Quectel RM520N Series

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

Quectel RM520N is a series of 5G modules optimized specially for IoT/eMBB applications. Adopting the 3GPP Release 16 technology, it supports both 5G NSA and SA modes. Designed in an M.2 form factor, RM520N series are compatible with Quectel 5G module RM50xQ series, LTE-A Cat 6 module EM06, Cat 12 modules EM12, EM12xR, EM120K series, and Cat 16 module EM160R-GL, which facilitates customers' migration from LTE-A to 5G.

RM520N series are industrial-grade for industrial and commercial applications only.

The Global version of RM520N series nearly covers all the mainstream carriers worldwide. The module supports Qualcomm® IZat™ location technology Gen9C Lite (GPS, GLONASS, BDS, Galileo, and QZSS). 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 7/8/8.1/10, Linux, 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)

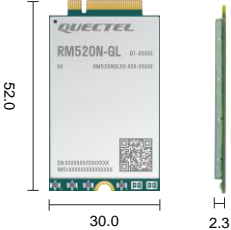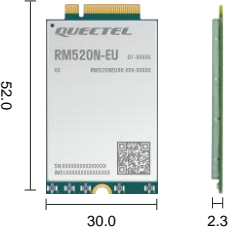|		
5G NR 5G NR Sub-6 Bands Supported	**4G LTE** DL: LTE Cat 19 UL: LTE Cat 18	**3G HSPA+** DL: max. 42 Mbps UL: max. 5.76 Mbps
Embedded Abundant Protocols	**M.2** M.2 Form Factor	Multi-constellation GNSS
USB 3.1/PCIe 3.0 Super-Speed Interface	**VoLTE** Voice over LTE (Optional)	**AT** Quectel Enhanced AT Commands

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5G Sub-6		RM520N-GL	RM520N-EU
Region/Operator		Global	EMEA/APAC①/Brazil
Dimensions (mm)		52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3
Weight (g)		Approx. 8.7	Approx. 8.7
Supply Voltage Range (V)		3.135–4.4, Typical 3.7	3.135–4.4 , Typical 3.7
Power Consumption		195 µA @ Power down 4.7 mA @ Sleep 40 mA @ USB 2.0, Idle 60 mA @ USB 3.0, Idle	195 µA @ Power down 4.7 mA @ Sleep 40 mA @ USB 2.0, Idle 60 mA @ USB 3.0, Idle
Temperature Range			
Operation Temperature		-30 °C to +75 °C	-30 °C to +75 °C
Extended Temperature		-40 °C to +85 °C	-40 °C to +85 °C
Frequency Bands			
5G NR	NSA	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78
	SA	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78
LTE	LTE-FDD	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 66/ 71	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 71
	LTE-TDD	B34/ 38/ 39/ 40/ 41/ 42/ 43/ 48	B38/ 40/ 41/ 42/ 43
	LAA	B46	-
UMTS	WCDMA	B1/ 2/ 4/ 5/ 8/ 19	B1/ 5/ 8
GNSS		GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS
Certifications			
Regulatory		GCF/ PTCRB/ CE/ Anatel/ CCC/ RCM/ IC/ FCC/ JATE/ TELEC/ KC/ NCC	CE*/RCM*
Carrier		T-Mobile/ Telstra/ AT&T/ Deutsche Telekom/ Verizon*/ Telefonica*/ NTT DOCOMO*/ SoftBank*/ KDDI*	TBD
Others		RoHS	RoHS
Data Rate (Max.) ②			
5G SA Sub-6		DL 2.4 Gbps; UL 900 Mbps	DL 2.4 Gbps; UL 900 Mbps
5G NSA Sub-6		DL 3.4 Gbps; UL 550 Mbps	DL 3.4 Gbps; UL 550 Mbps
LTE		DL 1.6 Gbps; UL 200 Mbps	DL 1.6 Gbps; UL 200 Mbps
WCDMA		DL 42 Mbps; UL 5.76 Mbps	DL 42 Mbps; UL 5.76 Mbps
Interface			
(U)SIM		× 2	× 2
USB 2.0		× 1	× 1
USB 3.0/3.1		× 1	× 1
PCIe 3.0		× 1	× 1
Antenna (Sub-6/GNSS)		× 4	4 + 1 (Optional)
Voice			
Voice		VoLTE (Voice over LTE) (Optional)	Digital Audio* and VoLTE (Voice over LTE) (Optional)
Enhanced Features			
eSIM*		○	○
DTMF*		●	●
DFOTA*		●	●
(U)SIM Card Detection		●	●

Note:

1. ①: Exclude China Telecom and Japan.

2. ②: The presented data rates are theoretical only, and the actual value depends on network conditions.

3. *: Under development/in progress.

4. ●: Supported; ○: Optional.

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