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Cellular IP Gateways

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2-port Modbus Gateway

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To view all of Advantech’s Serial Device Servers, please visit www.advantech.com/products.
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<td>10/100/1000 Mbps</td>
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<td>Baud Rate</td>
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<td>50 bps – 921.6 kbps</td>
<td>50 bps – 921.6 kbps</td>
<td>50 bps – 921.6 kbps</td>
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<td>Virtual COM, Reverse Virtual COM, TCP Server, TCP Client, UDP, SMS Tunnel Mode</td>
<td>Virtual COM, Reverse Virtual COM, TCP Server, TCP Client, UDP, SMS Tunnel Mode</td>
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<td>2-port Serial to GPRS Programmable IP Gateway</td>
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<td>Quad-band options</td>
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<td>No. of Ethernet Ports</td>
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<td>ARM11</td>
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<td>CPU Speed</td>
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<td>Flash</td>
<td>32 MB</td>
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<td>128 MB</td>
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</table>
## Serial Device Servers

### Model Name | EKI-1351 | EKI-1352 | EKI-1361 | EKI-1362 | EKI-1521 | EKI-1522 | EKI-1524 | EKI-1528C
---|---|---|---|---|---|---|---|---
**Product Description**
1-port RS-232/422/485 to 802.11b/g WLAN Serial Device Server
2-port RS-232/422/485 to 802.11b/g WLAN Serial Device Server
1-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server
2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server
1-port RS-232/422/485 Serial Device Server
2-port RS-232/422/485 Serial Device Server
4-port RS-232/422/485 Serial Device Server
8-ports RS-232/422/485 Serial Device Server

### No. of Ethernet Port
- 1
- 2
- 1
- 2
- 2
- 2
- 2
- 2

### No. of Serial Port
- 1
- 2
- 1
- 2
- 2
- 2
- 4
- 8

### Ethernet Interface
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps

### WLAN
- 802.11b/g
- 802.11b/g
- 802.11b/g/n
- 802.11b/g/n

### Serial Type
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485

### Connector
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45

### Baud Rate
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting

### Operating Mode
- Virtual COM, TCP Server, TCP Client, UDP, Peer to Peer, AT Command, and RFC2217 modes
- Virtual COM, TCP Server, TCP Client, UDP, Peer to Peer, AT Command, and RFC2217 modes
- Virtual COM, TCP Server, TCP Client, UDP, Peer to Peer, and AT Command modes
- Virtual COM, TCP Server, TCP Client, UDP, Peer to Peer, and AT Command modes

### Certifications
- Class I Division 2 Groups ABCD T4, UL/cUL 60950-1, FCC, CE
- Class I Division 2 Groups ABCD T4, UL/cUL 60950-1, FCC, CE

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---

## Model Name | EKI-1528 | EKI-1526 | ADAM-4571 | ADAM-4571L | ADAM-4570 | ADAM-4570L
---|---|---|---|---|---|---
**Product Description**
8-port RS-232/422/485 Serial Device Server
16-port RS-232/422/485 Serial Device Server
1-port RS-232/422/485 Serial Device Server
1-port RS-232/422/485 Serial Device Server
2-port RS-232/422/485 Serial Device Server
2-port RS-232/422/485 Serial Device Server
2-port RS-232/422/485 Serial Device Server
2-port RS-232/422/485 Serial Device Server

### No. of Ethernet Port
- 2
- 2
- 1
- 1
- 1
- 1
- 1
- 1

### No. of Serial Port
- 8
- 16
- 1
- 1
- 2
- 2
- 2
- 2

### Ethernet Interface
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps
- 10/100 Mbps

### Serial Type
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485
- RS-232/422/485

### Connector
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45
- RJ45

### Baud Rate
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting
- 50 bps ~ 921.6 kbps, any baud rate setting

### Operating Mode
- Virtual COM, TCP Server, TCP Client, UDP, Peer to Peer, AT Command, and RFC2217 modes
- Virtual COM, TCP Server, TCP Client, UDP, Peer to Peer, and AT Command modes
- FCC, CE
- FCC, CE

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Programmable Device Servers

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<td>2-port Programmable Device Server</td>
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<td>8-port RS-422/485 Programmable Serial Device Server w/ Isolation</td>
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# Modbus Gateway Selection Guide

## Modbus Gateways

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<td>2-port Modbus Gateway</td>
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<td>Dual Ethernet Redundancy</td>
<td>Dual Ethernet Redundancy</td>
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<td>Modbus RTU Master, Modbus RTU Slave, Modbus ASCII Master, and Modbus ASCII Slave modes</td>
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<td>50 bps ~ 921.6 kbps</td>
<td>50 bps ~ 921.6 kbps</td>
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<td>1-port Isolated USB to RS-232/422/485 Converter</td>
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<td>75 ~ 115.2 kbps</td>
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<td>50 ~ 921.6 kbps</td>
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<td>Type B</td>
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Cellular IP Gateways

Introduction

IoT (Internet of Things) architecture is divided into four layers: sensor, network, service and application. As the internet greatly increased people-to-people interactions, the IoT greatly increases people-to-object and object-to-object interactions. The network layer represents access to all object data via wireless networks and the internet coverage in a real-time data stream. The Intelligent Cellular IP Gateways in the network layer of IoT architecture link all the objects, devices and transmit sensor information through reliable wired and wireless communication (3G, GPRS, Wi-Fi, Zigbee) networks. The goal and objective is to build up "ubiquitous networks connected to all objects".

Key Features

- Compact and simple
- Extremely versatile gateway features
- Dual SIM slots for connection redundancy
- Extra SD slot for data buffering and auto recovery
- Provides NAT with VPN
- Universal quad-band GSM/GPRS 850/900/1800/1900 MHz
- Universal five-band UMTS/HSPA 850/800/900/1900/2100 MHz

Application

Product Portfolio

EKI-1321
EKI-1322
1/2-port RS-232/422/485 to GPRS IP Gateways

EKI-1331
EKI-1332
1/2-port RS-232/422/485 to 3G IP Gateways

EKI-1321P
EKI-1322P
1/2-port RS-232/422/485 to GPRS Programmable IP Gateways
**Introduction**

EKI-1321 and EKI-1322 are cellular gateways that can transparently bring RS-232/422/485 or Ethernet devices to a cellular network. They allow nearly any device with serial or Ethernet ports to connect and share a cellular network with easy and simple configuration. EKI-1321 and EKI-1322 GPRS IP Gateway's are compact, and can be DIN-rail or wall mounted and with both front panel and side panel LED displays for easy identification. They come with dual DC power input from 12 to 48 VDC and have 2 KV EFT/Surge protection to prevent damage from various type of power resources. The serial ports are also protected by 15 KV ESD line protection to keep your system safe from unexpected electrical discharges. Both models support dual SIM slots to support GPRS signal redundancy to switch to an available channel automatically while the existing one is disconnected, and SD card slot for data buffering to prevent loss of serial data while the communication is interrupted.

