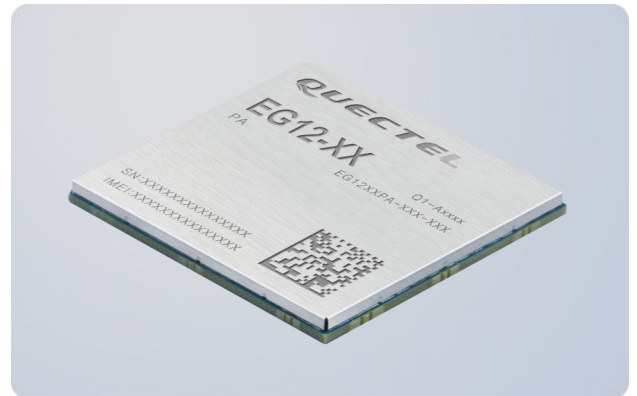


# Quectel EG12

## IoT/M2M-optimized LTE-A Cat 12 LGA Module



Quectel EG12 is a series of LTE Advanced category 12 module optimized specially for M2M and IoT applications. Adopting the 3GPP Rel. 12 LTE technology, it delivers M2M-optimized speeds of 600Mbps downlink and 150Mbps uplink peak data rates. Designed in an LGA form factor, EG12 is compatible with Quectel Cat 6/18 module EG06/EG18, which will help customers to migrate between different categories.

EG12 supports Qualcomm® IZat™ location technology Gen9HT-Lite (GPS, GLONASS, BeiDou, 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 4G router, CPE, wireless POS terminal, consumer laptop, industrial PDA, rugged tablet PC and video surveillance.



### Key Benefits

- ✓ LTE-A Cat 12 module with LGA form factor, optimized for M2M and IoT applications
- ✓ Support DL 3CA, 256QAM and 4x4 MIMO
- ✓ 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 12  
Max 600Mbps (DL)  
Max 150Mbps (UL)



Max 42Mbps (DL)  
Max 11.2Mbps (UL)



LGA Package



Embedded Abundant  
Protocols



Voice over LTE



Multi-constellation  
GNSS



USB 3.0/PCIe High  
Speed Interface



USB/PCIe  
Drivers



Quectel Enhanced  
AT Commands

# Quectel EG12

## IoT/M2M-optimized LTE-A Cat 12 LGA Module



### Variant for EMEA/APAC<sup>①</sup>/Brazil

#### EG12-EA

LTE-FDD: B1/B3/B5/B7/B8/B20/B28

LTE-TDD: B38/B40/B41

#### 2×CA (UL):

B3+B3; B7+B7; B38+B38; B40+B40; B41+B41  
UL 64 QAM

#### 2×CA (DL):

B1+B1/B3/B5/B7/B8/B20/B28/B38/B40/B41;  
B3+B3/B5/B7/B8/B20/B28/B38/B40/B41;  
B7+B5/B7/B8/B20/B28;  
B20+B38/B40;  
B38+B38;  
B40+B40;  
B41+B41

#### 3×CA (DL):

B1+B3+B3/B5/B7/B8/B20/B28/B38/B41;  
B1+B40+B40;  
B1+B41+B41;  
B1+B7+B20;  
B3+B3+B7/B20/B28;  
B3+B7+B7/B8/B20/B28;  
B3+B40+B40;  
B3+B41+B41;  
B7+B7+B20/B28;  
B40+B40+B40;  
B41+B41+B41

#### DL 4×4 MIMO:

LTE-FDD: B1/B3/B7  
DL 256 QAM

#### WCDMA:

B1/B3/B5/B8

### Variant for North America

#### EG12-NA\*

LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/  
B26/B29/B30/B66/B71

LTE-TDD: B41

#### 2×CA (UL):

B7+B7; B41+B41  
UL 64 QAM

#### 2×CA (DL):

B2+B2/B4/B5/B7/B12/B13/B14/B17/B29/B30/  
B66/B71;  
B25+B5/B12/B25/B26/B41;  
B4+B4/B5/B7/B12/B13/B17/B29/B30/B71;  
B66+B5/B7/B12/B13/B14/B29/B30/B66/B71;  
B7+B5/B7/B12;  
B30+B5/B12/B14/B29;  
B26+B41

