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# MOXA MGate 5101-PBM-MN Series Modbus TCP Gateway Installation Guide

**Contents**

**MOXA MGate 5101-PBM-MN Series Modbus TCP Gateway**



## Overview

The MGate 5101-PBM-MN is an industrial Ethernet gateway for PROFIBUS-to-Modbus-TCP network communication.

## Package Checklist

Before installing the MGate 5101-PBM-MN, verify that the package contains the following items

- 1 MGate 5101-PBM-MN gateway
- Quick installation guide (printed)
- Warranty Card

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

**Optional Accessories (can be purchased separately**

- CBL-F9M9-150: DB9-female-to-DB9-male serial cable, 150 cm
- CBL-F9M9-20: DB9-female-to-DB9-male serial cable, 20 cm
- Mini DB9F-to-TB: DB9-female-to-terminal-block connector
- WK-36-01: Wall-mounting kit

## 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 | Steady on: Power is on and the MGate is functioning normally<br><br>Blinking: The MGate has been located by the<br><br>MGate Manager's Location function |
| | Red | Steady on: Power is on and the MGate is booting up<br><br>Blinking: Indicates an IP conflict, or the DHCP or<br><br>BOOTP server is not responding properly |
| | Off | Power is off or fault condition exists |
| COMM | Off | No data exchange |
| | Green | Data exchange with all slaves |
| | Green, flashing | Data exchange with at least one slave (not all<br><br>configured slaves can communicate with gateway) |
| | Red | Bus control error |
| CFG | Off | No PROFIBUS configuration |
| | Green | PROFIBUS configuration OK |
| PBM | Off | PROFIBUS master is offline |
| | Red | PROFIBUS master is in STOP mode |
| | Green, flashing | PROFIBUS master is in CLEAR mode |
| | Green | PROFIBUS master is in OPERATE mode |
| TOK | Green | Gateway holds the PROFIBUS token |
| | Off | Gateway is waiting for the PROFIBUS token |

| LED | Color | Function |
|---|---|---|
| Ethernet | Amber | Steady: 10Mbps, no data is transmitting<br><br>Blinking: 10Mbps, data is transmitting |
| | Green | Steady: 100Mbps, no data is transmitting<br><br>Blinking: 100Mbps, data is transmitting |
| | Off | Ethernet cable is disconnected |
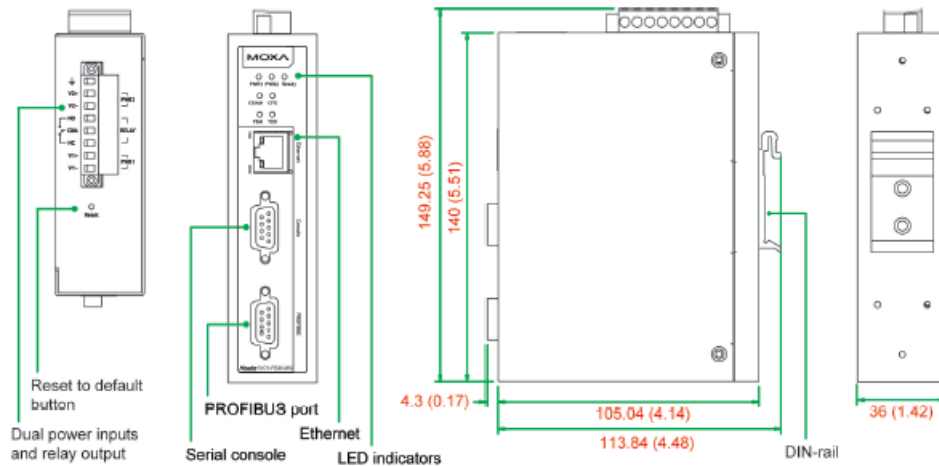


## Reset Button

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

**Hardware Installation Procedure**

**STEP 1:** Connect the power adapter. Connect the 12-48 VDC power line or DIN-rail power supply with the MGate 5101-PBM-MN device's terminal block. Make sure the adapter is connected to an earthed socket.
**STEP 2:** Use a PROFIBUS cable to connect the unit to a PROFIBUS slave device.
**STEP 3:** Connect the unit to the Modbus TCP device.
**STEP 4:** The MGate 5101-PBM-MN 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

