Manuals+ — User Manuals Simplified.

**5216 Series
Modbus TCP
Gateways**

MOXA 5216 Series Modbus TCP Gateways Installation Guide

Contents

MOXA 5216 Series Modbus TCP Gateways

Overview

The MGate 5216 is an industrial Ethernet gateway that converts data between the 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.

Package Checklist

Before installing the MGate 5216, verify that the package contains the following items:

- 1 MGate 5216 gateway with a DIN-rail mounting kit preinstalled
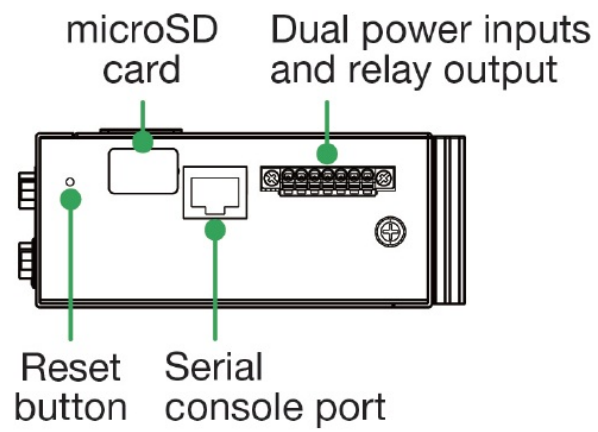- Quick installation guide (printed)
- Warranty card

NOTE Please notify your sales representative if any of the above items is missing or damaged.
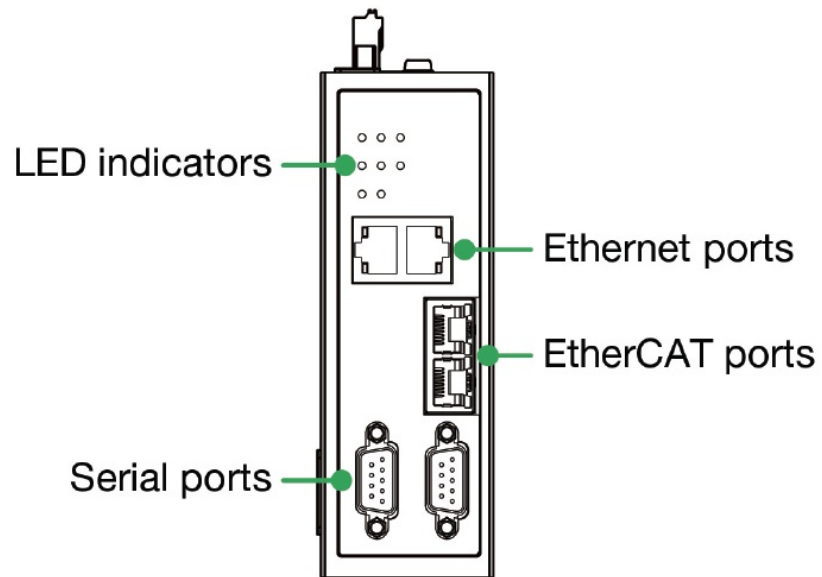
Optional Accessories (can be purchased separately)

- Mini DB9F-to-TB: DB9-female-to-terminal-block connector
- WK-51-01: Wall-mounting kit, 51 mm wide

