# 8 Industrial Communication


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# Industrial Communication in the IoT Era

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

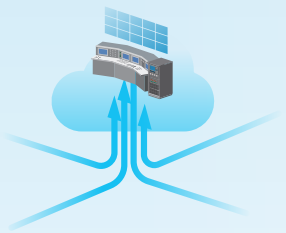
In the age of Internet of Things (IoT), the trend in industrial communication is for all devices, equipment, and machines to be able to connect and communicate with each other to increase productivity, efficiency, and scalability. The core mission of Advantech's iConnectivity Group is to offer the best-in-class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

**Advantech 2017 World Ranking**

- No.7 for Industrial Ethernet Infrastructure Market
- No. 3 for Router Market

(2017 IHS Markit)

# Our Technologies



## Intelligent Connectivity Software

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

- WebAccess/DMP for 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

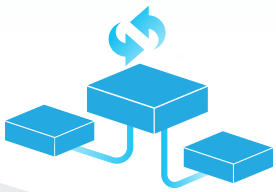
Advantech's cellular routing solutions open up endless IoT possibilities. Advantech's cellular routers support direct communication between MQTT-enabled devices and the cloud. Built-in Node-RED technology enables smart data processing for fast dashboard development and monitoring using Advantech's WISE/PaaS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

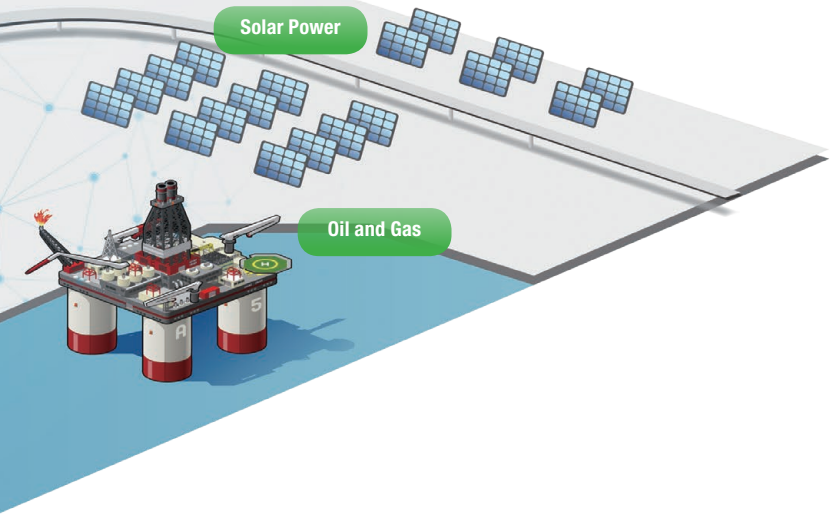
- Support various industrial Ethernet protocols, such as TCP/IP, Ethernet/IP, PROFINET, CC-link, ODVA, etc.
- Compliant with C1D2, ATEX, IECEx certifications for hazardous environments
- Cyber security protection within the network
- Layer 3 Routing Protocols: RIP, OSPF, and VRRP
- Advantech's patented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



# Industrial Ethernet Solutions

## EN50155 Ethernet Switches

| | Model Name | EKI-9512E-4GETB<br>EKI-9512G-4GETB | EKI-9528E-12GMPW<br>EKI-9528E-12GMPX | EKI-9528E-8GMPW<br>EKI-9528E-8GMPX | EKI-9528G-4GMPW<br>EKI-9528G-4GMPX | EKI-9528E-12GMW<br>EKI-9528E-12GMX | EKI-9528E-8GMW<br>EKI-9528E-8GMX | EKI-9528G-4GMW<br>EKI-9528G-4GMX |
|---|---|---|---|---|---|---|---|---|
| | Description | EN50155 12-Port Ethernet Train Backbone Router | EN50155 28-Port L2 Managed PoE Switch | EN50155 28-Port L2 Managed PoE Switch | EN50155 28-Port L2 Managed PoE Switch | EN50155 28-Port L2 Managed Switch | EN50155 28-Port L2 Managed Switch | EN50155 28-Port L2 Managed Switch |
| Interface | Ports Number | 12 | 28 | 28 | 28 | 28 | 28 | 28 |
| | 10/100Base-TX | 8 (EKI-9512E-4GETB) | - | - | - | 16 | 20 | - |
| | 100BaseFX | - | - | - | - | - | - | - |
| | 10/100/1000Base-TX | 8 (EKI-9512G-4GETB) | 4(EKI-9528E-12GMPX) | 4(EKI-9528E-8GMPX) | 4(EKI-9528E-8GMPX) | 8(EKI-9528E-12GMW)<br>12(EKI-9528E-12GMX) | 4(EKI-9528E-8GMW)<br>8(EKI-9528E-8GMX) | 24(EKI-9528G-4GMW)<br>28(EKI-9528G-4GMX) |
| | 10/100/1000Base-TX with Bypass function | 4 | 4(EKI-9528E-12GMPW) | 4(EKI-9528E-8GMPW) | 4(EKI-9528E-8GMPW) | 4(EKI-9528E-12GMW) | 4(EKI-9528E-8GMW) | 4(EKI-9528G-4GMW) |
| | PoE(10/100Mbps) | - | 16 | 20 | - | - | - | - |
| | PoE(10/100/1000Mbps) | - | 8 | 4 | 24 | - | - | - |
| | DI/DO | - | - | - | - | - | - | - |
| | Console | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Network Management | Redundancy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Diagnostics | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | VLAN | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Configuration | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SNMP | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Security | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Traffic Control | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Power | 24-48$V_{DC}$ | - | - | - | - | - | - | - |
| | 72-110$V_{DC}$ | - | - | - | - | - | - | - |
| | 24-110$V_{DC}$ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IP level | IP67 | IP54 | IP54 | IP54 | IP54 | IP54 | IP54 |
| Rolling Stock Application | Ethernet Train Backbone (IEC61375-2-3 & -2-5) | ✓ | - | - | - | - | - | - |
| | EN50155 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | EN61373 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

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

## EN50155 Ethernet Switches

| | Model Name | EKI-9516E-4GMPW<br>EKI-9516E-4GMPX | EKI-9516G-4GMPW<br>EKI-9516G-4GMPX | EKI-9516E-8GMPW<br>EKI-9516E-8GMPX | EKI-9516E-4GMW<br>EKI-9516E-4GMX | EKI-9516G-4GMW<br>EKI-9516G-4GMX | EKI-9512E-4GMPW<br>EKI-9512E-4GMPX | EKI-9512G-4GMPW<br>EKI-9512G-4GMPX |
|---|---|---|---|---|---|---|---|---|
| | Description | EN50155 16-Port L2 Managed PoE Switch | EN50155 16-Port L2 Managed PoE Switch | EN50155 16-Port L2 Managed PoE Switch | EN50155 16-Port L2 Managed Switch | EN50155 16-Port L2 Managed Switch | EN50155 16-Port L2 Managed PoE Switch | EN50155 16-Port L2 Managed PoE Switch |
| Interface | Ports Number | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | 10/100Base-TX | - | - | - | 12 | - | - | - |
| | 100BaseFX | - | - | - | - | - | - | - |
| | 10/100/1000Base-TX | 4(EKI-9516E-4GMPX) | 4(EKI-9516G-4GMPX) | 4(EKI-9516G-4GMPX) | 4(EKI-9516E-4GMPX) | 12(EKI-9516G-4GMPW)<br>16(EKI-9516G-4GMPX) | 4(EKI-9512E-4GMPX) | 4(EKI-9512G-4GMPX) |
| | 10/100/1000Base-TX with Bypass function | 4(EKI-9516E-4GMPW) | 4(EKI-9516G-4GMPW) | 4(EKI-9516G-4GMPW) | 4(EKI-9516E-4GMPW) | 4(EKI-9516G-4GMPW) | 4(EKI-9512E-4GMPW) | 4(EKI-9512G-4GMPW) |
| | PoE(10/100Mbps) | 12 | - | 8 | - | - | 8 | - |
| | PoE(10/100/1000Mbps) | - | 12 | 4 | - | - | - | 8 |
| | DI/DO | - | - | - | - | - | - | - |
| | Console | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Network Management | Redundancy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Diagnostics | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | VLAN | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Configuration | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SNMP | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Security | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Traffic Control | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Power | 24-48$V_{DC}$ | - | - | - | - | - | - | - |
| | 72-110$V_{DC}$ | - | - | - | - | - | - | - |
| | 24-110$V_{DC}$ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IP level | IP67 | IP67 | IP67 | IP67 | IP67 | IP67 | IP67 |
| Rolling Stock Application | Ethernet Train Backbone (IEC61375-2-3 & -2-5) | - | - | - | - | - | - | - |
| | EN50155 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | EN61373 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

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

# Industrial Ethernet Solutions

## EN50155 Ethernet Switches

| | Model Name | ☞ EKI-9512E-4GMW<br>☞ EKI-9512E-4GMX | ☞ EKI-9512G-4GMW<br>☞ EKI-9512G-4GMX | ☞ EKI-9508E series | ☞ EKI-9508G series | ☞ EKI-9510E series | ☞ EKI-9510G series |
|---|---|---|---|---|---|---|---|
| | Description | EN50155 16-Port L2 Managed Switch | EN50155 16-Port L2 Managed Switch | EN50155 8-Port L2 Ethernet Switch | EN50155 8-Port L2 Ethernet Switch | EN50155 10-Port L2 Ethernet Switch | EN50155 10-Port L2 Ethernet Switch |
| Interface | Ports Number | 16 | 16 | 8 | 8 | 8 | 8 |
| | 10/100Base-TX | 8 | - | △8 | - | △8 | - |
| | 100BaseFX | - | - | - | - | - | - |
| | 10/100/1000Base-TX | 4(EKI-9512E-4GMPX) | 8(EKI-9512G-4GMPW)<br>12(EKI-9512G-4GMPX) | - | △8 | - | △8 |
| | 10/100/1000Base-TX with Bypass function | 4(EKI-9512E-4GMPW) | 4(EKI-9512G-4GMPW) | - | - | 2 | 2 |
| | PoE(10/100Mbps) | - | - | △8 | - | △8 | - |
| | PoE(10/100/1000Mbps) | - | - | - | △8 | - | △8 |
| | DI/DO | - | - | - | - | - | - |
| | Console | ✓ | ✓ | △ | △ | △ | △ |
| Network Management | Redundancy | ✓ | ✓ | △ | △ | △ | △ |
| | Diagnostics | ✓ | ✓ | △ | △ | △ | △ |
| | VLAN | ✓ | ✓ | △ | △ | △ | △ |
| | Configuration | ✓ | ✓ | △ | △ | △ | △ |
| | SNMP | ✓ | ✓ | △ | △ | △ | △ |
| | Security | ✓ | ✓ | △ | △ | △ | △ |
| | Traffic Control | ✓ | ✓ | △ | △ | △ | △ |
| Power | 24-48$V_{DC}$ | - | - | △ | △ | △ | △ |
| | 72-110$V_{DC}$ | - | - | △ | △ | △ | △ |
| | 24-110$V_{DC}$ | ✓ | ✓ | - | - | - | - |
| | IP level | IP67 | IP67 | IP40 | IP40 | IP40 | IP40 |
| Rolling Stock Application | Ethernet Train Backbone (IEC61375-2-3 & -2-5) | - | - | - | - | - | - |
| | EN50155 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | EN61373 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

