# MGate 4101-MB-PBS Series

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

### Features and Benefits

- Protocol conversion between Modbus and PROFIBUS
- Supports PROFIBUS DP V0 slave
- Supports Modbus RTU/ASCII master and slave
- Windows utilities with innovative QuickLink function for automatic configuration within minutes
- Status monitoring and fault protection for easy maintenance
- Embedded traffic monitoring/diagnostic information for easy troubleshooting
- Supports redundant dual DC power inputs and 1 relay output
- -40 to 75°C wide operating temperature models available
- Serial port with 2 kV isolation protection (for "-I" models)

### Certifications

## Introduction

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 performs 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 connection to 2 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

Serial Interface

| | |
|---|---|
| Console Port | RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1) |
| No. of Ports | 1 |
| Connector | DB9 male |
| Serial Standards | RS-232/422/485 |
| Baudrate | 50 bps to 921.6 kbps |
| Data Bits | 7, 8 |

| | |
|---|---|
| Parity | None, Even, Odd, Space, Mark |
| Stop Bits | 1, 2 |
| Flow Control | DTR/DSR, RTS/CTS |
| RS-485 Data Direction Control | ADDC® (automatic data direction control) |
| Pull High/Low Resistor for RS-485 | 1 kilo-ohm, 150 kilo-ohms |
| Terminator for RS-485 | 120 ohms |
| Isolation | 2 kV (I models) |

### Serial Signals

| | |
|---|---|
| RS-232 | TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND |
| RS-422 | Tx+, Tx-, Rx+, Rx-, GND |
| RS-485-2w | Data+, Data-, GND |
| RS-485-4w | Tx+, Tx-, Rx+, Rx-, GND |

### Serial Software Features

| | |
|---|---|
| Configuration Options | MGate Manager |
| Industrial Protocols | Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave, PROFIBUS DP-V0 Slave |

### Modbus RTU/ASCII

| | |
|---|---|
| Mode | Master, Slave |
| Functions Supported | 1, 2, 3, 4, 5, 6, 15, 16, 23 |
| Max. No. of Commands | 100 |
| Input Data Size | 7744 bytes |
| Output Data Size | 7744 bytes |

### PROFIBUS Interface

| | |
|---|---|
| Industrial Protocols | PROFIBUS DP |
| No. of Ports | 1 |
| Connector | DB9 female |
| Baudrate | 9600 bps to 12 Mbps |
| Isolation | 2 kV (built-in) |
| Signals | PROFIBUS D+, PROFIBUS D-, RTS, Signal Common, 5V |

### PROFIBUS

| | |
|---|---|
| Rotary Switch | PROFIBUS addresses 0-99 (addresses 100-125 supported through software configuration) |
| Mode | DP-V0 Slave |
| Max. No. of Master Connections | 1 |
| Max. No. of PROFIBUS I/O Modules | 24 per page |
| Max. No. of PROFIBUS Pages | 32 |

| | |
|---|---|
| Input Data Size | 7744 bytes |
| Output Data Size | 7744 bytes |

### Power Parameters

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|---|---|
| Input Voltage | 12 to 48 VDC |
| Input Current | MGate 4101I-MB-PBS: 375 mA @ 12 VDC<br>MGate 4101I-MB-PBS-T: 375 mA @ 12 VDC<br>MGate 4101-MB-PBS: 340 mA @ 12 VDC<br>MGate 4101-MB-PBS-T: 340 mA @ 12 VDC |
| Power Connector | Screw-fastened Euroblock terminal |

### Relays

| | |
|---|---|
| Contact Current Rating | Resistive load: 1 A @ 24 VDC |

### Physical Characteristics

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|---|---|
| Housing | Metal |
| IP Rating | IP30 |
| Dimensions | 36 x 105 x 140 mm (1.42 x 4.14 x 5.51 in) |
| Weight | 500 g (1.10 lb) |

### Environmental Limits

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|---|---|
| Operating Temperature | MGate 4101I-MB-PBS: 0 to 60°C (32 to 140°F)<br>MGate 4101I-MB-PBS-T: -40 to 75°C (-40 to 167°F)<br>MGate 4101-MB-PBS: 0 to 60°C (32 to 140°F)<br>MGate 4101-MB-PBS-T: -40 to 75°C (-40 to 167°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

### Standards and Certifications

| | |
|---|---|
| Safety | EN 60950-1, UL 60950-1 |
| EMC | EN 55032/24 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF |
| Hazardous Locations | ATEX, Class I Division 2, IECEx |
| Freefall | IEC 60068-2-32 |
| Shock | IEC 60068-2-27 |
| Vibration | IEC 60068-2-6, IEC 60068-2-64 |