**Specifications**

**LAN Interface**
- **Ethernet**: 10/100 Mbps, auto MDI/MDIX
- **Connector**: RJ45
- **Protection**: 1.5 KV built-in magnetic isolation protection

**Cellular Interface**
- **Standards**: GSM/GPRS
- **Band Option**: Quad-band 850/900 and 1800/1900 MHz
- **GPRS Multi-Slot**: Class 10
- **GPRS Terminal Device**: Class B
- **GPRS Coding Schemes**: CS1 – CS4
- **Tx Power**: 1 W for GSM 1800/1900, 2 W for EGSM 850/900
- **No. of SIM**: 2
- **SIM Control**: 3 V

**Serial Communications**
- **Port Type**: RS-232/422/485, software selectable
- **No. of Ports**: EKI-1321: 1, 2 KV isolation protection EKI-1322: 2
- **Port Connector**: DB9 male
- **Data Bits**: 5, 6, 7, 8
- **Stop Bits**: 1, 1.5, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Baud Rates**: 75 bps to 921.6 kbps, any baud rate setting
- **Serial Signals**: RS-232: RxO+, RxO-, TxO+, TxO-, RTS, CTS, DTR, DSR, DSZ, DCD, RI, GND
  - RS-422: RxO+, RxO-, TxO+, TxO-, GND
  - RS-485: Data+, Data-, GND
- **Protection**: 15 KV ESD for all signals

**Remote Output**
- **Channel**: 1
- **Contact Rating**: 0.5 A @ 120 VAC 0.25 A @ 240 VAC 2 A @ 30 VDC
- **Relay Off Time (Typ.)**: 4 ms
- **Relay On Time (Typ.)**: 3 ms

**Digital Input (EKI-1321)**
- **Channel**: 2
- **Input Level**: Logic level 0: 1 V Maximum Logic level 1: 3 – 30 V

**General**
- **LED Indicators**: System: Power, System Status GPRS: Quality, GPRS ready Serial: Tx, Rx
- **Reboot Trigger**: Built-in WDT (watchdog timer)

**Software**
- **Utility Software**: Advantech Serial Device Server Configuration Utility
- **Operating Modes**: Virtual COM, Reverse Virtual COM, TCP/UDP server mode, TCP/UDP client mode, Pair connection mode (Serial Tunnel), RFC2217, SMS Tunnel, IP Gateway w/ VPN
- **Network Protocols**: ICMP, TCP/IP, UDP, DHCP Client, Telnet, DNS, SNMP, HTTP, HTTPS, SMTP, SNTP, ARP, SSL
- **Router/Firewall**: NAT, port forwarding

**New** 1-port RS-232/422/485 to GPRS IP Gateway 2-port RS-232/422/485 to GPRS IP Gateway
### Dimensions

**Unit: mm**

- **Dimensions (W x H x D)**: 27 x 120 x 85 mm (1.06" x 4.72" x 3.35")
- **Enclosure**: Metal with solid mounting hardware
- **Mounting**: DIN-rail, Wall
- **Weight**: 0.49 Kg

### Power Requirements

- **Power Input**: 12 ~ 48 VDC, redundant dual inputs
- **Power Connector**: Terminal block
- **Power Consumption**:
  - EKI-1321: 6 W, EKI-1322: 6.5 W
- **Power EFT/ Surge Prot.**: 2 KV

### Environment

- **Operating Temperature**: -30 ~ 65°C (-22 ~ 149°F)
- **Storage Temperature**: -40 ~ 75°C (-40 ~ 167°F)
- **Operating Humidity**: 5 ~ 95% RH

### Regulatory Approvals

- **EMC**:
  - CE: EN55022/EN55024, Class A
  - FCC: FCC part 15 subpart B, Class A
- **RF**:
  - FCC Part22H/Part24E, EN301 489-1, EN301 489-7, EN301 511

### Ordering Information

- **EKI-1321**: 1-port GPRS IP Gateway
- **EKI-1322**: 2-port GPRS IP Gateway
- **OPT1-DB9**: DB9 to Terminal Connector
**EKI-1331**

**EKI-1332**

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**Specifications**

### LAN Interface
- **Ethernet**: 10/100/1000 Mbps, auto MDI/MDIX
- **Connector**: RJ45
- **Protection**: 1.5 KV built-in magnetic isolation protection

### Cellular Interface
- **Standard**: GSM/GPRS/HSPA
- **GSM/GPRS Band**: Quad-band 850/900 and 1800/1900 MHz
- **HSPA UE CAT.**: Class 10
- **GPRS Multi-Slot**: Class B
- **GPRS Terminal Device**: CS1 ~ CS4
- **Tx Power**: 0.25 W for HSPA, 1 W for GSM 1800/1900, 2 W for EGSM 850/900
- **No. of SIM**: 2
- **SIM Control**: 1.8 V and 3 V

### Serial Communications
- **Port Type**: RS-232/422/485, software selectable
- **No. of Ports**: EKI-1331: 1, EKI-1332: 2
- **Port Connector**: DB9 male
- **Data Bits**: 5, 6, 7, 8
- **Stop Bits**: 1, 1.5, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Baud Rates**: 75 bps to 576 kbps, any baud rate setting
- **Serial Signals**: RS-232: TxD+, TxD-, RxD+, RxD-, GND
                         RS-422: TxD+, TxD-, RxD+, RxD-, GND
                         RS-485: Data+, Data-, GND
- **Protection**: 15 KV ESD for all signals

### Relay Output
- **Channel**: 1
- **Contact Rating**: 0.5 A @ 120 VAC, 0.25 A @ 240 VAC, 2 A @ 30 VDC
- **Relay off Time (Typ.)**: 4 ms
- **Relay on Time (Typ.)**: 3 ms

### Digital Input (EKI-1331)
- **Channel**: 2
- **Input Level**: Logic level 0: 1 V Max, Logic level 1: 3 ~ 30 V

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**Features**

- Universal five-band UMTS/HSPA 850/800/900/1900/2100 MHz
- Universal quad-band GSM/GPRS 850/900/1800/1900 MHz
- Dual SIM for telecom redundancy
- SD slot with extra SD card for data buffering
- Connect Ethernet and Serial devices over VPN
- Various operation modes: COM port redirector, RVCOM, TCP, UDP, SMS tunnel, and pair connection
- Any baud rate setting for easy configuration
- Built-in 15 KV ESD protection for all serial signals
- 1.5 KV isolation protection (EKI-1331)
- 2 digital inputs (EKI-1331)
- Multiple configuration methods: Windows utility, Telnet, and Web console

