

Ethernet Fieldbus Gateways

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Ethernet Fieldbus Gateways

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Ethernet Fieldbus Gateways



	MGate™ MB3170 MGate™ MB3170-T	MGate™ MB3170I MGate™ MB3170I-T	MGate™ MB3270 MGate™ MB3270-T	MGate™ MB3270I MGate™ MB3270I-T	MGate™ MB3180	MGate™ MB3280	MGate™ MB3480
Ethernet Interface							
Number of Ports	2 (1 IP)	2 (1 IP)	2 (1 IP)	2 (1 IP)	1	1	1
Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
Connector	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
Magnetic Isolation Protection	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV
Serial Interface							
Number of Ports	1	1	2	2	1	2	4
Serial Standards	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
Connectors	RS-232: DB9-M; RS-422/485: Terminal Block		DB9-M	DB9-M	DB9-M	DB9-M	DB9-M
ESD Protection	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
Serial Communication Parameters	Data Bits: 7, 8; Stop Bits: 1, 2; Parity: None, Even, Odd, Space, Mark						
Parity	None, Even, Odd, Space, Mark						
Flow Control	RTS/CTS, DTR/DSR (RS-232 only)						
Baudrate	50 bps to 921.6 Kbps						
Software							
Operation Modes	RTU Slave, RTU Master, ASCII Slave, ASCII Master						
Utilities	MGate™ Manager Suite for Windows 98, ME, NT, 2000, XP, 2003, Vista						
Smart Routing	√	√	√	√	√	√	√
Serial Redirection	√	√	√	√	---	---	---
Priority Control	√	√	√	√	---	---	---
Ethernet Protocol	---	---	---	---	---	---	---
Serial Protocol	---	---	---	---	---	---	---
Physical Characteristics							
Housing	Plastic	Plastic	Plastic	Plastic	Metal	Metal	Metal (IP30)
Dimensions	29 x 89.2 x 118.5 mm				22 x 52 x 80 mm	22 x 77 x 111 mm	35.5 x 103 x 158 mm
Environmental Limits							
Operating Temperature	0 to 55°C or -40 to 75°C				0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-40 to 85°C	-40 to 85°C	-40 to 85°C	-40 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Power Requirements							
Input Voltage	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC
Power Connector	Terminal block	Terminal block	Terminal block	Terminal block	Power jack	Power jack and terminal block	
Regulatory Approvals							
EMC	CE (EN55022 Class A and EN55024), FCC Part 15 Subpart B Class A						
Safety	UL (UL60950-1), TÜV (EN60950-1)						
Hazardous Location	UL/cUL Class 1 Division 2 Groups A, B, C, D; ATEX Class 1 Zone 2				---	---	---
Shock	IEC 60068-2-27				---	---	---
Freefall	IEC 60068-2-23				---	---	---
Vibration	IEC 60068-2-6				---	---	---
Marine	DNV				---	---	---
EMS	EN61000-4-2 (ESD): Level 3 EN61000-4-3 (RS): Level 3 EN61000-4-4 (EFT): Level 4 EN61000-4-5 (Surge): Level 3 EN61000-4-6 (CS): Level 3 EN61000-4-8: Passed EN61000-4-11: Passed EN61000-4-12: Passed				EN61000-4-2 (ESD): Level 2 EN61000-4-3 (RS): Level 2 EN61000-4-4 (EFT): Level 2 EN61000-4-5 (Surge): Level 2 EN61000-4-6 (CS): Level 2 EN61000-4-8: Passed EN61000-4-11: Passed EN61000-4-12: Passed		
Reliability							
Warranty	5 years (see www.moxa.com/warranty)						

