MGate MB3180, MB3280, and MB3480

Standard Modbus Gateway

Features

- Converts between Modbus TCP and Modbus RTU/ASCII
- Provides 1 Ethernet port and up to 4 RS-232/422/485 serial ports
- Supports 16 simultaneous TCP masters with up to 32 simultaneous requests per master
- Designed for easy setup

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

MGate MB3000 standard models include the MB3180, MB3280, and MB3480, and 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 gateway

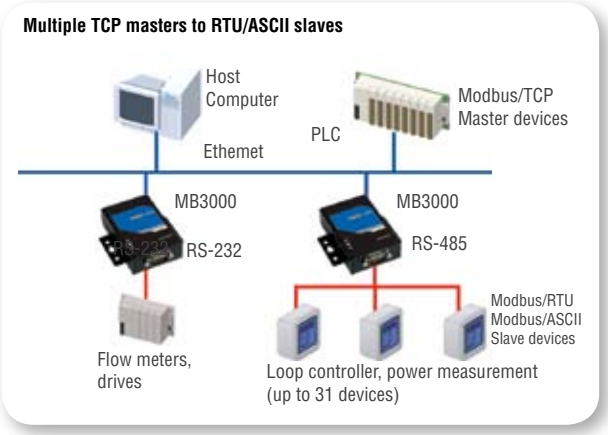
The MGate MB3000 can effectively integrate networks with a high density of Modbus nodes. The MB3280 can manage up to 62 serial slave nodes, while the MB3480 can manage 124. Each RS-233/422/485 serial port can be individually configured for Modbus RTU or Modbus ASCII operation or even different baudrates, allowing both types of networks to be integrated with Modbus TCP within one package.

Typical Applications

Multiple TCP masters to RTU/ASCII slaves

In modern industrial networks, most host computers and newer PLCs support Modbus TCP. However, Modbus TCP is not directly compatible with the Modbus RTU/ASCII devices used for data collection and control.

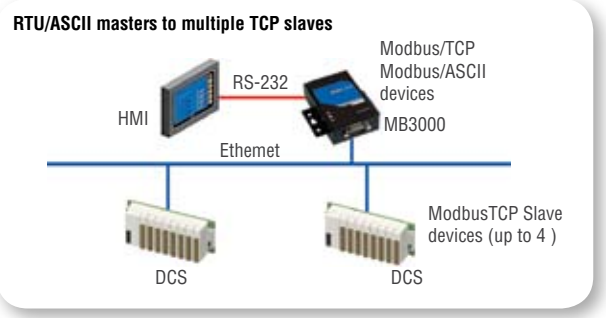
The MGate MB3000 provides TCP masters with access to RTU/ASCII slaves. It supports up to 16 simultaneous TCP masters for maximum compliance with the Modbus TCP protocol. Serial ports provide connections to Modbus RTU or ASCII slaves and can be independently configured for RS-232, RS-422, or RS-485 communication. One slave device can be attached to ports in RS-232 or RS-422 mode, and up to 31 devices can be attached to ports in RS-485 mode.



RTU/ASCII masters to multiple TCP slaves

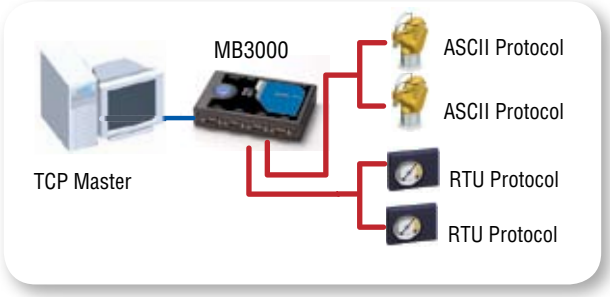
Many HMI (Human Machine Interface) systems are designed to access a DCS (Data Control System) using serial communication (typically RS-485). However, it has become more common to rely on an Ethernet-based DCS that runs under Modbus TCP.

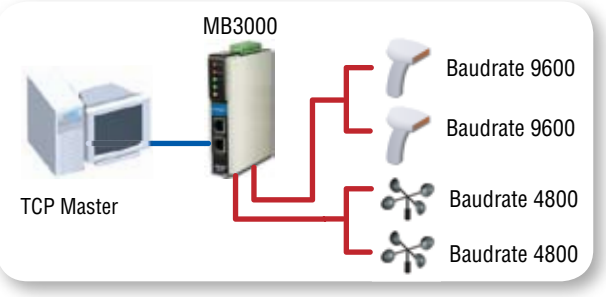
The MGate MB3000 is ideal for linking a serial-based HMI to an Ethernet-based DCS. Each MB3000 supports up to 32 Modbus TCP slaves.



TCP master to different serial parameter slaves

There are several variations of Modbus serial devices that differ in baudrate and specific protocol (Modbus RTU or Modbus ASCII). The MB3280 and MB3480 provide multiple ports that are independently configurable, so RTU slaves can be connected on one port and ASCII slaves on the other. With multiport models of the MB3000, all Modbus devices and networks are easily integrated using just one Modbus gateway.

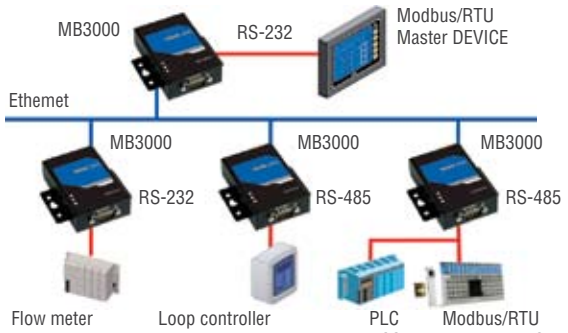




Serial master to serial slaves over Ethernet

Typical Modbus serial devices use RS-485 for communication, which limits the maximum number of Modbus devices to 31 and the maximum transmission distance to 1.2 km. With the MGate MB3000, a serial master has access to many more serial slaves over the Ethernet network, with unlimited transmission distances.

