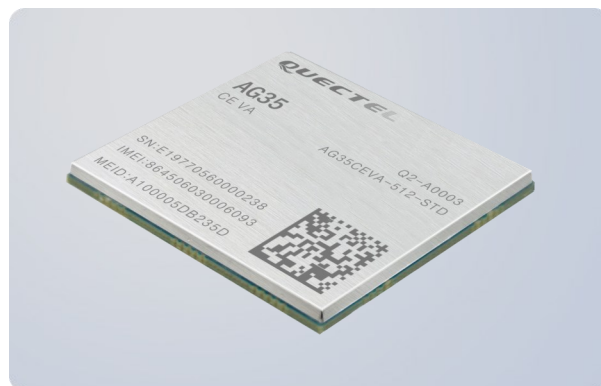


# Quectel AG35

## IATF 16949 Compliant Automotive Grade LTE Cat 4 Module



AG35 is a series of automotive grade LTE category 4 module developed by Quectel. Designed and manufactured according to IATF 16949:2016 quality management system, it is targeted at the IoV (Internet of Vehicles) applications. Adopting the 3GPP Rel. 10 LTE technology, it features maximally 150Mbps downlink and 50Mbps uplink data rates. It provides abundant interfaces for customers to develop applications, and its excellent performance in ESD and EMI protection ensures great robustness in harsh environments.

AG35 contains three variants (AG35-CE, AG35-E\* and AG35-NA\*) to meet the market requirements of China, Europe and North America. It is backward compatible with existing EDGE and GSM/GPRS networks, making it can be connected even in remote areas devoid of 3G or 4G coverage.

AG35 supports multiple-input multiple-output (MIMO) technology. The use of multiple antennas at the receiver end at the same time and on the same frequency band greatly minimizes errors and optimizes the data speed. The module also combines high-speed wireless connectivity with embedded multi-constellation high-sensitivity GNSS (GPS, GLONASS, BeiDou, Galileo, QZSS) receiver for positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows XP, Windows Vista, Windows 7/8/8.1/10, Windows CE, Linux and Android, eCall) extend the applicability of AG35 to a wide range of M2M applications in industrial, consumer and automotive markets. It is especially suitable for auto-related applications, such as fleet management, vehicle tracking, in-vehicle navigation system, vehicle remote monitoring, vehicle remote control, security monitoring and alarming, remote vehicle diagnostics, vehicle wireless routing, in-car entertainment, and more.



### Key Benefits

- ✓ Ideal for automotive premarket applications with IATF 16949:2016 requirement
- ✓ Compliant with automotive quality processes such as APQP, PPAP, etc.
- ✓ Wide operation temperature range (-40°C to +85°C) meets the demanding requirements for automotive devices
- ✓ Excellent EMC protection ensures great robustness even in harsh environments
- ✓ Compact SMT form factor ideal for integration in slim and size-constrained automotive solutions
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment



LTE Cat 4  
Max 150Mbps (DL)  
Max 50Mbps (UL)



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



LGA Package



Embedded Abundant Protocols



eCall



Multi-constellation GNSS



USB Drivers



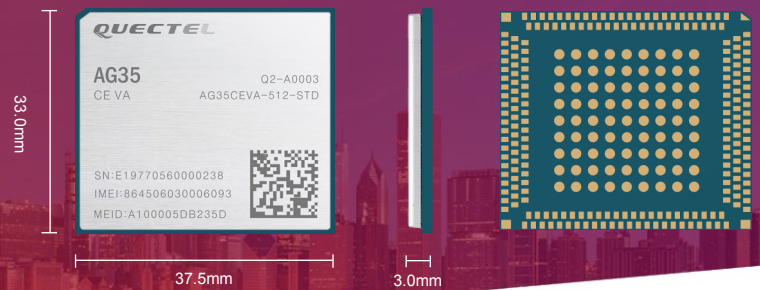
Quectel Enhanced AT Commands



USB 2.0 High Speed Interface

# Quectel AG35

## IATF 16949 Compliant Automotive Grade LTE Cat 4 Module



### Variant for Europe

#### AG35-E\*:

LTE FDD: B1/B3/B5/B7/B8/B20/B28A  
WCDMA: B1/B5/B8  
GSM: 900/1800MHz

### Variant for North America

#### AG35-NA\*:

LTE FDD: B2/B4/B5/B7/B12/B13/B17  
WCDMA: B2/B4/B5  
GSM: 850/1900MHz

### Variants for China

#### AG35-CE:

LTE FDD: B1/B3/B5/B8  
LTE TDD: B34/B38/B39/B40/B41  
WCDMA: B1/B8  
TD-SCDMA: B34/B39  
EVDO/CDMA: BC0  
GSM: 900/1800MHz

