QuecPython Ex800x-XX Series Core EVB Specification and User Guide

LTE Standard Module Series

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Safety Information

The following safety precautions must be observed during all phases of operation, such as usage, service or repair of any terminal or mobile incorporating the module. Manufacturers of the terminal should notify users and operating personnel of the following safety information by incorporating these guidelines into all manuals of the product. Otherwise, Quectel assumes no liability for customers' failure to comply with these precautions.

	Full attention must be paid to driving at all times in order to reduce the risk of an accident. Using a mobile while driving (even with a handsfree kit) causes distraction and can lead to an accident. Please comply with laws and regulations restricting the use of wireless devices while driving.
	Switch off the terminal or mobile before boarding an aircraft. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communication systems. If there is an Airplane Mode, it should be enabled prior to boarding an aircraft. Please consult the airline staff for more restrictions on the use of wireless devices on an aircraft.
	Wireless devices may cause interference on sensitive medical equipment, so please be aware of the restrictions on the use of wireless devices when in hospitals, clinics or other healthcare facilities.
	Terminals or mobiles operating over radio signal and cellular network cannot be guaranteed to connect in certain conditions, such as when the mobile bill is unpaid or the (U)SIM card is invalid. When emergency help is needed in such conditions, use emergency call if the device supports it. In order to make or receive a call, the terminal or mobile must be switched on in a service area with adequate cellular signal strength. In an emergency, the device with emergency call function cannot be used as the only contact method considering network connection cannot be guaranteed under all circumstances.
	The terminal or mobile contains a transceiver. When it is ON, it receives and transmits radio frequency signals. RF interference can occur if it is used close to TV sets, radios, computers or other electric equipment.
	In locations with explosive or potentially explosive atmospheres, obey all posted signs and turn off wireless devices such as mobile phone or other terminals. Areas with explosive or potentially explosive atmospheres include fueling areas, below decks on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles such as grain, dust or metal powders.

About the Document

Revision History

Version	Date	Author	Description
-	2025-04-25	Rivern YUAN	Creation of the document
1.0.0	2025-04-25	Rivern YUAN	Preliminary

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1 Product Overview

The core EVB is a core board with the Quectel Ex800x-XX series modules as the main control. The supported module models are: EC800K-CN, EC800M-CN and EG800K-EU.

1.1. Core EVB Kit and Accessory

The kit and accessory including: core EVB and 4G FPC antenna. The figure below is for reference only. For details, refer to the actual appearance.

