

# UC-8100A-ME-T Series



*Arm Cortex-A8 1 GHz IIoT gateways with built-in LTE Cat. 4 , -40 to 70°C operating temperature*



## Features and Benefits

- Armv7 Cortex-A8 1000 MHz processor
- Dual auto-sensing 10/100 Mbps Ethernet ports
- SD slot for storage expansion
- Programmable LEDs and a programmable button for easy installation and maintenance
- Mini-PCle slot for wireless module
- LTE-ready computer with Verizon/AT&T certification and industrial-grade CE/FCC/UL certifications
- -40 to 70°C wide-temperature range with LTE enabled
- Long-term Linux support until 2027; includes bug fixes and security patches

## Certifications



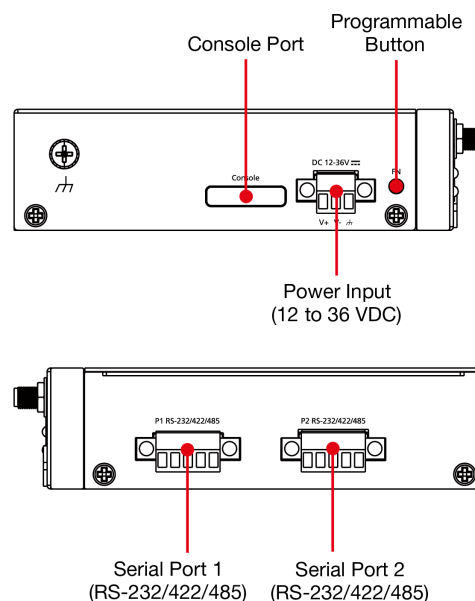
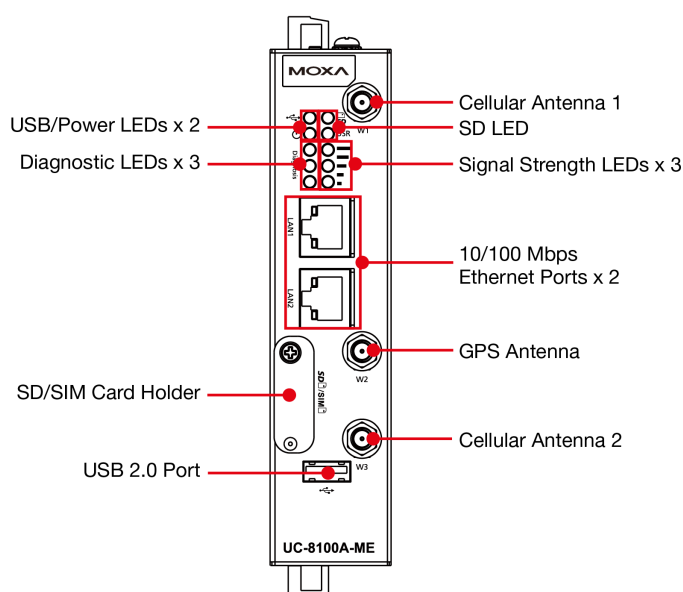
## Introduction

The UC-8100A-ME-T computing platform is designed for embedded data acquisition applications. The computer comes with dual RS-232/422/485 serial ports and dual 10/100 Mbps Ethernet ports, as well as a Mini PCIe socket to support cellular modules. These versatile capabilities let users efficiently adapt the UC-8100A-ME-T to a variety of complex communications solutions.

The UC-8100A-ME-T is built around a Cortex-A8 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



## Specifications

### Computer

|                       |                                                                                                                        |
|-----------------------|------------------------------------------------------------------------------------------------------------------------|
| CPU                   | Armv7 Cortex-A8 1 GHz                                                                                                  |
| DRAM                  | 1 GB DDR3                                                                                                              |
| Supported OS          | Moxa Industrial Linux 1 (Debian 9, kernel 4.4), 2027 EOL<br>See <a href="http://www.moxa.com/MIL">www.moxa.com/MIL</a> |
| Storage Pre-installed | 8 GB eMMC                                                                                                              |
| Storage Slot          | SD 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 2, software selectable (terminal block) |
| USB 2.0                    | USB 2.0 hosts x 1, type-A connectors                           |
| Number of SIMs             | 1                                                              |
| SIM Format                 | Mini                                                           |
| Cellular Antenna Connector | SMA x 2                                                        |
| GPS Antenna Connector      | SMA x 1                                                        |
| Expansion Slots            | UC-8112A-ME-T-LX: mPCIe slots x 1                              |
| Console Port               | RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)  |
| Buttons                    | Reset button                                                   |
| TPM                        | TPM v2.0                                                       |

