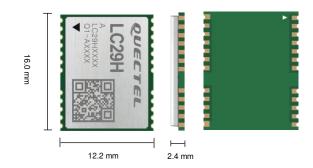


Quectel LC29H

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 OZSS
- ✓ 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

Quectel LC29H

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 GPS L1, Gaillieo E1, QZSS L1: 1575-42 MHz GPS L5, Gaillieo E5, QZSS L5: 1176-45 MHz BeiDou 81: 1561.098 MHz BeiDou 81: 1561.098 MHz BeiDou 82: 1176-45 MHz GIONASS L1: 1602.5625 MHz Default GNSS Constellation GPS + GLONASS + Gailleo + BeiDou + QZSS Number of Concurrent GNSS 5 SBAS WAAS, EGNOS, MSAS+ and GAGAN Horizontal Position Accuracy © Without Aid: < 0.1 m/s Acceleration Accuracy © Without Aid: < 0.1 m/s² Timing Accuracy © Without Aid: < 0.1 m/s² TIFF @ -130 dBm with EASY™ © Cold Start: < 15 s Hot Start: < 1 s Hot Start: < 1 s Cold Start: < 1 s Cold Start: < 28 s Hot Start: < 1 s Cold Start: < 2 s Cold Start: < 1 s Cold Start: < 2 s c Cold St	GNSS Module	LC29H (A)*	
Weight Approx. 0.9 g Temperature Range -40 °C to +85 °C Storage Temperature -40 °C to +90 °C GNSS Features GPS L1, Gailleo E1, QZSS L1: 1575.42 MHz GPS L5, Gailleo E5, QZSS L5: 1176.45 MHz BeiDou B1: 1561.098 MHz BeiDou B1: 1561.098 MHz BeiDou B1: 1561.098 MHz GLONASS L1: 1602.5625 MHz GLONASS L1: 1602.5625 MHz GLONASS L1: 1602.5625 MHz GLONASS L1: 1602.5625 MHz GLONASS HORDOWN GLONAS HORDOWN GLONASS	Region	Global	
Temperature Range Operating Temperature -40 °C to +85 °C Storage Temperature -40 °C to +90 °C GNSS Features GPS L1, Gallleo E1, QZSS L1: 1575-42 MHz GPS L5, Gallleo E5, QZSS L5: 1176.45 MHz BelDou B1: 1561.098 MHz BelDou B2: 1176.45 MHz GLONASS L1: 1602.5625 MHz Default GNSS Constellation GPS + GLONASS + Gallieo + BelDou + QZSS Number of Concurrent GNSS 5 SBAS WAAS, EGNOS, MSAS* and GAGAN Horizontal Position Accuracy ① Without Aid: < 0.1 m/s Acceleration Accuracy ① Without Aid: < 0.1 m/s Timing Accuracy ① UPS < 100 ns Cold Start: < 1 s Hot Start: < 1 s Hot Start: < 1 s Hot Start: < 1 s Cold Start: < 2 s s Warm Start: < 20 s Hot Start: < 1 s Acquisition: -162 dBm Reacquisition: -162 dBm Pynamic Performance ① Maximum Alctitude: 10000 m Maximum Maccuracy 1000 m/s Maximum Acceleration: 4g Certifications Regulatory CE*	Dimensions	$16.0\mathrm{mm} imes 12.2\mathrm{mm} imes 2.4\mathrm{mm}$	
Operating Temperature -40 °C to +90 °C GNSS Features GPS L1, Galileo E1, QZSS L1: 1575. 42 MHz GPS L5, Galileo E5, QZSS L5: 1176. 45 MHz BelPou B1: 1561.098 MHz BelPou B1: 1176. 45 MHz GLONASS L1: 1602.5625 MHz Default GNSS Constellation GPS + GLONASS + Galileo + BelDou + QZSS Number of Concurrent GNSS 5 SBAS WAAS, EGNOS, MSAS* and GAGAN Horizontal Position Accuracy ^③ Autonomous: 1 m CEP Velocity Accuracy ^③ Without Aid: < 0.1 m/s	Weight	Approx. 0.9 g	
Storage Temperature GNSS Features GPS L1, Galileo E1, QZSS L1: 1575.42 MHz GP5 L5, Galileo E5, QZSS L5: 1176.45 MHz BelDou B1: 1561.098 MHz BelDou B2: 1176.45 MHz GLONASS L1: 1602.5625 MHz Default GNSS Constellation GPS + GLONASS + Galileo + BelDou + QZSS Number of Concurrent GNSS SBAS WAAS, EGNOS, MSAS* and GAGAN Horizontal Position Accuracy Without Aid: < 0.1 m/s Acceleration Accuracy Without Aid: < 0.1 m/s² Timing Accuracy Timing Accuracy Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 1 s Cold Start: < 1 s Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Nelocity: 500 m/s Maximum Neceleration: 4g Certifications Regulatory CE*	Temperature Range		
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 SBAS WAAS, EGNOS, MSAS* and GAGAN Horizontal Position Accuracy Without Aid: < 0.1 m/s Acceleration Accuracy Without Aid: < 0.1 m/s² Timing Accuracy Without Aid: < 0.1 m/s² Timing Accuracy Timing Accuracy Cold Start: < 1s Warm Start: < 3s Hot Start: < 1s Cold Start: < 1s Cold Start: < 2s Warm Start: < 2s Hot Start: < 2s Hot Start: < 2s Hot Start: < 2s Hot Start: < 2s Morm Start: < 4s Maximum Altitude: 10000 m Maximum Acceleration: 4g Certifications Regulatory CE*	Operating Temperature	-40 °C to +85 °C	
GPS L1, Galileo E1, QZSS L1: 1575.42 MHz GPS L5, Galileo E5, QZSS L5: 1176.45 MHz BeiDou B1: 1561.093 MHz BeiDou B1: 1561.093 MHz GLONASS L1: 1602.5625 MHz Default GNSS Constellation GPS + GLONASS + Galileo + BeiDou + QZSS Number of Concurrent GNSS SBAS WAAS, EGNOS, MSAS* and GAGAN Horizontal Position Accuracy Without Aid: < 0.1 m/s Acceleration Accuracy Without Aid: < 0.1 m/s Acceleration Accuracy Timing Accuracy Without Aid: < 0.1 m/s² TITFF @ -130 dBm with EASY ^{NI} Warm Start: < 15 s Hot Start: < 15 s Hot Start: < 15 s Hot Start: < 28 s Hot Start: < 20 s Hot Start: < 15 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Acceleration: 4g Certifications Regulatory CE*	Storage Temperature	-40 °C to +90 °C	
