

# Industrial Communication

Providing Interconnected Solutions for  
Enabling an Intelligent Planet

- Industrial Ethernet Switches
- Industrial Fieldbus Gateways
- Industrial Device Servers
- Industrial Cellular Routers
- Industrial Wireless Solutions
- Industrial Device Connectivity



**ADVANTECH**

*Enabling an Intelligent Planet*

[www.advantech.com](http://www.advantech.com)

# Industrial Communication in the IoT Era

## Connecting legacy devices to IoT

Most legacy devices are isolated and unconnected; however, as the use of legacy network technologies remains prevailing in industrial automation, new solutions that connect legacy devices to modern networking systems are needed in order to extend the useful life of the existing machinery as to avoid an expansive machine purchase or major upgrade.

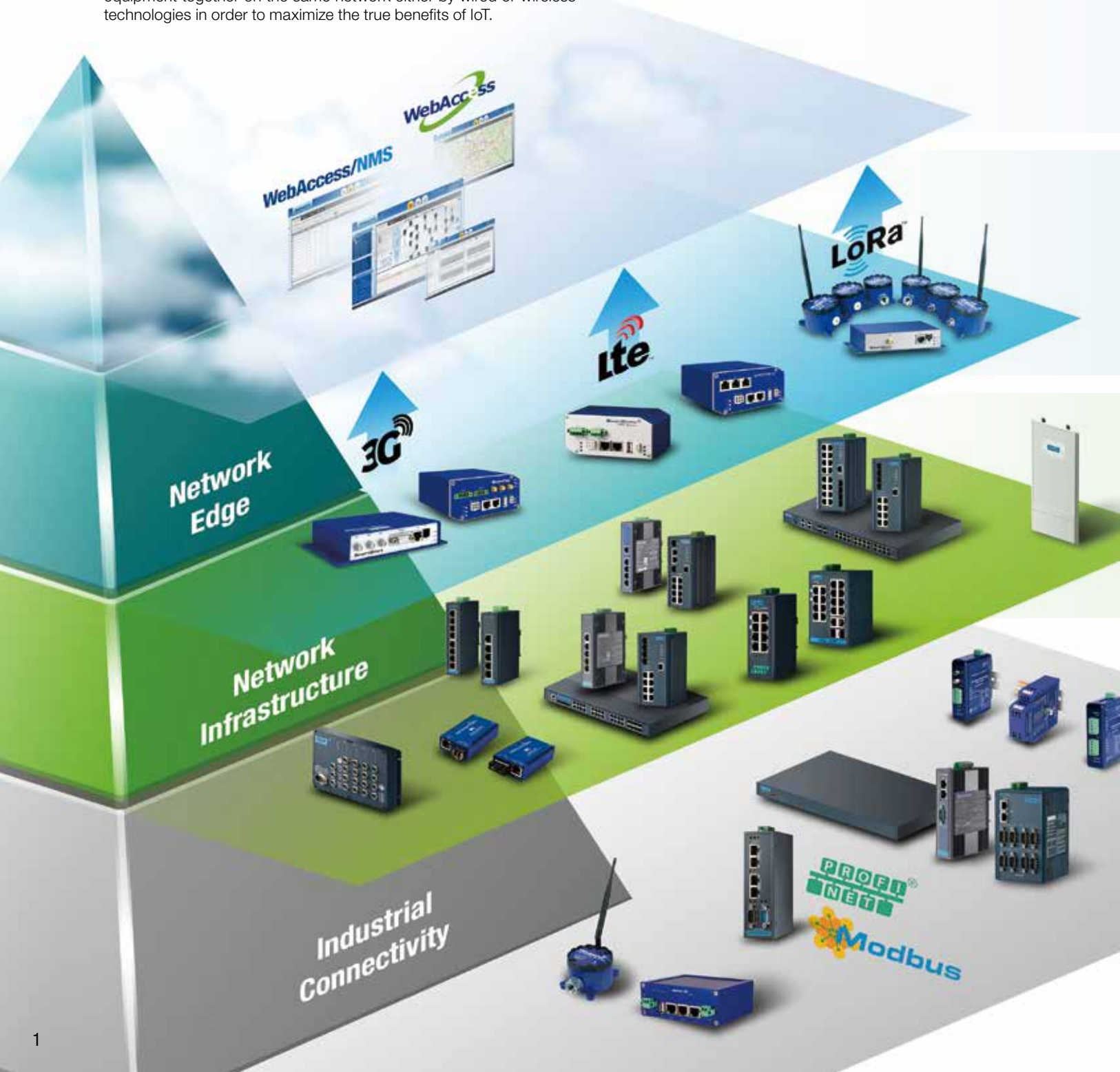
## Moving from Closed to Open, IP-based Networks

The adoption of an open, IP-based network has gained in popularity for its ability to connect every machine, device, and equipment together on the same network either by wired or wireless technologies in order to maximize the true benefits of IoT.

## Empowered Edge Computing

Bringing intelligence to where the action takes place – Edge computing is to provide computing competency to process data locally, at the edge of the network, near the source of the data. Then, reporting the processed information via a public network to the Cloud. It is an attractive technology which not only provides a faster response, but also helps relieve the workload of the Cloud, making the cost of building your IoT Infrastructure much lower.

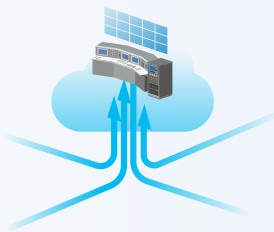
Advantech's industrial communication solutions offer various wired and wireless communication technologies, ensuring a secure and seamless connection of every layer in the industrial communication network.



# Our Technologies

## Providing Interconnected Solutions for Advantech's Mission of Enabling an Intelligent Planet

In the age of Internet of Things (IoT), the trend in industrial communication for all devices, equipment, and machines to be able to connect and communicate with each other to increase productivity, efficiency, and scalability has become essential. The core mission of Advantech's iConnectivity Group is to offer the best-in-class industrial communication solutions including both wired and wireless technologies that can truly help users leverage the full potential of IoT in the most efficient and productive way.



### WebAccess/NMS

Advantech's WebAccess/NMS provides centralized remote network management for industrial vertical applications.

- Auto networking topology
- Configuration backup and restore
- Network monitoring and reporting
- Dynamic connectivity indication



### Network Edge

Advantech's cellular routing solutions open up endless possibilities for Internet of Things. The Advantech's cellular routers support direct communication between the MQTT-enabled devices and the Cloud and their built-in Node-RED technology enables smart data processing for a fast monitoring dashboard development in Advantech's Cloud solution, WISE/PaaS management software.

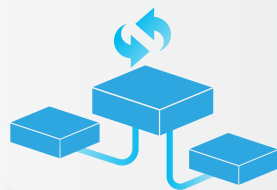
- Support for inter-operation with global 3G/LTE coverage
- Cyber security protection by firewall, NAT, and VPN
- Intelligent gateways support LoRa, Mesh network for Industrial IoT



### Wired & Wireless Network Infrastructure

Advantech provides a comprehensive product portfolio to help users build a robust, secure and scalable wired or wireless networking infrastructure.

- Support various industrial Ethernet protocols, such as TCP/IP, Ethernet/IP, PROFINET, CC-link, ODVA, etc.
- Compliant with C1D2, ATEX, IECEx certifications for hazardous environments
- Cyber security protection within the network
- Layer 3 Routing Protocols: RIP, OSPF, and VRRP
- Advantech's patented IXM technology for rapid deployment, saving up to 90% of engineering time and resources



### Protocol & Interface Conversion Solutions

Advantech offers numerous wired and wireless products to convert different legacy protocols and interfaces to modern networking systems to avoid a complete overhaul of existing equipment & devices, saving cost and avoiding software programming errors.

- Support various industrial Ethernet protocols including TCP/IP, Ethernet/IP, and PROFINET
- Surge protection and field isolation
- Connect to edge sensors via LoRa, MESH technologies
- Serial-to-Ethernet & USB-to-Serial Conversions

# Table of Content

2	About Advantech
3	About Industrial Communication and iNetworking
5	Star Product- Industrial Communication
7	Machine and Factory Automation Systems- Solution Overview
9	Machine and Factory Automation Systems- Applications
11	Railway Systems- Solution Overview
13	Railway Systems- Applications
15	Intelligent Transportation Systems- Solution Overview
17	Intelligent Transportation Systems- Applications
19	Smart Grids and Oil & Gas Solutions- Solution Overview
21	Smart Grids and Oil & Gas Solutions- Applications
23	Environment and Facility Management Systems- Solution Overview
25	Environment and Facility Management Systems- Applications
27	Surveillance System- Solution Overview and Applications
29	Product Selection Guide



# Industrial Communication

## Seamless Data Connectivity from the Network Edge to the Core

Advantech leverages over 20 years of industry experience to develop industrial communication products that provide reliable wired and wireless communication solutions (LTE, Mesh, LoRa, and WLAN) for mission-critical applications. These products include industrial Ethernet switches, industrial Fieldbus gateways, wireless access points/clients, media converters, serial device servers, cellular IP gateways, and Modbus gateways that are capable of securely transmitting critical and sensitive information, remotely monitoring and controlling networked devices, and delivering advanced communication capabilities for industrial applications.



### Wireless Sensing Platforms



#### Wzzard Mesh Platform

##### Wireless Mesh I/O Sensors – Intelligent Sensing Platform

- Ultra low power consumption
- Minimum 5-year lifecycle based on 1-min sensor sampling intervals
- 802.15.4e SmartMesh IP technology
- Supports MQTT and JSON IoT protocols
- UL Class 1/Division 2 hazardous locations rating
- Rugged, IP67-rated, reinforced-fiber polyester PBT enclosure\*
- Ultra compact design (0.09 kg)



#### Wzzard LRPv

##### Wireless LoRa I/O Sensors – Intelligent Sensing Platform

- Low power consumption for solar and battery power applications
- Long-range, wide-area IoT gateway
- Rugged, IP67-rated, reinforced-fiber polyester PBT enclosure
- LoRa private protocol for closing system applications

### Intelligent Gateway



#### SmartSwarm 351 Asset Integration Gateway

##### Seamlessly integrates data from legacy Modbus systems, devices, and sensors for industrial IoT applications

- Protocol translation and Modbus and MQTT support
- Communications and connectivity management
- Data enrichment transforms cryptic PLC data into semantically searchable content
- Event triggering and data transmissions without duplication
- Data aggregation and reporting to reduce network traffic
- Authentication and encryption features for data security

### LTE Routers & Gateways



#### SL30x Series

##### SmartStart Routers & Gateways

- LTE/UMTS/HSPA+/UMTS/HSDPA/GPRS/EDGE
- Wi-Fi (optional)
- 2 x SIM card holders
- Advanced security and networking features
- Low-power mode
- UL 60950-1 certification for hazardous locations



#### SR30x Series

##### SmartFlex Routers & Gateway

- LTE/UMTS/HSPA+/UMTS/HSDPA/GPRS/EDGE
- Wi-Fi (optional); GPS receiver (wired version not included)
- 2 x SIM card holders, 1 x MicroSD card holder
- PoE PD/PSE (optional)
- Advanced security and networking features
- Low-power mode



#### ST35x Series

##### SmartMotion Routers & Gateway

- Twin interdependent cellular modules for redundant reliability
- Load balancing function
- Wi-Fi (optional); GPS receiver (wired version not included)
- 4 x SIM card holders, 1 MicroSD card holder
- PoE PD/PSE (optional)
- Advanced security and networking features
- Low-power mode

## Fieldbus Gateways



EtherNet/IP **NEW**

### EKI-1221EIMB

#### Modbus TCP to EtherNet/IP Fieldbus Gateway

- Integrated Modbus TCP and EtherNet/IP network connectivity
- Supports up to 64 connections on Modbus TCP Master mode
- Supports Modbus TCP function codes 1, 2, 3, 4, 5, 6, 15, 16, 23
- Support 32 explicit messaging and 5 implicit messaging
- Max I/O data capacity of 384 bytes in each direction



PROFINET **NEW**

### EKI-1221IPNMB

#### Modbus TCP to PROFINET Fieldbus Gateway

- Integrated Modbus TCP and PROFINET network connectivity
- Supports Modbus TCP function codes 1, 2, 3, 4, 5, 6, 15, 16, 23
- PROFINET uplink configuration via GSDML file
- Max I/O data capacity of 384 bytes in each direction
- Supports diagnosis function



### EKI-1222ECMS

#### Modbus RTU/TCP to EtherCAT Fieldbus Gateway

- Dual power input
- Integrate Modbus RTU/TCP and EtherCAT communication
- Designed for protocol extensibility and adaption
- Built-in real time diagnostic



### EKI-1222EIMS

#### Modbus RTU/TCP to EtherNet/IP Fieldbus Gateway

- Dual power input
- Integrate Modbus RTU/TCP and EtherNet/IP communication
- Designed for protocol extensibility and adaption
- Built-in real time diagnostic



### EKI-1222PNMS

#### Modbus RTU/TCP to PROFINET Fieldbus Gateway

- Dual power input
- Integrate Modbus RTU/TCP and PROFINET communication
- Designed for protocol extensibility and adaption
- Built-in real time diagnostic

## Serial Device Servers



### EKI-1526/EKI-1528

#### 16/8-Port RS232/422/485 Rackmount Serial Device Server

- Connect up to 8/16-port RS-232/422/485 devices directly to TCP/IP networks
- High-speed baud rates (50 bps ~ 976.5 Kbps) for high volume transmissions
- VCOM, TCP server, TCP Client, UDP, and RFC2217 operating modes



### EKI-1528-DR

#### 8-Port RS232/422/485 DIN Rail Serial Device Server

- 2 x 10/100 Mbps Ethernet port for LAN redundancy
- VCOM, TCP server, TCP Client, UDP and RFC2217 operating modes
- I models support a wide operating temperature; CI models support isolation and wide operating temperature



### EKI-1520 Series

#### 1/2/4-Port RS232/422/485 Serial Device Server

- 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- VCOM, TCP server, TCP Client, UDP and RFC2217 operating modes
- I models support a wide operating temperature; CI models support isolation and wide operating temperature

## Modbus Gateway



### EKI-1220 Series

#### 1/2/4-Port Modbus Gateway

- Supports redundancy enhanced Modbus ID
- Integration of Modbus TCP and Modbus RTU/ASCII networks
- I models support a wide operating temperature; CI models support isolation and wide operating temperatures

## WLAN Device Servers



### EKI-1360 Series

#### 1/2-Port RS232/422/485 to 802.11 a/b/g/n WLAN Serial/Modbus Device Server

- 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- VCOM, TCP server, TCP Client, UDP and RFC2217 operating mode
- I models support a wide operating temperature; CI models support isolation and wide operating temperature
- Support dual band 2.4G/5G selective

## Industrial Wireless AP/ Clients



### EKI-6331AN/ 6332GN

#### 802.11N WiFi AP/ Bridge/ Client

- Compliant with IEEE 802.11 a/n and 802.11 b/g/n
- High output power
- Fast roaming
- IP55 rated for waterproof

## L3 Switches



NEW

### EKI-9700/ 9600 Series

#### Industrial Layer 3 Managed Switch

- Static routing/NAT (EKI-9612G, EKI-9628G)
- Static routing, RIP v1/v2, OSPF v2, VRRP (EKI-9728G)
- Supports up to 4 x 10GbE fiber ports (EKI-9728G)
- Wide operating temperature

## Protocol Switches



NEW

EtherNet/IP™

### EKI-5500/5600-EI Series

#### Managed Switch with EtherNet/IP Protocol Support

- EtherNet/IP protocol
- EDS files /AOI available
- FactoryTalk® compliant Faceplate
- Dual 12 ~ 48 V<sub>DC</sub> power input and P-Fail relay
- EMS level 3 protection



NEW

PROFINET

### EKI-5500/5600-PN Series

#### Managed Switch with PROFINET Protocol Support

- Real-time PROFINET protocol
- Media Redundancy Protocol (MRP) Master/Slave
- GSD files available
- Wide operating temperature (-40 ~ 70 °C)

## Fully Managed Ethernet Switches



### EKI-7428G-4CI

#### Industrial Rackmount Managed Switch

- IXM for rapid deployment
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- Wide operating temperature (-40 ~ 70 °C)
- 12 ~ 48 V<sub>DC</sub> dual power inputs
- EN50121-4 and NEMA TS2 certified



TAIWAN  
EXCELLENCE 2016



### EKI-7700 Series

#### Industrial Managed Switch

- Gigabit / FastEthernet ports + Gigabit Copper/SFP combo ports models available
- IXM function enables fast deployment
- IP30-rated chassis design
- EN50121-4 and NEMA TS2 certified

## Unmanaged Switches



### EKI-5000 Series

#### Unmanaged Switch

- UL C1D2, ATEX, IECEx certified
- Monitoring utility
- Port-based QoS for deterministic data transmissions
- Loop detection
- Dual power inputs

## Rackmount PoE Switch



TAIWAN  
EXCELLENCE 2016



### EKI-7428G-4CPI

#### Industrial Rackmount Managed Switch with 24G PoE, 4G Combo Ports

- 24 x IEEE 802.3 af/at PoE Gigabit ports, 4 x Gigabit copper/SFP combo ports
- IXM for rapid deployment
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- Wide operating temperature (-40 ~ 70 °C)
- EN50121-4 and NEMA TS2 certified

## Fully Managed PoE Switch



TAIWAN  
EXCELLENCE 2016



### EKI-7700 Series

#### Fully Managed PoE/PoE+ Industrial Ethernet Switch

- X-Ring Pro redundancy (recovery time < 20 ms)
- IXM for rapid deployment
- Wide operating temperature (-40 ~ 75 °C)
- EN50121-4 and NEMA TS2 certified

## Unmanaged PoE Switch



### EKI-5000/2000 Series

#### Unmanaged PoE/PoE+ Industrial Ethernet Switch

- Compact size
- Redundant power design
- Wide operating temperature (-40 ~ 75 °C)
- IP30-rated chassis design
- IECEx, ATEX, CID2 certifications for hazardous environments (EKI-5000 Series)