Ethernet Fieldbus Gateways






	MGate™ EIP3170 MGate™ EIP3170-T	MGate™ EIP3170I MGate™ EIP3170I-T	MGate™ EIP3270 MGate™ EIP3270-T	MGate™ EIP3270I MGate™ EIP3270I-T
Ethernet Interface				
Number of Ports	2 (1 IP)	2 (1 IP)	2 (1 IP)	2 (1 IP)
Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
Connector	RJ45	RJ45	RJ45	RJ45
Magnetic Isolation Protection	1.5 KV	1.5 KV	1.5 KV	1.5 KV
Serial Interface				
Number of Ports	1	1	2	2
Serial Standards	RS-232/422	RS-232/422	RS-232/422	RS-232/422
Connectors	DB9-M (RS-232), TB (RS-422)	DB9-M (RS-232), TB (RS-422)	DB9-M	DB9-M
ESD Protection	15 KV	15 KV	15 KV	15 KV
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®
Serial Communication Parameters	Data Bits: 7, 8; Stop Bits: 1, 2; Parity: None, Even, Odd, Space, Mark			
Parity	None, Even, Odd, Space, Mark			
Flow Control	RTS/CTS, DTR/DSR			
Baudrate	50 bps to 921.6 Kbps			
Software				
Operation Modes	---	---	---	---
Utilities	MGate™ Manager Suite for Windows 98, ME, NT, 2000, XP, 2003, Vista			
Smart Routing	√	√	√	√
Serial Redirection	---	---	√	√
Priority Control	---	---	---	---
Ethernet Protocol	CIP (PCCC) on Ethernet/IP	CIP (PCCC) on Ethernet/IP	CIP (PCCC) on Ethernet/IP	CIP (PCCC) on Ethernet/IP
Serial Protocol	DF1 Full-duplex	DF1 Full-duplex	DF1 Full-duplex	DF1 Full-duplex
Physical Characteristics				
Housing	Plastic	Plastic	Plastic	Plastic
Dimensions	29 x 89.2 x 118.5 mm	29 x 89.2 x 118.5 mm	29 x 89.2 x 118.5 mm	29 x 89.2 x 118.5 mm
Environmental Limits				
Operating Temperature	0 to 55°C or -40 to 75°C	0 to 55°C or -40 to 75°C	0 to 55°C or -40 to 75°C	0 to 55°C or -40 to 75°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Power Requirements				
Input Voltage	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC
Power Connector	Terminal block	Terminal block	Terminal block	Terminal block
Regulatory Approvals				
EMC	CE (EN55022 Class A and EN55024), FCC Part 15 Subpart B Class A			
Safety	UL (UL60950-1), LVD (EN60950-1)			
Hazardous Location	UL/cUL Class 1 Division 2 Groups A, B, C, D; ATEX Class 1 Zone 2			
Shock	IEC60068-2-27			
Freefall	IEC60068-2-23			
Vibration	IEC60068-2-6			
Marine	---	---	---	---
EMS	EN61000-4-2 (ESD): Level 3 EN61000-4-3 (RS): Level 3 EN61000-4-4 (EFT): Level 4 EN61000-4-5 (Surge): Level 3 EN61000-4-6 (CS): Level 3 EN61000-4-8: Passed EN61000-4-11: Passed EN61000-4-12: Passed			
Reliability				
Warranty	5 years (see www.moxa.com/warranty)			

Introduction to Modbus Gateways

Seamless communication between Modbus Ethernet and Modbus serial devices

Modbus is the standard used for communication between a wide range of industrial devices, including PLCs, DCSs, HMIs, instruments, meters, motors, and drives. Although Modbus can be used for both serial (RS-232, RS-422, and RS-485) devices and newer Ethernet devices, the serial and Ethernet protocols are so different that a specialized gateway is required for one protocol to communicate with the other. Moxa's MGate™ products are specially designed to integrate Modbus TCP and Modbus RTU/ASCII networks. MGate™ MB3000 products support one or two Ethernet connections, and up to four serial ports.

The MGate™ line of Modbus gateways includes products that support these advanced features:

- Multiple masters
- Priority control
- Smart routing
- Serial redirector
- Powerful Windows Utility

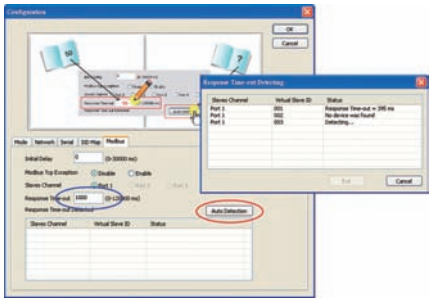


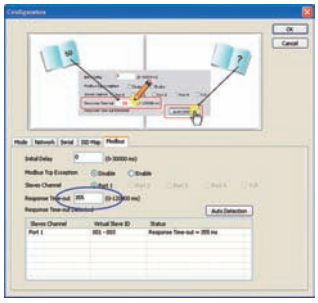
Powerful Options for Master/Slave Configuration between Modbus Networks

Devices connected to a Modbus network must be clearly defined as either "master" or "slave." Unlike other Modbus gateways, the MGate™ MB3000 allows protocol conversion in two directions, from Ethernet master to serial slave and from serial master to Ethernet slave. To ensure maximum compliance with all Modbus networks, extra address mapping and exception parameters can be adjusted to handle almost any situation.

Easier Integration with Automatic Calibration of Response Timeout (patent pending)

Every Modbus device should be assigned a response timeout value, as provided by the device manufacturer based on the computation required for a request. However, manually obtaining and setting these values for every device is difficult and time-consuming, especially on complex networks with a large number of devices. The MGate™ MB3000 eliminates this difficulty with a patent-pending feature that automatically determines and sets each device's response timeout value.



