Build SMART Connectivity to Boost Your Industrial IoT Opportunities

Network Management Suite

Multiport Secure Routers

Full Gigabit Switches

Industrial Wireless

Industrial Gateways

www.moxa.com

Enable SMART Connectivity for Industrial IoT Opportunities

The Industrial Internet of Things is evolving to achieve all kinds of information automation. Staying ahead of the curve leads to increased productivity, which crucially depends on high efficiency and availability of network connectivity. Moxa's comprehensive product portfolio goes beyond meeting stringent industrial Ethernet standards, bringing vertical expertise to around-the-clock Industrial IoT operations around the world. Moxa's industrial Ethernet solutions enable truly converged communication across edge-to-core networks to deliver you SMART connectivity for reduced complexity and downtime, as well as enhanced system collaborations for better productivity.

SMART Network Architecture

Moxa SMART network architecture is built on a solid foundation of security (S), manageability (M), availability (A), robustness (R), and integration (T).

S Security

It's easy to protect your Industrial IoT networks with Moxa's 4-in-1 industrial secure router, which combines Firewall, NAT, VPN, and switch functions all in one device to establish multilayer defense and multiport connections without additional costs.

M Manageability

Designed for automation engineers, MXstudio is a suite of industrial network management software that provides live topology and intuitive operations to save time and costs in network deployment, monitoring, diagnostics, and troubleshooting.

A Availability

Industrial IoT service interruptions could cause costly downtime and damage. Moxa offers millisecond-level redundancy and wireless roaming technologies to optimize your layer 2 and layer 3 network designs, including multicast video network resilience.

R Robustness

With a rugged design and the quality needed to strengthen your information infrastructure, Moxa's products give engineers peace of mind. In addition to fanless construction and a wide operating temperature range, Moxa's products are certified to meet vertical industry requirements and come with a 3 to 5 year warranty.

T Interoperability

All Moxa Ethernet switches and gateways support industrial PROFINET, EtherNet/IP, and Modbus protocols to enable communications across different industrial protocols for more sophisticated real-time applications and lower cost of operation.

Application

Connectivity

Device

2015 Highlights

MXview ToGo *page 3*
No need to be tied up in the field when monitoring critical industrial networks. Moxa's new mobile MXview ToGo enables convenient remote monitoring—anytime, anywhere.

V-ON Technology *page 7*
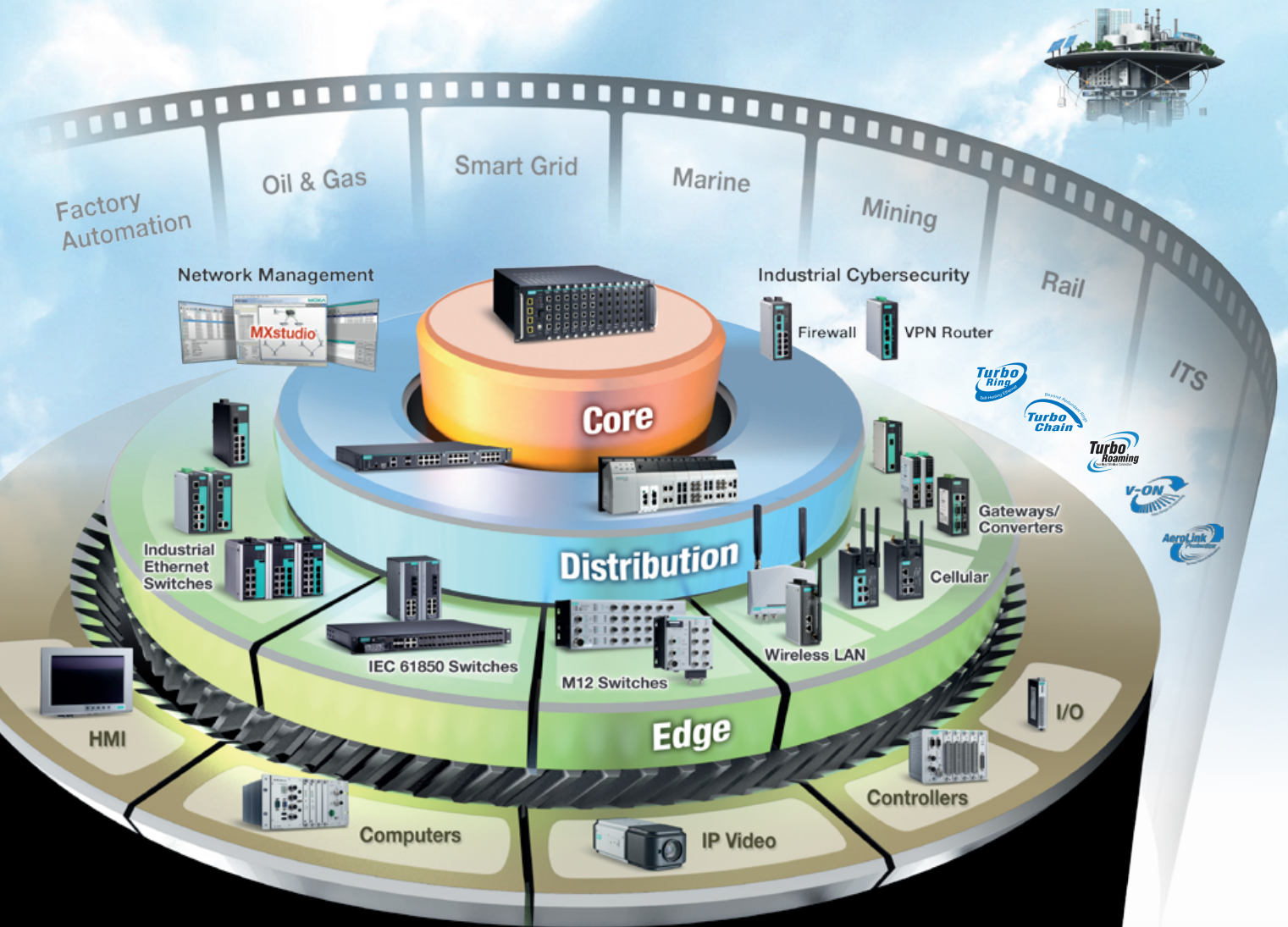V-ON enables millisecond-level video network recovery to ensure non-stop security monitoring.

Video over Wireless *page 16*
Experience zero-latency video streaming over 4G LTE cellular and 802.11n Gigabit Wi-Fi networks.

SERVICE THAT ENSURES SUCCESS

With 25 years of industry experience, Moxa has the know-how to design and deploy industrial networks that best fit your unique requirements. Call on Moxa's consulting services to simplify and optimize your industrial network infrastructure according to the specific industry standards, protocols, and technologies you need.

Factory Automation

Oil & Gas

Smart Grid

Marine

Mining

Rail

ITS

Network Management

MXstudio

Industrial Cybersecurity

Firewall

VPN Router

Turbo Ring

Turbo Chain

Turbo Roaming

V-ON

AeroLink

Core

Industrial Ethernet Switches

Distribution

Gateways/ Converters

Cellular

IEC 61850 Switches

M12 Switches

Wireless LAN

I/O

HMI

Edge

Controllers

Computers

IP Video

A Reliability-Focused Solution Portfolio

Automation-Friendly Network Management Suite
- 10x faster configuration (with 100 switches)
- Live topology and VLAN visualization
- Event playback and quick troubleshooting
- Easy SCADA collaboration with lower TCO

page 3

NAT/VPN/Firewall Secure Routers
- Defense-in-depth up to 500 Mbps throughput
- VPN for secure remote access
- Firewalls for critical asset protection
- Built-in Modbus TCP packet inspection

page 5

Industrial Ethernet Switches
- 500+ 10GbE/GbE/Ethernet/PoE portfolio
- Layer 2 video switching recovery < 50 ms
- Layer 3 video routing recovery < 300 ms
- Reputed reliability for lower total cost of ownership

page 7

Industrial Wireless Connectivity
- 4G LTE and 802.11n Gigabit Wi-Fi connectivity
- Millisecond-level roaming with security
- Dual Isolation for operational reliability
- GuaranLink and AeroLink Protection for reliable connectivity

page 13

Industrial Ethernet Gateways
- Multi-protocol conformity and interoperability
- Innovative technology for easy configuration
- Built-in monitoring and diagnostics
- Diverse industry certifications

page 17

Field Networking and Automation Solutions
- 4-in-1 cellular data acquisition
- Industrial-grade serial-to-Ethernet device servers
- Ethernet-to-fiber and DSL converters
- HD IP cameras for extreme weather applications

page 19

Empower Industrial IoT Visibility and Mobility

- Mass Configuration to Save Time and Reduce Errors
- Smart Topology Monitoring and Alerts
- Event Playback and Snapshot for Diagnostics
- Mobile App for Network Monitoring

MXstudio: Answers for Industrial IoT Management Challenges

Industrial IoT applications require instant visibility to manage complex network operations. Thanks to MXstudio, a suite of automation-friendly industrial network management software, industrial users can now leverage proactive intelligence to overcome complex management challenges throughout the entire network life cycle, which includes installation, operation, maintenance, and diagnostics. MXstudio includes MXview, MXconfig, and N-Snap software to save time and effort in keeping critical industrial networks up and running for maximum uptime. Moreover, the latest MXview ToGo mobile app allows mobile phone access to network status to relieve manpower from the control center.

Unlimited-Time Free Trial ▶ ▶

Trial Version
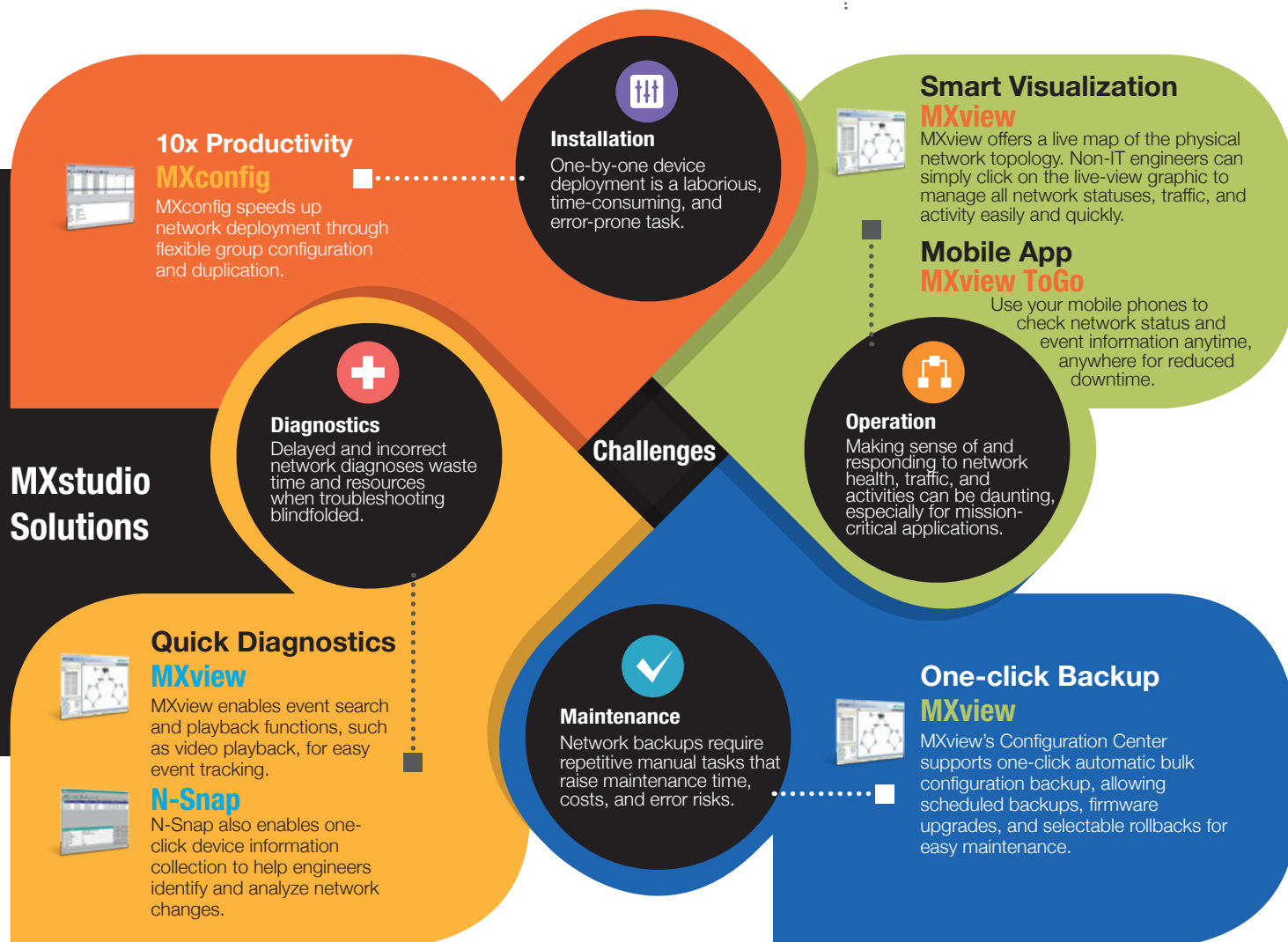Download our fully functional 20-node free trial version; no time limit
www.moxa.com/MXview_download

