

## Moxa MGATE MB3170

# Moxa MGATE MB3170-1 Port Modbus TCP to Serial Communication Gateway User Manual

Model: MGATE MB3170 | Brand: Moxa

## 1. INTRODUCTION

The Moxa MGATE MB3170 is a high-performance, 1-port advanced Modbus gateway designed to seamlessly connect Modbus TCP/IP networks with Modbus RTU/ASCII serial devices. This robust industrial communication gateway operates reliably in temperatures ranging from 0 to 60°C, making it suitable for various industrial automation environments. It facilitates efficient data exchange between Ethernet-based Modbus TCP masters/slaves and serial-based Modbus RTU/ASCII slaves, enhancing system integration and control.



Figure 1: Front view of the Moxa MGATE MB3170 Modbus Gateway, showing LED indicators, Ethernet ports, and the Moxa branding.

## 2. KEY FEATURES

- Supports Auto Device Routing for easy configuration, simplifying the setup process for complex Modbus networks.
- Supports routing by TCP port or IP address, providing flexible deployment options to suit various network architectures.
- Connects up to 32 Modbus TCP servers, enabling extensive integration capabilities within a TCP/IP network.
- Connects up to 31 or 62 Modbus RTU/ASCII slaves, offering broad compatibility with serial Modbus devices.
- Accessed by up to 32 Modbus TCP clients, retaining 32 Modbus requests for each Master, ensuring efficient and reliable communication.

### 3. SETUP GUIDE

Follow these steps to set up your MGATE MB3170 gateway:

1. **Unpack and Inspect:** Carefully remove the gateway from its packaging. Inspect for any visible damage. Ensure all components are present.
2. **Mounting:** The MGATE MB3170 is designed for DIN-rail mounting. Securely attach the gateway to a standard DIN rail in your control cabinet.
3. **Power Connection:** Connect a 12-48 VDC power supply to the terminal block labeled "PWR" on the top of the device. Ensure correct polarity. The PWR1 and PWR2 LEDs should illuminate upon successful power-up.
4. **Ethernet Connection:** Connect an Ethernet cable from your network switch or PC to either of the "Ethernet 1" or "Ethernet 2" ports on the front panel.
5. **Serial Connection:** Connect your Modbus RTU/ASCII serial device(s) to the serial port terminal block. Refer to the device's pinout for correct wiring (RS-232/422/485).
6. **Initial Configuration:** Access the gateway's web-based management interface via its default IP address (refer to the quick installation guide for default settings). Configure network settings, Modbus mapping, and serial port parameters as required for your application.



Figure 2: Angled view of the Moxa MGATE MB3170, highlighting its compact design and connectivity options for integration into industrial setups.

### 4. OPERATING INSTRUCTIONS

The MGATE MB3170 acts as a protocol converter, allowing Modbus TCP clients to communicate with Modbus RTU/ASCII slaves, and vice-versa. Once configured, the gateway operates autonomously.

- **Modbus TCP Master to RTU/ASCII Slave:** Modbus TCP requests from a client (master) on the Ethernet network are received by the gateway. The gateway converts these requests into Modbus RTU/ASCII format and sends them to the

designated serial slave device. Responses from the serial slave are then converted back to Modbus TCP and sent to the client.

- **Modbus RTU/ASCII Master to TCP Slave:** (If configured for this mode) The gateway can also act as a Modbus TCP slave, allowing a serial Modbus RTU/ASCII master to communicate with Modbus TCP devices.
- **LED Indicators:**
  - **PWR1/PWR2:** Solid green indicates power is supplied.
  - **RDY:** Solid green indicates the gateway is ready and operating normally. Blinking may indicate a fault or boot-up sequence.
  - **P1 (Serial Port):** Blinking indicates data transmission/reception on the serial port.
  - **Ethernet Link/Activity LEDs:** Located on the Ethernet ports, indicate network link status and data activity.

For detailed operation modes and advanced configurations, refer to the comprehensive user manual available on the Moxa website.

## 5. MAINTENANCE

To ensure optimal performance and longevity of your MGATE MB3170, consider the following maintenance practices:

- **Firmware Updates:** Periodically check the Moxa website for firmware updates. Applying the latest firmware can improve performance, add features, and address security vulnerabilities.
- **Cleaning:** Keep the device clean and free from dust and debris. Use a soft, dry cloth for external cleaning. Do not use liquid cleaners or solvents.
- **Environmental Check:** Ensure the operating environment remains within the specified temperature (0 to 60°C) and humidity ranges. Avoid exposing the device to excessive vibration or direct sunlight.
- **Cable Integrity:** Regularly inspect all connected cables (power, Ethernet, serial) for signs of wear or damage. Replace any compromised cables immediately.

## 6. TROUBLESHOOTING

If you encounter issues with your MGATE MB3170, refer to the following common troubleshooting steps:

- **No Power (PWR LEDs Off):**
  - Verify the power supply is connected correctly and providing the specified voltage (12-48 VDC).
  - Check the power cable for damage.
- **RDY LED Not Solid Green:**
  - The device may be booting up; wait a few moments.
  - If it remains off or blinking erratically, try power cycling the device.
  - If the issue persists, a hardware fault may be present.
- **No Network Connectivity:**
  - Check Ethernet cable connections and ensure they are securely plugged into the gateway and network switch/PC.
  - Verify the Ethernet link/activity LEDs on the gateway are active.
  - Confirm the gateway's IP address, subnet mask, and gateway settings are correct and match your network configuration.
  - Ping the gateway's IP address from a connected computer.
- **Modbus Communication Errors:**
  - Verify serial port settings (baud rate, data bits, parity, stop bits) on the gateway match those of the connected serial

device.

- Check serial cable wiring (RS-232/422/485) for correct pinout and termination.
- Ensure Modbus mapping and routing rules are correctly configured in the gateway's web interface.
- Confirm the Modbus slave ID is correctly set and unique for each serial device.

If these steps do not resolve the issue, please contact Moxa technical support for further assistance.

## 7. TECHNICAL SPECIFICATIONS

| Feature                         | Specification            |
|---------------------------------|--------------------------|
| Product Dimensions              | 3.51 x 1.14 x 4.9 inches |
| Item Weight                     | 9.6 ounces               |
| ASIN                            | B00KNQ2HOI               |
| Item model number               | MGATE MB3170             |
| Manufacturer                    | Moxa Americas, Inc       |
| Brand                           | Moxa                     |
| Model Name                      | MGATE MB3170             |
| Special Feature                 | WPS                      |
| Frequency Band Class            | Single-Band              |
| Wireless Communication Standard | 802.11ac                 |
| Compatible Devices              | Personal Computer        |
| Frequency                       | 5 GHz                    |
| Recommended Uses For Product    | Industrial Automation    |
| Connectivity Technology         | Ethernet                 |
| Antenna Type                    | Internal                 |
| Operating Temperature           | 0 to 60°C                |

## 8. WARRANTY AND SUPPORT

The Moxa MGATE MB3170 is manufactured by Moxa Americas, Inc. 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, troubleshooting assistance beyond this manual, or inquiries regarding product service, please contact Moxa's customer support directly through their official website or designated support channels. Provide your product model number (MGATE MB3170) and any relevant serial numbers when seeking support.

**Moxa Americas, Inc.**

[www.moxa.com](http://www.moxa.com)

## 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**