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**

MQTT · OPC UA · BACnet · Modbus · EtherCAT · PROFINET · EtherNet/IP · TSN · 5G · Lte · NB-IoT · LTE-M · LoRaWAN · WiFi · Node-RED · python

WebAccess/DMP · WebAccess/VPN · WebAccess/NMS

AMC

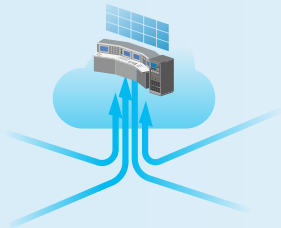**ADVANTECH** iAutomation
Premier Partner

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.

Network Edge

Network Infrastructure

Power Utility

Solar Power

Smart City

Railway

Intelligent Transportation System

Energy and Environment

Oil and Gas

Factory

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/DMP2 for provisioning and managing status of each routing device and application
• WebAccess/NMS for monitoring the interconnectivity status of the whole network system
• WebAccess/VPN for remote asset control and management

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
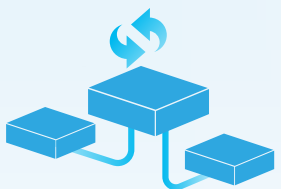
Protocol and Interface Conversion Solutions

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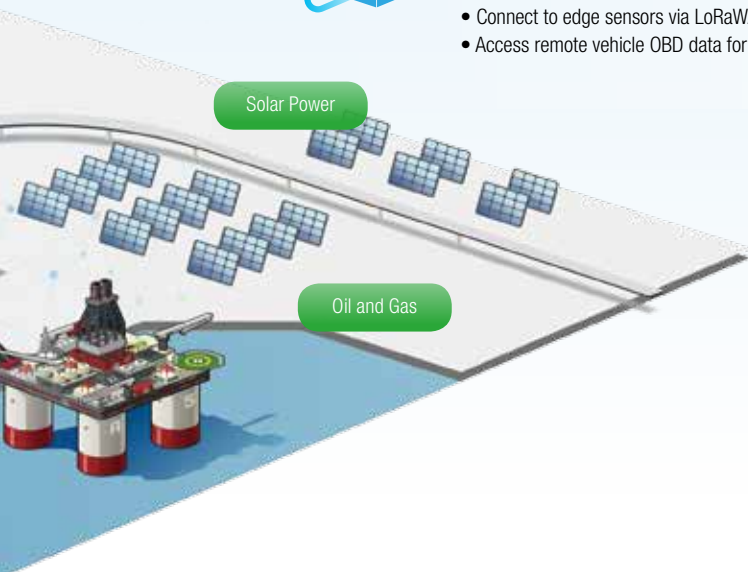
Advancing Key Growth Areas in Industry 4.0, Industrial Equipment Manufacturing, Energy & Environment and, Transportation

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 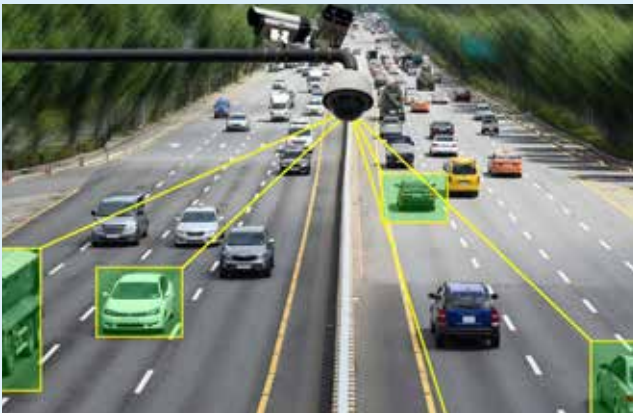as a service business model to create new opportunities and possibilities. Advantech focuses on four go-to-market sectors - general automation, iFactory, industrial equipment manufacturing, and industrial infrastructure to fulfill customers' diverse application needs.

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

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
· Bus rapid transit (BRT)
· Runnel management system
· City traffic management
· Electric toll collection (ETC)
· Parking lot surveillance
· Road surveillance

Machine and Factory Automation

Ethernet networking offers a reliable an 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 Communication

Seamless Data Connectivity from the Network Edge to the Cloud

Advantech leverages over 40 years of industry experience to develop reliable wired and wireless communication solutions for mission critical applications. These products include industrial Ethernet switches, industrial Fieldbus gateways, Modbus gateways, cellular IP gateways, cellular routers, wireless access points/ clients, media converters, and serial device servers, all of which contribute to the secure transmission of data, monitoring and control of networked devices.

Supported by

EdgeSync 360

Intelligent Connectivity Software

WebAccess/DMP$_2$

Remote Device Provisioning, Monitoring, and Management Platform

- Performance at scale, extensible architecture
- AssureAuth PKI, multi-tenancy
- AssureSync configuration management
- Secure device health monitoring
- Built for interoperability & fully API enabled

WebAccess/NMS

Network Management System

- Cross-browser compatible
- Online Google Maps and offline OpenStreetMap support
- Dynamic connectivity indication
- Automatically discovers and diagrams network topology
- PoE, ring, wireless, cellular connection indication

WebAccess/VPN

Advanced Secure Networking Platform for Cellular Routers and Gateways

- Secure private networks in Internet
- Encrypted & reliable communication
- Centrally defined VPN topology
- Managed LAN, 1:1 NAT modes
- Firewall & access control

Industrial Cellular Routers and IoT Gateways

ICR-4461

Ultra-high-speed 5G NR Router & Edge Computing Gateway

- 5G NR cellular connectivity, Sub-6GHz
- 3GPP Release 16; support NSA & SA modes
- Quad-core CPU with 1 GB RAM
- 2 x SIM, eSIM Ready, TPM 2.0
- 5 x Gigabit Ethernet (optional 4 x PoE+ PSE)
- SFP connector, GNSS receiver, Micro SD card
- RS232, RS485, CAN BUS, 2 x DI, 2 x DO, USB Host

ICR-3200 Series

Industrial 4G Router & IoT Gateway

- LTE Cat.4, 3G/2G fallback, 2 x SIM, eSIM ready
- Powerful CPU, 1.3 GB storage to host customer SW applications
- 2 x Ethernet 10/100, 1 x RS232, 1 x RS485 and I/O
- Wide temperature range
- Sleep mode & Power ignition
- Optional Wi-Fi 802.11ac, Bluetooth, GNSS
- E-Mark and EN 50155 Railway compliance

ICR-2000 Series

Entry Level Cellular Routers

- LTE Cat.4, 1(2) x SIM
- 1/2/4 x Ethernet 10/100
- Optional I/O and RS232/485
- Optional USB Host 2.0 & TPM 2.0
- Robust metal cover with wall mount option

SmartFlex SR30x

Flexible, Modular 4G LTE Router & Gateway

- LTE Cat.4, 3G/2G fallback, 2 x SIM, GNSS Receiver
- 2 x Ethernet 10/100 (Independent or switched)
- Optional - 5 x Ethernet, PoE, RS-232/ RS-422/ RS-485, Wi-Fi
- E-mark, UL C1D2, ATEX certifications

Communication Gateways & I/O Nodes

LoRaWAN Gateway, I/O Node, and Sensor

- Long-distance wireless data transmission and third-party LoRaWAN device compliant
- Embedded network server and Node-RED, bundle a lightweight IoT protocol MQTT
- LoRaWAN gateway design with backup function
- LoRaWAN node design with IP66-rated reinforced-fiber polyester PBT enclosure

Industrial Wireless AP/Clients

EKI-6333AC/ EKI-136X Series/ EKI-9502G

802.11AC Wi-Fi AP/ Bridge/ Client/ EN 50155 Router

- Supports 802.11 a/b/g/n/ac MIMO 2T2R
- EKI-136X Series support serial device to Wi-Fi or Lan to Wi-Fi variety function
- Supports secure access with WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise
- Wireless band 2.4G/5G selective/dual
- Provides web-based configuration

Protocol Gateways

EKI-1242 Series

Modbus RTU/TCP to Various Industrial Protocols Fieldbus Gateway

- Dual power inputs
- Designed for protocol extensibility and adaption
- Built-in real-time diagnostics
- I models support wide operating temperature ranges

Modbus Gateways

EKI-1200 Series

1/ 2/ 4-Port Modbus Gateway

- Supports redundancy-enhanced Modbus ID
- Integrates Modbus TCP and Modbus RTU/ ASCII network
- Optional fiber optics connectivity (1-port ST or 2-port SC)

Serial Device Servers

EKI-1500 Series

1/2/4/8/16-Port Serial Device Server

- Connect up to 8 / 16-port RS-232/ 422/ 485 devices directly to TCP/ IP networks
- VCOM, TCP server, TCP client, UDP, and RFC2217 modes
- EKI-1511 series for Entry-Level device server
- Optional fiber optics connectivity (1-port SC)

Console Server

EKI-1526NL-CS

16-port Console Server

- RS-232 serial communication
- Cisco compatible pinout
- User authentication
- Secured out-of-band management

Unmanaged Ethernet Switches

EKI-2000 Series

Industrial unmanaged Ethernet Switch

- Supports -40~75 °C wide operation temperatures
- Features fast Ethernet, gigabit Ethernet, POE, POE+ and fiber optics connectors
- Designed in slim size with IP30 metal mechanism
- Supports DIN-rail mounting method

Lite-Management Switches

EKI-5000 Series

Industrial Entry-level Managed Switch

- Provides commonly used managed switch features
- ATEX, C1D2 certification
- Supports Advantech IXM/NMS technology
- Supports X-Ring Elite and Web GUI for easy configuration

