

# UC-3100 Series

Arm Cortex-A8 1 GHz IloT gateway with built-in LTE Cat. 1 and Wi-Fi modules



## Features and Benefits

- Armv7 Cortex-A8 1000 MHz processor
- Integrated Wi-Fi 802.11a/b/g/n and LTE Cat. 1 for the US, EU, and APAC regions
- Bluetooth 4.2 support
- LTE-ready computer with Verizon/AT&T certification and industrial-grade CE/FCC/UL certifications
- Industrial CAN 2.0 A/B protocols supported
- Robust root file system to prevent the system from being bricked due to a firmware update failure
- -40 to 70°C operating temperature range
- Meets the EN 61000-6-2 and EN 61000-6-4 standards for industrial EMC applications
- Long-term Linux support until 2027; includes bug fixes and security patches

## Certifications



## Introduction

Moxa's UC-3100 Series computers can be used as smart gateways in the field for data pre-processing and transmission, as well as for other embedded data-acquisition applications. The series includes 9 models, each supporting different wireless options and protocols. The UC-3100's advanced heat dissipation design makes it suitable for use in temperatures ranging from -40 to 70°C. In fact, the Wi-Fi and LTE connections can be used simultaneously in both cold and hot environments, allowing you to maximize the data pre-processing and data transmission capabilities of your applications in most harsh environments.

The UC-3100 is more than just a hardware solution. In order to offer a better user experience with a Moxa Arm-based computer, the UC-3100 supports the following software features, allowing you to use the most suitable configuration for your application.

- High VPN performance; more than 70 Mbps Ethernet throughput with AES-256 encryption
- Robust file system to prevent the system from being bricked due to a firmware upgrade failure
- Real COM mode to provide a control interface to Moxa's NPort products

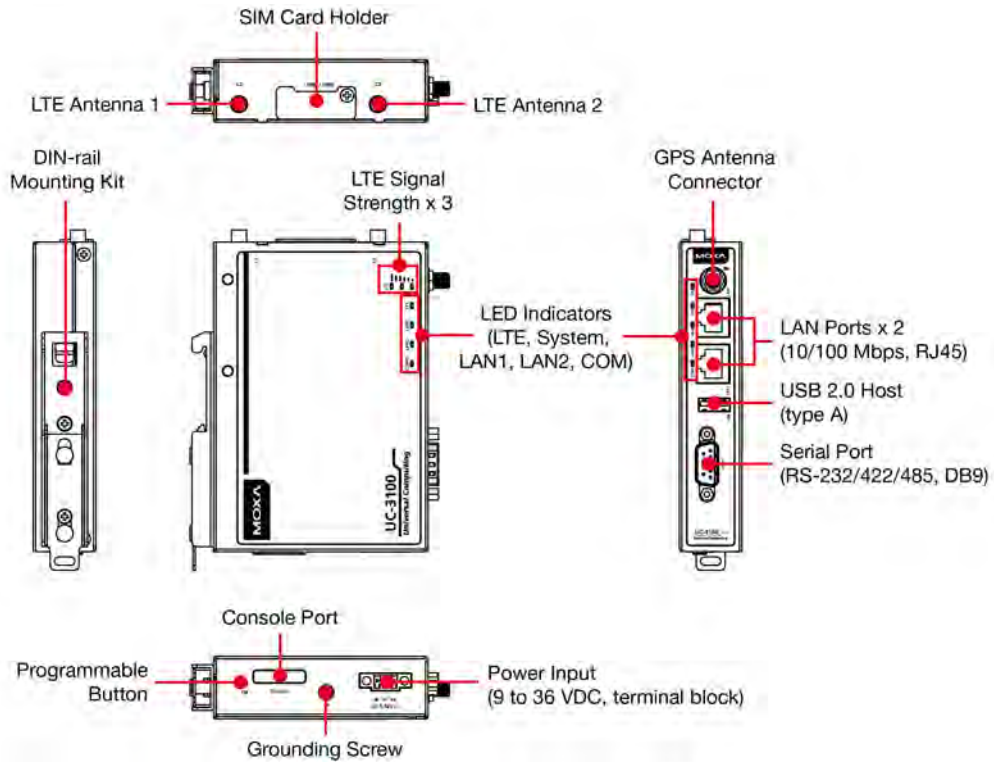
In addition, Moxa provides 10 years of Linux OS support. With a new version of the Debian repository released on an average every 2 to 3 years, you can create a reliable solution that will be supported now and long into the future.