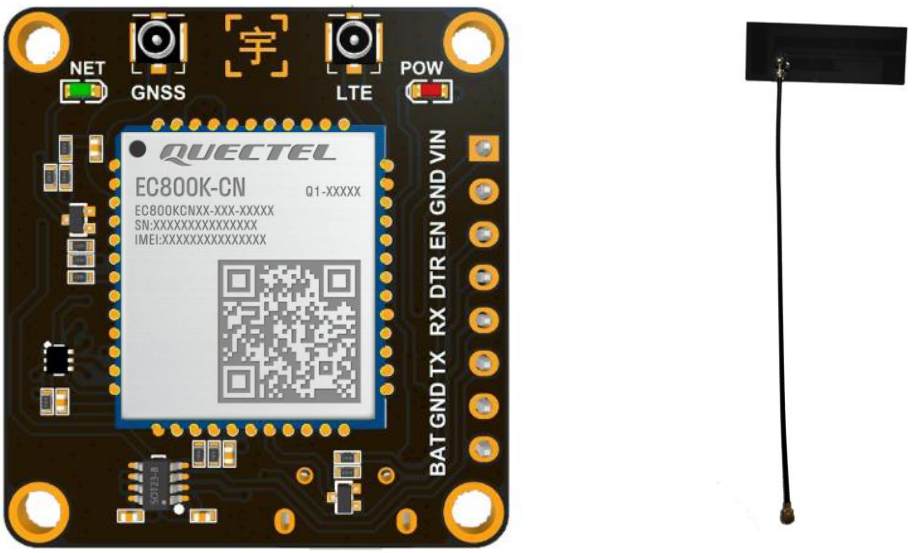


Figure 1: Core EVB Kit and Accessory

1.2. Top and Bottom Views

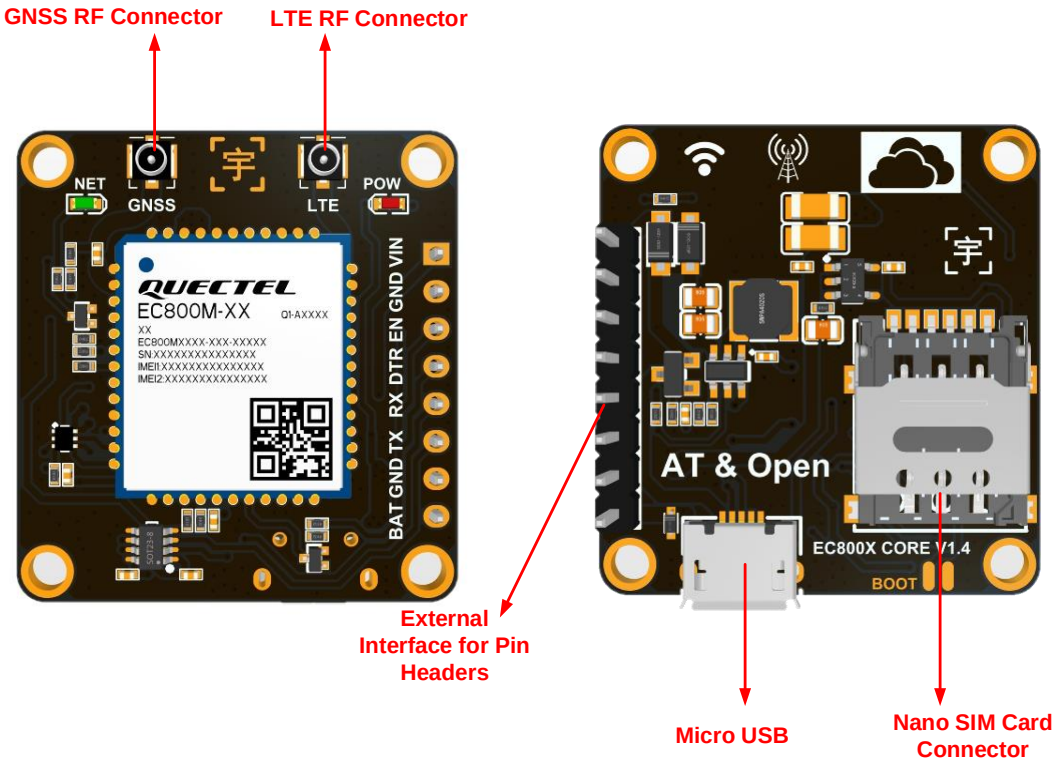


Figure 2: Top and Bottom Views

NOTE

1. The module supports Wi-Fi Scan, and Wi-Fi Scan function is optional. The Wi-Fi scan function utilizes the same antenna interface as the main antenna. Due to this shared interface, Time Division Multiplexing (TDM) is employed since the two functions cannot be used simultaneously. Wi-Fi Scan functionality only supports receiving. Transmitting is not supported.
2. GNSS function is optional. Please contact Quectel Technical Support for more details.

