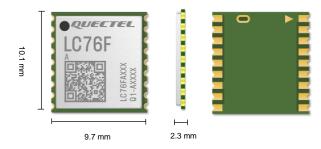# Quectel LC76F

## Compact GNSS Module



10.1 mm
9.7 mm
2.3 mm

Quectel LC76F GNSS module supports concurrent reception of GPS, GLONASS (or BeiDou) and QZSS. It can acquire and track any mix of GPS, GLONASS (or BeiDou) and SBAS signals. LC76F is designed to be compatible with Quectel L76 and L76-L as well as L76-LB modules, allowing convenient migration between them.

The integrated LNA provides an improved sensitivity, accuracy, fast tracking and acquisition of signals, and maintains enhanced performance in challenging environments. Compared with single GPS receivers, multiple GNSS constellations increase the number of visible satellites, reduce the Time To First Fix and improve positioning accuracy, even in urban canyons.

Combining advanced AGNSS technologies and low-power modes, LC76F achieves high performance, low power consumption and fully meets the industrial standards.

Quectel LC76F's superior performance makes it ideal for industrial PDA, consumer and industry applications. Extremely low power consumption makes it a great solution for power-sensitive applications, especially portable devices.

## Key Features

- ✔ Multi-GNSS engine for GPS, GLONASS (or BeiDou) and QZSS
- ✔ Industry-leading sensitivity of -165 dBm during tracking and -148 dBm during acquisition
- ✔ Integrated LNA for high sensitivity
- ✔ Supports multiple low-power modes to ensure ultra-low power consumption
- ✔ Supports UART and I2C Interfaces

AGNSS Technology

Ultra Low Power Consumption

Extremely Compact Size

Super Tracking Sensitivity: -165 dBm

Operating Temperature Range: -40 to +85 °C

RoHS Compliant

Multi-GNSS System

# Quectel LC76F

| GNSS Module | LC76F |
|---|---|
| **Region** | Global |
| **Dimensions (mm)** | 10.1 × 9.7 × 2.3 |
| **Weight (g)** | Approx. 0.3 |
| **Temperature Range** | |
| **Operating Temperature** | -40 °C to +85 °C |
| **Storage Temperature** | -40 °C to +90 °C |
| **GNSS Features** | |
| **Supported Bands** | GPS L1 C/A: 1575.42 MHz<br>GLONASS L1: 1601.71 MHz<br>BeiDou B1l: 1561.098 MHz |
| **Default GNSS Constellations** | GPS + GLONASS |
| **Channels** | 24 Channels |
| **Horizontal Position Accuracy**[1] | Autonomous: 2 m CEP |
| **Velocity Accuracy** [1] | Without Aid: 0.1 m/s |
| **Acceleration Accuracy**[1] | Without Aid: 0.1 m/s² |
| **Timing Accuracy**[1] | 1PPS < 100 ns |
| **Reacquisition Time** | 1 s |
| **TTFF with AGNSS**[2] | Cold Start: 6 s<br>Warm Start: 2 s<br>Hot Start: 2 s |
| **TTFF without AGNSS**[1] | Cold Start: 30 s<br>Warm Start: 2 s<br>Hot Start: 2 s |
| **Sensitivity** | Acquisition: -148 dBm<br>Tracking: -165 dBm<br>Reacquisition: -162 dBm |
| **Dynamic Performance**[1] | Maximum Altitude: 18000 m<br>Maximum Velocity: 515 m/s<br>Maximum Acceleration: 4 g |
| **Interfaces** | |
| **I2C Interface** | Up to 400 kbps |
| **UART Interface** | Adjustable: 9600–921600 bps<br>Default: 9600 bps<br>Update Rate: 1 Hz (Default), up to 10 Hz* |
| **Protocol** | NMEA 0183 |
| **External Antenna Interface** | |
| **Antenna Type** | Active or passive |
| **Antenna Power Supply** | External power supply, or through the VDD_RF pin |
| **Electrical Characteristics** | |
| **Supply Voltage Range** | 2.8–4.3 V, Typ. 3.3 V |
| **I/O Voltage** | 2.8 V |
| **Current Consumption (@ 3.3 V)** | Normal Operation:<br>28 mA @ Acquisition (GPS + GLONASS)<br>28 mA @ Tracking (GPS + GLONASS)<br>Power Saving Modes:<br>1.4 mA @ Standby Mode<br>30 μA @ Backup Mode |

Note:
1. [1]: Room temperature, all satellites at -130 dBm.
2. [2]: Open-sky, active high precision GNSS antenna.
3. *: Under development.