UC-2200A Series

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

IgnitionEDGE
READY

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 70°C operating temperature range

- Long-term Linux support until 2031; includes bug fixes and security patches
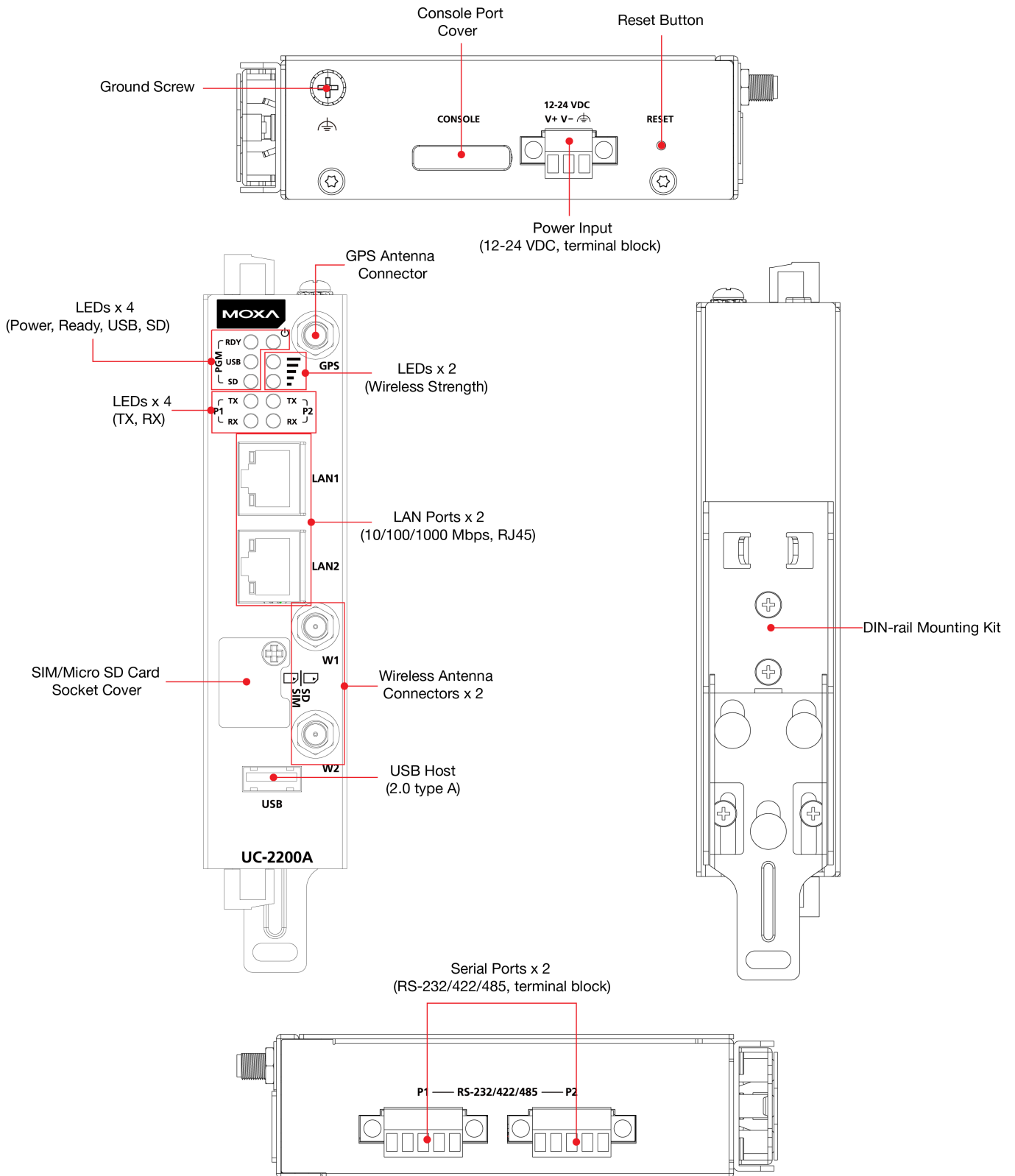
Certifications

c(UL)us LISTED   CE   FC

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

Console Port Cover

Reset Button

Ground Screw

12-24 VDC
V+ V−

CONSOLE

RESET

Power Input
(12-24 VDC, terminal block)

GPS Antenna Connector

LEDs x 4
(Power, Ready, USB, SD)

RDY
USB
SD
PGM

GPS

LEDs x 2
(Wireless Strength)

LEDs x 4
(TX, RX)

TX
RX
P1

TX
RX
P2

LAN1

LAN Ports x 2
(10/100/1000 Mbps, RJ45)

LAN2

DIN-rail Mounting Kit

SIM/Micro SD Card
Socket Cover

W1

SD
SIM

Wireless Antenna
Connectors x 2

W2

USB

USB Host
(2.0 type A)

