP-1002G-SFP-T
Industrial PoE+ Gigabit Managed Switch
• 8*10/100/1000Tx (30W/Port) + 2*100/1000 SFP Slot
• Redundant ring network support: STP/RSTP or ERPS ring <50ms

ARY-7235-AC-PD
Industrial Outdoor IP67 Plastic Housing Wireless Access Point/Client/Bridge/Repeater/Router with PoE PD
• Supports IEEE 802.11a/b/g/n/ac
• IP67 plastic enclosure

ARY-7235-AC-PD

IMC-C1000-SFP

LMP-1802G-SFP

AMS-2111

LNX-0500-M12-67

Wifi
Ethernet
Fiber

Overview

Food processing has come a long in terms of automation in the past 50 years but is only just starting to utilize the full complement of devices that have been available for years. Why is that? Processing plants live on tight margins so budgets for new equipment is limited. New equipment is more expensive than you may realize, rules and regulations put in place to keep food safe increases the cost beyond what it takes to simply manufacture. This is why there is a great deal of legacy equipment being integrated with modern technology. The goal is to find a way to allow equipment built in the 1990s to communicate with vision inspection cameras designed for tomorrow, while accounting for harsh environments found in the food industry.
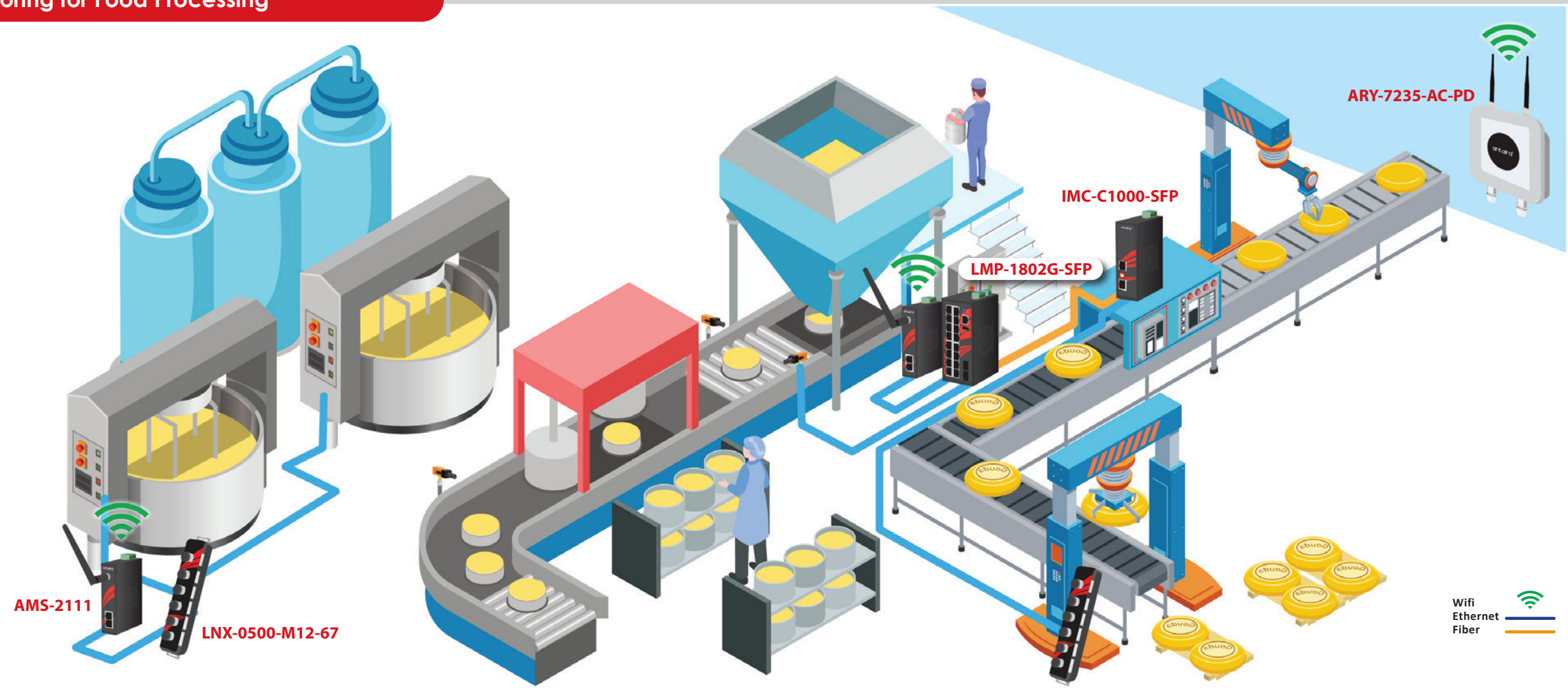
Application

