

MGate™ 4101-MB-PBS Series

1-port Modbus RTU/ASCII-to-PROFIBUS slave gateways



- > Protocol conversion between Modbus and PROFIBUS
- > Windows utilities with innovative QuickLink function for automatic configuration within minutes
- > Redundant dual DC power inputs and relay output supported
- > Embedded data packet analyzer
- > Powerful and visual diagnostic tool
- > -40 to 75°C wide operating temperature models available



: Overview

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 performing 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 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-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

PROFIBUS Interface

Protocol: PROFIBUS DP-V0 Slave

Number of Ports: 1

Data Rate: 9600 bps to 12 Mbps

Connector: DB9 female

Isolation: 2 kV (built-in)

DIP Switch: For termination

Rotary Switch: PROFIBUS address 0-99 (address 100-125 supported through software configuration)

Modbus Interface

Protocol: Modbus RTU/ASCII Master/Slave

Number of Ports: 1

Serial Standards: RS-232/422/485, software selectable

Connectors: DB9 male

ESD Protection: 15 kV for all signals

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

Data Bits: 7, 8

Stop Bits: 1, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, DTR/DSR (RS-232 only)

Baudrate: 50 bps to 921.6 kbps

Serial Signals

RS-232: Tx+, Tx-, Rx+, Rx-, 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: Serial Console, Windows Utility
Utility: MGate Manager for Windows 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows 7/8.1 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2
Support: QuickLink, Paging

Physical Characteristics

Housing: Metal, IP30
Weight: 500 g (1.10 lb)
Dimensions: 36 x 105 x 140 mm (1.42 x 4.14 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)
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:

MGate 4101-MB-PBS: 340 mA @ 12 VDC; 130 mA @ 48 VDC
 MGate 4101I-MB-PBS: 375 mA @ 12 VDC; 140 mA @ 48 VDC

Power Connector: Terminal block

Standards and Certifications

Safety: UL 60950-1, EN 60950-1
Hazardous Location: Class 1 Division 2, ATEX, IECEx
EMC: EN 55032/24
EMI: CISPR 32, FCC Part 15B Class A
EMS:
 IEC 61000-4-2 ESD: Contact: 4 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: 3 V/m
 IEC 61000-4-8 PFMF

MTBF (mean time between failures)

Time: 513,139 hrs

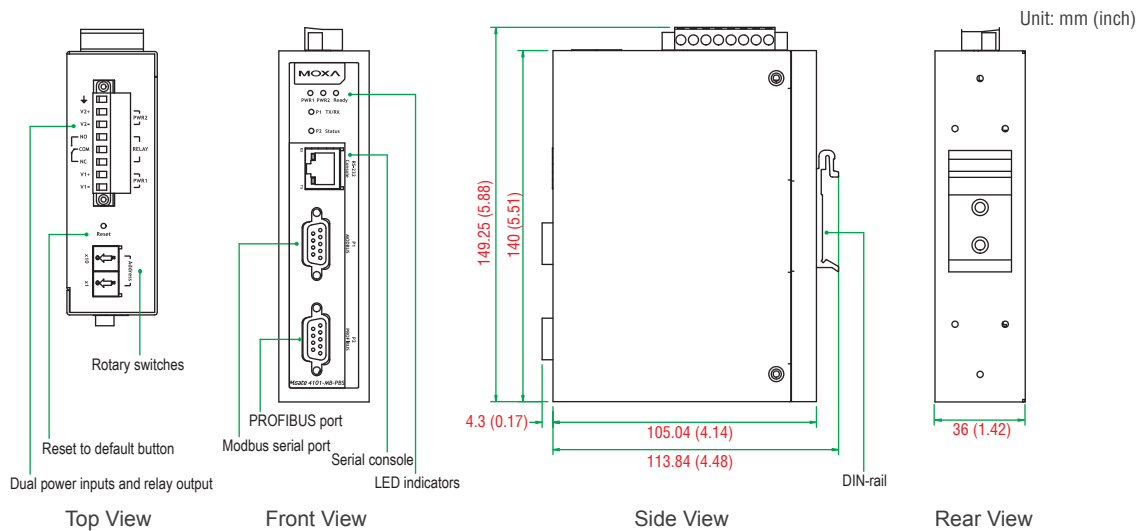
Standard: Telcordia SR332

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions



Ordering Information

Available Models

MGate 4101-MB-PBS: 1-port Modbus-to-PROFIBUS slave gateway, 12-48 VDC, 0 to 60°C operating temperature

MGate 4101I-MB-PBS: 1-port Modbus-to-PROFIBUS slave gateway with 2 kV isolation, 12-48 VDC, 0 to 60°C operating temperature

MGate 4101-MB-PBS-T: 1-port Modbus-to-PROFIBUS slave gateway, 12-48 VDC, -40 to 75°C operating temperature

