UC-5100 Series

Arm Cortex-A8 1 GHz IIoT gateways with 1 mini PCIe expansion slot for wireless module, 4 serial ports, 2 CAN ports, 4 DIs, 4 DOs

Features and Benefits

- Armv7 Cortex-A8 1000 MHz processor

- Dual auto-sensing 10/100 Mbps Ethernet ports

- 4 software-selectable RS-232/422/485 ports supporting all signals

- Dual CAN ports with industrial CAN 2.0 A/B protocol supported

- Mini PCIe socket for Wi-Fi/cellular module

- SD slot for storage expansion

- -40 to 85°C wide temperature range and -40 to 70°C with LTE enabled

- IEC 61000-6-2/6-4 standards for harsh industrial environments

- Long-term Linux support until 2027; includes bug fixes and security patches
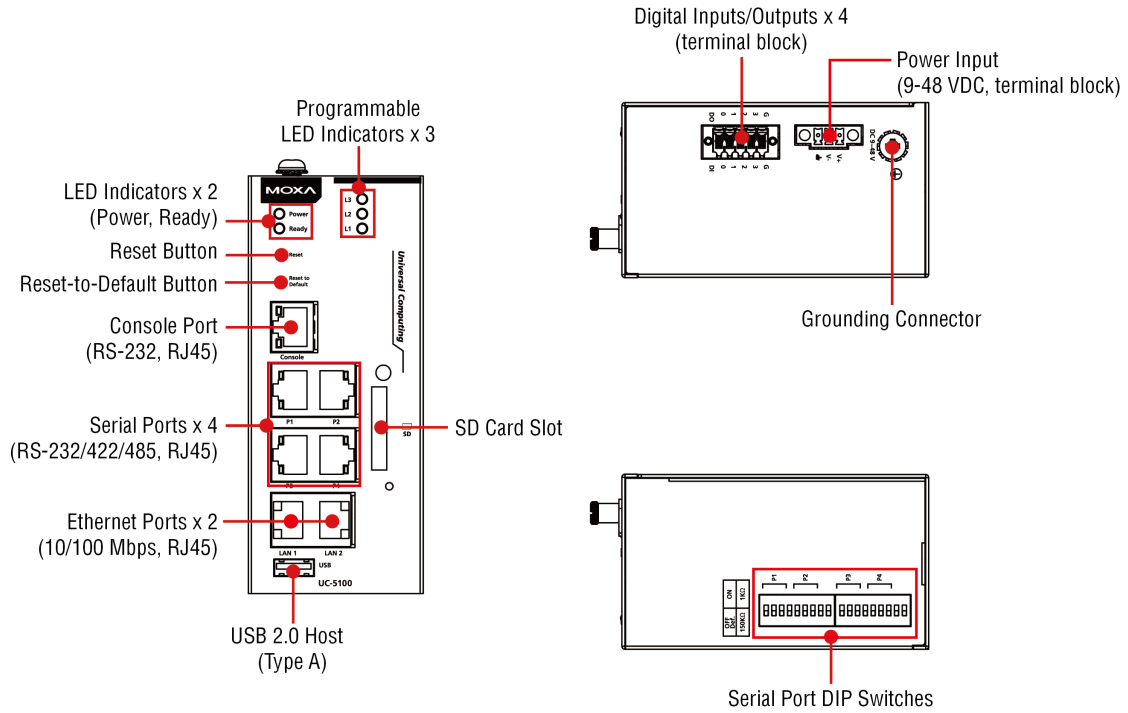
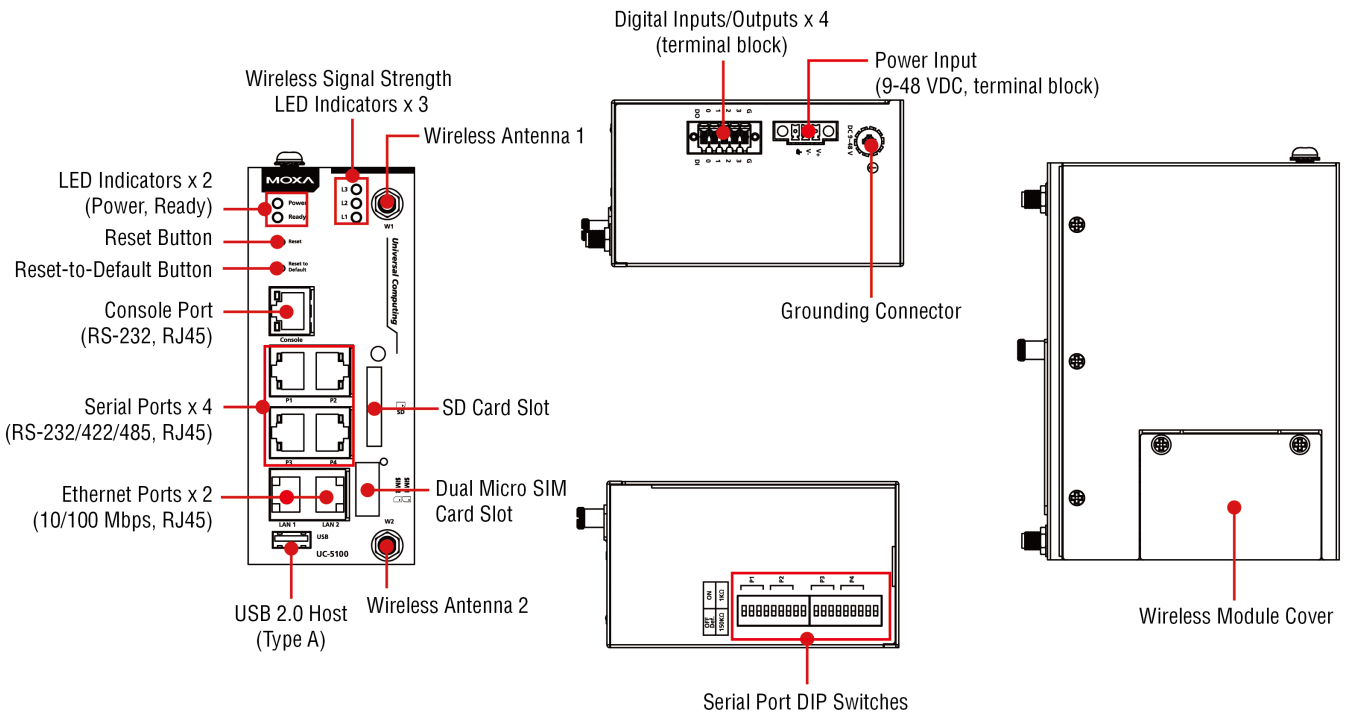## Certifications

