# UC-1200A Series
# Quick Installation Guide

**Version 1.2, August 2024**

# MOXA®

## Overview

The UC-1200A computing platform is designed for embedded data-acquisition applications. The UC-1200A is built around an Armv8 Cortex-A53 dual-core 1-GHz processor and comes with two RS-232/422/485 serial ports, two 10/100/1000 Mbps Ethernet ports, and a Mini PCIe socket to support cellular modules. These versatile communication capabilities let users efficiently adapt the UC-1200A to a variety of complex communications solutions.

## Package Checklist

Before installing the UC-1200A, verify that the package contains the following items:

- UC-1200A Series computer
- 3 round stickers to prevent screw tampering
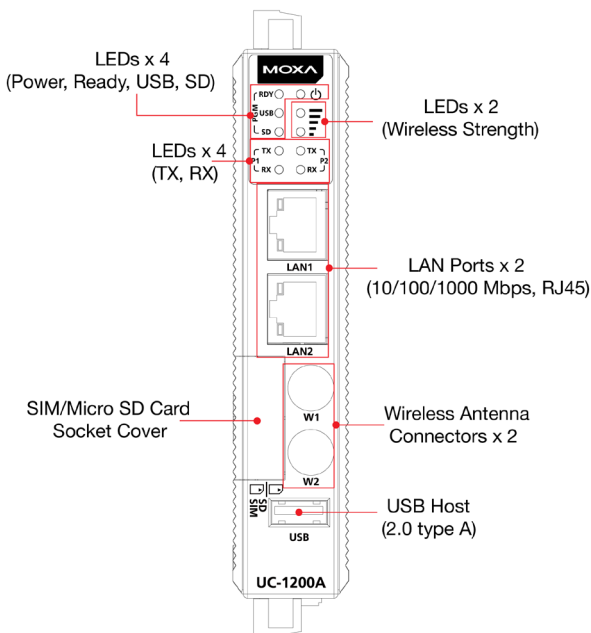- Quick installation guide (printed)
- Warranty card

> ⚠️ **IMPORTANT!**
>
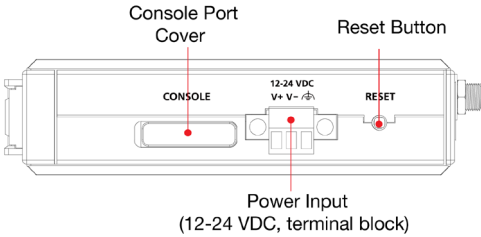> Notify your sales representative if any of the above items are missing or damaged.

## Panel Layouts

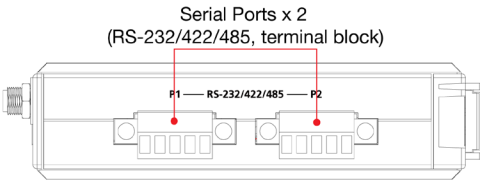The following figures show the panel layouts of the UC-1200A.

### Front Panel View



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## Top Panel View



Console Port Cover

Reset Button

CONSOLE    12-24 VDC V+ V– ⏚    RESET

Power Input
(12-24 VDC, terminal block)

## Bottom Panel View



Serial Ports x 2
(RS-232/422/485, terminal block)

P1 —— RS-232/422/485 —— P2

## LED Indicators

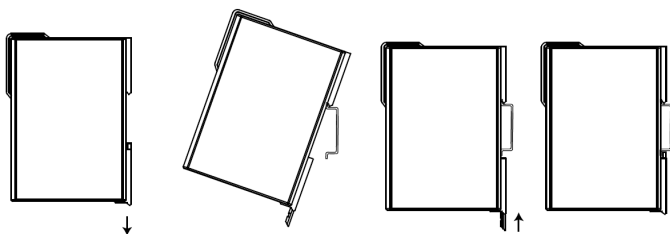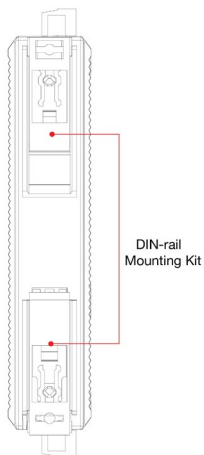| LED | Status | Function |
|-----|--------|----------|
| Power | Green | Power plugged in |
| | OFF | Power is OFF |
| SW Ready/ Programmable | Yellow | System is ON and the computer is working normally |
| | OFF | System is not ready |
| USB/ Programmable | Green | USB device is connected and working normally |
| | OFF | USB device is not connected |
| SD/ Programmable | Green | Micro SD card inserted and working normally |
| | OFF | Micro SD card is not detected |
| Wireless Signal Strength/ Programmable | Yellow | The number of glowing LEDs indicates the signal strength: 2 (both Yellow): Excellent 1 (Yellow): Poor 1 (Yellow, blinking, heartbeat): Very poor |
| | OFF | Wireless module is not detected |
| Serial Tx | Green | Steady ON: Serial 1/2 is working normally. Blinking: Serial 1/2 is transmitting data |
| | OFF | Serial 1/2 is not used. |
| Serial Rx | Yellow | Steady ON: Serial 1/2 is working normally Blinking: Serial 1/2 receiving data |
| | OFF | Serial 1/2 is not used. |
| LAN | Green | Steady ON: 10/100 M link established Blinking: Receive or transmitting data |
| | Yellow | Steady ON: 1000 M link established Blinking: Receive or transmitting data |
| | OFF | No Ethernet connection |