## Applications

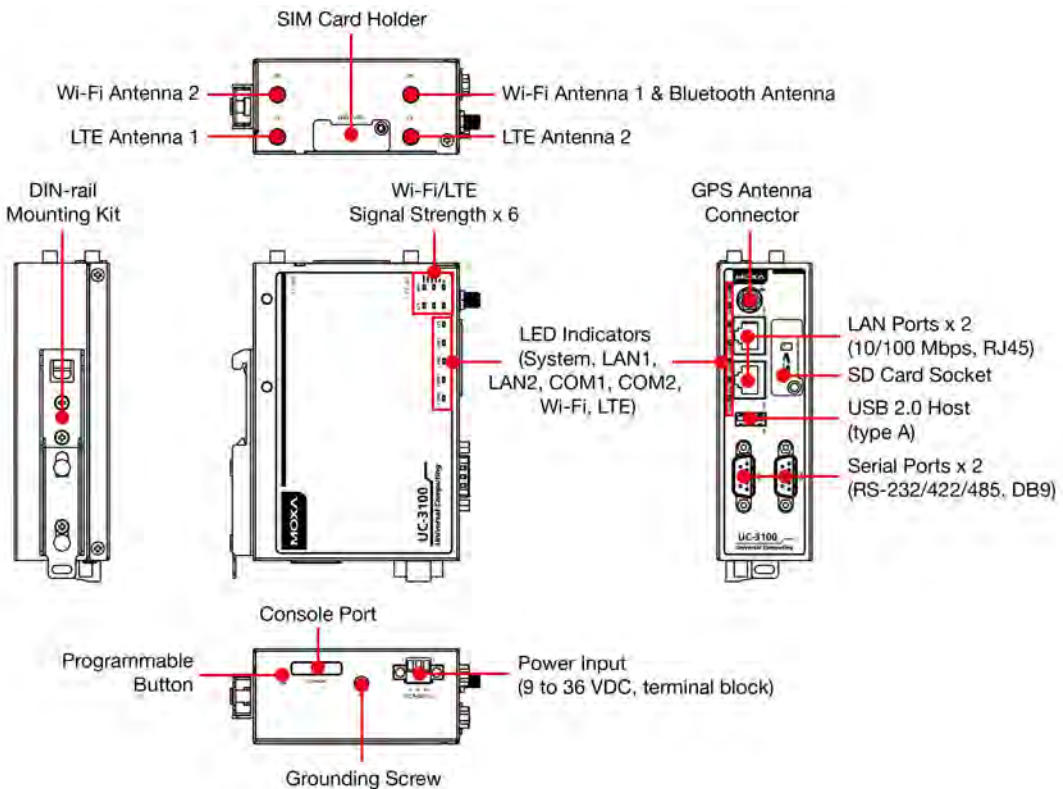
- Remote Terminal Unit (RTU)
- Data acquisition
- M2M communication (smart gateway)
- Digital signage
- Factory automation
- In-vehicle monitor/data logger (transportation)
- Programmable router
- Energy usage optimization
- Predictive maintenance
- Asset management