Video Demo
Watch our video walkthroughs of the latest MXview features
www.moxa.com/MXview_video

MXstudio Solutions

10x Productivity
MXconfig
MXconfig speeds up network deployment through flexible group configuration and duplication.

Installation
One-by-one device deployment is a laborious, time-consuming, and error-prone task.

Smart Visualization
MXview
MXview offers a live map of the physical network topology. Non-IT engineers can simply click on the live-view graphic to manage all network statuses, traffic, and activity easily and quickly.

Mobile App
MXview ToGo
Use your mobile phones to check network status and event information anytime, anywhere for reduced downtime.

Diagnostics
Delayed and incorrect network diagnoses waste time and resources when troubleshooting blindfolded.

Challenges

Operation
Making sense of and responding to network health, traffic, and activities can be daunting, especially for mission-critical applications.

Quick Diagnostics
MXview
MXview enables event search and playback functions, such as video playback, for easy event tracking.

N-Snap
N-Snap also enables one-click device information collection to help engineers identify and analyze network changes.

Maintenance
Network backups require repetitive manual tasks that raise maintenance time, costs, and error risks.

One-click Backup
MXview
MXview's Configuration Center supports one-click automatic bulk configuration backup, allowing scheduled backups, firmware upgrades, and selectable rollbacks for easy maintenance.

MXconfig — Industrial Network Configuration Tool

- 90% time savings for mass configuration (with 100 switches)
- Link sequence detection eliminates manual configuration errors
- Configuration overview for efficient management

MXview — Industrial Network Management Software

- Automatic topology discovery and visualization with VLAN/IGMP grouping
- Event playback for reviewable diagnostics
- Third-party devices supported with MIB compiler and MIB browser
- OPC tags for real-time SCADA/HMI integration

N-Snap — Industrial Network Snapshot Tool

- A standalone utility used to take network snapshots for quick troubleshooting
- Automatically compare network and device data, and highlight the differences

MXview ToGo — Mobile Monitoring Tool

Anytime, Anywhere

Industrial Network Management Software in Your Pocket

- Real-time notification for reduced downtime
- Quick network and device status checking
- One-click easy device search and mapping

Third Party Support and Collaboration

Easy SCADA Integration with Lower TCO

MXview can act as an OPC server to feed SCADA OPC tags with real-time network status, saving investment on thousands of OPC tags for SCADA communication.

As an example of this in practice, one leading semiconductor manufacturer has taken full advantage of this feature to earn significant cost benefits and operational efficiency.

Collaboration with Third Party NMSs

MXview can operate with large network systems by setting trap receivers and sending SNMP traps to up to two other network management software platforms, which may focus on end-to-end service availability rather than physical network connectivity.

Support List for Moxa's Networking Devices

	Managed Ethernet Switches	Wireless AP/Clients	Secure Routers	PROFIBUS-to-PROFINET Gateway	Serial-to-Ethernet Device	Ethernet Extender	Remote I/Os	Third-party SNMP Devices
MXview	✓	✓	✓	✓	✓	✓	✓	✓
MXconfig	✓	✓	✓	✓	✓	✓	–	–
N-Snap	✓	–	–	–	–	✓	–	–
MXview ToGo	✓	✓	✓	✓	✓	✓	✓	✓

Enforce Multilayer Protection for Mission-Critical Productivity

- Integrated Secure Router with L2 Switch for Reduced Cost and Complexity
- Best-in-Class VPN and Firewall Throughput
- Built-in Modbus TCP Packet Inspector

Multi-Layered Defense-in-Depth Cybersecurity

Unsecure Industrial IoT operations, especially those running on 24/7 networks, can be a playground for hackers. To protect your assets and ensure nonstop productivity, Moxa provides a series of Gigabit secure routers that facilitate multilayer defense-in-depth cybersecurity to prevent network threats across factory cells, zones, and fields through public networks for your entire infrastructure.
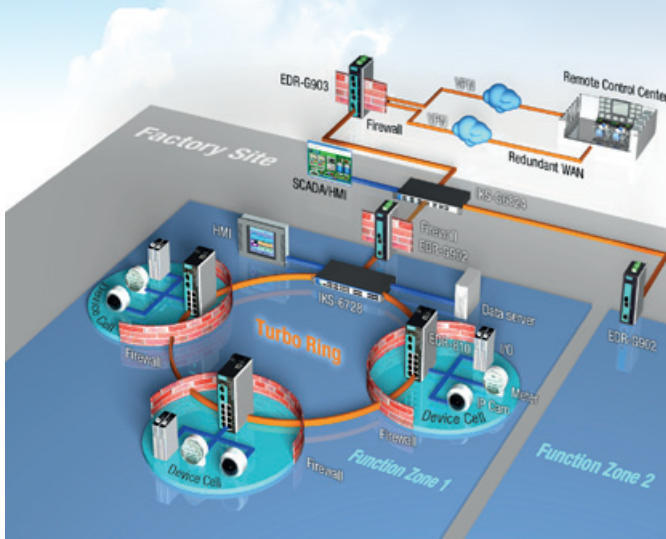
Network segments	Best-fit solutions
Factory Site Protect the entire local site and secure remote data transmissions from the control centers	**EDR-G903** • Firewall/VPN/NAT 3-in-1 3G-port secure router • 2 redundant WANs, 1 LAN, up to 500 Mbps throughput • DMZ for flexible data exchange
Function Zone Protect data transmissions from multiple device cells and critical devices	**EDR-G902** • Firewall/VPN/NAT 3-in-1 2G-port secure router • 1 WAN, 1 LAN, up to 300 Mbps throughput
Device Cell Protect the data collected from multiple field devices, such as I/Os, meters, or IP cameras	**EDR-810** • Firewall/VPN/NAT/switch 4-in-1 secure router • Configurable WAN/LAN interfaces for router firewall and transparent firewall

Critical Device Protection

The EDR series seamlessly upgrades existing networks with transparent firewall protection for critical network devices, such as PLCs, RTUs, and DCSs, without requiring any change in subnet configuration.

Secure Remote Access

Using IPSec, L2TP over IPSec, or OpenVPN technologies, the EDR series can set up encrypted IPSec VPN or OpenVPN tunnels for secure remote access between industrial networks and remote applications, such as water treatment, oil and gas, power, or ITS networks.
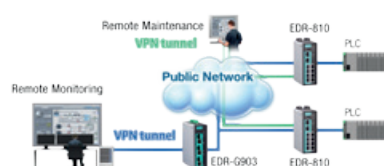
Modbus Packet Inspection

All EDR routers come with PacketGuard™ to perform deep Modbus TCP protocol inspection and execute action controls between Modbus Master Commands and Modbus Slave Response.

Secure Traffic Signal Controls over Public Network

A municipal traffic signal control system adopted the EDR-810-VPN to facilitate secure network connection tunnels between 115 intersections and the traffic control center through the Internet.

Solution & Benefits
- 2GbE + 8FE port Ethernet transmission
- 17 Mbps IPSec VPN bandwidth for secure remote communication
- Dual power inputs for redundancy
- NEMA TS2 compliance
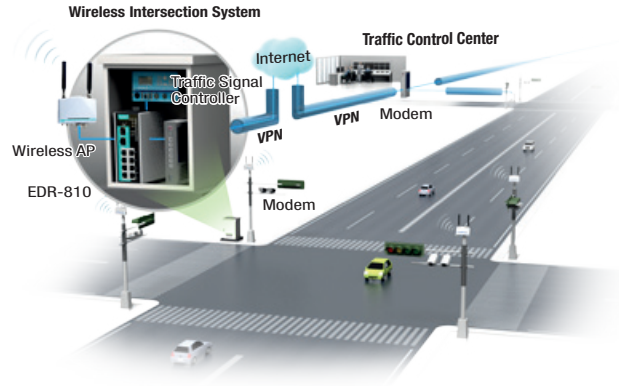
Secure Video Streams over the Internet

An operations control center (OCC) in a Southeast Asia city provides 24/7 video surveillance monitoring to keep the public safe and sound. The surveillance system uses Moxa's EDR-810 to add both NAT and VPN protection for all video streams back to the control center through public networks.

Solution & Benefits
- The EDR-810 acts as a VPN and NAT router to protect communications sent over the Internet between standalone cameras and the OCC
- The customer leverages the existing Internet infrastructure to deploy secure surveillance networks with minimum cost and effort
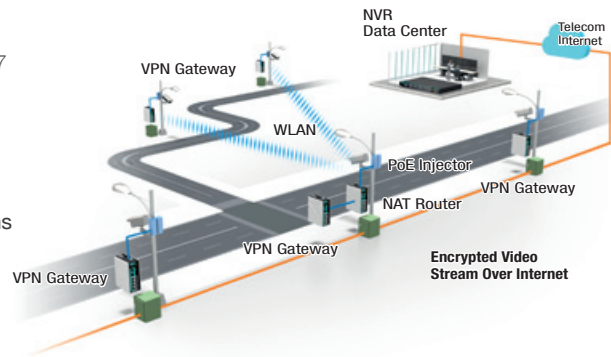
Cybersecurity in Factory Automation

A world-leading shaver manufacturer used the EDR-810 to protect and connect its production networks.

Solution & Benefits
- The integrated firewall with layer 2 switch provides cost-effective data protection and communication
- High throughput and low latency enables real-time data communication for the production lines
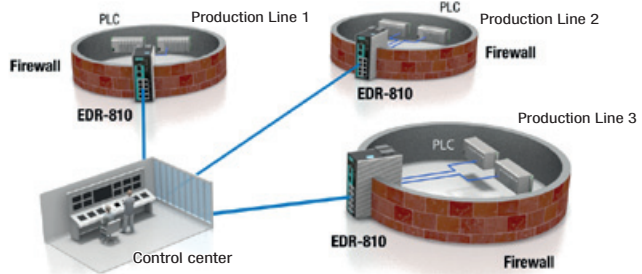
Remote Wind Farm Monitoring

The customer used the EDR-810 to deploy reliable field VPN gateways that protect communication between the wind farm's SCADA and Cloud SCADA systems.

