

UC-2100-W Series Quick Installation Guide

Version 3.2, January 2021

Technical Support Contact Information
www.moxa.com/support

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P/N: 1802021000214



Overview

The UC-2100-W Series computing platform is designed for embedded data acquisition and processing applications. The computer comes with up to two software-selectable RS-232/422/485 full-signal serial ports and single or dual Ethernet LAN ports. In addition, the Arm-based computing platform is available in various models that can fulfill diverse interface requirements, such as dual serial, LAN ports, and wireless connections. These versatile communication capabilities let users efficiently adapt the palm-sized computing platform to a variety of complex communications solutions.

Model Names and Package Checklist

The UC-2100-W Series includes the following models:

- **UC-2114-T-LX**
- **UC-2116-T-LX**

Before installing a UC-2100-W computer, verify that the package contains the following items:

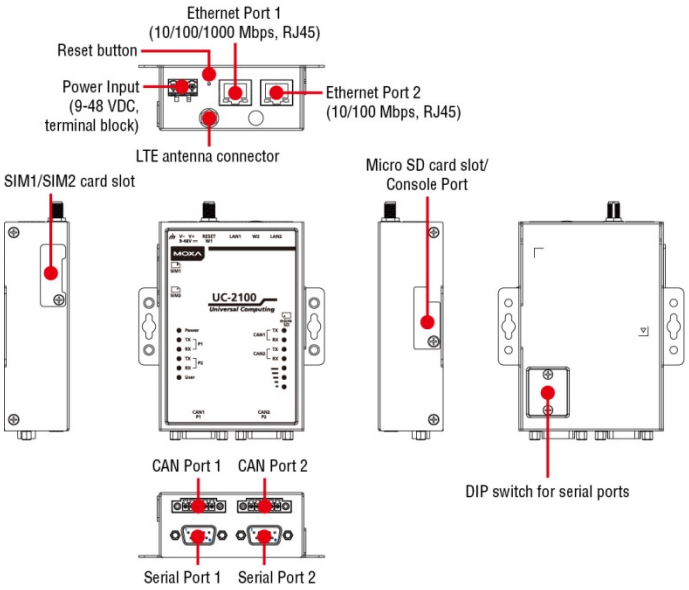
- UC-2100-W Series computer
- Console cable
- Power jack
- Quick Installation Guide (printed)
- Warranty card

Notify your sales representative if any of the above items are missing or damaged.

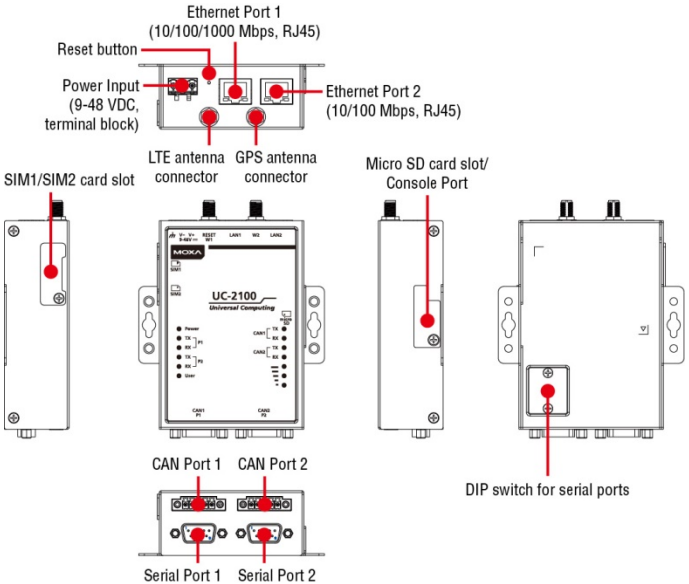
NOTE The console cable and power jack can be found inside the product box, beneath the molded-pulp cushion.

Appearance

UC-2114



UC-2116



LED Indicators

The function of each LED is described in the table below:

LED Name	Status	Function
Power	Green	Power is on, and the device is functioning normally
	Off	Power is off
Ethernet (10/100 Mbps)	Green	Steady On: 10 Mbps Ethernet link Blinking: Data transmission is in progress
	Yellow	Steady On: 100 Mbps Ethernet link Blinking: Data transmission is in progress
	Off	Speed lower than 10 Mbps or the cable is not connected
Ethernet (10/100/1000 Mbps)	Green	Steady On: 100 Mbps Ethernet link Blinking: Data transmission is in progress
	Yellow	Steady On: 1000 Mbps Ethernet link Blinking: Data transmission is in progress
	Off	Speed lower than 10 Mbps or the cable is not connected
Serial (Tx)	Green	Serial port is transmitting data
	Off	Serial port is not transmitting data
Serial (Rx)	Yellow	Serial port is receiving data
	Off	Serial port is not receiving data
User	Green	User Programmable
LEDs that indicate the Wireless signal strength	Yellow	The number of glowing LEDs indicates the signal strength 3 LEDs: Excellent 2 LEDs : Good 1 LED : Poor
	Off	Wireless module is not detected
CAN1/CAN2 (Tx)	Green	CAN port is transmitting data
	Off	CAN port is not transmitting data
CAN1/CAN2 (Rx)	Green	CAN port is receiving data
	Off	CAN port is not receiving data

