

MGate MB3660 系列

8 埠和16 埠備援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
- 創新的指令學習可改善系統效能
- 支援代理模式，透過串列裝置的主動和平行輪詢提供高效能
- 支援Modbus 串列master 與Modbus 串列slave 的通訊
- 2 個具有相同 IP 或雙 IP 位址的乙太網路埠，達到網路備援的效果
- microSD 卡可用於備份/複製配置與儲存事件日誌
- 可支援多達256 個Modbus TCP client 存取
- 最多可連接128 台Modbus TCP server
- RJ45 串列介面（「-J」型號適用）
- 內建 2 kV 光電隔離保護的串列埠（適用於「-I」型號）
- 雙VDC 或VAC 電源輸入，具有寬範圍電壓輸入
- 嵌入式流量監控/診斷資訊，便於故障排除
- 狀態監控和故障保護，可輕鬆維護

認證



簡介

MGate MB3660 (MB3660-8 和MB3660-16) 系列閘道器為備援Modbus 閘道器，用於Modbus TCP 和Modbus RTU/ASCII 通訊協定之間轉換。它們最多可以被256 個TCP master/client 裝置連線，或是連接至128 個TCP slave/server 裝置。MGate MB3660 隔離型號提供2 kV 光電隔離保護，適用於變電站應用。MGate MB3660 閘道器的設計是用於輕鬆整合Modbus TCP 與RTU/ASCII 網路。MGate MB3660 閘道器所提供的功能可幫助網路整合更加容易、可客製化，並且幾乎與所有Modbus 網路相容。

針對大規模Modbus 部署，MGate MB3660 閘道器能夠有效地將大量的Modbus 節點連接至相同網路。MB3660 系列實際上可管理多達248 個串列slave 節點（8 埠型號）或是496 個串列slave 節點（16 埠型號）（Modbus 標準僅定義1 到247 的Modbus ID）。每個RS-233/422/485 串列埠都可以各自針對Modbus RTU 或Modbus ASCII 作業進行設定，亦可設定不同的傳輸率。如此一來，只要一個 Modbus 閘道器即可將這兩種網路與Modbus TCP 予以整合。

透過創新的指令學習技術帶來高效能整合

MGate MB3660 閘道器支援兩種通訊模式：透通模式與代理模式。在透通模式下，閘道器會將Modbus 指令從Modbus TCP 轉換至Modbus RTU/ASCII（反之亦然），或是從串列(master) 轉換至串列(slave)。然而，由於在任何特定時間只能執行一個Modbus 通訊協定要求-回應動作，因此每個Modbus 裝置必須等輪到自己時才能執行動作，導致效能變差。

為提供更好的效能，MGate MB3660 閘道器在設計上具備有創新的指令學習功能，只需按滑鼠一鍵即可啟動該功能。一旦啟動，閘道器將會學習並且記住它所收到的Modbus 指令，一旦學會某個指令，閘道將會如同它在代理模式一樣運作，並且會主動傳送Modbus 要求至相關的Modbus 裝置。由於資料被儲存在SCADA 系統可以存取的不同記憶體空間中，SCADA 系統可以直接從閘道器的記憶體中擷取Modbus 回應資料，而不需要等待資料傳送到 Modbus 設備，因此能夠大幅提升整體通訊效能。

易於配置的自動設備路由（專利）

Moxa 的自動設備路由功能有助於消除工程師需要配置大量 Modbus 設備時遇到的許多問題和不便。只需單擊滑鼠即可設置從站 ID 路由表並配置 Modbus 網關以自動檢測來自監控和數據採集 (SCADA) 系統的 Modbus 請求。通過消除手動創建從 ID 路由表的需要，自動設備路由功能為工程師節省了大量時間並降低了成本。

Modbus 閘道器提供電力和乙太網路備援

對於複雜的Modbus 系統而言，備援是極為重要的。MGate MB3660 Modbus 閘道器支援電源輸入以及乙太網路連線備援。MGate MB3660 閘道器內建雙交流或直流電源輸入的電力備援，並且有雙乙太網路連接埠（不同IP）以提供網路備援。為了因應不同的應用，可以透過下列其中一種方式設定雙乙太網路連接埠：

- 將兩個乙太網路連接埠使用相同的IP。在此情況下，當主要LAN 故障時，MGate MB3660 閘道器會自動切換至備用LAN。
- 將兩個乙太網路連接埠分別使用不同的IP 位址。在此情況下，Modbus clients/master 可使用兩個乙太網路連接埠，以便同時與Modbus RTU/ASCII slave 裝置進行通訊。

規格

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	2 IP addresses Auto MDI/MDI-X connection
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Ethernet Software Features

Industrial Protocols	Modbus TCP Client (Master), Modbus TCP Server (Slave)
Configuration Options	Web Console (HTTP/HTTPS), Device Search Utility (DSU), MCC Tool, Telnet Console
Management	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, NTP Client, RADIUS
MIB	RFC1213, RFC1317
Time Management	NTP Client

