

# UC-8410A Series

*Arm Cortex-A7 dual-core 1 GHz IIoT gateway with 1 expansion slot for a wireless module, 3 LAN ports, 8 serial ports, 4 DIs, 4 DOs*



## Features and Benefits

- Freescale LS1021A Cortex-A7 1 GHz dual-core processor
- 1 GB DDR3 SDRAM
- 8 RS-232/422/485 serial ports
- 3 10/100/1000 Mbps Ethernet ports
- Wireless-enabled with PCIe mini slot
- 2 USB 2.0 hosts for mass storage devices
- Wall-mounting installation
- Robust, fanless design
- -40 to 75°C wide-temperature model available
- Long-term Linux support until 2027; includes bug fixes and security patches

## Certifications



## Introduction

The UC-8410A Series embedded computers support a rich collection of communication interfaces, including 8 RS-232/422/485 serial ports, 3 Ethernet ports, 1 PCIe mini slot for a wireless module, 4 digital input channels, 4 digital output channels, 1 mSATA slot, and 2 USB 2.0 hosts.

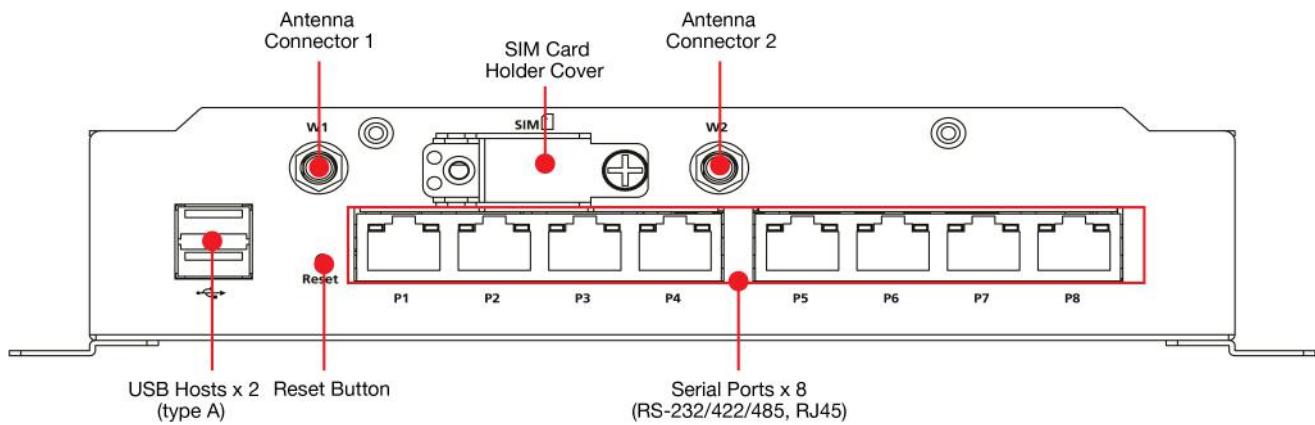
The UC-8410A computer uses the Freescale Cortex-A7 dual-core 1 GHz RISC CPU. This powerful computing engine supports several useful communications functions, without generating too much heat. The built-in 8 GB eMMC card and 1 GB DDR3 SDRAM give you enough memory to run your application software, and the mSATA slot provides the flexibility of adding additional data storage.

The UC-8410A computers come with a variety of communication interfaces, including serial ports, Ethernet ports, wireless communication slot, and digital input/output channels, making them ideal as communication platforms for industrial applications that require network and device communications.