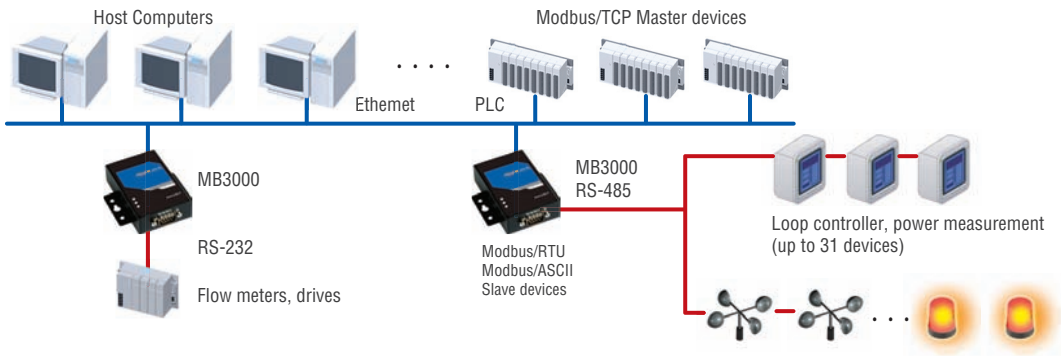


Automatic Calibration Provides these Important Benefits:
(1) Automatic calibration of the timeout value provides maximum compatibility with minimum effort.
(2) Automatic calibration eliminates the need to either guess or calculate timeout values.

Multiple Masters across Different Modbus Networks for Fully Compliant Operation

The MGate™ MB3000 supports 16 simultaneous TCP masters with up to 32 simultaneous requests per master. Serial masters are able to access up to 32 different IP addresses as TCP slaves. MGate™ MB3000 gateways have been designed so that even with multiple masters across different Modbus networks, communication remains compliant with each Modbus protocol.

Supports 16 TCP masters with up to 32 requests per master



Built-in Optical Isolation for Industrial Device Protection

The MGate™ MB3000 series includes two advanced models—the MB3170 and MB3270—that offer built-in optical isolation of the serial signals as an option. Optical isolation helps prevent dangerous ground loops, spikes, and surges.

Priority Control for Critical Commands (patent pending)

Flag urgent commands for immediate response



Other Modbus gateways simply transfer all requests between Modbus networks on a FIFO (first in first out) basis, with no accommodation for urgent commands that require immediate attention. The advanced models of the MGate™ MB3000 (the MB3170 and MB3270) include a patent-pending priority control feature that allows urgent commands to be flagged for immediate response based on IP address, command type, or TCP port. The priority control feature allows the advanced models of the MB3000 series to get around the latency experienced by other Modbus gateways. With the priority control feature, the advanced MB3000 models are an ideal component of real-time control systems.

No Change to Existing Architecture with Smart Routing and Serial Redirector

Automatic Routing

Traditional Routing



Smart Routing



The MGate™ MB3270, MB3280, and MB3480 include smart routing for enhanced compatibility with existing Modbus networks. Other Modbus gateways require a separate socket connection for each serial port, making them useless for TCP masters that can only open one connection. With smart routing on the MB3000 Modbus gateway, a TCP master can use just one socket connection to command serial slaves on every serial port.

The MGate™ MB3270 has a serial redirector function that allows additional options for Modbus network integration. The serial redirector function allows the commands of a serial master to be redirected to serial slaves on another port. In addition, a serial master can operate simultaneously with TCP masters or other serial masters, without altering the Modbus architecture or software. Using the serial redirector function, advanced MB3000 gateways can establish redundant backup control or Ethernet monitoring of Modbus networks that were originally designed for a single serial master.

Create a backup system



Powerful, Easy-to-use Windows Configuration Utility

MGate™ Manager is a Windows utility that enables you to do the following:

- Search for all MB3000 gateways on a LAN
- Remotely configure MB3000 gateways
- Monitor devices attached to MB3000 gateways
- Remotely upgrade the firmware on MB3000 gateways

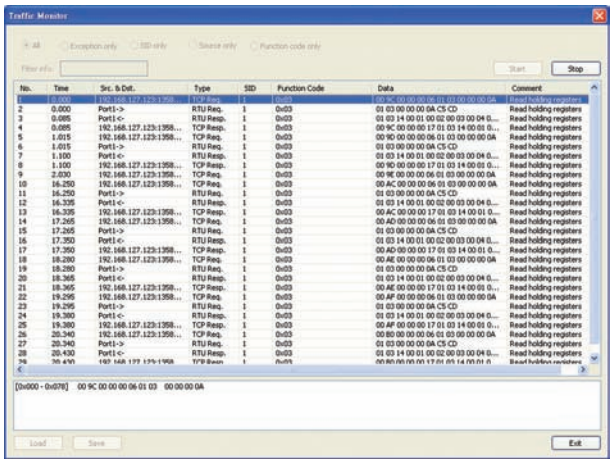
Multi-language Support

MGate™ Manager is designed for configuration and monitoring of MB3000 gateways. The HMI of this utility is easily customized to display commands in the language of your choice.