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

## L3 Managed Switches

| Model Name | | EKI-9728G-4X8CI | EKI-9628G-4CI | EKI-9612G-4FI |
|---|---|---|---|---|
| Description | | L3 28-port Managed Switch | L3 28-port Managed Switch | L3 12-port Managed Switch |
| Interface | Ports Number | 28 | 28 | 12 |
| | 10/100Base-T (X) | - | - | - |
| | 100BaseFX | - | - | - |
| | 10/100/1000Base-T (X) | 16+8 (combo) | 24+4 (combo) | 8 |
| | 1000Base-SX/LX/LHX/XD/ZX/EZX | 8 (combo) + 4 x SFP+ (10G) | 4 (combo) | 4 x SFP |
| | PoE (10/100 Mbps) | - | - | - |
| | PoE (10/100/1000 Mbps) | - | - | - |
| | HSR/PRP | 4 | - | - |
| | Console | ✓ | ✓ | ✓ |
| Network Management | Redundancy | ✓ | ✓ | ✓ |
| | Diagnostics | ✓ | ✓ | ✓ |
| | VLAN | ✓ | ✓ | ✓ |
| | Configuration | ✓ | ✓ | ✓ |
| | SNMP | ✓ | ✓ | ✓ |
| | Security | ✓ | ✓ | ✓ |
| | Traffic Control | ✓ | ✓ | ✓ |
| Power | 12 ~ 48 V DC | - | ✓ | ✓ |
| | 24 ~ 110 V DC | - | - | - |
| | 100 ~ 240 V AC | 90~264 VAC | - | - |
| | Relay Output | - | - | - |
| Mechanism | DIN-rail Mount | - | - | ✓ |
| | Wall Mount | - | - | - |
| | Rack Mount | ✓ | ✓ | - |
| | IP Level | IP30 | IP30 | IP30 |
| Protection | ESD (Ethernet) | ✓ | ✓ | ✓ |
| | Surge (EFT for power) | ✓ | ✓ | ✓ |
| | Power Reverse | ✓ | ✓ | ✓ |
| Operating Temperature | -10 ~ 60°C (14 ~ 140°F) | - | - | - |
| | -40 ~ 75°C (-40 ~ 167°F) | ✓ | ✓ | ✓ |
| | -40 ~ 85°C (-40 ~ 185°F) | - | - | - |
| Certifications | CE | ✓ | ✓ | ✓ |
| | FCC | ✓ | ✓ | ✓ |
| | UL/cUL 60950-1 | - | - | - |
| | Class 1, Division 2 | - | - | - |
| | UL 508 | - | ✓ | ✓ |
| Others | | - | - | - |

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

## IEC 61850-3 Managed Industrial Ethernet Switches

| Model Name | | EKI-9228G-8COI<br>EKI-9228G-8CMI | EKI-9226G-20FOI<br>EKI-9226G-20FMI |
|---|---|---|---|
| Description | | 28-port Full Giga Managed Switch | 26-port Full Giga Managed Switch |
| Interface | Ports Number | 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 VDC) | EKI-9226G-20FMI (48 VDC) |
| | 24 ~ 110 V DC | - | - |
| | 100 ~ 240 V AC | EKI-9228G-20FMI (90 ~ 264 VAC) | EKI-9226G-20FOI (90 ~ 264 VAC) |
| | 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 |

# Industrial Ethernet Solutions

## Managed Ethernet 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-2FVI |
|---|---|---|---|---|---|---|---|---|---|
| | Description | 24Giga+4SFP 10G ports Managed Switch w/ AC Input | 8 Giga + 4 SFP 10G ports, PoE 10/100/1000 Managed Switch w/ AC Input | 8Giga+20SFP Giga ports Managed Redundant Switch w/ AC Input | 4FE+2SFP Giga ports Managed Redundant Industrial Switch | 4GE+2SFP Giga ports Managed Redundant Industrial Switch | 4FE+4SFP Giga ports Managed Redundant Industrial Switch | 4GE+4SFP Giga ports Managed Redundant Industrial Switch | 4Giga + 2VDSL+2SFP Giga ports Managed Redundant Industrial Switch |
| Interface | Ports Number | 28 | 12 | 28 | 6 | 6 | 8 | 8 | 8 |
| | 10/100Base-T (X) | - | -- | - | 4 | - | 4 | - | 4 |
| | 100BaseFX | - | -- | - | | | | | - |
| | 10/100/1000Base-T (X) | 24 | -- | 24 + 4 (combo) | - | 4 | - | 4 | - |
| | 1000Base-SX/LX/LHX/XD/ZX/EZX | 4 x SFP+ (10G) | 4 x SFP+ (10G) | 4 (combo) | 2 | 2 | 4 | 4 | 4 (2SFP+ 2VDSL) |
| | 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 |
| Protection | ESD (Ethernet) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Surge (EFT for power) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Power Reverse | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Operating Temperature | -10 ~ 60°C (14 ~ 140°F) | 0 ~ 60°C (32 - 140°F) | 0 ~ 60°C (32 - 140°F) | -10 ~ 55°C (14 - 131°F) | 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 | - | UL 61010 | UL 61010 | UL 61010 | UL 61010 | UL 61010 |

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

## Managed Ethernet Switches

| | Model Name | EKI-7710E-2C<br>EKI-7710E-2CI | EKI-7710G-2C<br>EKI-7710G-2CI | EKI-7712E-4F<br>EKI-7712E-4FI | EKI-7712G-2FVI | EKI-7712G-4F<br>EKI-7712G-4FI | EKI-7716E-4F/I | EKI-7716G-4F/I | EKI-7720E-4F<br>EKI-7720E-4FI | EKI-7720G-4F<br>EKI-7720G-4FI |
|---|---|---|---|---|---|---|---|---|---|---|
| | Description | 8FE+2G Port Gigabit Managed Redundant Industrial Switch | 8G+2G Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature | 8FE+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature | 8Giga + 2VDSL+2SFP Giga ports Managed Redundant Industrial Switch | 8G+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature | 8FE+4SFP+4G Combo port Managed Redundant Industrial Switch | 8GE+4SFP + 4G Combo port Managed Redundant Industrial Switch | 16FE+4G SFP Port Gigabit Managed Redundant Industrial Switch with Wide Temperature | 16GE+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature |
| Interface | Ports Number | 10 | 10 | 12 | 12 | 12 | 16 | 16 | 20 | 20 |
| | 10/100Base-T (X) | 8 | - | - | - | - | 8 + 4 (Combo) | - | - | - |
| | 100BaseFX | - | - | - | - | - | | | - | - |
| | 10/100/1000Base-T (X) | 8 + 2 (combo) | 8 + 2 (combo) | 8 | 8 | 8 | - | 8 + 4 (Combo) | 16 | 16 |
| | 1000Base-SX/LX/ LHX/XD/ZX/EZX | 2 (combo) | 2 (combo) | 4 | 4 (2SFP+ 2VDSL) | 4 | 4 + 4 (Combo) | 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 | IP30 | IP30 | - | - | IP30 | IP30 |
| Protection | ESD (Ethernet) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Surge (EFT for power) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Power Reverse | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Operating Temperature | -10 ~ 60°C (14 ~ 140°F) | ✓ | ✓ | ✓ | - | ✓ | EKI-7716E-4F | EKI-7716G-4F | ✓ | ✓ |
| | -40 ~ 75°C (-40 ~ 167°F) | ✓ | ✓ | ✓ | ✓ | ✓ | EKI-7716E-4FI | EKI-7716G-4FI | ✓ | ✓ |
| | -40 ~ 85°C (-40 ~ 185°F) | - | - | - | - | - | - | - | - | - |
| Certifications | CE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | FCC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | UL/cUL 60950-1 | - | - | - | - | - | - | - | - | - |
| | Class 1, Division 2 | - | - | - | - | - | - | - | - | - |
| | UL 508 | ✓ | ✓ | ✓ | - | ✓ | - | - | ✓ | ✓ |
| | Others | NEMA TS2 EN50121-4 | NEMA TS2 EN50121-4 | NEMA TS2 EN50121-4 | MENA TS2 EN50121-4 | NEMA TS2 EN50121-4 | UL 61010 | UL 61010 | NEMA TS2 EN50121-4 | NEMA TS2 EN50121-4 |

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

# Industrial Ethernet Solutions

## Managed Protocol Switches

| | Model Name | EKI-5526I-EI<br>EKI-5528I-EI | EKI-5526I-PN<br>EKI-5528I-PN | EKI-5526I-MB<br>EKI-5528I-MB | EKI-5626CI-EI<br>EKI-5629CI-EI | EKI-5626CI-PN<br>EKI-5629CI-PN | EKI-5626CI-MB<br>EKI-5629CI-MB |
|---|---|---|---|---|---|---|---|
| | Description | 16/8 port Entry-Level Managed Switch Supporting EtherNet/IP | 16/8 port Entry-Level Managed Switch Supporting PROFINET | 16/8 port Entry-Level Managed Switch Supporting Modbus | 18/10 port Entry-Level Managed Switch Supporting EtherNet/IP | 18/10 port Entry-Level Managed Switch Supporting PROFINET | 18/10 port Entry-Level Managed Switch Supporting Modbus |
| Interface | Ports Number | 16/8 | 16/8 | 16/8 | 18/10 | 18/10 | 18/10 |
| | 10/100Base-T (X) | 16/8 | 16/8 | 16/8 | 16/8 | 16/8 | 16/8 |
| | 100BaseFX | - | - | - | - | - | - |
| | 10/100/1000Base-T (X) | - | - | - | 2/2 (combo) | 2/2 (combo) | 2/2 (combo) |
| | 1000Base-SX/LX/LHX/XD/ZX/EZX | - | - | - | 2/2 (combo) | 2/2 (combo) | 2/2 (combo) |
| | 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 |
| 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

## Unmanaged Ethernet Switches

| | Model Name | EKI-5524SI/ 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 | Ports Number | 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) | - | - |
| | 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

## 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 | Ports Number | 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) | - | - |
| | 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 | 20 | 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) | ✓ | ✓ | - | - | - |
| | -40 ~ 85°C (-40 ~ 185°F) | - | - | - | - | - |
| Certifications | CE | ✓ | ✓ | ✓ | ✓ | ✓ |
| | FCC | ✓ | ✓ | ✓ | ✓ | ✓ |
| | UL/cUL 60950-1 | - | - | - | ✓ | ✓ |
| | Class 1, Division 2 | ✓ | ✓ | - | - | - |
| | UL 508 | ✓ | ✓ | - | - | - |
| | Others | - | - | - | - | - |

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

## 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 | Ports Number | 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 |
| | 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 | 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 |
| | -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

## Industrial PoE Switches & Solutions

| | Model Name | EKI-7708E-4FP/I | EKI-7708G-4FP/I | EKI-7708G-2FVPI | EKI-7710E-2CP<br>EKI-7710E-2CPI | EKI-7710G-2CPI<br>EKI-7710G-2CP | EKI-7712G-4FP<br>EKI-7712G-4FPI | EKI-7712G-4FMPI | EKI-7712G-2FVPI |
|---|---|---|---|---|---|---|---|---|---|
| | Description | 4FE+4SFP Giga ports Managed Redundant Industrial PoE Switch | 4Giga+4SFP Giga ports Managed Redundant Industrial PoE Switch | 4Giga+2VDSL+ 2SFP Giga ports Managed Redundant Industrial PoE Switch | 8FE+2G Port Gigabit Managed Redundant Industrial PoE Switch | 8G+2G Port Gigabit Managed Redundant Industrial PoE Switch | 8G+4G Port Gigabit Managed Redundant Industrial PoE Switch | 8G+4G Port Gigabit Managed Redundant Industrial PoE Switch | 8Giga+2VDSL + 2SFP Giga ports Managed Redundant Industrial PoE Switch |
| Interface | Ports Number | 8 | 8 | 8 | 10 | 10 | 12 | 12 | 12 |
| | 10/100Base-T (X) | - | - | 4 | - | - | - | - | - |
| | 100BaseFX | - | - | - | - | - | - | - | - |
| | 10/100/1000Base-T (X) | - | - | - | 8 + 2 (combo) | 8 + 2 (combo) | 8 | - | 8 |
| | 1000Base-SX/LX/ LHX/XD/ZX/EZX | 4 | 4 | 4 (2SFP+2VDSL) | 2 (combo) | 2 (combo) | 4 | 4 | 4 (2SFP+2VDSL) |
| | PoE (10/100 Mbps) | 4 | - | - | 8 | - | - | - | - |
| | PoE (10/100/1000 Mbps) | - | 4 | - | - | 8 | 8 | 8 | - |
| | 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 $V_{DC}$ | 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 |
| Protection | ESD (Ethernet) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Surge (EFT for power) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Power Reverse | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Operating Temperature | -10 ~ 60°C (14 ~ 140°F) | EKI-7708E-4FP | EKI-7708G-4FP | - | 7710E-2CP | 7710G-2CP | 7712G-4FP | - | - |
| | -40 ~ 75°C (-40 ~ 167°F) | EKI-7708E-4FPI | EKI-7708G-4FPI | ✓ | 7710E-2CPI | 7710G-2CPI | 7712G-4FPI | ✓ | ✓ |
| | -40 ~ 85°C (-40 ~ 185°F) | - | - | - | - | - | - | - | - |
| Certifications | CE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | FCC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | UL/cUL 60950-1 | - | - | - | - | - | - | - | - |
| | Class 1, Division 2 | - | - | - | - | - | - | - | - |
| | UL 508 | - | - | - | ✓ | ✓ | ✓ | - | - |
| | Others | UL 61010 | UL 61010 | UL 61010 | UL 508 | UL 508 | - | - | UL 61010 |