1.3. Connection of the Core EVB with Antenna and UART

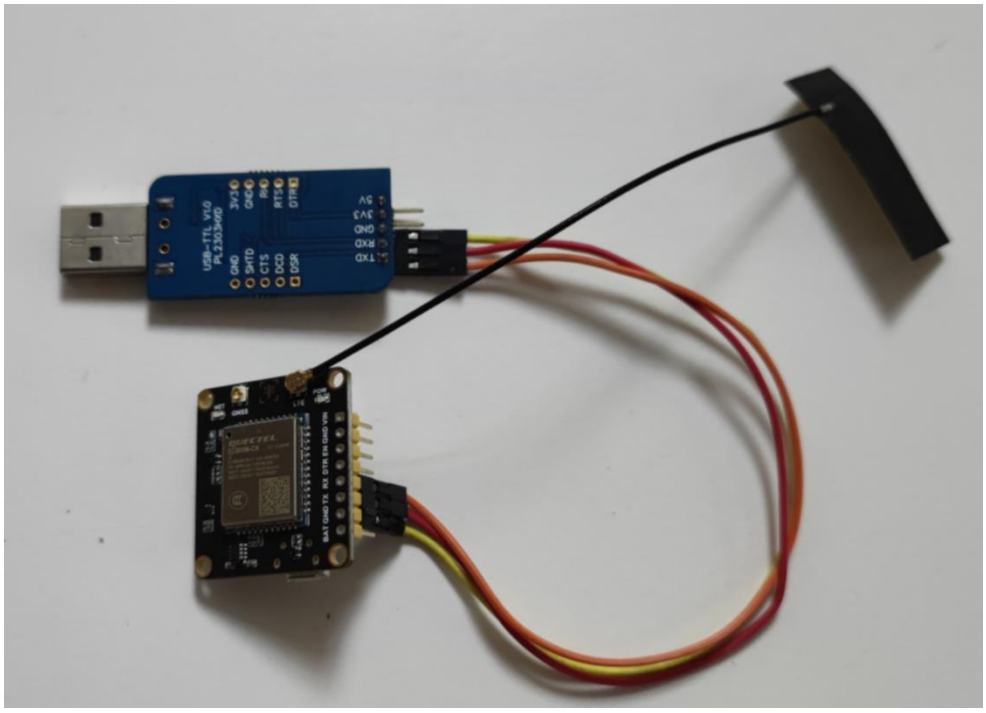


Figure 3: Connection Diagram of Core EVB

2 Pin Headers

2.1. Pin Definition

Table 1: Pin Description

Pin No.	Pin Name	Description	Comment
1	VIN	External power supply	Supply voltage: 5–16 V Input power: ≥ 10 W
2	GND	Ground	
3	EN	Core EVB's DC-DC power enable	It is enabled by default. Driving it low will turn off the power supply. If unused, keep it open. If external control is required, a transistor switching circuit needs to be added.
4	DTR	Wake up the module	Driving it high will wake up the module. If unused, keep it open.
5	RX	Main UART receive	3.3 V voltage level.
6	TX	Main UART transmit	3.3 V voltage level.
7	GND	Ground	
8	BAT	Battery power supply	3.4–4.2 V; Cannot supply power simultaneously with VIN. When powered by this pin, EN is not available.

2.2. Function Description

2.2.1. Power Supply

The power supply voltage of the core EVB is 5–16 V. It is necessary to ensure that the input voltage is not lower than 5 V. To ensure the normal operation of the core EVB, please make sure that the input power is higher than or equal to 10 W.

It is recommended to use 12 V power supply. If 5 V power supply is used, please ensure that the power supply current can reach 2 A, and add a 220 μF large capacitor at the input port to prevent voltage drop from causing the core EVB to restart.

2.2.2. UART

The main UART is used for AT command communication and data transmission.

- Default baud rate: 115200 bps.
- Supported baud rates: 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps, 230400 bps, 460800 bps, 921600 bps.

In the standard solution, the main UART is the AT port. In the QuecOpen® or QuecPython® solution, the main UART is UART2.

2.2.3. Sleep Mode

If the module communicates with the MCU via UART, the following three conditions must be met simultaneously for the module to enter sleep mode.

- Execute API to enable the sleep function.
- Ensure DTR is held low or kept open.
- Disconnect the USB_VBUS power supply.

Driving module's DTR high via MCU will wake up the module.

NOTE

For more details about API for enabling sleep mode:
QuecPython® solution: please visit: https://python.quectel.com/doc/API_reference/zh/syslib/pm.html.

2.2.4. BOOT Test Points

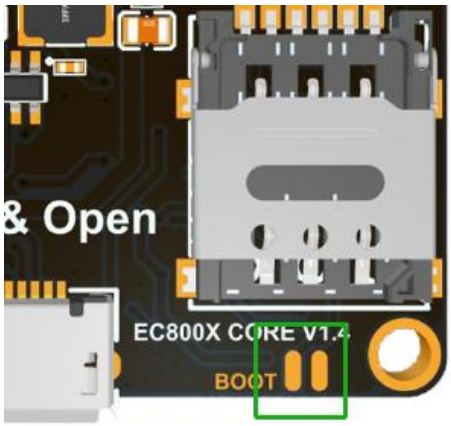


Figure 4: Test Points for the BOOT

The test points are reserved on the core EVB. When the module needs to enter the BOOT mode, short-circuit the two pads here and then power up to enter the BOOT mode.

DO NOT short-circuit before the module is turned on normally.

2.3. Indicator Light

The core EVB has two indicator lights, red and green. The red light (POW) is the power indicator, which lights up once the power is turned on. The green light (NET) is the network indicator, and its states are shown in the following table.

