

MOXA MGate 4101I-MB-PBS-T

MOXA MGate 4101I-MB-PBS-T Instruction Manual

1-Port Modbus RTU/ASCII-PROFIBUS Slave Gateway

1. PRODUCT OVERVIEW

The MOXA MGate 4101I-MB-PBS-T is a 1-port Modbus RTU/ASCII-PROFIBUS Slave Gateway designed for industrial automation applications. It facilitates seamless protocol conversion between Modbus and PROFIBUS devices, enabling remote maintenance capabilities for Programmable Logic Controllers (PLCs), such as Siemens S400 and S300 PLCs.

This robust device features a DIN Rail Mount type design with a durable metal casing, ensuring reliability in harsh industrial environments. It also incorporates 2kV serial isolation for enhanced signal integrity and protection.

Key Features:

- Protocol conversion between Modbus and PROFIBUS.
- Windows utility with advanced QuickLink function for automatic setup.
- Supports redundant dual DC power input and relay output for enhanced reliability.
- Data Packet Analyzer Incorporation for network diagnostics.
- Powerful visual diagnostic tool for system monitoring.



Figure 1: Angled view of the MOXA MGate 4101-MB-PBS-T, showcasing its compact design, LED indicators, and various ports including Console, Modbus, and PROFIBUS.

2. SETUP AND INSTALLATION

This section provides general guidelines for setting up your MGate 4101-MB-PBS-T gateway. For detailed instructions, refer to the comprehensive installation guide available on the MOXA official website.

2.1. Unpacking and Inspection

Carefully unpack the gateway and inspect it for any signs of damage during transit. Ensure all components listed in the packing list are present. If any items are missing or damaged, contact your vendor immediately.

2.2. Mounting

The MGate 4101-MB-PBS-T is designed for DIN Rail mounting. Securely attach the device to a standard DIN rail in your industrial control cabinet. Ensure adequate ventilation around the unit to prevent overheating.

2.3. Power Connection

Connect the device to a suitable DC power source. The gateway supports redundant dual DC power input,

enhancing system reliability. Connect both PWR1 and PWR2 inputs to ensure continuous operation in case one power source fails.

2.4. Data Connections

Connect your Modbus devices to the P1 Modbus port and your PROFIBUS devices to the P2 PROFIBUS port. Use appropriate cabling for each protocol. The Console port (RS-232) can be used for initial configuration and diagnostics.



Figure 2: Front view of the MGate 4101-MB-PBS-T, clearly showing the PWR1, PWR2, Ready, P1 TX/RX, and P2 Status LEDs, along with the Console (RJ45), Modbus (DB9), and PROFIBUS (DB9) ports.

2.5. Initial Configuration

Utilize the provided Windows utility with its advanced QuickLink function for automatic setup and initial configuration of the gateway. This utility simplifies the process of setting up communication parameters for both Modbus and PROFIBUS networks.

3. OPERATING INSTRUCTIONS

Once the MGate 4101I-MB-PBS-T is properly installed and configured, it will begin converting protocols between the connected Modbus and PROFIBUS networks. The LED indicators on the front panel provide real-time status information.

3.1. LED Indicators

- **PWR1/PWR2:** Indicate the status of the primary and redundant power inputs.
- **Ready:** Indicates the device is powered on and operating correctly.
- **P1 TX/RX:** Flashes to indicate data transmission (TX) and reception (RX) activity on the Modbus port.
- **P2 Status:** Indicates the operational status of the PROFIBUS port.

3.2. Data Monitoring and Diagnostics

The gateway incorporates a Data Packet Analyzer and a powerful visual diagnostic tool. These features allow users to monitor data flow, analyze network traffic, and diagnose communication issues efficiently. Access these tools via the configuration utility.

4. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your MGate 4101I-MB-PBS-T gateway.

4.1. Cleaning

Periodically clean the exterior of the device with a soft, dry cloth. Do not use liquid or aerosol cleaners. Ensure the ventilation openings are free from dust and debris.

4.2. Firmware Updates

Check the MOXA official website regularly for firmware updates. Applying the latest firmware can improve performance, add new features, and resolve potential issues. Follow the instructions provided with the firmware update package carefully.

4.3. Power Supply Check

Verify the stability and voltage of the connected DC power supplies periodically, especially if utilizing the redundant power input feature.

5. TROUBLESHOOTING

This section provides basic troubleshooting steps for common issues. For more complex problems, refer to the detailed troubleshooting guide on the MOXA website or contact technical support.

5.1. No Power / Device Not Starting

- Check if the power cables are securely connected to both the gateway and the power source.
- Verify that the power supply is providing the correct voltage and current.
- Ensure the PWR1 and PWR2 LEDs are illuminated. If not, check the power source.

5.2. Communication Issues

- Verify that the Modbus and PROFIBUS cables are correctly connected and not damaged.
- Check the P1 TX/RX and P2 Status LEDs for activity. Lack of activity may indicate a communication problem.
- Ensure that the Modbus and PROFIBUS parameters (e.g., baud rate, parity, slave ID) are correctly configured in the gateway and matching the connected devices.
- Utilize the Data Packet Analyzer and visual diagnostic tool to identify communication errors or malformed

packets.

5.3. Device Unresponsive

- Attempt to restart the device by cycling its power.
- If the device remains unresponsive, a factory reset might be necessary (refer to the full manual for instructions on performing a factory reset).

6. SPECIFICATIONS

Attribute	Value
Model Number	MGate 4101I-MB-PBS-T
Brand	MOXA
Protocol Conversion	Modbus RTU/ASCII to PROFIBUS Slave
Serial Isolation	2kV
Power Input	Redundant Dual DC
Mounting Type	DIN Rail Mount
Operating Temperature	Wide Temperature Model
Package Dimensions	10.9 x 9.5 x 4 cm
Item Weight	175 g
Manufacturer	MOXA
First Available Date	12 May 2022

7. WARRANTY AND SUPPORT

For detailed warranty information regarding your MOXA MGate 4101I-MB-PBS-T, please refer to the official warranty statement provided with your product or visit the MOXA official website. Warranty terms and conditions may vary by region.

For technical support, product documentation, drivers, and firmware updates, please visit the official MOXA support portal. You can typically find contact information for technical assistance on their website.