L2 Managed Switches

EKI-7700 Series

Industrial Managed Switch

- High variety of port combinations
- CyberSecurity with IEC 62443 certified
- IXM function enables fast deployment
- Supports X-Ring Pro and CLI/Web GUI
- EN 50121-4 and NEMA TS-2 certified

TSN Ethernet Switch

EKI-8510G

Industrial Time-Sensitive Networking (TSN) Ethernet Switch

- Fully layer 2 managed features
- IEEE 802.1AS time synchronization
- IEEE 802.1Qbu frame preemption
- IEEE 802.1Qbv time aware shaper
- IEEE 802.1CB seamless redundancy

EN 50155 Switches

NEW

EKI-9500 Series

28/16/12/10/8-Port EN 50155 Rolling Stock Switch

- EN 50155, EN 50121-3-2, IEC 61373 compliant
- PoE/ PoE+ models are available
- Various port combination with Fast Ethernet/Giga/10G Ethernet options
- IP40/ IP54/ IP67 and rugged housing

10G Ethernet Solutions

EKI-7412G-4X/7428G-4X 10G Series

Network Management System

- 10G uplink bandwidth supported
- Powerful and reliability managed features
- 1U 19 inch rack-mount design
- Up to 60 ºC operating temperature

L3 Managed Switches

NEW

EKI-9700/9600 Series & EKI-8528

Industrial Layer 3 Managed Switch

- L3 Modular Switch (EKI-8528)
- Static routing/ NAT (EKI-9612G, EKI-9628G)
- Static routing, RIPv1/v2, OSPFv3, PIM-SM, PIM-DM, VRRP(EKI-8528G & EKI-9728G)
- Supports up to 4 x 10G SFP+ ports (EKI-8528 & EKI-9728G)

Long Reach Ethernet Solutions

IMC-150 Series

Hardened PoE Long Reach Ethernet Extender

- Extend the reach of both power and data delivery
- Supports Link Fault Pass Through (LFPT) mechanism
- Leverage pre-built UTP and coaxial cables to upgrade network infrastructure
- Industrial grade hardware design with EN50121-4 EMC certification

Industrial PoE Switches

EKI-2700 Series & EKI-7700 Series & EKI-7428G-4CPI

- Supports IEEE802.3 af/at PoE(+) standards
- Serves as power sourcing equipment (PSE)
- Designed with 10/100/1000Base-T and SFP
- Supports up to 685W power budget

Industrial 15/30/60/90W PoE Injectors

EKI-2701 Series

- Supports IEEE802.3 at/af/bt standards
- Serves as power sourcing equipment (PSE)
- Extended operating temperatue (-40~75 ºC)
- EKI-2701MP1-5G supports 10/ 100/ 1G/ 2.5G/ 5G multi-speed data transmission

Smart Dual Channel 802.3bt Media Converters

IMC-595MPI

- Smart media converter with SFP uplink port and .bt PoE port x 2
- Configurable PoE power allocation with max. 180W power
- Configurable PoE behavior to reboot PD and notify link down

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 Ethernet Solutions

Unmanaged Ethernet Switches

	Model Name	EKI-2525LI-AE	EKI-2526M/S	EKI-2725/I	EKI-2728/I	EKI-2728S/2728SI	EKI-2728M/MI
	Description	5 x Fast Ethernet ports Slim Type Unmanaged Switch	4+2 100FX Port Multi-mode/ Single-mode Industrial Ethernet Switch	5-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	6	5	8	8	8
	10/100Base-T (X)	5	4	-	-	-	-
	100BaseFX	-	2	-	-	-	-
	10/100/1000Base-T (X)	-	-	5	8	6	6
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-	2 x SC Single Mode	2
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓
	Relay Output	-	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	IP Level	40	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	✓	EKI-2725	EKI-2728	EKI-2728S	EKI-2728M
	-40 ~ 75°C (-40 ~ 167°F)	✓	-	EKI-2725I	EKI-2728I	EKI-2728SI	EKI-2728MI
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	✓	✓	✓	-
	Class 1, Division 2	-	-	-	-	-	✓
	UL 508	-	-	-	-	-	✓

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

Unmanaged Ethernet Switches

	Model Name	EKI-5524SSI/MMI Series	EKI-5525SI/MI Series	EKI-5528I EKI-5525I	EKI-5626CI	EKI-5629CI	EKI-5725I EKI-5728I	EKI-5726I
	Description	4-port + 2x100FX port (Single/Multimode, SC/ST type), Fast Ethernet Switch	4-port +1x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet Switch	8/5-port Fast Ethernet Switch	16FE + 2GE Combo Ethernet Switch	8FE + 2GE Combo Ethernet Switch	5/8-port Gigabit Ethernet Switch	16-port Gigabit Ethernet Switch
Interface	Number of Ports	6	4	8/5	18	10	5/8	16
	10/100Base-T (X)	4	4	8/5	16	8	-	-
	100BaseFX	2	1	-	-	-	-	-
	10/100/1000Base-T (X)	-	-	-	2 (combo)	2 (combo)	5/8	16
	1000Base-SX/LX/LHX/ XD/ZX/EZX	-	-	-	2 (combo)	2 (combo)	-	-
Network Management	Configuration	-	-	-	-	-	-	✓
	SNMP	-	-	-	-	-	✓	✓
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	✓
	Relay Output	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
	IP Level	IP30	IP30	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	✓	✓	✓	✓	✓	✓	✓
	Class 1, Division 2	✓	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓	✓

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Industrial Ethernet Solutions

Unmanaged Ethernet Switches

Model Name		EKI-5726FI	EKI-5729FI	EKI-2428G-4CA	EKI-2525MI/SI-ST	EKI-2525MI/SI
Description		16-port+2 SFP Gigabit Ethernet Switch	8-Port+2 SFP Gigabit Ethernet Switch	24GFE+4SFP Giga ports Unmanaged Switch w/ AC Input	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
Interface	Number of Ports	16	8	28	5	5
	10/100Base-T (X)	-	-	-	4	4
	100BaseFX	✓	✓	-	1	1
	10/100/1000Base-T (X)	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	-	-	✓	-	-
	IP Level	IP30	IP30	-	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	-	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-10 ~ 55°C (14 - 131°F)	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	-	-	-
Certifications	CE	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	✓	✓
	Class 1, Division 2	✓	✓	-	-	-
	UL 508	✓	✓	-	-	-
	Others	-	-	LVD 62368-1	-	-

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

Entry-level Managed Switches

Model Name	EKI-5526I-MB EKI-5526I-PN EKI-5526I-EI	EKI-5528I-MB EKI-5528I-PN EKI-5528I-EI	EKI-5626CI-MB EKI-5626CI-PN EKI-5626CI-EI	EKI-5629CI-MB EKI-5629CI-PN EKI-5629CI-EI	EKI-5726I-MB	EKI-5728I-MB	EKI-5729I-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-7428G-4X	EKI-7412G-4XP	EKI-7428G-4CA	EKI-7706E-2F/I	EKI-7706G-2F/I	EKI-7708E-4F/I	EKI-7708G-4F/I	EKI-7708G-2MI/2SI
	Description	24GE+4SFP 10G Managed Switch w/ AC Input	8GE + 4 SFP 10G, PoE 10/100/1000 Managed Switch w/ AC Input	24GE+4SFP Giga Managed Redundant Switch w/ AC Input	4FE+2SFP Giga Managed Redundant Industrial Switch	4GE+2SFP Giga Managed Redundant Industrial Switch	4FE+4SFP Giga Managed Redundant Industrial Switch	4GE+4SFP Giga Managed Redundant Industrial Switch	6GE+2SFP Managed Redundant Industrial Switch
Interface	Number of Ports	28	12	28	6	6	8	8	8
	10/100Base-T (X)	-	-	-	4	-	4	-	-
	100BaseFX	-	-	-					-
	10/100/1000Base-T (X)	24	-	24 + 4 (combo)	-	4	-	4	6
	1000Base-SX/LX/LHX/ XD/ZX/EZX	4 x SFP+ (10G)	4 x SFP+ (10G)	4 (combo)	2	2	4	4	2 (multi/single)
	PoE (10/100 Mbps)	-	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	8	-	-	-	-	-	-
	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
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	0 ~ 60ºC (32 - 140ºF)	0 ~ 60ºC (32 - 140ºF)	-10 ~ 55ºC (14 - 131ºF)	EKI-7706E-2F	EKI-7706G-2F	EKI-7708E-4F	EKI-7708G-4F	-
	-40 ~ 75°C (-40 ~ 167°F)	-	-	-	EKI-7706E-2FI	EKI-7706G-2FI	EKI-7708E-4FI	EKI-7708G-4FI	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	✓
Certifications	CE	✓	-	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	✓	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-	-	-
	UL 508	-	-	-	-	-	-	-	-
	Others	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	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	LVD 62368-1

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

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)	-	-	-	-	-	-	-
	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	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/cUL 60950-1	-	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-	-
	UL 508	✓	✓	✓	✓	-	✓	✓
	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 UL 61010 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1

