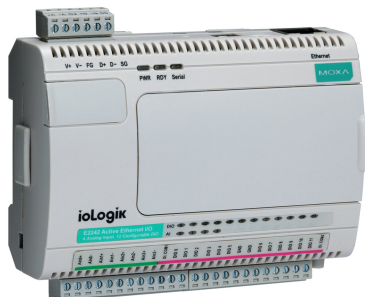


## Smart Ethernet remote I/O with Click&Go Logic



### Features and Benefits

- Front-end intelligence with Click&Go control logic, up to 24 rules
- Active communication with MX-AOPC UA Server
- Saves time and wiring costs with peer-to-peer communications
- Supports SNMP v1/v2c/v3
- Friendly configuration via web browser
- Simplifies I/O management with MXIO library for Windows or Linux
- Wide operating temperature models available for -40 to 75°C (-40 to 167°F) environments

### Certifications



## Introduction

Moxa's ioLogik E2200 Series Ethernet Remote I/O is a PC-based data acquisition and control device that uses proactive, event-based reporting to control I/O devices and features the Click&Go programming interface. Unlike traditional PLCs, which are passive and must poll for data, Moxa's ioLogik E2200 Series will, when paired with our MX-AOPC UA Server, communicate with SCADA systems using active messaging that is pushed to the server only when state changes or configured events occur. Additionally, the ioLogik E2200 features SNMP for communications and control using an NMS (Network Management System), allowing IT professionals to configure the device to push I/O status reports according to configured specifications. This report-by-exception approach, which is new to PC-based monitoring, requires far less bandwidth than traditional polling methods.

### PC-Free Alarm and Control Intelligence

This device supports simple yet powerful Click&Go™ technology to configure event-driven reports and alarms delivered over email, TCP/UDP, or SNMP traps, giving you a powerful and effective tool for delivering timestamped status updates in real time.

With built-in Click&Go™ intelligence, this device can be configured for simple outputs paired up with simple input triggers without the need for a PC controller. This allows it to be configured to automatically report I/O events according to conditions specified by the user.

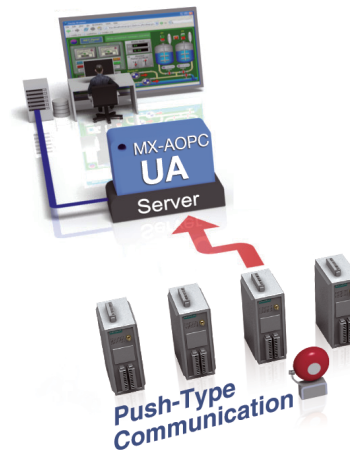


### SNMP for Ethernet Device Management

By using SNMP, IT engineers can configure the device to deliver alarms (traps) for specific I/O events, or use it to read or write directly to the I/O registers. For the strongest security, the device features SNMPv3, with authentication and encryption. With Moxa's SNMP-capable I/O, even IT professionals can easily integrate industrial sensors and servos over an Ethernet backbone, and with its strong network management tools, it is ideal for a wide variety of industrial applications, including environmental monitoring, telecommunications, power production and delivery, and transportation.

## Push Technology for Events and Alarms

When used with MX-AOPC UA Server, devices can use active push communications when communicating changes in state and/or events to a SCADA system. Unlike a polling system, when using a push architecture for communications with a SCADA system, messages will only be delivered when changes in state or configured events occur, resulting in higher accuracy and lower amounts of data that need to be transferred.



