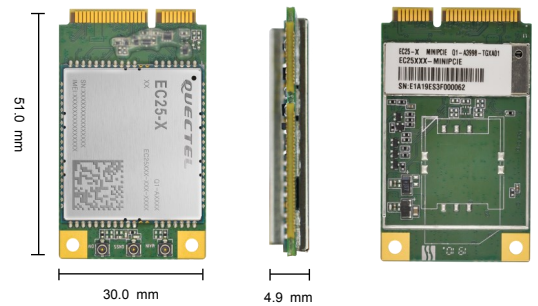


Quectel

EC25 Series 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 150 Mbps downlink and 50 Mbps uplink data rates.

EC25 series Mini PCIe contains 12 variants: EC25-E Mini PCIe, EC25-EU Mini PCIe, EC25-EUX Mini PCIe, EC25-J Mini PCIe, EC25-A Mini PCIe, EC25-V Mini PCIe, EC25-AF Mini PCIe, EC25-AFX Mini PCIe, EC25-AFXD Mini PCIe (Data-only), EC25-MX Mini PCIe, EC25-AU Mini PCIe and EC25-AUX 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 series Mini PCIe supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou/Compass, 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) 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 Features

- ✓ LTE category 4 module optimized for broadband IoT applications
- ✓ Worldwide LTE, UMTS/HSPA(+) and GSM/GPRS/EDGE coverage
- ✓ Standard PCI Express® Mini Card 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. 150 Mbps (DL)
Max. 50 Mbps (UL)



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



Mini PCIe
Package



Embedded Abundant
Protocols



Multi-constellation
GNSS



USB 2.0 High Speed
Interface



Quectel Enhanced
AT Commands



USB Drivers

Quectel EC25 Series Mini PCIe

LTE Cat 4	EC25-E Mini PCIe	EC25-EU Mini PCIe	EC25-EUX Mini PCIe	EC25-J Mini PCIe
Region/Operator	EMEA/ South Korea/ Thailand/ India	EMEA/Thailand	EMEA/Thailand	Japan
Dimensions (mm)	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9
Temperature Range				
Operating Temperature	-35°C to +75°C	-35°C to +75°C	-35°C to +75°C	-35°C to +75°C
Extended Temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Frequency Bands				
LTE-FDD	B1/B3/B5/B7/B8/B20	B1/B3/B7/B8/B20/B28A	B1/B3/B7/B8/B20/B28A	B1/B3/B8/B18/B19/B26
LTE-TDD	B38/B40/B41	B38/B40/B41	B38/B40/B41	B41
WCDMA	B1/B5/B8	B1/B8	B1/B8	B1/B6/B8/B19
GSM/EDGE	B3/B8	B3/B8	B3/B8	/
GNSS	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)
Certifications				
Carrier	Global: Vodafone Europe: Deutsche Telekom/Telefónica South Korea: SKT/KT*/LGU+*	Europe: Deutsche Telekom/ British Telecom	/	Japan: NTT DOCOMO/SoftBank/KDDI
Regulatory	Global: GCF Europe: CE South Korea: KC Taiwan (China): NCC Australia/New Zealand: RCM Thailand: NBTC Russia: FAC South Africa: ICASA	Global: GCF Europe: CE Taiwan (China): NCC Australia/New Zealand: RCM	Global: GCF Europe: CE Taiwan (China): NCC Australia/New Zealand: RCM	Japan: JATE/TELECOM
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Data Transmission				
LTE-FDD Data Rates (Mbps)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)
LTE-TDD Data Rates (Mbps)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)
DC-HSPA+ Data Rates (Mbps)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)
WCDMA Data Rates (kbps)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)
EDGE Data Rates (kbps)	296 (DL)/ 236.8 (UL)	296 (DL)/ 236.8 (UL)	296 (DL)/ 236.8 (UL)	/
GPRS Data Rates (kbps)	107(DL)/ 85.6 (UL)	107(DL)/ 85.6 (UL)	107(DL)/ 85.6 (UL)	/
Interfaces				
(U)SIM	x 1	x 1	x 1	x 1
USB 2.0	x 1	x 1	x 1	x 1
Audio Digital (PCM)	x 1	x 1	x 1	x 1
I2C	x 1	x 1	x 1	x 1
LED_WWAN#	x 1	x 1	x 1	x 1
W_DISABLE#	x 1	x 1	x 1	x 1
UART	x 1	x 1	x 1	x 1
PERST#	x 1	x 1	x 1	x 1
Voice				
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
VoLTE	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)
Enhanced Features				
DTMF	●	●	●	●
DFOTA	●	●	●	●
QMI/ RmNet	●	●	●	●
Audio Playback*/Audio Recording*	Optional	Optional	Optional	Optional
QuecLocator®	●	●	●	●
QuecFile®	●	●	●	●
(U)SIM Card Detection	●	●	●	●
Drivers				
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x
GNSS Driver	Android 4.x–9.x	Android 4.x–9.x	Android 4.x–9.x	Android 4.x–9.x
RIL Driver	Android 4.x–10.x	Android 4.x–10.x	Android 4.x–10.x	Android 4.x–10.x
NDIS	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM	Windows 8/8.1/10, Linux 3.18–5.4	Windows 8/8.1/10, Linux 3.18–5.4	/	Windows 8/8.1/10, Linux 3.18–5.4
GobiNet Driver	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4
QMI_WWAN Driver	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4
Electrical Features				
Supply Voltage Range	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.
Power Consumption	3.9 mA @ Sleep, Typ. 30 mA @ Idle	3.4 mA @ Sleep, Typ. 23.3 mA @ Idle	1.69 mA @ Sleep, Typ. 18.51 mA @ Idle	3.2 mA @ Sleep, Typ. 31.5 mA @ Idle

