ioLogik E1200 Series

Ethernet remote I/O with 2-port Ethernet switch

> Active communication with patented MX-AOPC UA Server and Active OPC Server
> 2 switched Ethernet ports for daisy-chain topologies
> Easy mass deployment and configuration with ioSearch utility
> Friendly configuration via web browser
> Save time and wiring costs with peer-to-peer communication
> User-defined Modbus/TCP addressing
> MXIO library for simplified I/O management on either Windows or Linux platforms
> Wide operating temperature: -40 to 75°C (-40 to 167°F)
> Supports SNMPv1/v2c
> UL/cUL Class I Division 2, ATEX Zone 2 certifications

Introduction

Daisy-chained Ethernet I/O Connection
A new era of extensible Ethernet I/O arrays is here. The ioLogik E1200 industrial Ethernet remote I/O comes with two switched Ethernet ports to allow for the free flow of information downstream, to another local Ethernet device, or upstream, to a control server. Applications such as factory automation, security and surveillance systems, and tunnelled connections can make use of daisy-chained Ethernet for building multi-drop I/O networks over standard Ethernet cables. Many industrial automation users are familiar with multi-drop as the configuration most typically used in fieldbus solutions. The daisy-chain capabilities supported by ioLogik E1200 Ethernet remote I/O units not only increase the extensibility and installation possibilities for your remote I/O applications, but also lower overall costs by reducing the need for separate Ethernet switches. Daisy-chaining devices in this way will also reduce overall labor and cabling expenses. For example, if a production facility contains 700 stations with 20 I/O points per station, the savings on wiring costs can reach as much as 15% of total expenses.

Saving Time and Wiring Costs with Peer-to-Peer Communications
In remote automation applications, the control room and sensors are often far removed, making wiring over long distances a constant challenge. With peer-to-peer networking, users may now map a pair of ioLogik E1200 series modules so that input values will be directly transferred to output channels, greatly simplifying the wiring process and reducing wiring costs.
User-Definable Modbus/TCP Addressing for Painless Upgrading of Existing Systems

For Modbus devices that are controlled and detected by fixed addresses, users need to spend a vast amount of time researching and verifying initial configurations. Users need to locate each device's networking details, such as I/O channels or vendor-defined addresses, to enable the initial or start address of a SCADA system or PLC.

The ioLogik E1200, with user-definable Modbus/TCP addressing, offers greater flexibility, and setup is easy. Instead of worrying about individual devices, users simply configure the function and address map to fit their needs.

### ioLogik E1210 Specifications

**Inputs and Outputs**
- **Digital Inputs**: 16 channels
- **Isolation**: 3k VDC or 2k Vrms
- **Digital Input**
  - **Sensor Type**: Wet Contact (NPN or PNP), Dry Contact
  - **I/O Mode**: DI or Event Counter
  - **Dry Contact**:
    - On: short to GND
    - Off: open

**Wet Contact (DI to COM)**:
- On: 10 to 30 VDC
- Off: 0 to 3 VDC

**Common Type**: 8 points per COM
**Counter Frequency**: 250 Hz

**Digital Filtering Time Interval**: Software Configurable

**Power Requirements**
- **Power Consumption**: 110 mA @ 24 VDC
- **MTBF** (mean time between failures)
  - Time: 671,345 hrs
  - Database: Telcordia (Bellcore)

**Over-voltage Protection**: 45 VDC
**Over-current Protection**: 2.6 A (4 channels @ 650 mA)
**Over-temperature Shutdown**: 175°C (typical), 150°C (min.)
**Current Rating**: 200 mA per channel

### ioLogik E1211 Specifications

**Inputs and Outputs**
- **Digital Outputs**: 16 channels
- **Isolation**: 3k VDC or 2k Vrms
- **Digital Output**
  - **Type**: Sink
  - **I/O Mode**: DO or Pulse Output
  - **Pulse Output Frequency**: 500 Hz

**Power Requirements**
- **Power Consumption**: 208 mA @ 24 VDC
- **MTBF** (mean time between failures)
  - Time: 923,027 hrs
  - Database: Telcordia (Bellcore)

**Over-voltage Protection**: 45 VDC
**Over-current Protection**: 2.6 A (4 channels @ 650 mA)
**Over-temperature Shutdown**: 175°C (typical), 150°C (min.)
**Current Rating**: 200 mA per channel

### ioLogik E1212 Specifications

**Inputs and Outputs**
- **Digital Inputs**: 8 channels
- **Configurable DI/Os**: 8 channels
- **Isolation**: 3k VDC or 2k Vrms
- **Digital Input**
  - **Sensor Type**: Wet Contact (NPN or PNP), Dry Contact
  - **I/O Mode**: DI or Event Counter
  - **Dry Contact**:
    - On: short to GND
    - Off: open
  - **Wet Contact (DI to COM)**:
    - On: 10 to 30 VDC
    - Off: 0 to 3 VDC
  - **Common Type**: 8 points per COM
  - **Counter Frequency**: 250 Hz

