

ioPAC 6500 系列 (65M) I/O 模組

模組化可編程 IIN 控制器的 I/O 模組



特色與優點

- 支援多種IT/OT通訊協定，為SCADA、工廠資訊系統與雲端應用之間建立無縫通訊
- 免工具硬體安裝與可熱插拔式設計，最大化操作效率
- 完全模組化設計，將部署彈性提升到最高
- 透過 Turbo Ring、Turbo Chain，以及 RSTP/STP 協議支援網路備援
- IINxpress IDE 公用程式結合了 IEC 61131-3 程式編寫、配置與通訊協定服務，可簡化工作流程並輕鬆完成程式編寫
- 依據 IEC 62443-4-2 SL2 標準開發，可確保為關鍵應用提供安全的基礎

認證



簡介

ioPAC 6500 系列是新一代 Linux 控制器，提供內建 Layer-2 管理型交換器。ioPAC 6500 系列 配備 Arm Cortex-A53 四核 CPU，可提供穩健的效能。

6C 能力

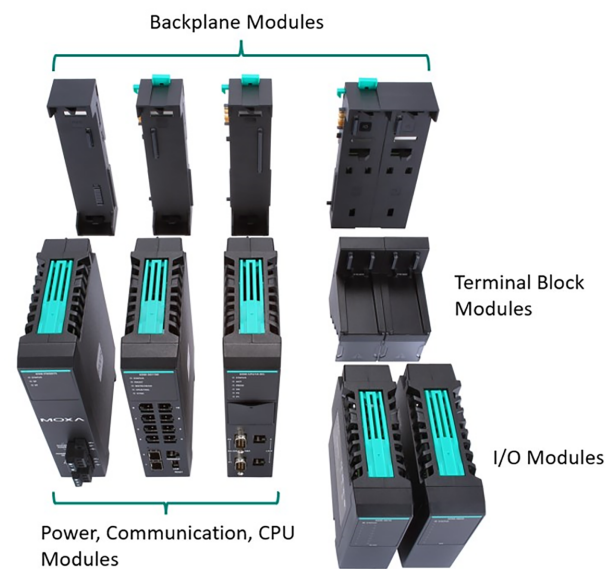
ioPAC 6500 系列為您的專案 提供下列能力：

- 控制：精確控制您的設備
- 通訊：通訊協定支援連線至其他裝置與系統
- 運算：運算及資料處理應用
- 連線：ioPAC 6500系列支援多種媒體介面組合
- 雲端：雲端連線與雲端邊緣運算
- 網路安全：保護裝置與資料的安全功能



完全模組化設計

IoPAC 6500 系列提供 獨特的樂高式機械設計，可允許進行彈性部署，同時輕鬆完成安裝。此系列可分成 以下元件：背板模組、電源模組、通訊模組、CPU 模組、I/O 模組與接線端子模組。



IEC 61131-3 自動化編程

IoPAC 6500 系列具有 IEC 61131-3 自動化編程功能，可進行彈性自動化設計並在語法和 語義方面達成一致性，提升系統間的互操作性，藉此降低自動化專案中的開發複雜度。提供五種 語言：LD、FBD、SFC、IL 與 ST，允許自動化專業人員 選擇最適合其需求的程式語言。

規格

Input/Output Interface

Digital Input Channels	65M-1900-CT-T: 32
Digital Output Channels	65M-2901-CT-T: 32
Analog Input Channels	65M-3600-CT-T: 16 (current) 65M-3610-CT-T: 16 (voltage)
Analog Output Channels	65M-4820-CT-T: 8
Isolation	65M-3600-CT-T/65M-3610-CT-T/65M-4820-CT-T: System: 3k VDC Signal: 1k VDC (between group for 1 min) All other models: System: 3k VDC Signal: 3k VDC

Digital Inputs

I/O Type	Sink (Internal/external sensor supply for dry contact)
I/O Mode	DI or event counter (channels 1 to 8, group configurable by software)
Input Voltage	On: 11 to 30 VDC Off: 0 to 5 VDC
Input Current (voltage on)	2.35 mA ± 20% per channel
Counter Frequency	Square wave: 0 to 10 kHz
Digital Filtering Time Interval	Software configurable
Diagnostics	Input Wire-break Detection (current: 50 µA max., delay: 20 ms) Internal Field Circuit Supply Detection (17.5 VDC, 16 to 19 VDC)