## EN50155 Rolling Stock Switches



### EKI-9500 Series

#### M12 Managed Ethernet Switch with EN-50155 & EN-45545 Certifications

- All Gigabit connections support dual ring protection and non-blocking traffic forwarding
- M12 connector with IP67 protection
- IEEE 802.3af/802.3at per port with system PoE power Management (PoE models)
- Wide operating temperature (-40 ~ 75 °C)

## IEC61850 Switch



### EKI-9228 Series

#### Industrial Rackmount Managed Switch with IEC-61850 Certification

- 16 x Gigabit RJ-45 ports, 4 x SFP ports, 8 x Gigabit combo ports
- SFP socket for easy and flexible fiber expansion
- Gigabit X-Ring redundancy (ultra-high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP
- Dual wide-range AC/DC power input

## Network Management System



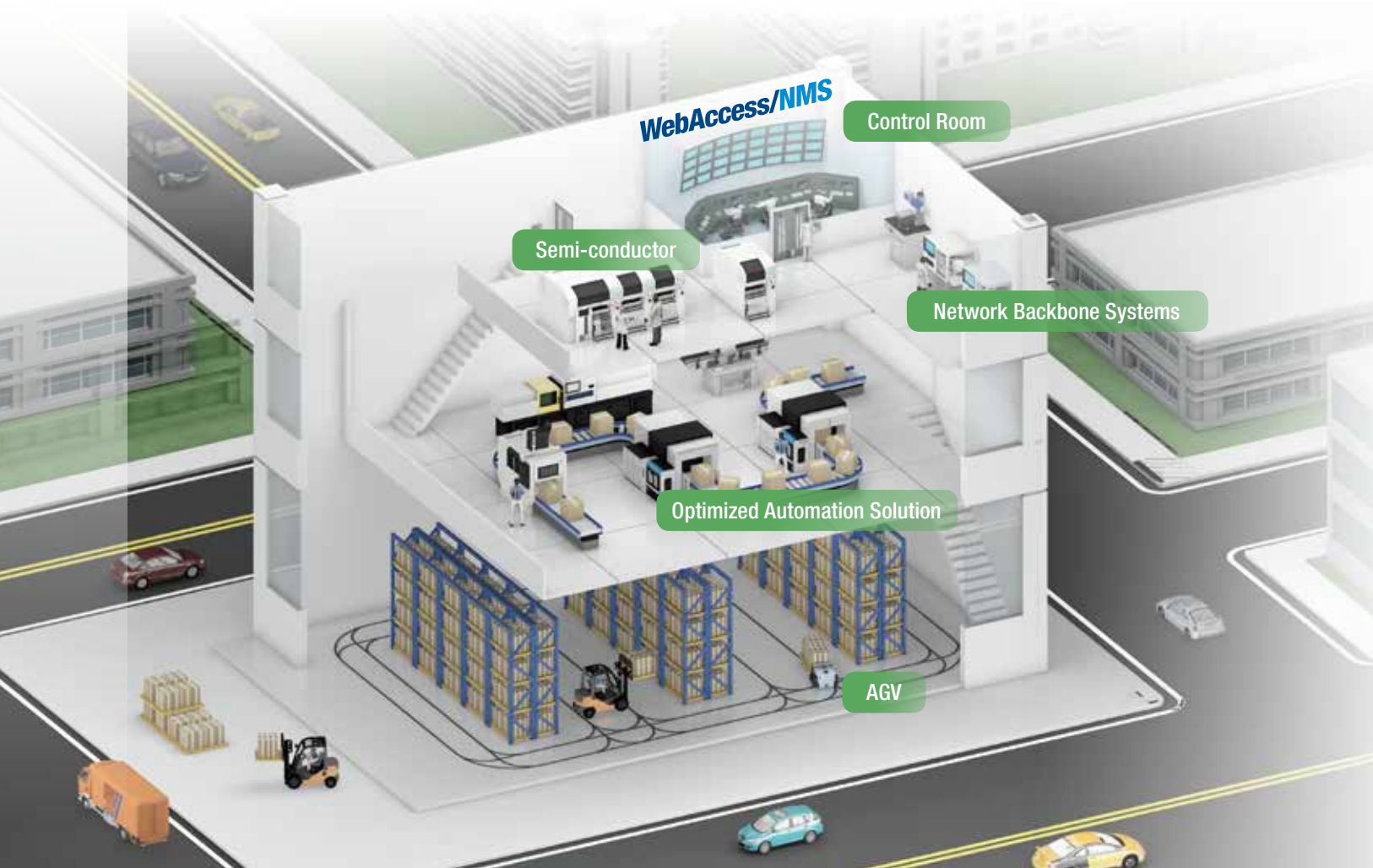
### WebAccess/NMS

#### Network Management System

- Cross-browser compatible
- Online Google Maps and offline OpenStreetMap support
- Supports all Advantech Ethernet-based products
- Automatically generated topology
- PoE, ring, wireless, cellular connection indication

# Machine and Factory Automation Systems

Ethernet networking offers a reliable and open network infrastructure that allows the various systems used with today's machine and factory automation applications to communicate effectively, resulting in a highly synchronized operation. Advantech's Factory and Machine Automation products target production automation, packaging automation, and logistics & warehousing that require a compact, reliable, and robust network system. Advantech helps customers achieve high scale volume production goals and raise market competitiveness.



## Comprehensive Industrial Networking Solutions for Machine and Factory Automation

### NMS

WebAccess/NMS



**WebAccess/NMS System**  
Network Management System

### Industrial Routers



**EKI-1331**  
Serial to 3G  
Industrial Gateway



**SmartFlex**  
LTE Industrial Router



**SmartStart**  
LTE Industrial Router

### Serial Device Server



**EKI-1520 Series**  
Rackmount/Din-Rail Serial Device Servers



## Control Room

Data in modern factories are transmitted through networking systems to center control rooms either for system monitoring or machine health prediction. Advantech's WebAccess/NMS is designed with SNMP and ICMP communication standards for managing all Ethernet-enabled Advantech products and third-party devices. WebAccess/NMS provides an easy-to-use platform to monitor and manage networks remotely. WebAccess/NMS enables industrial grade centralized networking management: a synthetic platform developed for remote monitoring, setting and maintaining devices via IP-based network.

## Network Backbone Systems

Stable network connection is critical to modern factories as machines and devices are connected and require Ethernet to communicate. Advantech EKI-9600/9700/7700 Series (Layer 3 and Layer 2) Managed Ethernet Switches support NMS to help IT managers with networking maintenance and failure prevention. X-Ring achieves ultra high speed recovery time of less than 20 ms to ensure high network stability.

## Optimized Automation Solution

EtherNet/IP and PROFINET are the leading automation communication standards that combine standard Ethernet technologies with industrial protocols to enable network convergence for IT and manufacturing control systems. Advantech's new generation protocol switches and gateways support EtherNet/IP and PROFINET protocols to communicate with EtherNet/IP and PROFINET based PLCs and also provide a FactoryTalk® View compliant faceplate for users to easily integrate with Allen-Bradley® PLCs.

## Auto Guided Vehicle (AGV)

Widely used across many industries, Automated Guided Vehicles (AGV) have been darting around factory floors for decades to facilitate production. Building an AGV system requires Ethernet switches and wireless modules. The AGV system includes a small EKI-5525 5-port Fast Ethernet Switch, an EKI-1361 wireless serial device server, and an EKI-6332GN WiFi AP/Bridge/Client wireless module to communicate with the control station, while in the control site an EKI-7710E Managed switch is responsible for sending signals to EKI-6332GN devices spread throughout the site.

### Industrial Fieldbus Gateway



### Industrial Ethernet Switches



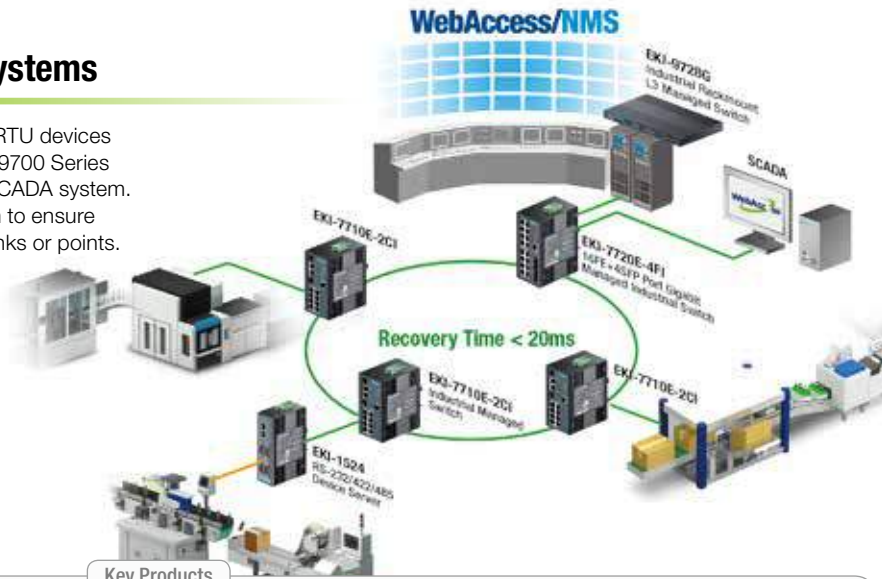
# Machine and Factory Automation Systems

## Control Room & Network Backbone Systems

Advantech's EKI-1524 serial device server connects PLC & RTU devices to EKI-7700 Series Redundant Managed Switches and EKI-9700 Series L3 Managed Switches and transmits real-time data to the SCADA system. Together they help build a robust network backbone system to ensure constant networking and eliminate downtime from broken links or points.

### Why Advantech?

- Complete communication solution
- Various form factor servers fit different system requirements
- Redundant managed Ethernet switch solution with IXM fast deployment technology for better control room and network backbone systems.
- Total solution for machine and factory automation system management including WebAccess/NMS and SCADA systems



### Key Products

#### WebAccess/NMS



#### WebAccess/NMS System Network Management System

- Cross-browser, cross-platform based on HTML5
- Google Maps and GPS location tracking integration
- Automatically discovers and diagrams network topology
- Support all Advantech IP-based devices & extension of 3 party devices



#### EKI-7700 Series

##### Industrial Managed Switch

- IXM function enables fast deployment
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB



#### EKI-9728G Series

##### Industrial Rackmount L3 Managed Switch

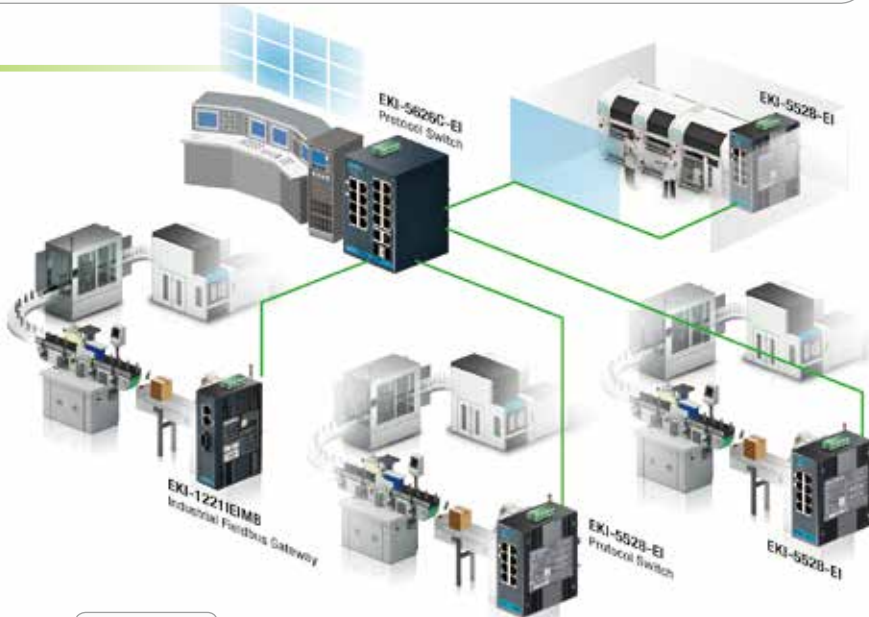
- Support 4 x 10GbE Fiber (SFP+) ports
- Support up to 12GE SFP ports
- Dynamic Routing : RIPv1/v2, OSPF, VRRP
- -40 ~ 85°C wide-range operating temperature

## Optimized Automation Solution

Advantech's new generation protocol switches and Fieldbus gateways support EtherNet/IP and PROFINET protocols to communicate with EtherNet/IP and PROFINET based PLCs and also provide a FactoryTalk® View compliant faceplate for users to easily integrate with Allen-Bradley® PLCs. The IP30 compact metal housing mechanism protects against dusty industrial environments and therefore ensures continuous device connectivity while the input power range from 8.4 to 52.8 VDC is dedicated to operating in areas with unstable power and rugged environments.

### Why Advantech?

- Seamless integration with Rockwell and Siemens PLCs
- Easy and fast deployment from Advantech IXM technology



### Key Products



#### EKI-1221EIMB EKI-1221PNMB

##### Industrial Fieldbus Gateway Supporting PROFINET and EtherNet/IP

- The most cost-effective way for protocol conversion
- Reliable protocol extensibility to achieve interoperability
- Built-in diagnostic tool to collect data and monitor device status in real-time



#### EKI-5500/5600 Series

##### Industrial Protocol Switch Supporting PROFINET, EtherNet/IP and Modbus TCP

- Compatible with SIMATIC step 7 and TIA portal (PROFINET compatible models)
- PROFINET models support Media Redundancy Protocol (MRP)
- Faceplate compatible with Rockwell FactoryTalk® View (EtherNet/IP compatible models)
- Easy and fast deployment from Advantech IXM technology
- Crucial management functions embedded





## Auto Guided Vehicle (AGV)

EKI-5525 managed Ethernet switch allows for better control and monitoring of network status with rich EKI-6331AN wireless AP/Client providing reliable 5GHz wireless connectivity and more channels for communication with less interference. The EKI-6331AN PoE adapter also enhances flexibility in AP/Client deployment even where DC power supply is not available. Along with EKI-7710E-2C managed Ethernet switches, they help you build a solid AGV system for modern factories.

### Why Advantech?

- Viewable managed switch for monitoring device connectivity status
- Fast roaming for seamless wireless connectivity
- X-Ring Pro supports rapid and predictable convergence in control site



### Key Products



#### EKI-5525

Unmanaged Ethernet Switch

- Port-based QoS for deterministic data transmission
- 12 ~ 48 Vdc (8.4 ~ 52.8 Vdc ) wide-range power input
- IEEE 802.3az Energy Efficient Ethernet (EEE) Jumbo Frame Support
- Loop detection



#### EKI-7710E-2C

Industrial Managed Switch

- IXM function enables fast deployment
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- IP30



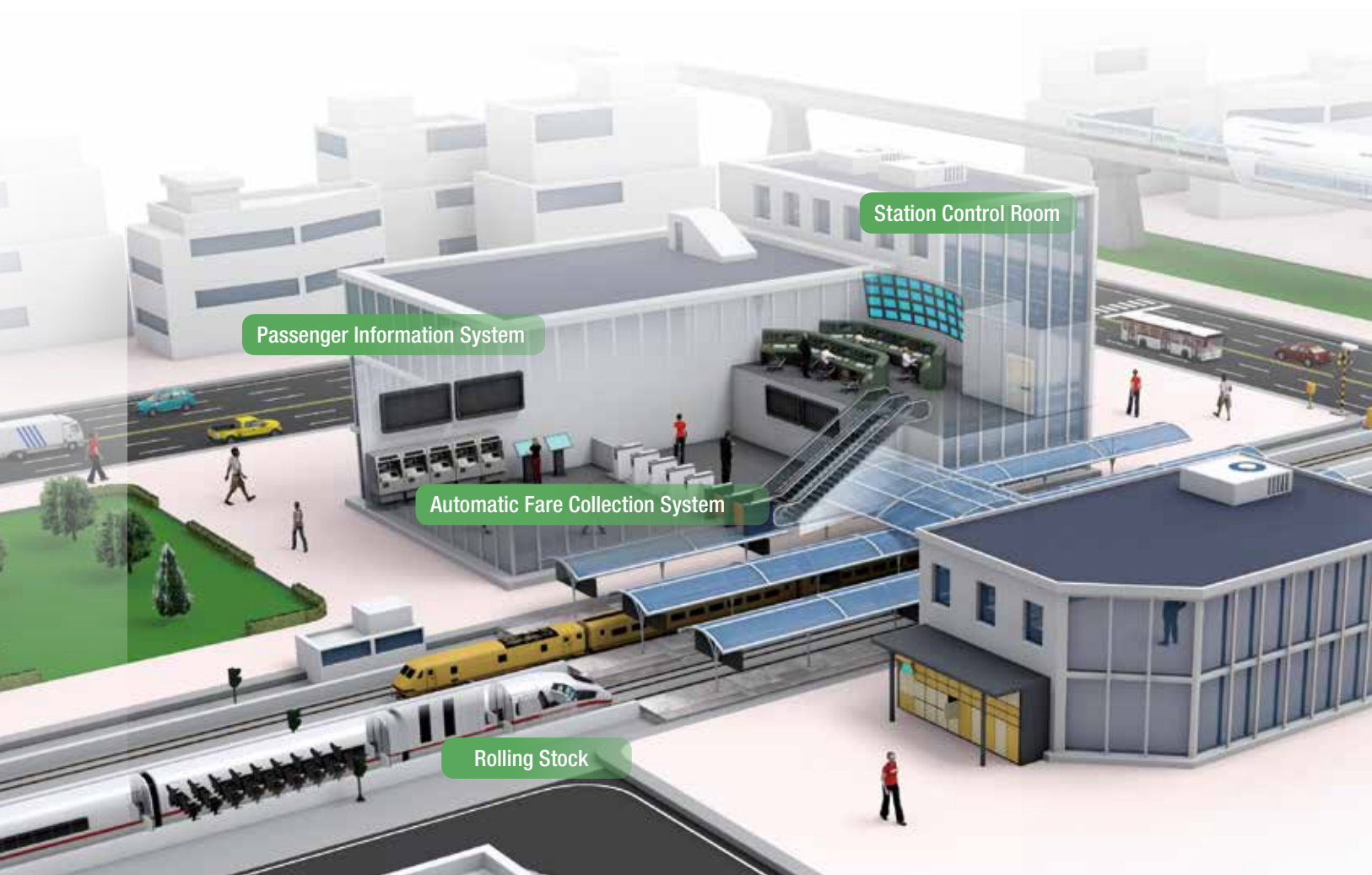
#### EKI-6331AN

IEEE 802.11 a/n Wi-Fi AP/Client

- Compliant with IEEE 802.11 a/n
- IP55 waterproof certification
- MIMO 2 x 2 11n
- External RP-SMA connectors for 2T2R antennae
- High output power
- Passive 24V PoE

# Railway Systems

The rapid acceptance of Ethernet-based networking in railway infrastructures provides many subtle benefits to traveler's worldwide. Industrial Ethernet backbones offer high bandwidth to enable many IP-based applications. Advantech provides stable industrial communication solutions to fulfill railway system applications in train stations, Rolling stock, and station control system applications.