Table 2: Network Status Indication Pin Level and Module Network Status

Pin Name	Level Status	Module Network Status
NET	Blink slowly (200 ms High/1800 ms Low)	Network searching
	Blink slowly (1800 ms High/200 ms Low)	Idle
	Blink quickly (125 ms High/125 ms Low)	Data transmission is ongoing
	High	Voice calling

3 Mechanical Information

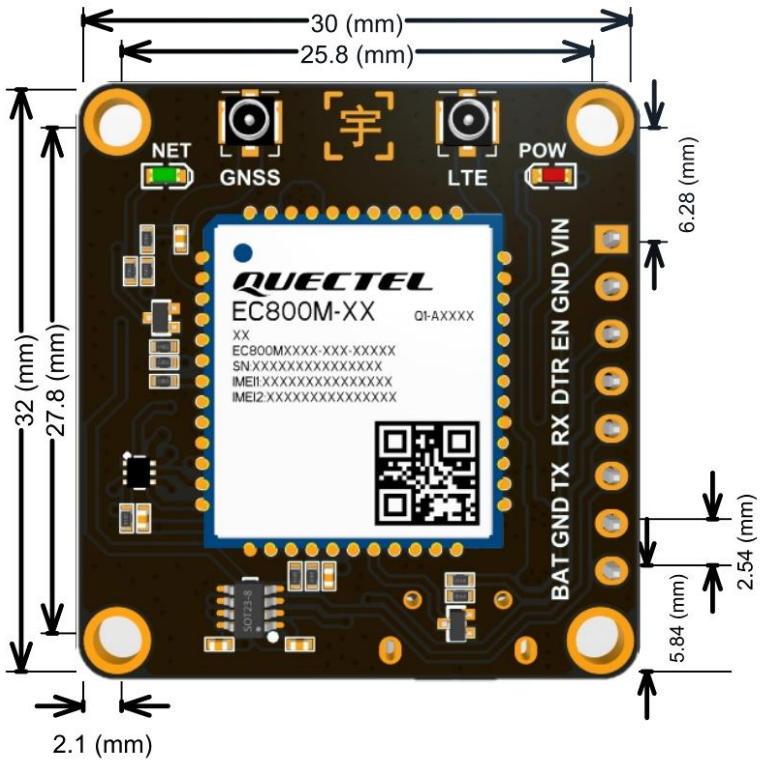


Figure 5: Mechanical Dimensions

4 RF Connector

The core EVB is equipped with an RF connector (socket) for easy antenna connection. Dimensions of antenna connectors are shown in the following figure.

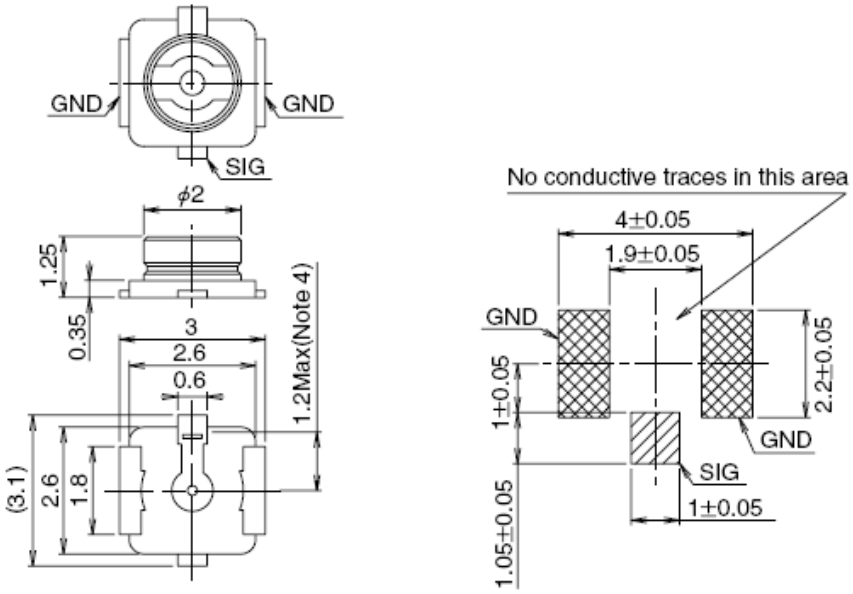


Figure 6: Dimensions of the Receptacle (Unit: mm)

U.FL-LP series mated plugs listed in the following figure can be used to match the U.FL-R-SMT connector.

