

MGate™ 5103 Series

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



- > Supports PROFINET IO Device
- > Supports Modbus RTU/ASCII/TCP master/slave
- > Effortless configuration via web-based wizard
- > Supports EtherNet/IP Adapter
- > Complete diagnosis information for maintenance
- > Embedded Modbus traffic monitoring
- > microSD card for configuration backup and event logs
- > -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
- > Security features based on IEC-62443



Introduction

The MGate 5103 is an industrial Ethernet gateway for Modbus RTU/ASCII/TCP, EtherNet/IP, and PROFINET network communications. To integrate existing Modbus devices onto a PROFINET network, use the MGate 5103 as a Modbus master/slave or EtherNet/IP adapter

to collect data and exchange data with PROFINET devices. The latest exchange data will be stored in the gateway. The gateway will convert stored Modbus or EtherNet/IP data into PROFINET packets so the PROFINET IO controller can control or monitor field devices.

Easy Configuration via Web Console

The MGate 5103 series comes with an illustrated Quick Setup guide designed to make configuration easy. With Quick Setup, you can easily access protocol conversion modes and finish the configuration in

a few steps. The MGate 5103 series also supports a GSDML export function. GSDML files can be imported into PROFINET PLCs to save time on PLC configuration.

Modbus RTU/ASCII/TCP Protocol Traffic Monitor

MGate 5103 series gateways support Modbus RTU/ASCII/TCP Protocol Traffic Monitor for easy troubleshooting, especially during the installation stage. Communication issues could be caused by incorrect software parameters, such as slave IDs and register addresses that

were entered incorrectly, or an incorrect command configuration. With Modbus RTU/ASCII/TCP Protocol Traffic Monitor, you can check the captured data and easily identify the root cause.

Maintenance Functions

MGate 5103 gateways support a system log function that records events in the MGate; users can easily review log data remotely through the web console. The gateways also support status monitoring and fault protection functions. The status monitoring function notifies a

PLC/DCS/SCADA system when a Modbus device gets disconnected or does not respond, in which case the process PLC/DCS gets the status of each end device and then issues alarms to notify operators.

Specifications

Ethernet Interface

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

PROFINET:

- Type: Device (slave)
- Max. data size per I/O transmission:
 - Input: 512 bytes
 - Output: 512 bytes
- Max. Number of Connections:
 - MGate as PROFINET IO Device: 1 connection for read/write

EtherNet/IP:

- Class: Adapter (slave)
- CIP Objects Supported: Identity, Message Router, Assembly, Connection Manager, TCP/IP interface, Ethernet link, Port
- Max. Number of Connections:
MGate as Adapter: 1 connection for read-only, 1 connection for read/write
- 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: 128
- Max. Number of Connections:
MGate as Modbus TCP Client: 32
MGate as Modbus TCP Server: 16
- Max. Total I/O Data Size:
Input: 512 bytes
Output: 512 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)

Modbus RTU/ASCII:

- Mode: Master/Slave
- Functions Supported: 1, 2, 3, 4, 5, 6, 15, 16, 23
- Max. Number of Commands: 128
- Max. Total I/O Data Size:
Input: 512 bytes
Output: 512 bytes

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, Serial Console

Utility: MGate Manager for Windows 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows

7/8/8.1/10 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2

Support: MXconfig, 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: 876,502 hrs

Standard: Telcordia SR332

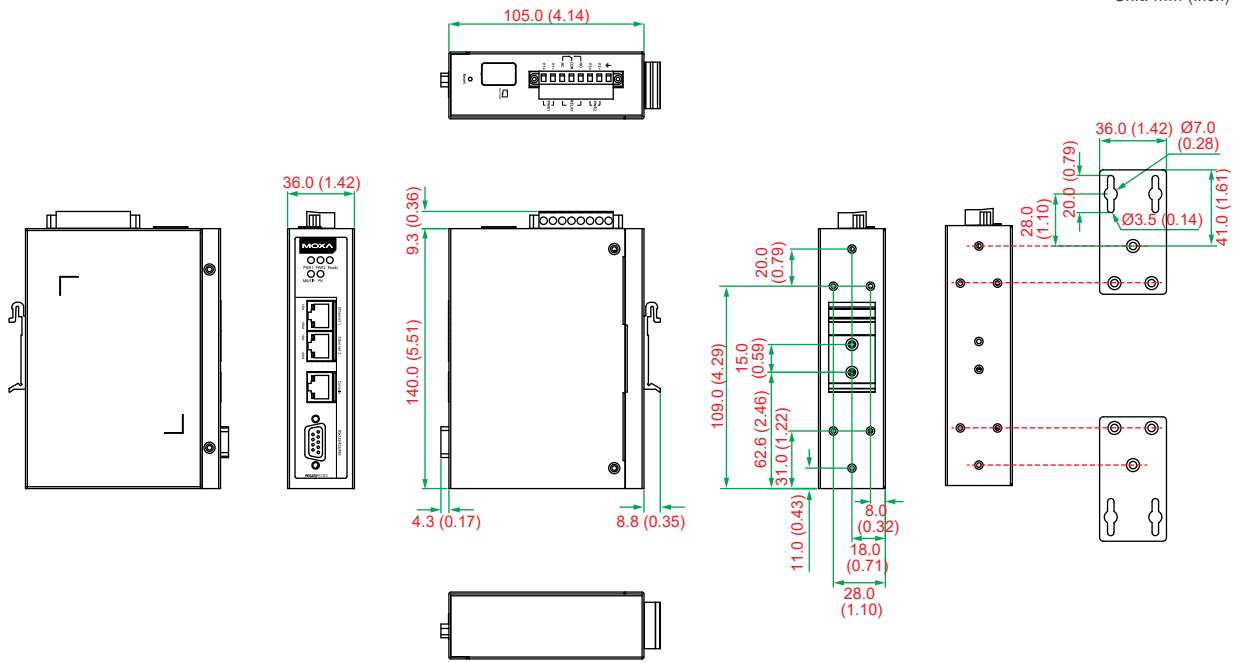
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



: Ordering Information

Available Models

MGate 5103: 1-port Modbus/EtherNet/IP-to-PROFINET gateway, 0 to 60°C operating temperature

MGate 5103-T: 1-port Modbus/EtherNet/IP-to-PROFINET 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

Mini DB9F-to-TB Adapter: DB9 female to terminal block adapter

CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm

CBL-F9M9-20: DB9 female to DB9 male serial cable, 20 cm

Package Checklist

- 1 MGate 5103 gateway
- 1 serial cable: DBL-RJ45F9-150
- Quick installation guide (printed)
- Warranty card