## Comprehensive Industrial Networking Solutions for Railway Systems

### Rackmount Switch



**EKI-9728G**  
L3 Rackmount Industrial Managed Switch



**EKI-7428G-20FA**  
L2 Rackmount Industrial Managed Switch

### EN50155 Switches



**EKI-9516P/9512P**  
EN50155 M12 Managed Ethernet PoE Switch



**EKI-9508E**  
EN50155 Managed PoE Switch

## Passenger Information System

Advantech WebAccess/NMS is designed with SNMP and ICMP communication standards for managing all Ethernet-enabled Advantech products and third-party devices. WebAccess/NMS can bring users an easy-to-use platform to monitor and manage networking remotely and enable industrial grade centralized networking management.

## Rolling Stock Communication

Advantech's EN50155 M12 Switch fulfills a wide range of applications in moving trains as it guarantees a reliable performance under vibration and shock. For passenger information systems (PIS) this allows for connecting with LCD and LED display boards which offer travel information, news and advertisements. For in-seat video entertainment systems (VES) this offers video monitors mounted on the back of every seat. And for IP surveillance this guarantees these devices can reliably connect with cameras for a variety of applications that provide increased safety and security.

## Automatic Fare Collection System

In modern railway stations, automatic fare collection (AFC) systems include ticket vending machines (TVM), ticket checking machines (TCM), and gate control systems which require switches that can ensure fast, reliable, safe, and redundant operation.

## Wayside Control

To control the trains from the wayside control cabinet, there are specific controllers including CBI, TCC, RBC, and TSRS to ensure non-stop operation. Advantech industrial Ethernet switches form a dual fiber optic ring network, and each controller is connected simultaneously to these 2 fiber rings. With Advantech's X-Ring Pro technology which ensures that a backup circuit is established in just 20ms to compensate for errors such as broken links, this comprehensive redundancy concept offers maximum possible security.

## Station Control Room

Transportation systems include control room systems aim at providing communication, security, surveillance, and technology for safe, convenient and comfortable travel for all commuters. Advantech's industrial communication solutions provide robust Ethernet solutions that connect devices and ensure secure data transmission to the backend system.



### Industrial Ethernet Switches



**EKI-7700 Series**  
Industrial Managed  
Ethernet Switches

**EKI-7700 PoE Series**  
Industrial Managed  
PoE Switches

**EKI-5000 Series**  
Viewable  
Unmanaged  
Ethernet Switch

### Industrial Device Servers



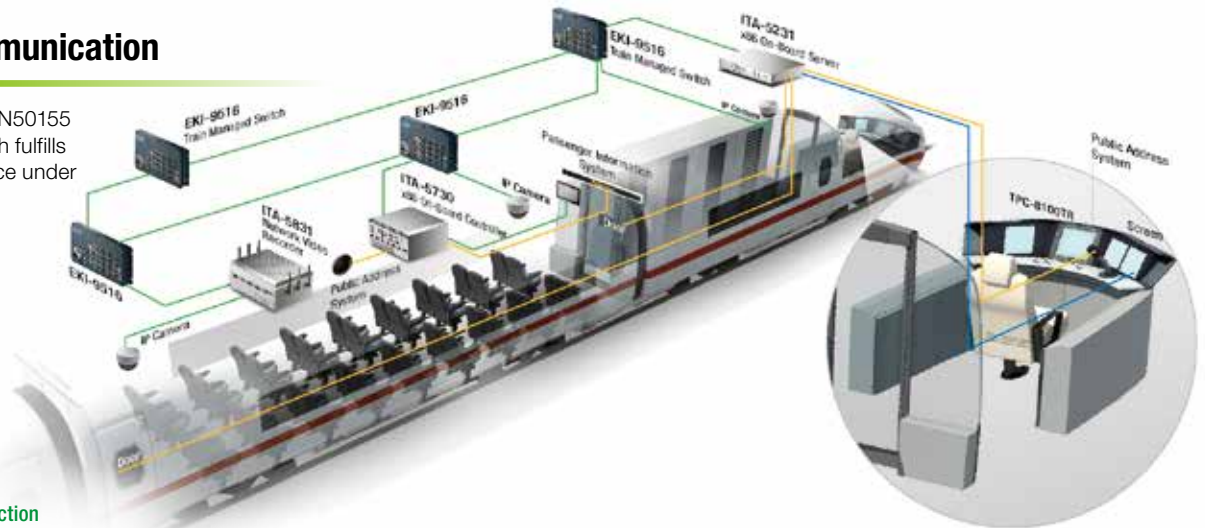
**EKI-1520 Series**  
Rackmount Serial Device Servers

**EKI-1520 Series**  
Serial Device Server



## Rolling Stock Communication

Advantech EKI-9500 series EN50155 complied M12 Ethernet Switch fulfills guarantee reliable performance under vibration and shock in train.



### Why Advantech?

- M12 connector with IP67 protection
- Certified with EN50155 and compliant with EN45545-2
- X-Ring Pro supports rapid and predictable convergence
- LAN Bypass will assure continuous system operation when Ethernet Switch fails

#### Key Products



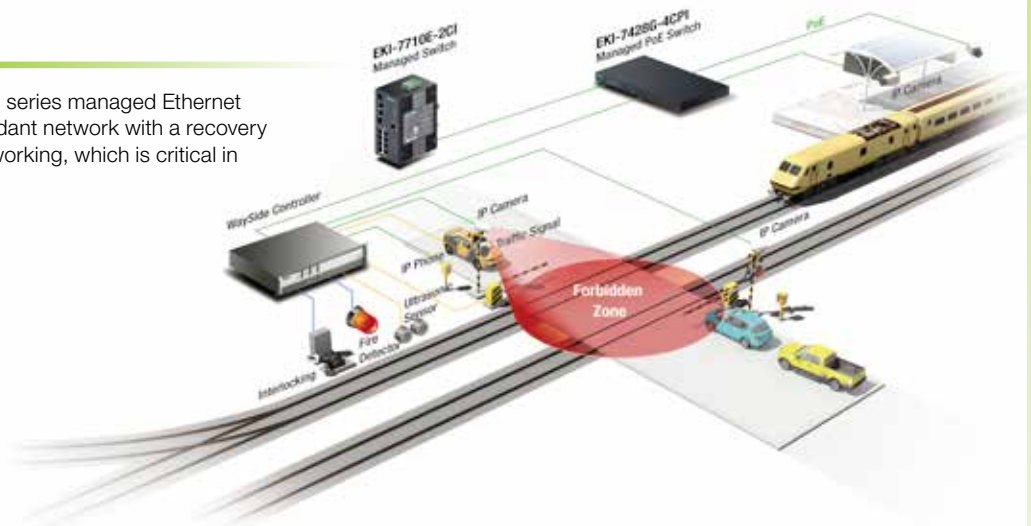
#### EKI-9512/P/9516/P

EN-50155 M12 Managed Ethernet Switch

- Certified with EN50155 and compliant with EN45545-2
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- M12 connector with IP67 protection
- IEEE 802.3af/802.3at per port with system PoE power management (PoE models)
- Two-pair LAN-Bypass ports

## Wayside Control

In a wayside control system, Advantech EKI-7000 series managed Ethernet switch provides an easy way to establish a redundant network with a recovery time of less than 20ms to ensure continuous networking, which is critical in transportation systems.



### Why Advantech?

- Complete communication solution
- Various form factors to fit different system requirements

#### Key Products



#### EKI-7700 Series

Industrial Managed Switch

- IXM function enables fast deployment
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- Certified with EN50121-4



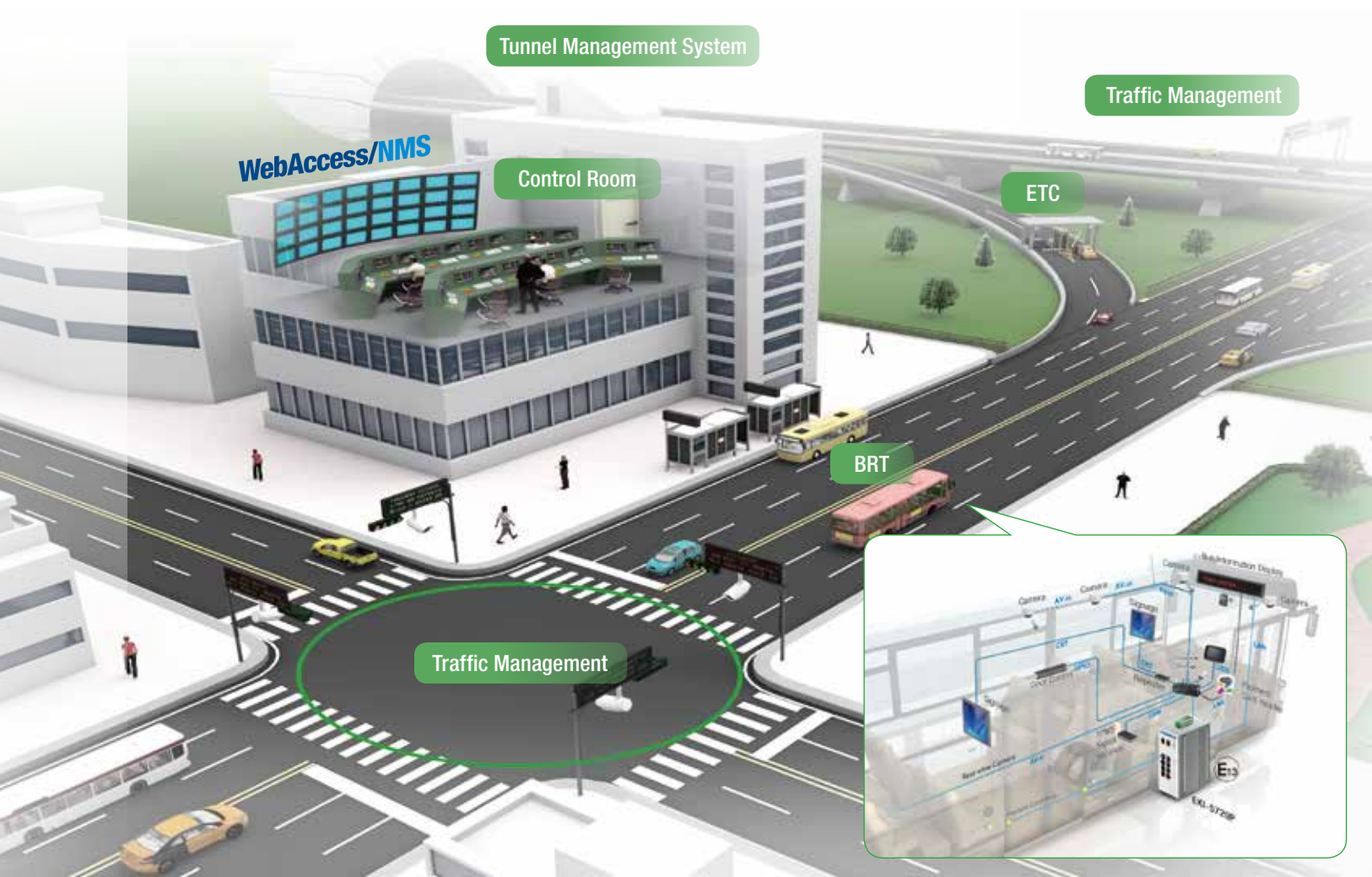
#### EKI-7428G-4CPI

Industrial Rackmount Managed PoE Switch

- 24 x IEEE 802.3 af/at PoE Gigabit ports + 4 x Gigabit Copper/SFP combo ports
- IXM for Fast Deployment
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- -40 ~ 70°C wide-range operating temperature

# Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) aim at providing communications and technology that allow safe, convenient, comfortable, efficient, and environmentally friendly travel for all commuters. Many cities worldwide are in the midst of improving their transportation system infrastructures, and Advantech is there to provide a helping hand, offering advanced product solutions for the freeway market segment, including freeway entrance controls, traffic information systems, tunnel monitoring systems, electronic toll collection systems, vehicle count & classification, and IP surveillance.



## Comprehensive Industrial Networking Solutions for Intelligent Transportation Systems

### NMS

WebAccess/NMS



**WebAccess/NMS System**  
Network Management System

### Industrial Routers



**SmartFlex**  
LTE Industrial Router



**SmartStart**  
LTE Industrial Router

### Media Converters



**MiniMc**  
Miniature Media Converters



## Control Room

Transportation systems include control room systems aim at providing communication, security, surveillance, and technology for safe, convenient and comfortable travel for all commuters. Many cities worldwide are in the midst of improving their control room systems, and Advantech is there to provide a helping hand, offering advanced industrial communication product solutions with flexible and high-performance, trusted monitoring system WebAccess/NMS to make ideal solutions for system integrators.

## Tunnel Management System

Distributed network control architectures are used for Tunnel Management Systems to provide traffic guidance, CCTV, fire alarm, and ventilating systems while collecting several sensor data, such as vehicle detectors, COVI, visibility, and wind sensors. Compact and high performance Ethernet switches provide redundant network connections.

## City Traffic Management

Advantech offers total solutions for Real-time Traffic Information Display Systems to accommodate difference needs. We offer Ethernet switches, serial device servers, and controllers. The system quickly and reliably sends urban traffic information to the control center for real-time city traffic management.

## Bus Rapid Transit (BRT)

A mobile onboard computing and back-office communications system is applied in a Bus Rapid Transit (BRT) system application. This not only offers a rapid, punctual, secure and convenient service to passengers, but it also improves the operational efficiency for fleet management via real-time communication. Advantech's eMark certified in-vehicle solutions ensure the realization of the BRT system. eMark certified EKI-5000 Series are used to ensure the BRT provides secure data transmission for signage displays to deliver instant information to passengers and for the surveillance cameras to enhance security by recording interior views of the passenger compartment.

## Electronic Toll Collection (ETC)

In the evolution from manual to electronic toll collection, an intelligent and high performance system was required to decrease workforce requirements as well as assuring traffic flows on the highway. Its inherent robustness assures stable roadside functionality. Our communication solutions ensure nonstop data transmission and play a critical role in the system. The compact size, industrial grade mechanism design makes Advantech's communication products offered the best connectivity solution for this electronic toll collection application.

## Industrial Ethernet Switches



**EKI-7700 Series**  
Industrial Managed  
Ethernet Switch



**EKI-7700 Series**  
Industrial Managed  
PoE Switch



**EKI-5000 Series**  
Unmanaged Ethernet Switch



**E13 EKI-5624P, EKI-5729P Series**  
e-Mark certified unmanaged switch

# Intelligent Transportation Systems



## Control Room

Advantech EKI-9728G Industrial Rackmount L3 Managed Switch provides static and dynamic routing to connect data transmitted from the roadside to the control room and provide real time status updates and monitoring to ensure efficiency and safety.

## WebAccess/NMS



### Key Products



#### EKI-9728G

Industrial Rackmount L3 Managed Switch

- Static Routing
- Dynamic routing: VRRP, OSPF, RIP V1/V2
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standar MIB Security: 802.1x (Port-Based, MD5/TLS/TTLS/ PEAP Encryption), HTTPS, SSH and SNMPv3
- Dual power input and 2 relay output

#### WebAccess/NMS



#### WebAccess/NMS System

Network Management System

- Cross-browser, cross-platform based on HTML5
- Google Maps and GPS location tracking integration
- Automatically discovers and diagrams network topology
- Support all Advantech IP-based devices & extension of 3 party devices

## Bus Rapid Transit (BRT)

Advantech EKI-5729P/PI and EKI-5624P/PI from the Viewable Unmanaged Ethernet Switch series are eMark certified and designed for in-vehicle applications and surveillance. These switches are classified as power source equipment (PSE) and come with the port-based QoS for deterministic data transmissions that allow the priority ports to prioritize the traffic coming over those ports and redirect the less immediately necessary data over the remaining ports.

### Why Advantech?

- eMark certified Ethernet Switch solution
- Remote control PoE function by SNMP



### Key Products



#### EKI-5729P/PI, EKI-5624P/PI

Unmanaged PoE Switch

- EMS level 3 protection for extreme outdoor environments
- Port-based QoS for deterministic data transmission
- Jumbo Frame Support (Up to 9,216 Bytes)
- e-Mark certified for in-vehicle application

## Tunnel Management System

Advantech EKI-7700 series Redundant Managed Ethernet Switches allow for continuous network operation, while EKI-1520 series serial device servers connect serial devices together for redundant networking solutions. The IXM technology embedded in EKI-7700 series allows for device fast deployment which reduces 90% of the time for device setting and maintenance.

### Why Advantech?

- Advantech total solution for industrial communication layer
- Redundant Managed Ethernet Switch solution allows for better control room and network backbone systems
- EKI-7700 series with IXM fast deployment technology for better efficiency
- Wide operation temperature

### Key Products



#### EKI-7710E-2CPI

Industrial Managed PoE Switch

- IXM function enables fast deployment
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- EN50121-4, NEMA-TS2 certified
- Support PoE/PoE+



#### EKI-1524 Series

RS-232/422/485 Device Server

- Provides 10/100 Mbps Ethernet ports for LAN redundancy
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Built-in 15 KV ESD protection for all serial signals
- Wide temperature

## City Traffic Management System

Advantech EKI-7700 series Redundant Managed PoE Ethernet Switches with X-Ring technology offer less than 20ms recovery time to ensure always an connected network for either surveillance or car speed monitoring systems to provide better and safer city traffic information sharing.