The processing of food has many steps and each step must be performed in coordination with both the previous and next step in order to keep a steady flow of product. Equipment such as a bottle filler may have been built years ago with many more years of potential service but may communicate with a serial interface. In the past it might have been someone job to inspect the bottles following this process but with modern vision inspection technology an image of the bottle leaving the filler is taken, that information is transmitted to a unit that can process the image and verify that the bottle was adequately filled. If for some reason it was not filled all the way, information needs to be transmitted to a robotic arm or lever that separates the bottle from the others. Any one or all of these processes could be using different pro-tocols or media to communicate and more than likely do. With the proper networking products they can all be joined together for a seamless process. In addition to protocol changes, serial to Ethernet, various types of media can be used to transmit the data to further increase the flexibility and reliability of the network. Both Fiber optics and Wireless communications can be mixed into the application anywhere limita-tions of using twisted pair cable become a problem. Add to that wash down areas that need to have IP67 rated switches and you have a very diverse network. Antaira Technologies address all these concerns creating a seamless network across all the different media and protocol types outlined in this example application.

Challenges

• Wash down areas requiring IP67 rated communication equipment
• Long cable runs extending past traditional twisted pair limits
• Ever changing environments of moving parts that need wireless communication
• Mixed communication interface equipment
• EMI (Electromagnetic Interference) environment require immune transport of data
• Redundant network for 24/7 operation
• High MTBF network equipment

Application Requirements

• Serial to Ethernet, Serial to wireless protocol changes
• Ethernet to wireless for mobile or process designs in constant flux
• Fiber optics to eliminate the distance restrictions of twisted pair and EMI interference
• Industrial grade wireless products to withstand the harsh environment
• Large port count switches for high density communication connections
• Redundant connection technology RSTP, LACP or Ring
• M12 switches for wash down areas

Antaira's Solutions & Benefits

• **Antaira's Serial Device Server Series** provides single or multiple RS232/422/485 connections allowing legacy serial measurement equipment to exchange data with machine vision systems by Real COM, socket or tunneling via a hardwired or wireless connection.
• **Antaira's Industrial (IEEE 802.11) Wireless Series** provides access point/client/bridge/repeater functions to allow users to have the flexibility to implement wireless infrastructure networks to connect measurement devices.
• **Antaira's Industrial PoE Gigabit Managed Ethernet Switch Series** provides Layer 2 network management software and fiber connection support and allows users to build a self-healing redundant network to eliminate any network downtime concerns, and increase determinism within the control network. The built-in event handling functions allow users to have immediate event notices to improve remote monitoring and management.
• **Antaira's Industrial Compact Media converter series** provides a simple, economical and compact way of converting twisted pair Ethernet to fiber optic communications allowing communications to extend over an environment filled with EMI or over almost any distance.
• **Antaira's IP67 M12 switch series** provides reliable communications in areas where dust, debris and water may be an issue for standard industrial products and even some enclosures.

