Industrial Networking Solutions

- Industrial Ethernet
- Serial Connectivity and Networking
- Industrial Wireless
- Embedded Computing

MOXA®

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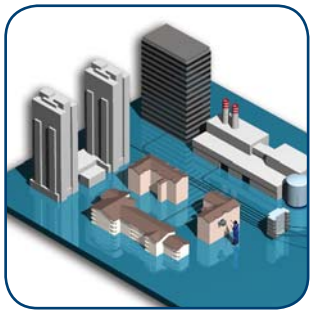
Industrial Networking Applications

Power Automation

The field of power automation is composed of the following fundamental systems: power generation, power transmission, and power distribution. For each of these systems, Moxa offers device networking products to facilitate different power automation applications.



Transportation Automation

Many advanced and cost-effective options are available to improve the efficiency of transportation systems through automation. A wide selection of Moxa products can be used for intelligent transportation system (ITS) applications of almost any size and scope.

Factory Automation

Every manufacturing facility has two essential components: the production line and the facility itself. Moxa offers the right device networking products for automating both production line management and facility monitoring operations.

Oil and Gas Automation

Oil and gas production can be divided into three stages: upstream, midstream, and downstream. From drilling to refining, Moxa products can be used to optimize efficiency, productivity, reliability, and safety at any stage of oil and gas production.

Power Substation Automation

Reliability, speed, and real-time response are critical for communication between devices at a power plant or power substation. Use Moxa products to build a truly industrial-grade network backbone that supports real-time monitoring and control.

Products

The **DA-681** embedded computer is a protocol gateway that handles multiple devices running different protocols for front-end data computing and protocol conversion.

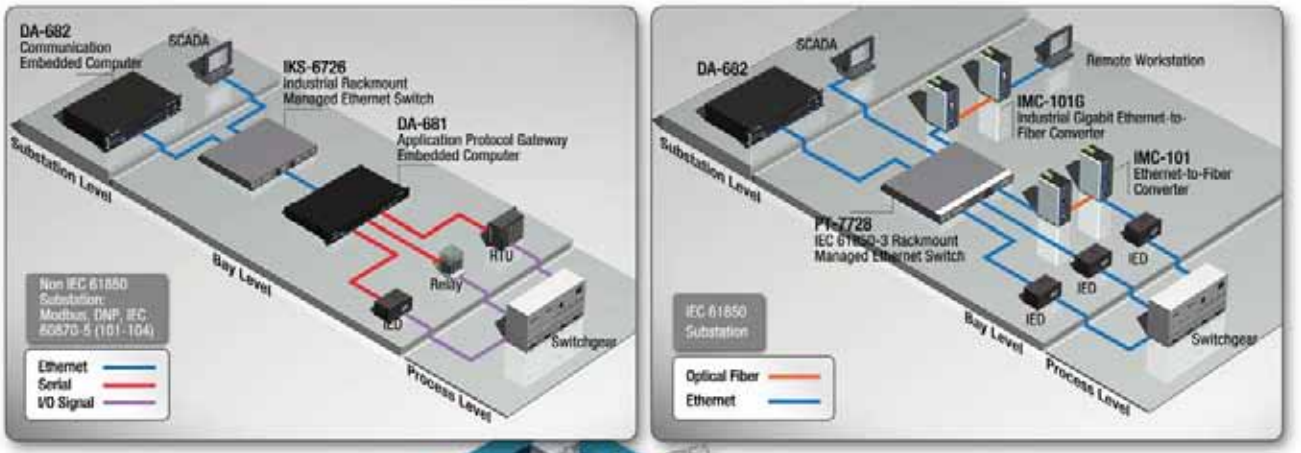
The **DA-682** embedded computer serves as an embedded backbone host and central controller for data analysis, processing, and transmission back to the control center.

