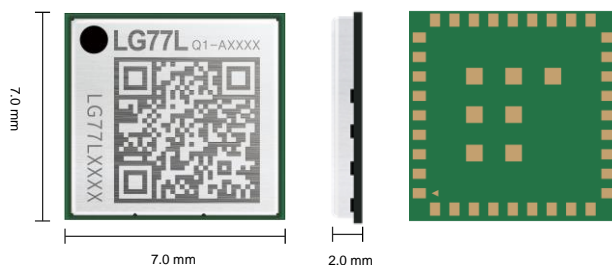


Quectel LG77L (C)

Extremely Compact Multi-Constellation GNSS Module with Ultra-Low Power Consumption



Quectel LG77L (C) GNSS module is a single-band multi-constellation module, which can acquire and track any mix of GPS, GLONASS, Galileo, BDS and QZSS. It also supports multiple SBAS signals.

Compared with single constellation receivers, by enabling multiple GNSS constellations, the LG77L (C) module increases the number of visible satellites, reduces the time to first fix, and improves positioning accuracy, especially in dense urban canyons.

By integrating EASY (Embedded Assist System), an advanced AGNSS feature, and GLP (GNSS Low Power), the LG77L (C) module achieves a combination of high performance and low power consumption, meeting industrial standards. The EASY technology enables automatic orbit calculation and prediction using ephemeris data stored in the internal RAM for up to 3 days. In addition, the module supports downloading orbit prediction data for up to 30 days through EPO technology. As a result, the LG77L (C) can fix a position quickly, even under low signal levels, while maintaining low power consumption. Furthermore, the GLP technology enables adaptive adjustment of the on/off time based on the environmental and motion conditions, striking a balance between positioning accuracy and power consumption.

The low power consumption significantly extends the battery life of wearable products and tracking devices, such as smart watches, pet trackers, small portable goods trackers, anti-theft devices, student ID cards and elderly frail care devices. With its enhanced performance, the LG77L (C) module is ideal for industrial PDA, consumer and industry applications, such as, electronic dog collars, shared bicycles, electric motorcycle tracking devices, asset tracking devices, and fleet management systems.



Key Features

- ✓ Extremely compact size: 7.0 mm × 7.0 mm × 2.0 mm
- ✓ Multi-Constellation GNSS engine for GPS, GLONASS (or BDS), Galileo and QZSS
- ✓ Supports anti-jamming technology and a multi-tone active interference canceller
- ✓ Multiple low-power modes ensure ultra-low power consumption
- ✓ UART and I2C interfaces
- ✓ Maximum update rate: 10 Hz
- ✓ SDK commands developed by Quectel
- ✓ AGNSS technology



EASY
Technology



Ultra Low Power
Consumption



Extremely
Compact Size



Super Tracking
Sensitivity:
-163 dBm



Extended Temperature
Range: -40 to +85 °C



Anti-Jamming



RoHS Compliant



Multi-GNSS System

Quectel LG77L (C)

GNSS Module	LG77L (C)
Region	Global
Dimensions	7.0 mm × 7.0 mm × 2.0 mm
Weight	Approx. 0.2 g
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 QZSS L1 C/A
Default GNSS Constellation	GPS + GLONASS + QZSS
Number of Concurrent GNSS	3 + QZSS
Channels	33 Tracking Channels 99 Acquisition Channels 210 PRN Channels
SBAS	WAAS, EGNOS, MSAS, and GAGAN
Horizontal Position Accuracy ^①	Autonomous: 2.5 m
Velocity Accuracy ^②	Without Aid: 0.1 m/s
Acceleration Accuracy ^②	Without Aid: 0.1 m/s ²
Accuracy of 1PPS Signal ^②	50 ns
TTFF (with EASY) ^③	Cold Start: 17 s Warm Start: 5 s Hot Start: 2 s
TTFF (without EASY) ^②	Cold Start: 25 s Warm Start: 23 s Hot Start: 2 s
Sensitivity	Acquisition: -146 dBm Tracking: -163 dBm Reacquisition: -156 dBm
Dynamic Performance ^②	Maximum Altitude: Max. 10000 m Maximum Velocity: Max. 515 m/s Maximum Acceleration: 4g
Certifications	
Regulatory	CE
Others	RoHS
Interfaces	
I2C Interface ^④	Up to 400 kbps Adjustable: 9600–921600 bps
UART Interface	Default: 9600 bps Update Rate: 1 Hz (Default), up to 10 Hz
Protocols	NMEA 0183, PMTK, PQ
External Antenna Interface	
Antenna Type	Active or Passive
Antenna Power Supply	External
Active Antenna Protection	Short-Circuit Protection and Open-Circuit Detection
Electrical Characteristics	
Supply Voltage Range	2.8–4.3 V, Typ. 3.3 V
I/O Voltage ^⑤	1.8 V or 2.8 V
Integrated RTC	Included
Current Consumption (@Default constellation, 3.3 V) ^②	Normal Operation: 24 mA (79.2 mW) @ Acquisition 23 mA (75.9 mW) @ Tracking Power Saving Modes: 0.9 mA (2.97 mW) @ Standby Mode 6 μA (19.8 μW) @ Backup Mode

NOTE:

- ①: CEP, 50 %, 24 hours static, -130 dBm, more than 6 SVs.
- ②: Room temperature, all satellites at -130 dBm.
- ③: Open-sky, active high-precision GNSS antenna.
- ④: I2C interface is only supported by partial firmware versions.
- ⑤: I/O Voltage = VCC_IO. The VCC_IO pin requires an external power supply.