

MGate MB3170/MB3270 系列

1 和 2 埠進階序列轉乙太網路 Modbus 閘道器



特色與優點

- 支援自動裝置路由以簡化配置
- 透過 TCP 埠或 IP 位置支援路由以便靈活部署
- 最多可連接 32 台 Modbus TCP server
- 最多可連接 31 或 62 個 Modbus RTU/ASCII slave
- 最多可以有 32 個 Modbus TCP client 存取 (為每個 Master 保留 32 個 Modbus 要求)
- 支援 Modbus 串列 Master 與 Modbus 串列 Slave 的通訊
- 內建乙太網路串聯，易於佈線
- 10/100BaseTX (RJ45) 或 100BaseFX (單模或多模的 SC/ST 連接器)
- 具備緊急要求通道，可確保 QoS 控制
- 內嵌式 Modbus 流量監控，易於進行故障排除
- 串列埠皆具備 2 kV 光電隔離保護 (「-I」 型號適用)
- 支援 -40 至 75°C 寬操作溫度型號可供選用
- 提供備援雙 DC 電源輸入與 1 個繼電器輸出

認證



簡介

MGate MB3170 和 MB3270 分別是 1 和 2 埠 Modbus 閘道器，用於 Modbus TCP、ASCII 和 RTU 通訊協定之間轉換。此系列閘道器可提供串列轉乙太網路通訊以及串列 (master) 轉串列 (slave) 通訊。此外，此系列閘道器可同時將串列和乙太網路 master 連接至串列 Modbus 設備。MGate MB3170 和 MB3270 系列閘道器可由多達 32 個 TCP master/client 存取，或是可連接至多達 32 個 TCP 從 slave/server。可透過 IP 位址、TCP 連接埠號碼或是 ID mapping 控制串列埠的路由。獨特的優先控制功能可允許緊急指令獲得即時回應。所有型號皆堅固耐用、使用 DIN 軌道安裝方式，並可選購串列訊號的內建光電隔離功能。

無需修改 Modbus RTU/ASCII 網路或軟體即可整合 TCP Master

MB3270 可以將 Modbus TCP 與 Modbus RTU/ASCII 整合，而且無需修改現有 Modbus RTU/ASCII 架構或軟體。藉由串列轉接器功能的協助，串列 master 可以透過特別對應的串列埠來直接存取串列 Slave 裝置。如此一來，串列和 TCP Master 亦可同時存取串列 Slave。

用於乙太網路通訊的光纖

MGate MB3170 系列包括 100BaseFX 光纖型號，多模型號的傳輸距離最長可達 4 公里，單模型號的傳輸距離最長可達 40 公里。光纖非常適合工業應用，原因在於它不會受到電磁波雜訊干擾所影響。對於高接地迴路電壓的環境來說，光纖可提供最佳的隔離保護，加上不會有火花產生的危險，因此在嚴峻環境中使用時，光纖會比銅線更加安全。

自動裝置路由，簡化配置 (專利申請中)

Moxa 的自動裝置路由功能可協助需要設置大量 Modbus 設備的工程師解決很多問題和不便。只需按滑鼠一鍵，即可設定 slave ID 路由表以及 Modbus 閘道器的配置，並能透過數據採集與監控 (SCADA) 系統自動偵測 Modbus 需求。由於不再需要手動建立 slave ID 路由表，自動裝置路由功能為工程師省下大量時間並且降低成本。

緊急指令的優先控制（已取得專利）

隨著 Modbus 網路的規模與複雜性日益增加，指令與回應之間的時間差已成為重要的議題。MB3000 系列的進階型號提供了緊急指令的優先控制功能，允許使用者強制執行允許使用者可利用此功能強制執行特定指令，以做出即時回應指令以獲得即時回應。根據您的系統需求，可透過不同方式來定義哪些指令具有優先權。

專利號碼：(US/TW)

- US7,743,192 B2/I332618
- US7,725,635 B2/I321007

規格

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	2 (1 IP, Ethernet cascade) 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 (Master), Modbus TCP Server (Slave)
Configuration Options	Web Console (HTTP/HTTPS), Device Search Utility (DSU), MGate Manager, Telnet Console
Management	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, NTP Client
MIB	RFC1213, RFC1317
Time Management	NTP Client

