

# CCG-1500 Series

## Industrial private 5G cellular gateways



### Features and Benefits

- Qualcomm® Snapdragon™ X55
- 5G-ready media converter with industrial-grade FCC/UL/NCC/JET/Telec certifications
- Dual SIM slots
- 2 auto-sensing 10/100/1000 Mbps Ethernet ports
- 1 RS-232/422/485 serial port
- LEDs for easy installation and maintenance
- -40 to 70°C wide-temperature design

### Certifications



## Introduction

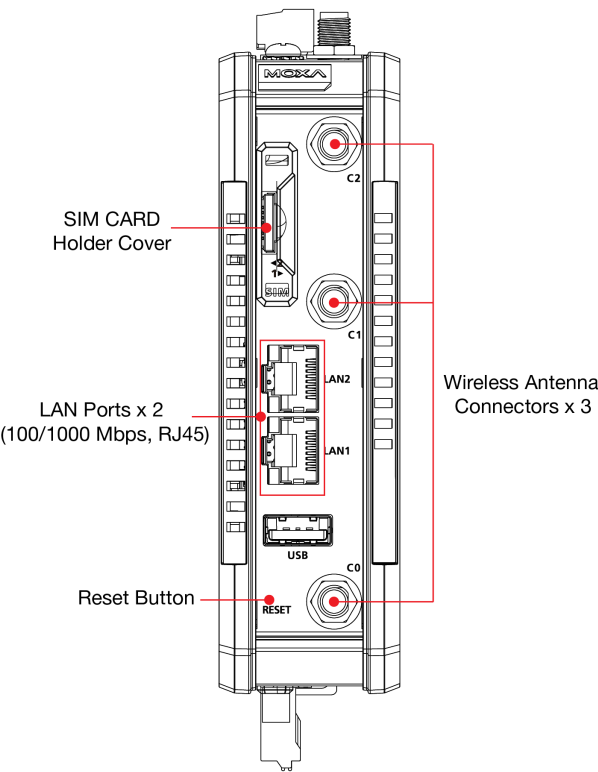
The CCG-1500 Series is designed both as a media converter and a protocol converter. The media converter includes 5G-to-ethernet and 5G-to-serial ports, which can be used for private networks. The protocol converter is mainly for Modbus TCP/RTU conversion. The 5G interface can use Modbus TCP while the serial interface can process Modbus RTU.

The CCG-1500 is built around a Qualcomm® Snapdragon™ X55 Cortex-A7 processor that has been optimized for use in media-conversion scenarios, and is also widely applicable to a variety of industrial solutions. With flexible interfacing options, this tiny, embedded converter is a reliable and secure gateway for data processing at field sites as well as a useful communications platform for large-scale deployments.

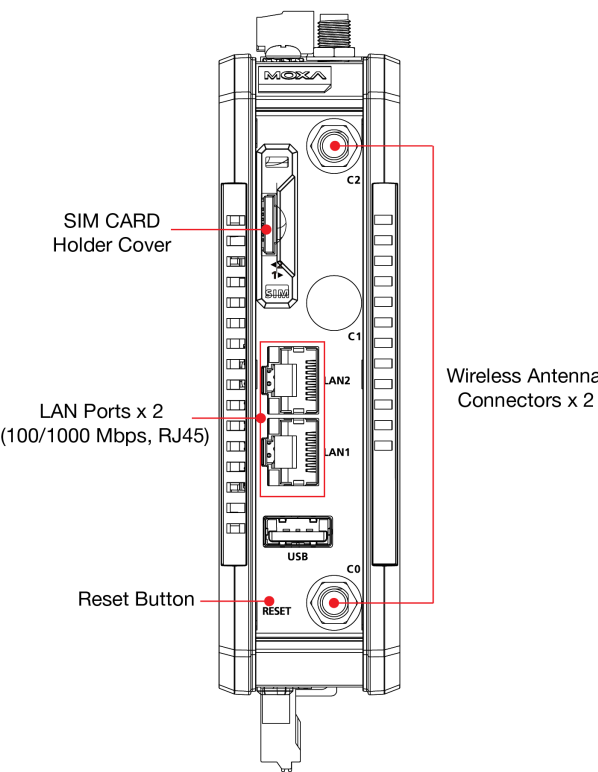
Wide temperature 5G-enabled models are available for extended temperature applications. All units are thoroughly tested in a testing chamber, guaranteeing that the 5G-enabled computing platforms are suitable for wide-temperature applications.

