MGate MB3180/MB3280/MB3480 Series

1, 2, and 4-port standard serial-to-Ethernet Modbus gateways

Features and Benefits

- Supports Auto Device Routing for easy configuration
- Supports route by TCP port or IP address for flexible deployment
- Converts between Modbus TCP and Modbus RTU/ASCII protocols
- 1 Ethernet port and 1, 2, or 4 RS-232/422/485 ports
- 16 simultaneous TCP masters with up to 32 simultaneous requests per master
- Easy hardware setup and configuration

Certifications

Introduction

The MB3180, MB3280, and MB3480 are standard Modbus gateways that convert between Modbus TCP and Modbus RTU/ASCII protocols. Up to 16 simultaneous Modbus TCP masters are supported, with up to 31 RTU/ASCII slaves per serial port. For RTU/ASCII masters, up to 32 TCP slaves are supported. Routing through the serial ports can be controlled by IP address, TCP port number, or ID mapping. Serial-port routing by TCP port and IP address allows access for up to 4 TCP clients/masters (MB3280/MB3480 models), while routing by ID mapping allows access for up to 16 TCP clients/masters (MB3180/MB3280/MB3480).

Standard Modbus Network Integration

The three standard MGate™ models (MB3180, MB3280, and MB3480) are designed for easy integration of Modbus TCP and RTU/ASCII networks. With these models, Modbus serial slave devices can be seamlessly incorporated into an existing Modbus TCP network, and Modbus TCP slaves can be made accessible to serial masters. The MB3180, MB3280, and MB3480 offer features that make network integration easy, customizable, and compatible with almost any Modbus network.

High Density, Cost-Effective Gateways

The MGate™ MB3000 gateways can effectively connect a high density of Modbus nodes to the same network. The MB3280 can manage up to 62 serial slave nodes, and the MB3480 can manage up to 124 serial slave nodes. Each RS-232/422/485 serial port can be configured individually for Modbus RTU or Modbus ASCII operation and for different baudrates, allowing both types of networks to be integrated with Modbus TCP through one Modbus gateway.

Auto-Device Routing for Easy Configuration

Moxa's Auto-Device Routing function helps eliminate many of the problems and inconveniences encountered by engineers who need to configure large numbers of Modbus devices. A single mouse click is all that's required to set up a slave ID routing table and configure Modbus gateways to automatically detect Modbus requests from a supervisory control and data acquisition (SCADA) system. By removing the need to manually create the slave ID routing table, the Auto-Device Routing function saves engineers significant time and cost.

Specifications

Ethernet Interface	
10/100BaseT(X) Ports (RJ45 connector)	Auto MDI/MDI-X connection
Magnetic Isolation Protection	1.5 kV (built-in)

Ethernet Software Features	
Industrial Protocols	Modbus TCP Client (Master) Modbus TCP Server (Slave)
Configuration Options	All models: Web Console (HTTP), Device Search Utility (DSU), MGate Manager, MCC Tool, Telnet Console MGate MB3280/MB3480: Web Console (HTTPS)

Management	All models: ARP, DHCP Client, DNS, HTTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, ICMP MGate MB3280/MB3480: HTTPS, SMTP, SNMP Trap, NTP Client
MIB	RFC1213, RFC1317
Time Management	NTP Client (MGate MB3180 Excluded)

Security Functions

Authentication	Local database
Encryption	HTTPS AES-128 AES-256 SHA-256
Security Protocols	SNMPv3 HTTPS (TLS 1.2) (except MGate MB3180)

Serial Interface

No. of Ports	MGate MB3180: 1 MGate MB3280: 2 MGate MB3480: 4
Connector	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	MGate MB3180: None MGate MB3280/MB3480: 120 ohms

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

Modbus (Transparent)

Max. No. of Client Connections	16
Max. No. of Server Connections	32

Power Parameters

Input Voltage	12 to 48 VDC
Input Current	MGate MB3180: 200 mA @ 12 VDC MGate MB3280: 250 mA @ 12 VDC MGate MB3480: 365 mA @ 12 VDC
Power Connector	MGate MB3180: Power jack MGate MB3280/MB3480: Power jack and terminal block

Physical Characteristics

Housing	Metal
IP Rating	IP30[1]
Dimensions (with ears)	MGate MB3180: 22 x 75 x 80 mm (0.87 x 2.95 x 3.15 in) MGate MB3280: 22 x 100 x 111 mm (0.87 x 3.94 x 4.37 in) MGate MB3480: 35.5 x 102.7 x 181.3 mm (1.40 x 4.04 x 7.14 in)
Dimensions (without ears)	MGate MB3180: 22 x 52 x 80 mm (0.87 x 2.05 x 3.15 in) MGate MB3280: 22 x 77 x 111 mm (0.87 x 3.03 x 4.37 in) MGate MB3480: 35.5 x 102.7 x 157.2 mm (1.40 x 4.04 x 6.19 in)
Weight	MGate MB3180: 340 g (0.75 lb) MGate MB3280: 360 g (0.79 lb) MGate MB3480: 740 g (1.63 lb)

