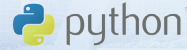


# Industrial Communication & Networking

Providing Interconnected Solutions for  
Enabling an Intelligent Planet

- ✓ Industrial Ethernet Switches
- ✓ Industrial Gateways
- ✓ Industrial Cellular Routers
- ✓ Industrial Wireless Solutions
- ✓ Industrial Media Converters
- ✓ Serial / USB Communications



**ADVANTECH**

*Enabling an Intelligent Planet*

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

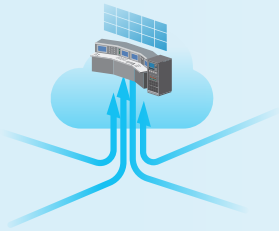
# Industrial Communication in the IoT Era

## 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 is for all devices, equipment, and machines to be able to connect and communicate with each other to increase productivity, efficiency, and scalability. One of Advantech's core missions 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.



# Our Technologies



## Intelligent Connectivity Software

Advantech intelligent connectivity software platform provides provisioning and management software, aiming at serving users a tailored management solution based on different user scenarios.

- WebAccess/DMP for managing cellular routers with secure WireGuard VPN for fast, secure connectivity
- WebAccess/NMS for monitoring the interconnectivity status of the whole network system



## Network Edge

Advantech's cellular routing solutions open up endless IoT possibilities. Advantech's cellular routers support direct communication between MQTT-enabled devices and the cloud. Built-in Node-RED technology enables smart data processing for fast dashboard development and monitoring using Advantech's WISE/PaaS management software cloud solution.

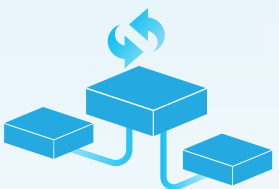
- Support for inter-operation with global 5G/LTE/3G coverage
- Cyber security protection by firewall, NAT, and VPN
- Intelligent gateway support for LoRaWAN, or Mesh networks for Industrial IoT
- Intelligent ODB cellular gateway supports G5 CatM1



## Wired and Wireless Network Infrastructure

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

- Supports various industrial Ethernet protocols, such as TCP/IP, Ethernet/IP, PROFINET, CC-link, OPC UA, 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
- Advantech security gateway with firewall and Ethernet switch with security pack protects against internal and external cyber attacks



## Protocol and Interface Conversion Solutions

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

- Supports various industrial Ethernet protocols including TCP/IP, Ethernet/IP, PROFINET, BACnet, OPC UA and more
- Surge protection and field isolation
- Connect to edge sensors via LoRaWAN, MESH technologies
- Access remote vehicle OBD data for telematics services providers (TSP) and fleet management applications

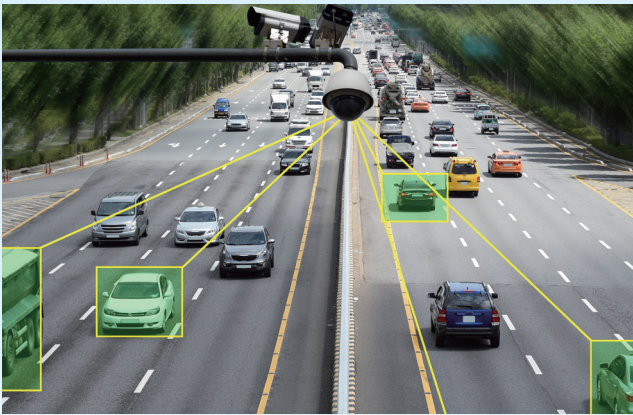
Solar Power

Oil and Gas



## Advancing Key Growth Areas in Industry 4.0, Industrial Equipment Manufacturing, Energy & Environment and, Transportation

Driven by the convergence of information technology (IT) and operational technology (OT), the Industrial Internet of Things (IIoT) is a matrix of networks connecting equipment and devices, collecting data via sensors and integrating it into a platform as a service business model to create new opportunities and possibilities. Advantech focuses on four go-to-market sectors - general automation, iFactory, industrial equipment manufacturing, and industrial infrastructure to fulfill customers' diverse application needs.



### Intelligent Transportation Systems

Intelligent transportation system aims at providing communications and technology that allow safe, comfortable and environmentally friendly travel for all commuters. Advantech offers product solutions for the freeway market segment including:

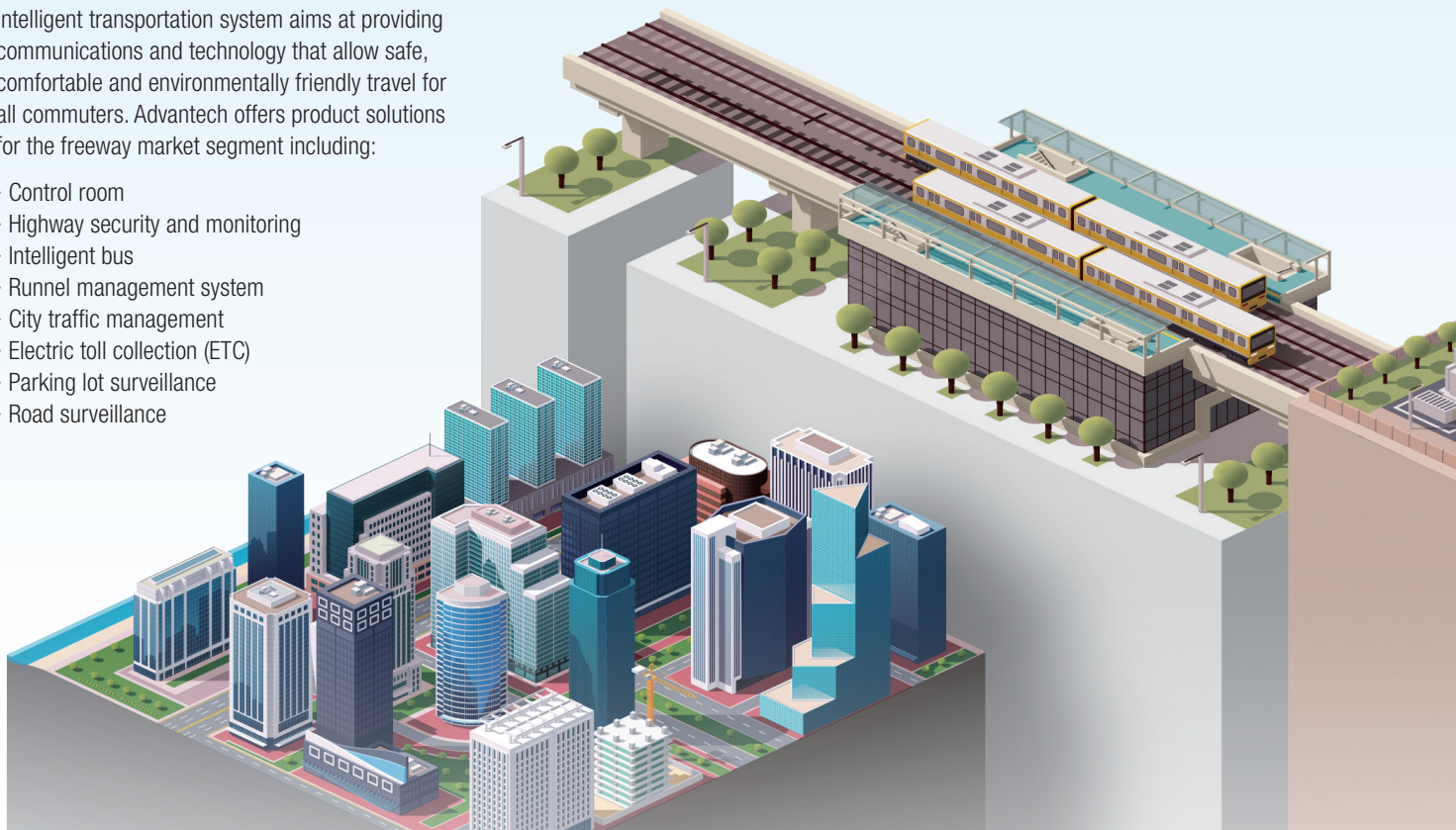
- Control room
- Highway security and monitoring
- Intelligent bus
- Tunnel management system
- City traffic management
- Electric toll collection (ETC)
- Parking lot surveillance
- Road surveillance



### Railway Systems

Advantech provides a reliable network service with its rugged, high ECM duration hardware designed for high vibration environments. Its software management, along with redundant functionality hardware provides high quality communications ideally suited for railway systems.

- Passenger information system
- Rolling stock communication
- Automatic fare collection system
- Wayside control
- Station control room
- Train-to-ground communication
- Backbone network system





## Machine and Factory Automation

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 efficiently, resulting in a highly synchronized operation. Advantech is here to help to achieve high scale volume production goals and raise market competitiveness.

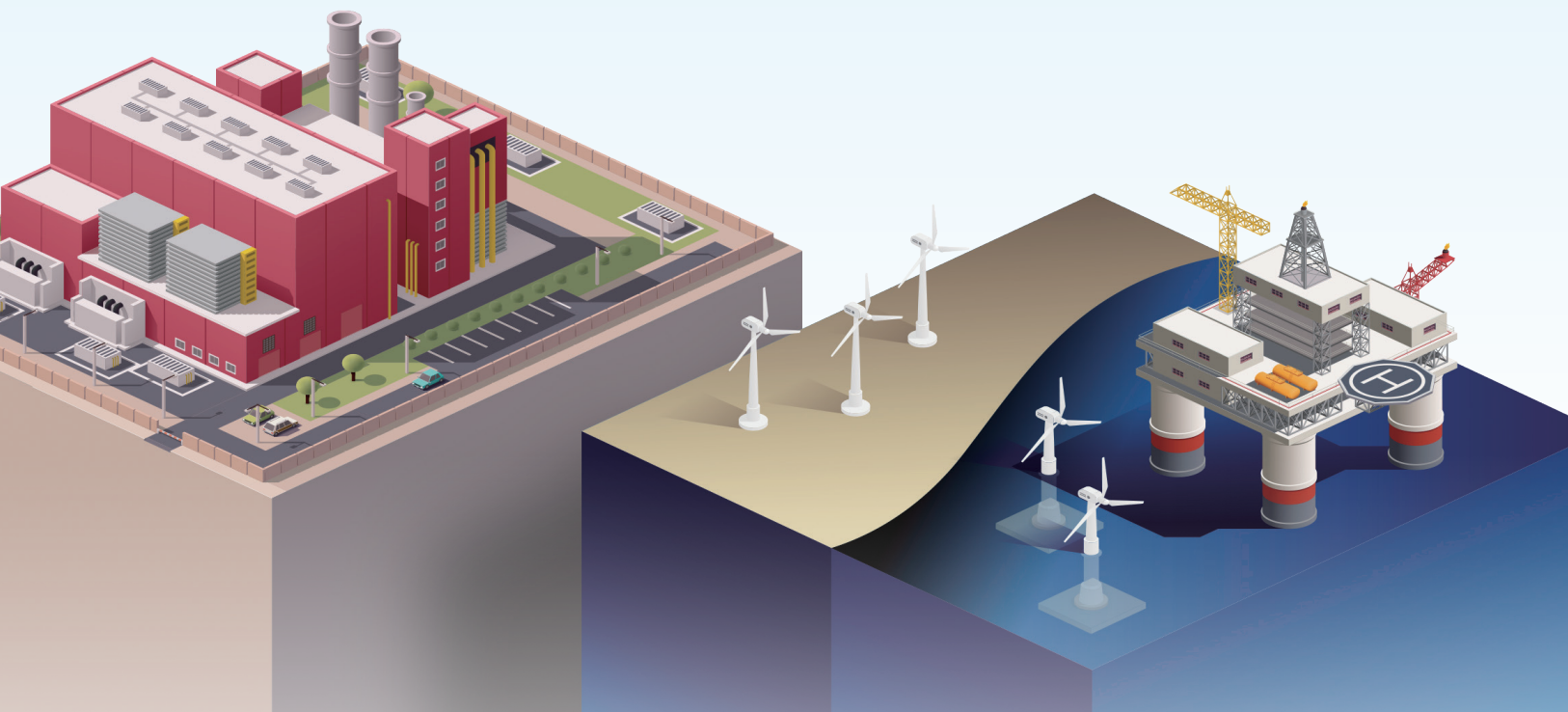
- Control room
- Semi-conductor
- Network backbone system
- Optimize automation system
- Warehouse management
- Auto-guided vehicle (AGV)



## Environment and Energy

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. Also, Advantech has an excellent reputation for developing environment and facility management systems(EMS), allowing users to monitor and operate processes anytime anywhere.

- Water and wastewater treatment
- Disaster prevention
- Smart grid
- Oil and gas
- Wind power transmission
- Solar power transmission
- Intelligent agriculture





# Industrial Ethernet Switches and Communications

## Reliable Industrial Communication and Networking Solutions

Empower your network with Advantech's industrial Ethernet solutions. Our diverse range includes L2/L3 managed and unmanaged switches, featuring PoE, 10G, and X-Ring Pro redundancy. Specifically designed for industrial settings, our Ethernet switches hold domain-focused certifications – EN50155 for railways, ITxPT and E-Mark for in-vehicle communication systems, and IEC-61850-3 for smart substations. All of which contribute to the secure transmission of data, monitoring, and control of networked devices.

### Unmanaged Switch PLUS

**NEW**



#### EKI-2718 Series

- One-touch VLAN support simplifies network segmentation
- High port density with up to 18 ports
- Adjustable pull-down DIN-rail kit enables flexible installation angles
- EMC Level 4 protection ensures reliable operation in harsh environments

### PROFINET Unmanaged Switches



#### EKI-2525NI/2528NI/2728NI/5726NI

- Supports PROFINET Conformance-Class A
- Complies with IEC 61131-2 specifications
- Enhanced traffic prioritization for automation protocols
- Supports EMC Level 4

### L2 Managed Switches



#### EKI-5700/7700 Series

- High variety of port combinations
- Supports Advantech Security Pack for cyber security
- IXM function enables fast deployment
- Supports X-Ring Pro and CLI/Web GUI
- EN 50121-4 and NEMA TS-2 certified

### L3 Managed Switches

**NEW**



#### EKI-9700/9600 Series & EKI-8528

- L3 Modular Switch
- Static routing/ NAT (EKI-9612G, EKI-9628G)
- Static routing, RIP v1/ v2, OSPF v3, PIM-SM, PIM-DM, VRRP(EKI-9728G)
- Supports up to 4 x 10G SFP+ ports (EKI-9728G)

### Unmanaged Ethernet Switches



#### EKI-2000 Series

- Comprehensive range from Fast Ethernet to 2.5G.
- Flexible port options with copper and fiber optic connectors.
- Slim design with IP30-rated metal housing for robust durability.
- Supports pull-down DIN-rail for versatile angle installations.

### iBus/In-Vehicle Switches

**NEW**



#### EKI-9508/EKI-9510 Series

- Complies with ITxPT, E-Mark
- Complies with UN ECE R118 & UN ECE R10
- Supports PoE IEEE802.3af/at (PoE model)
- Wide nominal power input range: 12/24VDC
- Operating power input range: 9-36VDC

### EN 50155 Switches

**NEW**



#### EKI-9500 Series

- EN 50155, EN 50121-3-2, IEC 61373 compliant
- PoE/ PoE+ models are available
- Various port combination with Fast Ethernet/Giga/10G Ethernet options: 8 / 10 / 12 / 16 / 20 / 28 ports
- IP54/ IP67 and rugged housing
- Supports TTDP (IEC61375-2-5) & TRDP (IEC61375-2-3)

### IEC 61850-3 Switches

**NEW**



#### EKI-7528 / EKI-8528 / EKI-9226

- IEC 61850-3 and IEEE 1613 certified for Power Energy
- L3 features: VRRP, RIP v1/v2, OSPFv3, PIM
- IEEE 1588v2 PTP supported
- GOOSE MMS supported
- HSR/PRP module supported

### TSN Ethernet Switches



#### EKI-8500 Series

- IEEE 802.1AS time synchronization
- IEEE 802.1Qbu frame preemption
- IEEE 802.1Qbv time aware shaper
- IEEE 802.1CB seamless redundancy

### Industrial PoE Switches



#### EKI-2700 & EKI-7000 Series

- Full range from Fast Ethernet to 10G.
- Compatible with IEEE 802.3af/at/bt standards for PoE functionality.
- EMC Level 4 protection for enhanced reliability in harsh environments.
- 6KV LAN surge protection to safeguard against electrical spikes.
- High power budget of up to 685W for demanding applications.

### PoE Injectors, Splitters, and Extenders



#### EKI-2701 & IMC-150 Series

- Versatile peripherals for PoE applications, supporting various wattages and up to 500-meter output.
- Compliant with IEEE 802.3af/at/bt standards, ensuring seamless integration.
- Supports a wide range of speeds, from Fast Ethernet to 5G.
- Reliable performance in extreme environments with an operating temperature range of -40°C to 75°C.

### Industrial Media Converters and Chassis



#### IMC-300 & IMC-318I Series

- Wide range of choices from 10/100Mbps to 10G
- Flexible power input DC/AC/USB/PoE
- Flexible Installation: Din-rail, wall-mount, chassis
- Easy plug-in for central management with Chassis IMC-318I



# Industrial Gateways

## Connect Legacy Devices to the IoT World

Advantech offers a wide selection of industrial gateways and cutting-edge data monitoring software tailored to your data management needs in different settings. Our gateways, equipped with advanced protocol conversion capabilities, act as bridges connecting various networks. They effortlessly link legacy devices to the cloud, making them an ideal solution for a myriad of industrial applications.



