MGate 4101-MB-PBS
Quick Installation Guide

Fifth Edition, October 2014

Overview

The MGate™ 4101-MB-PBS and 4101I-MB-PBS are 1-port Modbus serial to PROFIBUS slave gateways that provide protocol conversion for users who need to connect Modbus devices to Siemens PLCs.

Package Checklist

Before installing the MGate 4101-MB-PBS or 4101I-MB-PBS, verify that the package contains the following items:

- 1 MGate 4101-MB-PBS or 4101I-MB-PBS Modbus to PROFIBUS slave gateway
- RJ45 to DB9 cable (for use with the console)
- Documentation & Software CD
- Quick Installation Guide
- Product Warranty Statement

Optional Accessories

- **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
- **Mini DB9F-to-TB Adaptor:** DB9 female to terminal block adapter

Please notify your sales representative if any of the above items are missing or damaged.

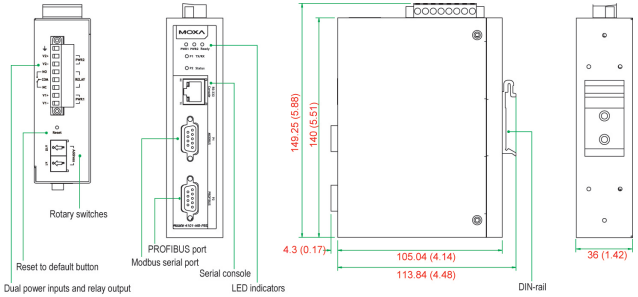
P/N: 1802041010014

Hardware Introduction

LED Indicators

LED	Color	Function
PWR1	Green	Power is on
	Off	Power is off
PWR2	Green	Power is on
	Off	Power is off
Ready	Green	Gateway is operational
	Red	Check Configuration failed or Set Parameter failed
	Off	Power is off or fault condition exists
P1 TX/RX (Modbus Serial)	Green	Serial device is transmitting data
	Orange	Serial device is receiving data
	Off	No data is flowing to or from the serial port
P2 Status (PROFIBUS)	Green	Steady: Gateway is waiting for data exchange Blinking: Data is exchanging
	Orange	Steady: Configuration error Blinking: Error in Parameter data
	Off	PROFIBUS offline or Slave ID is incorrect

The MGate 4101-MB-PBS and 4101I-MB-PBS both come with an RJ45 to DB9 cable for connecting to a serial console.

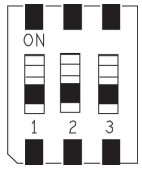


Reset Button

The reset button is used to load factory defaults. Use a pointed object such as a straightened paper clip to hold the reset button down for five seconds. Release the reset button when the Ready LED stops blinking.

Pull-high, Pull-low, and Terminator for RS-485

Remove the MGate 4101-MB-PBS's top cover to adjust the DIP switches for each serial port's pull-high resistor, pull-low resistor, and terminator.



SW	1	2	3
	Pull-high resistor	Pull-low resistor	Terminator
ON	1 kΩ	1 kΩ	120 Ω
OFF	150 kΩ*	150 kΩ*	–*

*Default

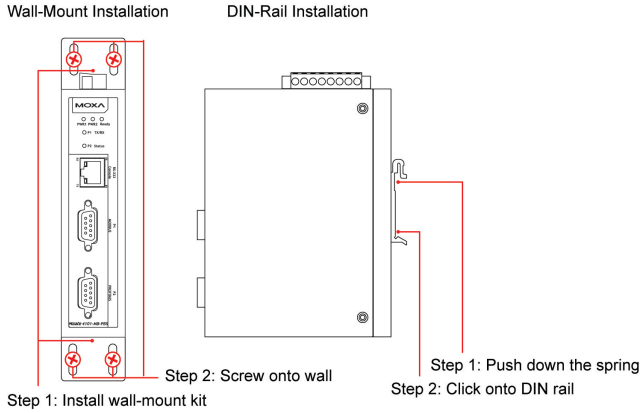
Hardware Installation Procedure

STEP 1: Connect the power adapter. Connect the 12-48 VDC power line with the MGate 4101-MB-PBS/4101I-MB-PBS series' terminal block, or connect the DIN rail power supply with the MGate 4101-MB-PBS/4101I-MB-PBS device's terminal block.

STEP 2: Use a PROFIBUS cable to connect the unit to a PROFIBUS PLC or other PROFIBUS master.

