UC-8100 Series
Quick Installation Guide

Version 4.0, September 2020

MOXA®

P/N: 1802081000013

Overview

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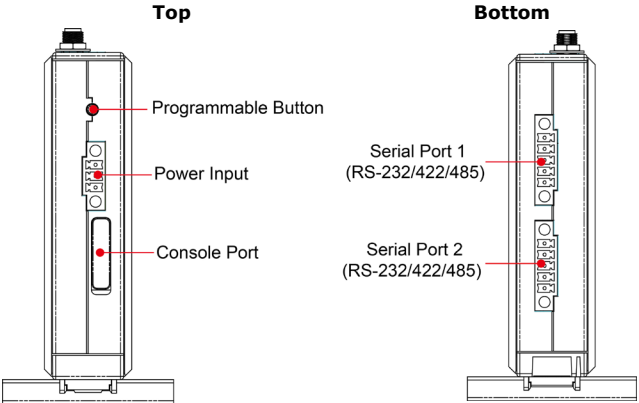
Package Checklist

- UC-8100 embedded computer
- Console cable
- Power jack
- 3-pin terminal block for power (preinstalled)
- 5-pin terminal block for UART x 2 (preinstalled)

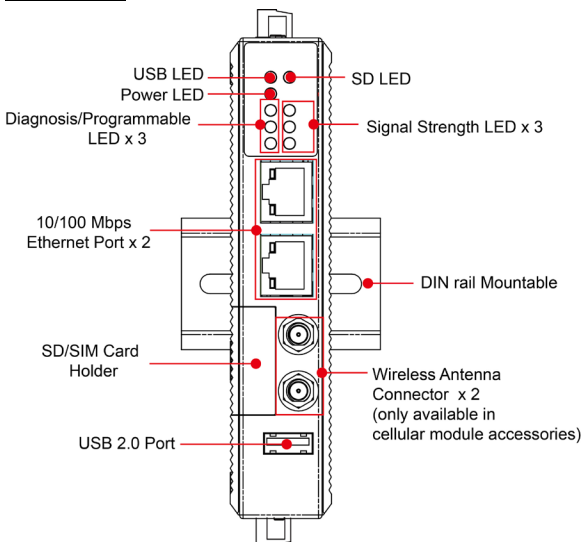*Please notify your sales representative if any of the above items are missing or damaged.*

Panel Layout

The following figures show the panel layouts of the UC-8100.
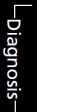
Top and Bottom Panel

Front Panel

- USB LED
- Power LED
- SD LED
- Diagnosis/Programmable LED x 3
- Signal Strength LED x 3
- 10/100 Mbps Ethernet Port x 2
- DIN rail Mountable
- SD/SIM Card Holder
- Wireless Antenna Connector x 2 (only available in cellular module accessories)
- USB 2.0 Port

LED Indicators

LED Name		Color	Function	
⬅	USB	Green	Steady On	USB device is connected and working normally
			Off	USB device is not connected.
SD	SD	Green	Steady On	SD Card inserted and working normally
			Off	SD card is not detected
⏻	Power	Green	Power is on and the computer is working normally.	
		Off	Power is off.	
	LAN1/2 (On RJ45 connector)	Green	Steady On	100 Mbps Ethernet link
			Blinking	Data transmitting
		Yellow	Steady On	10 Mbps Ethernet link
			Blinking	Data transmitting
		Off	Ethernet is not connected	
	Wireless Signal Strength	Green Yellow Red	Number of glowing LEDs indicates signal strength 3 (Green + Yellow + Red): Excellent 2 (Yellow + Red): Good 1 (Red): Poor	
		Off	Wireless module is not detected	
Diagnosis	Diagnosis	Green Yellow Red	These 3 LEDs are used for diagnostics and are programmable. For additional details, refer to the *UC-8100 Series Hardware Manual.*	

