

Quectel L89

Compact IRNSS-enabled GNSS Module



L89 is a high performance IRNSS-enabled GNSS module, capable of acquiring and tracing GPS, IRNSS, GLONASS, BeiDou, Galileo and QZSS signals. With 2 embedded antennas, the module can work at L1 and L5 bands simultaneously.

Compared with the GNSS module working at L1 band only, L89 can make use of GPS, Galileo and IRNSS signals to increase the number of visible satellites, reduce TTFF and enhance positioning accuracy, especially when being used in rough urban environments.

L89 can achieve exceptional performance both in acquisition and tracking, and fully meet the industrial standard. With two embedded LNAs, dual antennas and antenna switch function, it is an ideal product for automotive, consumer and industry tracking applications.



Key Benefits

- ✓ Support IRNSS L5 Band
- ✓ Embedded patch antenna and chip antenna
- ✓ Multi-GNSS engines for GPS, IRNSS, GLONASS, BeiDou, Galileo and QZSS
- ✓ Support DGPS, SBAS (WAAS/EGNOS/MSAS/GAGAN)
- ✓ Built-in LNAs for better sensitivity
- ✓ Great anti-jamming performance due to multi-tone active interference canceller
- ✓ Support SDK command* developed by Quectel



IRNSS Signal Reception



Multi-GNSS Systems



Compact Size



Low Power Consumption



Anti-Jamming



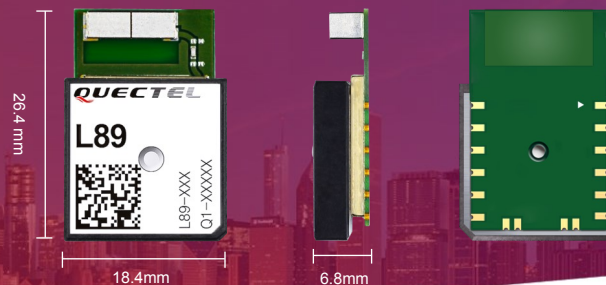
Extended Operating Temperature:
-40°C to +85°C



RoHS Compliant

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GNSS Features

Receiving Bands:

GPS L1/Galileo E1 C/A: 1575.42MHz

IRNSS L5 C/A: 1176.45MHz

GLONASS L1 C/A: 1602.5625MHz

BD2 B1 C/A: 1561.098MHz

SBAS:

WAAS, EGNOS, MSAS, GAGAN

Horizontal Position Accuracy:

Autonomous: <1.8m CEP

Velocity Accuracy:

Without Aid: <0.1m/s

Acceleration Accuracy:

Without Aid: <0.1m/s²

Timing Accuracy:

1PPS: 3.9ns

Reacquisition Time: <1.5s

TTFF @-130dBm with AGPS:

Cold Start: <13s

Warm Start: <5s

Hot Start: <2s

TTFF @-130dBm without AGPS:

Cold Start: <32s

Warm Start: <25s

Hot Start: <2s

Sensitivity:

Acquisition: -147dBm

Tracking: -163dBm

Reacquisition: -156dBm

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: 3.0V

External Antenna Interface:

Antenna Type: Active

Antenna Power Supply: External

Power Management

Power Supply:

3.1V~4.3V, typical 3.3V

Power Consumption (GPS+Galileo+IRNSS):

Acquisition: 99mA@3.3V

Tracking: 95mA @3.3V

Backup: 7uA @3.3V

General Features

Temperature Range: -40°C ~ +85°C

Dimension: 26.4mm × 18.4mm × 6.8mm

Weight: Approx. 8.2g

Protocols: NMEA 0183

Approvals

RoHS Compliant

* Under Development.