### Data

#### LTE:

LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)  
LTE TDD: Max 130Mbps (DL)/Max 30Mbps (UL)

#### UMTS:

DC-HSDPA: Max 42Mbps (DL)  
HSUPA: Max 5.76Mbps (UL)  
WCDMA: Max 384Kbps (DL/UL)

#### TD-SCDMA:

Max 4.2Mbps (DL)/Max 2.2Mbps (UL)

#### CDMA2000:

EVDO: Max 3.1Mbps (DL)/Max 1.8Mbps (UL)  
1X Advanced: Max 307.2Kbps (DL/UL)

#### GSM:

EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)  
GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)

### Voice\*

#### Speech Codec Modes:

HR, FR, EFR, AMR, AMR-WB

#### Echo Arithmetic:

Echo Cancellation, Noise Reduction

#### VoLTE:

Digital Audio and VoLTE (Voice over LTE)  
(Optional)

### SMS

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

### GNSS

#### Embedded GNSS:

GPS/GLONASS/BeiDou/Galileo/QZSS

#### TTFF (Autonomous @Open Sky):

Cold Start: 35s

Warm Start: 26s

Hot Start: 2.5s

#### TTFF (XTRA Enabled @Open Sky):

Cold Start: 18s

Warm Start: 2.2s

Hot Start: 1.8s

#### Sensitivity:

Cold Start: -146dBm  
Reacquisition: -158dBm  
Tracking: -162dBm

### Interfaces

USB 2.0 × 1 (with High Speed up to 480Mbps)

UART × 3 (for Main UART/BT/Debug Functions)

I2C × 2 (×1 for PCM)

PCM × 1

SDIO × 2 (for Wi-Fi and eMMC)

ADC × 3 (15 bits)

SGMII × 1

1.8V/3.0V (U)SIM Interface

Main/Rx-diversity/GNSS Antenna Interfaces

SPI > 1 (for QuecOpen Version Only)

GPIO > 15 (for QuecOpen Version Only)

### Enhanced Features

eCall

QuecOpen™ (Open Linux)

Multi-APN

SDIO Interface for Wi-Fi Function (Optional)

UART2 Interface for BT Function\* (Optional)

Temperature Management\*

DFOTA

#### High Security:

TrustZone\*/TPM\*

Secure Boot\*

Code/User Data Backup

#### ESD/EMI Protection:

Realized through Internal Specific Circuits and  
Components

### Electrical Characteristics

#### Output Power:

Class 3 (23dBm±2dB) for LTE

Class 2 (24dBm+1/-3dB) for TD-SCDMA

Class 3 (24dBm+1/-3dB) for WCDMA

Class 3 (24dBm+2/-1dB) for EVDO/CDMA BC0

Class E2 (27dBm±3dB) for EDGE 900MHz

Class E2 (26dBm±3dB) for EDGE 1800MHz

Class 4 (33dBm±2dB) for GSM 900MHz

Class 1 (30dBm±2dB) for GSM 1800MHz

#### Consumption:

20uA @Power off

1.9mA @LTE Sleep, PF=128

1.6mA @LTE Sleep, PF=256

22mA @Idle, typ.

#### Sensitivity:

FDD B1: -101dBm (10M)

FDD B3: -101dBm (10M)

FDD B5: -101dBm (10M)

FDD B8: -101dBm (10M)

TDD B34: -101dBm (10M)

TDD B38: -99dBm (10M)

TDD B39: -100.5dBm (10M)

TDD B40: -99dBm (10M)

TDD B41: -99dBm (10M)

WCDMA B1: -109dBm

WCDMA B8: -110dBm

TD-SCDMA B34: -109dBm

TD-SCDMA B39: -110dBm

EVDO/CDMA BC0: -109dBm

GSM 900MHz: -109dBm

GSM 1800MHz: -109dBm

### 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:** TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/  
SMTP/SSL/TLS/MMS/NTP/DTMF\*/FILE/QMI

### General Features

3GPP E-UTRA Release 10

Bandwidth: 1.4/3/5/10/15/20MHz

Temperature Range: -40°C ~ +85°C

Dimensions: 33.0mm × 37.5mm × 3.0mm

Approx. 8.1g

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

LGA Package

3GPP TS 27.007, 3GPP TS 27.005 and Quectel

Enhanced AT Commands

\* Under Development