

MGate MB3170-G2/MB3270-G2/MB3470-G2 系列

1、2、4 埠進階 Modbus 閘道器



特色與優點

- 支援高效能且低延遲的 agent mode，可主動輪詢 Modbus 裝置並快取資料
- 支援各種裝置的私有 Modbus 和 Modbus 擴展功能
- 支援自動裝置路由，可輕鬆配置
- 支援透過 TCP 連接埠或 IP 位址進行路由，以適用於不同的系統架構
- 可連線至多達 32 個 Modbus TCP 用戶端 (MGate 將為每個連線的 Modbus 用戶端將 32 個 Modbus 要求排入佇列)
- 支援 Modbus 串列用戶端到 Modbus 串列伺服器之間的通訊
- 乙太網路串聯或雙子網路，可實現具彈性的網路系統設計
- 10/100BaseTX (RJ45) 或 100BaseFX (單模或多模光纖，配備 SC/ST 接頭)
- 緊急要求通道可確保 QoS 控制
- 直覺式的 Modbus 診斷與流量監控，可輕鬆進行故障排除
- 內建 2 kV 光電隔離保護的串列埠 (適用於「-I」型號)
- -40 至 75°C 寬操作溫度範圍 (-T 型號)
- 支援備援 DC 電源輸入與 1 點 relay 輸出

認證



簡介

MGate MB3170-G2、MB3270-G2 和 MB3470-G2 是新一代的 Modbus 閘道器，可在 Modbus TCP、RTU、ASCII，甚至是私有或擴展的 Modbus 串列通訊協定之間進行轉換。這些 MGate 閘道器可透明地轉換通訊協定、主動輪詢連線裝置，並將資料快取到記憶體中。這讓 SCADA 系統能夠直接從閘道器中擷取 Modbus 資料，而不必等待所有 Modbus 裝置回應，進而大幅提高通訊效能。

Moxa 依循 IEC 62443-4-1 安全開發生命週期流程，開發了 MGate 系列產品。嚴守 IEC 62443-4-2 的設計與指導原則，確保這些閘道器在工業網路中的連線和管理是安全的。

此外，多元的安裝選項可滿足多樣的安裝與佈線需求，堅固耐用的設計適用於嚴苛的環境，以及易於使用的設定與故障排除工具便於快速維護，這些都提升了使用者體驗。

高效能 Modbus 轉換

MGate MB3170-G2/MB3270-G2/MB3470-G2 閘道器可在 transparent (直接通訊協定轉換) 或 agent (輪詢與快取) mode 下操作。Transparent mode 可基於 Modbus 要求做協定通訊轉換。但是對於較大的 Modbus 系統或需要較低延遲的情況，agent mode 能透過直接存取閘道器的快取，大幅提升 SCADA 的通訊效能。

彈性的 Modbus 轉換，適用於各種系統

支援雙子網路組態，MGate 能將 Modbus TCP 與 Modbus RTU/ASCII 無縫整合，且不會中斷現有系統。具備多種串列埠型號，MGate 可同時在 Modbus 串列與 Modbus TCP 之間，以及串列對串列和 TCP 對 TCP 之間進行轉換。即使使用傳統的串列或基於 COM 埠的軟體，MGate 的 RealCOM 模式也能夠透過乙太網路 TCP 進行通訊，而無需進行任何軟體調整。除了標準的 Modbus RTU 和 ASCII 之外，MGate 還能轉換私有和擴展的 Modbus 串列通訊協定，消除了自訂開發或額外設備的需求，並確保了最廣泛的 Modbus 系統相容性。

直覺式設定與簡化維運

維護期間的停機時間可能成本高昂。系統警示通常需要聯絡廠商，由於資訊收集與諮詢而延長了故障排除的時間。MGate-G2 閘道器透過提供全面的故障排除資訊來簡化此流程，以便快速發現問題。一鍵式診斷能蒐集所有必要的資料，供技術支援所用，讓使用者能夠高效地解決問題，並大幅減少停機時間。

規格

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	2 (Ethernet cascade or dual subnet configured by software) Auto MDI/MDI-X connection Auto MDI/MDI-X connection				
Magnetic Isolation Protection	1.5 kV (built-in)				
Optical Fiber			100BaseFX		
			Multi-Mode		Single-Mode
	Fiber Cable Type		OM1	50/125 μm	G.652
				800 MHz x km	
	Typical Distance		4 km	5 km	40 km
	Wavelength	Typical (nm)	1300		1310
		TX Range (nm)	1260 to 1360		1280 to 1340
		RX Range (nm)	1100 to 1600		1100 to 1600
	Optical Power	TX Range (dBm)	-10 to -20		0 to -5
		RX Range (dBm)	-3 to -32		-3 to -34
		Link Budget (dB)	12		29
		Dispersion Penalty (dB)	3		1
	Note: When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power. Note: Compute the “typical distance” of a specific fiber transceiver as follows: Link budget (dB) > dispersion penalty (dB) + total link loss (dB).				

