

# 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 8 variants: EC25-J Mini PCIe, EC25-E Mini PCIe, EC25-EU Mini PCIe, EC25-EC Mini PCIe, EC25-AU Mini PCIe, EC25-V Mini PCIe, EC25-AF Mini PCIe and EC25-A 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



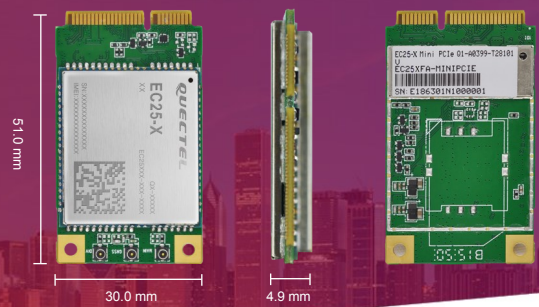
USB Drivers



Quectel Enhanced AT Commands

# Quectel EC25 Mini PCIe

## IoT/M2M-optimized LTE Cat 4 Module



### Variant for EMEA/Korea/Thailand

#### 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

### 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

### Variant for Australia/New Zealand/Taiwan/ Brazil

#### EC25-AU Mini PCIe:

LTE FDD: B1/B2<sup>①</sup>/B3/B4/B5/B7/B8/B28  
LTE TDD: B40  
WCDMA: B1/B2/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\*  
DTMF  
(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, Windows CE 5.0/6.0/7.0\*,  
Linux 2.6/3.x/4.1~4.14, Android  
4.x/5.x/6.x/7.x/8.x

#### RIL Driver:

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

#### NIDS Driver:

Windows 7/8/8.1/10

#### ECM Driver\*:

Linux 2.6/3.x/4.1~4.14

#### Gobinet Driver:

Linux 2.6/3.x/4.1~4.14

#### Linux qmi wwan Driver:

3.x (3.4 or later)/4.1~4.14

#### Protocols:

TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/  
CMUX\*/HTTPS\*/SMTP\*/MMS\*/FTPS\*/SMTPS\*/  
SSL\*/FILE\*

### 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

RoHS Compliant  
GCF (Global)  
CE/Vodafone/Deutsche Telekom (Europe)  
FCC/PTCRB/AT&T/Verizon\* (North America)  
RCM/Telstra\* (Australia)  
JATE/TELEC/DOCOMO/Softbank/KDDI (Japan)  
NCC (Taiwan)  
KC/SKT/KT\*/LGU+\* (Korea)  
IC/Rogers (Canada)  
NBTC (Thailand)  
Anatel (Brazil)  
ICASA (S. Africa)  
FAC (Russia)  
Telefonica\* (Spain)

①: LTE B2 of EC25-AU Mini PCIe Does Not  
Support Rx-diversity

\* Under Development