Solution & Benefits
- The IPSec VPN gateway brings field information to the Cloud with ease
- -40 to 75°C operation for low-cost maintenance
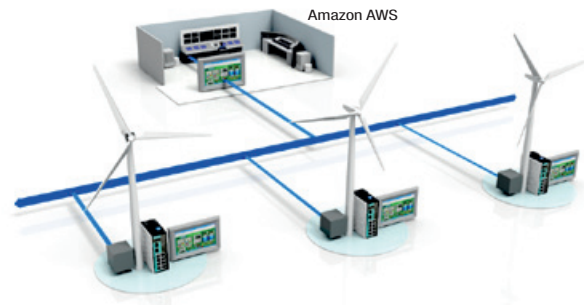
Secure Routers

	EDR-G903	EDR-G902	EDR-810
Target requirement	Dual WAN redundancy	Security between WAN and LAN communication	Multiple ports for direct device connections
Interface	2 WANs (Combo); 1 LAN (Combo)	1 WAN (Combo); 1 LAN (RJ45)	Configurable WAN/LAN for up to 16 interfaces
Firewall throughput	40,000 fps	25,000 fps	10,000 fps
Firewall/NAT	512/256 policies	256/128 policies	256/128 policies
VPN	100 IPSec tunnels	50 IPSec tunnels	10 IPSec tunnels
VPN throughput	150 Mbps	60 Mbps	17 Mbps
WAN backup	Dual WANs	–	–
DMZ	1	–	–
Layer 2 Switch Function	–	–	VLAN, IGMP, RSTP, Turbo Ring V2

Add Video Always-On Networking to Layer 2/Layer 3 Connectivity

- L2/L3 1/10-GbE Portfolio
- Millisecond-Fast L2/L3 Redundancy
- Built-In Industrial Reliability
- Lower Total Cost of Ownership

See the Full Picture of Your Mission-Critical Operations

IP surveillance allows industrial automation to take advantage of valuable intelligence. After all, a picture is worth a thousand words. Moxa introduces V-ON (Video-Always-ON Networking) technology to achieve non-stop video surveillance. Armed with the latest V-ON technology, Moxa's 10GbE/GbE-level industrial rackmount switches ensure the highest network availability for critical industrial applications to deliver data, voice, and video over a single converged network.

For more solution info.

Video Always-On Connectivity

Moxa introduces V-ON technology to prevent video loss from Layer 2 and Layer 3 networks. V-ON integrates Turbo Ring and Turbo Chain protocols and optimized multicast transmission to enable video always-on networking.

- L2 unicast and multicast video recovery < 50 ms
- L3 unicast and multicast video recovery < 300 ms
- Millisecond-level router redundancy
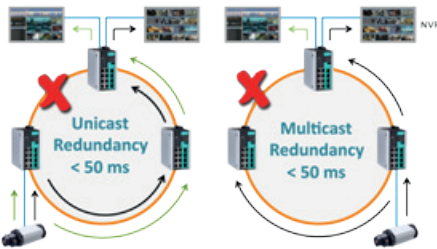
Future-Proof Performance

Moxa's rackmount switches include high-density fixed and modular 10GbE and full-Gigabit platforms with copper, fiber, or SFP/SFP+ port combinations to fulfill highly dynamic backbone requirements.

- Up to 4 10GbE and 48 GbE uplinks
- Flexible density with 4-port slot and single-port 10GbE/GbE modularity
- Tiny 10GbE/GbE SFP transceiver modules allow transmission up to 120 km

Industrial-Grade Reliability

Moxa's industrial rackmount switches provide built-in reliability that delivers superior EMI shielding and extreme temperature resilience without relying on a fan or heater.

- Up to -40 to 75°C operating temperature
- High level EMI/EMC shielding
- High MTBF without a fan or heater
- Hot swappable operation (ICS-G7852A /50A/48A, ICS-G7752A/50A/48A only)
- Redundant power supply with isolated protection

V-ON Technology

V-ON stands for Video-Always-On. V-ON technology combines Moxa's Turbo Ring and Turbo Chain redundant ring topologies, and optimized video transmission to overcome IGMP (Internet Group Management Protocol) and VRRP (Virtual Routing Redundancy Protocol) limitations.

Watch the lab test and see how the technology achieves millisecond-level network recovery upon media and node failure.

Video
A test and comparison video

White Paper
Ensure non-stop IP surveillance with an optimized industrial Ethernet network

Layer 3 Switches

	10GbE		Full GbE	
	ICS-G7852A/G7850A	ICS-G7828A/G7826A	ICS-G7848A	IKS-G6824A
10GbE	4/2	4/2	–	–
GbE	48/48	24/24	48	24
PoE+	Up to 48 PoE+	–	Up to 48 PoE+	–

7

For Maximum Uptime and Lower TCO

Ensure Control Room Reliability

Does your control room provide enough protection to prevent network interruptions caused by electrical noise, power surges, EMI, or link failures?

Now you can choose Moxa's industrial-grade switches that are designed with industrial-grade reliability and availability to protect your core networks against potentially adverse conditions.

	Moxa Industrial Rackmount Switches	Commercial Rackmount Switches
ESD	±8 kV	±4 kV
Radiated RFI	10 V/m @ 80 MHz to 1 GHz	3 V/m @ 80 MHz to 1 GHz
Surge	2 kV	1.5 kV
EFT	1 kV	0.5 kV
Operating Temperature	–10 to 60°C / –40 to 75°C	0 to 40°C
Heat Dissipation	Fanless	Fan
Industrial Certifications	EN 60950-1, EN 50121-4, FCC Part15, CISPR (EN 55022) class A	CE/FCC

Video
Enhance control room reliability with industrial-grade rackmount switches

Video Always-On Surveillance

Nonstop Surveillance Networks for City Bus Transportation

A BRT system built a powerful Ethernet backbone to connect 6 lines and 40 stations for centralized control and surveillance monitoring. Thanks to V-ON technology, Moxa's industrial Ethernet solutions overcame all challenges with full speed performance, millisecond-level redundancy and PoE deployment to achieve nonstop video network operation.

Solution & Benefits

• Nonstop video surveillance with millisecond-level routing and switching redundancy
• Easy and centralized network and video management platforms
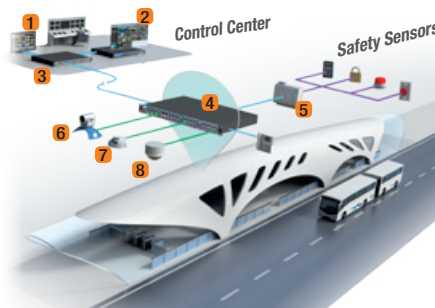
1. SoftCMS-500: IP Video CMS
2. SoftNVR-IA: IP surveillance software
3. ICS-G7848: 48G switch
4. IKS-6728-8PoE: 24+4G PoE+ switch
5. ioLogik E2242-T: Remote I/O
6. IP PTZ dome camera
7. VPort P06-1MP: Compact camera
8. VPort 26A-1MP: Fixed dome camera

Fully Integrated Tunnel Monitoring

10GbE Core Backbone for Critical Tunnel Surveillance

A U.S. tunnel used Moxa's edge-to-core Ethernet solution to deploy a robust communication infrastructure for real-time monitoring of IP surveillance, mass-evacuation, variable message signs, and radio broadcast systems.

Solution & Benefits

• Live color visualization by MXview provides efficient event monitoring
• ICS-G7850 10GbE switches for real-time data and video aggregation
• EDS-611/619 modular switches for flexible and durable outdoor connectivity
• VPort 461 video encoders for cost-effective H.264 IP video migration
• High reliability with built-in self-healing recovery and wide temperature operation
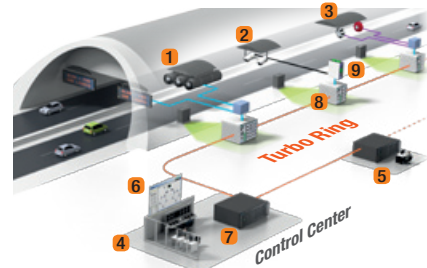
1. Traffic operation system
2. CCTV detection system
3. Fire alarm system
4. Operation and maintenance control
5. Fire department room
6. MXview industrial network management software
7. ICS-G7850: 48G+2 10GbE-port switch
8. EDS-611/EDS-619: Modular switches
9. VPort 461-T: 1-ch video encoder

Layer 2 Switches

	ICS-G7752A/G7750A	ICS-G7528A/G7526A	ICS-G7748A	IKS-6728A/6726A	IKS-6728A-8PoE
	10GbE		Full GbE	Best Value	Up to 24 PoE+
10GbE	4/2	4/2	–	–	–
GbE	48/48	24/24	48	4/2	4
10/100 FE	–	–	–	24	Up to 24
PoE+	Up to 48 PoE+	–	Up to 48 PoE+	–	8 / 16 / 24 PoE+

Add Extra Reliability to Ensure Leading Edge Productivity

- Up to 16 Gigabit Port Links
- Compact and Level 4 EMS Protection
- Multiple Industrial Protocols for SCADA Integration
- V-ON Enabled Multicast Redundancy < 50 ms

EDS-500E Series

Stay Leading Edge with Extra Robust Connectivity

Extra reliability saves costs in troubleshooting and maintenance, especially for complex and remote industrial applications. Moxa provides compact and metal-encased EDS-E series industrial Ethernet switches to reinforce edge infrastructures with high-density Gigabit bandwidth and level-four EMS protection. Moreover, the EDS E series enhances multicast network availability that in practice can minimize video loss for mission-critical surveillance systems for public transportation, oil and gas, and factory automation.

Why the EDS E series?

The EDS-500E switches evolved from Moxa's troubleshooting assistance provided for a customer whose network systems were frequently disrupted at high elevations. The EDS-500E switches solved the problems by providing enhanced immunity against high altitude electromagnetic pulses for trouble-free operations.

