ioLogik E1200 系列

含 2 埠乙太網路交換器的乙太網路遠端 I/O

特色與優點

- 使用者可定義的 Modbus TCP 對應位置
- 針對 IIoT 應用支援 RESTful API
- 支援 EtherNet/IP 協議
- 適用於雛菊鏈拓撲的 2 埠乙太網路交換器
- 透過端對端通訊節省時間與佈線成本
- 透過 MX-AOPC UA 伺服器進行通訊
- 支援 SNMP v1/v2c
- 透過 ioSearch 公用程式輕鬆大量部署及配置
- 透過網頁瀏覽器輕鬆配置
- 透過適用於 Windows 或 Linux 的 MXIO 程式庫簡化 I/O 管理
- Class I Division 2，ATEX Zone 2 認證[1]
- 提供寬操作溫度型號，適合 -40 至 75°C (-40 至 167°F) 的作業環境

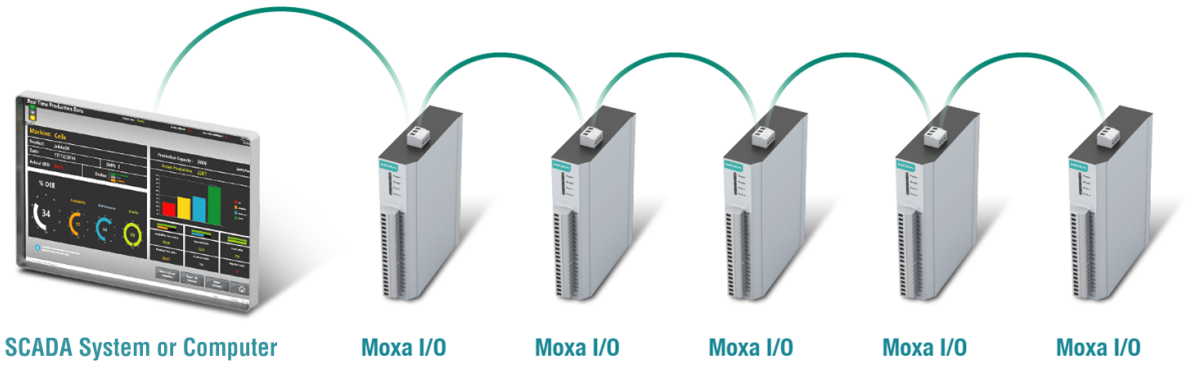
認證

簡介

ioLogik E1200 系列支援最常用的 I/O 資料擷取通訊協定，能夠處理各種應用。大多數 IT 工程師都使用 SNMP 或 RESTful API 通訊協定，但 OT 工程師則更熟悉 Modbus 及 EtherNet/IP 等 OT 式通訊協定。Moxa 的智慧型 I/O 使 IT 與 OT 工程師都能夠方便地從相同 I/O 裝置中擷取資料。ioLogik E1200 系列支援六種不同的通訊協定，包括適用於 OT 工程師的 Modbus TCP、EtherNet/IP 與 Moxa AOPC，以及適用於 IT 工程師的 SNMP、RESTful API 與 Moxa MXIO 程式庫。ioLogik E1200 能夠擷取 I/O 資料並同時將資料轉換成這裡的任何通訊協定，讓您輕鬆毫不費力地連接應用。

雛菊鏈乙太網路 I/O 連接

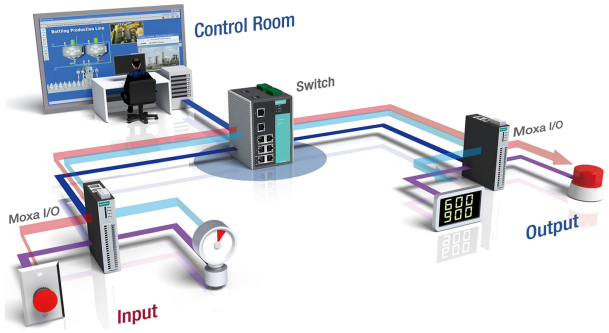
此工業乙太網路遠端 I/O 模組配備兩個交換式乙太網路連接埠，可讓資訊隨意從下游流動至其他本機乙太網路裝置，或透過可擴充雛菊鏈乙太網路 I/O 陣列向上游傳送至控制伺服器。例如工廠自動化、安全性與監控系統及通道連接等應用可利用雛菊鏈乙太網路來透過標準乙太網路纜線建構 Multidrop I/O 網路。多數工業自動化使用者對 Multidrop 的認知，主要來自其作為現場匯流排解決方案的典型配置。ioLogik 乙太網路遠端 I/O 裝置所支援的雛菊鏈功能不僅能夠提升遠端 I/O 應用的擴充性與安裝彈性，更可透過減少獨立乙太網路交換器的需求，有效降低整體成本。如此一來，雛菊鏈裝置也將可降低整體人工及佈線費用。



