

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 is compatible with Quectel 5G module RM50xQ series, LTE-A Cat 6 module EM06 series, 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 transmission 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 (optional) 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 19
UL: LTE Cat 18



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



Embedded Abundant Protocols



M.2 Form Factor



Multi-constellation GNSS (Optional)



USB 3.1/PCIe 3.0 Super-Speed Interface

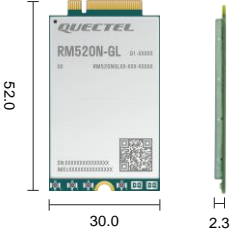
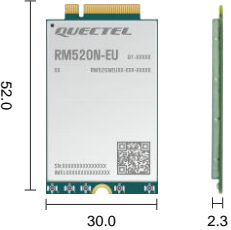


Voice over LTE (Optional)



Quectel Enhanced AT Commands

Quectel RM520N Series

5G Sub-6	RM520N-GL	RM520N-EU									
Region/Operator	Global	EMEA/APAC ^① /Brazil									
Dimensions (mm)											
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	<table border="0"> <tr> <td>NSA</td> <td>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</td> <td>n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78</td> </tr> <tr> <td>SA</td> <td>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</td> <td>n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78</td> </tr> </table>	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				
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LTE	<table border="0"> <tr> <td>LTE-FDD</td> <td>B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 66/ 71</td> <td>B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 71</td> </tr> <tr> <td>LTE-TDD</td> <td>B34/ 38/ 39/ 40/ 41/ 42/ 43/ 48</td> <td>B38/ 40/ 41/ 42/ 43</td> </tr> <tr> <td>LAA</td> <td>B46</td> <td>-</td> </tr> </table>	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	-	
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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 (Optional)	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS									
Certifications											
Carrier	Vodafone/ Deutsche Telekom/ British Telecom/ Telefonica/ Swisscom/ Verizon/ AT&T/ T-Mobile/ Telus/ LGU+/ NTT DOCOMO/ KDDI/ Telstra/ SoftBank*	TBD									
Regulatory	SRRC/ NAL/ CCC/ GCF/ CE/ PTCRB/ FCC/ UKCA/ IC/ Anatel/ KC/ NCC/ JATE/ TELEC/ RCM/ ANRT/ CoC/ NTRA	UKCA/ CE/ RCM									
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: Exclude China Telecom and Japan.
- ②: The presented data rates are theoretical only, and the actual value depends on network conditions.

3. *: Under development/in progress.

4. ●: Supported; ○: Optional.