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.

- Power Plant Automation .................................................. 1-2
- Automatic Meter Reading ................................................. 1-3

Transportation Automation

With advanced and cost-effective technology, there are many options 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.

- Fleet Management .......................................................... 1-4
- Electronic Toll Collection ............................................... 1-5

Factory Automation

The two essential systems of every manufacturing facility are the production line and the facility. Moxa offers the right device networking products to help automate the different processes of production line management and facility monitoring.

- Production Line and Facility Management .......................... 1-6
Power Plant Automation

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

### Products

- **The PT series** of Ethernet switches connects each wind turbine in a redundant fiber-optic network ring that automatically recovers from network failure within 20 ms.

- **The VPort 351** connects standard video surveillance cameras to the network, enabling monitoring of each turbine from any network location and from the Internet.

- **The ioLogik E2210** automatically reports sensor data over the network to central management servers so administrators know if there is a device failure or an physical intruder.

- **The UC-7408** provides a network connection to protection devices, relays, RTUs, and other devices that require protocol conversion or other data processing.

- **The CP-118** connects an IPC to multiple devices, including IEDs, protection devices, relays, PLCS, IEDs and meters.
Automatic Meter Reading

A lot of time and effort is consumed when engineers must make regular in-person visits to read and record every power meter in a region. An automated meter reading system can be established by using Moxa products to connect power meters to central management workstations.

**Products**

The **C320Turbo** provides the central server with direct access to a bank of modems to connect to meters and remote users over phone lines.

The **OnCell G2110** provides a data tunnel to power meters over cellular networks.

The **NPort 6650** collects data from a bank of power meters over RS-232 or RS-485, then transmits the encrypted data to central servers through a VPN.

The **W315** stores meter data, converts it from proprietary protocols to the standard protocols used by the automation system, and transmits the data to central servers over cellular networks.
Fleet Management

The management of 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.

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

The W315 collects data from the onboard GPS and transmits the vehicle’s location wirelessly over cellular networks to the central station.

The AWK-1200 allows information from the vehicle’s data collection devices to be downloaded wirelessly when the vehicle arrives in the station.

The W315 collects data from the onboard GPS and transmits the vehicle’s location wirelessly over cellular networks to the central station.

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

The EM-1240 processes data from the temperature recorder and stores it until the vehicle reaches a station.

The AWK-1200 allows information from the vehicle’s data collection devices to be downloaded wirelessly when the vehicle arrives in the station.

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Electronic Toll Collection

The process of toll collection can be automated for higher efficiency and intelligence by integrating many different elements into a single, coordinated network. A complete array of products are available from Moxa to automate data exchange between the different components of an electronic toll collection system.

**Products**

- **ioLogik 4000** connects traffic signals to the network and allows them to be monitored and controlled from the automation system.
- **EDS-518A** forms the network backbone that connects Ethernet devices to each other and to the traffic control center.
- **ioLogik E2210** automatically reports vehicle sensor events to any network host, reducing the need for expensive sensor wiring and software development.
- **VPort 351** connects a video camera to the network, allowing real-time monitoring of each gate from the central office.
- **OnCell G2110** provides a cellular connection to a VMS (variable message system) board so instant traffic reports can be provided by cell phone or from the control center.
- **UC-7420** stores vehicle sensor data locally and seamlessly converts proprietary protocols into the standard traffic communication protocol used by the traffic control center.
- **NPort IA5150** connects the vehicle RFID or IRID reader to the network, enabling automatic toll transactions for specially equipped vehicles.

![Diagram of Electronic Toll Collection System](image-url)
Production Line and Facility Management

By incorporating machinery and facility 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-726** establishes a robust Ethernet or fiber optic communication infrastructure between devices and management systems using the Turbo Ring redundant topology.

- **The CP-118** connects an industrial PC directly to multiple PLCs, meters, RTUs, and other devices that are used to monitor the facility.

- **The ioLogik E2210** proactively reports sensor data to the facility monitoring system and triggers local warning lights and buzzers.

- **The NPort W2150** provides a CNC or other manufacturing machine with the ability to connect wirelessly to an access point.

- **The AWK-1100** connects local wireless devices such as the NPort W2150 to the main network.