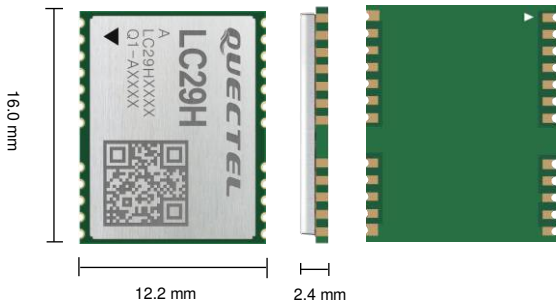
Quectel LC29H

Dual-Band Multi-Constellation GNSS Module



LC29H is a dual-band, multi-constellation GNSS module based on MTK platform. It can concurrently track GPS, BeiDou, Galileo and QZSS satellite signals on L1 and L5 bands as well as GLONASS satellite signal on L1 band.

Compared with GNSS modules that can track only L1 signals, LC29H can track more visible satellites, and thereby significantly mitigates the multipath effect in urban canyons, reduces signal acquisition time, and improves positioning accuracy. The module supports plenty of tracking channels, which leads into superior navigation performance.

The module's integrated LNAs enable high sensitivity and high precision positioning; the integrated SAW filters improve its anti-interference capability.

LC29H supports advanced power management that enables low-power GNSS sensing and position fix, which makes the module an ideal solution for power-sensitive applications and battery-powered systems.

By virtue of its low power consumption and high precision, LC29H proves to be an ideal solution for real-time tracking systems, sharing economy applications and so on.

Key Features

- Multi-GNSS engine for GPS, GLONASS, BeiDou, Galileo and QZSS
- Support L1 and L5 GNSS bands
- Integrated LNAs for high sensitivity
- Integrated SAW filters for noise cancellation
- B13 band suppression design that reduces interferences from this band by 20 dB
- Support UART, USB*, SPI* and I2C* interfaces
- Support EPO™, EASY™, LOCUS™
- Support AGNSS

EASY™ Technology

Ultra Low Power Consumption

Extremely Compact Size

Tracking Sensitivity: -165 dBm

Operating Temperature Range: -40 to +85 °C

Anti-Jamming

RoHS Compliant

Multi-GNSS System

Version: 1.1 | Status: Released

GNSS Module	LC29H (A)*
Region	Global
Dimensions	16.0 mm × 12.2 mm × 2.4 mm
Weight	Approx. 0.9 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +90 °C
GNSS Features	
Supported Bands	GPS L1, Galileo E1, QZSS L1: 1575.42 MHz GPS L5, Galileo E5, QZSS L5: 1176.45 MHz BeiDou B1: 1561.098 MHz BeiDou B2: 1176.45 MHz GLONASS L1: 1602.5625 MHz
Default GNSS Constellation	GPS + GLONASS + Galileo + BeiDou + QZSS
Number of Concurrent GNSS	5
SBAS	WAAS, EGNOS, MSAS* and GAGAN
Horizontal Position Accuracy ①	Autonomous: 1 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
TTFF @ -130 dBm with EASY™ ②	Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 1 s
TTFF @ -130 dBm without EASY™ ①	Cold Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s
Sensitivity ③	Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm
Dynamic Performance ①	Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g
Certifications	
Regulatory	CE*
Others	RoHS
Interfaces	
I2C*	Up to 400 kbps
UART	Adjustable: 9600–921600 bps Default: 115200 bps Update Rate: 1 Hz (Default); Max. 10 Hz
Protocols	NMEA 0183, PAIR, PQTM

Notes:
1. ①: Room temperature, all satellites at -130 dBm.
2. ②: Open-sky, active high precision GNSS antenna, less than 1 km baseline length.
3. ③: Room temperature, demonstrated with good LNAs.
4. *: Under development / Ongoing.

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GNSS Module	LC29H (A)*
External Antenna Interface	
Antenna Type	Active or Passive
Antenna Power Supply	External
Active Antenna Protection	Short-Circuit Protection and Open-Circuit Detection
Electrical Characteristics	
Supply Voltage Range	3.1–3.6 V, Typ. 3.3 V
I/O Voltage	Typ. 2.8 V
Current Consumption (Default GNSS Constellation @ 3.3 V) ①	**Normal Operation:** 44 mA @ Acquisition 43 mA @ Tracking **Power Saving Mode:** 51 µA @ Backup Mode

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