Panel Layouts

Top View

microSD card

Dual power inputs and relay output

Reset button

Serial console port

Front View

LED indicators

Ethernet ports

EtherCAT ports

Serial ports

LED Indicators

| LED	Color	Description
PWR1, PWR2	Green	Power is on
	Off	Power is off
READY	Green	Steady: Power is on, and the MGate is functioning normally Blinking (1 second): The MGate has been located by the Moxa utility DSU Location function
	Red	Steady: Power is on, and the MGate is booting up Blinking (0.5 second): Indicates an IP conflict, or the DHCP server is not responding properly Blinking (0.1 second): microSD card has failed
ECAT RUN	Off	No I/O data exchanged
	Green	Steady: I/O data exchanged
ECAT ERR	Off	No error
	Red	Flash: Invalid configuration Two flashes: Watchdog timeout Steady: Fetal error
PORT1 PORT2	Off	No communication
	Green	Blinks once: Indicates a protocol-layer confirmation that the serial data is transmitted or received successfully.
	Red	Steady: **Micro Python mode:** Script executed error Flash: A communication error occurred **Modbus Master mode:** 1. Received an exception code or framing error (parity error, checksum error) 2. Command timeout (the server (slave) device is not responding) **Micro Python mode:** 1. Python return error when receiving incorrect serial data 2. Serial communication timeout (the serial device is not responding)
Eth1, Eth2 (2 each on the ports)	Green	Shows a 100 Mbps Ethernet connection
	Amber	Shows a 10 Mbps Ethernet connection
	Off	The Ethernet cable is disconnected

Pin Assignments

Ethernet and EtherCAT Port (RJ45)

Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-
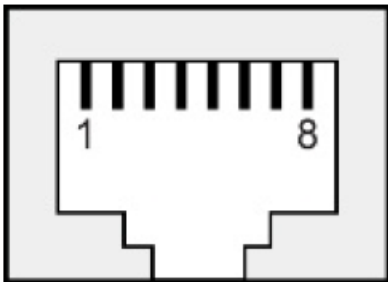
Serial Port (Male DB9)

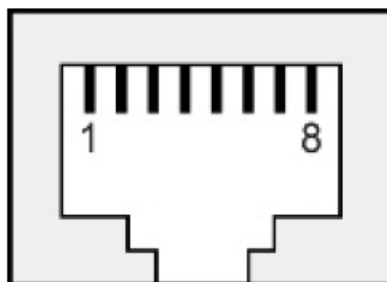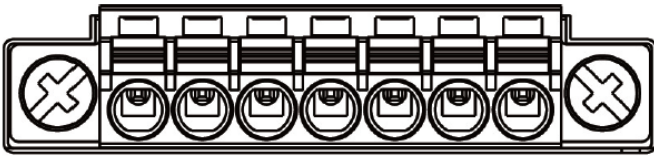| Pin	RS-232	RS-422/ RS-485 (4W)	RS-485 (2W)
1	DCD	TxD-(A)	–
2	RXD	TxD+(B)	–
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5*	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–
9	–	–	–
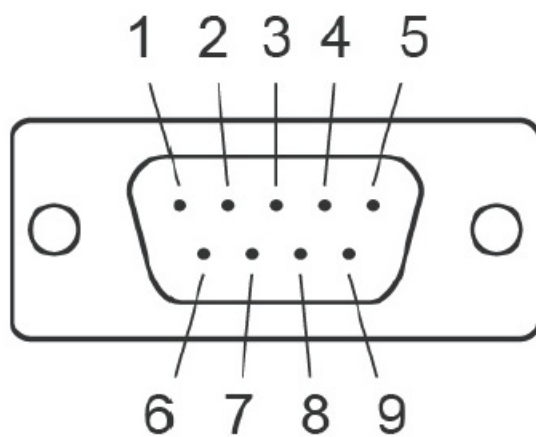
*Signal ground

Console Port (RS-232)

The MGate 5216 Series can use an RJ45 serial port to connect to a PC to configure the device.