## Specifications

### Control Logic

|          |          |
|----------|----------|
| Language | Click&Go |
|----------|----------|

### Input/Output Interface

|                                         |                                                                                |
|-----------------------------------------|--------------------------------------------------------------------------------|
| Digital Input Channels                  | ioLogik E2210 Series: 12<br>ioLogik E2212 Series: 8<br>ioLogik E2214 Series: 6 |
| Digital Output Channels                 | ioLogik E2210/E2212 Series: 8<br>ioLogik E2260/E2262 Series: 4                 |
| Configurable DIO Channels (by software) | ioLogik E2212 Series: 4<br>ioLogik E2242 Series: 12                            |
| Relay Channels                          | ioLogik E2214 Series: 6                                                        |
| Analog Input Channels                   | ioLogik E2240 Series: 8<br>ioLogik E2242 Series: 4                             |
| Analog Output Channels                  | ioLogik E2240 Series: 2                                                        |
| RTD Channels                            | ioLogik E2260 Series: 6                                                        |
| Thermocouple Channels                   | ioLogik E2262 Series: 8                                                        |
| Buttons                                 | Reset button                                                                   |
| Rotary Switch                           | 0 to 9                                                                         |
| Isolation                               | 3k VDC or 2k Vrms                                                              |

### Digital Inputs

|                         |                                                                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Connector               | Screw-fastened Euroblock terminal                                                                                                     |
| Sensor Type             | ioLogik E2210 Series: Dry Contact and Wet Contact (NPN)<br>ioLogik E2212/E2214/E2242 Series: Dry Contact and Wet Contact (NPN or PNP) |
| I/O Mode                | DI or event counter                                                                                                                   |
| Dry Contact             | On: short to GND<br>Off: open                                                                                                         |
| Wet Contact (DI to GND) | On: 0 to 3 VDC<br>Off: 10 to 30 VDC                                                                                                   |
| Counter Frequency       | 900 Hz                                                                                                                                |

|                                 |                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Digital Filtering Time Interval | Software configurable                                                                                           |
| Points per COM                  | ioLogik E2210 Series: 12 channels<br>ioLogik E2212/E2242 Series: 6 channels<br>ioLogik E2214 Series: 3 channels |

#### Digital Outputs

|                            |                                   |
|----------------------------|-----------------------------------|
| Connector                  | Screw-fastened Euroblock terminal |
| I/O Type                   | Sink                              |
| I/O Mode                   | DO or pulse output                |
| Current Rating             | 200 mA per channel                |
| Pulse Output Frequency     | 1 kHz                             |
| DIO Output Leakage Current | 4.0 mA @ 24 VDC                   |
| Over-Current Protection    | 0.65 A per channel @ 25°C         |
| Over-Temperature Shutdown  | 175°C (min.)                      |
| Over-Voltage Protection    | 45 VDC (typical)                  |

#### Relays

|                        |                                                                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connector              | Screw-fastened Euroblock terminal                                                                                                                            |
| Type                   | Form A (N.O.) power relay                                                                                                                                    |
| I/O Mode               | Relay or pulse output                                                                                                                                        |
| Pulse Output Frequency | 0.3 Hz at rated load                                                                                                                                         |
| Contact Current Rating | Inductive load: 2 A @ 30 VDC, 250 VAC, 110 VAC<br>Resistive load: 5 A @ 30 VDC, 250 VAC, 110 VAC                                                             |
| Minimum Permitted Load | 1 A @ 5 VDC                                                                                                                                                  |
| Contact Resistance     | 100 milli-ohms (max.)                                                                                                                                        |
| Electrical Endurance   | 100,000 operations @ 5 A resistive load                                                                                                                      |
| Mechanical Endurance   | 1,000,000 operations                                                                                                                                         |
| Note                   | Ambient humidity must be non-condensing and remain between 5 and 95%. The relays may malfunction when operating in high condensation environments below 0°C. |

