

# AIG-300 Series

Advanced IIoT Gateways with Arm® Cortex™-A7 dual-core 1 GHz processor, 1 CAN port, 4 DIs, 4 DOs, ThingsPro Edge software, -40 to 70°C operating temperature



## Features and Benefits

- Simplifies data acquisition and device management via the ThingsPro Edge software
- Seamless integration with ThingsPro Edge and Azure IoT Edge enables easy, reliable, yet secure cloud connectivity
- Supports easy device-provisioning with the ThingsPro Proxy utility
- Provides robust OTA function to prevent system failure during software upgrades
- Equipped with secure boot to prevent malicious software-injection attacks

## Certifications

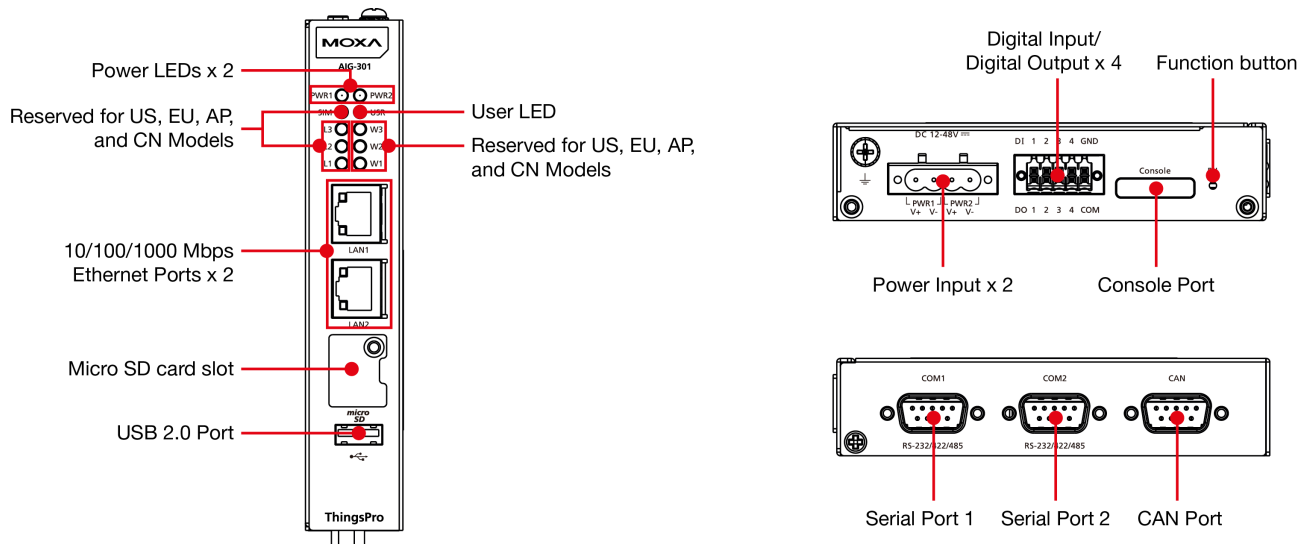


## Introduction

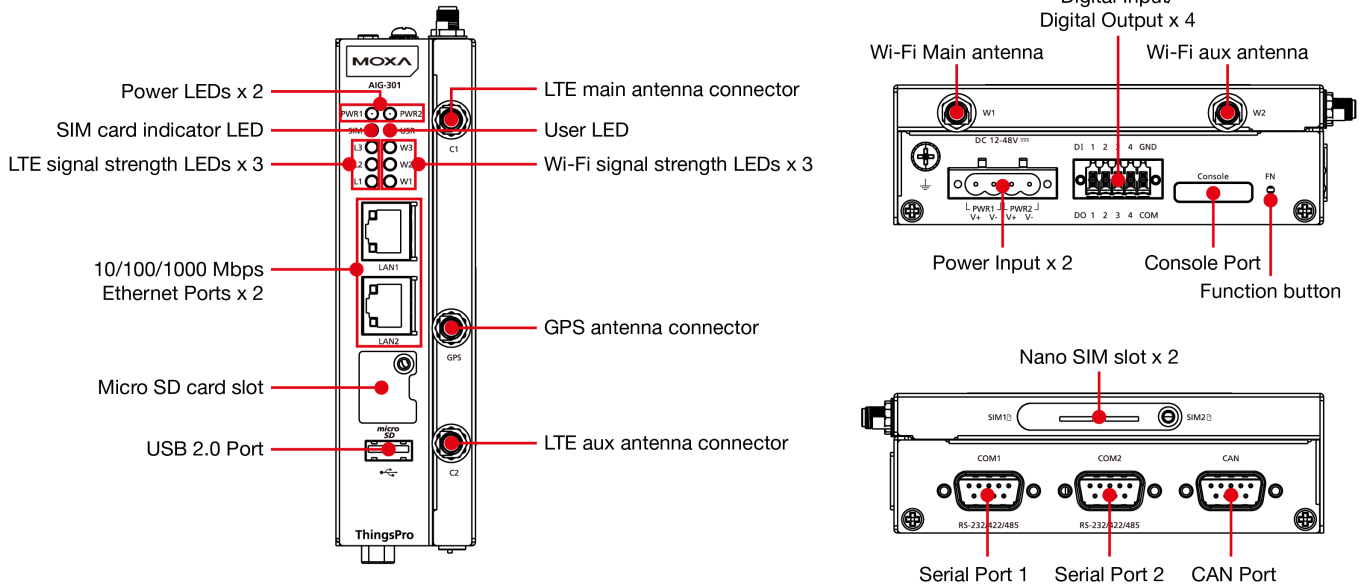
The AIG-301 Series advanced IIoT gateways are designed for Industrial IoT applications, especially for distributed and unmanned sites in harsh operating environments. ThingsPro Edge and Azure IoT Edge software are preloaded and seamlessly integrated with the AIG-301 Series to enable easy, reliable, yet secure sensor-to-cloud connectivity for data acquisition and device management using the Azure Cloud solution. With the use of the ThingsPro Proxy utility, the device provisioning process is easier than ever. Thanks to the robust OTA function, you never have to worry about system failure during software upgrades. With the secure boot function enabled, you can enable the booting process of AIG-301 Series to prevent malicious software injection.

