

Quectel EC21

IoT/M2M-optimized Cat.1 LTE Module



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



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



LCC Package



Embedded Abundant
Protocols



eCall



GNSS



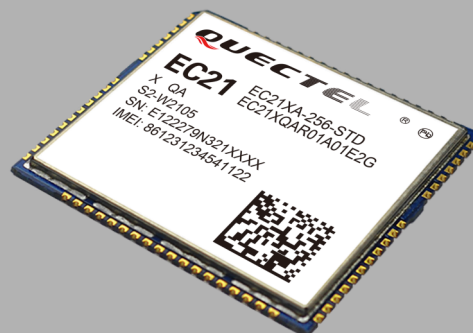
USB 2.0 High Speed
Compliant Interface



USB Drivers



Quectel Enhanced
AT Commands



Key Benefits

- Low-cost, low-power LTE connectivity optimized for broadband IoT applications
- Worldwide LTE and UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- Minimal 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 environments
- Embedded power management unit (PMU) featuring ultra-low deep sleep current consumption

Quectel EC21 is an LTE Category-1 module optimized specially for M2M and IoT applications. Delivering power-enhanced performance and M2M-optimized speeds of 10Mbit/s download and 5Mbit/s uplink, and featuring low-power, low-cost LTE connectivity 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. It 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-NA and EC21-AUT /AU which makes it backward-compatible with existing EDGE and GSM/GPRS networks to ensure that it can easily migrate from LTE to 2G or 3G networks.

It supports Multiple-input multiple-output (MIMO) technology, a cutting edge antenna technology 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. It also combines high-speed wireless connectivity with embedded multi-constellation high-sensitivity positioning GNSS receiver.

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 applications such as metering, tracking and tracing, fleet management, wearable devices, smart home gateways, digital signs, industrial routers and even drones.

Quectel EC21

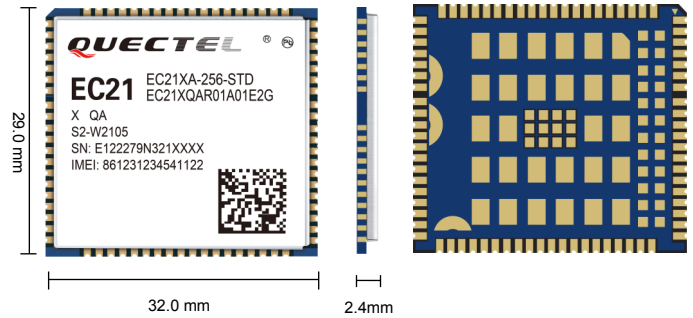
IoT/M2M-optimized Cat.1 LTE Module

General Features

	EC21-V	FDD LTE: B2/B4/B13
	EC21-A	FDD LTE: B2/B4/B5/B12 WCDMA: B2/B4/B5
	EC21-AUT	FDD LTE B1/B3/B5/B7/B28 WCDMA B1/B5
Frequency Bands	EC21-E	FDD LTE B1/B3/B5/B7/B8/B20 WCDMA B1/B5/B8 GSM B3/B8
	EC21-AU	FDD LTE B1/B3/B5/B7/B8/B28 TDD LTE B40 WCDMA B1/B2/B5/B8 GSM: B2/B3/B5/B8
LTE Version	3GPP E-UTRA Release 11	
Bandwidth	1.4/3/5/10/15/20MHz	
Antenna	DL MIMO, 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	
Drivers	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 2.3/4.0/4.2/4.4/5.0
	NIDS	Windows XP, Windows Vista, Windows 7, Windows 8/8.1
	ECM	Linux2.6 or later
	Gobinet	Linux2.6 or later
	Linux qmi wwan	Linux3.4 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) Max5.76Mbps(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
eCall	Accident, Emergency Services
VoLTE	Digital Audio and VoLTE (Voice over LTE) (Optional)
Protocols	TCP/UDP/PPP/FTP/HTTP/SMTP*/MMS*/FTP/SMTP*/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*/PTCRB*/AT&T*/Verizon*/RCM*
-----------------	-------------------------------------