## Wall or Cabinet Mounting

Two metal plates are provided for mounting the unit on a wall or inside a cabinet. Attach the plates to the unit's rear panel with screws. With the plates attached, use screws to mount the unit on a wall. The heads of the screws should be 5 to 7 mm in diameter, the shafts should be 3 to 4 mm in diameter, and the length of the screws should be more than 10.5 mm.
For each screw, the head should be 6 mm or less in diameter, and the shaft should be 3.5 mm or less in diameter.
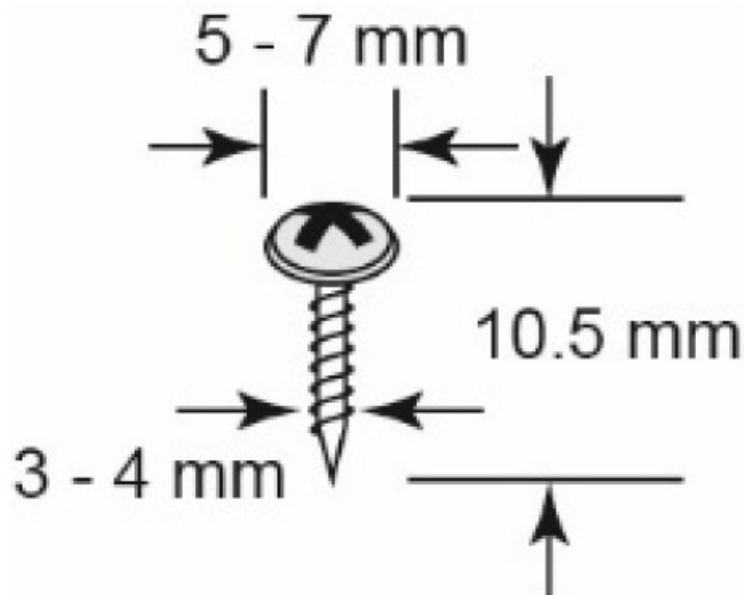
The following figure illustrates the two mounting options
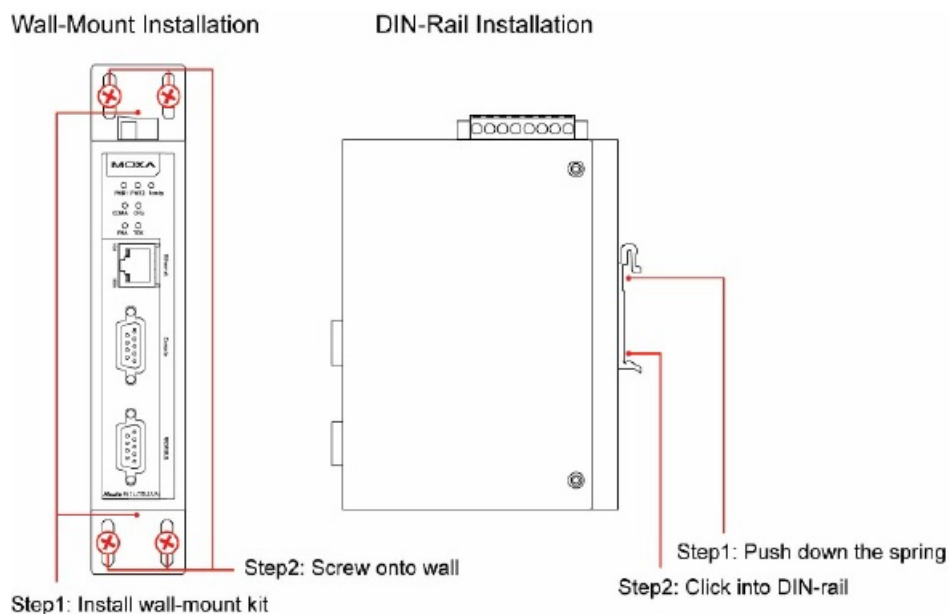


## Software Installation Information

To install MGate Manager, please download it from Moxa's website at **http://www.moxa.com**. For more detailed information about MGate Manager, click the Documents button and select the MGate 5101-PBM-MN User's Manual.

The MGate 5101 also supports login via a web browser

- Default IP address: 192.168.127.254
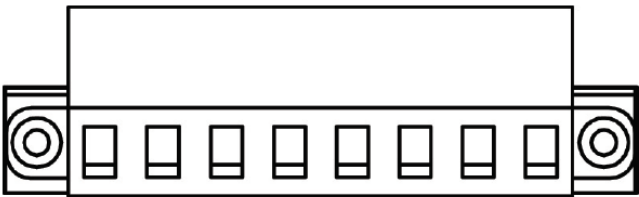- Default account: admin
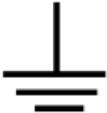- Default password: moxa

