Quectel L96
Extremely Compact
GNSS Module with Chip Antenna

L96 is a concurrent multi-GNSS receiver module with embedded chip antenna. With 33 tracking channels, 99 acquisition channels and 210 PRN channels, L96 can acquire and track any mix of GPS, GLONASS, Galileo and QZSS signals. The built-in LNA provides the module with better performance under weak signal areas. The embedded chip antenna reduces the total size of customers’ applications. To meet varied application demands, L96 also provides an external antenna interface.

Compared with using GPS only, 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 called EASY™ (Embedded Assist System) and proven AlwaysLocate™ technology, L96 fully meets the industrial standard and provides greatly reduced TTFF and ultra-low power consumption. EASY™ technology allows L96 to calculate and predict orbits automatically using the ephemeris data (up to 3 days) stored in internal flash memory, so the module can fix position quickly even at indoor signal levels with low power consumption. With AlwaysLocate™ technology, L96 can adaptively adjust the ON/OFF time to achieve balance between positioning accuracy and power consumption according to the environmental and motional conditions.

Its super performance makes L96 ideal for automotive, industrial and consumer applications. Extremely low power consumption makes it easier to be applied to power sensitive devices, especially portable applications.

---

**Key Benefits**

- Ultra-compact size: 14.0mm × 9.6mm × 2.5 mm
- Multi-GNSS engine for GPS, GLONASS, BeiDou, Galileo and QZSS
- Built-in LNA for better sensitivity
- Support EASY™, advanced AGPS technology without the need of any external memory
- AlwaysLocate™, an intelligent algorithm for power saving
- Ultra low tracking power consumption: 22mA
- LOCUS, embedded logger function without the need of host or any external flash
- Offer 99 acquisition/33 tracking channels and up to 210PRN channels
- Support DGPS/SBAS (WAAS/EGNOS/MSAS/GAGAN)
- Great anti-jamming performance due to multi-tone active interference canceller
- Balloon mode, for high altitude up to 80km
- PPS VS. NMEA can be used in time service
- Support SDK command developed by Quectel
Quectel L96
Extremely Compact GNSS Module with Chip Antenna

GNSS Features

Receiving Bands Note 1:
- GPS L1 C/A: 1575.42MHz
- GLONASS L1 C/A: 1602.5625MHz

Channel Numbers:
- 33 Tracking Channels
- 99 Acquisition Channels
- 210 PRN Channels

SBAS:
- WAAS, EGNOS, MSAS, GAGAN

Horizontal Position Accuracy:
- Autonomous: <2.5m CEP

Velocity Accuracy:
- Without Aid: <0.1m/s

Acceleration Accuracy:
- Without Aid: <0.1m/s²

Timing Accuracy: ≤10ns

TTFF @ -130dBm with EASY™:
- Cold Start: <15s
- Warm Start: <5s
- Hot Start: <1s

TTFF @ -130dBm without EASY™:
- Cold Start: <35s
- Warm Start: <30s
- Hot Start: <1s

Sensitivity:
- Acquisition: -148dBm
- Tracking: -165dBm
- Reacquisition: -160dBm

Dynamic Performance:
- Maximum Altitude: Max. 18000m
- Maximum Velocity: Max. 515m/s
- Maximum Acceleration: 4G

Interfaces

I2C Interface:
- Max. bit rate up to 400kbps

UART Interface:
- Adjustable: 4800bps~115200bps
- Default: 9600bps
- Update Rate: 1Hz [Default], up to 10Hz
- I/O Voltage: 2.7V~2.9V

Power Consumption @Acquisition:
- 22mA @3.3V, -130dBm (GPS)
- 25mA @3.3V, -130dBm (GPS+GLONASS)

Power Consumption @Tracking:
- 20mA @3.3V, -130dBm (GPS)
- 20mA @3.3V, -130dBm (GPS+GLONASS)

Power Saving Modes:
- 2.8mA @AlwaysLocate™
- 7uA @Backup Mode
- 500uA @Standby Mode
- 3.7mA @Periodic Mode Note 2

General Features

Temperature Range: -40°C ~ +85°C

Dimension: 14.0mm × 9.6mm × 2.5mm

Weight: approx. 0.6g

Protocols: NMEA 0183/PMTK

External Antenna Interface:
- Antenna Type: Passive or Active
- Antenna Power Supply: External

Electrical Characteristics

Power Supply:
- 2.8V~4.3V, typical 3.3V

Note 1: GPS+GLONASS is the default GNSS configuration.

Note 2: Average power consumption under periodic mode of 3s tracking mode & 12s standby mode

Copyright © 2017 Quectel Wireless Solutions Co., Ltd. All Rights Reserved! http://www.quectel.com
HQ address: 7th Floor, Hongye Building, No.1801 Hongmei Road, Xuhui District, Shanghai 200233, China
Tel: +86 21 51086236 Fax: +86 21 54453668 Email: info@quectel.com

Quectel Confidential