**General**
- **LED Indicators**: System: Power, System Status
- **Reboot Trigger**: Built-in WDT (watchdog timer)

**Software**
- **Driver Support**: 32-bit/64-bit Windows 2000/XP/Vista/7
- **Utility Software**: Advantech Serial Device Server Configuration Utility
- **Operating Modes**: Virtual COM, Reverse Virtual COM, TCP/UDP server mode, TCP/UDP client mode, Pair connection mode (Serial Tunnel), RFC2217, SMS Tunnel, IP Gateway w/ VPN
- **Network Protocols**: TCP/IP, UDP, DHCP client, Telnet, DNS, SNMP, HTTP, HTTPS, SMTP, SNTP, ARP, SSL
- **Router/Firewall**: NAT, port forwarding

**Mechanics**
- **Dimensions (W x H x D)**: 27 x 120 x 85 mm (1.06" x 4.72" x 3.35")
- **Enclosure**: Metal with solid mounting hardware
- **Mounting**: DIN-rail, Wall
- **Weight**: 0.49 Kg

**Power Requirements**
- **Power Input**: 12 ~ 48 VDC, redundant dual inputs
- **Power Connector**: Terminal block
- **Power Consumption**: EKI-1331: 6 W, EKI-1332: 6.5 W
- **Power EFT/Surge Prot.**: 2 KV

**Environment**
- **Operating Temperature**: -30 ~ 55°C (-22 ~ 131°F)
- **Storage Temperature**: -40 ~ 70°C (-40 ~ 158°F)
- **Humidity**: 5 ~ 95% RH

**Regulatory Approvals**
- **EMC**: CE: EN55022/EN55024, Class A
- **RF**: FCC, FCC part 15 subpart B, Class A

**Ordering Information**
- **EKI-1331**: 1-port 3G IP Gateway
- **EKI-1332**: 2-port 3G IP Gateway
- **OPT1-D89**: DB9 to Terminal Connector
Introduction

EKI-1321P and EKI-1322P are programmable cellular gateways and users can program and debug owned codes in real-time to transparently bring RS-232/422/485 or Ethernet devices to a cellular network. EKI-1321P and EKI-1322P GPRS Gateway’s are compact, and can be DIN-rail or wall mounted and with both front panel and side panel LED displays for easy identification. They come with dual DC power input from 12 to 48 VDC and have 2 KV EFT/Surge protection to prevent damage from various type of power resources. The serial ports are also protected by 15 KV ESD line protection to keep your system safe from unexpected electrical discharges. Both models support dual SIM slots to support GPRS signal redundancy to switch to an available channel automatically while the existing one is disconnected, and SD card slot for data buffering to prevent loss of serial data while the communication is interrupted.

Specifications

LAN Interface
- Ethernet: 10/100/1000 Mbps, auto MDI/MDIX
- Connector: RJ45
- Protection: 1.5 KV built-in magnetic isolation protection

Cellular Interface
- Standards: G3/GPRS
- Band Option: Quad-band 850/900 and 1800/1900 MHz
- GPRS Multi-Slot: Class 10
- GPRS Terminal Device: Class B
- GPRS Coding Schemes: CS1 to CS4
- Tx Power: 1 W for GSM 1800/1900, 2 W for EGSM 850/900
- No. of SIM: 2
- SIM Control: 3 V

Serial Communications
- Port Type: RS-232/422/485, software selectable
- No. of Ports: EKI-1321P: 1, isolation
- EKI-1322P: 2
- Port Connector: DB9 male
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Parity: None, Odd, Even, Space, Mark
- Baud Rates: 75 bps ~ 921.6 kbps, any baud rate setting
- Serial Signals: RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
  RS-422: TxD+, TxD-, RxD+, RxD-, GND
  RS-485: Data+, Data-, GND
- Protection: 15 KV ESD for all signals

Relay Output
- Channel: 1
- Contact Rating: 0.5A @ 120 VAC, 0.25 A @ 240 VAC, 2 A @ 30 VDC
- Relay on Time(Typ.): 4 ms
- Relay off Time(Typ.): 3 ms

Digital Input (EKI-1321P)
- Channel: 2
- Input Level: Logic level 0: 1 V Max
- Logic level 1: 3 ~ 30 V

General
- LED Indicators: System, Power, System Status
- Reboot Trigger: Built-in WDT (watchdog timer)
- Kernel Version: 2.6.31
- Protocol Stack: TCP, UDP, IPv4, IPv6, ICMP, APP, SNMP V1/V2c, HTTP, DHCP, FTP, TFTP, PPP, PPPoE
- File System: JFFS2
- System Utility: Busybox, Telnet, FTP, SSH, TFTP, SASH, TFTP, BOA, HTTP
- Daemon: PPD, SNMPD, TelnetD, Inetd, TFTP, BOA
- Linux Tool Chain: ARM GCC C/C++ PC Cross Compiler, glibc

Mechanics
- Dimensions (W x H x D): 27 x 120 x 85 mm (1.06” x 4.72” x 3.35”)
- Enclosure: Metal with solid mounting hardware
- Mounting: DIN-rail, Wall
- Weight: 0.49 Kg

Power Requirements
- Power Input: 12 ~ 48 VDC, redundant dual inputs
- Power Connector: EKI-1321P: 6 W, EKI-1322P: 6.5 W
- Power Consumption: 2 KV

Environment
- Operating Temperature: -30 ~ 65°C (-22 ~ 149°F)
- Storage Temperature: -40 ~ 75°C (-40 ~ 167°F)
- Operating Humidity: 5 ~ 95% RH

Regulatory Approvals
- EMC: CE, EN55022/EN55024, Class A
- FCC: Part 15 Subpart B, Class A
- RoHS: Compliant

Ordering Information
- EKI-1321P: 1-port Serial to Programmable GPRS IP Gateway
- EKI-1322P: 2-port Serial to Programmable GPRS IP Gateway
- OPT1-DB9: DB9 to Terminal Connector

1-port RS-232/422/485 to GPRS Programmable IP Gateway
2-port RS-232/422/485 to GPRS Programmable IP Gateway
EKI-1351 and EKI-1352 are wireless serial device servers that bring RS-232/422/485 to wireless Ethernet. They allow nearly any device with serial ports to connect and share an Ethernet network. EKI-1351 and EKI-1352 provide a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to a network.

With EKI-1351 and EKI-1352, your existing serial devices can be used with the most popular operating systems on the market. There is no need to write special drivers for specific operating systems. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming. That saves a lot of cost and effort. In addition, you can actively request data or issue commands from the RS-232/485 side or Wireless Ethernet side. This data can be sent bilaterally. Thus, the EKI-1351 and EKI-1352 are especially suitable for remote monitoring environments such as security systems, factory automation, SCADA, transportation and more.