## Appearance

### AIG-301-T-AZU-LX



## AIG-301 US, EU, AP, and CN Models



## Specifications

### Computer

CPU	Arm7 Cortex-A7 dual-core 1 GHz
DRAM	2 GB DDR3L
Storage Pre-installed	16 GB eMMC GB eMMC
Pre-installed OS	Moxa Industrial Linux (Debian 9, Kernel 4.4)

### Computer Interface

TPM	TPM v2.0
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2
Serial Ports	RS-232/422/485 ports x 2, software selectable (DB9 male)
CAN Ports	CAN 2.0 A/B x 1 (DB9 male)
Digital Input	DIs x 4
Digital Output	DOs x 4
USB 2.0	USB 2.0 hosts x 1, type-A connectors
Wi-Fi Antenna Connector	RP-SMA x 2 (excluding AIG-301-AZU-LX/T-AZU-LX models)
Cellular Antenna Connector	SMA x SMA x 2 (excluding AIG-301-AZU-LX/T-AZU-LX models)
GPS Antenna Connector	SMA x SMA x 1 (excluding AIG-301-AZU-LX/T-AZU-LX models)
Expansion Slots	mPCIe slot x 1: AIG-301-US-AZU-LX/T-US-AZU-LX, AIG-301-EU-AZU-LX/T-EU-AZU-LX, AIG-301-AP-AZU-LX/T-AP-AZU-LX mPCIe slot x 2: AIG-301-CN-AZU-LX/T-CN-AZU-LX
SIM Format	Nano (AIG-301-US-AZU-LX/T-US-AZU-LX, AIG-301-EU-AZU-LX/T-EU-AZU-LX, AIG-301-AP-AZU-LX/T-AP-AZU-LX)
Number of SIMs	2
Buttons	Programmable button

## Ethernet Interface

Magnetic Isolation Protection	1.5 kV (built-in)
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## Serial Interface