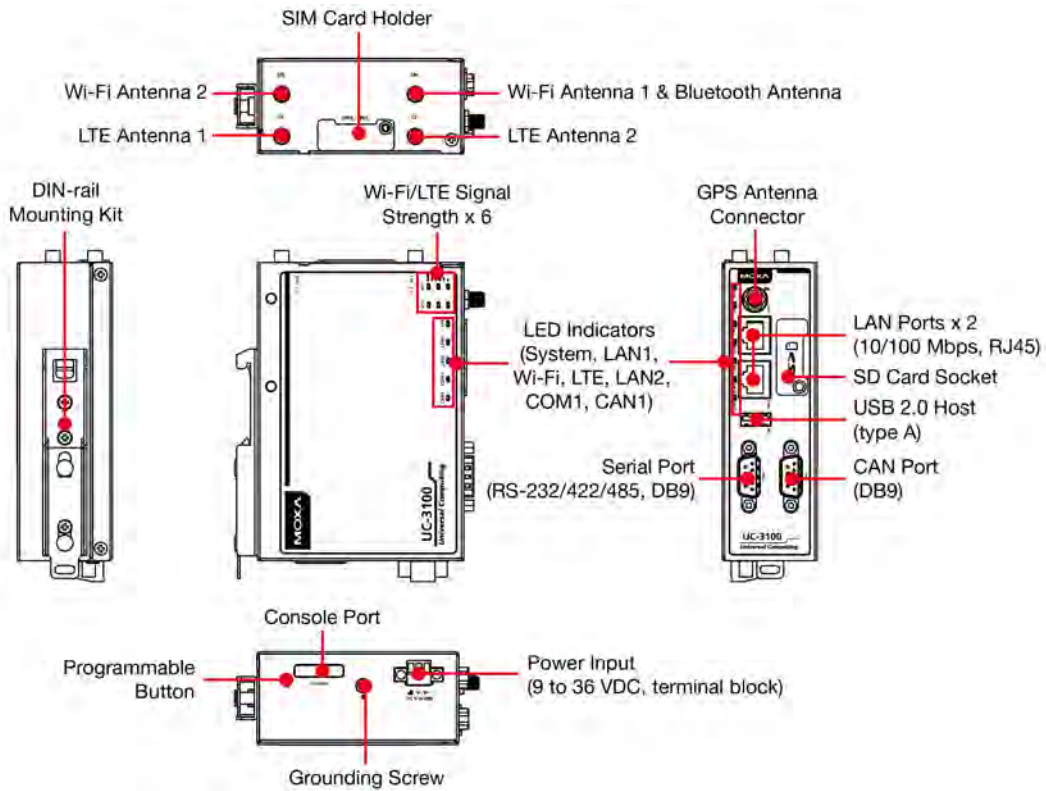
# Appearance

## UC-3101



## UC-3111





## Specifications

### Computer

DRAM	1 GB DDR3
Supported OS	Linux Debian 9 kernel 4.4 (Moxa Industrial Linux) See <a href="http://www.moxa.com/MIL">www.moxa.com/MIL</a>
Storage Pre-installed	8 GB eMMC
Storage Slot	UC-3111/3121: SD slots x 1

### Computer Interface

TPM	TPM v2.0
Ethernet Ports	Auto-sensing 10/100 Mbps ports (RJ45 connector) x 2
Serial Ports	UC-3101/3121: RS-232/422/485 ports x 1, software-selectable (DB9) UC-3111: RS-232/422/485 ports x 2, software-selectable (DB9)
USB 2.0	USB 2.0 hosts x 1, type-A connectors
Cellular Antenna Connector	SMA x 2
SIM Format	Nano
Number of SIMs	2
GPS Antenna Connector	SMA x 1
Wi-Fi Antenna Connector	RP-SMA x 2 for UC-3111/UC-3121 only
Console Port	RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)

### Ethernet Interface

Magnetic Isolation Protection	1.5 kV (built-in)
-------------------------------	-------------------

## Cellular Interface

Band Options	<p>US models:            LTE Bands: Band 2 (1900 MHz) / Band 4 (1700 MHz) / Band 5 (850 MHz) / Band 12 (700 MHz) / Band 13 (700 MHz) / Band 14 (700 MHz) / Band 66 (1700 MHz) / Band 71 (600 MHz)            UMTS Bands: 2 (1900 MHz) / Band 4 (1700 MHz) / Band 5 (850 MHz)            Carrier Approval: Verizon, AT&amp;T</p> <p>EU models:            LTE Bands: Band 1 (2100 MHz) / Band 3 (1800 MHz) / Band 7 (2600 MHz) / Band 8 (900 MHz) / Band 20 (800 MHz) / Band 28A (700 MHz)            UMTS Bands: Band 1 (2100 MHz) / Band 3 (1800 MHz) / Band 8 (900 MHz)</p> <p>AP models:            LTE Bands: Band 1 (2100 MHz) / 3 (1800 MHz) / Band 5 (850 MHz) / Band 8 (900 MHz) / Band 9 (1700 MHz) / Band 18 (850 MHz) / Band 19 (850 MHz) / Band 28 (700 MHz)            UMTS Bands: 1 (2100 MHz) / Band 5 (850 MHz) / Band 6 (800 MHz) / Band 8 (900 MHz) / Band 19 (800 MHz)</p>
--------------	---

## WLAN Interface

WLAN Standards	802.11a/b/g/n: UC-3111-T-LX and UC-3121-T-LX models Bluetooth 4.2 compliance: UC-3111-T-LX and UC-3121-T-LX models
Frequency Band	2.4 GHz/5 GHz: UC-3111-T-LX and UC-3121-T-LX models

## Serial Interface

Data Bits	5, 6, 7, 8
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 1.5, 2
Baudrate	50 bps to 921.60 kbps