**Digital Filtering Time Interval**: Software Configurable

**Digital Output**
- **Type**: Sink
- **I/O Mode**: DO or Pulse Output
- **Pulse Output Frequency**: 500 Hz

**Power Requirements**
- **Power Consumption**: 155 mA @ 24 VDC
- **MTBF** (mean time between failures)
  - Time: 561,930 hrs
  - Database: Telcordia (Bellcore)

**Over-voltage Protection**: 45 VDC
**Over-current Protection**: 2.6 A (4 channels @ 650 mA)
**Over-temperature Shutdown**: 175°C (typical), 150°C (min.)
**Current Rating**: 200 mA per channel
### ioLogik E1213 Specifications

**Inputs and Outputs**
- Digital Inputs: 8 channels
- Digital Outputs: 4 channels
- Digital Input/Output (configurable by jumper): 4 channels
- Isolation: 3k VDC or 2k Vrms

**Digital Input**
- Sensor Type: NPN, PNP, and dry contact
- I/O Mode: DI or Event Counter
- Dry Contact:
  - On: short to GND
  - Off: open
- Wet Contact (DI to COM):
  - On: 10 to 30 VDC
  - Off: 0 to 3 VDC
- Common Type: 12 points per COM
- Counter/Frequency: 250 Hz, power off storage

### ioLogik E1214 Specifications

**Inputs and Outputs**
- Digital Inputs: 6 channels
- Relay Outputs: 6 channels
- Isolation: 3k VDC or 2k Vrms

**Digital Input**
- Sensor Type: Wet Contact (NPN or PNP), Dry Contact
- I/O Mode: DI or Event Counter
- Dry Contact:
  - On: short to GND
  - Off: open
- Wet Contact (DI to COM):
  - On: 10 to 30 VDC
  - Off: 0 to 3 VDC
- Common Type: 6 points per COM
- Counter/Frequency: 250 Hz
- Digital Filtering Time Interval: Software Configurable

### ioLogik E1240 Specifications

**Inputs and Outputs**
- Analog Inputs: 8 channels
- Isolation: 3k VDC or 2k Vrms

**Analog Input**
- Type: Differential input
- Resolution: 16 bits
- I/O Mode: Voltage / Current
- Input Range: 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA
- Accuracy:
  - ±0.1% FSR @ ±25°C
  - ±0.3% FSR @ ±10 and 60°C
  - ±0.5% FSR @ ±40 and 75°C

**Load Resistor:** Internal register, 400 ohms
**Note:** 24 V of external power required when loading exceeds 1000 ohms.

### ioLogik E1241 Specifications

**Inputs and Outputs**
- Analog Outputs: 4 channels
- Isolation: 3k VDC or 2k Vrms

**Analog Output**
- Resolution: 12 bits
- Output Range: 0 to 10 VDC, 4 to 20 mA
- Voltage Output: 10 mA (max.)
- Accuracy:
  - ±0.1% FSR @ ±25°C
  - ±0.3% FSR @ ±40 and 75°C

**Load Resistor:** Internal register, 400 ohms
**Note:** 24 V of external power required when loading exceeds 1000 ohms.

### ioLogik E1212 Specifications

**Inputs and Outputs**
- Analog Inputs: 8 channels
- Isolation: 3k VDC or 2k Vrms

**Analog Input**
- Type: Differential input
- Resolution: 16 bits
- I/O Mode: Voltage / Current
- Input Range: 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA
- Accuracy:
  - ±0.1% FSR @ ±25°C
  - ±0.3% FSR @ ±10 and 60°C
  - ±0.5% FSR @ ±40 and 75°C

### Power Requirements

**Power Consumption:**
- 188 mA @ 24 VDC

**MTBF (mean time between failures):**
- 474,053 hrs

**Database:**
- Telcordia (Bellcore)

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**Digital Output**
- I/O Mode: DO or Pulse Output
- I/O Type: Source
- Current: 500 mA per channel
- Voltage: 15 to 30 VDC (12 or 9 VDC configurable by jumper on the 4 DO channels)
- Pulse Wave Width/Frequency: 1 ms/500 Hz
- Over-Voltage Protection: 41 VDC
- Over-Current Limit: 1.5 A per channel @ 25°C
- Over-Temperature Shutdown: 175°C (typical), 150°C (min.)