### IoT Communication

#### EdgeLink



#### ECU-1050 / ECU-1250 / ECU-1260 Series

##### IoT Gateway

- EdgeLink IoT software enables Edge-to-Cloud connectivity
- Supports cloud integration with AWS, Azure, Google Cloud, and third-party systems
- Supports protocols like MQTT, OPC UA, Modbus, DNP3, BACnet, IEC 104, IEC 61850, and 200+ PLC drivers
- Integrated VPN client for simplified secure network connection
- Efficiently supports 2,000 to 20,000 data tags
- Supports expansion with wireless communication capabilities



#### EKI-1242IEIMS

##### Fieldbus Gateway

- Modbus to Industrial fieldbus conversion, supporting Modbus RTU/TCP Client, EtherNet/IP Adapter, PROFIBUS IO-Device, OPC UA Server protocols
- Dual power inputs redundancy
- Built-in real-time diagnostics
- Wide operating temperature ranges



#### EKI-1200 Series

##### Modbus Gateway

- Supports 1-4 ports conversion of Modbus TCP and Modbus RTU/ ASCII network
- Redundancy-enhanced Modbus ID
- Wide operating temperature ranges

### Edge Computing



#### ECU-1370

- NXP i.MX8M Quad Core Cortex A53 1.3GHz
- 4GB RAM, 32GB eMMC
- 1 x RS-232/485, 1 x CAN, 3 x GbE, 2 x USB
- 24 x DI and 6 x Relay output
- Operating temperature: -40~80 °C/ -40~176 °F
- Ubuntu Linux

#### EdgeLink



#### ECU-1170

- Rockchip RK3568J Quad Core Cortex A55 1.4GHz
- 4GB RAM, 32GB eMMC
- 2 x USB, 1 x HDMI
- 8 x RS-232/485, 2 x CAN, 4 x GbE
- 2 x AI, 20 x DI, 6 x DO, 8 x Relay output
- Optional 5 sec power backup for safe shut down
- Yocto Linux with EdgeLink IoT Software/ Ubuntu Linux

#### EdgeLink



#### ECU-150

- NXP i.MX8M Quad Core Cortex A53 1.3GHz
- 2/4GB RAM, 16/32GB eMMC
- 2 x RS-232/485, 2 x GbE, 1 x USB
- Modular design with optional second stack for increasing functionality
- TPM2.0
- Yocto Linux with EdgeLink IoT Software/ Ubuntu Linux

#### EdgeLink



#### ECU-1270

- TI AM6734 Quad Core Cortex A53 1.4GHz
- 2/4GB RAM, 32GB eMMC
- 2 x RS-232/485, 2 x GbE, 1 x USB
- Yocto/Ubuntu Linux
- Flexible expansion modules of RS-485, DIO, CAN and POE PD functionality
- Yocto Linux with EdgeLink IoT Software/ Ubuntu Linux

### Intelligent Remote Terminal Units

#### EdgeLink



#### ADAM-3600

- TI Cortex-A8 (600MHz) with 256MB DDR3L
- Real-time Linux
- 4 x expansion slots
- SD slot for local data storage
- 2 x LAN ports with two MAC addresses
- 2 x wireless communication interface (mini-PCIe)
- 8 x DI, 8 x AI, 4 x isolated DO channels



#### ADAM-3651/ ADAM-3656

##### Digital I/O Expansion Module

- ADAM-3651: 8-ch DI module
- ADAM-3656: 8-ch DO module

#### ADAM-3617/ ADAM-3624

##### Analog I/O Expansion Module

- ADAM-3617: 4-ch AI module
- ADAM-3624: 4-ch AO module



#### ADAM-3668

##### 4-ch Relay Output Module

- 2-ch form A and 2-ch form C
- Contact rating: 0.3A@125VAC, 1A@30V<sub>DC</sub>



#### ADAM-6700 Series

- RISC/Linux-based, Node-RED
- Multiple digital and analog I/O and wireless connectivity
- Operating temperature: -40~70 °C/ -40~158 °F



# Cellular Routers & Gateways

## Industrial IoT & Enhanced Networking

Effortlessly connect, configure, and operate Advantech's scalable 3G, 4G, and 5G industrial routers and gateways. With global cellular connectivity, these solutions enable instant device and process monitoring and control. Robust security ensures safe deployment in sensitive environments, protecting critical assets and data. Whether connecting vending machines, eye surgery robots, high-voltage reclosers, or EV charging stations, our routers offer versatile connectivity options, including serial, Ethernet, Wi-Fi, digital I/Os, and Bluetooth. Supported by the ICR-OS operating system, WebAccess/DMP platform, and additional software, Advantech routers deliver advanced connectivity solutions.



### Intelligent Connectivity Software for Cellular Routers

#### WebAccess/DMP



#### WebAccess/DMP

##### Powerful, Flexible, and Secure Industrial Network Management

- Configuration Profile Management, Digital Twin Model
- Monitoring and geographical mapping of routers
- Ping Tools, Zero Touch Deployment
- Integration of VPN



#### RouterApps

##### Extended Functionality for Cellular Routers

- Industrial and IoT protocols support (Modbus, IEC101/104, MQTT)
- Networking and tunneling protocols
- Development tools (Python, Node-Red)
- Docker application containerization

### 5G & LTE Advanced High Speed Routers - Platform v4i, v4



#### ICR-4100/4200 Series

##### Industrial 5G Router & IoT Gateway

- 5G, Sub-6GHz, NSA & SA modes, 2x SIM
- Quad-core CPU with 1 GB RAM
- 2x Gigabit Ethernet
- 2x RS232, RS485
- GNSS receiver, Micro SD card, TPM 2.0
- Optional Tri-Band Wi-Fi 6



#### ICR-4400 Series

##### Ultra-High-Speed 5G NR Router & Edge Computing Gateway

- 5G, Sub-6GHz, NSA & SA modes, 2x SIM
- Quad-core CPU with 1 GB RAM
- 5x Gigabit Ethernet (optional 4x PoE+ PSE)
- SFP, GNSS, Micro SD card, USB, TPM 2.0
- RS232, RS485, CAN BUS

### 4G Powerful Routers - Platform v3



#### ICR-3200 Series

##### Industrial 4G Router & IoT Gateway

- LTE Cat.4, 2x SIM
- Powerful CPU, 1.3 GB
- 2x Ethernet 10/100, RS232, RS485
- Wide temperature range
- Sleep mode & power ignition
- Optional Wi-Fi, Bluetooth, GNSS



#### Smart Flex Series

##### Flexible, Modular 4G LTE Router & Gateway

- LTE Cat.4, 2 x SIM
- Up to 5x Ethernet 10/100
- GNSS receiver
- Optional PoE, RS232/RS422/RS485, Wi-Fi

### 4G Entry Level Industrial Routers - Platform v2i



#### ICR-2000 Series

##### Entry-Level 4G Router

- LTE Cat.4, Cat.M, Cat-NB 450 MHz
- 2x SIM
- Up to 4x Ethernet 10/100 Mbps
- Optional RS232, RS485, Wi-Fi



#### ICR-2700/2800 Series

##### Industrial 4G Router & IoT Gateway

- LTE Cat.4, 2x SIM
- 1.3 GB eMMC storage
- 2x Ethernet 10/100, GNSS receiver
- Optional 2x RS232, RS485, Wi-Fi
- Optional USB, last gap capacitor

### 5G & 4G Connectivity Gateways - Platform v1



#### ICR-1600 Series

##### 4G LTE Industrial Connectivity Gateway

- LTE Cat.4, 2x SIM
- Up to 5x Ethernet 10/100/1000 Mbps
- Optional RS232, RS485
- Optional Wi-Fi 5, GNSS



#### ICR-1700 Series

##### 5G Industrial Connectivity Gateway

- 5G, LTE Cat.12 fallback , 2x SIM
- 2x Ethernet 10/100/1000M/2.5 Gbps
- Optional RS232, RS485, Wi-Fi 5





# Industrial Wireless Devices and Sensors

## Optimizing Facility Management and Performance with Smart Sensing Solutions

Advancements in wireless and cloud technologies have driven the adoption of cloud services in remote applications for wide-area management. To bridge the gap between field data and the cloud, Advantech offers smart edge nodes with wireless I/O and sensor modules. These devices seamlessly collect and transmit data to the cloud using advanced wireless technologies and IoT protocols, enabling efficient monitoring and streamlined facility management.

### Industrial Wi-Fi Access Points and Clients



#### BB-WLNN Series

##### Wi-Fi Dual Band Embedded Module

- Quick time to market and reduced integration costs
- 802.11a/b/g/n Wi-Fi radio (2.4 GHz, 5 GHz)
- WEP, WPA-PSK, WPA2-PSK and WPA2-enterprise security
- Small form factor module



#### ABDNA-ER-DP551(U) / ABDNA-ER-IN5010

##### Wi-Fi Dual Band Enterprise Ethernet Bridge/Router

- 10/100 Ethernet to Dual Band Wi-Fi
- Compact form factor
- Industrial metal case



#### EKI-6333BE / EKI-1652WT

##### Wi-Fi 7 AP/Bridge/Client/EN 50155 Router

- Support 802.11be MU-MIMO 2x2x2; backward compatible with 802.11b/g/n/ac/ax
- Smooth streaming & roaming speeds: 5.8 Gbps (6 GHz), 2.9 Gbps (5 GHz), 700 Mbps (2.4 GHz)
- Secure access: WEP, 802.1x, WPA/WPA2/WPA3 (Personal/Enterprise)
- 4 x 2.5GBASE-T RJ45 Ethernet ports, IEEE 802.3bz compliant
- Wide temperature range: -20 ~ 70 °C

### Wireless I/O Modules



#### WISE-4471 / WISE-4671

##### Industrial NB-IoT/LTE-M IoT Wireless I/O Module

- Dual mode support with global coverage in NB-IoT and LTE-M
- Faster and easier deployment with existing infrastructures
- Supports direct public cloud service for IoT integration



#### WISE-221X

##### Industrial Proprietary LPWAN(Sub-G) Energy Harvesting I/O Module

- Power over AI channel design, no extra power wired installation needed.
- High efficiency power charger design via CT (Current transformer, AC 0-100mA) or 4-20mA sensors
- Max. 3 AI channels
- Compact design, suitable for plug and play applications



#### WISE-2200-M / WISE-4610 / BB-WSW

##### Advanced Industrial LoRaWAN IoT Wireless I/O Module

- Longer communication range with low power consumption
- Better penetration through concrete and steel with less interface
- One stop station with single and multiple I/O solution



#### WISE-4250

##### Industrial Dual Band 2.4/5GHz Wi-Fi IoT Wireless I/O Module

- Dual band 1T1R 2.4/5 GHz IEEE 802.11a/b/g/n/ac
- Fast roaming and smart band management technology
- Build-in higher security subsystem

### Wireless Sensor Modules



#### WISE-2410 Series

##### LoRaWAN Smart Condition Monitoring Sensor

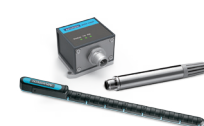
- Compliant with ISO 10816 (guidelines for machine vibration evaluation)
- No power and communication wiring with LoRaWAN technology
- Computing onboard, directly transmits vibration characteristic values to application



#### EVA-2000 Series

##### LoRaWAN Smart Sensors

- EVA-221X: 3-Phase Current Meter with 3 Clamp-on CT (75A or 250A or 630A)
- EVA-2310: Temperature and Humidity Sensor
- EVA-2311: Temperature PT1000 Round Head Probe Sensor
- EVA-2312: K-Type Thermocouple Round Head Probe Sensor
- EVA-2510: Water Leakage Sensor



#### WISE-2460 / WISE-S100 / 96PD-THS16B

##### Smart Sensors

- Stack light OEE monitoring sensor
- High accuracy temperature and humidity sensor
- High frequency vibration sensor
- RS-485 Modbus data directly output
- Can be paired with any RS-485 supported wire/wireless I/O solutions

# Industrial Ethernet Solutions

## Unmanaged Ethernet Switches



Model Name		EKI-2525LI-AE	EKI-2525NI/ EKI-2528NI	EKI-2725/I	EKI-2728NI	EKI-2728/I	EKI-2728S/2728SI	EKI-2728M/MI
Description		5 x Fast Ethernet ports Slim Type Unmanaged Switch	5/8-port Unmanaged Industrial Ethernet Switch	5-port Gigabit Unmanaged Industrial Ethernet Switch	8-port Gigabit Unmanaged Industrial Ethernet Switch	8-port Gigabit Unmanaged Industrial Ethernet Switch	6GE+2G Single-Mode Fiber Port Unmanaged Ethernet Switch	6G+2G Multi-Mode Unmanaged Ethernet Switch
Interface	Number of Ports	5	5 or 8	5	8	8	8	8
	10/100Base-T (X)	5	5 or 8	-	-	-	-	-
	100BaseFX	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	5 or 8	5	8	8	6	6
Power	1000Base-SX/LX/LHX/ XD/ZX/EZX	-	-	-	-	-	2 x SC Single Mode	2
	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	✓
Mechanism	Relay Output	-	-	✓	✓	✓	✓	✓
	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
Protection	IP Level	40	IP30	IP30	IP30	IP30	IP30	IP30
	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	Power Reverse	✓	✓	✓	✓	✓	✓	✓
	-10 ~ 60°C (14 ~ 140°F)	-	-	EKI-2725	-	EKI-2728	EKI-2728S	EKI-2728M
Certifications	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	EKI-2725I	✓	EKI-2728I	EKI-2728SI	EKI-2728MI
	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	✓	✓	✓	✓	-
	Class 1, Division 2	-	-	-	-	-	-	✓
UL 508	-	-	-	-	-	-	✓	
Support PROFINET Conformance-Class A		-	✓	-	✓	-	-	-

✓ : supported, - : not supported, △ : optional

## Unmanaged Ethernet Switches



Model Name		EKI-2526M/S	EKI-2525MI/SI-ST	EKI-2525MI/SI	EKI-5726NI	EKI-5726FI	EKI-5729FI	EKI-2428G-4CA/I
Description		4+1 100FX Port Multi-mode/ Single-mode Industrial Ethernet Switch	4+1 100FX Port Multi-mode/ Single-mode ST connector type Unmanaged Industrial Ethernet Switch	4+1 100FX Port Multi-mode/ Single-mode Unmanaged Industrial Ethernet Switch	16-port Gigabit Ethernet Switch	16-port+2 SFP Gigabit Ethernet Switch	8-Port+2 SFP Gigabit Ethernet Switch	24GFE+4SFP Giga ports Unmanaged Switch w/ AC Input
Interface	Number of Ports	6	5	5	16	16	8	28
	10/100Base-T (X)	4	4	4	-	-	-	-
	100BaseFX	2	1	1	✓	✓	✓	-
	10/100/1000Base-T (X)	-	-	-	16	16	8	24 + 4 (combo)
	1000Base-SX/LX/LHX/ XD/ZX/EZX	-	-	-	✓	✓	✓	4 (combo)
Console	-	-	-	✓	✓	✓	-	
Network Management	Redundancy	-	-	-	-	-	-	-
	Configuration	-	-	-	✓	✓	✓	-
	SNMP	-	-	-	✓	✓	✓	-
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	-
	100 ~ 240 V AC	-	-	-	-	-	-	✓
	Relay Output	✓	✓	✓	✓	✓	✓	-
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	-
	Wall Mount	✓	✓	✓	✓	✓	✓	-
	Rack Mount	-	-	-	-	-	-	✓
Protection	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30
	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	Power Reverse	✓	✓	✓	✓	✓	✓	-
	-10 ~ 60°C (14 ~ 140°F)	✓	-	-	-	-	-	-10~55°C (EKI-2428G-4CA) (14 - 131°F)
	-40 ~ 75°C (-40 ~ 167°F)	-	✓	✓	✓	✓	✓	-20~75°C (EKI-2428G-4CAI) (-13 - 167°F)
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	✓	-	-	-	-
	Class 1, Division 2	-	-	-	✓	✓	✓	-
	UL 508	-	-	-	✓	✓	✓	-
Others	-	-	-	-	-	-	-	LVD 62368-1
Support PROFINET Conformance-Class A		-	-	-	✓	-	-	-

✓ : supported, - : not supported, Δ : optional

# Industrial Ethernet Solutions

## Unmanaged Ethernet Switch with VLAN Function



Model Name		EKI-2718E-2CI	EKI-2710E-2CI	EKI-2716EI	EKI-2716GI
Description		16FE + 2GE Combo Ethernet Switch	8FE + 2GE Combo Ethernet Switch	16-port Gigabit Ethernet Switch	16-port Gigabit Ethernet Switch
Interface	Number of Ports	18	10	16	16
	10/100Base-T (X)	16	8	-	-
	100BaseFX	-	-	-	-
	10/100/1000Base-T (X)	2 (combo)	2 (combo)	16	16
	1000Base-SX/LX/LHX/XD/ZX/EZX	2 (combo)	2 (combo)	-	-
DIP switch	QoS	✓	✓	✓	✓
	BSP	✓	✓	✓	✓
	Port-based VLAN	✓	✓	✓	✓
Power	12 ~ 48 V DC	✓	✓	✓	✓
	Relay Output	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓
	IP Level	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓
Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓
Certifications	CE	✓	✓	✓	✓
	FCC	✓	✓	✓	✓
	UL62368	✓	✓	✓	✓

✓ : supported, - : not supported, △ : optional

## Entry-Level Managed Switches



Model Name		EKI-55261-MB EKI-55261-PN EKI-55261-EI	EKI-55281-MB EKI-55281-PN EKI-55281-EI	EKI-56261-MB EKI-56261-PN EKI-56261-EI	EKI-56291-MB EKI-56291-PN EKI-56291-EI	EKI-57261-MB	EKI-57281-MB	EKI-57291-MB
Description		16FE Entry-level Managed Switch	8FE Entry-level Managed Switch	16FE+2GE Combo Ports Entry-level Managed Switch	8FE+2GE Combo Ports Entry-level Managed Switch	16GE Entry-level Managed Switch	8GE Entry-level Managed Switch	8GE + 2 SFP Entry-level Managed Switch
Interface	Number of Ports	16	8	16+2	8+2	16	8	8+2
	10/100Base-T (X)	16	8	16	8	-	-	-
	100BaseFX	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	-	2/2 (combo)	2/2 (combo)	16	8	8
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	2/2 (combo)	2/2 (combo)	-	-	2
	PoE (10/100 Mbps)	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-
Console	-	-	-	-	-	-	-	
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-	-
	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)	-	-	-	-	-	-	-
	-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	-	-	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

