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Quectel EC25 Mini PCIe

IoT/M2M-optimized LTE Cat 4 Module



Quectel EC25 Mini PCIe is a series of LTE category 4 module adopting standard PCI Express® Mini Card form factor (Mini PCIe). It is optimized specially for M2M and IoT applications, and delivers 150Mbps downlink and 50Mbps uplink data rates.

EC25 Mini PCIe contains 12 variants: EC25-E Mini PCIe, EC25-EU Mini PCIe, EC25-EC Mini PCIe, EC25-EUX Mini PCIe, EC25-A Mini PCIe, EC25-V Mini PCIe, EC25-AF Mini PCIe, EC25-AFX Mini PCIe, EC25-MX Mini PCIe, EC25-AU Mini PCIe, EC25-AUX and EC25-J Mini PCIe. This makes it backward-compatible with existing EDGE and GSM/GPRS networks, ensuring that it can be connected even in remote areas devoid of 4G or 3G coverage.

EC25 Mini PCIe supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou, Galileo and QZSS). The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB serial drivers for Windows 7/8/8.1/10, Linux, Android/eCall*) extend the applicability of the module to a wide range of M2M applications such as industrial router, industrial PDA, rugged tablet PC, video surveillance and digital signage.



Key Benefits

- ✓ LTE category 4 module optimized for broadband IoT applications
- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ Standard PCI Express® MiniCard form factor (Mini PCIe) ideal for manufacturers to easily integrate wireless connectivity into their devices
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment



LTE Cat 4
Max 150Mbps (DL)
Max 50Mbps (UL)



Max 42Mbps (DL)
Max 5.76Mbps (UL)



Mini PCIe Package



Embedded Abundant Protocols



eCall*



Multi-constellation GNSS



USB 2.0 High Speed Interface



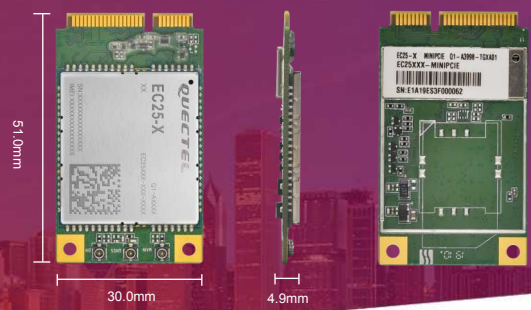
USB Drivers



Quectel Enhanced AT Commands

Quectel EC25 Mini PCIe

IoT/M2M-optimized LTE Cat 4 Module



Variant for EMEA/Korea/Thailand/India

EC25-E Mini PCIe:

LTE FDD: B1/B3/B5/B7/B8/B20

LTE TDD: B38/B40/B41

WCDMA: B1/B5/B8

GSM: B3/B8

EC25-EU Mini PCIe:

LTE FDD: B1/B3/B7/B8/B20/B28A

LTE TDD: B38/B40/B41

WCDMA: B1/B8

GSM: B3/B8

EC25-EC Mini PCIe:

LTE FDD: B1/B3/B7/B8/B20/B28A

WCDMA: B1/B8

GSM: B3/B8

EC25-EUX Mini PCIe^①:

LTE FDD: B1/B3/B7/B8/B20/B28A

LTE TDD: B38/B40/B41

WCDMA: B1/B8

GSM: B3/B8

Variants for North America

EC25-A Mini PCIe:

LTE FDD: B2/B4/B12

WCDMA: B2/B4/B5

EC25-V Mini PCIe:

LTE FDD: B4/B13

EC25-AF Mini PCIe:

LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71

WCDMA: B2/B4/B5

EC25-AFX Mini PCIe^①:

LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71

WCDMA: B2/B4/B5

EC25-MX Mini PCIe^①:

LTE FDD: B2/B4/B5/B7/B28/B66

WCDMA: B2/B4/B5

Variant for Australia/New Zealand/Taiwan/ Latin America

EC25-AU Mini PCIe:

LTE FDD: B1/B2^②/B3/B4/B5/B7/B8/B28

LTE TDD: B40

WCDMA: B1/B2/B5/B8

GSM: B2/B3/B5/B8

EC25-AUX Mini PCIe^①:

LTE FDD: B1/B2^②/B3/B4/B5/B7/B8/B28

LTE TDD: B40

WCDMA: B1/B2/B4/B5/B8

GSM: B2/B3/B5/B8

Variant for Japan

EC25-J Mini PCIe:

LTE FDD: B1/B3/B8/B18/B19/B26

LTE TDD: B41

WCDMA: B1/B6/B8/B19

Data

LTE:

LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)

LTE TDD: Max 130Mbps (DL)/Max 30Mbps (UL)

UMTS:

DC-HSDPA: Max 42Mbps (DL)

HSUPA: Max 5.76Mbps (UL)

WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL)

GSM:

EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)

GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)

Voice

Speech Codec Modes:

HR/FR/EFR/AMR/AMR-WB

Echo Arithmetic:

Echo Cancellation/Noise Reduction

Audio:

Digital Audio and VoLTE (Voice over LTE)

(Optional)

Interfaces

USB 2.0 with High Speed up to 480Mbps

Digital Audio through PCM (Optional)

1.8V/3.0V (U)SIM Interface

LED_WWAN# for Network Status Indication

W_DISABLE# for Disabling RF Function

UART × 1

PERST# for Module Resetting

Solder Pads for Main Antenna, Rx-diversity and

GNSS Antennas

Enhanced Features

eCall^{*③}

DTMF^④

(U)SIM Card Detection

Support MIMO in DL Direction

DFOTA^{*}:

Delta Firmware Upgrade Over-The-Air

GNSS:

GPS/GLONASS/BeiDou/Galileo/QZSS (Optional)

Electrical Characteristics

Output Power:

Class 4 (33dBm±2dB) for GSM850

Class 4 (33dBm±2dB) for EGSM900

Class 1 (30dBm±2dB) for DCS1800

Class 1 (30dBm±2dB) for PCS1900

Class E2 (27dBm±3dB) for GSM850 8-PSK

Class E2 (27dBm±3dB) for EGSM900 8-PSK

Class E2 (26dBm±3dB) for DCS1800 8-PSK

Class E2 (26dBm±3dB) for PCS1900 8-PSK

Class 3 (24dBm+1/-3dB) for WCDMA bands

Class 3 (23dBm±2dB) for LTE-FDD bands

Class 3 (23dBm±2dB) for LTE-TDD bands

Consumption:

3.6mA @Sleep, Typ.

35mA @Idle

Sensitivity:

LTE B1: -101.5dBm (10M)

LTE B2: -101dBm (10M)

LTE B3: -101.5dBm (10M)

LTE B4: -101dBm (10M)

LTE B5: -101dBm (10M)

LTE B7: -99.5dBm (10M)

LTE B8: -101dBm (10M)

LTE B12: -101dBm (10M)

LTE B13: -100dBm (10M)

LTE B14: -99dBm (10M)

LTE B18: -101.7dBm (10M)

LTE B19: -101.4dBm (10M)

LTE B20: -102.5dB (10M)

LTE B26: -101.5dBm (10M)

LTE B28: -102dBm (10M)

LTE B38: -100dBm (10M)

LTE B40: -100dBm (10M)

LTE B41: -99dBm (10M)

LTE B66: -99dBm (10M)

LTE B71: -100dBm (10M)

WCDMA B1: -110dBm

WCDMA B2: -110dBm

WCDMA B4: -110dBm

WCDMA B5: -110.5dBm

WCDMA B6: -110.5dBm

WCDMA B8: -110.5dBm

WCDMA B19: -110.5dBm

GSM850: -109dBm

EGSM900: -109dBm

DCS1800: -109dBm

PCS1900: -109dBm

Software Features

USB Serial Driver:

Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15,

Android 4.x/5.x/6.x/7.x/8.x/9.x

RIL Driver:

Android 4.x/5.x/6.x/7.x/8.x/9.x

NIDS Driver:

Windows 7/8/8.1/10

ECM Driver^{*④}:

Linux 2.6/3.x/4.1~4.15

Gobinet Driver:

Linux 2.6/3.x/4.1~4.15

Linux qmi wwan Driver:

3.x (3.4 or later)/4.1~4.15

Protocols:

TCP/UDP/PPP/FTP/FTPS/HTTP/HTTPS/NTP/PING/

QMI/NITZ/MMS/SMTP/SSL/MQTT/FILE/CMUX^{*}/

SMTPS^{*}

General Features

Temperature Range: -40°C ~ +80°C

Dimensions: 30.0mm x 51.0mm x 4.9mm

Weight: Approx. 9.8g

Mini PCIe Package

Supply Voltage: 3.0V~3.6V, 3.3V Typ.

3GPP E-UTRA Release 11

Bandwidth: 1.4/3.5/10/15/20MHz

3GPP TS 27.007, 27.005 and Quectel Enhanced

AT Commands

Approvals^②

Carrier:

Vodafone (Global)

Deutsche Telekom/Telefónica (Europe)

Verizon/AT&T-Mobile/U.S. Cellular (North

America)

Rogers/Bell*/Telus* (Canada)

SKT/KT*/LGU+* (South Korea)

NTT DOCOMO/SoftBank/KDDI (Japan)

Regulatory:

GCF (Global)

CE (Europe)

FCC/PTCRB (North America)

IC (Canada)

Anatel (Brazil)

KC (South Korea)

NCC (Taiwan)

JATE/TELEC (Japan)

RCM (Australia/New Zealand)

FAC (Russia)

NBTC (Thailand)

ICASA (South Africa)

Others:

RoHS Compliant

WHQL

- ① EC25-EUX/-EX/-AFX/-AUX Mini PCIe are based on ThreadX OS.
- ② LTE B2 of EC25-AU/-AUX Mini PCIe does not support Rx-diversity.
- ③ ThreadX modules do not support eCall, DTMF, and ECM driver.
- ④ Certification status are different among different variants of EC25 Mini PCIe.

* Under Development