#### Analog Inputs

|             |                                                                                                                                                                                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connector   | Screw-fastened Euroblock terminal                                                                                                                                                                                                                 |
| I/O Mode    | Voltage/Current                                                                                                                                                                                                                                   |
| I/O Type    | Differential                                                                                                                                                                                                                                      |
| Resolution  | 16 bits                                                                                                                                                                                                                                           |
| Input Range | ioLogik E2240 Series: $\pm 150$ mV, $\pm 500$ mV, $\pm 5$ V, $\pm 10$ V, 0 to 20 mA, 4 to 20 mA<br>ioLogik E2242 Series: $\pm 150$ mV, 0 to 150 mV, $\pm 500$ mV, 0 to 500 mV, $\pm 5$ V, 0 to 5 V, $\pm 10$ V, 0 to 10 V, 0 to 20 mA, 4 to 20 mA |
| Accuracy    | ioLogik E2240/E2242:<br>$\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br><br>ioLogik E2240-T/E2242-T:                                                                                                                                   |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | $\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br>$\pm 0.5\%$ FSR @ -40 to 75°C                                                                                                                                                                                                                                                                                            |
| Sampling Rate                       | ioLogik E2240 Series:<br>All Channels: 10 samples/sec for voltage; 6 samples/sec for current<br>Per Channel: 1.25 samples/sec for voltage; 0.75 samples/sec for current<br>Single channel: 1.25 samples/sec for voltage; 0.75 samples/sec for current<br><br>ioLogik E2242 Series:<br>All channels: 32 samples/sec<br>Per channel: 8 samples/sec<br>Single channel: 100 samples/sec |
| Built-in Resistor for Current Input | 120 ohms                                                                                                                                                                                                                                                                                                                                                                            |
| Input Impedance                     | ioLogik E2240 Series: 900 kilo-ohms (min.)<br>ioLogik E2242 Series: 200 kilo-ohms (min.)                                                                                                                                                                                                                                                                                            |
| Over-Voltage Protection             | -25 to +30 VDC (power on)<br>-35 to +35 VDC (power off)                                                                                                                                                                                                                                                                                                                             |

#### Analog Outputs

|                     |                                                                                                                                                                                               |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connector           | Screw-fastened Euroblock terminal                                                                                                                                                             |
| I/O Mode            | Voltage/Current                                                                                                                                                                               |
| Output Range        | 0 to 10 VDC<br>4 to 20 mA                                                                                                                                                                     |
| Resolution          | 12-bit                                                                                                                                                                                        |
| Accuracy            | ioLogik E2240:<br>$\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br><br>ioLogik E2240-T:<br>$\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br>$\pm 0.5\%$ FSR @ -40 to 75°C |
| Load (Current Mode) | Internal power: 250 ohms (max.)                                                                                                                                                               |

#### RTDs

|                  |                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connector        | Screw-fastened Euroblock terminal                                                                                                                                                                                                                                              |
| Sensor Type      | JPT100, JPT200, JPT500 (-200 to 640°C)<br>JPT1000 (-200 to 350°C)<br>NI100, NI200, NI500 (-60 to 250°C)<br>NI1000 (-60 to 150°C)<br>NI120 (-80 to 260°C)<br>PT1000 (-200 to 350°C)<br>PT50, PT100, PT200, PT500 (-200 to 850°C)<br>Resistance of 310, 620, 1250, and 2200 ohms |
| Input Connection | 2- or 3-wire                                                                                                                                                                                                                                                                   |
| Sampling Rate    | All channels: 12 samples/sec<br>Per channel: 2 samples/sec                                                                                                                                                                                                                     |
| Resolution       | 0.1°C or 0.1 ohms                                                                                                                                                                                                                                                              |

|                 |                                                                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy        | ioLogik E2260:<br>$\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br><br>ioLogik E2260-T:<br>$\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br>$\pm 0.5\%$ FSR @ -40 to 75°C |
| Input Impedance | 625 kilo-ohms (min.)                                                                                                                                                                          |