Super Performance

- 3 to 16-port Gigabit density
- Up to 4-port Gigabit Fiber uplinks
- Compact form factor for space-limited deployments

Extra Reliability

- Level-4 EMS immunity
- Fanless, -40 to 75°C operation
- Compliance with C1D2/ATEX, DNV, NEMA TS2, EN 50121-4, IEEE 1613 standards

Multicast Availability

Seamless failover by V-ON technology that combines Turbo Ring, Turbo Chain networks, and optimized multicast transmissions to achieve multicast network recovery < 50 ms

Up to 16 Gigabit Ports
ABC-02 USB Storage
Up to 4 Gigabit Fiber

V-ON

Turbo Ring | Multicast Optimization | Turbo Chain

The Next Generation of Industrial Ethernet Switches

Video — EDS E series Reliability Tests

White Paper — Five Future Challenges for Industrial Ethernet Switches

Video — EDS E series Introduction

8 PoE

NEW

Product Series	EDS-G516E	EDS-G512E	EDS-G508E	EDS-518E	EDS-510E
Max. No. of Ports	16	12	8	18	10
Gigabit RJ45 Ports	12	8	8	4	3
Gigabit SFP Ports	4	4	–	4 (Combo)	3 (Combo)
Fast Ethernet Ports	–	–	–	14	7
Industrial Protocols	EtherNet/IP, PROFINET, and Modbus/TCP protocols supported				
Certification	Class 1 Div. 2/ATEX Zone 2, DNV, GL, ABS, LR, NK, NEMA TS2, EN 50121-4, IEEE 1613 compliant				

EDS 400/500/500E/600/700/800 Series
SMART Edge Connectivity for Industrial IoT Applications

S **Security**
Enhanced security with RADIUS, TACACS+, SNMP v3, IEEE 802.1X, HTTPS, and SSH

M **Management**
Easy network management with MXstudio management suite, local management by web browser, CLI, USB/serial console, ABC-02-USB, and Windows utility

A **Availability**
Ethernet recovery < 20 ms with up to 250 switches

R **Reliability**
Fanless and wide-temperature operation with RMA < 0.5%

T **Integration**
Supports EtherNet/IP, PROFINET, and Modbus/TCP protocols for easy PLC and SCADA integration

Download
2015 ITS Brochure

Turbo Ring
Enable Ring and Media Redundancy

- Supports flexible ring topologies: Ring coupling, dual-ring, dual homing
- Self-healing redundancy under 20 ms at a full load of 250 switches

Turbo Chain
Build Complex Redundant Networks Easily

- Redundancy under 20 ms at a full load of 250 switches
- Unlimited redundant network expansions
- Live node expansion without network interruptions

- Head switch: Edge switch is assigned the forwarding state
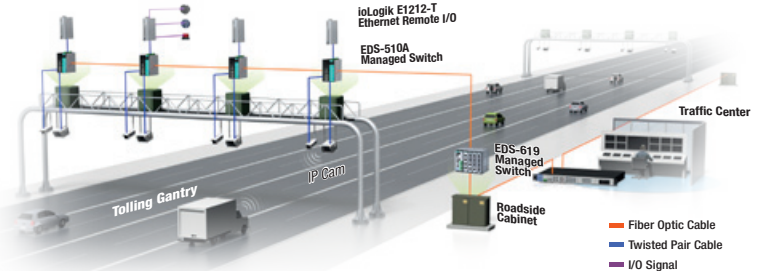- Tail switch: Edge switch is assigned the blocked state

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An ITS Story from France

Gigabit Backbone for HGV Toll Collection

A heavy goods vehicle (HGV) toll collection system in France used Moxa's Ethernet switches to deploy an industrial-grade Gigabit backbone to monitor and toll trucks via the vehicles' onboard GPS units.

Solution & Benefits
- All switches provide Gigabit ports for massive video and data flows
- Millisecond-level network resilience
- All Moxa products are durable enough for outdoor cabinet operations

ioLogik E1212-T Ethernet Remote I/O
EDS-510A Managed Switch
Traffic Center
EDS-619 Managed Switch
Tolling Gantry
IP Cam
Roadside Cabinet

— Fiber Optic Cable
— Twisted Pair Cable
— I/O Signal

Managed Ethernet Switches

Modular Gigabit

EDS-828 L3 4G+24
EDS-728 L2 4G+24

- Layer 3 routing (EDS-828)
- Up to 4 Gigabit uplinks
- Flexible modular deployment

Modular Gigabit

Up to 19 Fiber Ports
Nanosecond Accuracy

EDS-619 3G+16-port
EDS-616 16-port EDS-608 8-port
EDS-611 3G+8-port

- High density multi-fiber connection
- Hot-swappable module w/IEEE 1588 PTP support

Gigabit & Fast Ethernet

2 Gigabit   3 Gigabit

EDS-518A 2G+16-port
EDS-510A 3G+7-port

- 2 or 3 Gigabit ports for building redundant ring or uplink service
- Intelligent managed and security features

Fast Ethernet

EtherNet/IP

EDS-516A 16-port EDS-408A 8-port
EDS-508A 8-port   EDS-405A 5-port
EDS-505A 5-port

- 10/100BaseT(X) and 100BaseFX (multi-mode/single-mode)
- Up to 3 fiber ports (EDS-408A 3 fiber series only)

	Layer 3		Modular				GbE + FE		Fast Ethernet				
	EDS-828A	EDS-728A	EDS-619	EDS-616	EDS-611	EDS-608	EDS-518A	EDS-510A	EDS-516A	EDS-508A	EDS-505A	EDS-408A	EDS-405A
No. of Ports	28	28	Up to 19	Up to 16	Up to 11	Up to 8	18	10	16	8	5	8	5
Gigabit RJ45/SFP Ports	4	4	3/3	–	3/3	–	2/2	3/3	–	–	–	–	–
Max. 10/100TX Ports	24	24	Up to 16	Up to 16	Up to 8	Up to 8	16, 14	7	16, 14	8, 6	5, 3	8, 6, 5	5, 3
Max. 100FX Ports	–	–	Up to 16	Up to 16	Up to 8	Up to 8	0, 2	–	0, 2	0, 2	0, 2	0, 2, 3	0, 2

Power Up Heavy Duty IP Cameras Over Ethernet

- High Power 60 W PoE+ Solutions
- Up to 48G PoE+ Ports
- -40 to 75°C Operating Temperature Range

Smart PoE for IP Surveillance

Moxa's PoE/PoE+ products are perfect for network PTZ/outdoor IP cameras that require high power and high bandwidth for converged transmission of data, voice, video, and also power delivery. Moxa's PoE/PoE+ switches provide 5 to 48 Ethernet ports, up to 36 W power output and SmartPoE power management to fulfill flexible PoE network deployment and maintenance. Rugged features include 3 kV LAN surge protection to enhance operational reliability in harsh environments.

Superior PoE/PoE+ Capability

- Up to 48 Gigabit PoE+ links
- 15.4W / 30W / 36W / 60W PoE/PoE+/ high power PoE output selection
- Wide selection of managed and unmanaged PoE/PoE+ switches

Easy Management

- Built-in SmartPoE for easy PoE network links, diagnosis, and monitoring
- Maximum PD compatibility
- Remote PD check and reboot

Outdoor Reliability

- 3 kV LAN surge protection
- -40 to 75°C operating temperature range
- Supports Turbo Ring, Turbo Chain, and MSTP/RSTP/STP redundancy technologies

Download
10 PoE Applications

EDS-G512E-8PoE Series

12G full Gigabit PoE+ switches
- 8-port 36 W PoE+ links
- V-ON for multicast network redundancy < 50 ms
- Level-4 EMS immunity

ICS-G7748A/50A/52A Series

10GbE/GbE PoE+ switches
- Up to 4 10GbE and 48G ports
- Up to 48G 36 W PoE+ links

48-port PoE+

INJ-24A Series

60 W GbE PoE+ Injectors
- Up to 60 W PoE+ output
- 3 kV LAN surge protection
- 24/48 VDC redundant power inputs

60 W Output

SmartPoE

Moxa's SmartPoE enables intelligent PoE power links, diagnostics, and monitoring to simplify PD (powered device) configuration and management. This built-in feature reduces the time and costs required for troubleshooting and maintenance.
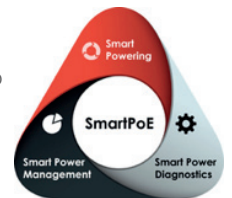
Smart Diagnostics
- Auto PD detection of power class, status, and error
- Smart suggestion for PD configuration

Smart Powering
- High power mode supports non-standard PDs
- Force mode supports legacy PD

Smart Monitoring
- Real-time PoE output monitoring
- PoE power output threshold cutoff and active event warning

Managed PoE+/PoE Switches

Unmanaged Switches

	ICS-G7752A/ 50A/48A	EDS-G512E- 8PoE	IKS-6728-8PoE	EDS-P510A- 8PoE	EDS-P506A- 4PoE	EDS-P510	EDS-G205A- 4PoE	EDS-P206A- 4PoE	EDS-P308	INJ-24A	INJ-24
Ethernet Ports	0 / 2 / 4 10GbE +48 GE	12 GE	4 GE + 24 FE	2 GE + 8 FE	6 FE	3 GE + 7 FE	5 GE	6 FE	8 FE	1 GE	1 GE
PoE Ports	48 PoE+	8 PoE+	8 / 16 / 24 PoE+	8 PoE+	4 PoE+	4 PoE	4 PoE+	4 PoE+	4 PoE	1 PoE+	1 PoE+
PoE Output	36 W	36 W	36 W	36 W	30 W	15.4 W	36 W	30 W	15.4 W	60 W	30 W

The World's No. 1 Best-Selling Industrial Ethernet Unmanaged Switches

- Rugged Designs for Harsh Industrial Applications
- Redundant Dual Power-Inputs
- High MTBF for Ultra Reliability
- Compliance with Diverse Industrial Standards

No. 1 Cornerstone for the Industrial IoT

Moxa is proud to provide the world's most robust and best selling unmanaged switches for industrial Ethernet infrastructures. *

Moxa's unmanaged switches uphold leading quality, including high MTBF, low RMA under 0.3%, and stringent standards required for operational reliability in harsh environments.

- Full Gigabit with fiber options
- Fanless and -40 to 75°C operation
- Redundant power inputs
- High MTBF and low RMA (< 0.3%)
- Diverse industry certifications
- 5-year warranty

Download 2015 Smart Factory Solutions

*IHS Technology "Industrial Ethernet Infrastructure Components - 2015" report.

NEMA TS2 for Road Traffic

EN 50121-4 for Rail Wayside

UL 508 for Process Automation

C1D2/ATEX Zone 2 for Oil & Gas

EDS-205A/208A series unmanaged switches

+500 K Deployments

The EDS-205/208A unmanaged Ethernet switches have proven themselves as durable time-tested winners in over 500,000 unit deployments.

The EDS-205A/208A series switches offer the best value in terms of reliability and cost effectiveness for applications in harsh industrial environments (such as maritime, railway, and highway applications) and hazardous locations (such as oil and gas applications).

Unmanaged Ethernet Switches

Full Gigabit

8 G / 5 G

CC-Link IE Field

EDS-G308 8G-port
EDS-G205 5G-port

- Fiber Gigabit connections
- 9K Jumbo frame supported
- Redundant 12/24/48 VDC inputs

Gigabit & Fast Ethernet

GbE-fiber

EDS-210A 8+2G / 9+1G-port

- Up to 4 10/100 FX or 8 10/100 TX Ethernet ports
- Redundant dual power inputs

Fast Ethernet

Advanced Level / Entry Level

EDS-316 16-port
EDS-309 9-port
EDS-308 8-port

EDS-305 5-port
EDS-208A 8-port
EDS-205A 5-port

EDS-208 8-port
EDS-205 5-port

- Plug-n-play connections
- Broadcast storm protection
- Relay alarm for port and power failure (EDS-300 series only)
- Most compact and cost-effective

	Full GbE		Fast Ethernet								
	EDS-G308	EDS-G205	EDS-316	EDS-309	EDS-308	EDS-305	EDS-210A	EDS-208A	EDS-205A	EDS-208	EDS-205
No. of Ports	8	5	16	9	8	5	10	8	5	8	5
Gigabit RJ45/SFP Ports	8/0, 6/2	5/0, 4/1	–	–	–	–	1/1, 0/1	–	–	–	–
10/100TX Ports	–	–	16, 15, 14	6	8, 7, 6	5, 4	4, 8	8, 7, 6	5, 4	8, 7	5
100FX Ports	–	–	0, 1, 2	3	0, 1, 2	0, 1	4, 0	0, 1, 2	0, 1	0, 1	–

Unbreakable Wireless Networks

- Power and Antenna Dual Isolation
- AeroLink Protection and Millisecond-level Roaming
- 5 GHz DFS Channel Support
- Diverse Industry Certifications

Unbeatable 802.11n Connectivity

There is no need to suffer from unreliable wireless connectivity due to ESD and unstable wireless failover. Moxa's AWK-A series industrial AP/bridge/client products combine advanced 802.11n speed and coverage, Dual Isolation protection, and AeroLink Protection wireless redundancy to ensure unbeatable network communication against wireless interference and failure. In addition, the AWK-A series AP/bridge/client products support Turbo Roaming, which enables handover within 150 ms for minimum signal latency and maximum connectivity.