MGate 4101I-MB-PBS-T: 1-port Modbus-to-PROFIBUS slave gateway with 2 kV isolation, 12-48 VDC, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

WK-36-02: DIN-rail/wall-mounting kit, 2 plates with 6 screws

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 shielded serial 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

Package Checklist

- 1 MGate 4101-MB-PBS or 4101I-MB-PBS Modbus-to-PROFIBUS slave gateway
- 1 Serial Cable: CBL-RJ45F9-150
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

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

EtherNet/IP™
conformance tested



: 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 k Ω , 150 k Ω

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: Tx+, Rx+, 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 7/8.1 (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 55032/24

EMI: CISPR 32, 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

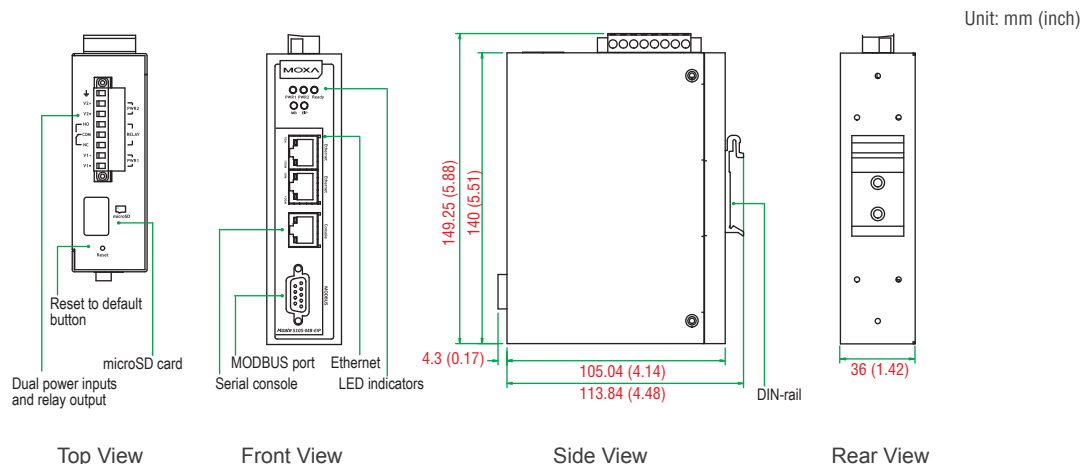
Standard: Telcordia SR332

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

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

MGate™ MB3180/3280/3480

1, 2, and 4-port standard serial-to-Ethernet Modbus gateways



- > Convert between Modbus TCP and Modbus RTU/ASCII
- > 1 Ethernet port and 1, 2, or 4 RS-232/422/485 ports
- > 16 simultaneous TCP masters with up to 32 simultaneous requests per master
- > Easy hardware setup and configuration



: Overview

The MB3180, MB3280, and MB3480 are standard Modbus gateways that convert between Modbus TCP and Modbus RTU/ASCII protocols. Up to 16 simultaneous Modbus TCP masters are supported, with up to

32 RTU/ASCII slaves per serial port. For RTU/ASCII masters, up to 32 TCP slaves are supported.

: Standard Modbus Network Integration

The three standard MGate™ models (MB3180, MB3280, and MB3480) are designed for easy integration of Modbus TCP and RTU/ASCII networks. With these models, Modbus serial slave devices can be seamlessly incorporated into an existing Modbus TCP network, and

Modbus TCP slaves can be made accessible to serial masters. The MB3180, MB3280, and MB3480 offer features that make network integration easy, customizable, and compatible with almost any Modbus network.

: High Density, Cost-effective Gateways

The MGate™ MB3000 gateways can effectively connect a high density of Modbus nodes to the same network. The MB3280 can manage up to 62 serial slave nodes, and the MB3480 can manage up to 124

serial slave nodes. Each RS-232/422/485 serial port can be configured individually for Modbus RTU or Modbus ASCII operation and for different baudrates, allowing both types of networks to be integrated with Modbus TCP through one Modbus gateway.

: Specifications

Ethernet Interface

Protocols: Modbus TCP

Number of Ports: 1

Speed: 10/100 Mbps, Auto MDI/MDIX

Connector: 8-pin RJ45

Magnetic Isolation Protection: 1.5 kV (built-in)

Serial Interface

Protocol: Modbus RTU/ASCII Slave/Master

Number of Ports:

MB3180: 1

MB3280: 2

MB3480: 4

Serial Standards: RS-232/422/485, software selectable

Connectors: DB9 male

ESD Protection: 15 kV for all signals

RS-485 Data Direction Control: ADDC® (automatic data direction control)

Serial Communication Parameters

Data Bits: 7, 8

Stop Bits: 1, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, DTR/DSR, RTS Toggle (RS-232 only)

Baudrate: 50 bps to 921.6 kbps

Serial Signals

RS-232: Tx+, Tx-, Rx+, Rx-, 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, Serial Console, Telnet Console, Windows Utility