#### Thermocouples

|                    |                                                                                                                                                                                               |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connector          | Screw-fastened Euroblock terminal                                                                                                                                                             |
| Sensor Type        | J, K, T, E, R, S, B, N                                                                                                                                                                        |
| Millivolt Type     | $\pm 19.532$ mV<br>$\pm 39.062$ mV<br>$\pm 78.126$ mV<br>Fault and over-voltage protection: -35 to +35 VDC (power off); -25 to +30 VDC (power on)                                             |
| Resolution         | 16 bits                                                                                                                                                                                       |
| Millivolt Accuracy | ioLogik E2262:<br>$\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br><br>ioLogik E2262-T:<br>$\pm 0.1\%$ FSR @ 25°C<br>$\pm 0.3\%$ FSR @ -10 to 60°C<br>$\pm 0.5\%$ FSR @ -40 to 75°C |
| TC Accuracy        | Types J, T, E, S, B: $\pm 5^\circ\text{C}$<br>Types K, R, N: $\pm 8^\circ\text{C}$                                                                                                            |
| CJC Accuracy       | $\pm 0.5^\circ\text{C}$ @ 25°C<br>$\pm 1.5^\circ\text{C}$ @ -40 to 75°C                                                                                                                       |
| Sampling Rate      | All channels: 12 samples/sec<br>Per channel: 1.5 samples/sec                                                                                                                                  |
| Input Impedance    | 1 mega-ohms (min.)                                                                                                                                                                            |

#### LED Interface

|                |                              |
|----------------|------------------------------|
| LED Indicators | PWR, RDY, Serial, I/O Status |
|----------------|------------------------------|

#### Ethernet Interface

|                                       |                   |
|---------------------------------------|-------------------|
| 10/100BaseT(X) Ports (RJ45 connector) | 1                 |
| Magnetic Isolation Protection         | 1.5 kV (built-in) |

#### Ethernet Software Features

|                       |                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------|
| Configuration Options | Windows Utility (ioAdmin), Web Console (HTTP)                                                             |
| Industrial Protocols  | Modbus TCP Server (Slave), SNMPv1/v2c/v3, SNMPv1 Trap, Moxa AOPC (Active Tag), MXIO Library, CGI commands |
| Management            | BOOTP, IPv4, SMTP, DHCP Client, HTTP, TCP/IP                                                              |
| MIB                   | Device Settings MIB                                                                                       |
| Time Management       | SNTP                                                                                                      |

## Security Functions

|                    |                |
|--------------------|----------------|
| Authentication     | Local database |
| Encryption         | HMAC           |
| Security Protocols | SNMPv3         |

## Modbus TCP

|                     |                          |
|---------------------|--------------------------|
| Functions Supported | 1, 2, 3, 4, 5, 6, 15, 16 |
| Mode                | Server (Slave)           |

## Serial Interface

|                  |                                                         |
|------------------|---------------------------------------------------------|
| Connector        | Terminal block                                          |
| Serial Standards | RS-485                                                  |
| No. of Ports     | 1                                                       |
| Baudrate         | 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps |
| Parity           | None                                                    |
| Data Bits        | 8                                                       |
| Stop Bits        | 1                                                       |
| Flow Control     | None                                                    |

## Serial Signals

|           |                   |
|-----------|-------------------|
| RS-485-2w | Data+, Data-, GND |
|-----------|-------------------|

## Serial Software Features

|                      |                   |
|----------------------|-------------------|
| Industrial Protocols | Modbus RTU Master |
|----------------------|-------------------|

## Platform

|                       |                                     |
|-----------------------|-------------------------------------|
| Real-time Clock (RTC) | Real-time clock with battery backup |
|-----------------------|-------------------------------------|

## Power Parameters

|                     |                                                                                                                                                                                                                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Connector     | Screw-fastened Euroblock terminal                                                                                                                                                                                                                                                          |
| No. of Power Inputs | 1                                                                                                                                                                                                                                                                                          |
| Input Voltage       | 12 to 36 VDC                                                                                                                                                                                                                                                                               |
| Power Consumption   | ioLogik E2210 Series: 202 mA @ 24 VDC<br>ioLogik E2212 Series: 136 mA @ 24 VDC<br>ioLogik E2214 Series: 170 mA @ 24 VDC<br>ioLogik E2240 Series: 198 mA @ 24 VDC<br>ioLogik E2242 Series: 178 mA @ 24 VDC<br>ioLogik E2260 Series: 95 mA @ 24 VDC<br>ioLogik E2262 Series: 160 mA @ 24 VDC |