AWK-A Series
Industrial 802.11n AP/Bridge/Client

- IEEE 802.11a/b/g/n compliant
- Up to 300 Mbps data rate
- Dual Isolation for operational reliability
- AeroLink Protection for flexible redundancy
- Turbo Roaming for millisecond-level handover
- 5 GHz DFS for reduced channel congestion

Learn More
AWK-A series product information

Strong Electromagnetic Protection

Dual Isolation on the AWK-A series adds level 4 ESD on the antenna port and 500 V insulation on the power inputs. Together with MIMO interference avoidance, the AWK-A series provides better noise avoidance and longevity, and eliminates costs for isolator accessories.

Test Video
www.moxa.com/AWK-A-test-video

Industrial Gloves — High Voltage Tower — Motor — Factory Generator — Electromagnetic Disturbance

Unbreakable Site-to-Site Redundancy

Moxa's AeroLink Protection technology provides smart failover with single active and multiple-backup wireless connections that will automatically redirect traffic to active links and devices to keep your entire network alive with maximum uptime.
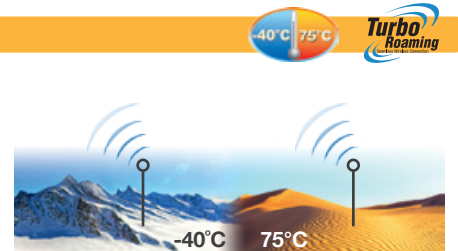
White Paper
www.moxa.com/aerolink-white-paper

AP — Client 1 Active — Client 2 Backup — Client 3 Backup — EDS-G205
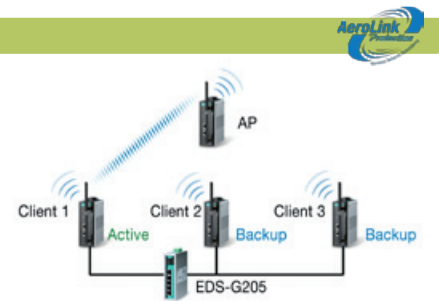
Reliable in Any Harsh Conditions

- Turbo Roaming allows seamless roaming under 150 ms
- 5 GHz DFS for less channel congestion
- Fanless, -40 to 75°C operation (T models only)
- 12-48 VDC dual power inputs
- Outdoor IP68-rated housing (AWK-4131A)

-40°C   75°C

AWK-A series Portfolio

AWK-4131A Series
Industrial 802.11n Gigabit AP/Bridge/Client
- IP68 rated outdoor housing
- DI/DO for real-time alarms
- 12-48-VDC dual power and 802.3af PoE support

AWK-3131A Series
Industrial 802.11n Gigabit AP/Bridge/Client
- One Gigabit link
- DI/DO for real-time alarms
- 12-48-VDC dual power and 802.3af PoE support

AWK-1131A Series
Industrial 802.11n AP/Client
- One Gigabit link
- Supports MAC clone for Ethernet client
- Client-based Turbo Roaming

	802.11 a/b/g/n		
	AWK-4131A (Available in Q4, 2015)	**AWK-3131A**	**AWK-1131A**
No. of RFs	1 (2.4/5 GHz)	1 (2.4/5 GHz)	1 (2.4/5 GHz)
User Scenarios	Access Point, Bridge, Client / Client-Router	Access Point, Bridge, Client / Client-Router	Access Point, Client
AeroLink Protection	Yes	Yes	n/a
Dual Isolation	Power and antenna isolations	Power and antenna isolations	Power and antenna isolations
Turbo Roaming	Client-based Turbo Roaming < 150 ms handover	Client-based Turbo Roaming < 150 ms handover	Client-based Turbo Roaming < 150 ms handover
IP Rating	IP68	IP30	IP30
Operating Temp.	-40 to 75°C	-25 to 60°C / -40 to 75°C	0 to 60°C / -40 to 75°C
Approvals	UL 60950-1, CE/FCC/TELEC with DFS*	UL 60950-1, CE/FCC/TELEC with DFS* UL/cUL CID2, ATEX Zone 2**	UL 60950-1, CE/FCC/TELEC with DFS

*DFS certification in progress; available via firmware upgrade in Q4 2015 for the AWK-3131A, and Q1 2016 for the AWK-4131A.
**UL/cUL, C1D2, and ATEX Zone 2 certifications in progress; available in Q4 2015 for the AWK-3131A.

AeroLink Protection

Enables the Most Reliable P2P Connections

The AWK-A series supports AeroLink Protection, which provides the most reliable end-to-end communication by setting multiple wireless backup connections at each end, and then running auto switchover between the available backups once the active device or frequency is down.

- Auto switchover between active/backup radio links
- End-to-end recovery < 300 ms
- Supports two or more redundant radio links
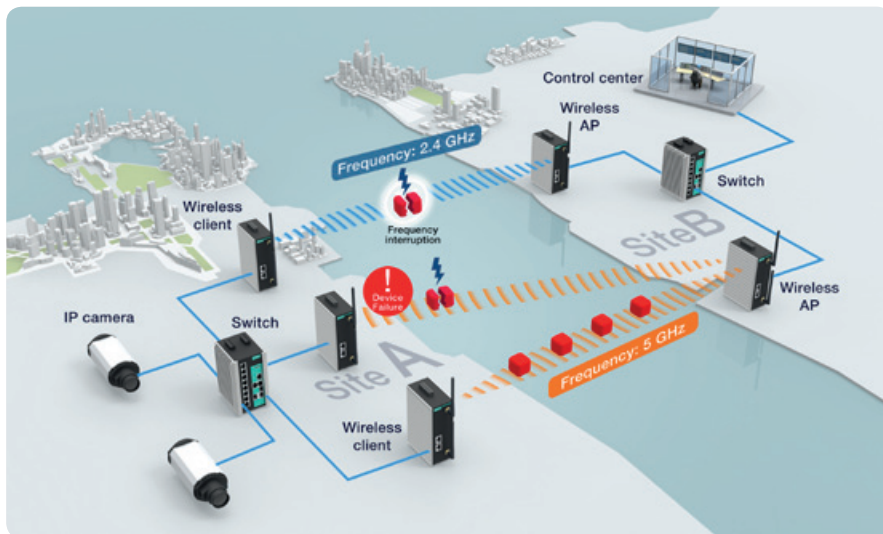
White Paper
Redundant Wireless Bridges

Industrial Designs

Full Protection Against Harsh Conditions

Leveraging 802.11n speed, Dual Isolation, and AeroLink Protection redundancy, the AWK-A series ensures operational availability and reliability in a wide range of temperatures for wide-area, mission-critical applications.

- IEEE 802.11a/b/g/n compliant
- 2 x 2 MIMO up to 300 Mbps data rate
- Millisecond-level roaming
- 5 GHz DFS (Dynamic Frequency Selection) support to avoid standard channel congestion
- Antenna isolation for protection against air ESD damage
- Power isolation for power source insulation protection
- -40 to 75°C operation with dual power inputs

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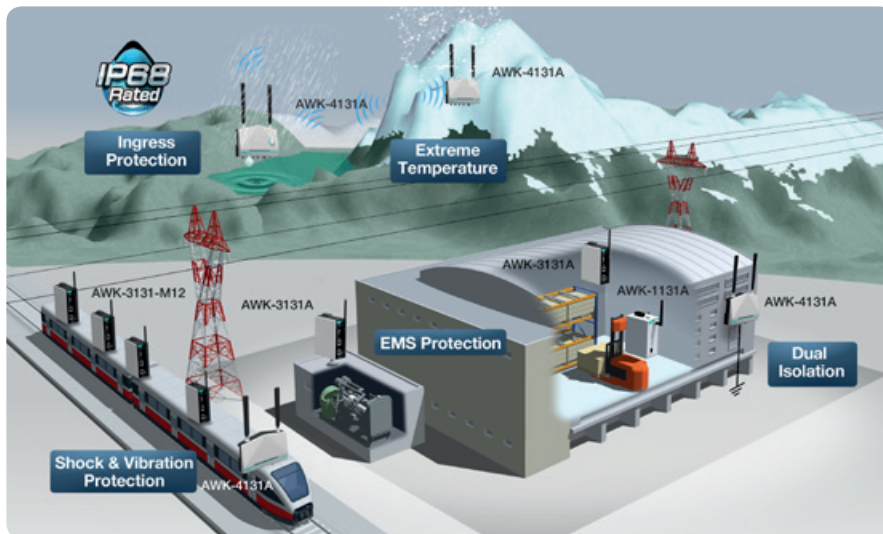
Factory Automation

Fast WLAN Roaming for Automated Guided Vehicles

Modern warehouse management systems utilize wireless networks to drive Automated Guided Vehicles (AGVs), which can simplify large-scale storage and retrieval, reduce operating costs, and improve efficiency.

Solution & Benefits
- The compact AWK-A series AP/client products can easily fit on any unmanned AGV to facilitate fast find-and-move operations
- Coupled with MIMO and Turbo Roaming technologies, the AWK-A series products provide less noise, better speeds, and millisecond-level data roaming to overcome wiring and space constraints
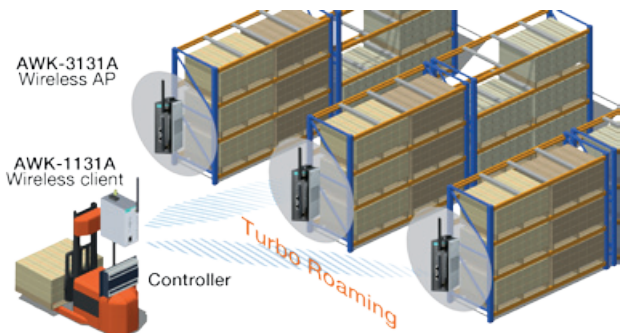

An ITS Story from the US

Video Transmission for Bus Surveillance System

In order to provide stable transmission of surveillance video from a fleet of buses entering a bus depot, a rugged design was required for both on-vehicle clients and outdoor APs to ensure robust operations.

Solution & Benefits
The AWK series clients and APs use IEEE 802.11n and MIMO (multiple in multiple out) technologies to achieve HD event video transmission.
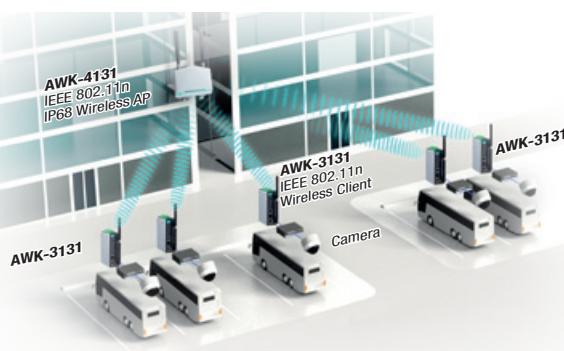
Combine Wi-Fi and Cellular to Boost Availability and Flexibility

- Wi-Fi/Cellular Options and Auto-switch Failover
- GuaranLink and Dual SIMs for Cellular Continuity
- Turbo Roaming for Millisecond-level Handover
- Built-in Industrial Reliability

Multiple Wireless Connections and Failover

Moxa's WDR-3124A is a 4-in-1 (3G/Wi-Fi/Switch/GPS) smart wireless router that allows users to easily bring Ethernet and wireless traffic to 3G networks. The WDR-3124A wireless routers enable wired connections for up to four Gigabit devices, and simultaneously deliver VPN secure 802.11n radio and 3G cellular links for primary and backup connectivity from remote device to control center. Built-in reliability, GuaranLink, Dual SIMs, and seamless Wi-Fi to cellular auto-failover within milliseconds allow the WDR-3124A to secure always-on signal connections anywhere and anytime.

