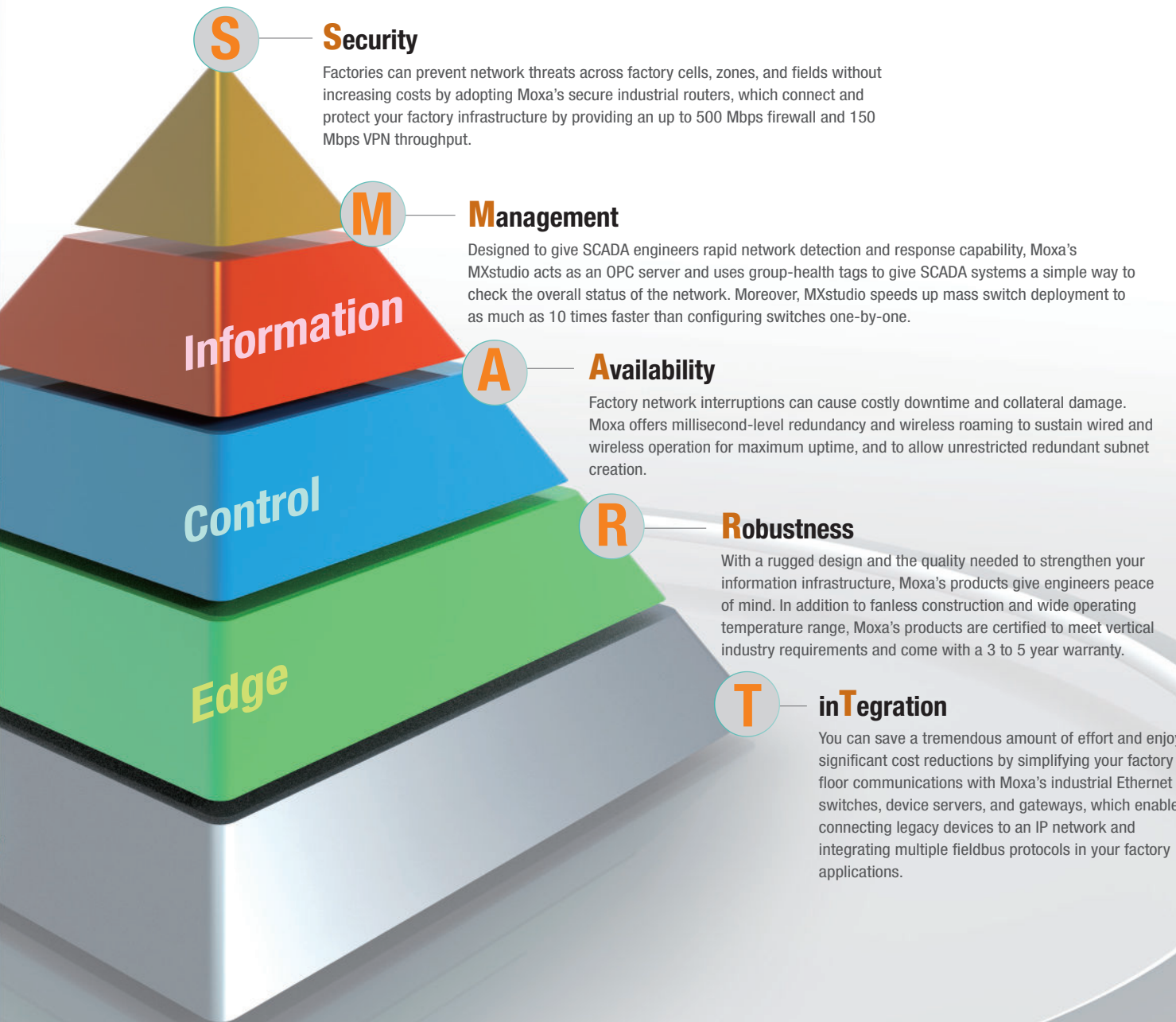


Prepare for Tomorrow's Industrial IoT Factory Automation Today

SMART Factory Communication

In light of the fast paced development of the industrial IoT, factories are lining up to implement manufacturing automation systems with fully-interconnected networks, but in the process are sometimes experiencing disjointed communication when trying to connect complex tasks and processes. As mentioned earlier, customers also have to face the challenges posed by potential cyberattacks, environmental fluctuation, complex networking, and event management between disparate data protocols, networks, and device subsystems, not to mention the "always-on-uptime" required for mission-critical applications.