Pin	Signal
1	DSR
2	RTS
3	GND
4	TXD
5	RXD
6	DCD
7	CTS
8	DTR

Power Input and Relay Output Pinouts

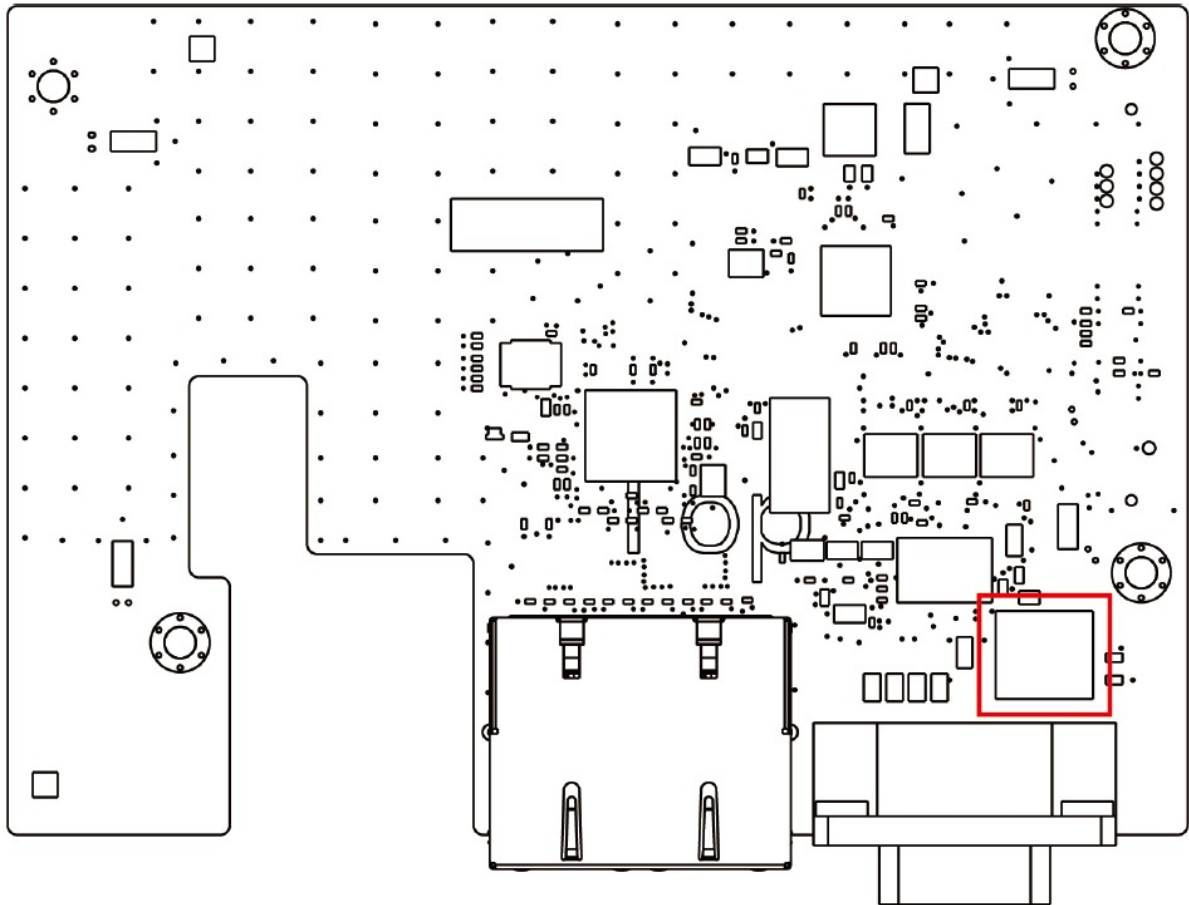| V2+	V2-				V1+	V1-
DC Power Input 2	DC Power Input 2	N.O.	Common	N.C.	DC Power Input 1	DC Power Input 1

