

Moxa MGATE MB3180

Moxa MGate MB3180 User Manual

Model: MGATE MB3180 | Brand: Moxa

1. PRODUCT OVERVIEW

The Moxa MGate MB3180 is a high-performance 1-port Modbus TCP to Serial communication gateway. It is designed to seamlessly convert between Modbus TCP and Modbus RTU/ASCII protocols, enabling communication between Ethernet-based Modbus TCP devices and serial Modbus RTU/ASCII devices. This gateway is ideal for industrial control systems, PLCs, SCADA systems, and various serial devices requiring network connectivity.

Key Features:

- Supports Auto-Device Routing for simplified configuration.
- Easy hardware setup and configuration.
- Enables routing by TCP port or IP address for flexible deployment.
- Facilitates conversion between Modbus TCP and Modbus RTU/ASCII.
- Equipped with 1 Ethernet port and 1 RS-232/422/485 port.
- Supports up to 16 simultaneous TCP masters with up to 32 simultaneous requests per master.



Figure 1: Top-down view of the Moxa MGate MB3180 Modbus Gateway, showing the Ethernet port, power input, and LED indicators.

2. SETUP GUIDE

This section provides instructions for the initial setup of your MGate MB3180 gateway. Ensure all necessary cables and power supplies are available before proceeding.

2.1 Hardware Connections

1. **Power Connection:** Connect a 12-48 VDC power supply to the power input terminal block on the gateway. Ensure the power source matches the specified voltage range.
2. **Ethernet Connection:** Connect an Ethernet cable from your network switch or PC to the 10/100M Ethernet port on the gateway.
3. **Serial Connection:** Connect your serial device (e.g., PLC, RTU) to the RS-232/422/485 port (DB9 connector) on the gateway. Ensure the correct wiring for your specific serial standard (RS-232, RS-422, or RS-485).



Figure 2: Front view of the Moxa MGate MB3180, highlighting the RS-232/422/485 serial port and the Ethernet port.

2.2 Initial Configuration

After connecting the hardware, you can access the gateway's web-based management interface for initial configuration. Refer to the detailed software manual for IP address setup, Modbus mapping, and other advanced settings. The device supports easy configuration and can often be integrated into existing setups by simply adjusting the baud rate and IP address.

3. OPERATION

The MGate MB3180 operates as a protocol converter, allowing Modbus TCP masters to communicate with Modbus RTU/ASCII slaves, and vice-versa. Its primary function is to bridge the communication gap between Ethernet and serial networks.

3.1 Modbus Protocol Conversion

- The gateway transparently converts Modbus TCP requests from Ethernet masters into Modbus RTU/ASCII requests for serial slaves.
- Conversely, it converts Modbus RTU/ASCII responses from serial slaves back into Modbus TCP responses for Ethernet masters.
- This conversion process ensures data integrity and proper communication between disparate Modbus networks.

3.2 Routing and Master/Slave Configuration

- **Auto-Device Routing:** The gateway can automatically detect and route Modbus requests to the correct serial device, simplifying network setup.
- **Flexible Deployment:** Supports routing based on TCP port or IP address, allowing for versatile network architectures.
- **Simultaneous Connections:** The device can handle up to 16 simultaneous TCP masters, each capable of managing up to 32 simultaneous requests.

4. MAINTENANCE

The MGate MB3180 is designed for robust and reliable operation with minimal maintenance. However, periodic checks can help ensure optimal performance and longevity.

- **Firmware Updates:** Periodically check the Moxa website for firmware updates. Keeping the firmware up-to-date can provide new features, performance improvements, and security enhancements.
- **Environmental Checks:** Ensure the operating environment remains within specified temperature and humidity ranges. Keep the device free from dust and debris.
- **Cable Integrity:** Inspect all connected cables (power, Ethernet, serial) for any signs of wear or damage. Replace damaged cables immediately.
- **LED Indicators:** Regularly observe the LED indicators (Ready, Ethernet, P1) to confirm normal operation. Refer to the full manual for detailed LED status interpretations.

5. TROUBLESHOOTING

This section addresses common issues you might encounter with the MGate MB3180. For more complex problems, refer to the comprehensive troubleshooting guide available on the Moxa support website.

5.1 Common Issues and Solutions

- **Device Not Responding / No Power:**
 - Verify the power supply is correctly connected and within the 12-48 VDC range.
 - Check the power LED indicator. If off, troubleshoot power source or cable.
- **Network Connectivity Issues:**

- Ensure the Ethernet cable is securely connected to both the gateway and the network device.
- Check the Ethernet LED indicator. If it's not blinking or solid, there might be a link issue.
- Verify the IP address settings of the gateway and ensure it's on the same subnet as your network.

- **Serial Communication Failure:**

- Confirm the serial cable wiring matches the selected RS-232/422/485 standard.
- Verify the serial port settings (baud rate, data bits, parity, stop bits) on both the gateway and the serial device.
- Ensure the Modbus master/slave settings are correctly configured on the gateway.

- **Password Issues / Login Problems:**

- If you cannot change the password or are repeatedly prompted, try updating the firmware and then performing a factory reset. Reconfigure the device after the reset.

- **Non-Intuitive Modbus Master/Slave Settings:**

- Refer to the detailed software configuration manual for comprehensive explanations and examples of Modbus master/slave settings.

6. TECHNICAL SPECIFICATIONS

Specification	Value
Brand	Moxa
Model Number	MGATE MB3180
Item Weight	9.6 ounces
Package Dimensions	8.31 x 6.06 x 2.91 inches
Manufacturer	Moxa Inc.
ASIN	B00KNQ2G2Q
Date First Available	June 16, 2014
Hardware Interface	Ethernet
Compatible Devices	Industrial control systems, PLCs, SCADA systems, serial devices, Ethernet-enabled devices
UPC	613739924228, 888063199547

7. WARRANTY AND SUPPORT

Moxa products are built for reliability and come with a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the warranty information provided with your product packaging or visit the official Moxa website.

For technical support, product documentation, and software downloads, please visit the Moxa support portal. You can find detailed FAQs, troubleshooting guides, and contact information for customer service.

Note: Always refer to the latest documentation available on the manufacturer's website for the most up-to-date information regarding your device.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question