# Industrial Ethernet Solutions

## Managed Switches



Model Name	EKI-5708E-I	EKI-5708E-2FI	EKI-5710E-I	EKI-5710E-2FI	EKI-7706E-2FI	EKI-7706G-2FI	EKI-7708G-4FI	EKI-7708E-2MI/2SI	
Description	8FE Giga Managed	6FE+2SFP Giga Managed	10FE Giga Managed	8FE+2SFP Giga Managed	4FE+2SFP Giga Managed Redundant Industrial Switch	4GE+2SFP Giga Managed Redundant Industrial Switch	4GE+4SFP Giga Managed Redundant Industrial Switch	6FE+2x100M SC Fiber Managed Redundant Industrial Switch	
Interface	Number of Ports	8	8	10	10	6	6	8	
	10/100Base-T (X)	8	6	10	8	4	-	6	
	100BaseFX	-	-	-	-	-	-	2 (multi/single)	
	10/100/1000Base-T (X)	-	-	-	-	-	4	4	
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	2	-	2	2	2	4	
	PoE (10/100 Mbps)	-	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-	-
	HSR/PRP	-	-	-	-	-	-	-	-
Console	✓	✓	✓	✓	✓	✓	✓	✓	
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓	
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	
	VLAN	✓	✓	✓	✓	✓	✓	✓	
	Configuration	✓	✓	✓	✓	✓	✓	✓	
	SNMP	✓	✓	✓	✓	✓	✓	✓	
	Security	✓	✓	✓	✓	✓	✓	✓	
	Traffic Control	✓	✓	✓	✓	✓	✓	✓	
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	✓	
	24 ~ 110 V DC	-	-	-	-	-	-	-	
	100 ~ 240 V AC	-	-	-	-	-	-	-	
	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-7706E-2F	EKI-7706G-2F	-	
	-40 ~ 75°C (-40 ~ 167°F)	EKI-5708E-I	EKI-5708E-2FI	EKI-5710E-I	EKI-5710E-2FI	EKI-7706E-2FI	EKI-7706G-2FI	EKI-7708G-4FI	
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	
	FCC	✓	✓	✓	✓	✓	✓	✓	
	UL 62368	-	-	-	-	-	-	-	
	Class 1, Division 2	-	-	-	-	-	-	-	
	UL 61010	-	-	-	-	✓	✓	✓	
Others	LVD 62368-1	LVD 62368-1	LVD 62368-1	LVD 62368-1	EN50121-4 UL 61010 LVD 62368-1	EN50121-4 UL 61010 LVD 62368-1	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	LVD 62368-1	

✓ : supported, - : not supported, △ : optional

## Managed Switches



Model Name		EKI-7428G-4X	EKI-7428G-4CA / EKI-7428G-4CI
Description		24GE+4SFP 10G Managed Switch w/ AC Input	24GE+4SFP Giga Managed Redundant Switch w/ AC Input
Interface	Number of Ports	28	28
	10/100Base-T (X)	-	-
	100BaseFX	-	-
	10/100/1000Base-T (X)	24	24 + 4 (combo)
	1000Base-SX/LX/LHW/ XD/ZX/EZX	4 x SFP+ (10G)	4 (combo)
	PoE (10/100 Mbps)	-	-
	PoE (10/100/1000 Mbps)	-	-
	HSR/PRP	-	-
Network Management	Console	✓	✓
	Redundancy	✓	✓
	Diagnostics	✓	✓
	VLAN	✓	✓
	Configuration	✓	✓
	SNMP	✓	✓
	Security	✓	✓
	Traffic Control	✓	✓
Power	12 ~ 48 V DC	-	EKI-7428G-4CI
	24 ~ 110 V DC	-	-
	100 ~ 240 V AC	✓	✓
	Relay Output	-	-
Mechanism	DIN-rail Mount	-	-
	Wall Mount	-	-
	Rack Mount	✓	✓
	IP Level	-	-
Protection	ESD (Ethernet)	✓	✓
	Surge (EFT for power)	✓	✓
	Power Reverse	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	0 ~ 60°C (32 - 140°F)	-10 ~ 55°C (14 - 131°F)
	-40 ~ 75°C (-40 ~ 167°F)	-	EKI-7428G-4CI
	-40 ~ 85°C (-40 ~ 185°F)	-	-
Certifications	CE	✓	✓
	FCC	✓	✓
	UL 62368	-	✓
	Class 1, Division 2	-	-
	UL 61010	-	-
Others	LVD 62368-1	LVD 62368-1	

✓ : supported, - : not supported, △ : optional

# Industrial Ethernet Solutions

## Managed Switches



Model Name		EKI-7710E-2C EKI-7710E-2CI	EKI-7710G-2C EKI-7710G-2CI	EKI-7712E-4F EKI-7712E-4FI	EKI-7712G-4F EKI-7712G-4FI	EKI-7716G-4F4CI	EKI-7720E-4F EKI-7720E-4FI	EKI-7720G-4F EKI-7720G-4FI
Description		8FE+2G Gigabit Managed Redundant Industrial Switch	8GE+2G Gigabit Managed Redundant Industrial Switch/with Wide Temperature	8FE+4SFP Gigabit Managed Redundant Industrial Switch/with Wide Temperature	8G+4G SFP Gigabit Managed Redundant Industrial Switch/with Wide Temperature	8GE+4SFP + 4G Combo Managed Redundant Industrial Switch	16FE+4G SFP Gigabit Managed Redundant Industrial Switch with Wide Temperature	16GE+4G SFP Gigabit Managed Redundant Industrial Switch/with Wide Temperature
Interface	Number of Ports	10	10	12	12	16	20	20
	10/100Base-T (X)	8	-	8	-	-	16	-
	100BaseFX	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	2 (combo)	8 + 2 (combo)	-	8	8 + 4 (Combo)	-	16
	1000Base-SX/LX/LHX/XD/ZX/EZX	2 (combo)	2 (combo)	4	4	4 + 4 (Combo)	4	4
	PoE (10/100 Mbps)	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-
Console	✓	✓	✓	✓	✓	✓	✓	
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP40	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	EKI-7710E-2C	EKI-7710G-2C	✓	EKI-7712G-4F	-	EKI-7720E-4F	EKI-7720G-4F
	-40 ~ 75°C (-40 ~ 167°F)	EKI-7710E-2CI	EKI-7710G-2CI	✓	EKI-7712G-4FI	EKI-7716G-4FI	EKI-7720E-4FI	EKI-7720G-4FI
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL 62368	✓	✓	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-	-
	UL 61010	-	-	✓	✓	✓	✓	✓
	Others	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1

✓ : supported, - : not supported, △ : optional



## Managed PoE Switches



Model Name		EKI-7708E-4FPI	EKI-7708G-4FPI	EKI-7710E-2CPI	EKI-7710G-2CPI	EKI-7712E-4FPI	EKI-7712G-4FPI	EKI-7712G-4FMPI	EKI-7720G-4FPI
Description		4FE+4SFP Managed Redundant Industrial PoE Switch	4GE+4SFP Managed Redundant Industrial PoE Switch	8FE+2SFP Managed Redundant Industrial PoE Switch	8GE+2SFP Managed Redundant Industrial PoE Switch	8FE + 4SFP Managed Redundant Industrial PoE Switch	8GE+4SFP Managed Redundant Industrial PoE Switch	8GE+4SFP Managed Redundant Industrial PoE Switch	16GE+2SFP Managed Redundant Industrial PoE Switch
Interface	Number of Ports	8	8	10	10	12	12	12	20
	10/100Base-T (X)	-	-	-	-	-	-	-	-
	100BaseFX	-	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	-	2 (combo)	2 (combo)	-	-	-	-
	1000Base-SX/LX/LHX/ XD/ZX/EZX	4	4	2 (combo)	2 (combo)	4	4	4	4
	PoE (10/100 Mbps)	4	-	8	-	8	-	-	-
	PoE (10/100/1000 Mbps)	-	4	-	8	-	8	8	16
	DI/DO	-	-	-	-	-	-	-	-
Console	✓	✓	✓	✓	✓	✓	✓	✓	
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	48 V <sub>DC</sub>	48 V <sub>DC</sub>	✓	✓	48 V <sub>DC</sub>	48 V <sub>DC</sub>	53 ~ 57 V <sub>DC</sub>	55 V <sub>DC</sub>
	24 ~ 110 V DC	-	-	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-	-	-
	Relay Output	✓	✓	-	-	✓	✓	✓	✓
	Power Budget	120W	120W	120W	120W	240W	240W	370W support 802.3bt	420W
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-	-
	IP Level	IP30	IP30	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	NEMA TS2 EN 50121-4 LVD 62368-1 UL 61010	NEMA TS2 EN 50121-4 LVD 62368-1 UL 61010	NEMA TS2 EN 50121-4 LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	UL 62368-1 NEMA TS2 EN50121-4	UL 62368-1 NEMA TS2 EN50121-4

✓ : supported, - : not supported, △ : optional

# Industrial Ethernet Solutions

## Unmanaged PoE Switches



Model Name		EKI-2705E-1GPI	EKI-2705G-1GPI	EKI-2706E-1GFPI	EKI-2706G-1GFPI
Description		4FE PoE + 1GE Unmanaged Industrial Switch	4GE PoE + 1GE Unmanaged Industrial Switch	4FE PoE + 1GE + 1G SFP Unmanaged Industrial Switch	4GE PoE + 1GE + 1G SFP Unmanaged Industrial Switch
Interface	Number of Ports	5	5	6	6
	10/100Base-T (X)	5	-	5	-
	10/100/1000Base-T (X)	-	5	-	5
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	1	1
	PoE (10/100 Mbps)	4	-	4	-
	PoE (10/100/1000 Mbps)	-	4	-	4
Power	12~48VDC				
	48VDC				
	24 ~ 48 V DC	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-
	100 ~ 240 V AC	-	-	-	-
	Relay Output	-	-	-	-
PoE Power Budget		Max. 90W	Max. 90W	Max. 90W	Max. 90W
Mechanism	DIN-rail Mount	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓
	IP Level	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓
Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓
Certifications	CE	✓	✓	✓	✓
	FCC	✓	✓	✓	✓
	UL/cUL	62368	62368	62368	62368
	LVD EN62368	-	-	-	-
	E-Mark	✓	✓	✓	✓
	Others	-	-	-	-

✓ : supported, - : not supported, △ : optional

## Unmanaged PoE Switches



Model Name		EKI-2706G-2GPI	EKI-2706G-2FPI	EKI-2708G-PI	EKI-2710G-2FPI	EKI-2712G-4FPI
Description		4GE PoE + 2GE Unmanaged Industrial Switch	4GE PoE + 2G SFP Unmanaged Industrial Switch	8 GE PoE Unmanaged Industrial Switch	8 GE PoE + 2G SFP Unmanaged Industrial Switch	8 GE PoE + 4G SFP Unmanaged Industrial Switch
Interface	Number of Ports	6	6	8	10	12
	10/100Base-T (X)					
	10/100/1000Base-T (X)	6	4	8	8	8
	1000Base-SX/LX/LHX/XD/ZX/EZX		2		2	4
	PoE (10/100 Mbps)					
	PoE (10/100/1000 Mbps)	4	4	8	8	8
Power	12~48VDC	✓	✓	✓	✓	
	48VDC					✓
	24 ~ 48 V DC					
	24 ~ 110 V DC					
	100 ~ 240 V AC					
	Relay Output	✓	✓	✓	✓	✓
PoE Power Budget		Max. 120W	Max. 120W	Max. 240W	Max. 240W	Max. 240W
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓
	IP Level	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓
Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓
Certifications	CE	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓
	UL/cUL					61010
	LVD EN62368	✓	✓	✓	✓	✓
	E-Mark	✓	✓	✓	✓	
	Others	NEMA TS-2 Compliant EN50121-4 Compliant	NEMA TS-2 Compliant EN50121-4 Compliant	NEMA TS-2 Compliant EN50121-4 Compliant	NEMA TS-2 Compliant EN50121-4 Compliant	NEMA TS-2 Compliant EN50121-4 Compliant

✓ : supported, - : not supported, △ : optional

# Industrial Ethernet Solutions

## L3 Managed Switches

## IEC 61850-3 Managed Industrial Ethernet Switches



Model Name		EKI-9728G-4X8CI	EKI-9628G-4CI	EKI-9612G-4FI
Description		L3 28-port Managed Switch	L3 28-port Managed Switch	L3 12-port Managed Switch
Interface	Number of Ports	28	28	12
	10/100Base-T (X)	-	-	-
	100BaseFX	-	-	-
	10/100/1000Base-T (X)	16+8 (combo)	24+4 (combo)	8
	1000Base-SX/LX/LHX/ XD/ZX/EZX	8 (combo) + 4 x SFP+ (10G)	4 (combo)	4 x SFP
	PoE (10/100 Mbps)	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-
	HSR/PRP	-	-	-
Console	✓	✓	✓	
Network Management	Redundancy	✓	✓	✓
	Diagnostics	✓	✓	✓
	VLAN	✓	✓	✓
	Configuration	✓	✓	✓
	SNMP	✓	✓	✓
	Security	✓	✓	✓
	Traffic Control	✓	✓	✓
Power	12 ~ 48 V DC	-	✓	✓
	24 ~ 110 V DC	-	-	-
	100 ~ 240 V AC	90~264 V <sub>ac</sub>	-	-
	Relay Output	-	✓	✓
Mechanism	DIN-rail Mount	-	-	✓
	Wall Mount	-	-	✓
	Rack Mount	✓	✓	-
	IP Level	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 61010	-	✓	✓
Others	-	LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	

✓ : supported, - : not supported, △ : optional

Model Name		EKI-8528	EKI-7528-4XF24T/24F	EKI-9226G-20FOI EKI-9226G-20FMI
Description		L3 modular Managed Switch	24GE+4SFP 10G Managed Switch w/ AC Input	26-port Full Giga Managed Switch
Interface	Number of Ports	Up to 28	28	26
	10/100Base-T (X)	-	-	-
	100BaseFX	-	-	-
	10/100/1000Base-T (X)	3 x 8 port module slots + 4 x SFP+(10G)	24 (EKI-7528-4XF24T)	6
	1000Base-SX/LX/LHX/ XD/ZX/EZX	3 x 8 port module slots + 4 x SFP+(10G)	24 (EKI-7528-4XF24F)+ 4 x SFP+ (10G)	20 x SFP
	PoE (10/100 Mbps)	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-
	HSR/PRP	△	-	-
Console	✓	✓	✓	
Network Management	Redundancy	✓	✓	✓
	Diagnostics	✓	✓	✓
	VLAN	✓	✓	✓
	Configuration	✓	✓	✓
	SNMP	✓	✓	✓
	Security	✓	✓	✓
	Traffic Control	✓	✓	✓
Power	12 ~ 48 V DC	△ 24~48 VDC	-	EKI-9226G-20FMI (48 V <sub>dc</sub> )
	24 ~ 110 V DC	△ 88 ~ 370 VDC	✓	-
	100 ~ 240 V AC	△ 90 ~ 264 VAC	✓	EKI-9226G-20FOI (90 ~ 264 V <sub>ac</sub> )
	Relay Output	✓	✓	✓
Mechanism	DIN-rail Mount	-	-	-
	Wall Mount	-	-	-
	Rack Mount	✓	✓	✓
	IP Level	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	EN 50121-4 IEC 61850-3	EN 50121-4 IEC 61850-3	ICE 61850-3	

✓ : supported, - : not supported, △ : optional

## EN50155/ITxPT/E-Mark Switches



Model Name		EKI-9520H	EKI-9512E-4GETB EKI-9512G-4GETB	EKI-9528 series	EKI-9516 series	EKI-9512 series	EKI-9510 series	EKI-9508 series
Description		20-Port L2 Managed (PoE) Switch w/10G	12-Port Ethernet Train Backbone Router	28-Port L2 Managed (PoE) Switch	16-Port L2 Managed (PoE) Switch	12-Port L2 Managed PoE Switch	10-Port L2 Managed (PoE) Switch	8-Port L2 Managed (PoE) Switch
Interface	Number of Ports	20	12	28	16	16	10	8
	10/100Base-TX	-	Up to 8	Up to 20	Up to 12	Up to 8	Up to 8	Up to 8
	100BaseFX	-	-	-	-	-	-	-
	10/100/1000Base-TX	14	Up to 12	Up to 28	Up to 16	Up to 12	Up to 10	Up to 8
	10/100/1000Base-TX with Bypass function	-	4	Up to 4	Up to 4	Up to 4	Up to 2	-
	1/2.5/5/10 Gbps	6	-	-	-	-	-	-
	PoE(10/100Mbps)	-	-	Up to 24	Up to 12	Up to 8	Up to 8	Up to 8
	PoE(10/100/1000Mbps)	14	-	Up to 24	Up to 12	Up to 8	Up to 8	Up to 8
	Console	✓	✓	✓	✓	✓	△	△
Network Management	Redundancy	✓	✓	✓	✓	✓	△	△
	Diagnostics	✓	✓	✓	✓	✓	△	△
	VLAN	✓	✓	✓	✓	✓	△	△
	Configuration	✓	✓	✓	✓	✓	△	△
	SNMP	✓	✓	✓	✓	✓	△	△
	Security	✓	✓	✓	✓	✓	△	△
	Traffic Control	✓	✓	✓	✓	✓	△	△
Power	24-110V <sub>dc</sub>	✓	✓	✓	✓	✓	✓	✓
	9-36V <sub>dc</sub>	-	-	-	-	-	✓	✓
	IP Rating	IP20	IP30	IP54	IP67	IP67	IP67	IP67
Rolling Stock Application	Ethernet Train Backbone (IEC61375-2-3 & -2-5)	-	✓	-	-	-	-	-
	EN50155	✓	✓	✓	✓	✓	✓	✓
	EN50121-3-2	✓	✓	✓	✓	✓	✓	✓
	EN61373	✓	✓	✓	✓	✓	✓	✓
	EN45545-2	✓	✓	✓	✓	✓	✓	✓
In-Vehicle certificate	E-Mark	-	-	-	-	-	✓	✓
	ITxPT	-	-	-	-	-	✓	✓