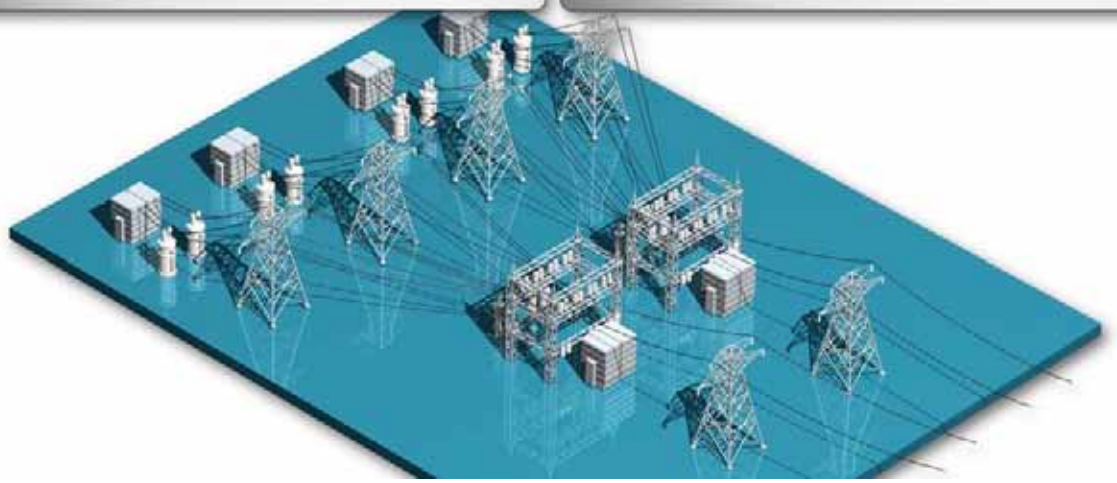
The **IKS-6726** Gigabit modular rackmount Ethernet switch uplinks with the network ring and connects with embedded computers; its industrial, rugged design is ideal for harsh environments.

The **PT-7728** Gigabit modular Ethernet switch forms a network ring for redundancy, ensuring superior reliability for complex, high voltage substation environments through IEC 61850-3 and IEEE 1613 compliance.

The **IMC-101** industrial media converters provide industrial grade media conversion between 10/100BaseT(X) and 100BaseFX (SC/ST connectors).

The **IMC-101G** industrial Gigabit media converters provide reliable and stable 10/100/1000BaseSX/LX/LHX/ZX media conversion in harsh industrial environments.





Automatic Meter Reading

A great deal of time and effort is wasted when technicians need to make regular in-person visits to take manual power meter readings. Automated meter reading systems have become an increasingly popular alternative and can be established by using Moxa products to connect power meters to central management workstations.