## Physical Characteristics

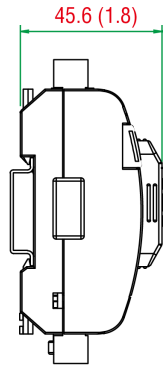
|              |                                            |
|--------------|--------------------------------------------|
| Dimensions   | 115 x 79 x 45.6 mm (4.53 x 3.11 x 1.80 in) |
| Weight       | 250 g (0.55 lb)                            |
| Installation | DIN-rail mounting, Wall mounting           |

|                                        |                                                                                                                                                                                                                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wiring                                 | I/O cable, 16 to 26 AWG<br>Power cable, 16 to 26 AWG                                                                                                                                                                                                            |
| Housing                                | Plastic                                                                                                                                                                                                                                                         |
| <b>Environmental Limits</b>            |                                                                                                                                                                                                                                                                 |
| Operating Temperature                  | Standard Models: -10 to 60°C (14 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F)                                                                                                                                                                     |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F)                                                                                                                                                                                                                                      |
| Ambient Relative Humidity              | 5 to 95% (non-condensing)                                                                                                                                                                                                                                       |
| Altitude                               | 2000 m <sup>1</sup>                                                                                                                                                                                                                                             |
| <b>Standards and Certifications</b>    |                                                                                                                                                                                                                                                                 |
| Safety                                 | UL 508                                                                                                                                                                                                                                                          |
| EMC                                    | EN 61000-6-2/-6-4                                                                                                                                                                                                                                               |
| EMI                                    | CISPR 32, FCC Part 15B Class A                                                                                                                                                                                                                                  |
| EMS                                    | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF                                    |
| Shock                                  | IEC 60068-2-27                                                                                                                                                                                                                                                  |
| Vibration                              | IEC 60068-2-6                                                                                                                                                                                                                                                   |
| Freefall                               | IEC 60068-2-32                                                                                                                                                                                                                                                  |
| <b>Declaration</b>                     |                                                                                                                                                                                                                                                                 |
| Green Product                          | RoHS, CRoHS, WEEE                                                                                                                                                                                                                                               |
| <b>MTBF</b>                            |                                                                                                                                                                                                                                                                 |
| Time                                   | ioLogik E2210 Series: 213,673 hrs<br>ioLogik E2212 Series: 217,722 hrs<br>ioLogik E2214 Series: 307,329 hrs<br>ioLogik E2240 Series: 155,941 hrs<br>ioLogik E2242 Series: 204,391 hrs<br>ioLogik E2260 Series: 327,282 hrs<br>ioLogik E2262 Series: 341,063 hrs |
| Standards                              | Telcordia SR332                                                                                                                                                                                                                                                 |
| <b>Warranty</b>                        |                                                                                                                                                                                                                                                                 |
| Warranty Period                        | ioLogik E2214 Series: 2 years <sup>2</sup><br>ioLogik E2210/E2212/E2240/E2242/E2260/E2262 Series: 5 years                                                                                                                                                       |
| Details                                | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                                                                                                                                                                                            |
| <b>Package Contents</b>                |                                                                                                                                                                                                                                                                 |
| Device                                 | 1 x ioLogik E2200 Series remote I/O                                                                                                                                                                                                                             |
| Documentation                          | 1 x quick installation guide<br>1 x warranty card                                                                                                                                                                                                               |

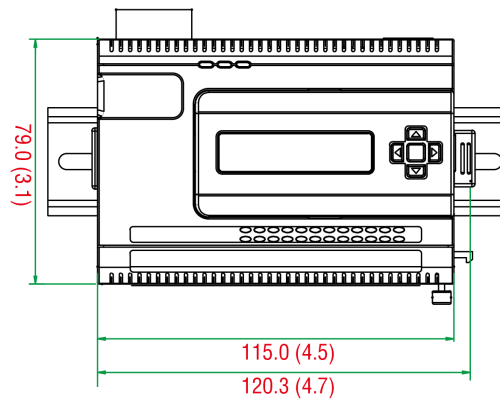
1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.
2. Because of the limited lifetime of power relays, products that use this component are covered by a 2-year warranty.