Supported Bands 1575.42 MHz GPS LS, Gallileo ES, QZSS L5: 1176.45 MHz BeiDou B1: 1561.098 MHz BeiDou B2: 1176.45 MHz BeiDou B2: 1176.45 MHz BeiDou B2: 1176.45 MHz GLONASS L1: 1602.5625 MHz	GNSS Features		
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 Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 1 s Cold Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s Sensitivity ③ Acquisition: -147 dBm Tracking: -156 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g Certifications Regulatory CE*	Supported Bands	1575.42 MHz GPS L5, Galileo E5, QZSS L5: 1176.45 MHz BeiDou B1: 1561.098 MHz BeiDou B2: 1176.45 MHz	
Horizontal Position Accuracy Autonomous: 1 m CEP Welocity Accuracy Without Aid: < 0.1 m/s Acceleration Accuracy Without Aid: < 0.1 m/s² Timing Accuracy 1PPS < 100 ns Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 1 s Cold Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s Sensitivity Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g Certifications Regulatory Cetifications	Default GNSS Constellation	GPS + GLONASS + Galileo + BeiDou + QZSS	
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 Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 1 s Cold Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm Dynamic Performance ① Maximum Altitude: 10000 m Maximum Acceleration: 4g Certifications Regulatory CE*	Number of Concurrent GNSS	5	
Velocity Accuracy ① Without Aid: < 0.1 m/s Acceleration Accuracy ① Without Aid: < 0.1 m/s² Timing Accuracy ① 1PPS < 100 ns Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 1 s Warm Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s Sensitivity ③ Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Altitude: 10000 m Maximum Acceleration: 4g Certifications Regulatory CE*	SBAS	WAAS, EGNOS, MSAS* and GAGAN	
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 CE*	Horizontal Position Accuracy ^①	Autonomous: 1 m CEP	
Timing Accuracy ① 1PPS < 100 ns Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s Cold Start: < 1 s Cold Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g Certifications Regulatory CE*	Velocity Accuracy ^①	Without Aid: < 0.1 m/s	
TTFF @ -130 dBm with EASY™ ② Cold Start: < 15 s Warm Start: < 3 s Hot Start: < 28 s Warm Start: < 20 s Hot Start: < 1 s Cold Start: < 20 s Hot Start: < 1 s 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 Cold Start: < 15 s Warm Start: < 20 s Hot Start: < 20 s Hot Start: < 10 s Warm Start: < 20 s Hot Start: < 20 s Hot Start: < 20 s Hot Start: < 20 s Warm Start: < 20 s Warm Start: < 20 s Warm Start: < 20 s Hot Start: < 20 s Warm Start: < 20 s Hot Start: < 20 s Hot Start: < 20 s Hot Start: < 20 s Warm Start: < 20 s Warm Start: < 20 s Warm Start: < 20 s Hot Start: < 20 s Warm Start: < 1 s Warm Start: < 20 s Warm St	Acceleration Accuracy ①	Without Aid: < 0.1 m/s ²	
TTFF @ -130 dBm with EASY™ ② Warm Start: < 3 s Hot Start: < 28 s TTFF @ -130 dBm without EASY™ ③ Warm Start: < 20 s Hot Start: < 20 s Hot Start: < 1 s Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g Certifications Regulatory CE*	Timing Accuracy ^①	1PPS < 100 ns	
TTFF @ -130 dBm without EASY™ ① Warm Start: < 20 s Hot Start: < 1 s Acquisition: -147 dBm Tracking: -165 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g Certifications Regulatory CE*	TTFF @ -130 dBm with EASY™ ②	Warm Start: < 3 s	
Tracking: -165 dBm Reacquisition: -162 dBm Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g Certifications Regulatory CE*	TTFF @ -130 dBm without EASY™ ①	Warm Start: < 20 s	
Dynamic Performance ① Maximum Velocity: 500 m/s Maximum Acceleration: 4g Certifications Regulatory CE*	Sensitivity ^③	Tracking: -165 dBm	
Regulatory CE*	Dynamic Performance ^①	Maximum Velocity: 500 m/s	
_ • ,	Certifications		
Others RoHS	Regulatory	CE*	
	Others	RoHS	
Interfaces	Interfaces		
Up to 400 kbps	I2C*		
Adjustable: 9600–921600 bps UART Default: 115200 bps Update Rate: 1 Hz (Default); Max. 10 Hz	UART	Default: 115200 bps	
Protocols NMEA 0183, PAIR, PQTM	Protocols	NMEA 0183, PAIR, PQTM	

Notes:

- 1. ①: Room temperature, all satellites at -130 dBm.
- 2. $^{\scriptsize \textcircled{2}}$: 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.



Quectel LC29H

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

Notes:

- 1. ①: Room temperature, all satellites at -130 dBm.
- 2. *: Under development.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Quectel: LC29HAAMD