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

## Power Over Ethernet (PoE) Switches

| Model Name | | EKI-2525P | EKI-2525PA | EKI-2526PI | EKI-2528PAI | EKI-2726FHPI | EKI-5624P/ 5624PI | EKI-5729P/ 5729PI |
|---|---|---|---|---|---|---|---|---|
| Description | | 5-port Industrial PoE Switch | 5-port Industrial PoE Switch with 24/48 V DC Power Input | 6-port Industrial PoE Switch with Wide Temperature | 8-port Industrial PoE Switch with 24/48$V_{DC}$ Power Input and Wide Temperature | 4G+2 SFP W/ 4 IEEE 802.3 High Power PoE Industrial Wide Temperature Switch | 4FE PoE+2G Unmanaged Ethernet Switch, IEEE802.3af/ at, E-Mark, 12V~24$V_{DC}$ | 8GE PoE+2G Unmanaged Ethernet Switch, IEEE802.3af/ at, E-Mark, 12V~24$V_{DC}$ |
| Interface | Ports Number | 5 | 5 | 6 | 8 | 6 | 6 | 8 |
| | 10/100Base-T (X) | 1 | 1 | 2 | 4 | - | 4 | - |
| | 100BaseFX | - | - | - | - | - | - | - |
| | 10/100/1000Base-T (X) | - | - | - | - | 4 | 2 | - |
| | 1000Base-SX/LX/ LHX/XD/ZX/EZX | - | - | - | - | 2 | - | - |
| | PoE (10/100 Mbps) | 4 | 4 | 4 | 4 | 4 (PoE+, 30W) | - | - |
| | PoE (10/100/1000 Mbps) | - | - | - | - | - | - | 8 |
| | DI/DO | - | - | - | - | - | - | - |
| | Console | - | - | - | - | - | - | - |
| Network Management | Redundancy | - | - | - | - | - | - | - |
| | Diagnostics | - | - | - | - | - | - | - |
| | VLAN | - | - | - | - | - | - | - |
| | Configuration | - | - | - | - | - | - | - |
| | SNMP | - | - | - | - | - | - | - |
| | Security | - | - | - | - | - | - | - |
| | Traffic Control | - | - | - | - | - | - | - |
| Power | 12 ~ 48 V DC | 48 $V_{DC}$ | 24/48 $V_{DC}$ | 48 $V_{DC}$ | 24/48 $V_{DC}$ | 48 $V_{DC}$ | 12 ~ 24 $V_{DC}$ | - |
| | 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 Wireless and Protocol Gateway Solutions

## Wireless Access Points/Clients

| Model Name | | EKI-6333AC-2G | EKI-6333AC-4GP | EKI-6333AC-M12 |
|---|---|---|---|---|
| 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 | EN50155 IEEE 802.11 a/b/g/n/ac Wi-Fi AP/ Client |
| Connectivity | 10/100/ 1000Based-T, Fixed | - | - | - |
| | 10/100Base-TX, Fixed | 2 | 4 | 2 (M12 Connector) |
| | RS-232 only | - | - | - |
| | RS-232/422/485 | - | 1x RS-232/RS-485 | - |
| | Serial connector type | - | Terminal Block Male | - |
| Operating Mode | Mobility/Roaming | - | - | - |
| | Multi-Hopping | - | - | - |
| | AP/CPE | ✓ | ✓ | ✓ |
| Enclosure & Mount kit | Enclosure | IP55 | - | Metal shell with solid mounting kits |
| | DIN-rail | - | ✓ | - |
| | Wall | ✓ | - | ✓ |
| | VESA Mount | - | - | - |
| | Pole Mount | ✓ | - | - |
| Power | Power Input (VDC) | Passive 24V | 24 ~ 56 $V_{DC}$ | 24-48$V_{DC}$ (LV model), 72/96/110$V_{DC}$ (HV model) |
| | Power input (PoE) | - | PoE 802.3at PSE | - |
| | Power connector | RJ45, Passive 24V PoE | Terminal block | M12 A-Code male (5-pin) |
| Environment | Operating Temp. | -20 ~ 70 °C (-4~158°F) | -30 ~ 70 °C | 40 ~ 75 °C (-40 ~ 166 °F) |
| | Operating Humidity | 10 ~ 95% | 10 ~ 95% | 10 ~ 95% |
| | Input Reverse Protection | - | - | - |
| Software | Netwrok Protocol | - | - | - |
| | | | | |
| | Firewall | - | - | - |
| | Router | - | - | - |
| | Configuration Options | Web-base | Web-base | Web-base |
| | Authentication | Username/Password | Username/Password | Username/Password |
| | Standard Operation Mode | Access Point, Client, Repeater mode | Access Point/Bridge mode | Access Point/Bridge/ Client mode |
| WLAN | IEEE Standard | a/b/g/n/ac | a/b/g/n/ac | a/b/g/n/ac |
| | Radio Number | 2 | - | 2 |
| | Security | WEP, WPA/WPA2-Perso-l, WPA/WPA2-Enterprise | - | 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 | - | - | - |
| Certification | EN60950-1 | - | - | - |
| | CE | ✓ | - | ✓ |
| | FCC | ✓ | - | ✓ |
| | EN50155 | - | - | ✓ |

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

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

## EN50155 Wireless Devices

| Model Name | | EKI-9502G |
|---|---|---|
| Description | | EN50155 Train-To-Ground Wi-Fi/Cellular Router |
| Connectivity | 10/100Base-TX, Fixed | - |
| | 10/100/1000 Based-T, Fixed | ✓ |
| | RS-232 only | - |
| | RS-232/422/485 | 2 |
| | Serial connector type | Terminal Block Male |
| Operating Mode | Mobility/ Roaming | - |
| | Multi-Hopping | - |
| | AP/CPE | ✓ |
| 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% |
| | Input Reverse Protection | - |
| 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 |
| Certification | UL60950-1 | - |
| | EN60950-1 | - |
| | CE | ✓ |
| | FCC | ✓ |
| | EN50155 | ✓ |

## Fieldbus Gateways

| Model Name | | EKI-1242EIMS/IEIMS | EKI-1242PNMS/IPNMS | EKI-1242ECMS/IECMS | EKI-1242BNMS/IBNMS | EKI-1242NR/INR | EKI-1242OUMS/IOUMS |
|---|---|---|---|---|---|---|---|
| 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 |
| | 10/100/1000Based-T, Fixed | - | - | - | - | - | - |
| | RS-232 only | - | - | - | - | - | - |
| | 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 |
| Operating Mode | Mobility/Roaming | - | - | - | - | - | - |
| | Multi-Hopping | - | - | - | - | - | - |
| | AP/CPE | - | - | - | - | - | - |
| Enclosure & Mount kit | Enclosure | IP30 | IP30 | IP30 | IP30 | IP30 | IP30 |
| | DIN-rail | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Wall | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | VESA Mount | - | - | - | - | - | - |
| | Pole Mount | - | - | - | - | - | - |
| Power | Power Input ($V_{DC}$) | (12~48V) | (12~48V) | (12~48V) | (12~48V) | 12~48V | 12~48V |
| | Power input (PoE) | - | - | - | - | -- | -- |
| | Power connector | Terminal block | Terminal block | Terminal block | Terminal block | Terminal block | Terminal block |
| | Power Consumption (12/24/48VDC) Watts | 5.2W | 5.2W | 5.2W | 5.2W | 5.2W | 5.2W |
| Environment | Operating Temp. | -10~60°C | -10~60°C | -10~60°C | -10~60°C | -10~60°C | -10~60°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 |
| | Firewall | - | - | - | - | - | - |
| | Router | - | - | - | - | - | - |
| | 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 | - | - |
| WLAN | IEEE Standard | - | - | - | - | - | - |
| | Radio Number | - | - | - | - | - | - |
| | Security | - | - | - | - | - | - |
| RF | MIMO | - | - | - | - | - | - |
| | Maximum Transmit Output Power | - | - | - | - | - | - |
| | Receive Sensitivity | - | - | - | - | - | - |
| | Antenna Connector | - | - | - | - | - | - |
| Cellular | Standard | - | - | - | - | - | - |
| | Five-band Options UMTS | - | - | - | - | - | - |
| | Quad-band Options EDGE/GSM | - | - | - | - | - | - |
| | Certification (GCF, PTCRB) | - | - | - | - | - | - |
| Certification | UL60950-1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | EN60950-1 | - | - | - | - | - | - |
| | CE (EN55022 class A, EN55024) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | FCC (part 15 subpart B class A) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Hazardous Location (Class I, Division 2) | - | - | - | - | - | - |
| | Radio (EN 301 489-1/-4, EN 301 511) | - | - | - | - | - | - |
| | Radio (FCC part 22H, part 24E) | - | - | - | - | - | - |
| | EN 50155 | - | - | - | - | - | - |

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

# Industrial Wireless and Protocol Gateway Solutions

## Modbus Gateways
## Modbus Routers

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

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

## Serial Device Servers

| | Model Name | EKI-1511L | EKI-1521/CI/I<br>EKI-1522/CI/I<br>EKI-1524/CI/I | EKI-1528I-DR<br>EKI-1528CI-DR | EKI-1528/I/TI<br>EKI-1526/I/TI | ADAM-4571/L<br>ADAM-4570/L |
|---|---|---|---|---|---|---|
| | Description | 1 port RS-232 Serial Device Server | 1/2/4-port RS-232/422/485 Serial Device Server | 8-port RS-232/422/485 Device Server 8-port RS-422/485 Device Server | 8/16-port RS-232/422/485 Serial Device Server | 1/2-port RS-232/422/485 Serial Device Server |
| Connectivity | 10/100Base-TX, Fixed | 1 | 2 | 2 | - | 1 |
| | 10/100/1000Based-T, Fixed | - | - | - | 2 | - |
| | RS-232 only | ✓ | - | - | - | ADAM-4571L/4570L: 1/2 ADAM-4571/4570: 1/2 |
| | RS-232/422/485 | - | 1/2/4 (EKI-1524: RS-422/485) | 8 | 8/16 | |
| | Serial Connector Type | DB9 Male | DB9 Male | DB9 Male | DB9 male | ADAM-4571/L: DB9 Male ADAM-4570/L: 10-pin RJ48 |
| Enclosure & Mount kit | Enclosure | IP30 | IP30 | IP30 | SECC chassis | ABS+PC with solid mounting hardware |
| | DIN-rail | ✓ | ✓ | ✓ | Rackmount | ✓ |
| | Wall | ✓ | ✓ | ✓ | - | ✓ |
| | VESA Mount | - | - | - | - | - |
| | Pole Mount | - | - | - | - | - |
| Power | Power Input ($V_{DC}$) | 9~36V | 2* (12~48V) | 2* (12~48V) | EKI-1528(I)/ EKI-1526(I): 100 ~ 240 $V_{AC}$, 50 ~ 60 Hz EKI-1528T(I)/ EKI-1526T(I): 12 ~ 48 $V_{DC}$, Terminal Block | (10~30V) |
| | Power Input (PoE) | -- | - | - | - | - |
| | Power Connector | Terminal block | Terminal block | Terminal block | 6-pin removable screw terminal | Terminal block |
| | Power Consumption (12/24/48$V_{DC}$) Watts | 1W | 5.2 W (EKI-1521/ EKI-1522) 6.3 W (EKI-1524) | 5 W (EKI-1528I) 6 W (EKI-1528CI) | 5.6 W | 2.5 W |
| Environment | Operating Temp. | -10 ~ 60°C | EKI-1521/ EKI-1522/ EKI-1524: -10 ~ 60°C 'CI & I' models: -40 ~ 80°C | -40 ~ 70°C | -10 ~ 60°C (14 ~ 140°F) "I" Model: -40 ~ 75°C (-40 ~ 167°F) | -10 ~ 60°C |
| | Operating Humidity | 10~95% | 10 ~ 95% | 10 ~ 95% | 10 ~ 95% | 5 ~ 95% |
| | Input Reverse Protection | - | - | - | - | - |
| Software | Network Protocol | ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP | ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP | ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP | ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP | ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP |
| | Firewall | - | - | - | - | - |
| | Router | - | - | - | - | - |
| | Configuration 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, serial console | Windows utility, Telnet console, Web Browser |
| | 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 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 |
| Certification | UL60950-1 | - | ✓ | ✓ | - | - |
| | EN60950-1 | - | - | - | - | - |
| | CE(EN55022 class A, EN55024) | ✓ | ✓ | ✓ | ✓ | ✓ |
| | FCC (part 15 subpart B class A) | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Hazardous Location (Class I, Division 2) | - | ✓ | - | - | - |
| | Radio (EN 301 489-1/-4, EN 301 511) | - | - | - | - | - |
| | Radio (FCC part 22H, part 24E) | - | - | - | - | - |
| | EN 50155 | - | - | - | - | - |