Serial Interface

No. of Ports	MGate MB3170 Series: 1 MGate MB3270 Series: 2
Connector	MGate MB3170/MB3170I: DB9 male for RS-232 and terminal block for RS-422/485 MGate MB3270/MB3270I: 2 x DB9 male
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
RS-485 Data Direction Control	ADDC® (automatic data direction control)
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms
Terminator for RS-485	120 ohms
Isolation	MGate MB3170I: 2 kV (I models) MGate MB3170I-T: 2 kV (I models) MGate MB3170I-M-SC: 2 kV (I models) MGate MB3170I-M-SC-T: 2 kV (I models) MGate MB3170I-S-SC: 2 kV (I models) MGate MB3170I-S-SC-T: 2 kV (I models) MGate MB3270I: 2 kV (I models) MGate MB3270I-T: 2 kV (I models)

Serial Signals

RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
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 Master, Modbus RTU/ASCII Slave
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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/MB3270: 435 mA @ 12 VDC MGate MB3170I/MB3170-S-SC/MB3170I-M-SC/MB3170I-S-SC: 555 mA @ 12 VDC MGate MB3270I/MB3170-M-SC/MB3170-M-ST: 510 mA @ 12 VDC
Power Connector	7-pin terminal block

Relays

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

Housing	Plastic
IP Rating	IP30
Dimensions (with ears)	29 x 89.2 x 124.5 mm (1.14 x 3.51 x 4.90 in)

Dimensions (without ears)	29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in)
Weight	MGate MB3170 Series: 360 g (0.79 lb) MGate MB3270 Series: 380 g (0.84 lb)

Environmental Limits

Operating Temperature	MGate MB3170: 0 to 60°C (32 to 140°F) MGate MB3170-T: -40 to 75°C (-40 to 167°F) MGate MB3170-M-SC: 0 to 60°C (32 to 140°F) MGate MB3170-M-SC-T: -40 to 75°C (-40 to 167°F) MGate MB3170-M-ST: 0 to 60°C (32 to 140°F) MGate MB3170-M-ST-T: -40 to 75°C (-40 to 167°F) MGate MB3170-S-SC: 0 to 60°C (32 to 140°F) MGate MB3170-S-SC-T: -40 to 75°C (-40 to 167°F) MGate MB3170I: 0 to 60°C (32 to 140°F) MGate MB3170I-T: -40 to 75°C (-40 to 167°F) MGate MB3170I-M-SC: 0 to 60°C (32 to 140°F) MGate MB3170I-M-SC-T: -40 to 75°C (-40 to 167°F) MGate MB3170I-S-SC: 0 to 60°C (32 to 140°F) MGate MB3170I-S-SC-T: -40 to 75°C (-40 to 167°F) MGate MB3270: 0 to 60°C (32 to 140°F) MGate MB3270-T: -40 to 75°C (-40 to 167°F) MGate MB3270I: 0 to 60°C (32 to 140°F) MGate MB3270I-T: -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 55032/24
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 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs
Hazardous Locations	ATEX, Class I Division 2, IECEx
Maritime	DNV-GL
Freefall	IEC 60068-2-32
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6, IEC 60068-2-64
Safety	EN 60950-1, IEC 60950-1, IEC 62368-1, UL 62368-1

MTBF

Time	MGate MB3170/MB3170I Series: 1,349,710 hrs MGate MB3170-M-SC/M-ST/S-SC Series: 1,175,887 hrs MGate MB3170I-M-SC Series: 768,343 hrs MGate MB3170I-S-SC Series: 763,707 hrs MGate MB3270/MB3270I Series: 1,236,384 hrs
Standards	Telcordia SR332

