

► A Brand You Can Trust



International Recognition and Awards

2009 reddot Product Design Award
EDS-619 compact modular managed Ethernet switch

2008/2009 Trend 100 Products, SPS Magazine
PT-7828 IEC 61850-3 L3 Gigabit modular rackmount Ethernet switch

2008 Good Design Award
EDS-728 industrial Gigabit modular Ethernet switch

2007 Engineer's Choice Award, Control Engineering Magazine
W345 RISC-based wireless computer

2006 New Product Award, IEN Magazine
NPort W2004 wireless device server

2006 iF Product Design Award
EDS-726 industrial Gigabit modular Ethernet switch

2006 Engineer's Choice Award, Control Engineering Magazine
ioLogik E2210 Active Ethernet I/O server



► Stringent Quality Control



24-hour Dynamic Burn-in and 5-year Warranty

Moxa's products have passed a series of strict design and manufacturing tests, including ESD, surge/EFT, wide temperature, shock and vibration, and many more. In particular, a 24-hour dynamic burn-in test must be conducted to guarantee the ultimate industrial-grade quality and reliability.



Commitment to Quality and Environment

Moxa strives for continual improvement and innovation, adheres to the company's quality and environmental management system, and complies with all relevant environmental legislation and regulations and stringent industry standards.

Sales and Service Network

Global Operation

- Distributors located in more than 60 countries around the world
- Headquarters in Taiwan, and branch offices on three continents



- Moxa Europe Munich, Germany
- Moxa Americas Brea, California
- Moxa China Beijing, Shanghai, Shenzhen
- Moxa Asia-Pacific Taipei, Taiwan

MOXA

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► Transportation Automation ► Complete Solution

Complete and Certified Industrial Network Solutions for Railway Applications



- Rugged wired and wireless networks
- Integrated supervision and control system
- IP-based surveillance and security system
- High availability network performance
- EN50155, EN50121-1/-4, and e-mark certified



►► Moxa at a Glance

► 22 Years of Networking Experience



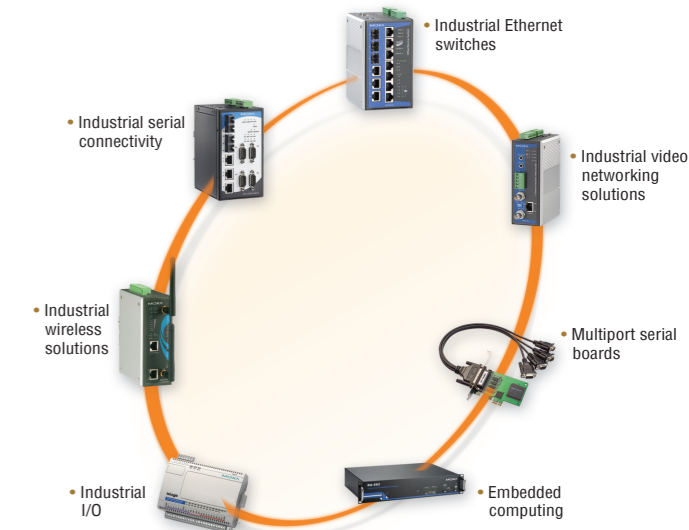
Vision

To be a world-class leader in industrial-grade device networking solutions for automation

Mission

- **To Customers**
Provide value-added service and quality products.
- **To Business Partners**
Establish win-win business relationships based on trust and integrity.
- **To Employees**
Provide educational and career advancement opportunities, and share the company's success.
- **To Society**
Conduct regular educational programs and work to protect the environment.

Integrated Industrial Networking Solutions



The Emerging Trend



Because of bandwidth and component standardization problems, conventional train communication networks for rail vehicles are limited in their ability to support multiple services, such as video surveillance and voice over IP. For this reason, the railway industry has been converting to IP-based industrial Ethernet technology, which is both open-standard and scalable. Using Ethernet technology in place of traditional solutions

will help ensure that your investment in a modern communication backbone will pay off far into the future. In fact, this type of network infrastructure makes it much easier to integrate new systems and novel applications that become available in the future.

Industrial Ethernet Leads the Way

Industrial Ethernet-based communication networks allow the introduction of new services, such as Passenger Information Systems and Passenger Entertainment Systems, that improve passenger comfort and enhance train operation. A high-bandwidth Ethernet backbone facilitates high quality video surveillance and real-time emergency intercom systems. In addition, advanced wireless roaming technology can be used to establish non-stop, two-way communication between the ground and trains. In light of safety considerations, the communication infrastructure must meet or exceed the high standards of vibration resistance, network redundancy, industrial ruggedness, and electromagnetic compatibility.