### Why Advantech?

- Complete communication solution
- Redundant Managed Ethernet Switch solution with IXM fast deployment technology for better control room and network backbone systems.
- Wide operation temperature

### Key Products



#### EKI-7712E Series

Gigabit Managed Redundant Industrial Switch

- IXM function enables fast deployment
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- EN50121-4, NEMA-TS2 certified

## Electronic Toll Collection (ETC)

EKI-7710G-2CPI series Redundant Managed PoE Switches provide high bandwidth real-time data transmission for surveillance systems that require real time and high resolution image transmission and, offers less than 20ms recovery time to ensure a 24/7/365 continuous robust networking solution.

### Why Advantech?

- Redundant Managed Gigabit Power over Ethernet (PoE) solutions offer high resolution image transmission with extra redundancy
- EKI-7700 series with embedded IXM fast deployment technology allows efficient device setting and maintenance.
- Wide operation temperature

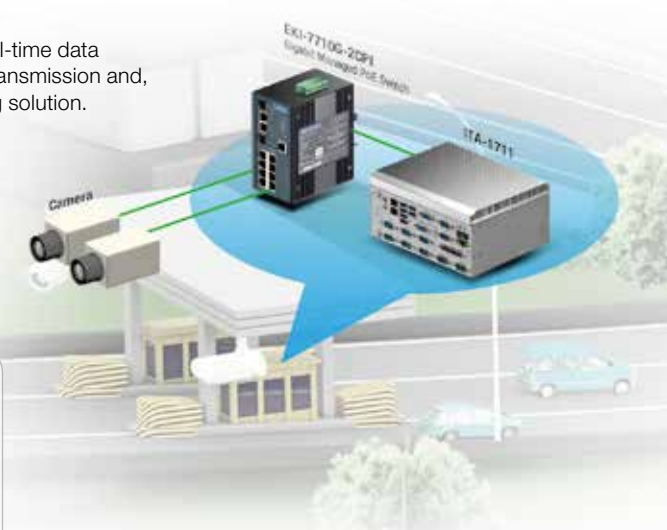
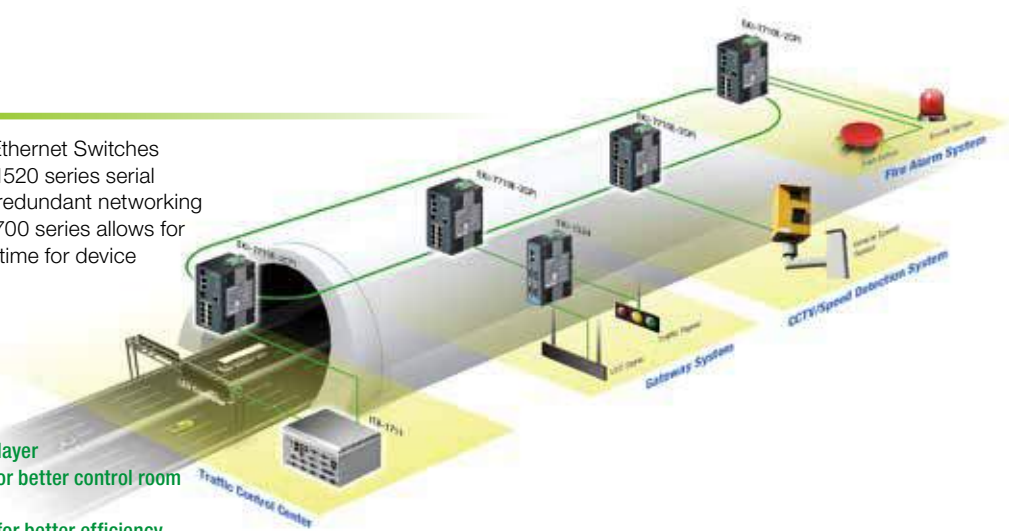
### Key Products



#### EKI-7710G-2CPI

Industrial Managed PoE Switch

- IXM function enables fast deployment
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- EN50121-4, NEMA-TS2 certified
- Support PoE/PoE+



# Smart Grids and Oil & Gas

Advantech provides Industrial communication solutions to build automated systems for the real-time central monitoring of a variety of field data acquired from remote locations including wind farms, solar farms, and oil wells. Gateway solutions are used to acquire a variety of field data, while wireless solutions are used to solve the issue of complex wiring problems. Large amounts of information is processed in cloud servers, and industrial grade switches with required certifications provide continuous data transmission. Finally, SCADA software presents real-time monitoring information, failure alarms and customized reports to effectively develop maximum operational efficiency of wind farms and photovoltaic power stations.



## Comprehensive Industrial Networking Solutions for Smart Grids and Oil & Gas

### NMS

#### WebAccess/NMS



**WebAccess/NMS System**  
Network Management System

### Industrial Routers



**SmartFlex**  
LTE Industrial Router

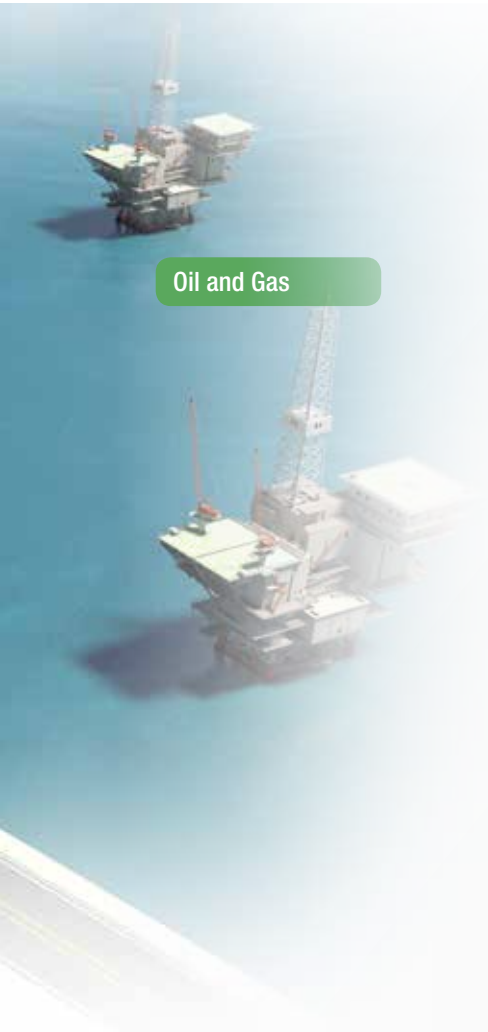


**SmartStart**  
LTE Industrial Router

### Industrial Wireless



**EKI-6331AN/EKI-6332GN**  
IEEE 802.11n WiFi AP/Bridge/Client



Oil and Gas

## Wind Power Transmission System

Wind power plants require many information management systems and remote wind turbine monitoring systems. Wind power is often used in harsh environments with high day/night temperature differences and serious dust and/or sand exposure. The rugged electromagnetic environment of the motor control systems requires an industrial switch with excellent anti electromagnetic interference capability and long MTBF. In order to enhance communication reliability, the operator has to set up a redundant ring with short failover time. When any error occurs in the communication network, the switch should smoothly switch to the redundant backup line. Fiber optic managed switches with wide temperature operating ranges help provide a reliable X-Ring Pro networking topology to ensure uninterrupted data transmission.

## Solar Power Transmission System

To harness the sun's power, many countries have been investing in solar technologies for over 30 years. Today's solar power systems include reflectors, mirrors, heat insulating absorbers, motion control technologies, and data transmission systems. Advantech's industrial LTE/3G Cellular Routers are a perfect fit for wireless data transmission systems due to their great performance, reliability and ruggedness. LTE/3G Cellular Routers collect data from solar panels and inverter, pyranometer, and relative sensors. This information is then transmitted through cellular data networks to the control center to easily access real-time information. LTE/3G Cellular Routers provide dual SIM slots for redundancy and one SD slot for storage expansion.

## Hazardous Location Monitoring System in Oil & Gas

Wells and pumping stations are located in remote and hazardous environments where wide temperatures, pressure, and vibration are normal and high security is required to protect valuable equipment and prevent accidents. Advantech's Industrial Communication Solution includes cellular routers, Ethernet switches (ATEX/C1D2 certified) and serial device servers which are designed to build robust communication solutions to connect central control rooms with remote devices to ensure continuous data transmission for hazardous location monitoring and maintenance.

### Industrial Ethernet Switches



**EKI-7700 Series**  
Industrial Managed PoE Switch

**EKI-7700 Series**  
Industrial Managed Ethernet Switch

**EKI-5000 Series**  
Unmanaged Switch



### IEC-61850



**EKI-9228G**  
IEC-61850 Industrial Rackmount Managed Switch

### Surge Protector & Isolator

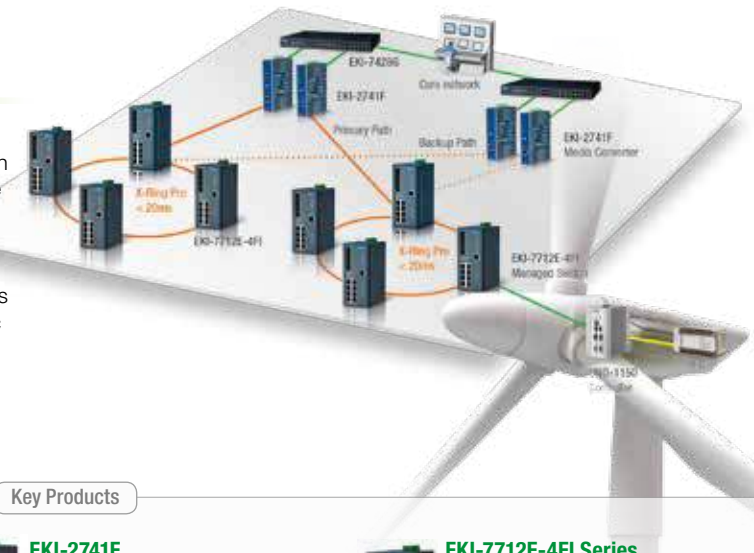


**2320PDRI, 4850PDRI, HESP4DR**  
Isolator/Repeater & Surge Protector

# Smart Grids and Oil & Gas

## Wind Power

Advantech industrial grade Ethernet Switches provide rugged communication solutions for harsh environments such as wind farms in contact with high/low, day/night temperature fluctuations and extreme dust/sand exposure. EKI-7712E-4FI Redundant Managed Ethernet Switch with redundant ring smoothly switches to the redundant backup line if connection failures occur. Moreover, the IXM embedded function allows for fast deployment which dramatically saves engineers time and cost. The overall solution also includes EKI-2741F Fiber Optic Industrial Media Converter and EKI-7428G Rackmount L2 Managed Switch, which provides redundant networking with excellent anti-electromagnetic interference capability and long MTBF to ensure smooth transmission rates.



### Key Products



#### EKI-7428G-4CPI

Industrial 24G L2 Managed PoE Switch

- SFP socket for Easy and Flexible Fiber Expansion
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTL/PEAP Encryption), HTTPS, SSH and SNMPv3
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP



#### EKI-2741F

Fiber Optic Gigabit Industrial Media Converters

- 1000 Mbps Ethernet port with RJ45 connector
- Supports MDI/MDI-X auto crossover
- Provides Link Fault Pass-through (LFP)
- Jumbo Frame: 9K bytes



#### EKI-7712E-4FI Series

Gigabit Managed Redundant Industrial Switch

- IXM function enables fast deployment
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB

## Oil and Gas

### Wired and Wireless Communication Solution for Oil Platforms

To ensure continuous remote monitoring of drilling platforms, the communication infrastructure needs to be robust and redundant due to the severe hazards and challenges present in oil platforms. Advantech EKI-7710G-2CPI Managed PoE Switch provides a stable communication solution for extreme temperature operation, while its high bandwidth enables high quality data, voice, and video transmission. Combined with EKI-6330 series WiFi solutions and EKI-1331 Gateway, they provide a robust industrial grade communication solution for oil platforms.



### Why Advantech?

- Wide temperature models allow for stable communication in extreme temperatures
- High bandwidth Ethernet Switch solutions for high quality data, voice, and video transmission
- Redundancy prevents data loss from network connection failures
- Complete communication solutions to provide solid networking

### Key Products



#### EKI-7710G-2CPI

Industrial Managed PoE Switch

- IXM function enables fast deployment
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB



#### EKI-6331AN

IEEE 802.11 a/n Wi-Fi AP/Client

- IP55 waterproof certification
- MIMO 2 x 2 11n
- High output power
- Passive 24V PoE



#### EKI-5000 Series

Unmanaged Switch

- UL C1D2, ATEX, IECEx certified
- Monitoring utility
- Port-based QoS for deterministic data transmissions
- Loop detection
- Dual power inputs



#### EKI-1524 Series

RS-232/422/485 Device Server

- COM port redirection (Virtual COM), TCP and UDP operation modes
- Built-in 15 KV ESD protection for all serial signals
- Supports line to line 4 KV, line to ground 8 KV
- Provides isolation and wide operating temperature



#### EKI-1331

Serial to 3G Industrial Gateway

- Universal five-band UMTS/HSPA+850/900/1800/1900/2100 MHz
- Protocols converting between serial and Ethernet: Modbus RTU & TCP
- Provides NAT and VPN
- EMC Level III for industrial standards

## Solar Farm

Advantech SmartFlex cellular routers offer abundant connection options to the cellular network including Serial Ports, Modbus, WiFi, and Ethernet devices for reliable connection in remote areas. The dual SIM slots support LTE signal redundancy and switch to an available channel automatically while disconnecting the current channel. Additional modules provide a flexible SW architecture environment for creating various customized applications.



### Why Advantech?

- Wide range power input from 10 to 60 VDC, 2 KV EFT/Surge protection to prevent damage from various types of power resources
- 2 KV serial line protection
- Dual SIM slots support LTE signal redundancy and switch to an available channel automatically

### Key Products



#### SmartFlex

LTE Industrial Router

- LTE/3G(800 / 900 / 1800 / 2100 / 2600 MHz)
- Dual SIM for telecom redundancy
- Wide range DC input(10-60VDC) and wide range operating temperature ( -40 to +75 °C)
- Connect Ethernet and Serial Devices over VPN
- Various interface: serial ports, Modbus, I/O, WiFi, GPS, USB, SD card slot, and Ethernet



#### EKI-1224CI

Modbus Gateway with Isolation and Wide Temperature

- 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Integration of Modbus TCP and Modbus RTU/ASCII networks
- Surge protection for D.C. power ports with line to line 2 KV, and line to earth 4 KV; for signal ports with 4 KV
- Support isolation and wide operating temperature



#### EKI-1361

WLAN Serial Device Server

- Links any serial device to an IEEE 802.11 a/b/g/n network
- Provides 1/2 x RS-232/422/485 port
- Secures data access with WEP, WPA, and WPA2
- Supports WLAN Ad-hoc and infrastructure modes
- Support Dual band 2.4G/5G selective



#### EKI-6332GN

802.11N WiFi AP/Bridge/Client

- Compliant with IEEE 802.11 a/n and 802.11 b/g/n
- High output power
- Fast roaming
- IP55 waterproof

## Wireless Solutions for Oil Well Pump Trucks

Pump trucks with WiFi solve the problem of oil and gas wells that are located far from existing Ethernet networks. Advantech EKI-6330 series WiFi AP/Bridge/Client are simple to deploy and easy to adapt. They can be installed on pump trucks and in mobile control centers to achieve excellent communication and allow nearby laptops and wireless devices to connect to the same network.

### Why Advantech?

- High flexibility WiFi devices allow for user friendly device deployment

### Key Products



#### EKI-6331AN

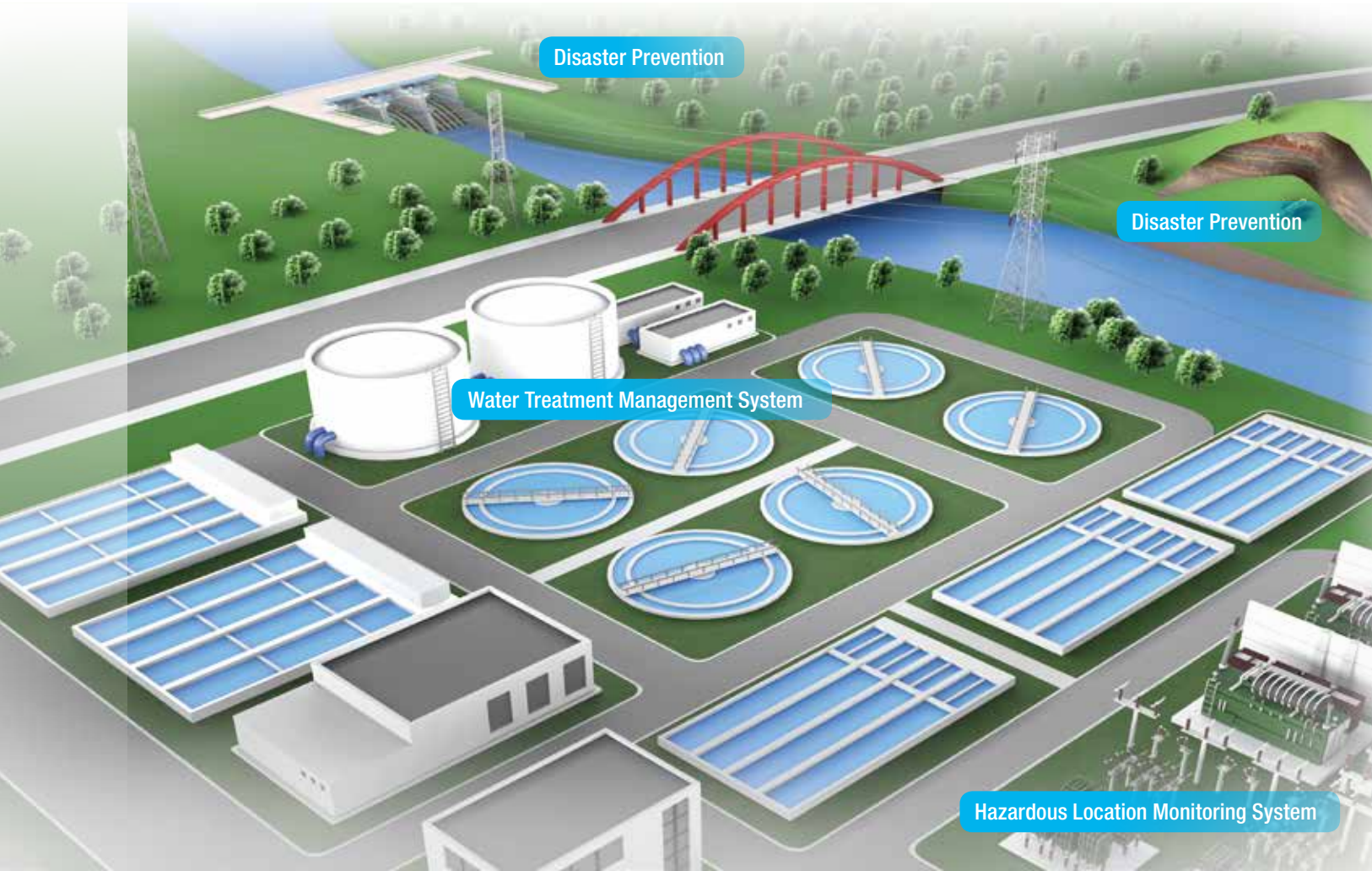
IEEE 802.11 a/n Wi-Fi AP/Client

- IP55 waterproof certification
- MIMO 2 x 2 11n
- High output power
- Passive 24V PoE



# Environment and Facility Management Systems

Advantech has an excellent reputation for developing Environmental and Facility Management Systems (EMS). While Environmental Monitoring applications focus on air, water, river, dam and electric applications, Facility Management targets factory and remote SCADA applications. Advantech's air quality monitoring systems, hazardous location monitoring systems, and waste water treatment management systems provide value-added systems and solutions, allowing users to monitor and operate processes anytime anywhere.