Moxa's comprehensive product portfolio and vertical expertise enable smart network architectures that allow factories to use both existing and new equipment to increase production and uptime, and improve operational efficiency. Moxa's smart networks deliver open, self-healing, highly secure Ethernet connectivity from field device networks to SCADA systems and backbone networks to optimize plant-wide communication and operational efficiency.



Comprehensive Coverage of Industrial Ethernet Solutions

MXstudio, an Automation-Friendly Network Management Suite

- 90% time savings for mass configuration (with 100 switches)
- Smart topology visualization
- Event playback and quick troubleshooting
- Easy SCADA integration with lower TCO

Industrial Secure Routers

- Multi-layer defense-in-depth
- VPN for secure remote access
- Firewalls for critical asset protection
- Built-in Modbus TCP packet inspection

Industrial Ethernet Switches and Extenders

- 500+ 10GbE/GbE/Ethernet/PoE portfolio
- Network recovery < 20 ms with 250 switches
- Industrial-grade reliability
- Lower total cost of ownership

Industrial Ethernet Gateways

- Multi-protocol capability
- Easy installation and troubleshooting
- Industry proven reliability

Serial-to-Ethernet Connectivity

- Multiple surge protections
- 2 kV isolation for serial signals
- Cost-effective cascading links

Industrial Wireless/Cellular

- 3.5G HSPA and 802.11n compliance
- Millisecond-level handovers
- Concurrent dual-radio for zero packet loss

Reliable and Smart I/O

- Active SCADA communications
- Click&Go control logic
- Industry proven reliability

Your Trusted Partner in Automation

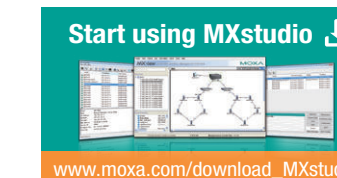
Moxa is a leading manufacturer of industrial networking, computing, and automation solutions. With over 25 years of industry experience, Moxa has connected more than 30 million devices worldwide and has a distribution and service network that reaches customers in more than 70 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for automation systems.

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Build 360° Network Reliability for Smart Factory Automation

Reduce downtime and enable full-time SMART network communication to improve your factory productivity and efficiency.



Before Smart Connectivity

360° Network Reliability



As we step into the Industrial IoT (Internet of Things) era, network reliability remains the first objective for factory control and automation systems. Given that a factory network infrastructure includes many networking devices, network reliability depends on device durability, connection redundancy, and cyber defense capability. Moxa provides 360° edge-to-core full-scale network reliability to sustain factory communication for maximum uptime and optimal connectivity in harsh environments.

Device Durability

For complex factory systems, device durability is a critical factor of doing more with less; when a plant operates continuously without interruption, field engineers spend less time and effort on downtime corrections. Moxa provides a full spectrum of industrial network solutions that share a common set of robust features designed to eliminate device failure due to harsh environmental factors.

- Fanless operation in wide temperature environments to enhance MTBF
- High level EMI/EMC shielding, and shock and vibration resistance to increase operability
- Redundant power supply with isolation protection