Digital Outputs

I/O Type	Source
I/O Mode	DO or pulse output (channel 1 to 8, group configurable by software)
Pulse Duration	500 μ s
Protection	Output Short-circuit Protection Common Power Input Over-voltage Protection Inductive Load Shutdown Voltage Protection
Diagnostics	Wire Break Detection (on state, output current < 3 mA) Wire Break Detection (off state, output load impedance > 58 kilo-ohms) Output Short-Circuit Detection (output current > 0.87 A, range: 0.64 to 1.2 A) External Power Detection (17.5 VDC, 16 to 19 VDC) Failsafe Configuration (hold last/failsafe state)

Analog Inputs

I/O Mode	65M-3600-CT-T: Current 65M-3610-CT-T: Voltage
I/O Type	Differential
Input Range	65M-3600-CT-T: 0 to 20 mA 4 to 20 mA 65M-3610-CT-T: 0 to 10 V 1 to 5 V
Overload Permitted on Inputs	65M-3600-CT-T: ± 30 mA 65M-3610-CT-T: ± 12 V
Measurement Resolution	65M-3600-CT-T: 2 μ A (0 to 20 mA) 1.6 μ A (4 to 20 mA) 65M-3610-CT-T: 1 mV (0 to 10 V) 0.4 mV (1 to 5 V)
Accuracy	$\pm 0.1\%$ FSR @ 25°C $\pm 0.3\%$ FSR @ -40 to 75°C
Conversion Time	100 ms
Rejection Ratio	Normal mode: > 60 dB @ 60 Hz (min.), conversion time: 100 ms Common mode: > 90 dB @ 60 Hz (min.), conversion time: 100 ms
Input Impedance	65M-3600-CT-T: 250 ohms 65M-3610-CT-T: 1 mega-ohms
Diagnostics	65M-3800-3810-CT-T: Input Underflow/Overflow Detection 65M-3600-CT-T: Internal Loop Power Detection (17.5 VDA, 16 to 19 VDC) Input Short-circuit Detection 65M-3600-CT-T (in 4 to 20 mA mode): Input Wire-break Detection (delay: 0.8 s) 65M-3610-CT-T: Input Wire-break Detection (delay: 1.6 s max)

Analog Outputs

I/O Mode	Voltage/Current
Output Range	0 to 10 V 1 to 5 V 0 to 20 mA 4 to 20 mA

Converter Resolution	16-bit
Accuracy	±0.1% FSR @ 25°C ±0.3% FSR @ -40 to 75°C
Output Refresh Time	16 ms
Output Impedance	Voltage mode: 1 kilo-ohms (min.) Current mode: 750 ohms (max.)
Diagnostics	Output Short-circuit Detection (voltage) Failsafe Configuration (hold last/failsafe state) Output Wire-break Detection (current)

Terminal Blocks

Connector	Screw-fastened terminal block
ID	65M-TB-1900-CT-T: D1 65M-TB-2901-CT-T: D2 65M-TB-3600-CT-T: A1 65M-TB-3610-CT-T: A2 65M-TB-4820-CT-T: A5
Dimensions	42.3 x 102.38 x 80.8 mm (1.67 x 4.03 x 3.18 in)
Weight	164 g (0.36 lb)

Power Consumption

System Power	65M-1900-CT-T: 0.019 A @ 24 VDC (without internal field circuit supply) 0.115 A @ 24 VDC (32-channel dry contact with internal field circuit supply) 65M-2901-CT-T: 0.005 A @ 24 VDC 65M-3600-CT-T: 0.053 A @ 24 VDC (without internal loop power) 0.466 A @ 24 VDC (16-channel 20 mA current input with internal loop power) 65M-3610-CT-T: 0.038 A @ 24 VDC 65M-4820-CT-T: 0.022 A @ 24 VDC (without external load) 0.266 A @ 24 VDC (4 channels with 20 mA current output)
Field Power	65M-1900-CT-T/65M-2901-CT-T: 0.068 A @ 12 VDC 65M-3610-CT-T/65M-4820-CT-T: 0.069 A @ 12 VDC 65M-3600-CT-T: 0.073 A @ 12 VDC

Physical Characteristics

Housing	Plastic
Dimensions	42 x 116 x 130 mm (1.65 x 4.57 x 5.12 in)
Weight	65M-1900-CT-T: 253 g (0.56 lb) 65M-2901-CT-T: 254 g (0.56 lb) 65M-3600-CT-T: 267 g (0.59 lb) 65M-3610-CT-T: 250 g (0.55 lb) 65M-4820-CT-T: 257 g (0.57 lb)

Environmental Limits

Operating Temperature	-40 to 75°C (-40 to 167°F) Note: Proper airflow is required in an environment with temperature > 65°C.
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)

Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	Up to 2000 meters ¹

Standards and Certifications

EMC	EN 55032/35 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: (DC) 1 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: (DC) 0.5 kV L-N, 1 kV L/N-PE; Signal: 1 kV; IO: 0.5 kV IEC 61000-4-6 CS: Power: (DC) 10 Vrms; Signal: 10 Vrms IEC 61000-4-8 PFMF: 30 A/m
Safety	UL 61010-1 UL 61010-2-201
Shock	IEC 60068-2-27 Half sine wave; acceleration: 15 g; time: 11 ms
Vibration	IEC 60068-2-6 DIN-rail mounted: 7 mm peak-peak (p-p) (2 to 8.42 Hz), 1 g (8.42 to 150 Hz) Rack mounted (with optional kit): 7 mm peak-peak (p-p) (2 to 8.42 Hz), 0.5 g (8.42 to 150 Hz)

MTBF

Time	65M-1900-CT-T: 2,057,118 hrs 65M-2901-CT-T: 2,007,795 hrs 65M-3600-CT-T: 1,686,798 hrs 65M-3610-CT-T: 1,885,953 hrs 65M-4820-CT-T: 1,874,152 hrs
Standards	Telcordia Standard SR-332

Warranty

Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

Package Contents

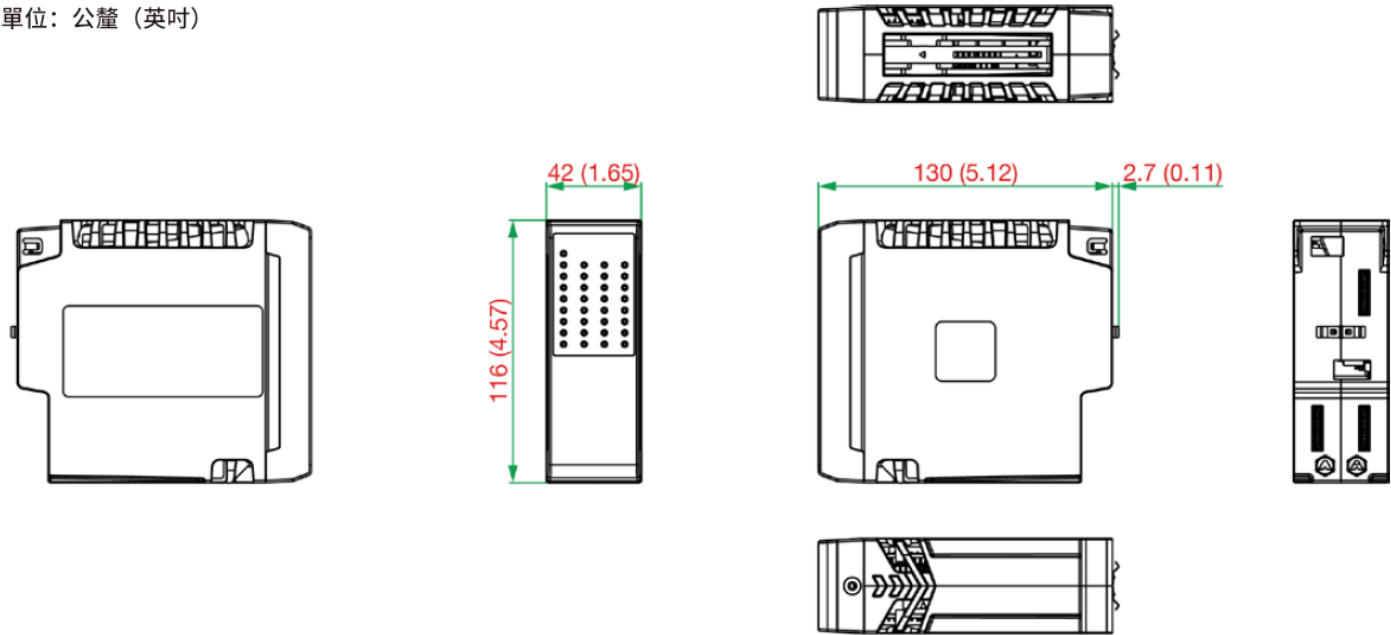
Device	1 x ioPAC 6500 Series (65M) I/O Module
Documentation	1 x quick installation guide 1 x warranty card