## Comprehensive Industrial Networking Solutions for Environment and Facility Management Systems

### NMS

WebAccess/NMS



**WebAccess/NMS System**  
Network Management System

### Industrial Routers



**SmartFlex**  
LTE Industrial Router

### Media Converters



**EKI-2741 / EKI-2541 Series**  
Media Converter



**MiniMc**  
Miniature Media Converters



## Water and Wastewater Treatment

Proper water treatment is a very important endeavor for all industrial and public enterprises. Water treatment produces organic and mineral sludge from filtration and sedimentation. Therefore, it is important to centralize the measurement of water consumption, collect all the information on the status of the water, and remotely control the water flow level in each node (branch). Advantech offers complete water and waste water treatment monitoring and control systems for treating water to obtain very high quality water.

## Disaster Prevention

Data needed for disaster prevention is collected from remote locations ; therefore, product stability and remote firmware upgrade functions are crucial to reduce manpower on maintenance. Advantech's robust communication solutions including Network Management System, Industrial Router, Media Converter, and Managed Ethernet Switches provide a complete communication solution for real time monitoring of dams and rivers to prevent disasters.

## Hazardous Location Monitoring System

In chemical and petrochemical plants with hazardous areas, high security is required to protect valuable equipment and prevent accidents. Advantech's ATEX/C1D2 certified Industrial Communication Solution includes cellular routers, Ethernet switches and serial device servers which are designed for hazardous locations and provide reliable and robust communication connection.

### Industrial Ethernet Switches



**EKI-5000 Series**  
Unmanaged Switch



**EKI-7700 Series**  
Industrial Managed Switch



**EKI-7428G-4CI**  
Rackmount Managed Switch

### LoRa Gateways/Nodes



**SmartSwarm 243**  
LoRa Gateway

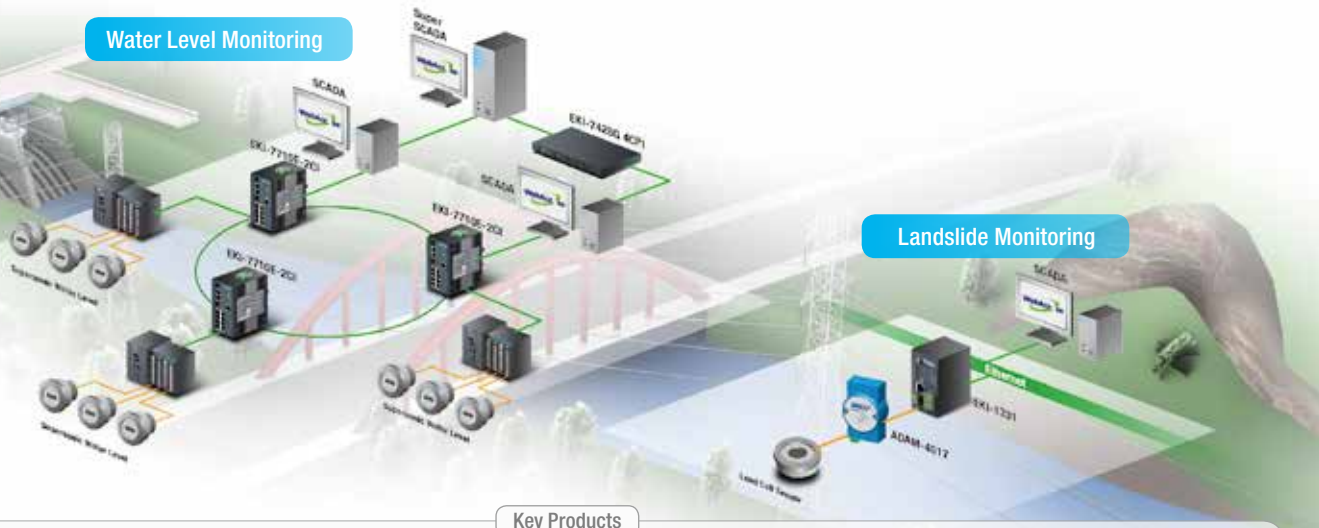


**Wzzard-LRPv Sensor Node**  
LoRa Node

# Environment and Facility Management Systems

## Disaster Prevention

Disaster prevention service providers need to collect various kinds of data from remote locations. This data often comes from different devices using different formats and protocols. The fact that this data often takes a long time to process before it is usable reduces the time available for the development of the GIS. To overcome the incompatibilities of different data formats, service providers should offer a total data acquisition solution that can store the data in a database that the GIS can use. Another drawback is that current systems do not support remote management. Therefore, when system settings need to be changed or a firmware upgrade must be performed, personnel have to be dispatched to the site in order to carry out their tasks.



### Key Products



#### EKI-7428G-4CPI

24G+4G Combo port L2 Rackmount Managed Switch

- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP
- 48VDC power input (46-57 VDC for POE af , 53 -57 VDC is recommended for at) and 2 relay output
- -40 ~ 70°C wide-range operating temperature



#### EKI-7710E-2CI

Gigabit Managed Redundant Industrial Switch

- IXM function enables fast deployment
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms)
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB

## Hazardous Location Monitoring System

In hazardous areas, high security is required to protect valuable equipment and prevent accidents. Advantech's EKI-1220 series Modbus Gateway connects PLCs while EKI-1520 Series Serial Device Server connects analog devices including temperature sensors, vibration sensors, alarms and PIR sensors, and send back all the data to the control center through EKI-7700 series redundant Managed Ethernet Switch. The networking solution includes Ethernet switches, Modbus gateways, and device servers that are UL, Class 1 Division 2 certified for hazardous locations.

### Why Advantech?

- Dual DC power input from 12 to 48 VDC and 2 KV EFT/Surge protection to prevent damage from various power sources
- Dual SIM slots support GPRS signal redundancy which switch channels automatically
- C1D2 certified
- Operating under wide temperature

### Key Products



#### EKI-5000 Series

Viewable Unmanaged Ethernet Switch

- Port-based QoS for deterministic data transmission
- 12 ~ 48 Vdc (8.4 ~ 52.8 Vdc ) wide-range power input
- IEEE 802.3az Energy Efficient Ethernet (EEE) Jumbo Frame Support
- Loop detection



#### EKI-1220 Series

Modbus Gateway

- Integration of Modbus TCP and Modbus RTU/ASCII networks
- Auto searching slave ID over configuration utility
- Built-in 15 KV ESD protection for all serial signals
- Automatic RS-485 data flow control



#### EKI-1524CI

RS-422/485 Serial Device Server

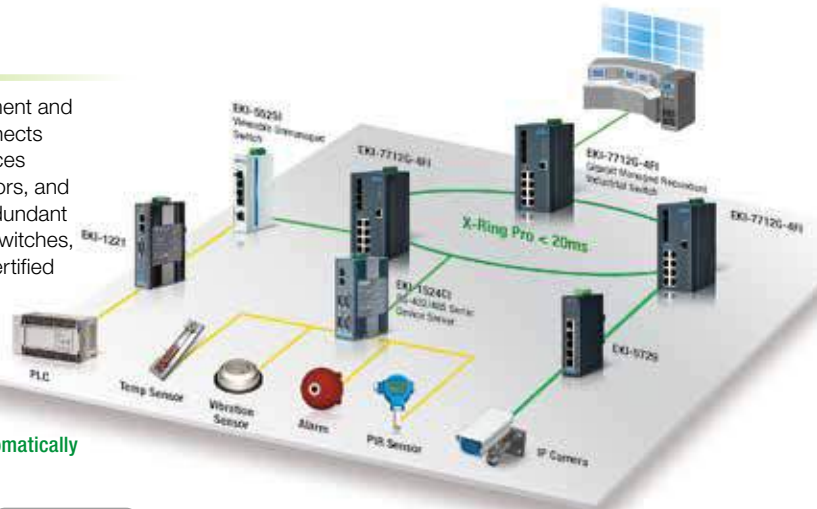
- COM port redirection (Virtual COM), TCP and UDP operation modes
- Built-in 15 KV ESD protection for all serial signals
- Supports line to line 4 KV, line to ground 8 KV
- Provides isolation and wide operating temperature



#### EKI-7712E-4FI Series

Gigabit Managed Redundant Industrial Switch

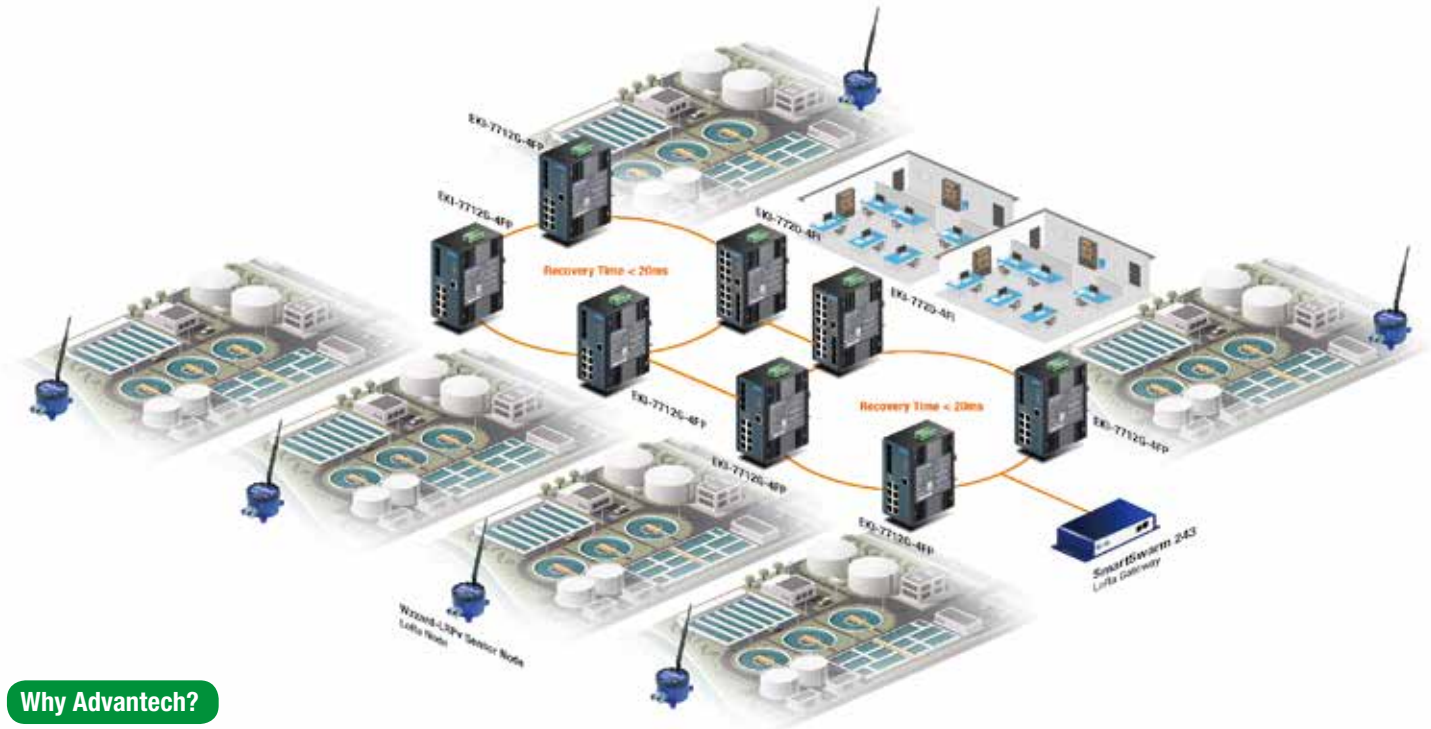
- IXM function enables fast deployment
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (Recovery time < 20 ms)





## Water Treatment Management System

Advantech EKI-7712E-4F/FI and EKI-7720E-4F/4FI Gigabit Managed Redundant Industrial Switches with IXM fast deployment technology not only allow for redundant Ethernet connection but also provide efficient device configuration and deployment. In addition, the switch offers excellent reliability with X-Ring Pro to avoid network down times of less than 20ms.



### Why Advantech?

- Selection of Redundant Managed Ethernet Switches to fulfill different applications
- IXM technology allows for easier deployment and configuration and improves the efficiency of device operation in remote areas

### Key Products



#### EKI-7712E-4FI Series

Gigabit Managed Redundant Industrial Switch

- IXM function enables fast deployment
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (Recovery time < 20 ms)



#### EKI-7720E-4FI Series

Gigabit Managed Redundant Industrial Switch

- IXM function enables fast deployment
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (Recovery time < 20 ms)



#### SmartSwarm 243

LoRa Gateway

- Long Range Wide Area IoT gateway
- Low power consumption for solar and battery power applications
- LoRa Private protocol for closing system application



#### Wizzard-LRPv Sensor Node

LoRa Node

- Low power consumption for solar and battery power applications
- Long Range Wide Area IoT gateway
- Rugged, IP67, fiber reinforced polyester PBT enclosure
- LoRa Private protocol for closing system application

# Surveillance System

## Parking Lot Surveillance

To deter theft, vandalism, and other criminal activities in the parking lots, video surveillance systems play an important role in securing the safety of the parking areas. Advantech's EKI-7700 Industrial Managed Switch Series and PoE+ Giga-MiniMc LFPT Media Converters, both complying with 802.3af-2003 (15W) and IEEE 802.3at-2009 (30W, PoE+) standards provide a reliable PoE function to ensure sufficient power supply in remote areas. Along with EKI-6330 AP Series, they ensure an uninterrupted data transmission from on-site equipment to the central control location. In addition, due to the compact and lightweight design of Giga-MiniMc LFPT Media Converters, it is no doubt the best choice when the installation space is limited.



### Why Advantech?

- Advantech EKI-7700 Series support PoE function to eliminate the need to run dedicated power lines out to the camera/PD location
- Compact-sized Advantech B+B PoE+ Giga-MiniMc LFPT media converters include two 10/100/1000 Mbps Power-over-Ethernet (PoE) copper ports and an SFP (Small Form Pluggable) fiber port
- Advantech EKI-6330 AP Series are designed to avoid cross-talk, interference or corruption of the data streams to ensure seamless data transmission

### Industrial Switches



**EKI-7428G-20FA**  
Industrial Rackmount  
L2 Managed Switch



**EKI-7710G-2CPI**  
Industrial Managed PoE+ Switch



**PoE 857-11811 & PoE+ 857-11911**  
PoE & PoE+ Giga-MiniMc/LFPT

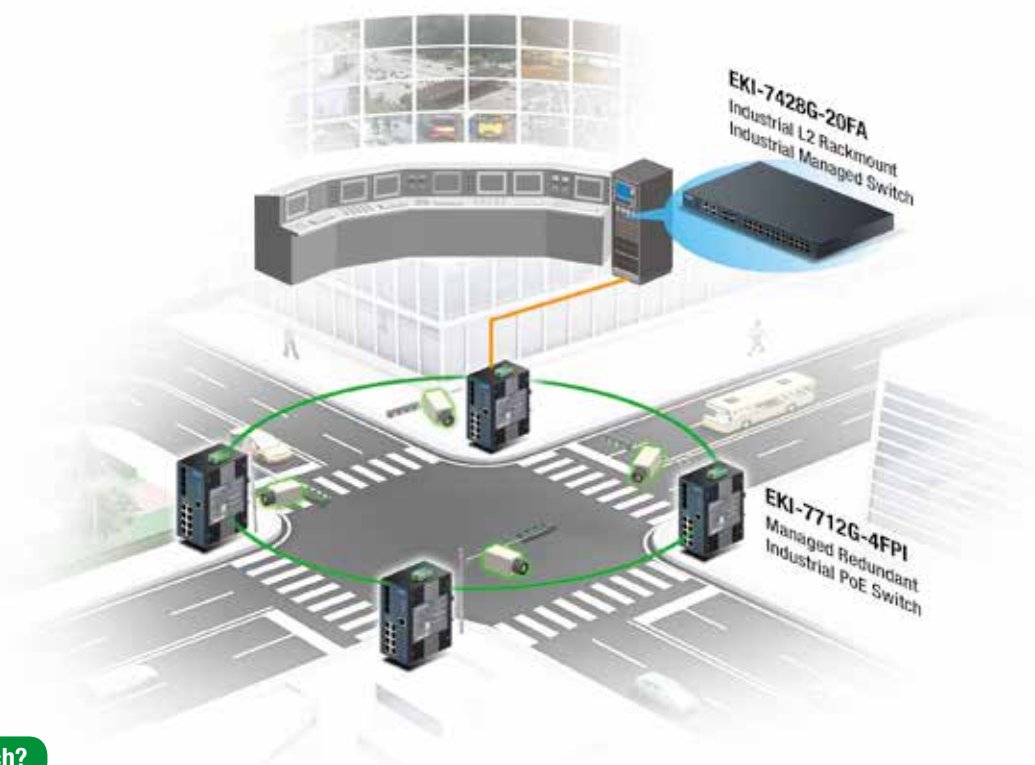


**EKI-6331AN & EKI-6332GN**  
IEEE 802.11 a/n & b/g/n Wi-Fi AP/Client



## Road Surveillance

Advantech's EKI-7000 Industrial Managed Switch Series are designed to support video streaming quality of service (QoS), Internet Group Management Protocol (IGMP), Virtual LAN (VLAN), rapid redundant function and extreme temperature environment to ensure an always-connected network for a better and safer traffic surveillance solution. In addition, Advantech's WebAccess/NMS, a trusted monitoring system further helps users to remotely access, monitor, and control the individual components of a network within a larger management framework, making it an ideal solution for road surveillance systems.



