

# UC-2200A Series

Arm Cortex-A53 dual-core 64-bit 1 GHz Industrial Computer with built-in LTE Cat. 4 module, -40 to 70°C operating temperature

Preliminary



## Features and Benefits

- Armv8 Cortex-A53 dual-core 1 GHz processor
- 2 auto-sensing 10/100/1000 Mbps Ethernet ports
- Rich programmable LEDs and a programmable button for easy installation and maintenance
- LTE-ready computer with Verizon/AT&T certification and industrial-grade CE/FCC/UL certifications
- -40 to 75°C operating temperature range
- Long-term Linux support until 2027; includes bug fixes and security patches

## Certifications



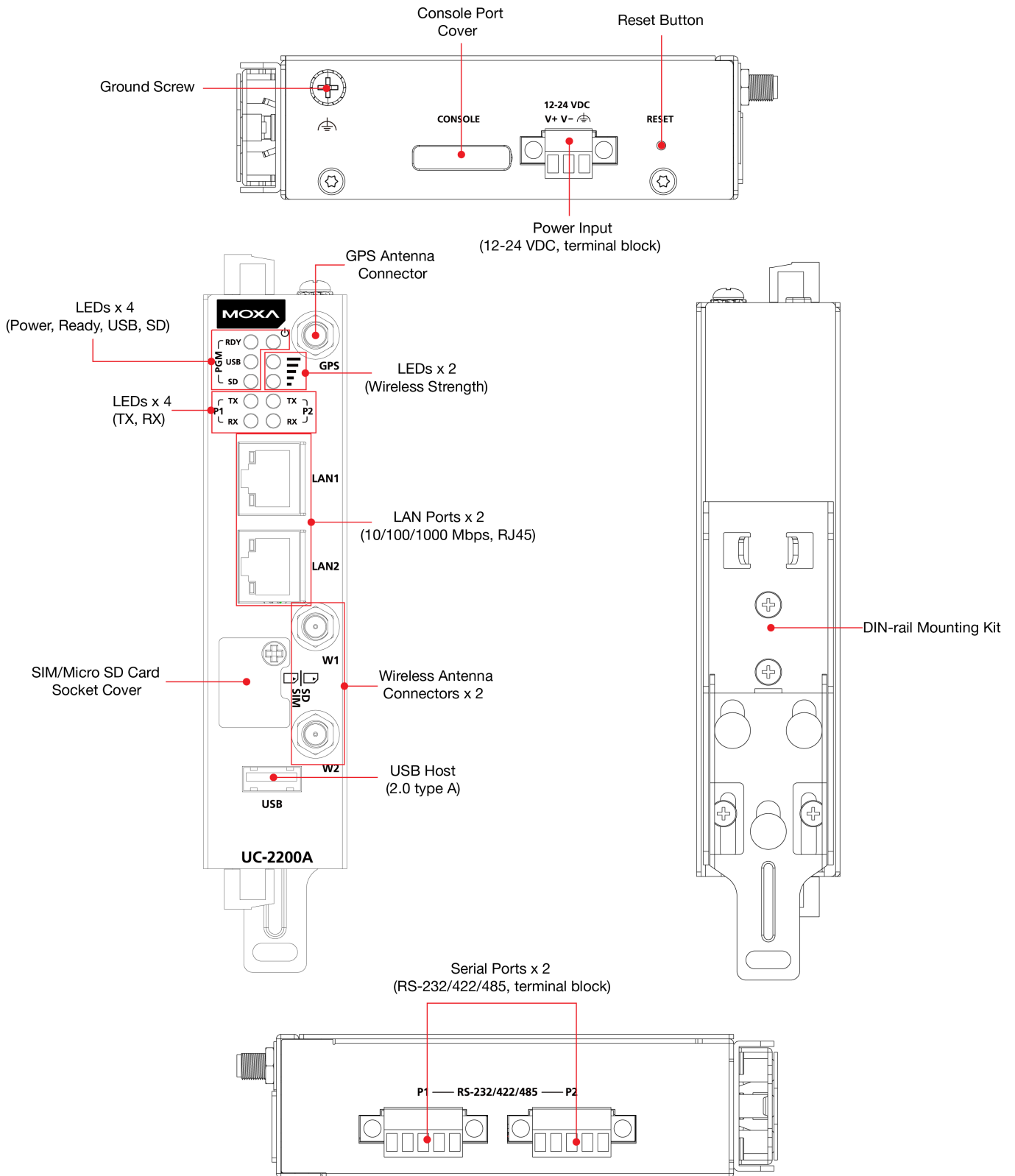
## Introduction

The UC-2200A computing platform is designed for embedded data acquisition applications. The computer comes with dual RS-232/422/485 serial ports and dual 10/100/1000 Mbps Ethernet ports, as well as a Mini PCIe socket to support a wireless module. These versatile capabilities let users efficiently adapt the UC-2200A to a variety of complex communications solutions.

The UC-2200A is built around a Cortex-A53 processor that has been optimized for use in energy monitoring systems, but is widely applicable to a variety of industrial solutions. With flexible interfacing options, this tiny embedded computer is a reliable and secure gateway for data acquisition and processing at field sites as well as a useful communications platform for many other large-scale deployments.

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

# Appearance



## Specifications

### Computer

CPU	Armv8 Cortex-A53 dual-core 1GHz
DRAM	2 GB DDR4
Pre-installed OS	Moxa Industrial Linux (Debian 11, kernel 5.10), 2031 EOL See <a href="http://www.moxa.com/MIL">www.moxa.com/MIL</a>
Storage Pre-installed	16 GB eMMC
Storage Slot	micro SD slots x 1

### Computer Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2
Serial Ports	RS-232/422/485 ports x 2, software selectable (terminal block)