Products

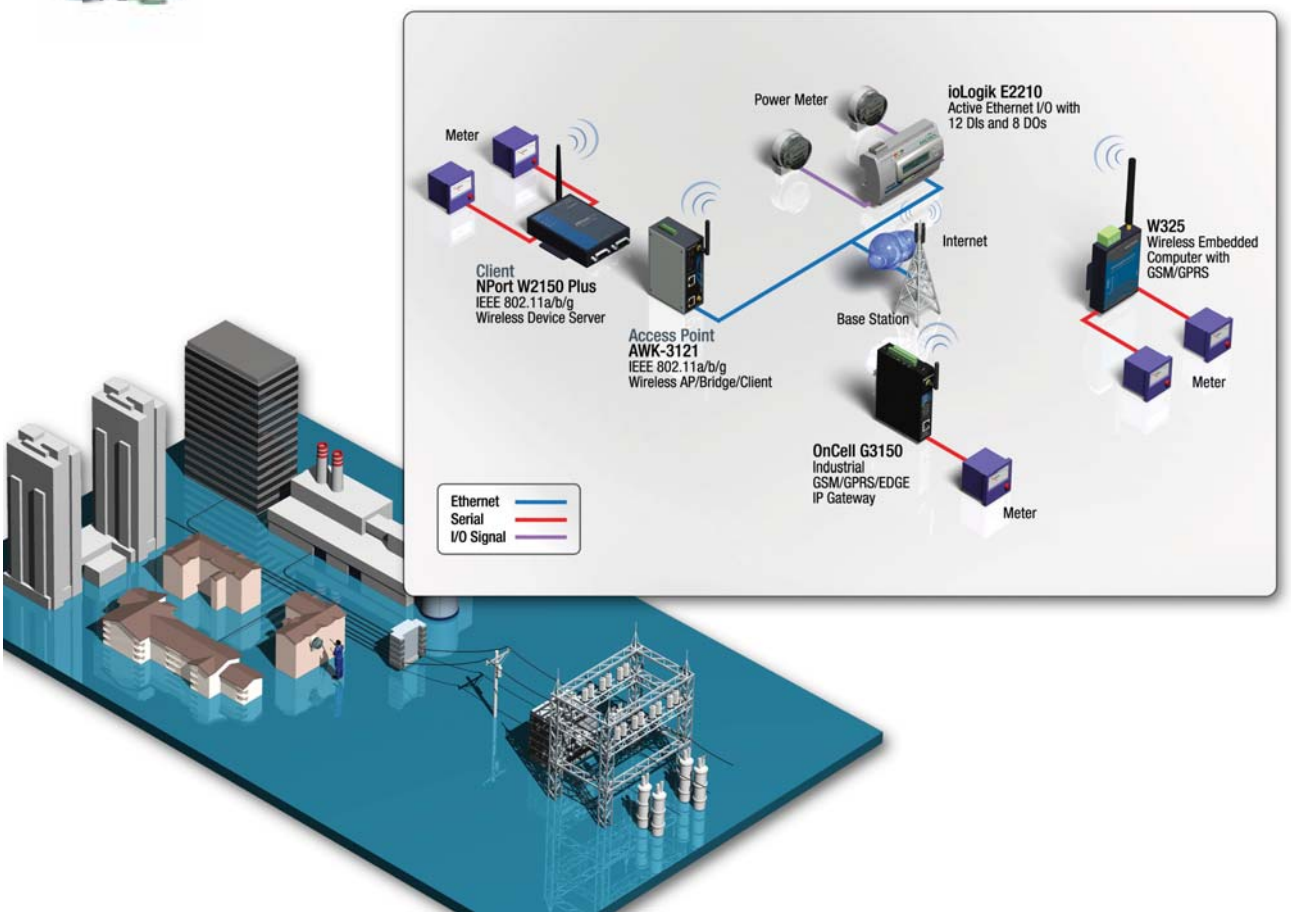
The **W325** embedded computer stores metering data, converts it from proprietary protocols to the standard protocols used by the automation system, performs front-end computing, and then transmits the data to central servers via GSM/GPRS.

The **AWK-3121** provides wireless connection for Ethernet-enabled devices in addition to standard STP/RSTP support for looping protection and redundant communication links.

The **OnCell G3150** cellular IP gateway makes use of high speed wireless GSM/GPRS/EDGE technologies and provides secure TCP/IP connection to your remote power meters over cellular networks.

The **ioLogik E2210** Active Ethernet I/O collects readings from power meters through event-based messaging, allowing system administrators to actively retrieve data for better management.

The **NPort® W2150 Plus** collects data from the power meters over RS-232 or RS-485 connections, and then transmits the encrypted data to central servers over a WiFi network.



Renewable Energy

Rising fuel costs and global warming have led to rapid growth in worldwide demand for renewable energy. In response to the worldwide search for alternative sources of energy, solar power and wind power have emerged as two of the most viable options. Moxa provides a wide range of networking solutions to help harness the power of these invaluable resources.

Products

The **W321** and **UC-7112** embedded computers can be used as front-end controllers that connect to the PV inverter, AI and counter input module, and power meter. They can also be used for remote monitoring, data acquisition, data logging, and protocol conversion.

The **UC-8410** embedded computer is used to control, manage, and remotely monitor the equipment making up a solar power system.

