



MGate MB3170 and MB3270

Quick Installation Guide

Seventh Edition, July 2015

Overview

The MGate MB3170 and MB3270 are 1 and 2-port advanced Modbus gateways that convert between Modbus TCP and Modbus ASCII/RTU protocols. They can be used to allow Ethernet masters to control serial slaves, or to allow serial masters to control Ethernet slaves. Up to 16 TCP masters and 31 serial slaves can be connected simultaneously.

Package Checklist

Before installing the MGate MB3170 or MB3270, verify that the package contains the following items:

- MGate MB3170 or MB3270 Modbus gateway
- Document & Software CD
- Quick Installation Guide
- Product Warranty Statement

Optional Accessories:

- **DK-35A:** DIN-rail mounting kit (35 mm)
- **Mini DB9F-to-TB Adaptor:** DB9 female to terminal block adapter
- **DR-4524:** 45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC input
- **DR-75-24:** 75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC input
- **DR-120-24:** 120W/5A DIN-rail 24 VDC power supply with 88 to 132 VAC/176 to 264 VAC input by switch

Please notify your sales representative if any of the above items is missing or damaged.

Hardware Introduction

LED Indicators

| Name | Color | Function |
|----------|-------|--|
| PWR1 | Red | Power is being supplied to the power input |
| PWR2 | Red | Power is being supplied to the power input |
| RDY | Red | Steady: Power is on and the unit is booting up |
| | | Blinking: IP conflict, DHCP or BOOTP server did not respond properly, or a relay output occurred |
| | Green | Steady: Power is on and the unit is functioning normally |
| | | Blinking: Unit is responding to locate function |
| | Off | Power is off or power error condition exists |
| Ethernet | Amber | 10 Mbps Ethernet connection |
| | Green | 100 Mbps Ethernet connection |
| | Off | Ethernet cable is disconnected or has a short |
| P1, P2 | Amber | Serial port is receiving data |
| | Green | Serial port is transmitting data |
| | Off | Serial port is not transmitting or receiving data |
| FX | Amber | Steady on: Ethernet fiber connection, but port is idle. |
| | | Blinking: Fiber port is transmitting or receiving data. |

Reset Button

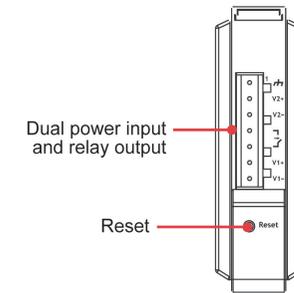
Press the Reset button continuously for 5 sec to load factory defaults:

The reset button is used to load factory defaults. Use a pointed object such as a straightened paper clip to hold the reset button down for five seconds. Release the reset button when the Ready LED stops blinking.

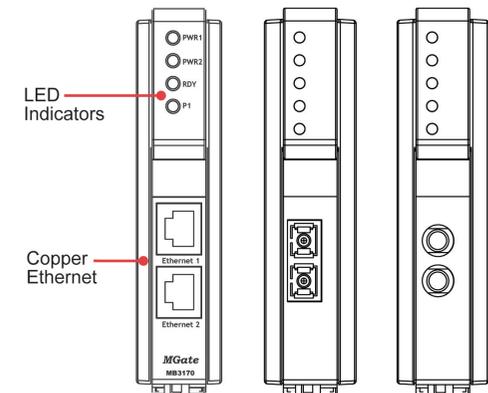
Panel Layouts

The MGate MB3170 has a male DB9 port and a terminal block for connecting to serial devices. The MGate MB3270 has two DB9 connectors for connecting to serial devices.

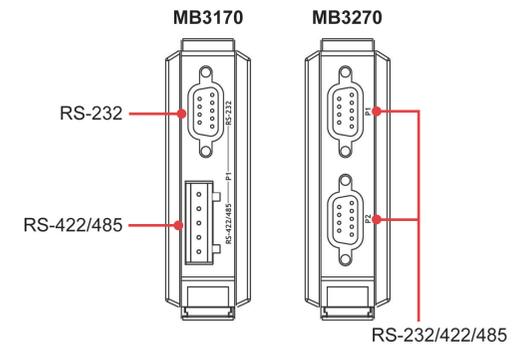
Top View



Front View



Bottom View



P/N: 1802031700014



Hardware Installation Procedure

STEP 1: Use a standard straight-through Ethernet (fiber) cable to connect the unit to a network hub or switch.

STEP 2: Connect your device to the unit's serial port.

STEP 3: Mount the unit on a DIN-rail.

STEP 4: Connect the power source to power input.

Software Installation Information

To install MGate Manager, insert the MGate Documentation and Software CD into your PC's CD-ROM drive, and then run the following setup program to begin the installation process from the "Software" directory:

MGM_Setup_[Version]_Build_[DateTime].exe

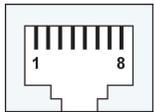
The filename of the latest version may have the following format:

MGM_Setup_Verx.x.x_Build_xxxxxxxx.exe.