### Why Advantech?

- Advantech EKI-7700 Series support PoE, QoS, IGMP, VLAN and X-Ring function to ensure an always-connected network for a better and safer traffic surveillance solution.
- A network management system (NMS) is a software utility to allow users to monitor the individual components of a network within a larger network management framework.

### Industrial Switches



**EKI-7428G-20FA**  
Industrial Rackmount L2 Managed Switch



**EKI-7710G-2CPI**  
Industrial Managed PoE+ Switch

### NMS

#### WebAccess/NMS



**WebAccess/NMS**  
Network Management System

### Wireless Access Points/Client



Model Name		EKI-6331AN	EKI-6332GN
Description		IEEE 802.11 a/n Wi-Fi AP/Client	IEEE 802.11 b/g/n Wi-Fi AP/Client
Interface	IEEE Standard	IEEE 802.11 a/n	802.11 b/g/n
	100BaseFX	✓	✓
	1000BaseFX	-	-
RF	Frequency	2.4GHz	5GHz
	MIMO	2T2R	2T2R
	Multi-Hopping	✓	✓
	Mobility/Roaming	✓	✓
	Mesh	-	-
Operating Mode	Mobility/ Roaming	-	-
	Multi-Hopping	-	-
	AP/CPE	✓	✓
	PoE	Passive 24V	Passive 24V
Power	Power Input Voltage	24V <sub>DC</sub>	24V <sub>DC</sub>
	Redundant DC Power Input	-	-
Mechanism	DIN-rail Mount	-	-
	Wall Mount	-	-
	VESA Mount	-	-
	Pole Mount	✓	✓
	IP Grade	IP55	IP55
Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	✓	✓
	-40 ~ 70° C (-40 ~ 158° F)	-	-
Certifications	CE	✓	✓
	FCC	✓	✓
	Others	Telec, ANATEL	Telec

\* Note: Transmit Output Power & Receive Sensitivity are specified on data sheet.

### EN50155 Ethernet Switches



Model Name		EKI-9512 EKI-9512P	EKI-9512D EKI-9512DP	EKI-9516 EKI-9516P	EKI-9516D EKI-9516DP
Description		EN 50155 12-port Full Gigabit Managed Ethernet Switch/With PoE + PoE+	EN 50155 12-port Managed Ethernet Switch /With PoE/PoE+	EN 50155 16-port Full Gigabit Managed Ethernet Switch/With PoE/PoE+	EN 50155 16-port Managed Ethernet Switch/With PoE/PoE+
Interface	Ports Number	12	12	16	16
	10/100Base-T (X)	-	12(EKI-9512D) 4(EKI-9512DP)	-	16(EKI-9516D) 4(EKI-9516DP)
	100BaseFX	-	-	-	-
	10/100/1000Base-T (X)	12(EKI-9512) 4(EKI-9512P)	-	16(EKI-9516) 4(EKI-9516P)	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-
	PoE (10/100 Mbps)	-	8(EKI-9512DP)	-	12(EKI-9516DP)
	PoE (10/100/1000 Mbps)	8(EKI-9512P)	-	12(EKI-9516P)	-
	DI/DO	-	-	-	-
	Console	✓	✓	✓	✓
	Redundancy	✓	✓	✓	✓
Network Management	Diagnostics	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓
	Security	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓
	2 x Unregulated 12 ~ 48 V DC	-	-	-	-
	2 x Unregulated 100 ~ 240 V DC	EKI-9512P-LV: 24~48V DC EKI-9512P-HV: 72~110V DC EKI-9512-WV: 24~110V DC	EKI-9512DP-LV: 24~48V DC EKI-9512DP-HV: 72~110V DC EKI-9512D-WV: 24~110V DC	EKI-9516P-LV: 24~48V DC EKI-9516P-HV: 72~110V DC EKI-9516-WV: 24~110V DC	EKI-9516DP-LV: 24~48V DC EKI-9516DP-HV: 72~110V DC EKI-95126-WV: 24~110V DC
Power	2 x Unregulated 100 ~ 240 V AC	-	-	-	-
	Relay Output	✓	✓	✓	✓
	DIN-rail Mount	-	-	-	-
	Wall Mount	✓	✓	✓	✓
Mechanism	Rack Mount	-	-	-	-
	IP Level	IP67	IP67	IP67	IP67
	Protection	ESD (Ethernet)	✓	✓	✓
Surge (EFT for power)		✓	✓	✓	✓
Power Reverse		✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-
Certifications	CE	✓	✓	✓	✓
	FCC	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-
	Class 1, Division 2	-	-	-	-
	UL 508	-	-	-	-
	Others	EN50155	EN50155	EN50155	EN50155

## Managed Industrial Ethernet Switches

## Managed Redundant Ethernet Switches



Model Name		EKI-7428G-4FA	EKI-7428G-20FA	EKI-7758F	EKI-7710E-2C EKI-7710E-2CI	EKI-7710G-2C EKI-7710G-2CI	EKI-7712E-4F EKI-7712E-4FI
Description		24Giga+4SFP Giga ports Managed Redundant Switch w/ AC Input	8Giga+20SFP Giga ports Managed Redundant Switch w/ AC Input	4G+4SFP Gigabit Managed Redundant Switch	8FE+2G Port Gigabit Managed Redundant Industrial Switch	8G+2G Port Gigabit Managed Redundant Industrial Switch/with Wide Temperature	8FE+4G SFP Port Gigabit Managed Redundant Industrial Switch/with Wide Temperature
Interface	Ports Number	28	28	8	10	10	12
	10/100Base-T (X)	-	-	-	8	-	-
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	24	8	4	2	8	8
	1000Base-SX/LX/LHX/ XD/ZX/EZX	4	20	4	2	2	4
	PoE (10/100 Mbps)	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-
Console	✓	✓	✓	✓	✓	✓	
Network Management	Redundancy	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓
	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	-	-	✓	✓	✓	✓
Power	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	✓	✓	-	-	-	-
	Relay Output	-	-	✓	-	-	-
	DIN-rail Mount	-	-	✓	✓	✓	✓
Mechanism	Wall Mount	-	-	✓	✓	✓	✓
	Rack Mount	✓	✓	-	-	-	-
	IP Level	-	-	IP30	IP30	IP30	IP30
	Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
Surge (EFT for power)		✓	✓	✓	✓	✓	✓
Power Reverse		✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-10 ~ 55°C (14 ~ 131°F)	-10 ~ 55°C (14 ~ 131°F)	✓	✓	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	-	-	-	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	✓	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	✓	-	-	-
	Class 1, Division 2	-	-	✓	-	-	-
	UL 508	-	-	-	✓	✓	✓
Others	-	-	-	-	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4

## Managed Redundant Industrial Ethernet Switches



Model Name		EKI-7712G-4F EKI-7712G-4FI	EKI-7720E-4F EKI-7720E-4FI	EKI-7720G-4F EKI-7720G-4FI	EKI-7706E-2F/I	EKI-7706G-2F/I	EKI-7708E-4F/I	EKI-7708G-4F/I	EKI-7716E-4F/I	EKI-7716G-4F/I
Description		8G+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	16FE+4G SFP Port Gigabit Managed Redundant Industrial Switch with Wide Temperature	16G+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	4FE+2SFP Giga ports Managed Redundant Industrial Switch	4Giga+2SFP Giga ports Managed Redundant Industrial Switch	4FE+4SFP Giga ports Managed Redundant Industrial Switch	4Giga+4SFP Giga ports Managed Redundant Industrial Switch	8FE+4SFP+4G Combo port Managed Redundant Industrial Switch	8GE+4SFP+4G Combo port Managed Redundant Industrial Switch
Interface	Ports Number	12	20	20	6	6	8	8	16	16
	10/100Base-T (X)	-	-	-	4	-	4	-	8 + 4 (Combo)	-
	100BaseFX	-	-	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	8	16	16	-	4	-	4	-	8 + 4 (Combo)
	1000Base-SX/LX/LHX/XD/ZX/EZX	4	4	4	2	2	4	4	4 + 4 (Combo)	4 + 4 (Combo)
	PoE (10/100 Mbps)	-	-	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-	-	-
	DJ/DO	-	-	-	-	-	-	-	-	-
Network Management	Console	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Redundancy	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓	✓	✓
Power	Traffic Control	✓	✓	✓	✓	✓	✓	✓	✓	✓
	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	-	-	-
Mechanism	Relay Output	-	-	-	-	-	-	-	-	-
	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-	-	-
Protection	IP Level	IP30	IP30	IP30	-	-	-	-	-	-
	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓	✓
	-10 ~ 60°C (14 ~ 140°F)	✓	✓	✓	EKI-7706E-2F	EKI-7706G-2F	EKI-7708E-4F	EKI-7708G-4F	EKI-7716E-4F	EKI-7716G-4F
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	EKI-7706E-2FI	EKI-7706G-2FI	EKI-7708E-4FI	EKI-7708G-4FI	EKI-7716E-4FI	EKI-7716G-4FI
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-	-	-	-
	UL 508	✓	✓	✓	-	-	-	-	-	-
	Others	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	UL 61010	UL 61010	UL 61010	UL 61010	UL 61010	UL 61010



## Entry-Level Managed Protocol Switches



Model Name		EKI-5526/I-EI EKI-5528/I-EI	EKI-5526/I-PN EKI-5528/I-PN	EKI-5526/I-MB EKI-5528/I-MB	EKI-5626C/I-EI EKI-5629C/I-EI	EKI-5626C/I-PN EKI-5629C/I-PN	EKI-5626C/I-MB EKI-5629C/I-MB
Description		16/8 port Entry-Level Managed Switch Supporting EtherNet/IP	16/8 port Entry-Level Managed Switch Supporting PROFINET	16/8 port Entry-Level Managed Switch Supporting Modbus	18/10 port Entry-Level Managed Switch Supporting EtherNet/IP	18/10 port Entry-Level Managed Switch Supporting PROFINET	18/10 port Entry-Level Managed Switch Supporting Modbus
Interface	Ports Number	16/8	16/8	16/8	16/8	16/8	16/8
	10/100Base-T (X)	16/8	16/8	16/8	16/8	16/8	16/8
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	-	-	2/2	2/2	2/2
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	2/2	2/2	2/2
	PoE (10/100 Mbps)	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-
	Console	-	-	-	-	-	-
Network Management	Redundancy	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	✓	✓	✓	✓	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-
	Class 1, Division 2	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓
	Others	-	-	-	-	-	-

## Viewable Unmanaged Industrial Ethernet Switches



Model Name		EKI-5726F EKI-5726FI	EKI-5729F EKI-5729FI	EKI-5726 EKI-5726I	EKI-5725/I EKI-5728/I	EKI-5626CI EKI-5626C	EKI-5629CI EKI-5629C	EKI-5528/I EKI-5525/I
Description		16-port+2 SFP Gigabit Ethernet Switch	8-Port+2 SFP Gigabit Ethernet Switch	16-port Gigabit Ethernet Switch	5/8-port Gigabit Ethernet Switch	16FE + 2GE Combo Ethernet Switch	8FE + 2GE Combo Ethernet Switch	8/5-port Fast Ethernet Switch
Interface	Ports Number	16	8	16	5/8	18	10	8/5
	10/100Base-T (X)	-	-	-	-	16	8	8/5
	100BaseFX	✓	✓	-	-	-	-	-
	10/100/1000Base-T (X)	16	8	16	5/8	-	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	✓	✓	-	-	2	2	-
	PoE (10/100 Mbps)	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-
	Console	✓	✓	-	-	-	-	-
Network Management	Redundancy	-	-	-	-	-	-	-
	Diagnostics	-	-	-	-	-	-	-
	VLAN	-	-	-	-	-	-	-
	Configuration	✓	✓	✓	-	-	-	-
	SNMP	✓	✓	✓	✓	-	-	-
	Security	-	-	-	-	-	-	-
	Traffic Control	-	-	-	-	-	-	-
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	EKI-5726	-	EKI-5626C	EKI-5629C	EKI-5525/5528
	-40 ~ 75°C (-40 ~ 167°F)	-	-	EKI-5726I	-	EKI-5626CI	EKI-5629CI	EKI-5525I/5528I
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-	-
	Class 1, Division 2	✓	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓	✓
	Others	-	-	-	-	-	-	-

## Viewable Unmanaged Switches

## Unmanaged Industrial Ethernet Switches



Model Name		EKI-5525S/M Series	EKI-5524SS/MM Series	EKI-7529MI EKI-7529ST
Description		4-port +1x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet Switch	4-port + 2x100FX port (Single/Multimode, SC/ST type), Fast Ethernet Switch	8+2 Multi-Mode Fiber Optic Industrial Unmanaged Ethernet Switch with Wide Temperature
Interface	Ports Number	4	6	10
	10/100Base-T (X)	4	4	8
	100BaseFX	1	2	2
	10/100/1000Base-T (X)	-	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-
	PoE (10/100 Mbps)	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-
	DI/DO	-	-	-
	Console	-	-	-
Network Management	Redundancy	-	-	-
	Diagnostics	-	-	-
	VLAN	-	-	-
	Configuration	-	-	-
	SNMP	-	-	-
	Security	-	-	-
Power	Traffic Control	-	-	-
	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-
Mechanism	Relay Output	✓	✓	✓
	DIN-rail Mount	✓	✓	✓
	Wall Mount	✓	✓	✓
	Rack Mount	-	-	-
Protection	IP Level	IP30	IP30	IP30
	ESD (Ethernet)	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓
Operating Temperature	Power Reverse	✓	✓	✓
	-10 ~ 60°C (14 ~ 140°F)	EKI-5525S/M Series	EKI-5524SS/MM Series	-
	-40 ~ 75°C (-40 ~ 167°F)	EKI-5525SI/MI Series	EKI-5524SSI/MMI Series	✓
Certifications	-40 ~ 85°C (-40 ~ 185°F)	-	-	-
	CE	✓	✓	✓
	FCC	✓	✓	✓
	UL/cUL 60950-1	-	-	-
	Class 1, Division 2	✓	✓	-
	UL 508	✓	✓	✓
Others	-	-	-	

## Unmanaged Industrial Ethernet Switches



Model Name		EKI-2728MI	EKI-2725/I	EKI-2728/I	EKI-2525M/S	EKI-2526M/S
Description		6G+2G Multi-Mode Unmanaged Ethernet Switch with Wide Temperature	5-port Gigabit Unmanaged Industrial Ethernet Switch	8-port Gigabit Unmanaged Industrial Ethernet Switch	4+1 100FX Port Multi-mode/ Single-mode Unmanaged Industrial Ethernet Switch	4+2 100FX Port Multi-mode/ Single-mode Industrial Ethernet Switch
Interface	Ports Number	8	5	8	5	6
	10/100Base-T (X)	-	-	-	4	4
	100BaseFX	-	-	-	1	2
	10/100/1000Base-T (X)	6	5	8	-	-
	1000Base-SX/LX/LHX/ XD/ZX/EZX	2	-	-	-	-
	PoE (10/100 Mbps)	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-
	DI/DO	-	-	-	-	-
	Console	-	-	-	-	-
Network Management	Redundancy	-	-	-	-	-
	Diagnostics	-	-	-	-	-
	VLAN	-	-	-	-	-
	Configuration	-	-	-	-	-
	SNMP	-	-	-	-	-
	Security	-	-	-	-	-
	Traffic Control	-	-	-	-	-
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	EKI-2725	EKI-2728	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	EKI-2725I	EKI-2728I	-	-
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	✓	✓	✓	✓
	Class 1, Division 2	✓	-	-	-	-
	UL 508	✓	-	-	-	-
	Others	-	-	-	-	-

## Power Over Ethernet (PoE) Switches



Model Name		EKI-7708G-4FP/I	EKI-7708E-4FP/I	EKI-7710G-2CPI EKI-7710G-2CP	EKI-7710E-2CP EKI-7710E-2CPI	EKI-7712G-4FP EKI-7712G-4FPI	EKI-2726FHPI
Description		4Giga+4SFP Giga ports Managed Redundant Industrial PoE Switch	4FE+4SFP Giga ports Managed Redundant Industrial PoE Switch	8G+2G Port Gigabit Managed Redundant Industrial PoE Switch	8FE+2G Port Gigabit Managed Redundant Industrial PoE Switch	8G+4G Port Gigabit Managed Redundant Industrial PoE Switch	4G+2 SFP W/ 4 IEEE 802.3 High Power PoE Industrial Wide Temperature Switch
Interface	Ports Number	8	8	10	10	12	6
	10/100Base-T (X)	-	-	-	-	-	-
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	-	8	8	8	4
	1000Base-SX/LX/LHX/ XD/ZX/EZX	4	4	2	2	4	2
	PoE (10/100 Mbps)	-	4	-	8	-	4 (PoE+, 30W)
	PoE (10/100/1000 Mbps)	4	-	8	-	8	-
	DI/DO	-	-	-	-	-	-
Console	✓	✓	✓	✓	✓	-	
Network Management	Redundancy	✓	✓	✓	✓	✓	-
	Diagnostics	✓	✓	✓	✓	✓	-
	VLAN	✓	✓	✓	✓	✓	-
	Configuration	✓	✓	✓	✓	✓	-
	SNMP	✓	✓	✓	✓	✓	-
	Security	✓	✓	✓	✓	✓	-
Traffic Control	✓	✓	✓	✓	✓	-	
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	48 V <sub>DC</sub>	48 V <sub>DC</sub>	✓	✓	48 V <sub>DC</sub>	48 V <sub>DC</sub>
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-
	Relay Output	✓	✓	-	-	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	-	-	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	EKI-7708G-4FP	EKI-7708E-4FP	7710G-2CP	7710E-2CP	7712G-4F	-
	-40 ~ 75°C (-40 ~ 167°F)	EKI-7708G-4FPI	EKI-7708E-4FPI	7710G-2CPI	7710E-2CPI	7712G-4FI	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-
	UL 508	-	-	✓	✓	✓	✓
	Others	UL 61010	UL 61010	-	-	-	-