Network Redundancy

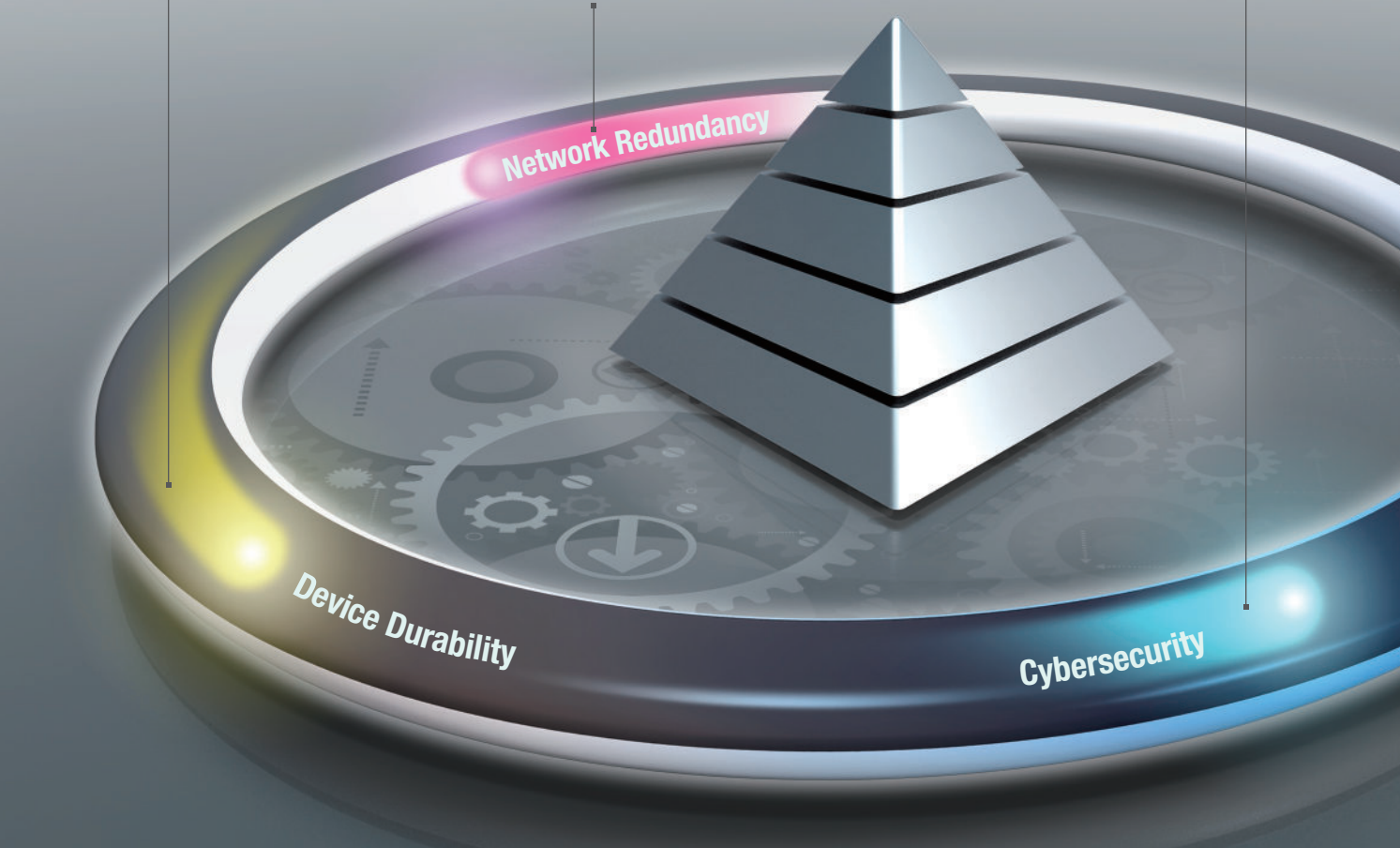
Moxa addresses single point redundancy and multi-point redundancy with network self-healing and bypass relay technologies, respectively. All Moxa managed switches support Turbo Ring and Turbo Chain to enable millisecond-level redundancy when a network link fails. Multi-point redundancy can be achieved by attaching Moxa's compact OBU-02 fiber optic bypass units to Ethernet switches to ensure that network traffic bypasses inactive switches and is forwarded to the next active switch.

- Flexible ring topology with fast fault recovery time (under 20 ms with 250 switches)
- Automatic bypass switching for multi-point failover to ensure non-stop data transmission

Cybersecurity

With cyber risk growing daily as the world gets more connected, factory administrators need to find the best way of detecting cyber-threats to mitigate potential risks and reduce the impact on factory operations and facilities. Moxa offers all-in-one firewall/VPN/NAT/switch solutions that provide multilayer defense-in-depth protection for your entire network infrastructure with no extra cost for data transmission.

- All-in-one firewall/NAT/VPN/switch/router
- Built-in Modbus TCP deep packet inspection
- No re-subnetting for industrial control network (Transparent mode)