✓ : supported, - : not supported, △ : optional

# Industrial Gateways

## Visualization Gateways



Model		WOP-204K-NAE	WOP-207K-NAE	WOP-208K-NAE	WOP-210K-NAE
CPU		RISC ARM9 300 MHz 32-bit			
Backup Memory		128 KB			
Backup Battery: Type/Voltage/Capacity		Manganese dioxide-Li/Organic Electrolyte, 3 V, 650 mAh			
Working Memory		64 MB SDRAM			
Storage		128 MB NAND Flash			
Application Software	Operating System	HMI RTOS, HMINavi Designer V4.0			
	Runtime Max Size	64 MB (in NAND Flash)			
	Data Logger Max Size	64 MB (in NAND Flash)			
	Max Programming Screen	7999 Pages			
	Max Macro Commands	Unlimited			
Display	Type	WQVGA TFT LCD	WVGA TFT LCD	SVGA TFT LCD	WSVGA TFT LCD
	Size	4.3"	7"	8"	10.1"
	Max. Resolution	480 x 272	800 x 480	800 x 600	1024 x 600
	Max. Colors	65,536 colors (16-bit)			
	Luminance (cd/m <sup>2</sup> )	400	400	250	350
	Backlight Life (hrs)	LED, 20,000			
Touchscreen		4-wire analog resistive			
Communication Interface	COM1	RS-232 (5-Pin Terminal)	RS-232 (DB9 Female)	RS-232 (DB9 Female)	RS-232 (DB9 Female)
	COM2	RS-422/485 (5-Pin Terminal)	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)
	COM3	RS-485 (5-Pin Terminal)	RS-485 (DB9 Female)	RS-485 (DB9 Female)	RS-485 (DB9 Female)
	Ethernet (RJ-45)	10/100-Base-T Ethernet	10/100-Base-T Ethernet	10/100-Base-T Ethernet	10/100-Base-T Ethernet
I/O	USB Client	✓	✓	✓	✓
	USB Host	✓	✓	✓	✓
	Power Isolation	✓	✓	✓	✓
Power Supply Input Voltage		24 V <sub>oc</sub> ± 10%			
Power Consumption		10 W	20 W	20 W	20 W
Dimension (W x H x D)		129 x 103 x 31.3 mm	189.6 x 144.9 x 36 mm	233 x 176 x 43.3 mm	270.1 x 212.1 x 43.4 mm
Cut-Out Dimension (W x H)		118.5 x 92.5 mm	175 x 132.5 mm	221 x 164 mm	259.5 x 201.5 mm
Front Panel Thickness		5 mm	6 mm	6 mm	6 mm
Enclosure		PC			
Weight (Net)		0.23 kg (0.51 lb)	0.55 kg (1.21 lb)	1 kg (2.2 lb)	1.1 kg (2.43 lb)
Reliability Certification	Operating Temperature	-15 ~ 65°C (5 ~ 149°F)			
	Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)			
	Humidity	95% RH @ 40°C			
	Vibration Protection	5 ~ 500 Hz (X, Y, Z directions, 1 Grms, 1 hour per axis)			
	Ingress Protection	Front Panel IP66			
	CE	EN 61000-6-2, EN 61000-6-4			
	EMI	FCC Part 15 Class A			
UL	UL-61010-1, UL-61010-2-201				

✓ : supported, - : not supported, △ : optional

## Intelligent Gateways



NEW

NEW

Model		WOP-212K-NAE	WOP-215K-NAE	WOP-207T-NAE	WOP-210T-NAE
CPU		RISC ARM9 300 MHz 32-bit		RISC ARM9 300 MHz 32-bit	
Backup Memory		128 KB		1 MB	
Backup Battery: Type/Voltage/Capacity		Manganese Dioxide-Li/Organic Electrolyte, 3 V, 650 mAh		Manganese Dioxide-Li/Organic Electrolyte, 3 V, 650 mAh	
Working Memory		64 MB SDRAM		128 MB SDRAM	
Storage		128 MB NAND Flash		128 MB NAND Flash	
Application Software	Operating System	HMI RTOS, HMINavi Designer V4.0		HMI RTOS, HMINavi Designer V4.0	
	Runtime Max Size	64 MB (in NAND Flash)		64 MB (in NAND Flash)	
	Data Logger Max Size	64 MB (in NAND Flash)		64 MB (in NAND Flash)	
	Max Programming Screen	7999 Pages		7999 Pages	
	Max Macro Commands	Unlimited		Unlimited	
Display	Type	XGA TFT LCD	XGA TFT LCD	WVGA TFT LCD	WSVGA TFT LCD
	Size	12"	15"	7"	10.1"
	Max. Resolution	1024 x 768	1024 x 768	800 x 480	1024 x 600
	Max. Colors	65,536 colors (16-bit)		65,536 colors (16-bit)	
	Luminance (cd/m <sup>2</sup> )	500	350	1000	1000
	Backlight Life (hrs)	LED, 20,000		LED 30,000	
Touchscreen		4-wire analog resistive		4-wire analog resistive	
Communication Interface	COM1	RS-232 (DB9 Female)	RS-232 (DB9 Female)	RS-232 (5-Pin Terminal)	RS-232 (5-Pin Terminal)
	COM2	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)	RS-485 (5-Pin Terminal)	RS-485 (5-Pin Terminal)
	COM3	RS-485 (DB9 Female)	RS-485 (DB9 Female)	Optional	Optional
	Ethernet (RJ-45)	10/100-Base-T Ethernet	10/100-Base-T Ethernet	2 x 10/100-Base-T Ethernet	2 x 10/100-Base-T Ethernet
I/O	USB Client	✓	✓	✓	✓
	USB Host	✓	✓	✓	✓
	Power Isolation	✓	✓	✓	✓
Power Supply Input Voltage		24 V <sub>DC</sub> ± 10%		24 V <sub>DC</sub> ± 10%	
Power Consumption		20 W	20 W	20 W	20 W
Dimension (W x H x D)		335.4 x 245.8 x 60.3 mm	399.1 x 297.6 x 57.3 mm	202.9 x 147.9 x 39.2 mm	270.9 x 212.9 x 46.8 mm
Cut-Out Dimension (W x H)		302 x 228.5 mm	384.5 x 283 mm	192 x 138.5 mm	259.5 x 201.5 mm
Front Panel Thickness		6 mm	6 mm	6 mm	7.2 mm
Enclosure		Die-cast aluminum alloy front bezel		Die-cast aluminum alloy front bezel + PC	
Weight (Net)		2 kg (4.41 lb)	3 kg (6.61 lb)	0.9 kg (1.98 lb)	1.7 kg (3.75 lb)
Reliability Certification	Operating Temperature	-15 ~ 65°C (5 ~ 149°F)		-25 ~ 75°C (-13 ~ 167°F)	
	Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)		-30 ~ 80°C (-22 ~ 176°F)	
	Humidity	95% RH @ 40°C		95% RH @ 40°C	
	Vibration Protection	5 ~ 500 Hz (X, Y, Z directions, 1 Grms, 1 hour per axis)		5 ~ 500 Hz (X, Y, Z directions, 1 Grms, 1 hour per axis)	
	Ingress Protection	Front Panel IP66		Front Panel IP66	
	CE	EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4	
	EMI	FCC Part 15 Class A		FCC Part 15 Class A	
UL	UL-61010-1, UL-61010-2-201		UL-61010-1, UL-61010-2-201, CID2		

✓ : supported, - : not supported, △ : optional

# Industrial Gateways

## Intelligent Gateways



Model		ECU-1152	ECU-1051	ECU-1251	ECU-1251D	ECU-1251 V2	ECU-1252
System	CPU	Arm® Cortex™ A8 800MHz	Arm® Cortex™ A8 600MHz	Arm® Cortex™ A8 800MHz	Arm® Cortex™ A8 600MHz	Arm® Cortex™ A8 600MHz	Arm® Cortex™ A9 600MHz
Memory		512MB DDR3L	256MB DDR3L	256MB DDR3L	256MB DDR3L	2GB DDR3L	2GB DDR3L
System Storage		4GB micro SD card	512MB NAND flash	4GB micro SD card	512G NAND flash	16GB eMMC	16G eMMC
Serial Port	Number of Ports	6	2	4	2	4	2
	Type	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-232/485
CAN Port	Number of Ports	-	-	-	-	-	2
AI/O	Number of Ports	-	-	-	-	-	-
DI/O	Number of Ports	-	-	-	4DI/4DO	-	-
Network Port	Number of Channels	2	2	2	2	2	2
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100/1000 Mbps
USB		1	1 (ECU-1051TL-R10AB)	1	-	1	-
HDMI		-	-	-	-	-	-
TPM2.0		-	-	-	-	TPM2.0	-
Wireless Expansion	SIM Card Slots	1	2	1	2	1	1
	Expansion Slots	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe
Storage Expansion		1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot
LED Indicators		PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN
EdgeLink	Communication Protocols	OPC UA Client & Server, BACnet/IP Client & Server, Modbus RTU/TCP, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, DNP3, IEC 61850					
	Cloud Communication	MQTT, EdgeHub, AWS, Azure, LwM2M, Google Cloud IoT Core and more					
	PLC Support	Siemens/ Allen-Bradley/ Schneider/ Mitsubishi/ Omron/ Honeywell/ Yokogawa/ Delta/ Panasonic and more					
	VPN Client	OpenVPN					
	Data Logger	Realtime data logger					
Operating System		RT-Linux	RT-Linux	RT-Linux	RT-Linux	RT-Linux	RT-Linux
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Dimension W x H x D (mm)		190 x 110 x 36.4 mm	30 x 93 x 93.4 mm	30 x 140 x 95 mm	30 x 140 x 95 mm	30 x 140 x 95 mm	30 x 140 x 95 mm
Power Requirement		10-30Vdc	10-30Vdc	10-36Vdc	10-30Vdc	10-30Vdc	10-30Vdc
Power Consumption		2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc

✓ : supported, - : not supported, △ : optional



## Intelligent Gateways



Model		ECU-1260	ECU-150	ECU-1270	ECU-1170	ECU-1370
System	CPU	Arm® Cortex™ A35 Quad-core, 1G	Arm® Cortex™ A53, NXP i.MX8M Quad-Core, 1.3G	Arm® Cortex™ A53, TI AM6734 Quad-Core, 1.4G	Arm® Cortex™ A55, Rockchip RK3568J Quad-core, 1.4G	Arm® Cortex™ A53, NXP i.MX8M Quad-Core, 1.3G
Memory		2GB DDR3L	2GB/4GB LPDDR4	2GB/4GB LPDDR4	4GB LPDDR4	4GB LPDDR4
System Storage		16GB eMMC	16GB/32GB eMMC	32GB eMMC	32GB eMMC	32GB eMMC
Serial Port	Number of Ports	3	2	2	8	1
	Type	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-485
CAN Port	Number of Ports	1	–	△	2	1
AI/O	Number of Ports	–	–	–	2AI	–
DI/O	Number of Ports	–	–	△	20DI/6DO/8Relay	24DI/6Relay
Network Port	Number of Channels	2	2	2	4	3
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
USB		–	1	1	2	2
HDMI		–	△	△	1	–
TPM2.0		–	TPM2.0	△	△	△
Wireless Expansion	SIM Card Slots	1	1	1	2	–
	Expansion Slots	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe, 1 x M.2 E key	1 x mini-PCIe, 1 x M.2 B key	–
Storage Expansion		1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot
LED Indicators		PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Prog/LAN	PWR/Prog/LAN	PWR/Serial/Prog/LAN
EdgeLink	Communication Protocols	OPC UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, DNP3, IEC 61850				–
	Cloud Communication	MQTT, EdgeHub, AWS, Azure, LwM2M, Google Cloud IoT Core and more				–
	PLC Support	Siemens/ Allen-Bradley/ Schneider/ Mitsubishi/ Omron/ Honeywell/ Yokogawa/ Delta/ Panasonic and more				–
	VPN Client	OpenVPN				–
	Data Logger	Realtime data logger				–
Operating System		Yocto	Yocto/Ubuntu	Yocto/Ubuntu	Yocto/Ubuntu	Ubuntu
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 80°C (-40 ~ 176°F)
Certification		CE/FCC	CE/FCC/UL	CE/FCC/UL	CE/FCC/UL	CE/FCC/UL
Dimension W x H x D (mm)		30 x 140 x 96.5 mm	30 x 100 x 93 mm	32 x 140 x 93 mm	183 x 108 x 44 mm	65.7 x 140 x 93 mm
Power Requirement		10-30Vdc	10-30Vdc	10-36Vdc	10-30Vdc	10-30Vdc
Power Consumption		2.4W @24Vdc	6.3W @24Vdc	6.5W @24Vdc	6.5W @24Vdc	6.8W @24Vdc

✓ : supported, - : not supported, △ : optional

# Industrial Gateways

## I/O Device Gateways



Model		ADAM-3600
Description		Intelligent RTU
System	CPU	Cortex A8
	Operating system	Linux RT 3.12
	Programming interface	C (Linux), IEC-61131-3
	Communication protocols	Modbus/RTU, Modbus/TCP, DNP3, IEC-60970-104, OPCUA
	Wireless communication	Cellular, Wi-Fi, Zigbee
Serial Port	Number of ports	3
	Type	1 x RS-232/485, 2 x RS-485
Network Port	Number of channels	2
	Number of independent IP addresses	2
	Speed	10/100 Mbps
	IP specifications	IPv4/IPv6
I/O	Onboard I/O	8 analog inputs, 8 digital inputs, 4 digital outputs
	Expansion slots	4
USB	USB2.0	1
Display Interface	VGA	1
	LED	System, serial, Ethernet, digital I/O, programmable
Storage Interface	SD	1 x SD slot
Operating Temperature		-40~70°C
Certification		CE/FCC
Part Number		ADAM-3600-C2GL1A1E

✓ : supported, - : not supported, △ : optional

Model	Category	Channel	Part Number
ADAM-3617	Analog input module	4	ADAM-3617-AE
ADAM-3618	Analog input module	4, thermocouple	ADAM-3618-AE
ADAM-3624	Analog output module	4	ADAM-3624-AE
ADAM-3651	Digital input module	8	ADAM-3651-AE
ADAM-3656	Digital output module	8	ADAM-3656-AE
ADAM-3613	Analog input module	4, RTD	ADAM-3613-AE
ADAM-3668	Relay Module	4	ADAM-3668-AE

Analog Input	
Signal Input	Differential
Sampling Rate	10 Hz
Voltage Input	±10 V, ±2.5 V
Input Current	0~20 mA, 4~20 mA
Sensor Input	Thermocouple (type J, K, T, E, R, S, B) RTD (Pt100, Pt1000, Balco 500, Ni 518)
Resolution	16-bit

Analog Output	
Output Voltage	0~10 V
Output Current	0~20 mA, 4~20 mA
Resolution	12-bit

Digital Input	
Input Type	Sink
Rated Voltage	12/24 V <sub>DC</sub>
Logic "0" Voltage	0~5 V <sub>DC</sub>
Logic "1" Voltage	11~30 V <sub>DC</sub>

Digital Output	
Output Type	Open collect
Output Voltage	8~30 V <sub>DC</sub> @ max 200 mA

✓ : supported, - : not supported, △ : optional

## I/O Device Gateways



Model		ADAM-6750	ADAM-6717	ADAM-6760D
CPU		ARM Cortex-A8 32-Bit 1GHz		
Memory		NAND flash 512MB		
RAM		DDR3L 512MB		
External Storage		microSD (Optional)		
Programming		Node-Red (Graphic programming environment based on Javascript), Linux C		
Operation Temperature		-40 ~ 70°C		
Interface	RS-485	2	2	2
	LAN	2	2	2
	USB	1 x USB type A, 1 x Micro USB		
Digital Input	Channel	12	5	8
	Type	Dry contact Logic 0: open Logic 1: closed to GND  Wet contact logic 0: 0 ~ 3 VDC or floating logic 1: 10 ~ 30 VDC Support DO type: Sink (NPN) and Source (PNP)		
	Counter Input	3kHz	-	3kHz
Digital Output	Channel	12	4	-
	Voltage	Sink 30 VDC, 0.1A max. per channel	Sink 30 VDC, 0.1A max. per channel	-
	Pulse Output	3kHz	-	-
Analog Input	Channel	-	8	-
	Resolution	-	16bits	-
	Sampling Rate	-	10 or 100 samples/second (total)	-
Relay Output	Channel	-	-	8
	Contact Rating (Resistive Load)	-	-	30 VDC @ 1 A
Dimensions (W x L x H)		70 x 122 x 38 mm		

✓ : supported, - : not supported, △ : optional



Model		ADAM-6715	ADAM-6718	ADAM-6724
CPU		ARM Cortex-A8 32-Bit 1GHz		
Memory		NAND flash 512MB		
RAM		DDR3L 512MB		
External Storage		microSD (Optional)		
Programming		Node-Red (Graphic programming environment based on Javascript), Linux C		
Operation Temperature		-40 ~ 70°C		
Interface	RS-485	2	2	2
	LAN	2	2	2
	USB	1 x USB type A, 1 x Micro USB		
Digital Input	Channel	4	4	5
	Type	Dry contact Logic 0: open Logic 1: closed to GND  Wet contact logic 0: 0 ~ 3 VDC or floating logic 1: 10 ~ 30 VDC Support DO type: Sink (NPN) and Source (PNP)		
	Counter Input	-	-	-
Digital Output	Channel	4	7	6
	Voltage	Sink 30 VDC, 0.1A max. per channel		
	Pulse Output	3kHz	-	-
RTD	Channel	6 (PT100, PT1000)	-	-
Thermocouple	Channel	-	7 (J, K, T, E, R, S, B type)	-
Analog Output	Channel	-	-	3
	Type	-	-	Voltage, Current
Analog Input	Channel	-	-	3
	Type	-	-	Voltage, Current
Dimensions (W x L x H)		70 x 122 x 38 mm		