Protocol Analysis Tool for all Modbus Communication

The monitor function can be used to log all Modbus commands and responses that pass through the MB3000 gateway. All data is presented in a clear, easy-to-understand format, and logs can be filtered for easier analysis. With a single click, users can view exceptions, specific slave IDs, traffic to/from specific sources (serial ports, IPs), or all traffic.



MGate™ MB3170/3270

1 and 2-port advanced serial-to-Ethernet Modbus gateways



- Configuration is exceptionally easy
- Slave mode supports 16 TCP masters and up to 62 serial slaves at the same time
- Master mode supports 32 TCP slaves at the same time
- Emergency request tunnels ensure QoS control
- Serial redirector function provided
- Embedded Modbus protocol analyzer
- Redundant dual DC power inputs
- Built-in Ethernet cascading for easy wiring

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

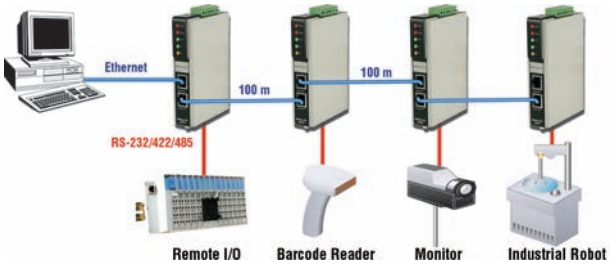
The MB3170 and MB3270 are advanced Modbus gateways that provide maximum flexibility for integrating industrial Modbus networks of all types and sizes. They are designed to integrate Modbus TCP, ASCII, and RTU devices in almost any master and slave combination, including serial master to serial slave, or simultaneous serial and Ethernet masters. A special priority control feature allows urgent commands to obtain immediate response. All models are ruggedly constructed, are DIN-rail mountable, and offer built-in optical isolation for serial signals as an option.

Integrate TCP Masters without Altering the Modbus RTU/ASCII Network or Software

The MB3270 can integrate Modbus TCP with Modbus RTU/ASCII, without modifying the existing Modbus RTU/ASCII architecture or software. With the serial redirector function, a serial master can maintain direct access to serial slave devices through a specially mapped serial port. This allows the serial and TCP masters to access serial slaves simultaneously.

Cascade Ethernet Ports for Easy Wiring

Advanced models of the MGate™ MB3000 series have two Ethernet ports to make network wiring easier. Dual Ethernet ports allow users to string multiple Modbus gateways together using standard RJ45 Ethernet cables, eliminating the need for a separate Ethernet switch.



Redundant Power Inputs

Advanced models of the MB3000 series have 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 gateways ideal for demanding industrial applications.

Warning by Relay Output

A relay output is provided for the Ethernet link and power input status. The relay output gives maintenance engineers an additional tool for troubleshooting and maintenance.

Priority Control for Urgent Commands (patent pending)

As Modbus networks increase in size and complexity, the lag time between commands and responses becomes a major concern. Advanced models of the MB3000 series provide a priority control function for urgent commands, allowing users to force certain commands to get an immediate response. Depending on your system's requirements, different methods are available to define which commands receive priority.

Specifications

Ethernet Interface

Number of Ports: 2 (1 IP)

Speed: 10/100 Mbps, Auto MDI/MDIX

Connector: 8-pin RJ45

Magnetic Isolation Protection: 1.5 KV built-in

Serial Interface

Number of Ports:
MB3170/3170I: 1
MB3270/3270I: 2

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

Connectors:
MB3170/3170I: DB9 male for RS-232, Terminal block for RS-422/485
MB3270/3270I: DB9 male x 2

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

Serial Communication Parameters

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: 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: RTU Slave, RTU Master, ASCII Slave, ASCII Master

Utilities: MGate™ Manager Suite for Windows 98, ME, NT, 2000, XP, 2003, Vista

Multi-master and Multi-drop:
Master mode: 32 TCP slaves
Slave mode: 16 TCP masters (request queue 32-deep for each master)

Bonus Features: Smart Routing, Serial Redirection, Priority Control

Physical Characteristics

Housing: Plastic

Dimensions:
Without ears: 29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in)
With ears extended: 29 x 89.2 x 124.5 mm (1.14 x 3.51 x 4.90 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)

Operating Humidity: 5 to 95% RH

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

Power Requirements

Input Voltage: 12 to 48 VDC

Power Connector: Terminal block

Regulatory Approvals

EMC: CE (EN55022 Class A and EN55024), FCC Part 15 Subpart B Class A

Safety: UL (UL60950-1), TÜV (EN60950-1)

Hazardous Location:
UL/cUL Class 1 Division 2 Groups A, B, C, D
ATEX Class 1 Zone 2