**Output Current Rating:**
- 1.5 A per channel

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**Relay Output**
- Type: Form A (N.O.) power relay
- Contact Current Rating:
  - Resistive Load: 5 A @ 30 VDC, 250 VAC, 110 VAC
  - Breakdown Voltage: 500 VAC
- Relay On/Off Time: 1500 ms (max.)
- Initial Insulation Resistance: 1000 M ohms (min.) @ 500 VDC
- Mechanical Endurance: 5,000,000 operations
- Electrical Endurance: 100,000 operations @ 5 A resistive load
- Contact Resistance: 100 m ohms (max.)
- Pulse Output: 0.3 Hz at rated load

**Note:** Ambient humidity must be non-condensing and remain between 5 and 95%. The relays of the ioLogik E1214 may malfunction when operating in high condensation environments below 0° Celsius.

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**Power Requirements**
- Power Consumption: 130 mA typical @ 24 VDC
- MTBF (mean time between failures): 888,656 hrs
- Database: Telcordia (Bellcore)
### ioLogik E1242 Specifications

**Inputs and Outputs**
- Analog Inputs: 4 channels
- Digital Inputs: 4 channels
- Configurable DI/Os: 4 channels
- Isolation: 3k VDC or 2k Vrms

**Analog Input**
- Type: Differential input
- Resolution: 16 bits
- I/O Mode: Voltage / Current
- Input Range: 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA
- Accuracy:
  - ±0.1% FSR @ 25°C
  - ±0.3% FSR @ -10 and 60°C
  - ±0.5% FSR @ -40 and 75°C

**Sampling Rate:**
- All channels: 12 samples/sec
- Per channel: 3 samples/sec
- Only one channel enabled: 12 samples/sec

**Input Impedance:** 10M ohms (min.)

**Built-in Resistor for Current Input:** 120 ohms

**Digital Input**
- Sensor Type: Wet Contact (NPN or PNP), Dry Contact
- I/O Mode: DI or Event Counter

**Dry Contact:**
- On: short to GND
- Off: open

**Wet Contact (DI to COM):**
- On: 10 to 30 VDC
- Off: 0 to 3 VDC

**Common Type:** 4 points per COM

**Counter Frequency:** 250 Hz

**Digital Filtering Time Interval:** Software Configurable

**Digital Output**
- Type: Sink
- I/O Mode: DO or Pulse Output
- Pulse Output Frequency: 500 Hz
- Over-voltage Protection: 45 VDC
- Over-current Protection: 2.6 A (4 channels @ 650 mA)
- Over-temperature Shutdown: 175°C (typical), 150°C (min.)
- Current Rating: 200 mA per channel

**Power Requirements**
- Power Consumption: 139 mA @ 24 VDC

**MTBF (mean time between failures)**
- Time: 502,210 hrs
- Database: Telcordia (Bellcore)

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### ioLogik E1260 Specifications

**Inputs and Outputs**
- RTD Inputs: 6 channels
- Isolation: 3k VDC or 2k Vrms

**RTD Inputs**
- Input Type:
  - PT50, PT100, PT200, PT500 (-200 to 850°C)
  - PT1000 (-200 to 350°C)
- Resistance of 310, 820, 1250, and 2200 ohms
- Input connection: 2 or 3 wire

**Sampling Rate:**
- All channels: 12 samples/sec
- Per channel: 2 samples/sec
- Only one channel enabled: 12 samples/sec

**Resolution:** 0.1°C or 0.1 ohm

**Accuracy:**
- ±0.1% FSR @ 25°C
- ±0.3% FSR @ -40 and 75°C

**Input Impedance:** 625k ohms

**Power Requirements**
- Power Consumption: 110 mA @ 24 VDC

**MTBF (mean time between failures)**
- Time: 660,260 hrs
- Database: Telcordia (Bellcore)

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### ioLogik E1262 Specifications

**Inputs and Outputs**
- Thermocouple Inputs: 8 channels
- Isolation: 3k VDC or 2k Vrms

**Thermocouple Input**
- Sensor Type:
  - J (0 to 750°C), K (-200 to 1250°C), T (-200 to 900°C), R (-50 to 1600°C), S (-50 to 1760°C), B (600 to 1700°C), N (-200 to 1300°C)
- Millivolt Type:
  - Mode: ±78.126 mV, ±39.062 mV, ±19.532 mV
- Fault and over-voltage protection: -35 to +35 VDC (power off); -25 to +35 VDC (power on)

**Sampling Rate:**
- All channels: 12 samples/sec
- Per channel: 1.5 samples/sec
- Only one channel enabled: 12 samples/sec

**Resolution:** 0.1°C or 0.1 ohm

**Accuracy:**
- ±0.1% FSR @ 25°C
- ±0.3% FSR @ -40 and 75°C

**Input Impedance:** 10M ohms

**Power Requirements**
- Power Consumption: 118 mA @ 24 VDC

**MTBF (mean time between failures)**
- Time: 631,418 hrs
- Database: Telcordia (Bellcore)

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### Common Specifications

**LAN**
- Ethernet: 2 switched 10/100 Mbps RJ45 ports
- Protection: 1.5 kV magnetic isolation
- Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, BOOTP, HTTP