✓ : supported, - : not supported, △ : optional

# Industrial Gateways

## Modbus and Fieldbus Gateways



Model Name		EKI-1211	EKI-1221/I/CI	EKI-1222/I/CI	EKI-1224/I/CI	EKI-1242IEIMS
Description		1-Port Modbus Gateway	1-Port Modbus Gateway	2-Port Modbus Gateway	4-Port Modbus Gateway	Industrial Fieldbus Gateway
Connectivity	10/100Base-TX, Fixed	1	2	2	2	4
	10/100/1000Based-T, Fixed	-	-	-	-	-
	RS-232 only	-	-	-	-	-
	RS-232/422/485	1	1	2	4 (CI model: RS-422/485)	2
Serial Connector Type		DB9 Male	DB9 Male (CI model: DB9 Male and Terminal Block)	DB9 Male (CI model: DB9 Male and Terminal Block)	DB9 Male	DB9 male
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30	IP30	IP30
	DIN-rail	✓	✓	✓	✓	✓
	Wall	✓	✓	✓	✓	✓
Power	Power Input (V <sub>DC</sub> )	9-36V	2* (12-48V)	2* (12-48V)	2* (12-48V)	12-48V
	Power Connector	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48V <sub>DC</sub> ) Watts	1W	3.2W	3.2W	4.1W	5.2W
Environment	Operating Temp.	-40 ~ 75°C	-10 ~ 60°C (CI & I models: -40 ~ 80°C)	-10 ~ 60°C (CI & I models: -40 ~ 80°C)	-10 ~ 60°C (CI & I models: -40 ~ 80°C)	-40 ~ 75 °C
	Operating Humidity	10 ~ 95%	10 ~ 95%	10 ~ 95%	10 ~ 95%	10-95%
	Input Reverse Protection					✓
Software	Network Protocol	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU/TCP, EtherNet/IP, PROFINET, OPC UA
	Configuration Options	Windows Utility, Web-based	Windows Utility, Web-based	Windows Utility, Web-based	Windows Utility, Web-based	Web-based
	Standard Operating Mode	Modbus RTU Client/Server mode Modbus ASCII Client/Server mode	Modbus RTU Client/Server mode Modbus ASCII Client/Server mode	Modbus RTU Client/Server mode Modbus ASCII Client/Server mode	Modbus RTU Client/Server mode Modbus ASCII Client/Server mode	ModbusRTU/TCP Client Ethernet/IP Adapter PROFINET IO-Device OPC UA Server
Security	Authentication	-	LDAP RADIUS Local Management	LDAP RADIUS Local Management	LDAP RADIUS Local Management	Username/Password
	Security Protocols	-	HTTPS SSH	HTTPS SSH	HTTPS SSH	HTTPS
Certification	Regulatory Approvals	CE, FCC, UL 62368-1	CE, FCC, UL 62368-1, CB, ATEX, C1D2	CE, FCC, UL 62368-1, CB, ATEX, C1D2	CE, FCC, UL 62368-1, CB, ATEX, C1D2	CE, FCC, UL 60950-1, CB

✓ : supported, - : not supported, △ : optional

# Industrial Device Servers

## Serial Device Servers



Model Name		EKI-1511	EKI-1511IL	EKI-1521/CI/ EKI-1522/CI/ EKI-1524/CI/CI	EKI-1528-DR EKI-1528CI-DR	EKI-1528TI/TI/N EKI-1526TI/TI/N	EKI-1526NL-CS
Description		1 Port RS232/422/485 Serial Device Server	1 Port RS-232 Serial Device Server	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	8/16-Port RS-232/422/485 Console Server
Connectivity	10/100Base-TX, Fixed	1	1	2	2	-	-
	10/100/1000Based-T, Fixed	-	-	-	-	2	2
	RS-232 only	-	1	-	-	-	16
	RS-232/422/485	1	-	1/2/4 (EKI-1524CI:RS-422/485)	8 (CI model: RS-422/485)	8/16	-
Serial Connector Type		DB9 Male	DB9 Male	DB9 Male (DE version: DB9 Male and Terminal Block)	DB9 Male	DB9 male or 8-pin RJ45	RJ-45 (Cisco compliant)
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30	IP30	SECC chassis	SECC chassis
	DIN-rail	✓	✓	✓	✓	Rackmount	Rackmount
	Wall	✓	✓	✓	✓	-	-
Power	Power Input (V <sub>DC</sub> )	9~36V	9~36V	2* (12~48V)	2* (12~48V)	EKI-1528(I/EKI-1526(I)): 100 ~ 240 VAC, 50 ~ 60 Hz EKI-1528(TI)-VDC/EKI-1526(TI)-VDC 12 ~ 48 VDC	100 ~ 240 V <sub>AC</sub> , 50 ~ 60 Hz
	Power Input (PoE)	--	--	-	-	-	-
	Power Connector	Terminal block	Terminal block	Terminal block	Terminal block	6-pin removable screw terminal	6-pin removable screw terminal
	Power Consumption (12/24/48V <sub>DC</sub> ) Watts	1W	1W	3.2 W (EKI-1521/EKI-1522) 4.1 W (EKI-1524)	5 W (EKI-1528I) 6 W (EKI-1528CI)	5.6 W	5.6 W
Environment	Operating Temp.	-40 ~ 75 °C	-40 ~ 75 °C	-10 ~ 60 °C (CI & I models: -40 ~ 80 °C)	-40 ~ 70 °C	-10 ~ 60 °C (I models: -40 ~ 75 °C)	-10 ~ 60 °C
	Operating Humidity	10~95%	10~95%	10 ~ 95%	10 ~ 95%	10 ~ 95%	10 ~ 95%
	Input Reverse Protection	-	-	-	-	-	-
Software	Network Protocol	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP	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, NTP
	Configuration Options	Windows utility, Web-based	Windows utility, Web-based	Windows utility, Web-based	Windows utility, Web-based	Windows utility, Telnet console, Web-based, serial console	Windows utility, Telnet console, Web-based, serial console
	Standard Operating Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), RFC2217 Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), RFC2217 Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), RFC2217 Mode, SSH Console Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), RFC2217 Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), RFC2217 Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), RFC2217 Mode, SSH Console Mode
Security	Authentication	-	-	LDAP RADIUS Local Management	-	-	LDAP RADIUS Local Management
	Security Protocols	-	-	HTTPS SNMPv3 SSH	-	-	HTTPS SSH
Certification	Regulatory Approvals	CE, FCC, CB, UL 62368-1		CE, FCC, UL 62368-1, CB, ATEX, C1D2	CE, FCC, UL 62368-1, CB	CE, FCC, UL 62368-1, CB	CE, FCC, UL 62368-1, CB

✓ : supported, - : not supported, △ : optional

# Industrial Cellular Routers

## Industrial Entry-Level 4G/LAN Routers



Model Series		ICR-2000	ICR-2400	ICR-2500	ICR-2600	ICR-2700 LAN	ICR-2700	ICR-2800
Region	GLOBAL	-	-	-	-	✓	-	-
	EMEA	✓	✓	✓	✓	✓	✓	✓
	NAM	✓	✓	-	-	-	-	-
	LATAM	✓	✓	-	-	-	-	-
	BRAZIL	-	✓	-	-	-	-	-
	AUS/NZ	-	-	-	-	-	-	-
	JAPAN	-	-	-	-	-	-	-
Mobile Wireless Network Technology	KOREA	-	-	-	-	-	-	-
	5G	-	-	-	-	-	-	-
	LTE Cat.12	-	-	-	-	-	-	-
	LTE Cat.6	-	-	-	-	-	-	-
	LTE Cat.4	✓	✓	✓	✓	-	✓	✓
	LTE-M/NB-IOT	-	✓	-	-	-	-	-
	LTE 450	-	✓	-	-	-	-	-
	Without Cellular	-	-	-	-	✓	-	-
Communications Interfaces and Expansions	3G/HSPA+	✓	✓	✓	✓	-	✓	✓
	GPRS/EDGE	✓	✓	✓	✓	-	✓	✓
	Wi-Fi Type	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz
	Bluetooth	-	-	-	-	-	-	-
	GNSS Receiver	-	△	-	-	-	-	△
	PoE PSE+ / PoE PD	-	-	-	-	-	-	-
	ETH	1	2	4	4	2	2	2
	USB	-	-	-	-	✓	✓	✓
	RS232	-	1	-	1	-	-	2
	RS485	-	1	-	1	-	-	2
	RS485/422	-	-	-	-	-	-	-
	SFP Cage	-	-	-	-	-	-	-
	CAN	-	-	-	-	-	-	-
I/O	1x DI + 1x DO	1x DI + 1x DO	1x DI + 1x DO	1x DI + 1x DO	-	-	4x DI + 2x DO	
Hardware	MicroSD	-	-	-	-	-	-	-
	CPU Power (MHz)	600	600	600	600	600	600	600
	Memory - RAM (MB)	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB
	NOR Flash, Flash, eMMC	64 MB	64 MB	64 MB	64 MB	4 GB	4 GB	4 GB
	Customer Data	2 MB	2 MB	2 MB	2 MB	512 MB	512 MB	512 MB
	Router Apps (MB)	12 MB	12 MB	12 MB	12 MB	838 MB	838 MB	838 MB
	Number of SIM Slots	1	2	2	2	-	2	2
	Power Supply	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>
Design	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
	Type of Housing	Metal	Metal	Metal	Metal	Plastic / Metal	Plastic / Metal	Plastic / Metal
	Metal Casing (mm)	25 x 95 x 103	25 x 95 x 103	25 x 95 x 130	25 x 95 x 130	42 x 80.3 x 113.2	42 x 80.3 x 113.2	42 x 80.3 x 113.2
Additional Software Support	Plastic Casing (mm)	-	-	-	-	51.4 x 83.8 x 115.5	51.4 x 83.8 x 115.5	51.4 x 83.8 x 115.5
	DIN Holder TS35/TS32	DIN, wall	DIN, wall	DIN, wall	DIN, wall	DIN	DIN	DIN
	Router Apps	✓	✓	✓	✓	✓	✓	✓
Additional Software Support	WebAccess/DMP Preactivated	✓	✓	✓	✓	✓	✓	✓
	Python, C++	✓	✓	✓	✓	✓	✓	✓
	*Docker, Node-RED	-	-	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

\*Functionality is available with the installed Router App. Please check the size of the free memory reserved for Router Apps before installation.

## 4G/LAN Powerful Routers



	Model Series	SmartStart	SmartFlex LAN	SmartFlex	ICR-3200 LAN	ICR-3200
Region	GLOBAL	-	✓	✓	✓	-
	EMEA	✓	-	✓	-	✓
	NAM	-	-	✓	-	✓
	LATAM	-	-	✓	-	✓
	BRAZIL	-	-	-	-	✓
	AUS/NZ	-	-	✓	-	✓
	JAPAN	-	-	✓	-	-
Mobile Wireless Network Technology	KOREA	-	-	✓	-	-
	5G	-	-	-	-	-
	LTE Cat.12	-	-	-	-	-
	LTE Cat.6	-	-	-	-	-
	LTE Cat.4	✓	-	✓	-	✓
	LTE-M/NB-IOT	-	-	-	-	✓
	LTE 450	-	-	-	-	-
	Without Cellular	-	✓	-	✓	-
Communications Interfaces and Expansions	3G/HSPA+	✓	-	✓	-	✓
	GPRS/EDGE	✓	-	✓	-	✓
	Wi-Fi Type	-	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz
	Bluetooth	-	-	-	△ 5.1, Low Energy	△ 5.1, Low Energy
	GNSS Receiver	-	-	✓	-	△
	PoE PSE+ / PoE PD	-	△	△	-	-
	ETH	1	5	up to 5	2	2
	USB	-	✓	✓	-	-
	RS232	1	-	△	1	1
	RS485	-	-	△ 1/2	1	1
	RS485/422	-	-	△	-	-
	SFP Cage	-	-	-	-	-
	CAN	-	-	-	-	-
Hardware	I/O	1x DI + 1x DO	2x DI + 1x DO	2x DI + 1x DO	1x DI + 1x DO	1x DI + 1x DO
	MicroSD	-	✓	✓	-	-
	CPU Power (MHz)	1000	1000	1000	1000	1000
	Memory - RAM (MB)	512 MB	512 MB	512 MB	512 MB	512 MB
	NOR Flash, Flash, eMMC	4 GB	256 MB	256 MB	4 GB	4 GB
	Customer Data	512 MB	128 kB	128 kB	512 MB	512 MB
	Router Apps (MB)	838 MB	128 MB	128 MB	838 MB	838 MB
	Number of SIM Slots	2	-	2	-	2
	Power Supply	9~36 V <sub>DC</sub>	10~60 V <sub>DC</sub>	10~60 V <sub>DC</sub>	9~36 V <sub>DC</sub>	9~36 V <sub>DC</sub>
Design	Operating Temperature	-25 ~ 55°C (-13 ~ 131°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
	Type of Housing	Plastic	Plastic / Metal	Metal/Plastic	Metal	Metal
	Metal Casing (mm)	30 x 87 x 150	55 x 97 x 125	55 x 97 x 125	31 x 94 x 129	31 x 94 x 129
	Plastic Casing (mm)	-	55 x 97 x 125	55 x 97 x 125	-	-
Additional Software Support	DIN Holder TS35/TS32	DIN, wall	DIN	DIN	DIN, wall	DIN, wall
	Router Apps	✓	✓	✓	✓	✓
	WebAccess/DMP Preactivated	✓	✓	✓	✓	✓
	Python, C++	✓	✓	✓	✓	✓
	*Docker, Node-RED	✓	✓	✓	✓	✓

✓ : supported, - : not supported, △ : optional

\*Functionality is available with the installed Router App. Please check the size of the free memory reserved for Router Apps before installation.

# Industrial Cellular Routers

## 5G/LTE/LAN Advanced High Speed Routers

## 4G Connectivity Gateway Routers



	Model Series	ICR-4400 LAN	ICR-4400	ICR-4100	ICR-4200
Region	GLOBAL	✓	-	△	△
	EMEA	-	✓	✓	✓
	NAM	-	✓	-	-
	LATAM	-	-	-	-
	BRAZIL	-	-	-	-
	AUS/NZ	-	-	-	-
	JAPAN	-	-	-	-
	KOREA	-	-	-	-
	CHINA	-	-	-	-
Mobile Wireless Network Technology	5G	-	✓	✓	✓
	LTE Cat.12	-	✓	-	-
	LTE Cat.6	-	-	✓	✓
	LTE Cat.4	-	-	-	-
	LTE-M/NB-IOT	-	-	-	-
	LTE 450	-	-	-	-
	Without Cellular	-	-	-	-
	3G/HSPA+	-	✓	✓	✓
GPRS/EDGE	-	-	-	-	
Communications Interfaces and Expansions	Wi-Fi Type	△ 2.4/5 GHz	△ 2.4/5 GHz	△ WIFI6 2.4/5/6 GHz	△ WIFI6 2.4/5/6 GHz
	Bluetooth	-	✓	-	-
	GNSS Receiver	-	✓	✓	✓
	PoE PSE+ / PoE PD	△ PoE PSE+	△ PoE PSE+	-	-
	ETH	5	5	2	2
	USB	✓	✓	✓	✓
	RS232	1	1	-	1-2
	RS485	1	1	-	1-2
	RS485/422	-	-	-	-
	SFP Cage	1	1	-	-
	CAN	1	1	-	-
	I/O	2x DI + 2x DO	2x DI + 2x DO	-	4x DI + 2x DO
MicroSD	✓	✓	✓	✓	
Hardware	CPU Power (MHz)	1200	1200	1600	1600
	Memory - RAM (MB)	1 GB	1 GB	1 GB	1 GB
	NOR Flash, Flash, eMMC	4 GB	4 GB	8 GB	8 GB
	Customer Data	512 MB	512 MB	3.35 GB	3.35 GB
	Router Apps (MB)	838 MB	838 MB	2.9 GB	2.9 GB
	Number of SIM Slots	-	2	2	2
	Power Supply	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>	9~48 V <sub>DC</sub>
	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
	Type of Housing	Metal	Metal	Metal	Metal
	Metal Casing (mm)	47 x 109 x 195	47 x 109 x 195	43 x 130 x 90	43 x 130 x 90
Design	Plastic Casing (mm)	-	-	-	-
	DIN Holder TS35/TS32	DIN, wall	DIN, wall	DIN, wall	DIN, wall
	Router Apps	✓	✓	✓	✓
Additional Software Support	WebAccess/DMP Preactivated	✓	✓	✓	✓
	Python, C++	✓	✓	✓	✓
	*Docker, Node-RED	✓	✓	✓	✓

	Model Series	ICR-1600
Region	GLOBAL	-
	EMEA	✓
	NAM	-
	LATAM	-
	BRAZIL	-
	AUS/NZ	-
	JAPAN	-
	KOREA	-
	CHINA	✓
Mobile Wireless Network Technology	5G	-
	LTE Cat.12	-
	LTE Cat.6	-
	LTE Cat.4	✓
	LTE-M/NB-IOT	-
	LTE 450	-
	Without Cellular	-
	3G/HSPA+	-
GPRS/EDGE	-	
Communications Interfaces and Expansions	Wi-Fi Type	△ WIFI5 2.4/5 GHz
	Bluetooth	-
	GNSS Receiver	△
	PoE PSE+ / PoE PD	-
	ETH	△ 2-5
	USB	-
	RS232	△ 1
	RS485	△ 1
	RS485/422	-
	SFP Cage	-
	CAN	-
	I/O	1x DI + 1x DO
MicroSD	-	
Hardware	CPU Power (MHz)	1200
	Memory - RAM (MB)	256 MB
	NOR Flash, Flash, eMMC	512 MB
	Customer Data	26.7 MB
	Router Apps (MB)	60 MB
	Number of SIM Slots	2
	Power Supply	9~48 V <sub>DC</sub>
	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)
	Type of Housing	Metal
	Metal Casing (mm)	94 x 90 x 39 116 x 39 x 113.5
Design	Plastic Casing (mm)	-
	DIN Holder TS35/TS32	DIN, wall
Additional Software Support	Router Apps	✓
	WebAccess/DMP Preactivated	✓
	Python, C++	-
	*Docker, Node-RED	-

✓ : supported, - : not supported, △ : optional

\*Functionality is available with the installed Router App. Please check the size of the free memory reserved for Router Apps before installation.



