

Quectel EC20

Multi-mode LTE Module



EC20 series is a new generation of Quectel LTE module. Adopting the 3GPP Rel. 9 LTE technology, it delivers 100Mbps downlink and 50Mbps uplink data rates and is fallback compatible with Quectel UMTS/HSPA+ UC20 module in the compact and unified form factor, providing a flexible and scalable platform for migrating from UMTS/HSPA+ to LTE. EC20 contains four variants: EC20-A, EC20-C, EC20-CE and EC20-E. 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.

EC20 supports multiple-input multiple-output (MIMO) technology, a cutting edge antenna technology capable of transmitting multiple data streams on multiple transmitters to multiple receivers. The antennas at each end of the communications circuit are combined to minimize errors and optimize data speed. The module also combines high-speed wireless connectivity with embedded multi-constellation high-sensitivity GPS+GLONASS receiver for positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows XP, Windows Vista, Windows 7/8/8.1/10, Linux, Android/eCall*) extend the applicability of the module to a wide range of M2M applications such as CPE, router, data card, rugged tablet, automobile, security and industry PDA.



Key Benefits

- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ Compact SMT form factor ideal for small end products with tight space and extended operating temperature range
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- ✓ GNSS receiver available for applications requiring fast and accurate fixes in any environment
- ✓ Simple migration from 3G to 4G with a flexible and scalable platform



LTE Cat.3
Max 100Mbps (DL)
Max 50Mbps (UL)



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



LCC Package



Embedded Abundant Protocols



eCall*



Multi-constellation GNSS



USB 2.0 High Speed Interface



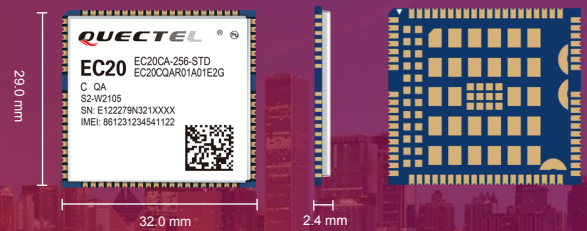
USB Drivers



Quectel Enhanced AT Commands

Quectel EC20

Multi-mode LTE Module



Variant for EMEA/Korea/Thailand

EC20-E:

LTE FDD: B1/B3/B5/B7/B8/B20
WCDMA: B1/B5/B8
GSM: 850/900/1800/1900MHz

Variant for North America

EC20-A:

LTE FDD: B2/B4/B5/B12/B17
WCDMA: B2/B4/B5
GSM: 850/1900MHz

Variant for China

EC20-C:

LTE FDD: B1/B3/B8
LTE TDD: B38/B39/B40/B41
TDSCDMA B34/B39
WCDMA: B1/B8
GSM: 900/1800MHz

Variant for China/India

EC20-CE:

LTE FDD: B1/B3
LTE TDD: B38/B39/B40/B41
TDSCDMA: B34/B39
WCDMA: B1
CDMA 1x/EVDO: BC0
GSM: 900/1800MHz

Data

LTE:

LTE FDD: Max 100Mbps (DL)/Max 50Mbps (UL)
LTE TDD: Max 61Mbps (DL)/Max 18Mbps (UL)

DC-HSPA+:

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

UMTS:

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

TD-SCDMA:

Max 4.2Mbps (DL)/Max 2.2Mbps (UL)

EVDO:

Max 14.7Mbps (DL)/Max 5.4Mbps (UL)

EDGE:

Max 236.8Kbps (DL)/Max 236.8Kbps (UL)

GPRS:

Max 85.6Kbps (DL)/Max 85.6Kbps (UL)

Voice

Speech Codec Modes:

HR/FR/EFR/AMR/AMR-WB

Echo Arithmetic:

Echo Cancellation/Noise Reduction

Interfaces

USB 2.0 with High Speed up to 480Mbps

Digital Audio through PCM (Optional)

1.8V/3.0V (U)SIM Card Interface

NETLIGHT × 2 (NET_STATUS and NET_MODE)

UART × 1

RESET

PWRKEY

Solder Pads for Primary, Rx-diversity and GNSS

Antennas

ADC × 2

SDIO × 1 (for Wi-Fi)

Enhanced Features

SDIO Interface for Wi-Fi Function (Optional)

eCall*

DTMF

DFOTA: Delta Firmware Upgrade over the Air

Audio Playback/Audio Recording

QuecLocator

(U)SIM Card Detection

GNSS: GPS/GLONASS

Antenna: DL MIMO 2 × 2, Support Rx-diversity

Firmware Update via USB

Electrical Characteristics

Output Power:

Class 3 (23dBm±2dB) for LTE FDD

Class 3 (23dBm±2dB) for LTE TDD

Class 2 (24dBm+1/-3dB) for TD-SCDMA

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

Class E2 (27dBm±3dB) for EDGE 850/900MHz

Class E2 (26dBm±3dB) for EDGE 1800/1900MHz

Class 3 (24dBm+6/-1dB) for CDMA BC0

Class 4 (33dBm±2dB) for GSM 850/900MHz

Class 1 (30dBm±2dB) for GSM 1800/1900MHz

Consumption:

20uA @Power off

3mA @Sleep, Typ.

Sensitivity:

FDD B1: -101dBm (10M)

FDD B2: -100.5dBm (10M)

FDD B3: -101dBm (10M)

FDD B4: -101.5dBm (10M)

FDD B5: -101dBm (10M)

FDD B7: -99dBm (10M)

FDD B8: -102dBm (10M)

FDD B12: -102dBm (10M)

FDD B17: -102dBm (10M)

FDD B20: -100dBm (10M)

TDD B38: -100dBm (10M)

TDD B39: -100.5dBm (10M)

TDD B40: -100dBm (10M)

TDD B41: -99.5dBm (10M)

WCDMA B1: -110dBm

WCDMA B2: -111dBm

WCDMA B4: -111dBm

WCDMA B5: -112dBm

WCDMA B8: -111dBm

TDSCDMA B34: -109dBm

TDSCDMA B39: -109dBm

CDMA BC0: -107dBm

GSM 850: -111dBm

GSM 900: -110dBm

GSM 1800: -109dBm

GSM 1900: -110dBm

Software Features

USB Driver:

Windows XP, Windows Vista,
Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*,
Linux 2.6/3.x/4.1, Android 4.x/5.x/6.0

RIL Driver:

Android 4.x/5.x/6.0

NDIS Driver:

Windows 7/8/8.1/10

ECM Driver:

Linux 2.6/3.x/4.1

Gobinet Driver:

Linux 2.6/3.x/4.1

Linux qmi wwan Driver:

3.x (3.4 and later)/4.1

Protocols:

TCP/UDP/PPP/FTP/FTPS/NDIS/HTTP/HTTPS/
SMTP/SMTSP/MMMS*/NTP/PING/DTMF/FILE/
NITZ/CMUX/QMI

General Features

3GPP E-UTRA Release 9

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

Temperature Range: -40°C ~ +85°C

Dimensions: 32.0mm x 29.0mm x 2.4mm

LCC Package

Approx. 4.6g

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

3GPP TS27.007 and Enhanced AT Commands

Approvals

RoHS Compliant

CE/GCF (Europe)

DoC (Russia)

FCC (North America)

CCC/SRRC/NAL (China)

KC/SKT/KT* (Korea)

NCC (Taiwan)

ICASA (South Africa)

Anatel (Brazil)

* Under Development