Pull-up, Pull-down, and Terminator for RS-485

For serial port 1, on the MGate's left side panel, you will find DIP switches to adjust each serial port's pull-up resistor, pull-down resistor, and terminator. For serial port 2, you may need to open the case, and find the DIP switch on the PCB as in the following figure.
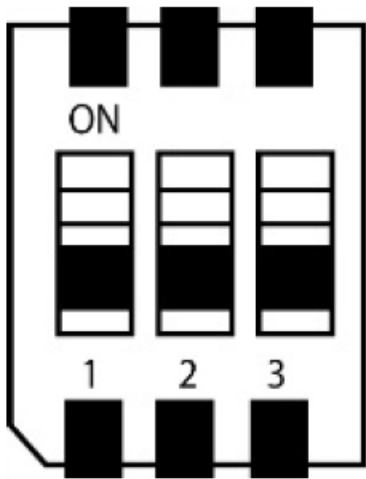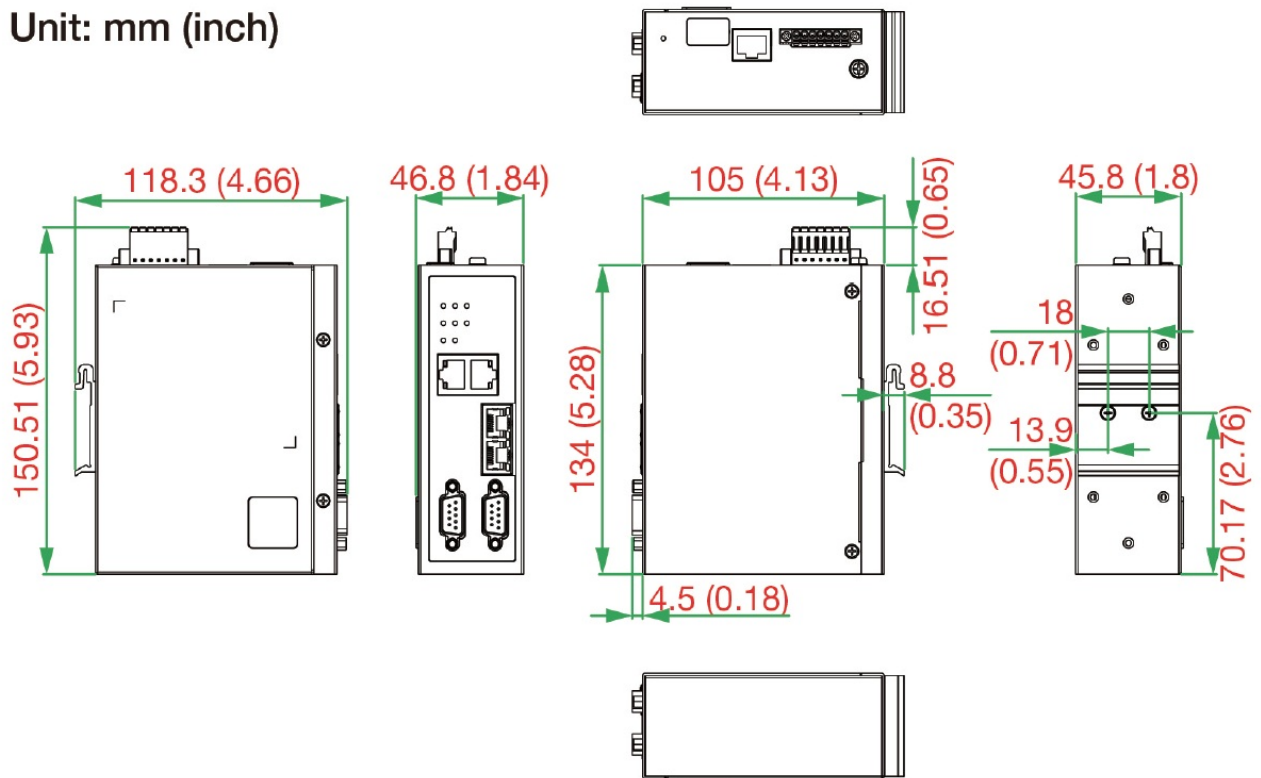

SW	MODBUS		
	1	2	3
	Pull-up resistor	Pull-down resistor	Terminator
ON	1 KW	1 KW	120 W
OFF	150 KW (default)	150 KW (default)	– (default)

Dimensions

DIN-rail Mounting

Unit: mm (inch)

118.3 (4.66) 46.8 (1.84) 105 (4.13) 45.8 (1.8)

150.51 (5.93) 134 (5.28)

16.51 (0.65)

8.8 (0.35)

18 (0.71)

13.9 (0.55)

70.17 (2.76)

4.5 (0.18)

Wall Mounting

Unit: mm (inch)

## Hardware Installation Procedure

1. Connect the power adapter. Connect the 12-48 VDC power line or DIN-rail power supply to the MGate terminal block. Make sure the adapter is connected to an earthed socket.
2. Use an EtherCAT cable to connect the MGate to an EtherCAT PLC or other EtherCAT master.
3. Use a serial cable to connect the MGate to the Modbus or other serial devices.
4. The MGate is designed for standalone installation and to be attached to a DIN rail or mounted on a wall. For DIN-rail mounting, push down the spring and properly attach it to the DIN rail until it "snaps" into place. For wall mounting, install the wall-mount kit (optional) first and then screw the device onto the wall.