Ethernet Software Features

Industrial Protocols	Modbus TCP Client Modbus TCP Server
Configuration Options	Web Console (HTTP/HTTPS) Device Search Utility (DSU) MCC Tool Windows Driver Manager Utility MXview One Software MXconfig Software
Management	ARP DHCP Client DNS HTTPS ICMP IPv4/IPv6 SMTP SMTPS SNMPv1/v2c/v3 SNTP TCP/IP UDP

MIB	MIB-II RFC1213, RFC1317
Time Management	SNTP Client

Security Functions

Authentication	Local database
Encryption	AES-128 AES-256 ECC-256 ECC-384 ECC-521 HMAC RSA-1024 RSA-2048 RSA-3072 RSA-4096 SHA-256 SHA-384
Security Protocols	SNMPv3 HTTPS (TLS 1.2)

Serial Interface

No. of Ports	MGate MB3170-G2 models: 1 MGate MB3270-G2 models: 2 MGate MB3470-G2 models: 4
Connector	MGate MB3170-G2/MB3270-G2/MB3470-G2 models: 1/2/4 x DB9 male MGate MB3270-TB-G2/MB3470-TB-G2 models: 2/4 x 5-pin spring type terminal block
Serial Standards	RS-232/422/485 (software-selectable)
Baudrate	50 bps to 921.6 kbps
Data Bits	7, 8
Parity	None Even Odd Space Mark
Stop Bits	1, 2
Flow Control	DTR/DSR RTS Toggle (RS-232 only) RTS/CTS
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms (software selectable)
Terminator for RS-485	120 ohms (software selectable)
Isolation	I models: 2 kV
RS-485 Data Direction Control	ADDC (automatic data direction control)

Serial Signals

RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND or TxD, RxD, GND (for -TB models)
RS-422	Tx+, Tx-, Rx+, Rx-, GND

RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND

Serial Software Features

Industrial Protocols	Modbus RTU/ASCII Client Modbus RTU/ASCII Server Proprietary Modbus
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Modbus (Transparent)

Max. No. of Client Connections	32
Max. No. of Server Connections	32

Power Parameters

Input Voltage	12 to 48 VDC
Input Current	MGate MB3170-G2, MGate MB3170I-G2: 270mA @ 21V MGate MB3270-G2, MGate MB3270-TB-G2, MGate MB3270I-G2, MGate MB3270I-TB-G2:: 330mA @ 12V MGate MB3470-G2, MGate MB3470-TB-G2, MGate MB3470I-G2, MGate MB3470I-TB-G2, MGate MB3170-S-SC-G2, MGate MB3170I-S-SC-G2, MGate MB3170-M-SC-G2, MGate MB3170I-M-SC-G2, MGate MB3170-M-ST-G2, MGate MB3170-SFP-G2: 377 mA @ 12V
Power Connector	8-pin terminal block

Relays

Contact Current Rating	Resistive load: 1 A @ 30 VDC
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Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions (with ears)	MGate MB170-G2/MB3270-G2 models: 29 x 89 x 132 mm (1.14 x 3.50 x 5.19 in) MGate MB3470-G2 models: 42 x 89 x 132 mm (1.65 x 3.50 x 5.19 in)
Dimensions (without DIN-rail mounting kit)	MGate MB170-G2/MB3270-G2 models: 29 x 89 x 129 mm (1.14 x 3.50 x 5.08 in) MGate MB3470-G2 models: 42 x 89 x 129 mm (1.65 x 3.50 x 5.08 in)
Weight	MGate MB3170-G2 models: TBD MGate MB3270-G2 models: TBD MGate MB3470-G2 models: TBD

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)

Standards and Certifications

EMC	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 2 GHz: 10 V/m

	IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 2 kV, Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11
Hazardous Locations	ATEX Class I Division 2 IECEX
Maritime	DNV
Package Drop Test	ISTA 1A
Vibration	IEC 60068-2-6
Safety	EN 62368-1 UL 62368-1

MTBF

Time	MGate MB3170 models: 1,662,526 hrs MGate MB3170I models: 1,484,777 hrs MGate MB3270 models: 1,477,768 hrs MGate MB3270I models: 1,144,837 hrs MGate MB3170-M/-S models: 1,580,051 hrs MGate MB3170I-M/-S models: 1,385,414 hrs
Standards	Telcordia Standard SR-332