UC-2200A

Serial Ports x 2
(RS-232/422/485, terminal block)

P1 —— RS-232/422/485 —— P2

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 www.moxa.com/MIL
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

MOXA
Reliable Networks ▲ Sincere Service

Cellular Interface

Cellular Standards	LTE Cat. 4
Band Options	UC-2222A-T-US: LTE Band 2 (1900 MHz) / LTE Band 4 (1700 MHz) / LTE Band 5 (850 MHz) / LTE Band 12 (700 MHz) / Band 13 (700 MHz) / Band 14 (700 MHz) / Band 66 (1700 MHz) / Band 71 (600 MHz) UMTS/HSPA B5 (850 MHz) / B4 (1700 MHz) / B2 (1900 MHz) Carrier Approvals: Verizon, AT&T UC-2222A-T-EU: LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / Band 7 (2600 MHz) / LTE Band 8 (900 MHz) / LTE Band 20 (800 MHz)/ LTE Band 28A (700 MHz) UMTS/HSPA B8 (900 MHz) / B3 (1800 MHz) / B1 (2100 MHz) GSM DCS (1800 MHz) / GSM 900 (900 MHz) UC-2222A-T-AP: LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 5 (850 MHz) / LTE Band 8 (900 MHz) / LTE Band 9 (1800 MHz) / LTE Band 18 (800 MHz) / LTE Band 19 (800 MHz) / LTE Band 26 (850 MHz) / LTE Band 28 (700 MHz) UMTS/HSPA B19 (800 MHz) / B8 (900 MHz) / B6 (850 MHz) / B5 (850 MHz) / B1 (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	UC-2222A-T/2222A-T-CN: 600 mA @ 12 VDC 300 mA @ 24 VDC UC-2222A-T-US/EU/AP: 900 mA @ 12 VDC 450 mA @ 24 VDC
Input Voltage	12 to 24 VDC
Power Consumption	Models Without Built-in LTE: 4.5 W (without external USB device) 7.2 W (with external USB device attached) Models With Built-in LTE: 7.8 W (without external USB device) 10.5 W (with external USB device)

Reliability

Alert Tools	External RTC (real-time clock)
Automatic Reboot Trigger	External WDT (watchdog timer)

Physical Characteristics

Dimensions	102 x 32 x 128 mm (4.20 x 1.26 x 5.04 in)
Weight	546 g (1.2 lb)
Housing	SECC Metal
Installation	DIN-rail mounting Wall mounting (with optional kit)

Environmental Limits

Operating Temperature	UC-2222A-T/T-CN: -40 to 75°C (-40 to 167°F) UC-2222A-T-US/EU/AP, UC-2222A-T-CN (with LTE module): -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