Serial Interface

Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1)
No. of Ports	MGate MB3660-8 Series: 8 MGate MB3660-16 Series: 16
Serial Standards	RS-232/422/485 (software selectable)
Connector	MGate MB3660-8/16: DB9 male MGate MB3660-8/16-J: RJ45
Baudrate	50 bps to 921.6 kbps
Data Bits	7, 8
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 2
Flow Control	RTS/CTS, DTR/DSR, RTS Toggle (RS-232 only)
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	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
Configuration Options	Serial Console

Modbus RTU/ASCII

Mode	Master, Slave
Functions Supported	1, 2, 3, 4, 5, 6, 15, 16, 23
Max. No. of Commands	256 per serial port
Memory Size	65535 bytes

Modbus TCP

Mode	Client (Master), Server (Slave)
Max. No. of Client Connections	256
Max. No. of Server Connections	128
Functions Supported	1, 2, 3, 4, 5, 6, 15, 16, 23
Max. No. of Commands	256
Memory Size	65535 bytes

Modbus (Transparent)

Max. No. of Client Connections	256
Max. No. of Server Connections	128

Power Parameters

Input Voltage	All models: Redundant dual inputs AC models: 100 to 240 VAC (50/60 Hz) DC models: 20 to 60 VDC (1.5 kV isolation)
No. of Power Inputs	2
Power Connector	Terminal block (for DC models)
Power Consumption	MGate MB3660-8-2AC: 109 mA @ 110 VAC MGate MB3660I-8-2AC: 310 mA @ 110 VAC MGate MB3660-8-J-2AC: 235 mA @ 110 VAC MGate MB3660-8-2DC: 312 mA @ 24 VDC MGate MB3660-16-2AC: 141 mA @ 110 VAC MGate MB3660I-16-2AC: 310 mA @ 110 VAC MGate MB3660-16-J-2AC: 235 mA @ 110 VAC MGate MB3660-16-2DC: 494 mA @ 24 VDC

Relays

Contact Current Rating	Resistive load: 2 A @ 30 VDC
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Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions (with ears)	480 x 45 x 198 mm (18.90 x 1.77 x 7.80 in)

Dimensions (without ears)	440 x 45 x 198 mm (17.32 x 1.77 x 7.80 in)
Weight	MGate MB3660-8-2AC: 2731 g (6.02 lb) MGate MB3660-8-2DC: 2684 g (5.92 lb) MGate MB3660-8-J-2AC: 2600 g (5.73 lb) MGate MB3660-16-2AC: 2830 g (6.24 lb) MGate MB3660-16-2DC: 2780 g (6.13 lb) MGate MB3660-16-J-2AC: 2670 g (5.89 lb) MGate MB3660I-8-2AC: 2753 g (6.07 lb) MGate MB3660I-16-2AC: 2820 g (6.22 lb)

Environmental Limits

Operating Temperature	0 to 60°C (32 to 140°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

Safety	MGate MB3660-8-2AC/16-2AC/8-2DC/16-2DC: IEC 62368-1, UL 62368-1 MGate MB3660I-8-2AC/16-2AC: IEC 62368-1, UL 62368-1 MGate MB3660-8-J-2AC/16-J-2AC: UL 60950-1
EMC	MGate MB3660-8-2AC/16-2AC/8-2DC/16-2DC: EN 55032/35 MGate MB3660I-8-2AC/16-2AC: EN 55032/35 MGate MB3660-8-J-2AC/16-J-2AC: 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: 1 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
Freefall	IEC 60068-2-31
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6, IEC 60068-2-64

MTBF

Time	MGate MB3660-8-2AC: 721,988 hrs MGate MB3660-8-2DC: 711,978 hrs MGate MB3660-8-J-2AC: 616,505 hrs MGate MB3660-16-2AC: 495,416 hrs MGate MB3660-16-2DC: 490,684 hrs MGate MB3660-16-J-2AC: 437,337 hrs MGate MB3660I-8-2AC: 429,807 hrs MGate MB3660I-16-2AC: 256,208 hrs
Standards	Telcordia SR332