Wall or Cabinet Mounting

Two metal plates are provided for mounting the unit on a wall or inside a cabinet. Attach the plates to the unit's rear panel with screws. With the plates attached, use screws to mount the unit on a wall. The heads of the screws should be 5 to 7 mm in diameter, the shafts should be 3 to 4 mm in diameter, and the length of the screws should be more than 10.5 mm. For each screw, the head should be 6 mm or less in diameter, and the shaft should be 3.5 mm or less in diameter. The following figure illustrates the two mounting options:
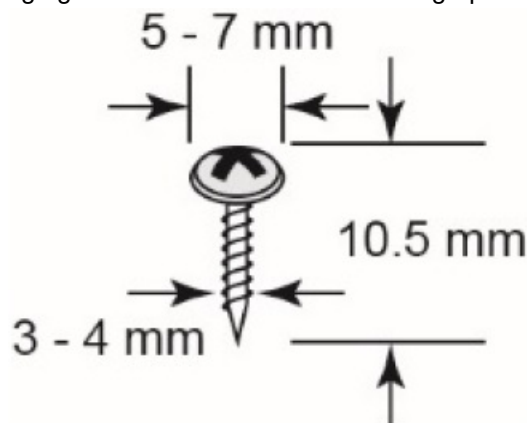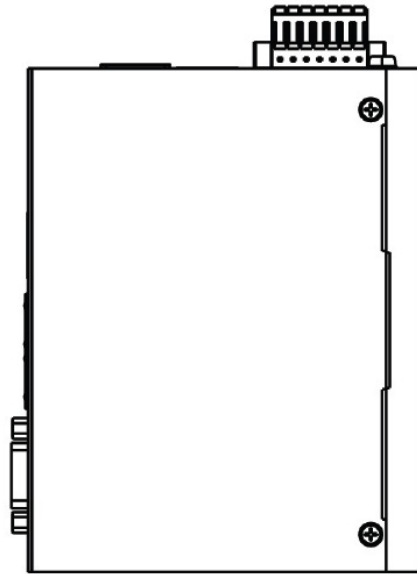
Wall-Mount Installation   DIN-Rail Installation

Step 2: Screw onto wall
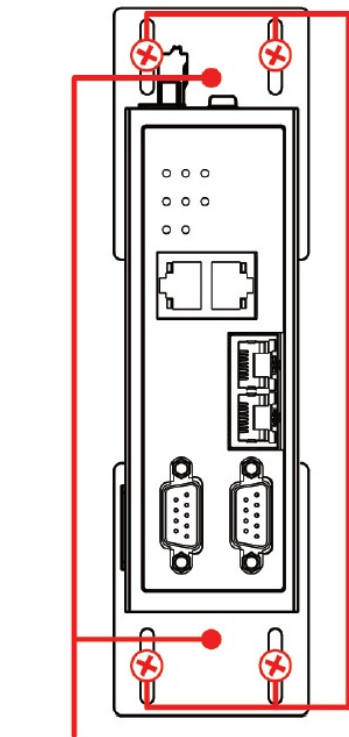
Step 1: Install wall-mount kit

Step 1:
Push down the spring

Step 2: Click onto DIN rail

Software Installation Information

Please download the user's manual and Device Search Utility (DSU) from Moxa's website: **www.moxa.com**.
Please refer to the User's Manual for additional details on using the DSU.

- The MGate 5216 also supports login via a web browser.
    - Default IP address: 192.168.127.254
    - Default account: admin
    - Default password: moxa

Reset Button

Restore the MGate to factory default settings by using a pointed object (such as a straightened paper clip) to hold
the reset button down until the Ready LED stops blinking (approximately five seconds).