The **V468** and **IA260** embedded computers can serve as the central controller for mapping and tracking the Sun in solar power plants, and sending data back and forth between the tracker and control center.

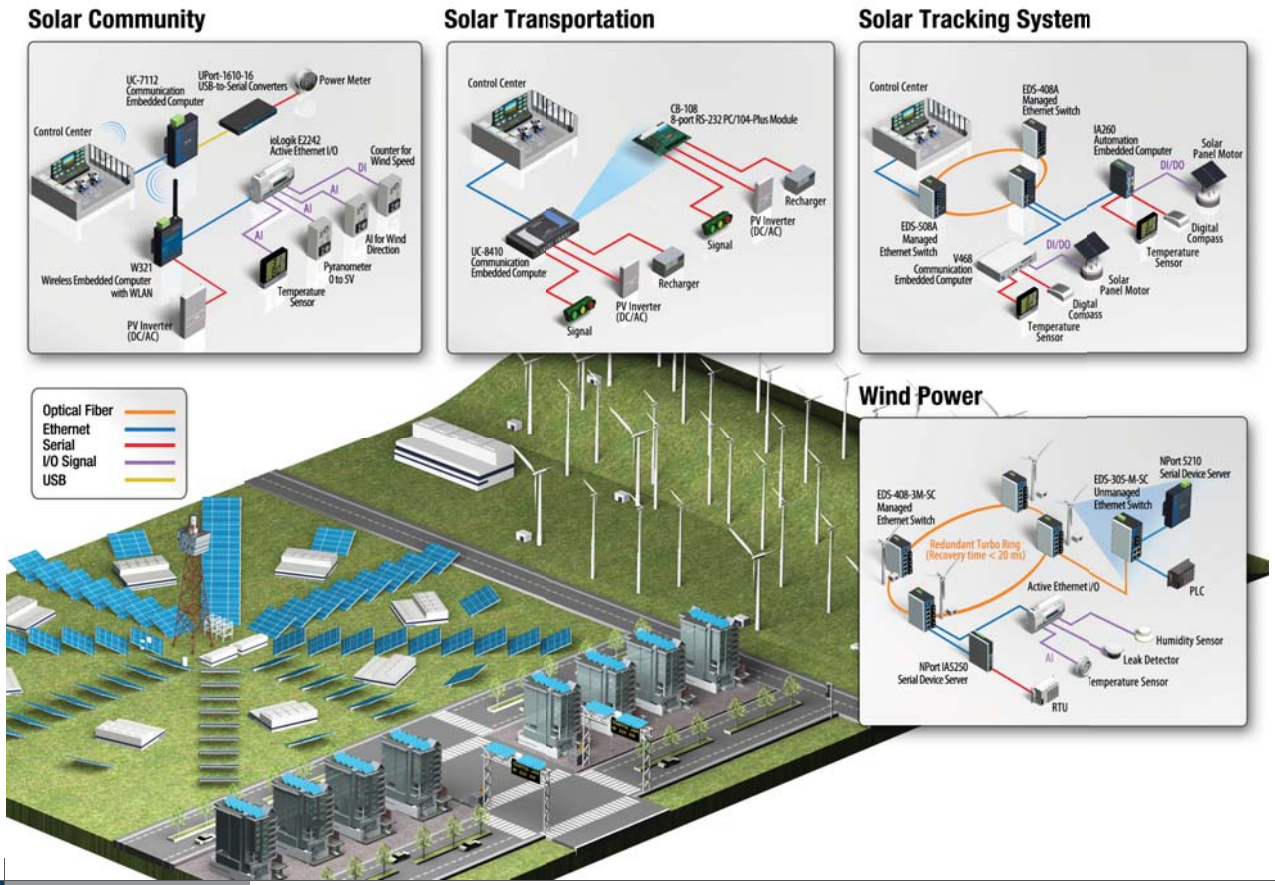
The **EDS-408A** 3-fiber Series Ethernet switches provide network redundancy in the form of a fiber ring topology with super fast recovery time < 20 ms for reliable Ethernet network communication in wind farms.

