ADVANTECH **Modbus Gateways**

- Integrates Modbus TCP and Modbus RTU/ASCII networks
- 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Client Mode can support 16 peer devices
- Server mode can have 32 peer devices per port on the serial side, with up to 64 TCP sessions per gateway
- Software-selectable RS-232/422/485-2w/485-4w communication
- Serial ports support up to 921.6 kbps
- Automatic RS-485 data flow control
- Built-in 15 kV ESD protection for all RS-422/RS-485 serial signals
- Metal housing with IP30 protection
- Class 1 Div 2 HazLoc
- 35mm DIN rail or wall mountable

Advantech Modbus Gateway Models

Part Number	Price	RJ45 10/100	Serial D-sub 9-pin	Input Power (Max.)
EKI-1221-CE	$;06dkf:	2	1	3.2 W
EKI-1222-CE	$06dkg:	2	2	3.2 W
EKI-1224-CE	$06dkh:	2	4	4.1 W

FC c(UL)us CE RoHS ☑ RoHS Compliant

Ethernet Interface

Port Type	8-pin RJ45
Speed	10/100 Mbps
Protection	Built-in 2.25 kV magnetic isolation
Protocol Supported	Modbus TCP/IP Client and Server
Cable Type	Autodetects MDI/MDIX Ethernet cable
Default IP address	Eth1: 10.0.0.1 Eth2: 10.0.0.2

Power Details

Power Consumption	See Input Power in Models table
Power Input	Redundant input terminals
Input Voltage	12–48 VDC
Reverse Power Protection	Yes
Overload Protection	No
Power Fail Relay Contact	24VDC, 1A resistive, open on fault

Serial Interface

| Port	D-sub 9-pin male port
Interface Mode	RS-232, RS-422, 2-wire RS-485, 4-wire RS-485
Supported Baud Rates	50bps – 921.6 kbps
Parity	Odd, Even, Space, Mark or None
Data Bits	5, 6, 7 or 8 bits
Stop Bits	1, 1.5 or 2
Flow Control	XON/XOFF, RTS/CTS or None
Termination	External 120Ω matching resistor required at termination of RS-485 line.
ESD Protection	15kV for all RS-422/RS-485 signals
Serial Devices Supported	Modbus client mode: 16 connections per serial port Modbus servers mode: 32 devices
Protocols Supported	Modbus RTU Client/Server, Modbus ASCII Client/Server

Environmental

Operating Temperature Range	-10 to +60°C [+14 to +140°F]
Storage Temperature Range	-40 to +85°C [-40 to +185°F]
Humidity	10 to 95% RH (non-condensing)
Maximum Altitude	2000m
Environmental Air	For use in Pollution Degree 2 Environment
Protection Level	Metal case, IP30
Agency Approvals	UL62368-1, CB IEC 62368-1:2014, CE, FCC
Hazardous Location	UL/cUL (Class I, Division 2, Groups A, B, C and D), ATEX (Zone 2 Ex nA nC IIC T4 Gc)
EMI	EN 55011:2016 Group 1 Class A
	EN 55032:2015+AC:2016 Class A
	EN 61000-6-4:2007+A1:2011
	EN 55024:2010+A1:2015
	EN 55035:2017+AC:2019
	CISPR 32:2015+C1:2016 Class A
	FCC Part 15 Subpart B Class A
EMS	EN 61000-4-2:2009 (ESD)
	EN 61000-4-3:2006+A1:2008+A2:2010 (RS)
	EN 61000-4-4:2012 (EFT)
	EN 61000-4-5:2014+A1:2017 (Surge)
	EN 61000-4-6:2014+AC:2015 (RFI)
	EN 61000-4-8:2010 (MFI)
	EN IEC 61000-6-2:2019

LED Status Indicators

PWR1 (green)	LED ON indicates voltage applied to Power 1 terminals.
PWR2 (green)	LED ON indicates voltage applied to Power 2 terminals.
Status (amber)	LED FLASHING (1Hz) indicates normal function.

Dimensions:
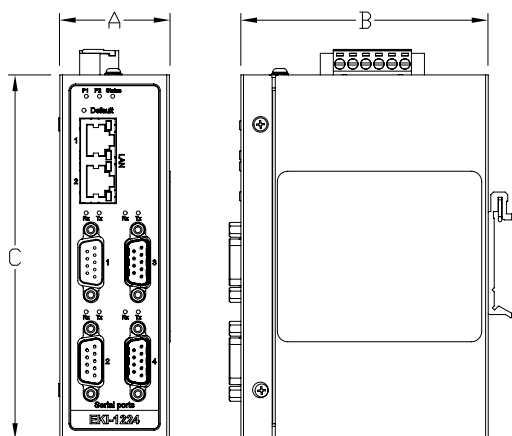
| Dimensions				
Part No.	Weight	Width (A)	Depth (B)	Height (C)
		mm [inches]		
EKI-1221-CE	0.47 kg [1.04 lb]	30 [1.18]	95 [3.74]	140 [5.51]
EKI-1222-CE	0.48 kg [1.06 lb]	30 [1.18]	95 [3.74]	140 [5.51]
EKI-1224-CE	0.56 kg [1.23 lb]	42 [1.65]	95 [3.74]	140 [5.51]