Console Port	1 x 4-pin header
Connector	DB9 female
Baudrate	300 bps to 921.6 kbps
Data Bits	5, 6, 7, 8
Flow Control	ADDC® (automatic data direction control) for RS-485, RTS/CTS, XON/XOFF
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 1.5, 2
Isolation	N/A

## 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

No. of Ports	1
Connector	DB9 male
Baudrate	10 to 1000 kbps
Industrial Protocols	CAN 2.0A, CAN 2.0B
Signals	CAN_H, CAN_L, CAN_GND, CAN_SHLD, CAN_V+, GND
Isolation	2 kV (built-in)

## Digital Inputs

Connector	Spring-type Euroblock terminal
Dry Contact	Off: open On: short to GND
Wet Contact (DI to COM)	On: 10 to 30 VDC Off: 0 to 3 VDC
Isolation	3K VDC
Sensor Type	Wet contact (NPN) Dry contact

## Digital Outputs

Connector	Spring-type Euroblock terminal
Current Rating	200 mA per channel
I/O Type	Sink
Voltage	24 VDC nominal, open collector to 30 VDC

## Cellular Interface

Cellular Standards	LTE CAT-4
Band Options (US)	LTE Band 2 (1900 MHz) / LTE Band 4 (1700 MHz) / LTE Band 5 (850 MHz) / LTE Band 13 (700 MHz) / LTE Band 17 (700 MHz) UMTS/HSPA 850 MHz / 1900 MHz Carrier Approval: Verizon, AT&T
Band Options (EU)	LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 5 (850 MHz) / LTE Band 7 (2600 MHz) / LTE Band 8 (900 MHz) / LTE Band 20 (800 MHz) UMTS/HSPA 850 MHz / 900 MHz / 1900 MHz / 2100 MHz
Band Option (APAC)	LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 5 (850 MHz) / LTE Band 7 (2600 MHz) / LTE Band 8 (900 MHz) / LTE Band 28 (700 MHz) UMTS/HSPA 850 MHz / 900 MHz / 1900 MHz / 2100 MHz

## GPS Interface

Receiver Types	72-channel u-blox M8 engine GPS/GLONASS/Galileo
Accuracy	Position: 2.5 m CEP SBAS: 2.0 m CEP
Acquisition	Aided starts: 3 sec Cold starts: 26 sec
Sensitivity	Cold starts: -148 dBm Tracking: -164 dBm

## LED Indicators

System	Power x 2 User x 1 SIM card indicator x 1
Wireless Signal Strength	Cellular/Wi-Fi x 6

## ThingsPro Software

ThingsPro Proxy Utility	Yes
Azure IoT Edge Preintegrated	Yes
ThingsPro Edge Preloaded	Yes

## Power Parameters

No. of Power Inputs	Redundant dual inputs
Input Voltage	12 to 48 VDC
Power Consumption	4.8 W (AIG-301-AZU-LX/T-AZU-LX) 6.0 W (AIG-301-CN-AZU-LX/T-CN-AZU-LX) 8.4 W (AIG-301-US-AZU-LX/T-US-AZU-LX, AIG-301-EU-AZU-LX/T-EU-AZU-LX, AIG-301-AP-AZU-LX/T-AP-AZU-LX)
Input Current	0.4 A @ 12 VDC (AIG-301-AZU-LX/T-AZU-LX) 0.5 A @ 12 VDC (AIG-301-CN-AZU-LX/T-CN-AZU-LX) 0.7 A @ 12 VDC (AIG-301-US-AZU-LX/T-US-AZU-LX, AIG-301-EU-AZU-LX/T-EU-AZULX, AIG-301-AP-AZU-LX/T-AP-AZU-LX)

## Reliability

Automatic Reboot Trigger	External WDT (watchdog timer)
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## Physical Characteristics