With Active OPC server, the **ioLogik E2242** Active Ethernet I/O proactively updates event messages to the control center with real-time stamps over the network, effectively integrating it with a real-time SCADA/HMI system.

Moxa's **NPort® 5210** device server can convert industrial serial devices inside a wind turbine into Ethernet devices.

The **UPort™ 1610-16** converters can connect 16 RS-232 devices to your workstation/laptop by USB. With Moxa's own CPU, the **UPort™** 1610 offers USB 2.0 connectivity, 128 bytes FIFO, and HW/SW flow control.

Moxa's **CB-108** connects an industrial PC directly to multiple RS-232 devices. All Moxa's PC/104 and PC/104-Plus modules provide a reliable, high performance solution for serial communication



Fleet Management

Managing large fleets of trucks or buses around the country requires a scalable system that is designed for maximum mobility and efficiency. By taking advantage of Moxa's wide selection of products, a management system can be established to fit nearly any requirement and size.

Products

The **W345** collects data from the onboard GSM/GPRS and transmits the data wirelessly over cellular networks to the control center.

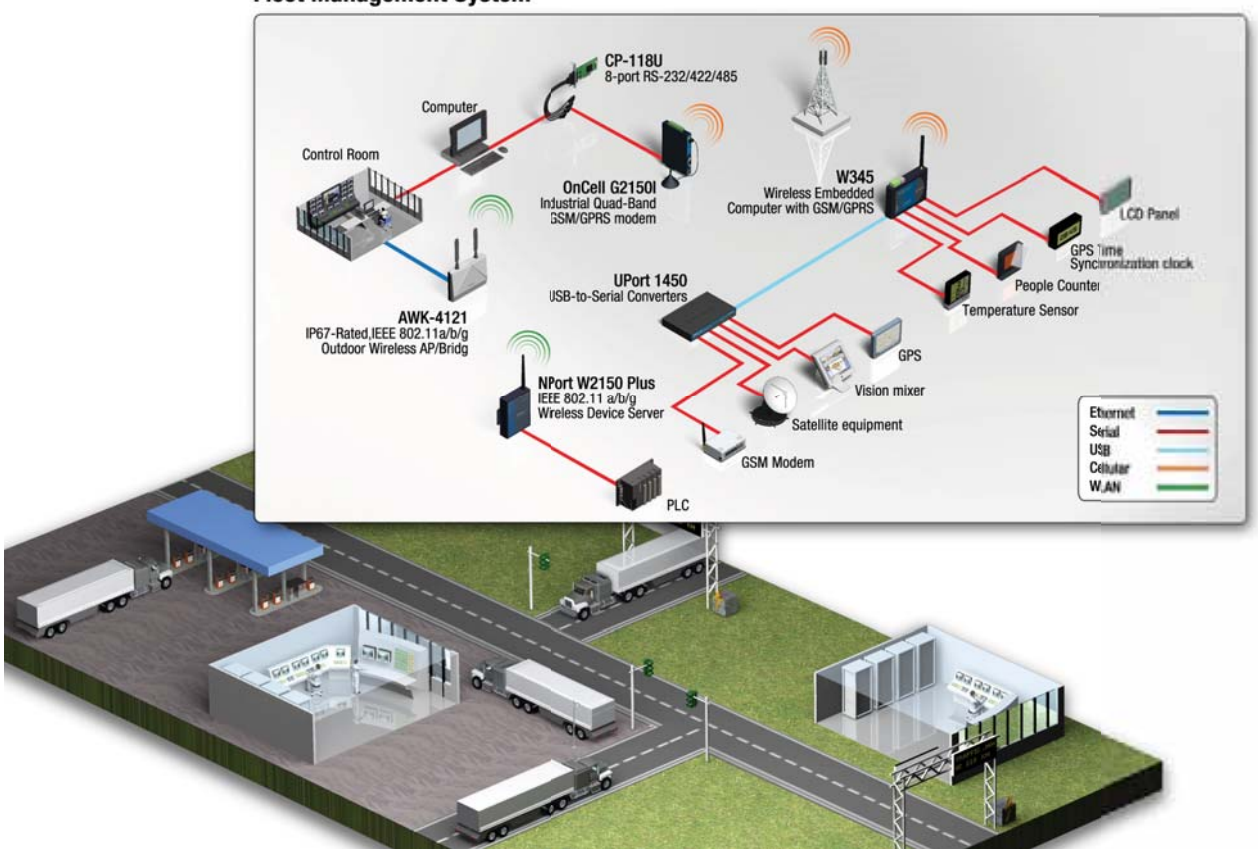
The **NPort® W2150 Plus** allows collected data on the EM-1240 to be transferred wirelessly to the central server when the vehicle is at the station.

