

# MGate W5108/W5208 Series

1 and 2-port IEEE 802.11a/b/g/n wireless Modbus/DNP3 gateways



## Features and Benefits

- Supports Modbus serial tunneling communications through an 802.11 network
- Supports DNP3 serial tunneling communications through an 802.11 network
- Accessed by up to 16 Modbus/DNP3 TCP masters/clients
- Connects up to 31 or 62 Modbus/DNP3 serial slaves
- Embedded traffic monitoring/diagnostic information for easy troubleshooting
- microSD card for configuration backup/duplication and event logs
- Serial port with 2 kV isolation protection
- -40 to 75°C wide operating temperature models available
- Supports 2 digital inputs and 2 digital outputs
- Supports redundant dual DC power inputs and 1 relay output
- Security features based on IEC 62443

## Certifications



## Introduction

The MGate W5108/W5208 gateways are an ideal choice for connecting Modbus serial devices to a wireless LAN, or DNP3 serial to DNP3 IP through a wireless LAN. With IEEE 802.11a/b/g/n support, you can use fewer cables in difficult wiring environments, and for secure data transmission, the MGate W5108/W5208 gateways support WEP/WPA/WPA2. The gateways' rugged design makes them suitable for industrial applications, including oil and gas, power, process automation, and factory automation.

## Modbus Traffic Monitor

The MGate W5108/W5208 gateways support Modbus Protocol Traffic Monitor for easy troubleshooting, especially during the installation stage. Communication issues could be caused by incorrect software parameters, such as slave ID and register address, or incorrect hardware parameters such as baudrate and interface. With Modbus Protocol Traffic Monitor support, you can check the captured data and easily identify the root cause.

## A Variety of Maintenance Functions

The MGate W5108/W5208 Series of gateways support a web console and Telnet console for remote maintenance. Each gateway also supports encryption commutation functions such as HTTPS and SSH to prevent security issues. In addition, log functions are provided in the firmware to record connection events and Modbus for maintenance events. Users can review log data remotely through the web console.

## Specifications

### Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	1
Magnetic Isolation Protection	1.5 kV (built-in)

### Ethernet Software Features

Industrial Protocols	DNP3 TCP Master, DNP3 TCP Outstation (Slave), Modbus TCP Client (Master), Modbus TCP Server (Slave)
Management	ARP, DHCP Client, DNS, HTTP, SMTP, SNMPv1/v2c/v3, TCP/IP, UDP, Private MIB

Time Management	NTP Client
Configuration Options	Web Console (HTTP/HTTPS), Telnet Console, Device Search Utility (DSU)
<b>Serial Interface</b>	
No. of Ports	MGate W5108 Series: 1 MGate W5208 Series: 2
Connector	DB9 male
Serial Standards	R2-232/422/485 (software selectable)
Baudrate	50 bps to 921.6 kbps
Data Bits	7, 8
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 2
Flow Control	RTS Toggle (RS-232 only), RTS/CTS, XON/XOFF
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms
Terminator for RS-485	120 ohms
Isolation	2 kV
<b>Serial Signals</b>	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND
<b>Serial Software Features</b>	
Industrial Protocols	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave, DNP3 Serial Master, DNP3 Serial Outstation (Slave)
<b>WLAN Interface</b>	
Frequency Band for EU (20 MHz operating channels)	2.412 to 2.472 GHz (13 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) 5.500 to 5.700 GHz (11 channels)
Frequency Band for JP (20 MHz operating channels)	2.412 to 2.484 GHz (14 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) 5.500 to 5.700 GHz (11 channels)
Frequency Band for US (20 MHz operating channels)	2.412 to 2.462 GHz (11 channels) 5.810 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) 5.500 to 5.700 GHz (8 channels) 5.745 to 5.825 GHz (5 channels)
Receiver Sensitivity for 802.11a	-91 dBm @ 6 Mbps -90 dBm @ 9 Mbps -88 dBm @ 12 Mbps -86 dBm @ 18 Mbps -82 dBm @ 24 Mbps -81 dBm @ 36 Mbps -75 dBm @ 48 Mbps -74 dBm @ 54 Mbps