Auto-Switch Failover Redundancy

Moxa's WDR-3124A features auto-switchover redundancy that delivers signals via the primary Wi-Fi link and the 3G backup connection. The traffic will automatically failover to the backup cellular connection within milliseconds if the primary Wi-Fi connection goes down.

WDR-3124A Series
Industrial 802.11n/HSPA Wireless Router

Wi-Fi/Cellular Auto-Switchover

- Multiple Wi-Fi/Cellular/Gigabit/GPS Connectivity
- 802.11n AP/Client-Router up to 300 Mbps
- 5-band GSM/GPRS/HSPA 3G Cellular up to 14.4 Mbps
- 4-port Gigabit switching
- Millisecond-level roaming (Available in Q4, 2015)
- Dual SIMs and GuaranLink support
- Centralized private IP management with OnCell Central Manager
- Antenna and power isolations for device protection
- Industrial reliability with dual power and wide temperature tolerance

Download
Seamless Wi-Fi to Cellular Switchover Application Flyer

- 3G HSPA Antenna
- 2x2 MIMO 802.11a/b/g/n Antennas, Antenna Isolation
- 12-48 VDC Dual Power Inputs Reverse Polarity Protection Power Isolation
- GPS/GLONASS NMEA
- DI/DO 2 Digital Inputs 1 Digital Output
- LED Status Indicator
- Serial Console RJ45 Type
- 4 Ethernet LAN Ports, RJ45 10/100/1000 Mbps
- DIN-Rail Mount Wall-Mount (Optional)
- Dual SIM Support Device Reset and Return Factory Default

Best-Fit Scenarios

The WDR-3124A supports multiple broadband wireless connections and failover redundancy to simplify a wide variety of mobile applications with reduced TCO.

Scenario 1: Wi-Fi Client / Cellular
**Real-time Bus Surveillance**

Installed aboard a bus, the WDR-3124A can act as a Wi-Fi client to upload video data to existing wayside APs; the device can auto-switch to 2G/3G cellular links to connect with a remote operations center whenever the bus moves out of Wi-Fi coverage range.
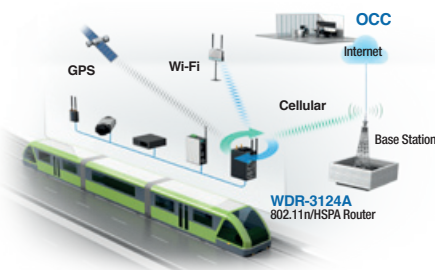
Scenario 2: Wi-Fi AP / Cellular
Remote Industrial Monitoring

With a wide and strong radio coverage area, the WDR-3124A works as an ideal Wi-Fi access point to collect data from moving vehicles and personnel at oil tank farms, and then transmits the data to the remote control center via dual SIM supported HSPA connections for real-time monitoring.
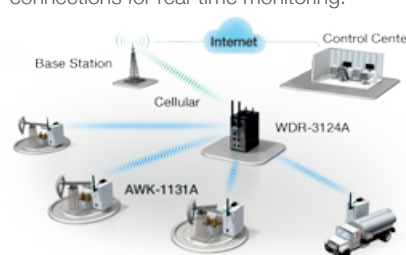
Scenario 3: WLAN / Cellular
Intersection Traffic Monitoring

The WDR-3124A is perfect for connecting Ethernet devices and Wi-Fi clients to 3G connections for intersection traffic monitoring. The wireless router also supports several VPN protocols to establish a secure connection between remote and central sites.

Enable Boundless Security Over LTE Cellular Links

- Supports European and US LTE Bands
- Built-in 4-port Gigabit Switch
- Dual SIMs and GuaranLink for Constant Connectivity
- Built-in Industrial Reliability

4G LTE Speed and Reach for Wireless Surveillance

Time and distance are no longer barriers to mobile video surveillance. Armed with a 4-port Gigabit and 4G LTE cellular connection, the compact OnCell G3470A-LTE Ethernet IP gateway delivers remote and mobile video data required for long range and wide area applications. Thanks to its robust reliability and diverse redundancy features, the OnCell G3470A-LTE is perfect for 24/7 wireless operation against harsh environments.

Best-fit Applications
- Metro bus, train surveillance
- Industrial fleet monitoring
- Roadway transportation
- Pipeline monitoring
- Offshore oil & gas
- Open pit mining

OnCell G3470A-LTE

Industrial LTE/Ethernet IP gateway

- Up to 50 Mbps LTE uplink
- Up to 4 GbE switching
- Dual SIMs for redundant backhaul
- GuaranLink 4-tier check for cellular availability
- Antenna and power isolation for device protection
- VPN, port forwarding, IP/MAC/port filtering for secure routing
- Industrial designs with dual power
- -30 to 70°C wide operating temperature

GuaranLink 4G LTE WWAN

White Paper
The Top 3 Considerations to Choosing an Industrial LTE Solution

- 2x2 MIMO LTE Antennas Antenna Isolation
- 12-48 VDC Dual Power Inputs Reverse Polarity Protection Power Isolation
- GPS/GLONASS NMEA
- DI/DO 2 Digital Inputs 1 Digital Output
- LED Status Indicator
- Serial Console RJ45 Type
- 4 Ethernet LAN Ports, RJ45 10/100/1000 Mbps
- DIN-Rail Mount Wall-Mount (Optional)
- Dual SIM Support Device Reset and Return Factory Default

GuaranLink Availability

The OnCell G3470A-LTE supports GuaranLink, which enables a cost-effective 4-tier connection check for maximum uptime, and alerts users in the event of any link failure.
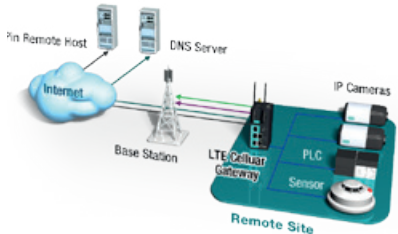
Operational Reliability

Besides strong EMS protection and a wide temperature range, the OnCell G3470A-LTE features power and antenna isolation to safeguard operational reliability in harsh environments.

RF/Power Dual Isolations

Central Management

The OnCell G3470A-LTE supports OnCell Central Manager™ software, which makes it easy to configure, manage, and monitor up to 2,000 OnCell devices over the Internet.
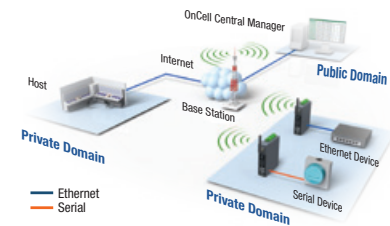
	OnCell 3470A-LTE	OnCell 5104-HSPA	OnCell G3150-HSPA	OnCell G3150	OnCell G3151-HSPA	OnCell G3151	OnCell G3251
4G	LTE	–					
3G	UMTS/HSPA			–	UMTS/HSPA	–	
2G	GSM/GPRS/EDGE					GSM/GPRS	
Ethernet LAN	4 x Gigabit	4 x 10/100M	1 x 10/100M	1 x 10/100M	1 x 10/100M	1 x 10/100M	1 x 10/100M
SIM	2x 3 V		1 x 3 V		1 x 3 V		1 x 3V
Serial	–	–	1 x RS-232/422/485				2 x RS-232/422/485
VPN	Yes				–		
I/O	2 DI, 1 DO				–		
Power	Dual 12-48 VDC				Single 12-48 VDC		
Operating Temperature	-30 to 55°C or -30 to 70°C				-30 to 55°C		

Optimizing PLC Network Deployment

- Quick Installation in Minutes
- Built-in Monitoring and Diagnostics for Easy Maintenance
- Reliable Performance for Uninterrupted Operation

Performance • Efficiency • Flexibility

Moxa's industrial Ethernet solutions can optimize PLC network performance, efficiency, and flexibility. Our industrial Ethernet switches and gateways are interoperable with industrial protocols such as EtherNet/IP, PROFINET, and Modbus TCP/IP. Every device is ruggedized to excel in mission-critical applications for production and process automation, such as water & wastewater, oil & gas, food & beverage, and chemical automation, and can be integrated into any large-scale distributed SCADA monitoring system.

Solution Benefits

Moxa's industrial Ethernet switches offer industry-leading redundancy, fast boot capability, full status parameters, and versatile network topologies to ensure high network reliability, availability, manageability, and flexibility of industrial control systems. Moxa's industrial Ethernet gateways are easy to configure, allowing quick integration of legacy field devices and the control network. Also, user-friendly tools and utilities enable operators to quickly diagnose and troubleshoot I/O communications for simple maintenance.
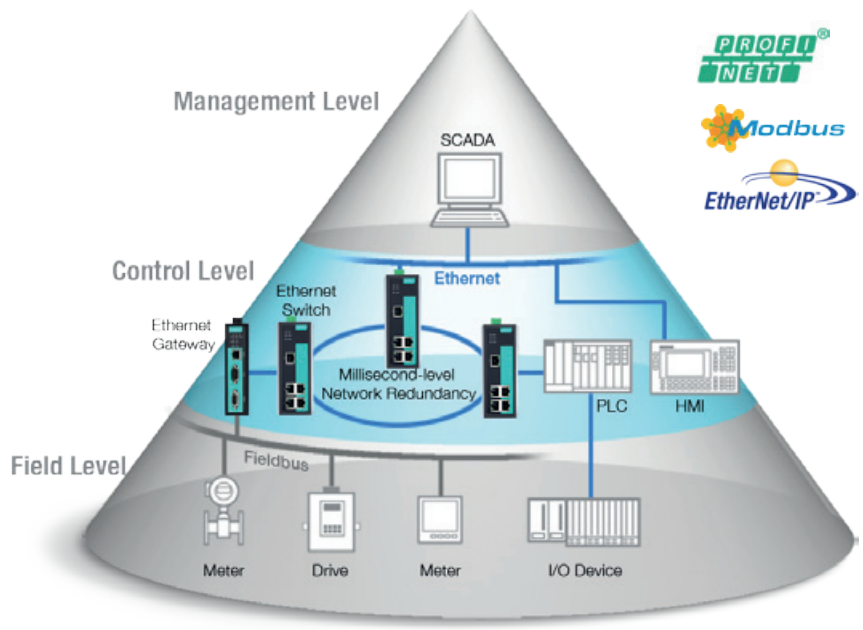
White Paper
Optimizing PLC Network Performance and Management

Download
2015 Industrial Ethernet Gateway Brochure

	Best-in-class performance ensures high network capability	Advanced efficiency simplifies configuration and monitoring	Maximum flexibility converges multiple applications
Industrial Ethernet Switches	• < 10 s fast booting • < 20 ms Ethernet redundancy	• Plug-n-play solutions	• Full status parameters • A selection of over 200 protocol-enabled edge-to-core switches • Topology flexibility
Industrial Ethernet Gateways	• Up to 16 Modbus TCP master connections (Modbus Gateways)	• Automatic technologies for quick installation • Easy-to-use web-based GUI • Relay output warning	• Flexible solutions for integration with various industrial protocols