## Pin Assignments

**PROFIBUS Serial Port (Female DB9)**
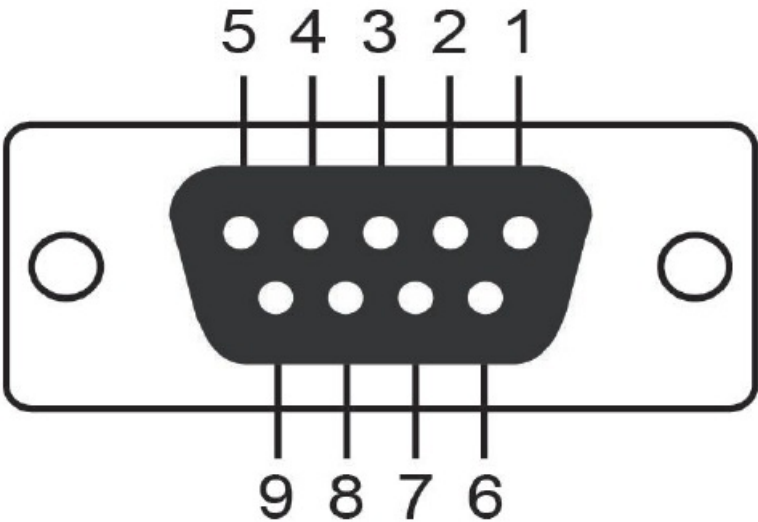


| PIN | Signal Name |
|-----|-------------|
| 1 | – |
| 2 | – |
| 3 | PROFIBUS D+ |
| 4 | RTS |
| 5 | Signal common |
| 6 | 5V |
| 7 | – |
| 8 | PROFIBUS D- |
| 9 | – |

**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 Input | 12 to 48 VDC |
|---|---|
| Power Consumption (Input Rating) | 12 to 48 VDC, 360 mA (max.) |
| 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) |

## ATEX and IECEx Information

1. ATE X Certificate number: DEMKO 14 ATEX 1288
2. IECEx number: IECEx UL 14.0023X
3. Certificate string: Ex nA IIC T4 Gc
    1. Ambient range: 0°C ≤ Tamb ≤ 60°C (for suffix without –T)
    2. Ambient range: -40°C ≤ Tamb ≤ 75°C (for suffix without –T)
4. Standards covered:
    1. EN 60079-0: 2012+A11:2013/IEC 60079-0: Ed 6.0
    2. EN 60079-15:2010/IEC 60079-15: Ed 4.0
5. Field-wiring connection: The device uses a terminal block, solder on the power distribution board, suitable for 12-24 AWG wire size, torque value 4.5 lb-in (0.51 N-m).
6. Battery information: Battery is not user-replaceable.
7. Installation instructions:
    1. A 4 mm2 conductor must be used when the connection to the external grounding screw is utilized.
    2. Conductors suitable for use at an ambient temperature of 84°C must be used for the power supply terminal.
8. Special conditions for safe use:
    1. The device is to be installed in an IECEx/ATEX Certified IP54 enclosure and accessible only through the use of a tool.
    2. The device is for use in an area of not more than pollution degree 2 in accordance with IEC 60664-1.

## ATTENTION

- For installations in hazardous locations (Class 1, Division 2): These devices are to be installed in an enclosure with a tool-removable cover or door, suitable for the environment
- For installations in hazardous locations (Class 1, Division 2): These devices are to be installed in an enclosure with a tool-removable cover or door, suitable for the environment
- Do not disconnect equipment unless the power has been switched off, or the area is known to be nonhazardous.
- Substitution of any components may impair suitability for Class 1, Division 2.
- EXPOSURE TO SOME CHEMICALS MAY DEGRADE THE SEALING PROPERTIES OF MATERIALS USED IN THE FOLLOWING DEVICE: Sealed Relay Device U21

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## Documents / Resources

| | |
|---|---|
| MGate 5101-PBM-MN Series<br>Quick Installation Guide<br><br>Version 3.2, January 2021<br><br>Technical Support Contact Information<br>www.moxa.com/support<br><br><br>**MOXA**<br>© 2021 Moxa Inc. All rights reserved.<br><br>P/N 180205160003 | **MOXA MGate 5101-PBM-MN Series Modbus TCP Gateway** [pdf] Installation Guide<br>MGate 5101-PBM-MN Series Modbus TCP Gateway, MGate 5101-PBM-MN Series, Modbus TCP Gateway |

## References

- ᴹ **Moxa - Your Trusted Partner in Automation**
- ᴹ **Moxa - Support**