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

Multi-master and Multi-drop:

Master mode: 32 TCP slaves

Slave mode: 16 TCP masters (request queue 32-deep for each master)

Support: Smart Routing, MXview, SNMP v1 (read only)

Physical Characteristics

Housing: Metal, IP30

Weight:

MGate MB3180: 340 g (0.75 lb)

MGate MB3280: 360 g (0.79 lb)

MGate MB3480: 740 g (1.63 lb)

Dimensions:

Without ears:

MB3180: 22 x 52 x 80 mm (0.87 x 2.05 x 3.15 in)

MB3280: 22 x 77 x 111 mm (0.87 x 3.03 x 4.37 in)

MB3480: 35.5 x 102.7 x 157.2 mm (1.40 x 4.04 x 6.19 in)

With ears:

MB3180: 22 x 75 x 80 mm (0.87 x 2.95 x 3.15 in)

MB3280: 22 x 100 x 111 mm (0.87 x 3.94 x 4.37 in)

MB3480: 35.5 x 102.7 x 181.3 mm (1.40 x 4.04 x 7.14 in)

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current:

MGate M3180: 200 mA @ 12 VDC

MGate M3280: 250 mA @ 12 VDC

MGate M3480: 385 mA @ 12 VDC

Power Connector:

MGate MB3180: Power jack

MGate MB3280/3480: Power jack and terminal block

Standards and Certifications

Safety: UL 60950-1, EN 60950-1

EMC: EN 55032/24

EMI: CISPR 32, FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV

IEC 61000-4-5 Surge: Power: 1 kV (MB3180/MB3280)

IEC 61000-4-5 Surge: Power: 1 kV; Signal: 2 kV (MB3480)

IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m

IEC 61000-4-8 PFMF

IEC 61000-4-11

MTBF (mean time between failures)

Time:

MGate M3180: 628,376 hrs

MGate M3280: 503,029 hrs

MGate M3480: 295,812 hrs

Standard: Telcordia SR332

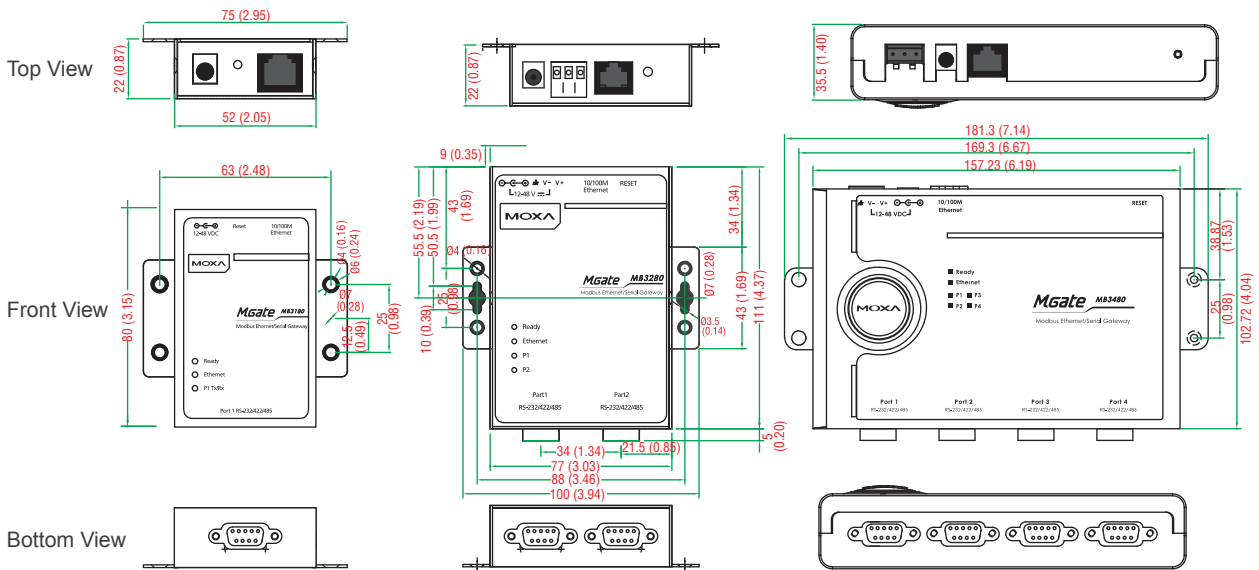
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



: Ordering Information

Available Models

MGate MB3180: 1-port standard Modbus gateway

MGate MB3280: 2-port standard Modbus gateway

MGate MB3480: 4-port standard Modbus gateway

Optional Accessories (can be purchased separately)

CBL-RJ458P-100: 8-pin RJ45 CAT5 Ethernet cable, 100 cm

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 shielded serial 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

DK35A: DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws

Package Checklist

- 1 MGate MB3180 or MB3280 or MB3480 Modbus gateway*
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

*The package includes one power adapter suitable for your region.

DK35A