## Wireless Devices

| | Model Name | EKI-1361<br>EKI-1362 | EKI-1361-MB<br>EKI-1362-MB | EKI-6333AC |
|---|---|---|---|---|
| | Description | 1/2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server | 1/2-port RS-232/422/485 to 802.11b/g/n WLAN Modbus Gateway | IEEE 802.11 a/b/g/n Wi-Fi AP |
| Connectivity | 10/100Base-TX, Fixed | ✓ | ✓ | - |
| | 10/100/1000Based-T, Fixed | - | - | ✓ |
| | RS-232 only | - | - | - |
| | RS-232/422/485 | ✓ | ✓ | - |
| | Serial connector type | DB9 Male | DB9 Male | - |
| Operating Mode | Mobility/Roaming | ✓ | ✓ | - |
| | Multi-Hopping | - | - | - |
| | AP/CPE | - | - | ✓ |
| Enclosure & Mount kit | Enclosure | IP30 | IP30 | IP30 |
| | DIN-rail | ✓ | ✓ | ✓ |
| | Wall | ✓ | ✓ | ✓ |
| | VESA Mount | - | - | - |
| | Pole Mount | - | - | - |
| Power | Power Input (VDC) | 12~48V | 12~48V | 12~48V |
| | Power input (PoE) | - | - | - |
| | Power connector | Terminal block | Terminal block | Terminal block |
| | Power Consumption (12/24/48VDC) Watts | 8W (EKI-1361)<br>9W (EKI-1362) | 8W (EKI-1361-MB)<br>9W (EKI-1362-MB) | 8W |
| Environment | Operating Temp. | -40 ~ 75°C | -40 ~ 75°C | -40 ~ 75°C |
| | Operating Humidity | 10 ~ 95% | 10 ~ 95% | 10 ~ 95% |
| | Input Reverse Protection | ✓ | ✓ | ✓ |
| Software | Netwrok Protocol | - | Modbus TCP, Modbus RTU/ASCII | - |
| | Firewall | - | - | - |
| | Router | - | - | - |
| | Configuration Options | Web-base, windows utility | Web-base, windows utility | Web-base |
| | Authentication | Username/Password | Username/Password | Username/Password |
| | Standard Operation Mode | VCOM, USDG mode (TCP/UDP server, TCP/UDP client), Pair connection/Access Point Mode | Pair connection/Access Point Mode/ Modbus RTU Master/Slave, Modbus ASCII Master/Slave | Access Point |
| WLAN | IEEE Standard | a/b/g/n | a/b/g/n | a/b/g/n |
| | Radio Number | 1 | 1 | 1 |
| | Security | WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise | WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise | WEP, WAP/WAP2-Persona, WAP/WAP2-Enterprise |
| RF | MIMO | 2T2R | 2T2R | 2T2R |
| | Maximum Transmit Output Power | 19dBm (11n) | 19dBm (11n) | 19dBm (11n) |
| | Receive Sensitivity | -93dBm (11g Rx0+Rx1) | -93dBm (11g Rx0+Rx1) | -93dBm (11g Rx0+Rx1) |
| | Antenna Connector | R-SMA | R-SMA | R-SMA |
| Cellular | Standard | - | - | - |
| | Five-band option in UMTS | - | - | - |
| | Quad-band optin in EDGE/GSM | - | - | - |
| | Certification (GCF, PTCRB) | - | - | - |
| Certification | UL60950-1 | - | - | - |
| | EN60950-1 | - | - | - |
| | CE (EN55022 class A, EN55024) | ✓ | ✓ | ✓ |
| | FCC (part 15 subpart B class A) | ✓ | ✓ | ✓ |
| | Hazardous Location (Class I, Division 2) | - | - | - |
| | Radio (EN 301 489-1/-4, EN 301 511) | - | - | - |
| | Radio (FCC part 22H, part 24E) | - | - | - |
| | EN 50155 | - | - | - |

## Wireless Sensing Network

| | Model Name | BB-WSW | WISE-6610-XX00 | WISE-6610-XX00C |
|---|---|---|---|---|
| | Description | Industrial LoRaWAN Node | 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 | LoRaWAN/LTE |
| | Communication Interface | BB-WSW2C00015: Modbus RS-485<br>BB-WSW2C42100: AI/DI/DO | LoRaWAN | LoRaWAN |
| | Temp | -40~75 °C | -40~75 °C | -40~75 °C |
| | Power Input | 9~36 VDC | 9~36 VDC | 9~36 VDC |
| | Dimensions (W x Hx D) | 95 x 116 x 65 mm | 150 x 37.5 x 83 mm | 150 x 37.5 x 83 mm |
| | Weight | 340g | 500g | 500g |

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

# Industrial Cellular Routers and Gateways

| | | LR77 v2 Libratum | UR5i v2 Libratum | LR77 v2 | UR5i v2 | XR5i v2E | XR5i v2F |
|---|---|---|---|---|---|---|---|
| Region | EMEA | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | NAM | - | - | - | - | - | ERT31x |
| | ASIA & LATAM | - | ✓ | | ✓ | ✓ | ✓ |
| | AUS & NZ | - | ✓ | - | - | - | - |
| Mobile Wireless Network Technology | GPRS/EDGE | ✓ | ✓ | ✓ | ✓ | - | - |
| | UMTS/HSPA+ | ✓ | ✓ | ✓ | ✓ | - | - |
| | LTE | Cat.3 | - | Cat.3 | - | - | - |
| | LTE 450 | - | - | - | - | - | - |
| | WAN ETHERNET | ✓ | ✓ | optional | optional | ✓ | ✓ |
| | Two VF modules | - | - | - | - | - | - |
| Communication Interfaces and Expansions | Ethernet 10/100 | 2x | 2x | 1x - 3x | 1x - 3x | 2x | 1x - 3x |
| | PoE PSE / PoE PD | - | - | - | - | - | - |
| | SD Card Holder | - | - | optional | optional | - | optional |
| | Wi-Fi (IEEE 802.11 b, g, n) | optional | optional | optional | optional | optional | optional |
| | USB Host | - | - | ✓ | ✓ | - | ✓ |
| | RS232/RS422/RS485 | - | - | optional | optional | - | optional |
| | MBUS, Wireless MBUS | - | - | optional | optional | - | optional |
| | I/O CNT (4x bin. IN, 2x analog IN, 1x output) | - | - | optional | optional | - | optional |
| | I/O (1xIN/1xOUT) | - | - | ✓ | ✓ | - | ✓ |
| | GPS Receiver | - | - | optional | optional | - | |
| CPU, Ram, Consuption, Sim, Design, Environmental, Dimensions | CPU Power (MHz) | 333 | 333 | 333 | 333 | 333 | 333 |
| | Flash RAM / RAM / M-RAM (MB / MB / kB) | 16 / 64 / 128 | 16 / 64 / 128 | 16 / 64 / 128 | 16 / 64 / 128 | 16 / 64 / 128 | 16 / 64 / 128 |
| | Consumption - Idle / Average / Peak / Sleep Mode | 2,3 / 3,5 / 5,5W / - | 2,3 / 3,5 / 5,5W / - | 2,3 / 4 / 6W / - | 2,3 / 4 / 6W / - | 2,3 / 4 / 6W / - | 2 / 2,5 / 3W / - |
| | 2xSIM Card | ✓ | ✓ | optional | optional | - | - |
| | Power Supply (V DC) | 9 - 36 | 9 - 36 | 9 - 36 | 9 - 36 | 9 - 36 | 9 - 36 |
| | Op. Temperature (°C) | -40 to +75 | -40 to +75 | -40 to +75 | -40 to +75 | -40 to +75 | -40 to +75 |
| | Plastic Casing (mm) | 51x87x116 | 51x87x116 | 51x87x116 | 51x87x116 | 51x87x116 | 51x87x116 |
| | Metal Casing (mm) | 42x87x113 | 42x87x113 | 42x87x113 | 42x87x113 | 42x87x113 | 42x87x113 |
| | DIN holder TS35/TS32 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Functions | Linux | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IPSec, OpenVPN, PPTP, L2TP, GRE, Easy VPN | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Authentication (X.509 certificate, Pre-shared key, PW) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Firewall, NAT/PAT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | DHCP Server, Client, Relay | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | HTTP/HTTPS Server, Telnet/ SSH, NTP Server, NTP Client | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | DynDNS | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | FTP Server | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SNMP, VRRP, PPPoE Bridge | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SMTP, E-mail, SMS Functions | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | VLAN 802.1Q | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | QoS, IGMP, BGP, OSPF, RIP | optional | optional | optional | optional | optional | optional |
| | IPv6 Dual Stack | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | COM Port TCP/UDP server/ client | - | - | ✓ | ✓ | - | ✓ |
| | MODBUS RTU/TCP Gateway | - | - | optional | optional | - | optional |
| | 4 Configuration Profiles | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Automatic Configuration and FW Update | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Additional Software Support | Supports Software User Modules (free space for UM) | 2 MB | 2 MB | 2 MB | 2 MB | 2 MB | 2 MB |
| | WebAccess/DMP | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | R-SeeNet | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | WebAccess/VPN | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Python, Node-RED | | | | | | |

