

# ioLogik E1200 Series

Ethernet remote I/O with 2-port Ethernet switch



## Features and Benefits

- User-definable Modbus TCP Slave addressing
- Supports EtherNet/IP Adapter mode<sup>1</sup>
- Supports RESTful API for IIoT applications
- 2-port Ethernet switch for daisy-chain topologies
- Saves time and wiring costs with peer-to-peer communications
- Active communication with MX-AOPC UA Server
- Supports SNMP v1/v2c
- Easy mass deployment and configuration with ioSearch utility
- Friendly configuration via web browser
- Simplifies I/O management with MXIO library for Windows or Linux
- Class I Division 2, ATEX Zone 2 certification<sup>2</sup>
- Wide operating temperature models available for -40 to 75°C (-40 to 167°F) environments

## Certifications



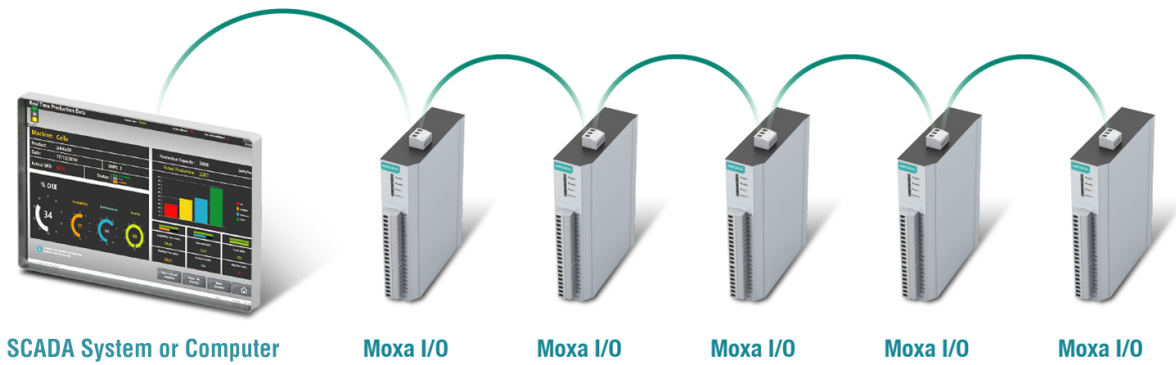
## Introduction

The ioLogik E1200 Series supports the most often-used protocols for retrieving I/O data, making it capable of handling a wide variety of applications. Most IT engineers use SNMP or RESTful API protocols, but OT engineers are more familiar with OT-based protocols, such as Modbus and EtherNet/IP. Moxa's Smart I/O makes it possible for both IT and OT engineers to conveniently retrieve data from the same I/O device. The ioLogik E1200 Series speaks six different protocols, including Modbus TCP, EtherNet/IP, and Moxa AOPC for OT engineers, as well as SNMP, RESTful API, and Moxa MXIO library for IT engineers. The ioLogik E1200 retrieves I/O data and converts the data to any of these protocols at the same time, allowing you to get your applications connected easily and effortlessly.

## Daisy-Chained Ethernet I/O Connection

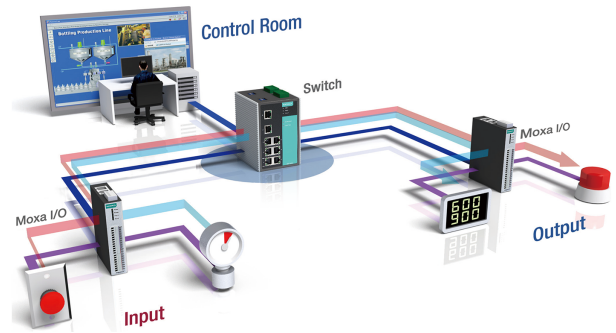
This industrial Ethernet remote I/O comes with two switched Ethernet ports to allow for the free flow of information downstream to another local Ethernet device, or upstream to a control server via expandable daisy-chained Ethernet I/O arrays. Applications such as factory automation, security and surveillance systems, and tunneled connections can make use of daisy-chained Ethernet for building multidrop I/O networks over standard Ethernet cables. Many industrial automation users are familiar with multidrop as the configuration most typically used in fieldbus solutions. The daisy-chain capabilities supported by ioLogik Ethernet remote I/O units not only increase the expandability 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.

1. Requires online registration (available free of charge)  
2. Class I Division 2 and ATEX currently do not apply to the E1213/E1213-T models.



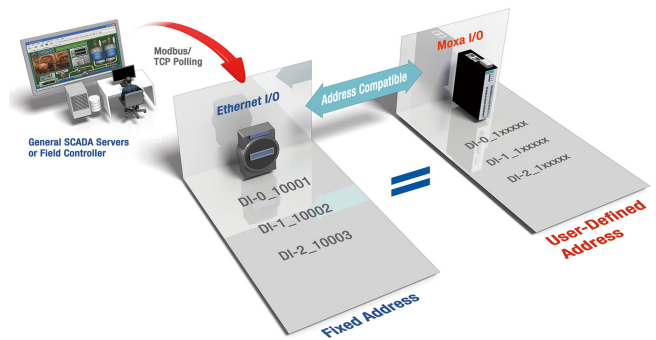
### Save Time and Wiring Costs with Peer-to-Peer Communications

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 Series modules so that input values will be directly transferred to output channels, greatly simplifying the wiring process and reducing wiring costs.



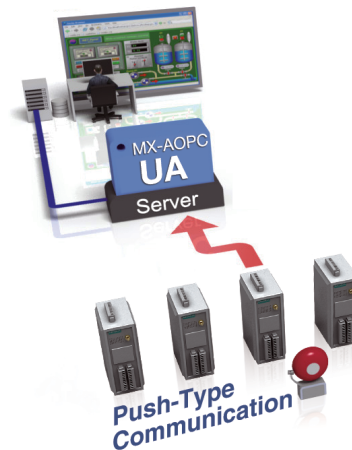
### User-Definable Modbus TCP Addressing for Painless Upgrading of Existing Systems

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. Devices that support user-definable Modbus TCP addressing offer greater flexibility and easier setup. Instead of worrying about individual devices, users simply configure the function and address map to fit their needs.