For detailed information about MGate Manager, refer to the MGate MB3000 User's Manual, which can be found in the "Document" directory.

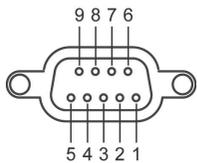
Pin Assignments

Ethernet Port (RJ45)



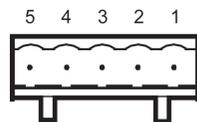
| Pin | Signal |
|-----|--------|
| 1 | Tx+ |
| 2 | Tx- |
| 3 | Rx+ |
| 6 | Rx- |

Serial Port (Male DB9)



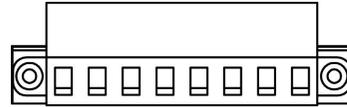
| Pin | RS-232 |
|-----|--------|
| 1 | DCD |
| 2 | RxD |
| 3 | TxD |
| 4 | DTR |
| 5 | GND |
| 6 | DSR |
| 7 | RTS |
| 8 | CTS |
| 9 | - |

Serial Port (Terminal Block)



| Pin | RS-422 RS-485 (4W) | RS-485 (2W) |
|-----|-----------------------|-------------|
| 1 | TxD-(A) | - |
| 2 | TxD+(B) | - |
| 3 | RxD+(B) | Data+(B) |
| 4 | RxD-(A) | Data-(A) |
| 5 | GND | GND |

Power Input and Relay Output Pinouts



| | V2+ | V2- | | | | V1+ | V1- |
|-----------------|------------------|------------------|------|--------|------|------------------|------------------|
| Shielded Ground | DC Power Input 1 | DC Power Input 1 | N.O. | Common | N.C. | DC Power Input 2 | DC Power Input 2 |

Optical Fiber Interface

| | 100BaseFX | |
|------------------|--|--------------------|
| | Multi-mode | Single-mode |
| Wavelength | 1300 nm | 1310 nm |
| Max. TX | -14 dBm | 0 dBm |
| Min. TX | -20 dBm | -5 dBm |
| RX Sensitivity | -32 dBm | -34 dBm |
| Link Budget | 12 dB | 29 dB |
| Typical Distance | 5 km ^a 4 km ^b | 40 km ^c |
| Saturation | -6 dBm | -3 dBm |

- 50/125 μm, 800 MHz*km fiber optic cable
- 62.5/125 μm, 500 MHz*km fiber optic cable
- 9/125 μm, 3.5 PS/(nm*km) fiber optic cable

Specifications

Power Requirements

| | |
|-----------------------|---|
| Power Input | 12 to 48 VDC |
| Power Consumption | |
| MB3170: | 435 mA @ 12 V, 218 mA @ 24 V, 109 mA @ 48 V |
| MB3170I: | 555 mA @ 12 V, 278 mA @ 24 V, 138 mA @ 48 V |
| MB3270: | 435 mA @ 12 V, 218 mA @ 24 V, 109 mA @ 48 V |
| MB3270I: | 510 mA @ 12 V, 255 mA @ 24 V, 128 mA @ 48 V |
| Operating Temperature | 0 to 60°C (32 to 140°F), -40 to 75°C (-40 to 167°F) for -T model |
| Storage Temperature | -40 to 85°C (-40 to 185°F) |
| Operating Humidity | 5 to 95% RH |
| Magnetic Isolation | 2 kV (for "I" models) |
| Protection (serial) | |
| Dimensions | |
| Without ears: | 29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in) |
| With ears extended: | 29 x 89.2 x 124.5 mm (1.14 x 3.51 x 4.90 in) |

| | |
|--------------------|--|
| Relay Output | 1 digital relay output to alarm (normal close): current carrying capacity 1 A @ 30 VDC |
| Hazardous Location | UL/cUL Class 1 Division 2 Group A/B/C/D, ATEX Zone 2, IECEx |

ATEX and IECEx Information



- DEMKO Certification number: 07 ATEX 0690059X IEC Certification Number: IECEx UL 13.0023X (only for models with suffix -CT or -IEX)
- Ambient Temperature Range (-40°C ≤ Tamb ≤ 75°C)
- Certification String: Ex nA IIC T3 Gc
- Standards Covered: EN 60079-0:2012/IEC 60079-0 6th Ed. AND EN 60079-15:2010/IEC 60079-15 4th Ed.
- The conditions of safe usage:
 - The Ethernet Communications Devices are intended for mounting in a tool-accessible IP54 enclosure and used in an area of not more than pollution degree 2 as defined by IEC 60664-1.
 - Conductors suitable for use in an ambient temperature greater than 114°C must be used for the power supply terminal.
 - A 4mm² conductor must be used when connection to the external grounding screw is utilized.
 - Provisions shall be made, either in the equipment or external to the equipment, to prevent the peak rated voltage being exceeded by the transient disturbances of more than 140%.

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