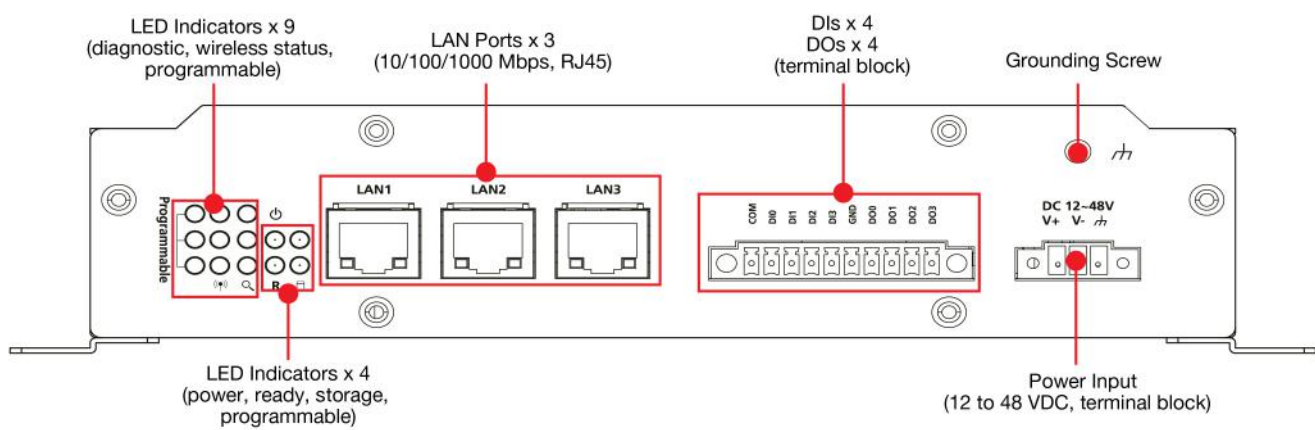
The UC-8410A Series comes with Linux Debian 8 preinstalled to provide an open software operating system for software program development. This makes the UC-8410A computer an optimal solution for use with industrial applications, but at minimal cost and effort. In addition to the standard model of the UC-8410A, a -40 to 75°C wide-temperature model is available for harsh industrial environments.

Appearance

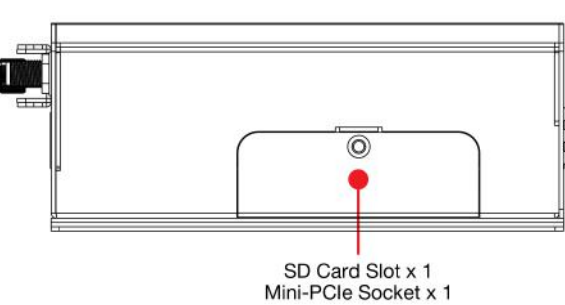
Front View



Rear View



Left View



Specifications

|                             |                                 |
|-----------------------------|---------------------------------|
| Computer                    |                                 |
| CPU                         | Armv7 Cortex-A7 dual-core 1 GHz |
| System Memory Pre-installed | 1 GB DDR3L                      |
| Storage Pre-installed       | 8 GB eMMC                       |

|              |  |
|--------------|--|
| Storage Slot | SD slots x 1<br>mSATA slots x 1, internal mini-PCIe socket   |
| Supported OS | Linux Debian 8 (Linux kernel v4.1), 2022 EOL<br>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> |

#### Computer Interface

|                            |  |
|----------------------------|--|
| Ethernet Ports             | Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 3 |
| Serial Ports               | RS-232/422/485 ports x 8, software selectable (RJ45)     |
| USB 2.0                    | USB 2.0 hosts x 2, type-A connectors                     |
| Digital Input              | DIs x 4  |
| Digital Output             | DOs x 4  |
| Expansion Slots            | UC-8410A-LX Series: 1                                    |
| Cellular Antenna Connector | UC-8410A-LX Series: 2                                    |
| Number of SIMs             | UC-8410A-LX Series: 1                                    |
| SIM Format                 | UC-8410A-LX Series: Mini                                 |
| Console Port               | 1 x 4-pin header to DB9 console port                     |

#### Ethernet Interface

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

#### Serial Interface

|              |   |
|--------------|---|
| Baudrate     | 50 bps to 115.2 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>ADDC (automatic data direction control) for RS-485<br>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                      |
| RS-485-4w | Tx+, Tx-, Rx+, Rx-, GND                |

#### Digital Inputs

|                              |                                   |
|------------------------------|-----------------------------------|
| Channel-to-Channel Isolation | 3000 VDC                          |
| Connector                    | Screw-fastened Euroblock terminal |
| Dry Contact                  | On: short to GND<br>Off: open     |

|                         |   |
|-------------------------|---|
| Sensor Type             | Dry contact<br>Wet contact (NPN or PNP) |
| Wet Contact (DI to COM) | On: 10 to 30 VDC<br>Off: 0 to 3 VDC     |