## Power Over Ethernet (PoE) Switches

## Industrial Media Converters



Model Name		EKI-2528PAI	EKI-2525P	EKI-2526PI	EKI-2525PA	EKI-2741F/FI/SX/SXI/LX/LXI	EKI-2541M/MI/S/SI
Description		8-port Industrial PoE Switch with 24/48 V DC Power Input and Wide Temperature	5-port Industrial PoE Switch	6-port Industrial PoE Switch with Wide Temperature	5-port Industrial PoE Switch with 24/48 V DC Power Input	10/100/1000TX to Fiber Optic Gigabit Industrial Media Converters	10/100TX to Multi-mode / Single-mode SC Type Fiber Optic Industrial Media Converters
Interface	Ports Number	8	5	6	5	2	2
	10/100Base-T (X)	4	1	2	1	-	1
	100BaseFX	-	-	-	-	-	1
	10/100/1000Base-T (X)	-	-	-	-	1	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-	1	-
	PoE (10/100 Mbps)	4	4	4	4	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-
Console	-	-	-	-	-	-	
Network Management	Redundancy	-	-	-	-	-	-
	Diagnostics	-	-	-	-	-	-
	VLAN	-	-	-	-	-	-
	Configuration	-	-	-	-	-	-
	SNMP	-	-	-	-	-	-
	Security	-	-	-	-	-	-
	Traffic Control	-	-	-	-	-	-
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	24/48 V <sub>DC</sub>	48 V <sub>DC</sub>	48 V <sub>DC</sub>	24/48 V <sub>DC</sub>	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	✓	-	✓	EKI-2741F/SX/LX	EKI-2541M
	-40 ~ 75°C (-40 ~ 167°F)	✓	-	✓	-	EKI-2741FI/SXI/LXI	EKI-2541MI/SI
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	✓	✓	-	✓	✓
	Class 1, Division 2	-	-	-	-	✓	✓
	UL 508	✓	-	-	✓	✓	✓
	Others	-	-	-	-	-	-

## Wireless Devices

## Fieldbus Gateway



Model Name		EKI-1331	EKI-1361 EKI-1362	EKI-1361-MB EKI-1362-MB	EKI-1221PNMB	EKI-1221EIMB	EKI-1242EIMS	EKI-1242PNMS	EKI-1242ECMS	EKI-1242BNMS
Description		1-port RS-232/485 to HSPA+ IP Gateway	1/2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server	1/2-port RS-232/422/485 to 802.11b/g/n WLAN Modbus Gateway	Modbus TCP to PROFINET Protocol Gateway	Modbus TCP to EtherNet/IP Protocol Gateway	Modbus RTU/TCP to EtherNet/IP Fieldbus gateway	ModbusRTU/TCP to PROFINET Fieldbus gateway	ModbusRTU/TCP to EtherCAT Fieldbus gateway	ModbusRTU/TCP to BACnet Fieldbus gateway
Connectivity	10/100Base-TX, Fixed	1	1/2	1/2	2	2	4	4	4	4
	10/100/1000Based-T, Fixed	-	-	-	-	-	-	-	-	-
	RS-232 only	-	-	-	-	-	-	-	-	-
	RS-232/422/485	1 (RS-232/485)	1/2	1/2	-	-	2	2	2	2
	Serial connector type	Terminal block	DB9 Male	DB9 Male	-	-	DB9 male	DB9 male	DB9 male	DB9 male
Operating Mode	Mobility/Roaming	✓	✓	✓	-	-	---	---	---	---
	Multi-Hopping	-	-	-	-	-	---	---	---	---
	AP/CPE	-	-	-	-	-	---	---	---	---
Enclosure & Mount kit	Enclosure	IP30	IP40	IP40	IP30	IP30	IP30	IP30	IP30	IP30
	DIN-rail	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Wall	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VESA Mount	-	-	-	-	-	-	-	-	-
	Pole Mount	-	-	-	-	-	-	-	-	-
Power	Power Input (VDC)	(12~24V)	2* (12~48V)	2* (12~48V)	(12~48V)	(12~48V)	(12~48V)	(12~48V)	(12~48V)	(12~48V)
	Power input (PoE)	-	-	-	-	-	---	---	---	---
	Power connector	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48V <sub>DC</sub> ) Watts	-	8W (EKI-1361) 9W (EKI-1362)	8W (EKI-1361-MB) 9W (EKI-1362-MB)	5.2W	5.2W	5.2W	5.2W	5.2W	5.2W
Environment	Operating Temp.	-20 ~ 70°C	-30 ~ 65°C	-30 ~ 65°C	-40~70°C	-40~70°C	-10~60°C	-10~60°C	-10~60°C	-10~60°C
	Operating Humidity	5 ~ 95%	5 ~ 95%	5 ~ 95%	10~95%	10~95%	10~95%	10~95%	10~95%	10~95%
	Input Reverse Protection	✓	✓	✓	✓	✓	✓	✓	✓	✓
Software	Network Protocol	NAT	-	Modbus TCP, Modbus RTU/ASCII	Modbus TCP PROFINET	Modbus TCP EtherNet/IP	Modbus RTU/TCP EtherNet/IP	Modbus RTU/TCP PROFINET	Modbus RTU/TCP EtherCAT	Modbus RTU/TCP BACnet
	Firewall	-	-	-	-	-	-	-	-	-
	Router	Username/Password	-	-	-	-	-	-	-	-
	configuration option	Telnet console, Web-base	Web-base, windows utility	Web-base, windows utility	Web-base	Web-base	Web-base	Web-base	Web-base	Web-base
	Authentication	-	Username/Password	Username/Password	Username/Password	Username/Password	Username/Password	Username/Password	Username/Password	Username/Password
	Standard operation mode	Modbus RTU & TCP, USDG mode (TCP/UDP server mode, TCP/UDP client mode), IP Router w/ VPN	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), Pair connection/Access Point Mode	Pair connection/Access Point Mode/Modbus RTU Master/Slave, Modbus ASCII Master/Slave	Modbus/TCP Master PROFINET Slave	Modbus/TCP Master PROFINET Adaptor	ModbusRTU/TCP Master Ethernet/IP Adapter	ModbusRTU/TCP Master PROFINET Slave	ModbusRTU/TCP Master EtherCAT Slave	-
WLAN	IEEE Standard	-	b/g/n	b/g/n	-	-	-	-	-	-
	Radio Number	1	1	1	-	-	-	-	-	-
	Security	-	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	-	-	-	-	-	-
RF	MIMO	-	2T2R	2T2R	-	-	-	-	-	-
	Maximum Transmit Output Power	HSDPA Cat. 10 / HSUPA Cat.6 data rates DGE class 12 data rates: GPRS class 12 data rates	19dBm (11n)	19dBm (11n)	-	-	-	-	-	-
	Receiv Sensitivity	-102dBm	-93dBm (11g Rx0+Rx1)	-93dBm (11g Rx0+Rx1)	-	-	-	-	-	-
Cellular	Antenna Connector	SMA	R-SMA	R-SMA	-	-	-	-	-	-
	Standard	HSUPA Cat.6	-	-	-	-	-	-	-	-
	Five-band option in UMTS	✓	-	-	-	-	-	-	-	-
	Quad-band optin in EDGE/GSM	✓	-	-	-	-	-	-	-	-
Certification	Certification (GCF, PTCRB)	✓	-	-	-	-	-	-	-	-
	UL60950-1	-	-	-	✓	✓	✓	✓	✓	✓
	EN60950-1	-	-	-	-	-	-	-	-	-
	CE (EN55022 class A, EN55024)	-	✓	✓	✓	✓	✓	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Hazardous Location (Class I, Division 2)	-	-	-	-	-	-	-	-	-
	Radio (EN 301 489-1/-4, EN 301 511)	✓	-	-	-	-	-	-	-	-
Radio (FCC part 22H, part 24E)	-	-	-	-	-	-	-	-	-	
EN 50155	-	-	-	-	-	-	-	-	-	

### Modbus Gateway



### Serial Device Servers



Model Name	EKI-1221/CI/I EKI-1222/CI/I EKI-1224/CI/I	
Description	1/2/4-Port Modbus Gateway	
Connectivity	10/100Base-TX, Fixed	2
	10/100/1000Based-T, Fixed	-
	RS-232 only	-
	RS-232/422/485	1/2/4 (CI version: RS-422/485)
Serial connector type	DB9 Male	
Operating Mode	Mobility/Roaming	-
	Multi-Hopping	-
	AP/CPE	-
Enclosure & Mount kit	Enclosure	IP30
	DIN-rail	✓
	Wall	✓
	VESA Mount	-
	Pole Mount	-
Power	Power Input (VDC)	2* (12~48V)
	Power input (PoE)	-
	Power connector	Terminal block
	Power Consumption (12/24/48V <sub>DC</sub> ) Watts	5.2W (EKI-1221/1222) 6.3W (EKI-1224)
Environment	Operating Temp.	EKI-1221/EKI-1222/ EKI-1224: -10 ~ 60°C 'CI & I' models: -40 ~ 70°C
	Operating Humidity	5 ~ 95%
	Input Reverse Protection	-
Software	Network Protocol	Modbus RTU, Modbus TCP, Modbus ASCII
	Firewall	-
	Router	-
	configuration option	Windows Utility, Web Browser
	Authentication	-
Standard operation mode	Modbus RTU Master/Slave mode	
	Modbus ASCII Master/Slave mode	
WLAN	IEEE Standard	-
	Radio Number	-
	Security	-
	MIMO	-
RF	Maximum Transmit Output Power	-
	Rceive Sensitivity	-
	Antenna Connector	-
	Standard	-
Cellular	Five-band option in UMTS	-
	Quad-band optin in EDGE/GSM	-
	Certification (GCF, PTCRB)	-
Certification	UL60950-1	✓
	EN60950-1	-
	CE (EN55022 class A, EN55024)	✓
	FCC (part 15 subpart B class A)	✓
	Hazardous Location (Class I, Division 2)	✓
	Radio (EN 301 489-1/-4, EN 301 511)	-
	Radio (FCC part 22H, part 24E)	-
	EN 50155	-

Model Name	EKI-1521/CI/I EKI-1522/CI/I EKI-1524/CI/I	EKI-1528I-DR EKI-1528CI-DR	EKI-1528/I/TI EKI-1526/I/TI	ADAM-4571/L ADAM-4570/L	
Description	1/2/4-port RS-232/422/485 Serial Device Server	8-port RS-232/422/485 Device Server 8-port RS-422/485 Device Server	8/16-port RS-232/422/485 Serial Device Server	1/2-port RS-232/422/485 Serial Device Server	
Connectivity	10/100Base-TX, Fixed	2	-	1	
	10/100/1000Based-T, Fixed	-	2	-	
	RS-232 only	-	-	ADAM-4571L/4570L: 1/2	
	RS-232/422/485	1/2/4 (CI version: RS-422/485)	8	8/16	ADAM-4571/4570: 1/2
Serial connector type	DB9 Male	DB9 Male	DB9 male	ADAM-4571/L: DB9 Male ADAM-4570/L: 10-pin RJ48	
Enclosure & Mount kit	Enclosure	IP30	IP30	SECC chassis	
	DIN-rail	✓	✓	Rackmount	
	Wall	✓	✓	-	
	VESA Mount	-	-	-	
	Pole Mount	-	-	-	
Power	Power Input (V <sub>DC</sub> )	2* (12~48V)	2* (12~48V)	EKI-1528(I)/EKI-1526(I): 100 ~ 240 VAC , 50 ~ 60 Hz EKI-1528T(I)/EKI-1526T(I): 12 ~ 48 VDC, Terminal Block	
	Power input (PoE)	-	-	-	
	Power connector	Terminal block	Terminal block	6-pin removable screw terminal	Terminal block
	Power Consumption (12/24/48VDC) Watts	5.2 W (EKI-1521/EKI-1522) 6.3 W (EKI-1524)	5 W (EKI-1528I) 6 W (EKI-1528CI)	5.6 W	2.5 W
Environment	Operating Temp.	EKI-1521/EKI-1522/EKI-1524: -10 ~ 60°C 'CI & I' models: -40 ~ 70°C	-40 ~ 70°C	-10 ~ 60°C (14 ~ 140°F) "I" Model: -40 ~ 75°C (-40 ~ 167°F)	-10 ~ 60°C
	Operating Humidity	5 ~ 95%	10 ~ 95%	10 ~ 95%	5 ~ 95%
	Input Reverse Protection	-	-	-	-
Software	Network Protocol	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP
	Firewall	-	-	-	-
	Router	-	-	-	-
	configuration option	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser, serial console	Windows utility, Telnet console, Web Browser
	Authentication	-	-	-	-
Standard operation mode	COM Port redirection (Virtual COM)	COM Port redirection (Virtual COM)	COM Port redirection (Virtual COM)	COM Port redirection (Virtual COM)	
	TCP/UDP Server (Polling) Mode	TCP/UDP Server (Polling) Mode	TCP/UDP Server (Polling) Mode	TCP/UDP Server (Polling) Mode	
	TCP/UDP Client (event handling) Mode	TCP/UDP Client (event handling) Mode	TCP/UDP Client (event handling) Mode	TCP/UDP Client (event handling) Mode	
	Pair Connection (P2P) Mode	Pair Connection (P2P) Mode	Pair Connection (P2P) Mode	Pair Connection (P2P) Mode	
Certification	UL60950-1	✓	✓	-	
	EN60950-1	-	-	-	
	CE (EN55022 class A, EN55024)	✓	✓	✓	
	FCC (part 15 subpart B class A)	✓	✓	✓	
	Hazardous Location (Class I, Division 2)	✓	-	-	
	Radio (EN 301 489-1/-4, EN 301 511)	-	-	-	
	Radio (FCC part 22H, part 24E)	-	-	-	
	EN 50155	-	-	-	



## Compact Ethernet Media Converters

## Compact Ethernet Gigabit Media Converters

## PoE, PoE+ Gigabit Media Converters



Model Name		MiniMc with LFPT	IE-MiniMc with LFPT	Giga-MiniMc with LFPT	IE-Giga-MiniMc with LFPT	PoE Giga-MiniMc w/LFPT	PoE+ Giga-MiniMc w/LFPT	IE-MultiWay
Part Numbers		855-11621, 855-11623, 855-11619	855-19822	856-11700, 856-11701, 856-11703	856-18930, 856-18931	PoE: 857-11811, 857-11812, 857-11814	857-11911, 857-11912	858-11121
Description		Two Port Copper to Fiber compact 10/100 Media Converter with Link Fault Pass Through, unmanaged	Industrial Two Port Copper to Fiber compact 10/100 Media Converter with Link Fault Pass Through, unmanaged	Two Port Copper to Fiber 10/100/1000 Media Converter with Link Fault Pass Through, Unmanaged	Industrial Two Port Copper to Fiber 10/100/1000 Media Converter with Link Fault Pass Through, unmanaged	PoE capable Unmanaged 10/100/1000 Media Converters	PoE+ capable Unmanaged 10/100/1000 Media Converters	Four Port Managed 10/100/1000 switch, with SFP capability, compact form factor
Interface	Ports Number	2	2	2	2	3	3	4
	10/100Base-T (X)	✓	✓	-	-	-	-	-
	100BaseFX	✓	✓	✓	✓	✓	-	✓
	10/100/1000Base-T (X)	-	-	✓	✓	2	2	✓
	1000Base-SX/LX	✓	✓	✓	✓	1	1	✓
	PoE (10/100/1000 Mbps)	-	-	-	-	1	-	-
	PoE+ (10/100/1000 Mbps)	-	-	-	-	✓	2	-
	PoE Reset DSW	-	-	-	-	✓	✓	-
	SFP port model option	✓	-	✓	-	✓	✓	✓
	LFPT	✓	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	-	-	-	-	-	-	✓
	Diagnostics	-	-	-	-	-	-	✓
	VLAN	-	-	-	-	-	-	✓
	Configuration	-	-	-	-	-	-	✓
	SNMP	-	-	-	-	-	-	✓
	Security	-	-	-	-	-	-	✓
	Jumbo Frames	1916	1916	10240	10240	10240	-	10240
Power	100-240V <sub>AC</sub>	✓	✓	✓	✓	✓	-	✓
	DC voltage	-	7-50 V <sub>DC</sub>	-	7-50 V <sub>DC</sub>	-	-	480 V <sub>DC</sub>
Hardware Mtg.	DIN-rail Mount	✓	✓	✓	✓	✓	-	✓
	Wall Mount	✓	✓	✓	✓	✓	-	✓
	Rack Mount	✓	✓	✓	✓	✓	-	✓
	IP Level	-	-	-	-	-	-	-
Protection	ESD (Ethernet)	✓	✓	✓	-	-	-	-
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Reverse Polarity	✓	✓	✓	✓	✓	-	✓
Operating Temp	0 ~ 50°C	✓	-	✓	-	✓	-	-
	-25 ~ 85°C (-13 ~ +185°F)	-	-	-	✓	-	-	-
	-40 ~ 85°C (-40 ~ 185°F)	-	✓	-	-	-	-	✓
Certifications	CE	✓	✓	✓	✓	✓	-	✓
	FCC	✓	✓	✓	✓	✓	-	✓
	UL/cUL 60950-1	✓	✓	✓	✓	✓	-	✓
	Class 1, Division 2	-	-	-	-	-	-	-
	UL 508	-	-	-	-	-	-	-
	MSA compliant	-	-	-	-	-	-	-
	Class 1, Eye-safe Lasers	✓	✓	✓	✓	✓	-	✓