Easy Network Management

Monitor Network Status in SCADA Systems
• Supports PROFINET GSD and EtherNet/IP EDS/AOI files
• Full parameters for comprehensive device status information
• FactoryTalk® View faceplate and Step 7 device icons available

Custom Faceplate for Ethernet Switch

Easy Configuration
Moxa's MGate gateway is the winner of the 2015 Engineers' Choice Award for its user-friendly and flexible design. All you need is a computer with an Ethernet port and web browser. It allows multiple configurations through its simple and concise web console with no additional software required.
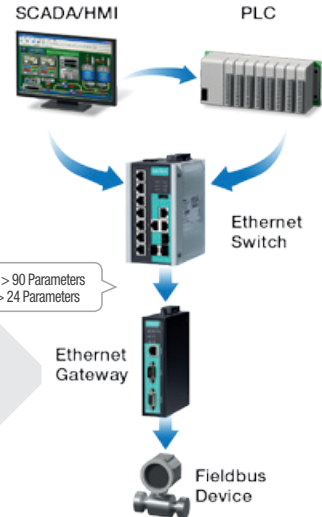
Network Settings

Serial Settings

Protocol Settings

EtherNet/IP: > 90 Parameters
PROFINET: > 24 Parameters

HVAC Control/Monitoring

Network Requirements
• Bring all real-time data from field devices to enterprise network systems for HVAC system optimization
• Integrate different protocols for field devices seamlessly
• Ethernet-based control system that allows centralized SCADA/HMIs to control and monitor remote PLCs and fieldbus devices

Why Moxa?
• One-stop solution for PI and ODVA-certified solutions, including industrial Ethernet switches and gateways
• Turbo Ring and Turbo Chain redundancy technologies (< 20 ms recovery time) to ensure high network availability
• SCADA/HMI object support and web-based management platform for easy network management
• -40 to 75°C operating temperature range
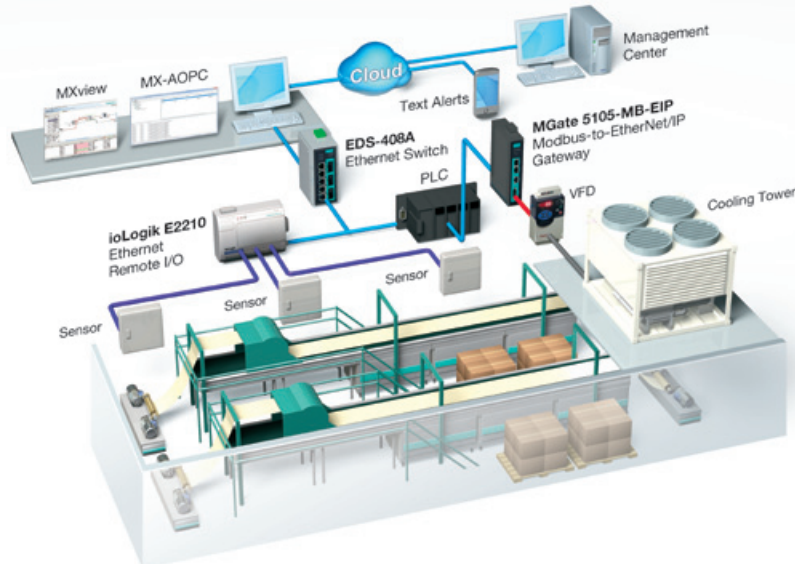
Your Trusted Source for Industrial Automation Needs

Industrial Ethernet Switches
• Fast 10-second booting time for high system availability
• Turbo Ring, Turbo Chain (recovery time < 20 ms @ 250 switches) for network redundancy
• Intelligent network management: EtherNet/IP, PROFINET, Modbus/TCP, IEEE 1588 PTPv2, LLDP, SNMP snooping, VLAN, QoS, and more
• Fiber optic, twisted pair, PoE, and M12 connections available
• -40 to 75°C wide temperature operation (T models)
• IP30/54, 24 VDC, and hazardous location certifications

Industrial Ethernet Gateways
• AutoScan and AutoCalibration innovative technologies for quick configuration
• High performance with up to 16 master device connections and 31 slave device connections (Modbus models)
• Web-based user-friendly console for easy monitoring and troubleshooting
• Relay output warning for quick event response
• -40 to 75°C wide temperature operation (T models)
• Redundant power inputs for non-stop operation

EDS-405A/408A Series
EDS-405A/408A-EIP Series Plug-n-Play
EDS-405A/408A-PN Series Plug-n-Play
5 and 8-port managed Ethernet switches

EDS-608/611/616/619 Series
8, 8+3G, 16, 16+3G-port compact modular managed Ethernet switches

MGate 5101-PBM-MN Series
1-port PROFIBUS-to-Modbus TCP gateways

MGate 5102-PBM-PN Series
1-port PROFIBUS-to-PROFINET gateways

MGate 5105-MB-EIP Series
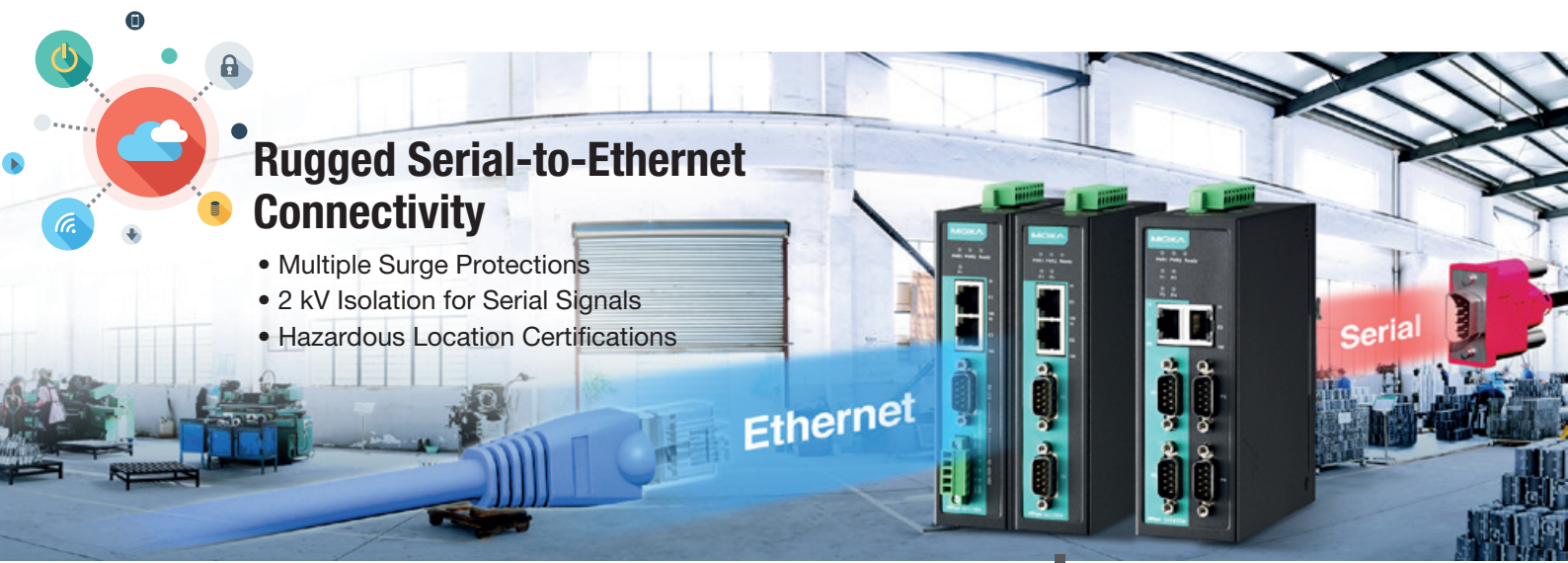1-port Modbus-to-EtherNet/IP gateways

MGate MB3000 Series
1-port Modbus RTU/ASCII-to-Modbus TCP gateways

Rugged Serial-to-Ethernet Connectivity

- Multiple Surge Protections
- 2 kV Isolation for Serial Signals
- Hazardous Location Certifications

Ethernet

Serial

Extreme Reliability

The NPort IA5000A device servers deliver easy and reliable serial-to-Ethernet connectivity for the industrial automation market. The NPort IA5000A device servers offer enhanced surge protection for serial, LAN, and power line, 2 kV isolation for serial signals, and C1D2, ATEX and IECEx certified quality; all the features are designed to ensure extremely reliable serial-to-Ethernet connectivity for oil and gas, power automation, and other harsh environment applications.

NPort IA5000A Series

Industrial-grade serial-to-Ethernet device servers

- Complete surge immunity
- 2 kV isolation
- C1D2, ATEX, and IECEx certified
- Cost-effective cascading links
- Redundant DC power inputs
- Warning by relay output and email
- -40 to 75°C wide-temperature operation

Unbeatable 3-in-1 Protection

The NPort IA series offers in-line surge protection covering LAN, serial, and power lines to protect electrical devices from voltage spikes and electrical noise.
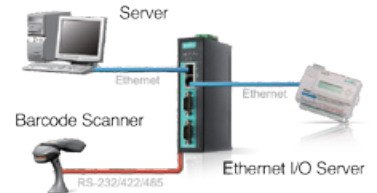
Easy 3-click Deployment

A wizard guides users through 3 simple steps to activate the serial-to-Ethernet application in an average of just 30 seconds.

Lower Cost of Networking

The NPort IA series has dual Ethernet ports for daisy chain Ethernet connections to reduce your overall networking costs.

NPort® S8455/S8458 Series

Combo switch / serial device servers

- Built-in managed Ethernet switch
- Ring redundancy < 20 ms
- Turbo Ring and Turbo Chain, RSTP/STP, and MSTP supported
- Surge protection for serial, power, and Ethernet
- Level 4 ESD immunity
- Multiple fiber ports for long distance transmission
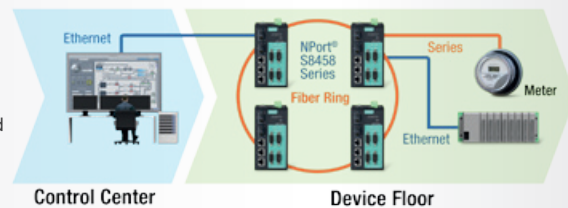
Model	NPort IA5150A	NPort IA5150AI	NPort IA5250A	NPort IA5250AI	NPort IA5450A	NPort IA5450AI
10/100M Ports	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
Serial	1 x DB9, 1 x terminal block	1 x DB9	2 x DB9	2 x DB9	4 x DB9	4 x DB9
Isolation Protection	–	2 kV	–	2 kV	–	2 kV
Surge Protection	Power: Level 3; Ethernet: Level 2; Serial: Level 2					
Input Voltage	12 to 48 VDC					
Operating Temperature	0 to 60°C , or -40 to 75°C					
Approvals	UL 508, LVD (EN 60950-1), Class 1 Div. 2 / ATEX Zone 2, IECEx, CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A					

Extending Ethernet over Existing Copper Wires

- Up to 100 Mbps Transmission
- Zero Configuration
- Graphical User Interface for Web Console
- Connection Strength LED Indicators

Reduced Cost and Faster Deployment

As an alternative to expensive fiber cables for long distance communication, Moxa's IEX-402 DSL Ethernet extender is a cost-effective solution that leverages existing copper wire infrastructures for faster and efficient network deployment.

