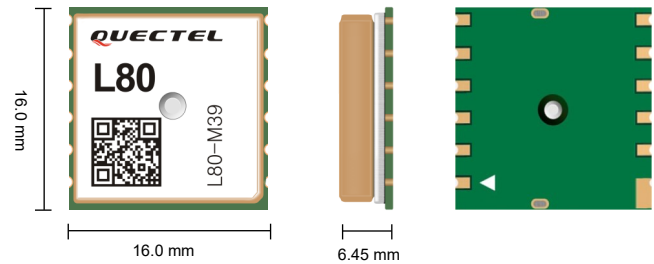


# Quectel L80

## Compact GPS Module Embedded Patch Antenna



The L80 is an ultra-compact GPS POT (Patch on Top) module with an embedded 15.0 mm × 15.0 mm × 4.0 mm patch antenna. This space-saving design makes L80 the perfect module for the miniature devices. Its LCC package and embedded patch antenna enable the L80 module to have exceptional performance, both in acquisition and tracking.

Combining advanced AGPS called EASY™ (Embedded Assist System) and proven AlwaysLocate™ technology, the L80 achieves the highest performance and fully meets the industrial standard. The EASY™ technology ensures that the module can calculate and predict orbits automatically using the ephemeris data (of up to 3 days) stored in an internal RAM memory. As a result, the L80 module can fix position quickly even at indoor signal levels with low power consumption. With the AlwaysLocate™ technology, the L80 can adaptively adjust the on/off time to achieve balance between positioning accuracy and power consumption according to the environmental and motion conditions.

The L80 supports automatic antenna switching function. The module can achieve the switching between the internal patch antenna and an external active antenna, while keeping the positioning during the switching process.

Its Fitness Low Power (FLP) feature provides low-power GPS solution for fitness application. The FLP is an optimized solution for wearable, fitness and tracking devices whose power consumption is about 50 % of power consumption in the normal mode.

With its compact design, high precision and sensitivity, the L80 module is perfectly suitable for a broad range of M2M applications, such as portable device, automotive, personal tracking, security and industrial PDA. Besides, the module is especially suitable for special applications, like GPS mouse and OBD.



## Key Features

- ✓ Embedded patch antenna: 15.0 mm × 15.0 mm × 4.0 mm
- ✓ Extremely compact size: 16.0 mm × 16.0 mm × 6.45 mm
- ✓ Automatic antenna switching function
- ✓ Supports short circuit protection and antenna detection
- ✓ Built-in LNA for better sensitivity
- ✓ EASY™, an advanced AGPS technology without external memory
- ✓ Ultra low power consumption in the tracking mode, 20 mA @ Tracking
- ✓ AlwaysLocate™, an intelligent controller of the periodic mode
- ✓ LOCUS, an embedded logger solution that doesn't require host or external flash
- ✓ High sensitivity: -165 dBm @ Tracking, and -148 dBm @ Acquisition
- ✓ 66 acquisition channels, 22 tracking channels
- ✓ Supports FLP mode (power consumption is about half of the consumption in the normal mode)
- ✓ Balloon mode that works in high altitudes (up to 80 km)
- ✓ Supports DGPS, SBAS (WAAS/EGNOS/MSAS/GAGAN)
- ✓ Anti-jamming, multi-tone active interference canceller
- ✓ 1PPS can be used for time service
- ✓ Supports SDK commands developed by Quectel



Embedded  
Patch Antenna



EASY™ Technology



Low Power  
Consumption



Super Tracking  
Sensitivity:  
-165 dBm



Extended Temperature  
Range: -40 °C to +85 °C



High Accuracy



Anti-Jamming



GPS + QZSS



RoHS

# Quectel L80

## Compact GPS Module Embedded Patch Antenna

### GPS Features

#### Receiving Bands:

GPS L1 C/A: 1575.42 MHz

#### Channel:

22 Tracking Channels

66 Acquisition Channels

#### SBAS:

WAAS, EGNOS, MSAS, GAGAN

#### Horizontal Position Accuracy:

Autonomous: < 2.5 m CEP

#### Velocity Accuracy:

Without Aid: < 0.1 m/s

#### Acceleration Accuracy:

Without Aid: < 0.1 m/s<sup>2</sup>

#### Reacquisition Time: < 1 s

#### TTFF @ -130 dBm with EASY™:

Cold Start: < 15 s

Warm Start: < 5 s

Hot Start: < 1 s

#### TTFF @ -130 dBm without EASY™:

Cold Start: < 35 s

Warm Start: < 30 s

Hot Start: < 1 s

#### Sensitivity:

Acquisition: -148 dBm

Tracking: -165 dBm

Reacquisition: -160 dBm

#### Dynamic Performance:

Maximum Altitude: Max. 18000 m

Maximum Velocity: Max. 515 m/s

Maximum Acceleration: 4 g

### Interfaces

#### UART Interface:

Adjustable 4800–115200 bps

Default: 9600 bps

#### Update Rate:

1 Hz (Default), up to 10 Hz

#### I/O Voltage:

2.7–2.9 V

#### Protocols:

NMEA 0183

PMTK

### General Features

#### Extended Temperature:

-40 °C to +85 °C

#### Dimensions:

16.0 mm × 16.0 mm × 6.45 mm

#### Weight:

Approx. 6.0 g

### Power Management

#### Power Supply:

3.0–4.3 V, Typ. 3.3 V

#### Power Acquisition:

25 mA

#### Power Tracking:

20 mA

#### Power Saving:

3 mA @ AlwaysLocate™<sup>①</sup>

7 μA @ Backup Mode

1 mA @ Standby Mode

11 mA @ FLP Mode

Periodic Mode

Note:

<sup>①</sup> Measured with GPS System in Outdoor Static Mode.