Quectel L76-LB

Compact GNSS Module

10.1 mm
9.7 mm
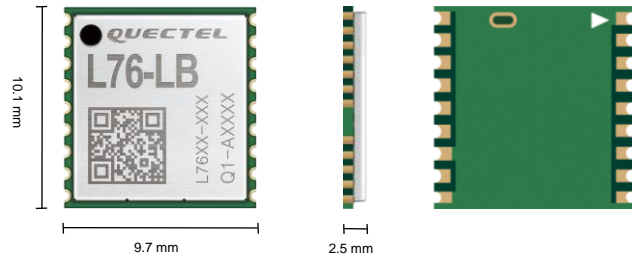2.5 mm

Quectel L76-LB GNSS module supports concurrent reception of GPS, GLONASS, BeiDou and QZSS. With 33 tracking channels, 99 acquisition channels and 210 PRN channels, it can acquire and track any mix of GPS, GLONASS (or BeiDou) and SBAS signals. L76-LB is designed to be compatible with Quectel L76 and L76-L modules, allowing convenient migration between them. The integrated LNA provides better performance in challenging environments.

Compared with single GPS system, enabling multiple GNSS systems generally increases the number of visible satellites, reduces the time to first fix and increases positioning accuracy, especially when driving in rough urban environments.

Combining advanced AGPS technologies such as EASY™ (Embedded Assist System) and low-power modes such as GLP (GNSS Low Power), L76-LB achieves high performance, low power consumption and fully meets the industrial standards. EASY™ technology allows the module to calculate and predict orbits automatically using the ephemeris data (up to 3 days) stored in internal RAM. With GLP technology, L76-LB can adaptively adjust the on/off time to achieve a balance between positioning accuracy and power consumption according to the environmental and motional conditions.

Its super performance makes L76-LB ideal for industrial PDA, consumer and industry applications. Extremely low power consumption makes it a great solution for power-sensitive applications, especially portable devices.

Key Features

✔ Multi-GNSS engine for GPS, GLONASS, BeiDou and QZSS, ensuring fast and accurate fixes in any environment

✔ Backward compatible with L76 and L76-L modules

✔ High (2.7–2.9 V) and low (1.7–1.9 V) I/O voltages available for option

✔ Industrial leading sensitivity of -167 dBm during tracking and -149 dBm during acquisition

✔ Integrated LNA improves sensitivity

✔ Support for anti-jamming and multi-tone active interference canceller

✔ Support for multiple low-power modes to ensure ultra-low power consumption

✔ Support for UART and I2C Interfaces

EASY™ Technology	Ultra Low Power Consumption	Extremely Compact Size
Super Tracking Sensitivity: -167 dBm	Extended Temperature Range: -40 to +85 °C	Anti-jamming
RoHS Compliant	Multi-GNSS System	

Version: 1.2 | Status: Released

EMAIL US: info@quectel.com   VISIT US: www.quectel.com

GNSS Module	L76-LB
Region	Global
Dimensions (mm)	10.1 × 9.7 × 2.5
Weight (g)	Approx. 0.5
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +90 °C
GNSS Features	
Supported Bands	GPS L1 C/A: 1575.42 MHz GLONASS L1 C/A: 1602.5625 MHz BeiDou B1 C/A: 1561.098 MHz
Default GNSS Constellation	GPS + GLONASS or GPS + BeiDou
Channel	33 Tracking Channels 99 Acquisition Channels 210 PRN Channels
SBAS	WAAS, EGNOS, MSAS, GAGAN
Horizontal Position Accuracy	Autonomous: < 2.5 m CEP
Velocity Accuracy [1]	Without Aid: < 0.1 m/s
Acceleration Accuracy	Without Aid: < 0.1 m/s²
Timing Accuracy	1PPS < 100 ns
Reacquisition Time	< 1 s
TTFF @ -130 dBm with EASY™ [1]	Cold Start: < 15 s Warm Start: < 8 s Hot Start: < 1 s
TTFF @ -130 dBm without EASY™ [1]	Cold Start: < 32 s Warm Start: < 28 s Hot Start: < 1 s
Sensitivity	Acquisition: -149 dBm Tracking: -167 dBm Reacquisition: -161 dBm
Dynamic Performance	Maximum Altitude: Max. 18000 m Maximum Velocity: Max. 515 m/s Maximum Acceleration: 4 g
Interfaces	
I2C Interface	Up to 400 kbps
UART Interface	Adjustable: 9600–921600 bps Default: 9600 bps Update Rate: 1 Hz (Default), up to 10 Hz
I/O Voltage	**L76-LB:** 2.7–2.9 V **L76-LB (L):** 1.7–1.9 V
Protocols	NMEA 0183, PMTK
External Antenna Interface	
Antenna Type	Active or passive
Antenna Power Supply	External power supply, or through the VCC_RF pin
Electrical Characteristics	
Supply Voltage Range	2.8–4.3 V, Typ. 3.3 V
Current Consumption (@ 3.3 V)	Normal Operation: 31 mA @ Acquisition (GPS + GLONASS) 27 mA @ Tracking (GPS + GLONASS) Power Saving Modes: 8 µA @ Backup Mode 0.6 mA @ Standby Mode

Note:
[1]: Measured in GPS + GLONASS systems under outdoor static mode.

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