Appearance

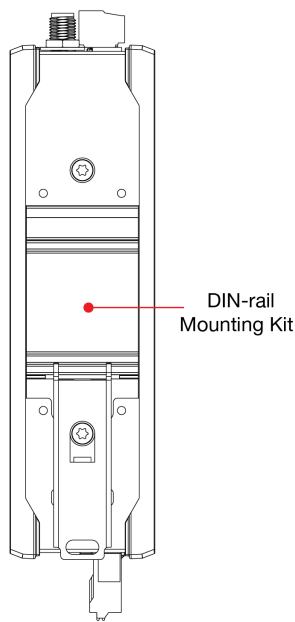
CCG-1510 Front View



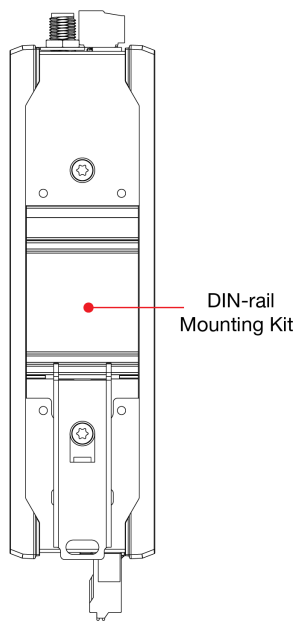
CCG-1520 Front View



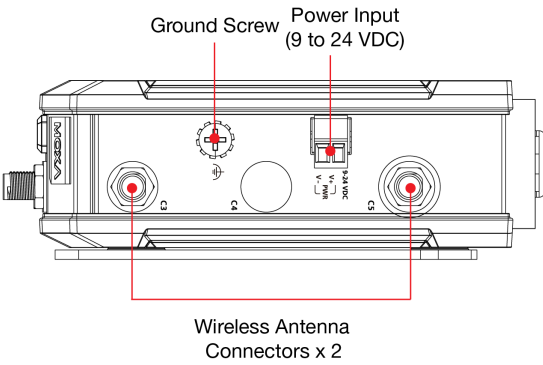
**CCG-1510 Rear View**



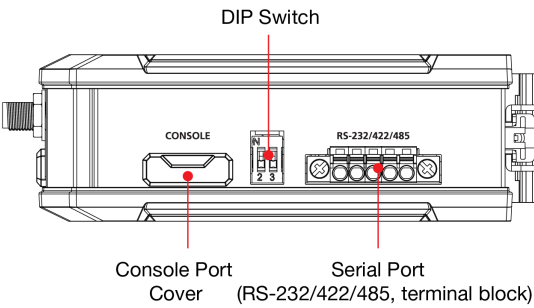
**CCG-1520 Rear View**



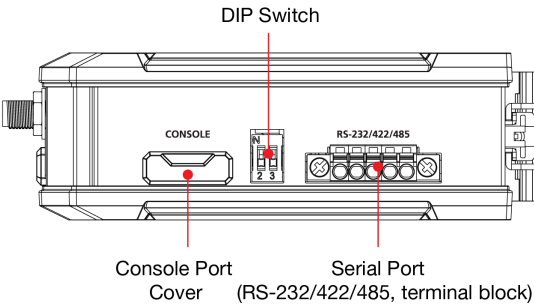
Top View



CCG-1510 Bottom View



CCG-1520 Bottom View



Specifications

Media Converter Interface

|                                       |                                                          |
|---------------------------------------|----------------------------------------------------------|
| Ethernet Ports                        | Auto sensing 10/100/1000 Mbps ports (RJ45 connector) x 2 |
| Serial Ports                          | RS-232/422/485 ports x 1 (5-pin terminal block)          |
| Cellular Antenna Connector (with GPS) | CCG-1510 models: SMA x 6<br>CCG-1520 models: SMA x 4     |
| SIM Format                            | Nano                                                     |
| Number of SIMs                        | 2                                                        |

## Ethernet Interface

|                                            |                                                                                        |
|--------------------------------------------|----------------------------------------------------------------------------------------|
| 10/100/1000BaseT(X) Ports (RJ45 connector) | 2                                                                                      |
| Standards                                  | IEEE 802.3 for 10BaseT<br>IEEE 802.3ab for 1000BaseT(X)<br>IEEE 802.3u for 100BaseT(X) |
| Magnetic Isolation Protection              | 1.5 kV (built-in)                                                                      |