| | | ☞ SmartFlex LAN | ☞ SmartFlex | ☞ SmartMotion | ☞ SmartStart |
|---|---|---|---|---|---|
| Region | EMEA | BB-SR300 | BB-SR303, BB-SR304, BB-SR307 | BB-ST352, BB-ST355 | BB-SL304 |
| | NAM | BB-SR300 | BB-SR305 | - | BB-SL302 |
| | ASIA & LATAM | BB-SR300 | BB-SR304 | - | BB-SL306, BB-SL304 |
| | AUS & NZ | BB-SR300 | BB-SR308 | - | - |
| Mobile Wireless Network Technology | GPRS/EDGE | - | ✓ | ✓ | ✓ |
| | UMTS/HSPA+ | - | ✓ | ✓ | ✓ |
| | LTE | - | Cat.3/Cat.4 | Cat.3 | Cat.1/Cat.4 |
| | LTE 450 | - | SR307 | ST355 | - |
| | WAN ETHERNET | ✓ | ✓ | ✓ | - |
| | Two VF modules | - | - | ✓ | - |
| Communication Interfaces and Expansions | Ethernet 10/100 | 5x | 2x - 5x | 2x | 1x |
| | PoE PSE / PoE PD | optional | optional | optional | - |
| | SD Card Holder | ✓ | ✓ | ✓ | - |
| | Wi-Fi (IEEE 802.11 b, g, n) | optional | optional | optional | optional |
| | USB Host | ✓ | ✓ | ✓ | |
| | RS232/RS422/RS485 | - | optional | - | RS232 |
| | MBUS, Wireless MBUS | - | - | - | - |
| | I/O CNT (4x bin. IN, 2x analog IN, 1x output) | - | - | - | - |
| | I/O (1xIN/1xOUT) | 2xIN / 1xOUT | 2xIN / 1xOUT | 2xIN / 1xOUT | ✓ |
| | GPS Receiver | - | by module | ✓ | - |
| CPU, Ram, Consuption, Sim, Design, Environmental, Dimensions | CPU Power (MHz) | 1000 | 1000 | 1000 | 1000 |
| | Flash RAM / RAM / M-RAM (MB / MB / kB) | 256 / 512 / 128 | 256 / 512 / 128 | 256 / 512 / 128 | 256 / 512 / 128 |
| | Consumption - Idle / Average / Peak / Sleep Mode | 2,5 / 4 / 11 W / 10mW | 2,5 / 4 / 11 W / 10mW | 2,5 / 4 / 11 W / 10mW | 2,7 / 5.5 / 11 W / 40mW |
| | 2xSIM Card | - | ✓ | 4x | a |
| | Power Supply (V DC) | 10 - 60 | 10 - 60 | 10 - 60 | 9 - 36 |
| | Op. Temperature (°C) | -40 to +75 | -40 to +75 (-40 to +70 LTE450) | -40 to +75 (-40 to +70 LTE450) | -40 to +75 |
| | Plastic Casing (mm) | 55x97x125 | 55x97x125 | | 30x87x127 |
| | Metal Casing (mm) | 55x97x125 | 55x97x125 | 55x97x125 | |
| | DIN holder TS35/TS32 | ✓ | ✓ | ✓ | Wall / DIN |
| Functions | Linux | ✓ | ✓ | ✓ | ✓ |
| | IPSec, OpenVPN, PPTP, L2TP, GRE, Easy VPN | ✓ | ✓ | ✓ | ✓ |
| | Authentication (X.509 certificate, Pre-shared key, PW) | ✓ | ✓ | ✓ | ✓ |
| | Firewall, NAT/PAT | ✓ | ✓ | ✓ | ✓ |
| | DHCP Server, Client, Relay | ✓ | ✓ | ✓ | ✓ |
| | HTTP/HTTPS Server, Telnet/ SSH, NTP Server, NTP Client | ✓ | ✓ | ✓ | ✓ |
| | DynDNS | ✓ | ✓ | ✓ | ✓ |
| | FTP Server | ✓ | ✓ | ✓ | ✓ |
| | SNMP, VRRP, PPPoE Bridge | ✓ | ✓ | ✓ | ✓ |
| | SMTP, E-mail, SMS Functions | ✓ | ✓ | ✓ | ✓ |
| | VLAN 802.1Q | ✓ | ✓ | ✓ | ✓ |
| | QoS, IGMP, BGP, OSPF, RIP | optional | optional | optional | optional |
| | IPv6 Dual Stack | ✓ | ✓ | ✓ | ✓ |
| | COM Port TCP/UDP server/ client | - | ✓ | ✓ | ✓ |
| | MODBUS RTU/TCP Gateway | - | optional | optional | optional |
| | 4 Configuration Profiles | ✓ | ✓ | ✓ | ✓ |
| | Automatic Configuration and FW Update | ✓ | ✓ | ✓ | ✓ |
| Additional Software Support | Supports Software User Modules (free space for UM) | 128 MB | 128 MB | 128 MB | 128 MB |
| | WebAccess/DMP | ✓ | ✓ | ✓ | ✓ |
| | R-SeeNet | ✓ | ✓ | ✓ | ✓ |
| | WebAccess/VPN | ✓ | ✓ | ✓ | ✓ |
| | Python, Node-RED | ✓ | ✓ | ✓ | ✓ |

# Industrial Cellular Routers and Gateways

| | | ICR-3200 | ICR-3201 | ICR-3831 |
|---|---|---|---|---|
| Region | EMEA | ICR-3231 | ICR-3201 | ICR-3831 |
| | NAM | ICR-3241, ICR-3211 | ICR-3201 | - |
| | ASIA & LATAM | - | ICR-3201 | - |
| | AUS & NZ | ICR-3232 | ICR-3201 | - |
| Mobile Wireless Network Technology | GPRS/EDGE | ✓ | - | ✓ |
| | UMTS/HSPA+ | ✓ | - | ✓ |
| | LTE | Cat.4/Cat M1 | - | Cat.4 |
| | LTE 450 | - | - | - |
| | WAN ETHERNET | ✓ | ✓ | ✓ |
| | Two VF modules | - | - | - |
| Communication Interfaces and Expansions | Ethernet 10/100 | 2x | 2x | 2x (M12 connector) |
| | PoE PSE / PoE PD | - | - | PoE PD |
| | SD Card Holder | - | - | ✓ |
| | Wi-Fi (IEEE 802.11 b, g, n) | optional | optional | - |
| | USB Host | - | - | ✓ (M12 connector) |
| | RS232/RS422/RS485 | RS232/RS485 | RS232/RS485 | RS232 (M12 connector) |
| | MBUS, Wireless MBUS | - | - | - |
| | I/O CNT (4x bin. IN, 2x analog IN, 1x output) | - | - | - |
| | I/O (1xIN/1xOUT) | ✓ | ✓ | 2xIN / 2xOUT (M12 connector) |
| | GPS Receiver | optional | optional | ✓ |
| CPU, Ram, Consuption, Sim, Design, Environmental, Dimensions | CPU Power (MHz) | 1000 | 1000 | 1000 |
| | Flash RAM / RAM / M-RAM (MB / MB / kB) | 2x 256 MB – FW<br>512 MB – User data storage 838 MB – Space for User Modules | 2x 256 MB – FW<br>512 MB – User data storage 838 MB – Space for User Modules | 256 / 512 / 128 |
| | Consumption - Idle / Average / Peak / Sleep Mode | 2.5 / 4 W / 11 W / 10 mW | 2.5 / 4 W / 11 W / 10 mW | 2,5 / 4 / 11 W / 10mW |
| | 2xSIM Card | a/ eSIM | - | ✓ |
| | Power Supply (V DC) | 9 - 36 | 9 - 36 | 12 - 48 |
| | Op. Temperature (°C) | -40 to +75 | -40 to +75 | -40 to +70 |
| | Plastic Casing (mm) | | | |
| | Metal Casing (mm) | 55 x 97 x 125 | 55 x 97 x 125 | 59 x 113 x 203 |
| | DIN holder TS35/TS32 | Wall / DIN | Wall / DIN | Wall |
| Functions | Linux | ✓ | ✓ | ✓ |
| | IPSec, OpenVPN, PPTP, L2TP, GRE, Easy VPN | ✓ | ✓ | ✓ |
| | Authentication (X.509 certificate, Pre-shared key, PW) | ✓ | ✓ | ✓ |
| | Firewall, NAT/PAT | ✓ | ✓ | ✓ |
| | DHCP Server, Client, Relay | ✓ | ✓ | ✓ |
| | HTTP/HTTPS Server, Telnet/ SSH, NTP Server, NTP Client | ✓ | ✓ | ✓ |
| | DynDNS | ✓ | ✓ | ✓ |
| | FTP Server | ✓ | ✓ | ✓ |
| | SNMP, VRRP, PPPoE Bridge | ✓ | ✓ | ✓ |
| | SMTP, E-mail, SMS Functions | ✓ | ✓ | ✓ |
| | VLAN 802.1Q | ✓ | ✓ | ✓ |
| | QoS, IGMP, BGP, OSPF, RIP | optional | optional | optional |
| | IPv6 Dual Stack | ✓ | ✓ | ✓ |
| | COM Port TCP/UDP server/ client | ✓ | ✓ | ✓ |
| | MODBUS RTU/TCP Gateway | optional | optional | optional |
| | 4 Configuration Profiles | ✓ | ✓ | ✓ |
| | Automatic Configuration and FW Update | ✓ | ✓ | ✓ |
| Additional Software Support | Supports Software User Modules (free space for UM) | 838 MB | 838 MB | 128 MB |
| | WebAccess/DMP | ✓ | ✓ | ✓ |
| | R-SeeNet | ✓ | ✓ | ✓ |
| | WebAccess/VPN | ✓ | ✓ | ✓ |
| | Python, Node-RED | ✓ | ✓ | ✓ |

# Industrial Network Infrastructure

## IMC-700

### Intelligent Modular Media Converters

The centralized powered chassis design along with SNMP management increases installation flexibility for high-end deployment.

- Supports iView² with capacity of more than 400 devices
- High-port density modules for Ethernet to fiber applications
- Comes with AC or DC power inputs for redundancy
- Supports Network management via iView² and SNMP for remote management
- Wide speed ranges up to 10GE transmission

## Intelligent Modular Chassis

| Part Number | Slot | Power Input |
|---|---|---|
| IMC-711 | 1 | AC / DC |
| IMC-712 | 2 | AC / DC |
| IMC-713* | 3 | Dual AC/DC |
| IMC-716* | 6 | Dual AC/DC |
| IMC-719* | 20 | Dual AC/DC |

*** Needs to work with a centralized SNMP module IMC-710 for network management.**
**IMC-710:** 2 x 10/100Mbps RJ-45 Slide-In SNMP Management Module

## Unmanageable Slide-in Modules

| Part Number | Optical Speed | Optical Mode | Wavelength | Distance | Optical Connector | Wide Temp. |
|---|---|---|---|---|---|---|
| IMC-790-2XFP | 10Gbps | Various | Various | Various | 2 x XFP | No |
| IMC-790-2SFP | 10Gbps | Various | Various | Various | 2 x SFP+ | No |
| IMC-771-MM | 1000Mbps | Multi-Mode | 850 nm | 550 m | 1 x SC | No |
| IMC-771-SM | 1000Mbps | Single-Mode | 1310 nm | 10 km | 1 x SC | No |
| IMC-771-SE | 1000Mbps | Single-Mode | 1310 nm | 40 km | 1 x SC | No |
| IMC-771-SXL | 1000Mbps | Single-Mode | 1550 nm | 100 km | 1 x SC | No |
| IMC-771-SST | 1000Mbps | Single-Strand | 1310T/1550R | 10 km | 1 x SC | No |
| IMC-771-SSR | 1000Mbps | Single-Strand | 1550T/1310R | 10 km | 1 x SC | No |
| IMC-771-SSET | 1000Mbps | Single-Strand | 1310T/1550R | 40 km | 1 x SC | No |
| IMC-771-SSER | 1000Mbps | Single-Strand | 1550T/1310R | 40 km | 1 x SC | No |
| IMC-771-SS4T | 1000Mbps | Single-Strand | 1490T/1550R | 70 km | 1 x SC | No |
| IMC-771-SS4R | 1000Mbps | Single-Strand | 1550T/1490R | 70 km | 1 x SC | No |
| IMC-771I-SFP | 1000Mbps | Various | Various | Various | 1 x SFP | Yes |
| IMC-770-MM | 10/100/1000Mbps | Multi-Mode | 850 nm | 550 m | 1 x SC | No |
| IMC-770-SM | 10/100/1000Mbps | Single-Mode | 1310 nm | 10 km | 1 x SC | No |
| IMC-770-SSR | 10/100/1000Mbps | Single-Strand | 1550T/1310R | 10 km | 1 x SC | No |
| IMC-770-SFP | 10/100/1000Mbps | Various | Various | Various | 1 x SFP | No |
| IMC-770I-2SFP | 10/100/1000Mbps | Various | Various | Various | 2 x SFP | Yes |
| IMC-751-SST | 100Mbps | Single-Strand | 1310T/1550R | 20 km | 1 x SC | No |
| IMC-751-SSR | 100Mbps | Single-Strand | 1550T/1310R | 20 km | 1 x SC | No |
| IMC-751-SSET | 100Mbps | Single-Strand | 1310T/1550R | 40 km | 1 x SC | No |
| IMC-751-SSER | 100Mbps | Single-Strand | 1550T/1310R | 40 km | 1 x SC | No |
| IMC-751-SE | 100Mbps | Single-Mode | 1310nm | 40 km | 1 x SC | No |
| IMC-751I-2SFP | 100Mbps | Various | Various | Various | 2 x SFP | Yes |
| IMC-750-SST | 10/100Mbps | Single-Strand | 1310T/1550R | 20 km | 1 x SC | No |
| IMC-750-SSR | 10/100Mbps | Single-Strand | 1550T/1310R | 20 km | 1 x SC | No |
| IMC-750-SSET | 10/100Mbps | Single-Strand | 1310T/1550R | 40 km | 1 x SC | No |
| IMC-750-SSER | 10/100Mbps | Single-Strand | 1550T/1310R | 40 km | 1 x SC | No |
| IMC-750I-SFP | 10/100Mbps | Various | Various | Various | 1 x SFP | Yes |