1. Class I Division 2 與 ATEX 目前不適用於 E1213/E1213-T 型號。

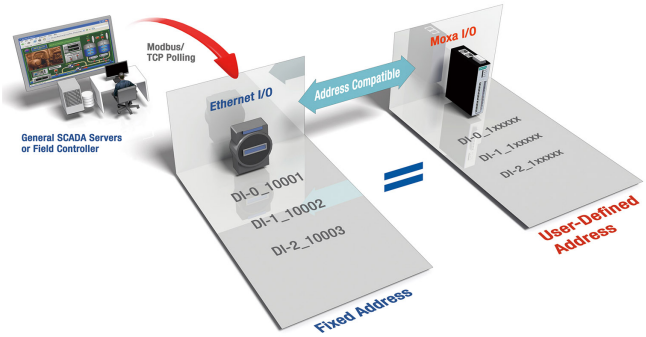
透過端對端通訊節省時間與佈線成本

在遠端自動化應用中，控制室與感應器通常相距甚遠，使得長距離佈線成為持續性的技術挑戰。透過端對端網路技術，使用者現在可將一對 ioLogik 系列模組進行對應，使輸入值能夠直接傳送至輸出通道，大幅簡化佈線流程並降低佈線成本。



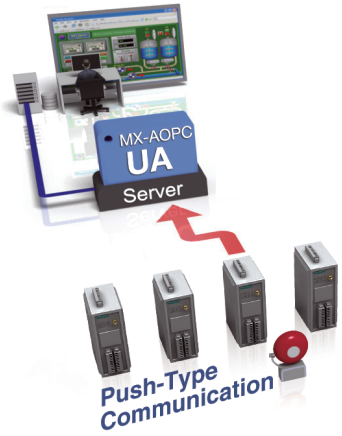
使用者可定義的 Modbus TCP 定址可無痛升級現有系統

針對受固定位址控制及偵測的 Modbus 裝置，使用者需耗費大量時間研究及驗證初始配置。使用者需要尋找每部設備的網路詳細資料，例如 I/O 通道與廠商定義的位址，才能啟用 SCADA 系統或 PLC 的初始或起始位址。支援使用者可定義 Modbus TCP 定址的裝置可提供更大的彈性與更輕鬆的設定方式。使用者無需擔心個別裝置，只需設定功能與位址對應即可符合其需求。



事件推送技術

當搭配 MX-AOPC UA 伺服器使用時，裝置可透過主動推送通訊機制，將狀態變更及/或事件傳送至 SCADA 系統。與輪詢系統不同，當使用推送架構與 SCADA 系統通訊時，僅在狀態變更或發生設定事件時傳送訊息，可達成更高精準度並大幅降低需要傳輸的資料量。



規格

Input/Output Interface

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

Thermocouple Channels	ioLogik E1262 models: 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)	ioLogik E1210/E1212/E1213/E1214/E1242 models: 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 models: 8 channels ioLogik E1213 models: 12 channels ioLogik E1214 models: 6 channels ioLogik E1242 models: 4 channels

Digital Outputs

Connector	Screw-fastened Euroblock terminal
I/O Type	ioLogik E1211/E1212/E1242 models: Sink ioLogik E1213 models: Source
I/O Mode	DO or pulse output
Current Rating	ioLogik E1211/E1212/E1242 models: 200 mA per channel ioLogik E1213 models: 500 mA per channel
Pulse Output Frequency	500 Hz (max.)
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

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	ioLogik E1214/E1214-T models: Resistive load: 5A @ 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)[2] ioLogik E1242: 12 samples/sec per module (shared between up to 4 channels)[2]
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 0 to 20 mA 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
Load (Current Mode)	Internal power: 400 ohms (max.) 24 V external power: 1000 ohms (max.)
Voltage Output Short-Circuit Protection	10 mA

2. 如果啟用 N 通道，每個已啟用通道的取樣率 = 12/N 樣本/秒。

RTDs

Connector	Screw-fastened Euroblock terminal
Sensor Type	PT1000 (-200 to 350°C) PT50, PT100, PT200, PT500 (-200 to 850°C)
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)[3]
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)[3]
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)

3. 如果啟用 N 通道，每個已啟用通道的取樣率 = 12/N 樣本/秒。

	Moxa AOPC (Active Tag) MXIO Library EtherNet/IP Adapter
Management	RESTful API SNMPv1/v2c SNMPv1 Trap HTTP DHCP Client BOOTP IPv4 TCP/IP UDP
MIB	Device Settings MIB
Security	Access control list