Quectel EC25 Series Mini PCIe

LTE Cat 4	EC25-A Mini PCIe	EC25-V Mini PCIe	EC25-AF Mini PCIe	EC25-AFX Mini PCIe	EC25-AFXD Mini PCIe (Data-only)
Region/Operator	North America	America Verizon	North America	North America	North America
Dimensions (mm)	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9
Temperature Range					
Operating Temperature	-35°C to +75°C	-35°C to +75°C	-35°C to +75°C	-35°C to +75°C	-35°C to +75°C
Extended Temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Frequency Bands					
LTE-FDD	B2/B4/B12	B4/B13	B2/B4/B5/B12/B13/B14/B66/B71	B2/B4/B5/B12/B13/B14/B66/B71	B2/B4/B5/B12/B13/B14/B66/B71
LTE-TDD	/	/	/	/	/
WCDMA	B2/B4/B5	/	B2/B4/B5	B2/B4/B5	B2/B4/B5
GSM/EDGE	/	/	/	/	/
GNSS	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)
Certifications					
Carrier	America: AT&T/T-Mobile Canada: Rogers/Telus	America: Verizon	America: Verizon/ AT&T (FirstNet)/T-Mobile Canada: Rogers/Telus	America: Verizon/ AT&T (FirstNet)*	America: Verizon*/ AT&T (FirstNet)*/T-Mobile*
Regulatory	America: FCC North America: PTCRB Canada: IC	Global: GCF America: FCC	Global: GCF America: FCC North America: PTCRB Canada: IC	Global: GCF America: FCC North America: PTCRB Canada: IC	Global: GCF America: FCC North America: PTCRB
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Data Transmission					
LTE-FDD Data Rates (Mbps)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)
LTE-TDD Data Rates (Mbps)	/	/	/	/	/
DC-HSPA+ Data Rates (Mbps)	42 (DL)/ 5.76 (UL)	/	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)
WCDMA Data Rates (kbps)	384 (DL)/ 384 (UL)	/	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)
EDGE Data Rates (kbps)	/	/	/	/	/
GPRS Data Rates (kbps)	/	/	/	/	/
Interfaces					
(U)SIM	x 1	x 1	x 1	x 1	x 1
USB 2.0	x 1	x 1	x 1	x 1	x 1
Audio Digital (PCM)	x 1	x 1	x 1	x 1	x 1
I2C	x 1	x 1	x 1	x 1	x 1
LED_WWAN#	x 1	x 1	x 1	x 1	x 1
W_DISABLE#	x 1	x 1	x 1	x 1	x 1
UART	x 1	x 1	x 1	x 1	x 1
PERST#	x 1	x 1	x 1	x 1	x 1
Voice					
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	/
Echo Arithmetic	Echo Cancellation/ Noise Suppression	Echo Cancellation/ Noise Suppression	Echo Cancellation/ Noise Suppression	Echo Cancellation/ Noise Suppression	/
VoLTE	Digital Audio and VoLTE (Voice over LTE) (Optional)	Digital Audio and VoLTE (Voice over LTE) (Optional)	Digital Audio and VoLTE (Voice over LTE) (Optional)	Digital Audio and VoLTE (Voice over LTE) (Optional)	/
Enhanced Features					
DTMF	●	●	●	●	/
DFOTA	●	●	●	●	●
QMI/ RmNet	●	●	●	●	●
Audio Playback*/ Audio Recording*	Optional	Optional	Optional	Optional	Optional
QuecLocator®	*	●	●	●	●
QuecFile®	●	●	●	●	●
(U)SIM Card Detection	●	●	●	●	●
Drivers					
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x
GNSS Driver	Android 4.x–9.x	Android 4.x–9.x	Android 4.x–9.x	Android 4.x–9.x	Android 4.x–9.x
RIL Driver	Android 4.x–10.x	Android 4.x–10.x	Android 4.x–10.x	Android 4.x–10.x	Android 4.x–10.x
NDIS	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM	Windows 8/8.1/10, Linux 3.18–5.4	Windows 8/8.1/10, Linux 3.18–5.4	Windows 8/8.1/10, Linux 3.18–5.4	/	/
GobiNet Driver	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4
QMI_WWAN Driver	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4
Electrical Features					
Supply Voltage Range	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.
Power Consumption	3.6 mA @ Sleep, Typ. 27 mA @ Idle	3.4 mA @ Sleep, Typ. 30 mA @ Idle	2.2 mA @ Sleep, Typ. 21.7 mA @ Idle	1.67 mA @ Sleep, Typ. 22 mA @ Idle	1.67 mA @ Sleep, Typ. 22 mA @ Idle