## Manageable Slide-in Modules

| Part Number | Optical Speed | Optical Mode | Wavelength | Distance | Optical Connector | Wide Temp. |
|---|---|---|---|---|---|---|
| IMC-784I-SFP | 10/100/1000 Mbps | Various | Various | Various | 2 x SFP | Yes |
| IMC-782-SFP | 10/100/1000 Mbps | Various | Various | Various | 1 x SFP | No |
| IMC-762-SST | 10/100 Mbps | Single-Strand | 1310T/1550R | 20 km | 1 x SC | No |
| IMC-762-SSR | 10/100 Mbps | Single-Strand | 1550T/1310R | 20 km | 1 x SC | No |
| IMC-762-SSET | 10/100 Mbps | Single-Strand | 1310T/1550R | 40 km | 1 x SC | No |
| IMC-762-SSER | 10/100 Mbps | Single-Strand | 1550T/1310R | 40 km | 1 x SC | No |
| IMC-762-SFP | 10/100 Mbps | Various | - | Various | 1 x SFP | No |
| IMC-721I-MMST | DS1 | Multi-Mode | 1310nm | 40 km | 1 x ST | Yes |
| IMC-721I-MM | DS1 | Multi-Mode | 1310nm | 40 km | 1 x SC | Yes |
| IMC-721I-SEST | DS1 | Single-Mode | 1300nm | 5 km | 1 x ST | Yes |
| IMC-721I-SE | DS1 | Single-Mode | 1300nm | 5 km | 1 x SC | Yes |
| IMC-721I-SL | DS1 | Single-Mode | 1310nm | 80 km | 1 x SC | Yes |
| IMC-721I-SST | DS1 | Single-Strand | 1310T/1550R | 20 km | 1 x SC | Yes |
| IMC-721I-SSR | DS1 | Single-Strand | 1550T/1310R | 20 km | 1 x SC | Yes |
| IMC-721I-SSET | DS1 | Single-Strand | 1310T/1550R | 40 km | 1 x SC | Yes |
| IMC-721I-SSER | DS1 | Single-Strand | 1550T/1310R | 40 km | 1 x SC | Yes |
| IMC-721I-SFP | DS1 | Various | Various | Various | 1 x SFP | Yes |
| IMC-721I-T1MUX | DS1 | Various | Various | Various | 2 x SFP | Yes |
| IMC-721I-E1MUX | DS1 | Various | Various | Various | 2 x SFP | Yes |

# Industrial Network Infrastructure

## IMC-300

### Miniature Media Converters

Featuring ultra-small design, the miniature media converters fit almost every corner of your application. Using them with a centralized powered chassis will highly increase space and power usage efficiency.

- 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

## IMC-400

### Compact Media Converters

The compact media converters is built with embedded power supply(s) and can free users from purchasing extra power sourcing devices, saving cost, and reducing wiring complexity.

- Supports internal AC power supply
- Supports automatic link restoration
- Provides rate conversion, distance extension, multiple types of fixed fiber connectors or open slots for Small Form-Factor Pluggable (SFP) connections

## Compact Media Converter Series

| Part Number | Ethernet Speed | Optical Mode | Wavelength | Distance | Optical Connector |
|---|---|---|---|---|---|
| ☞ IMC-450-MM | 10/100 Mbps | Multi-Mode | 1300 nm | 5 km | SC / ST |
| ☞ IMC-450-SE | 10/100 Mbps | Single-Mode | 1310 nm | 40 km | SC / ST |
| ☞ IMC-450-SL | 10/100 Mbps | Single-Mode | 1310 nm | 80 km | SC / ST |
| ☞ IMC-470-MM | 10/100/1000 Mbps | Multi-Mode | 850 nm | 550 m | SC |
| ☞ IMC-470-M1 | 10/100/1000 Mbps | Multi-Mode | 1300 nm | 2 km | SC |
| ☞ IMC-470-SM | 10/100/1000 Mbps | Single-Mode | 1310 nm | 10 km | SC |
| IMC-470-SE | 10/100/1000 Mbps | Single-Mode | 1310 nm | 40 km | SC |
| ☞ IMC-470-SFP | 10/100/1000 Mbps | Various | Various | Various | SFP |

## 10/100Mbps Miniature Media Converters

| Part Number | Optical Mode | Wavelength | Distance | Optical Connector |
|---|---|---|---|---|
| ☞ IMC-350-M8ST-PS-A | Multi-Mode | 850 nm | 2 km | ST |
| ☞ IMC-350-M8ST-A | Multi-Mode | 850 nm | 2 km | ST |
| ☞ IMC-350-M8-PS-A | Multi-Mode | 850 nm | 2 km | SC |
| ☞ IMC-350-M8-A | Multi-Mode | 850 nm | 2 km | SC |
| ☞ IMC-350-USB-A | Multi-Mode | 850 nm | 2 km | SC |
| ☞ IMC-350-MMST-PS-A | Multi-Mode | 1300 nm | 5 km | ST |
| ☞ IMC-350-MMST-A | Multi-Mode | 1300 nm | 5 km | ST |
| ☞ IMC-350-MM-PS-A | Multi-Mode | 1300 nm | 5 km | SC |
| ☞ IMC-350-MM-A | Multi-Mode | 1300 nm | 5 km | SC |
| ☞ IMC-350-SEST-PS-A | Single-Mode | 1310 nm | 40 km | ST |
| ☞ IMC-350-SEST-A | Single-Mode | 1310 nm | 40 km | ST |
| ☞ IMC-350-SE-PS-A | Single-Mode | 1310 nm | 40 km | SC |
| ☞ IMC-350-SE-A | Single-Mode | 1310 nm | 40 km | SC |
| ☞ IMC-350-SL-PS-A | Single-Mode | 1310 nm | 80 km | SC |
| ☞ IMC-350-SL-A | Single-Mode | 1310 nm | 80 km | SC |
| ☞ IMC-350-SSMT-PS-A | Single-Strand | 1310T/1550R | 2 km | SC |
| ☞ IMC-350-SSMR-PS-A | Single-Strand | 1550T/1310R | 2 km | SC |
| ☞ IMC-350-SST-PS-A | Single-Strand | 1310T/1550R | 20 km | SC |
| ☞ IMC-350-SSR-PS-A | Single-Strand | 1550T/1310R | 20 km | SC |
| ☞ IMC-350-SFP-PS-A | Various | Various | Various | SFP |
| ☞ IMC-350-SFP-A | Various | Various | Various | SFP |

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

| Part Number | Optical Mode | Wavelength | Distance | Optical Connector |
|---|---|---|---|---|
| IMC-350I-M8ST-PS-A | Multi-Mode | 850 nm | 2 km | ST |
| IMC-350I-M8ST-A | Multi-Mode | 850 nm | 2 km | ST |
| IMC-350I-M8-PS-A | Multi-Mode | 850 nm | 2 km | SC |
| IMC-350I-M8-A | Multi-Mode | 850 nm | 2 km | SC |
| IMC-350I-MMST-PS-A | Multi-Mode | 1300 nm | 5 km | ST |
| IMC-350I-MMST-A | Multi-Mode | 1300 nm | 5 km | ST |
| IMC-350I-MM-PS-A | Multi-Mode | 1300 nm | 5 km | SC |
| IMC-350I-MM-A | Multi-Mode | 1300 nm | 5 km | SC |
| IMC-350I-SEST-PS-A | Single-Mode | 1310 nm | 40 km | ST |
| IMC-350I-SEST-A | Single-Mode | 1310 nm | 40 km | ST |
| IMC-350I-SE-PS-A | Single-Mode | 1310 nm | 40 km | SC |
| IMC-350I-SE-A | Single-Mode | 1310 nm | 40 km | SC |
| IMC-350I-SL-PS-A | Single-Mode | 1310 nm | 80 km | SC |
| IMC-350I-SST-PS-A | Single-Strand | 1310T/1550R | 20 km | SC |
| IMC-350I-SST-A | Single-Strand | 1310T/1550R | 20 km | SC |
| IMC-350I-SSR-PS-A | Single-Strand | 1550T/1310R | 20 km | SC |
| IMC-350I-SSR-A | Single-Strand | 1550T/1310R | 20 km | SC |
| IMC-350I-SFP-PS-A | Various | Various | Various | SFP |

## 10/100/1000Mbps Miniature Media Converters

| Part Number | Optical Mode | Wavelength | Distance | Optical Connector |
|---|---|---|---|---|
| IMC-370-MM-PS-A | Multi-Mode | 850 nm | 550 m | SC |
| IMC-370-MMST-PS-A | Multi-Mode | 850 nm | 550 m | ST |
| IMC-370-SM-PS-A | Single-Mode | 1310 nm | 10 km | SC |
| IMC-370-SE-PS-A | Single-Mode | 1310 nm | 40 km | SC |
| IMC-370-SL-PS-A | Single-Mode | 1550 nm | 80 km | SC |
| IMC-370-SST-PS-A | Single-Strand | 1310T/1550R | 15 km | SC |
| IMC-370-SSR-PS-A | Single-Strand | 1550T/1310R | 15 km | SC |
| IMC-370-SFP-PS-A | Various | Various | Various | SFP |

## Industrial Grade 10/100/1000Mbps Miniature Media Converters

| Part Number | Optical Mode | Wavelength | Distance | Optical Connector |
|---|---|---|---|---|
| IMC-370I-MM-A | Multi-Mode | 850 nm | 550 m | SC |
| IMC-370I-MM-PS-A | Multi-Mode | 850 nm | 15 km | SC |
| IMC-370I-SM-A | Single-Mode | 1310 nm | 15 km | SC |
| IMC-370I-SM-PS-A | Single-Mode | 1310 nm | 15 km | SC |
| IMC-370I-SE-PS-A | Single-Mode | 1310 nm | 30 km | SC |
| IMC-370I-SST-PS-A | Single-Strand | 1310T/1550R | 15 km | SC |
| IMC-370I-SSR-PS-A | Single-Strand | 1550T/1310R | 15 km | SC |
| IMC-370I-SFP-A | Various | Various | Various | SFP |
| IMC-370I-SFP-PS-A | Various | Various | Various | SFP |

For IMC-350 and IMC-370 series, "-PS-A" means a universal power adapter with US/EU/UK/AU/JP plugs are included