### MTBF

| | |
|---|---|
| Time | 513,139 hrs |
| Standards | Telcordia SR332 |

### Warranty

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

### Package Contents

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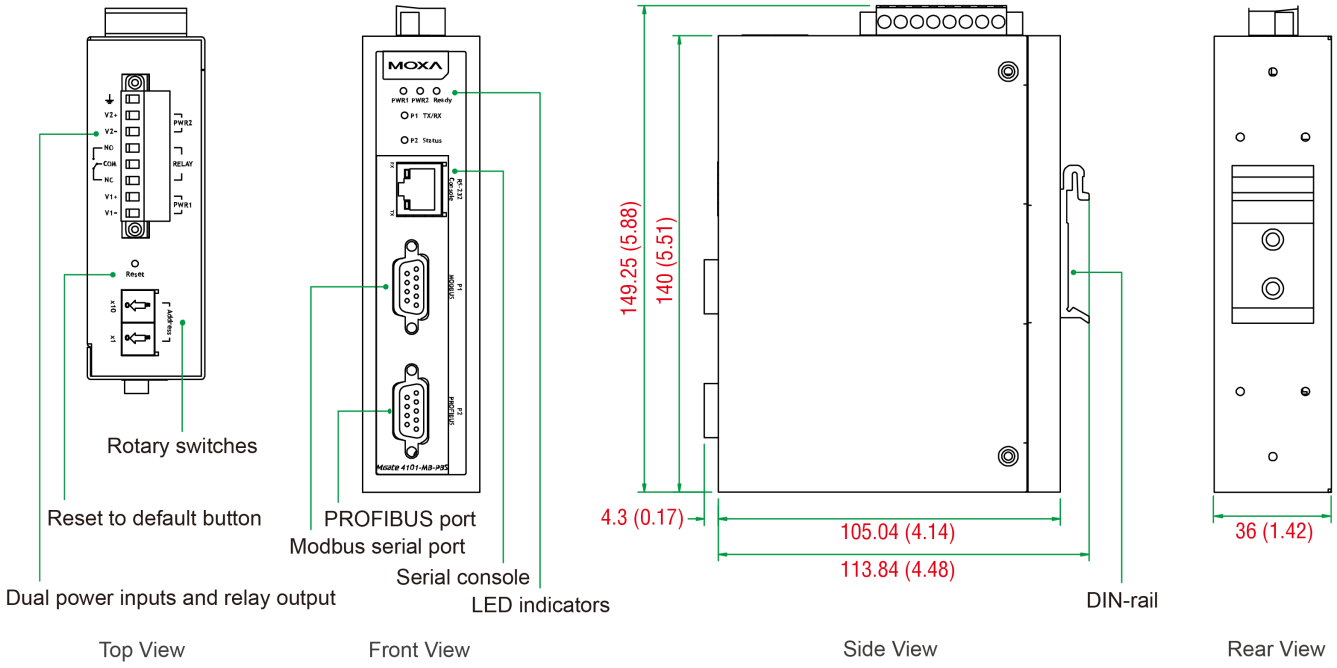
|---|---|
| Device | 1 x MGate 4101-MB-PBS Series gateway |
| Cable | 1 x RJ45-to-DB9 console cable |
| Installation Kit | 1 x DIN-rail kit |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)




## Ordering Information

| Model Name | Serial Isolation | Operating Temp. |
|---|---|---|
| MGate 4101-MB-PBS | – | 0 to 60°C |
| MGate 4101I-MB-PBS | 2 kV | 0 to 60°C |
| MGate 4101-MB-PBS-T | – | -40 to 75°C |
| MGate 4101I-MB-PBS-T | 2 kV | -40 to 75°C |

## Accessories (sold separately)

### Cables

| | |
|---|---|
| CBL-F9M9-150 | DB9 female to DB9 male serial cable, 1.5 m |
| CBL-F9M9-20 | DB9 female to DB9 male serial cable, 20 cm |
| CBL-RJ45F9-150 | RJ45 to DB9 female serial cable, 1.5 m |
| CBL-RJ45SF9-150 | RJ45 to DB9 female serial shielded cable, 1.5 m |

### Connectors

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|---|---|
| Mini DB9F-to-TB | DB9 female to terminal block connector |

### DIN-Rail Mounting Kits

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|---|---|
| DK-25-01 | DIN-rail mounting kit, 2 screws |

### Wall-Mounting Kits

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|---|---|
| WK-36-02 | Wall-mounting kit, 2 plates, 6 screws, 36 x 67 x 2 mm |

### Power Cords

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|---|---|
| CBL-PJTB-10 | Non-locking barrel plug to bare-wire cable |