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

Industrial Ethernet Solutions

Managed PoE Switches

		EKI-7708E-4FP/I	EKI-7708G-4FP/I	EKI-7710E-2CP EKI-7710E-2CPI	EKI-7710G-2CPI EKI-7710G-2CP	EKI-7712E-4FP EKI-7712E-4FPI	EKI-7712G-4FP EKI-7712G-4FPI	EKI-7712G-4FMPI	EKI-7720G-4FPI
	Model Name								
	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$_{DC}$	48 V$_{DC}$	✓	✓	48 V$_{DC}$	48 V$_{DC}$	53 ~ 57 V$_{DC}$	55 V$_{DC}$
	24 ~ 110 V DC	-	-	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-	-	-
	Relay Output	✓	✓	-	-	✓	✓	✓	✓
	Power Budget	120W	120W	120W	120W	240W	240W	370W	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)	EKI-7708E-4FP	EKI-7708G-4FP	EKI-7710E-2CP	EKI-7710G-2CP	EKI-7712E-4FP	EKI-7712G-4FP	-	-
	-40 ~ 75°C (-40 ~ 167°F)	EKI-7708E-4FPI	EKI-7708G-4FPI	EKI-7710E-2CPI	EKI-7710G-2CPI	EKI-7712E-4FPI	EKI-7712G-4FPI	✓	✓
	-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	UL 62368-1 NEMA TS2 EN50121-4	UL 62368-1 NEMA TS2 EN50121-4

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

Unmanaged PoE Switches

	Model Name	EKI-2705E-1GPI	EKI-2705G-1GPI	EKI-2706E-1GFPI	EKI-2706G-1GPI	EKI-5729P/ 5729PI
	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	8GE PoE+2G Unmanaged Ethernet Switch, IEEE802.3af/at, E-Mark, 12V~24V$_{DC}$
Interface	Number of Ports	5	5	6	6	8
	10/100Base-T (X)	5	-	5	-	-
	100BaseFX	-	-	-	-	-
	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	8
	DI/DO	-	-	-	-	-
	Console	-	-	-	-	-
Network Management	Redundancy	-	-	-	-	-
	Diagnostics	-	-	-	-	-
	VLAN	-	-	-	-	-
	Configuration	-	-	-	-	-
	SNMP	-	-	-	-	-
	Security	-	-	-	-	-
	Traffic Control	-	-	-	-	-
Power	24 ~ 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
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

L3 Managed Switches

IEC 61850-3 Managed Industrial Ethernet Switches

Model Name		EKI-8528	EKI-9728G-4X8CI	EKI-9628G-4CI	EKI-9612G-4FI
Description		L3 modular Managed Switch	L3 28-port Managed Switch	L3 28-port Managed Switch	L3 12-port Managed Switch
Interface	Number of Ports	Up to 28	28	28	12
	10/100Base-T (X)	-	-	-	-
	100BaseFX	-	-	-	-
	10/100/1000Base-T (X)	3 x 8 port module slots + 4 x SFP+(10G)	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	△ 24~48 VDC	-	✓	✓
	24 ~ 110 V DC	△ 88 ~ 370 VDC	-	-	-
	100 ~ 240 V AC	△ 90 ~ 264 VAC	90~264 V$_{AC}$	-	-
	Relay Output	✓	-	✓	✓
Mechanism	DIN-rail Mount	-	-	-	✓
	Wall Mount	-	-	-	✓
	Rack Mount	✓	✓	✓	-
	IP Level	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-
	-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		EN 50121-4 ICE 61850-3	-	LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1

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

Model Name		EKI-9228G-8COI EKI-9228G-8CMI	EKI-9226G-20FOI EKI-9226G-20FMI
Description		28-port Full Giga Managed Switch	26-port Full Giga Managed Switch
Interface	Number of Ports	28	26
	10/100Base-T (X)	-	-
	100BaseFX	-	-
	10/100/1000Base-T (X)	24 + 8 (combo)	6
	1000Base-SX/LX/LHX/XD/ZX/EZX	8 x SFP (combo)	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	EKI-9228G-20FMI (48 V$_{DC}$)	EKI-9226G-20FMI (48 V$_{DC}$)
	24 ~ 110 V DC	-	-
	100 ~ 240 V AC	EKI-9228G-20FMI (90 ~ 264 V$_{AC}$)	EKI-9226G-20FOI (90 ~ 264 V$_{AC}$)
	Relay Output	✓	✓
Mechanism	DIN-rail Mount	-	-
	Wall Mount	-	-
	Rack Mount	✓	✓
	IP Level	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		ICE 61850-3	ICE 61850-3

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

EN50155 Switches

Model Name	EKI-9516E-ETB EKI-9516G-ETB	EKI-9528 series	EKI-9516 series	EKI-9512 series	EKI-9510 series	EKI-9508 series
Description	EN50155 12-Port Ethernet Train Backbone Router	EN50155 28-Port L2 Managed (PoE) Switch	EN50155 16-Port L2 Managed (PoE) Switch	EN50155 16-Port L2 Managed PoE Switch	EN50155 10-Port L2 Managed (PoE) Switch	EN50155 8-Port L2 Managed (PoE) Switch
Interface Number of Ports	16	28	16	16	10	8
10/100Base-TX	Up to 16	Up to 20	Up to 12	Up to 8	Up to 8	Up to 8
100BaseFX	-	-	-	-	-	-
10/100/1000Base-TX	Up to 12	Up to 28	Up to 16	Up to 12	Up to 8	Up to 8
10/100/1000Base-TX with Bypass function	4	Up to 4	Up to 4	Up to 4	2	-
PoE(10/100Mbps)	-	Up to 24	Up to 12	Up to 8	Up to 8	Up to 8
PoE(10/100/1000Mbps)	-	Up to 24	Up to 12	Up to 8	Up to 8	Up to 8
DI/DO	-	-	-	-	-	-
Console	✓	✓	✓	✓	△	△
Network Management Redundancy	✓	✓	✓	✓	△	△
Diagnostics	✓	✓	✓	✓	△	△
VLAN	✓	✓	✓	✓	△	△
Configuration	✓	✓	✓	✓	△	△
SNMP	✓	✓	✓	✓	△	△
Security	✓	✓	✓	✓	△	△
Traffic Control	✓	✓	✓	✓	△	△
Power 24-110V$_{DC}$	✓	✓	✓	✓	✓	✓
IP Rating	IP30	IP54	IP67	IP67	IP67	IP67
Rolling Stock Application Ethernet Train Backbone (IEC61375-2-3 & -2-5)	✓	-	-	-	-	-
EN50155	✓	✓	✓	✓	✓	✓
EN50121-3-2	✓	✓	✓	✓	✓	✓
EN61373	✓	✓	✓	✓	✓	✓
EN45545-2	✓	✓	✓	✓	✓	✓

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

Industrial Gateways

Visualization Gateways

NEW NEW NEW NEW NEW NEW

Model		WOP-204K-NAE	WOP-207K-NAE	WOP-208K-NAE	WOP-210K-NAE	WOP-212K-NAE	WOP-215K-NAE
CPU		RISC ARM9 300MHz 32bits					
Backup Memory		128KB					
Backup Battery: Type/Voltage/Capacity		Manganese dioxide–Li/Organic Electrolyte, 3V, 650mAh					
Working Memory		64 MB SDRAM					
Storage		128M 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	XGA TFT LCD	XGA TFT LCD
	Size	4.3"	7"	8"	10.1"	12"	15"
	Max. Resolution	480 x 272	800 x 480	800 x 600	1024 x 600	1024 x 768	1024 x 768
	Max. Colors	65,536 colors (16bit)					
	Luminance (cd/m^2)	400	400	250	350	500	350
	Backlight Life (hr)	LED, 20,000					
Touchscreen		4 wires Analog resistive					
Communication Interface	COM1	RS-232 (5-Pin Terminal)	RS-232 (DB9 Female)	RS-232 (DB9 Female)	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)	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)	RS-485 (DB9 Female)	RS-485 (DB9 Female)
	Ethernet (RJ45)	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT
I/Os	USB Client	Yes	Yes	Yes	Yes	Yes	Yes
	USB Host	Yes	Yes	Yes	Yes	Yes	Yes
	Power Isolation	Yes	Yes	Yes	Yes	Yes	Yes
Power Supply Voltage		24V$_{DC}$ ± 10%					
Power Consumption		10W	20W	20W	20W	20W	20W
Dimension W x H x D (mm)		129 x 103 x 31.3mm (5.08" x 4.06" x 1.23")	189.6 x 144.9 x 36mm (7.46" x 5.70" x 1.42")	233 x 176 x 43.3mm (9.17" x 6.93" x 1.7")	270.1 x 212.1 x 43.4mm (10.63" x 8.35" x 1.71")	335.4 x 245.8 x 60.3mm (13.21" x 9.68" x 2.37")	399.1 x 297.6 x 57.3mm (15.71" x 11.72" x 2.26")
Cut-out Dimension W x H (mm)		118.5 x 92.5mm (4.67" x 3.64")	175 x 132.5mm (6.89" x 5.22")	221 x 164mm (8.70" x 6.44")	259.5 x 201.5mm (10.22" x 7.93")	302 x 228.5mm (11.89" x 9")	384.5 x 283mm (15.14" x 11.14")
Front Panel thickness (mm)		5 mm	6 mm	6 mm	6 mm	6 mm	6 mm
Enclosure		PC				Die-cast aluminum alloy front bezel	
Net Weight		0.23 kg (0.51 lbs)	0.55 kg (1.21 lbs)	1 kg (2.2 lbs)	1.1 kg (2.43 lbs)	2 kg (4.41 lbs)	3 kg (6.61 lbs)
Reliability Certification	Operating Temperature	-15 ~ 65°C (5 ~ 149°F)					
	Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)					
	Humidity	95% RH @ 40°C					
	Shock Vibration	5 ~ 500Hz (X,Y,Z direction, 1 Grms, 1 hour per axis)					
	Ingress Protection	Front panel: IP66					
	CE	EN61000-6-2, EN61000-6-4					
	EMI	FCC Part 15 Class A					
	UL	UL61010					

