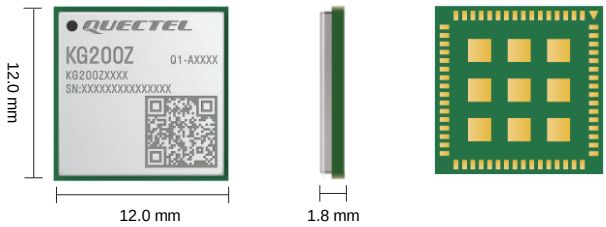
Quectel KG200Z

LoRa Module
Compact LGA Package



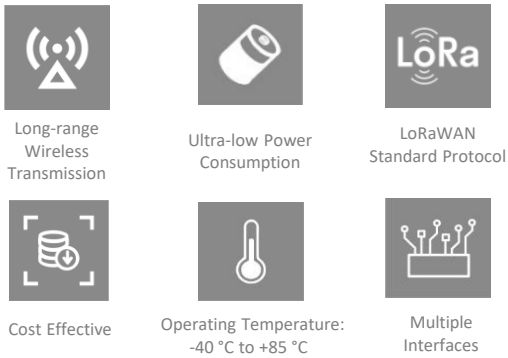
KG200Z, a high-performance LoRa module by Quectel, is designed for long-range wireless transmission applications requiring ultra-low power consumption. It integrates an ARM Cortex-M4 core and supports multiple modulation schemes including LoRa, (G)FSK, and BPSK. It complies with the LoRaWAN standard protocol and operates globally across the 433–435 MHz, 470–510 MHz and 863–928 MHz LoRa frequency bands. Additionally, the module supports a dual-protocol stack (Wireless M-Bus + LoRaWAN or Sigfox + LoRaWAN) within the 863–928 MHz band. And it incorporates AES, RNG, PKA hardware encryptions for enhanced security.

KG200Z boasts a compact form factor of 12.0 mm × 12.0 mm × 1.8 mm with an LGA package, ensuring seamless integration into size-constrained applications and reliable connectivity.

KG200Z connects wirelessly to local and global IoT networks, which enables secure end-to-end communication, mobility, and localized services for IoT applications. Offering strong anti-interference, high sensitivity, a stable network connection, and easy deployment, it delivers reliable data transmission performance at a low cost. This versatility makes KG200Z ideal for a wide range of applications, such as smart locks, door sensors, gas and water leak detection, pet tracking, indoor and outdoor air quality monitoring, HVAC systems, smart parking and traffic monitoring, utility metering, waste management, as well as asset management and tracking.

Key Features

- Long transmission distance: 2–5 km in towns, 10–15 km in suburbs
- Ultra-low power consumption: 1.7 μA in deep sleep mode
- LoRa modulation technology, high receiver sensitivity (-136 dBm)
- Compact and cost-effective: 12.0 mm × 12.0 mm profile
- Operating temperature: -40 °C to +85 °C
- Multiple interfaces
- Simplified integration: LGA package for easier soldering and testing
- Stable network connection, strong anti-interference, strong penetration, reliable data transmission
- Dual-protocol stack (Wireless M-Bus + LoRaWAN or Sigfox + LoRaWAN)



Version: 1.2 | Status: Released

Quectel KG200Z

LoRa	KG200Z
LoRa Protocol	LoRaWAN
LoRa Frequency Bands	433–435 MHz; 470–510 MHz; 863–928 MHz
Modulation	LoRa, (G)FSK, BPSK
Operating Mode	Class A/ Class B/ Class C
Hardware Encryption	AES, RNG, PKA
Core	32-bit ARM Cortex-M4 CPU
Flash	256 KB
RAM	64 KB
Dimensions	12.0 mm × 12.0 mm × 1.8 mm
Weight	Approx. 0.56 g
Temperature Range	
Operating temperature	-40 °C to +85 °C
Storage temperature	-45 °C to +95 °C
Certifications	
Regulatory	**Europe:** CE **America:** FCC **Canada:** IC **Brazil:** Anatel **Australia/New Zealand:** RCM **Korea:** KC
Interface	
Peripheral Interfaces①	• SWD/ JTAG/ USART/ LPUART (low-power) • SPI*/ I2C*/ ADC*/ DAC*
Electrical Features	
Power Supply Voltage	VBAT②: 1.8–3.6 V, Typ. 3.3 V
Power Consumption	1.7 μA (Deep Sleep Mode)
LoRa Performance	

		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
470–510 MHz	**BW = 125 kHz, SF = 7**	-123 dBm	20 dBm
	BW = 125 kHz, SF = 12	-136 dBm	20 dBm
	BW = 500 kHz, SF = 7	-117 dBm	20 dBm
863–928 MHz	**BW = 125 kHz, SF = 7**	-123 dBm	20 dBm
	BW = 125 kHz, SF = 12	-136 dBm	20 dBm
	BW = 500 kHz, SF = 7	-117 dBm	20 dBm
433–435 MHz	**BW = 125 kHz, SF = 7**	-122 dBm	14 dBm
	BW = 125 kHz, SF = 12	-136 dBm	14 dBm
	BW = 500 kHz, SF = 7	-117 dBm	14 dBm

Ordering Code	Operating Temperature Range	Frequency Band	Development Board (Only for Debugging)	Protocol Stack
KG200ZAAMD	-40 °C to +85 °C	470–510 MHz	KG200ZAATB	LoRaWAN
KG200ZABMD	-40 °C to +85 °C	863–928 MHz	KG200ZABTB	LoRaWAN
KG200ZACMD	-40 °C to +85 °C	863–928 MHz	KG200ZACTB	LoRaWAN + Wireless M-Bus
KG200ZADMD	-40 °C to +85 °C	433–435 MHz	KG200ZADTB	LoraWAN
KG200ZAEMD	-40 °C to +85 °C	863–928 MHz	KG200ZAETB	LoRaWAN + Sigfox

NOTE:

1. ①: The module supports 37 GPIOs by default, which can be multiplexed into multiple application interfaces in QuecOpen solution. See hardware design document for details of the module interfaces.
2. ②: The default minimum power supply voltage is 1.8 V, except for KG200ZAEMD, which requires 2.2 V.
3. *: Under development.

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