MGate 5216 Series

2-port serial/Modbus-to-EtherCAT gateways

Features and Benefits

- Protocol conversion from proprietary serial or Modbus to EtherCAT
- Supports EtherCAT slave
- Supports Modbus RTU/ASCII Client (Master)
- Maximum data input and output of 512 bytes
- Serial port with 2 kV isolation protection
- Supports MicroPython programming for proprietary serial
- Built-in Ethernet cascading for easy wiring
- Supports redundant dual DC power inputs and 1 relay output

Certifications

Introduction

MGate 5216 Series EtherCAT industrial Ethernet gateways convert data between Modbus RTU/ASCII, proprietary serial and EtherCAT protocols. All models are protected by a rugged metal housing, are DIN-rail mountable, and offer built-in serial isolation.

Modbus is one of the most widely used industrial communication protocols, and EtherCAT is commonly used in factory automation and semiconductor fields. MGate 5216 supports both Modbus RTU/ASCII client and MicroPython enabling programming in proprietary serial protocol, so that you can easily connect your Modbus devices or serial devices to EtherCAT host.

The MGate 5216 EtherCAT gateways are designed for easy configuration and quick maintenance. An intuitive web console can be used to implement remote maintenance tasks. A comprehensive collection of troubleshooting tools reduces configuration time and system downtime and the rugged design is suitable for industrial applications.

Easy Configuration

The MGate 5216 EtherCAT gateways have a user-friendly interface that lets you quickly set up protocol conversion routines for most applications, doing away with what were often time-consuming tasks in which users had to implement detailed parameter configurations one by one. The MGate 5216 supports web console for remote maintenance. Encryption communication functions, including HTTPS, are supported to provide better network security. In addition, system monitoring functions are provided to record network connections and system log events.

Easy Maintenance With Built-in Functions

The MGate 5216 supports Protocol Diagnose and Traffic Monitor for easy troubleshooting, especially during the installation stage. Serial communication issues caused by incorrect software parameters, such as slave IDs and register addresses, or incorrect command configurations, can be fished out with Protocol Diagnose and Traffic Monitoring, which let you capture and check data to easily identify root causes.

Specifications

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	2 Auto MDI/MDI-X connection
Magnetic Isolation Protection	1.5 kV (built-in)

Ethernet Software Features

Industrial Protocols	EtherCAT Slave
Configuration Options	Web Console (HTTP/HTTPS) Device Search Utility (DSU)
Management	ARP DHCP Client

	DNS
	HTTP
	HTTPS
	SMTP
	SNMP Trap
	SNMPv1/v2c/v3
	TCP/IP
	Telnet
	UDP
MIB	MIB-II
Time Management	NTP Client

Serial Interface

No. of Ports	2
Connector	DB9 male
Console Port	RS-232 (TxD, RxD, GND), 10-pin RJ45 (115200, n, 8, 1)
Serial Standards	RS-232/422/485
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
RS-485 Data Direction Control	Automatic Data Direction Control (ADDC)
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms
Terminator for RS-485	120 ohms
Isolation	2 kV (built-in)

Serial Signals

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

Serial Software Features

Configuration Options	Serial Console
Industrial Protocols	Modbus RTU/ASCII Client (Master)

Modbus RTU/ASCII

Mode	Client (Master)
Functions Supported	1, 2, 3, 4, 5, 6, 15, 16, 23
Max. No. of Commands	128 per serial port

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Total Input Data Size	512 bytes
Total Output Data Size	512 bytes

MicroPython

Version	1.20.0
Functions Supported	Input Output Input/Output
Max. No. of Commands	64 per serial port
Total Input Data Size	512 bytes
Total Output Data Size	512 bytes

EtherCAT

Mode	Slave
Baudrate	Full duplex 100 Mbps
FMMU	3
Sync Manager	4
Total Input Data Size	512 bytes
Total Output Data Size	512 bytes

Memory

microSD Slot	Up to 32 GB (SD 2.0 compatible)

Power Parameters

Input Voltage	12 to 48 VDC
Input Current	416 mA (max)
Power Connector	Spring-type Euroblock terminal

Relays

Contact Current Rating	Resistive load: 2 A @ 30 VDC

Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions (without ears)	45.8 x 105 x 134 mm (1.8 x 4.13 x 5.28 in)
Weight	589 g (1.30 lb)

Environmental Limits

Operating Temperature	MGate 5216: 0 to 60°C (32 to 140°F) MGate 5216-T: -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

EMC	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
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: 4 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; Signal: 10 V/m IEC 61000-4-8 PFMF
Safety	EN 60950-1 UL 61010-2-201
Freefall	IEC 60068-2-32
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6 IEC 60068-2-64

MTBF

Time	2,305,846 hrs
Standards	Telcordia Standard SR-332

Warranty

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

Package Contents

Device	1 x MGate 5216 Series gateway
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