Introduction

The UC-5100 Series embedded computers are designed for industrial automation applications. The computers feature 4 RS-232/422/485 full signal serial ports with adjustable pull-up/pull-down resistors, 2 CAN ports, 2 Ethernet ports, 4 digital input channels, 4 digital output channels, USB interface, and an SD slot in a compact, front-end access housing. To fulfill various industrial applications, the UC-5100 Series computing platform provides models with 2 CAN ports and a mini PCIe slot for wireless connections featuring a dual-SIM design for network redundancy. The UC-5100's vertical DIN-rail form factor makes it easy to install the computer in a small cabinet. This space-saving solution also facilitates easy wiring, making the UC-5100 a great choice as front-end embedded controllers for industrial applications. Furthermore, all models are equipped with Moxa Industrial Linux that comes with 10-year long-term support as well as optimized software features.
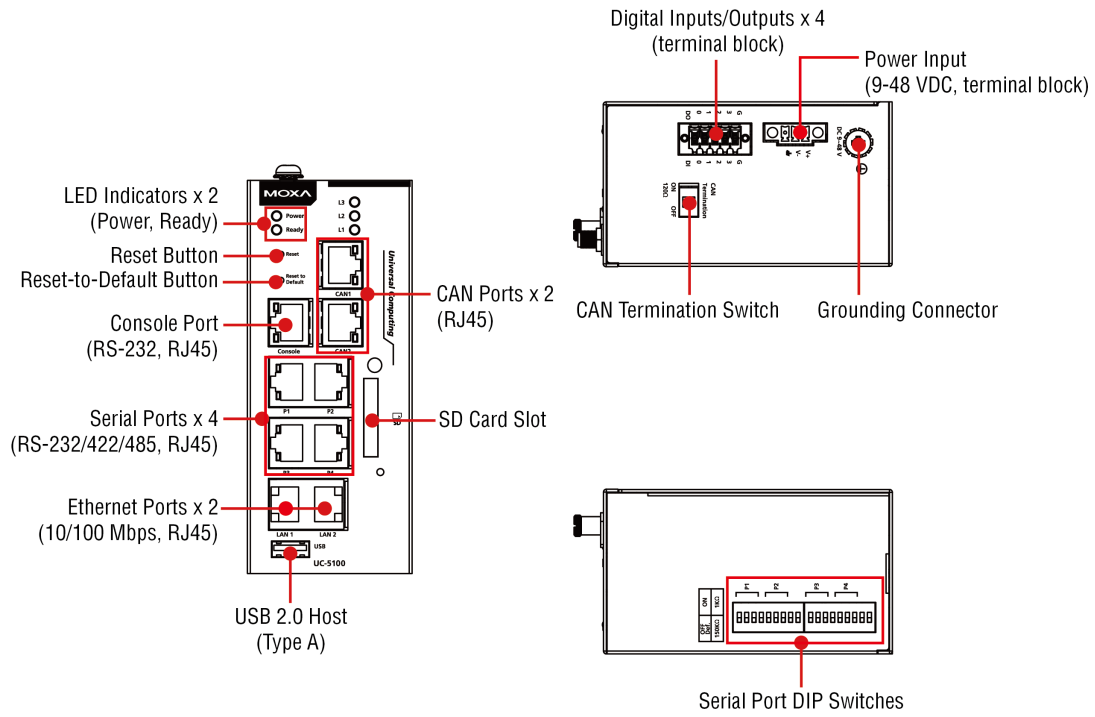
Appearance