Installing the UC-8100

There are two sliders on the back of the unit for DIN-rail and wall mounting.
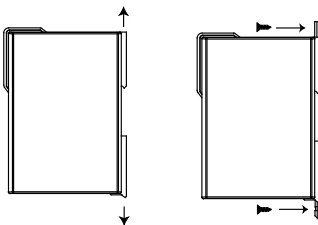
Mounting on a DIN Rail

Pull out the bottom slider, latch the unit onto the DIN rail, and push the slider back in.
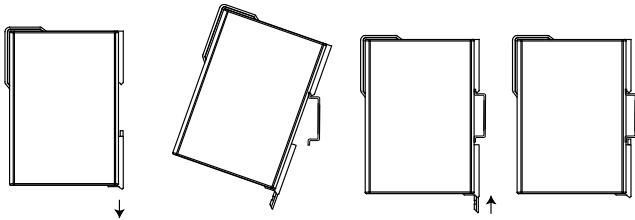
Mounting on a Wall

Pull out both the top and bottom sliders, align the screws with the mounting holes, and secure the device to the wall by driving the screws into the wall.

Another method for wall mounting installation is to use the optional wall mounting kit. Attach two mounting brackets on the side panel of the computer, and fasten with screws. Install the computer on to a wall or cabinet by fastening two screws for each mounting bracket.
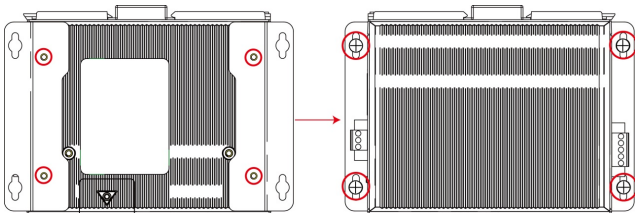

Connector Description

Power Connector

Connect the "terminal block to power jack converter" (included in the package) to the UC-8100'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.

Grounding the UC-8100

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI).
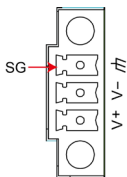
SG: The shielded ground (sometimes called protected ground) contact is the top contact of the 3-pin power terminal block connector when viewed from the angle shown here. Connect the SG wire to an appropriate grounded metal surface.
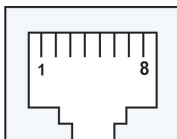
> ⚠️ **ATTENTION**
>
> The product is intended to be supplied by an UL Listed power adapter whose output meets SELV/LPS, and is rated 12-24 VDC, minimum 0.5 A, Tma = 85°C (minimum).

Ethernet Ports

The two 10/100 Mbps Ethernet ports (LAN 1 and LAN 2) use RJ45 connectors. Refer to the following table for the pin assignments.
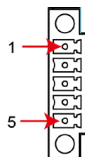
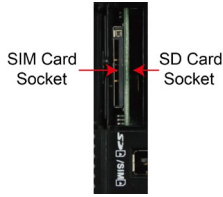| Pin	Signal
1	ETx+
2	ETx-
3	ERx+
6	ERx-

Serial Ports

The two serial ports (P1 and P2) use terminal connectors. Each port can be configured by software for RS-232, RS-422, or RS-485. Refer to the following table for the pin assignments.

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

SD/SIM Card Slots

The UC-8100 comes with an SD slot for storage expansion and a SIM card slot for cellular communication. The SD card/SIM card slots are located at the lower part of the front panel. To install them, remove the screw and the cover to access the slots, and then insert the SD card or the SIM card. You will hear a click when they are inserted correctly. To remove them, push the cards in and then release them.

SIM Card Socket — SD Card Socket

Console Port

The console port is a RS-232 port that can be connected with a 4-pin pin header cable. You may use this port for debugging or firmware upgrade.

Pin	Signal
1	TxD
2	RxD
3	NC
4	GND

USB

The USB 2.0 port is located at the lower part of the front panel, and supports a USB storage device driver.

