

# Quectel UC20

## UMTS/HSPA+ Module



Quectel UC20 is a series of powerful function UMTS/HSPA+ module offering a maximum data rate of 14.4Mbps downlink and 5.76Mbps uplink. UC20 is designed to provide customers with global network coverage on the connectivity of UMTS/HSPA+, and is also fully backward compatible with existing EDGE and GSM/GPRS networks.

The compact profile of 32.0mm × 29.0mm × 2.5mm in cost optimized SMT form factor and high integration level enable integrators and developers to easily design their applications and truly benefit from the module's multi-feature, low power consumption and mechanical intensity. Its advanced LCC package allows fully automated manufacturing for high-volume applications.

A rich set of Internet protocols, industry-standard interfaces (USB/UART/PCM/ADC/NETLIGHT/SD/Rx-diversity) and abundant functions (USB drivers for Windows XP, Windows Vista, Windows 7/8/8.1/10, Windows CE, Linux, Android/eCall/GNSS) extend the applicability of the module to a wide range of M2M applications such as automotive, smart metering, tracking systems, security solutions, routers, wireless POS, mobile computing devices, PDA, and tablet PC.



### Key Benefits

- ✓ Worldwide UMTS/HSDPA+ and GSM/GPRS/EDGE coverage
- ✓ GNSS receiver available for applications requiring fast and accurate fixes in any location
- ✓ High-quality data and image transmission even in harsh environment
- ✓ Primary and diversity receive paths are designed for equivalent noise-figure performance
- ✓ Robust mounting and interfaces
- ✓ Fast time-to-market: reference designs, evaluation tools and timely technical support minimize design-in time and development efforts



Dual-mode & Multi-band for UMTS & GSM



HSDPA 14.4Mbps  
HSUPA 5.76Mbps



LCC Package



Embedded Abundant Protocols



eCall



DFOTA



GLONASS+GPS



Rx-diversity



Digital Audio (Optional)



GPRS/EDGE Multi-slot Class 12



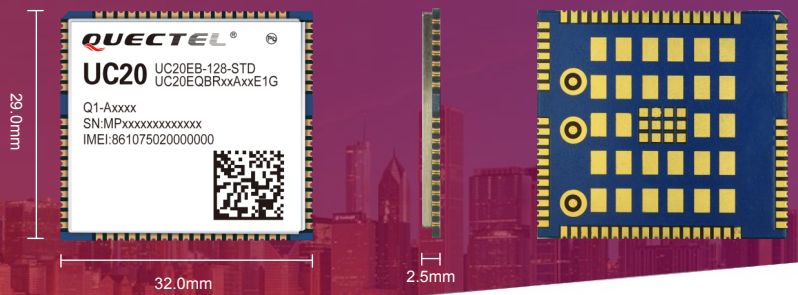
Quectel Enhanced AT Commands



USB Drivers

# Quectel UC20

## UMTS/HSPA+ Module



### Variant for Europe

#### UC20-E:

900/2100MHz @UMTS  
850/900/1800/1900MHz@GSM

### Variant for America

#### UC20-A:

850/1900MHz @UMTS, 3G Only

### Variant for the Global

#### UC20-G:

800/850/900/1900/2100MHz @UMTS  
850/900/1800/1900MHz @GSM

### Data

**HSPA+:** Max.14.4Mbps (DL)/Max.5.76Mbps (UL)  
**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)  
**CSD:** 14.4Kbps

### Voice

#### Speech Codec Modes:

HR, FR, EFR, AMR, AMR-WB

#### Echo Arithmetic:

Echo Cancellation, Noise Reduction

### SMS

Point-to-point MO and MT  
SMS Cell Broadcast  
Text and PDU Mode

### Interfaces

USB 2.0 with High Speed up to 480Mbps  
UART  
Digital Audio through PCM Interface (Optional)  
1.8V/ 3.0V (U)SIM Card Interface  
ADC (15 bits) × 2  
RTC Backup  
SD Card Interface  
RESET  
PWRKEY  
Solder Pads for Primary, Rx-diversity and GNSS Antennas  
STATUS for Power ON/OFF Status Indication

### Enhanced Features

eCall  
Hardware (U)SIM Card Detection Design  
Firmware Update: via USB or UART Interface  
QuecFile: File System Access and Management  
FOTA: QuecFOTA, DFOTA  
GNSS: GPS/GLONASS

### GNSS Features

Qualcomm gpsOne Gen8 with 16 GPS channels and 14 GLONASS channels  
SBAS (WAAS, EGNOS, MSAS)  
Support XTRA™ Technology  
Accuracy <1.5m CEP-50 @Open Sky

#### TTF @-130dBm with XTRA™:

Cold/Warm/Hot Start: typ. 22s/3s/2s

#### TTF @-130dBm without XTRA™:

Cold/Warm/Hot Start: typ. 32s/29s/2.5s

#### Sensitivity with LNA:

Cold Start/Reacquisition/Tracking:

-147dBm/-159dBm/-161dBm

Power Saving Mode: DPO Mode

Dedicated GNSS AT Commands

### Electrical Characteristics

#### Output Power:

Class 3 (24dBm+1/-3dB) for UMTS bands  
Class E2 (27dBm±3dB) for EDGE 850/900  
Class E2 (26dBm+3/-4dB) for EDGE 1800/1900  
Class 4 (33dBm±2dB) for GSM 850/900  
Class 1 (30dBm±2dB) for GSM 1800/1900

#### Consumption (GNSS OFF):

45µA @power off  
1.5mA @GSM sleep, DRX=9  
1.1mA @UMTS sleep, DRX=9  
293mA @GSM voice, max power  
532mA @UMTS voice, max power  
610mA @GPRS data, max power  
503mA @EDGE data, max power  
593mA @HSDPA, max power  
576mA @HSUPA, max power

#### Sensitivity:

-110dBm @UMTS Bands  
-108.5dBm @GSM 850/900MHz  
-108dBm @GSM 1800/1900MHz

### Software Features

#### USB Driver:

Windows XP/Vista/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/6.0

#### RIL Driver:

Android 4.x/5.x/6.0

#### NDIS Driver:

Windows 7/8/8.1/10

#### Gobinet Driver:

Linux 2.6/3.x/4.1

#### QMI\_WWAN Driver:

Linux 3.x (3.4 or later)/4.1

#### Protocols:

PPP/TCP/UDP/FTP/HTTP/FILE/MMS/SMTP/SSL

### General Features

Extended Temperature: -40°C ~ +85°C

Dimensions: 32.0mm × 29.0mm × 2.5mm

Approx. 4.9g

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

HSPA+: Release 5/6 (UL category 6, DL category 10)

GPRS/EDGE: Multi-slot Class 12 (10 by default)

WCDMA: Release 99

GSM: Release 99/4

3GPP TS 27.007, 3GPP TS 27.005 and Quectel

Enhanced AT Commands

### Approvals

RoHS Compliant  
CE/GCF/Vodafone (Europe)  
DoC (Russia)  
FCC/PTCRB/AT&T (North America)  
RCM (Australia)  
ICASA (South Africa)  
SRRC/NAL/OFCA (China)  
JATE & TELEC (Japan)  
NCC (Taiwan)  
KC/SKT (Korea)  
IC/Rogers (Canada)  
Anatel (Brazil)  
NBTC (Thailand)

\* Under Development