The **CP-118U** connects a PC to a large number of devices for station management, including a ticket printer, scanner, vehicle sensor, and modem.

The **UPort™ 1450** connects a laptop and multiple devices for SNG data collection, allowing command centers to gather intelligence and other data with greater mobility.

The **AWK-4121-T** allows information from the vehicle's data collection devices to be downloaded wirelessly when the vehicle arrives in the station.

Fleet Management System



IP-based Train Control

Moxa's industrial Ethernet products, wireless solutions, serial-to-Ethernet device servers, and embedded computers are ideally suited for IP-based train control systems. High port density Ethernet switches and outdoor wireless access points can establish a robust network for rolling stock, along-track, and ground station applications.

Products

The **AWK-4121-T** industrial IEEE 802.11a/b/g outdoor wireless AP/Bridge/Client provides wireless communication capability at speeds up to 100 km/hr with Turbo Roaming under 500 ms.

The **IKS-6726** industrial rackmount Ethernet switch meets EN50155/EN50121-4 certifications, guaranteeing high adaptability and reliable Gigabit speeds for severe conditions including vibrations, shocks, and wide operating temperatures from -40 to 75°C.

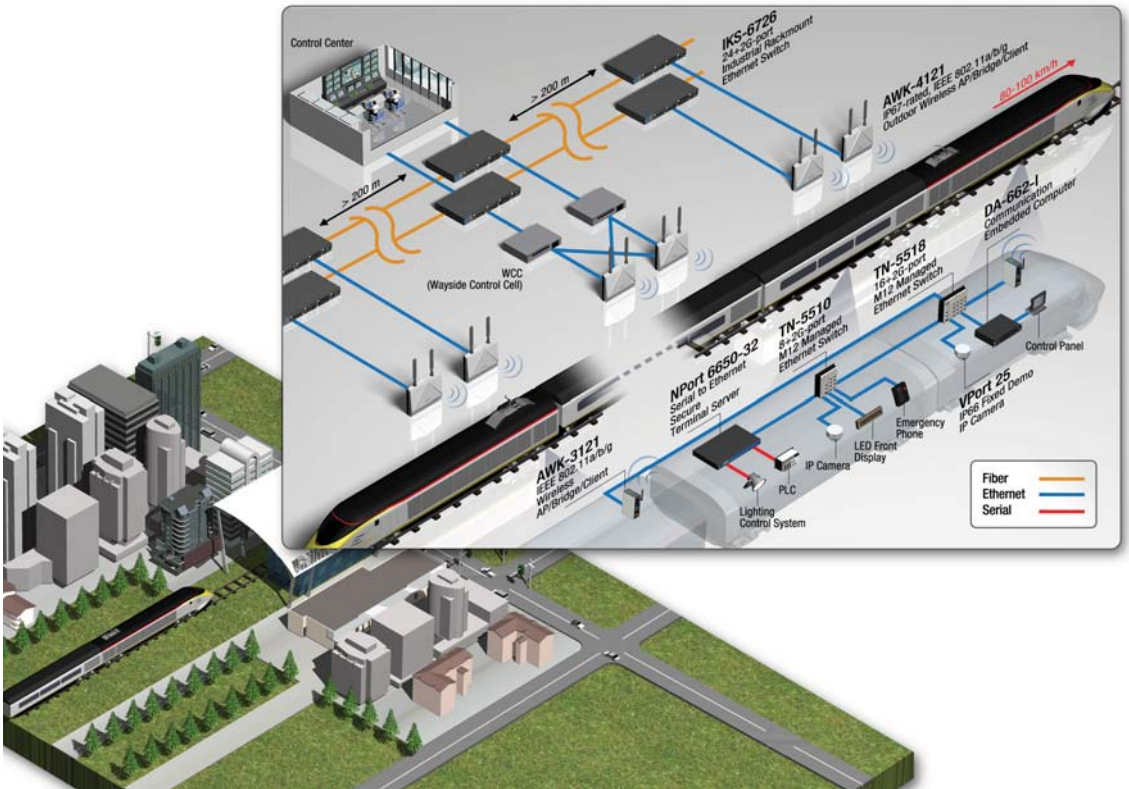
The **NPort® 6650-32** collects data from PLCs via RS-232 or RS-485 connections and then transmits the data to central servers.