Receiver Sensitivity for 802.11b	-92 dBm @ 1 Mbps -88 dBm @ 2 Mbps -87 dBm @ 5.5 Mbps -84 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g	-91 dBm @ 6 Mbps -90 dBm @ 9 Mbps -88 dBm @ 12 Mbps -86 dBm @ 18 Mbps -80 dBm @ 24 Mbps -80 dBm @ 36 Mbps -74 dBm @ 48 Mbps -73 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 GHz)	-89 dBm @ MCS0 20 MHz -87 dBm @ MCS1 20 MHz -85 dBm @ MCS2 20 MHz -81 dBm @ MCS3 20 MHz -78 dBm @ MCS4 20 MHz -74 dBm @ MCS5 20 MHz -73 dBm @ MCS6 20 MHz -71 dBm @ MCS7 20 MHz
Receiver Sensitivity for 802.11n (5 GHz)	-89 dBm @ MCS0 20 MHz -87 dBm @ MCS1 20 MHz -85 dBm @ MCS2 20 MHz -81 dBm @ MCS3 20 MHz -78 dBm @ MCS4 20 MHz -74 dBm @ MCS5 20 MHz -73 dBm @ MCS6 20 MHz -71 dBm @ MCS7 20 MHz -85 dBm @ MCS0 40 MHz -84 dBm @ MCS1 40 MHz -81 dBm @ MCS2 40 MHz -77 dBm @ MCS3 40 MHz -75 dBm @ MCS4 40 MHz -70 dBm @ MCS5 40 MHz -69 dBm @ MCS6 40 MHz -67 dBm @ MCS7 40 MHz
Spread Spectrum	OFDM
Transmission Distance	Up to 100 meters
Transmission Rate	802.11a/g: 65, 54, 48, 36, 24, 16, 12, 9, 6 Mbps 802.11b: 1,2,5.5,11 Mbps 802.11n HT20: 7.2 to 72.2 Mbps (MCS0 to MCS7) 802.11n HT40: 15 to 150 Mbps (MCS0 to MCS7)
Transmitter Power for 802.11b	16±1.5 dBm @ 11 Mbps
Transmitter Power for 802.11g	16±1.5 dBm @ 6 to 36 Mbps 15±1.5 dBm @ 48 Mbps 14±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11a	15±1.5 dBm @ 6 to 36 Mbps 15±1.5 dBm @ 48 Mbps 14±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz)	16±1.5 dBm @ MCS0-3 20 MHz 14±1.5 dBm @ MCS4-5 20 MHz 12±1.5 dBm @ MCS6-7 20 MHz
Transmitter Power for 802.11n (5 GHz)	15±1.5 dBm @ MCS0-3 20/40 MHz 14±1.5 dBm @ MCS4-5 20/40 MHz 12±1.5 dBm @ MCS6-7 20/40 MHz
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2-Personal

WLAN Antenna Connector	1 RP-SMA female
WLAN Modes	Ad-hoc Mode, Infrastructure mode
WLAN Standards	802.11a/b/g/n
<b>Memory</b>	
microSD Slot	Up to 32 GB (SD 2.0 compatible)
<b>Input/Output Interface</b>	
Digital Input Channels	2
Digital Output Channels	2
<b>Digital Inputs</b>	
Connector	Screw-fastened Euroblock terminal
Dry Contact	Logic 0: Short to GND Logic "1": Open
Wet Contact (DI to COM)	Logic "0": 0 to 3 VDC Logic "1": 10 to 30 VDC
<b>Digital Outputs</b>	
Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
Over-Voltage Protection	30 VDC
I/O Type	Sink
<b>Power Parameters</b>	
Input Voltage	9 to 60 VDC
Input Current	202 mA @ 24 VDC
Power Connector	Spring-type Euroblock terminal
<b>Reliability</b>	
Automatic Reboot Trigger	Built-in WDT
<b>Physical Characteristics</b>	
Housing	Metal
IP Rating	IP30
Dimensions	MGate W5108 Series: 45.8 x 105 x 134 mm (1.8 x 4.13 x 5.28 in) MGate W5208 Series: 59.6 x 101.7 x 134 x mm (2.35 x 4 x 5.28 in)
Weight	MGate W5108 Series: 589 g (1.30 lb) MGate W5208 Series: 738 g (1.63 lb)
<b>Environmental Limits</b>	
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 (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