## 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

## CAN Interface

Baudrate	UC-3121-T-US-LX: 10 to 1000 kbps UC-3121-T-EU-LX: 10 to 1000 kbps UC-3121-T-AP-LX: 10 to 1000 kbps
Connector	UC-3121-T-US-LX: DB9 male UC-3121-T-EU-LX: DB9 male UC-3121-T-AP-LX: DB9 male
Isolation	UC-3121-T-US-LX: 2 kV (built-in) UC-3121-T-EU-LX: 2 kV (built-in) UC-3121-T-AP-LX: 2 kV (built-in)
Signals	UC-3121-T-US-LX: CAN_H, CAN_L, CAN_GND, CAN_SHLD, CAN_V+, GND UC-3121-T-EU-LX: CAN_H, CAN_L, CAN_GND, CAN_SHLD, CAN_V+, GND UC-3121-T-AP-LX: CAN_H, CAN_L, CAN_GND, CAN_SHLD, CAN_V+, GND

## LED Indicators

System	Power x 1
CAN	UC-3121-T-US-LX: 1 per port (Tx, Rx) UC-3121-T-EU-LX: 1 per port (Tx, Rx) UC-3121-T-AP-LX: 1 per port (Tx, Rx)

Serial	1 per port (Tx, Rx)
LAN	1 per port (10/100 Mbps)
Wireless Signal Strength	UC-3101: 3 x cellular UC-3111/UC-3121: 3 x cellular and 3 x Wi-Fi
<b>Power Parameters</b>	
Power Consumption	UC-3101: 6 W (max.) UC-3111/UC-3121: 8 W (max.)
Input Current	500 mA @ 12 VDC
Input Voltage	9 to 36 VDC
<b>Physical Characteristics</b>	
Housing	Metal
Installation	DIN-rail mounting Wall mounting (with optional kit)
Dimensions (without ears)	128.5 x 89.1 x 26 mm (5.06 x 3.51 x 1.02 in) for UC-3101 128.5 x 89.1 x 41 mm (5.06 x 3.51 x 1.61 in) for UC-3111/UC-3121
Weight	Product only: 550 g (1.22 lb)
<b>Environmental Limits</b>	
Operating Temperature	-40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Vibration	5 Grms @ IEC 60068-2-64, random wave, 5-500 Hz, 1 hr per axis (without USB devices attached)
Shock	IEC 60068-2-27
<b>Standards and Certifications</b>	
EMC	EN 61000-6-2/-6-4 EN 55032/24
EMI	CISPR 22, 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 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Carrier Approvals	Verizon AT&T
Cellular Standards	EN 301511 EN 301908-1 EN 62311(MPE SAR) EN 301489-1/-52 EN 301489-1/17
Radio Frequency	FCC PTCRB RCM
Safety	IEC 60950-1 IEC 62368-1

	UL 62368-1 UL 60950-1
WLAN Standards	EN 301489-1-17 EN 300328 EN 301893
Green Product	RoHS, CRoHS, WEEE
Hazardous Locations	Class I Division 2 IECEX ATEX

#### MTBF

Standards	Telcordia (Bellcore) Standard
Time	UC-3101-T-US-LX: 702,846 hrs UC-3101-T-EU-LX: 585,775 hrs UC-3101-T-AP-LX: 585,775 hrs UC-3111-T-US-LX: 465,569 hrs UC-3111-T-EU-LX: 416,081 hrs UC-3111-T-AP-LX: 416,081 hrs UC-3121-T-US-LX: 474,796 hrs UC-3121-T-EU-LX: 428,931 hrs UC-3121-T-AP-LX: 428,931 hrs

