

# MGate™ 5105-MB-EIP Series

## 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 communication. 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

**Protocol:** EtherNet/IP, Modbus TCP  
**Number of Ports:** 2 (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: 2048 bytes (496 bytes per connection)  
 Output: 2048 bytes (496 bytes per connection)

### Modbus

**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

### Modbus Serial Interface

**Protocol:** Modbus RTU/ASCII  
**Number of Ports:** 1  
**Serial Standards:** RS-232/422/485, software selectable  
**Connectors:** DB9 male  
**Isolation:** 2 kV (built-in)  
**RS-485 Data Direction Control:** ADDC® (automatic data direction control)  
**Pull High/Low Resistor for RS-485:** 1 K $\Omega$ , 150 K $\Omega$   
**Terminator for RS-485:** 120  $\Omega$   
**Data Bits:** 5, 6, 7, 8  
**Stop Bits:** 1, 1.5, 2  
**Parity:** None, Even, Odd, Space, Mark  
**Flow Control:** RTS/CTS, RTS Toggle  
**Baudrate:** 50 bps to 921.6 Kbps

### External Storage Drive

**Interface:** microSD  
**Standard:** SDHC v2.0

### 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

**Operation Modes:** EtherNet/IP Adaptor/Scanner, Modbus RTU/ASCII/TCP Master/Slave  
**Configuration Options:** Web console, Windows utility, serial console  
**Utilities:** MGate Manager for Windows 2000/XP/2003/Vista/Server 2008/7/8 (x86/x64), Windows Server 2008 R2/2012 (x64)

### Physical Characteristics

**Housing:** Metal (IP30)  
**Weight:** 507 g  
**Dimensions:** 36 x 105 x 140 mm (1.42 x 4.13 x 5.51 in)

### 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)  
**Altitude:** Up to 2000 m  
*Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes.*

### Power Requirements

**Input Voltage:** 12 to 48 VDC  
**Power Connector:** Terminal block  
**Power Consumption:**  
 455 mA @ 12 VDC, 125 mA @ 48 VDC

### Standards and Certifications

**Safety:** UL 508, EN 60950-1  
**EMC:** CE, FCC  
**EMI:** EN 55022 Class A, FCC Part 15 Subpart B Class A  
**EMS:**  
 EN 55024,  
 EN 61000-4-2 (ESD) Level 4,  
 EN 61000-4-3 (RS) Level 3,  
 EN 61000-4-4 (EFT) Level 4,  
 EN 61000-4-5 (Surge) Level 3,  
 EN 61000-4-6 (CS) Level 3,  
 EN 61000-4-8,(PFMF) Level 3  
**Shock:** IEC 60068-2-27  
**Freefall:** IEC 60068-2-32  
**Vibration:** IEC 60068-2-6

### Reliability

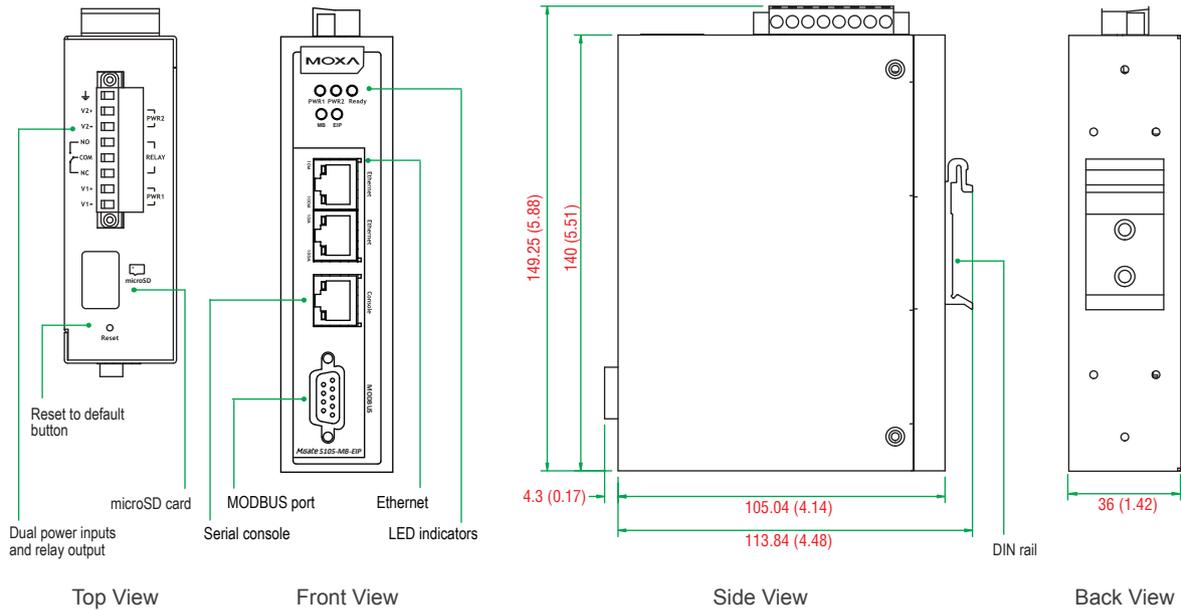
**MTBF (mean time between failures):** 513,139 hrs

### Warranty

**Warranty Period:** 5 years  
**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Dimensions

Unit: mm (inch)



## 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)

**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

### Package Checklist

- 1 MGate 5105-MB-EIP Modbus-to-EtherNet/IP gateway
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card
- RJ45 to DB9 cable (for console use)