## Dimensions

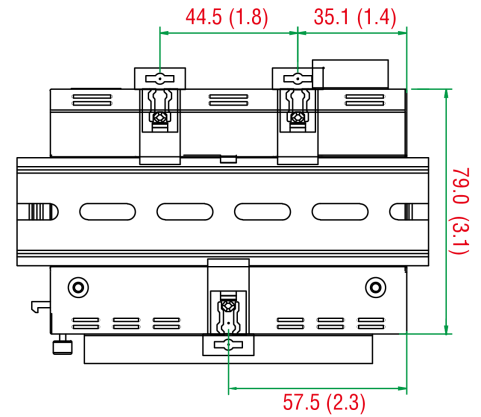
Unit: mm (inch)



Side View



Front View



Rear View

## Ordering Information

| Model Name      | Input/Output Interface  | Digital Input Sensor Type             | Analog Input Range                                                                 | Operating Temp. |
|-----------------|-------------------------|---------------------------------------|------------------------------------------------------------------------------------|-----------------|
| ioLogik E2210   | 12 x DI, 8 x DO         | Wet Contact (NPN), Dry Contact        | –                                                                                  | -10 to 60°C     |
| ioLogik E2210-T | 12 x DI, 8 x DO         | Wet Contact (NPN), Dry Contact        | –                                                                                  | -40 to 75°C     |
| ioLogik E2212   | 8 x DI, 4 x DIO, 8 x DO | Wet Contact (NPN or PNP), Dry Contact | –                                                                                  | -10 to 60°C     |
| ioLogik E2212-T | 8 x DI, 4 x DIO, 8 x DO | Wet Contact (NPN or PNP), Dry Contact | –                                                                                  | -40 to 75°C     |
| ioLogik E2214   | 6 x DI, 6 x Relay       | Wet Contact (NPN or PNP), Dry Contact | –                                                                                  | -10 to 60°C     |
| ioLogik E2214-T | 6 x DI, 6 x Relay       | Wet Contact (NPN or PNP), Dry Contact | –                                                                                  | -40 to 75°C     |
| ioLogik E2240   | 8 x AI, 2 x AO          | –                                     | ±150 mV, ±500 mV, ±5 V, ±10 V, 0-20 mA, 4-20 mA                                    | -10 to 60°C     |
| ioLogik E2240-T | 8 x AI, 2 x AO          | –                                     | ±150 mV, ±500 mV, ±5 V, ±10 V, 0-20 mA, 4-20 mA                                    | -40 to 75°C     |
| ioLogik E2242   | 12 x DIO, 4 x AI        | Wet Contact (NPN or PNP), Dry Contact | ±150 mV, 0-150 mV, ±500 mV, 0-500 mV, ±5 V, 0-5 V, ±10 V, 0-10 V, 0-20 mA, 4-20 mA | -10 to 60°C     |
| ioLogik E2242-T | 12 x DIO, 4 x AI        | Wet Contact (NPN or PNP), Dry Contact | ±150 mV, 0-150 mV, ±500 mV, 0-500 mV, ±5 V, 0-5 V, ±10 V, 0-10 V, 0-20 mA, 4-20 mA | -40 to 75°C     |
| ioLogik E2260   | 4 x DO, 6 x RTD         | –                                     | –                                                                                  | -10 to 60°C     |
| ioLogik E2260-T | 4 x DO, 6 x RTD         | –                                     | –                                                                                  | -40 to 75°C     |
| ioLogik E2262   | 4 x DO, 8 x TC          | –                                     | –                                                                                  | -10 to 60°C     |
| ioLogik E2262-T | 4 x DO, 8 x TC          | –                                     | –                                                                                  | -40 to 75°C     |

## Accessories (sold separately)

### Software

MX-AOPC UA Server

OPC UA Server software for converting fieldbus to the OPC UA standard