#### Warranty

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

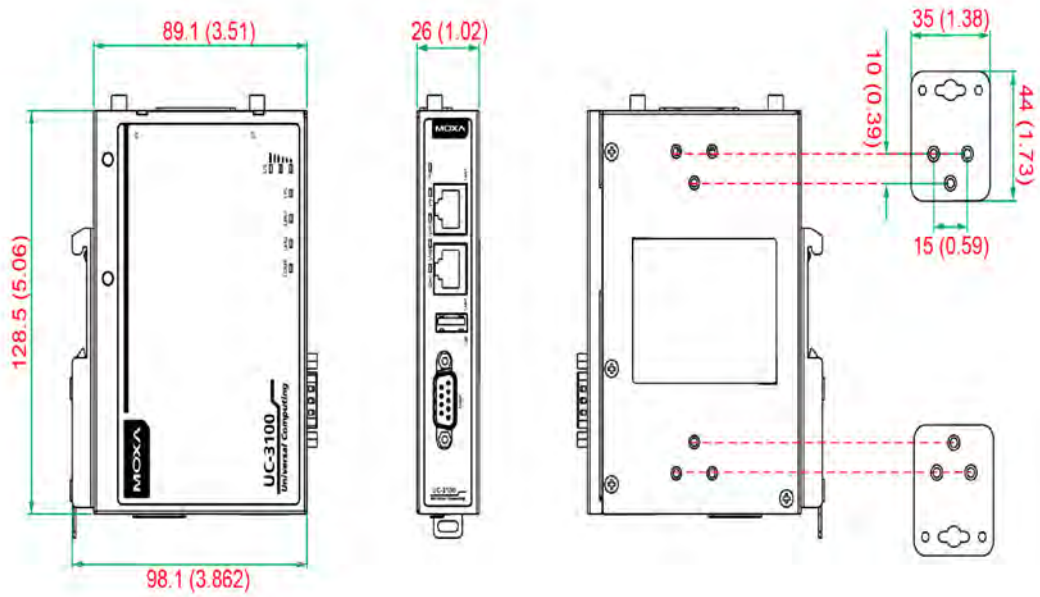
#### Package Contents

Device	1 x UC-3100 Series computer
Cable	1 x terminal block to power jack converter
Documentation	1 x quick installation guide 1 x warranty card

## Dimensions

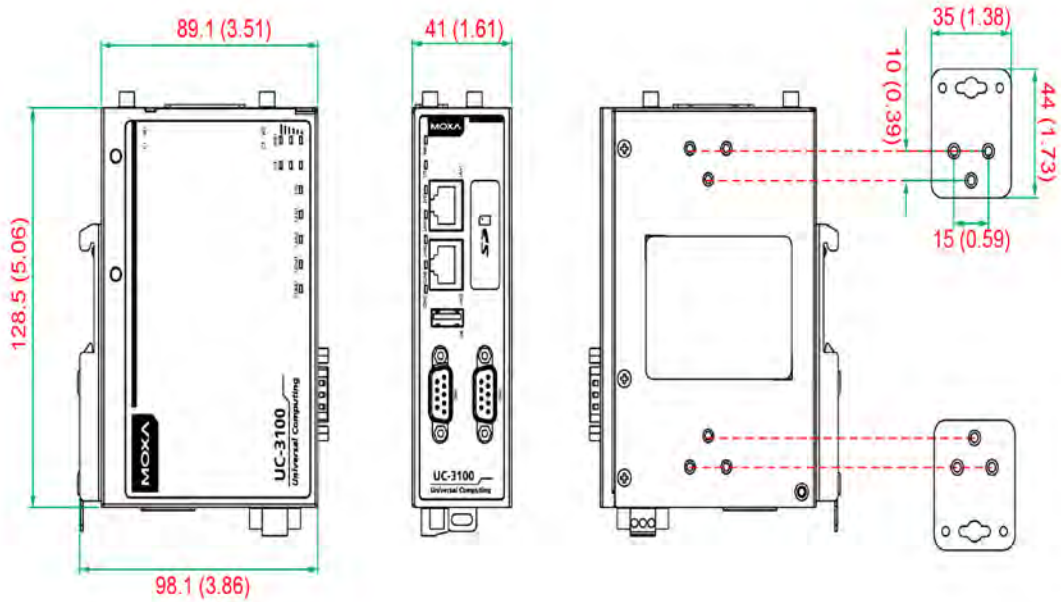
### UC-3101

Unit: mm (inch)