Warranty

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

Package Contents

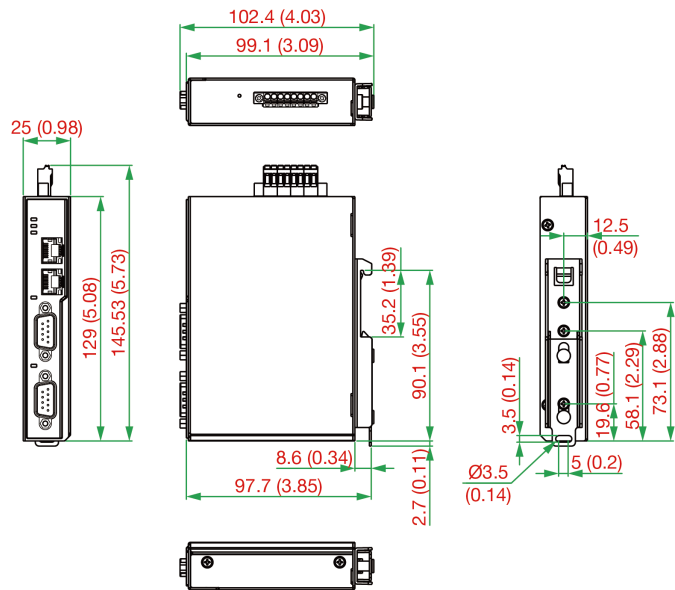
Device	1 x MGate MB3170-G2/MB3270-G2/MB3470-G2 Series gateway
Documentation	1 x quick installation guide 1 x warranty card