#### 3×CA (DL):

B2+B4+B5/B13/B71;  
B2+B5+B66;  
B2+B12+B30;  
B2+B13+B66;  
B2+B7+B12/B66;

B4+B30+B5/B12/B29;

B4+B7+B12;

B30+B66+B5/B12/B29;

B2+B2+B5/B12/B13/B29/B66;

B5+B5+B2/B30/B66;

B7+B7+B2/B4/B5;

B66+B66+B2/B5/B13/B66;

B41+B41+B25/B26/B41

#### DL 4×4 MIMO:

LTE-FDD: B2/B4/B25/B66/B7

DL 256 QAM

#### WCDMA:

B2/B4/B5

### Variant for Global (TDD 3.5GHz Network)

#### EG12-GT

LTE-TDD: B42/B43/B48

#### 2×CA (UL):

B42+B42

#### 2×CA (DL):

B42+B42; B48+B48

#### 3×CA (DL):

B42+B42+B42; B48+B48+B48

#### DL 4×4 MIMO:

LTE-TDD: B42/B48

DL 256 QAM

#### Data

##### LTE:

LTE-FDD: Max 600Mbps (DL)/Max 150Mbps (UL)

LTE-TDD: Max 430Mbps (DL)/Max 90Mbps (UL)

##### UMTS:

DC-HSDPA: Max 42Mbps

DC-HSUPA: Max 11.2Mbps

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

#### SMS

Point-to-point MO and MT

SMS Cell Broadcast

Text and PDU Mode

#### Interfaces

USB 2.0/3.0, Supports Master and Slave Modes

Digital Audio Through PCM Interface

(U)SIM Interfaces × 2: 1.8V/3.0V

UART × 3 (Main, Debug, BT UART)

SPI × 1: multiplexed from BT UART interface

I2C × 1

ADC × 2

PCIe\* × 1: only used for data transmission

GPIO × 5

SDIO\* × 1

RFFE\* × 1

USB\_BOOT Interface × 1

Network Status Indication Pins

Status Pin

Main, Diversity, MIMO × 2 and GNSS Antenna

Interfaces

### Enhanced Features

MIMO: 2 × 2, 4 × 2, 4 × 4 DL

eCall: Emergency Service

Digital Audio and VoLTE (Voice over LTE)  
(Optional)

(U)SIM Card Detection

DTMF: Dual-tone Multi-frequency

DFOTA: Delta Firmware Over-the-Air

Ethernet\*/Wi-Fi\* Function through PCIe Inter-  
face

GNSS: GPS/GLONASS/BeiDou/Galileo/QZSS

### Electrical Characteristics

#### Output Power:

Class 3 (23dBm±2dB) for LTE-FDD

Class 3 (23dBm±2dB) for LTE-TDD

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

#### Consumption:

20uA @Power off

2.37mA @Sleep

9.76mA @Idle

### Software Features

#### MBIM Driver:

Windows 10

#### 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

#### NDIS Driver:

Windows 7/8/8.1/10

#### ECM Driver\*:

Linux 2.6/3.x/4.1~4.15

#### Gobinet Driver:

Linux 2.6/3.x/4.1~4.15

#### QMI\_WWAN Driver:

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

#### Protocols:

PPP/QMI/TCP\*/UDP\*/FTP\*/HTTP\*/NTP\*/PING\*/

HTTPS\*/SMTP\*/MMS\*/FTPS\*/SMTPS\*/SSL\*

### General Features

3GPP E-UTRA Release 12

Bandwidth: 1.4/3/5/10/15/20MHz

Supply Voltage: 3.3V~4.3V, 3.8V Typ.

Temperature Range: -40°C ~ +85°C

Dimensions: 37.0mm × 39.5mm × 2.8mm

LGA Package

Approx. 9.0g

3GPP TS27.007 and Quectel Enhanced AT

Commands

### Approvals

Carrier: TBD

#### Regulatory:

CE (Europe)

RCM (Australia/New Zealand)

#### Others:

RoHS Compliant

\* Under Development

① Excluding Japan and CMCC.