

# UC-8600A Series

Arm Cortex-A72 dual-core 1.5 GHz 64-bit box computers with rich set of interfaces, -40 to 75°C operating temperature



## Features and Benefits

- Arm Cortex-A72 dual-core 1.5 GHz processor
- 4 auto-sensing 10/100/1000 Mbps Ethernet ports
- 8 RS-232/422/485 serial ports
- 2 CAN ports (CAN 2.0A/CAN 2.0B) with 3 kV isolation protection
- M.2 M key SSD slot and Micro SD socket for storage expansion
- Supports cellular and Wi-Fi 6E via an expansion slot
- Moxa Industrial Linux with 10-year superior long-term support
- EN 18031-1 compliant wireless cybersecurity
- Compliance with IEC 62443-4-2 Security Level 2 requirements
- -40 to 75°C operating temperature range (-40 to 70°C with cellular module enabled)

## Certifications



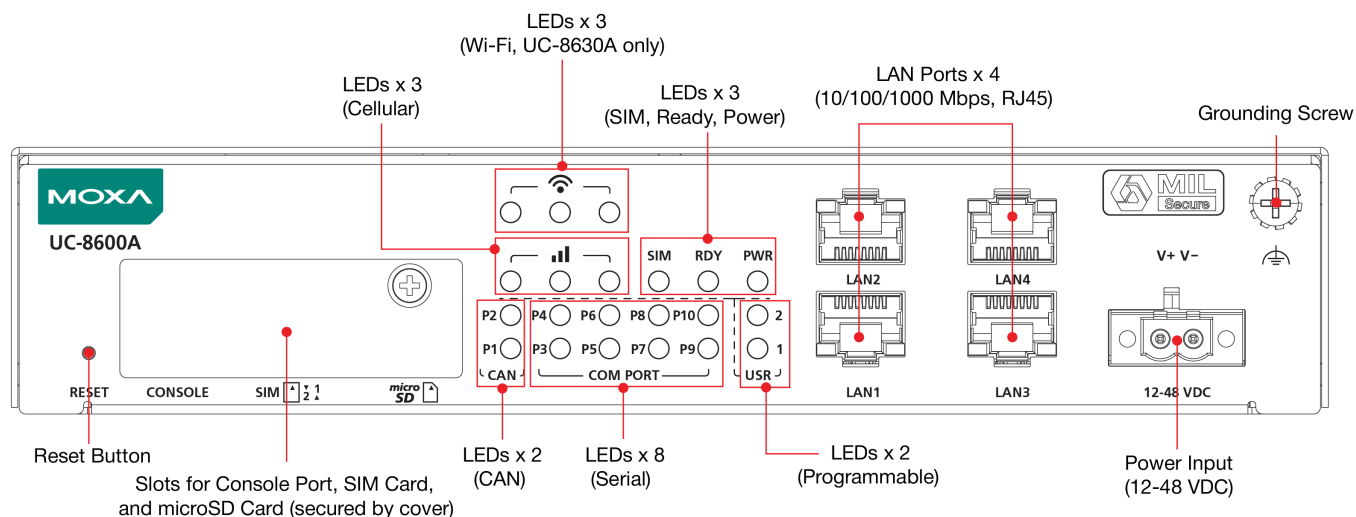
## Introduction

The UC-8600A Series Arm-based box-type computing platform is designed for embedded data-acquisition and edge-computing applications.