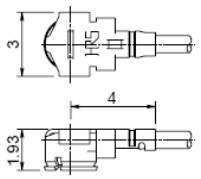
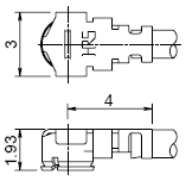
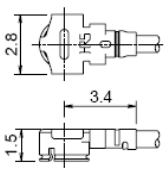
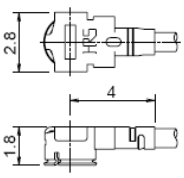
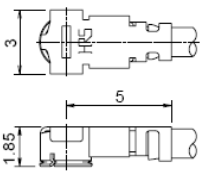
Part No.	U.FL-LP-040	U.FL-LP-066	U.FL-LP(V)-040	U.FL-LP-062	U.FL-LP-088
					
Mated Height	2.5mm Max. (2.4mm Nom.)	2.5mm Max. (2.4mm Nom.)	2.0mm Max. (1.9mm Nom.)	2.4mm Max. (2.3mm Nom.)	2.4mm Max. (2.3mm Nom.)
Applicable cable	Dia. 0.81mm Coaxial cable	Dia. 1.13mm and Dia. 1.32mm Coaxial cable	Dia. 0.81mm Coaxial cable	Dia. 1mm Coaxial cable	Dia. 1.37mm Coaxial cable
Weight (mg)	53.7	59.1	34.8	45.5	71.7
RoHS	YES				

Figure 7: Specifications of Mated Plugs (Unit: mm)

The RF connector dimensions are illustrated as below:

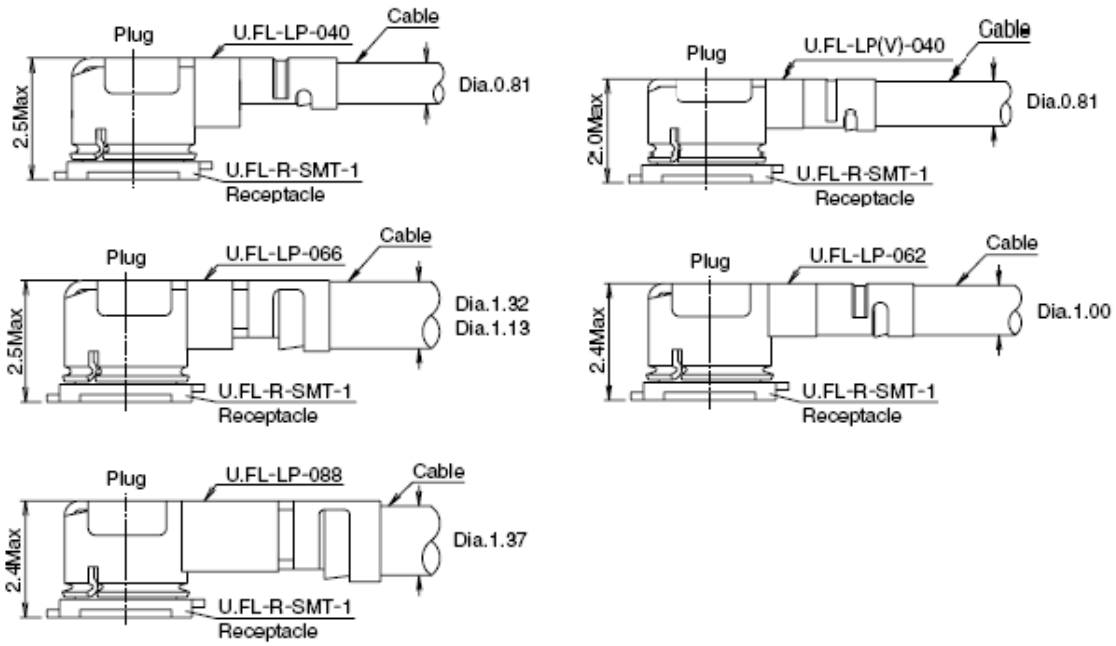


Figure 8: Space Factor of Mated Connectors (Unit: mm)

NOTE

The 4G FPC antenna is for test only.

5 Appendix

Table 3: Terms and Abbreviations

Abbreviation	Description
DC	Direct Current
FPC	Flexible Printed Circuit
PC	Polycarbonate