## Serial Interface

|              |                                         |
|--------------|-----------------------------------------|
| Console Port | 1 x [X2]-pin header to DB9 console port |
| Data Bits    | 5, 6, 7, 8                              |
| Parity       | None, Even, Odd, Space, Mark            |
| Stop Bits    | 1, 1.5, 2                               |
| Baudrate     | 9600 to 115200 bps                      |

## Serial Signals

|           |                         |
|-----------|-------------------------|
| RS-232    | TxD, RxD, RTS, CTS, GND |
| RS-422    | Tx+, Tx-, Rx+, Rx-, GND |
| RS-485-4w | Tx+, Tx-, Rx+, Rx-, GND |

## Ethernet Software Features

|                       |                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------|
| Configuration Options | Web Console (HTTPS)                                                                    |
| Management            | LwM2M Client<br>Account Permission                                                     |
| Network Protocols     | IP Passthrough<br>Modbus RTU to TCP<br>NAT - Port Forwarding, VPN Passthrough<br>VxLAN |
| Firewall              | Filter: ICMP, IP Address, DoS                                                          |

## Cellular Interface

|                           |                                                                                                                                                                                                                                                            |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cellular Standards        | 5G Release 15                                                                                                                                                                                                                                              |
| Frequency Bands Supported | CCG-1510-TW-T:<br>NR: N1 / N3 / N28 / N41 / N78<br>LTE: B1 / B3 / B7 / B8 / B28 / B38<br><br>CCG-1510-US-T:<br>NR: N48<br><br>CCG-1510-T:<br>NR: N1 / N3 / N28 / N41 / N48 / N77 / N78<br>LTE: B1 / B3 / B7 / B8 / B28 / B38<br><br>CCG-1520-T:<br>NR: N79 |

## LED Indicators

|                          |                                                               |
|--------------------------|---------------------------------------------------------------|
| System                   | Power x 1<br>SIM card indicator x 1<br>5G / LTE indicator x 1 |
| Wireless Signal Strength | Cellular x 3                                                  |

## Power Parameters

|                   |                                 |
|-------------------|---------------------------------|
| Input Voltage     | 9 to 24 VDC                     |
| Power Consumption | Average: 8 W<br>Peak: 11 W      |
| Input Current     | 9 to 24 VDC @ 1.33 to 0.5 A min |
| Power Connector   | Terminal block                  |

## Physical Characteristics

|              |                                                                                                                                               |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions   | 100 x 125 x 35.2 mm (3.93 x 4.92 x 1.38 in)                                                                                                   |
| Housing      | Metal<br>SECC                                                                                                                                 |
| Installation | DIN-rail mounting<br>Wall mounting (with optional kit)                                                                                        |
| IP Rating    | IP30<br>Note: The rubber SIM cover and console port cover should be attached. For CCG-1520-T, the SMA protection cover must also be attached. |
| Weight       | 750 g (1.65 lb)                                                                                                                               |

## Environmental Limits

|                                        |                            |
|----------------------------------------|----------------------------|
| Operating Temperature                  | -40 to 70°C (-40 to 158°F) |
| Storage Temperature (package included) | -20 to 70°C (-4 to 158°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 16000-4-2 ESD: Contact:4kV ; Air: 8kV <sup>1</sup><br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m<br>IEC 16000-4-3 RS: 1.8 GHz to 5 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>IEC 16000-4-5 Surge: DC: L-G: 2 kV; LAN: L-G: 2 kV; Serial port: 0.5 Kv <sup>2</sup><br>IEC 16000-4-6 CS: 0.15 MHz to 10 MHz: 3V; 10 MHz to 30 MHz: 3~1 V; 30 MHz to 80 MHz: 1V <sup>3</sup><br>IEC 61000-4-8 PFMF |
| Cybersecurity | EN 18031-1                                                                                                                                                                                                                                                                                                                                                                                                             |
| Shock         | IEC 60068-2-27                                                                                                                                                                                                                                                                                                                                                                                                         |
| Vibration     | IEC 60068-2-64                                                                                                                                                                                                                                                                                                                                                                                                         |

## MTBF

|           |                           |
|-----------|---------------------------|
| Time      | 1,036,724 hrs             |
| Standards | Telcordia Standard SR-332 |