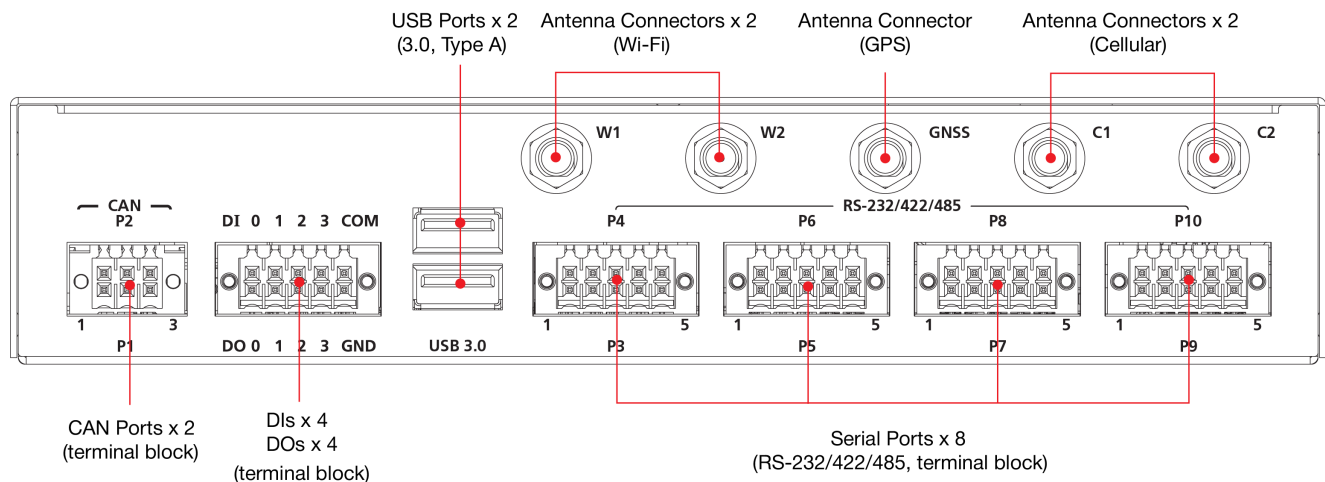
The UC-8600A comes with four 10/100/1000 Ethernet ports, eight RS-232/422/485 serial ports, four DI/DO channels, two CAN ports, enabling robust connectivity for a wide variety of field devices. The UC-8600A also supports storage expansion via an M.2 M key slot for SSD and a Micro SD card slot. In addition, a wireless expansion slot that supports Wi-Fi 6E and cellular modules enables reliable wireless communication for remote applications. The versatile communication and expansion capabilities of the UC-8600A Series facilitates efficient deployment in diverse industrial environments.

## Appearance

### Front View



## Rear View



## Specifications

### Computer

|                       |                                                                                                                          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------|
| CPU                   | Arm Cortex-A72 dual-core 1.5 GHz                                                                                         |
| DRAM                  | 4 GB LPDDR4 SDRAM                                                                                                        |
| Storage Pre-installed | 32 GB eMMC                                                                                                               |
| Storage Slot          | microSD sockets x 1<br>M.2 M-key 2242 sockets x 1, PCIe                                                                  |
| Supported OS          | Moxa Industrial Linux 4 (Debian 13, kernel 6.12), 2033 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 4                                    |
| Serial Channels            | RS-232/422/485 ports x 8 (software-selectable, terminal-block connector)                    |
| Digital Input              | DIs x 4                                                                                     |
| Digital Output             | DOs x 4                                                                                     |
| CAN Ports                  | CAN 2.0 A/B x 2 (3-pin terminal block)                                                      |
| USB 3.0                    | USB 3.0 hosts x 2, type-A connectors                                                        |
| Expansion Slots            | UC-8620A/UC-8630A: mPCIe slots x 1 (for LTE)<br>UC-8630A: M.2 E-key sockets x 1 (for Wi-Fi) |
| Cellular Antenna Connector | SMA x 2                                                                                     |
| Number of SIMs             | 2                                                                                           |
| SIM Format                 | Nano                                                                                        |
| Wi-Fi Antenna Connector    | UC-8630A: RP-SMA x 2                                                                        |
| GPS Antenna Connector      | SMA x 1                                                                                     |
| Console Port               | RS-232 (TxD, RxD, GND), 3-pin header output (115200, n, 8, 1)                               |
| Buttons                    | Programmable button                                                                         |
| TPM                        | TPM v2.0                                                                                    |

## Ethernet Interface

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

## Serial Interface

|              |                                                                                       |
|--------------|---------------------------------------------------------------------------------------|
| No. of Ports | 8                                                                                     |
| Baudrate     | 50 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<br>XON/XOFF for RS-232<br>ADDCC (automatic data direction control) for RS-485 |