**Power Requirements**
- Power Input: 24 VDC nominal, 12 to 36 VDC

**Physical Characteristics**
- Wiring: I/O cable max. 14 AWG
- Dimensions: 27.8 x 124 x 84 mm (1.09 x 4.88 x 3.31 in)
- Weight: Under 200 g
- Mounting: DIN rail or wall
Remote I/O

Ordering Information

Available Models
- ioLogik E1210: Ethernet remote I/O with 2-port Ethernet switches, 16 DIs, -10 to 60°C operating temperature
- ioLogik E1210-T: Ethernet remote I/O with 2-port Ethernet switches, 16 DIs, -40 to 75°C operating temperature
- ioLogik E1211: Ethernet remote I/O with 2-port Ethernet switches, 16 DOs, -10 to 60°C operating temperature
- ioLogik E1211-T: Ethernet remote I/O with 2-port Ethernet switches, 16 DOs, -40 to 75°C operating temperature
- ioLogik E1212: Ethernet remote I/O with 2-port Ethernet switches, 8 DIs, 8 DI/Os, -10 to 60°C operating temperature
- ioLogik E1212-T: Ethernet remote I/O with 2-port Ethernet switches, 8 DIs, 8 DI/Os, -40 to 75°C operating temperature
- ioLogik E1213: Ethernet remote I/O with 2-port Ethernet switches, 8 DIs, 4 source DOs, 4 source DI/Os, -10 to 60°C operating temperature
- ioLogik E1213-T: Ethernet remote I/O with 2-port Ethernet switches, 8 DIs, 4 source DOs, 4 source DI/Os, -40 to 75°C operating temperature
- ioLogik E1214: Ethernet remote I/O with 2-port Ethernet switches, 6 DIs, 6 Relays, -10 to 60°C operating temperature
- ioLogik E1214-T: Ethernet remote I/O with 2-port Ethernet switches, 6 DIs, 6 Relays, -40 to 75°C operating temperature
- ioLogik E1240: Ethernet remote I/O with 2-port Ethernet switches, 8 Als, -10 to 60°C operating temperature
- ioLogik E1240-T: Ethernet remote I/O with 2-port Ethernet switches, 8 Als, -40 to 75°C operating temperature
- ioLogik E1241: Ethernet remote I/O with 2-port Ethernet switches, 4 AOs, -10 to 60°C operating temperature
- ioLogik E1241-T: Ethernet remote I/O with 2-port Ethernet switches, 4 AOs, -40 to 75°C operating temperature
- ioLogik E1242: Ethernet remote I/O with 2-port Ethernet switches, 4 Als, 4 DI/Os, -10 to 60°C operating temperature
- ioLogik E1242-T: Ethernet remote I/O with 2-port Ethernet switches, 4 Als, 4 DI/Os, -40 to 75°C operating temperature
- ioLogik E1260: Ethernet remote I/O with 2-port Ethernet switches, 6 RTDs, -10 to 60°C operating temperature
- ioLogik E1260-T: Ethernet remote I/O with 2-port Ethernet switches, 6 RTDs, -40 to 75°C operating temperature
- ioLogik E1262: Ethernet remote I/O with 2-port Ethernet switches, 8 TCs, -10 to 60°C operating temperature
- ioLogik E1262-T: Ethernet remote I/O with 2-port Ethernet switches, 8 TCs, -40 to 75°C operating temperature

EMS:
- EN 55022, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
- Shock: IEC 60068-2-7
- Freefall: IEC 60068-2-32
- Vibration: IEC 60068-2-6

Environmental Limits
- Operating Temperature:
  - Standard Models: -10 to 60°C (14 to 140°F)
  - Wide Temp. Models: -40 to 75°C (-40 to 167°F)
- Storage Temperature: -40 to 85°C (-40 to 185°F)
- Ambient Relative Humidity: 5 to 95% (non-condensing)
- Altitude: Up to 2000 m

Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Standards and Certifications
- Safety: UL 508
- EMI:
  - EN 55022; EN 61000-3-2; EN 61000-3-3; FCC Part 15, Subpart B, Class A
- EMS:
  - EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6
  - Shock: IEC 60068-2-7
  - Freefall: IEC 60068-2-32
  - Vibration: IEC 60068-2-6
  - Green Product: RoHS, CRoHS, WEEE
- Hazardous Location: UL/cUL Class I Division 2, ATEX Zone 2

Warranty
- Warranty Period: 5 years (excluding ioLogik E1214)
- Details: See www.moxa.com/warranty

Note: Because of the limited lifetime of power relays, products that use this component are covered by a 2-year warranty.

Dimensions

Unit: mm (inch)

Ordering Information

Available Models

Package Checklist
- ioLogik E1200
- Documentation and software CD
- Quick installation guide (printed)