1. 如果您需要產品能在高海拔地區正常運作，請與 Moxa 聯繫。

尺寸

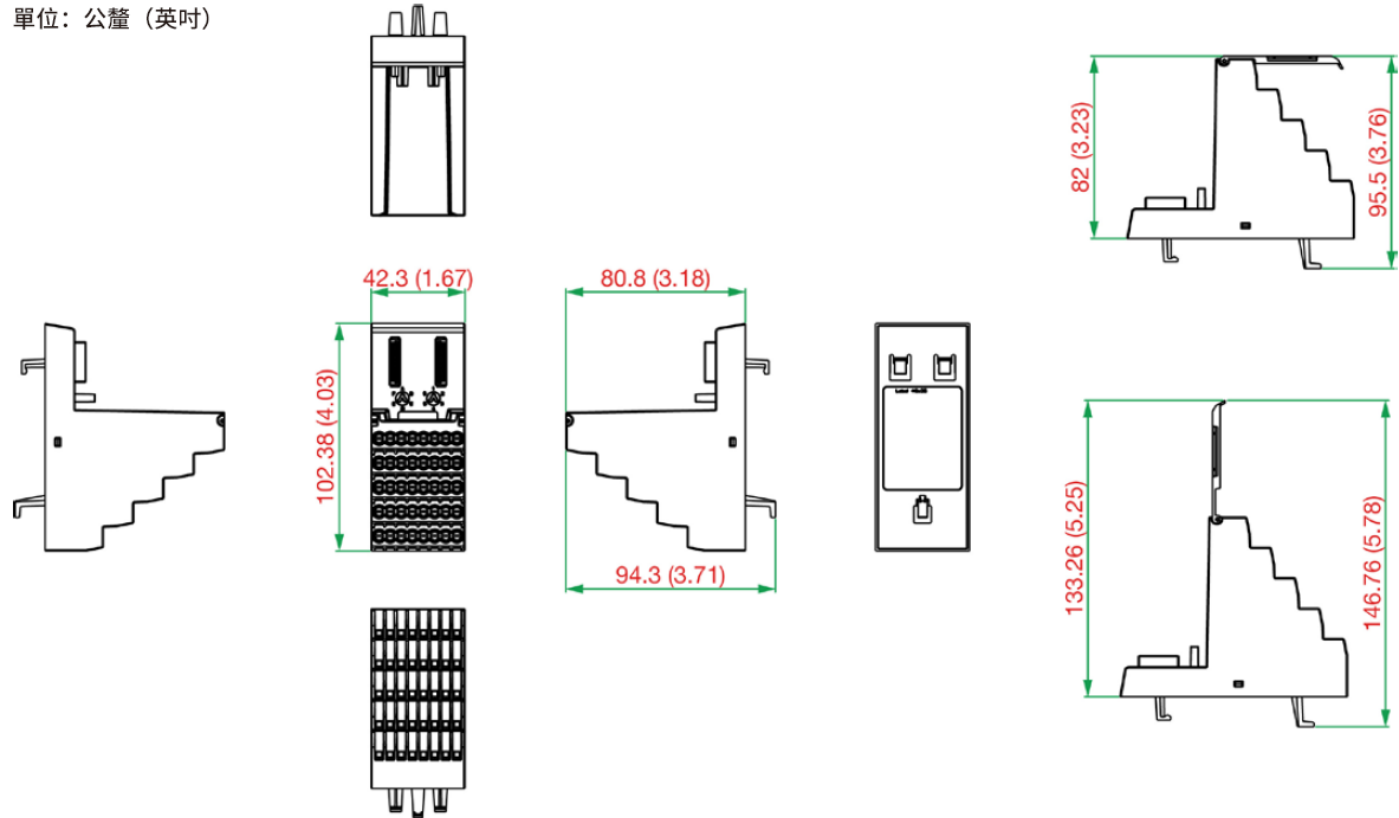
65M-1XXX/2XXX/3XXX/4XXX 型號

單位：公釐（英吋）



65M-TB 型號

單位：公釐（英吋）



訂購資訊

Model Name	No. of I/O Interfaces	Digital Inputs/Outputs	Analog Inputs/Outputs	Operating Temperature
65M-1900-CT-T	DIs x 32	24 VDC	-	-40 to 75°C
65M-2901-CT-T	DOs x 32	24 VDC	-	-40 to 75°C

Model Name	No. of I/O Interfaces	Digital Inputs/Outputs	Analog Inputs/Outputs	Operating Temperature
65M-3600-CT-T	Als x 16	–	0 to 20 mA 4 to 20 mA	-40 to 75°C
65M-3610-CT-T	Als x 16	–	0 to 10 V 1 to 5 V	-40 to 75°C
65M-4820-CT-T	AOs x 8	–	0 to 10 V 1 to 5 V 0 to 20 mA 4 to 20 mA	-40 to 75°C

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