► Application Requirements



• Rugged IP-based On-Board Networks
With an anti-vibration design and robust EMC capability for on-board operation, an IP-based train communication network ensures highest reliability. Specifically, real-time information updates and transmissions between trains and stations are attainable with industrial wireless Ethernet with advanced roaming technology.



• Centralized Railway System Monitoring
Railway control centers must process massive amounts of information from various subsystems. The type of information that must be processed includes the status and location of trains, and data from train diagnostic systems and video surveillance cameras. The networking devices used for this type of system must provide a high port density and flexible interface options. In addition, a choice of mounting options is important for coping with environmental limitations. Rack installations, for example, are needed to optimize space usage.



• Platform Security Systems
Ensuring the safety of passengers on platforms is of the utmost importance. PoE-compliant video surveillance systems, wireless access points, and emergency phones are an essential part of any real-time platform monitoring system.



• Railway Station Networks
A reliable and highly available network is needed to provide real-time information to both passengers and the railway control center. Such networks usually include a transport information system, automatic fare collection, intrusion detection in restricted areas, and high quality IP video surveillance for security concerns. Intelligent transit buses traveling between railway stations and cities can also benefit from installing cost-efficient communication networks that integrate wireless Ethernet, a passenger information system, and an IP video surveillance system.

► Strengths of Moxa's Industrial Networking Solutions

- **EN50155/50121-3-2/50121-4 and e-mark certified**
Moxa's industrial Ethernet switches, wireless Ethernet products and IP video solutions provide M12 anti-vibration interfaces for on-board railway applications. All of these solutions comply with strict railway standards.
- **Rugged metal housing and fanless design**
Moxa's industrial Ethernet switches are designed to withstand harsh environments. The switches feature a wide operating temperature range from -40 to 75°C, power input options for use in different countries, and a full selection of high density, modular and Gigabit port Ethernet switches for use with a backbone infrastructure.
- **Industrial-grade outdoor/indoor wireless communication**
Moxa's Turbo Roaming™ technology, which enables seamless connections to wireless networks, provides ready access to an IEEE 802.11a/b/g wireless LAN. An IP67-rated housing, wide operation temperature and redundant power options provide high availability for railway applications.
- **High quality IP video surveillance**
Moxa's EN50155 certified IP video solution provides a maximum 1.3 mega-pixels for high quality video surveillance. The compact size and PoE (Power over Ethernet) interface was developed to save installation space and reduce the cost of power line deployment.
- **Sound expertise in computing and communication**
Moxa's ready-to-run embedded computers come with strong EMC and a fanless design to facilitate front-end communication, and provide a reliable and flexible solution for railway applications. Moxa's ioLogik Active Ethernet I/Os offer proactive, condition-based reporting and the control of I/O devices used for PC-based data acquisition and control.
- **Integration of legacy devices into Ethernet infrastructure**
Moxa's NPort serial device servers offer a fast and economical way to connect legacy network devices to Ethernet LANs. The built-in real-time OS and TCP/IP protocol suite allow users to access, manage, and configure remote facilities and equipment from any location over the Internet.