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

Intelligent Gateways

Model		ECU-1050	ECU-1051	ECU-1251	ECU-1251D	ECU-1252	ECU-150
System	CPU	Cortex A8 600MHz	Cortex A8 600MHz	Cortex A8 800MHz	Cortex A8 600MHz	Cortex A9 600MHz	Cortex A53 1.3G
Serial Port	Number of Ports	–	2	4	2	2	2
	Type	–	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-232/485
CAN Port	Number of Ports	–	–	–	–	2	–
DI/O	Number of Ports	–	–	–	4DI/4DO	–	–
Network Port	Number of Channels	1	2	2	2	2	2
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
I/O	SIM Card Slot	2	2	1	2	1	1
	Expansion Slots	2 x mini-pcie	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie
USB		2	1 (ECU-1051TL-R10AB)	1	1	–	1
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
System Storage		512MB NAND flash	512MB NAND flash	1GB micro SD card	512G NAND flash	16G eMMC	16GB/32GB eMMC
Storage Interface	SD	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
Memory		256MB DDR3L	256MB DDR3L	256MB DDR3L	256MB DDR3L	2GB DDR3L	2GB/4GB LPDDR4
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	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104 DNP3	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104 DNP3	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104 DNP3	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104
Cloud Communication		MQTT, WISE-Edge365, AWS, Azure, LwM2M, Google Cloud IoT Core and more					
PLC Support		Siemens/ Allen-Bradley/ Schneider/ Mitsubishi/ Omron/ Honeywell/ Yokogawa/ Delta/ Panasonic					
Data Logger		Realtime data logger					
Programing Support		Linux C, Web service API					
Operating System		RT-Linux	RT-Linux	RT-Linux	RT-Linux	RT-Linux	Yocto/Ubuntu
Operating Temperature		-40 ~ 70°C	-40 ~ 70°C	-40 ~ 70°C	-40 ~ 70°C	-40 ~ 70°C	-40 ~ 70°C
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Dimension W x H x D (mm)		30 x 92 x 93.4	30 x 93 x 93.4	30 x 140 x 95	30 x 140 x 95	30 x 140 x 95	30 x 100 x 93
Power Requirement		10-30Vdc					
Power Consumption		2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	8W @24Vdc

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

Industrial Gateways

I/O Device Gateways

Model	ADAM-3600
Description	Intelligent RTU
System — CPU	Cortex A8
System — Operating system	Linux RT 3.12
System — Programming interface	C (Linux), IEC-61131-3
System — Communication protocols	Modbus/RTU, Modbus/TCP, DNP3, IEC-60970-104, OPCUA
System — Wireless communication	Cellular, Wi-Fi, Zigbee
Serial Port — Number of ports	3
Serial Port — Type	1 x RS-232/485, 2 x RS-485
Network Port — Number of channels	2
Network Port — Number of independent IP addresses	2
Network Port — Speed	10/100 Mbps
Network Port — IP specifications	IPv4/IPv6
I/O — Onboard I/O	8 analog inputs, 8 digital inputs, 4 digital outputs
I/O — Expansion slots	4
USB — USB2.0	1
Display Interface — VGA	1
Display Interface — 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_{DC}
Logic "0" Voltage	0~5 V_{DC}
Logic "1" Voltage	11~30 V_{DC}

Digital Output	
Output Type	Open collect
Output Voltage	8~30 V_{DC} @ 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
Interface — LAN	2	2	2
Interface — USB	1 x USB type A, 1 x Micro USB		
Digital Input — Channel	12	5	8
Digital Input — 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)		
Digital Input — Counter Input	3kHZ	–	3kHz
Digital Output — Channel	12	4	–
Digital Output — Voltage	Sink 30 VDC, 0.1A max. per channel	Sink 30 VDC, 0.1A max. per channel	–
Digital Output — Pulse Output	3kHz	–	–
Analog Input — Channel	–	8	–
Analog Input — Resolution	–	16bits	–
Analog Input — Sampling Rate	–	10 or 100 samples/second (total)	–
Relay Output — Channel	–	–	8
Relay Output — 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
Interface — LAN	2	2	2
Interface — USB	1 x USB type A, 1 x Micro USB		
Digital input — Channel	4	4	5
Digital input — 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)		
Digital input — Counter Input	–	–	–
Digital Output — Channel	4	7	6
Digital Output — Voltage	Sink 30 VDC, 0.1A max. per channel		
Digital Output — Pulse Output	3kHz	–	–
RTD — Channel	6 (PT100, PT1000)	–	–
Thermocouple — Channel	–	7 (J, K, T, E, R, S, B type)	–
Analog Output — Channel	–	–	3
Analog Output — Type	–	–	Voltage,Current
Analog Input — Channel	–	–	3
Analog Input — 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-1242IEIMS	EKI-1242IPNMS	EKI-1242IECMS	EKI-1242IBNMS	EKI-1242INR	EKI-1242IOUMS
Description		Modbus RTU/TCP to EtherNet/IP Fieldbus gateway	ModbusRTU/TCP to PROFINET Fieldbus gateway	ModbusRTU/TCP to EtherCAT Fieldbus gateway	ModbusRTU/TCP to BACnet Fieldbus gateway	Node-RED Fieldbus Gateway	Modbus TCP/RTU to OPC UA Fieldbus Gateway
Connectivity	10/100Base-TX, Fixed	4	4	4	4	4	4
	RS-232/422/485	2	2	2	2	2	2
	Serial Connector Type	DB9 male	DB9 male	DB9 male	DB9 male	DB9 male	DB9 male
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30	IP30	IP30	IP30
	DIN-rail	✓	✓	✓	✓	✓	✓
	Wall	✓	✓	✓	✓	✓	✓
Power	Power Input (V_{DC})	12~48V	12~48V	12~48V	12~48V	12~48V	12~48V
	Power connector	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48VDC) Watts	5.2W	5.2W	5.2W	5.2W	5.2W	5.2W
Environment	Operating Temp.	-40 ~ 75 °C	-40 ~ 75 °C	-40 ~ 75 °C	-40 ~ 75 °C	-40 ~ 75 °C	-40 ~ 75 °C
	Operating Humidity	10~95%	10~95%	10~95%	10~95%	10~95%	10~95%
	Input Reverse Protection	✓	✓	✓	✓	✓	✓
Software	Netwrok Protocol	Modbus RTU/TCP EtherNet/IP	Modbus RTU/TCP PROFINET	Modbus RTU/TCP EtherCAT	Modbus RTU/TCP BACnet	Node-RED	Modbus RTU/TCP, OPC UA
	Configuration Options	Web-based	Web-based	Web-based	Web-based	Web-base	Web-base
	Authentication	Username/Password	Username/Password	Username/Password	Username/Password	Username/ password	Username/ password
	Standard Operation mode	ModbusRTU/TCP Master Ethernet/IP Adapter	ModbusRTU/TCP Master PROFINET Slave	ModbusRTU/TCP Master EtherCAT Slave	ModbusRTU/TCP Master BACNet Slave	-	-
Certification	Regulatory Approvals			CE, FCC, UL 60950-1, CB			

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

Model Name		EKI-1211	EKI-1221/I/CI	EKI-1222/I/CI	EKI-1224/I/CI
Description		1-Port Modbus Gateway	1-Port Modbus Gateway	2-Port Modbus Gateway	4-Port Modbus Gateway
Connectivity	10/100Base-TX, Fixed	1	2	2	2
	10/100/1000Based-T, Fixed	-	-	-	-
	RS-232 only	-	-	-	-
	RS-232/422/485	1	1	2	4 (CI model: RS-422/485)
	Serial Connector Type	DB9 Male	DB9 Male	DB9 Male	DB9 Male
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30	IP30
	DIN-rail	✓	✓	✓	✓
	Wall	✓	✓	✓	✓
Power	Power Input (V_{DC})	9~36V	2* (12~48V)	2* (12~48V)	2* (12~48V)
	Power Connector	Terminal block	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48V_{DC}) Watts	1W	3.2W	3.2W	4.1W
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)
	Operating Humidity	10 ~ 95%	10 ~ 95%	10 ~ 95%	10 ~ 95%
Software	Netwrok 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
	Configuration Options	Windows Utility, Web Browser	Windows Utility, Web Browser	Windows Utility, Web Browser	Windows Utility, Web Browser
	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
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