## Standards and Certifications

Safety	EN 60950-1, UL 508
EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class B
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 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 IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF
Hazardous Locations	ATEX, Class I Division 2, IECEx
Radio Frequency	EN 300 328, EN 301 489-1/17, EN 301 893
Freefall	IEC 60068-2-32
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6, IEC 60068-2-64

## MTBF

Time	MGate W5108 Series: 668,518 hrs MGate W5208 Series: 556,271 hrs
Standards	Telcordia SR332

## Warranty

Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

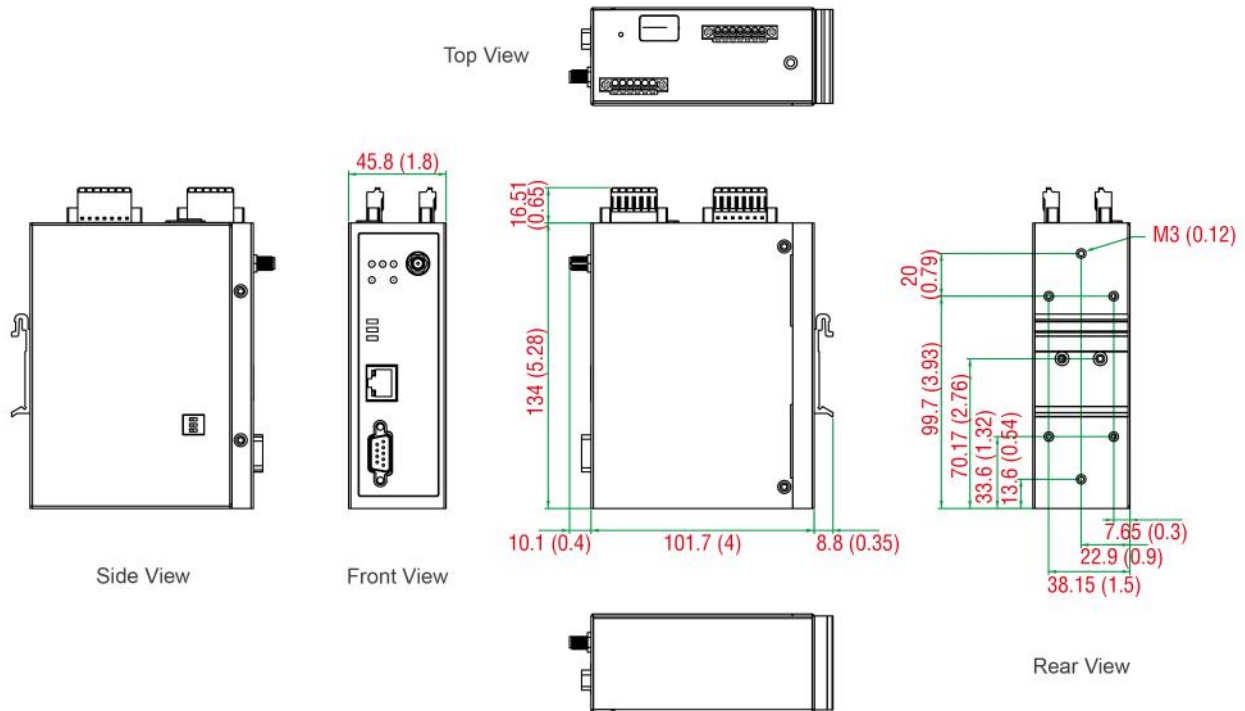
## Package Contents

Device	1 x MGate W5108/W5208 Series gateway
Antenna	1 x Wi-Fi
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card

