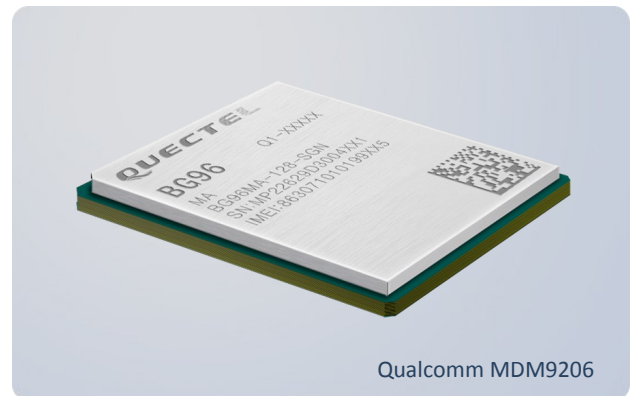


# Quectel BG96

## LTE Cat M1 & Cat NB1 & EGPRS Module



BG96 is a series of LTE Cat M1/Cat NB1/EGPRS module offering a maximum data rate of 300Kbps downlink and 375Kbps uplink. It features ultra-low power consumption, and provides pin-to-pin compatibility with Quectel LTE module EG91/EG95, Cat NB1 (NB-IoT) module BC95, UMTS/HSPA module UG95/UG96 and GSM/GPRS module M95.

With a cost-effective SMT form factor of 26.5mm × 22.5mm × 2.3mm and high integration level, BG96 enables integrators and developers to easily design their applications and take advantage from the module's low power consumption and mechanical intensity. Its advanced LGA package allows fully automated manufacturing for high-volume applications.

A rich set of Internet protocols, industry-standard interfaces (USB/UART/I2C/Status Indicator) and abundant functionalities (USB drivers for Windows XP, Windows Vista, Windows 7/8/8.1/10, Linux and Android) extend the applicability of the module to a wide range of M2M applications such as wireless POS, smart metering, tracking, etc.



### Key Benefits

- ✓ LTE Cat M1/Cat NB1/EGPRS module with ultra-low power consumption
- ✓ Compact SMT form factor ideal for size-constrained applications with tight space
- ✓ Easy migration from Quectel GSM/GPRS, UMTS/HSPA and LTE modules
- ✓ Super slim profile in LGA package
- ✓ Fast time-to-market: reference designs, evaluation tools and timely technical support minimize design-in time and development efforts
- ✓ Robust mounting and interfaces



LTE Cat M1 & Cat NB1 & EGPRS



LGA Package



Compact Size



Embedded Abundant Protocols



DFOTA



USB 2.0 High Speed Interface



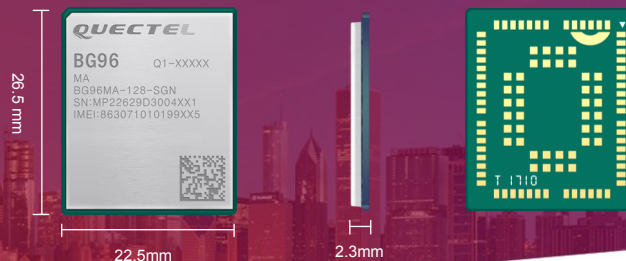
USB Drivers



Quectel Enhanced AT Commands

# Quectel BG96

## LTE Cat M1 & Cat NB1 & EGPRS Module



### Variant for North America

#### BG96-NA

Cat M1/Cat NB1:

LTE FDD: B2/B4/B12/B13

### Variants for the Global

#### BG96

Cat M1/Cat NB1:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/  
B19/B20/B26/B28

LTE TDD: B39 (For Cat M1 Only)

EGPRS:

850/900/1800/1900MHz

#### BG96-N

Cat NB1:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/  
B19/B20/B26/B28

### Data

Cat M1:

Max. 300Kbps (DL), Max. 375Kbps (UL)

Cat NB1:

Max. 32Kbps (DL), Max. 70Kbps (UL)

EDGE:

Max. 296Kbps (DL), Max. 236.8Kbps (UL)

GPRS:

Max. 107Kbps (DL), Max. 85.6Kbps (UL)

### Voice

VoLTE (For Cat M1 Only. Support Realtek ALC  
5616 Codec by Default Firmware)

### 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 × 3

PCM × 1

ADC × 2 (15 bits)

GPIO × 2 (I2C and UART3 can be re-configured as  
extra 4 GPIOs)

(U)SIM Interface × 1

NETLIGHT for Network Status Indication

STATUS for Power ON/OFF Indication

Main and GNSS Antenna Interfaces

### Enhanced Features

GNSS (Optional):

GPS, GLONASS, BeiDou/Compass, Galileo, QZSS

Firmware Upgrade:

via USB interface

DFOTA:

Delta Firmware Upgrade Over the Air

Processor:

ARM A7 Processor, with 3MB Flash and 3MB  
RAM Available for Users

### Electrical Characteristics

Output Power:

Max. Power: 23dBm

Consumption @LTE Cat M1 (Typical):

Power Saving Mode: 10uA

Standby State: 16mA @DRX=1.28s

15mA @e-I-DRX=20.48s

Sleep State: 1.7mA @DRX=1.28s

1.1mA @e-I-DRX=20.48s

LTE Connected Mode (Avg.):

124mA @0dBm

130mA @10dBm

190mA @23dBm

Consumption @LTE Cat NB1 (Typical):

Power Saving Mode: 10uA

Standby State: 16mA @DRX=1.28s

15mA @e-I-DRX=20.48s

Sleep State: 2.3mA @DRX=1.28s

1.7mA @e-I-DRX=20.48s

LTE Connected Mode (Avg.):

65mA @0dBm

66mA @10dBm

78mA @23dBm

Sensitivity:

-107dBm @Cat M1, 1.4MHz Bandwidth, CE  
Mode A

-117dBm @Cat NB1, CE Level 0

### Software Features

USB Serial Driver:

Windows XP, Windows Vista,  
Windows 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.x/7.x

RIL Driver: Android 4.x/5.x/6.x/7.x

NDIS Driver: Windows 7/8/8.1/10

ECM Driver\*: Linux 2.6/3.x/4.1

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/SSL/TLS/FTP(S)/HTTP(S)/NITZ/  
PING/MQTT

### General Features

3GPP E-UTRA Release 13

Temperature Range: -40°C ~ +85°C

Dimensions: 26.5mm × 22.5mm × 2.3mm

Approx. 3.1g

LGA Package

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

3GPP TS27.007, 3GPP TS 27.005 and Quectel

Enhanced AT Commands

### Approvals

CE\*/GCF (Europe)

FCC/PTCRB/AT&T\*/Verizon (North America)

RCM\*/Telstra\* (Australia)

BELL\*/IC (Canada)

\* Under Development