Warranty

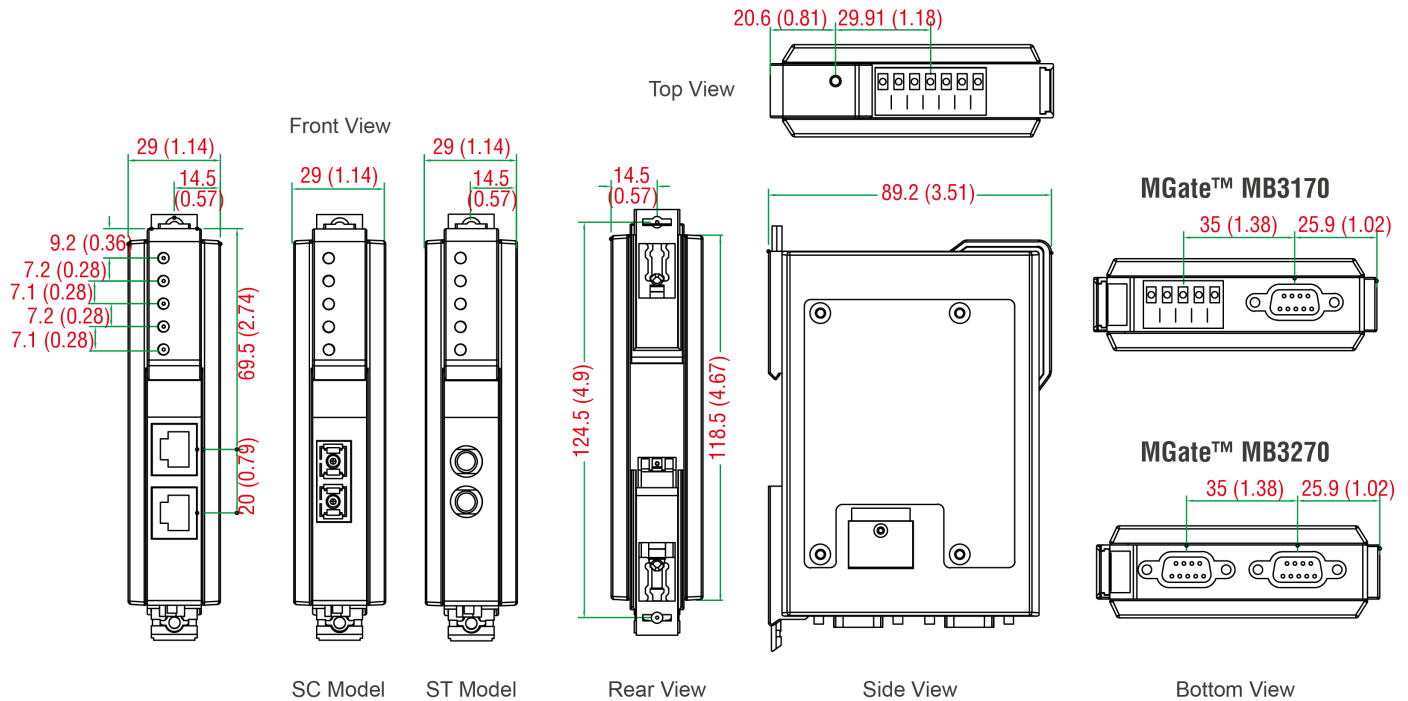
Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

Package Contents

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

尺寸

單位：公釐（英吋）



訂購資訊

Model Name	Ethernet	No. of Serial Ports	Serial Standards	Serial Isolation	Operating Temp.
MGate MB3170	2 x RJ45	1	RS-232/422/485	–	0 to 60°C
MGate MB3170I	2 x RJ45	1	RS-232/422/485	2 kV	0 to 60°C
MGate MB3270	2 x RJ45	2	RS-232/422/485	–	0 to 60°C
MGate MB3270I	2 x RJ45	2	RS-232/422/485	2 kV	0 to 60°C
MGate MB3170-T	2 x RJ45	1	RS-232/422/485	–	-40 to 75°C
MGate MB3170I-T	2 x RJ45	1	RS-232/422/485	2 kV	-40 to 75°C
MGate MB3270-T	2 x RJ45	2	RS-232/422/485	–	-40 to 75°C
MGate MB3270I-T	2 x RJ45	2	RS-232/422/485	2 kV	-40 to 75°C
MGate MB3170-M-SC	1 x Multi-Mode SC	1	RS-232/422/485	–	0 to 60°C
MGate MB3170-M-ST	1 x Multi-Mode ST	1	RS-232/422/485	–	0 to 60°C
MGate MB3170-S-SC	1 x Single-Mode SC	1	RS-232/422/485	–	0 to 60°C
MGate MB3170I-M-SC	1 x Multi-Mode SC	1	RS-232/422/485	2 kV	0 to 60°C
MGate MB3170I-S-SC	1 x Single-Mode SC	1	RS-232/422/485	2 kV	0 to 60°C
MGate MB3170-M-SC-T	1 x Multi-Mode SC	1	RS-232/422/485	–	-40 to 75°C
MGate MB3170-M-ST-T	1 x Multi-Mode ST	1	RS-232/422/485	–	-40 to 75°C
MGate MB3170-S-SC-T	1 x Single-Mode SC	1	RS-232/422/485	–	-40 to 75°C

Model Name	Ethernet	No. of Serial Ports	Serial Standards	Serial Isolation	Operating Temp.
MGate MB3170I-M-SC-T	1 x Multi-mode SC	1	RS-232/422/485	2 kV	-40 to 75°C
MGate MB3170I-S-SC-T	1 x Single-Mode SC	1	RS-232/422/485	2 kV	-40 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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