The **TN-5500 series** M12 managed Ethernet switches with EN50155/50121-3-2/50121-4 certification are tough enough to withstand critical vibrations and shocks, ensuring robust communication between all Ethernet-enabled devices over a network.

The **DA-662-I** communication embedded computer can be used as an intelligent control platform to handle daily operation aboard trains and ensure reliable performance for rail transport systems.

The **AWK-3121** industrial IEEE 802.11a/b/g wireless Access Point/Bridge/Client can be installed in each car to provide seamless wireless connection to railway stations and control systems.

The **VPort 25** IP camera has a vandal-proof design, IP66 protection, -40 to 50°C operating temperature, and Power-over-Ethernet capability, which is ideal for constructing a secure surveillance system aboard trains.



Production Line Management

By incorporating monitoring devices into a centralized control network, manufacturers can achieve significant gains in productivity. Moxa offers products that directly or wirelessly connect CNCs, robots, AGVs, sensors, PLCs, RTUs, and other devices to management networks.

Products

The **EDS-728** offers up to 4 Gigabit ports, advanced network control, and scalability for a high-performance network backbone.

The **EDS-508A** Ethernet switch forms a redundant Ethernet network with a recovery time under 20 ms, connecting Ethernet devices for non-stop daily operation.

The **VPort 351** video encoders feature wide operating temperature from -40 to 75°C, fiber support, and fanless design for distributed IP surveillance systems.

The **ioLogik E2214** I/O device provides event-driven alarm messaging with real-time stamps, Click&Go configuration, and SNMP support for real-time monitoring and local control of meters and sensors.

The **AWK-3121** and **NPort® W2150 Plus** can connect primary workstations and factory equipment to a wireless network.

The **IA262-I** features DIOs to control conveyer belts, VGA connectors to display and collect scanned data, and is also capable of computing and sending data to the control center.

The **NPort® 6650-32** collects serial data from meters and sensors transmitting the data to central servers.