UC-5101

Programmable
LED Indicators x 3

LED Indicators x 2
(Power, Ready)

Reset Button

Reset-to-Default Button

Console Port
(RS-232, RJ45)

Serial Ports x 4
(RS-232/422/485, RJ45)

Ethernet Ports x 2
(10/100 Mbps, RJ45)

USB 2.0 Host
(Type A)

SD Card Slot

Digital Inputs/Outputs x 4
(terminal block)

Power Input
(9-48 VDC, terminal block)

Grounding Connector

Serial Port DIP Switches

UC-5102

Wireless Signal Strength
LED Indicators x 3

Wireless Antenna 1

LED Indicators x 2
(Power, Ready)

Reset Button

Reset-to-Default Button

Console Port
(RS-232, RJ45)

Serial Ports x 4
(RS-232/422/485, RJ45)

Ethernet Ports x 2
(10/100 Mbps, RJ45)

USB 2.0 Host
(Type A)

Wireless Antenna 2

SD Card Slot

Dual Micro SIM
Card Slot

Digital Inputs/Outputs x 4
(terminal block)

Power Input
(9-48 VDC, terminal block)

Grounding Connector

Serial Port DIP Switches

Wireless Module Cover

UC-5111

- LED Indicators x 2 (Power, Ready)
- Reset Button
- Reset-to-Default Button
- Console Port (RS-232, RJ45)
- Serial Ports x 4 (RS-232/422/485, RJ45)
- Ethernet Ports x 2 (10/100 Mbps, RJ45)
- USB 2.0 Host (Type A)
- CAN Ports x 2 (RJ45)
- SD Card Slot
- Digital Inputs/Outputs x 4 (terminal block)
- Power Input (9-48 VDC, terminal block)
- CAN Termination Switch
- Grounding Connector
- Serial Port DIP Switches

UC-5112

- Wireless Signal Strength LED Indicators x 3
- LED Indicators x 2 (Power, Ready)
- Reset Button
- Reset-to-Default Button
- Console Port (RS-232, RJ45)
- Serial Ports x 4 (RS-232/422/485, RJ45)
- Ethernet Ports x 2 (10/100 Mbps, RJ45)
- USB 2.0 Host (Type A)
- Wireless Antenna 1
- CAN Ports x 2 (RJ45)
- SD Card Slot
- Dual Micro SIM Card Slot
- Wireless Antenna 2
- Digital Inputs/Outputs x 4 (terminal block)
- Power Input (9-48 VDC, terminal block)
- CAN Termination Switch
- Grounding Connector
- Serial Port DIP Switches
- Wireless Module Cover

Specifications

Computer

CPU	Armv7 Cortex-A8 1 GHz
DRAM	512 MB DDR3
Supported OS	Moxa Industrial Linux 1 (Debian 9, kernel 4.4), 2027 EOL See www.moxa.com/MIL
Storage Pre-installed	8 GB eMMC

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Storage Slot	SD slots x 1
Expansion Slots	UC-5102-LX: mPCIe slots x 1 UC-5112-LX: mPCIe slots x 1 UC-5102-T-LX: mPCIe slots x 1 UC-5112-T-LX: mPCIe slots x 1