USB 2.0	USB 2.0 hosts x 1, type-A connectors
Console Port	RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)
Expansion Slots	mPCIe slots x 1
Number of SIMs	1
SIM Format	Nano
Buttons	Reset button
TPM	TPM v2.0

### Ethernet Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2
Magnetic Isolation Protection	1.5 kV (built-in)

### Serial Interface

Baudrate	300 bps to 921.6 kbps
Data Bits	5, 6, 7, 8
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 1.5, 2
Flow Control	RTS/CTS, XON/XOFF, Automatic Data Direction Control (ADDC) for RS-485, RTS Toggle (RS-232 only)

### Serial Signals

RS-232	TxD, RxD, RTS, CTS, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND

## Cellular Interface

Cellular Standards	LTE Cat. 4
Band Options	LTE Band 2 (1900MHz) / LTE Band 4 (1700MHz) / LTE Band 5 (850MHz) / LTE Band 13 (700MHz) / LTE Band 17 (700MHz) UMTS/HSPA 850 MHz / 1900 MHz Carrier Approval: Verizon, AT EU Models: LTE Band 1 (2100MHz) / LTE Band 3 (1800MHz) / LTE Band 5 (850MHz) / LTE Band 7 (2600MHz) / LTE Band 8 (900MHz) / LTE Band 20 (800MHz) UMTS/HSPA 850 MHz / 900MHz / 1900MHz / 2100 MHz AP Models: LTE Band 1 (2100MHz) / LTE Band 3 (1800MHz) / LTE Band 5 (850MHz) / LTE Band 7 (2600MHz) / LTE Band 8 (900MHz) / LTE Band 28 (700MHz) UMTS/HSPA 850 MHz / 900 MHz / 1900 MHz / 2100 MHz

## GPS Interface

Receiver Types	GPS, GLONASS, Galileo
Accuracy	Position: 2.0 m @CEP50
Acquisition	Hot starts: 1.1 sec Cold starts: 29.94 sec
Sensitivity	Cold starts: -145 dBm Tracking: -160 dBm
Time Pulse	250 Hz to 10 MHz

## LED Indicators

System	Power x 1 SW ready (programmable) USB (programmable) x 1 micro SD slot (programmable) x 1 Serial Port: TX x 2, RX x 2
Wireless Signal Strength	Cellular x 2 (Programmable; Disconnected: None, Very Poor Signal: 1 LED (blinking), Poor Signal: 1 LED, Good Signal: 2 LEDs)