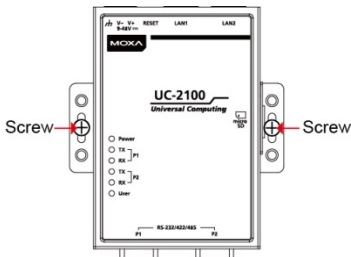
Reset Button

The UC-2100-W Series computer is provided with a reset button, which is located on the top panel of the computer. To reboot the computer, press the reset button less than 1 second. Press and hold the reset button between 7 to 9 seconds to reset the computer to the factory default settings. When the reset button is held down, the **User** LED will blink twice every second. The **User** LED will become steady when you hold the button continuously for 7 to 9 seconds. Release the button within this period to load the factory default settings.

Installing the Computer

Wall or Cabinet Mounting

Use two screws per side to mount the UC-2100-W Series on a wall or inside a cabinet.



Wiring Requirements

Be sure to read and follow these common safety precautions before proceeding with the installation of any electronic device:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

NOTE Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- Use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- It is strongly advised that you label wiring to all devices for easy identification.



ATTENTION

This equipment is intended to be used in Restricted Access Locations.

Safety First!

Be sure to disconnect the power cord before installing and/or wiring your UC-2100-W Series computers.

Wiring Caution!

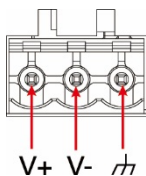
Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.



CAUTION

Be careful when handling the unit. When the unit is plugged in, the internal components generate heat, and consequently the outer casing may feel hot to the touch.

Connecting the Power



Connect the 9 to 48 VDC power line to the terminal block, which is connected to the UC-2100-W Series computer. If the power is supplied properly, the "Power" LED will glow a solid green light. The power input location and pin definition are shown in the adjacent diagram. The input terminal block (CN5) is suitable for a wire size of 12 to 30 AWG (3.3 to 0.05 mm²) and a torque value of 0.5 N-m (4.425 lb-in).



IMPORTANT

- This product is intended to be supplied by a UL Listed power adapter or DC power source whose output meets SELV/LPS. The power source must be rated 9 to 48 VDC, minimum 0.6 A, and minimum T_{ma} = 75°C.
- The power adapter should be connected to a socket outlet with earthing connection.



If you need further information or assistance, contact a Moxa representative.

Grounding the Unit

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the terminal block connector to the grounding surface prior to connecting the power. Please note that this product is intended to be mounted on a well-grounded mounting surface, such as a metal panel. The minimum cross-sectional area of the earthing conductor shall be equal to the input wiring cable.

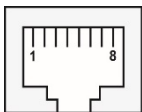
Connecting to the Console Port

The UC-2100-W console port is a 4-pin pin-header RS-232 port located on the right panel of the case. It is designed for serial console terminals, which are useful for viewing the boot up message, or for debugging system boot up issues. Remove the protective cover on the port to connect the console cable.

Serial Console Port & Pinouts		Serial Console Cable										
	<table border="1"> <thead> <tr> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TxD</td> </tr> <tr> <td>2</td> <td>RxD</td> </tr> <tr> <td>3</td> <td>NC</td> </tr> <tr> <td>4</td> <td>GND</td> </tr> </tbody> </table>	Pin	Signal	1	TxD	2	RxD	3	NC	4	GND	
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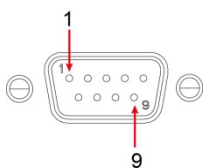
Connecting to the Network

The Ethernet ports are located on the top or bottom panel of the UC-2100-W computers. The pin assignments for the Ethernet port are shown in the following figure. If you are using your own cable, make sure that the pin assignments on the Ethernet cable connector match the pin assignments on the Ethernet port.



Pin	10/100 Mbps	10/100/1000 Mbps
1	Tx+	TRD(0)+
2	Tx-	TRD(0)-
3	Rx+	TRD(1)+
4	-	TRD(2)+
5	-	TRD(2)-
6	Rx-	TRD(1)-
7	-	TRD(3)+
8	-	TRD(3)-

Connecting to a Serial Device

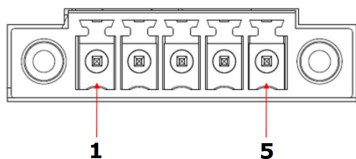


The serial ports are located on the bottom panel of the UC-2100-W computer. Use a serial cable to connect your serial device to the computer's serial port. These serial ports have male DB9 connectors and can be configured for RS-232, RS-422, or RS-485 communication. The pin location and assignments are shown in the following table.