Real-time Clock

The UC-8100's real-time clock is powered by a non-chargeable battery. We strongly recommend that you do not replace the battery without help from a qualified Moxa support engineer. If you need to change the battery, contact the Moxa RMA service team.
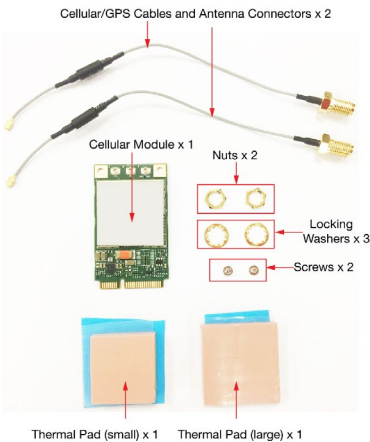
> ⚠️ **ATTENTION**
>
> There is a risk of explosion if the battery is replaced by an incorrect type of battery.

Installing the Cellular Module

The UC-8100 provides a Mini PCIe socket for installing a cellular module. The cellular module package includes the following items.

Cellular/GPS Cables and Antenna Connectors x 2
Cellular Module x 1
Nuts x 2
Locking Washers x 3
Screws x 2
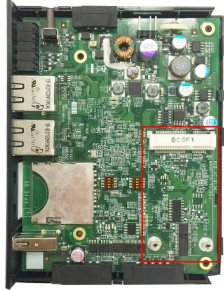Thermal Pad (small) x 1   Thermal Pad (large) x 1

Follow these steps to install the cellular module.

1. Unfasten the screws on the side panel of the computer and remove the cover.

2. Find the location of the PCIe socket.

3. Remove the plastic plate and the sticker on both sides of the **large** thermal pad and place it in the socket. Press the thermal pad down so that it sticks to the base of the socket.
Place the thermal pad as close as possible to the holes for the screws used to secure the module.
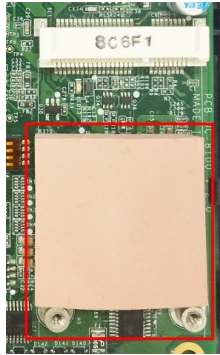
4. Insert the cellular module into the socket and tighten the screws to secure the module to the socket.
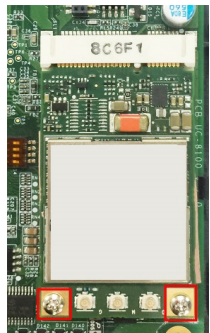
5. Remove the plastic plate and the sticker on both side of the **small** thermal pad and stick the thermal pad on to the module.
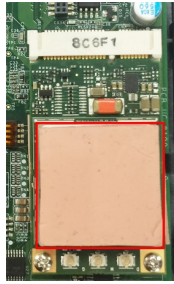

6. Install the antenna cables. There are three antenna connectors on the module; two for cellular antennas and one for a GPS antenna. Refer to the figure for details. As there are only two antenna connector holes on the front panel of the computer, you can only use two antennas at a time. You may use two cellular antennas, or a cellular antenna and a GPS antenna. The same antenna cables can be used for both antenna types.
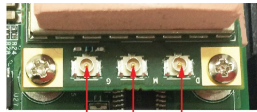
GPS Antenna Connector   Cellular Antenna Connectors 2
   Cellular Antenna Connectors 1

7. Connect one end of the antenna cable to the cellular module.
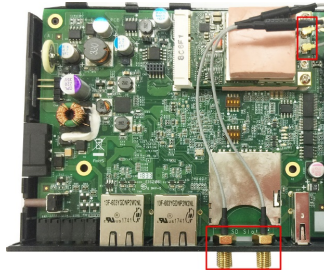
8. Insert the other end of the cable, with the connector, through the antenna connector hole on the front panel of the computer. Remove the black plastic protection cover on the connector hole before you insert the antenna wire.

9. Insert the locking washer through the connector and press it against the cover of the computer. Then, insert the nut and tighten it to secure the connector to the cover.
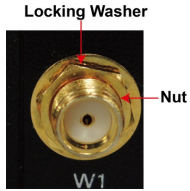
10. Connect the antenna to the antenna connector.
11. Replace the cover of the computer.

Connecting the UC-8100 to a PC

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 CBL-RJ45F9-150 cable included in the package to connect the PC to the UC-8100's serial console port.

B. By 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