# Industrial Network Infrastructure

## PoE+/ PoE Media Converters

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

| Part Number | PSE | Optical Mode | Wavelength | Distance | Optical Connector | Internal Power |
|---|---|---|---|---|---|---|
| IMC-380-SFP | 1 x PoE | Various | Various | Various | SFP | No |
| IMC-390-MM | 2 x PoE+ | Multi-Mode | 850 nm | 550 m | SC | No |
| IMC-390-M1 | 2 x PoE+ | Multi-Mode | 1310 nm | 2 km | SC | No |
| IMC-390-SM | 2 x PoE+ | Single-Mode | 1310 nm | 15 km | SC | No |
| IMC-390-SFP | 2 x PoE+ | Various | Various | Various | SFP | No |
| IMC-480-M8 | 1 x PoE | Multi-Mode | 850 nm | 2 km | SC | Yes |
| IMC-480-M8ST | 1 x PoE | Multi-Mode | 850 nm | 2 km | ST | Yes |
| IMC-480-MM | 1 x PoE | Multi-Mode | 1300 nm | 5 km | SC | Yes |
| IMC-480-MMST | 1 x PoE | Multi-Mode | 1300 nm | 5 km | ST | Yes |
| IMC-480-SE | 1 x PoE | Single-Mode | 1310 nm | 40 km | SC | Yes |
| IMC-480-SEST | 1 x PoE | Single-Mode | 1310 nm | 40 km | ST | Yes |
| IMC-490-MM | 1 x PoE+ | Multi-Mode | 850 nm | 550 m | SC | Yes |
| IMC-490-M1 | 1 x PoE+ | Multi-Mode | 1300 nm | 2 km | SC | Yes |
| IMC-490-SM | 1 x PoE+ | Single-Mode | 1310 nm | 10 km | SC | Yes |
| IMC-490-SFP | 1 x PoE+ | Various | Various | Various | SFP | Yes |

## Industrial Long-Reach Ethernet Extenders

Injecting data and power together, the IMC-150LPI and IMC-150LI are brand new leading products which break the 100-meter limitation to extend Ethernet transmission distance. The extender is flexible and freely extends existing Ethernet networks to reach remote IP devices. Compliant with IEEE 802.3at PoE+ standard, it delivers power over cable without the distance limitations of traditional copper wires. DIP switches for various LAN rates strike the perfect balance of rates and distances for each device.

| Part Number | Ethernet Speed | PoE+ | UTP | Coaxial |
|---|---|---|---|---|
| IMC-150LPI | 10/100 Mbps | PSE/PD | 2 x RJ-45 | - |
| IMC-150LI | 10/100 Mbps | - | 2 x RJ-45 | 1 x BNC |

## Media Converters

| Model name | EKI-2741SL/ML | EKI-2741FL | EKI-2541SL/ML |
|---|---|---|---|
| Standard | IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.3z | IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.3z | IEEE 802.3, 802.3u, 802.3x |
| RJ45 Port Interface | 1 x 10/100/1000Base-T(X) | 1 x 10/100/1000Base-T(X) | 1 x 10/100Base-T(X) |
| RJ45 Transmission Distance | 1000 m | 1000 m | 100 m |
| Fiber Port Interface | SL: Singel Mode<br>ML: Multi Mode | SFP | SL: Singel Mode<br>ML: Multi Mode |
| Fiber Port Connector | 1 | 1 | 1 |
| Fiber Transmission Distance | SL: Up to 10km<br>ML: Up to 550m | - | SL: Up to 30km<br>ML: Up to 2km |
| Switch Fabric Speed | 1.25Gbps | 1.25Gbps | 125Mbps |
| Jumbo Frame | 9216 bytes | 9216 bytes | - |
| Dimensions (W x H x D) mm | 22 x 101 x 75 mm | 23 x 60 x 75 mm | 22 x 101 x 75 mm |
| Dimensions (W x H x D) mm | 75 x 22.6 x 101.2 mm | 60.88 x 23 x 75.58 mm | 75 x 22.6 x 101.2 mm |
| Dimensions (W x H x D) inch | 2.95" x 0.89" x 3.98" | 2.4" x 0.91" x 2.98" | 2.95" x 0.89" x 3.98" |
| IP Grade | IP30 | IP30 | IP30 |
| Enclosure | Metal | Metal | Metal |
| Weight | 226 g | 158 g | 213 g |
| Operating Temperature | 0~50°C | 0~50°C | 0~50°C |
| Storage Temperature | -40~70°C | -40~70°C | -40~70°C |
| Relative Humidity (Non-condensing) | 5% ~ 90% RH (non-condensing) | 5% ~ 90% RH (non-condensing) | 5% ~ 90% RH (non-condensing) |
| Time (25 degree C) | 1269493 hours | 1031686 hours | 1776203 hours |
| Method | Telcordia(Relax), GB | Telcordia(Relax), GB | Telcordia(Relax), GB |
| Operating Voltage | 90-264 $V_{AC}$ | 90-264 $V_{AC}$ | 90-264 $V_{AC}$ |
| Operating Current (DC 5V) | SL: 0.61 A<br>ML: 0.6 A | 0.52 A | SL: 0.31 A<br>ML: 0.3 A |
| Power Consumption (DC 5V) | SL: 3.1 W<br>ML: 3.0W | 2.6 W | SL: 1.6 W<br>ML: 1.5 W |
| Reverse Polarity | Present | Present | Present |
| Safety | LVD EN60950 | LVD EN60950 | LVD EN60950 |
| EMC | CE, FCC | CE, FCC | CE, FCC |
| EMI | EN55024/EN 55032 Class A,<br>FCC Part 15 Subpart B Class A | | |
| EMS | EN 61000-4-2, EN 61000-4-3, EN 61000-4-4,<br>EN 61000-4-5, EN 61000-4-6, EN 61000-4-8,<br>EN61000-4-11 | | |
| Freefall | IEC 60068-2-32 | | |
| Vibration | IEC 60068-2-6 | | |
| Warranty Period | 2 years | | |

## VDSL Solutions

| Model name | EKI-1751 | EKI-1751I | EKI-1751PI-M/R |
|---|---|---|---|
| Standard | IEEE 802.3, 802.3u, 802.3x | IEEE 802.3, 802.3u, 802.3x | M: IEEE 802.3, 802.3u, 802.3x<br>R: IEEE 802.3, 802.3u, 802.3x, 802.3af/at |
| RJ45 Port Interface | 1 * 10/100BaseT(X)<br>+<br>1 * VDSL | 2 * RJ45 Etherent port +<br>1 * M12 Ethernet port | 4* RJ45 PoE Port |
| RJ45 Transmission Distance | 100 m | 100 m | 100 m |
| RJ45 w/ PoE Quantity | - | - | 4 |
| MAC Table Size | 1024 | 2K | - |
| Packet Buffer Size | 1024 byte | 1M bit | 1M bit |
| Switch Fabric Speed | 100Mbps | 100Mbps | 100Mbps |
| Jumbo Frame | - | - | - |
| Dimensions (W x H x D) | 72.5x 22.8 x 96.2 mm | 62 x 135 x 106.5 mm | 62 x 135 x 106.5 mm |
| IP Grade | IP30 | IP30 | IP30 |
| Enclosure | Metal | Metal | Metal |
| Weight | 0.22kg | 0.67kg | M: 0.7kg<br>R: 0.75kg |
| Mounting | Din Rail | Din Rail or Wall Mount | Din Rail or Wall Mount |
| Operating Temperature | 0~45°C (32~113°F) | -40~75°C (-40~167°F) | -40~75°C (-40~167°F) |
| Storage Temperature | -40~70°C (-40~158°F) | -40~85°C (-40~185°F) | -40~85°C (-40~185°F) |
| Relative Humidity (Non-condensing) | 0 ~ 95% | 5 ~ 95% | 5 ~ 95% |
| Time | 901,329 | 225,664 | M: 175496<br>R: 159617 |
| Method | MIL-HDBK-217 FN2 | MIL-HDBK-217 FN2 | MIL-HDBK-217 FN2 |
| Operating Voltage | 12 $V_{DC}$ | 12- 48 $V_{DC}$ | 48 - 57$V_{DC}$ |
| Operating Current | 400mA | 0.5A | 2A |
| Power Consumption | 4.2 W (system) | 5 W (system) | M: 65 W (system)<br>R: 125 W (system) |
| Connectors | DC Jack (power) | 6-pin removable screw terminal (power & relay) | |
| Reverse Polarity | N/A | Present | Present |
| Safety | UL 60950 | UL 60950 | UL 60950 |
| EMC | CE, FCC | CE, FCC | CE, FCC |
| EMI | EN 55032<br>EN 61000-6-4,<br>FCC Part 15 Subpart B<br>EN 61000-6-4,<br>FCC Part 15 Subpart B | EN 55011/ EN 55032<br>EN 61000-6-4,<br>FCC Part 15 Subpart B | |
| EMS | EN 61000-4-2 , EN 61000-4-3 ,<br>EN 61000-4-4 , EN 61000-4-5 ,<br>EN 61000-4-6 , EN 61000-4-8 | | |
| Shock | - | IEC 60068-2-27 | IEC 60068-2-27 |
| Freefall | - | IEC 60068-2-32 | IEC 60068-2-32 |
| Vibration | - | IEC 60068-2-6 | IEC 60068-2-6 |
| Warranty Period | 5 years | 5 years | 5 years |

# Industrial Network Infrastructure

## Media Converters and Injectors

| Description | | EKI-2741FPI | EKI-2742FPI | EKI-2741FHPI | EKI-2711HPI | EKI-2701HPI | EKI-2701PSI |
|---|---|---|---|---|---|---|---|
| Connectivity | 10/100/1000Based-Tx,fixed | - | - | - | - | 1 | 1 |
| | 10/100/1000Base-T PoE, Fixed | 1 | 2 | 1 | 2 | 1 | 1 |
| | Open SFP slot (GbE) | 1 | 1 | 1 | - | - | - |
| | Performance | - | - | - | - | - | - |
| | Auto MDI/MDI-X | ✓ | ✓ | ✓ | ✓ | - | - |
| | Auto Negotiation | ✓ | ✓ | ✓ | ✓ | - | - |
| | Store-and-Forward Switching | ✓ | ✓ | ✓ | ✓ | - | - |
| | Link Fault Pass-Through (LFP) | ✓ | - | ✓ | - | - | - |
| | MTBF | 743,594Hrs | 717,339Hrs | 730,083Hrs | 730,337Hrs | 1419817Hrs | 440,132Hrs |
| Traffic Control | Jumbo frame size | 10Kbytes | 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 | 36.7 x 108.4 x 103.5 mm | 37x140x95 mm | 37x140x95 mm |
| | Mounting way | DIN-Rail/Wall mount | DIN-Rail/Wall mount | DIN-Rail/Wall mount | DIN-Rail/Wall mount | DIN-Rail/Wall mount | DIN-Rail/Wall mount |
| | IP rating | IP31 | IP31 | IP31 | IP31 | IP30 | IP30 |
| Power | Power Input voltage | 48$V_{DC}$ | 48$V_{DC}$ | 48$V_{DC}$ | 48$V_{DC}$ | 24/48$V_{DC}$ | 44~57$V_{DC}$ |
| | Power Consumption | 34W | 63.5W | 63.5W | 63.5W | 33.36W | 17.76W |
| | Reverse protection | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Certification | UL60950-1 | - | - | - | - | - | ✓ |
| | UL508 | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| | UL-C1D2 | ✓ | ✓ | ✓ | ✓ | - | - |
| | FCC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

# SFP Modules

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

## Industrial Grade 1.25 Gbps SFP Modules w/ DDM

| Part Number | Wavelength | Optical Mode | Distance | Optical Connector | Sensitivity (dB) |
|---|---|---|---|---|---|
| SFP-GMM-550 | 850 nm | Multi-Mode | 550 m | LC | -17 |
| SFP-GMM-2K | 1310 nm | Multi-Mode | 2 km | LC | -19 |
| SFP-GSM-20K | 1310 nm | Single-Mode | 20 km | LC | -23 |
| SFP-GSM-30K | 1310 nm | Single-Mode | 30 km | LC | -24 |
| SFP-GSM-40K | 1550 nm | Single-Mode | 40 km | LC | -24 |
| SFP-GSS-40KTX-LC | 1310T/1550R | Single-Strand | 40 km | LC | -23 |
| SFP-GSS-40KRX-LC | 1550T/1310R | Single-Strand | 40 km | LC | -23 |
| SFP-GS4-70KTX-LC | 1490T/1550R | Single-Strand | 70 km | LC | -24 |
| SFP-GS4-70KRX-LC | 1550T/1490R | Single-Strand | 70 km | LC | -24 |
| SFP-GSS-20KTX | 1310T/1550R | Single-Strand | 20 km | SC | -23 |
| SFP-GSS-20KRX | 1550T/1310R | Single-Strand | 20 km | SC | -23 |
| SFP-GSS-40KTX | 1310T/1550R | Single-Strand | 40 km | SC | -23 |
| SFP-GSS-40KRX | 1550T/1310R | Single-Strand | 40 km | SC | -23 |
| SFP-GS4-70KTX | 1490T/1550R | Single-Strand | 70 km | SC | -24 |
| SFP-GS4-70KRX | 1550T/1490R | Single-Strand | 70 km | SC | -24 |

