

# Quectel L89

## Compact GNSS Module with IRNSS



L89 is a high performance GNSS module supporting multi-constellation GNSS and dual GNSS bands. It can acquire and track 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 generally increase the number of visible satellites, reduce TTFF and enhance positioning accuracy, especially when driving in rough urban environments.

L89 achieves exceptional performance both in acquisition and tracking, and fully meets the industrial standard. With embedded LNA, dual antennas and antenna switch function, it is an ideal product for automotive, consumer and industry tracking applications.



### Key Benefits

- ✓ Extremely compact size: 25.0mm × 16.0mm × 6.8mm
- ✓ Multi-GNSS engine for GPS, IRNSS, GLONASS, BeiDou, Galileo and QZSS
- ✓ Support dual GNSS bands (L1, L5)
- ✓ Built-in LNA for better sensitivity
- ✓ Support DGPS, SBAS (WAAS/EGNOS/MSAS/GAGAN)
- ✓ Great anti-jamming performance due to multi-tone active interference canceller
- ✓ Support SDK command\* developed by Quectel



IRNSS Signal Reception



Low Power Consumption



Extremely Compact Size



RoHS Compliant



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



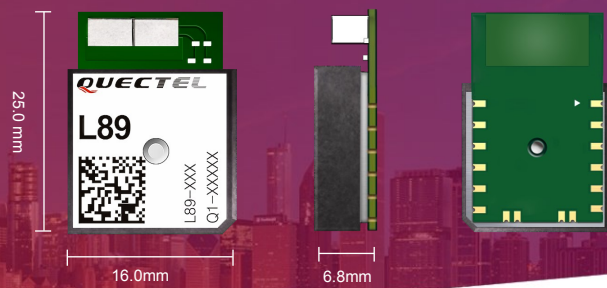
Anti-Jamming



Multi-GNSS Systems

# Quectel L89

## Compact GNSS Module with IRNSS



### 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/s<sup>2</sup>

#### Timing Accuracy:

1PPS: 3.9ns

Reacquisition Time: <1.5s

#### TTFF @-130dBm with AGPS:

Cold Start: <TBD s

Warm Start: <TBD s

Hot Start: <TBD s

#### TTFF @-130dBm without AGPS:

Cold Start: <32s

Warm Start: <25s

Hot Start: <1.5s

#### Sensitivity:

Acquisition: -147dBm<sup>①</sup>

Tracking: -162dBm<sup>①</sup>

Reacquisition: -156dBm<sup>①</sup>

#### Dynamic Performance:

Maximum Altitude: Max. 18000m<sup>①</sup>

Maximum Velocity: Max. 515m/s<sup>①</sup>

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: Passive or Active

Antenna Power Supply: External

### Power Management

#### Power Supply:

3.1V~4.3V, typical 3.3V

#### Power Acquisition:

90mA<sup>①</sup> @3.3V

#### Power Tracking:

70mA<sup>①</sup> @3.3V

#### Power Saving:

50uA<sup>①</sup> @Standby Mode

### General Features

Temperature Range: -40°C ~ +85°C

Dimension: 25.0mm × 16.0mm × 6.8mm

Weight: 8.2g

Protocols: NMEA 0183

### Approvals

RoHS Compliant

CE\* (Europe)

<sup>①</sup> Preliminary test data for reference only.

\* Under development