

# 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
- -30 to 70°C system operating temperature
- 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 -30 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

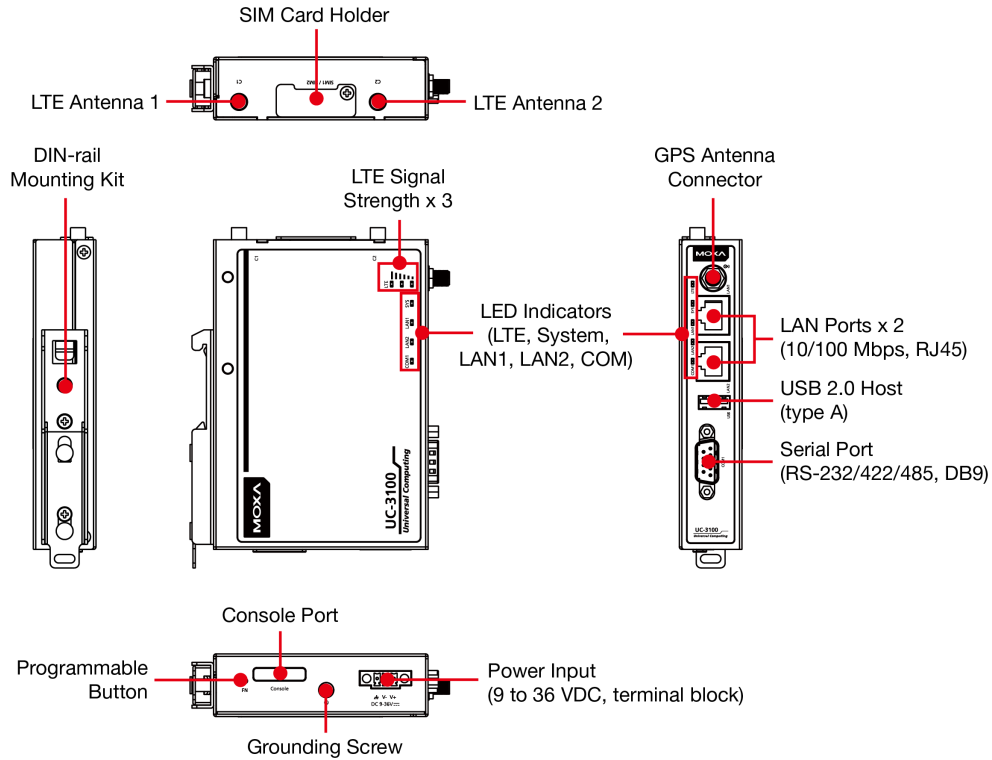
In addition, Moxa provides 10 years of Linux OS support. With a new version of the Debian repository released on an average every 2 to 3 years, you can create a reliable solution that will be supported now and long into the future.