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-23

Vibration: IEC 60068-2-6

Marine: DNV

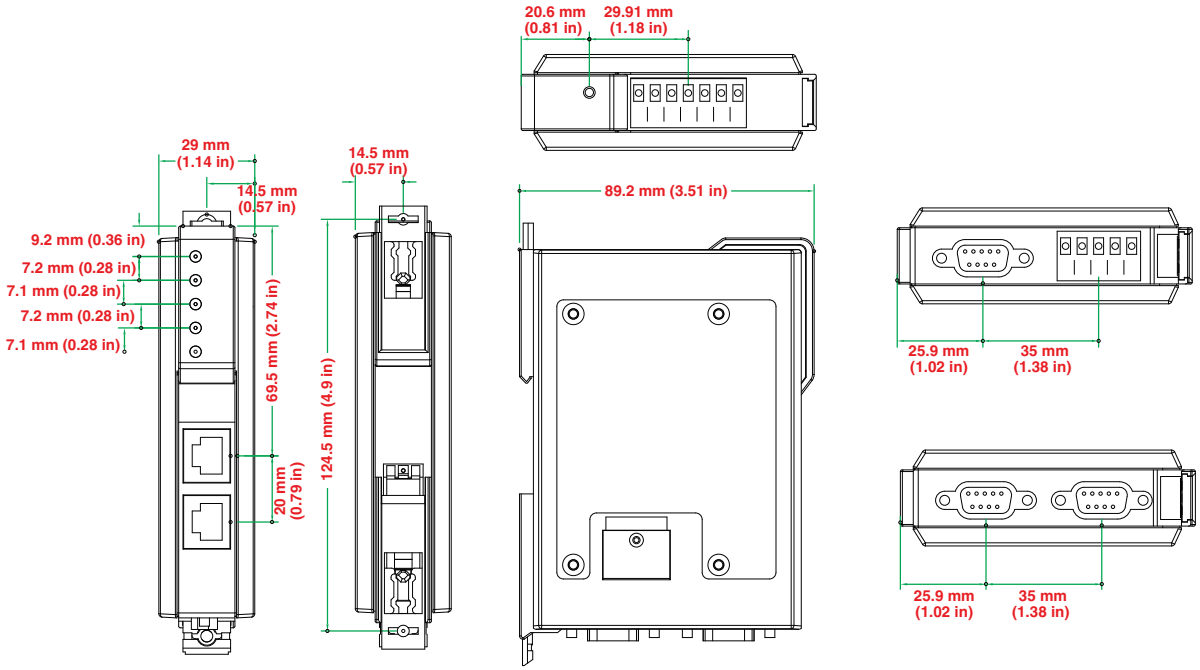
EMS:
EN61000-4-2 (ESD): Level 3
EN61000-4-3 (RS): Level 3
EN61000-4-4 (EFT): Level 4
EN61000-4-5 (Surge): Level 3
EN61000-4-6 (CS): Level 3
EN61000-4-8: Passed
EN61000-4-11: Passed
EN61000-4-12: Passed

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions



Ordering Information

Available Models

MGate™ MB3170: 1-port advanced Modbus gateway, 0 to 55°C operating temperature
MGate™ MB3170I: 1-port advanced Modbus gateway with 2 KV isolation, 0 to 55°C operating temperature
MGate™ MB3270: 2-port advanced Modbus gateway, 0 to 55°C operating temperature
MGate™ MB3270I: 2-port advanced Modbus gateway with 2 KV isolation, 0 to 55°C operating temperature
MGate™ MB3170-T: 1-port advanced Modbus gateway, -40 to 75°C operating temperature
MGate™ MB3170I-T: 1-port advanced Modbus gateway with 2 KV isolation, -40 to 75°C operating temperature
MGate™ MB3270-T: 2-port advanced Modbus gateway, -40 to 75°C operating temperature
MGate™ MB3270I-T: 2-port advanced Modbus gateway with 2 KV isolation, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DR-45-24: 24 VDC DIN-rail power supply (2 A @ 45 W) with universal 85 to 264 VAC input
DR-75-24: 24 VDC DIN-rail power supply (3.2 A @ 75 W) with universal 85 to 264 VAC input
DR-120-24: 24 VDC DIN-rail power supply (5 A @ 120 W) with switch for choosing 88 to 132 VAC, or 176 to 264 VAC input

Package Checklist

- MGate™ MB3170 or MB3170I or MB3270 or MB3270I Modbus Gateway
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

MGate™ MB3180/3280/3480

1, 2, and 4-port standard 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

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

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 31 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

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

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

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

Operation Modes: RTU Slave, RTU Master, ASCII Slave, ASCII Master

Utilities: MGate™ Manager Suite for Windows 98, ME, NT, 2000, XP, 2003, Vista

Multi-master and Multi-drop:
Master mode: 32 TCP slaves
Slave mode: 16 TCP masters (request queue 32-deep for each master)