### UC-3111

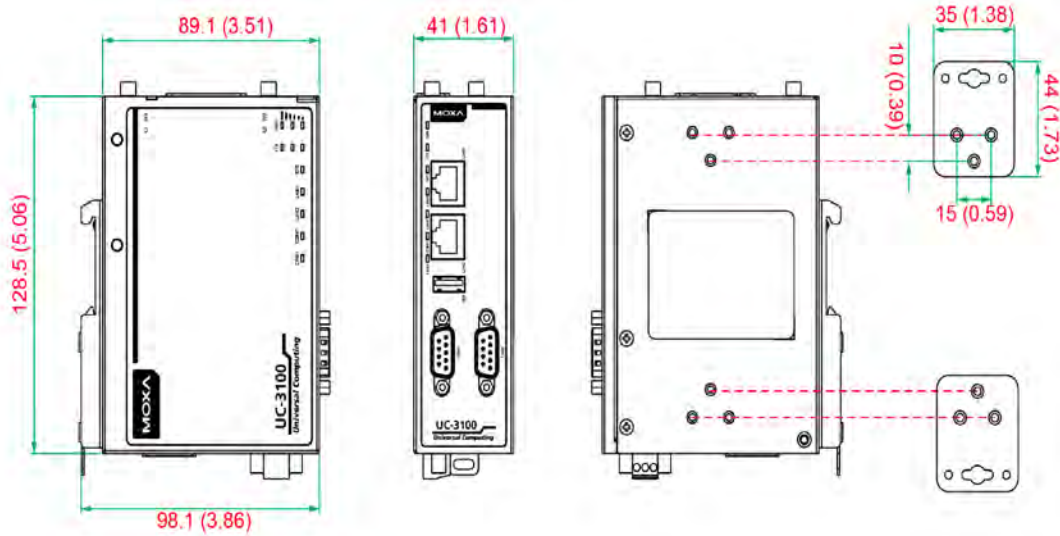
Unit: mm (inch)





# UC-3121

Unit: mm (inch)



## Ordering Information

Model Name	Carrier Approval	CPU	SD Slot	RAM	eMMC	Serial	TPM 2.0	CAN	LTE	Wi-Fi	BLT
UC-3101-T-US-LX	AT&T, Verizon	1 GHz	-	1 GB	8 GB	1	✓	-	Cat. 1	-	-
UC-3111-T-US-LX	AT&T, Verizon	1 GHz	1	1 GB	8 GB	2	✓	-	Cat. 1	✓	✓
UC-3121-T-US-LX	AT&T, Verizon	1 GHz	1	1 GB	8 GB	1	✓	1	Cat. 1	✓	✓
UC-3101-T-EU-LX	-	1 GHz	-	1 GB	8 GB	1	✓	-	Cat. 1	-	-
UC-3111-T-EU-LX	-	1 GHz	1	1 GB	8 GB	2	✓	-	Cat. 1	✓	✓
UC-3121-T-EU-LX	-	1 GHz	1	1 GB	8 GB	1	✓	1	Cat. 1	✓	✓
UC-3101-T-AP-LX	-	1 GHz	-	1 GB	8 GB	1	✓	-	Cat. 1	-	-
UC-3111-T-AP-LX	-	1 GHz	1	1 GB	8 GB	2	✓	-	Cat. 1	✓	✓
UC-3121-T-AP-LX	-	1 GHz	1	1 GB	8 GB	1	✓	1	Cat. 1	✓	✓

## Accessories (sold separately)

### Power Adapters

PWR-12150-CN-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, China (CN) plug, -40 to 75°C operating temperature
PWR-12150-EU-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, Continental Europe (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, United Kingdom (UK) plug, -40 to 75°C operating temperature
PWR-12150-AU-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, Australia (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, United States/Japan (US/JP) plug, -40 to 75°C operating temperature

#### Cables

CBL-F9DPF1x4-BK-100	Console cable with 4-pin connector, 1 m
---------------------	---

#### DIN-Rail Mounting Kits

UC-3100 DIN-Rail Kit	DIN-rail kit with screws
----------------------	--------------------------

#### Wall-Mounting Kits

UC-3100 Wall-Mounting Kit	Wall-mounting kit with screws
---------------------------	-------------------------------

#### Antennas

ANT-LTE-ASM-02	GPRS/EDGE/UMTS/HSPA/LTE, omni-directional rubber duck antenna, 2 dBi
ANT-WDB-ARM-02	2.4/5 GHz, omni-directional rubber duck antenna, 2 dBi, RP-SMA (male)
ANT-LTEUS-ASM-01	GSM/GPRS/EDGE/UMTS/HSPA/LTE, omni-directional rubber duck antenna, 1 dBi
UC-3100 Antenna Set	4 dBi at 1575 MHz to 1610 MHz, SMA (male), active GPS/GLONASS, adhesive-type antenna with 20-cm cable; 2 x 4 dBi at 2.4 GHz or 5 dBi at 5 GHz, RP-SMA (female), omnidirectional antennas; 2 x 1.5 dBi 698 to 960 MHz or 1710 to 2700 MHz, SMA (male), LTE, swivel-type omnidirectional portable antennas

© Moxa Inc. All rights reserved. Updated Dec 14, 2021.

This document and any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of Moxa Inc. Product specifications subject to change without notice. Visit our website for the most up-to-date product information.