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

Input Voltage	12 to 48 VDC
Input Current	275 mA @ 12 VDC
Power Connector	Screw-fastened Euroblock terminal

Relays

Contact Current Rating	Resistive load: 1 A @ 24 VDC

Physical Characteristics

Housing	Metal
Dimensions	36 x 105 x 140 mm (1.42 x 4.14 x 5.51 in)
Weight	500 g (1.10 lb)
IP Rating	IP30 Note: It is recommended to attach the M3x3mm Nylok screws at the rear side

Environmental Limits

Operating Temperature	MGate 4101I-MB-PBS: 0 to 60°C (32 to 140°F) MGate 4101I-MB-PBS-T: -40 to 75°C (-40 to 167°F) MGate 4101-MB-PBS: 0 to 60°C (32 to 140°F) 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, EN 62368-1, UL 62368-1
EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 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: 10 V/m; Signal: 10 V/m 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	MGate 4101-MB-PBS Series: 1,537,948 hrs MGate 4101I-MB-PBS Series: 1,315,666 hrs
Standards	Telcordia SR332

Warranty

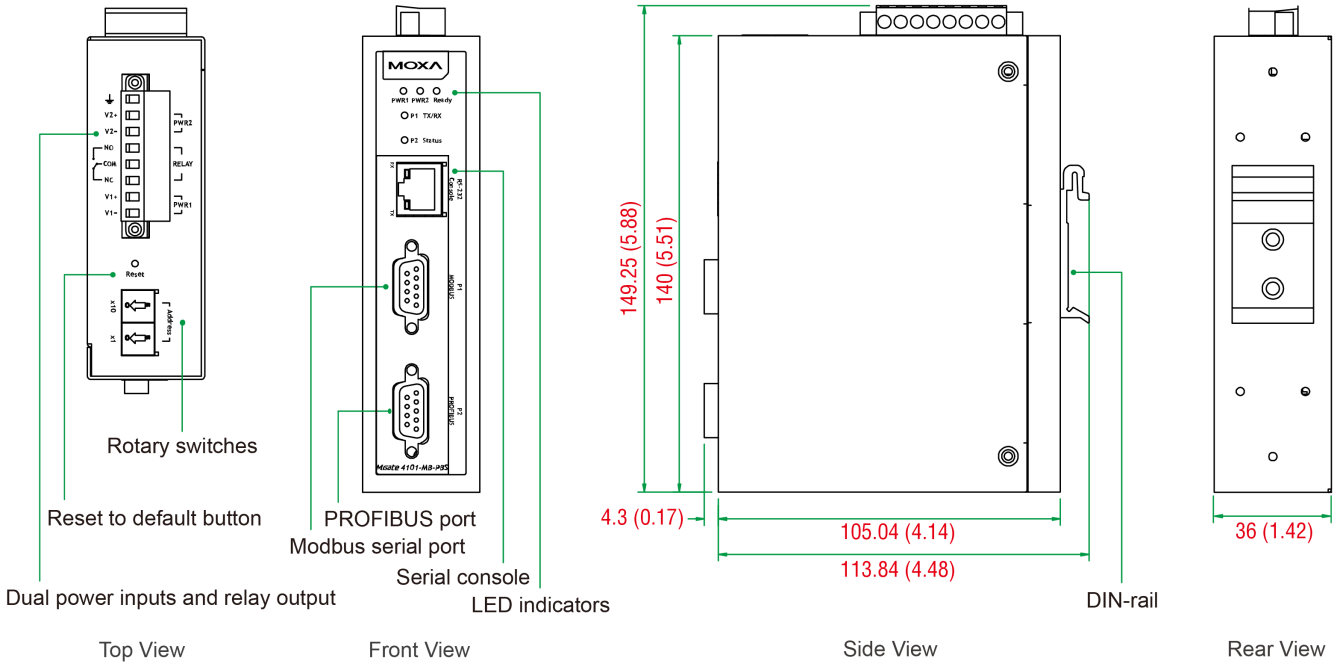
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

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 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

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

DIN-Rail Mounting Kits

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

Wall-Mounting Kits

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

Power Cords

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

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