### Ethernet Interface

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

### Serial Interface

|              |                                                                                                      |
|--------------|------------------------------------------------------------------------------------------------------|
| Baudrate     | 300 bps to 921.6 kbps                                                                                |
| Data Bits    | 5, 6, 7, 8                                                                                           |
| Stop Bits    | 1, 1.5, 2                                                                                            |
| Parity       | None, Even, Odd, Space, Mark                                                                         |
| Flow Control | RTS/CTS, XON/XOFF<br>ADDIC (automatic data direction control) for RS-485<br>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       |

## Cellular Interface

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Band Options | <p>US model:<br/>           LTE Bands: Band 2 (1900 MHz) / Band 4 (1700 MHz) / Band 5 (850 MHz) / Band 13 (700 MHz) / Band 17 (700 MHz)<br/>           UMTS Bands: Band 2 (1900 MHz) / Band 5 (850 MHz)<br/>           Carrier Approval: Verizon, AT&amp;T</p> <p>EU model:<br/>           LTE Bands: Band 1 (2100 MHz) / Band 3 (1800 MHz) / Band 5 (850 MHz) / Band 7 (2600 MHz) / Band 8 (900 MHz) / LTE Band 20 (800 MHz)<br/>           UMTS Bands: Band 1 (2100 MHz) / Band 2 (1900 MHz) / Band 5 (850 MHz) / Band 8 (900 MHz)</p> <p>AP model:<br/>           LTE Bands: Band 1 (2100 MHz) / Band 3 (1800 MHz) / Band 5 (850 MHz) / Band 7 (2600 MHz) / Band 8 (900 MHz) / Band 28 (700 MHz)<br/>           UMTS Bands: Band 1 (2100 MHz) / Band 2 (1900 MHz) / Band 5 (850 MHz) / Band 8 (900 MHz)<br/>           LTE Bands: Band 2 (1900 MHz) / Band 4 (1700 MHz) / Band 5 (850 MHz) / Band 13 (700 MHz) / Band 14 (700 MHz)<br/>           UMTS Bands: Band 2 (1900 MHz) / Band 5 (850 MHz)<br/>           Carrier Approval: Verizon, AT&amp;T<br/>           LTE Bands: Band 1 (2100 MHz) / Band 3 (1800 MHz) / Band 5 (850 MHz) / Band 7 (2600 MHz) / Band 8 (900 MHz) / LTE Band 20 (800 MHz)<br/>           UMTS Bands: Band 1 (2100 MHz) / Band 2 (1900 MHz) / Band 5 (850 MHz) / Band 8 (900 MHz)<br/>           LTE Bands: Band 1 (2100 MHz) / Band 3 (1800 MHz) / Band 5 (850 MHz) / Band 7 (2600 MHz) / Band 8 (900 MHz) / Band 28 (700 MHz)<br/>           UMTS Bands: Band 1 (2100 MHz) / Band 2 (1900 MHz) / Band 5 (850 MHz) / Band 8 (900 MHz)</p> |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## GPS Interface

|                |                                                    |
|----------------|----------------------------------------------------|
| Receiver Types | 72-channel u-blox M8 engine<br>GPS/GLONASS/Galileo |
| Accuracy       | Position: 2.5 m CEP<br>SBAS: 2.0 m CEP             |
| Acquisition    | Aided starts: 3 sec<br>Cold starts: 26 sec         |
| Sensitivity    | Cold starts: -148 dBm<br>Tracking: -164 dBm        |
| Time Pulse     | 0.25 Hz to 10 MHz                                  |

## LED Indicators

|                          |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| System                   | Power x 1<br>Programmable x 1<br>SD slots x 1<br>USB x 1, Diagnostic x 3 |
| Wireless Signal Strength | Cellular/Wi-Fi x 3                                                       |