Specifications

Power Input	12 to 48 VDC
Power Consumption (Input Rating)	12 to 48 VDC, 416 mA (max.)
Relays Contact Current Rating Resistive load	2 A @ 30 VDC
Operating Temperature	Standard models: 0 to 60°C (14 to140°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)
IP Rating	IP 30 (Under the condition when covered with microSD and RS-485 DIP switch)
Dimensions	45.8 x 105 x 134 mm (1.8 x 4.13 x 5.28 in)
Weight	589 g (1.30 lb)
Alert Tools	Built-in buzzer and RTC
MTBF	2,305,846 hrs

Conditions of Safe Use

1. The manufacturers intend Ethernet communications devices to be mounted in a tool-accessible IP54 enclosure and used in an area with no more than pollution degree 2, as defined by IEC/EN 60664-1.
2. Conductors suitable for an ambient temperature greater than 85°C must be used for the power supply terminal.
3. When using a connection to the external grounding screw, you must use a 4 mm2 conductor.
4. To prevent the rated voltage from exceeding 140% of the peakrated voltage during transient disturbances, provisions should be made either in the equipment or external to it.

When wiring the relay contact (R), digital input (DI), and power inputs (P1/P2), we suggest using American Wire Gauge (AWG) 16 to 20 as a cable and the corresponding pin-type cable terminals. The connector can withstand a maximum torque of 5 pound-inches. We recommend a stripping length of 8 to 9 mm. The wire temperature rating should be at least 85°C. The shielding ground screw (M4) is near the power connector. When you connect the shielded ground wire (min. Through the shielding ground screw (M4), the noise is directly routed from the metal chassis to the ground.

- **ATTENTION**
  - Power terminal plug wiring size is 28-14 AWG, tighten to 1.7 in-lbs, wire min. 80°C. Use copper conductors only.
- **WARNING**
  - **Hot Surface**
    - External metal parts of this equipment are extremely hot. Before touching the equipment, you must take special precautions to protect your hands and body from serious injury.
- ⏚Functional earth terminal.
- **ATTENTION**
  - This device is an open-type equipment and is intended to be installed in a suitable enclosure.
  - If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
  - When installing the device, the assembler is responsible for securing the safety of the system in which the equipment is incorporated.
- **NOTE** This device is intended for use indoors and at altitudes up to 2,000 meters and below Pollution degree 2.
- **NOTE** Clean the device with a soft cloth, dry or with water.
- **NOTE** The power input specification should comply with the SELV (Safety Extra Low Voltage) requirements and the power supply should comply with UL 61010-1 and UL 61010-2-201 requirements.

WARNING

This equipment has KC approval to be used in industrial environments and therefore it has the possibility of interference with household equipment.

CONTACT INFORMATION

- For any repair or maintenance needs, please contact us at: Moxa Inc.
- No. 1111, Heping Rd., Bade Dist., Taoyuan City 334004, Taiwan
- +886-03-2737575

FAQs

- **Q: What should I do if the LED indicators show abnormal behavior?**
  - A: Refer to the LED indicators section in the manual to troubleshoot and identify potential issues based on the LED patterns.
- **Q: How do I configure the pull-up resistor for RS-485?**
  - A: Adjust the DIP switch for the pull-up resistor setting according to the provided instructions in the manual for each serial port.

Documents / Resources

MGate 5216 Series
Quick Installation Guide

Version 1.1, February 2025

Technical Support Contact Information
www.moxa.com/support

MOXA
© 2025 Moxa Inc. All rights reserved.

P/N: 1802052160011

MOXA 5216 Series Modbus TCP Gateways [pdf] Installation Guide
MGate 5216, 5216 Series Modbus TCP Gateways, 5216 Series, Modbus TCP Gateways, TCP Gateways, Gateways

References

- ™ **Moxa - Your Trusted Partner in Automation**
- ™ **Moxa - Support**
- **User Manual**