**Specifications**

**Ethernet Communications**
- **Compatibility**: IEEE 802.11b, IEEE 802.11g
- **Speed**: 11/54 Mbps
- **Network Mode**: Infrastructure, Ad-Hoc
- **Antenna Connector**: Reverse SMA
- **Free Space Range**: Open space 100 m
- **Wireless Security**: WEP, WPA, WPA2

**Serial Communications**
- **Port Type**: RS-232/422/485, software selectable
- **No. of Ports**: EKI-1351: 1, EKI-1352: 2
- **Port Connector**: DB9 male
- **Data Bits**: 5, 6, 7, 8
- **Stop Bits**: 1, 1.5, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Baud Rate**: 50 bps – 921.6 kbps, any baud rate setting
- **Serial Signals**: RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
- **RS-422: TxD+, TxD-, RxO+, RxO-, GND
- **RS-485: Data+, Data-, GND
- **Protection**: 15 KV ESD for all signals

**Software**
- **Utility Software**: Advantech Serial Device Server Configuration Utility
- **Operation Modes**: COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair connection without AP (peer to peer) mode

**Mechanics**
- **Dimensions (W x H x D)**: 37 x 140 x 95 mm (1.46” x 5.51” x 3.74”)
- **Enclosure**: Metal with solid mounting hardware
- **Mounting**: DIN-rail, Wall
- **Weight**: EKI-1351: 0.595 Kg, EKI-1352: 0.603 Kg

**General**
- **LED Indicators**: W-LAN: Quality, Fail, Link/Active
- **Reboot Trigger**: Built-in WDT (watchdog timer)

**Power Requirements**
- **Power Input**: 12 – 48 Vdc, redundant dual inputs
- **Power Connector**: Terminal block
- **Power Consumption**: EKI-1351: 3.5 W, EKI-1352: 4 W

**Environment**
- **Operating Temperature**: 0 – 50°C (32 – 122°F)
- **Storage Temperature**: -20 – 80°C (-4 – 176°F)
- **Operating Humidity**: 5 – 95% RH

**Regulatory Approvals**
- **EMC**: CE, FCC Part 15 Subpart B (Class B)
- **Safety**: UL/cUL 60950-1
- **Hazardous Location**: Class I, Division 2

**Ordering Information**
- **EKI-1351**: 1-port RS-232/485 to 802.11b/g WLAN Serial Device Server
- **EKI-1352**: 2-port RS-232/485 to 802.11b/g WLAN Serial Device Server
- **OPT1-DB9**: D-Sub9 to Terminal Converter
Serial Device Servers and IP Gateways

Features

- Link any serial device to an IEEE 802.11b/g/n network
- Supports wireless LAN Ad-Hoc and Infrastructure modes
- Provides COM port redirection, TCP, UDP, and pair connection modes
- Supports up to 921.6 kbps, and any baud rate setting
- Provides Web-based configuration and Windows utility
- Allows a max. of 5 hosts to access one serial port
- Allows a max. of 4 hosts to be accessed as TCP client mode
- Built-in 15 KV ESD protection for all serial signals
- Build-in 1.5 KV isolation protection (EKI-1361)
- 2 digital inputs (EKI-1361)
- Supports DHCP protocol
- Supports secure access with WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise

Specifications

Ethernet Communications
- Compatibility: IEEE 802.11b/g/n
- Speed: 11/54/150 Mbps
- Network Mode: Infrastructure, Ad-Hoc
- Antenna Connector: Reverse SMA
- Free Space Range: Open space 100 m
- Wireless Security: WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise

Serial Communications
- Port Type: RS-232/422/485, software selectable
- No. of Ports: EKI-1361: 1, isolation
- EKI-1362: 2
- Port Connector: DB9 male
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Parity: None, Odd, Even, Space, Mark
- Baud Rate: 50 bps – 921.6 kbps, any baud rate setting
- Serial Signals: RS-232: TxD+, TxD-, Rx+, Rx-, GND
- RS-422: TxD+, TxD-, Rs+ , Rs-, GND
- RS-485: Data+, Data-, GND
- Protection: 15 KV ESD for all signals
- 2 KV isolation protection (EKI-1361)

Software
- Utility Software: Advantech Serial Device Server Configuration Utility
- Operation Modes: COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair connection without AP (peer to peer) mode

Mechanics
- Dimensions (W x H x D): 27 x 120 x 85 mm (1.06” x 4.72” x 3.35”)
- Enclosure: Metal with solid mounting hardware
- Mounting: DIN-rail, Wall
- Weight: EKI-1361: 0.495 Kg
- EKI-1362: 0.503 Kg

General
- LED Indicators: System: Power, System Status
- WLAN: Quality, Fail, Link/Active
- Serial: Tx, Rx
- Reboot Trigger: Built-in WDT (watchdog timer)

Power Requirements
- Power Input: 12 – 48 Vdc, redundant dual inputs
- Power Connector: Terminal block
- Power Consumption: EKI-1361: 3.5 W
- EKI-1362: 4 W

Environment
- Operating Temperature: 0 – 50°C (32 – 122°F)
- Storage Temperature: -20 – 80°C (-4 – 176°F)
- Operating Humidity: 5 – 95% RH

Regulatory Approvals
- EMC: CE, FCC Part 15 Subpart B (Class B)

Ordering Information
- EKI-1361
- EKI-1362
- OPT1-DB9
- OPT1-DB9

Introduction

EKI-1361 and EKI-1362 are wireless serial device servers that bring RS-232/422/485 to wireless LAN. They allow nearly any device with serial ports to connect and share an WLAN network. EKI-1361 and EKI-1362 provide a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to a network.

With EKI-1361 and EKI-1362, your existing serial devices can be used with the most popular operating systems on the market. There is no need to write special drivers for specific operating systems. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming. That saves a lot of cost and effort. In addition, you can actively request data or issue commands from the RS-232/422/485 side or wireless LAN side. This data can be sent bilaterally. Thus, the EKI-1361 and EKI-1362 are especially suitable for remote monitoring environments such as security systems, factory automation, SCADA, transportation and more.
Introduction

EKI-1521, EKI-1522 and EKI-1524 feature two independent Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. EKI-1521, EKI-1522 and EKI-1524 are serial device servers that connect RS-232/422/485 serial devices, such as PLC, meters, sensors, and barcode reader to an IP-based Ethernet LAN. They allow nearly any device with serial ports to connect and share an Ethernet network. EKI-1521, EKI-1522 and EKI-1524 provide various operations: COM port redirection (Virtual COM), TCP Server, TCP Client and UDP mode. With COM port redirection mode, standard serial operation calls are transparently redirected to the EKI-1521, EKI-1522 and EKI-1524, guaranteeing compatibility with legacy serial devices and enabling backward compatibility with existing software. With TCP server, TCP client, and UDP modes, EKI-1521, EKI-1522 and EKI-1524 ensure the compatibility of network software that uses a standard network API. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming.