Key Products

AMS-2111
Industrial IEEE 802.11b/g/n Wireless
• Supports IEEE 802.11 b/g/n
• Compact Industrial Grade Design
• Tx Power (EIRP) 21 dB for 2.4GHz

ARY-7235-AC-PD
Industrial Outdoor IP67 Plastic Housing Wireless Access Point/Client/Bridge/Repeater/Router with PoE PD
• Supports IEEE 802.11a/b/g/n/ac
• IP67 plastic enclosure
• Tx Power 25dB for 2.4GHz
• Tx Power 24dB for 5GHz

LMP-1802G-SFP
18-Port Industrial Gigabit PoE+ Light Layer 3 Managed Ethernet Switch
• Supports 16*10/100/1000Tx Fast Ethernet Ports and 2*100/1000 SFP Slots
• Network Redundancy Support: RSTP/MSTP, and G.8032 ERPS

IMC-C1000-SFP
Compact 10/100/1000TX to 100/1000SX/LX Industrial Gigabit Ethernet Media Converter
• 1*10/100/1000Tx Gigabit Ethernet
• 100/1000 SFP fiber slot

LNX-0500-M12-67
5-Port M12 Industrial IP67 Waterproof Ethernet Switch
• 1*10/100/1000Tx Gigabit Ethernet
• 100/1000 SFP fiber slot

ABOUT ANTAIRA

Antaira Technologies is a leading global developer and manufacturer of high-quality industrial networking and communication product solutions. Since 2005, Antaira has offered a full spectrum of product lines that feature reliable Ethernet infrastructures, extended temperature tolerance, and rugged enclosure designs. Our product lines range from industrial Ethernet switches, industrial wireless devices, Ethernet media converters, and industrial serial communication connectivity. Our vast professional experience has allowed us to deploy a wide array of products worldwide in mission-critical applications across various markets, such as automation, transportation, security, water/wastewater, power/utility, oil and gas, and medical.

Mission Statement

As a leader and trusted partner in the industrial device networking field, Antaira is committed to providing quality products and value-added service to its customers and channel partners to create solutions that deliver a worldwide advancement for a wide array of applications.

OUR COMMITMENT

Product Warranty

All Antaira products are backed with a warranty of up to 5 years. We warrant products against defects in material and workmanship for up to 5 years from the date of purchase. This means that Antaira will happily repair or replace the defective products within warranty, provided the products were installed and used within specification. Antaira is committed and will stand behind all of its products assuring customers will receive the highest quality and most reliable products possible.

Customer Service & Tech Support

Antaira's dedicated and competent team takes pride in delivering high-quality and prompt service to our customers. We go one step further when it comes to service. Incoming calls are routed to a live representative who can answer all inquiries quickly, whether it be pre-sales, post-sales or technical services during business hours. Antaira's technical support and RMA team have elite industry knowledge to ensure all issues are professionally and thoroughly resolved.
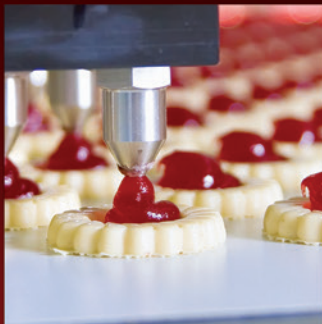
Satisfaction Guarantee

Here at Antaira, every sale is backed by our 45-Day Satisfaction Guarantee. Within 45 days of your purchase date, if for any reason you are dissatisfied with your experience or your expectations were not met, Antaira will promptly exchange or replace your product, or provide a full refund. We are available 12 hours a day to help clarify any questions, comments, or concerns regarding all transactions.

RoHS Directive

Antaira recognizes its environmental responsibility as a manufacturer and is dedicated to preserving the environment for future generations. We make it a priority to ensure that all our products are environmentally friendly. At Antaira, we not only make sure that our products are RoHS 2.0 compliant, but also all of our packing materials used to ship our products are compliant as well.