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

Industrial Device Servers

Serial Device Servers

Model Name	EKI-1511-A	EKI-1511L EKI-1511IL	EKI-1511X	EKI-1521/CI/I EKI-1522/CI/I EKI-1524/CI/I	EKI-1528I-DR EKI-1528CI-DR	EKI-1528/I/TI/N EKI-1526/I/TI/N	EKI-1526NL-CS
Description	1 Port RS232/422/485 Serial Device Server	1 Port RS-232 Serial Device Server	1 Port RS-422-485 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	1	2	2	-	-
10/100/1000Based-T, Fixed	-	-	-	-	-	2	2
RS-232 only	-	1	-	-	-	-	16
RS-232/422/485	1	-	1 (RS-422/485)	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	DB9 Male	DB9 Male	DB9 male or 8-pin RJ45	RJ-45 (Cisco compliant)
Enclosure & Mount kit							
Enclosure	IP30	IP30	IP30	IP30	IP30	SECC chassis	SECC chassis
DIN-rail	✓	✓	✓	✓	✓	Rackmount	Rackmount
Wall	✓	✓	✓	✓	✓	-	-
VESA Mount	-	-	-	-	-	-	-
Pole Mount	-	-	-	-	-	-	-
Power							
Power Input (V_{DC})	9~36V	9~36V	9~36V	2* (12~48V)	2* (12~48V)	EKI-1528(I)/EKI-1526(I): 100 ~ 240 VAC , 50 ~ 60 Hz EKI-1528T(I)-VDC/EKI-1526T(I)-VDC 12 -48 VDC	100 ~ 240 V_{AC}, 50 ~ 60 Hz
Power Input (PoE)	--	--	--	--	--	--	--
Power Connector	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	6-pin removable screw terminal	6-pin removable screw terminal
Power Consumption (12/24/48V_{DC}) Watts	1W	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	-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%	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	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
Firewall	-	-	-	-	-	-	-
Router	-	-	-	-	-	-	-
Configuration Options	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser, serial console	Windows utility, Telnet console, Web Browser, serial console
Authentication	--	--	--	-	-	-	-
Standard Operating Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode
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

	Series	ICR-2000	ICR-2400	ICR-2500	ICR-2600	ICR-2700 LAN	ICR-2700	ICR-2800
Cellular Technology	5G	-	-	-	-	-	-	-
	LTE Technology	✓	✓	✓	✓	-	✓	✓
	LTE Cat. M1 & NB IoT	-	✓	-	-	-	-	-
	Private LTE	-	✓	-	-	-	-	-
	LTE 450	-	✓	-	-	-	-	-
	GPRS/EDGE	✓	✓	✓	✓	-	✓	✓
	3G/HSPA	✓	✓	✓	✓	-	✓	✓
	WAN Ethernet	-	-	-	-	✓	-	-
Region	EMEA	✓	✓	✓	✓	-	✓	✓
	NAM	✓	✓	-	-	-	-	-
	LATAM		✓	-	-	-	-	-
	AUS & NZ	-	-	-	-	-	-	-
	GLOBAL	-	-	-	-	✓	-	-
	EMEA, APAC, LATAM	-	-	-	-	-	-	-
	ANZ	-	-	-	-	-	-	-
	Korea	-	-	-	-	-	-	-
Hardware features	SIM	1	2	2	2	-	2	2
	WiFi type				Optional 2.4/5 GHz			
	BT Type	-	-	-	-	-	-	-
	GNSS Receiver	-	-	-	-	-	-	Optional
	PoE type	-	-	-	-	-	-	-
	TPM 2.0	-	-	-	-	Project based	Project based	Project based
	Supercap	-	-	-	-	Project based	Project based	Project based
	eSIM Ready	-	-	-	-	-	-	-
	HW Watchdog	✓	✓	✓	✓	✓	✓	✓
	RTC	✓	✓	✓	✓	✓	✓	✓
Communication Interfaces and Expansions	Fast Ethernet	1	2	4	4	2	2	2
	USB	-	-	-	-	-	✓	✓
	RS232	-	✓	-	✓	-	-	1-2
	RS485	-	✓	-	✓	-	-	1-2
	RS485/422	-	-	-	-	-	-	-
	SFP Cage	-	-	-	-	-	-	-
	CAN	-	-	-	-	-	-	-
	I/O	1× DI, 1× DO	1× DI, 1× DO	1× DI, 1× DO	1× DI, 1× DO	-	-	4× DI + 2× DO
	Micro SD card	-	-	-	-	-	-	-
Mechanical	Type of Housing	Metal	Metal	Metal	Metal	Metal/Plastic	Metal/Plastic	Metal/Plastic
	Mounting	DIN / Wall	DIN / Wall	DIN / Wall	DIN / Wall	DIN	DIN	DIN
	Plastic Casing (mm)	-	-	-	-	51.4 × 83.8 × 117	51.4 × 83.8 × 117	51.4 × 83.8 × 117
	Metal Casing (mm)	27 × 93 × 90	25 × 95 × 103	25 × 95 × 130	25 × 95 × 130	42 × 80.3 × 113.2	42 × 80.3 × 113.2	42 × 80.3 × 113.2
Router Properties	CPU Power (MHz)	600	600	600	600	600	600	600
	Memory		RAM - 128 MB NOR Flash - 64 MB (12 MB for Router APPs, 2 MB for customer data)				eMMC - 4096 MB (838 MB for Router Apps, 512 MB for customer data)	
	Power Supply (V DC)				9 to 48 V DC			
	Op. Temperature (°C)				−40 °C to +75 °C			
	Humidity				0 to 95 %, non-condensing			
Additional Software Support	R-SeeNet	✓	✓	✓	✓	✓	✓	✓
	WebAccess/DMP₂	✓	✓	✓	✓	✓	✓	✓
	WebAccess/VPN	✓	✓	✓	✓	✓	✓	✓
	*Docker	-	-	-	-	-	-	-
	*Node-RED	-	-	-	-	-	-	-
					*Functionality is available with installed Router App (User Module)			

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

Industrial Ruggedized 4G/LAN Routers

Series		SmartFlex LAN	SmartFlex	SmartStart	ICR-3200 LAN	ICR-3200
Cellular Technology	5G	-	-	-	-	-
	LTE Technology	-	✓	✓	-	✓
	LTE Cat. M1 & NB IoT	-	-	-	-	✓
	Private LTE	-	-	-	-	-
	LTE 450	-	✓	-	-	-
	GPRS/EDGE	-	✓	✓	-	✓
	3G/HSPA	-	✓	✓	-	✓
	WAN Ethernet	✓	-	-	✓	-
Region	EMEA	-	✓	✓	-	✓
	NAM	-	✓	-	-	✓
	LATAM	-	-	✓	-	-
	AUS & NZ	-	-	-	-	✓
	GLOBAL	✓	-	-	✓	-
	EMEA, APAC, LATAM	-	✓	-	-	-
	ANZ	-	-	-	-	-
	Korea	-	✓	-	-	-
Hardware features	SIM	-	2	2	-	-
	WiFi type	Optional 2.4/5 GHz		Optional 2.4 GHz	Optional 2.4/5 GHz	Optional 2.4/5 GHz
	BT Type	-	-	-	Optional	Optional
	GNSS Receiver	Optional	Optional	-	Optional	Optional
	PoE type	Optional PD/PSE+	Optional PD/PSE+	-	-	-
	TPM 2.0	-	-	-	-	-
	Supercap	-	-	-	-	-
	eSIM Ready	-	-	-	-	-
	HW Watchdog	✓	✓	-	✓	✓
	RTC	✓	✓	-	✓	✓
Communication Interfaces and Expansions	Fast Ethernet	2-5	2-5	1	2	2
	USB	✓	✓	-	-	-
	RS232	✓	✓	✓	✓	✓
	RS485	✓	✓	-	✓	✓
	RS485/422	✓	✓	-	-	-
	SFP Cage	-	-	-	-	-
	CAN	-	-	-	-	-
	I/O	2× DI + 1× DO	2× DI + 1× DO	1× DI, 1× DO	1× DI, 1× DO	1× DI, 1× DO
	Micro SD card	✓	✓	-	-	-
Mechanical	Type of Housing	Metal/Plastic	Metal/Plastic	Plastic	Metal	Metal
	Mounting	DIN	DIN	DIN / Wall	DIN / Wall	DIN / Wall
	Plastic Casing (mm)	55 × 97 × 125	55 × 97 × 125	30 × 87 × 150	-	-
	Metal Casing (mm)	55 × 97 × 125	55 × 97 × 125		31 × 94 × 129	31 × 94 × 129
Router Properties	CPU Power (MHz)	1000	1000	1000	1000	1000
	Memory	RAM - 512 MB MRAM - 128 KB NOR Flash - 256 MB (128 MB for Router Apps, 128 KB for customer data)		eMMC - 4096 MB (838 MB for Router Apps, 512 MB for customer data)		
	Power Supply (V DC)	10 to 60 V DC		9 to 36 V DC		
	Op. Temperature (°C)	−40 °C to +75 °C				
	Humidity	0 to 95 %, non-condensing				
Additional Software Support	R-SeeNet	✓	✓	✓	✓	✓
	WebAccess/DMP₂	✓	✓	✓	✓	✓
	WebAccess/VPN	✓	✓	✓	✓	✓
	*Docker	-	-	✓	✓	✓
	*Node-RED	✓	✓	✓	✓	✓
		*Functionality is available with installed Router App (User Module)				

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

Industrial Cellular Routers

High Performance 4G/5G/LAN Routers

	Series	ICR-4400 LAN	ICR-4400
Cellular Technology	5G	-	✓
	LTE Technology	-	✓
	LTE Cat. M1 & NB IoT	-	-
	Private LTE	-	-
	LTE 450	-	-
	GPRS/EDGE	-	-
	3G/HSPA	-	✓
	WAN Ethernet	✓	-
Region	EMEA	-	✓
	NAM	-	✓
	LATAM	-	-
	AUS & NZ	-	-
	GLOBAL	✓	-
	EMEA, APAC, LATAM	-	-
	ANZ	-	-
	Korea	-	-
Hardware features	SIM	-	2
	WiFi type	Optional 2.4/5 GHz	
	BT Type	-	-
	GNSS Receiver	-	✓
	PoE type	PSE+	PSE+
	TPM 2.0	✓	✓
	Supercap	-	-
	eSIM Ready	✓	✓
	HW Watchdog	✓	✓
	RTC	✓	✓
Communication Interfaces and Expansions	Gigabit Ethernet	5	5
	USB	✓	✓
	RS232	✓	✓
	RS485	✓	✓
	RS485/422	-	-
	SFP Cage	✓	✓
	CAN	✓	✓
	I/O	2× DI + 2× DO	2× DI + 2× DO
	Micro SD card	✓	✓
Mechanical	Type of Housing	Metal	Metal
	Mounting	DIN / Wall	DIN / Wall
	Plastic Casing (mm)	-	-
	Metal Casing (mm)	47 × 109 × 195	47 × 109 × 195
Router Properties	CPU Power (MHz)	1200	1200
	Memory	RAM - 1024 MB eMMC - 4096 MB (838 MB for Router APPs, 512 MB for customer data)	
	Power Supply (V DC)	9 to 48 V DC	
	Op. Temperature (°C)	-40 to +75 °C	
	Humidity	0 to 95 %, non-condensing	
Additional Software Support	R-SeeNet	✓	✓
	WebAccess/DMP$_2$	✓	✓
	WebAccess/VPN	✓	✓
	*Docker	✓	✓
	*Node-RED	✓	✓
		*Functionality is available with installed Router App (User Module)	

