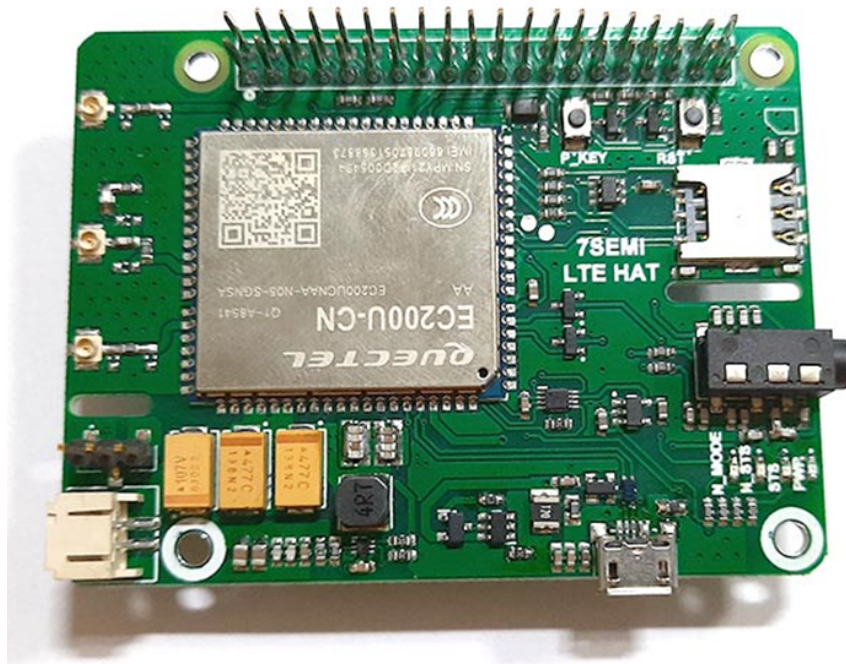# 7Semi EC200U-CN 4G LTE GSM/GPRS GNSS Hat for Raspberry Pi

KEY FEATURES:

- Fully compatible with Raspberry Pi models that have the 40-pin GPIO header (4, 3, 2, B+, A+, Zero).
- Supports any Nano sim.
- High-efficiency power regulation.
- Compatible with worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage with regional or global modules which work with different frequencies & carriers.
- Delivers 10Mbps downlink and 5Mbps uplink data rates
- Can be used standalone with PC/Laptop over micro-USB, without stacking with Raspberry Pi.
- Optional Send/Receive AT commands over Raspberry Pi UART port is available
- Taking the module into the Airplane Mode, resetting the module or RI and DTR functions can be accessible over GPIO pins.
- The power of the whole board electronics can be disabled for low-power consumption use cases
- Working temperature range: -40°C ~ 80°C.

Specifications:

Dimensions: 74.5 x 56.5 mm
Power: Operates at RPI 5V, Micro-USB socket 5V1, External supply 4.2V – 30V

CONNECTORS :
Micro USB: Micro USB
Sim Card: Nano Sim
GPIO Connector: 40-pin 2.54 mm (100 mil) expansion header: 2x20 strip
External Power Connector: 2-pin 2mm pitch JST Connector
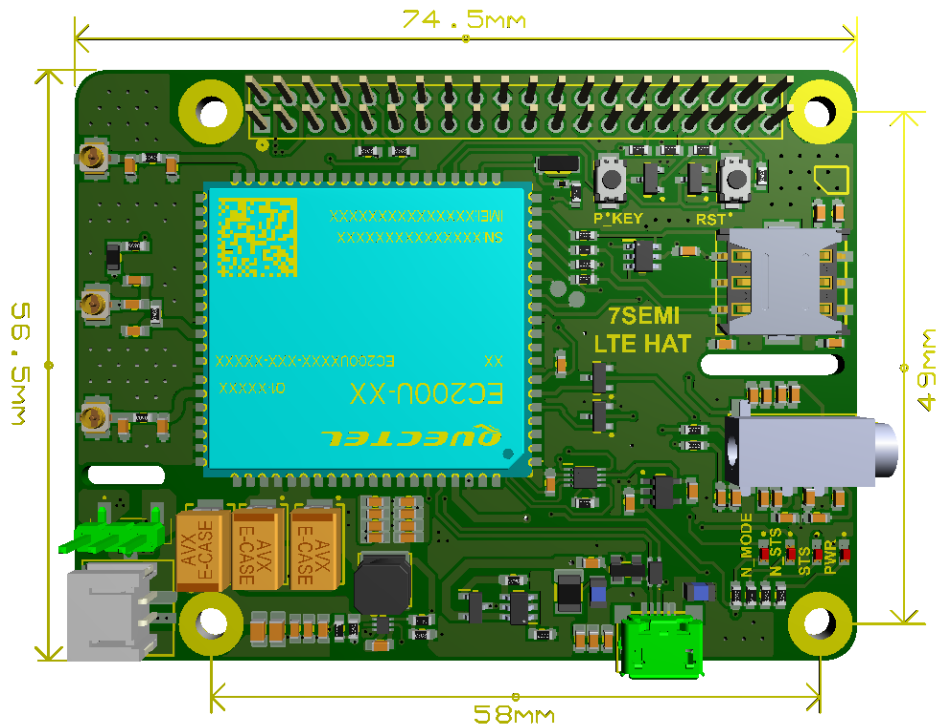**GPS & Antenna Connector:** U. FL

BOARD LAYOUT FRONT:

Main Antenna

GNSS Antenna

Diverange Antenna

BOARD LAYOUT BACK :

Dimensions:

Power Supply:

- The micro USB is used to power the 4G HAT. The voltage input should be 5v with a minimum of 2A current for the HAT. If the Raspberry Pi is powered via the 4G HAT, the input current should be at least 2.5A.
- The 4G HAT can be powered by external 4.2V to 30V supply.

Micro-USB (Modem):

Micro USB is used to connect the modem, it transmits data through the cable to the Raspberry Pi or a Windows system. This USB interface gives you access to a few different ports on the modem-

- Diagnostics port for output developing messages
- NMEA port - outputs GPS information
- AT command port - for sending and receiving AT commands
- Modem port for PPP protocol

Sim Card:

The 4G Hat uses the Nano SIM card with the different functions: SMS, Phone Calls & Internet.

UART:

A UART is a communication channel between the Raspberry Pi and the Mini PCIE to access different functions:

- Power Management
- AT communication

UART Pins :

Raspberry Pi	4G Hat
GPIO 14 (TX)	TX
GPIO 15 (RX)	RX

Buttons:

Raspberry Pi	4G HAT
GPIO 22	USER Button
GPIO 19	Mini PCIE Reset

LEDS:

7Semi 4G HAT	Function
USER LED	Raspberry Pi GPIO 27
PWR LED	3.3V Power LED
NET LED	Network LED