Quectel EC20 R2.1

IoT/M2M-optimized LTE Cat 4 Module

Quectel EC20 R2.1 is an LTE category 4 module optimized specially for M2M and IoT applications. Adopting the 3GPP Release 11 LTE technology, it delivers 150 Mbs/s downlink and 50 Mbs/s uplink data rates. Designed in the compact and unified form factor, EC20 R2.1 is compatible with Quectel multi-mode LTE EC21 series, EC25 series, and EG25-G modules, which allows for flexible migration among them in design and manufacturing.

EC20 R2.1 adopts laser engraving process, featuring a more fashionable appearance, strong metallic texture, better thermal dissipation capability and durable label information, which makes it is ideally suited for large-scale production.

EC20 R2.1 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 7/8/8.1/10, Linux, and Android) 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 and DTMF
- MIMO technology meets demands for data rate and link reliability in modem wireless communication systems

LTE Cat 4
Max. 150 Mbps (DL)
Max. 50 Mbps (UL)

LCC Package

Embedded Abundant Protocols

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

DFOTA

Multi-constellation GNSS

USB 2.0 High Speed Interface

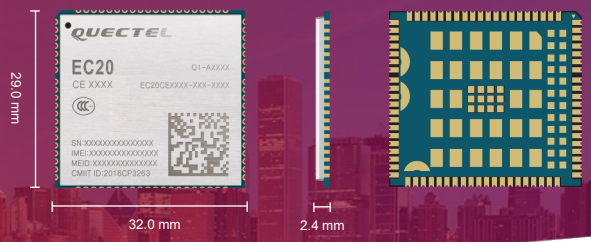
Quectel Enhanced AT Commands

USB Drivers

Version: 1.3| Status: Released

Quectel EC20 R2.1

IoT/M2M-optimized LTE Cat 4 Module



Variant for China/India

EC20-CE R2.1:
LTE FDD: B1/B3/B5/B8
LTE TDD: B34/B38/B39/B40/B41
WCDMA: B1/B8
TD-SCDMA: B34/B39
CDMA: BC0
GSM: 900/1800 MHz

Data

LTE:
LTE FDD: Max. 150 Mbps (DL)/
Max. 50 Mbps (UL)
LTE TDD: Max. 130 Mbps (DL)/
Max. 30 Mbps (UL)
UMTS:
DC-HSDPA: Max. 42 Mbps (DL)
HSUPA: Max. 5.76 Mbps (UL)
WCDMA: Max. 384 kbps (DL/UL)
TD-SCDMA:
Max. 4.2 Mbps (DL)/Max. 2.2 Mbps (UL)
CDMA2000:
EVDO: Max. 3.1 Mbps (DL)/Max. 1.8 Mbps (UL)
1X Advanced: Max. 307.2 kbps (DL/UL)
GSM:
EDGE: Max. 296 kbps (DL)/Max. 236.8 kbps (UL)
GPRS: Max. 107 kbps (DL)/Max. 85.6 kbps (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 480 Mbps
Digital Audio through PCM (Optional)
1.8 V/3.0 V (U)SIM Interface
NETLIGHT × 2 (NET_STATUS and NET_MODE)
UART × 2 (Main Port and Debug Port)
RESET (Active Low)
PWRKEY (Active Low)
Solder Pads for Primary, Rx-diversity and GNSS Antennas
ADC × 2
SDIO × 2 (For Wi-Fi and SD Card)

Enhanced Features

SDIO for Wi-Fi Function (Optional)
DTMF
DFOTA: Delta Firmware Upgrade Over-The-Air
(U)SIM Card Detection
Antenna: DL MIMO, support Rx-diversity
GNSS: GPS/GLONASS/BeiDou/Galileo/QZSS

Electrical Characteristics

Output Power:
Class 3 (23 dBm ±2 dB) for LTE FDD
Class 3 (23 dBm ±2 dB) for LTE TDD
Class 2 (24 dBm +1/-3 dB) for TD-SCDMA
Class 3 (24 dBm +1/-3 dB) for WCDMA
Class 3 (24 dBm +2/-1 dB) for EVDO/CDMA BC0
Class E2 (27 dBm ±3 dB) for EGSM900 8-PSK
Class E2 (26 dBm ±3 dB) for DCS1800 8-PSK
Class 4 (33 dBm ±2 dB) for EGSM900
Class 1 (30 dBm ±2 dB) for DCS1800
Consumption:
12 uA @ Power off
1.8 mA @ LTE Sleep (pF = 128)
1.5 mA @ LTE Sleep (pF = 256)
20 mA @ Idle
Sensitivity:
FDD B1: -101.6 dBm (10 MHz)
FDD B3: -101.9 dBm (10 MHz)
FDD B5: -102 dBm (10 MHz)
FDD B8: -102.1 dBm (10 MHz)
TDD B34: -101 dBm (10 MHz)
TDD B38: -101.3 dBm (10 MHz)
TDD B39: -101.2 dBm (10 MHz)
TDD B40: -101.4 dBm (10 MHz)
TDD B41: -101.4 dBm (10 MHz)
WCDMA B1: -112 dBm
WCDMA B8: -112 dBm
TD-SCDMA B34: -110 dBm
TD-SCDMA B39: -110 dBm
CDMA BC0: -108 dBm
EGSM900: -109 dBm
DCS1800: -109 dBm

Software Features

USB Serial Driver:
Windows 7/8/8.1/10,
Linux 2.6~5.12,
Android 4.x~11.x
GNSS Driver: Android 4.x~11.x
RIL Driver: Android 4.x~11.x
USB NDIS Driver: Windows 7/8/8.1/10
USB MBIM Driver:
Windows 8/8.1/10,
Linux 3.18~5.12
USB GobiNet Driver: Linux 2.6~5.12
USB QMI_WWAN Driver: Linux 3.4~5.12
USB RNDIS Driver:
Windows 7/8/8.1/10,
Linux 2.6~5.12
USB ECM Driver: Linux 2.6~5.12
Protocols:
TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/NITZ/CMUX/HTTPS/SMTP/MMS/FTPS/SMTPS/SSL/FILE

General Features

3GPP E-UTRA Release 11
Bandwidth: 1.4/3/5/10/15/20 MHz
Operation Temperature Range: -35 °C ~ +75 °C
Extended Temperature Range: - 40 °C ~ +85 °C
Dimensions: 29.0 mm x 32.0 mm x 2.4 mm
LCC Package
Approx. 5.3 g
Supply Voltage: 3.3~4.3 V, Typ. 3.8 V
3GPP TS27.007 and Enhanced AT Commands

Approvals

Regulatory:
China: SRRC/NAL/CCC
Others:
RoHS

Copyright © 2021 Quectel Wireless Solutions Co., Ltd. All Rights Reserved http://www.quectel.com
HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 51086236 Email: info@quectel.com