

Quectel EG91

IoT/M2M-optimized

LTE Cat 1 Module



Quectel EG91 is a series of LTE category 1 module optimized specially for M2M and IoT applications. It features cost-effective and low power LTE connectivity, and delivers M2M-optimized speeds of 10Mbps downlink and 5Mbps uplink. These make EG91 an ideal solution for numerous IoT applications that are not reliant on high speed connectivity but still require the longevity and reliability of LTE networks.

EG91 contains 5 variants: EG91-E, EG91-EX, EG91-NA, EG91-NS and EG91-VX. EG91 is pin-to-pin compatible with Quectel UMTS/HSPA+ UG95/UG96 and LTE Cat M1&Cat NB1 BG96 modules. And it is backward-compatible with existing GSM/GPRS & UMTS/HSPA networks, ensuring that it can be connected even in remote areas devoid of 4G network coverage.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB serial drivers for Windows 7/8/10, Linux, Android) extend the applicability of the module to a wide range of M2M and IoT applications such as smart metering, wearable devices, environmental monitoring, asset tracking, fleet management, security and alarm systems and so on.



Key Benefits

- ✓ Cost-effective and low-power LTE connectivity optimized for broadband IoT applications
- ✓ Multi-band LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ Compact SMT form factor ideal for size-constrained applications with extended operation temperature range
- ✓ Embedded power management unit (PMU) featuring ultra-low deep-sleep current consumption
- ✓ Simple migration from 2G/3G to 4G with a flexible and scalable platform



LTE Cat 1
Max 10Mbps (DL)
Max 5Mbps (UL)



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



LGA Package



Embedded Abundant
Protocols



eCall*



Compact Size



USB 2.0 High Speed
Interface



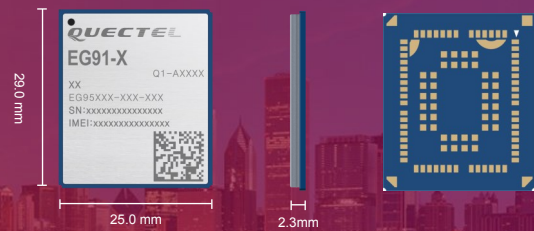
USB Drivers



Quectel Enhanced
AT Commands

Quectel EG91

IoT/M2M-optimized LTE Cat 1 Module



Variants for EMEA

EG91-E:

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

WCDMA: B1/B8

GSM: B3/B8

EG91-EX^①:

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

WCDMA: B1/B8

GSM: B3/B8

Variants for North America

EG91-NA:

LTE FDD: B2/B4/B5/B12/B13

WCDMA: B2/B4/B5

EG91-NS:

LTE FDD: B2/B4/B5/B12/B13/B25/B26

WCDMA: B2/B4/B5

EG91-VX^①:

LTE FDD: B4/B13

Data

LTE:

LTE FDD: Max 10Mbps (DL)/Max 5Mbps (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 Suppression

VoLTE:

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 Interfaces × 2

NETLIGHT × 1

UART × 2 (Main UART and Debug UART)

RESET_N

PWRKEY

SPI × 1

Main/Rx-diversity Antenna Interfaces

GNSS Antenna Interface (For EG91-NA/-NS/-VX/

-EX Only)

USB_BOOT × 1

Enhanced Features

eCall*

(U)SIM Card Detection

DFOTA*:

Delta Firmware Upgrade Over-The-Air

GNSS (For EG91-NA/-NS/-VX/-EX Only)

(Optional):

GPS/GLONASS/BeiDou/Galileo/QZSS

Electrical Characteristics

Output Power:

Class 3 (23dBm±2dB) for LTE FDD bands

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

Class 4 (33dBm±2dB) for EGSM900

Class 1 (30dBm±2dB) for DCS1800

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

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

Consumption:

13uA @Power off

2.6mA @Sleep, Typ.

29mA @Idle, Typ.

Sensitivity:

LTE FDD B1: -101.4dBm (10M)

LTE FDD B2: -102.1dBm (10M)

LTE FDD B3: -101.5dBm (10M)

LTE FDD B4: -102.1dBm (10M)

LTE FDD B5: -103.1dBm (10M)

LTE FDD B7: -101.3dBm (10M)

LTE FDD B8: -101.2dBm (10M)

LTE FDD B12: -102.5dBm (10M)

LTE FDD B13: -102.5dBm (10M)

LTE FDD B20: -101.3dBm (10M)

LTE FDD B25: -102.2dBm (10M)

LTE FDD B26: -102.7dBm (10M)

LTE FDD B28A: -101.4dBm (10M)

WCDMA B1: -109.5dBm

WCDMA B2: -110dBm

WCDMA B4: -110dBm

WCDMA B5: -110.5dBm

WCDMA B8: -109.5dBm

EGSM900: -108.6dBm

DCS1800: -109.4dBm

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/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/4.1~4.14

Gobinet Driver:

Linux 2.6/3.x/4.1~4.14

QMI_WWAN Driver:

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

Protocols:

TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/ NITZ/

CMUX*/HTTPS*/SMTP*/MMS*/FTPS*/SMTPS*/

SSL*/FILE*

General Features

Temperature Range: -40°C ~ +85°C

Dimensions: 29.0mm x 25.0mm x 2.3mm

Weight: Approx. 3.8g

LGA Package

Rx-diversity Antenna

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

Deutsche Telekom (Europe)

Verizon/AT&T/T-Mobile/Sprint* (North America)

Telus/Rogers* (Canada)

Regulatory:

GCF (Global)

CE (Europe)

FCC/PTCRB (North America)

IC (Canada)

RCM (Australia & New Zealand)

FAC (Russia)

Others:

RoHS Compliant

WHQL

* Under Development.

① EG91-EX/-VX are based on ThreadX OS.

② Certification status are different among different variants of EG91 module.