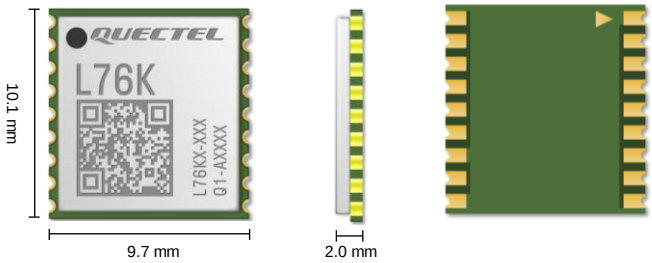
Quectel L76K

Ultra-Small, Compact Multi-System GNSS Module



The L76K is a GNSS module that supports multiple satellite systems (GPS, GLONASS, BDS and QZSS), for both combined multi-system positioning and independent single-system positioning. The module also supports AGNSS and has a built-in low-noise amplifier and surface acoustic wave filter, giving users fast, accurate, high-performance positioning.

Compared with GPS alone, multiple satellite systems greatly increase the number of visible and usable satellites, which improves positioning accuracy. Even in complex urban environments, the L76K achieves stable, high-accuracy positioning. The module also supports AGNSS, which greatly shortens the time to first fix.

The L76K's built-in low-noise amplifier gives high sensitivity, high-accuracy positioning and fast signal acquisition and tracking, keeping positioning performance good even under weak-signal conditions. Its built-in surface acoustic wave filter greatly strengthens the module's resistance to interference. Integrated active-antenna detection and protection circuits protect the module and the active antenna from damage.

The module uses an LCC package for easy soldering. Its ultra-small size and strong performance make it a good solution for industrial and consumer applications such as shared bicycles, electric motorcycles, fleet management, hazardous-goods transport and financial risk control.

Key Advantages

- Ultra-small size: 10.1 mm × 9.7 mm × 2.0 mm
- Supports GPS, GLONASS, BDS and QZSS
- Built-in low-noise amplifier (LNA) for higher sensitivity
- Built-in SAW filter for better noise rejection
- Supports AGNSS
- Supports 1PPS

AGNSS technology

Multi-constellation

Ultra-small size

Tracking sensitivity: -162 dBm

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

Low power

RoHS compliant

Quectel L76K

GNSS Module	L76K
Dimensions	10.1 mm × 9.7 mm × 2.0 mm
Weight	Approx. 0.4 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +90 °C
GNSS Features	
Receive Bands	GPS: L1 C/A GLONASS: L1 BDS: B1I QZSS: L1 C/A
Default Constellations	GPS + BDS + QZSS
Channels	32 tracking channels
Concurrent Constellations	2 + QZSS
SBAS	-
Horizontal Position Accuracy ①	2.0 m
Velocity Accuracy ②	0.1 m/s (unaided)
Acceleration Accuracy ②	0.1 m/s² (unaided)
1PPS Accuracy (RMS) ②	30 ns
TTFF (AGNSS On) ③	Cold start: 5.5 s Hot start: 2 s
TTFF (AGNSS Off) ②	Cold start: 30 s Hot start: 2 s
Sensitivity (@ Default Constellations)	Acquisition: -148 dBm Tracking: -162 dBm Reacquisition: -160 dBm
Dynamic Performance ②	Max. altitude: 18000 m Max. velocity: 515 m/s Max. acceleration: 4g
Certification	
Other	RoHS
Interfaces (List as Applicable)	
UART	Baud rate: 9600~115200 bps Default: 9600 bps Update rate: 1 Hz default, 5 Hz max.
Protocols	NMEA 0183, CASIC proprietary protocol
External Antenna Interface	
Antenna Type	Active ④ or passive
Antenna Power Supply	External supply or through the VDD_RF pin
Electrical Characteristics	
Supply Voltage Range (VCC)	2.7~3.4 V, 3.3 V typical
I/O Voltage	Same as VCC
Power Consumption (@ Default Constellations, 3.3 V) ①	Normal mode: 29 mA @ acquisition 29 mA @ tracking Power-saving modes: 8 μA @ Backup mode 19 μA @ Standby mode

Notes:
1. ①: CEP, 50 %, 24 hours static, -130 dBm, more than 6 satellites.
2. ②: Tested at room temperature and typical operating voltage, with the satellite signal set to -130 dBm on test equipment.
3. ③: High-precision antenna, open-sky area.
4. ④: Use an active antenna whose internal architecture places the SAW filter before the LNA. Do not use an active antenna with the LNA first, so as to reduce the effect of out-of-band interference on the GNSS module's performance.

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