## Industrial Grade 1.25 Gbps SFP Modules

| Part Number | Wavelength | Optical Mode | Distance | Optical Connector | Sensitivity (dB) |
|---|---|---|---|---|---|
| SFP-GSX/LCI-AE | 850 nm | Multi-Mode | 550 m | LC | -17 |
| SFP-GLX/LCI-10E | 1310 nm | Single-Mode | 10 km | LC | -20 |
| SFP-GLX/LCI-20E | 1310 nm | Single-Mode | 20 km | LC | -23 |
| SFP-GLX/LCI-40E | 1310 nm | Single-Mode | 40 km | LC | -23 |

## 1.25 Gbps SFP Modules

| Part Number | Wavelength | Optical Mode | Distance | Optical Connector | Sensitivity (dB) |
|---|---|---|---|---|---|
| SFP-GSX/LC-AE | 850 nm | Multi-Mode | 550 m | LC | -17 |
| SFP-GLX/LC-10E | 1310 nm | Single-Mode | 10 km | LC | -20 |
| SFP-GLX/LC-20E | 1310 nm | Single-Mode | 20 km | LC | -23 |
| SFP-GLX/LC-40E | 1310 nm | Single-Mode | 40 km | LC | -23 |

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

| Part Number | Wavelength | Optical Mode | Distance | Optical Connector | Sensitivity (dB) |
|---|---|---|---|---|---|
| SFP-FMM850-2K | 850 nm | Multi-Mode | 2 km | LC | -26 |
| SFP-FMM-2K | 1300 nm | Multi-Mode | 2 km | LC | -32 |
| SFP-FSM-20K | 1310 nm | Single-Mode | 20 km | LC | -35 |
| SFP-FSM-40K | 1310 nm | Single-Mode | 40 km | LC | -36 |
| SFP-FSM-80K | 1310 nm | Single-Mode | 80 km | LC | -36 |
| SFP-FSS-20KTX | 1310T/1550R | Single-Strand | 20 km | SC | -32 |
| SFP-FSS-20KRX | 1550T/1310R | Single-Strand | 20 km | SC | -32 |
| SFP-FSS-40KTX | 1310T/1550R | Single-Strand | 40 km | SC | -34 |
| SFP-FSS-40KRX | 1550T/1310R | Single-Strand | 40 km | SC | -34 |

# SFP Modules

## Industrial Grade 100-155 Mbps SFP Modules

| Part Number | Wavelength | Optical Mode | Distance | Optical Connector | Sensitivity (dB) |
|---|---|---|---|---|---|
| ☞ SFP-FXM/LCI-AE | 1310 nm | Multi-Mode | 2 km | LC | -32 |
| ☞ SFP-FXS/LCI-30E | 1310 nm | Single-Mode | 30km | LC | -34 |

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

| Part Number | Wavelength | Optical Mode | Distance | Connector | Sensitivity (dB) |
|---|---|---|---|---|---|
| ☞ SFP-XMM-33-XFP | 850 nm | Multi-Mode | 33 m | LC | -9.9 |
| ☞ SFP-XSM-10K-XFP | 1310 nm | Single-mode | 10 km | LC | -14.4 |
| ☞ SFP-XSM-40K-XFP | 1550 nm | Single-mode | 40 km | LC | -16 |
| ☞ SFP-XSM-80K-XFP | 1550 nm | Single-mode | 80 km | LC | -23 |
| ☞ SFP-XMM-33 | 850 nm | Multi-Mode | 33 m | LC | -9.9 |
| ☞ SFP-XSM-10K | 1310 nm | Single-mode | 10 km | LC | -14.4 |
| ☞ SFP-XMM-LC-400 | 850nm | Multi-mode | 400 m | LC | -11.1 |
| ☞ SFP-XMM-LCI-400 | 850nm | Multi-mode | 400 m | LC | -11.1 |
| ☞ SFP-XSM-LC-10K | 1310nm | Single-mode | 10 km | LC | -12.6 |
| ☞ SFP-XSM-LCI-10K | 1310nm | Single-mode | 10 km | LC | -12.6 |
| ☞ SFP-XSM-LC-20K | 1310nm | Single-mode | 20 km | LC | -12.6 |
| ☞ SFP-XSM-LCI-20K | 1310nm | Single-mode | 20 km | LC | -12.6 |
| ☞ SFP-XSM-LC-40K | 1310nm | Single-mode | 40 km | LC | -12.6 |
| ☞ SFP-XSM-LCI-40K | 1310nm | Single-mode | 40 km | LC | -12.6 |

## Copper SFP Modules

| Part Number | Speed | Distance | Wide Temp. |
|---|---|---|---|
| ☞ SFP-GTX | 10/100/1000 Mbps | 100 m | - |
| ☞ SFP-GTXB | 1000 Mbps | 100 m | - |
| ☞ SFP-GTX/RJ45I-AE | 1000 Mbps | 100 m | Yes |

# Intelligent OBD Cellular Gateways

Advantech Model WISE-4773 series, Intelligent OBD Cellular Data Interface, collects data from GPS, Bluetooth beacons, and your vehicle's OBD port. The plug-and-play, self-installing device wirelessly transmits the data over the new G5 CAT M1 cellular network to your fleet management or analytics systems. Transport Layer Security (TLS) allows secure data connections to a configurable IP address via JSON over HTTPS and/or Cloud Management Platform for device management. All data in and out of the device is secure and encrypted.

## WISE-4773-S52U - Additional Features

- European vehicle support
- Bluetooth Beacon forwarding
- WiFi Access Point supporting up to 8 devices on a WLAN
- One BT serial connection profile
- One smart peripheral on either WiFi or Bluetooth communicating on an API
- Configure which peripheral port is smart
- Digital input report on change
- Digital output set from cellular connection
- User API

## WISE-4773-S51U and WISE-4773-S52U

| | |
|---|---|
| Vehicle Protocols | J1939, J1708/J1587, OBDII (NATAM) |
| Cellular | LTE, Category-M1, LTE CATM bands (USA), AT&T |
| Accelerometer | Digital, 3-axis, self-orientating (acceleration, braking, cornering) |
| Bluetooth | BT 4.1 (BTLE) |
| GPS/GLONASS/AGPS | At least 2.5 M CEP location accuracy |
| Wi-Fi | 802.11 b/g/n/e/i, AP or Client |
| Internal Antennas | GPS, Cellular, Bluetooth, Wi-Fi |
| Data Rate | Up to 15 Mbps |
| Transmit Power | 1MB: 12.5dBm; 54MB: 12.25dBm; 65MB: 9.25dBm |
| Receive Sensitivity | 1MB: -91dBm; 54MB: -75dBm; 65MB: -71dBm |
| Port Connector | (4) Terminal Block (digital I/O)<br>(1) J1962 (OBD) / ISO 15031 Type A |
| LEDs | Green = cellular network connection<br>Red = vehicle network connection |
| Buzzer Indicator | Hard braking, acceleration, cornering |
| Security | TLS cellular connection.<br>Tamper alert.<br>Automatic Ignition detection. |
| Configuration | Over cellular or CLI. |
| Data Transmission | Automatic cellular transmission.<br>Configurable interval.<br>Store-&-forwarding if cellular connection not available. |

## Common Features

| | | |
|---|---|---|
| Digital Outputs | Output Voltage Range | 0 - 30 V DC |
| | Output Type | Open drain |
| | Output Current | Not to be less than 100 mA |
| | Protection | Current limit protection |
| | isolation | None |
| Digital Inputs | Input Voltage Range | 0 - 48 V DC |
| | VIL | 0.4 V, maximum |
| | VIH | 2.5 V, minimum |
| | Pull-up Current | 65 uA |
| | Type | Sinking (NPN) Input |
| | Isolation | None |
| | Power Source | Direct power via OBD J1962P port<br>Battery backup<br>Low-power states. |
| | Operating Voltage | 9 to 36 V DC |
| | Power Consumption | <5 mA @ 12V DC deep sleep<br><15 mA @ 12V DC network sleep<br><150 mA @ 12V DC active |
| | Operating Temperature | -30 to +75 °C (-22 to +167 °F) |
| | Enclosure Dimensions | 68.6x48.3x25.4 mm (1.7x1.9x1.0 in) approx. |

# OBD Vehicle Converters

These Intelligent OBD vehicle data converters connect your PC, driver terminal, Java-enabled phone, or other on-board computing device to the OBD diagnostic bus of light-duty or heavy-duty vehicles. They enable the retrieval of the most commonly used parameters in telematics service provider (TSP) and fleet management system applications. With proprietary vehicle detection algorithm and embedded database, these converters provide a simple, operational protocol to communicate with the OBD bus on any compliant vehicle.

| | ☞ BB-LD3IC-S | BB-LD3-1939P1D | ☞ BB-HD3-A3 |
|---|---|---|---|
| Vehicle Interfaces | ISO 15765, LSGMLAN, Ford Secondary CAN | ISO 15765 (CAN), LSGMLAN, Ford Secondary CAN | J1939 & J1708/J1587 |
| OBD Data Support | 2008 light-duty vehicles | 2008 light-duty vehicles | 1996 heavy-duty vehicles |
| Host Connection | RS-232: DB9 female, DCE | J1939: DB9 female | RS-232: DB9 female, DCE |
| Ignition On / Signal Output | RS-232 CTS/DB9 Pin 6 | - | - |
| Power Consumption | 0.20W in Operating Mode<br>0.15W in Automatic Sleep Mode (Key Off) | 0.2W in Operating Mode<br>0.1W in Automatic Sleep Mode (Key Off) | 0.6W typical,<br>1.6W maximum (Key On) |
| Operating Voltage | 8 to 30 VDC | 8 to 30 VDC | 10 to 42 VDC |
| Operating Temperature | -40 to +85 °C (-40 to +185 °F) | -40 to +85 °C (-40 to +185 °F) | -40 to +85 °C (-40 to +185 °F) |
| Enclosure Dimensions | 68.6 x 48.3 x 25.4 mm<br>(2.7 x 1.9 x 1.0 in) | 104.1 x 43.2 x 20.3 mm<br>(4.1 x 1.7 x 0.8 in) | 104.1 x 43.2 x 20.3 mm<br>(4.1 x 1.7 x 0.8 in) |
| Y-Cable | Integrated J1962/ISO 15031 Type B | Available J1962/ISO 15031 Type B | Available Deutsch 6,<br>Deutsch 9, Deutsch 9 Type2 |
| Available Form Factors | Device; embedded software | - | - |
| Regulatory & Testing | SAE J1113/41 - radiated RF interference<br>SAE J1113/11 - load dump and transient protection<br>SAE J1113/13 - ESD immunity<br>IEC-60068-2-6 - vibration<br>IEC-60068-2-27 - shock<br>IEC-60068-2-32 - drop | SAE J1113/41 - radiated RF interference<br>SAE J1113/11 - load dump and transient protection<br>SAE J1113/13 - ESD immunity<br>IEC-60068-2-6 - vibration<br>IEC-60068-2-27 - shock<br>IEC-60068-2-32 - drop | SAE J1113/41 - radiated RF interference<br>SAE J1113/11 - load dump and transient protection<br>SAE J1113/13 - ESD immunity<br>IEC-60068-2-6 - vibration<br>IEC-60068-2-27 - shock<br>IEC-60068-2-32 - drop |