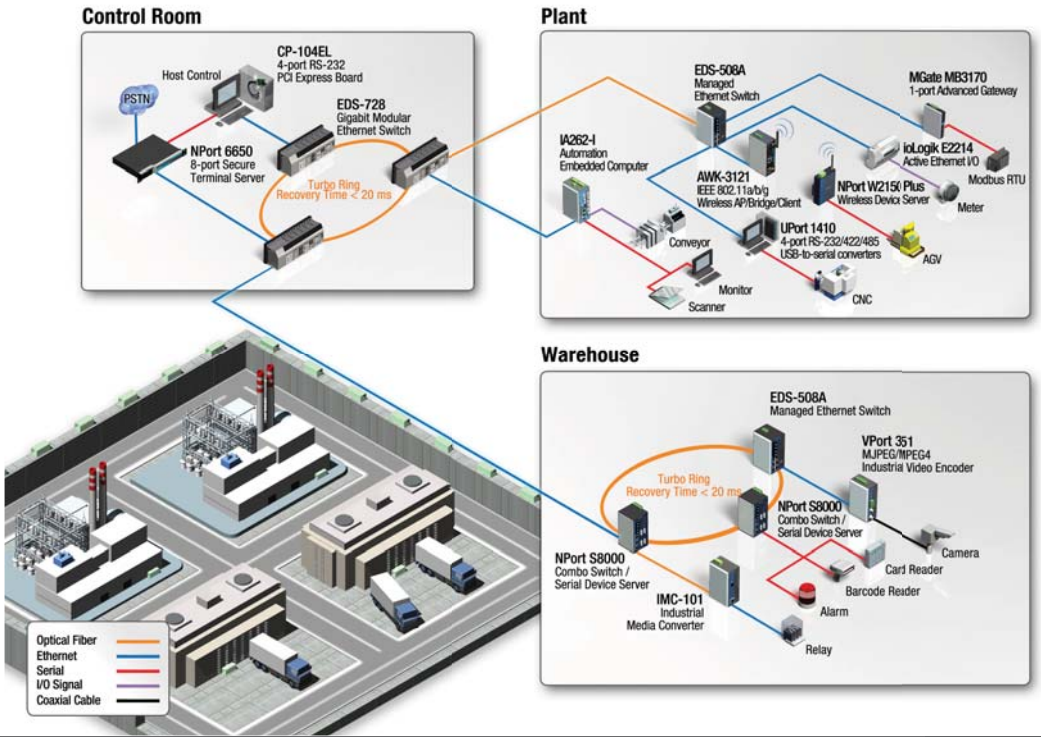
The **CP-104EL** connects an industrial PC directly to multiple PLCs, meters, RTUs, and other monitoring devices.

The **IMC-101** converts 10/100BaseT(X) to 100BaseFX fiber optic connections.

The **NPort® S8455I-MM-SC** integrates 2 fiber ports, 3 Ethernet ports, and 4 RS-232/422/485 serial ports, connecting both Ethernet and serial devices to an Ethernet network for redundancy.

The **MGate MB3170** is designed to integrate Modbus, TCP, ASCII, and RTU devices in almost any master/slave combination.

The **UPort 1410** converters can connect 4 RS-232/422/485 devices to your workstation by USB.



Oil Refinery Monitoring

Distributed Control Systems (DCS) are deployed in complex oil refining processes to connect the entire system of controllers for communication and monitoring. Moxa's industrial networking products, with Class I Division 2 and DNV/GL certifications, extended operating temperature, redundancy technology, and intelligent management features, can develop a hazard-free Ethernet network for non-stop system operation and monitoring in oil refineries.

Products

The **EDS-728** modular Gigabit managed Ethernet switch establishes dual redundant Ethernet networks for a DCS that offers media modules flexibility and supports Turbo Ring redundant technology with a recovery time less than 20 ms.

The **EDS-510A** Gigabit managed Ethernet switch is ideal for constructing a redundant fiber-optic Ethernet network with high bandwidth and reliability, thanks to its support for up to 3 Gigabit ports, -40 to 75°C operating temperature, and industrial ratings (Class I Division 2, DNV/GL).

The **VPort 254** industrial video encoder, with -40 to 75°C operating temperature, Class I Division 2 certification, and redundant power inputs, connects analog cameras over a Gigabit network for real-time video streaming and robust surveillance.

The **NPort® IA5000** series industrial serial-to-Ethernet device server connects PLCs, sensors, and other serial-based devices to an Ethernet network and ensures reliable communication due to its industrial rating and wide operating temperature design.

The **ioLogik E2214** Active Ethernet I/O product delivers event-driven reporting with time stamp for precise status updates and real-time alarm management.