

# 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 S400 and S300 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 configuration in just 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 Slave/Master  
**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

**Utilities:** MGate Manager for Windows 2000/XP/2003/Vista/Server 2008/7/8 (x86/x64), Windows Server 2008 R2/2012 (x64)

**Support:** QuickLink, Paging

### Physical Characteristics

**Housing:** Metal, IP30 protection

**Weight:** 500 g

**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)

**Altitude:** Up to 2000 m (795 hPa), higher altitudes on demand

**Note:** Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

### Power Requirements

**Input Voltage:** 12 to 48 VDC

**Power Connector:** Terminal block

### Power Consumption:

MGate 4101-MB-PBS: 340 mA @ 12 VDC, 130 mA @ 48 VDC

MGate 4101I-MB-PBS: 375 mA @ 12 VDC, 140 mA @ 48 VDC

### Standards and Certifications

**Safety:** UL 60950-1, EN 60950-1

**Hazardous Location:**

UL/cUL Class 1 Division 2 Groups A/B/C/D (Pending),

ATEX Zone 2 Ex nA nC IIC T3 Gc (Pending),

IECEX (Pending)

**EMC:** CE, FCC

**EMI:** EN 55022 Class A, FCC Part 15 Subpart B Class A

**EMS:**

EN 55024,

EN 61000-4-2 (ESD) Level 3,

EN 61000-4-3 (RS) Level 2,

EN 61000-4-4 (EFT) Level 3,

EN 61000-4-5 (Surge) Level 3,

EN 61000-4-6 (CS) Level 2,

EN 61000-4-8 (PFMF) Level 1

**Shock:** IEC 60068-2-27

**Freefall:** IEC 60068-2-32

**Vibration:** IEC 60068-2-6

### Reliability

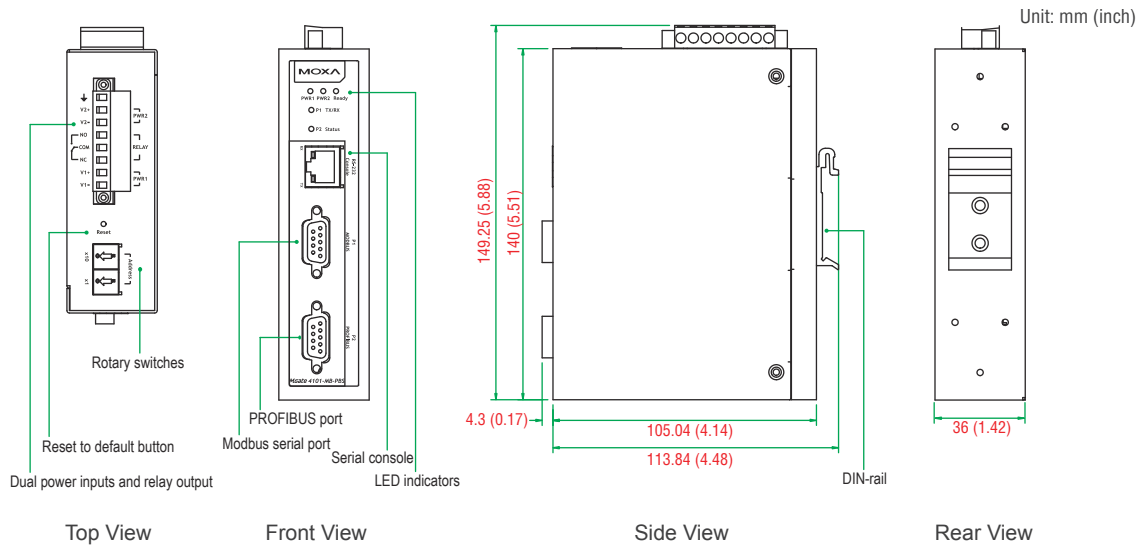
**MTBF (mean time between failures):** 513,139 hrs

### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://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)

**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

**WK-36-02:** Wall mounting kit

### Package Checklist

- 1 MGate 4101-MB-PBS or 4101I-MB-PBS Modbus-to-PROFIBUS slave gateway
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card
- RJ45 to DB9 cable (for console use)