SMART Networks for Smart Factories, Today and Tomorrow

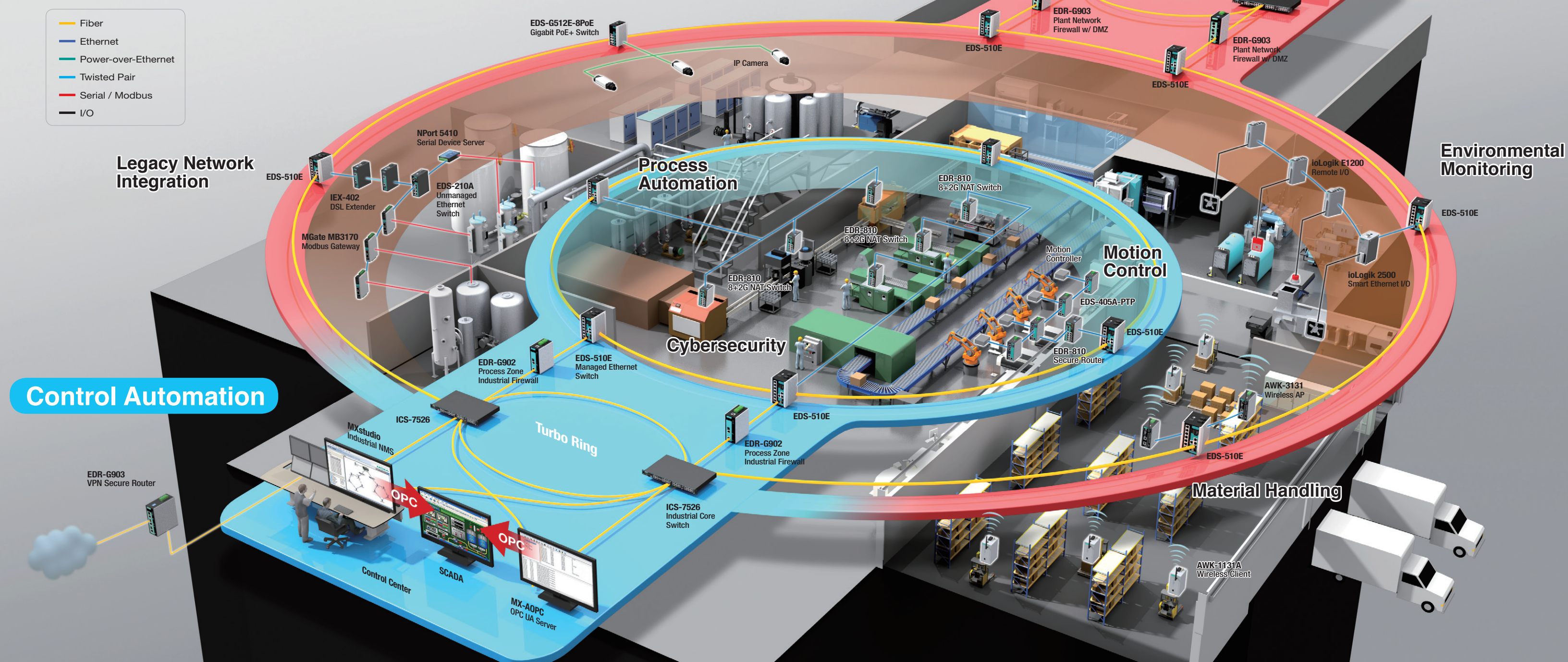
The industrial IoT brings both challenges and opportunities. Now's the time to implement smart information sharing throughout your plant for better productivity and energy efficiency.



WHY MOXA

Sincere Service <ul style="list-style-type: none"> One-stop-shop industrial Ethernet portfolio 25+ years providing expert service 70+ countries for global support and service 3 to 5 year product warranty 	Performance <ul style="list-style-type: none"> Full selection of 10GbE/GbE/Ethernet/PoE connectivity 3.5 G HSPA and 802.11n wireless connection Up to 36 W PoE+ output 	Automation-friendly Management <ul style="list-style-type: none"> Visually represented, intuitive operation OPC server for cost effective SCADA integration Supports third-party SNMP devices and NMS platforms 	Cybersecurity <ul style="list-style-type: none"> Multi-layer defense-in-depth Modbus TCP deep packet inspection Cost-saving with multiport connectivity 	Fast Installation <ul style="list-style-type: none"> Save 90% in switch configuration time (10 times faster with 100 switches) with MXconfig Flexible, redundant topology with Turbo Ring and Turbo Chain technologies DSL, PoE, and wireless connections for cost saving wiring 	Operational Reliability <ul style="list-style-type: none"> Self-healing redundancy for non-stop availability (< 20 ms with 250 switches) 10-second fast-booting for high system availability Level 4 EMC/EMI immunity, and fanless -40 to 75°C operation 	Interoperability <ul style="list-style-type: none"> Multi-fieldbus capability for easy PLC and SCADA integration Seamless integration with legacy networks and systems
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FACILITY MANAGEMENT



Control Automation

Moxa's smart network solutions can exact greater productivity out of process control and automation systems through real-time, secure, and diverse field network communication. Aimed to enhance field-level QoS and reliability, Moxa adds level 4 EMS protection, IEEE 1588v2 PTP capability, and firewall/VPN/NAT functions to layer 2 managed switches. Factory managers can accelerate production incorporation, and reduce risk and error through proficient network communication.

