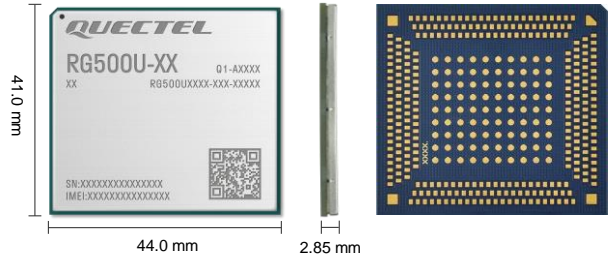


# Quectel RG500U Series

## IoT/eMBB-Optimized 5G Sub-6 GHz LGA Module



Quectel RG500U series is a series of 5G Sub-6 GHz LGA modules optimized specially for IoT and eMBB applications. Adopting the 3GPP Rel-15 technology, it supports both 5G NSA and SA modes, which makes it backward compatible with the 4G/3G network.

RG500U series is an industrial-grade module for industrial and commercial applications only.

RG500U series contains two variants: RG500U-EA and RG500U-CN. With a rich set of Internet protocols, integrated with rich communication interfaces such as PCIe/USB/SDIO/UART/SPI/I2C/I2S/GPIOs, RG500U series supports a variety of drivers and software functions, and supports VoLTE (optional), VoNR (optional), DFOTA, audio, eSIM\* (optional), greatly expanding its applications in the IoT industry. RG500U series can be widely used in vertical industries such as smart energy, Internet of Vehicles, industrial Internet, telemedicine, smart education, high-definition video, smart city, and home entertainment.



### Key Features

- ✓ 5G/LTE-A multi-mode module with LGA form factor, optimized for IoT and eMBB applications
- ✓ Worldwide 5G and LTE-A coverage
- ✓ 5G NSA and SA modes
- ✓ High performance and cost-effective
- ✓ Feature refinements: DFOTA and VoLTE (Optional)



5G NR Sub-6 GHz Band



LTE Cat 12  
Max. 600 Mbps (DL)  
Max. 150 Mbps (UL)



Max. 42 Mbps (DL)  
Max. 11 Mbps (UL)



Embedded Abundant Protocols



LGA Form Factor



Quectel Enhanced AT Commands



USB 3.0/PCIe 2.0 High Speed Interface



Voice over NR (Optional)



Voice over LTE (Optional)

# Quectel RG500U Series

RG500U-EA		RG500U-CN		
Region/Operator	Europe/ APAC/ Africa/ Latin America	China		
Dimensions (mm)	41.0 × 44.0 × 2.85	41.0 × 44.0 × 2.85		
Weight (g)	12.78 g	Approx. 13 g		
<b>Temperature Range</b>				
Operating Temperature	-30 °C to +75 °C	-30 °C to +75 °C		
Extended Temperature	-40 °C to +85 °C	-40 °C to +85 °C		
<b>Frequency Bands</b>				
5G	5G NR	3GPP Release 15 NSA/SA operation, Sub-6 GHz	3GPP Release 15 NSA/SA operation, Sub-6 GHz	
	5G NR NSA	n1/n3/n7/n38/n40/n41/n77/n78/n79	n41/n78/n79	
	5G NR SA	n1/n3/n7/n8/n20/n28/n38/n40/n41/n77/n78/n79	n1/n28/n41/n77/n78/n79	
	MIMO	DL: 4 × 4 MIMO on n1/n3/n7/n38/n40/n41/n77/n78/n79	UL: 2 × 2 MIMO on n41/n77/n78/n79	DL: 4 × 4 MIMO on n1/n41/n77/n78/n79
		UL: 2 × 2 MIMO on n38/n40/n41/n77/n78/n79 DL: 2 × 2 MIMO on n8/n20/n28	DL: 2 × 2 MIMO on n28	
LTE	LTE Category	DL Cat 12, UL Cat 13	DL Cat 12, UL Cat 13	
	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B20/B28A/B28B/B66	B1/B2/B3/B5/B7/B8/B20/B28	
	LTE-TDD	B38/B40/B41	B34/B38/B39/B40/B41	
	DL 2 × 2 MIMO	B1/B2/B3/B4/B5/B7/B8/B20/B28A/B28B/B38/B40/B41/B66	B1/B2/B3/B5/B7/B8/B20/B28/B34/B38/B39/B40/B41	
UMTS	WCDMA	B1/B2/B5/B8	B1/B2/B5/B8	
<b>Certifications</b>				
Regulatory	Global: GCF (TBD) Europe: CE*	China: SRRC/ NAL/ CCC		
Carrier	TBD	China: China Telecom/ China Mobile*/ China Unicom*		
Others	RoHS	RoHS		
<b>Data Rates (Max.) ①</b>				
5G SA Sub-6	2 Gbps (DL)/ 1 Gbps (UL)	2 Gbps (DL)/ 1 Gbps (UL)		
5G NSA Sub-6	2.6 Gbps (DL)/ 650 Mbps (UL)	2.2 Gbps (DL)/ 575 Mbps (UL)		
LTE	600 Mbps (DL)/ 150 Mbps (UL)	600 Mbps (DL)/ 150 Mbps (UL)		
WCDMA	42.2 Mbps (DL)/ 11 Mbps (UL)	42.2 Mbps (DL)/ 11 Mbps (UL)		
<b>Interfaces</b>				
(U)SIM	× 2	× 2		
USB 2.0	× 1	× 1		
USB 3.0	× 1	× 1		
PCIe 2.0	× 1	× 1		
SDIO 3.0	× 1	× 1		
SPI	× 1	× 1		
UART	× 2	× 2		
I2S	× 1	× 1		
I2C	× 1	× 1		
PCM	× 1	× 1		
Antennas	× 6	× 4		
<b>Voice</b>				
VoLTE	Digital Audio and VoLTE (Voice over LTE) (Optional)	Digital Audio and VoLTE (Voice over LTE) (Optional)		
<b>Enhanced Features</b>				
eSIM*	○	○		
DTMF	●	●		
DFOTA	●	●		
(U)SIM Card Detection	●	●		
<b>Drivers</b>				
USB Serial Driver	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11		
	Linux 2.6–5.15	Linux 2.6–5.15		
	Android 4.x–12.x	Android 4.x–12.x		
RIL Driver	Android 4.x–12.x	Android 4.x–12.x		
PCIe Driver	Linux 3.10–5.15	Linux 3.10–5.15		
USB NDIS Driver	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11		
	Linux 2.6–5.15	Linux 2.6–5.15		
USB ECM Driver	Linux 2.6–5.15	Linux 2.6–5.15		
USB NCM Driver	Linux 2.6–5.15	Linux 2.6–5.15		
<b>Electrical Features</b>				
Supply Voltage Range	3.3–4.3 V, typ. 3.8 V	3.3–4.3 V, typ. 3.8 V		
Power Consumption	TBD @ Power off	70 μA @ Power off		
	TBD @ Sleep	3.5 mA @ Sleep		
	TBD @ USB 2.0, idle	54 mA @ USB 2.0, idle		
	TBD @ USB 3.0, idle	70 mA @ USB 3.0, idle		

## NOTE:

- ①: Theoretical only. The actual values depend on network conditions.
- \*: Under development/Ongoing.
- : Supported.
- : Optional.