# Industrial Wireless Access Points/Clients

## Wireless Access Points/Clients



Model Name		EKI-6333AC-2G	EKI-6333BE-4GD
Description		Industrial IEEE 802.11 Ind. 802.11 a/b/g/n/ac Wi-Fi AP/Client	Industrial IEEE 802.11 a/b/g/n/ac/ax/be Wi-Fi AP/Client
Connectivity	10/100/1000Based-T, Fixed	2	-
	10/100/1000 /2.5GBased-T, Fixed	-	4
	RS-232 only	-	-
	RS-232/422/485	-	1x RS-232/RS-485
	Serial connector type	-	Terminal Block Male
Enclosure & Mount kit	Enclosure	IP55	-
	DIN-rail	-	✓
	Wall	✓	✓
	VESA Mount	-	-
	Pole Mount	✓	-
Power	Power Input (VDC)	-	12 ~ 48 V <sub>DC</sub>
	Power input (PoE)	Passive 24V	PoE 802.3at PSE
	Power connector	RJ45	Terminal block
Environment	Operating Temp.	-20 ~ 70 °C (-4~158°F)	-20 ~ 70 °C
	Operating Humidity	10 ~ 95%	10 ~ 95%
Software	Configuration Options	Web-base	Web-base
	Authentication	Username/Password	Username/Password
	Standard Operation Mode	Access Point, Client, Repeater mode	Access point, Client, Repeater mode
WLAN	IEEE Standard	a/b/g/n/ac	a/b/g/n/ac/ax/be
	Radio Number	2	2+2+2
	Security	WEP, WPA/WPA2-Perso-I, WPA/WPA2-Enterprise	WEP, WPA/WPA2/WP3-Personal, WPA/WPA2/WPA3-Enterprise
RF	Frequency	2.4G/5GHz	2.4GHz/5GHz/6GHz
	MIMO	2T2R	2T2R
	UL60950-1	-	-

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

✓ : supported, - : not supported, △ : optional

Model Name		EKI-1361 EKI-1362 EKI-6233BN	EKI-6333AC-2GD
Description		0/1/2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server	IEEE 802.11 a/b/g/n/ac Wi-Fi AP
Connectivity	10/100/1000Based-T, Fixed	-	✓
	10/100Base-TX, Fixed	✓	-
	RS-232 only	-	-
	RS-232/422/485	✓	-
	Serial connector type	DB9 Male	-
	Enclosure & Mount kit	Enclosure	IP30
Power	DIN-rail	✓	✓
	Wall	✓	✓
	VESA Mount	-	-
	Pole Mount	-	-
	Power Input (V <sub>DC</sub> )	12~48V	12~48V
	Power input (PoE)	-	-
	Power connector	Terminal block	Terminal block
Environment	Power Consumption (12/24/48VDC) Watts	8W (EKI-1361) 9W (EKI-1362)	8W
	Operating Temp.	-40 ~ 75°C	-40 ~ 75°C
	Operating Humidity	10 ~ 95%	10 ~ 95%
	Input Reverse Protection	✓	✓
Software	Configuration Options	Web-base, windows utility	Web-base
	Authentication	Username/Password	Username/Password
	Standard Operation Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), Station Mode	Access Point
WLAN	IEEE Standard	a/b/g/n	a/b/g/n/ac
	Radio Number	1	1
	Security	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	WEP, WAP/WAP2-Persona, WAP/WAP2-Enterprise
RF	MIMO	2T2R	2T2R
	Maximum Transmit Output Power	19dBm (11n)	19dBm (11n)
	Receive Sensitivity	-93dBm (11g Rx0+Rx1)	-93dBm (11g Rx0+Rx1)
	Antenna Connector	R-SMA	R-SMA

✓ : supported, - : not supported, △ : optional

# Industrial Wireless Access Points/Clients

## EN50155 Wireless Devices



Model Name		EKI-6333AC-M12	EKI-1652WT
Description		EN50155 IEEE 802.11 a/b/g/n/ac Wi-Fi AP/Client	Wi-Fi/Cellular Router
Connectivity	10/100/ 1000Based-T, Fixed	△2 (M12 Connector)	△2 (M12 Connector)
	10/100Base-TX, Fixed	-	-
	RS-232 only	-	-
	RS-232/422/485	-	-
	Serial connector type	-	-
Enclosure & Mount Kit	Enclosure	Metal shell with solid mounting kits	Metal shell with solid mounting kits
	DIN-rail	-	-
	Wall	✓	✓
	VESA Mount	-	-
	Pole Mount	-	-
Power	Power Input (VDC)	24-48V <sub>dc</sub> (LV model), 72/96/110V <sub>dc</sub> (HV model)	24-48V <sub>dc</sub> (LV model), 72/96/110V <sub>dc</sub> (HV model)
	Power input (PoE)	-	-
	Power connector	M12 A-Code male (5-pin)	M12 A-Code male (5-pin)
Environment	Operating Temp.	-40 ~ 75 °C (-40 ~ 166 °F)	-40 ~ 75 °C (-40 ~ 166 °F)
	Operating Humidity	10 ~ 95%	10 ~ 95%
Software	Configuration Options	Web-base	Web-base
	Authentication	Username/Password	Username/Password
	Standard Operation Mode	Access Point/Bridge/Client mode	Access Point/Bridge/Client mode
WLAN	IEEE Standard	a/b/g/n/ac	a/b/g/n/ac
	Radio Number	2	2
	Security	Open System , Shared Key, Lagacy 8021X, WPA/WPA2, WPA-PSK (TKIP), WPA2-PSK(AES)	Open System , Shared Key, Lagacy 8021X, WPA/WPA2, WPA-PSK (TKIP), WPA2-PSK(AES)
RF	Frequency	2.4G/5GHz	2.4G/5GHz
	MIMO	2T2R	2T2R
	UL60950-1	-	-

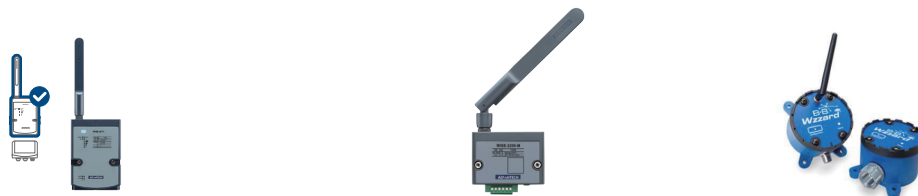
✓ : supported, - : not supported, △ : optional

Model Name		EKI-9502G
Description		EN50155 Train-To-Ground Wi-Fi/Cellular Router
Connectivity	10/100Base-TX, Fixed	-
	10/100/1000 Based-T, Fixed	2
	RS-232 only	-
	RS-232/422/485	2
	Serial connector type	Terminal Block Male
Enclosure & Mount kit	Enclosure	Metal shell with solid mounting kits
	DIN-rail	-
	Wall	✓
	VESA Mount	-
	Pole Mount	-
Power	Power Input (VDC)	24-110 V <sub>dc</sub>
	Power input (PoE)	-
	Power connector	M12 A-coded with (4-pin)
Environment	Operating Temp.	-40 ~ 70°C (-40 ~ 158°F)
	Operating Humidity	10 ~ 95%
Software	Network Protocol	IPv4, TCP/IP, UDP, ARP
	Firewall	✓
	Router	NAT/PAT, Firewall, QoS, Static Route, Port Forwarding, DMZ, IPSec/PPTP/L2TP passthrough, OpenVPN Server/Client, GRE
	Protocol	DHCP Server, DHCP Client, DNS Proxy
	Management	HTTP, Telnet, SSH, System Log, E-mail, SMS, SNMP
	Configuration Options	Web-base
	Authentication	Authentication (X.509 certificate, Pre-shared key, PW)
	Standard Operation Mode	Access Point/Client mode
WLAN	IEEE Standard	802.11 a/b/g/n/ac
	Radio Number	up to 2 (module type design)
	Security	Open System, Shared Key, Lagacy 802.1X
RF	Frequency	2.4G/5G
	MIMO	3T3R
WAN	LTE	Cat 4/6/12 (base on LTE module type)
	Radio Number	Up to 4 (Module type design)
	SIM Card Slot	8

✓ : supported, - : not supported, △ : optional

# Industrial Wireless I/O & Sensors

## LoRaWAN I/O Modules



Category	Industrial LoRa/LoRaWAN Wireless Module			Industrial LoRa/LoRaWAN Wireless Module			Industrial LoRa/LoRaWAN Wireless Module
Model	WISE-4610P-NA / WISE-4610P-EA / WISE-4610P-BTO			WISE-4610-NA / WISE-4610-EA / WISE-4610-BTO			WISE-2200-MNA / WISE-2200-MEA
Frequency Range	EU 863-870 (MHz) / RU 864-870 (MHz) US 902-928 (MHz) / AU 915-928 (MHz) AS 919-924 (MHz) / TH 920-925 (MHz) JP 920-928 (MHz)			EU 863-870 (MHz) / RU 864-870 (MHz) US 902-928 (MHz) / AU 915-928 (MHz) AS 919-924 (MHz) / TH 920-925 (MHz) JP 920-928 (MHz)			EU 863-870 (MHz) / RU 864-870 (MHz) US 902-928 (MHz) / AU 915-928 (MHz) AS 919-924 (MHz) / TH 920-925 (MHz) JP 920-928 (MHz)
Function	Wireless board			Wireless board			Wireless I/O Module
Positioning	GPS/Galileo/BeiDou/GLONASS			-			-
Power Input	4100 mAh Lithium rechargeable battery			-			-
	10~50V <sub>DC</sub> external power			10~50V <sub>DC</sub> external power			5-50V <sub>DC</sub>
	17~21V <sub>DC</sub> solar panel			17~21V <sub>DC</sub> solar panel			-
Configuration Interface	Micro-B USB			Micro-B USB			Micro-B USB
I/O Module				-			-
Model	WISE-S614-A	WISE-S614T-A	WISE-S615-A	WISE-S615T-A	WISE-S617-A	WISE-S617T-A	WISE-S672-A
Spec	4AI&4DI (M12)	4AI&4DI (terminal block)	4RTD (M12)	4RTD (terminal block)	2AI, 2DI, 1 DO & 1 RS-485 with 12V power output (M12)	2AI, 2DI, 1 DO & 1 RS-485 with 12V power output (terminal block)	6DI, 1 RS-485 & 1 RS-485/232
WISE-4610 Optional	1654011516-01 M12, A-code, 8-pin, male 1655005903-01 M12, A-code, 4-pin, female 1700028162-01 M12, A-code, 4-pin, female with 1m cable 1700028163-01 M12, A-code, 8-pin, male with 1m cable			-			-

✓ : supported, - : not supported, △ : optional

Category	Industrial LoRaWAN Node
Model	BB-WSW
Communication Interface	BB-WSW2C00015: Modbus RS-485 BB-WSW2C42100: AI/DI/DO
Temp	-40~75 °C
Power Input	9~36 VDC / 2*3.6V AA Batteries
Dimensions (W x H x D)	95 x 116 x 65 mm
Weight	340g

## WiFi I/O Modules



Category	Dual-band WiFi 2.4G/5G Wireless Module							
Model	WISE-4250-A/ 4250-S232							
Standard	802.11 a/b/g/n/ac							
Frequency	2.4GHz/5GHz							
Function	Wireless board							
Power Input	10~50V <sub>DC</sub> external power							
Configuration Interface	Micro-B USB							
Antenna Gain	2.2 dBi				(Peak) 2.4G 3.64 dBi / 5G 5.65 dBi			
I/O Module								
Model	WISE-S214-A	WISE-S231	WISE-S250-A	WISE-S251-A	WISE-S200-A	WISE-S472-A	WISE-S400-A	WISE-S100-A
Spec	4AI&4DI	Temperature & humidity sensor	6DI, 2DO&1RS-485	6DI &1RS-485	Customization upon request *MOQ required	1DI & 2 RS-485	Customization upon request *MOQ required	Stack Light Monitoring Sensor

✓ : supported, - : not supported, △ : optional

# Industrial Wireless I/O & Sensors

## NB-IoT/LTE-M I/O Modules



Category	Advanced Industrial Cat.NB1/Cat.M1 Wireless Module									
Model	WISE-4671-UA									
Standard	3GPP release13									
Band	B2,3,4,5,8,12,13,20,28									
SIM Type	Nano SIM/4FF									
Function	Wireless board									
Positioning	GPS/Galileo/BeiDou/GLONASS									
Power Input	4100 mAh Lithium Rechargeable Battery 10~50V <sub>DC</sub> External Power 17~21 V <sub>DC</sub> Solar Panel									
Configuration Interface	Micro-B USB									
I/O Module										
Model	WISE-S614-A	WISE-S614T-A	WISE-S615-A	WISE-S615T-A	WISE-S617-A	WISE-S617T-A	WISE-S672-A	WISE-S600/WISE-S600T	WISE-S100-A	
Spec	4AI & 4DI (M12)	4AI & 4DI (Terminal Block)	4RTD (M12)	4RTD (Terminal Block)	2AI,2DI, 1DO & 1RS-485 (M12)	2AI,2DI, 1DO & 1RS-485 (Terminal Block)	6DI, 1RS-485 & 1RS-485/232	Upon Customization Request *MOQ required	Stack Light Monitoring Sensor	
WISE-4671 Optional	1654011516-01 M12, A-code, 8-pin, male 1655005903-01 M12, A-code, 4-pin, female 1700028162-01 M12, A-code, 4-pin, female with 1m cable 1700028163-01 M12, A-code, 8-pin, male with 1m cable									

✓ : supported, - : not supported, △ : optional



Category	Industrial Cat.NB1/Cat.M1 Wireless Module						
Model	WISE-4471-UA						
Standard	3GPP release 13						
Band	B2,3,4,5,8,12,13,20,28						
SIM Type	Micro SIM/3FF						
Function	Wireless board						
Power Input	10~50V <sub>DC</sub> external power						
Configuration Interface	Micro-B USB						
I/O Module							
Model	WISE-S214-A	WISE-S250-A	WISE-S251-A	WISE-S472-A	WISE-S200-A	WISE-S100-A	
Spec	4AI & 4DI	6DI, 2DO & 1RS-485	6DI & 1RS-485	1DI, 1RS-485 & 1RS-485 or 1RS-232	Customization upon request *MOQ required	Stack light monitoring sensor	

✓ : supported, - : not supported, △ : optional

## Proprietary LPWAN I/O Modules



Category	Proprietary LPWAN(SUB-G) Wireless Module			Proprietary LPWAN(SUB-G) Built-in Temperature & Humidity Sensor*	Proprietary LPWAN (SUB-G) Wireless CT Node	Proprietary LPWAN (SUB-G) Wireless Analog Input Modules
Function	AP	Node/Wireless Board		Sensor Node	Self-Powered Node	
Model	WISE-4210AP-NA	WISE-4210-NA		WISE-4210-S231NA	WISE-2210-NA	WISE-2211-NA
Frequency	868MHz/ 923MHz		868MHz/ 923MHz	868MHz/ 923MHz	868MHz/ 923MHz	868MHz/ 923MHz
Standard	IEEE 802.15.4g FSK/GFSK modulation					
Data Rate	625 bps, 2.5k bps, 5k bps, 50k bps		625 bps, 50k bps		625 bps, 2.5k bps, 5k bps, 50k bps	
Power Input	10~50V <sub>dc</sub> external power				Self powered	
Configuration Interface	Micro-B USB					
Network Capacity	64 clients					
Outdoor Range (LOS)	5KM@625bps					
I/O Module						<p>*Modularization doesn't effect WISE-4210-S231 and WISE-221x series</p>
Model	WISE-S214-A	WISE-S250-A	WISE-S251-A	WISE-S100-A	WISE-S200-A	
Spec	4AI&4DI	6DI, 2DO & 1RS-485	6DI & 1RS-485	Customization upon request *MOQ required	Stack light monitoring sensor	

