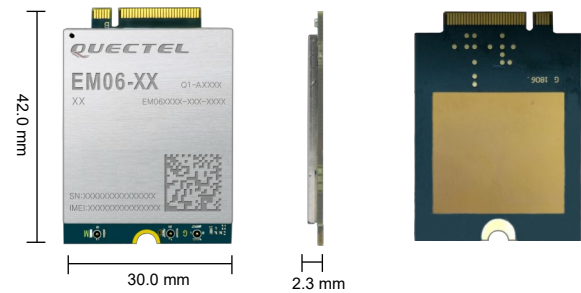


# Quectel EM06 Series

## IoT/M2M-optimized LTE-A Cat 6 M.2 Module



Quectel EM06 is a series of LTE Advanced category 6 module optimized specially for M2M and IoT applications. Adopting the 3GPP Release 11 LTE technology, it delivers maximum data rates up to 300 Mbps downlink and 50 Mbps uplink.

Designed in the M.2 form factor, EM06 contains 3 variants (EM06-E, EM06-J and EM06-A) for different target regions and these variants nearly cover all the main stream carriers worldwide.

EM06 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 capability.

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



### Key Features

- ✓ LTE-A Cat 6 module with M.2 form factor, optimized for M2M and IoT applications
- ✓ Support LTE-A carrier aggregation
- ✓ Worldwide LTE-A and UMTS/HSPA(+) coverage
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- ✓ Feature refinements: supports DFOTA and DTMF
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems



LTE Cat 6  
Max. 300 Mbps (DL)  
Max. 50 Mbps (UL)



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



M.2 Form Factor



Embedded Abundant  
Protocols



Voice over LTE



Multi-constellation  
GNSS



USB 2.0 High Speed  
Interface



USB Drivers



Quectel Enhanced  
AT Commands

Version: 1.8 | Status: Released

# Quectel EM06 Series

LTE Cat 6	EM06-E	EM06-J	EM06-A
Region/Operator	EMEA/APAC <sup>①</sup> /Brazil	Japan	North America
Dimensions (mm)	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
Temperature Range			
Operation Temperature	-30 °C to +70 °C	-30 °C to +70 °C	-30 °C to +70 °C
Extended Temperature	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
Frequency Bands			
LTE-FDD	B1/B3/B5/B7/B8/B20/B28/B32 <sup>②</sup>	B1/B3/B8/B18/B19/B26/B28	B2/B4/B5/B7/B12/B13/B25/B26/B29 <sup>②</sup> /B30/B66
LTE-TDD	B38/B40/B41	B41	B41
2CA	B1 + B1/B5/B8/B20/B28; B3 + B3/B5/B7/B8/B20/B28; B7 + B5/B7/B8/B20/B28; B20 + B32 <sup>②</sup> ; B38 + B38; B40 + B40; B41 + B41	B1 + B1/B8/B18/B19/B26/ B28; B3 + B3/B8/B18/B19/B26/ B28; B41 + B41	B2 + B2/B5/B12/B13/B29 <sup>②</sup> ; B4 + B4/B5/B12/B13/B29 <sup>②</sup> ; B5 + B5/B7/B25/B30/B66; B7 + B7/B12/B26; B12 + B12/B25/B30/B66; B13 + B66; B25 + B25/B26; B30 + B29 <sup>②</sup> ; B66 + B29 <sup>②</sup> /B66; B41 + B41
WCDMA	B1/B3/B5/B8	B1/B3/B6/B8/B19	B2/B4/B5
GNSS	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)
Certifications			
Carrier	Europe: Deutsche Telekom Australia: Telstra Spain: Telefónica Korean: KT/SKT	Japan: KDDI	North America: Verizon/AT&T/Sprint/T-Mobile
Regulatory	Global: GCF Europe: CE Taiwan (China): NCC Australia & New Zealand: RCM North Africa: ICASA South Korea: KC	Japan: JATE/TELEC	Global: GCF North America: FCC/PTCRB Canada: IC
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Data Rate (Max.)			
LTE-FDD (Mbps)	300 (DL)/50 (UL)	300 (DL)/50 (UL)	300 (DL)/50 (UL)
LTE-TDD (Mbps)	226 (DL)/28 (UL)	226 (DL)/28 (UL)	226 (DL)/28 (UL)
DC-HSPA+ (Mbps)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA (Kbps)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)
Interfaces			
(U)SIM	× 2	× 2	× 2
I2C	× 1	× 1	× 1
PCM (Digital Audio)	× 1	× 1	× 1
Antenna Tuner Control* (ANTCTL)	× 4	× 4	× 4
USB 2.0	× 1	× 1	× 1
W_DISABLE1#	× 1	× 1	× 1
RESET#	× 1	× 1	× 1
WAKE_ON_WAN#	× 1	× 1	× 1
WWAN_LED#	× 1	× 1	× 1
Antennas	× 3 (Main, Diversity and GNSS Antennas)	× 3 (Main, Diversity and GNSS Antennas)	× 3 (Main, Diversity and GNSS Antennas)
Voice			
Speech Codec Modes	AMR/AMR-WB	AMR/AMR-WB	AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
VoLTE	CSFB and VoLTE (Voice over LTE) (Optional)	CSFB and VoLTE (Voice over LTE) (Optional)	CSFB and VoLTE (Voice over LTE) (Optional)
Enhanced Features			
MIMO (2 × 2, 4 × 2, DL)	●	●	●
Digital Audio and VoLTE (Voice over LTE)	Optional	Optional	Optional
(U)SIM Card Detection	●	●	●
DTMF	●	●	●
Dual SIM Single Standby	●	●	●
DFOTA	●	●	●
GNSS	●	●	●

#### Notes:

- \*: Under development/ In progress.
- : Supported.
- ①: Excluding Japan and China Mobile.
- ②: LTE-FDD B29 and B32 support receiving only, and are only for secondary component carrier in 2CA.

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LTE Cat 6	EM06-E	EM06-J	EM06-A
<b>Drivers</b>			
<b>USB Driver</b>	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x/5.x/6.x/7.x/9.x
<b>GNSS Driver</b>	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
<b>RIL Driver</b>	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
<b>NDIS Driver</b>	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
<b>MBIM Driver</b>	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
<b>GobiNet Driver</b>	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4
<b>QMI_WWAN Driver</b>	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4
<b>Electrical Features</b>			
<b>Supply Voltage Range</b>	3.135–4.4 V, typical 3.7 V	3.135–4.4 V, typical 3.7 V	3.135–4.4 V, typical 3.7 V
<b>Power Consumption</b>	50 $\mu$ A @ Power off 4.1 mA @ Sleep typ. 22.1 mA @ Idle	47 $\mu$ A @ Power off 3.8 mA @ Sleep typ. 19.5 mA @ Idle	50 $\mu$ A @ Power off 3.8 mA @ Sleep typ. 21.3 mA @ Idle