Specifications

Ethernet Communications
- Compatibility: IEEE 802.3, IEEE 802.3u
- Speed: 10/100 Mbps
- No. of Ports: 2
- Port Connector: 8-pin RJ45
- Protection: Built-in 1.5 KV magnetic isolation

Serial Communications
- Port Type: RS-232/422/485, software selectable
- No. of Ports: EKI-1521: 1, EKI-1522: 2, EKI-1524: 4
- Port Connector: DB9 male
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Parity: None, Odd, Even, Space, Mark
- Flow Control: XON/XOFF, RTS/CTS, DTR/DSR
- Baud Rate: 50 bps ~ 921.6 kbps, any baud rate setting
- Serial Signals: RS-232: TxD, Rx, RTS, CTS, DTR, DSR, DCD, RI, GND
- RS-422: TxD+, TxD-, Rx+, Rx-, DTR, DSR, DCD, RI, GND
- RS-485: Data+, Data-, GND
- Protection: 15 KV ESD protection for all signals

Software
- Utility Software: Advantech Serial Device Server Configuration Utility
- Operation Modes: COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode
- Configuration: Windows utility, Telnet console, Web Browser
- Protocol: ICMP, IP, TCP, UDP, BOOTP, DHCP, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, ARP, NTP
- Management: SNMP MIB-II

Mechanics
- Dimensions (W x H x D): EKI-1521/1522: 37 x 140 x 95 mm (1.46” x 5.51” x 3.74”), EKI-1524: 55 x 140 x 95 mm (2.17” x 5.51” x 3.74”)
- Enclosure: Metal with solid mounting hardware
- Mounting: DIN-rail, Wall
- Weight: EKI-1521: 0.32 Kg, EKI-1522: 0.6 Kg, EKI-1524: 0.68 Kg

General
- LED Indicators: System: Power, System Status
- Reboot Timer: Built-in WDT (watchdog timer)

Power Requirements
- Power Input: 12 ~ 48 Vdc, redundant dual inputs
- Power Connector: Terminal block
- Power Consumption: EKI-1521: 2 W, EKI-1522: 2.5 W, EKI-1524: 4 W

Environment
- Operating Temperature: -20 ~ 80°C (-4 ~ 176°F)
- Storage Temperature: -10 ~ 60°C (14 ~ 140°F)
- Operating Humidity: 5 ~ 95% RH

Regulatory Approvals
- EMC: CE, FCC Part 15 Subpart B (Class A)
- Safety: UL/cUL 60950-1
- MTBF: EKI-1521: 1,002,913 hours, EKI-1522: 1,000,154 hours, EKI-1524: 862,300 hours
- Hazardous Location: Class 1, Division 2

Ordering Information
- EKI-1522: 2-port RS-232/422/485 Serial Device Server
- EKI-1524: 4-port RS-232/422/485 Serial Device Server
- OPT1-D9B: D-Sub9 to Terminal Converter
### Introduction

EKI-1528C are industrial-grade network-based serial device servers for connecting up to 8 serial RS-422/485 devices, such as CNCs, PLCs, and scales, directly to a TCP/IP network. The EKI-1528C features two independent Gigabit Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. The EKI-1528C provides a simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to Ethernet network. The EKI-1528C build-in isolation protection for serial signal and SD slot to support data buffering feature while Ethernet network disconnected.

### Specifications

#### Ethernet Communications
- **Compatibility**: IEEE 802.3, IEEE 802.3u
- **Speed**: 10/100/1000 Mbps, auto MDI/MDIX
- **No. of Ports**: 2
- **Port Connector**: 8-pin RJ45
- **Protection**: Built-in 1.5 KV magnetic isolation

#### Serial Communications
- **Port Type**: RS-422/485 w/ isolation, software selectable
- **No. of Ports**: 8
- **Port Connector**: Terminal block
- **Data Bits**: 5, 6, 7, 8
- **Stop Bits**: 1, 1.5, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Flow Control**: XON/XOFF
- **Baud Rate**: 50 bps – 921.6 kbps, any baud rate setting
- **Serial Signals**: RS-422: TxD+, TxD-, RxD+, RxD-, GND
  RS-485: Data+, Data-, GND
- **Protection**: 15 KV ESD for all signals, 2 KV isolation for all signals

#### Software
- **Utility Software**: Advantech Serial Device Server Configuration Utility
- **Operation Modes**: COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair connection (peer to peer) mode, RFC2217 mode

#### Configuration
- **Windows utility**, Telnet console, Web Browser

#### Protocols
- **ICMP, IP, TCP, UDP, BOOTP, DHCP**, Auto IP, Telnet, SMTP, DNS, ICMP, ARP, HTTPS, SSL, SSH, NT

#### Management
- **SNMP MIB-II**

#### Mechanics
- **Dimensions (W x H x D)**: 55 x 152 x 106 mm (2.17” x 5.98” x 4.17”)
- **Enclosure**: SECC chassis
- **Mounting**: DIN-rail, Wall
- **Weight**: 1.05 Kg

#### General
- **LED Indicators**: System: Power, System Status
- **Alert Tools**: Built-in buzzer and RTC (real time clock)
- **Reboot Trigger**: Built-in WDT and push button for hardware reboot

#### Power Requirements
- **Power Input**: 12 – 48 Vdc
- **Power Consumption**: 8 W

#### Environment
- **Operating Temperature**: -10 – 60°C (14 – 140°F)
- **Storage Temperature**: -40 – 85°C (-40 – 185°F)
- **Operating Humidity**: 5 – 95% RH

#### Regulatory Approvals
- **CE, FCC Part 15 Subpart B (Class A)**
- **MTBF**: 252,946 hours
Dimensions

Central line of the DIN rail

Ordering Information

- EKI-1528C 8-port RS-422/485 Serial Device Server w/ Isolation
**Features**

- 8 or 16-port RS-232/422/485 serial communication
- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Supports up to 921.6 kbps, and any baud rate setting
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Provides rich configuration methods: Windows utility, Telnet console, Web Browser, and serial console
- Built-in 15 KV ESD protection for all serial signals
- SNMP MIB-II for network management
- Built-in buzzer for easy location
- Standard 1U rackmount size
- Rear wiring
- Automatic RS-485 data flow control

**Introduction**

EKI-1528 and EKI-1526 are industrial-grade network-based serial device servers for connecting up to 8 or 16 serial RS-232/422/485 devices, such as CNCs, PLCs, scales and scanners, directly to a TCP/IP network. The EKI-1528 and EKI-1526 feature two independent Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. The EKI-1528 and EKI-1526 provide a simple and cost-effective way to bring the advantages of remote management and data accessibility to thousand of devices that can connect to an Ethernet network. The EKI-1528 and EKI-1526 offer rich ways to configure through Windows utility, Web Browser, serial console or Telnet console, these methods make it easy manage many EKI-1528 and EKI-1526 or serial devices on your network.

