

# 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**<sup>®</sup>  
Build a Smarter World

LTE



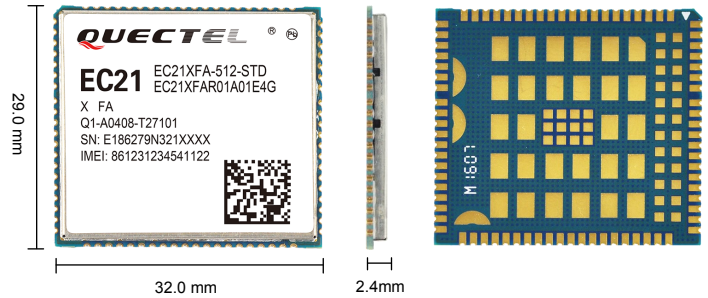
Quectel EC21 is an LTE category-1 module optimized specially for M2M and IoT applications. It delivers power-enhanced performance and M2M-optimized speeds of 10Mbit/s downlink and 5Mbit/s uplink, and features low-power, low-cost LTE connectivity. These make it ideally suitable for numerous IoT applications 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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## IoT/M2M-optimized Cat.1 LTE Module



### General Features

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

### Special Features

	<b>USB Serial</b>	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
	<b>RIL*</b>	Android 4.0/4.2/4.4/5.0
<b>Drivers</b>	<b>NDIS</b>	Windows XP, Windows Vista, Windows 7, Windows 8/8.1
	<b>ECM*</b>	Linux 2.6 or later
	<b>Gobinet</b>	Linux 2.6 or later
	<b>Linux qmi wwan</b>	Linux 3.4 or later
<b>DFOTA</b>	Firmware updated via the air *	
<b>BT4.0/WiFi *</b>	Optional	
<b>GNSS</b>	GPS/GLONASS/BeiDou/Galileo and QZSS	

### Electrical Characteristics

<b>Output Power</b>	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
<b>Consumption</b>	20uA @Power off 3mA @Sleep, Typ.
<b>Sensitivity</b>	TBD

### Specifications

	<b>LTE</b>	LTE-FDD Max 10Mbps (DL) Max 5Mbps (UL)
	<b>DC-HSPA+</b>	Max 42Mbps (DL) Max 5.76Mbps (UL)
<b>Data</b>	<b>UMTS</b>	Max 384Kbps (DL) Max 384Kbps (UL)
	<b>EDGE</b>	Max 236.8Kbps (DL) Max 236.8Kbps (UL)
	<b>GPRS</b>	Max 85.6Kbps (DL) Max 85.6Kbps (UL)
<b>Voice</b>	<b>Speech Codec Modes</b>	HR, FR, EFR, AMR, AMR-WB
	<b>Echo Arithmetic</b>	Echo Cancellation Noise Reduction
<b>eCall*</b>	Accident, Emergency Services	
<b>VoLTE</b>	Digital Audio and VoLTE (Voice over LTE) (Optional)	
<b>Protocols</b>	TCP/UDP/PPP/FTP*/HTTP*/SMTP*/MMS*/NTP/PING/DTMF*/FILE*/CMUX*/QMI	

### Interfaces

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

### Certification

<b>Approval</b>	CE*/FCC*/GCF*/PTCRB*/AT&T*/Verizon*/ACMA RCM*
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\* Under development