## Serial Converters, Isolators and Surge Protectors



Model Name		485DRCI	485SD9R, 485SD9TB	FOSTCDRI	2320PDRI	4850PDRI	HESP4DR
Description		Triple Isolated RS-232 to RS-422/485 Converter	Port Powered RS-232 to RS-485 Converter	Triple Isolated RS-232/422/485 to Fiber Converter	Triple Isolated RS-232 DIN Rail Repeater	Triple Isolated RS-485/422 DIN Rail Repeater	Three-stage DIN Rail RS422/485 Surge Protector
Function		Serial Converter			Isolator / Repeater		Surge Protector
Key Features		Class 1 Division 2/ Triple Isolation, Oil and Gas Applications	Small Form Factor, Port Powered	Fiber to Serial	Class 1 Division 2/ Triple Isolation, Oil and Gas Applications	Class 1 Division 2/ Triple Isolation, Oil and Gas Applications	High Energy Surge Protector
Specifications	Temp	-40 to 80°C	0 to 70 C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
	Isolation	✓	–	✓	✓	✓	–
	Input Power	10 to 48 V <sub>DC</sub>	Port Powered from RS-232 Ports	10 to 48 V <sub>DC</sub>	10 to 48 V <sub>DC</sub>	10 to 48 V <sub>DC</sub>	–
	Dataline Surge Protection	✓	–	✓	✓	✓	v (5 lines)
	RS-232 Connector	DB9 female	DB9 female	Removable Terminal Blocks	DB9 female & DB9 male	-	–
	RS-422/485 Connector and Power	Remmovable Terminal Blocks	DB9 female or Terminal Block	Remmovable Terminal Blocks	-	Remmovable Terminal Blocks	Terminal Block
	Maximum Buad Rate	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	–
	Mounting	DIN Rail	In-line	DIN Rail	DIN Rail	DIN Rail	DIN Rail
	Industrial Rating	Light	–	Light	Light	Light	Light
	UL Rating	UL 508	–	UL 508	UL 508	UL 508	–
Class 1 Division 2	✓	–	✓	✓	✓	–	

## Ethernet to Serial Converters



Model Name		VESP211, VESP211-232, VESP211-485	VESR901	VESR921-MC	MESR901	MESR921-MC
Description		Compact Ethernet to Serial Converter	DIN Rail Mount Ethernet to Serial Converter	DIN Rail Mount Ethernet to Serial Converter with Fiber Port	Modbus Ethernet to Modbus Serial Converter	Modbus Ethernet to Modbus Serial Converter with Fiber Port
Function		VCOM, Socket Connection, Paired Mode			Modbus	
Ethernet	Copper Ports	1	1	1	1	1
	Fiber Ports	–	–	1 Multi-mode (SC)	–	1 Multi-mode (SC)
Serial	Port Count	1	1	1	1	1
	DB9	232	232	232	232	232
	Terminal Block	422/485	422/485	422/485	422/485	422/485
Specifications	Temp Spec	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
	Power DC	10 to 30V <sub>DC</sub>	10 to 48V <sub>DC</sub>	10 to 48V <sub>DC</sub>	10 to 48V <sub>DC</sub>	10 to 48V <sub>DC</sub>
	Mounting	Panel	DIN	DIN	DIN	DIN
	Class 1 Division 2	–	yes	yes	yes	yes

## USB to Serial Converters



Model Name	BB-USOPTL4DR-2	BB-USOPTL4	BB-USO9ML2	BB-USO9ML2-4P	BB-USOPTL4-4P
Series	Industrial	Industrial	Industrial	Industrial	Industrial
Description	USB to RS-422, RS-485 Isolated Converter, Industrial	USB to RS-422, RS-485 Isolated Converter, Commercial	USB to RS-232 Isolated Converter, Commercial	USB to RS-232 Isolated Converter, Industrial	USB to RS-422, RS-485 Isolated Converter, Industrial
Industrial Rating	Light	Light	Light	Light	Light
RS-232			X	X	
RS-422	X	X			X
RS-485 2-WIRE	X	X			X
RS-485 4-WIRE	X	X			X
TTL 5 V					
TTL 3.3 V					
SERIAL PORTS	2	1	1	4	4
High Retention USB Ports	X	X		X	X
Isolated	X	X	X	X	X
Mounting	DIN	In Line	In Line	Panel	Panel
Shock and Vibration					
Heavy Industrial					
Serial Connector	Removable Terminal Block	Removable Terminal Block	DB9 Male	DB9 Male	Removable Terminal Block
Operating Temperature	0 to 70°C	0 to 70°C	0 to 70°C	0 to 70°C	0 to 70°C
Power Input	USB Bus	USB Bus	USB Bus	USB Bus or 10-30VDC	USB Bus or 10-30VDC
Metal Housing					
LED Indicators	X	X	X	X	X
UL					
USB Cable Included	X	X	X	X	X
Accessory Serial Cable			BB-9PAMF6	BB-9PAMF6	
Accessory Power Supply				BB-MDR-20-24	BB-MDR-20-24
Operating System	Windows 10	Windows 10	Windows 10	Windows 10	Windows 10
Unique or Locked Serial Number	Locked	Unique	Unique	Locked	Locked

## Wireless Sensing Network



## Industrial Cellular Router



Model Name	Wzzard-LRPv Sensor Node	Wzzard	SmartStart	SmartFlex	SmartSwarm 243	
Part Number	BB-WSLxxxxx	BB-WSDxxxx	BB-SL306x0110-SWH	BB-SR30xxxxxx	BB-SG30000115-43	
Description	Industrial LoRa Private Node	Intelligent Wireless Sensor Node	Intelligent LTE Router	Flexible, Module LTE Router	Industrial LoRa Private Gateway	
Specifications	Mobile Wireless	LoRa	DUST/BLE	GPRS/3G/LTE/WIFI	GPRS/3G/LTE/WIFI	LoRa
	Communication Interface	AI/DI/DO	AI/DI/DO	ETH/RS232/IO	ETH/SD/USB/IO/RS232&485/POE	ETH/IO
	Temp	-40 to +75	-40 to +80	-40 to +75	-40 to +75	-40 to +75
	Power Input	3.3 VDC	3.3 VDC	9 -36 VDC	10 -69 VDC	9 -36 VDC
	Dimensions (W x Hx D)	95 x 116 x 65 mm	95 x 116 x 65 mm	30 x 87 x 127 mm	55 x 97 x 125 mm	30 x 87 x 127 mm
Weight	340g	340g	187g	375g	187g	

## USB Hubs and Isolators



Model Name	BB-UHR304	BB-UHR204	BB-UH104	BB-UHR401	BB-UHR402
Series	Heavy Duty Hub	Heavy Duty Hub	Hub	Heavy Duty Isolator	Heavy Duty Isolator
Description	USB Hub, 4 Port, Isolated, Industrial	USB Hub, 4 Port, Industrial	USB Hub, 4 Port, Light Industrial	USB Isolator, 1 Port, Industrial	USB Isolator, 2 Port, Industrial
USB Standard	2.0	2.0	2.0	2.0	2.0
Isolation	4 KV			4 KV	4 KV
Maximum USB Speed	12 Mbps	480 Mbps	480 Mbps	12 Mbps	12 Mbps
High Retention USB Ports	X	X	X	X	X
Downstream Ports	4	4	4	1	2
Operating Temperature	(-)40 to 80C	(-)40 to 80C	(-)40 to 80C	(-)40 to 80C	(-)40 to 80C
Shock and Vibration	X	X		X	X
Heavy Industrial	X	X		X	X
USB Bus Power		X	X		
External Power Inputs	2	2	N/A	1	1
Primary External Power Input	Removable Terminal Block	Removable Terminal Block		Threaded Barrel Jack	Threaded Barrel Jack
Secondary External Power Input	Threaded Barrel Jack	Threaded Barrel Jack			
Metal Housing	X	X			
LED Indicators	X	X		X	X
DIN Mount	X	X		X	X
Panel Mount	X	X		X	X
In Line					
UL	C1D2	C1D2			
USB Cable Included	X	X		X	X
Power Supply Included				X	X
Accessory Power Supply	BB-MDR-20-24	BB-MDR-20-24		BB-PS12VLB-INT-MED	BB-PS12VLB-INT-MED
Driver	N/A	N/A	N/A	N/A	N/A

## Special Serial Converters



Model Name	BB-232LPTTL	BB-232LPTTL33	BB-422TTL	BB-232CL9R	BB-232CLDR	BB-CANFB	BB-CANOP
Series	TTL Converter	TTL Converter	TTL Converter	Current Loop Converter	Current Loop Converter	CAN (Controller Area Network)	CAN (Controller Area Network)
Description	RS-232 to 5 V TTL Converter	RS-232 to 3.3 V TTL Converter	RS-422 to 5 V TTL Converter	RS-232 to Current Loop Converter	RS-232 to Current Loop Converter	CAN Bus to Fiber Repeater	CAN Bus Isolator
Industrial Rating	Light	Light	Light	Light	Light	Light	Light
Isolated					X	X	X
3 Way Isolation							
Mounting	In Line	In Line	In Line	In Line	DIN	DIN	DIN
RS-232	X	X		X	X		
RS-422			X				
SM Fiber						X	
3.3 V TTL		X					
5 V TTL	X		X				
Current Loop				X	X		
CAN						X	X
Operating Temperature	0 to 70 C	0 to 70 C	0 to 50 C	0 to 50 C	(-)40 to 80 C	0 to 70 C	0 to 70 C
Input Power	Port Powered	Port Powered	12 VDC	12 VDC	10 to 30 VDC	10 to 30 VDC	10 to 30 VDC
Port Power Option	X	X					
Power Supply Included	N/A	N/A	No	No	No	No	No
Power Connector	N/A	N/A	2.5 mm plug	Terminal Block	Terminal Block	Terminal Block	Terminal Block
RS-232 Connector	DB9 F	DB9 F		DB9 F	Terminal Block		
TTL Connector	DB9 M	DB9 M	DB25 M				
Current Loop Connector				Terminal Block	Terminal Block		
CAN Connector						Terminal Block	Terminal Block
RS-422 Connector			DB25 F				
Fiber Connector						ST	
Maximum Baud Rate	115.2 kbps	115.2 kbps	115.2 kbps	19.2 kbps	19.2 kbps	250 kbps	250 kbps
Accessory Serial Cable	BB-9PAMF6	BB-9PAMF6	BB-232AMF5				
Accessory Power Supply				BB-SMI6-12-V-ST	BB-MDR-20-24	BB-MDR-20-24	BB-MDR-20-24

## IE-SFP Fiber Modules



Model Name	808-38101	808-38103	808-38104	808-38519	808-38520
SFP Type	SFP	SFP	SFP	SFP	SFP
Part Description	IE-SFP/155-ED, MM850-LC	IE-SFP/155-ED, SM1310-LC	IE-SFP/155-ED, SM1310/ PLUS-LC	IE-SFP/155-ED, SSFX- SM1310/PLUS-LC (1310XMT/1550RCV)	IE-SFP/155-ED, SSFX- SM1550/PLUS-LC (1550XMT/1310RCV)
Typical Speed Mbps	100	100	100	100	100
Mode (Fiber)	Multi Mode	Single Mode	Single Mode	Single Mode	Single Mode
BiDi/Single Strand	No	No	No	Yes	Yes
Wavelength (nm)	850	1310	1550	1310	1550
Connector Type	LC	LC	LC	LC	LC
Distance (KM)	2	20	40	40	40
Power (dB)	14.5	21	31	26	26
DDMI	Yes	Yes	Yes	Yes	Yes
Temperature	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C
"Use With SFP P/N (Works in Pair with)"	-	-	-	808-38520	808-38519
MSA (Multi-Source Aggrement)	Yes	Yes	Yes	Yes	Yes
Laser 1 Class 1 IEC 60825-2	Yes	Yes	Yes	Yes	Yes
Telecordia GR-468-CORE	Yes	Yes	Yes	Yes	Yes



Model Name	808-38529	808-38530	808-38201	808-38203	808-38205
SFP Type	SFP	SFP	SFP	SFP	SFP
Part Description	IE-SFP/155-ED, SSFX- SM1310 /LONG-LC (1310XMT/1550RCV)	IE-SFP/155-ED, SSFX- SM1550 /LONG-LC (1550XMT/1310RCV)	IE-SFP/1250-ED, MM850-LC	IE-SFP/1250-ED, SM1310/ PLUS-LC	IE-SFP/1250-ED, SM1510/ XLONG-LC (LFP260)
Typical Speed Mbps	100	100	1000	1000	1000
Mode (Fiber)	Single Mode	Single Mode	Multi Mode	Single Mode	Single Mode
BiDi/Single Strand	Yes	Yes	No	No	No
Wavelength (nm)	1310	1550	850	1310	1510
Connector Type	LC	LC	LC	LC	LC
Distance (KM)	60	60	220/550m	30	70
Power (dB)	29	29	7.5	17	21
DDMI	Yes	Yes	Yes	Yes	Yes
Temperature	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C
"Use With SFP P/N (Works in Pair with)"	808-38530	808-38529	-	-	-
MSA (Multi-Source Aggrement)	Yes	Yes	Yes	Yes	Yes
Laser 1 Class 1 IEC 60825-2	Yes	Yes	Yes	Yes	Yes
Telecordia GR-468-CORE	Yes	Yes	Yes	Yes	Yes



Model Name	808-38206	808-38721	808-38722	808-38723
SFP Type	SFP	SFP	SFP	SFP
Part Description	IE-SFP/1250-ED, MM1310-LC	IE-SFP/1250-ED, SSLX-SM1310- -LC (1310XMT/1550RCV)	IE-SFP/1250-ED, SSLX-SM1550 -LC (1550XMT/1310RCV)	IE-SFP/1250-ED, SSLX-SM1310 / PLUS-LC (1310XMT/1550RCV)
Typical Speed Mbps	1000	1000	1000	1000
Mode (Fiber)	Multi Mode	Single Mode	Single Mode	Single Mode
BiDi/Single Strand	No	Yes	Yes	Yes
Wavelength (nm)	1310	1310	1550	1310
Connector Type	LC	LC	LC	LC
Distance (KM)	2	20	20	40
Power (dB)	10	15	15	20
DDMI	Yes	Yes	Yes	Yes
Temperature	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C	-40o C to +85o C
"Use With SFP P/N (Works in Pair with)"	-	808-38722	808-38721	808-38724
MSA (Multi-Source Aggrement)	Yes	Yes	Yes	Yes
Laser 1 Class 1 IEC 60825-2	Yes	Yes	Yes	Yes
Telecordia GR-468-CORE	Yes	Yes	Yes	Yes



Model Name	808-38724	808-38600	808-38601
SFP Type	SFP	SFP+	SFP+
Part Description	IE-SFP/1250-ED, SSLX-SM1550 / PLUS-LC (1550XMT/1310RCV)	IE-SFP+SR/10G-ED, MM850-LC	IE-SFP+LR/10G-ED, SM1310-LC
Typical Speed Mbps	1000	10G	10G
Mode (Fiber)	Single Mode	Multi Mode	Single Mode
BiDi/Single Strand	Yes	No	No
Wavelength (nm)	1550	850	1310
Connector Type	LC	LC	LC
Distance (KM)	40	33	10
Power (dB)	20	2.8	8.4
DDMI	Yes	Yes	Yes
Temperature	-40o C to +85o C	-10o C to +70o C	-10o C to +70o C
"Use With SFP P/N (Works in Pair with)"	808-38723	-	-
MSA (Multi-Source Aggrement)	Yes	Yes	Yes
Laser 1 Class 1 IEC 60825-2	Yes	Yes	Yes
Telecordia GR-468-CORE	Yes	Yes	Yes

## Regional Service & Customization Centers

**China** | Kunshan  
86-512-5777-5666

**Taiwan** | Taipei  
886-2-2792-7818

**Netherlands** | Eindhoven  
31-40-267-7000

**Poland** | Warsaw  
00800-2426-8080

**USA** | Milpitas, CA  
1-408-519-3898

## Worldwide Offices

### Greater China

**China**  
Toll Free 800-810-0345  
Beijing 86-10-6298-4346  
Shanghai 86-21-3632-1616  
Shenzhen 86-755-8212-4222  
Chengdu 86-28-8545-0198  
Hong Kong 852-2720-5118

**Taiwan**  
Toll Free 0800-777-111  
Neihu 886-2-2792-7818  
Taichung 886-4-2329-0371  
Kaohsiung 886-7-229-3600

### Middle East and Africa

Israel 072-2410527

### Asia

**Japan**  
Toll Free 0800-500-1055  
Tokyo 81-3-6802-1021  
Osaka 81-6-6267-1887  
Nagoya 81-0800-500-1055

**Korea**  
Toll Free 080-363-9494  
Seoul 82-2-3663-9494

**Singapore**  
Singapore 65-6442-1000

**Malaysia**  
Kuala Lumpur 60-3-7725-4188  
Penang 60-4-537-9188

**Thailand**  
Bangkok 66-2-248-3140

**India**  
Bangalore 91-80-2545-0206  
Pune 91-20-3948-2075

**Indonesia**  
Jakarta 62-21-751-1939

**Australia**  
Toll Free 1300-308-531  
Melbourne 61-3-9797-0100

### Europe

**Germany**  
Toll Free 00800-2426-8080/81  
Munich 49-89-12599-0  
Düsseldorf 49-2103-97-855-0

**France**  
Paris 33-1-4119-4666

**Italy**  
Milano 39-02-9544-961

**Benelux & Nordics**  
Breda 31-76-523-3100

**UK**  
Newcastle 44-0-191-262-4844  
London 44-0-870-493-1433

**Poland**  
Warsaw 48-22-31-51-100

**Russia**  
Moscow 8-800-555-01-50  
St. Petersburg 8-800-555-81-20

**Czech Republic**  
Ústí nad Orlicí 420-465-521-020

**Ireland**  
Oranmore 353-91-792444

### Americas

**North America**  
Toll Free 1-888-576-9668  
Cincinnati 1-513-742-8895  
Milpitas 1-408-519-3898  
Irvine 1-949-420-2500  
Ottawa 1-815-434-8731

**Brazil**  
Toll Free 0800-770-5355  
São Paulo 55-11-5592-5355

**Mexico**  
Toll Free 1-800-467-2415  
Mexico City 52-55-6275-2727

**ADVANTECH**

Enabling an Intelligent Planet

[www.advantech.com](http://www.advantech.com)

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2017



8600000352