

# ioLogik E1200 Series

*Ethernet remote I/O with 2-port Ethernet switch*



## Features and Benefits

- User-definable Modbus TCP Slave addressing
- Supports RESTful API for IIoT applications
- Supports EtherNet/IP Adapter
- 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>1</sup>
- Wide operating temperature models available for -40 to 75°C (-40 to 167°F) environments

## Certifications

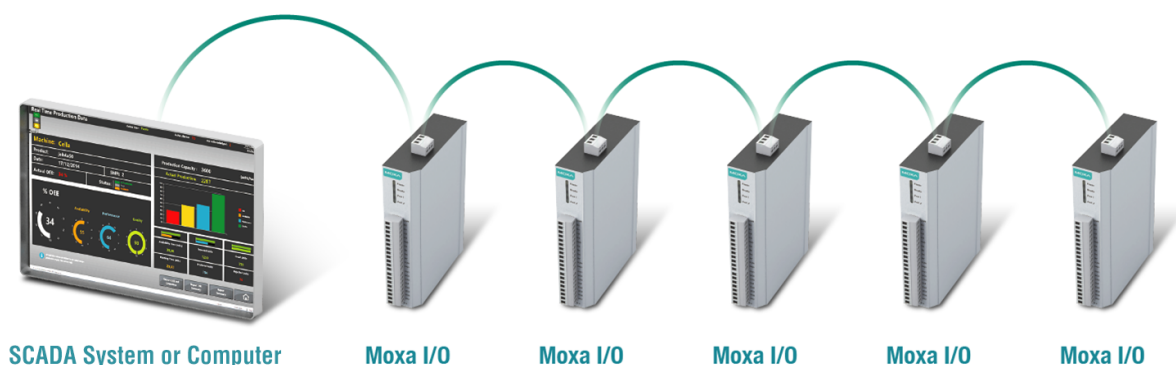


## Introduction

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

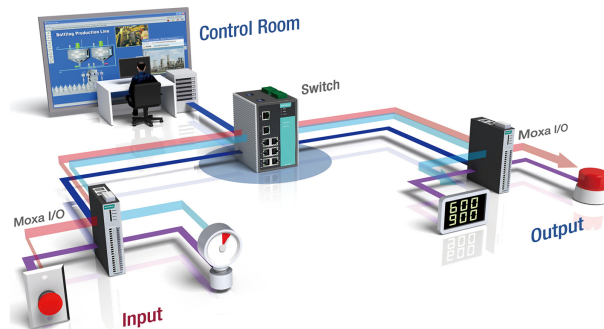
This industrial Ethernet remote I/O comes with two switched Ethernet ports to allow for the free flow of information downstream to another local Ethernet device, or upstream to a control server via expandable daisy-chained Ethernet I/O arrays. Applications such as factory automation, security and surveillance 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. Class I Division 2 and ATEX currently do not apply to the E1213/E1213-T models.

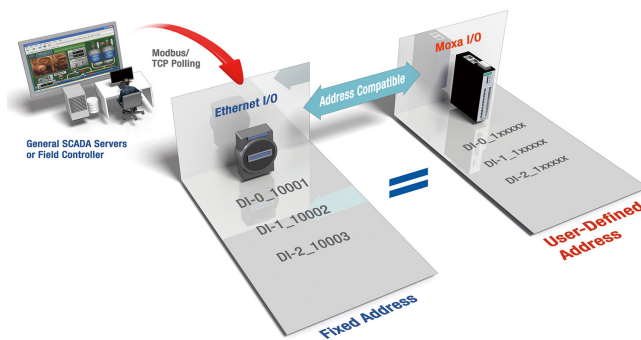
## Save Time and Wiring Costs with Peer-to-Peer Communications

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.



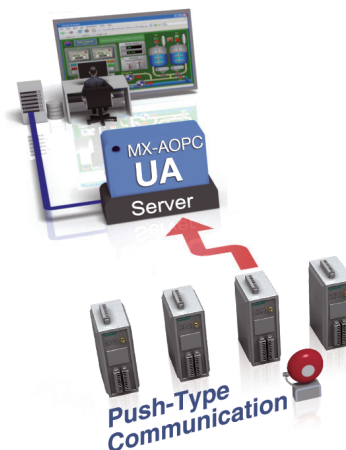
## User-Definable Modbus TCP Addressing for Painless Upgrading of Existing Systems

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

Digital Input Channels	ioLogik E1210 Series: 16 ioLogik E1212/E1213 Series: 8 ioLogik E1214 Series: 6 ioLogik E1242 Series: 4
Digital Output Channels	ioLogik E1211 Series: 16 ioLogik E1213 Series: 4
Configurable DIO Channels (by jumper)	ioLogik E1212 Series: 8 ioLogik E1213/E1242 Series: 4
Relay Channels	ioLogik E1214 Series: 6
Analog Input Channels	ioLogik E1240 Series: 8 ioLogik E1242 Series: 4
Analog Output Channels	ioLogik E1241 Series: 4
RTD Channels	ioLogik E1260 Series: 6

Thermocouple Channels	ioLogik E1262 Series: 8
Isolation	3k VDC or 2k Vrms
Buttons	Reset button

#### Digital Inputs

Connector	Screw-fastened Euroblock terminal
Sensor Type	Dry contact Wet contact (NPN or PNP)
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
Counter Frequency	250 Hz
Digital Filtering Time Interval	Software configurable
Points per COM	ioLogik E1210/E1212 Series: 8 channels ioLogik E1213 Series: 12 channels ioLogik E1214 Series: 6 channels ioLogik E1242 Series: 4 channels

#### Digital Outputs

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

#### 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 (max.)
Contact Current Rating	Resistive load: 5 A @ 30 VDC, 250 VAC, 110 VAC
Contact Resistance	100 milli-ohms (max.)
Mechanical Endurance	5,000,000 operations
Electrical Endurance	100,000 operations @ 5 A resistive load

Breakdown Voltage	500 VAC
Initial Insulation Resistance	1,000 mega-ohms (min.) @ 500 VDC
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	0 to 10 VDC 0 to 20 mA 4 to 20 mA 4 to 20 mA (with burn-out detection)
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
Sampling Rate	ioLogik E1240: 12 samples/sec per module (shared between up to 8 channels) <sup>2</sup> ioLogik E1242: 12 samples/sec per module (shared between up to 4 channels) <sup>2</sup>
Built-in Resistor for Current Input	120 ohms
Input Impedance	10 mega-ohms (min.)