DIN-rail Mounting

Unit: mm (inch)
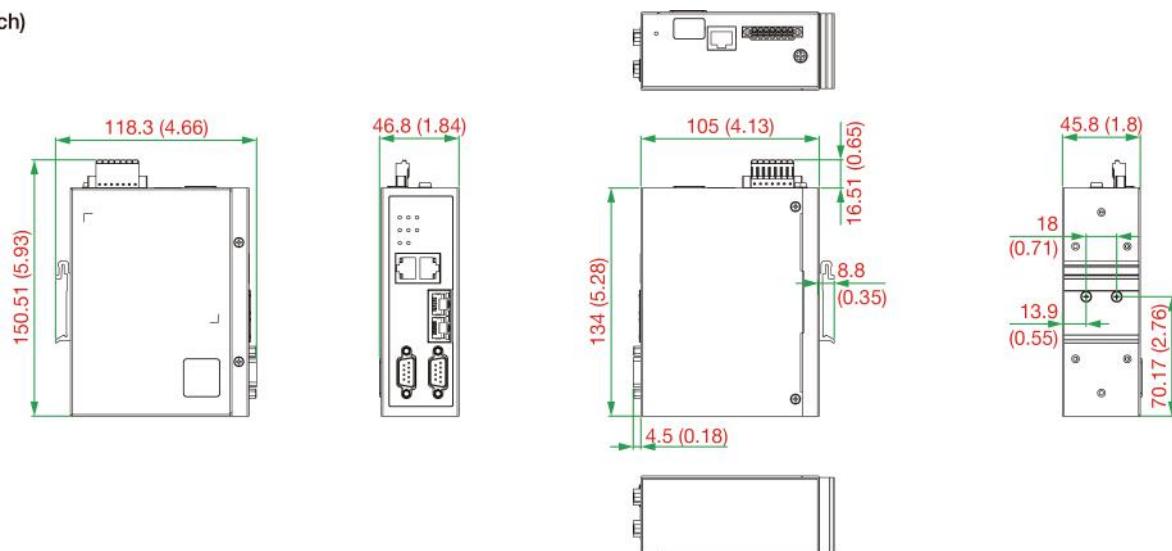
Wall Mounting

Unit: mm (inch)
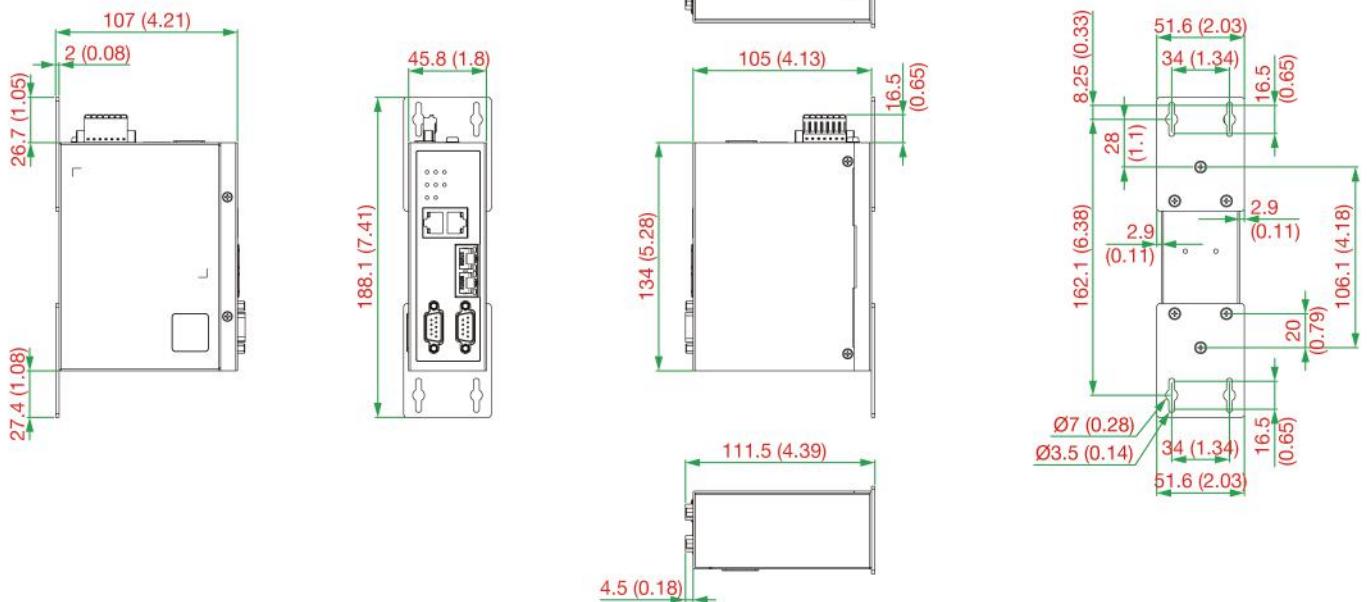
Ordering Information

Model Name	Operating Temp.
MGate 5216	0 to 60°C
MGate 5216-T	-40 to 75°C

Accessories (sold separately)

Connectors

Mini DB9F-to-TB	DB9 female to terminal block connector

Wall-Mounting Kits

WK-51-01	Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws

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