## Power Parameters

|                   |                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Input Current     | UC-8112A-ME-T-LX: 500 mA @ 12 VDC<br>All other models: 700 mA @ 12 VDC<br>700 mA @ 12 VDC<br>700 mA @ 12 VDC<br>700 mA @ 12 VDC |
| Input Voltage     | 12 to 36 VDC                                                                                                                    |
| Power Consumption | UC-8112A-ME-T-LX: 6 W<br>All other models: 8 W<br>8 W<br>8 W<br>8 W                                                             |

## Reliability

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

## Physical Characteristics

|              |                                                        |
|--------------|--------------------------------------------------------|
| Dimensions   | 141 x 125.6 x 33 mm (5.55 x 4.94 x 1.3 in)             |
| Weight       | 550 g (1.22 lb)                                        |
| Housing      | Metal                                                  |
| Installation | DIN-rail mounting<br>Wall mounting (with optional kit) |

## Environmental Limits

|                                        |                                                                                                                                        |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Ambient Relative Humidity              | 5 to 95% (non-condensing)                                                                                                              |
| Operating Temperature                  | UC-8112A-ME-T-LX: -40 to 85°C (-40 to 185°F)<br>-40 to 70°C (-40 to 158°F)<br>-40 to 70°C (-40 to 158°F)<br>-40 to 70°C (-40 to 158°F) |
| 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

|                     |                                                                                                                                                                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC                 | EN 55032/35                                                                                                                                                                                                                                  |
| EMI                 | CISPR 32, FCC Part 15B Class A                                                                                                                                                                                                               |
| EMS                 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 5 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 3 V<br>IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV<br>IEC 61000-4-8 PFMF |
| Safety              | UL 62368-1, EN 62368-1                                                                                                                                                                                                                       |
| Hazardous Locations | Class I Division 2<br>ATEX<br>IECEx                                                                                                                                                                                                          |
| Carrier Approvals   | AT&T<br>Verizon                                                                                                                                                                                                                              |
| Green Product       | RoHS, CRoHS, WEEE                                                                                                                                                                                                                            |

## MTBF

|           |                                                                            |
|-----------|----------------------------------------------------------------------------|
| Time      | UC-8112A-ME-T-LX: 868,326 hrs<br>677,570 hrs<br>677,570 hrs<br>677,570 hrs |
| Standards | Telcordia (Bellcore) Standard TR/SR                                        |

## Warranty

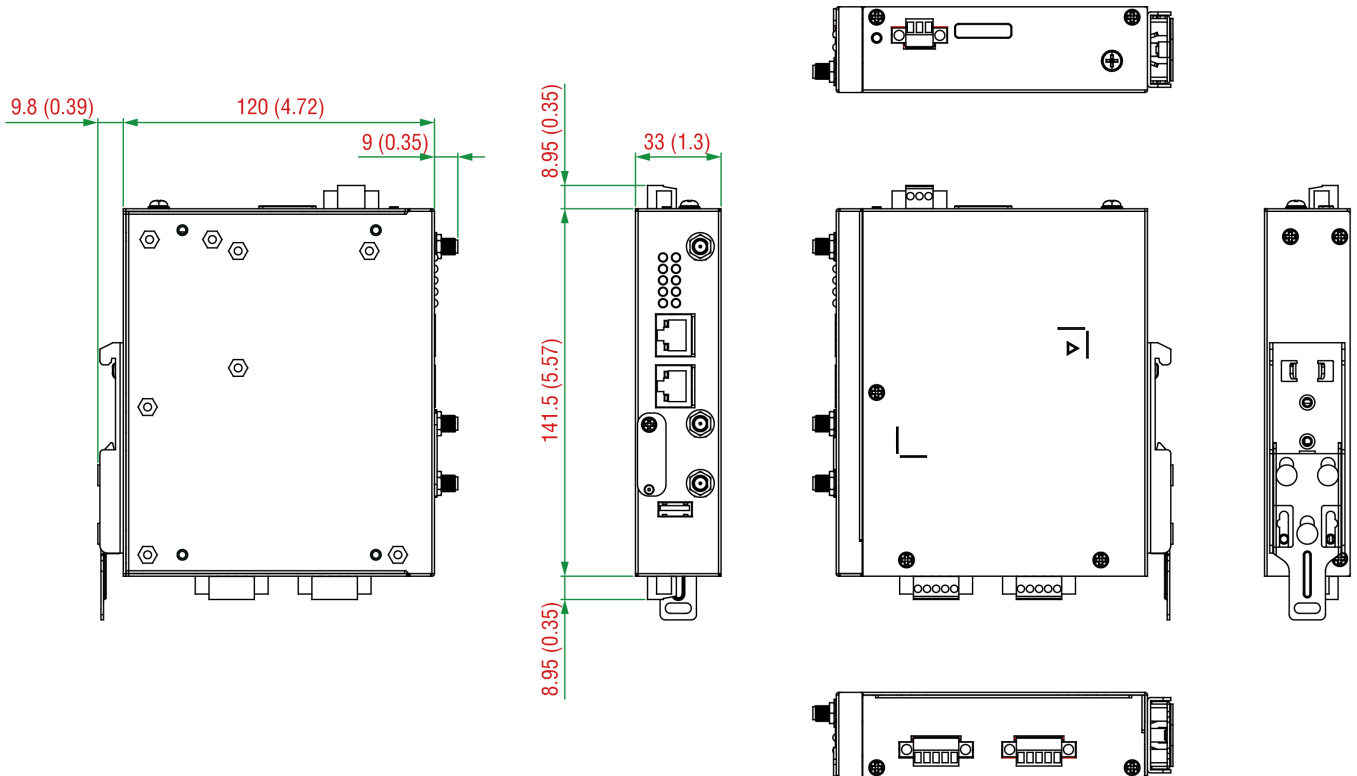
|                 |                                                                      |
|-----------------|----------------------------------------------------------------------|
| Warranty Period | 5 years                                                              |
| Details         | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty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