Housing	SECC Metal
Installation	DIN-rail mounting, Wall mounting (with optional kit)
IP Rating	IP30
Dimensions	141.5 x 120 x 27 mm (5.7 x 4.72 x 1.06 in) (AIG-301-AZU-LX/T-AZU-LX) 141.5 x 120 x 39 mm (5.7 x 4.72 x 1.54 in) (AIG-301-US-AZU-LX/T-US-AZU-LX, AIG-301-EU-AZU-LX/T-EU-AZU-LX, AIG-301-AP-AZU-LX/T-AP-AZU-LX, AIG-301-CN-AZU-LX/TCN-AZU-LX)
Weight	560 g (1.23 lb) (AIG-301-AZU-LX/T-AZU-LX) 745 g (1.64 lb) (AIG-301-CN-AZU-LX/T-CN-AZU-LX) 750 g (1.65 lb) (AIG-301-US-AZU-LX/T-US-AZU-LX, AIG-301-EU-AZU-LX/T-EU-AZU-LX, AIG-301-AP-AZU-LX/T-AP-AZU-LX)

## Environmental Limits

Ambient Relative Humidity	5 to 95% (non-condensing)
Operating Temperature	Standard Temp. Models: -20 to 70°C (-4 to 158°F) (AIG-301-US-AZU-LX, AIG-301-EU-AZU-LX, AIG-301-AP-AZU-LX, AIG-301-CN-AZU-LX) -20 to 85°C (-4 to 185°F) (AIG-301-AZU-LX) Wide Temp. Models: -40 to 70°C (-40 to 158°F) (AIG-301-T-US-AZU-LX, AIG-301-T-EU-AZU-LX, AIG-301-T-AP-AZU-LX, AIG-301-T-CN-AZU-LX) -40 to 85°C (-40 to 185°F) (AIG-301-T-AZU-LX)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
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

Safety	UL 62368-1, EN 62368-1
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 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV
Green Product	RoHS, CRoHS, WEEE
Hazardous Locations	Class I Division 2, ATEX (AIG-301-T-US-AZU-LX, AIG-301-T-EU-AZU-LX, AIG-301-T-AP-AZU-LX, AIG-301-T-AZU-LX)
<b>MTBF</b>	
Time	683,818 hrs (AIG-301-US-AZU-LX/T-US-AZU-LX, AIG-301-EU-AZU-LX/T-EU-AZU-LX, AIG-301-AP-AZU-LX/T-AP-AZU-LX) 794,092 hrs (AIG-301-AZU-LX/T-AZU-LX)
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>

