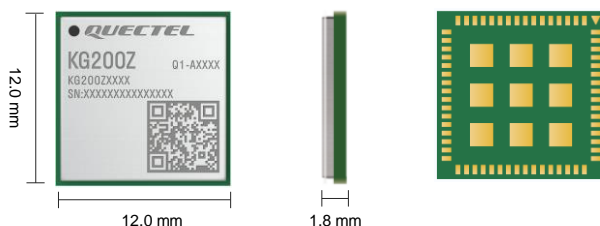


# Quectel KG200Z

## Stand-alone 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 such as LoRa, (G)FSK, (G)MSK and BPSK. Additionally, KG200Z adheres to LoRaWAN standard protocol and operates within the global 470–510 MHz and 863–928 MHz LoRa frequency bands, and it incorporates AES hardware encryption 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  $\mu$ A in deep sleep mode
- ✓ LoRa modulation technology, high receiver sensitivity (-136 dBm)
- ✓ Compact and cost-effective: 12.0 mm × 12.0 mm profile
- ✓ Stable network connection, strong anti-interference, strong penetration, reliable data transmission
- ✓ Simplified integration: LGA package for easier soldering and testing
- ✓ Multiple interfaces
- ✓ Operating temperature: -40 °C to +85 °C



Long-range  
Wireless  
Transmission



Ultra-low Power  
Consumption



LoRaWAN  
Standard Protocol



Cost Effective



Operating Temperature:  
-40 °C to +85 °C



Multiple  
Interfaces

# Quectel KG200Z

| LoRa                               |   | KG200Z                             |  |
|------------------------------------|---|------------------------------------|--|
| LoRa Protocol                      | LoRaWAN   |                                    |  |
| LoRa Frequency Bands               | 470–510 MHz; 863–928 MHz  |                                    |  |
| Modulation                         | LoRa, (G)FSK, (G)MSK, BPSK  |                                    |  |
| Operating Mode                     | Class A/ Class B/ Class C   |                                    |  |
| Hardware Encryption                | AES-256 bit   |                                    |  |
| 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  |                                    |  |
| <b>Temperature Range</b>           |   |                                    |  |
| Operating temperature              | -40 °C to +85 °C  |                                    |  |
| Storage temperature                | -45 °C to +95 °C  |                                    |  |
| <b>Certifications</b>              |   |                                    |  |
| Regulatory                         | <b>Europe:</b> CE<br><b>America:</b> FCC<br><b>Canada:</b> IC<br><b>Brazil:</b> Anatel*<br><b>Australia/New Zealand:</b> RCM<br><b>Korea:</b> KC*                     |                                    |  |
| <b>Interface</b>                   |   |                                    |  |
| Peripheral Interfaces <sup>①</sup> | <ul style="list-style-type: none"> <li>• SWD/ JTAG/ DMA/ USART/ LPUART (low-power)/ Timer/ RTC/ SysTick/ Watchdog</li> <li>• SPI*/ I2C*/ ADC*/ DAC*/ COMP*</li> </ul> |                                    |  |
| <b>Electrical Features</b>         |   |                                    |  |
| Power Supply Voltage               | VBAT: 1.8–3.6 V, Typ. 3.3 V   |                                    |  |
| Power Consumption                  | 1.7 μA (Deep Sleep Mode)  |                                    |  |
| <b>LoRa Performance</b>            |   |                                    |  |
|                                    |   | <b>Receiver Sensitivity (Typ.)</b> | <b>Transmit Power (Typ.)</b>           |
| 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                                 |
| <b>Ordering Code</b>               |   |                                    |  |
| Ordering Code                      | Operating Temperature Range   | Frequency Band                     | Development Board (Only for Debugging) |
| KG200ZAAMD                         | -40 °C to +85 °C  | 470–510 MHz                        | KG200ZAATB                             |
| KG200ZABMD                         | -40 °C to +85 °C  | 863–928 MHz                        | KG200ZABTB                             |

## NOTE:

- ①: The module supports 37 GPIOs by default, which can be multiplexed into multiple application interfaces in QuecOpen solution. See hardware design manual for details of the module interfaces.
- \*: Ongoing/ under development.