## Warranty

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

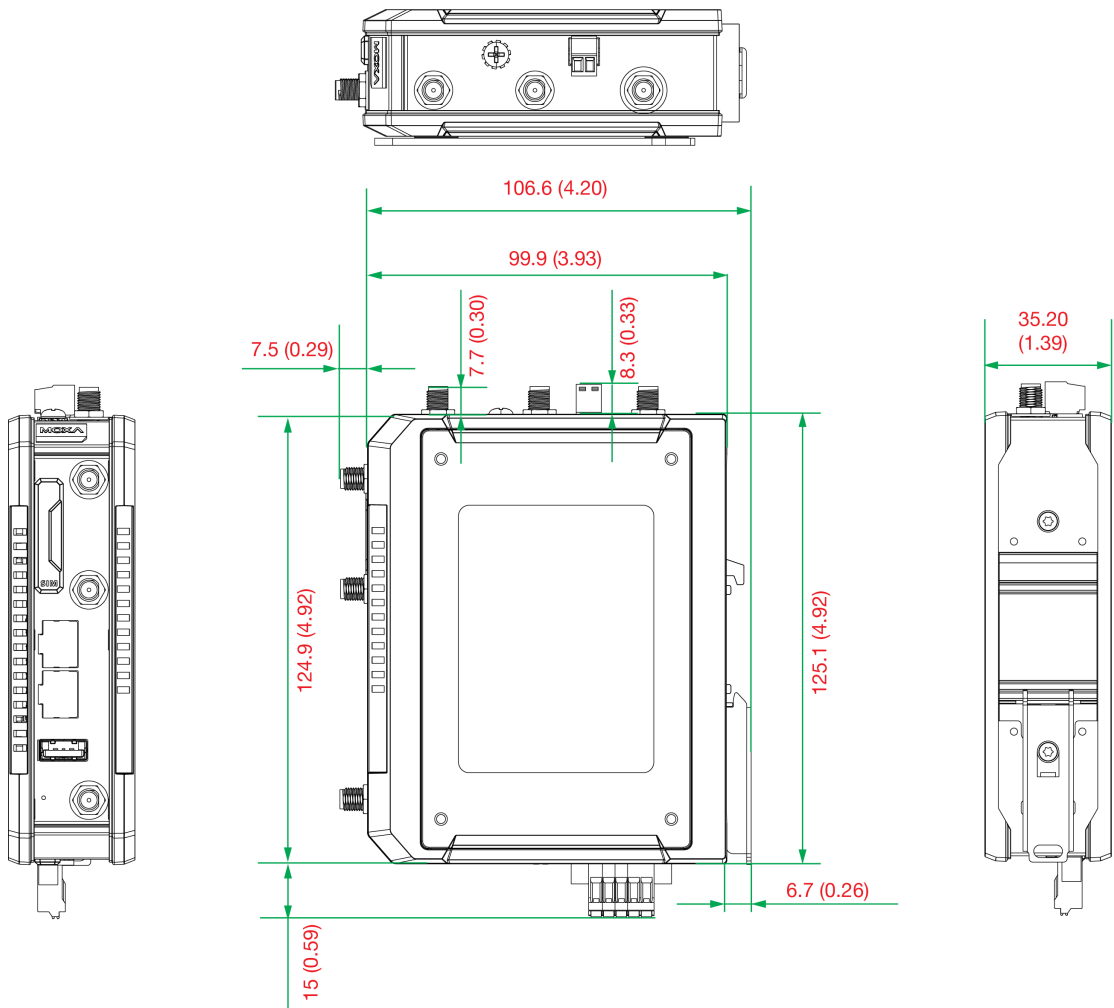
1. support up to Contact:8kV ; Air: 15kV
2. support up to 1kV
3. support up to 0.15MHz ~ 80MHz: 10V

Package Contents

|                  |                                                                |
|------------------|----------------------------------------------------------------|
| Device           | 1 x CCG-1500 Series media and protocol converter               |
| Antenna          | CCG-1510 models: Antennas x 6<br>CCG-1520 models: Antennas x 4 |
| Installation Kit | 1 x DIN-rail kit                                               |
| Documentation    | 1 x quick installation guide<br>1 x warranty card              |

Dimensions

Unit: mm (inch)



Ordering Information

| Model Name    | Ethernet Ports | Cellular/Band                                                                  | Serial Ports |
|---------------|----------------|--------------------------------------------------------------------------------|--------------|
| CCG-1510-TW-T | 2              | 5G R15/<br>NR: N1 / N3 / N28 / N41 / N78<br>LTE: B1 / B3 / B7 / B8 / B28 / B38 | 1            |
| CCG-1510-US-T | 2              | 5G R15/<br>NR: N48                                                             | 1            |