## Applications

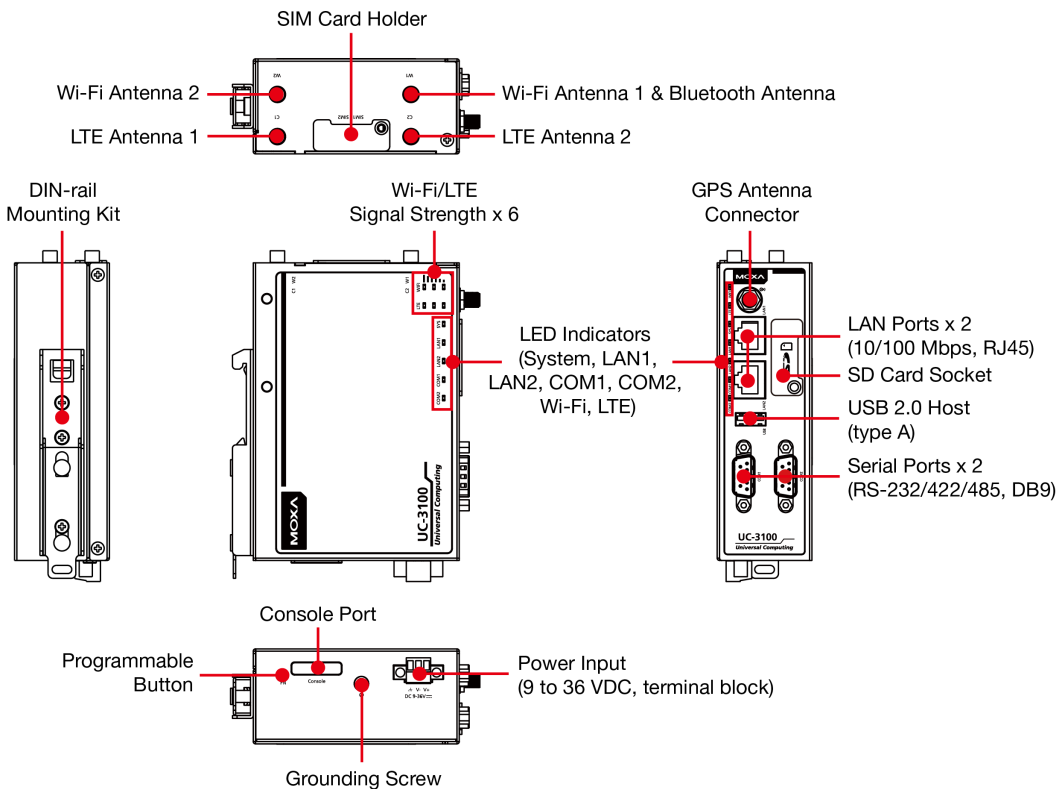
- Remote Terminal Unit (RTU)
- Data acquisition
- M2M communication (smart gateway)
- Digital signage
- Factory automation
- In-vehicle monitor/data logger (transportation)
- Programmable router
- Energy usage optimization
- Predictive maintenance
- Asset management