✓ : supported, - : not supported, △ : optional

# Industrial Wireless I/O & Sensors

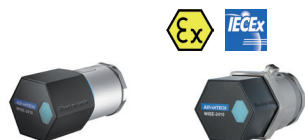
## Wi-Fi All-In-One I/O



Model Name		WISE-4012E	WISE-4012	WISE-4050	WISE-4060	WISE-4051
Description		6-ch Input/Output IoT Wireless I/O Module for IoT Developer	4-ch Universal Input and 2-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Relay Output IoT Wireless I/O Module	8-ch Digital Input IoT Wireless I/O Module with 1-port RS-485
Wireless Network	IEEE Standard	IEEE 802.11b/g/n				
	Frequency Band	2.4GHz				
	Outdoor Range	110m (L.O.S.)				
Analog Input	Channel	2-ch (Differential)	4-ch	-	-	-
	Input Type	V	V, A, Dry contact DI	-	-	-
	Voltage Range	0~10V	±5V, ±V, 0~5V, 0~10V	-	-	-
	Current Range	-	±0~20mA, 4~20mA	-	-	-
	Resolution	12-bit	16-bit	-	-	-
	Sampling Rate	10 Hz (Total)	10 Hz (Total)	-	-	-
	Accuracy	±0.1 VDC	"Voltage: ±0.1% of FSR Current: ±0.2% of FSR"	-	-	-
	Burn-out Detection	-	Yes (4~20 mA only)	-	-	-
Digital Input	Isolation	-	3,000 Vrms	-	-	-
	Channel	2-ch Dry Contact	Shared with AI	4-ch	4-ch	8-ch
	Counter Input	3kHz	2Hz	3kHz	3kHz	3kHz
	Frequency Input	0.1 ~ 3 kHz	0.1 ~ 2 kHz	0.1 ~ 3 kHz	0.1 ~ 3 kHz	0.1 ~ 3 kHz
Digital Output	Isolation	-	3,000 Vrms	3,000 Vrms	3,000 Vrms	3,000 Vrms
	Channel	2-ch Relay	2-ch (Sink Type)	4-ch (Sink Type)	4-ch Power Relay	-
	Output Rating (Resistive Load)	"120 VAC @ 0.5 A 30VDC @ 1 A"	Open collector to 30 VDC, 400mA max.		"250 VAC @ 5 A 30 VDC @ 3 A"	-
	Pulse Output	60 operations/minute	5 kHz	5 kHz	60 operations/minute	-
Serial Port	Isolation	1,500 Vrms	3,000 Vrms	3,000 Vrms	3,000 Vrms	-
	Port Number	-				
General	Real-time Clock	Yes	Yes, with battery backup	Yes, with battery backup	Yes, with battery backup	Yes, with battery backup
	Dimensions	80 x 148 x 25 mm (W x H x D)				
Environment	Operating Temperature	-25 ~ 70°C (-13~158°F)				
	Operating Humidity	20 ~ 95% RH (non-condensing)				
Power	Input Range	Micro USB 5 VDC	10 ~ 30 VDC	10 ~ 30 VDC	10 ~ 30 VDC	10 ~ 30 VDC
	Protection	-	Power Reversal Protection	Power Reversal Protection	Power Reversal Protection	Power Reversal Protection
	Pwer Consumption	1.5 W @ 5 VDC	2.5 W @ 24 VDC	2.2 W @ 24 VDC	2.5 W @ 24 VDC	2.2 W @ 24 VDC

✓ : supported, - : not supported, △ : optional

### LoRaWAN Smart Vibration Sensor



Category		LoRaWAN Smart Vibration Sensor	Explosion Proof LoRaWAN Smart Vibration Sensor
Model		WISE-2410-NB WISE-2410-EB	WISE-2410X-E21NA WISE-2410X-A02NA WISE-2410X-A02EA WISE-2410X-C12NA
Wireless Communication	Topology	Star (LoRaWAN)	
	Frequency Band	EU 863-870 (MHz) / RU 864-870 (MHz) US 902-928 (MHz) / AU 915-928 (MHz) AS 919-924 (MHz) / TH 920-925 (MHz) JP 920-928 (MHz)	
	Spreading Factor	7~12	
	Transmit Power	Up to +18dBm	
	Data Rate	50 kbps at FSK mode EU868;21.9 kbps at SF7 mode US915;5.47 kbps at SF7 mode JP923	
Vibration Sensor	Axis	X-Y-Z	
	Frequency Range	10~1000Hz	
	Amplitude Range	±2/4/8/16g	
	Output Data Rate	6600Hz	
	Noise (MAX. TA = 25°C. 0g)	±40mg	
Temperature Sensor	Operating Range	-20°C ~ 85°C (USB powered); -20°C ~ 70°C (Battery powered)	-20°C ~ 85°C (USB powered); 0°C ~ 70°C (Battery powered)
	Resolution	12 bit	
	Accuracy	±2.0°C (±35.6°F) (vertical installation)	
Mechanical	Enclosure	IP66	IP65
	Mounting	Mounting stud; curved surface magnet; adhesives	
	Dimension (L x W x H)	42 x 40.2 x 84.7 mm	42 x 63.5 x 84.7 mm
General	Power Input	3.6V AA battery *2pcs (not included)	WISE-2410X-E21NA: 3.6V AA battery *1pcs (not included) WISE-2410X-A02NA/ WISE-2410X-A02EA/WISE-2410X-C12NA: 3.6V AA battery *2pcs (not included)
	Configuration Interface	Micro-B USB	
	Temperature (Operating)	-20°C ~ 85°C (USB powered); -20°C ~ 70°C (Battery powered)	-20°C ~ 85°C (USB powered); 0°C ~ 70°C (Battery powered)
	Temperature (Storage)	-25°C ~ 90°C	
	Humidity (Operating)	10% ~ 95% RH	
	Humidity (Storage)	5% ~ 95% RH	

✓ : supported, - : not supported, △ : optional

### RS-485 Smart Vibration Sensor



Model		WISE-2460P-MA	WISE-2460-MA
Communication	Interface	RS-485	
	protocol	Modbus/RTU	
Vibration Sensor	Axis	Z	
	Frequency Range	5-8,000Hz	1-10,000Hz
	Amplitude Range	±50g	
	Output Data Rate	16384Hz	32000Hz
	Accuracy	1-4000Hz (5%); 4001~8000Hz (35%)	1-4000Hz (5%); 4001~10000Hz (35%)
	Noise	25 µg/√Hz in ±50 g range	
Mechanical	Enclosure	IP68	
	Mounting	Mounting stud; curved surface magnet base; metal base with epoxy	
	Dimension	58.4 x 36.7 x 40 mm	
General	Power input	10 ~ 30VDC	
	Configuration Interface	RS-485	
	Temperature (Operating)	-20°C ~ 105°C	
	Temperature (Storage)	-25°C ~ 120°C	
	Humidity (Storage)	5% ~ 95% RH	

✓ : supported, - : not supported, △ : optional

# Industrial Wireless I/O & Sensors

## LoRaWAN Smart Sensors



Model		EVA-2210	EVA-2310	EVA-2311	EVA-2510
Description		3-Phase Current Meter with 3 x 75A Clamp-On CT	LoRaWAN Temperature and Humidity Sensor	LoRaWAN Temperature PT1000 Round Head Probe Sensor	LoRaWAN Wireless Water Leakage Sensor
Wireless Communication	Topology	Star (LoRaWAN)			
	Frequency Band	EU 863-870 (MHz) / US 902-928 (MHz) / AU 915-928 (MHz) / AS 919-924 (MHz)			
	Spreading Factor	7-12			
	Transmit Power	Up to +18dBm			
	Data Rate	50 kbps at FSK mode EU868;21.9 kbps at SF7 mode US915;5.47 kbps at SF7 mode			
Sensor	Type	Current Transformer	Temperature & humidity	PT1000	Leakage detector
	Quantity	3			
	Spec	100mA to 75A (<±1%@300mA to 75A)			
Mechanical	Mounting	Magnetic; Wall; Pole mount			
	Dimension (L x W x H)	112 x 51 x 71.5 mm			
General	Power Input	2 x 3.6V AA batteries (not included)			
	Configuration Interface	Via downlink commands			
	Operating Temperature	-20 ~ 55°C (-4 ~ 131°F)			
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)			
	Operating Humidity	0-90% RH			
	Storage Humidity	0-90% RH			

✓ : supported, - : not supported, △ : optional

## Wireless LoRaWAN Gateway



Model Name		WISE-6610-B
Description		LoRaWAN Gateway support up to 500 nodes with 868/915/923MHz
Specifications	Mobile Wireless	LoRaWAN
	Communication Interface	LoRaWAN
	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)
	Power Input	10-30 V <sub>DC</sub>
	Dimension (W x H x D)	150 x 37.5 x 83 mm
	Weight	500 g

✓ : supported, - : not supported, △ : optional





## SFP Modules

The small form-factor pluggable (SFP) is a hot-swappable optical module transceiver in a compact size and a variety of transmitter and receiver specifications for data communications. They are used for when a transmission service is needed between points further than 100 meters beyond where traditional copper cables can reach, SFP modules can easily overcome these problems.



### Industrial Grade 1.25 Gbps SFP Modules w/ DDM

Model Name	Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temp.	DDM	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
SFP-GMM-550	Multi-mode	OM1/OM2	550 m	Duplex LC	-17	-40 to +85 °C (-40 to +185 °F)	Yes	850	830 ~ 860	770 ~ 860	-9.5~-4	-3~-17	7.5	NA
SFP-GMM-2K	Multi-mode	Multi-Mode	2 km	Duplex LC	-21			1310	1260 ~ 1355	1260 ~ 1620	-10~-1	-3~-21	11	3
SFP-GSM-20K	Single-mode	G.652	20 km	Duplex LC	-23			1310	1285 ~ 1343	1260 ~ 1620	-8~-2	-3~-23	15	NA
SFP-GSM3-40K	Single-mode	G.652	40 km	Duplex LC	-24			1310	1290 ~ 1355	1260 ~ 1620	-2~+3	-3~-24	22	3
SFP-GSS-40KTX-LC	Bi-Directional	G.652	40 km	Simplex LC	-23			1310 Tx / 1550 Rx	1270 ~ 1355	1470 ~ 1600	-3~+2	-3~-23	20	3
SFP-GSS-40KRXL-LC	Bi-Directional	G.652	40 km	Simplex LC	-23			1550 Tx / 1310 Rx	1530 ~ 1570	1260 ~ 1360	-5~+0	-3~-23	18	3
SFP-GSS-20KTX	Bi-Directional	G.652	20 km	Simplex SC	-23			1310 Tx / 1550 Rx	1270 ~ 1355	1480 ~ 1600	-8~-2	-3~-23	15	3
SFP-GSS-20KRXL	Bi-Directional	G.652	20 km	Simplex SC	-23			1550 Tx / 1310 Rx	1510 ~ 1570	1250 ~ 1380	-8~-2	-3~-23	15	3
SFP-GSS-40KTX	Bi-Directional	G.652	40 km	Simplex SC	-23			1310 Tx / 1550 Rx	1270 ~ 1355	1480 ~ 1600	-3~+2	-3~-23	20	3
SFP-GSS-40KRXL	Bi-Directional	G.652	40 km	Simplex SC	-23			1550 Tx / 1310 Rx	1510 ~ 1570	1250 ~ 1380	-3~+2	-3~-23	20	3

### Industrial Grade 100-155 Mbps SFP Modules w/ DDM

Model Name	Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temp.	DDM	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
SFP-FSM-20K	Single-mode	G.652	20 km	Duplex LC	-35	-40 to +85 °C (-40 to +185 °F)	Yes	1310	1280 ~ 1340	1260 ~ 1620	-15~-8	-3~-35	20	3
SFP-FSM-40K	Single-mode	G.652	40 km	Duplex LC	-36			1310	1280 ~ 1340	1260 ~ 1620	-5~+0	-3~-36	31	3
SFP-FSS-20KTX	Bi-Directional	G.652	20 km	Simplex SC	-32			1310 Tx / 1550 Rx	1261 ~ 1360	1480 ~ 1600	-14~-8	0~-32	18	NA
SFP-FSS-20KRXL	Bi-Directional	G.652	20 km	Simplex SC	-32			1550 Tx / 1310 Rx	1480 ~ 1576	1260 ~ 1360	-14~-8	0~-32	18	NA
SFP-FSS-40KTX	Bi-Directional	G.652	40 km	Simplex SC	-34			1310 Tx / 1550 Rx	1280 ~ 1340	1480 ~ 1600	-5~+0	-3~-34	29	3
SFP-FSS-40KRXL	Bi-Directional	G.652	40 km	Simplex SC	-34			1550 Tx / 1310 Rx	1480 ~ 1580	1250 ~ 1360	-5~+0	-3~-34	29	3

### 10 Gbps SFP+ & XFP Modules w/ DDM

Model Name	Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temp.	DDM	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
SFP-XSS-10KTX-LC	Bi-Directional	G.652	10 km	Simplex LC	-14.4	0 to +70 °C (+32 to +158 °F)	Yes	1270 Tx / 1330 Rx	1260 ~ 1280	1320 ~ 1340	-6~+1	0.5~-14.4	8.4	3.2
SFP-XSS-10KRXL-LC	Bi-Directional	G.652	10 km	Simplex LC	-14.4			1330 Tx / 1270 Rx	1320 ~ 1340	1260 ~ 1280	-6~+1	0.5~-14.4	8.4	3.2
SFP-XSS-40KTX-LC	Bi-Directional	G.652	40 km	Simplex LC	-15.5			1270 Tx / 1330 Rx	1260 ~ 1280	1320 ~ 1340	+0.5~+5	0.5~-15.5	16	3.2
SFP-XSS-40KRXL-LC	Bi-Directional	G.652	40 km	Simplex LC	-15.5			1330 Tx / 1270 Rx	1320 ~ 1340	1260 ~ 1280	+0.5~+5	0.5~-15.5	16	3.2

## SFP Modules

### Industrial Grade 10 Gbps SFP+ & XFP Modules w/ DDM

Model Name	Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temp.	DDM	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
SFP-XMM-LCI-400	Multi-mode	OM3	400 m	Duplex LC	-11.1	-40 to +85 °C (-40 to +185 °F)	Yes	850	840 ~ 860	840 ~ 860	-7.3~-1	-0.1~-9.9	2.6	NA
SFP-XSM-LCI-10K	Single-mode	G.652	10 km	Duplex LC	-12.6			1310	1260 ~ 1355	1260 ~ 1355	-8.2~+0.5	0.5~-14.4	6.2	NA
SFP-XSM-LCI-20K	Single-mode	G.652	20 km	Duplex LC	-12.6			1310	1260 ~ 1355	1260 ~ 1355	-5~-+0.5	0.5~-14.4	9.4	NA
SFP-XSM5-LCI-40K	Single-mode	G.652	40 km	Duplex LC	-16			1550	1530 ~ 1565	1260 ~ 1620	-4.7~+4	0.5~-16	11.3	3
SFP-XSM-LCI-80K	Single-mode	G.652	80 km	Single LC	-23			1550	1530 ~ 1565	1260 ~ 1620	+0~-+4	-7~-23	23	3

### Copper SFP Modules

Model Name	Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temp.	DDM	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
SFP-10GTX	-	-	100 m	RJ45	-	0 to +70 °C (+32 to +158 °F)	-	-	-	-	-	-	-	-

## Media Converters with PoE



Description		EKI-2741FPI	EKI-2742FPI	EKI-2741FHPI
Connectivity	10/100/1000Base-T PoE, Fixed	1	2	1
	Open SFP slot (GbE)	1	1	1
	Auto MDI/MDI-X	✓	✓	✓
	Auto Negotiation	✓	✓	✓
	Store-and-Forward Switching	✓	✓	✓
	Link Fault Pass-Through (LFP)	✓	-	✓
	MTBF	743,594Hrs	717,339Hrs	730,083Hrs
Traffic Control	Jumbo frame size	10Kbytes	10Kbytes	10Kbytes
	IEEE 802.3x flow control	✓	✓	✓
Physical	Housing Dimensions (W x H x D) mm	36.7 x 108.4 x 103.5 mm	36.7 x 108.4 x 103.5 mm	36.7 x 108.4 x 103.5 mm
	Mounting Type	DIN-Rail/Wall mount	DIN-Rail/Wall mount	DIN-Rail/Wall mount
	IP rating	IP31	IP31	IP31
Power	Power Input voltage	24-48Vdc	24-48Vdc	48Vdc
	Power Consumption	34W	63.5W	63.5W
	Reverse protection	✓	✓	✓
Certification	UL508	✓	✓	✓
	UL-C1D2	✓	✓	✓
	FCC	✓	✓	✓
	CE	✓	✓	✓

✓ : supported, - : not supported, △ : optional

## Extenders



Model name	IMC-150LI	IMC-150LPI	IMC-150LPC-M	IMC-150LPC-R
Standard	IEEE802.3 IEEE802.3u IEEE802.3x	IEEE802.3 IEEE802.3u IEEE802.3x IEEE802.3at/af	IEEE802.3 IEEE802.3u IEEE802.3x IEEE802.2at/af	IEEE802.3 IEEE802.3u IEEE802.3x IEEE802.3at/af
RJ45 Port Interface	2	2	1	1
Transmission Distance	up to 800 meter	Up to 800 meter	Up to 1KM	Up to 1KM
RJ45 w/ PoE Quantity	1	1	1	1
PoE output power	-	Max. 30W	Max. 30W	Max. 30W
Packet Buffer Size	-	-	-	-
Switch Fabric Speed	up to 100Mbps	up to 100Mbps	up to 100Mbps	up to 100Mbps
Jumbo Frame	-	-	-	-
Dimensions (W x H x D)	92.58x21.08x98.04 mm (3.65x0.83x3.86 in)	92.58 x21.08 x98.04 mm (3.65x 0.83x 3.86 in)	84x80x25 mm (3.3x3.15x0.984 in)	84x80x25 mm (3.3x3.15x0.984 in)
IP Grade	IP30	IP30	IP30	IP30
Enclosure	-	-	-	-
Weight	400g	400g	400g	400g
Mounting Type	Din-Rail, Wall	Din-Rail, Wall	Wall	Wall
Operating Temperature	-40 ~ 75°C	-40 ~ 75°C	-40 ~ 75°C	-40 ~ 75°C
Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Relative Humidity (Non-condensing)	-	-	-	-
Time	-	-	-	-
Method	-	-	-	-
Operating Voltage	-	-	-	-
Power Consumption	2.401W	33W	23.5W	-
Connectors	3	2	2	2
Safety	LVD EN62368	LVD EN62368	LVD EN62368	LVD EN62368
EMC	✓	✓	✓	✓
EMI	✓	✓	✓	✓
EMS	✓	✓	✓	✓
Shock	✓	✓	✓	✓
Freefall	✓	✓	✓	✓
Vibration	✓	✓	✓	✓
Warranty Period	5	5	5	5

