

Quectel EC21

IoT/M2M-optimized Cat.1 LTE Module



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



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



LCC Package



Embedded Abundant Protocols



eCall



GNSS



USB 2.0 High Speed Interface



USB Drivers



Quectel Enhanced AT Commands

Key Benefits

- Low-cost, low-power LTE connectivity optimized for broadband IoT applications
- 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
- GNSS receiver available for applications requiring fast and accurate fixes in any environment
- Embedded power management unit (PMU) featuring ultra-low deep-sleep current consumption

QUECTEL[®]
Build a Smarter World

LTE



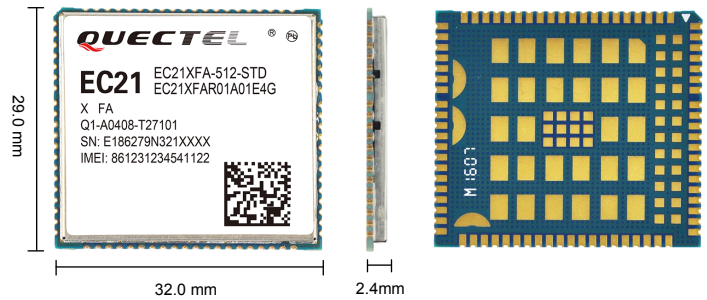
Quectel EC21 is an LTE category-1 module optimized specially for M2M and IoT applications. It delivers power-enhanced performance and M2M-optimized speeds of 10Mbit/s downlink and 5Mbit/s uplink, and features low-power, low-cost LTE connectivity. These make it ideally suitable for numerous IoT applications that are not rely on high speed connectivity but still require the longevity and reliability of LTE networks.

EC21 is fallback compatible with Quectel UMTS/HSPA+ UC20 module and multi-mode LTE EC20 module in the compact and unified form factor. EC21 contains 5 variants: EC21-V, EC21-A, EC21-E, EC21-AUT, and EC21-AUTL. This makes it backward-compatible with existing EDGE and GSM/GPRS networks, which ensures that it can easily migrate from LTE to 2G or 3G networks.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows XP, Windows Vista, Windows 7, Windows 8/8.1, Linux, Android/eCall) extend the applicability of the module to a wide range of M2M and IoT applications such as metering, wearable devices, digital signs, industrial routers, tracking and tracing, fleet management, smart home gateways and even drones.

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General Features

	EC21-V	FDD LTE: B4/B13
	EC21-A	FDD LTE: B2/B4/B12 WCDMA: B2/B4/B5
Frequency Bands	EC21-AUT	FDD LTE: B1/B3/B5/B7/B28 WCDMA: B1/B5
	EC21-AUTL	FDD LTE: B3/B7/B28
	EC21-E	FDD LTE: B1/B3/B5/B7/B8/B20 WCDMA: B1/B5/B8 GSM: 900/1800
LTE Version	3GPP E-UTRA Release 11	
Bandwidth	1.4/3/5/10/15/20MHz	
Antenna	Supports Rx-diversity	
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	
Operation Temperature	-40°C ~ +85°C	
Dimensions	32.0mm×29.0mm×2.4mm	
Package	LCC	
Weight	Approx. 4.6g	
Control via AT Commands	3GPP TS27.007 and enhanced AT Commands	

Special Features

	USB Serial	Windows XP, Windows Vista, Windows 7, Windows 8/8.1, Windows CE5.0/6.0/7.0, Linux 2.6 or later, Android 2.3 /4.0/4.2/4.4 /5.0
	RIL*	Android 4.0/4.2/4.4/5.0
Drivers	NDIS	Windows XP, Windows Vista, Windows 7, Windows 8/8.1
	ECM*	Linux 2.6 or later
	Gobinet	Linux 2.6 or later
	Linux qmi wwan	Linux 3.4 or later
DFOTA	Firmware updated via the air *	
BT4.0/WiFi *	Optional	
GNSS	GPS/GLONASS/BeiDou/Galileo and 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 UMTS Class E2 (27dBm ±3dB) for EDGE 850/900MHz Class E2 (26dBm +3/-4dB) for EDGE 1800/1900MHz Class 4 (33dBm ±2dB) for GSM 850/900MHz Class 1 (30dBm ±2dB) for GSM 1800/1900MHz
Consumption	20uA @Power off 3mA @Sleep, Typ.
Sensitivity	TBD

Specifications

	LTE	LTE-FDD Max 10Mbps (DL) Max 5Mbps (UL)
	DC-HSPA+	Max 42Mbps (DL) Max 5.76Mbps (UL)
Data	UMTS	Max 384Kbps (DL) Max 384Kbps (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
eCall*	Accident, Emergency Services	
VoLTE	Digital Audio and VoLTE (Voice over LTE) (Optional)	
Protocols	TCP/UDP/PPP/FTP*/HTTP*/SMTP*/MMS*/NTP/PING/DTMF*/FILE*/CMUX*/QMI	

Interfaces

USB 2.0 Device	High Speed, 480Mbps
PCM	×1, Digital Audio through PCM Interface (Optional)
USIM	1.8V/3V
NETLIGHT	×2, NET_STATUS and NET_MODE
UART	×1UART
RESET	
PWRKEY	
Antenna	Pads for Primary, Rx-diversity and GNSS
ADC	×2

Certification

Approval	CE*/FCC*/GCF*/PTCRB*/AT&T*/Verizon*/ACMA RCM*
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* Under development