Bonus Feature: Smart Routing

Physical Characteristics

Housing:
MB3180/3280: Metal
MB3480: Metal, IP30 protection

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 103 x 158 mm (1.40 x 4.06 x 6.22 in)
With ears:
MB3180: 22 x 75.2 x 80 mm (0.87 x 2.96 x 3.15 in)
MB3280: 22 x 100 x 111 mm (0.87 x 3.94 x 4.37 in)
MB3480: 35.5 x 103 x 181 mm (1.40 x 4.06 x 7.14 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Power Requirements

Input Voltage: 12 to 48 VDC

Power Connector:
MGate™ MB3180: Power jack
MGate™ MB3280/3480: Power jack and terminal block

Regulatory Approvals

EMC: CE (EN55022 Class A and EN55024), FCC Part 15 Subpart B Class A

Safety: UL (UL60950-1), TÜV (EN60950-1)

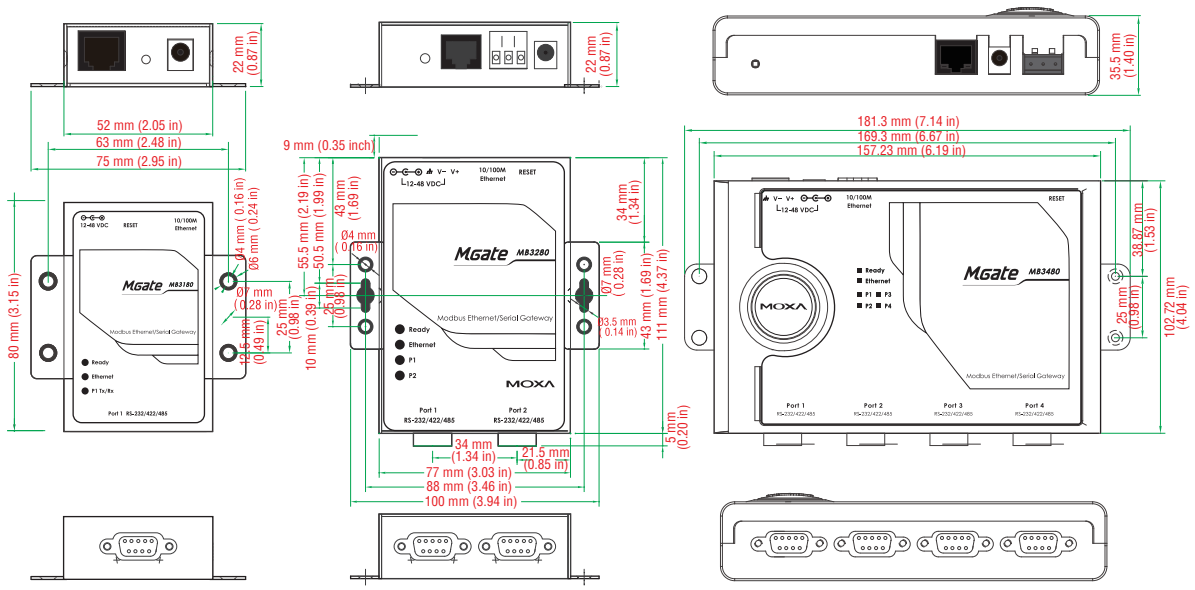
EMS:
EN61000-4-2 (ESD): Level 2
EN61000-4-3 (RS): Level 2
EN61000-4-4 (EFT): Level 2
EN61000-4-5 (Surge): Level 2
EN61000-4-6 (CS): Level 2
EN61000-4-8: Passed
EN61000-4-11: Passed
EN61000-4-12: Passed

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions



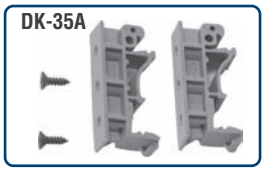
Ordering Information

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)

DK-35A: Mounting kit for 35-mm DIN-rail



Package Checklist

- MGate™ MB3180 or MB3280 or MB3480 Modbus Gateway
- Power Adaptor
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

MGate™ EIP3000 Series

1 and 2-port DF1 to Ethernet/IP gateways



- PCCC objects for Rockwell Automation networks supported
- 8 simultaneous Ethernet/IP clients with up to 16 simultaneous requests per client
- Serial redirector function provided
- Virtual serial port for multiple DF1 and Ethernet/IP device communication
- Embedded Ethernet/IP and DF1 protocol analyzer
- Redundant dual DC power inputs
- Built-in Ethernet cascading for easy wiring

Overview

MGate™ EIP3000 series products provide 1 or 2-port DF1 to Ethernet/IP protocol conversion for users who need to connect Allen Bradley PLCs to an Ethernet/IP network, and provide a cost-effective way to combine PLC and SCADA software into the same system.