### Push Technology for Events

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

### Input/Output Interface

Analog Input Channels	ioLogik E1240 models: 8 ioLogik E1242 models: 4
Analog Output Channels	ioLogik E1241 models: 4
Configurable DIO Channels (by jumper)	ioLogik E1212 models: 8

	ioLogik E1213/E1242 models: 4
Digital Input Channels	ioLogik E1210 models: 16 ioLogik E1212/E1213 models: 8 ioLogik E1214 models: 6 ioLogik E1242 models: 4
Digital Output Channels	ioLogik E1211 models: 16 ioLogik E1213 models: 4
Isolation	3k VDC or 2k Vrms
Relay Channels	ioLogik E1214 models: 6
RTD Channels	ioLogik E1260 models: 6
Thermocouple Channels	ioLogik E1262 models: 8
Buttons	Reset button

### Digital Inputs

Connector	Screw-fastened Euroblock terminal
Counter Frequency	250 Hz
Digital Filtering Time Interval	Software configurable
Dry Contact	On: short to GND Off: open
I/O Mode	DI or event counter
Points per COM	ioLogik E1210/E1212 models: 8 channels ioLogik E1213 models: 12 channels ioLogik E1214 models: 6 channels ioLogik E1242 models: 4 channels
Sensor Type	Dry contact Wet Contact (NPN or PNP)
Wet Contact (DI to COM)	On: 10 to 30 VDC Off: 0 to 3 VDC

### Digital Outputs

Connector	Screw-fastened Euroblock terminal
Current Rating	ioLogik E1211/E1212/E1242 models: 200 mA per channel ioLogik E1213 models: 500 mA per channel
I/O Mode	DO or pulse output
I/O Type	ioLogik E1211/E1212/E1242 models: Sink ioLogik E1213 models: Source
Over-Current Protection	ioLogik E1211/E1212/E1242 models: 2.6 A per channel @ 25°C ioLogik E1213 models: 1.5 A per channel @ 25°C
Over-Temperature Shutdown	175°C (typical), 150°C (min.)
Over-Voltage Protection	35 VDC
Pulse Output Frequency	500 Hz (max.)

## Relays

Breakdown Voltage	500 VAC
Connector	Screw-fastened Euroblock terminal
Contact Current Rating	Resistive load: 5 A @ 30 VDC, 250 VAC, 110 VAC
Contact Resistance	100 milli-ohms (max.)
Electrical Endurance	100,000 operations @ 5 A resistive load
Initial Insulation Resistance	1,000 mega-ohms (min.) @ 500 VDC
Mechanical Endurance	5,000,000 operations
Pulse Output Frequency	0.3 Hz at rated load (max.)
Type	Form A (N.O.) power relay
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

Accuracy	ioLogik E1240/E1242: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C  ioLogik E1240-T/E1242-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C ±0.5% FSR @ -40 to 75°C
Built-in Resistor for Current Input	120 ohms
Connector	Screw-fastened Euroblock terminal
I/O Mode	Voltage/Current
I/O Type	Differential
Input Impedance	10 mega-ohms (min.)
Input Range	0 to 10 VDC 0 to 20 mA 4 to 20 mA 4 to 20 mA (with burn-out detection)
Resolution	16 bits
Sampling Rate	All channels: 12 samples/sec Per channel: 1.5 samples/sec

## Analog Outputs

Accuracy	ioLogik E1241: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C  ioLogik E1241-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -40 to 75°C
Connector	Screw-fastened Euroblock terminal
Voltage Output Short-Circuit Protection	10 mA
Internal Resistor	400 ohms Note: 24 V of external power required when loading exceeds 1000 ohms

Output Range	0 to 10 VDC 4 to 20 mA
Resolution	12-bit
<b>RTDs</b>	
Accuracy	ioLogik E1260: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C  ioLogik E1260-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -40 to 75°C
Connector	Screw-fastened Euroblock terminal
Input Connection	2- or 3-wire
Input Impedance	625 kilo-ohms (min.)
Sensor Type	PT1000 (-200 to 350°C) PT50, PT100, PT200, PT500 (-200 to 850°C)
Resistance Type	310, 620, 1250, and 2200 ohms
Resolution	0.1°C or 0.1 ohms
Sampling Rate	All channels: 12 samples/sec Per channel: 2 samples/sec
<b>Thermocouples</b>	
Millivolt Accuracy	ioLogik E1262: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C  ioLogik E1262-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -40 to 75°C
Connector	Screw-fastened Euroblock terminal
TC Accuracy	Types J, T, E, S, B: ±5°C Types K, R, N: ±8°C
CJC Accuracy	±0.5°C @ 25°C ±1.5°C @ -40 to 75°C
Input Impedance	10 mega-ohms (min.)
Millivolt Type	±19.532 mV ±39.062 mV ±78.126 mV Fault and over-voltage protection: -35 to +35 VDC (power off); -25 to +30 VDC (power on)
Resolution	16 bits
Sampling Rate	All channels: 12 samples/sec Per channel: 1.5 samples/sec
Sensor Type	J, K, T, E, R, S, B, N
<b>Ethernet Interface</b>	
10/100BaseT(X) Ports (RJ45 connector)	2, 1 MAC address (Ethernet bypass)
Magnetic Isolation Protection	1.5 kV (built-in)

## Ethernet Software Features

Configuration Options	Web Console (HTTP), Windows Utility (ioSearch)
Industrial Protocols	EtherNet/IP Adapter (Slave), Modbus TCP Server (Slave), Moxa AOPC (Active Tag), MXIO Library
Management	BOOTP, RESTful API, DHCP Client, HTTP, IPv4, TCP/IP, UDP, SNMPv1 Trap, SNMPv1/v2c
MIB	Device Settings MIB
Security	Access control list

## LED Interface

LED Indicators	Power, Ready, Port 1, Port 2
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## Modbus TCP

Functions Supported	1, 2, 3, 4, 5, 6, 15, 16, 23
Mode	Server
Max. No. of Client Connections	10

