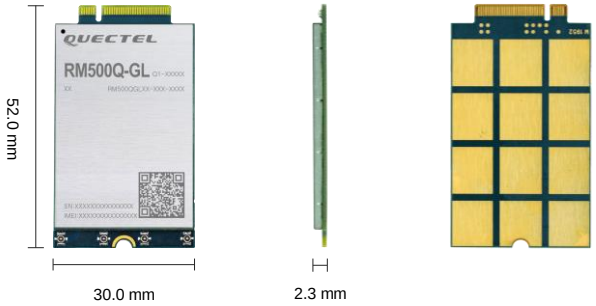
Quectel RM500Q-GL

IoT/eMBB-Optimized
5G Sub-6 GHz M.2 Module



Quectel RM500Q-GL is a 5G module optimized specially for IoT/eMBB applications. Adopting the 3GPP Release 15 LTE technology, it supports both 5G NSA and SA modes. Designed in an M.2 form factor, RM500Q-GL is compatible with Quectel LTE-A Cat 6 module EM06, Cat 12 modules EM12-G/EM120R-GL/EM121R-GL, and Cat 16 module EM160R-GL, which facilitates customers' migration from LTE-A to 5G.

RM500Q-GL is an industrial-grade module for industrial and commercial applications only.

The global version RM500Q-GL nearly covers all the mainstream carriers worldwide. The module supports Qualcomm® IZat™ location technology Gen9C Lite (GPS, GLONASS, BeiDou/Compass and Galileo). The integrated GNSS receiver greatly simplifies the product design and provides quicker, more accurate and more dependable positioning capability.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB and PCIe drivers for Windows, Linux and Android) extend the applicability of the module to a wide range of eMBB and IoT applications such as industrial router, home gateway, STB, industrial laptop, consumer laptop, industrial PDA, rugged tablet PC, video surveillance and digital signage.

Key Features

- 5G/4G/3G multi-mode module with M.2 form factor, optimized for IoT and eMBB applications
- Worldwide 5G and LTE-A coverage
- Both NSA and SA modes supported
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- Feature refinements: DFOTA* and VoLTE (optional)

5G NR Sub-6 Bands Supported

DL: LTE Cat 16
UL: LTE Cat 18

DL: max. 42 Mbps
UL: max. 5.76 Mbps

Embedded Abundant Protocols

M.2 Form Factor

Multi-constellation GNSS

USB 3.1/PCIe 3.0 High Speed Interface

Voice over LTE (Optional)

Quectel Enhanced AT Commands

Version: 1.3 | Status: Released

Quectel RM500Q-GL

5G Sub-6		RM500Q-GL
Region/Operator		Global (Except for United States)
Dimensions (mm)		30.0 × 52.0 × 2.3
Weight (g)		8.7
Temperature Range		
Operation Temperature		-30 °C to +70 °C
Extended Temperature		-40 °C to +85 °C
Frequency Bands		
5G	**5G NR**	**3GPP Release 15 NSA/SA operation, Sub-6 GHz**
	5G NR NSA	n38/n41/n77/n78/n79
	5G NR SA	n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79
	MIMO	DL: 4 × 4 MIMO on n1/n2/n3/n7/n25/n38/n40/n41/n48*/n66/n77/n78/n79 UL: 2 × 2 MIMO on n41/n77/n78/n79
LTE	**LTE Category**	**DL Cat 16/ UL Cat 18**
	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71
	LTE-TDD	B34/B38/B39/B40/B41/B42/B43/B48
	LAA	B46
	DL 4 × 4 MIMO	B1/B2/B3/B4/B7/B25/B30/B32/B34/B38/B39/B40/B41/B42/B43/B48/B66
UMTS	**WCDMA**	B1/B2/B3/B4/B5/B8/B19
GNSS		GPS/GLONASS/BeiDou (Compass)/Galileo
Certifications		
Regulatory		**Global:** GCF **Europe:** CE **China:** SRRC/CCC/NAL **Korea:** KC **Australia/New Zealand:** RCM
Carrier		**China:** China Telecom/China Mobile/China Unicom/KT*/SKT*/LGU+*
Others		RoHS/WHQL
Data Rate (Max.) ①		
5G SA Sub-6		DL 2.1 Gbps; UL 900 Mbps
5G NSA Sub-6		DL 2.5 Gbps; UL 650 Mbps
LTE		DL 1.0 Gbps; UL 200 Mbps
WCDMA		DL 42 Mbps; UL 5.76 Mbps
Interfaces		
(U)SIM		x 2
USB 2.0		x 1
USB 3.0/3.1		x 1
PCIe 3.0		x 1
PCM*		x 1
Antenna		x 4
Voice		
VoLTE		Digital Audio and VoLTE (Voice over LTE) (Optional)

Notes:
1. ①: The presented data rates are theoretical only, and the actual value depends on network conditions.
2. *: Under development/in progress.

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5G Sub-6	RM500Q-GL
Enhanced Features	
eSIM* (Optional)	●
DTMF*	●
DFOTA*	●
(U)SIM Card Detection	●
Drivers	
USB Serial Driver	Windows 7/8/8.1/10; Linux 2.6–5.4; Android 4.x/5.x/6.x/7.x/8.x/9.x/10
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
NDIS Driver	Windows 7/8/8.1/10
MBIM Driver	Windows 10; Linux 3.18–5.4
GobiNet Driver	Linux 2.6–5.4
QMI_WWAN Driver	Linux 3.4–5.4
Electrical Features	
Supply Voltage Range	3.135–4.4 V, typical 3.7 V
Power Consumption	70 µA @ Power down 5 mA @ Sleep 39 mA @ USB 2.0, Idle 64 mA @ USB 3.0, Idle

Notes:
1. *: Under development/in progress.
2. ●: supported.

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