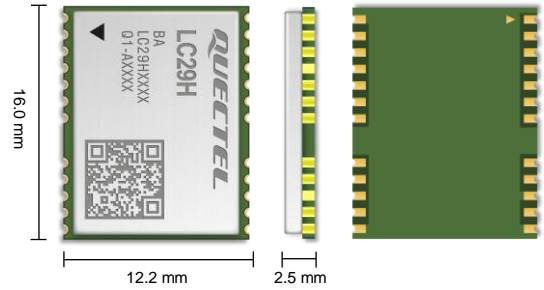


# Quectel LC29H

## Dual-Band Multi-Constellation GNSS Module with RTK and DR Functions



LC29H is a dual-band, multi-constellation GNSS module based on the MTK platform. It supports the concurrent reception of five GNSS constellations: GPS, BeiDou, Galileo, QZSS, and GLONASS.

Compared with GNSS modules that track only L1 signal, LC29H can receive and track more visible satellites, thereby significantly mitigating the multipath effect in deep urban canyons, reducing signal acquisition times, and improving positioning accuracy. Besides, with its built-in LNA and SAW filter, the module achieves better sensitivity and anti-interference capability. The DR\* function ensures its superior positioning performance even in weak signal areas or when GNSS signals are not available.

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

By the high-precision positioning and low power consumption, LC29H proves to be perfectly suited for applications such as real-time tracking systems and sharing economy services.



## Key Features

- ✓ Multi-GNSS engine for GPS, GLONASS, BeiDou, Galileo, and QZSS
- ✓ Reception of L1 and L5 GNSS bands signals
- ✓ Integrated RTK\* and DR\* functions
- ✓ Integrated LNA for high sensitivity
- ✓ Integrated SAW filter for noise cancellation
- ✓ Band 13 suppression design that reduces interferences from this band by 20 dB
- ✓ UART and I2C\* interfaces
- ✓ EPO™, EASY™, and LOCUST™



EASY™ Technology



Ultra Low Power Consumption



Ultra Compact Size



Tracking Sensitivity: -165 dBm



Operating Temperature Range: -40 to +85 °C



Anti-jamming



RoHS Compliant



Multi-constellation System

# Quectel LC29H

GNSS Module	LC29H (AA)*	LC29H (BA)*	LC29H (CA)*
Region	Global	Global	Global
Dimensions	12.2 mm × 16.0 mm × 2.5 mm	12.2 mm × 16.0 mm × 2.5 mm	12.2 mm × 16.0 mm × 2.5 mm
Weight	Approx. 0.9 g	Approx. 0.9 g	Approx. 0.9 g
<b>Temperature Range</b>			
Operating Temperature	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
Storage Temperature	-40 °C to +90 °C	-40 °C to +90 °C	-40 °C to +90 °C
<b>GNSS Features</b>			
Supported Bands	GPS L1 C/A, Galileo E1, QZSS L1 C/A: 1575.42 MHz GPS L5, Galileo E5a, QZSS L5: 1176.45 MHz BeiDou B1: 1561.098 MHz BeiDou B2a: 1176.45 MHz GLONASS L1: 1602.5625 MHz	GPS L1 C/A, Galileo E1, QZSS L1 C/A: 1575.42 MHz GPS L5, Galileo E5a, QZSS L5: 1176.45 MHz BeiDou B1: 1561.098 MHz BeiDou B2a: 1176.45 MHz GLONASS L1: 1602.5625 MHz	GPS L1 C/A, Galileo E1, QZSS L1 C/A: 1575.42 MHz GPS L5, Galileo E5a, QZSS L5: 1176.45 MHz BeiDou B1: 1561.098 MHz BeiDou B2a: 1176.45 MHz GLONASS L1: 1602.5625 MHz
Default GNSS Constellation	GPS + GLONASS + Galileo + BeiDou + QZSS	GPS + GLONASS + Galileo + BeiDou + QZSS	GPS + GLONASS + Galileo + BeiDou + QZSS
Number of Concurrent GNSS	5	5	5
SBAS	WAAS, EGNOS, MSAS, and GAGAN	WAAS, EGNOS, MSAS, and GAGAN	WAAS, EGNOS, MSAS, and GAGAN
RTK or DR	-	RTK* + DR*	DR*
Horizontal Position Accuracy <sup>①</sup>	Autonomous: 1 m CEP	Autonomous: 1 m CEP With RTK*: TBD	Autonomous: 1 m CEP
Velocity Accuracy <sup>①</sup>	Without Aid: 0.1 m/s	Without Aid: 0.1 m/s	Without Aid: 0.1 m/s
Acceleration Accuracy <sup>①</sup>	Without Aid: TBD	Without Aid: TBD	Without Aid: TBD
Accuracy of 1PPS Signal <sup>①</sup>	100 ns	100 ns	TBD
Convergence Time <sup>②</sup>	-	With RTK*: 10 s	-
TTFB @ -130 dBm with AGNSS <sup>②</sup>	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: TBD Warm Start: TBD Hot Start: TBD
TTFB @ -130 dBm without AGNSS <sup>①</sup>	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: TBD Warm Start: TBD Hot Start: TBD
Sensitivity <sup>③</sup>	Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm	Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm	Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm
Dynamic Performance <sup>①</sup>	Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g	Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g	Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g
<b>Certifications</b>			
Regulatory	Europe: CE*	Europe: CE*	Europe: CE*
Others	RoHS*	RoHS*	RoHS*
<b>Interfaces</b>			
I2C*	Up to 400 kbps	Up to 400 kbps	Up to 400 kbps
UART	Adjustable: 9600–921600 bps Default: 115200 bps Update Rate: 1 Hz (Default); Max. 10 Hz	Adjustable: 9600–921600 bps Default: 115200 bps Update Rate: 1 Hz (Default)	Adjustable: 9600–921600 bps Default: 115200 bps Update Rate: 1 Hz (Default)
Protocol	NMEA 0183	NMEA 0183	NMEA 0183
<b>External Antenna Interface</b>			
Antenna Type	Active or Passive	Active or Passive	Active or Passive
Antenna Power Supply	External or VDD_RF pin of module	External or VDD_RF pin of module	External or VDD_RF pin of module
Active Antenna Protection	-	-	-
<b>Electrical Characteristics</b>			
Supply Voltage Range	3.1–3.6 V, Typ. 3.3 V	3.1–3.6 V, Typ. 3.3 V	3.1–3.6 V, Typ. 3.3 V
I/O Voltage	Typ. 2.8 V	Typ. 2.8 V	Typ. 2.8 V
Current Consumption (Default GNSS Constellation @ 3.3 V) <sup>①</sup>	<b>Normal Operation:</b> TBD @ Acquisition TBD @ Tracking <b>Power Saving Mode:</b> TBD @ Backup Mode	<b>Normal Operation:</b> 26 mA @ Acquisition 26 mA @ Tracking <b>Power Saving Mode:</b> 25 µA @ Backup Mode	<b>Normal Operation:</b> TBD @ Acquisition TBD @ Tracking <b>Power Saving Mode:</b> TBD @ Backup Mode

NOTE:

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