## Serial Signals

|           |                         |
|-----------|-------------------------|
| RS-232    | TxD, RxD, RTS, CTS, 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         | 2                                |
| Connector            | 3-pin spring-type terminal block |
| Baudrate             | 10 Kbps to 1 Mbps                |
| Industrial Protocols | CAN 2.0A<br>CAN 2.0B             |
| Isolation            | 3 kV (built-in)                  |
| Signals              | CAN_H, CAN_L, CAN_GND            |

## Digital Inputs

|                         |                                                             |
|-------------------------|-------------------------------------------------------------|
| No. of Channels         | 4                                                           |
| Connector               | Spring-type Euroblock terminal                              |
| Sensor Type             | Dry contact<br>Wet contact (NPN)                            |
| Dry Contact             | Logic 0: Close to GND<br>Logic 1: Open                      |
| Wet Contact (DI to COM) | Logic 0: 10 to 30 VDC<br>(COM to DI)<br>Logic 1: 0 to 3 VDC |
| Isolation               | 1.5 kV                                                      |

## Digital Outputs

|                 |                                |
|-----------------|--------------------------------|
| No. of Channels | 4                              |
| Connector       | Spring-type Euroblock terminal |
| Current Rating  | 200 mA per channel             |

|           |             |
|-----------|-------------|
| I/O Type  | Sink        |
| Voltage   | 0 to 30 VDC |
| Isolation | 1.5 kV      |

#### Security Functions

|                         |                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------|
| Hardware-based Security | TPM 2.0<br>Hardware Root of Trust Secure Boot                                                  |
| Intrusion Detection     | Host-based Intrusion Detection                                                                 |
| Security Tools          | Security Diagnostic Tool<br>Security Event Auditing<br>Secure Update                           |
| Disk Protection         | LUKS Disk Encryption                                                                           |
| Recovery                | One-step recovery to the last known secure state<br>Dual-system design with automatic fallback |
| Reliability             | Network Keep Alive<br>Network Failover and Failback                                            |

#### LED Indicators

|                          |                                                                             |
|--------------------------|-----------------------------------------------------------------------------|
| System                   | Power x 1<br>System ready x 1<br>SIM card indicator x 1<br>Programmable x 2 |
| LAN                      | 4 ports, 2 per port (10/100/1000 Mbps)                                      |
| CAN                      | 2 ports, 1 per port (Tx, Rx)                                                |
| Wireless Signal Strength | Wi-Fi x 3<br>Cellular x 3                                                   |

#### Power Parameters

|                   |                                                        |
|-------------------|--------------------------------------------------------|
| Input Current     | UC-8620A-T: 1.34 A @ 12 V<br>UC-8630A-T: 1.58 A @ 12 V |
| Input Voltage     | 12 to 48 VDC                                           |
| Power Connector   | Screw-fastened Euroblock terminal                      |
| Power Consumption | UC-8620A-T: 15 W<br>UC-8630A-T: 17 W                   |

#### Reliability

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

#### Physical Characteristics

|              |                                                                   |
|--------------|-------------------------------------------------------------------|
| Housing      | Metal                                                             |
| IP Rating    | IP30                                                              |
| Weight       | 1,000 g (2.21 lb)                                                 |
| Dimensions   | 200 x 120 x 40.5 mm (7.87 x 4.72 x 1.59 in)                       |
| Installation | Wall mounting (standard)<br>DIN-rail mounting (with optional kit) |

## Environmental Limits

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature     | Without accessories:<br>UC-8620A-T: -40 to 75°C<br>UC-8630A-T: -40 to 70°C<br>With LTE and Wi-Fi<br>-30 to 65°C<br>With Wi-Fi only:<br>-30 to 70°C<br>With LTE only:<br>-40 to 70°C |
| Storage Temperature       | -40 to 85°C (-40 to 185°F)                                                                                                                                                          |
| Ambient Relative Humidity | 5 to 95% (non-condensing)                                                                                                                                                           |

