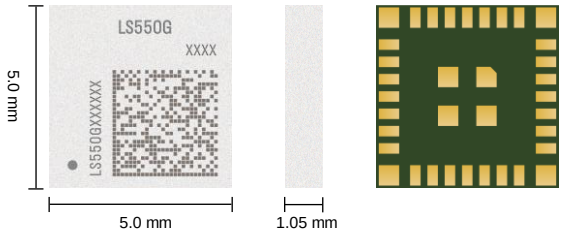
Quectel LS550G (00)

Ultracompact
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 (System in Package) technology significantly reduces the module package size, achieving an ultracompact form factor of 5.0 mm × 5.0 mm × 1.05 mm. Additionally, the ultracompact SIP design contributes to lower signal attenuation, reduced interference, and improved resistance to shock, moisture, and corrosion.

Compared with single constellation receivers, the multi-constellation system on the LS550G (00) increases the number of visible satellites, reduces the time to first fix and improves positioning accuracy, especially in dense urban canyons. The integrated LNA delivers high sensitivity, facilitates high accuracy positioning, enables fast signal tracking and acquisition, and enhances 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, low power consumption, and compliance with industrial standards. EPOC technology enables the module to calculate and predict satellite orbits automatically by using the ephemeris data (valid up to 3 days) stored in the internal RAM. As a result, the LS550G (00) obtains a position fix quickly, even at lower signal levels, while maintaining low power consumption. With the ALP technology, the LS550G (00) adaptively adjusts its on/off time based on environmental and motion conditions to achieve a balance between positioning accuracy and power consumption.

Enhanced performance makes LS550G (00) well-suited for a variety of consumer and industrial applications, including industrial PDAs. Its ultracompact form factor and low power consumption make it a preferred solution for power-sensitive and space-sensitive applications, such as portable and wearable devices.

Key Features

- Multi-constellation system: GPS, GLONASS, Galileo, BDS and QZSS for fast and accurate positioning in any environment
- Ultracompact form factor: 5.0 mm × 5.0 mm × 1.05 mm
- SIP technology
- Industry-leading sensitivity: -165 dBm (tracking) and -147 dBm (acquisition)
- Enhanced sensitivity with integrated LNA
- Anti-jamming with embedded multi-tone active interference canceller
- Supported interfaces: UART, I2C, and SPI

Version: 1.0 | Status: Released

Quectel LS550G (00)

GNSS Module	LS550G (00)
Dimensions	5.0 mm × 5.0 mm × 1.05 mm
Weight	Approx. 0.07 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +95 °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 Accuracy①	Autonomous: 1.5 m
Velocity Accuracy②	Without Aid: 0.1 m/s
Acceleration Accuracy②	Without Aid: 0.1 m/s²
1PPS Signal Accuracy (RMS)②	30 ns
TTFF (with EPOC)③	Cold Start: 15 s Warm Start: 2 s Hot Start: 1 s
TTFF (with ELPO) ③	Cold Start: 5s
TTFF (Without AGNSS)②	Cold Start: 28 s Warm Start: 25 s Hot Start: 1 s
Sensitivity (@ Default Constellations)	Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -158 dBm
Dynamic Performance②	Maximum Altitude: 10000 m Maximum Velocity: 490 m/s Maximum Acceleration: 4g
Update rate	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 debugging): 3000000 bps
SPI	× 1
Protocol	
Protocol	NMEA 0183 V4.11
External Antenna Interface	
Antenna Type	Active④ or Passive
Antenna Power Supply	External
Electrical Characteristics	
Supply Voltage Range (VCC)	1.75–1.98 V, typ. 1.8 V
I/O Voltage	Following VCC
Power Consumption (@ Default Constellations)②	**Normal Operation:** 25.75 mW @ Acquisition 25.75 mW @ Tracking **Power Saving Modes:** 10.28 mW @ ALP Mode1 19.03 mW @ ALP Mode2 20.7 µW @ Backup Mode

NOTE:

1. ①: CEP 50 %, 24 hours static, -130 dBm, more than 6 SVs.
2. ②: Tested at room temperature, with typical operating voltage, and satellite signal of -130 dBm configured by the instrument.
3. ③: Open-sky, active high-precision GNSS antenna.
4. ④: To further mitigate the impact of out-of-band signals on GNSS module performance, you must choose the active antenna whose SAW filter is placed in front of the LNA in the internal framework. DO NOT place the LNA in the front.

HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 51086236 Email: info@quectel.com