Security Functions

Authentication	Local database

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 models: 110 mA @ 24 VDC ioLogik E1211 models: 200 mA @ 24 VDC ioLogik E1212 models: 155 mA @ 24 VDC ioLogik E1213 models: 130 mA @ 24 VDC ioLogik E1214 models: 188 mA @ 24 VDC ioLogik E1240 models: 121 mA @ 24 VDC ioLogik E1241 models: 194 mA @ 24 VDC ioLogik E1242 models: 139 mA @ 24 VDC ioLogik E1260 models: 110 mA @ 24 VDC ioLogik E1262 models: 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[4]

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[5]
Safety	UL 508
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

Declaration

Green Product	RoHS, CRoHS, WEEE

MTBF

Time	ioLogik E1210 models: 671,345 hrs ioLogik E1211 models: 923,027 hrs ioLogik E1212 models: 561,930 hrs ioLogik E1213 models: 715,256 hrs ioLogik E1214 models: 808,744 hrs ioLogik E1240 models: 474,053 hrs ioLogik E1241 models: 888,656 hrs ioLogik E1242 models: 502,210 hrs ioLogik E1260 models: 660,260 hrs ioLogik E1262 models: 631,418 hrs
Standards	Telcordia Standard SR-332

Warranty

Warranty Period	ioLogik E1214: 2 years[6] ioLogik E1210/E1211/E1212/E1213/E1240/E1241/E1242/E1260/E1262: 5 years
Details	See www.moxa.com/tw/warranty

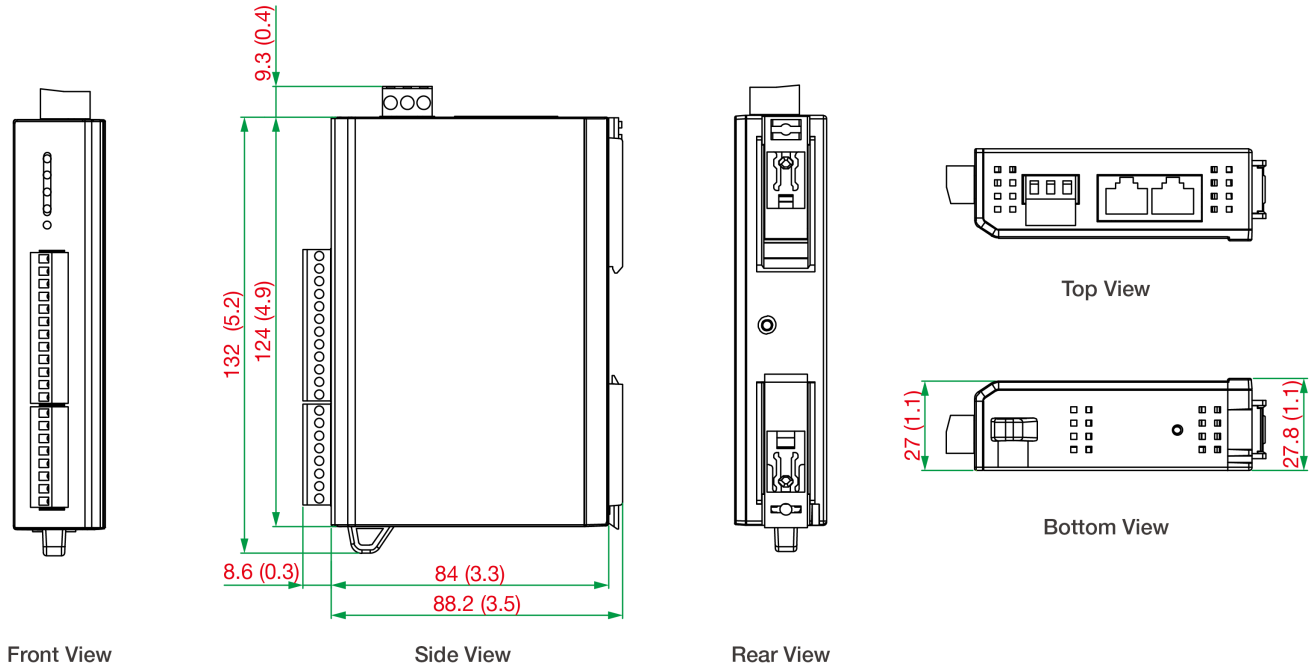
4. 如果您需要產品能在高海拔地區正常運作，請與 Moxa 聯繫。
5. ATEX 與 Class I Division 2 目前不適用於 ioLogik E1213/E1213-T 型號。
6. 由於功率繼電器的使用壽命有限，使用此元件的產品均提供 2 年保固。

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

尺寸

單位：公釐（英吋）



訂購資訊

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

Model Name	Input/Output Interface	Digital Output Type	Operating Temp.
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

配件（選購）

Software

MX-AOPC UA Server	OPC UA Server software for converting fieldbus to the OPC UA standard