## Standards and Certifications

|                        |                                                                                                                                                                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC                    | EN 55032/35<br>EN 61000-6-2/-6-4<br>UKCA<br>RCM<br>KC                                                                                                                                                                                      |
| EMI                    | FCC Part 15B Class A<br>ICES-003 Class A<br>EN 55032 Class A<br>EN 61000-6-4 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: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 3 V<br>IEC 61000-4-8 PFMF |
| Cybersecurity          | EN 18031-1                                                                                                                                                                                                                                 |
| Safety                 | IEC 62368-1, EN 62368-1, UL 62368-1                                                                                                                                                                                                        |
| Shock                  | IEC 60068-2-27                                                                                                                                                                                                                             |
| Vibration              | IEC 60068-2-6<br>IEC 60068-2-64                                                                                                                                                                                                            |
| International Approval | CE<br>FCC<br>ISED<br>UKCA<br>RCM<br>KC                                                                                                                                                                                                     |

## Declaration

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

## MTBF

|           |                                                        |
|-----------|--------------------------------------------------------|
| Time      | UC-8630A-T: 1,023,992 hrs<br>UC-8620A-T: 1,152,015 hrs |
| Standards | Telcordia (Bellcore), GB                               |

## Warranty

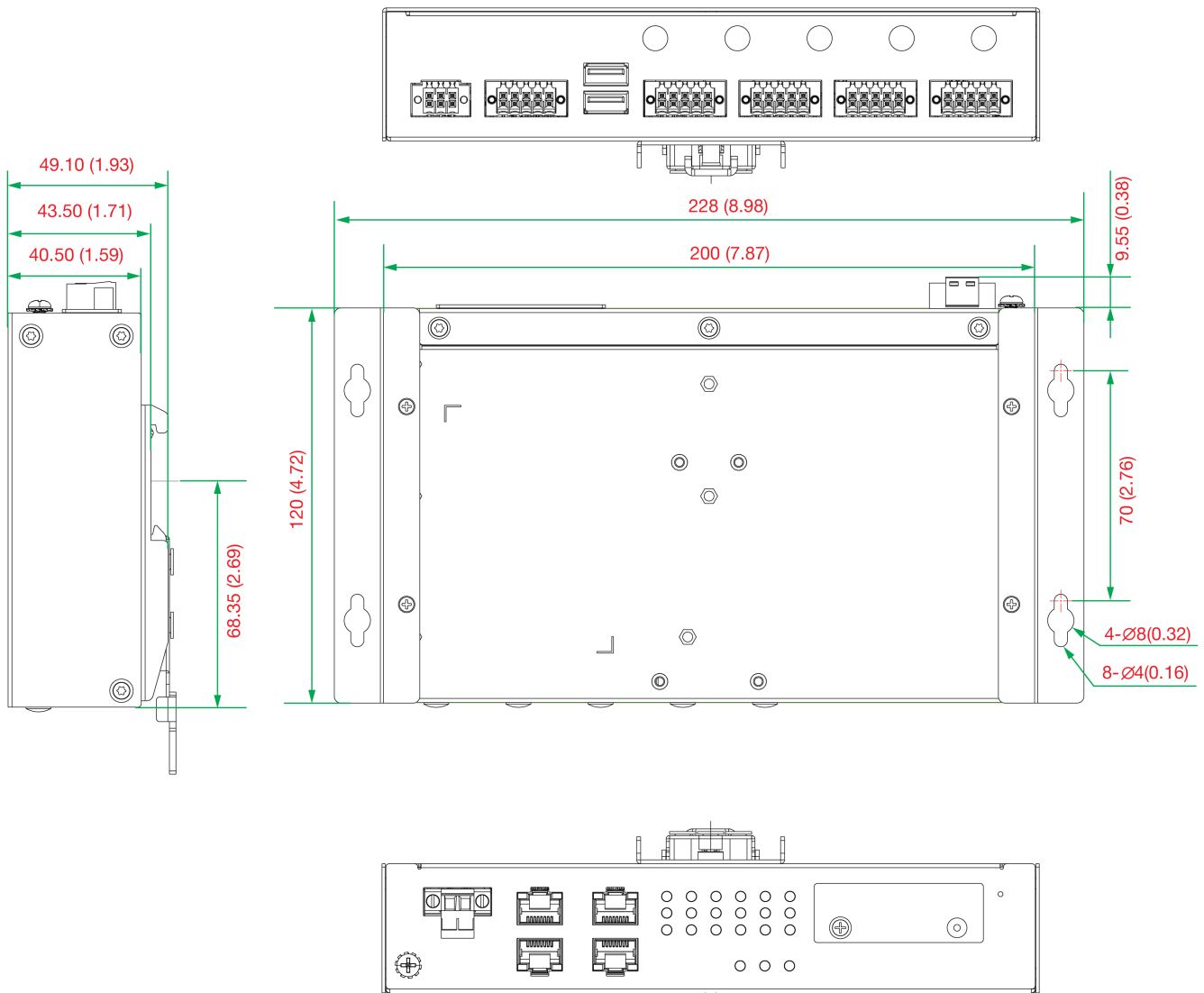
|                 |                                                                      |
|-----------------|----------------------------------------------------------------------|
| Warranty Period | 5 years                                                              |
| Details         | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty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