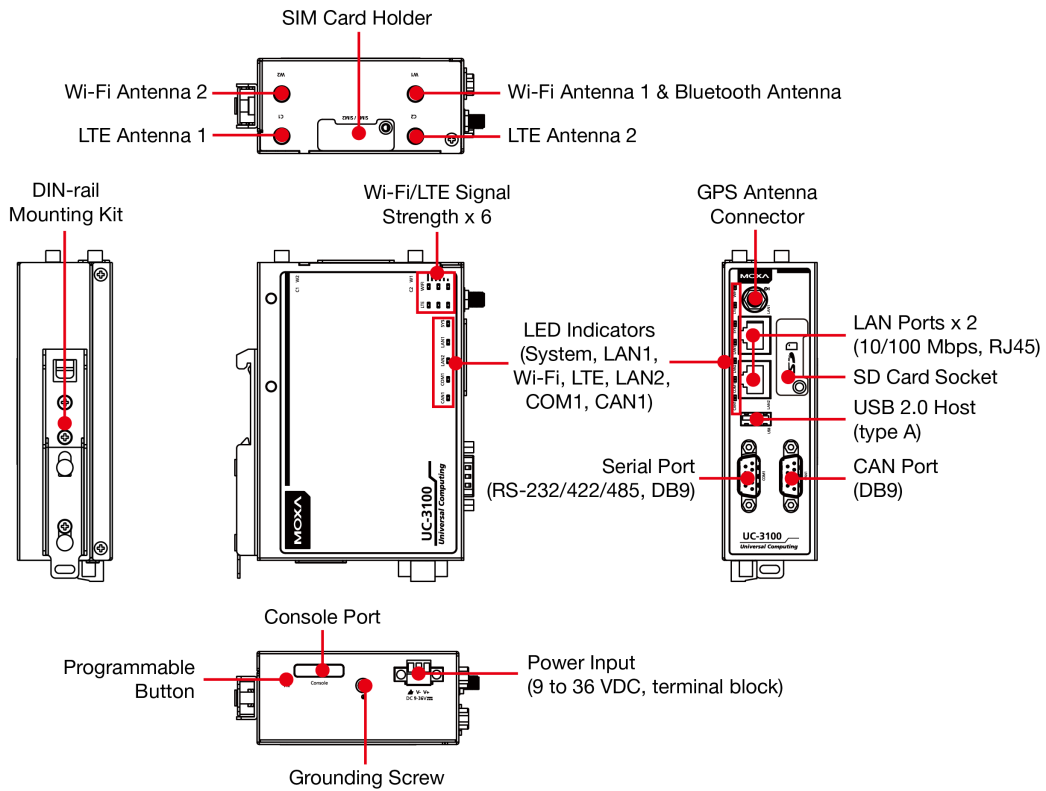
# Appearance

## 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	EU and AP models: 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)
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## 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>
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## 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

## 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	US Models: -40 to 70°C (-40 to 158°F) All other models: -30 to 70°C (-22 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>