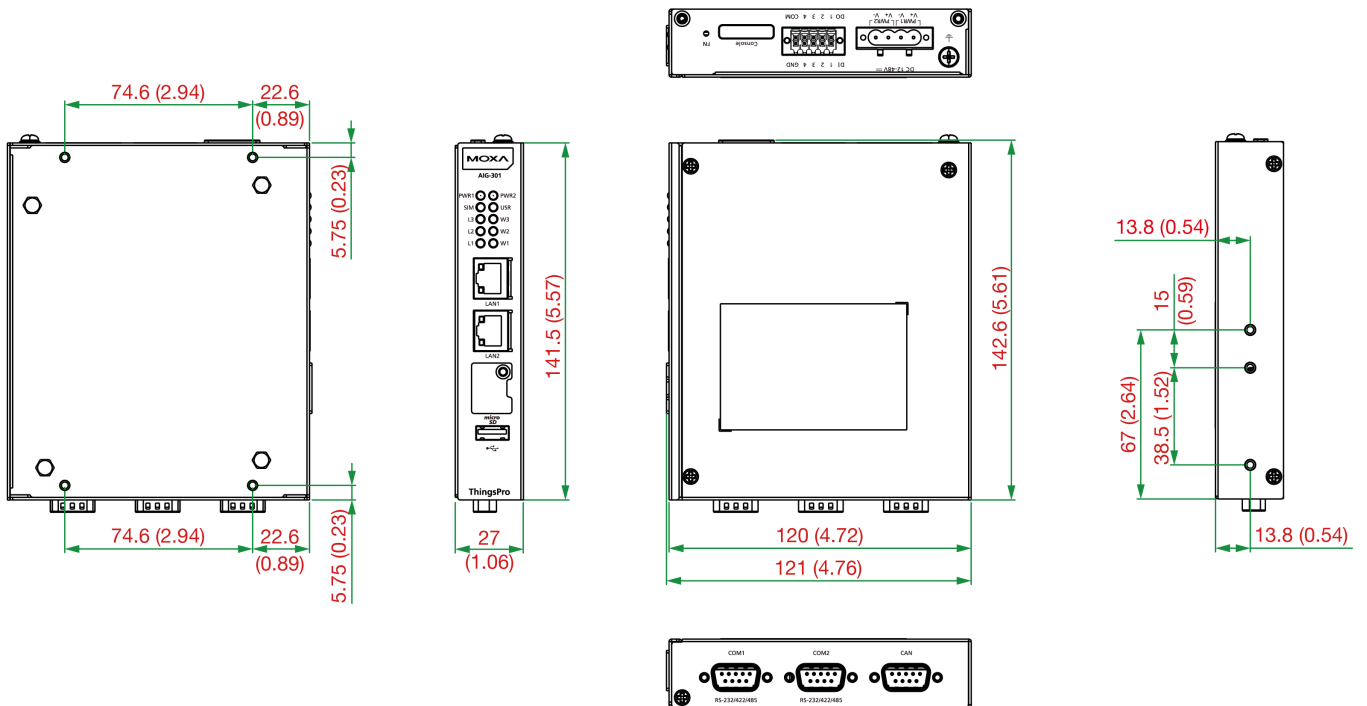
## Package Contents

Device	1 x AIG-300 Series computer
Documentation	1 x quick installation guide 1 x warranty card
Installation Kit	1 x DIN-rail kit (preinstalled) 1 x power jack