Protocol Conversion between DF1 and Ethernet/IP

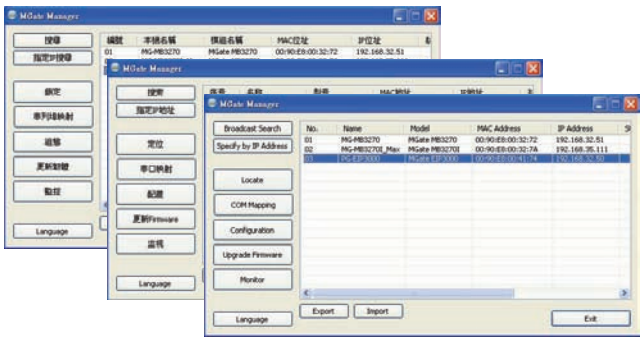
MGate™ EIP3000 series products can be used to connect DF1 devices and Ethernet/IP devices to provide Allen Bradley PLCs with remote maintenance capability. By supporting PCCC objects on CIP, the MGate™ EIP3000 can communicate seamlessly with Rockwell Ethernet devices. The EIP3000 protocol gateways come with either 1 or 2 serial ports to allow users to select a suitable gateway depending on the size of the network.

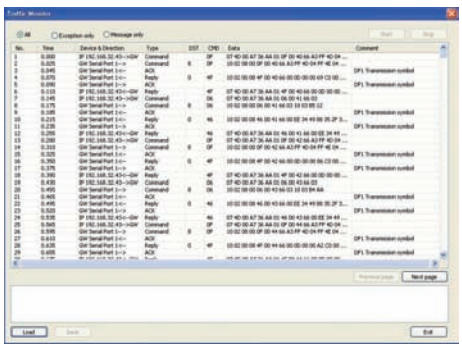
Support for Multiple Ethernet/IP Connections

The MGate™ EIP3000 series products support up to 8 Ethernet/IP clients and 8 Ethernet/IP servers simultaneously. Each client can send up to 16 requests at one time.

Windows Utility for Easy Setup and Traffic Monitoring

Moxa provides a user-friendly Windows utility with multiple language support for use with all of our MGate™ products. The utility also supports a traffic monitoring function for Ethernet/IP and DF1 protocols.





Serial Redirector Function Provided

The MGate™ EIP3000 series products have a serial redirector function that allows additional options for DF1 network integration. The serial redirector function allows the commands of a serial master (command initiator) to be redirected to the serial slave (command executor) on another port. In addition, a serial master can operate simultaneously with Ethernet/IP Clients or other serial masters without altering the DF1 architecture or software. Using the serial redirector function, EIP3000 gateways can establish redundant backup control or Ethernet monitoring of DF1 networks that were originally designed for a single serial master.

Virtual Serial Port for Multiple DF1 and Ethernet/IP Device Communication

Each MGate™ EIP3000 gateway supports a virtual serial port. A remote PC uses a Moxa-provided Real COM or TTY driver to connect to the EIP3000's virtual serial port. RSLinx and SCADA systems can use the virtual COM port to communicate with an EIP3000 gateway. The virtual serial port function gives RSLinux or some SCADA systes the capability to connect to multiple DF1 and Ethernet/IP devices through a protocol gateway.

Pull high/low Resistors and Terminator Selection

When using termination resistors to prevent serial signal reflection, it is important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. Since no set of resistor values is universally compatible with all environments, the EIP3000 has DIP switches on the bottom panel for setting the termination and pull high/low resistor values.

Built-in Isolation

Complex device networks that incorporate high amperage devices could be subject to electrical signal distortion from electrical discharges, magnetic noise, or common mode transients. MGate™ EIP series products solve this problem by using built-in optical isolation.

Specifications

Ethernet Interface

Number of Ports: 2 (sharing 1 IP)
Speed: 10/100 Mbps, Auto MDI/MDIX
Connector: 8-pin RJ45
Magnetic Isolation Protection: 1.5 KV built-in

Serial Interface

Number of Ports:
EIP3170/3170I: 1
EIP3270/3270I: 2
Serial Standards: RS-232/422, software selectable
Connectors:
EIP3170/3170I: DB9 male for RS-232, terminal block for RS-422
EIP3270/3270I: DB9 male x 2
ESD Protection: 15 KV for all signals

Serial Communication Parameters

Data Bits: 7, 8
Stop Bits: 1, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, DTR/DSR
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
Ethernet Protocol: CIP (PCCC) on Ethernet/IP
Serial Protocol: DF1 Full-duplex

Physical Characteristics

Housing: Plastic
Dimensions:
Without ears: 29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in)
With ears extended: 29 x 89.2 x 124.5 mm (1.14 x 3.51 x 4.90 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Power Requirements

