

Quectel EC20 R2.0

IoT/M2M-optimized LTE Cat 4 Module



Quectel EC20 R2.0 is a series of LTE category 4 module optimized specially for M2M and IoT applications. Adopting the 3GPP Rel. 11 LTE technology, it delivers 150Mbit/s downlink and 50Mbit/s uplink data rates. Designed in the compact and unified form factor, EC20 R2.0 is compatible with Quectel UMTS/HSPA+ UC20 module and multi-mode LTE EC20/EC21 module, which allows for flexible migration among them in design and manufacturing.

EC20 R2.0 contains 2 variants: EC20-C R2.0 and EC20-CE R2.0. 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 R2.0 supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou, 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 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 and IoT applications such as industrial router, industrial PDA, rugged tablet PC, video surveillance, and digital signage.



Key Benefits

- ✓ LTE category 4 module optimized for M2M and IoT applications
- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- ✓ Feature refinements: supports DFOTA*, eCall* and DTMF
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems



LTE Cat 4
Max 150Mbps (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



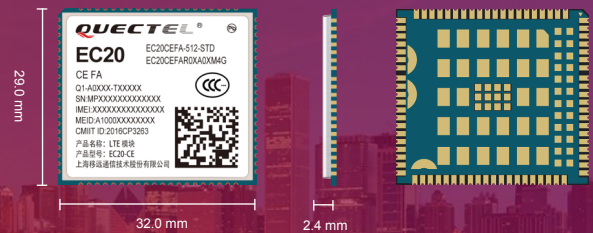
USB Drivers



Quectel Enhanced
AT Commands

Quectel EC20 R2.0

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Variant for China

EC20-C R2.0:

LTE FDD: B1/B3/B8
LTE TDD: B38/B39/B40/B41
TD-SCDMA: B34/B39
WCDMA: B1/B8

GSM: 900/1800MHz

Variant for China/India

EC20-CE R2.0:

LTE FDD: B1/B3/B8
LTE TDD: B38/B39/B40/B41
TD-SCDMA: B34/B39
WCDMA: B1/B8

CDMA: BC0

GSM: 900/1800MHz

Data

LTE:

LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)

LTE TDD: Max 130Mbps (DL)/Max 35Mbps (UL)

UMTS:

DC-HSDPA: Max 42Mbps (DL)

HSUPA: Max 5.76Mbps (UL)

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

TD-SCDMA:

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

CDMA2000:

EVDO: Max 3.1Mbps (DL)/Max 1.8Mbps (UL)

1X Advanced: Max 307.2Kbps (DL/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 Reduction

Audio:

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 Interface

NETLIGHT × 2 (NET_STATUS and NET_MODE)

UART × 1

RESET (Active Low)

PWRKEY (Active low)

Solder Pads for Primary, Rx-diversity and GNSS

Antennas

ADC × 2

Enhanced Features

BT4.0*/Wi-Fi (Optional)

eCall*

DTMF

(U)SIM Card Detection

DFOTA*:

Delta Firmware Upgrade over the Air

Antenna:

DL MIMO, support Rx-diversity

GNSS:

GPS/GLONASS/BeiDou/Galileo/QZSS (Optional)

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 3 (24dBm±1dB) for CDMA BC0

Class E2 (27dBm±3dB) for EDGE 900MHz

Class E2 (26dBm±3dB) for EDGE 1800MHz

Class 4 (33dBm±2dB) for GSM 900MHz

Class 1 (30dBm±2dB) for GSM 1800MHz

Consumption:

20uA @Power off

3mA @Sleep, Typ.

22mA @Idle

Sensitivity:

FDD B1: -97dBm (10M)

FDD B3: -95dBm (10M)

FDD B8: -94dBm (10M)

TDD B38: -97dBm (10M)

TDD B39: -97dBm (10M)

TDD B40: -97dBm (10M)

TDD B41: -96dBm (10M)

WCDMA B1: -111dBm

WCDMA B8: -110dBm

TD-SCDMA B34: -109dBm

TD-SCDMA B39: -109dBm

CDMA BC0: -109dBm

GSM 900: -109dBm

GSM 1800: -109dBm

Software Features

USB Serial 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.x/7.x

RIL Driver:

Android 4.x/5.x/6.x/7.x

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/HTTP/NTP/PING/QMI/
CMUX*/HTTPS*/SMTP*/MMS*/FTPS*/SMTPS*/
SSL*/FILE*

General Features

3GPP E-UTRA Release 11

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

Extended Temperature: -40°C ~ +85°C

Dimensions: 29.0mm x 32.0mm x 2.4mm

LCC Package

Approx. 4.9g

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

3GPP TS27.007 and Enhanced AT Commands

Approvals

RoHS Compliant

CCC/SRRC/NAL (China)

* Under development