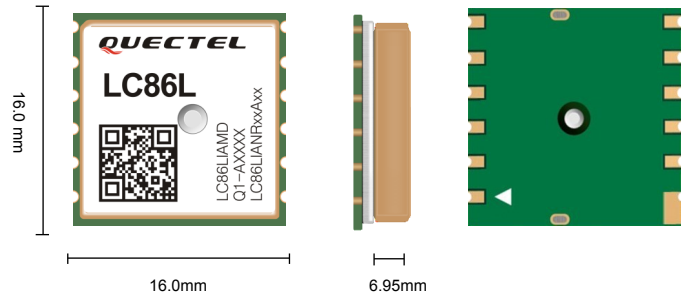


Quectel LC86L

Compact GNSS Module Integrating Patch Antenna & AG3331 Solution



LC86L is an ultra-compact GNSS POT (Patch on Top) module with an embedded 15.0mm × 15.0mm × 4.0mm patch antenna and GNSS chipset AG3331 that achieves the perfect performance to support GPS, GLONASS, BeiDou (optional), QZSS. With 33 tracking channels, 99 acquisition channels, and 210 PRN channels, LC86L can acquire and track any mix of multiple satellite signals

Designed to be compatible with Quectel GPS L80 module in the compact and unified form factor, it provides a flexible and scalable platform for migrating from GPS to GNSS. .

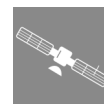
Combining advanced AGNSS as well as EASY™ (Embedded Assist System) and LOCUS feature , LC86L achieves the highest performance and fully meets the industrial standard. EASY™ technology allows LC86L to calculate and predict orbits automatically using the ephemeris data (up to 3 days) stored in internal RAM memory, so LC86L can fix position quickly even at indoor signal levels with low power consumption. Additional feature of embedded logger function called LOCUS allows LC86L to log position information to internal flash memory at default intervals of 15 seconds and provide typically more than 16 hours log capacity without adding cost.

LC86L supports automatic antenna switching function. It can achieve the switching between internal patch antenna and external active antenna. Moreover, it keeps positioning during the switching process. Due to its compact design, high precision and sensitivity, LC86L is perfectly suitable for a broad range of M2M applications such as portable device, automotive, personal tracking, security and industrial PDA. It is especially suitable for special applications, like GNSS mouse and OBD



Key Benefits

- ✓ Extremely compact footprint: 16.0mm × 16.0mm × 6.45mm
- ✓ Multi-GNSS engine for GPS, GLONASS, BeiDou (optional) and QZSS
- ✓ Automatic antenna switching function
- ✓ Support short circuit protection and antenna detection
- ✓ Support DGPS, SBAS (WAAS/EGNOS/MSAS/GAGAN)
- ✓ Support AGNSS
- ✓ Built-in LNA for better sensitivity
- ✓ EASY™, an advanced AGPS technology without external memory
- ✓ Support SDK command developed by Quectel



L1 Band



Multi-constellation System



Ultra-compact Size



RoHS Compliant



Wide Operation Temperature:
-40°C to +85°C



Low Power Consumption

Quectel LC86L

Dual-Band GNSS Module	LC86L(A)	LC86L (B)
Region	Global	Domestic
Dimensions (mm)	16.0mm × 16.0mm × 6.95mm	16.0mm × 16.0mm × 6.95mm
Weight	Approx. 6.0g	Approx. 6.0g
Embedded Antenna	●	●
Temperature Range		
Operation Temperature	-40°C ~ +85°C	-40°C ~ +85°C
Storage Temperature	-40°C ~ +90°C	-40°C ~ +90°C
GNSS Features		
Supported Bands	GPS L1 C/A, QZSS L1: 1575.42MHz GLONASS L1: 1602.5625MHz	GPS L1 C/A, QZSS L1: 1575.42MHz BeiDou B1: 1561.098MHz
Default GNSS Constellation	GPS+GLONASS+QZSS	GPS+BeiDou +QZSS
Channels	33 tracking channels, 99 acquisition channels	33 tracking channels, 99 acquisition channels
Horizontal Position Accuracy	Autonomous: 2.5 CEP	Autonomous: 2.5 CEP
Velocity Accuracy	<0.1m/s	<0.1m/s
Acceleration Accuracy	<0.1m/s ²	<0.1m/s ²
TTF (with AGNSS)	Cold Start: <15s	Cold Start: <15s
TTF (without AGNSS) ^①	Cold Start: <35s Warm Start: <30s Hot Start: <2s	Cold Start: <35s Warm Start: <30s Hot Start: <2s
Sensitivity ^①	Acquisition: -148dBm Tracking: -165dBm Reacquisition: -161dBm	Acquisition: -148dBm Tracking: -165dBm Reacquisition: -161dBm
Dynamic Performance ^②	Maximum Altitude: Max 18000m Maximum Velocity: Max 515m/s Maximum Acceleration: 4g	Maximum Altitude: Max 18000m Maximum Velocity: Max 515m/s Maximum Acceleration: 4g
Certifications		
Regulatory	CE*	CE*
Others	RoHS	RoHS
Interfaces		
UART Interface	Adjustable: 9600bps~921600bps Default: 9600bps Update Rate: 10Hz (Max)	Adjustable: 9600bps~921600bps Default: 9600bps Update Rate: 10Hz (Max)
I/O Voltage	Typical 2.8V	Typical 2.8V
Protocols	NMEA 0183, PMTK, PQ	NMEA 0183, PMTK, PQ
External Antenna Interface		
Antenna Type	Active	Active
Antenna Power Supply	External or Internal (through VCC_RF)	External or Internal (through VCC_RF)
Electrical Features		
Supply Voltage Range	2.8V~4.3V, Typical 3.3V	2.8V~4.3V, Typical 3.3V
Current Consumption (@3.3V)	Normal Operation: TBD mA @Acquisition TBD mA @Tracking Power Saving Modes: TBD μA @Sleep Mode	Normal Operation: TBD mA @Acquisition TBD mA @Tracking Power Saving Modes: TBD μA @Sleep Mode

Notes:

- ① Preliminary data
- ② ITR Limits
- means supported
- * under development