Input Voltage: 12 to 48 VDC
Power Connector: Terminal block

Regulatory Approvals

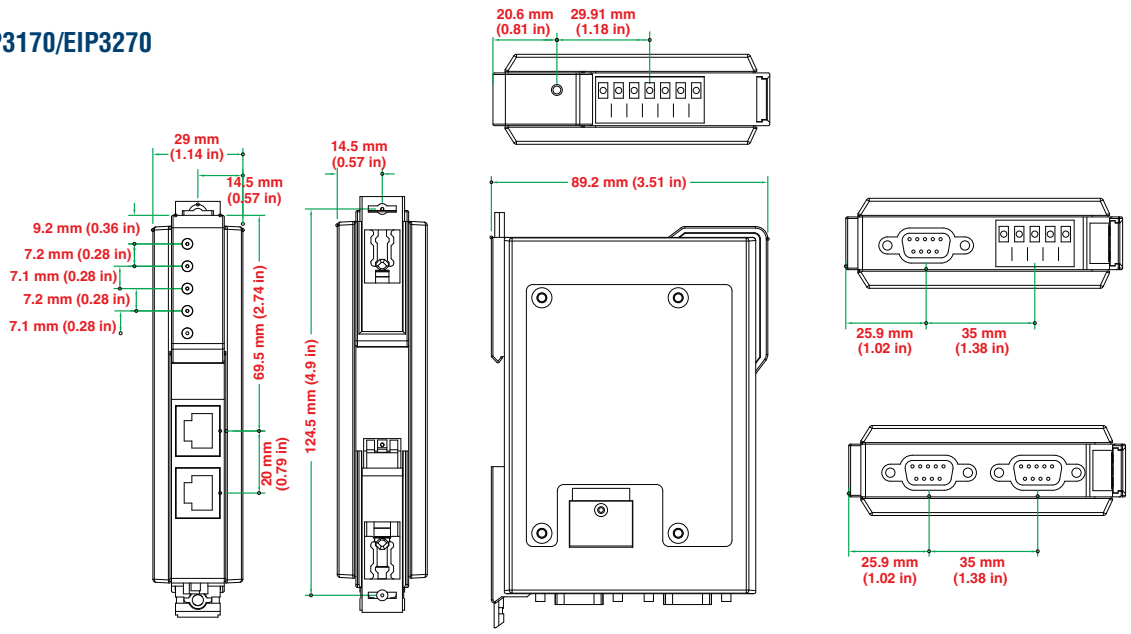
EMC: CE (EN55022 Class A and EN55024), FCC Part 15 Subpart B Class A
Safety: UL (UL60950-1), LVD (EN60950-1)
Hazardous Location:
UL/cUL Class 1 Division 2 Groups A, B, C, D
ATEX Class 1 Zone 2
Shock: IEC60068-2-27
Freefall: IEC60068-2-23
Vibration: IEC60068-2-6
EMS:
EN61000-4-2 (ESD): Level 3
EN61000-4-3 (RS): Level 3
EN61000-4-4 (EFT): Level 4
EN61000-4-5 (Surge): Level 3
EN61000-4-6 (CS): Level 3
EN61000-4-8: Passed
EN61000-4-11: Passed
EN61000-4-12: Passed

Warranty

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

Dimensions

EIP3170/EIP3270



Ordering Information

Available Models

MGate™ EIP3170: 1-port DF1 to Ethernet/IP gateway, 0 to 55°C operating temperature

MGate™ EIP3170I: 1-port DF1 to Ethernet/IP gateway with 2 KV isolation, 0 to 55°C operating temperature

MGate™ EIP3270: 2-port DF1 to Ethernet/IP gateway, 0 to 55°C operating temperature

MGate™ EIP3270I: 2-port DF1 to Ethernet/IP gateway with 2 KV isolation, 0 to 55°C operating temperature

MGate™ EIP3170-T: 1-port DF1 to Ethernet/IP gateway, -40 to 75°C operating temperature

MGate™ EIP3170I-T: 1-port DF1 to Ethernet/IP gateway with 2 KV isolation, -40 to 75°C operating temperature

MGate™ EIP3270-T: 2-port DF1 to Ethernet/IP gateway, -40 to 75°C operating temperature

MGate™ EIP3270I-T: 2-port DF1 to Ethernet/IP gateway with 2 KV isolation, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DR-45-24: 24 VDC DIN-rail power supply (2 A @ 45 W) with universal 85 to 264 VAC input

DR-75-24: 24 VDC DIN-rail power supply (3.2 A @ 75 W) with universal 85 to 264 VAC input

DR-120-24: 24 VDC DIN-rail power supply (5 A @ 120 W) with switch for choosing 88 to 132 VAC, or 176 to 264 VAC input

Package Checklist

- 1 MGate™ EIP3170 or EIP3170I or EIP3270 or EIP3270I Ethernet/IP gateway
- Quick installation guide (printed)
- Document and Software CD
- Warranty Card