

MGate™ 5105-MB-EIP Series

▶ Award-winning Product



1-port Modbus RTU/ASCII/TCP-to-EtherNet/IP gateways



- > Support for both EtherNet/IP adapter and scanner
- > Effortless configuration via web or Windows utility
- > Complete packet analysis and diagnosis information for maintenance
- > Easy I/O data maintenance via web interface
- > microSD card for configuration and system log backup
- > -40 to 75°C wide operating temperature models available
- > Modbus port with 2 kV built-in isolation protection
- > Built-in Ethernet cascading for easy wiring



Overview

The MGate 5105-MB-EIP is an industrial Ethernet gateway for Modbus RTU/ASCII/TCP and EtherNet/IP network communications. To integrate existing Modbus devices onto an EtherNet/IP network, use the MGate 5105-MB-EIP as a Modbus master or slave to collect data and

exchange data with EtherNet/IP devices. The latest exchange data will be stored in the gateway as well. The gateway converts stored Modbus data into EtherNet/IP packets so the EtherNet/IP scanner can control or monitor Modbus devices.

Configuration Backup via microSD Card

The MGate 5105-MB-EIP is equipped with a microSD card slot. A microSD card can be used to back up both the system configuration and system log, and can be used to conveniently copy the same

configuration to several MGate 5105-MP-EIP units. The configuration file stored in the microSD card will be copied to the MGate itself when the system is rebooted.

Effortless Configuration and Troubleshooting via Web Console

The MGate 5105-MB-EIP also provides a web console to make configuration easy without having to install an extra utility. Simply log in as an administrator to access all settings, or as a general user with read-only permission. Besides configuring basic protocol settings, you can use the web console to monitor I/O data values and transfers. In

particular, I/O Data Mapping shows data addresses for both protocols in the gateway's memory and I/O Data View allows you to track data values for online nodes. Moreover, diagnostics and communication analysis for each protocol can also provide helpful information for troubleshooting.

Redundant Power Inputs

The MGate 5105-MB-EIP 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-EtherNet/IP gateways ideal for demanding industrial applications.

Specifications

Ethernet Interface

- Protocols:** EtherNet/IP, Modbus/TCP
- Number of Ports:** 2 (1 IP, Ethernet cascade)
- Speed:** 10/100 Mbps, Auto MDI/MDIX
- Connector:** 8-pin RJ45
- Magnetic Isolation Protection:** 1.5 kV (built-in)

EtherNet/IP:

- Class: Adapter, Scanner
- CIP Objects Supported: Identity, Message Router, Assembly, Connection Manager, TCP/IP interface, Ethernet link, Port
- Max. Number of Connections:
 - > MGate as Adapter: 16 connections for read-only, 1 connection for read/write
 - > MGate as Scanner: 100 connections

- Max. Total I/O Data Size:
 - Input: 496 bytes
 - Output: 496 bytes
- Modbus TCP:**
 - Mode: Client/Server
 - Functions Supported: 1, 2, 3, 4, 5, 6, 15, 16, 23
 - Max. Number of Commands: 100
 - Max. Number of Connections:
 - MGate as Modbus TCP Master: 32 connections
 - MGate as Modbus TCP Slave: 16 connections
 - Max. Total I/O Data Size:
 - Input: 2048 bytes
 - Output: 2048 bytes

Serial Interface

Protocol: Modbus RTU/ASCII Master/Slave
Number of Ports: 1
Serial Standards: RS-232/422/485, software selectable
Connectors: DB9 male
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
Isolation: 2 kV (built-in)

Serial Communication Parameters

Data Bits: 7, 8
Stop Bits: 1, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, RTS Toggle (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: Web Console, Windows Utility, Serial Console
Utility: MGate Manager for Windows 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows 7/8/8.1 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2
Support: MXview, SNMP (v1, v2, v3), Private MIB

Physical Characteristics

Housing: Metal, IP30
Weight: 507 g (1.12 lb)
Dimensions: 36 x 105 x 140 mm (1.42 x 4.14 x 5.51 in)
Storage Card Slot: 1 microSD (SDHC) card slot supports up to 32 GB

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)
Vibration: IEC 60068-2-6, IEC 60068-2-64
Shock: IEC 60068-2-27
Drop: IEC 60068-2-32

Power Requirements

Input Voltage: 12 to 48 VDC
Input Current: 455 mA @ 12 VDC; 125 mA @ 48 VDC
Power Connector: Terminal block

Standards and Certifications

Safety: UL 508, EN 60950-1
Hazardous Location: Class 1 Division 2, ATEX, IECEx
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
 IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
 IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
 IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 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
 IEC 61000-4-8 PFMF

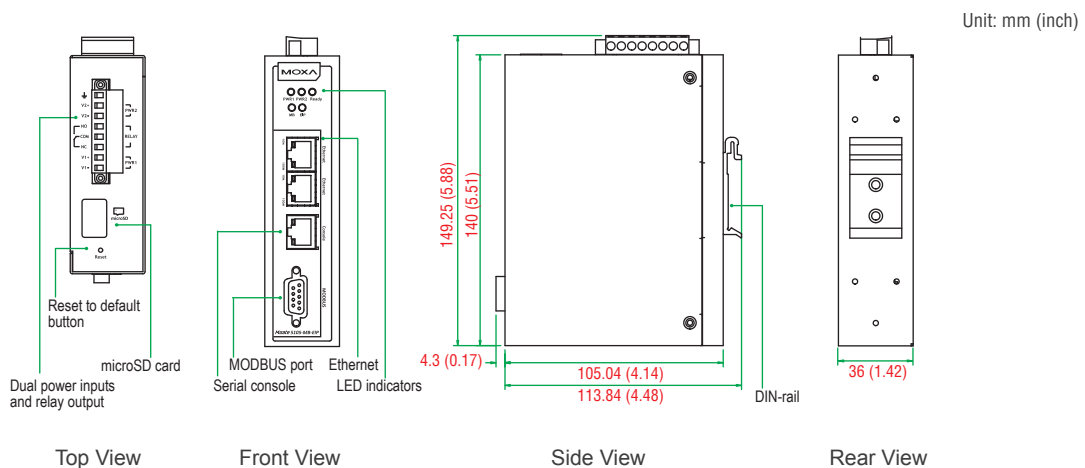
MTBF (mean time between failures)

Time: 859,422 hrs
Standard: Telcordia SR332

Warranty

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

Dimensions



Ordering Information

Available Models

MGate 5105-MB-EIP: 1-port Modbus-to-EtherNet/IP gateway, 0 to 60°C operating temperature
MGate 5105-MB-EIP-T: 1-port Modbus-to-EtherNet/IP gateway, -40 to 75°C operating temperature

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
CBL-RJ45SF9-150: RJ45 to DB9 female serial shielded cable, 150 cm
ADP-RJ458P-DB9F: DB9 female to RJ45 connector
A-ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector
Mini DB9F-to-TB: DB9 female to terminal block connector

One power adapter suitable for your region is included in the product package. Additional power adapters can be purchased separately. Please refer to the Appendix for details.

Package Checklist

- 1 MGate 5105-MB-EIP Modbus-to-EtherNet/IP gateway
- 1 serial cable: DBL-RJ45F9-150
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card