## Package Contents

|                  |                                                   |
|------------------|---------------------------------------------------|
| Device           | 1 x UC-8600A Series computer                      |
| Installation Kit | 1 x wall-mounting kit                             |
| Documentation    | 1 x quick installation guide<br>1 x warranty card |

## Dimensions

Unit: mm (inch)



## Ordering Information

| Model Name | CPU                              | Operating System                                                     | mPCIe Slot       | M.2 E Key Slot       | Operating Temp. |
|------------|----------------------------------|----------------------------------------------------------------------|------------------|----------------------|-----------------|
| UC-8620A-T | Arm Cortex-A72 dual-core 1.5 GHz | MIL4 Standard (default)<br>CTO: Order MIL4 Secure via UC-8600A (CTO) | Reserved for LTE | -                    | -40 to 75°C     |
| UC-8630A-T | Arm Cortex-A72 dual-core 1.5 GHz | MIL4 Standard (default)<br>CTO: Order MIL4 Secure via UC-8600A (CTO) | Reserved for LTE | Reserved for Wi-Fi 6 | -40 to 70°C     |

## Accessories (sold separately)

### Antennas

|                      |                                                                                                                    |
|----------------------|--------------------------------------------------------------------------------------------------------------------|
| ANT-WDB6-ARM-05      | 2 dBi at 2.4 GHz or 2 dBi at 5 GHz or 3 dBi at 6 GHz, tri-band dipole antenna with RP-SMA (female) connector       |
| ANT-5G-OSM-04        | 4 dBi LTE/5G NR dipole antenna with SMA (male) connector                                                           |
| ANT-GPS-CSM-04-3m BK | 20 dBi at 1575 to 1605 MHz, SMA (male), right-hand circular polarization (RHCP), active GPS antenna, 3-meter cable |

### Cables

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

### Cellular Wireless Modules

|              |                                                                          |
|--------------|--------------------------------------------------------------------------|
| UC-8620A-LTE | Telit LE910C4-WWxD LTE Cat. 4 mPCIe card package for the UC-8620A models |
| UC-8630A-LTE | Telit LE910C4-WWxD LTE Cat. 4 mPCIe card package for the UC-8630A models |

### Wi-Fi Wireless Modules

|               |                                                                     |
|---------------|---------------------------------------------------------------------|
| UC-8600A-WLAN | EMWICOM WMX7205-1 Wi-Fi 6E M.2 card package for the UC-8600A Series |
|---------------|---------------------------------------------------------------------|

### DIN-Rail Mounting Kits

|                       |                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|
| UC-8600A Din-rail Kit | DIN-rail mounting kit with 1 plate (90 x 45 mm), 1 extension bracket (25 x 16 mm), 5 M3 x 4 mm screws for the UC 8600A Series |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|

### Thermal Kits

|                  |                                                                                            |
|------------------|--------------------------------------------------------------------------------------------|
| UC-8620A-M.2 SSD | M.2 SSD thermal package with 3 thermal pads, 1 heat sink, 5 screws for the UC-8620A models |
| UC-8630A-M.2 SSD | M.2 SSD thermal package with 1 thermal pad, 1 screw for the UC-8630A models                |

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