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

Industrial Wireless Access Points/Clients

Wireless Access Points/Clients

Model Name		EKI-6333AC-2G	EKI-6333AC-4GP
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 Wi-Fi AP with PoE PSE
Connectivity	10/100/ 1000Based-T, Fixed	2	-
	10/100Base-TX, 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)	-	24 ~ 56 V_{DC}
	Power input (PoE)	Passive 24V	PoE 802.3at PSE
	Power connector	RJ45	Terminal block
Environment	Operating Temp.	-20 ~ 70 °C (-4~158°F)	-30 ~ 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/Bridge mode
WLAN	IEEE Standard	a/b/g/n/ac	a/b/g/n/ac
	Radio Number	2	2
	Security	WEP, WPA/WPA2-Perso-I, WPA/WPA2-Enterprise	-
RF	Frequency	2.4G/5GHz	2.4G/5GHz
	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	IP30
	DIN-rail	✓	✓
	Wall	✓	✓
	VESA Mount	-	-
	Pole Mount	-	-
Power	Power Input (V_{DC})	12~48V	12~48V
	Power input (PoE)	-	-
	Power connector	Terminal block	Terminal block
	Power Consumption (12/24/48VDC) Watts	8W (EKI-1361) 9W (EKI-1362)	8W
Environment	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

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$_{DC}$ (LV model), 72/96/110V$_{DC}$ (HV model)	24-48V$_{DC}$ (LV model), 72/96/110V$_{DC}$ (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$_{DC}$
	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	Netwrok 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, SNTP
	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

Intelligent RFID Gateway

Model Name		WISE-2834-CA
Wireless Communication	RFID Standard	EPC Global Class 1 Gen. 2 (ISO18000-6C)
	Frequency Band	US 902.75MHz - 927.25MHz; EU 865.7MHz - 867.5MHz; TW 922.25MHz - 927.75MHz
	Transmit Power	Available to adjust from +10dBm ~ +31.5dBm
	Receiver Sensitivity	-82dBm
	Antenna Connector	4 RP-TNC
General	Chipset	ARM Cotex-A8, 300MHz for system; ARM Cortex-M0 32-Bit 32MHz for I/O
	Memory	512MB DDR3L
	Storage	NAND Flash 512MB
	OS Support	Linux 3.12
	LED Indicators	Status, Serial (Tx, Rx), Wi-Fi communication, RFID channel on/off, Wi-Fi signal strength
	Power Input	10V ~ 30V DC; Power Consumption: 3W (TYP.), 15W (Max.)
	Slot	1 x Micro SD card
	USB	1 x USB2.0 High Speed (Up to 480Mbps)
	Communication Speed	1 x 10/100 Based-T RJ-45; 1 x RS-485: 50 ~ 115.2 kbps
	Digital Input	4 dry/wet contact
	Digital Output	4 sink type
	Configuration Tool	WISE studio
	Dimensions (L x W x H)	190mm x 120mm x 30.2mm
Mechanical	Mounting	DIN 35 rail, wall, pole
Operating System	Temperature (Operating)	-25°C ~ 50°C
	Temperature (Storage)	20% ~ 95% RH
	Humidity (Operating)	-40°C ~ 85°C
	Humidity (Storage)	0% ~ 95% RH

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

Wireless LoRaWAN Gateway

Model Name		WISE-6610-XX00	WISE-6610-XX00C
Description		LoRaWAN Gateway support up to 100/500 nodes with 868/915/923MHz	LoRaWAN Gateway support up to 100/500 nodes with 868/915/923MHz
Specifications	Mobile Wireless	LoRaWAN	LoRaWAN/LTE
	Communication Interface	LoRaWAN	LoRaWAN
	Temp	-40~75 °C	-40~75 °C
	Power Input	9~36 V$_{DC}$	9~36 V$_{DC}$
	Dimensions (W x Hx D)	150 x 37.5 x 83 mm	150 x 37.5 x 83 mm
	Weight	500g	500g

✓ : 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-BT0	WISE-4610-NA / WISE-4610-EA / WISE-4610-BT0	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$_{DC}$ external power	10~50V$_{DC}$ external power	5-50V$_{DC}$
	17~21V$_{DC}$ solar panel	17~21V$_{DC}$ 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	1 RS-485
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							–

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

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

WiFi I/O Modules

Category	WiFi 2.4G Wireless Module	Dual-band WiFi 2.4G/5G Wireless Module	
Model	WISE-4220-A / WISE-4220-S231A	WISE-4250AS-A / WISE-4250AS-S231-A	WISE-4250-A
Standard	802.11 b/g/n	802.11 a/b/g/n	802.11 a/b/g/n/ac
Frequency	2.4GHz	2.4GHz/5GHz	
Function	Wireless board	Wireless board	
Power Input	10~50V$_{DC}$ external power	10~50V$_{DC}$ external power	
Configuration Interface	–	Micro-B USB	–
Antenna Gain	(Peak) 2.4G 3.64 dBi	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

NB-IoT   LTE-M

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_{DC} External Power 17~21 V_{DC} 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_{DC} 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*	Propriety LPWAN (SUB-G) Wireless CT Node	Propriety 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$_{DC}$ external power				Self powered	
Configuration Interface	Micro-B USB					
Network Capacity	64 clients					
Outdoor Range (LOS)	5KM@625bps					
I/O Module				*Modularization doesn't effect WISE-4210-S231 and WISE-221x series		
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)	-	-	-
	Isolation	-	3,000 Vrms	-	-	-
Digital Input	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
	Isolation	-	3,000 Vrms	3,000 Vrms	3,000 Vrms	3,000 Vrms
Digital Output	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	-
	Isolation	1,500 Vrms	3,000 Vrms	3,000 Vrms	3,000 Vrms	-
Serial Port	Port Number	-				1 (RS-485)
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 (Operating)	10% ~ 95% RH	
	Humidity (Storage)	5% ~ 95% RH	

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

Industrial Media Converters

IMC-300

Miniature Media Converters

Featuring ultra-small design, these miniature media converters fit almost every corner of your application.

- Dimensions (H x W x D) 2.11 x 4.57 x 8.51 cm (0.83 x 1.80 x 3.35 in)
  Measuring only 3.5 x 2 inches
- Supports Link Fault Pass Through (LFPT)
- The centralized powered chassis allows for multiple Advantech miniature media converters sharing a central power source in one chassis

Industrial Grade 10/100Mbps Miniature Media Converters with PoE-PD

Model Name	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Operating Temp.	PoE	Sensitivity (dB)	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
IMC-350I-M8-A	Multi-mode	OM1/OM2	2 km	SC duplex	-25 to + 85 °C (-13 to +185 °F)	PD	-24	850	830 ~ 860	770 ~ 860	-10~ -4	-3~ -24	14	1
IMC-350I-M8ST-A	Multi-mode	OM1/OM2	2 km	ST duplex	-25 to + 85 °C (-13 to +185 °F)	PD	-24	850	830 ~ 860	780 ~ 860	-10~ -4	-3~ -24	14	1
IMC-350I-MM-A	Multi-mode	OM1/OM2	4 km	SC duplex	-25 to + 85 °C (-13 to +185 °F)	PD	-32	1300	1270 ~ 1380	1270 ~ 1380	-23.5~ -14	-8~ -32	8.5	3
IMC-350I-MMST-A	Multi-mode	OM1/OM2	4 km	ST duplex	-25 to + 85 °C (-13 to +185 °F)	PD	-32	1300	1270 ~ 1380	1270 ~ 1380	-23.5~ -14	-8~ -32	8.5	3
IMC-350I-SE-A	Single-mode	G.652	40 km	SC duplex	-25 to + 85 °C (-13 to +185 °F)	PD	-34	1310	1261 ~ 1360	1261 ~ 1360	-15~ -8	-5~ -34	19	1
IMC-350I-SL-A	Single-mode	G.652	80 km	SC duplex	-25 to + 85 °C (-13 to +185 °F)	PD	-34	1550	1520 ~ 1580	1260 ~ 1600	-6~ -+0	-3~ -36	30	1
IMC-350I-SST-A	Bi-Directional	G.652	20 km	Single SC	-25 to + 85 °C (-13 to +185 °F)	PD	-32	1310Tx / 1550Rx	1260 ~ 1360	1480 ~ 1580	-14~ -8	-3~- 32	18	1
IMC-350I-SSR-A	Bi-Directional	G.652	20 km	Single SC	-25 to + 85 °C (-13 to +185 °F)	PD	-32	1550Tx / 1310Rx	1480 ~ 1580	1260 ~ 1360	-14~ -8	-3~ -32	18	1
IMC-350I-SFP-A	-	-	-	-	-25 to + 85 °C (-13 to +185 °F)	PD	-	-	-	-	-	-	-	-