# Installing the UC-1200A

### DIN-rail Mounting

The DIN-rail mounting plate comes attached to the product's casing.

To mount the UC-1200A on to a DIN rail, pull out the bottom slider, latch the unit onto the DIN rail, and push the slider back in.
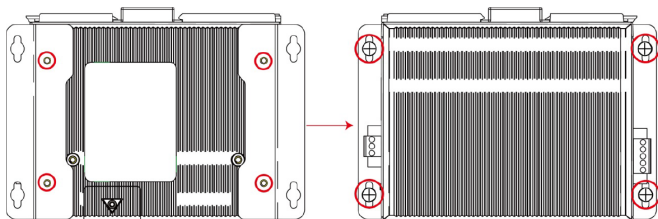


DIN-rail Mounting Kit



### Wall Mounting (optional)

The UC-1200A can be mounted using a wall-mounting kit, which needs to be purchased separately. Follow these steps to mount the computer on to a wall:

**Step 1:** Use four screws (M3 x 4 mm) to fasten the wall-mounting brackets on the left panel of the computer.

**Step 2:** Use another four screws (M3 x 6 mm) to mount the computer on a wall or a cabinet.

## Connector Descriptions

### Power Connector

Connect the power jack (in the package) to the UC-1200A's DC terminal block (located on the top panel), and then connect the power adapter. It takes about 30 seconds for the system to boot up. Once the system is ready, the Power LED will light up.

> ⚠️ **ATTENTION**
>
> The wiring for the input terminal block should be installed by a skilled person. The wire type should be copper (Cu), wire size should be 14 to 16 AWG, and a torque of 0.19 n-m should be used for V+, V-, and GND connections. The wire size of the power input and earthing conductor should be the same. The recommended wire stripping length is 6 to 7 mm.

> ⚠️ **WARNING**
>
> The product is intended to be supplied by a UL Listed Power Unit marked "L.P.S." (or "Limited Power Source") and is rated 12 to 24 VDC, 0.6 A min., Tma = 60°C (min). If you need further help with purchasing the power source, please contact Moxa for further information.

> ⚠️ **WARNING**
>
> The means of power cord of adapter should be connected to a socket-outlet with earthing connection.
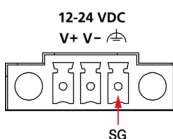
> ⚠️ **WARNING**
>
> **EXPLOSION HAZARD!**
>
> Do not disconnect equipment unless the power has been removed or the area is known to be non-hazardous.
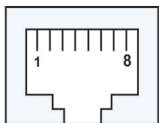
### Grounding the UC-1200A

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI).



**SG:** The Shielded Ground (sometimes called Protected Ground) contact is the right-most contact of the 3-pin power terminal block connector when viewed from the angle shown here. Connect the SG wire to an appropriate grounded metal surface.

## Ethernet Ports

The two 10/100/1000 Mbps Ethernet ports (LAN 1 and LAN 2) come with RJ45 connectors. The pin diagram of the ports is given below:
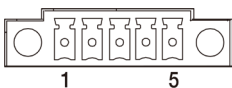
| | 10/100 Mbps | | 1000 Mbps | |
|---|---|---|---|---|
| | **Pin** | **Signal** | **Pin** | **Definition** |
| | 1 | Tx+ | 1 | TRD(0)+ |
| | 2 | Tx- | 2 | TRD(0)- |
| | 3 | Rx+ | 3 | TRD(1)+ |
| | 4 | – | 4 | TRD(2)+ |
| | 5 | – | 5 | TRD(2)- |
| | 6 | Rx- | 6 | TRD(1)- |
| | 7 | – | 7 | TRD(3)+ |
| | 8 | – | 8 | TRD(3)- |

## Serial Ports

The two serial ports (P1 and P2) come with terminal-block connectors. Each port can be configured by software for the RS-232, RS-422, or RS-485 mode. The pin assignments for the ports are given below:

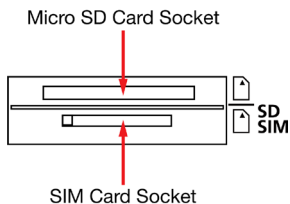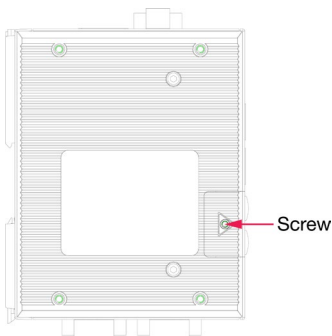| Pin | RS-232 | RS-422 | RS-485 |
|---|---|---|---|
| 1 | TXD | TXD+ | – |
| 2 | RXD | TXD- | – |
| 3 | RTS | RXD+ | D+ |
| 4 | CTS | RXD- | D- |
| 5 | GND | GND | GND |

## USB Port

The USB 2.0 port is located at the lower part of the front panel. By default, the USB auto-mount is disabled. If enabled, the USB storage is mounted at **/media/USB_P1/media/USB_P2**.

## Micro SD/SIM Card Sockets

The UC-1200A comes with a Micro SD socket for storage expansion and a SIM card socket for cellular communication. The Micro SD card and SIM card sockets are located on the lower part of the front panel. However, the screw is located at the left panel of the device. To install the cards, remove the screw and protection cover to access the sockets and insert the Micro SD card or the SIM card into the sockets. Ensure that the cards are inserted in the correct direction. Refer to the instructions above the socket. You will hear a click when the cards are in place.

To remove the cards, push the cards in before releasing them.



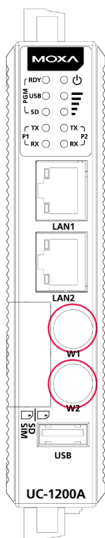Micro SD Card Socket

SIM Card Socket

Screw

#### Console Port

The console port is an RS-232 port that can be connected to a 4-pin pin-header cable. You can use this port for debugging or firmware upgrade. The console port is located on the top panel of the device and is accessible after removing the cover of the slot.

| Pin | Signal |
|-----|--------|
| 1 | TxD |
| 2 | RxD |
| 3 | NC |
| 4 | GND |

#### Antenna Connectors

The UC-1200A provides a Mini PCIe socket for installing a wireless module. You can purchase the A-CRF-SMIF-100 antenna accessory with an SMA connector. Two SMA-type wireless antenna connectors W1 and W2 are located on the front panel.

## Real-time Clock

The real-time clock in the UC-1200A is powered by a lithium battery. We strongly recommend that you do not replace the lithium battery without the help of a Moxa support engineer. If you need to change the battery, contact the Moxa RMA service team.

> ⚠ **ATTENTION**
>
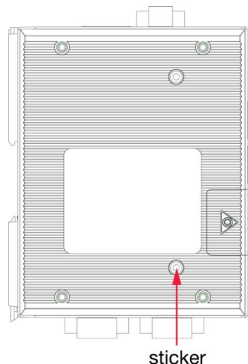> There is a risk of explosion if the battery is replaced with an incorrect type of battery. Replace only with the same or equivalent type recommended by the manufacturer.
>
> Dispose of used batteries according to the manufacturer's instructions.

## Placing the Round Stickers on the Screws

Three round stickers are included in the product package. Stick one of them on to an external screw as indicated in the figure below to help detect unauthorized access and tampering.



sticker

To place the sticker, do the following:

1. Use a cloth to clean the surface of the screw with a 75% alcohol solution.
2. Use a tweezer to place the sticker on the screw.
3. Press the sticker down on to the screw for at least 15 seconds with a pressure of about 15 psi (pound/square inch)
4. Keep the device at room temperature for 24 hours before deploying it.

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**NOTE**
1. Place the sticker carefully on the screw because it is thin and fragile.
2. The ideal environment to store the stickers is at 22°C (72°F) and less than 50% relative humidity.
3. Keep the extra two stickers in a safe place so that only authorized persons can access them.

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## Specifications

| Input Current | 600 mA @ 12 VDC |
|---|---|
| | 300 mA @ 24 VDC |
| **Input Voltage** | 12 to 24 VDC (3-pin terminal block, V+, V-, SG) |
| **Power Consumption** | 4.5 W (minimum; without external USB device attached) |
| | 7.2 W (maximum, with external USB device attached) |
| **Operating Temperature** | -40 to 60°C (-40 to 140°F) |
| **Storage Temperature** | -40 to 80°C (-40 to 176°F) |

The latest specifications for Moxa's products can be found at
https://www.moxa.com.