## EtherNet/IP

Mode	Adapter
Max. No. of Scanner Connections	9 (for read-only), 1 (for read/write)

## Power Parameters

Power Connector	Screw-fastened Euroblock terminal
No. of Power Inputs	1
Input Voltage	12 to 36 VDC
Power Consumption	ioLogik E1210 Series: 110 mA @ 24 VDC ioLogik E1211 Series: 200 mA @ 24 VDC ioLogik E1212 Series: 155 mA @ 24 VDC ioLogik E1213 Series: 130 mA @ 24 VDC ioLogik E1214 Series: 188 mA @ 24 VDC ioLogik E1240 Series: 121 mA @ 24 VDC ioLogik E1241 Series: 194 mA @ 24 VDC ioLogik E1242 Series: 139 mA @ 24 VDC ioLogik E1260 Series: 110 mA @ 24 VDC ioLogik E1262 Series: 118 mA @ 24 VDC

## Physical Characteristics

Housing	Plastic
Dimensions	27.8 x 124 x 84 mm (1.09 x 4.88 x 3.31 in)
Weight	200 g (0.44 lb)
Installation	DIN-rail mounting, Wall mounting
Wiring	I/O cable, 16 to 26 AWG Power cable, 12 to 24 AWG

## 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 (package included)	-40 to 85°C (-40 to 185°F)

Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	2000 m <sup>3</sup>

#### Standards and Certifications

EMC	EN 55032/24, 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 IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Hazardous Locations	ATEX, Class I Division 2 <sup>4</sup>
Safety	UL 508
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

#### Declaration

Green Product	RoHS, CRoHS, WEEE
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#### MTBF

Time	ioLogik E1210 Series: 671,345 hrs ioLogik E1211 Series: 923,027 hrs ioLogik E1212 Series: 561,930 hrs ioLogik E1213 Series: 715,256 hrs ioLogik E1214 Series: 808,744 hrs ioLogik E1240 Series: 474,053 hrs ioLogik E1241 Series: 888,656 hrs ioLogik E1242 Series: 502,210 hrs ioLogik E1260 Series: 660,260 hrs ioLogik E1262 Series: 631,418 hrs
Standards	Telcordia SR332

#### Warranty

Warranty Period	ioLogik E1214: 2 years <sup>5</sup> ioLogik E1210/E1211/E1212/E1213/E1240/E1241/E1242/E1260/E1262: 5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

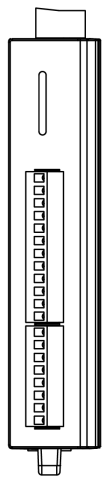
#### Package Contents

Device	1 x ioLogik E1200 Series remote I/O
Installation Kit	1 x terminal block, 8-pin, 3.81 mm 1 x terminal block, 12-pin, 3.81 mm 1 x terminal block, 3-pin, 5.00 mm
Documentation	1 x quick installation guide 1 x warranty card

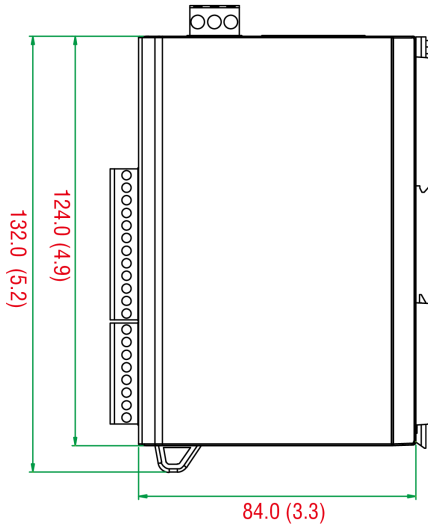
3. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.
4. ATEX and Class I Division 2 currently do not apply to the ioLogik E1213/E1213-T models.
5. Because of the limited lifetime of power relays, products that use this component are covered by a 2-year warranty.

## Dimensions

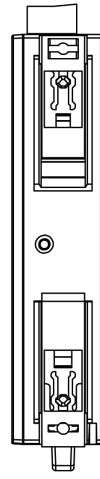
Unit: mm (inch)



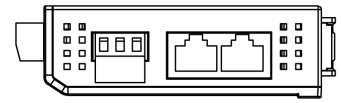
Front View



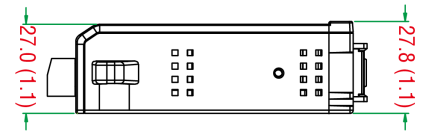
Side View



Rear View



Top View



Bottom View

## Ordering Information

Model Name	Input/Output Interface	Digital Output Type	Operating Temp.
ioLogik E1210	16 x DI	–	-10 to 60°C
ioLogik E1210-T	16 x DI	–	-40 to 75°C
ioLogik E1211	16 x DO	Sink	-10 to 60°C
ioLogik E1211-T	16 x DO	Sink	-40 to 75°C
ioLogik E1212	8 x DI, 8 x DIO	Sink	-10 to 60°C
ioLogik E1212-T	8 x DI, 8 x DIO	Sink	-40 to 75°C
ioLogik E1213	8 x DI, 4 x DO, 4 x DIO	Source	-10 to 60°C
ioLogik E1213-T	8 x DI, 4 x DO, 4 x DIO	Source	-40 to 75°C
ioLogik E1214	6 x DI, 6 x Relay	–	-10 to 60°C
ioLogik E1214-T	6 x DI, 6 x Relay	–	-40 to 75°C
ioLogik E1240	8 x AI	–	-10 to 60°C
ioLogik E1240-T	8 x AI	–	-40 to 75°C
ioLogik E1241	4 x AO	–	-10 to 60°C
ioLogik E1241-T	4 x AO	–	-40 to 75°C
ioLogik E1242	4 DI, 4 x DIO, 4 x AI	Sink	-10 to 60°C
ioLogik E1242-T	4 DI, 4 x DIO, 4 x AI	Sink	-40 to 75°C
ioLogik E1260	6 x RTD	–	-10 to 60°C
ioLogik E1260-T	6 x RTD	–	-40 to 75°C
ioLogik E1262	8 x TC	–	-10 to 60°C
ioLogik E1262-T	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

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# ioLogik E2200 Series

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



### Features and Benefits

- Front-end intelligence with patented 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.