尺寸

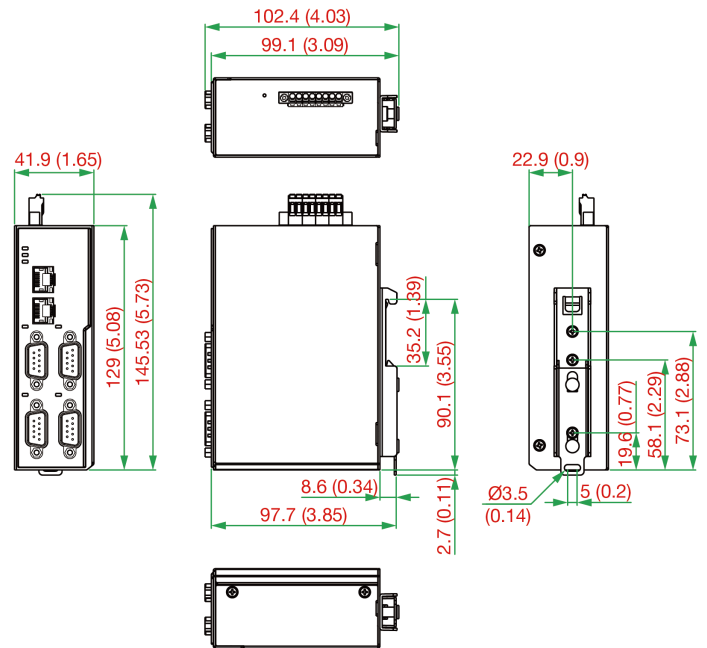
含 Din 軌道安裝套件

單位：公釐（英吋）

MGate MB3170-G2/MB3270-G2 Series



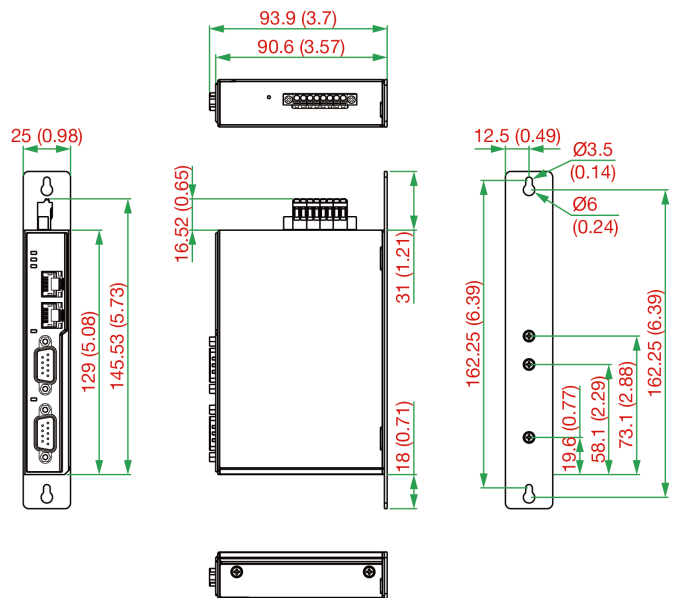
MGate MB3470-G2 Series



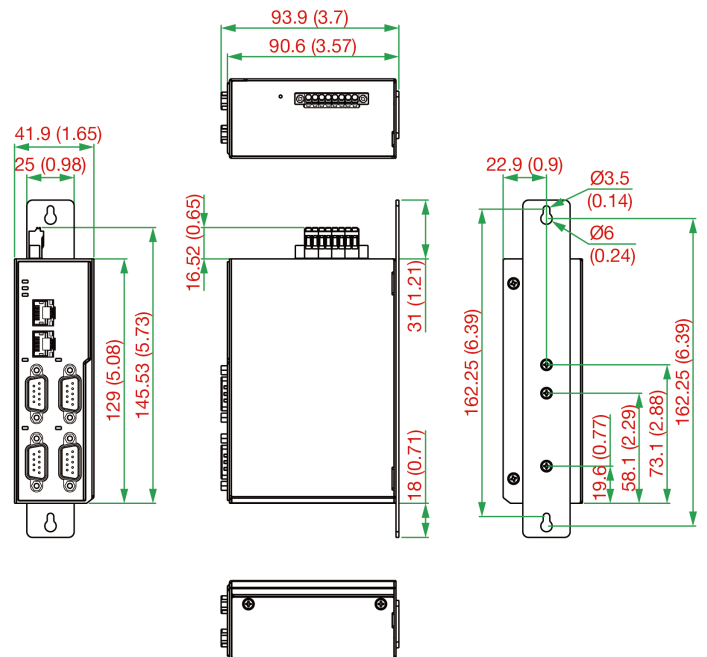
含壁掛安裝套件

單位：公釐（英吋）

MGate MB3170-G2/MB3270-G2 Series



MGate MB3470-G2 Series



訂購資訊

Model Name	Ethernet	No. of Serial Ports	Serial Connector	Serial Isolation	Operating Temperature
MGate MB3170-G2	2xRJ45	1	DB9	-	-10 to 60°C
MGate MB3170I-G2	2xRJ45	1	DB9	2kV	-10 to 60°C
MGate MB3270-G2	2xRJ45	2	DB9	-	-10 to 60°C

Model Name	Ethernet	No. of Serial Ports	Serial Connector	Serial Isolation	Operating Temperature
MGate MB3270I-G2	2xRJ45	2	DB9	2kV	-10 to 60°C
MGate MB3270-TB-G2	2xRJ45	2	5-pin Terminal Block	–	-10 to 60°C
MGate MB3270I-TB-G2	2xRJ45	2	5-pin Terminal Block	2kV	-10 to 60°C
MGate MB3470-G2	2xRJ45	4	DB9	–	-10 to 60°C
MGate MB3470I-G2	2xRJ45	4	DB9	2kV	-10 to 60°C
MGate MB3470-TB-G2	2xRJ45	4	5-pin Terminal Block	–	-10 to 60°C
MGate MB3470I-TB-G2	2xRJ45	4	5-pin Terminal Block	2kV	-10 to 60°C
MGate MB3170-S-SC-G2	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	–	-10 to 60°C
MGate MB3170I-S-SC-G2	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	2kV	-10 to 60°C
MGate MB3170-M-SC-G2	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	–	-10 to 60°C
MGate MB3170I-M-SC-G2	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	2kV	-10 to 60°C
MGate MB3170-G2-T	2xRJ45	1	DB9	–	-45 to 75°C
MGate MB3170I-G2-T	2xRJ45	1	DB9	2kV	-45 to 75°C
MGate MB3270-G2-T	2xRJ45	2	DB9	–	-45 to 75°C
MGate MB3270I-G2-T	2xRJ45	2	DB9	2kV	-45 to 75°C
MGate MB3270-TB-G2-T	2xRJ45	2	5-pin Terminal Block	–	-45 to 75°C
MGate MB3270I-TB-G2-T	2xRJ45	2	5-pin Terminal Block	2kV	-45 to 75°C
MGate MB3470-G2-T	2xRJ45	4	DB9	–	-45 to 75°C
MGate MB3470I-G2-T	2xRJ45	4	DB9	2kV	-45 to 75°C
MGate MB3470-TB-G2-T	2xRJ45	4	5-pin Terminal Block	–	-45 to 75°C
MGate MB3470I-TB-G2-T	2xRJ45	4	5-pin Terminal Block	2kV	-45 to 75°C
MGate MB3170-S-SC-G2-T	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	–	-45 to 75°C
MGate MB3170I-S-SC-G2-T	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	2kV	-45 to 75°C
MGate MB3170-M-SC-G2-T	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	–	-45 to 75°C
MGate MB3170I-M-SC-G2-T	1xRJ45, 1xSingle-Mode SC fiber	1	DB9	2kV	-45 to 75°C

配件 (選購)

Cables

CBL-F9M9-150	DB9 female to DB9 male serial cable, 1.5 m
CBL-F9M9-20	DB9 female to DB9 male serial cable, 20 cm

Connectors

Mini DB9F-to-TB	DB9 female to terminal block connector
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Power Cords

CBL-PJTB-10	Non-locking barrel plug to bare-wire cable
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