**Specifications**

**Ethernet Communications**
- **Compatibility**: IEEE 802.3, IEEE 802.3u
- **Speed**: 10/100 Mbps, auto MDI/MDIX
- **No. of Ports**: 2
- **Port Connector**: 8-pin RJ45
- **Protection**: Built-in 1.5 KV magnetic isolation

**Serial Communications**
- **Port Type**: RS-232/422/485, software selectable
- **No. of Ports**: EKI-1528: 8; EKI-1526: 16
- **Port Connector**: 8-pin RJ45
- **Data Bits**: 5, 6, 7, 8
- **Stop Bits**: 1, 1.5, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Flow Control**: XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate**: 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals**: RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, GND; RS-422: TxD+, TxD-, RxD+, RxD-, GND; RS-485: Data+, Data-, GND
- **Protection**: 15 KV ESD for all signals

**Software**
- **Utility Software**: Advantech Serial Device Server Configuration Utility
- **Operation Modes**: COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair connection (peer to peer) mode, RFC2217 mode
- **Configuration**: Windows utility, Telnet console, Web Browser, serial console

**Protocols**: ICMP, IP, TCP, UDP, BOOTP, DHCP, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, ARP, HTTPS, SSL, SSH, NTP

**Management**: SNMP MIB-II

**Mechanics**
- **Dimensions (W x H x D)**: 440 x 44 x 220 mm (17.32” x 1.73” x 8.66”)
- **Enclosure**: SECC chassis
- **Mounting**: Rack
- **Weight**: EKI-1528: 2.53 Kg; EKI-1526: 2.58 Kg

**General**
- **LED Indicators**: System: Power, System Status; LAN: Speed, Link/Active; Serial: Tx, Rx
- **Alert Tools**: Built-in buzzer and RTC (real time clock)
- **Reboot Trigger**: Built-in WDT and push button for hardware reboot

**Power Requirements**
- **Power Input**: 100 - 240 VAC, 47 - 63 Hz
- **Power Consumption**: EKI-1528: 8 W; EKI-1526: 10 W

**Environment**
- **Operating Temperature**: -10 ~ 60°C (-14 ~ 140°F)
- **Storage Temperature**: -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity**: 5 ~ 95% RH

**Regulatory Approvals**
- **EMC**: CE, FCC Part 15 Subpart B (Class A)
- **MTBF**: EKI-1528: 198,571 hours; EKI-1526: 175,708 hours

**RoHS**: COMPLIANT
Dimensions

Dimensions (W x H x D): 440 x 44 x 220 mm

Physical Views

EKI-1528: Front View

EKI-1528: Rear View

EKI-1526: Front View

EKI-1526: Rear View

Ordering Information

- EKI-1528 8-port RS-232/422/485 Serial Device Server
- EKI-1526 16-port RS-232/422/485 Serial Device Server

*All items include 1pc OPT1J

Accessories

- OPT1-DB9 D-Sub9 to Terminal Converter
- OPT1J 1 m RJ45 to DB9 Male Cable
- OPT1J 30 cm RJ45 to DB9 Male Cable
- 1702002600 Power Cable US Plug 1.8 m
- 1702002605 Power Cable EU Plug 1.8 m
- 1702031801 Power Cable UK Plug 1.8 m
- 1702031836 Power Cable China/Australia Plug 1.8 m
# ADAM 4571/L

1-port RS-232/422/485 Serial Device Server

# ADAM-4570/L

2-port RS-232/422/485 Serial Device Server

## Specifications

### Ethernet Communications
- **Compatibility**: IEEE 802.3, IEEE 802.3u
- **Speed**: 10/100 Mbps
- **No. of Ports**: 1
- **Port Connector**: 8-pin RJ45
- **Protection**: Built-in 1.5 KV magnetic isolation

### Serial Communications
- **Port Type**: ADAM-4571/4570: RS-232/422/485, software selectable
- **No. of Ports**: ADAM-4571/4571L: 1
  - ADAM-4570/4570L: 2
- **Port Connector**: ADAM-4571/4571L: DB9 male
  - ADAM-4570/4570L: 10-pin RJ48
- **Data Bits**: 5, 6, 7, 8
- **Stop Bits**: 1, 1.5, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Flow Control**: XON/XOFF, RST/CTS, DTR/DSR
- **Baud Rate**: 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals**:
  - RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND
  - RS-422: TxD+, TxD-, RxD+, RxD-, GND
  - RS-485: Data+, Data-, GND
- **Protection**: 15 KV ESD protection for all signals

### Mechanics
- **Dimension (W x H x D)**: 70 x 130 x 30 mm (2.76” x 5.12” x 1.18”)
- **Enclosure**: ABS+PC with solid mounting hardware
- **Mounting**: Stack, Wall
- **Weight**: ADAM-4571/4571L: 135 g
  - ADAM-4570/4570L: 160 g
- **LED Indicators**:
  - System: Power, System Status
  - LAN: Speed, Link/Active
  - Serial: Tx, Rx
- **Reboot Trigger**: Built-in WDT (watchdog timer)

### Power Requirements
- **Power Input**: 10 ~ 30 VDC
- **Power Connector**: Terminal block
- **Power Consumption**: ADAM-4571/4571L: 1.5 W
  - ADAM-4570/4570L: 2 W

### Environment
- **Operating Temperatures**: -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature**: -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity**: 5 to 95% RH

### Regulatory Approvals
- **EMC**: CE, FCC Part 15 Subpart B (Class A)
- **RoHS**: COMPLIANT

### Ordering Information
- ADAM-4571L: 1-port RS-232 Serial Device Server
- ADAM-4570: 2-port RS-232/422/485 Serial Device Server
- ADAM-4570L: 2-port RS-232 Serial Device Server
  - *ADAM-4570/4570L includes 2pcs OPT1A

### Accessories
- OPT1A: 1 m RJ48 to DB9 Male Cable
- OPT1D: 30 cm RJ48 to DB9 Male Cable

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**Software**
- **Utility Software**: Advantech Serial Device Server Configuration Utility
- **Operation Modes**: COM port redirection (Virtual COM)
  - TCP/UDP server (polling) mode
  - TCP/UDP client (event handling) mode
  - Pair Connection (peer to peer) mode
- **Configuration**: Windows utility, Telnet console, Web Browser
- **Protocol**: ICMP, IP, TCP, UDP, BOOTP, DHCP, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, ARP
Introduction

EKI-1121L, EKI-1122L and EKI-1124L are RISC-based embedded communication controllers which provide dual auto-sensing 10/100 Mbps Ethernet ports for network redundancy and one or two software-selectable RS-232/422/485 serial ports. The EKI-1121L, EKI-1122L and EKI-1124L use the ARM7 RISC CPU which is a powerful computing engine to fulfill data compression or protocol conversion requirements. The built-in 8 MB flash ROM and 16 MB SDRAM provide user enough storage to run their specific applications.

