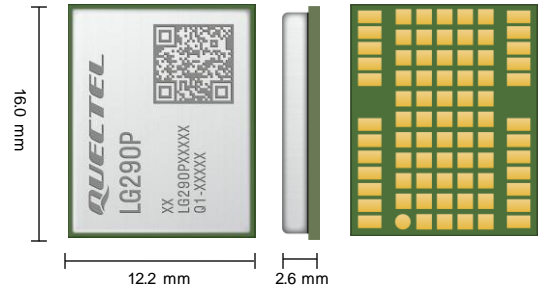




Quectel LG290P

Multi-constellation and multi-Band
High Precision GNSS Module



Quectel LG290P is a multi-band and multi-constellation high precision GNSS module, which supports simultaneous reception of GPS, GLONASS, Galileo, BDS, QZSS and NavIC constellations, SBAS systems (WASS, EGNOS, MSAS, and GAGAN) as well as multi-band RTK with fast convergence times and reliable performance.

The built-in professional-grade interference signal detection and elimination algorithms effectively mitigate multiple narrow-band interferences, which significantly improves signal reception performance, particularly in complex electromagnetic environments. Additionally, the module supports multi-mode and multi-frequency RTK algorithm solving, ensuring fast and reliable RTK high-precision positioning results in complex environments, such as interference and blockage.

LG290P supports protection-level and other integrity detection information, aiding control decisions in automatic navigation application scenarios. With on-chip storage ECC verification and secure boot safe loading mode, the module protects user firmware safety. Providing rich peripheral interfaces, including UART, SPI and I2C, it accommodates users' diverse application needs.

With its performance advantages of high precision and low power consumption, LG290P has emerged as an ideal choice for high precision navigation application scenarios, such as intelligent robots, UAVs, precision agriculture, surveying and mapping, and automatic driving.



Key Features

- ✓ Multi-GNSS constellation for GPS, GLONASS, Galileo, BDS, QZSS, NavIC and SBAS
- ✓ Reception of L1, L2 & L5 GNSS multi-band signals concurrently
- ✓ High update rate up to 20 Hz even at RTK mode
- ✓ Multi-band RTK with fast convergence times and high accuracy
- ✓ Proven excellent performance, even in urban scenario
- ✓ Built-in professional-grade NIC anti-jamming unit to suppress multiple narrow-band
- ✓ Integrated LNA for high sensitivity
- ✓ various interfaces of UART/SPI/I2C*



Multi-constellation



Multi-band



High update rate



Tracking Sensitivity:
-161 dBm



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



Anti-jamming



RoHS Compliant



Ultrapact Size



AGNSS Technology

GNSS Module	LG290P
Dimensions	12.2 mm × 16 mm × 2.6 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 C/A, L1C*, L2C, L5 GLONASS: L1, L2 Galileo: E1, E5a, E5b, E6 BDS: B1I, B1C, B2I, B2a, B2b, B3I QZSS: L1 C/A, L1C*, L2C, L5 NAVIC: L5 SBAS: L1 C/A
Default Constellations	GPS + GLONASS + Galileo + BDS + QZSS + NavIC
Number of Tracking Channels	1040
Number of Concurrent GNSS	5+QZSS
SBAS	WAAS, EGNOS, MSAS and GAGAN
Horizontal Position Accuracy	Autonomous: 1.5 m (Horizontal); 2.5 m (Vertical) RTK: 0.8 cm + 1ppm (Horizontal); 1.5 cm + 1ppm (Vertical)
Velocity Accuracy	Without Aid: 0.03 m/s
Acceleration Accuracy	TBD
1PPS Signal Accuracy	10 ns
Convergence Time	5 s
TTFF @ -130 dBm (with AGNSS) ^①	Cold Start: TBD Warm Start: TBD Hot Start: TBD
TTFF @ -130 dBm (without AGNSS) ^②	Cold Start: 28 Warm Start: 28 Hot Start: 1
Sensitivity (@ Default Constellations) ^③	Acquisition: -145 dBm Tracking: -160 dBm Reacquisition: -155 dBm
Dynamic Performance	Maximum Altitude: 10000 m Maximum Velocity: 500 m/s Maximum Acceleration: 4g
Update Rate	Default: 10 Hz Max. 20 Hz*
Certifications	
Regulatory	Europe: CE*
Others	RoHS*
Interfaces	
I2C*	Max. 400 kbps
SPI	Support
UART	Adjustable: 9600–921600 bps Default: 460800 bps
Protocol	NMEA 0183
Antenna Interface	
Antenna Type	External active antenna
Antenna Power Supply	External or Internal (through VDD_RF)
Electrical Characteristics	
Supply Voltage Range	3.15–3.45 V, Typ. 3.3 V
I/O Voltage	Typ. 3.3 V
Current Consumption (@ 3.3 V, Default Constellations)	Normal Operation: 87mA @ Acquisition 87mA @ Tracking Power Saving Mode: 12uA @ Backup Mode

NOTE:

*: Under development/ in progress.

①: Open-sky, active high-precision antennas and less than 1 km baseline length

②: Room temperature, all satellites at -130 dBm

③: Preliminary data.