

Quectel LS550G (00)

Extremely Compact Multi-Constellation GNSS Module

Based on the latest enhanced chipset, the Quectel LS550G (00) GNSS module supports concurrent reception of GPS, GLONASS, Galileo, BDS and QZSS constellations.

The SIP process significantly reduces the module packaging size, achieving an extremely compact size of 5 mm × 5 mm. Additionally, the more compact design of the SIP packaging process contributes to lower signal attenuation, less interference, improved resistance to resist shock, moisture, and corrosion.

Compared with single constellation receivers, by enabling multiple GNSS systems, the LS550G (00) increases the number of visible satellites, reduces the time to first fix and improves positioning accuracy, especially when driving through dense urban canyons. The integrated LNA delivers high sensitivity and facilitates high accuracy positioning, fast signal tracking and acquisition and excellent module performance even in challenging environments.

By combining Enhanced Prediction Orbit on Chip (EPOC) technology—an advanced AGNSS feature—with Adaptive Low Power (ALP) mode, the LS550G (00) module achieves high performance with low power consumption and satisfies industrial standards. The EPOC technology allows the module to calculate and predict satellite orbits automatically by using the ephemeris data (duration of up to 3 days) stored in the internal RAM. As a result, the LS550G (00) acquires a position fix quickly, even at lower signal levels with low power consumption. With the ALP technology, the LS550G (00) adaptively adjusts the on/off time based on environmental and motion conditions to achieve a balance between positioning accuracy and power consumption.

The LS550G (00)'s enhanced performance renders it well-suited for a variety of consumer and industrial applications, including industrial PDAs. Its ultra-compact form factor and low power consumption make it a preferred solution for power and space-sensitive applications, such as portable and wearable devices.



Key Features

- ✓ Multi-GNSS engine for GPS, GLONASS, Galileo, BDS and QZSS, ensuring fast and accurate fix in any environment
- ✓ Extremely compact (5 mm × 5 mm)
- ✓ SIP (System in Package) process
- ✓ Industry-leading sensitivity: -165 dBm during tracking and -146 dBm during acquisition
- ✓ Integrated LNA improves sensitivity
- ✓ Embedded multi-tone active interference canceller for anti-jamming
- ✓ Supported interfaces: UART, I2C and SPI



EPOC Technology



Ultra Low Power Consumption



Ultra-compact Size



Tracking Sensitivity:
-165 dBm



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



Anti-jamming



RoHS Compliant



Multi-constellation System

Quectel LS550G (00)

GNSS Module	LS550G (00)*
Dimensions	5 mm × 5 mm × 1.1 mm
Weight	TBD
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +90 °C
GNSS Features	
Supported Bands	GPS: L1 C/A GLONASS: L1 Galileo: E1 BDS: B1I; B1C QZSS: L1 C/A
Default Constellations	GPS + GLONASS + Galileo + BDS + QZSS
Number of Tracking Channels	47
Number of Concurrent GNSS	4 + QZSS
SBAS	WAAS, EGNOS, MSAS and GAGAN
Horizontal Position Accuracy ^①	Autonomous: 1.5 m
Velocity Accuracy ^②	Without Aid: 0.1 m/s
Acceleration Accuracy ^②	Without Aid: 0.1 m/s ²
Accuracy of 1PPS Signal (RMS) ^②	100 ns
TTF (with EPOC) ^③	Cold Start: 15 s Warm Start: 2 s Hot Start: 2 s
TTF (with EPO) ^③	Cold Start: 5s
TTF (Without AGNSS) ^②	Cold Start: 30 s Warm Start: 25 s Hot Start: 2 s
Sensitivity (@ Default Constellations)	Acquisition: -146 dBm Tracking: -165 dBm Reacquisition: -158 dBm
Dynamic Performance ^②	Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g
Update rate	Max: 10Hz; Default: 1 Hz
Certifications	
Regulatory	Europe: CE*
Others	RoHS
Interfaces	
I2C	× 1, up to 400 kbps
UART	× 2 UART1: Adjustable: 9600–921600 bps; Default: 115200 bps UART2 (only for debug): 3000000 bps
SPI	× 1
Protocol	
Protocol	NMEA 0183 V4.11
External Antenna Interface	
Antenna Type	Active or Passive
Antenna Power Supply	External
Electrical Characteristics	
Supply Voltage Range	1.75–1.98 V, typ. 1.8 V
I/O Voltage	Typ. 1.8 V
Power Consumption (@ Default Constellations) ^②	Normal Operation: TBD mA @ Acquisition TBD mA @ Tracking Power Saving Modes: TBD mA @ ALP Mode TBD mA @ Standby Mode TBD μA @ Backup Mode

NOTE:

1. *: Under development/in progress.

2. ①: CEP, 50 %, 24 hours static, -130 dBm, more than 6 SVs.

3. ②: Room temperature, all satellites at -130 dBm.

4. ③: Open-sky, active high-precision GNSS antenna.