- Enables secure router function for field switching
- IEEE 1588 time synchronized switching
- Industrial-proven reliability
- Multi-protocol capability for easy SCADA/PLC collaboration

Critical Process Protection >> U.S.A. Inter-Process Connection and Protection

A world-leading consumer goods manufacturer used the EDR-810 to perform layer 2 switching and NAT filtering for security conscious process control and monitoring.

Solution & Benefits

- 8 + 2G ports for Ethernet and firewall connections
- Deep Modbus TCP packet inspection for data filtering
- Cost-saving with multiport connectivity

EtherNet/IP Network Integration >> Australia EIP Integration for Minefield Communication

A mining company installed EDS-408A EtherNet/IP enabled switches on their EtherNet/IP networks, giving both SCADA and PLC operators the ability to monitor the switches directly for real-time efficiency.

Solution & Benefits

- The EDS-408A offers plug-and-play EtherNet/IP connectivity for easy integration
- Millisecond-level redundancy and fiber capability for long-distance connection
- Enable centralized SCADA management

Automation Process Control >> Germany PROFINET Network Integration

A leading beverage plant installed EDS-408A PROFINET-enabled switches on their automatic bottle filling process line. This compact switch was selected due to its verifiable reliability and high MTBF.

Solution & Benefits

- Connect Ethernet and PROFINET for easy integration
- Robust features and high MTBF
- Optimize PLC network and management

Facility Management

To empower energy-efficient productivity for smart factories, Moxa provides comprehensive industrial Ethernet solutions to implement facility control and monitoring for environmental safety and operational efficiency in complex plant conditions. Moxa's industrial network management suite gives SCADA engineers instant network detection at a glance, and Moxa's industrial Ethernet solutions provide an open and flexible infrastructure that enables various industrial Ethernet protocols and legacy serial connectivity to simplify network integration and collaboration for enhanced efficiency and productivity.

- Quick network detection for SCADA integration
- Millisecond-level network reconnection
- Industrial-proven reliability
- Diverse protocols, interfaces, and media support

Energy Management System >> China Simplified Energy Management System

A state-owned factory built a Gigabit fiber aggregated infrastructure for an EMS (energy management system) to reduce cost and help protect the environment.

Solution & Benefits

- Edge-to-core network architecture allows for future scalability
- Millisecond-level redundancy for high data availability
- Rugged designs for durability in harsh environments

Legacy Network Extension >> Taiwan Emission Treatment and Monitoring

A leading manufacturer deployed emission treatment and monitoring systems across 15 plant sites using Moxa's fiber and DSL Ethernet extenders to enable long distance communication.

Solution & Benefits

- The IEX-402 supports up to 500-meter point-to-point data transmission over existing telephone wires
- The IEX-402 offers plug-and-play installation and panel indicators for easy operation
- Long distance and high throughput with minimum wiring cost

Environmental Monitoring >> Taiwan Safety Monitoring for Air Purification Systems

A semiconductor plant invested in thousands of dry pumps for an exhaust system to protect workers from toxic gases. They used the EDS-510E switch and MXstudio to simplify pump system control and monitoring.

Solution & Benefits

- MXstudio enables SCADA systems to monitor network status
- The EDS-510E has 3 GbE ports for creating a GbE redundant ring and GbE uplink
- Turbo Ring and Turbo Chain allow Gigabit redundancy < 50 ms

Warehouse Management >> Germany Automated Guided Vehicle System

A factory in Europe chose Moxa's AWK-3121 to control and monitor numerous AGVs to support their fast growing warehouse management system.

Solution & Benefits

- The AWK-3121 saves wiring cost, and supports wireless AP, bridge, and client modes for easy deployment and mobility
- Enables wireless VLAN and secure polling
- Supports Turbo Roaming for millisecond-level handover