Specifications

System

- **CPU**: ARM7 32-bit RISC CPU, 80 MHz
- **Flash**: 8 MB
- **SDRAM**: 16 MB
- **OS (pre-installed)**: uClinux
- **Console Port**: RS-232, 3-wire (Tx, Rx, GND) pin-header
- **Other**: RTC, watchdog timer

Ethernet Interface

- **LAN**: 2 x auto-sensing 10/100 Mbps ports
- **Connector**: RJ45
- **Protection**: 1.5 KV magnetic isolation protection

Serial Interface

- **Serial Standards**: Software selectable RS-232/422/485 ports
- **Connectors**: D-sub 9 male
- **Protection**: 15 KV ESD protection for all signals

Serial Parameters

- **Data Bits**: 5, 6, 7, 8, 1, 1.5, 2
- **Stop Bits**: None, Even, Odd, Space, Mark
- **Parity**: RTS/CTS, XON/XOFF, automatic RS-485 data flow control
- **Baud Rate**: 50 bps – 921.6 kbps

Serial Signals

- **RS-232**: TxD, RxD, DTR, DSR, RTS, CTS, DCD, RI, GND
- **RS-422**: Tx+, Tx-, Rx+, Rx-, GND
- **RS-485**: Data+, Data-, GND

LEDs

- **System**: OS ready, power 1 and power 2 ready
- **LAN**: Speed (10/100 Mbps), link/active (on connector)
- **Serial**: TxD, RxD

Features

- ARM7 32-bit 80 MHz processor
- 8 MB Flash ROM on board
- 16 MB SDRAM
- 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- 1, 2 or 4 software selectable RS-232/422/485 serial ports
- 50 bps – 921.6 kbps baud rate
- Built-in real-time clock (RTC)
- Class I, Division 2 certification
- Pre-installed Linux Kernel 2.4 platform

Mechanics

- **Dimensions (W x H x D)**: EKI-1121L/1122L: 37 x 140 x 95 mm (1.46” x 5.51” x 3.74”)
- **Housing**: Metal
- **Weight**: EKI-1121L: 0.592 Kg
- **EKI-1122L**: 0.6 Kg
- **EKI-1124L**: 0.668 Kg
- **Mounting**: DIN-rail, Wall

Power Requirements

- **Input Voltage**: 12 – 48 Vdc, redundant dual inputs
- **Power Consumption**: EKI-1121L: 2 W
- **EKI-1122L**: 2.5 W
- **EKI-1124L**: 4 W

Software (uClinux)

- **Kernel Version**: 2.4.31
- **Protocol Stack**: TCP, UDP, IPv4, ICMP, ARP, SNMP v1, HTTP, DHCP, NTP, NFS, SMTP, Telnet, FTP, PPP, PPPoE
- **File System**: ROMFS/JFFS2
- **System Utility**: busybox, telnet, ftp, sash, ifup
- **Daemon**: pppd, srppd, telnetd, inetd, ifupd, boa
- **Linux Tool Chain**: arm-elf-gcc: C/C++ PC Cross Compiler
- **uClibc**: POSIX Standard Library

Environmental Limits

- **Operating Temperature**: -10 – 60°C (-14 – 140°F)
- **Storage Temperature**: -20 – 80°C (-4 – 176°F)
- **Operating Humidity**: 5 – 95 % RH

Regulatory Approvals

- **EMC**: CE, FCC Part 15 Subpart B (Class A)
- **Hazardous Location**: Class I, Division 2

Ordering Information

- EKI-1121L: 1-port Programmable Device Server
- EKI-1122L: 2-port Programmable Device Server
- EKI-1124L: 4-port Programmable Device Server
- OPT1-DB9: D-Sub9 to Terminal Converter

Introduction

EKI-1121L, EKI-1122L and EKI-1124L are RISC-based embedded communication controllers which provide dual auto-sensing 10/100 Mbps Ethernet ports for network redundancy and one or two software-selectable RS-232/422/485 serial ports. The EKI-1121L, EKI-1122L and EKI-1124L use the ARM7 RISC CPU which is a powerful computing engine to fulfill data compression or protocol conversion requirements. The built-in 8 MB flash ROM and 16 MB SDRAM provide user enough storage to run their specific applications.
### EKI-1528PC

**8-port RS-422/485 Programmable Serial Device Server w/ Isolation**

**Features**
- 8 x RS-422/485 programmable serial communication w/ isolation
- Provides 2 x 10/100/1000 Mbps Ethernet ports for LAN redundancy
- Supports up to 921.6 kbps, and any baud rate setting
- Integrated SD slot for SD card and data buffering
- Built-in 15 KV ESD protection and 2 KV isolation protection for all serial signals
- SNMP MIB-II for network management
- Design, Develop and Debug the codes with friendly toolset
- Built-in buzzer for easy location
- Automatic RS-485 data flow control
- Compact and Rugged form factor w/ DIN-rail and Wall mount

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**Introduction**

EKI-1528PC is an industrial-grade network-based programmable serial device server for connecting up to 8 serial RS-422/485 devices, such as CNCs, PLCs, and scales, directly to a TCP/IP network. The EKI-1528PC features two independent Gigabit Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. The EKI-1528PC provides a simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to Ethernet network. The EKI-1528PC has built-in isolation protection for serial signal and built-in SD slot to support data buffering features when the Ethernet network is disconnected.

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**Specifications**

**Ethernet Communications**
- **Compatibility**: IEEE 802.3, IEEE 802.3u
- **Speed**: 10/100/1000 Mbps, auto MDI/MDIX
- **No. of Ports**: 2
- **Port Connector**: 8-pin RJ45
- **Protection**: Built-in 1.5 KV magnetic isolation

**Serial Communications**
- **Port Type**: RS-422/485 w/ isolation, software selectable
- **No. of Ports**: 8
- **Port Connector**: Terminal block
- **Data Bits**: 5, 6, 7, 8
- **Stop Bits**: 1, 1.5, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Flow Control**: XON/XOFF
- **Baud Rate**: 50 bps – 921.6 kbps, any baud rate setting
- **Serial Signals**: RS-422: TxD+, TxD-, RxD+, RxD-, GND
- **Protection**: 15 KV ESD for all signals, 2 KV isolation for all signals

**Software**
- **Kernel Version**: 2.6.31
- **Protocol Stack**: TCP, UDP, IPv4, IPv6, ICMP, ARP, SNMP V1/V2c, HTTP, DHCP, NTP, NFS, SMTP, Telnet, FTP, PPP, PPPoE
- **File System**: JFFS2
- **System Utility**: busybox, telnet, ftp, ssh, ipv6
- **Daemon**: pppd, smproxy, telnetd, inetd, ip proxy, boad
- **Linux Tool Chain**: ARM GCC C/C++ PC Cross Compiler, glibc, POSIX Standard Library

**Mechanics**
- **Dimensions (W x H x D)**: 55 x 152 x 106 mm (2.17" x 5.98" x 4.17")
- **Enclosure**: SECC chassis
- **Mounting**: DIN-rail, Wall
- **Weight**: 1.05 Kg

**General**
- **LED Indicators**: System: Power, System Status, LAN: Speed, Link/Active, Serial: TxD, RxD
- **Alert Tools**: Built-in buzzer and RTC (real time clock)
- **Reboot Trigger**: Built-in WDT and push button for hardware reboot

**Power Requirements**
- **Power Input**: 12 – 48 Vdc
- **Power Consumption**: 8 W

**Environment**
- **Operating Temperature**: -10 – 70°C (-14 – 158°F)
- **Storage Temperature**: -40 – 85°C (-40 – 185°F)
- **Operating Humidity**: 5 – 95% RH