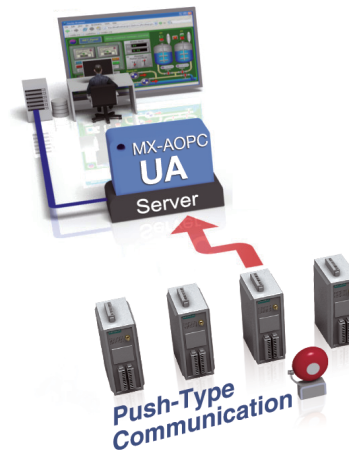


### SNMP for Ethernet Device Management

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
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### Input/Output Interface

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

### Digital Inputs

Connector	Screw-fastened Euroblock terminal
Counter Frequency	900 Hz
Digital Filtering Time Interval	Software configurable
Dry Contact	On: short to GND Off: open
I/O Mode	DI or event counter
Points per COM	ioLogik E2210 Series: 12 channels ioLogik E2212/E2242 Series: 6 channels ioLogik E2214 Series: 3 channels

Sensor Type	ioLogik E2210 Series: Dry Contact and Wet Contact (NPN) ioLogik E2212/E2214/E2242 Series: Dry Contact and Wet Contact (NPN or PNP)
Wet Contact (DI to GND)	On: 0 to 3 VDC Off: 10 to 30 VDC

#### Digital Outputs

Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Mode	DO or pulse output
I/O Type	Sink
Over-Current Protection	0.65 A per channel @ 25°C
Over-Temperature Shutdown	175°C (min.)
Over-Voltage Protection	35 VDC
Pulse Output Frequency	1 kHz
DIO Output Leakage Current	4.0 mA @ 24 VDC

#### Relays

Connector	Screw-fastened Euroblock terminal
Contact Current Rating	Inductive load: 2 A @ 30 VDC, 250 VAC, 110 VAC Resistive load: 5 A @ 30 VDC, 250 VAC, 110 VAC
Contact Resistance	100 milli-ohms (max.)
Electrical Endurance	100,000 operations @ 5 A resistive load
Mechanical Endurance	1,000,000 operations
Minimum Permitted Load	1 A @ 5 VDC
Pulse Output Frequency	0.3 Hz at rated load
Type	Form A (N.O.) power relay
I/O Mode	Relay or pulse output
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

Accuracy	ioLogik E2240/E2242: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C  ioLogik E2240-T/E2242-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C ±0.5% FSR @ -40 to 75°C
Built-in Resistor for Current Input	120 ohms
Connector	Screw-fastened Euroblock terminal
I/O Mode	Voltage/Current
I/O Type	Differential

Input Impedance	ioLogik E2240 Series: 900 kilo-ohms (min.) ioLogik E2242 Series: 200 kilo-ohms (min.)
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 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
Resolution	16 bits
Sampling Rate	ioLogik E2240 Series: All Channels: 10 samples/sec for voltage; 6 samples/sec for current Per Channel: 1.25 samples/sec for voltage; 0.75 samples/sec for current Single channel: 1.25 samples/sec for voltage; 0.75 samples/sec for current  ioLogik E2242 Series: All channels: 32 samples/sec Per channel: 8 samples/sec Single channel: 100 samples/sec

### Analog Outputs

Accuracy	ioLogik E2240: $\pm 0.1\%$ FSR @ 25°C $\pm 0.3\%$ FSR @ -10 to 60°C  ioLogik E2240-T: $\pm 0.1\%$ FSR @ 25°C $\pm 0.3\%$ FSR @ -10 to 60°C $\pm 0.5\%$ FSR @ -40 to 75°C
Output Range	0 to 10 VDC 4 to 20 mA
Resolution	12-bit

### RTDs

Accuracy	ioLogik E2260: $\pm 0.1\%$ FSR @ 25°C $\pm 0.3\%$ FSR @ -10 to 60°C  ioLogik E2260-T: $\pm 0.1\%$ FSR @ 25°C $\pm 0.3\%$ FSR @ -10 to 60°C $\pm 0.5\%$ FSR @ -40 to 75°C
Connector	Screw-fastened Euroblock terminal
Input Connection	2- or 3-wire
Input Impedance	625 kilo-ohms (min.)
Sensor Type	JPT100, JPT200, JPT500 (-200 to 640°C) JPT1000 (-200 to 350°C) NI100, NI200, NI500 (-60 to 250°C) NI1000 (-60 to 150°C) NI120 (-80 to 260°C) PT1000 (-200 to 350°C) PT50, PT100, PT200, PT500 (-200 to 850°C) Resistance of 310, 620, 1250, and 2200 ohms
Resolution	0.1°C or 0.1 ohms
Sampling Rate	All channels: 12 samples/sec Per channel: 2 samples/sec

## Thermocouples

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

## Ethernet Interface

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

## Ethernet Software Features

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

## LED Interface

LED Indicators	PWR, RDY, Serial, I/O Status
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## Serial Interface

Baudrate	1200 bps to 115,200 kbps
Connector	Terminal block
No. of Ports	1
Parity	None
Serial Standards	RS-485
Stop Bits	8

## Serial Signals

RS-485-2w	Data+, Data-, GND
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## DIP Switch Configuration

Serial Interface	Fixed baudrate
------------------	----------------

## Modbus TCP

Functions Supported	1, 2, 3, 4, 5, 6, 15, 16
Mode	Server

## 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 ioLogik E2212 Series: 136 mA @ 24 VDC ioLogik E2214 Series: 170 mA @ 24 VDC ioLogik E2240 Series: 198 mA @ 24 VDC ioLogik E2242 Series: 178 mA @ 24 VDC ioLogik E2260 Series: 95 mA @ 24 VDC 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 Power cable, 16 to 26 AWG

## 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 (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	2000 m <sup>1</sup>

## Standards and Certifications

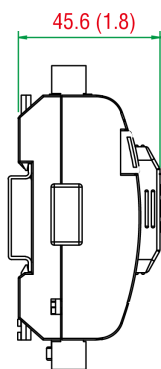
Freefall	IEC 60068-2-32
EMC	EN 61000-6-2/-6-4
Safety	UL 508
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF

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

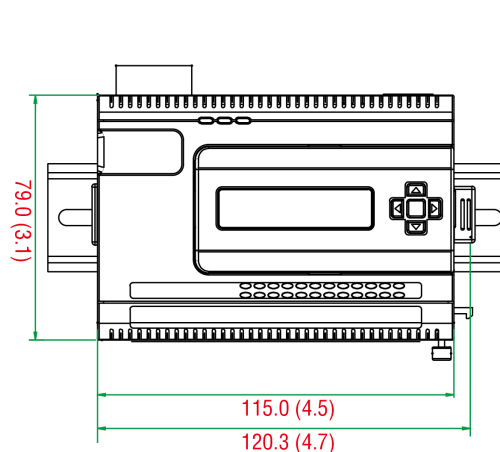
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
<b>Declaration</b>	
Green Product	RoHS, CRoHS, WEEE
<b>MTBF</b>	
Time	ioLogik E2210 Series: 213,673 hrs ioLogik E2212 Series: 217,722 hrs ioLogik E2214 Series: 307,329 hrs ioLogik E2240 Series: 155,941 hrs ioLogik E2242 Series: 204,391 hrs ioLogik E2260 Series: 327,282 hrs ioLogik E2262 Series: 341,063 hrs
Standards	Telcordia SR332
<b>Warranty</b>	
Warranty Period	ioLogik E2214 Series: 2 years <sup>2</sup> 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 1 x warranty card

## Dimensions

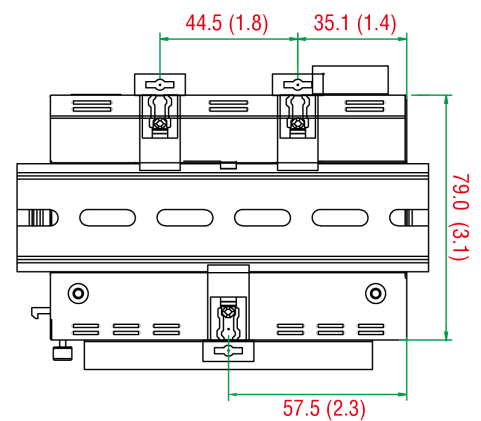
Unit: mm (inch)



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

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



Model Name	Input/Output Interface	Digital Input Sensor Type	Analog Input Range	Operating Temp.
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
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### LCD Modules

LDP1602	Snap-on module for the ioLogik E2200/R2100 and ioMirror E3000 Series
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# ioLogik R1200 Series

## RS-485 remote I/O



### Features and Benefits

- Dual RS-485 remote I/O with built-in repeater
- Supports the installation of multidrop communications parameters
- Install communications parameters and upgrade firmware via USB
- Upgrade firmware through an RS-485 connection
- Wide operating temperature models available for -40 to 85°C (-40 to 185°F) environments

### Certifications



## Introduction

The ioLogik R1200 Series RS-485 serial remote I/O devices are perfect for establishing a cost-effective, dependable, and easy-to-maintain remote process control I/O system. Remote serial I/O products offer process engineers the benefit of simple wiring, as they only require two wires to communicate with the controller and other RS-485 devices while adopting the EIA/TIA RS-485 communication protocol to transmit and receive data at high speed over long distances. In addition to communication configuration by software or USB and dual RS-485 port design, Moxa's remote I/O devices eliminate the nightmare of extensive labor associated with the setup and maintenance of data acquisition and automation systems. Moxa also offers different I/O combinations, which provide greater flexibility and are compatible with many different applications.

### Easy-to-Use Software Interface for Easy Maintenance

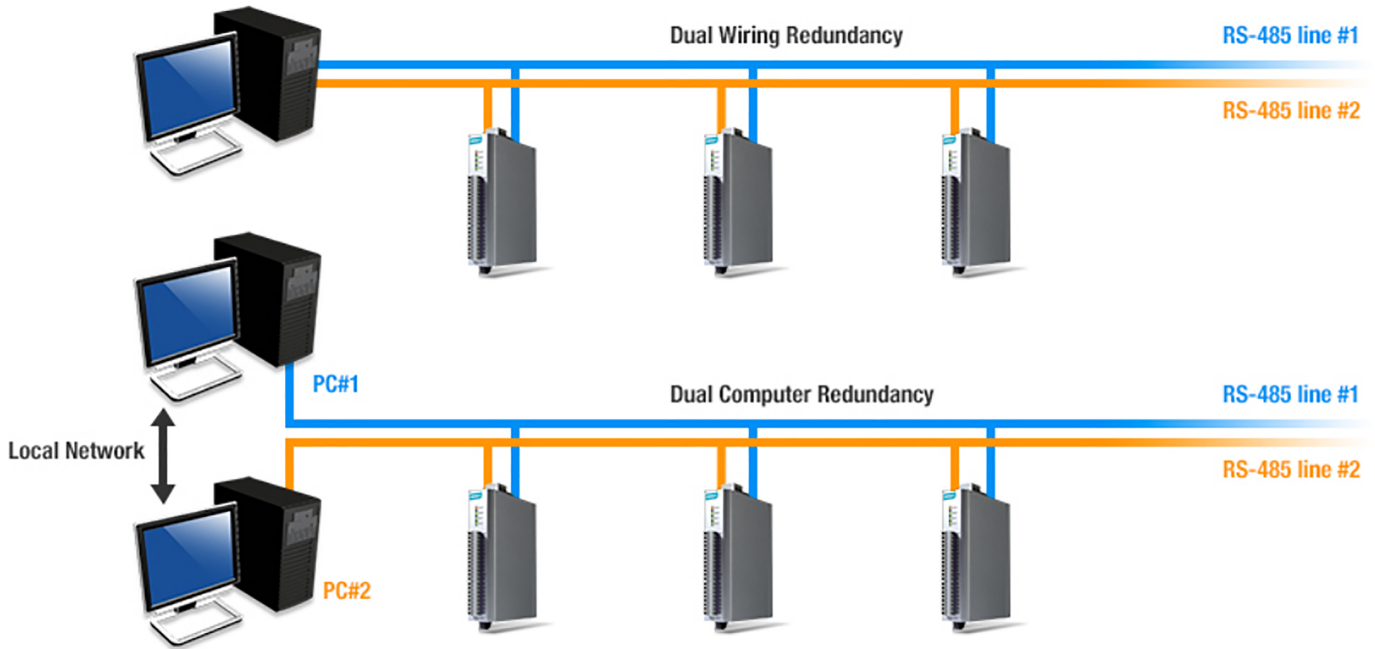
With Moxa's easy-to-use ioSearch software, you can quickly access all of an ioLogik R1200 device's status information and settings with a user-friendly graphical user interface. Furthermore, ioSearch also provides an easy method for updating firmware for all ioLogik R1200 devices over an RS-485 network, so you can even update your firmware remotely. The free and easy-to-use ioSearch software reduces the maintenance time and labor required to set up your communication interface. When more than one ioLogik R1200 are on the same RS-485 network, you no longer need to turn hundreds of dials during setup. Instead, simply configure and duplicate each ioLogik R1200's baudrate and mode through the graphical user interface. This convenient software feature reduces maintenance engineers' effort, and greatly simplifies upgrading your device's configuration compared with more traditional methods.