Computer Interface

Ethernet Ports	Auto-sensing 10/100 Mbps ports (RJ45 connector) x 2
Serial Ports	RS-232/422/485 ports x 4, software selectable (RJ45)
Digital Input	DIs x 4
Digital Output	DOs x 4
USB 2.0	USB 2.0 hosts x 1, type-A connectors
Number of SIMs	2
SIM Format	Micro
Buttons	Reset button DIP switch for serial and CAN port configuration
Console Port	RS-232 (TxD, RxD, GND), RJ45 output (115200, n, 8, 1)

Ethernet Interface

Magnetic Isolation Protection	1.5 kV (built-in)

Serial Interface

Baudrate	50 bps to 921.60 kbps
Data Bits	7, 8
Stop Bits	1, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS, XON/XOFF ADDC (automatic data direction control) for RS-485 RTS Toggle (RS-232 only)

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

CAN Interface

No. of Ports	UC-5111-LX: 2 UC-5111-T-LX: 2 UC-5112-LX: 2 UC-5112-T-LX: 2
Signals	UC-5111-LX: CAN_L, CAN_H, CAN Signal GND UC-5111-T-LX: CAN_L, CAN_H, CAN Signal GND UC-5112-LX: CAN_L, CAN_H, CAN Signal GND UC-5112-T-LX: CAN_L, CAN_H, CAN Signal GND
Terminator	UC-5111-LX: N/A, 120 ohms (by DIP) UC-5111-T-LX: N/A, 120 ohms (by DIP) UC-5112-LX: N/A, 120 ohms (by DIP) UC-5112-T-LX: N/A, 120 ohms (by DIP)

Digital Inputs

Voltage	0 to 0.8 VDC 2.0 to 5.5 VDC

Digital Outputs

Current Rating	24 mA per channel
Voltage	0 to 0.55 VDC 2.5 to 3.3 VDC

LED Indicators

System	Power x 1 System ready x 1
LAN	2 per port (10/100 Mbps)
Serial	2 per port (Tx, Rx)
CAN	UC-5111-LX: 2 per port (Tx, Rx) UC-5112-LX: 2 per port (Tx, Rx) UC-5111-T-LX: 2 per port (Tx, Rx) UC-5112-T-LX: 2 per port (Tx, Rx)
Wireless Signal Strength	UC-5112-LX: Cellular/Wi-Fi x 3 UC-5102-LX: Cellular/Wi-Fi x 3 UC-5102-T-LX: Cellular/Wi-Fi x 3 UC-5112-T-LX: Cellular/Wi-Fi x 3

Physical Characteristics

Dimensions	57 x 136 x 100 mm (2.24 x 5.35 x 3.94 in)
Weight	600 g (1.32 lb)
Housing	Metal
Installation	DIN-rail mounting Wall mounting (with optional kit)

Power Parameters

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Input Voltage	9 to 48 VDC
Input Current	0.95 A @ 9 VDC, 0.23 A @ 48 VDC
Power Consumption	11 W

Environmental Limits

Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: Product only: -40 to 85°C (-40 to 185°F) With LTE accessory: -40 to 70°C (-40 to 158°F) With Wi-Fi accessory: -10 to 70°C (14 to 158°F)
Storage Temperature	UC-5101-LX: -20 to 70°C (-4 to 158°F) UC-5102-LX: -20 to 70°C (-4 to 158°F) UC-5111-LX: -20 to 70°C (-4 to 158°F) UC-5112-LX: -20 to 70°C (-4 to 158°F) UC-5101-T-LX: -40 to 85°C (-40 to 185°F) UC-5102-T-LX: -40 to 85°C (-40 to 185°F) UC-5111-T-LX: -40 to 85°C (-40 to 185°F) UC-5112-T-LX: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

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Vibration	2 Grms @ IEC 60068-2-64, random wave, 5-500 Hz, 1 hr per axis (without USB devices attached)
Shock	IEC 60068-2-27

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: 6 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: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Safety	UL 60950-1 IEC 60950-1 EN 62368-1
Green Product	RoHS, CRoHS, WEEE

Reliability

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

MTBF

Time	UC-5101-LX: 728,216 hrs UC-5101-T-LX: 728,216 hrs UC-5102-LX: 704,409 hrs UC-5102-T-LX: 704,409 hrs UC-5111-LX: 584,470 hrs UC-5111-T-LX: 584,470 hrs UC-5112-LX: 568,997 hrs UC-5112-T-LX: 568,997 hrs
Standards	Telcordia (Bellcore) Standard TR/SR