#### Digital Outputs

|                |                                   |
|----------------|-----------------------------------|
| Connector      | Screw-fastened Euroblock terminal |
| Current Rating | 200 mA per channel                |
| I/O Type       | Sink                              |
| Voltage        | Open-drain to 30 VDC              |

#### LED Indicators

|        |   |
|--------|---|
| System | Power x 1<br>System ready x 1<br>Storage x 1<br>Programmable x 10 |
| LAN    | 2 per port (10/100/1000 Mbps)                                     |
| Serial | 2 per port (Tx, Rx)   |

#### Power Parameters

|                   |                                |
|-------------------|--------------------------------|
| Input Current     | 1.57A @ 12 VAC max.            |
| Input Voltage     | 12 to 48 VDC                   |
| Power Consumption | 19 W (max.)                    |
| Power Connector   | Terminal block (for DC models) |

#### Physical Characteristics

|              |   |
|--------------|---|
| Dimensions   | 200 x 120 x 48.6 mm (7.87 x 4.72 x 1.91 in) |
| Weight       | 1,000 g (2.21 lb)                           |
| Housing      | Metal                                       |
| IP Rating    | IP30  |
| Installation | Wall mounting (standard)                    |

#### Environmental Limits

|  |   |
|--|---|
| Operating Temperature                  | Standard Models: -10 to 60°C (14 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F)<br>Wide Temp. Models with LTE/Wi-Fi: -40 to 70°C (-40 to 158°F) |
| Storage Temperature (package included) | Standard Models: -20 to 75°C (-4 to 167°F)<br>Wide Temp. Models: -40 to 85°C (-40 to 185°F)   |
| Ambient Relative Humidity              | 5 to 95% (non-condensing)   |

#### 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 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV |

|           |   |
|-----------|---|
|           | IEC 61000-4-6 CS: 3 V<br>IEC 61000-4-8 PFMF |
| Safety    | UL/IEC 60950-1 & 62368-1                    |
| Shock     | IEC 60068-2-27                              |
| Vibration | IEC 60068-2-64                              |

### Declaration

|               |                   |
|---------------|-------------------|
| Green Product | RoHS, CRoHS, WEEE |
|---------------|-------------------|

### Warranty

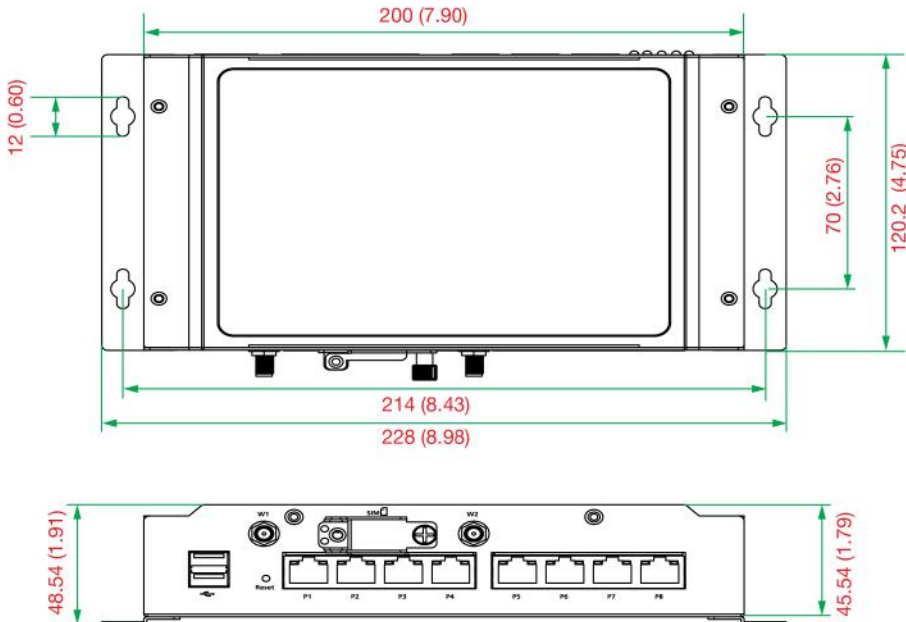
|                 |  |
|-----------------|--|
| Warranty Period | 5 years  |
| Details         | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |

### Package Contents

|                  |   |
|------------------|---|
| Device           | 1 x UC-8410A Series computer  |
| Installation Kit | 1 x terminal block, 3-pin<br>1 x wall-mounting kit                                  |
| Cable            | 1 x 4-pin header to DB9 console cable<br>1 x terminal block to power jack converter |
| Documentation    | 1 x quick installation guide<br>1 x warranty card                                   |

## Dimensions

Unit: mm (inch)



## Ordering Information

| Model Name              | CPU                             | OS                               | mPCIe Slot for Wireless Module | SIM Slots | Operating Temp.                             |
|-------------------------|---------------------------------|----------------------------------|--------------------------------|-----------|---|
| UC-8410A-LX             | Armv7 Cortex-A7 dual-core 1 GHz | Debian 8                         | ✓                              | 1         | -10 to 60°C                                 |
| UC-8410A-LX (deb9)      | Armv7 Cortex-A7 dual-core 1 GHz | Moxa Industrial Linux (Debian 9) | ✓                              | 1         | -10 to 60°C                                 |
| UC-8410A-T-LX           | Armv7 Cortex-A7 dual-core 1 GHz | Debian 8                         | ✓                              | 1         | -40 to 75°C<br>-40 to 70°C (with Wi-Fi)     |
| UC-8410A-T-LX (deb9)    | Armv7 Cortex-A7 dual-core 1 GHz | Moxa Industrial Linux (Debian 9) | ✓                              | 1         | -40 to 75°C<br>-40 to 70°C (with LTE/Wi-Fi) |
| UC-8410A-NW-LX          | Armv7 Cortex-A7 dual-core 1 GHz | Debian 8                         | –                              | –         | -10 to 60°C                                 |
| UC-8410A-NW-LX (deb9)   | Armv7 Cortex-A7 dual-core 1 GHz | Moxa Industrial Linux (Debian 9) | –                              | –         | -10 to 60°C                                 |
| UC-8410A-NW-T-LX        | Armv7 Cortex-A7 dual-core 1 GHz | Debian 8                         | –                              | –         | -40 to 75°C                                 |
| UC-8410A-NW-T-LX (deb9) | Armv7 Cortex-A7 dual-core 1 GHz | Moxa Industrial Linux (Debian 9) | –                              | –         | -40 to 75°C                                 |

## Accessories (sold separately)

### Antennas

|                           |  |
|---------------------------|--|
| ANT-WDB-ARM-02            | 2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male) omnidirectional rubber-duck antenna                  |
| 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  |

### Cables

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

### Cellular Wireless Modules

|                      |   |
|----------------------|---|
| UC-8410A LTE-CAT4-EU | Telit LE910C4-EU LTE Cat. 4 mini card with 2 M2.5 screws for the EMEA region, compatible with UC-8410A hardware rev. 2.1.0 and higher |
|----------------------|---|

### Wi-Fi Wireless Modules

|                  |  |
|------------------|--|
| Wi-Fi-BGN(252NI) | Wi-Fi module with 2 antennas, antenna cables and connectors, 2 black screws, 2 lock washers, 2 nuts, 1 thermal pad |
|------------------|--|

### DIN-Rail Mounting Kits

|                       |  |
|-----------------------|--|
| UC-8410A DIN-rail Kit | DIN-rail kit with 6 M3 screws (also included in the UC-8410A Series package) |
|-----------------------|--|

### Power Adapters

|                 |  |
|-----------------|--|
| PWR-24250-DT-S1 | Desktop power supply (requires power cord), 24 VDC, 2.5 A, 100 to 240 VAC, 0 to 40°C operating temperature |
|-----------------|--|

### Power Cords

|                  |   |
|------------------|---|
| PWC-C13CN-3B-183 | Power cord with three-prong CN plug, 1.83 m |
| PWC-C13AU-3B-183 | Power cord with AU plug, 1.83 m             |
| PWC-C13JP-3B-183 | Power cord with JP plug, 7A/125V, 1.83 m    |
| PWC-C13UK-3B-183 | Power cord with UK plug, 1.83 m             |
| PWC-C13US-3B-183 | Power cord with US plug, 1.83 m             |
| PWC-C13EU-3B-183 | Power cord with EU/KR plug, 1.83 m          |