Pin	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	DCD	TxDA(-)	TxDA(-)	-
2	RxD	TxDB(+)	TxDB(+)	-
3	TxD	RxDB(+)	RxDB(+)	DataB(+)
4	DTR	RxDA(-)	RxDA(-)	DataA(-)
5	GND	GND	GND	GND
6	DSR	-	-	-
7	RTS	-	-	-
8	CTS	-	-	-

Connecting to a CAN Device

The UC-2114 and UC-2116 come with two CAN ports, which use the 5-pin terminal block and are compatible with the CAN 2.0A/B standard. The pin assignment of the port is shown below.



Pin	Signal
1	GND
2	L
3	Chassis
4	H
5	Vout

Installing SIM Cards

You will need to install a SIM card on your UC-2100-W computer. Follow these steps to install the SIM card.

1. Remove the screw on the cover located on the right panel.
2. Insert the SIM card into the socket. Make sure you place the chip-side on the bottom.
3. To remove the SIM card, simply push the SIM card and release it.



Installing the microSD Card

Both UC-2114 and UC-2116 come with a storage socket that allows users to install one microSD card. Follow these steps to install the microSD card:

1. The microSD socket is located below the right panel of the computer. Unfasten the screw and remove the right panel cover.
2. Insert the microSD card into the socket. Ensure that the card is inserted in the right direction.
3. Replace the cover and fasten the screw on the cover to secure the cover.



To remove the microSD card, simply push the card in and release it.

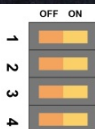
Adjusting the DIP Switch

The UC-2114 and UC-2116 computers come with one DIP switch for users to adjust the serial port parameters. To set up the DIP switch, do the following:

1. Remove the screws on the DIP switch cover located on the rear panel of the computer.
2. Remove the thin film on the DIP switch and adjust the setting as required.

Refer to the table below for the DIP switch settings. The default value is OFF.

SW	1	2	3	4
	Low	High	Term.	-
ON	1 K Ω	1 K Ω	120 Ω	-
OFF	150 K Ω	150 K Ω	-	-



Real-time Clock

The real-time clock in the UC-2100-W 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.

Accessing the UC-2100-W Using a PC

You can use a PC to access the UC-2100-W 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-2100-W's serial console port.

- B. Using SSH over the network.

Refer to the following IP addresses and login information:

	Default IP Address	Netmask
LAN 1	192.168.3.127	255.255.255.0
LAN 2	192.168.4.127	255.255.255.0

Login: moxa



Password: moxa



ATTENTION

- The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC/EN 60664-1.
- The equipment shall be installed in an enclosure that provides a degree of protection not less than IP 54 in accordance with IEC/EN 60079-15 and accessible only by the use of a tool.
- These devices are open-type devices that are to be installed in an enclosure with tool removable cover or door, suitable for the environment.
- This equipment is suitable for use in Class I, Division 2, Groups A, B, C, and D or non-hazardous locations only.
- ANTENNAS INTENDED FOR USE IN CLASS I, DIVISION 2 HAZARDOUS LOCATIONS MUST BE INSTALLED WITHIN THE END-USE ENCLOSURE. FOR REMOTE MOUNTING IN AN UNCLASSIFIED LOCATION, ROUTING AND INSTALLATION OF THE ANTENNAS SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE REQUIREMENTS (NEC/CEC) Sec. 501.10 (b).
- The "USB, RS-232/422/485 serial ports, LAN1, LAN2, and Console ports" and Reset Button may only be accessed for equipment set-up, installation, and maintenance at a non-hazardous location. These ports and their associated interconnecting cables must remain inaccessible within the hazardous location.

ATEX and C1D2 Specifications

Model	UC-2114-T-LX, UC-2116-T-LX
Rating	Input: 9 to 48 VDC; 0.6 to 0.12 A
ATEX Information	  II 3 G Certificate Number: DEMKO 19 ATEX 2297X Certification String: Ex nA IIC T4 Gc Ambient Range: $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq 75^{\circ}\text{C}$ Rated Cable Temp $\geq 90^{\circ}\text{C}$
C1D2 Information	Temperature Code (T-code): T4
Manufacturer's Address	No. 1111, Heping Rd., Bade Dist., Taoyuan City 334004, Taiwan
Hazardous Location Certification	EN 60079-0:2012+A11:2013/IEC 60079-0:2011 Ed. 6 EN 60079-15:2010/IEC 60079-15:2010 Ed. 4