

# 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)<br>Modbus TCP Server (Slave)  |
| Configuration Options | All models: Web Console (HTTP), Device Search Utility (DSU), MGate Manager, MCC Tool, Telnet Console<br>MGate MB3280/MB3480: Web Console (HTTPS) |

|                 |  |
|-----------------|--|
| Management      | All models: ARP, DHCP Client, DNS, HTTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, ICMP<br>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<br>AES-128<br>AES-256<br>SHA-256          |
| Security Protocols | SNMPv3<br>HTTPS (TLS 1.2) (except MGate MB3180) |

#### Serial Interface

|                                   |   |
|-----------------------------------|---|
| No. of Ports                      | MGate MB3180: 1<br>MGate MB3280: 2<br>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<br>Even<br>Odd<br>Space<br>Mark                  |
| Stop Bits                         | 1, 2  |
| Flow Control                      | DTR/DSR<br>RTS Toggle (RS-232 only)<br>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<br>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<br>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<br>MGate MB3280: 250 mA @ 12 VDC<br>MGate MB3480: 365 mA @ 12 VDC |
| Power Connector | MGate MB3180: Power jack<br>MGate MB3280/MB3480: Power jack and terminal block                  |

## Physical Characteristics

|                           |   |
|---------------------------|---|
| Housing                   | Metal   |
| IP Rating                 | IP30 <sup>1</sup>   |
| Dimensions (with ears)    | MGate MB3180: 22 x 75 x 80 mm (0.87 x 2.95 x 3.15 in)<br>MGate MB3280: 22 x 100 x 111 mm (0.87 x 3.94 x 4.37 in)<br>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)<br>MGate MB3280: 22 x 77 x 111 mm (0.87 x 3.03 x 4.37 in)<br>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)<br>MGate MB3280: 360 g (0.79 lb)<br>MGate MB3480: 740 g (1.63 lb)   |

## Environmental Limits

|  |   |
|--|---|
| Operating Temperature                  | MGate MB3180: 0 to 55°C (32 to 131°F)<br>MGate MB3280: 0 to 60°C (32 to 140°F)<br>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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV (MB3180/MB3280)<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 2 kV (MB3480)<br>IEC 61000-4-6 CS: 3 V<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |
| Safety | MGate MB3180: EN 62368-1, UL 60950-1<br>MGate MB3280: IEC/UL 62368-1, IEC/UL 60950-1<br>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<br>MGate MB3280: 749,455 hrs<br>MGate MB3480: 1,213,993 hrs |
|------|---|

## Standards

Telcordia Standard SR-332

## Warranty

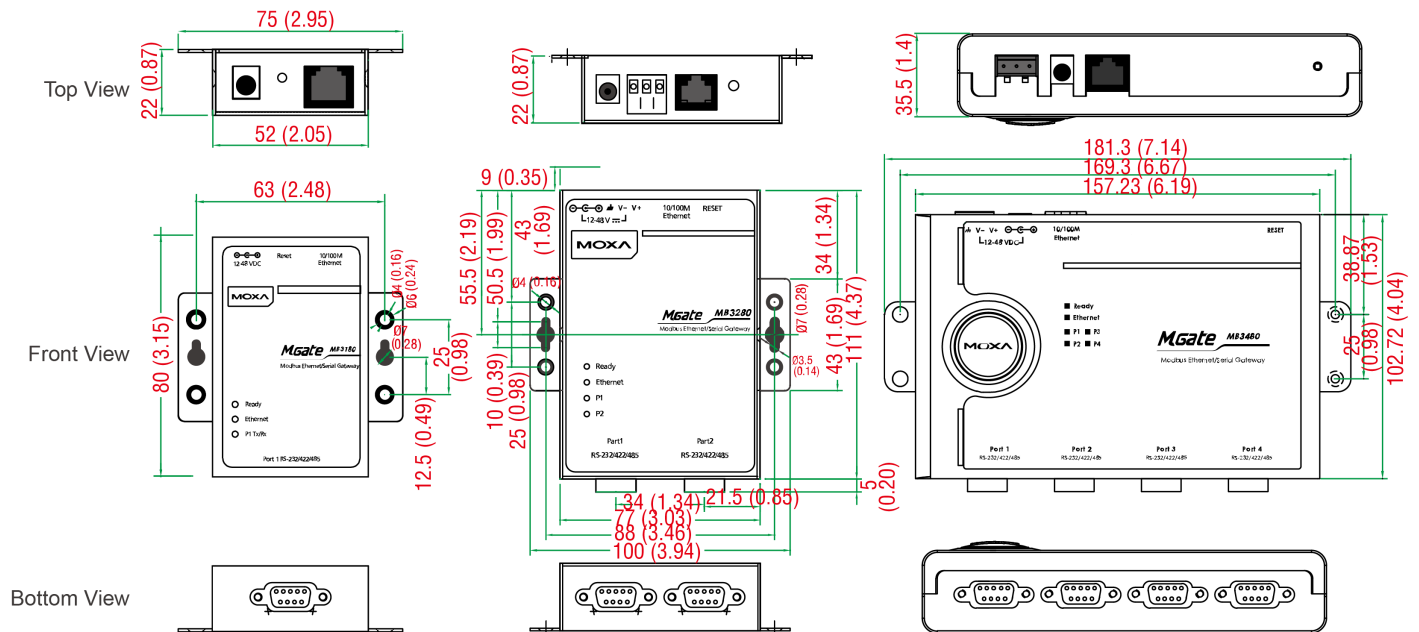
|                 |  |
|-----------------|--|
| Warranty Period | 5 years  |
| Details         | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |

## 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<br>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 |
|----------|---|

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