## Accessing the UC-1200A Using a PC

You can use a PC to access the UC-1200A by one of the following methods:

A. Through the serial console port with the following settings:
   **Baudrate**=115200 bps, **Parity**=None, **Data bits**=8, **Stop bits** =1, **Flow Control**=None

> ⚠️ **ATTENTION**
>
> Remember to choose the "VT100" terminal type. Use the console cable to connect a PC to the UC-1200A's serial console port

B. Using SSH over the network. Refer to the following IP addresses and login information:

|       | Default IP Address | Netmask       |
|-------|--------------------|---------------|
| LAN 2 | 192.168.4.127      | 255.255.255.0 |

**Login:** moxa
**Password:** moxa

## Hazardous Locations Specifications

| Model: | UC-1222A<br>UC-2222A-T<br>UC-2222A-T-EU<br>UC-2222A-T-AP<br>UC-2222A-T-US |
|--------|--------------------------------------------------------------------------|
| Rating: | UC-1222A, UC-2222A-T: 12-24 VDC, 0.6 A max.<br>UC-2222A-T-EU, UC-2222A-T-AP, UC-2222A-T-US: 12-24 VDC, 0.9 A max. |
| ATEX information: | $C\epsilon$<br><br>$\langle Ex \rangle$  II 3G Ex ec IIC T4 Gc<br><br>UL 23 ATEX 3131X<br>Ambient Range: -40°C ≤ Tamb ≤ +60°C for UC-1222A<br>Ambient Range: -40°C ≤ Tamb ≤ +75°C for UC-2222A-T<br>Ambient Range: -40°C ≤ Tamb ≤ +70°C for UC-2222A-T-EU, UC-2222A-T-AP, UC-2222A-T-US<br>Rated Cable Temp ≥ 83.3°C |
| Address of manufacturer: | No. 1111, Heping Rd., Bade Dist., Taoyuan City 334004, Taiwan |

> ⚠️ **ATTENTION**
> - The peripheral devices should be kept at least 25 mm away from the main device.
> - The devices are OPEN-TYPE and are required to be installed in a suitable enclosure for the environment such that the devices can only be accessed with use of a tool.
> - The devices are suitable for use in Class I, Division 2, Groups A, B, C and D or non-hazardous location only.
> - The equipment shall be installed in an enclosure that provides a minimum ingress protection of IP 54 in accordance with EN IEC 60079-0 and accessible only by use a tool.
> - The equipment shall only be used in an area of at least pollution degree 2, as defined in EN IEC 60664-1.

## BSMI Certification for Taiwan

# 限用物質含有情況標示聲明書

Declaration of the Presence Condition of the Restricted Substances Marking

| 設備名稱: 嵌入式計算機 Equipment name | | | 型號 (型式) : UC-1222A Type designation (Type) | | | |
|---|---|---|---|---|---|---|
| 單元 Unit | 限用物質及其化學符號 Restricted substances and its chemical symbols | | | | | |
| | 鉛 Lead (Pb) | 汞 Mercury (Hg) | 鎘 Cadmium (Cd) | 六價鉻 Hexavalent chromium $(Cr^{+6})$ | 多溴聯苯 Polybrominated biphenyls (PBB) | 多溴二苯醚 Polybrominated diphenyl ethers (PBDE) |
| 外殼 | ○ | ○ | ○ | ○ | ○ | ○ |
| 印刷電路板及其電子組件 | － | ○ | ○ | ○ | ○ | ○ |
| 電纜/電線/連接器 | － | ○ | ○ | ○ | ○ | ○ |
| 機械部件-金屬 | － | ○ | ○ | ○ | ○ | ○ |
| 機械部件-非金屬 | ○ | ○ | ○ | ○ | ○ | ○ |

備考 1. "超出 0.1 wt %"及 "超出 0.01 wt %"係指限用物質之百分比含量超出百分比含量基準值。

Note 1: "Exceeding 0.1 wt %" and "exceeding 0.01 wt %" indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考 2. "○"係指該項限用物質之百分比含量未超出百分比含量基準值。

Note 2: "○" indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考 3. "－" 係指該項限用物質為排除項目。

Note 3: The "－" indicates that the restricted substance corresponds to the exemption.

警告: 為避免電磁干擾, 本產品不應安裝或使用於住宅環境。

警告: 更換不正確之電池形式會有爆炸的風險, 請依製造商說明書處理用過之電池

製造商資訊:

Moxa 四零四科技股份有限公司

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桃園市八德區和平路 1111 號

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기기로서가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

상호: Moxa Inc.
기자재 명칭: LTE 이동통신용 무선설비의 기기(기타)
모델명: UC-1222A
제조자 및 제조국가 : Moxa Inc. / 대만