

ioPAC 6500 系列 (65M) 通訊模組

模組化可編程 IIN 控制器的通訊模組



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



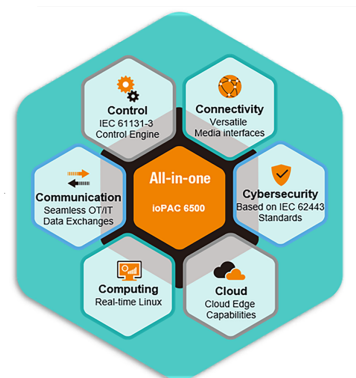
簡介

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

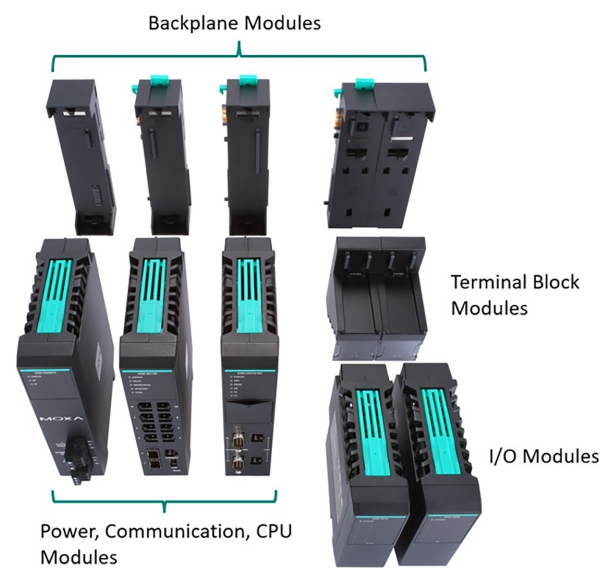
ioPAC 6500 系列為您的專案提供下列能力：

- 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

Ethernet Interface	
10/100/1000BaseT(X) Ports (RJ45 connector)	8 Auto MDI/MDI-X connection Auto negotiation speed Full/Half duplex mode
100/1000BaseSFP Slots	2
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3x for flow control IEEE 802.3ad for Port Trunk with LACP IEEE 802.1Q for VLAN Tagging IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1X for authentication

Ethernet Software Features

Management	IPv4/IPv6 Flow control Back Pressure Flow Control DHCP Server/Client ARP RARP LLDP Port Mirroring Linkup Delay SMTP SNMP Trap SNMP Inform SNMPv1/v2c/v3 RMON TFTP SFTP HTTP HTTPS Telnet Syslog Private MIB Fiber check
Filter	GMRP GVRP GARP 802.1Q VLAN IGMP Snooping v1/v2/v3 IGMP Querier
Redundancy Protocols	STP RSTP Turbo Ring v2 Turbo Chain Ring Coupling Dual Homing Link Aggregation
Security	Broadcast storm protection Rate Limit Trust access control Static Port Lock Sticky MAC HTTPS/SSL SSH RADIUS TACACS+ Login and Password Policy
Time Management	SNTP NTP Server/Client NTP Authentication

Protocols	IPv4/IPv6 TCP/IP UDP ICMP ARP RARP TFTP DNS NTP Client DHCP Server DHCP Client 802.1X QoS HTTPS HTTP Telnet SMTP SNMPv1/v2c/v3 RMON Syslog
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MIB	P-BRIDGE MIB Q-BRIDGE MIB IEEE8021-SPANNING-TREE-MIB IEEE8021-PAE-MIB IEEE8023-LAG-MIB LLDP-EXT-DOT1-MIB LLDP-EXT-DOT3-MIB SNMPv2-MIB RMON MIB Groups 1, 2, 3, 9
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Switch Properties

MAC Table Size	16 K
Jumbo Frame Size	9.216 KB
Max. No. of VLANs	256
VLAN ID Range	VID 1 to 4094
IGMP Groups	512
Priority Queues	4
Packet Buffer Size	1 MB

Serial Interface

Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1)
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Input/Output Interface

Buttons	Reset button
USB Ports	USB 2.0 Type A (only supports Moxa's ABC-02-USB backup and storage device)

Power Parameters

Input Current	0.9 A @ 12 VDC
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Physical Characteristics

Housing	Plastic
Dimensions	42 x 177 x 131.5 mm (1.65 x 6.97 x 5.18 in)

Weight	660 g (1.46 lb)
Installation	DIN-rail mounting Rack mounting (with optional kit)

Environmental Limits

Operating Temperature	-40 to 75°C (-40 to 167°F) (with SFP module installed) 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	2000 m 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 V IEC 61000-4-8 PFMF: 30 A/m
Safety	UL 61010-2-201 UL 61010-1
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)
Package Vibration Test	ISTA 1A
Package Drop Test	ISTA 1A