### Innovative Hardware Design Reduces Deployment Effort and Enhances Maintenance Efficiency

With the industry's first RS-485 serial remote I/O with USB design, Moxa provides an innovative solution for upgrading and configuring RS-485 remote I/O communication devices and firmware. All you need to do is upload the configurations to a USB drive, plug it into the field device, and all the configurations and firmware updates will upload to the field device automatically.

### Cost-Saving Hardware Design for Backup and Redundancy

Moxa's ioLogik R1200 Series provides dual RS-485 ports so that when one of your RS-485 ports is damaged, you can quickly switch to the other RS-485 port for quick testing or repair. RS-485 remote I/O devices are already considered a low-cost technology, but with dual RS-485 ports, Moxa helps you save a little bit more. With the ioLogik R1200, you can take advantage of our dual RS-485 ports to set up wiring, provide computer redundancy, or back up your network using two computer topologies. For wiring redundancy, when your computer detects that one of the RS-485 connections is not responding, it can quickly switch over to the other RS-485 line to guarantee continuous communication between field sensors and the central computer. Furthermore, users have the freedom to define the settings. For computer redundancy, the ioLogik R1200 provides system operators with a secure backup when one system goes down.



## Specifications

### Input/Output Interface

Buttons	Reset button
Analog Input Channels	ioLogik R1240 Series: 8
Analog Output Channels	ioLogik R1241 Series: 4
Configurable DIO Channels (by software)	ioLogik R1212 Series: 8
Digital Input Channels	ioLogik R1210 Series: 16 ioLogik R1212 Series: 8 ioLogik R1214 Series: 6
Isolation	3k VDC or 2k Vrms
Relay Channels	ioLogik R1214 Series: 6

### Digital Inputs

Connector	Screw-fastened Euroblock terminal
Counter Frequency	2.5 kHz
Digital Filtering Time Interval	Software configurable
Dry Contact	On: short to GND Off: open
I/O Mode	DI or event counter
Points per COM	ioLogik R1210/R1212 Series: 8 channels ioLogik R1214 Series: 6 channels
Sensor Type	Dry contact Wet Contact (NPN or PNP)
Wet Contact (DI to COM)	On: 10 to 30 VDC Off: 0 to 3 VDC

## Digital Outputs

Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Mode	DO or pulse output
I/O Type	Sink
Over-Current Protection	0.65 A per channel @ 25°C
Over-Temperature Shutdown	175°C (typical), 150°C (min.)
Over-Voltage Protection	35 VDC
Pulse Output Frequency	5 kHz

## Relays

Breakdown Voltage	500 VAC
Connector	Screw-fastened Euroblock terminal
Contact Current Rating	Resistive load: 5 A @ 30 VDC, 250 VAC, 110 VAC
Contact Resistance	100 milli-ohms (max.)
Electrical Endurance	100,000 operations @ 5 A resistive load
Initial Insulation Resistance	1,000 mega-ohms (min.) @ 500 VDC
Mechanical Endurance	5,000,000 operations
Pulse Output Frequency	0.3 Hz at rated load
Type	Form A (N.O.) power relay
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

Accuracy	ioLogik R1240: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C  ioLogik R1240-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C ±0.5% FSR @ -40 to 75°C
Built-in Resistor for Current Input	120 ohms
Connector	Screw-fastened Euroblock terminal
I/O Mode	Voltage/Current
I/O Type	Differential
Input Impedance	10 mega-ohms (min.)
Input Range	0 to 10 VDC 0 to 20 mA 4 to 20 mA 4 to 20 mA (with burn-out detection)

Resolution	16 bits
Sampling Rate	All channels: 12 samples/sec Per channel: 1.5 samples/sec Only one channel enabled: 12 samples/sec

#### Analog Outputs

Accuracy	ioLogik R1241: ±0.1% FSR @ 25°C ±0.3% FSR @ -10 to 60°C  ioLogik R1241-T: ±0.1% FSR @ 25°C ±0.3% FSR @ -40 to 75°C
Connector	Screw-fastened Euroblock terminal
Load Resistor	Internal register, 400 ohms Note: 24 V of external power required when loading exceeds 1,000 ohms
Output Range	0 to 10 VDC 0 to 20 mA 4 to 20 mA
Resolution	12-bit
Voltage Output	10 mA (max.)