Environmental Limits

Operating Temperature	MGate MB3180: 0 to 55°C (32 to 131°F) MGate MB3280: 0 to 60°C (32 to 140°F) MGate MB3480: 0 to 55°C (32 to 131°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 55032/35
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: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV (MB3180/MB3280) IEC 61000-4-5 Surge: Power: 1 kV; Signal: 2 kV (MB3480) IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF IEC 61000-4-11
Safety	MGate MB3180: EN 62368-1, UL 60950-1 MGate MB3280: IEC/UL 62368-1, IEC/UL 60950-1 MGate MB3480: IEC/UL 62368-1, IEC 60950-1

1. For the MGate MB3480, the two screws provided with the wall-mounting kit must be used to fasten the kit to the bottom of the MGate, and the MGate must be properly attached to the terminal block for power input.

MTBF

Time	MGate MB3180: 2,762,384 hrs MGate MB3280: 749,455 hrs MGate MB3480: 1,213,993 hrs
Standards	Telcordia Standard SR-332

Warranty

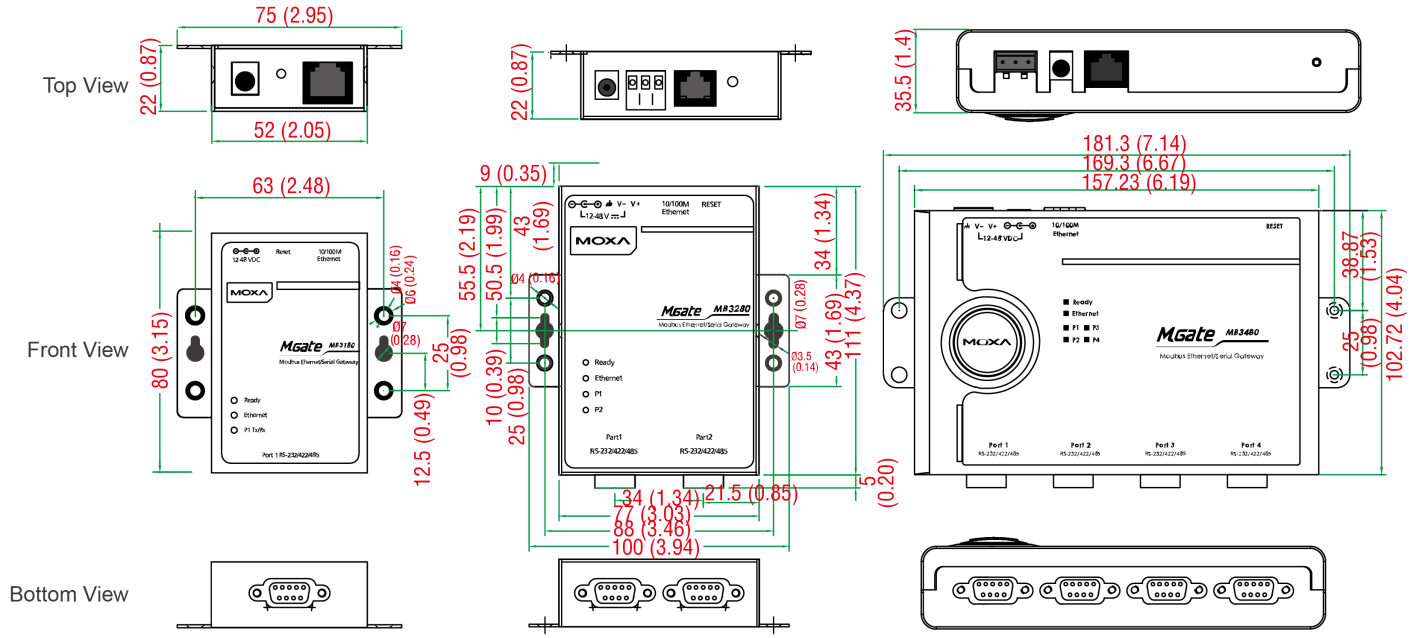
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x MGate MB3180/MB3280/MB3480 Series gateway
Power Supply	1 x power adapter, suitable for your region
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)



Ordering Information

Model Name	No. of Serial Ports
MGate MB3180	1
MGate MB3280	2
MGate MB3480	4

Accessories (sold separately)

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

DIN-Rail Mounting Kits

DK35A	DIN-rail mounting kit, 35 mm

Wall-Mounting Kits

WK-35-01	Wall-mounting kit with 2 plates (35 x 44 x 2.5 mm) and 6 screws