## Power Parameters

Input Current	600 mA @ 12 VDC 300 mA @ 24 VDC
Input Voltage	12 to 24 VDC
Power Consumption	4.5 W (minimum; without external USB device attached) 7.2 W (maximum, with external USB device attached)

## Reliability

Alert Tools	External RTC (real-time clock) External WDT (watchdog timer)
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## Physical Characteristics

Dimensions	101 x 27 x 128 mm (3.98 x 1.06 x 5.04 in)
Weight	224 g (0.5 lb)
Housing	Polycarbonate (PC)
Installation	Wall mounting (with optional kit) DIN-rail mounting

## Environmental Limits

Operating Temperature	Models Without Built-in LTE: -40 to 75°C (-40 to 167°F) Models With Built-in LTE: -40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	-40 to 80°C (-40 to 176°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Shock	IEC 60068-2-27
Vibration	2 Grms @ IEC 60068-2-64, random wave, 5-500 Hz, 1 hr per axis (without USB devices attached)

## Standards and Certifications

EMC	EN 55032/35 EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-3 RS: 1.4 GHz to 6 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV IEC 61000-4-5 L-PE: 1 kV ; L -L: 0.5 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Safety	EN 62368-1 UL 62368-1 BSMI
International Approval	RCM KC
Green Product	RoHS, CRoHS, WEEE

## MTBF

Time	924,676 hrs
Standards	Telcordia (Bellcore) Standard TR/SR

## Warranty

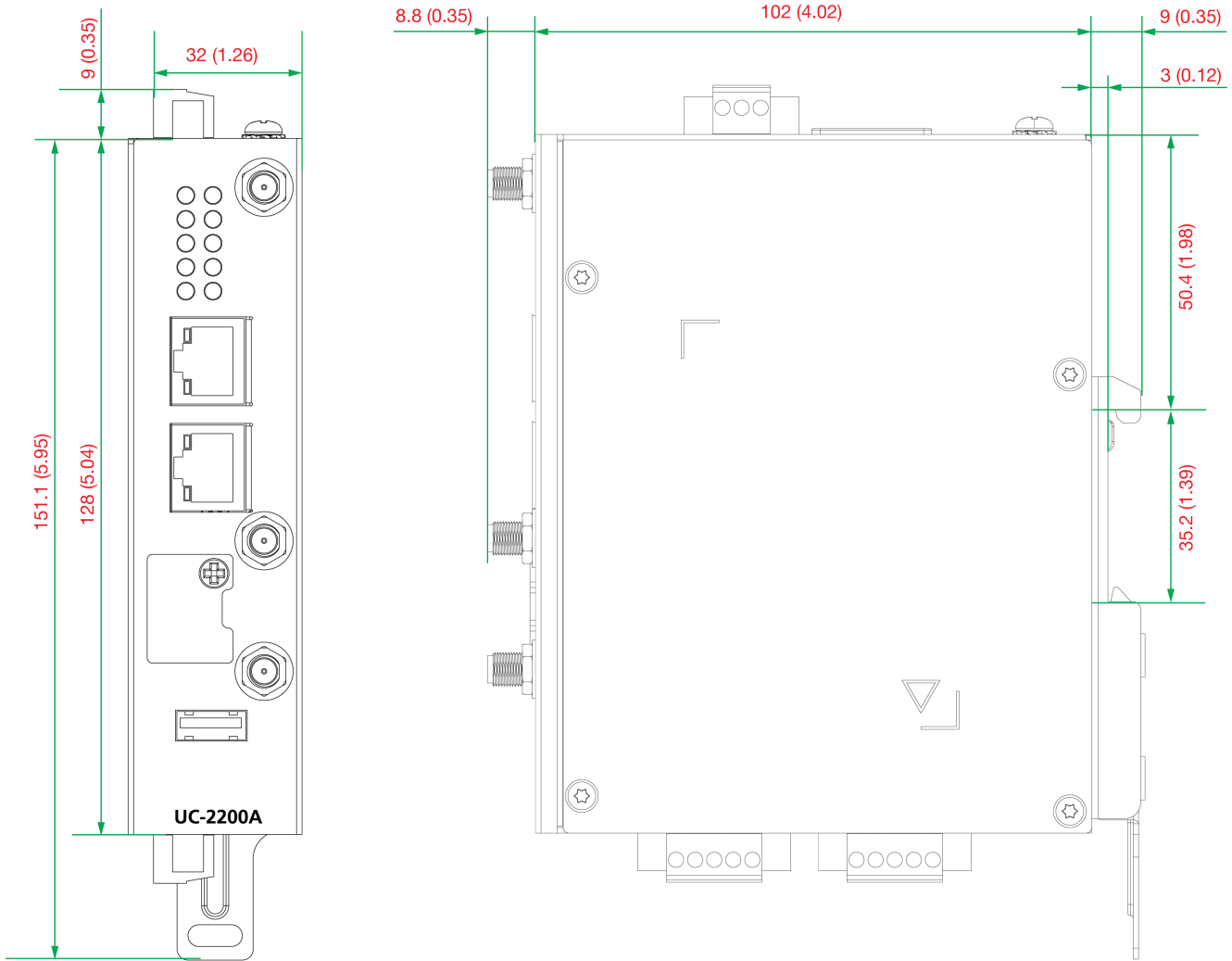
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