## Dimensions

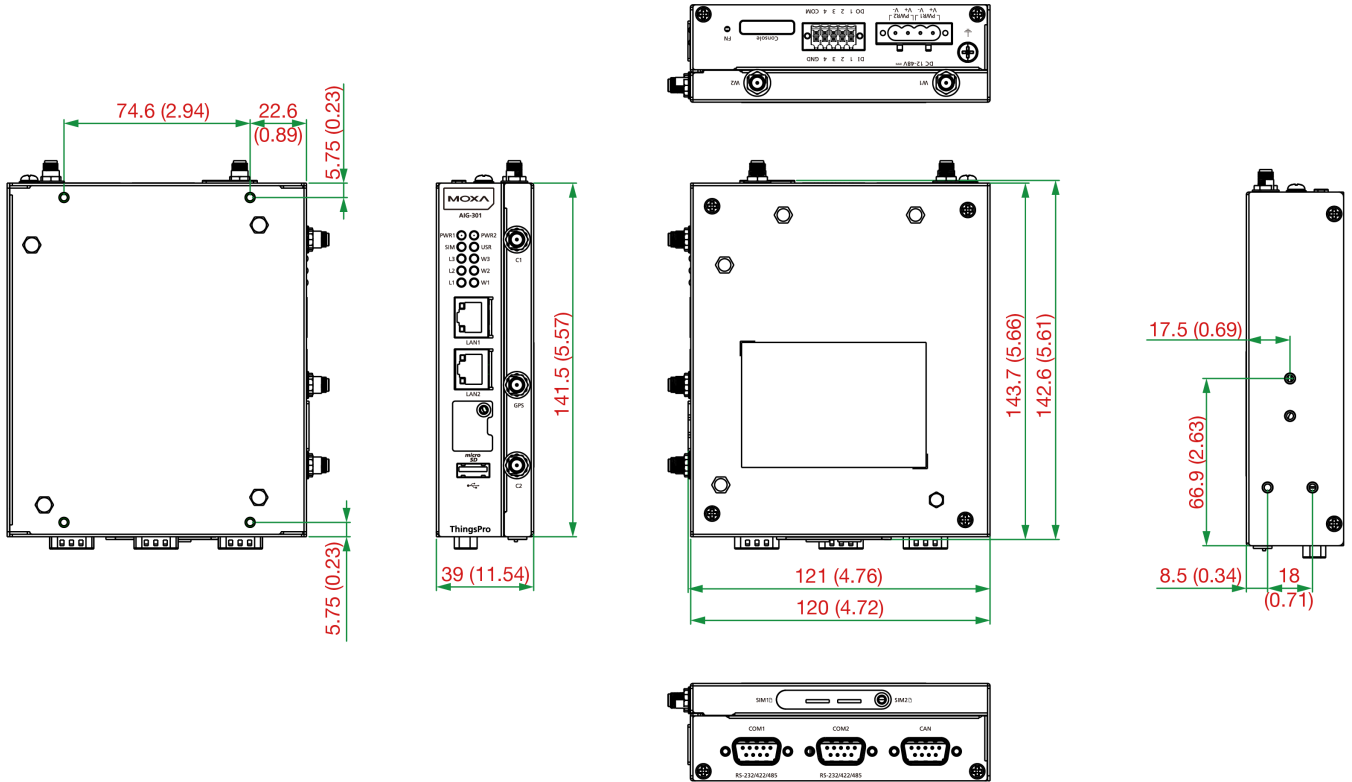
### AIG-301-T-AZU-LX

Unit: mm (inch)



## AIG-301 US, EU, AP, and CN Models

Unit: mm (inch)



## Ordering Information

Model Name	CPU	RAM	Storage	TPM	mPCIe Slot 1 for LTE Module	mPCIe Slot 2 for Wi-Fi Module	Operating Temperature
AIG-301-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	-	-	-20 to 85°C
AIG-301-T-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	-	-	-40 to 85°C
AIG-301-CN-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	Reserved	Reserved	-20 to 70°C
AIG-301-T-CN-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	Reserved	Reserved	-40 to 70°C
AIG-301-US-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	US region LTE module preinstalled	Reserved	-20 to 70°C
AIG-301-T-US-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	US region LTE module preinstalled	Reserved	-40 to 70°C
AIG-301-EU-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	Europe region LTE module preinstalled	Reserved	-20 to 70°C
AIG-301-T-EU-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	Europe region LTE module preinstalled	Reserved	-40 to 70°C
AIG-301-AP-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	APAC region LTE module preinstalled	Reserved	-20 to 70°C
AIG-301-T-AP-AZU-LX	1 GHz Dual Core	2 GB	16 GB	Built-in	APAC region LTE module preinstalled	Reserved	-40 to 70°C

## Accessories (sold separately)

### Power Wiring

CBL-PJTB-10	Non-locking barrel plug to bare-wire cable
Mini DB9F-to-TB	DB9 female to terminal block connector

### Cables

CBL-F9DPF1x4-BK-100	Console cable with 4-pin connector, 1 m
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### Wi-Fi Wireless Modules

UC-8200-WLAN22-AC	Wireless package for UC-8200 V2.0 or later with Wi-Fi module, 2 screws, 2 spacers, 1 heat sink, 1 pad
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### Antennas

ANT-LTEUS-ASM-01	GSM/GPRS/EDGE/UMTS/HSPA/LTE, 1 dBi, omnidirectional rubber-duck antenna
ANT-LTE-ASM-04 BK	704 to 960/1710 to 2620 MHz, LTE omnidirectional stick antenna, 4.5 dBi
ANT-LTE-OSM-03-3m BK	700-2700 MHz, multiband antenna, specifically designed for 2G, 3G, and 4G applications, 3 m cable
ANT-LTE-ASM-05 BK	704-960/1710-2620 MHz, LTE stick antenna, 5 dBi
ANT-LTE-OSM-06-3m BK MIMO	Multiband antenna with screw-fastened mounting option for 700-2700/2400-2500/5150-5850 MHz frequencies
ANT-WDB-ARM-0202	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male), dual-band, omnidirectional antenna
ANT-GPS-OSM-03-3m BK	3 dBi at 1575.42 MHz, SMA (male), omnidirectional magnetic-base passive GPS antenna, 3 m cable
ANT-GPS-CSM-03-3m	3 dBi at 1575.42 MHz, SMA (male), directional passive GPS antenna, 3 m cable
ANT-GPS-OSM-05-3M	26 dBi at 1575.42 MHz, SMA (male), omnidirectional active GPS antenna, 3 m cable

### Wall-Mounting Kits

UC-8200 Wall-mounting Kit	Wall-mounting kit for UC-8200 with 4 M3 screws
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