## Dimensions

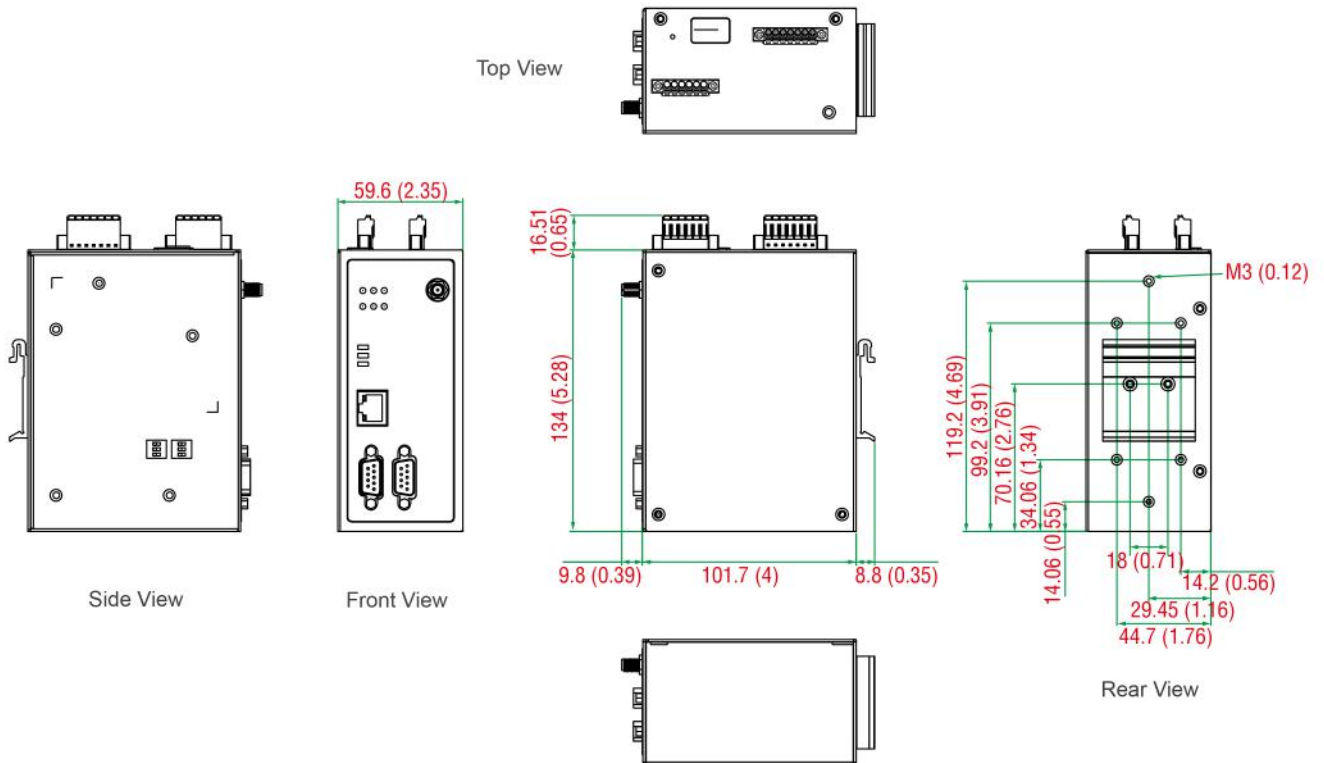
### MGate W5108

Unit: mm (inch)



### MGate W5208

Unit: mm (inch)



## Ordering Information

Model Name	No. of Serial Ports	Operating Temp.
MGate W5108	1	0 to 60°C
MGate W5208	2	0 to 60°C
MGate W5108-T	1	-40 to 75°C
MGate W5208-T	2	-40 to 75°C

## Accessories (sold separately)

### Cables

CBL-F9M9-150	DB9 female to DB9 male serial cable, 1.5 m
CBL-F9M9-20	DB9 female to DB9 male serial cable, 20 cm

### Connectors

Mini DB9F-to-TB	DB9 female to terminal block connector
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### Wall-Mounting Kits

WK-51-01	Wall-mounting kit, 2 plates, 6 screws, 51.6 x 67 x 2 mm
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### Power Cords

CBL-PJTB-10	Non-locking barrel plug to bare-wire cable
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### Antennas

ANT-WDB-ARM-02	2.4/5 GHz, omni-directional rubber duck antenna, 2 dBi, RP-SMA (male)
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