## Package Contents

Device	1 x UC-2200A Series computer
Documentation	1 x quick installation guide 1 x warranty card

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	CPU	RAM	Storage	Storage Slot	mPCIe Socket for Wireless Module	Serial Ports
UC-1222A	Armv8 Cortex-A53 dual-core 1GHz 300 MHz	2 GB	16 GB eMMC	micro SD card	1	2

## Accessories (sold separately)

### Power Adapters

PWR-12150-AU-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, AU plug, -40 to 75°C operating temperature
PWR-12150-USJP-SA-T	Locking barrel plug, 12 VDC 1.5 A, 100 to 240 VAC, US/JP plug, -40 to 75°C operating temperature
PWR-12150-CN-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, CN plug, -40 to 75°C operating temperature
PWR-12150-UK-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, UK plug, -40 to 75°C operating temperature
PWR-12150-EU-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, EU plug, -40 to 75°C operating temperature

### Cables

CBL-F9DPF1x4-BK-100	Console cable with 4-pin connector, 1 m
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CBL-PJTB-10	Non-locking barrel plug to bare-wire cable
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#### Antennas

ANT-WDB-ARM-0202	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male), dual-band, omnidirectional antenna
ANT-LTE-OSM-03-3m BK	700-2700 MHz, multiband antenna, specifically designed for 2G, 3G, and 4G applications, 3 m cable
ANT-LTE-OSM-06-3m BK MIMO	Multiband antenna with screw-fastened mounting option for 700-2700/2400-2500/5150-5850 MHz frequencies
ANT-LTE-ASM-05 BK	704-960/1710-2620 MHz, LTE stick antenna, 5 dBi
ANT-WDB-ARM-0405	2.4/5 GHz $1/2 \lambda$ 4 to 5 dBi omnidirectional antenna with RP-SMA (female) connector
ANT-LTE-ASM-04 BK	704 to 960/1710 to 2620 MHz, LTE omnidirectional stick antenna, 4.5 dBi
ANT-LTEUS-ASM-01	GSM/GPRS/EDGE/UMTS/HSPA/LTE, 1 dBi, omnidirectional rubber-duck antenna
ANT-LTEUS-OSM-02	698 to 960/1710 to 2700 MHz, $1/4 \lambda$ omnidirectional 1.5 dBi antenna with SMA (male) connector
ANT-GPS-CSM-04-0.2m BK	1575 MHz active GPS/GLONASS 4 dBi antenna with SMA (male) connector and 20-cm cable

#### Wireless Antenna Cables

A-CRF-SMIF-100	Wireless antenna cable package with 2 100-cm cables (SMA connectors)
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#### Wall-Mounting Kits

WK-33-01	Wall-mounting kit with 2 plates (98.6 x 33.8 x 5 mm), 4 TMS M3 4-mm screws
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