Industrial Grade 10/100/1000Mbps Miniature Media Converters

Model Name	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Operating Temp.	PoE	Sensitivity (dB)	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
IMC-370I-MM-B	Multi-mode	OM1/OM2	550 m	SC duplex	-25 to + 75 °C (-13 to +167 °F)	N/A	-17	850	830 ~ 860	770 ~ 860	-9.5~ -4	-3~ -17	7.5	NA
IMC-370I-SM-B	Single-mode	G.652	10 km	SC duplex	-25 to + 75 °C (-13 to +167 °F)	N/A	-20	1310	1260 ~ 1360	1260 ~ 1360	-9.5~ -3	-3~ -20	10.5	NA
IMC-370I-SE-B	Single-mode	G.652	40 km	SC duplex	-25 to + 75 °C (-13 to +167 °F)	N/A	-21	1310	1280 ~ 1340	1100 ~ 1600	-2~ -+3	-3~ -23	21	3
IMC-370I-SST-B	Bi-Directional	G.652	10 km	Single SC	-25 to + 75 °C (-13 to +167 °F)	N/A	-21	1310Tx / 1550 Rx	1270 ~ 1355	1480 ~ 1580	-9~ -3	-2~ -21	12	NA
IMC-370I-SSR-B	Bi-Directional	G.652	10 km	Single SC	-25 to + 75 °C (-13 to +167 °F)	N/A	-21	1550Tx / 131 Rx	1530 ~ 1570	1260 ~ 1360	-9~ -3	-2~ -21	12	NA
IMC-370I-SFP-B	-	-	-	-	-25 to + 75 °C (-13 to +167 °F)	N/A	-	-	-	-	-	-	-	-

PoE+/ PoE Media Converters
1 Gbps PoE & PoE+ Media Converters w/ 2 x RJ-45

Model Name	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Operating Temp.	PoE	Sensitivity (dB)	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link budget (dBm)	Dispersion Penalty (dB)
IMC-390-MM	Multi-mode	OM1/OM2	550 m	SC duplex	0 to + 70 °C (+32 to +158 °F)	PSE	-17	850	830 ~ 860	770 ~ 860	-9.5~ -4	-3~ -17	7.5	NA
IMC-390-SM	Single-mode	G.652	10 km	SC duplex	0 to + 70 °C (+32 to +158 °F)	PSE	-20	1310	1260 ~ 1360	1260 ~ 1360	-9.5~ -3	-3~ -20	10.5	NA
IMC-390-SFP	-	-	-	-	0 to + 70 °C (+32 to +158 °F)	PSE	-	-	-	-	-	-	-	-

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			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	-40 to +85 °C (-40 to +185 °F)	Yes	1310 Tx / 1550 Rx	1270 ~ 1355	1470 ~ 1600	-3~+2	-3~-23	20	3
SFP-GSS-40KRX-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-20KRX	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-40KRX	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			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	-40 to +85 °C (-40 to +185 °F)	Yes	1310 Tx / 1550 Rx	1261 ~ 1360	1480 ~ 1600	-14~-8	0~-32	18	NA
SFP-FSS-20KRX	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-40KRX	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			1270 Tx / 1330 Rx	1260 ~ 1280	1320 ~ 1340	-6~+1	0.5~-14.4	8.4	3.2
SFP-XSS-10KRX-LC	Bi-Directional	G.652	10 km	Simplex LC	-14.4	0 to +70 °C (+32 to +158 °F)	Yes	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-40KRX-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			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	-40 to +85 °C (-40 to +185 °F)	Yes	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	48V$_{DC}$	48V$_{DC}$	48V$_{DC}$
	Power Consumption	34W	63.5W	63.5W
	Reverse protection	✓	✓	✓
Certification	UL508	✓	✓	✓
	UL-C1D2	✓	✓	✓
	FCC	✓	✓	✓
	CE	✓	✓	✓

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

VDSL Solutions

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
RJ45 Transmission Distance	–	–	–	–
RJ45 w/ PoE Quantity	1	1	1	1
MAC Table Size	–	–	–	–
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	EKI-2701HP-AC	EKI-2701MPI	EKI-2701MPI-5G
Connectivity	10/100/1000Based-Tx,fixed	1	1	-	-	-
	10/100/1000Base-T PoE, Fixed	1	1	1	1	1 (multi data rate 10M / 100M / 1G / 2.5G / 5G)
	Auto Negotiation	-	-	✓	✓	✓
	Store-and-Forward Switching	-	-	✓	✓	✓
	MTBF	1419817Hrs	1419817Hrs	1,999,263 Hrs	-	-
Physical	Housing Dimensions (W x H x D) mm	37x140x95 mm	30x140x95 mm	65x36x140 mm	84x80x25 mm	84x80x25 mm
	Mounting Type	DIN-Rail/Wall mount	DIN-Rail/Wall mount	Desktop	DIN-Rail/Wall mount	DIN-Rail/Wall mount
	IP rating	IP30	IP30	N/A	IP30	IP30
Power	Power Input voltage	24 - 48V$_{DC}$	24 - 48V$_{DC}$	100 - 240V$_{DC}$	54 - 57V$_{DC}$	54 - 57V$_{DC}$
	Power Consumption	33.36W	33.36W	<36W	Max 92W	Max 92W
	Reverse protection	✓	✓	-	✓	✓
Certification	UL60950-1	-	-	UL62368	UL62368	UL62368
	FCC	✓	✓	✓	✓	✓
	CE	✓	✓	✓	✓	✓

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

PoE Splitters

Description		EKI-2701PSI	BB-EPSG202
Connectivity	10/100/1000Based-Tx,fixed	1	1
	10/100/1000Base-T PoE, Fixed	1	1
	Auto Negotiation	-	-
	Store-and-Forward Switching	-	-
	MTBF	-	-
Physical	Housing Dimensions (W x H x D) mm	37x140x95 mm	30x140x95 mm
	Mounting Type	DIN-rail/Wall mount	DIN rail (sold separately)
	IP rating	IP30	IP30
Power	Power Input voltage	44~57V$_{DC}$	48V$_{DC}$
	Power Consumption	12.95 W @24 V$_{DC}$	25W @24 V$_{DC}$
	Reverse protection	Power isolation & short circuit protection	✓
Certification	UL60950-1	✓	-
	UL508	-	✓
	FCC	✓	-
	CE	✓	✓

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

Serial / USB Communications

Serial to Fiber Converters

ULI Model		ULI-211C	ULI-211CI	ULI-212CI	ULI-213CI
PN to Order		BB-FOSTCDR	BB-FOSTCDRi	BB-FOSTCDRi-ST	BB-FOSTCDRi-SC
Serial Communication	Serial Standard	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
	Serial Port Connector Type	Terminal block	Terminal block	Terminal block	Terminal block
	Serial Port Number	1	1	1	1
	Maximum Serial Transmission Speed	115.2Kbps	115.2Kbps	115.2Kbps	115.2Kbps
Fiber General	Optical Mode	Multi-mode	Multi-mode	Single-mode	Single-mode
	Max. Distance	4km	4km	15km	15km
	Optical Connector	ST	ST	ST	SC
	Optical Wavelength	820 nm	820 nm	1310 nm	1310 nm
	Fiber Cable Requirement	62.5/125 μM	62.5/125 μM	9/125 μM	9/125 μM
	Optical Port Number	1	1	1	1
Environment	Temperature (Operating Range)	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C
Protection	Isolation	2KV	2KV	2KV	2KV
Power	Power Input(DC)	10-30Vdc	10-48Vdc	10-48Vdc	10-48Vdc
Accessory General	Mounting	DIN	DIN	DIN	DIN
Mechanism	Enclosure	Plastic	Plastic	Plastic	Plastic
Hazardous Certificate	UL C1D2	-	✓	-	-

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

Serial Converters

ULI Model		ULI-223D	ULI-223T	ULI-224TCL	ULI-224TC
PN to Order		BB-422PP9R	BB-422PP9TB	BB-4WSD9OTB	BB-485LDRC9
Serial Communication	Serial Converter	RS-232 to RS-422	RS-232 to RS-422	RS-232 to RS-422/485	RS-232 to RS-422/485
	Serial Port Connector Type	1 x DB9 Female, 1 x DB9 Female	1 x DB9 Female, 1 x Terminal Block	1 x DB9 Female, 1 x Terminal Block	1 x DB9 Female, 1 x Terminal Block
	Serial Port Number	1	1	1	1
	Maximum Serial Transmission Speed	115.2Kbps	115.2Kbps	115.2Kbps	115.2Kbps
Environment	Temperature (Operating Range)	0 - 70 °C	0 - 70 °C	0 - 70 °C	-40 - 80 °C
Protection	Isolation	-	-	2KV	2KV
Power	Power Input(DC)	9-24Vdc	9-24Vdc	-	10-30Vdc
	Power Input(Serial)	Port-powered from RS-232	Port-powered from RS-232	-	-
Accessory General	Mounting	Inline	Inline	Inline	DIN
Mechanism	Enclosure	Plastic	Plastic	Plastic	Plastic
Hazardous Certificate	UL C1D2	-	-	-	-