Serial master to serial slaves over Ethernet



Ordering information

MGate MB3180: 1-port standard Modbus gateway
MGate MB3280: 2-port standard Modbus gateway
MGate MB3480: 4-port standard Modbus gateway

Optional accessories

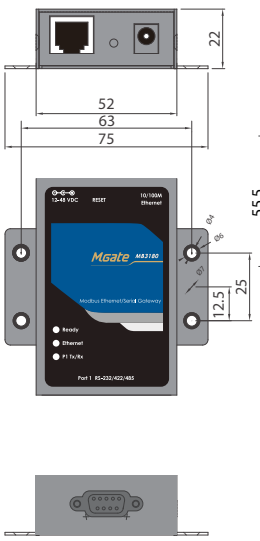
DK-35A: DIN-Rail mounting kit (35mm)

Package Checklist

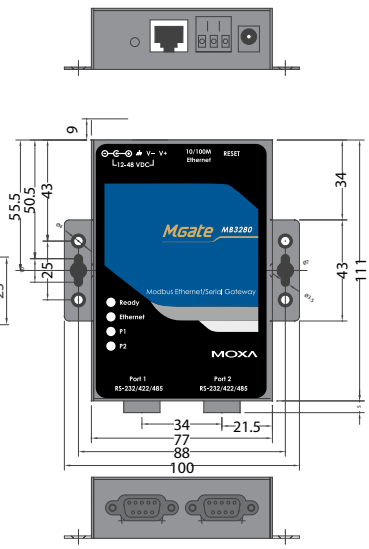
- 1 MGate MB3180/MB3280/MB3480 Modbus gateway
- Power Adaptor (MB3180 only)
- Warranty Statement
- Quick Installation Guide
- Document and Software CD-ROM

Dimensions (unit = mm)

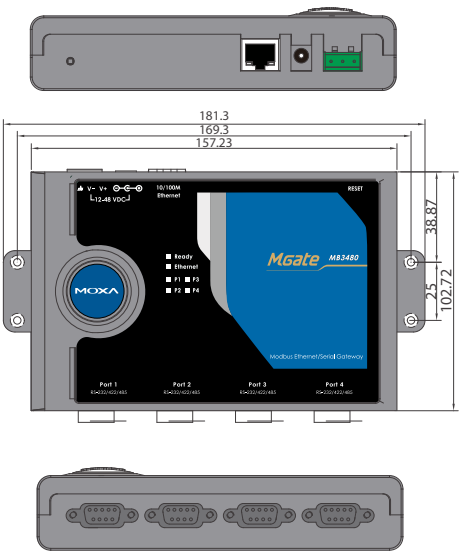
MB3180



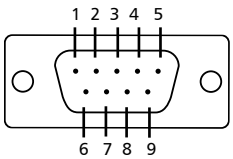
MB3280



MB3480



Male DB9 RS-232/422/485 Port



PIN	RS-232	RS-485 (4W)	RS-485 (2W)	RS-422
1	DCD	TxD-(A)	–	TxD-(A)
2	RXD	TxD+(B)	–	TxD+(B)
3	TXD	RxD+(B)	Data+(B)	RxD+(B)
4	DTR	RxD-(A)	Data-(A)	RxD-(A)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
9	–	–	–	–

Specifications

LAN
Ethernet: 10/100 Mbps, RJ45, Auto MDI/MDIX

Protection: Built-in 1.5 KV magnetic isolation

Serial
Interface: RS-232/422/485 (software selectable)

No. of Ports:

MB3180: 1

MB3280: 2

MB3480: 4

Port Type: Male DB9

Signals:

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: Tx+, Tx-, Rx+, Rx-, GND

RS-485 (2-wire): Data+, Data-, GND

RS-485 (4-wire): Rx+, Tx-, Rx+, GND

Serial Line Protection: 15 KV ESD for all signals
Serial communication parameters

Parity: None, Even, Odd, Space, Mark

Data bits: 7, 8

Stop bits: 1, 2

Flow control: RTS/CTS, XON/XOFF

Speed: 50 to 921.6 Kbps

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

Utility: 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, 32 request queue depth for each master.

Power Requirements
Power input: 12 to 48 VDC

Power connector:

MB3180: power jack

MB3280: power jack and terminal block

MB3480: power jack and terminal block

Power line protection:

1 KV Burst (EFT), EN61000-4-4

0.5 KV Surge, EN61000-4-5

Mechanical Specifications
Material:

MB3180: Aluminum (1 mm)

MB3280: Aluminum (1 mm)

MB3480: SECC sheet metal (0.8 mm)

Environmental
Operation temperature:

0 to 55°C (32 to 131°F), 5 to 95% RH

Storage temperature:

-20 to 85°C (-4 to 185°F), 5 to 95% RH

Regulatory Approvals
EMC:

CE: EN550022 Class A / EN550024

FCC: FCC Part 15 subpart B, Class A

Safety:

TUV: EN60950-1

Shock: IEC60068-2-27

Freefall: IEC60068-2-23

Vibration: IEC60068-2-6

Warranty: 5 years