

MGate™ 4101-MB-PBS Series

1-port Modbus RTU/ASCII-to-PROFIBUS slave gateways



- > Protocol conversion between Modbus and PROFIBUS
- > Windows utilities with innovative QuickLink function for automatic configuration within minutes
- > Redundant dual DC power inputs and relay output supported
- > Embedded data packet analyzer
- > Powerful and visual diagnostic tool
- > -40 to 75°C wide operating temperature models available



Overview

The MGate 4101-MB-PBS gateway provides a communication portal between PROFIBUS PLCs (e.g. Siemens S7-400 and S7-300 PLCs) and Modbus devices. With the QuickLink feature, I/O mapping can be

accomplished within a matter of minutes. All models are protected with a rugged metallic casing, are DIN-rail mountable, and offer optional built-in optical isolation.

QuickLink and Windows Utilities for Easy Setup and Traffic Monitoring

The QuickLink windows utility uses a serial console port to connect to the MGate 4101-MB-PBS and makes configuration and operation as easy as possible. QuickLink can finish the configuration in just a few minutes by passively detecting Modbus requests with the AutoLearning function, and performing error-free I/O mapping with

the AutoMapping feature. QuickLink drastically reduces Modbus-to-PROFIBUS integration time when compared to conventional I/O mapping, which can easily require days to complete. Additionally, embedded monitoring tools can maintain logs of Modbus communication packets and assist in troubleshooting.

Redundant Power Inputs

The MGate 4101-MB-PBS has dual power inputs for greater reliability. The power inputs allow simultaneous connections to two live DC power sources, so that continuous operation is provided even if one

power source fails. The higher level of reliability makes these advanced Modbus-to-PROFIBUS gateways ideal for demanding industrial applications.

Warning by Relay Output

A relay output is provided for the power input status. The relay output gives maintenance engineers an additional tool for troubleshooting and maintenance.

Specifications

PROFIBUS Interface

Protocol: PROFIBUS DP-V0 Slave
Number of Ports: 1
Data Rate: 9600 bps to 12 Mbps
Connector: DB9 female
Isolation: 2 kV (built-in)
DIP Switch: For termination
Rotary Switch: PROFIBUS address 0-99 (address 100-125 supported through software configuration)

Modbus Interface

Protocol: Modbus RTU/ASCII Master/Slave
Number of Ports: 1
Serial Standards: RS-232/422/485, software selectable
Connectors: DB9 male
ESD Protection: 15 kV for all signals

RS-485 Data Direction Control: ADDC® (automatic data direction control)

Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ

Terminator for RS-485: 120 Ω

Data Bits: 7, 8

Stop Bits: 1, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, DTR/DSR (RS-232 only)

Baudrate: 50 bps to 921.6 kbps

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: Tx+, Tx-, Rx+, Rx-, GND

RS-485-4w: Tx+, Tx-, Rx+, Rx-, GND

RS-485-2w: Data+, Data-, GND

Software

Configuration Options: Serial Console, Windows Utility
Utility: MGate Manager for Windows 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows 7/8/8.1 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2
Support: QuickLink, Paging

Physical Characteristics

Housing: Metal, IP30
Weight: 500 g (1.10 lb)
Dimensions: 36 x 105 x 140 mm (1.42 x 4.14 x 5.51 in)

Environmental Limits

Operating Temperature:
 Standard Models: 0 to 60°C (32 to 140°F)
 Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Vibration: IEC 60068-2-6, IEC 60068-2-64
Shock: IEC 60068-2-27
Drop: IEC 60068-2-32

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current:

MGate 4101-MB-PBS: 340 mA @ 12 VDC; 130 mA @ 48 VDC
 MGate 4101I-MB-PBS: 375 mA @ 12 VDC; 140 mA @ 48 VDC

Power Connector: Terminal block

Standards and Certifications

Safety: UL 60950-1, EN 60950-1
Hazardous Location: Class 1 Division 2, ATEX, IECEx
EMC: EN 55032/24
EMI: CISPR 32, FCC Part 15B Class A
EMS:
 IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
 IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
 IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
 IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV
 IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
 IEC 61000-4-8 PFMF

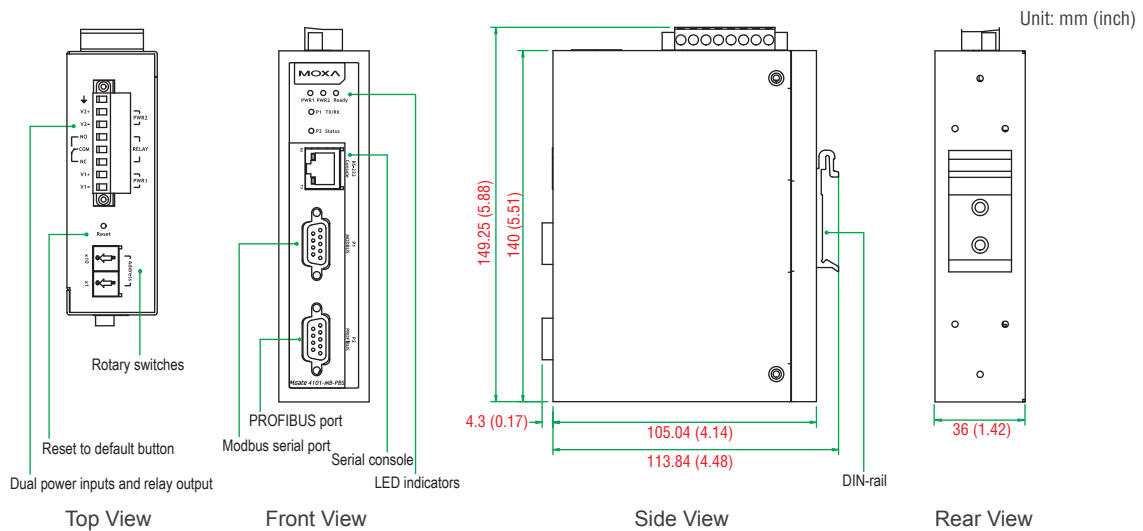
MTBF (mean time between failures)

Time: 513,139 hrs
Standard: Telcordia SR332

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions



Ordering Information

Available Models

MGate 4101-MB-PBS: 1-port Modbus-to-PROFIBUS slave gateway, 12-48 VDC, 0 to 60°C operating temperature
MGate 4101I-MB-PBS: 1-port Modbus-to-PROFIBUS slave gateway with 2 kV isolation, 12-48 VDC, 0 to 60°C operating temperature
MGate 4101-MB-PBS-T: 1-port Modbus-to-PROFIBUS slave gateway, 12-48 VDC, -40 to 75°C operating temperature
MGate 4101I-MB-PBS-T: 1-port Modbus-to-PROFIBUS slave gateway with 2 kV isolation, 12-48 VDC, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

WK-36-02: DIN-rail/wall-mounting kit, 2 plates with 6 screws
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-F9M9-20: DB9 female to DB9 male serial cable, 20 cm
CBL-RJ45SF9-150: RJ45 to DB9 female shielded serial cable, 150 cm
ADP-RJ458P-DB9F: DB9 female to RJ45 connector
A-ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector
Mini DB9F-to-TB: DB9 female to terminal block connector

Package Checklist

- 1 MGate 4101-MB-PBS or 4101I-MB-PBS Modbus-to-PROFIBUS slave gateway
- 1 Serial Cable: CBL-RJ45F9-150
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card