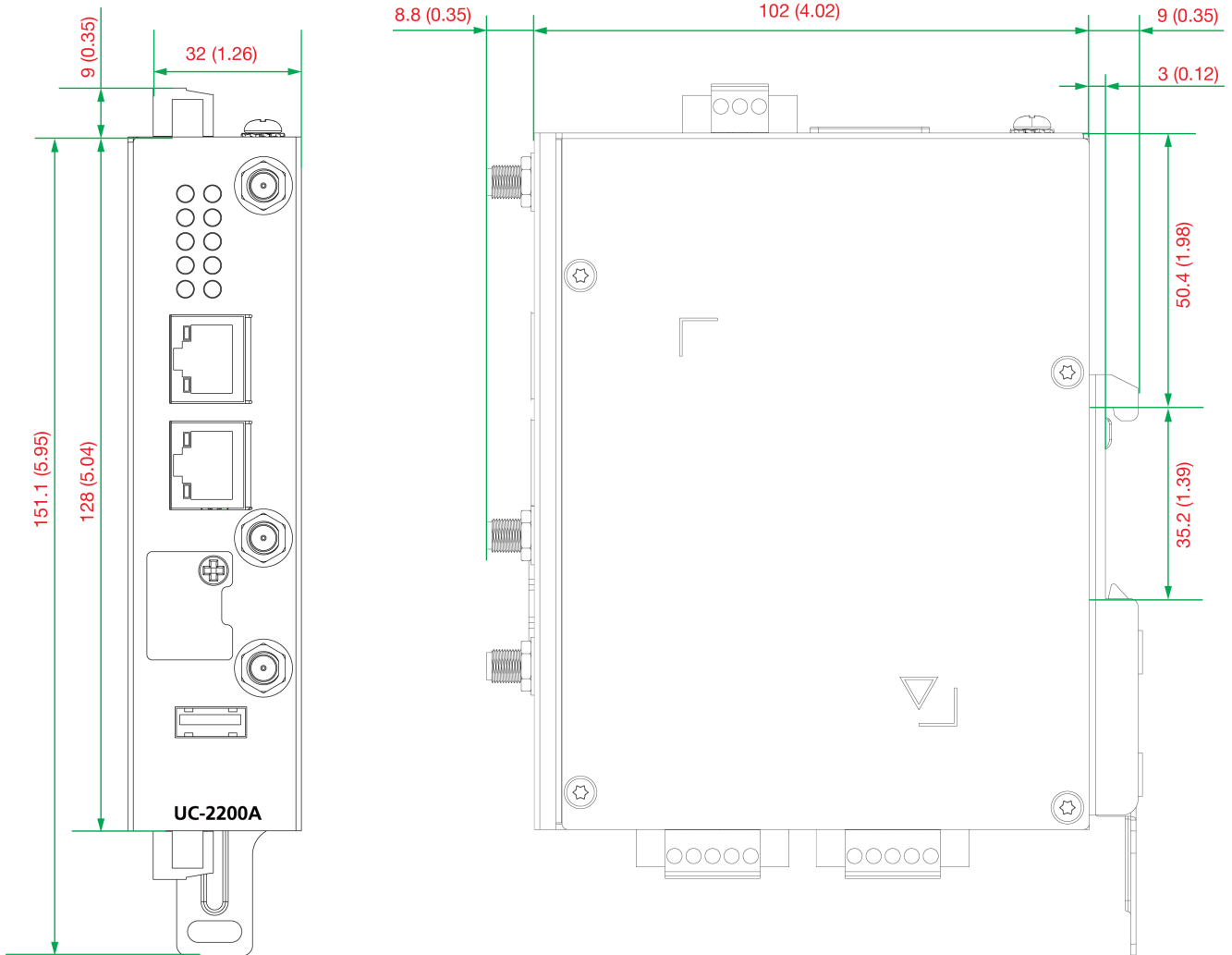|	
EMC	EN 55032/35 EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-3 RS: 1.4 GHz to 6 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV IEC 61000-4-5 L-PE: 1 kV ; L –L: 0.5 kV; Signal: 1 kV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

MTBF

Time	UC-2222A-T: 924,676 hrs UC-2222A-T-CN: 914,741 hrs UC-2222A-T-US: 865,122 hrs UC-2222A-T-EU: 866,622 hrs UC-2222A-T-AP: 870,393 hrs
Standards	Telcordia (Bellcore) Standard TR/SR

Warranty

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

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	Serial Ports	Ethernet Ports	USB Ports	TPM	LTE	Operating Temperature
UC-2222A-T	AM6412 Arm® Cortex®-A53, dual core, 1 GHz	2 GB	16 GB eMMC	2	2	1	Built-in	mPCIe slot x 1, reserved	-40 to 75°C
UC-2222A-T-CN	AM6412 Arm® Cortex®-A53, dual core, 1 GHz	2 GB	16 GB eMMC	2	2	1	Built-in	mPCIe slot x 1, reserved	-40 to 75°C
UC-2222A-T-EU	AM6412 Arm® Cortex®-A53, dual core 1 GHz	2 GB	16 GB eMMC	2	2	1	Built-in	European region LTE module preinstalled	-40 to 70°C

MOXA®
Reliable Networks ▲ Sincere Service

Model Name	CPU	RAM	Storage	Serial Ports	Ethernet Ports	USB Ports	TPM	LTE	Operating Temperature
UC-2222A-T-AP	AM6412 Arm® Cortex®-A53, dual core, 1 GHz	2 GB	16 GB eMMC	2	2	1	Built-in	Asia Pacific region LTE module preinstalled	-40 to 70°C
UC-2222A-T-US	AM6412 Arm® Cortex®-A53, dual core, 1 GHz	2 GB	16 GB eMMC	2	2	1	Built-in	U.S. region LTE module preinstalled	-40 to 70°C

Accessories (sold separately)

Power Adapters

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-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-EU-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, EU 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

Cables

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

Antennas

ANT-WDB-ARM-0405	2.4/5 GHz 1/2 λ 4 to 5 dBi omnidirectional antenna with RP-SMA (female) connector
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-ASM-05 BK	704-960/1710-2620 MHz, LTE stick antenna, 5 dBi
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-LTE-OSM-06-3m BK MIMO	Multiband antenna with screw-fastened mounting option for 700-2700/2400-2500/5150-5850 MHz frequencies
ANT-LTE-OSM-03-3m BK	700-2700 MHz, multiband antenna, specifically designed for 2G, 3G, and 4G applications, 3 m cable
ANT-LTEUS-OSM-02	698 to 960/1710 to 2700 MHz, 1/4 λ omnidirectional 1.5 dBi antenna with SMA (male) connector

Wireless Antenna Cables

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

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

MOXA
Reliable Networks ▲ Sincere Service

www.moxa.com