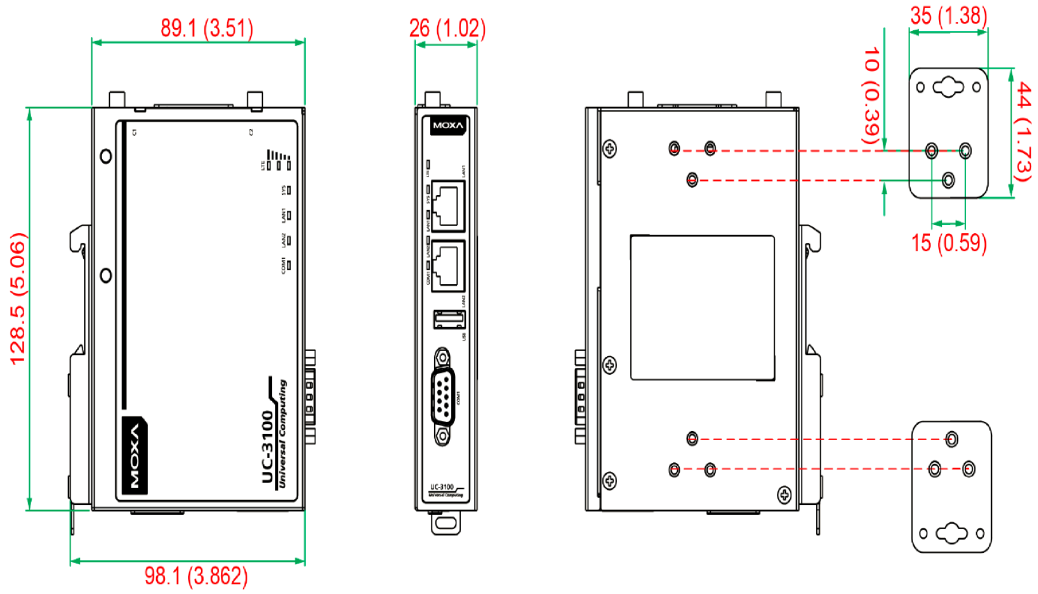
#### Package Contents

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

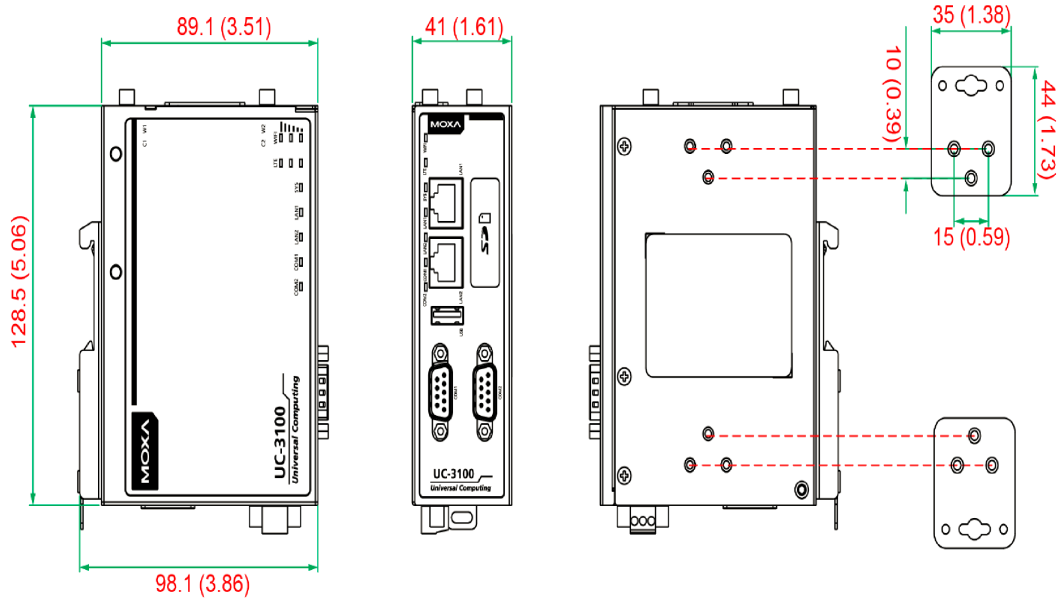
### UC-3101

Unit: mm (inch)



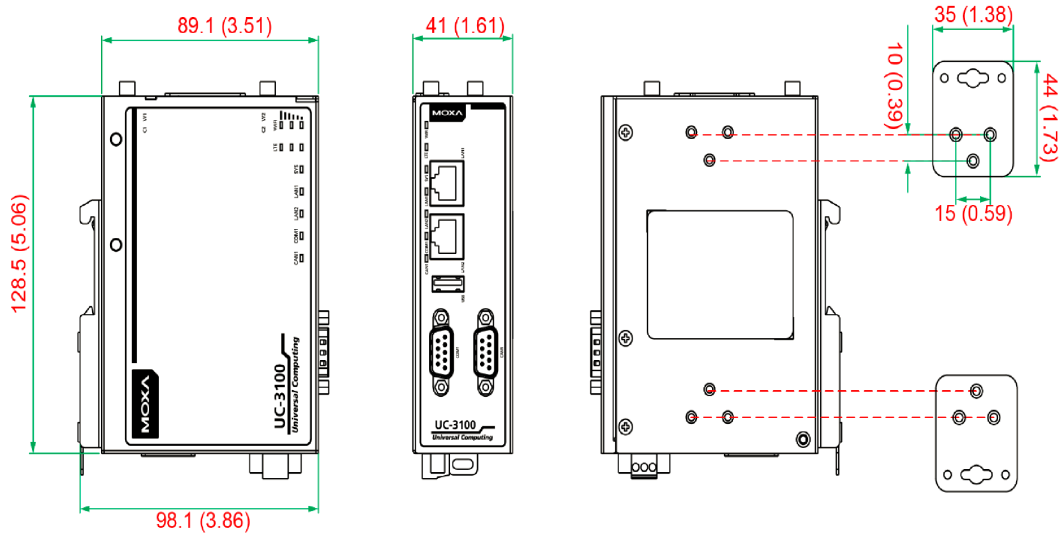
### UC-3111

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-24270-DT-S1 Power adapter, input voltage 90 to 264 VAC, output voltage 24 V with 2.5 A DC load

### Power Cords

PWC-C7AU-2B-183 Power cord with Australian (AU) plug, 2.5A/250V, 1.83 m



PWC-C7CN-2B-183	Power cord with three-prong China (CN) plug, 2.5A/250V, 1.83 m
PWC-C7EU-2B-183	Power cord with Continental Europe (EU) plug, 2.5A/250V, 1.83 m
PWC-C7UK-2B-183	Power cord with United Kingdom (UK) plug, 2.5A/250V, 1.83 m
PWC-C7US-2B-183	Power cord with United States (US) plug, 10A/125V, 1.83 m

#### Cables

CBL-F9DPF1x4-BK-100	Console cable with 4-pin connector, 1 m
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#### DIN-Rail Mounting Kits

UC-3100 DIN-Rail Kit	DIN-rail kit with screws
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#### Wall-Mounting Kits

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

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