#### LED Interface

LED Indicators	PWR, RDY, P1, P2
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#### Serial Interface

Baudrate	1200 bps to 921.6 kbps
Connector	Terminal block
No. of Ports	2
Parity	None, Even, Odd
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms
Serial Standards	RS-485
Stop Bits	1, 2
Surge	1 kV
ESD	15 kV
Data Bits	8

#### Serial Signals

RS-485-2w	Data+, Data-, GND
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#### Serial Software Features

Industrial Protocols	Modbus RTU Server (slave)
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#### Power Parameters

Power Connector	Screw-fastened Euroblock terminal
No. of Power Inputs	1

Input Voltage	12 to 48 VDC
Power Consumption	ioLogik R1210 Series: 154 mA @ 24 VDC ioLogik R1212 Series: 187 mA @ 24 VDC ioLogik R1214 Series: 207 mA @ 24 VDC ioLogik R1240 Series: 216 mA @ 24 VDC ioLogik R1241 Series: 343 mA @ 24 VDC

### Physical Characteristics

Housing	Plastic
Dimensions	27.8 x 124 x 84 mm (1.09 x 4.88 x 3.31 in)
Weight	200 g (0.44 lb)
Installation	DIN-rail mounting, Wall mounting
Wiring	I/O cable, 16 to 26 AWG Power cable, 12 to 24 AWG

### Environmental Limits

Operating Temperature	Standard Models: -10 to 75°C (14 to 167°F) Wide Temp. Models: -40 to 85°C (-40 to 185°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>

### Standards and Certifications

EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF
Safety	UL 508
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6

### Declaration

Green Product	RoHS, CRoHS, WEEE
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### MTBF

Time	1,239,293 hrs
Standards	Telcordia SR332

### Warranty

Warranty Period	ioLogik R1214: 2 years <sup>2</sup> ioLogik R1210/R1212/R1240/R1241 Series: 5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

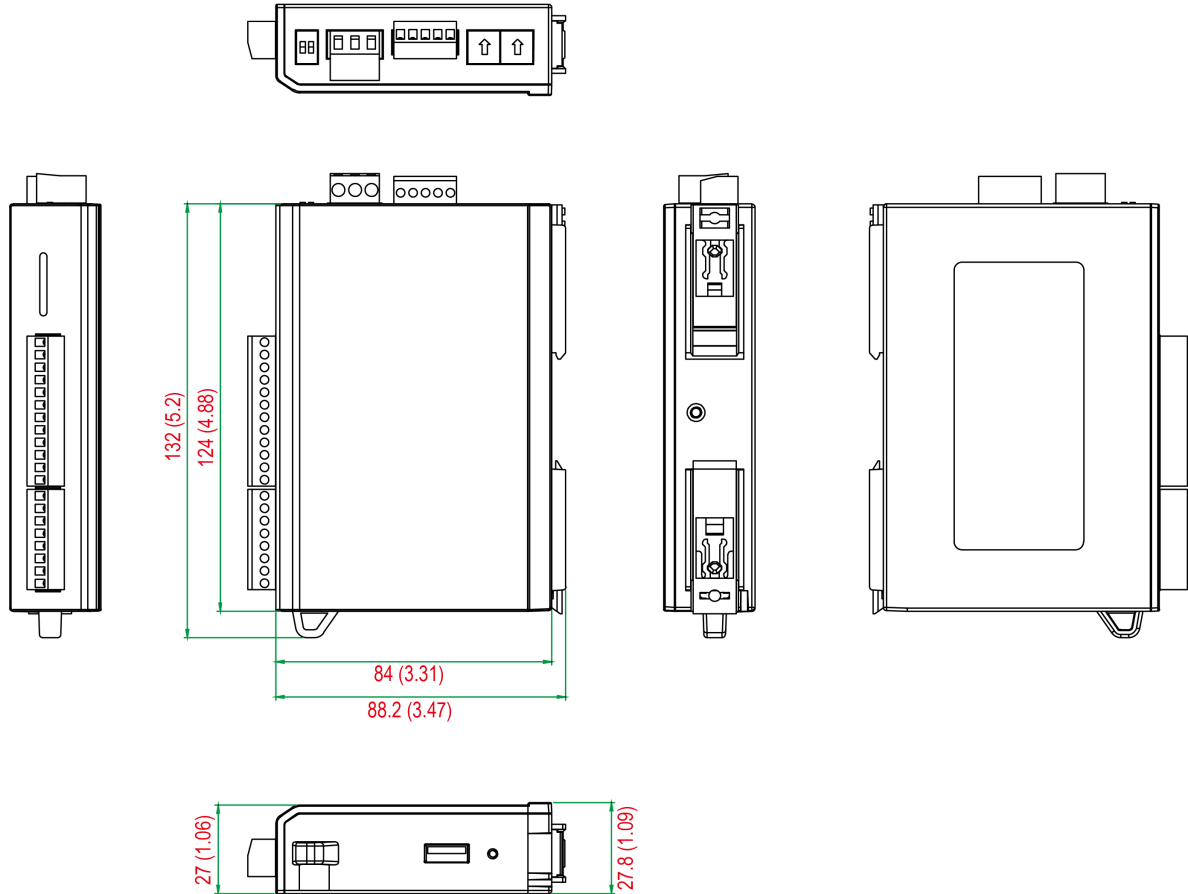
1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.
2. Because of the limited lifetime of power relays, products that use this component are covered by a 2-year warranty.

## Package Contents

Device	1 x ioLogik R1200 Series remote I/O
Installation Kit	1 x terminal block, 12-pin, 3.81 mm 1 x terminal block, 3-pin, 5.00 mm 1 x terminal block, 8-pin, 3.81 mm
Documentation	1 x quick installation guide 1 x warranty card

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	Input/Output Interface	Operating Temp.
ioLogik R1210	16 x DI	-10 to 75°C
ioLogik R1210-T	16 x DI	-40 to 85°C
ioLogik R1212	8 x DI, 8 x DIO	-10 to 75°C
ioLogik R1212-T	8 x DI, 8 x DIO	-40 to 85°C
ioLogik R1214	6 x DI, 6 x Relay	-10 to 75°C
ioLogik R1214-T	6 x DI, 6 x Relay	-40 to 85°C
ioLogik R1240	8 x AI	-10 to 75°C
ioLogik R1240-T	8 x AI	-40 to 85°C
ioLogik R1241	4 x AO	-10 to 75°C
ioLogik R1241-T	4 x AO	-40 to 85°C