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

Serial / USB Communications

Serial Converters

ULI Model		ULI-224TCI	ULI-226D	ULI-226T	ADAM
PN to Order		BB-485DRCi	BB-485SD9R	BB-485SD9TB	ADAM-4520A-A
Serial Communication	Serial Converter	RS-232 to RS-422/485	RS-232 to RS-485	RS-232 to RS-485	RS-232 to RS-422/485
	Serial Port Connector Type	1 x DB9 Female, 1 x Terminal Block	1 x DB9 Female, 1 x DB9 Female	1 x DB9 Female, 1 x Terminal Block	1 x DB9 Female, 1 x Terminal Block
	Serial Port Number	1	1	1	1
	Maximum Serial Transmission Speed	115.2Kbps	115.2Kbps	115.2Kbps	115.2Kbps
Environment	Temperature (Operating Range)	-40 - 85°C	0 - 70 °C	0 - 70 °C	-40 - 85°C
Protection	Isolation	2KV	-	-	3V
Power	Power Input(DC)	10-48Vdc	-	12Vdc	10-48Vdc
	Power Input(Serial)	-	Port-powered from RS-232	Port-powered from RS-232	-
Accessory General	Mounting	DIN	Inline	Inline	DIN
Mechanism	Enclosure	Plastic	Plastic	Plastic	Plastic
Hazardous Certificate	UL C1D2	✓	-	-	-

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

Serial Repeaters and Isolators

ULI Model		ULI-234TC	ULI-234TCI	ULI-234TE	ULI-238TS
PN to Order		BB-485OPDR	BB-485OPDRi	BB-485OPDRi-PH	BB-CANOP
Serial Communication	Serial Standard	RS-422/485	RS-422/485	RS-422/485	CAN
	Maximum Serial Transmission Speed	115.2Kbps	115.2Kbps	115.2Kbps	250Kbps
	Serial Port Connector Type	Terminal block	Terminal block	Terminal block	Terminal block
	Serial Port Number	1	1	1	1
	Repeater Maximum Distance	1.2 Kilometers	1.2 Kilometers	1.2 Kilometers	-
Environment	Temperature (Operating Range)	-40 - 80 °C	-40 - 80 °C	-40 - 85 °C	-0 - 70 °C
Protection	Isolation	2KV	2KV	2KV	2KV
Power	Power Input(DC)	10-30Vdc	10-48Vdc	10-48Vdc	10-48Vdc
Accessory General	Mounting	DIN	DIN	Panel	Inline
Mechanism	Enclosure	Plastic	Plastic	Metal	Plastic
Hazardous Certificate	UL C1D2	-	✓	✓	-
	IEC 61850-3	-	-	✓	-

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

TTL/Current Loop Data Taps and Splitters

ULI Model		ULI-227D5	ULI-227D3	ULI-252D	ULI-262D
PN to Order		BB-232LPTTL	BB-232LPTTL33	BB-9PCDT	BB-9PMDS
Serial Communication	TTL & Current Loop Converter	RS-232 to TTL 5 Vdc	RS-232 to TTL 3.3 Vdc	RS-232 Data Tap	RS-232 Data Splitter
	Serial Port Connector Type	1 x DB9 Female, 1 x DB9 Male	1 x DB9 Female, 1 x DB9 Male	1 x DB9 Male 1 x DB9 Female,	1 x DB9 Male 1 x DB9 Female,
	Serial Port Number	1	1	1	2
	Maximum Serial Transmission Speed	115.2Kbps	115.2Kbps	-	-
Environment	Temperature (Operating Range)	0 - 70 °C	0 - 70 °C	0 - 70 °C	0 - 70 °C
Power	Power Input(Serial)	Port-powered from RS-232	Port-powered from RS-232	No power required	Port-powered
Accessory General	Mounting	Inline	Inline	Inline	Inline
Mechanism	Enclosure (Metal)	Plastic	Plastic	Plastic	Plastic

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

USB to Serial Converters

ULI Model		ULI-321D	ULI-341TC	ULI-342TC	ULI-361D
PN to Order		BB-232USB9M	BB-USOPTL4	BB-USOPTL4DR-2	BB-485USB9F-2W
Upstream USB Port	Standard	USB 2.0	USB 2.0	USB 2.0	USB 2.0
	Maximum Transfer Rate	Full-Speed (12 Mbps)	Full-Speed (12 Mbps)	Full-Speed (12 Mbps)	Full-Speed (12 Mbps)
	Connector Type	Type B (Female)	Type B (Female), High Retention	Type B (Female), High Retention	Type B (Female)
	Port Number	1	1	1	1
Serial Communication	Serial Standard	RS-232	RS-422/485	RS-422/485	RS-485, 2-wire
	Serial Port Connector Type	DB9 Male	Terminal Block	Terminal Block	DB9 F
	Serial Port Number	1	1	2	1
	Maximum Serial Transmission Speed	921.6Kbps	460.8Kbps	921.6Kbps	921.6Kbps
Environment	Temperature (Operating Range)	0 - 70 °C	0 - 70 °C	0 - 70 °C	0 - 70 °C
Protection	Isolation	-	2KV	3KV	-
Power	Power Input(USB)	Port-Powered from USB host (5 VDC)	Port-Powered from USB host (5 VDC)	Port-Powered from USB host (5 VDC)	Port-Powered from USB host (5 VDC)
Accessory General	Mounting	Inline	Inline	DIN	Inline
Mechanism	Enclosure	Plastic	Plastic	Plastic	Plastic

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

Serial / USB Communications

USB Hubs and USB Isolators

ULI Model	ULI-414LIB	ULI-414LI	ULI-414I	ULI-414CI
PN to Order	BB-USBHUB4OEM	BB-UH104	BB-UHR204	BB-UHR304
Upstream USB Port Standard	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Maximum Transfer Rate	Hi-Speed (480 Mbps)	Hi-Speed (480 Mbps)	Hi-Speed (480 Mbps)	Full-Speed (12 Mbps)
Connector Type	Type B (Female), High Retention	Type B (Female), High Retention	Type B (Female), High Retention	Type B (Female), High Retention
Port Number	1	1	1	1
Downstream USB Port Standard	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Maximum Transfer Rate	Hi-Speed (480 Mbps)	Hi-Speed (480 Mbps)	Hi-Speed (480 Mbps)	Full-Speed (12 Mbps)
Connector Type	Type A (Female), High Retention	Type A (Female), High Retention	Type A (Female), High Retention	Type A (Female), High Retention
Port Number	4	4	4	4
Supply Current	100mA for each downstream port	100mA for each downstream port	500mA for each downstream port	500mA for each downstream port
Environment Temperature (Operating Range)	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C
Protection Isolation	-	-	-	4KV
Power Power Input(DC)	-	-	10-30Vdc	10-30Vdc
Power Input(USB)	Port-Powered from USB host (5 VDC)	Port-Powered from USB host (5 VDC)	-	-
Accessory General Mounting	Inline	Inline	DIN	DIN
Mechanism Enclosure	Open Board	Plastic	Metal	Metal
Hazardous Certificate UL C1D2	-	-	UL C1D2	UL C1D2

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

ULI Model	ULI-414H	ULI-417H	ULI-414HCL	ULI-421CL
PN to Order	BB-USH204	BB-USH207	USB-4630-BE	BB-UH401
Upstream USB Port Standard	USB 3.2 Gen 1, USB 3.0	USB 3.2 Gen 1, USB 3.0	USB 3.2 Gen 1, USB 3.0	USB 2.0
Maximum Transfer Rate	SuperSpeed (5 Gbps)	SuperSpeed (5 Gbps)	SuperSpeed (5 Gbps)	Full-Speed (12 Mbps)
Connector Type	Type B (Female)	Type B (Female)	Type B (Female)	Type B (Female), High Retention
Port Number	1	1	1	1
Downstream USB Port Standard	USB 3.2 Gen 1, USB 3.0	USB 3.2 Gen 1, USB 3.0	USB 3.2 Gen 1, USB 3.0	USB 2.0
Maximum Transfer Rate	SuperSpeed (5 Gbps)	SuperSpeed (5 Gbps)	SuperSpeed (5 Gbps)	Full-Speed (12 Mbps)
Connector Type	Type A (Female)	Type A (Female)	Type A (Female)	Type A (Female), High Retention
Port Number	4	7	4	1
Supply Current	900mA for each downstream port	900mA for each downstream port	900mA for each downstream port	100mA for each downstream port
Environment Temperature (Operating Range)	0 - 40 °C	0 - 40 °C	0 - 70 °C	-40 - 80 °C
Protection Isolation	-	-	2.5KV	4KV
Power Power Input(DC)	9-24Vdc	9-24Vdc	10-30Vdc	-
PoE PSE / PoE PD	-	-	-	Port-Powered from USB host (5 VDC)
Accessory General Mounting	DIN	DIN	DIN	Inline
Mechanism Enclosure	Metal	Metal	Metal	Plastic
Hazardous Certificate UL C1D2	-	-	-	-

✓ : 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
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_{DC}	3,000 V_{DC}	–	3,000 V_{DC}	–	3,000 V_{DC}	2,500 V_{DC}

✓ : 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_{DC}	3,000 V_{DC}	–	3,000 V_{DC}	–	3,000 V_{DC}	2,500 V_{DC}

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

AMC - Analytik & Messtechnik GmbH
Advantech Premier Channel Partner

Heinrich-Lorenz-Str. 55
09120 Chemnitz Germany
Tel: 0371 / 38388 - 0
Fax: 0371 / 38388 - 99
E-mail: info@amc-systeme.de
Web: www.amc-systeme.de

www.amc-systeme.de