**Regulatory Approvals**
- **EMC**: CE, FCC Part 15 Subpart B (Class A)
- **MTBF**: 252,946 hours

**Ordering Information**
- **EKI-1528PC**: 8-port RS-422/485 Programmable Device Server w/ Isolation
**Features**

- Provides 2 x 10/100 Mbps Ethernet ports for Daisy Chain connectivity
- Integration of Modbus TCP and Modbus RTU/ASCII networks
- Supports Ethernet auto-bypass function
- Master mode supports 32 TCP slaves at the same time
- Slave mode supports up to 16 TCP masters
- Supports mapping Modbus slave ID option
- Auto searching Modbus slave ID over configuration utility
- Mounts on DIN-rail and Wall mount
- Class I, Division 2 certification

**Specifications**

**Ethernet Communications**

- **Compatibility**: IEEE 802.3, IEEE 802.3u
- **Speed**: 10/100 Mbps
- **No. of Ports**: 2
- **Port Connector**: RJ45
- **Protection**: Built-in 1.5 KV magnetic isolation

**Serial Communications**

- **Port Type**: RS-232/422/485, software selectable
- **No. of Ports**: EKI-1221D: 1, EKI-1222D: 2
- **Port Connector**: DB9 male
- **Data Bits**: 7, 8
- **Stop Bits**: 1, 2
- **Parity**: None, Odd, Even, Space, Mark
- **Flow Control**: XON/XOFF, RTS/CTS, DTR/DSR, DCD, RI, GND
- **Baud Rate**: RS-422: 15, 30, 60, 120 kbps, any baud rate setting
- **Serial Signals**: RS-485: Data+, Data-, GND
- **Protection**: 15 KV ESD for all signals

**Software**

- **OS Support**: 32-bit/64-bit Windows 2000/XP/Vista/7 and Windows Server 2003/2008 (x64 and x64)
- **Utility Software**: Advantech Serial Device Server Configuration Utility
- **Operation Modes**: Modbus RTU Master/Slave mode, Modbus ASCII Master/Slave mode

**Mechanics**

- **Dimensions (W x H x D)**: 3.7 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Enclosure**: Metal with solid mounting hardware
- **Mounting**: DIN-rail, Wall
- **Weight**: EKI-1221D: 0.58 Kg, EKI-1222D: 0.588 Kg

**Power Requirements**

- **Power Input**: 12 – 48 Vdc, redundant dual inputs
- **Power Connector**: Terminal block
- **Power Consumption**: EKI-1221D: 2 W, EKI-1222D: 2.5 W

**Environment**

- **Operating Temperature**: -10 – 60°C (14 – 140°F)
- **Storage Temperature**: -20 – 80°C (-4 – 176°F)
- **Operating Humidity**: 5 – 95% RH

**Regulatory Approvals**

- **EMC**: EN 55022, EN 55011, EN 61000-6-1, IEC 61000-6-3, FCC 47 CFR Part 15 Subpart B (Class A)
- **Hazardous Location**: Class I, Division 2

**Ordering Information**

- **EKI-1221D**: 1-port Modbus Gateway with Ethernet Cascading
- **EKI-1222D**: 2-port Modbus Gateway with Ethernet Cascading

* All items include 1 pc OPT1-DB9 D-Sub9 to Terminal Converter
Introduction

The EKI-1200 series Modbus gateways are bi-directional gateways for integrating new and existing Modbus/RTU and Modbus/ASCII serial devices to newer TCP/IP networked-based devices. The EKI-1221/1222/1224 feature two independent Ethernet ports and MAC addresses to provide a redundant networking mechanism to guarantee Ethernet networking reliability. They provide a simple and cost-effective way to bring the advantage of remote management and data accessibility to thousands of devices that can not connect to a network. The EKI-1221/1222/1224 provide a feature that can allow users to select master or slave operation mode for each serial port. They not only allow an Ethernet master to control serial slaves, but also allow serial masters to control Ethernet slaves.

Specifications

Ethernet Communications
- **Compatibility:** IEEE 802.3, IEEE 802.3u
- **Speed:** 10/100 Mbps
- **No. of Ports:** 2
- **Port Connector:** 8-pin RJ45
- **Protection:** Built-in 1.5 KV magnetic isolation

Serial Communications
- **Port Type:** RS-232/422/485, software selectable
- **No. of Ports:**
  - EKI-1221: 1
  - EKI-1222: 2
  - EKI-1224: 4
- **Port Connector:** DB9 male
- **Data Bits:** 7, 8
- **Stop Bits:** 1, 2
- **Parity:** None, Odd, Even, Space, Mark
- **Flow Control:** XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate:** 50 bps - 921.6 kbps, any baud rate setting
- **Serial Signals:**
  - RS-232: TxD+, TxD-, RxD+, RxD-, GND
  - RS-422: TxD+, TxD-, RxD+, RxD-, GND
  - RS-485: Data+, Data-, GND
- **Protection:** 15 KV ESD for all signals

Software
- **OS Support:** 32-bit/64-bit Windows 2000/XP/Vista/7 and Windows Server 2003/2008
- **Utility Software:** Advantech Serial Device Server Configuration Utility
- **Operation Modes:** Modbus RTU Master/Slave mode
  - Modbus ASCII Master/Slave mode

General
- **LED Indicators:** System: Power, System Status
  - LAN: Speed, Link/Active
  - Serial: Tx, Rx
- **Reboot Trigger:** Built-in WDT (watchdog timer)

Mechanics
- **Dimensions (W x H x D):**
  - EKI-1221/1222: 32 x 140 x 95 mm (1.26” x 5.51” x 3.74”)
  - EKI-1224: 55 x 140 x 95 mm (2.17” x 5.51” x 3.74”)
- **Enclosure:** Metal with solid mounting hardware
- **Mounting:** DIN-rail, Wall
- **Weight:**
  - EKI-1221: 0.592 Kg
  - EKI-1222: 0.6 Kg
  - EKI-1224: 0.668 Kg

Power Requirements
- **Power Input:** 12 ~ 48 Vdc, redundant dual inputs
- **Power Connector:** Terminal block
- **Power Consumption:**
  - EKI-1221: 2 W
  - EKI-1222: 2.5 W
  - EKI-1224: 4 W

Environment
- **Operating Temperature:** -10 ~ 60°C (-14 ~ 140°F)
- **Storage Temperature:** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity:** 5 ~ 95% RH

Regulatory Approvals
- **EMC:** CE, FCC Part 15 Subpart B (Class A)
- **Safety:** UL/cUL 60950-1
- **Hazardous Location:** Class I, Division 2

Ordering Information
- **EKI-1221:** 1-port Modbus Gateway
- **EKI-1222:** 2-port Modbus Gateway
- **EKI-1224:** 4-port Modbus Gateway
- **OPT1-089:** D-Sub9 to Terminal Converter