Installation – DIN Rail Mounting:

These devices are open-type and are meant to be installed in an enclosure which is only accessible with the use of a tool and suitable for the environment when installed in Class 1, Division 2 Hazardous Locations. The gateway may be used indoors only. The gateway can be snapped onto a standard 35 mm x 7.5 mm height DIN rail (Standard: CENELEC EN50022) and can be mounted either vertically or horizontally. The EKI-12xx-CE gateway does not have a minimum clearance requirement.

DIN rail mounting steps:

1. Hook top back of unit over the DIN rail.
2. Push bottom back onto the DIN rail until it snaps into place.

DIN rail removal steps:

A. Push the unit down to free the bottom of the DIN rail.
B. Rotate the bottom of the unit away from the DIN rail.
C. Unhook top of unit from DIN rail.

Mounting **Removal**
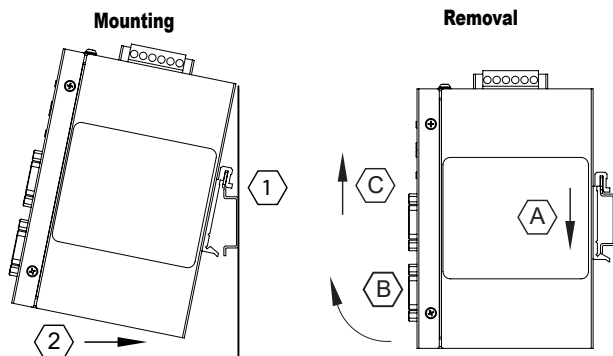
⚠️ **WARNING:** *THE FOLLOWING INFORMATION APPLIES WHEN OPERATING THIS DEVICE IN HAZARDOUS LOCATIONS: SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C AND D HAZARDOUS LOCATIONS, OR NONHAZARDOUS LOCATIONS ONLY.*

WARNING: *EXPLOSION HAZARD*
- *DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.*
- *SUBSTITUTION OF ANY COMPONENT MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.*

Power Wiring:

A DC voltage in the range of 12 to 48 VDC needs to be applied between the V1+ terminal and the V1- terminal as shown below. The chassis screw terminal should be tied to panel or chassis ground. To reduce down time resulting from power loss, the gateway can be powered redundantly with a second power supply.
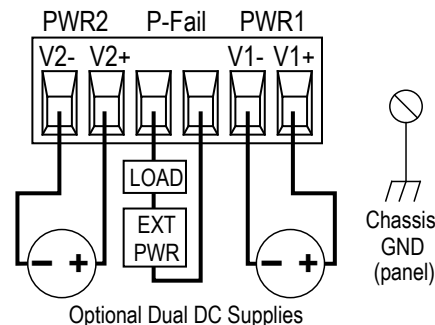
The P-fail relay contacts will open if PWR1 or PWR2 loses power. If a second power supply is not used, tie V2+ to V1+ and V2- to V1- for proper function of the power fail relay.

A recommended DC power supply is AutomationDirect.com part number PSL-24-010.

Redundant DC Power

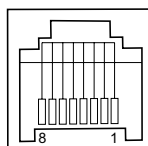**Required terminal screw torque is 7.0 lb-in [0.79 N·m].**

Wire Size Range 12 –24 AWG Wire Strip Length 6.5–7.5 mm

Optional Dual DC Supplies
*Fault Contact opens when in a faulted state
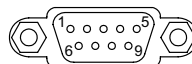
Communication Ports Wiring:

8 pin RJ45

Ethernet Port	
Pin	MDI Signal
1	Transmit Data + (TD+)
2	Transmit Data – (TD–)
3	Receive Data + (RD+)
6	Receive Data – (RD–)
4, 5, 7, 8	Unused

Note: + and – indicate level polarities.

D-sub 9-pin port

Serial Port			
Pin	RS-232	RS-422/485–4w	RS-485–2w
1	DCD	TX –	Data –
2	RX	—	—
3	TX	—	—
4	DTR	TX +	Data +
5	GND	GND	GND
6	DSR	—	—
7	RTS	RX +	—
8	CTS	—	—
9	RI	RX –	—

Reset to Factory Defaults:
Press recessed Default button on front of gateway housing and hold for 10 seconds to reset all settings to factory default.

NOTE: For additional product details, a user manual is available as a downloadable PDF file from the Online Documentation area of the AutomationDirect website.