## Accessories (sold separately)

### Software

MX-AOPC UA Server

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

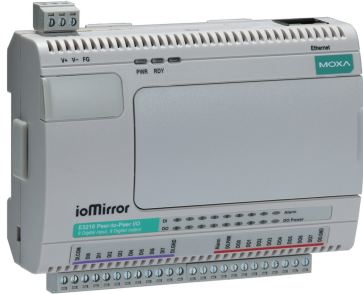
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# ioMirror E3200 Series

Ethernet peer-to-peer I/O with 8 digital inputs and 8 digital outputs



## Features and Benefits

- Direct input-to-output signal communication over IP
- High-speed peer-to-peer I/O within 20 ms
- One physical alarm port for connectivity status
- Utility for quick and easy web-based settings
- Local alarm channel
- Remote alarm message
- Supports Modbus TCP for remote monitoring
- Optional LCD module for easy configuration

## Certifications



## Introduction

The ioMirror E3200 Series, which is designed as a cable-replacement solution to connect remote digital input signals to output signals over an IP network, provides 8 digital input channels, 8 digital output channels, and a 10/100M Ethernet interface. Up to 8 pairs of digital input and output signals can be exchanged over Ethernet with another ioMirror E3200 Series device, or can be sent to a local PLC or DCS controller. Over a local area network, the ioMirror can achieve a low signal latency (typically less than 20 ms). With the ioMirror, remote sensors can be connected to local controllers or display panels over copper, fiber, or wireless Ethernet infrastructures, and signals can be transmitted over virtually unlimited distances, without noise problems.

### Split Sensor Signals to 16 Different Locations

The ioMirror E3200 Series can split one input signal to two digital output channels at two different IP addresses. Eight tank level signals can be monitored at 16 different display panels, all at the same time.

### Local Alarm and Remote Alarm Messages for Monitoring Connectivity

The ioMirror E3200 Series has a 24 VDC alarm output channel that can activate an attached buzzer or LED display when the connection fails. In addition, both ioMirror modules can send messages to the ioEventLog software, ensuring that at least one of the warning messages will reach the ioEventLog software.

## Specifications

### Input/Output Interface

Digital Input Channels	8
Digital Output Channels	8
Alarm Contact Channels	1
Isolation	3k VDC or 2k Vrms
Buttons	Reset button

### Digital Inputs

Connector	Screw-fastened Euroblock terminal
Digital Filtering Time Interval	Software configurable
Dry Contact	On: short to GND Off: open

I/O Mode	DI
Over-Voltage Protection	36 VDC
Points per COM	8 channels
Sensor Type	Dry contact Wet Contact (NPN)
Wet Contact (DI to GND)	On: 10 to 30 VDC Off: 0 to 3 VDC

#### Digital Outputs

Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Mode	DO
I/O Type	Sink
Over-Current Protection	0.6 A per channel @ 25°C
Over-Temperature Shutdown	160°C (min.)
Over-Voltage Protection	35 VDC

#### Ethernet Interface

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

#### Ethernet Software Features

Configuration Options	Web Console (HTTP), Windows Utility (ioMirrorAdmin)
Industrial Protocols	Modbus TCP Server (Slave)
Management	BOOTP, DHCP Client, HTTP, TCP/IP, UDP
Time Management	SNTP

#### LED Interface

LED Indicators	PWR, Ready
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#### Power Parameters

Power Connector	Screw-fastened Euroblock terminal
No. of Power Inputs	1
Input Voltage	12 to 48 VDC
Power Consumption	136 mA @ 24 VDC

#### Alarm Contacts

I/O Type	Sink
Current Rating	Max. 200 mA per channel
Connector	Screw-fastened Euroblock terminal

## Physical Characteristics

Housing	Plastic
Dimensions	115 x 79 x 45.6 mm (4.53 x 3.11 x 1.80 in)
Weight	205 g (0.45 lb)
Wiring	I/O cable, 16 to 26 AWG Power cable, 16 to 26 AWG

## Environmental Limits

Operating Temperature	-10 to 60°C (14 to 140°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>

## Standards and Certifications

Freefall	IEC 60068-2-32
EMI	EN 61000-6-4, FCC Part 15B Class A
Safety	UL 508
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF

## MTBF

Time	231,020 hrs
Standards	Telcordia SR332

## Warranty

Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

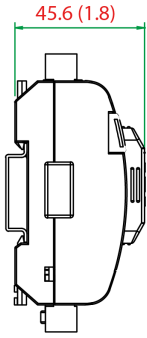
## Package Contents

Device	1 x ioMirror E3200 Series peer-to-peer I/O
Installation Kit	1 x terminal block, 3-pin, 3.81 mm 1 x terminal block, 12-pin, 3.81 mm
Documentation	1 x quick installation guide

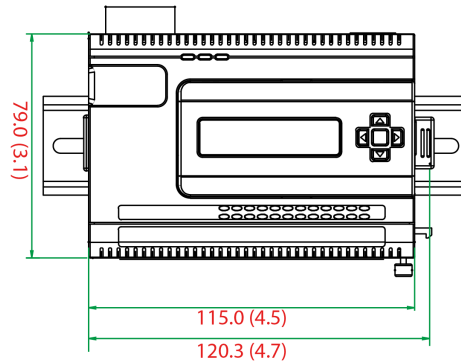
1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

## Dimensions

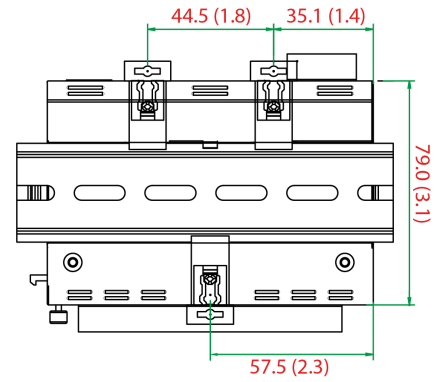
Unit: mm (inch)



Side View



Front View



Rear View

## Ordering Information

Model Name	Input/Output Interface	Operating Temp.
ioMirror E3210	8 x DI, 8 x DO	-10 to 60°C

## Accessories (sold separately)

### LCD Modules

LDP1602

Snap-on module for the ioLogik E2200/R2100 and ioMirror E3000 Series

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