► Product Overview

- Control Center**
- 1 IKS-6726-PoE**
24+2G-port rackmount PoE modular managed switch
• Supports up to 16 PoE ports with max. 15.4 W at 48 VDC per PoE port
• Redundant 24/48 VDC or 110/220 VDC/VAC inputs
• EN50155/50121-4 and NEMA TS2 certified
• -40 to +75°C operating temperature
 - 2 DA-682**
x86-based rackmount embedded computer
• Intel® Celeron M® 1 GHz processor with 400/533 MHz FSB
• Built-in DDR2 SDRAM and industrial flash disk module
• 4 Gigabit Ethernet ports for network redundancy
• 1 CompactFlash socket for storage expansion
• USB 2.0 ports for high speed peripherals, system bootup supported
• 19-inch, 2U rackmount form factor
 - 3 VPort 25**
IP66 vandal-proof fixed dome IP camera
• -40 to 50°C operating temperature
• IP66-rated protection
• Direct-wired power input and PoE for power redundancy
• Up to 30 FPS at 720 x 480 resolution
- Rail Station**
- 4 EDS-P510**
7+3G-port PoE managed switch
• 4 10/100 Mbps PoE ports
• Up to 3 combo Gigabit RJ45/SFP ports
• Fully managed and with security features
• -40 to 75°C operating temperature
 - 5 AWK-4121**
IEEE 802.11a/b/g outdoor wireless AP/Bridge/Client
• IP67 rating and M12 connector
• EN50155, EN50121-1/-4, and e-mark certified
• -40 to 75°C operating temperature
• Security: WPA/WPA2/802.11X and powerful filters
• Turbo Roaming™ for seamless wireless connectivity
 - 6 ioLogik E2212**
Active Ethernet I/O with 8 DIs, 8 DOs, and 4 DI/Os
• Active alarm reports with precise time stamps
• Click&Go control logic to reduce false alarms
• Supports TPC/UDP/email/SNMP-trap/CGI command
• EN50121-4 certified
 - 7 VPort 25 Refer to 3**
IP66 vandal-proof fixed dome IP camera
- Platform**
- 8 TN-5510-4PoE**
8+2G-port M12 PoE managed switch
• M12 connectors and IP54/67 metal housing
• 4 IEEE 802.3af compliant PoE 10/100M ports
• EN50155, EN50121-3-2, EN50121-4, and e-mark certified
 - 9 AWK-4121 Refer to 5**
IEEE 802.11a/b/g outdoor wireless AP/Bridge/Client
 - 10 VPort 25 Refer to 3**
IP66 vandal-proof fixed dome IP camera
- Rolling Stock** EN50155
- 11 TN-5518**
16+2G-port M12 managed switch
• 2G-port flexibility with relay bypass
• Wide power input range from 12 to 110 VDC
• Fanless design, -40 to 75°C operating temperature
• EN50155, EN50121-3-2, EN50121-4, and e-mark certified
 - 12 TN-5516-8PoE**
16-port M12 PoE managed switch
• 8 IEEE 802.3af compliant PoE 10/100M ports (Refer to TN-5518 for key features)
 - 13 AWK-4121 Refer to 5**
IEEE 802.11a/b/g outdoor wireless AP/Bridge/Client
 - 14 VPort 15**
EN50155 certified IP dome camera
• Built-in Power over Ethernet interface, IEEE 802.3af compliant
• 10/100M Ethernet port with D-coded M12 connectors
• Featuring 1/3.8" 1.3 M progressive CMOS sensor
• -25 to 55°C operating temperature
• IP66-rated protection
- Wayside Control Cabinet** EN50121-4
- 15 PT-7710**
8+2G-port substation managed switch
• EN50121-4 certified
• Redundant 12/24/48 VDC or 110/220 VDC/VAC inputs
• Fanless design with -40 to 85°C operating temperature
 - 16 NPort S8000**
Combo switch/serial device server
• 4-port RS-232/422/485 serial device server
• Serial QoS for serial data traffic prioritization
• Built-in 5-port managed Ethernet switch
• 2 fiber ports and 3 RJ45 ports
• Supports Turbo Ring, QoS, IGMP-snooping, VLAN, SNMPv1/v2c/v3, and IEEE 802.1X
• -40 to 75°C operating temperature (T models)
 - 17 AWK-3121**
IEEE 802.11a/b/g wireless AP/Bridge/Client
• Security: WPA/WPA2/802.11X and powerful filters
• EN50155, EN50121-1/-4, and e-mark certified
• Turbo Roaming™ for seamless wireless connectivity
• Redundant power inputs or PoE
• -40 to 75°C operating temperature
 - 18 ioLogik E2212 Refer to 6**
Active Ethernet I/O with 8 DIs, 8 DOs and 4 DI/Os
 - 19 TN-5308-4PoE**
8-port M12 PoE unmanaged switch
• M12 connectors and IP40 metal housing
• 4 IEEE 802.3af compliant PoE 10/100M ports
• EN50155, EN50121-3-2, EN50121-4, NEMA TS2, and e-mark certified
 - 20 AWK-4121 Refer to 5**
IEEE 802.11a/b/g outdoor wireless AP/Bridge/Client
 - 21 VPort 15 Refer to 14**
EN50155 certified IP dome camera

Industrial Certification

Rail Traffic	EN50155 (Railway)	EN50121-3-2 (Rolling stock)	EN50121-4 (Signaling & telecom)	Road Traffic	NEMA TS2 (Environmental)	Onboard Vehicle	e Mark
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