MTBF

Time	3,104,403 hrs
Standards	Telcordia Standard SR-332

Warranty

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

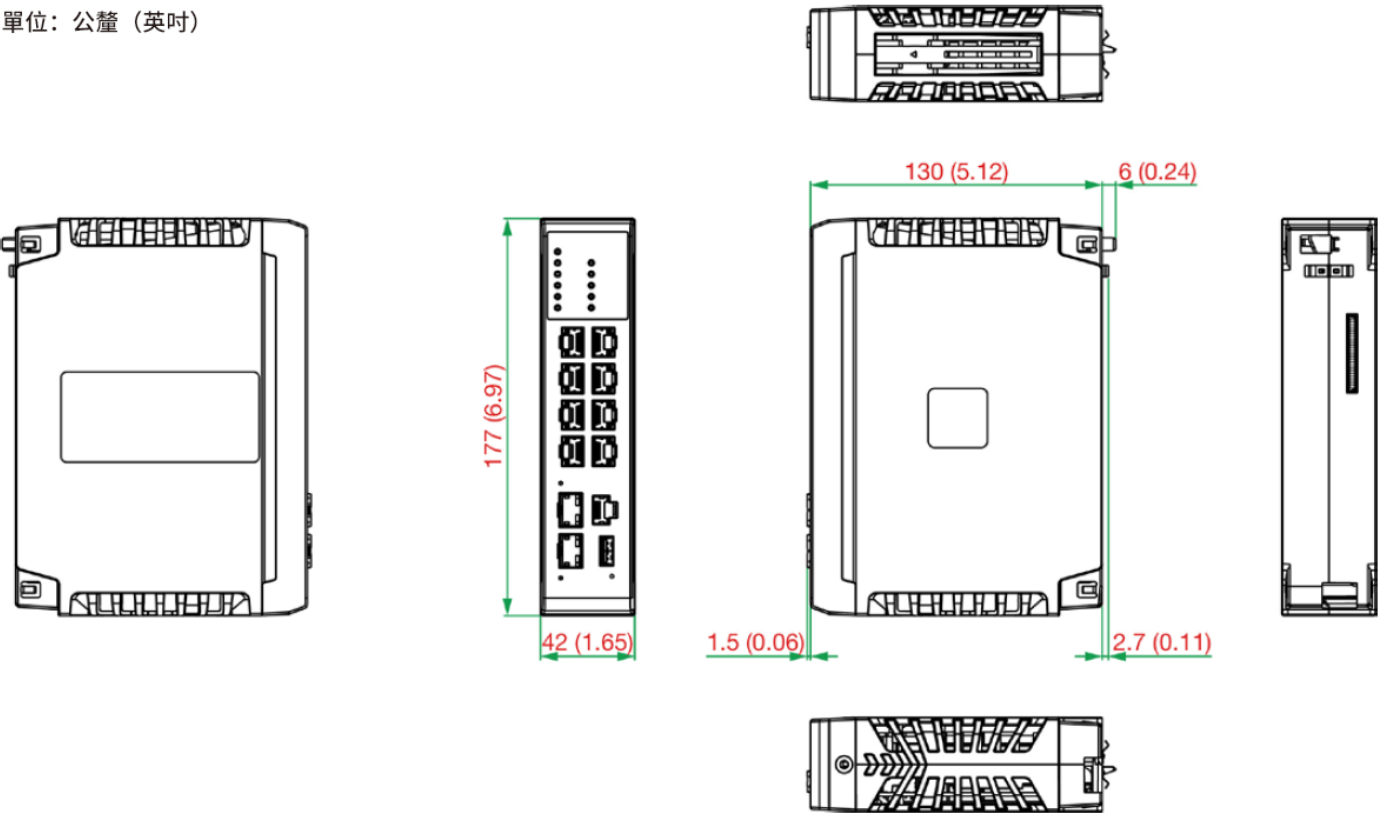
Package Contents

Device	1 x ioPAC 6500 Series (65M) Communication 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

單位：公釐（英吋）



訂購資訊

Model Name	10/100/1000BaseT(X) Ports (RJ45 Connector)	100/1000BaseSFP Ports	Conformal Coating	Operating Temperature
65M-5011M-CT-T	8	2	Yes	-40 to 75°C (with SFP module installed)

配件（選購）

Storage Kits

ABC-02-USB-T	Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, -40 to 75°C operating temperature
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SFP Modules

SFP-1GEZXLC	SFP module with 1 1000BaseEZ port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXLC-120	SFP module with 1 1000BaseEZ port with LC connector for 120 km transmission, 0 to 60°C operating temperature
SFP-1GLHLC-T	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature
SFP-1GLSXLC-T	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature
SFP-1GLXLC-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXLC-T	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°C operating temperature
SFP-1GZXLC-T	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature
SFP-1G10ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature

SFP-1G10BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G20ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G20BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G40ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G40BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1FELLC-T	SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature
SFP-1FEMLC-T	SFP module with 1 100Base multi-mode, LC connector for 2/4 km transmission, -40 to 85°C operating temperature
SFP-1FESLC-T	SFP module with 1 100Base single-mode with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-2.5GLSLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 20 km transmission, -40 to 85 °C operating temperature
SFP-2.5GSLHLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 45 km transmission, -40 to 85 °C operating temperature
SFP-2.5GMLC-T	SFP module with 1 2.5GBaseFX port with LC connector, multi-mode, for 170, 200, 550, 600 m transmission, -40 to 85 °C operating temperature
SFP-2.5GSLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 5 km transmission, -40 to 85 °C operating temperature
SFP-1GTXRJ45-T	SFP module with 1 1000BaseT port with RJ45 connector for 100 m transmission, -40 to 75°C operating temperature

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