## Package Contents

|                  |                                                   |
|------------------|---------------------------------------------------|
| Device           | 1 x UC-8100A-ME-T Series computer                 |
| Cable            | 1 x console cable                                 |
| Documentation    | 1 x quick installation guide<br>1 x warranty card |
| Installation Kit | 1 x DIN-rail kit (preinstalled)<br>1 x power jack |

## Dimensions

Unit: mm (inch)



## Ordering Information

| Model Name          | CPU   | RAM  | Storage | LTE         | Operating Temp. |
|---------------------|-------|------|---------|-------------|-----------------|
| UC-8112A-ME-T-LX    | 1 GHz | 1 GB | 8 GB    | -           | -40 to 85°C     |
| UC-8112A-ME-T-LX-US | 1 GHz | 1 GB | 8 GB    | US Region   | -40 to 70°C     |
| UC-8112A-ME-T-LX-EU | 1 GHz | 1 GB | 8 GB    | EU Region   | -40 to 70°C     |
| UC-8112A-ME-T-LX-AP | 1 GHz | 1 GB | 8 GB    | APAC Region | -40 to 70°C     |

## Accessories (sold separately)

### Power Adapters

|                   |                                                                                                                 |
|-------------------|-----------------------------------------------------------------------------------------------------------------|
| 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-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-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-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 |
|---------------------|-----------------------------------------|

#### Antennas

|                           |                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------|
| ANT-LTE-OSM-03-3m BK      | 700-2700 MHz, multi-band antenna, specifically designed for 2G, 3G, and 4G applications, 3 m cable     |
| 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-ASM-05 BK         | 704-960/1710-2620 MHz, LTE stick antenna, 5 dBi                                                        |
| ANT-LTE-ASM-04 BK         | 704-960/1710-2620 MHz, LTE omni-directional stick antenna, 4.5 dBi                                     |
| ANT-LTEUS-ASM-01          | GSM/GPRS/EDGE/UMTS/HSPA/LTE, omni-directional rubber duck antenna, 1 dBi                               |

#### DIN-Rail Mounting Kits

|                          |                                                |
|--------------------------|------------------------------------------------|
| UC-8100A-ME DIN-Rail Kit | DIN-rail mounting kit for UC-8100A-ME-T Series |
|--------------------------|------------------------------------------------|

#### Wall-Mounting Kits

|                            |                                            |
|----------------------------|--------------------------------------------|
| UC-8100A-ME Wall Mount Kit | Wall-mounting kit for UC-8100A-ME-T Series |
|----------------------------|--------------------------------------------|

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