

# 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<br>10/100 | Serial D-sub<br>9-pin | Input Power<br>(Max.) |
|------------------------------------|----------|----------------|-----------------------|-----------------------|
| <a href="#"><u>EKI-1221-CE</u></a> | \$278.00 | 2              | 1                     | 3.2 W                 |
| <a href="#"><u>EKI-1222-CE</u></a> | \$385.00 | 2              | 2                     | 3.2 W                 |
| <a href="#"><u>EKI-1224-CE</u></a> | \$525.00 | 2              | 4                     | 4.1 W                 |



RoHS Compliant

## Ethernet Interface

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

## Power Details

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

## Serial Interface

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

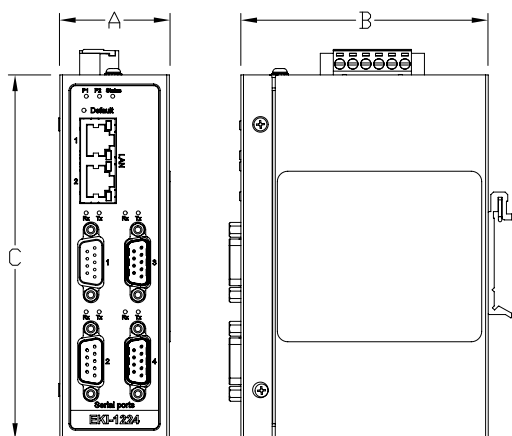
## Environmental

|                                    |                                                                                      |
|------------------------------------|--------------------------------------------------------------------------------------|
| <b>Operating Temperature Range</b> | -10 to +60°C [+14 to +140°F]                                                         |
| <b>Storage Temperature Range</b>   | -40 to +85°C [-40 to +185°F]                                                         |
| <b>Humidity</b>                    | 10 to 95% RH (non-condensing)                                                        |
| <b>Maximum Altitude</b>            | 2000m                                                                                |
| <b>Environmental Air</b>           | For use in Pollution Degree 2 Environment                                            |
| <b>Protection Level</b>            | Metal case, IP30                                                                     |
| <b>Agency Approvals</b>            | UL62368-1, CB IEC 62368-1:2014, CE, FCC                                              |
| <b>Hazardous Location</b>          | UL/cUL (Class I, Division 2, Groups A, B, C and D), ATEX (Zone 2 Ex nA nC IIC T4 Gc) |
| <b>EMI</b>                         | 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                                                        |
| <b>EMS</b>                         | FCC Part 15 Subpart B Class A                                                        |
|                                    | 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

|                       |                                                        |
|-----------------------|--------------------------------------------------------|
| <b>PWR1 (green)</b>   | LED ON indicates voltage applied to Power 1 terminals. |
| <b>PWR2 (green)</b>   | LED ON indicates voltage applied to Power 2 terminals. |
| <b>Status (amber)</b> | LED FLASHING (1Hz) indicates normal function.          |

## Dimensions:



### Dimensions

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

## Installation – DIN Rail Mounting:

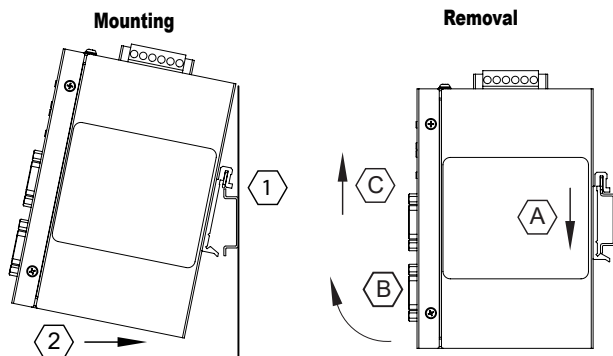
These devices are open-type and are meant to be installed in an enclosure which is only accessible with the use of a tool and suitable for the environment when installed in Class 1, Division 2 Hazardous Locations. The gateway may be used indoors only. The gateway can be snapped onto a standard 35 mm 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.



**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.

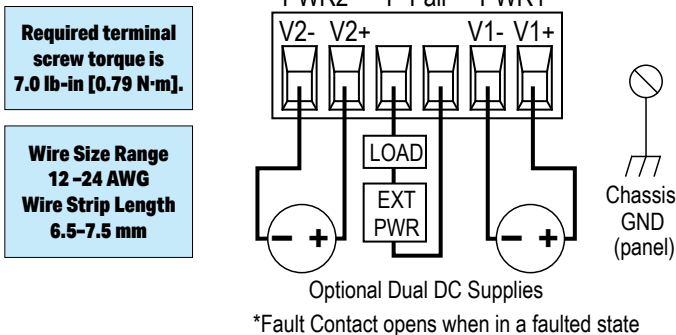
## Power Wiring:

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.

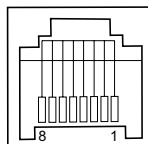
A recommended DC power supply is AutomationDirect.com part number PSL-24-010.

### Redundant DC Power



## Communication Ports Wiring:

8 pin RJ45

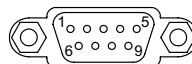


### Ethernet Port

| 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.