The IEX-402 allows plug-and-play deployment and point-to-point Ethernet extension over copper wires up to 8 km or up to 15.3 Mbps speed using G.SHDSL standards, and up to 3 km or up to 100 Mbps speed using VDSL2 standards.
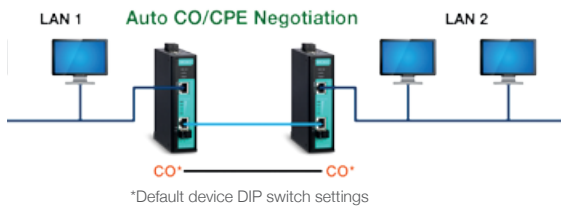
Rugged Features

- -40 to 75°C operating temperature range
- Dual power inputs
- Diverse industry certifications

Zero Configuration

The IEX-402 works in pairs and has an automatic CO/CPE negotiation function that enables plug-and-play, zero configuration deployment.

*Default device DIP switch settings

Easy Management

The IEX-402 offers a full range of connection strength LED indicators for simple troubleshooting. Thanks to the visualized panel display, users can remotely access and manage connection status anywhere via web browser or MXview.

- Power/Link/Device LED
- Speed/SNR LED
- Link/Act LED

A factory automation story from Taiwan

Emission Treatment and Monitoring

In response to government laws and regulations, a leading manufacturer needed to deploy emission treatment and monitoring systems across 15 plant sites. The IEX-402 enabled DSL connections over existing twisted-pair wires, accelerating network deployment and saving considerable costs.

Solution & Benefits

- Supports 500-meter (maximum) point-to-point transmission over existing RS-485/telephone wires
- Easy installation with auto CO/CPE negotiation
- Simple troubleshooting via panel indicators

An ITS story from the USA

State's Traffic Systems Run over Existing Copper Wires

One state's department of transportation wanted to connect their traffic signal and surveillance systems through a single network infrastructure. The customer used Moxa's IEX-402 devices to ensure good communication performance, reliability, and keep on budget when setting up network extensions between distant intersections.

Solution & Benefits

- The IEX-402 supports point-to-point networking up to 3 km over existing telephone wires at no extra cost
- Data rates up to 100 Mbps subject to environmental conditions
- Rugged design with wide operating temperature

Robust Fiber Integration

IMC-101G/101 Series

Ethernet to Fiber Media Converter

- Link Fault Pass-through
- Alarms for power/link failure
- Redundant power input
- Hazardous location certifications
- -40 to 75°C operating temperature

	IMC-101G	IMC-101
RJ45	1 x 10/100/1000M	1 x 10/100M
Fiber	1 x 1000Base SFP	1 x 100BaseFX
Operating Temperature	0 to 60°C , or -40 to 75°C	
Approvals	UL 508, LVD (EN 60950-1), Class 1 Div. 2, ATEX Zone 2, IECEx, CE (EN 55022 Class A, EN 55024), FCC Part 15 Subpart B Class A	

Long-Distance and Low-Cost Connection

IEX-402 Series

Managed DSL Ethernet Extenders

- G.SHDSL/VDSL2 Standards
- Zero configuration
- Easy management via web UIs and connection strength LEDs
- Rugged reliability

	IEX-402-SHDSL	IEX-402-VDSL2
RJ45	1 x 10/100M	1 x 10/100M
DSL	1	1
Operating Temperature	-10 to 60°C , or -40 to 75°C	
Approvals	CE/FCC, UL 508, EN 50121-4 SafetyNET p	CE/FCC, UL 508, EN 50121-4 NEMA TS2, ATEX/C1D2

4-in-1 Smart Remote I/O for Industrial IoT Data Connections

- 4-in-1 Data Acquisition and Transmission
- One IP for 100+ I/O Channels
- Push-Technology for SCADA Communication
- Click&Go Plus for Smart Control Logic

Smart I/O

Data Logger

Ethernet Switch

Modbus Gateway

4-in-1 Remote I/O for Demanding Asset Monitoring

Moxa's ioLogik 2500 series provides 4-in-1 data acquisition to meet the fastest growing and most demanding I/O requirements for hard-to-wire and industrial IoT applications. The ioLogik 2500 devices combine remote I/O, Ethernet switch, Modbus gateway, and data logger capabilities into one device. Using an existing IP to aggregate 100+ I/O channels, the ioLogik 2500 allows industrial customers to enjoy boundless data acquisition with reduced complexity and costs from deployment, operation, and maintenance.

-40°C ~ 75°C

c(UL)us LISTED

EN50121

Video
4-in-1 Data Acquisition

Download
2015 Smart I/O Solution Brochure

One IP for 100+ I/O Channels

With a unique I/O expansion design, a single ioLogik 2500 device can cascade up to eight ioLogik E1200 I/O modules, and link more than 100 I/O channels under an existing IP to implement flexible and cost efficient I/O expansion.

Click&Go Plus™ Control Logic

The ioLogik 2500 supports Click&Go Plus™ for front-end I/O intelligence. The new Click&Go Plus™ supports graphical logic design and up to 48 rules and 8 conditions/actions for easier and more powerful control logic deployment.
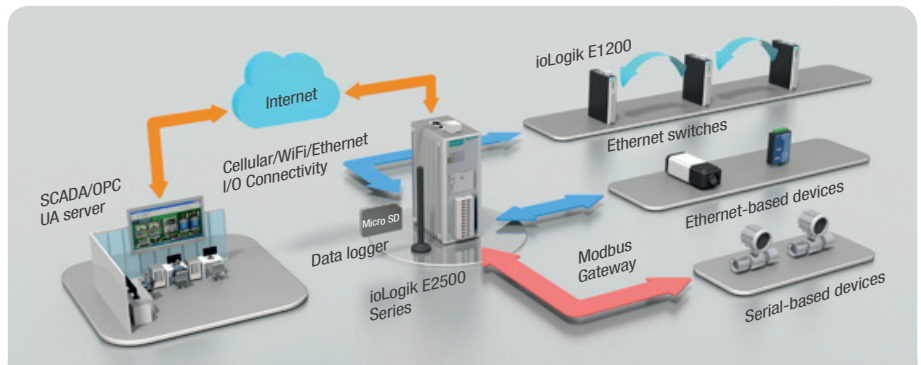
SCADA Connectivity

- **Diverse SCADA connection** via WiFi/cellular/Ethernet
- **Push-based Active OPC** for faster I/O response
- **MX-AOPC UA** for open and secure data exchange

Easy Configuration

- **Cellular Data Access** allows remote setting by mobile devices
- **IOxpress** enables online and offline configuration w/o system interruption
- **Click&Go Plus™** for graphical control logic deployment

4-in-1 Design

- **Cellular** link for wireless upstream
- **Ethernet switch** for I/O expansion and device connection
- **Modbus gateway** for fully configurable serial connectivity
- **Data logger** on MicroSD for data storage

	Ethernet		WLAN/802.11a/b/g		GPRS		HSPA	
	ioLogik 2512	ioLogik 2542	ioLogik 2512-WL1	ioLogik 2542-WL1	ioLogik 2512-GPRS	ioLogik 2542-GPRS	ioLogik 2512-HSPA	ioLogik 2542-HSPA
DIs	8	–	8	–	8	–	8	–
Configurable DIOs	8	12	8	12	8	12	8	12
AIs	–	4	–	4	–	4	–	4
Remote I/Os	Ethernet		WLAN/802.11a/b/g		Quad-band GSM/GPRS/EDGE		Five bands UMTS/HSPA+ Quad-band GSM/GPRS/EDGE	
Ethernet	4-port 10/100 Mbps							
Serial	2-port; RJ45, 3-in-1 interface							
Data storage	One slot up to 32 GB MicroSD™ memory card (SDHC compatible)							

360° PTZ Camera for Extreme Applications

- Max. 1920x1080 @ 60 FPS
- Supports 360° Endless PAN
- Up to 600x Zoom
- IP66 and -40 to 65°C operating temperature

Security All Around You
360° zero blind spot coverage

360°

Keep 360° Aware of Threats

Security threats come from all directions in the real world. Moxa's VPort 66-2MP full HD IP camera features 360° endless pan, 600x Zoom (30x optical and 20x digital) and -6 to 96° TILT capability to enable the widest field of view for surveillance operations. The IP66-rated IP camera delivers H.264/MJPEG triple video streams in 1920x1080@60 fps full HD images in extreme temperatures ranging from -40 to 65°C required for any outdoor or harsh surveillance applications.

VPort 66-2MP Series

Rugged 1080P PTZ dome IP camera for outdoors

- 1920 x 1080 full HD quality
- 360° endless PAN
- -6° to + 96° TILT
- 30x optical and 20x digital zoom
- H.264 and MJPEG triple streams
- DNR/ICR/WDR for image optimization
- -40°C to 65°C operating temperature
- DynaStream for bandwidth optimization
- Easy VMS and SCADA integration

Full HD Quality

The 1080P full HD IP camera offers up to 30x optical and 20x digital zoom capability, as well as true day and night visibility. The camera uses 3D DNR, BLC, Sense-up ICR, and image stabilizer technologies to overcome poor lighting conditions.

- 1080P (1920 x 1080) at 60 fps
- 22x/30x optical and 20x digital zoom
- DNR/ICR/WDR for image optimization

360° Endless PAN

The VPort 66-2MP's pan, tilt, zoom functionality provides wide area coverage and lets operators zoom in to the finest details. Subject to 128 user-defined presets, the VPort 66-2MP provides fast preset movements for automatic guard tour for unmanned applications.

- 360° endless PAN
- -6° to + 96° TILT
- 1° to 255° /s preset moving and 360°/s alarm trigger moving

Extreme Reliability

A robust IP66 housing and wide operating temperature range allows the VPort 66-2MP camera to provide exceptional durability for railway, public security, oil and gas, and extreme outdoor applications.

- IP66 rain and dust protection
- NEMA type 4X enclosure
- -40 to 65°C operating temperature
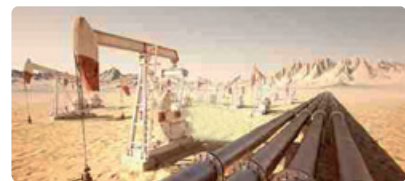
Download
2015 IP Surveillance Solutions

	VPort 66-2MP	VPort 56A-2MP	VPort 36-1MP	VPort 26A-1MP	VPort P16-1MP-M12
Resolution	1920 x 1080	1920 x 1080	1280 x 800	1280 x 800	1280 x 800
10/100M port	1 x RJ45	1 x RJ45, 1 x Fiber	1 x RJ45	1 x RJ45	1 x M12
PoE	–	PoE+	PoE	PoE	PoE
Audio	Yes	Yes	n/a	Yes	n/a
Power input	12/24 VDC or 24 VAC	12/24 VDC, 24 VAC	12/24 VDC or 24 VAC	12/24 VDC or 24 VAC	PoE only
Operating Temperature	-40 to 65°C	-25 to 60°C, or -40 to 70°C		-40 to 50°C, or -40 to 75°C	-25 to 55°C, or -40 to 70°C

MOXA®
Reliable Networks ▲ Sincere Service

Your Trusted Partner in Automation

Moxa is a leading provider of industrial networking, computing, and automation solutions for enabling the Industrial Internet of Things. 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 industrial communications infrastructures.

- **Industrial Ethernet Solutions**
- **Industrial Computing Solutions**
- **Serial Connectivity Solutions**
- **IP Surveillance Solutions**
- **Remote Automation Solutions**

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- Quick diagnostics
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- L2 unicast and multicast recovery < 50 ms
- L3 unicast and multicast recovery < 300 ms
- Millisecond-level router redundancy

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- AeroLink Protection for flexible redundancy
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