Warranty

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

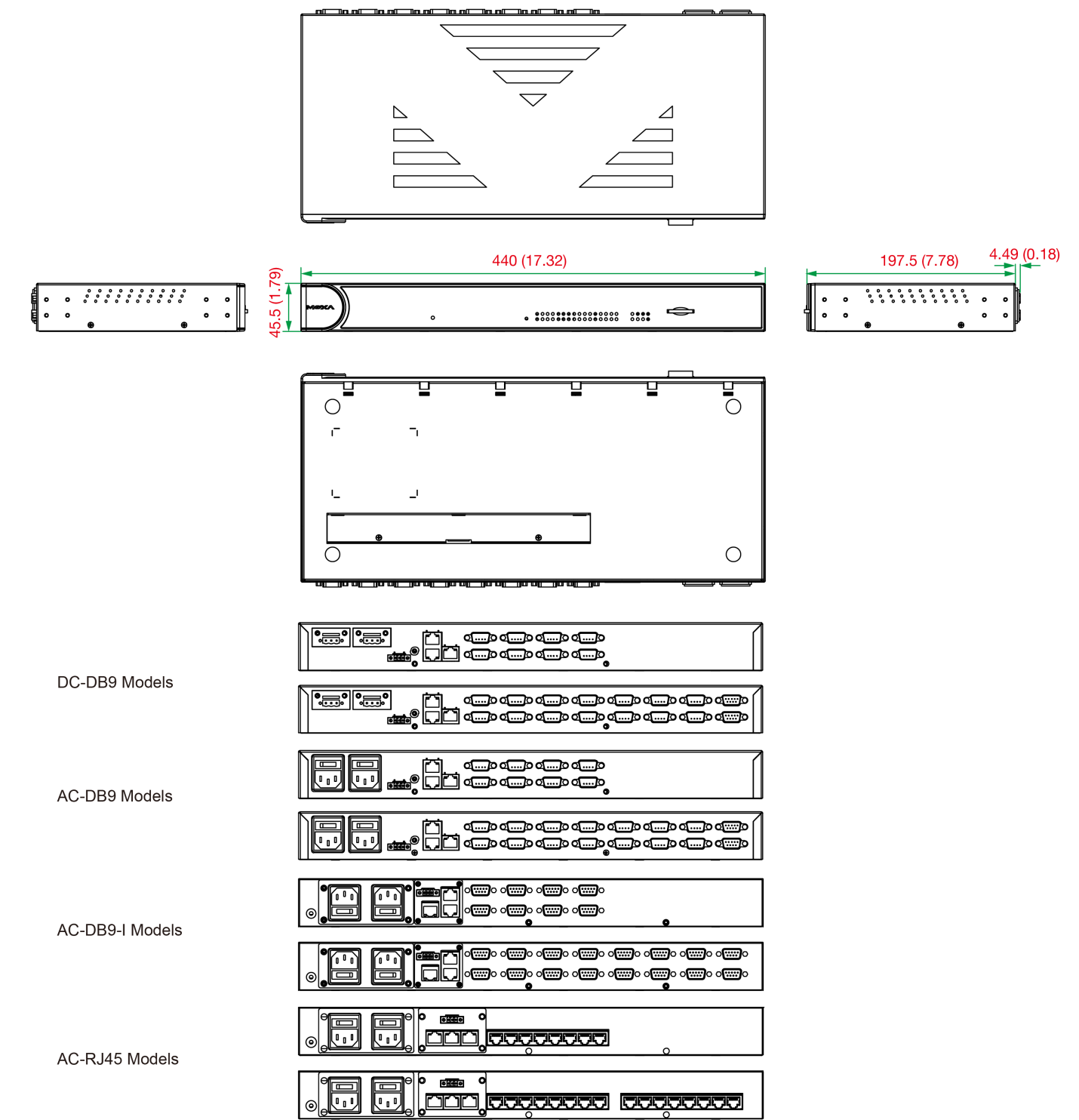
Package Contents

Device	1 x MGate MB3660 Series gateway
Power Supply	1 x power cord, suitable for your region
Cable	1 x RJ45-to-DB9 console cable

Installation Kit	1 x wall-mounting kit
Documentation	1 x quick installation guide 1 x warranty card

尺寸

單位：公釐（英吋）



訂購資訊

Model Name	No. of Serial Ports	Serial Connector	Serial Isolation	Input Voltage
MGate MB3660-8-2DC	8	DB9 male	–	20-60 VDC (1.5 kV isolation)
MGate MB3660-16-2DC	16	DB9 male	–	20-60 VDC (1.5 kV isolation)

Model Name	No. of Serial Ports	Serial Connector	Serial Isolation	Input Voltage
MGate MB3660-8-2AC	8	DB9 male	–	100-240 VAC (47-63 Hz)
MGate MB3660-16-2AC	16	DB9 male	–	100-240 VAC (47-63 Hz)
MGate MB3660I-8-2AC	8	DB9 male	2 kV	100-240 VAC (47-63 Hz)
MGate MB3660I-16-2AC	16	DB9 male	2 kV	100-240 VAC (47-63 Hz)
MGate MB3660-8-J-2AC	8	RJ45	–	100-240 VAC (47-63 Hz)
MGate MB3660-16-J-2AC	16	RJ45	–	100-240 VAC (47-63 Hz)

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
CBL-RJ45F9-150	8-pin RJ45 to DB9 female serial cable, 1.5m
CBL-RJ45SF9-150	8-pin RJ45 to DB9 female serial cable with shielding, 1.5m

Connectors

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

PWC-C13AU-3B-183	Power cord with Australian (AU) plug, 1.83 m
PWC-C13CN-3B-183	Power cord with three-prong China (CN) plug, 1.83 m
PWC-C13EU-3B-183	Power cord with Continental Europe (EU) plug, 1.83 m
PWC-C13JP-3B-183	Power cord with Japan (JP) plug, 7A/125V, 1.83 m
PWC-C13UK-3B-183	Power cord with United Kingdom (UK) plug, 1.83 m
PWC-C13US-3B-183	Power cord with United States (US) plug, 1.83 m
CBL-PJTB-10	Non-locking barrel plug to bare-wire cable

Mounting Kits

WK-45-01	Wall-mounting kit, 2 L-shaped plates, 6 screws, 45 x 57 x 2.5 mm
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