✓ : supported, - : not supported, △ : optional

## PoE Injectors



Description		EKI-2701HPI	EKI-2701HP-AC	EKI-2701MPI-5G
Connectivity	10/100/1000Based-Tx, fixed	1	1	1
	10/100/1000Base-T PoE, Fixed	1	1	1 (multi data rate 10M / 100M / 1G / 2.5G / 5G)
	Auto Negotiation	-	✓	✓
	Store-and-Forward Switching	-	✓	✓
	MTBF	1419817Hrs	1,999,263 Hrs	-
Physical	Housing Dimensions (W x H x D) mm	30x140x95 mm	65x36x140 mm	84x80x25 mm
	Mounting Type	DIN-Rail/Wall mount	Desktop	DIN-Rail/Wall mount
	IP rating	IP30	N/A	IP30
Power	Power Input voltage	24 - 48V <sub>dc</sub>	100 - 240V <sub>dc</sub>	54 - 57V <sub>dc</sub>
	Power Consumption	33.36W	<36W	Max 92W
	Reverse protection	✓	-	✓
Certification	UL60950-1	-	UL62368	UL62368
	FCC	✓	✓	✓
	CE	✓	✓	✓

✓ : supported, - : not supported, △ : optional

## PoE Splitters



Description		EKI-2701PSI	EKI-2711PSI	EKI-2711MPSI
Connectivity	10/100/1000Based-Tx, Fixed	1	1	-
	10/100/1000Base-T PoE, Fixed	1	1	-
	10/100/1000Based/2.5G -Tx, Fixed	-	-	1
	10/100/1000Base-T/2.5G PoE, Fixed	-	-	1
	Auto Negotiation	-	-	-
	Store-and-Forward Switching	-	-	-
	MTBF	-	-	-
Physical	Housing Dimensions (W x H x D) mm	30x40x95 mm	30x140x95 mm	42x140x95 mm
	Mounting Type	DIN-rail/Wall mount	DIN-rail/Wall mount	DIN-rail/Wall mount
	IP rating	IP30	IP30	IP30
Power	Power Output voltage	44~57V <sub>dc</sub>	44~57V <sub>dc</sub>	12/24V <sub>dc</sub> by DIP switch
	Power Consumption	12.95 W @24 V <sub>dc</sub>	25W @24 V <sub>dc</sub>	70W @12/24 V <sub>dc</sub>
	Reverse protection	Power isolation & short circuit protection	✓	✓
Certification	UL60950-1	✓	-	-
	UL508	-	-	-
	LVD EN62368	-	✓	✓
	FCC	✓	✓	✓
	CE	✓	✓	✓

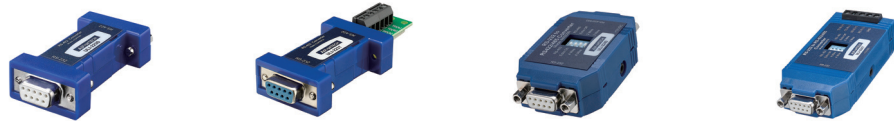
✓ : supported, - : not supported, △ : optional

# Serial / USB Communications

## Serial Converters, Isolators, & Repeaters



Model		ULI-211C	ULI-211CI	ULI-212CI	ULI-213CI
P/N to Order		BB-FOSTCDR	BB-FOSTCDRI	BB-FOSTCDRI-ST	BB-FOSTCDRI-SC
I/O Interface 1	Serial Type	RS-232, RS-422/485	RS-232, RS-422/485	RS-232, RS-422/485	RS-232, RS-422/485
	Connector	Terminal block	Terminal block	Terminal block	Terminal block
	Ports	1	1	1	1
I/O Interface 2	Optical Mode	Multi-mode	Multi-mode	Single-mode	Single-mode
	Connector	ST	ST	ST	SC
	Ports	1	1	1	1
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)
Isolation/ESD Protection		2,000 V <sub>oc</sub>	2,000 V <sub>oc</sub>	2,000 V <sub>oc</sub>	2,000 V <sub>oc</sub>
Power Input		10~30 V <sub>oc</sub>	10~48 V <sub>oc</sub>	10~48 V <sub>oc</sub>	10~48 V <sub>oc</sub>
Mounting		DIN-rail	DIN-rail	DIN-rail	DIN-rail
Certification		CE, FCC, KCC UL Recognized (backward R)	CE, FCC, UL CID2	CE, FCC, UL 508	CE, FCC, UL 508



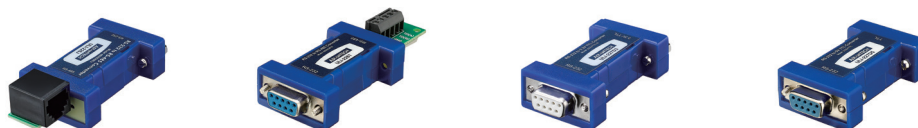
Model		ULI-223D	ULI-223T	ULI-224D	ULI-224T
P/N to Order		BB-422PP9R	BB-422PP9TB	BB-4WSD9R	BB-4WSD9TB
I/O Interface 1	Serial Type	RS-232	RS-232	RS-232	RS-232
	Connector	DB9-F	DB9-F	DB9-F	DB9-F
	Ports	1	1	1	1
I/O Interface 2	Serial Type	RS-422	RS-422	RS-422/485 (2&4W)	RS-422/485 (2&4W)
	Connector	DB9-F	Terminal block	DB9-F	Terminal block
	Ports	1	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		-	-	-	-
Power Input		Port-powered from RS-232	Port-powered from RS-232 (Optional external 12 V <sub>oc</sub> power supply)	Port-powered from RS-232 (Optional external 12 V <sub>oc</sub> power supply)	Port-powered from RS-232 (Optional external 12 V <sub>oc</sub> power supply)
Mounting		Inline	Inline	Inline	Inline
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓ : supported, - : not supported, △ : optional

## Serial Converters, Isolators, & Repeaters



Model		ULI-224TC	ULI-224TCI	ULI-224TCL	ULI-226D
P/N to Order		BB-485LDR09	BB-485DR01	BB-4WSD90TB	BB-485SD9R
I/O Interface 1	Serial Type	RS-232	RS-232	RS-232	RS-232
	Connector	DB9-F & Terminal block	DB9-F	DB9-F	DB9-F
	Ports	1	1	1	1
I/O Interface 2	Serial Type	RS-422/485	RS-422/485	RS-422/485	RS-485
	Connector	Terminal block	Terminal block	Terminal block	DB9-F
	Ports	1	1	1	1
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		2,000 V <sub>oc</sub>	2,000 V <sub>oc</sub>	2,000 V <sub>oc</sub>	-
Power Input		10~30 V <sub>oc</sub>	10~48 V <sub>oc</sub>	10~48 V <sub>oc</sub>	Port-powered from RS-232
Mounting		DIN-rail	DIN-rail	Inline	Inline
Certification		CE, FCC, cULus, UL508	CE, FCC, KCC, UL CID2, UL508	CE, FCC	CE, FCC



Model		ULI-226J	ULI-226T	ULI-227D3	ULI-227D5
P/N to Order		BB-485SD9RJ	BB-485SD9TB	BB-232LPTTL33	BB-232LPTTL
I/O Interface 1	Serial Type	RS-232	RS-232	RS-232	RS-232
	Connector	DB9-F	DB9-F	DB9-F	DB9-F
	Ports	1	1	1	1
I/O Interface 2	Serial Type	RS-485	RS-485	3.3 V <sub>oc</sub> TTL	5 V <sub>oc</sub> TTL
	Connector	RJ-11 female	Terminal block	DB9-M	DB9-M
	Ports	1	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		-	-	-	-
Power Input		Port-powered from RS-232	Port-powered from RS-232 (Optional external 12 V <sub>oc</sub> power supply)	Port-powered from RS-232	Port-powered from RS-232
Mounting		Inline	Inline	Inline	Inline
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓: supported, -: not supported, △: optional

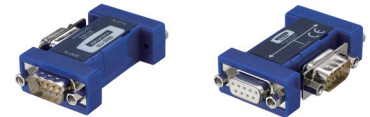
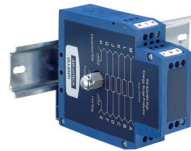
# Serial / USB Communications

## Serial Converters, Isolators, & Repeaters



Model	ULI-232DC	ULI-232TC	ULI-234TC	ULI-234TCI
P/N to Order	BB-2320PDRI	BB-2320PDR	BB-4850PDR	BB-4850PDRI
Interface	RS-232	RS-232	RS-422/485	RS-422/485
Connector	DB9-F, DB9-M	Terminal block	Terminal block	Terminal block
Operating Temperature	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)
Isolation/ESD Protection	Isolation: 2,000 V <sub>oc</sub> on input/output/ power ESD: 8kV	2,000 V <sub>oc</sub>	Isolation: 2,000 V <sub>oc</sub> , Surge: 6.5 bi-directional avalanche breakdown device 500W peak power dissipation	Isolation: 2,000 V <sub>oc</sub> on input/output/ power Surge: 600W peak power dissipation
Power Input	10~48 V <sub>oc</sub>	10~30 V <sub>oc</sub>	10~30 V <sub>oc</sub>	10~48 V <sub>oc</sub>
Enclosure	IP30, plastic	IP30, plastic	IP20, plastic	IP20, plastic
Mounting	DIN-rail	DIN-rail	DIN-rail	DIN-rail
Certification	CE, FCC, KCC, UL CID2, UL508	CE, FCC, cULus Listed, UL508	CE, FCC, KCC, cULus Listed, UL508, UL Recognized	CE, FCC, KCC, UL CID2

## Serial Surge Suppressor & Data Tap/Splitter



Model	ULI-244TI	
P/N to Order	BB-HESP4DR	
Serial Technology	Interface	RS-422/485
	Lines Protected	(5) RS-422/485
	Connectors, line	5-position terminal blocks
	Connectors, equipment	5-position terminal blocks
	Grounding	Dedicated chassis ground lug
	Connections	Protected signal ground connection Rugged terminal block connections
	Power Input	No power required
Surge Suppression	Clamping Voltage	72 V <sub>oc</sub> , minimum
	Stage 1: Gas Discharge Tube	108 V <sub>oc</sub> , maximum
	Stage 2: Series Resistance	2.7 Ohms
	Clamping Voltage	6.45 V <sub>oc</sub> , minimum
	Stage 3: Transient Voltage Suppressor	7.14 V <sub>oc</sub> , maximum
	Clamping Time	Less than 5 x10 <sup>-9</sup> seconds
	Operating Temperature	-40 ~ 80°C
	Mounting	DIN-rail
	Certification	CE

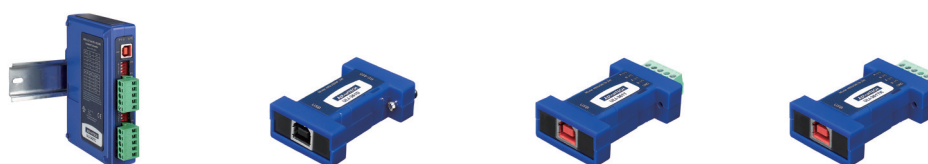
Model	ULI-252D	ULI-262D
P/N to Order	BB-9PCDT	BB-9PMDS
Serial Type	RS-232	RS-232
Connector	DB9-M	DB9-M
Operating Temperature	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Type	RS-232 Data Tap	RS-232 Data Splitter
Power Input	No power required	No power required
Enclosure	plastic	plastic
Mounting	Inline	Inline
Certification	CE, FCC	CE, FCC



## USB Converters & Isolators



Model		ULI-321D	ULI-321DC	ULI-341TC	ULI-341TCK
P/N to Order		BB-232USB9M	BB-USO9ML2-A	BB-USOPTL4	BB-USOPTL4-LS
I/O Interface 1	USB Type	USB 2.0	USB 2.0	USB 2.0	USB 2.0
	Connector	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)
	Ports	1	1	1	1
	High Retention	-	✓	✓	✓
I/O Interface 2	Serial Type	RS-232	RS-232	RS-422/485	RS-422/485
	Connector	DB9-M	DB9-M	Terminal block	Terminal block
	Ports	1	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		-	Isolation: 2000 V <sub>oc</sub> ESD: 4 kV (Contact); 8 kV (Air)	2,000 V <sub>oc</sub>	2,000 V <sub>oc</sub>
Locked Serial Number		-	-	-	✓
Power Input		Port-Powered from USB host (5 V <sub>oc</sub> )	Port-Powered from USB host (5 V <sub>oc</sub> )	Port-Powered from USB host (5 V <sub>oc</sub> )	Port-Powered from USB host (5 V <sub>oc</sub> )
Mounting		Inline installation	Inline installation	Inline installation	Inline installation
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC



Model		ULI-342TC	ULI-361D	ULI-361T	ULI-361TK
P/N to Order		BB-USOPTL4DR-2	BB-485USB9F-2W	BB-485USBTB-2W-A	BB-485USBTB2WLS-A
I/O Interface 1	USB Ports	USB	USB	USB	USB
	Connector	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)
	Ports	1	1	1	1
	High Retention	✓	✓	✓	✓
I/O Interface 2	Serial Type	RS-422/485	RS-485	RS-485	RS-485
	Connector	Terminal block	DB9-F	Terminal block	Terminal block
	Ports	2	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		3,000 V <sub>oc</sub>	-	-	-
Locked Serial Number		-	-	-	✓
Power Input		Port-Powered from USB host (5 V <sub>oc</sub> )	Port-Powered from USB host (5 V <sub>oc</sub> )	Port-Powered from USB host (5 V <sub>oc</sub> )	Port-Powered from USB host (5 V <sub>oc</sub> )
Mounting		DIN-rail	Inline installation	Inline installation	Inline installation
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

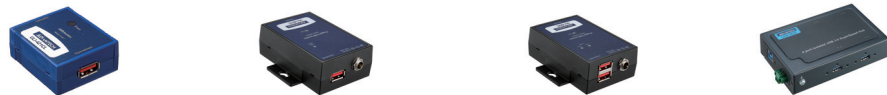
✓: supported, -: not supported, △: optional

# Serial / USB Communications

## USB Isolators & Hubs



Model		ULI-414CI	ULI-414LI	ULI-414H	ULI-417H
P/N to Order		BB-UHR304	BB-UH104	BB-USH204-B	BB-USH207-B
USB Type		USB 2.0	USB 2.0	USB 3.2	USB 3.2
Downstream	Ports	4	4	4	7
	Type	Type A Female	Type A Female	Type A Female	Type A Female
	High Retention	✓	✓	–	–
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Isolation/ESD Protection		Isolation: 4000 V <sub>DC</sub> ESD: 8 kV (Contact); 15 kV (Air)	8 kV (Contact); 15 kV (Air)	8 kV (Contact); 15 kV (Air)	8 kV (Contact); 15 kV (Air)
Power Input		10~30 V <sub>DC</sub>	Port-Powered from USB host (5 V <sub>DC</sub> )	9~30 V <sub>DC</sub>	9~30 V <sub>DC</sub>
Enclosure		Metal	Plastic	Metal	Metal
Mounting		DIN-rail, Desk	Inline	DIN-rail	DIN-rail
Certification		CE, FCC, KCC, UL CID2	CE, FCC	CE, FCC	CE, FCC, KCC



Model		ULI-421CL	ULI-421C	ULI-422C	ULI-414HCL
P/N to Order		BB-UH401	BB-UHR401	BB-UHR402	USB-4630-BE
Product Series		USB Isolator	USB Isolator	USB Isolator	USB Hub
USB Type		USB 2.0	USB 2.0	USB 2.0	USB 3.2
Downstream	Number of Ports	1	1	2	4
	Type	Type A Female	Type A Female	Type A Female	Type A Female
	High Retention	✓	✓	✓	–
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		Isolation: 4000 V <sub>DC</sub> ESD: 8 kV (Contact); 15 kV (Air)	Isolation: 4000 V <sub>DC</sub> ESD: 8 kV (Contact); 15 kV (Air)	Isolation: 4000 V <sub>DC</sub> ESD: 8 kV (Contact); 15 kV (Air)	Isolation: 2500 V <sub>DC</sub> ESD: 8 kV (Contact); 15 kV (Air)
Power Input		Port-Powered from USB host (5 V <sub>DC</sub> )	10~30 V <sub>DC</sub>	10~30 V <sub>DC</sub>	10~30 V <sub>DC</sub>
Enclosure		Plastic	Plastic	Plastic	Metal
Mounting		Inline	Wall	Wall	DIN-rail
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓ : supported, – : not supported, △ : optional

## Serial Communication Cards



Bus		PCI Express							
Part Number		PCI-1602	PCI-1604	PCI-1610	PCI-1612	PCI-1620	PCI-1622	PCI-1680U	PCI-1682F
I/O Ports		2	2	4	4	8	8	2	2
Communication Interfaces	RS-232	✓	✓	✓	✓	✓	✓	-	-
	RS-422	✓	-	-	✓	-	✓	-	-
	RS-485	✓	-	-	✓	-	✓	-	-
	CAN	-	-	-	-	-	-	✓	✓
Drivers		Windows 7/10/11 and Linux							
Protection	ESD	15 kV (air), 8 kV (contact)							
	Isolation	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	-	3,000 V <sub>DC</sub>	-	3,000 V <sub>DC</sub>	2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>

✓ : supported, - : not supported, △ : optional



Bus		PCI Express						
Part Number		PCIE-1602	PCIE-1604	PCIE-1610	PCIE-1612	PCIE-1620	PCIE-1622	PCIE-1680
I/O Ports		2	2	4	4	8	8	2
Communication Interfaces	RS-232	✓	✓	✓	✓	✓	✓	-
	RS-422	✓	-	-	✓	-	✓	-
	RS-485	✓	-	-	✓	-	✓	-
	CAN	-	-	-	-	-	-	✓
Drivers		Windows 7/10/11 and Linux						
Protection	ESD	15 kV (air), 8 kV (contact)						
	Isolation	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	-	3,000 V <sub>DC</sub>	-	3,000 V <sub>DC</sub>	2,500 V <sub>DC</sub>

✓ : supported, - : not supported, △ : optional

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