#### Analog Outputs

Connector	Screw-fastened Euroblock terminal
I/O Mode	Voltage/Current
Output Range	0 to 10 VDC 4 to 20 mA
Resolution	12-bit
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
Voltage Output Short-Circuit Protection	10 mA
Internal Resistor	400 ohms Note: 24 V of external power required when loading exceeds 1000 ohms

#### RTDs

Connector	Screw-fastened Euroblock terminal
Sensor Type	PT1000 (-200 to 350°C) PT50, PT100, PT200, PT500 (-200 to 850°C)

2. If N channels are enabled, the sampling rate for each enabled channel = 12/N samples/sec.

Resistance Type	310, 620, 1250, and 2200 ohms
Input Connection	2- or 3-wire
Sampling Rate	ioLogik E1260: 12 samples/sec per module (shared between up to 6 channels) <sup>3</sup>
Resolution	0.1°C or 0.1 ohms
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
Input Impedance	625 kilo-ohms (min.)

#### Thermocouples

Connector	Screw-fastened Euroblock terminal
Sensor Type	J, K, T, E, R, S, B, N
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
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
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
Sampling Rate	ioLogik E1262: 12 samples/sec per module (shared between up to 8 channels) <sup>3</sup>
Input Impedance	10 mega-ohms (min.)

#### Ethernet Interface

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), MCC Tool
Industrial Protocols	Modbus TCP Server (Slave), Moxa AOPC (Active Tag), MXIO Library, EtherNet/IP Adapter
Management	RESTful API, SNMPv1/v2c, SNMPv1 Trap, HTTP, DHCP Client, BOOTP, IPv4, TCP/IP, UDP

3. If N channels are enabled, the sampling rate for each enabled channel = 12/N samples/sec.

MIB	Device Settings MIB
Security	Access control list
LED Interface	
LED Indicators	Power, Ready, Port 1, Port 2
Modbus TCP	
Functions Supported	1, 2, 3, 4, 5, 6, 15, 16, 23
Mode	Server (Slave)
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	4000 m <sup>4</sup>

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

## 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>5</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>6</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

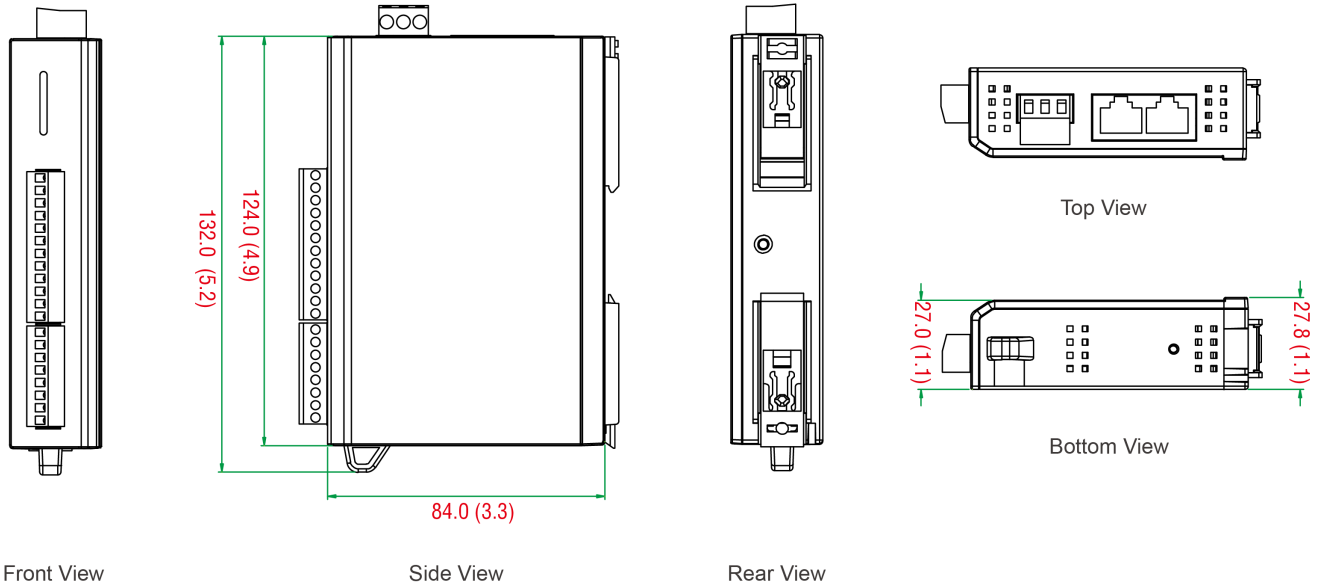
Device	1 x ioLogik E1200 Series remote I/O
Installation Kit	1 x terminal block, 8-pin, 3.81 mm 1 x terminal block, 12-pin, 3.81 mm 1 x terminal block, 3-pin, 5.00 mm
Documentation	1 x quick installation guide 1 x warranty card

5. ATEX and Class I Division 2 currently do not apply to the ioLogik E1213/E1213-T models.

6. 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

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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