Quectel EC25 Series Mini PCIe

LTE Cat 4	EC25-MX Mini PCIe	EC25-AU Mini PCIe	EC25-AUX Mini PCIe
Region/Operator	Mexico	Latin America/Australia/New Zealand	Latin America/Australia/New Zealand
Dimensions (mm)	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9
Temperature Range			
Operating Temperature	-35°C to +75°C	-35°C to +75°C	-35°C to +75°C
Extended Temperature	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Frequency Bands			
LTE-FDD	B2/B4/B5/B7/B28/B66	B1/B2 ^① /B3/B4/B5/B7/B8/B28	B1/B2 ^① /B3/B4/B5/B7/B8/B28
LTE-TDD	/	B40	B40
WCDMA	B2/B4/B5	B1/B2/B5/B8	B1/B2/B4/B5/B8
GSM/EDGE	/	B2/B3/B5/B8	B2/B3/B5/B8
GNSS	/	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)
Certifications			
Carrier	/	Australia: Telstra	/
Regulatory	America: FCC North America: PTCRB Mexico: IFETEL	Global: GCF America: FCC Taiwan (China): NCC Brazil: Anatel Australia/New Zealand: RCM	Europe: CE America: FCC Taiwan (China): NCC Brazil: Anatel Australia/New Zealand: RCM
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Data Transmission			
LTE-FDD Data Rates (Mbps)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)
LTE-TDD Data Rates (Mbps)	/	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)
DC-HSPA+ Data Rates (Mbps)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)
WCDMA Data Rates (kbps)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)
EDGE Data Rates (kbps)	/	296 (DL)/ 236.8 (UL)	296 (DL)/ 236.8 (UL)
GPRS Data Rates (kbps)	/	107 (DL)/ 85.6 (UL)	107 (DL)/ 85.6 (UL)
Interfaces			
(U)SIM	x 1	x 1	x 1
USB 2.0	x 1	x 1	x 1
Audio Digital (PCM)	x 1	x 1	x 1
I2C	x 1	x 1	x 1
LED_WWAN#	x 1	x 1	x 1
W_DISABLE#	x 1	x 1	x 1
UART	x 1	x 1	x 1
PERST#	x 1	x 1	x 1
Voice			
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
VoLTE	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE) (Optional)	Digital Audio and VoLTE (Voice over LTE) (Optional)
Enhanced Features			
DTMF	●	●	●
DFOTA	●	●	●
QMI/ RmNet	●	●	●
Audio Playback*/Audio Recording*	Optional	Optional	Optional
QuecLocator[®]	●	●	●
QuecFile	●	●	●
(U)SIM Card Detection	●	●	●
Drivers			
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x
GNSS Driver	/	Android 4.x–9.x	Android 4.x–9.x
RIL Driver	Android 4.x–10.x	Android 4.x–10.x	Android 4.x–10.x
NDIS	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM	/	Windows 8/8.1/10, Linux 3.18–5.4	/
GobiNet Driver	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4
QMI_WWAN Driver	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4
Electrical Features			
Supply Voltage Range	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.
Power Consumption	1.55 mA @ Sleep, Typ. 20 mA @ Idle	2.6 mA @ Sleep, Typ. 22 mA @ Idle	1.9 mA @ Sleep, Typ. 23.4 mA @ Idle

Notes:

- ① LTE-FDD B2 of EC25-AU Mini PCIe and EC25-AUX Mini PCIe does not support Rx-diversity.
- * means under development.
- means supported.