Warranty

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

Package Contents

Device	1 x UC-5100 Series computer
Documentation	1 x quick installation guide 1 x warranty card
Installation Kit	1 x DIN-rail kit (preinstalled) 1 x power jack
Cable	1 x RJ45-to-DB9 console cable

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Dimensions

Unit: mm (inch)
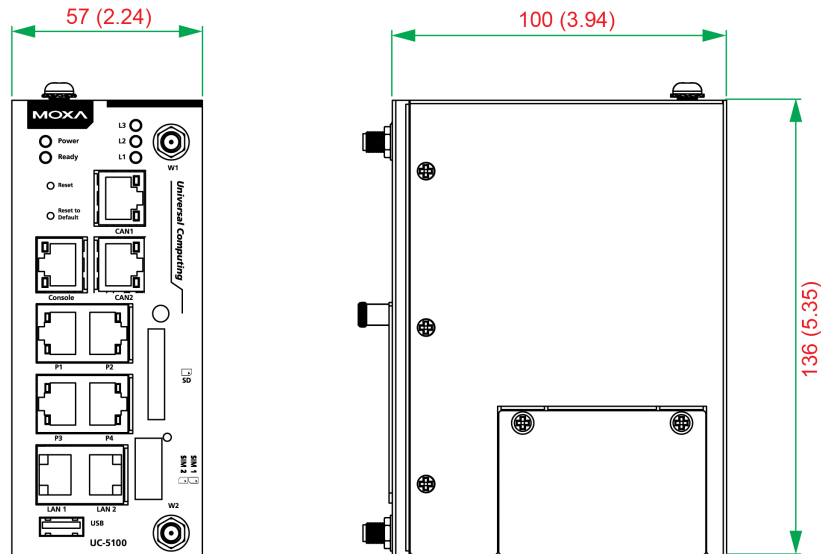
Ordering Information

Model Name	CPU	RAM	Storage	Ethernet	Serial	CAN	SD	USB	Mini PCIe	Operating Temp.
UC-5101-LX	1 GHz	512 MB	8 GB	2	4	–	1	1	–	-10 to 60°C
UC-5102-LX	1 GHz	512 MB	8 GB	2	4	–	1	1	1 (dual-SIM socket)	-10 to 60°C
UC-5111-LX	1 GHz	512 MB	8 GB	2	4	2	1	1	–	-10 to 60°C
UC-5112-LX	1 GHz	512 MB	8 GB	2	4	2	1	1	1 (dual-SIM socket)	-10 to 60°C
UC-5101-T-LX	1 GHz	512 MB	8 GB	2	4	–	1	1	–	-40 to 85°C
UC-5102-T-LX	1 GHz	512 MB	8 GB	2	4	–	1	1	1 (dual-SIM socket)	-40 to 85°C
UC-5111-T-LX	1 GHz	512 MB	8 GB	2	4	2	1	1	–	-40 to 85°C
UC-5112-T-LX	1 GHz	512 MB	8 GB	2	4	2	1	1	1 (dual-SIM socket)	-40 to 85°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-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
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-CN-SA-T	Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, CN plug, -40 to 75°C operating temperature

Wi-Fi Wireless Modules

UC-WiFi-USB	802.11 a/b/g/n/ac, 2.4/5 GHz Wi-Fi module with 2 each of M2 and M2.5 screws

Cellular Wireless Modules

UC-LTE-CAT1-EU	LTE cellular module with 2 M2 and 2 M2.5 mounting screws for EMEA bands 1, 3, 7, 8, 20, 28A
UC-LTE-CAT1-AP	LTE cellular module with 2 M2 and 2 M2.5 mounting screws for Asia-Pacific bands 1, 3, 5, 8, 9, 18(26), 19, 28

Antennas

ANT-WDB-ARM-0202 plus ADP	2.4/5 GHz omni-directional antenna, 2/2 dBi, RP-SMA-type (male) connector
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-04 BK	704 to 960/1710 to 2620 MHz, LTE omnidirectional stick antenna, 4.5 dBi
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

DIN-Rail Mounting Kits

DK-UC-5000	DIN-rail mounting kit with screws for the UC-5000 Series

Wall-Mounting Kits

WM-UC-5000	Wall-mounting kit with screws for the UC-5000 Series

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