STEP 3: Connect your device to the unit's serial port.

STEP 4: Attach the device to a DIN rail or the wall. The MGate 4101-MB-PBS/4101I-MB-PBS series is designed to be attached to a DIN rail or mounted on a wall. For DIN rail mounting, push down the spring and properly attach it to the DIN rail until it snaps into place. For wall mounting, install the wall mount kit (optional) first, and then screw the device onto the wall. The following figure illustrates the two mounting options:

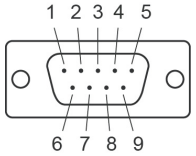


Software Installation Information

To install MGate Manager, insert the MGate Documentation & Software CD into your PC's CD-ROM drive. Once the installation window opens, click the Installation button and follow the onscreen instructions. For more detailed information about MGate Manager, click the Documents button and select the MGate 4101-MB-PBS User's Manual.

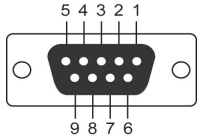
Pin Assignments

Modbus Serial Port (Male DB9)



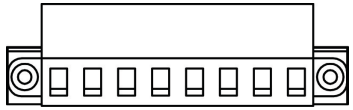
Pin	RS-232	RS-422/RS-485 (4W)	RS-485 (2W)
1	DCD	TxD-(A)	–
2	RXD	TxD+(B)	–
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–
9	–	–	–

PROFIBUS Serial Port (Female DB9)



PIN	Signal Name
1	–
2	–
3	PROFIBUS D+
4	RTS
5	Signal common
6	5V
7	–
8	PROFIBUS D-
9	–

Power Input and Relay Output Pinouts



	V2+	V2-				V1+	V1-
Shielded Ground	DC Power Input 2	DC Power Input 2	N.O.	Common	N.C.	DC Power Input 1	DC Power Input 1

Specifications

Power Requirements	
Power Input	12 to 48 VDC
Power Consumption	375 mA @ 12 VDC, 140 mA @ 48 VDC
Operating Temperature	Standard Model: 0 to 60°C (32 to 140°F) Wide Temp. Model: -40 to 75°C (-40 to 167°F)
Operating Humidity	5 to 95% RH
Dimensions	36 x 105 x 140 mm (1.42 x 4.13 x 5.51 in)
Reliability	
Alert Tools	Built-in buzzer and RTC
MTBF	513,139 hrs

1. ATEX Certificate No.: DEMKO 14 ATEX 1311X
2. Protection Method: ε II 3G Ex nA nC IIC T4 Gc
3. IECEx Certificate No: IECEx UL 14.0065X
4. Standards: EN 60079-0:2012+A11:2013; EN 60079-15:2010; IEC 60079-0 Ed.6; IEC 60079-15 Ed.4.
5. Conditions of safe usage:
   - This equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC/EN 60664-1.
   - This equipment shall be installed in an enclosure that provides a degree of protection not less than IP54 in accordance with IEC/EN 60079-15. The enclosure should only be accessible by using a tool (wrench, screw driver, etc.).
   - Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the equipment's power supply terminals.
   - The Terminal Block (J1) is suitable for 28-12 AWG (0.0804-3.31 mm^2), and a torque of 4.5 lb-in (0.509 N-m). The input terminal cable size is specified as 14 AWG (2.1 mm^2).

   - Terminal blocks must not accommodate more than one individual conductor at a clamping point.
   - Conductors suitable for use in an ambient temperature of 84°C must be used for the Power Supply Terminal.
6. Ambient Temperature:
   -40°C ≤ Ta ≤ +75°C for MGate 4101X-MB-PBS-T models;
   -10°C ≤ Ta ≤ +60°C for MGate 4101X-MB-PBS models.

Terminal Block Torque Value and Wire Gauge:

- Terminal block Header (J1)—Cat. No. 5EHDRM-08P, manufactured by Dinkle Enterprise Co., Ltd. Rated 300 V, 15 A, 105°C, FW-1.
- Terminal block Plug—Cat. No. 5ESDV-04P, manufactured by Dinkle Enterprise Co., Ltd. Rated 300 V, 15 A, 105°C, FW-2, suitable for 28-12 AWG wire size, and torque of 4.5 lb-in.
- The cross sectional area of the earthing conductors shall be 3.31-0.0804 mm^2 (28-12 AWG).
- The earthing conductor shall be at least equal to 14 AWG (2.1 mm^2).

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