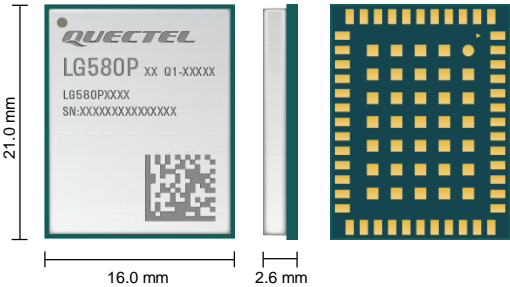




Quectel LG580P (03)

Multi-Constellation and Multi-Band High-Precision GNSS Module



LG580P(03) is a multi-band, multi-constellation GNSS module with 1040 tracking channels, which supports concurrent reception of GPS, GLONASS, Galileo, BDS, QZSS and NavIC constellations, as well as multiple SBAS systems (WASS, EGNOS, BDSBAS, MSAS, GAGAN and SDCM).

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. In addition, LG580P(03) supports L1、L2、L5 and L6* multi-band RTK + Heading algorithm solution, significantly improves the module’s robustness in complex scenarios such as urban environments and deep tree cover, supporting the output of high-precision positioning and heading result.

LG580P(03) 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 the operating firmware safety. The LG580P(03) accommodates users diverse needs with a choice of interfaces including UART, SPI* ,I2C* and CAN*.

With high precision, low power consumption and a high positioning and heading update rate up to 20 Hz, LG580P (03) is an ideal choice for high precision navigation applications, such as intelligent robots, UAVs, precision agriculture, ADAS, and autonomous driving.



Key Features

- ✓ Concurrent reception of multi-constellation signals: GPS, GLONASS, Galileo, BDS, QZSS, NavIC and SBAS
- ✓ Multi-band GNSS signals: L1, L2, L5 and L6*
- ✓ High positioning and heading update rate up to 20 Hz
- ✓ Built-in professional-grade NIC anti-jamming unit to suppress multiple narrow-band interferences
- ✓ Abundant interfaces: UART, SPI* ,I2C* and CAN*
- ✓ AGNSS* technology



Multi-constellation



Multi-band



Low Power Consumption



Tracking Sensitivity:
-160 dBm



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



Anti-jamming



RoHS Compliant



Ultracompact Size



AGNSS Technology

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GNSS Module	LG580P (03)
Dimensions	21.0 mm × 16.0 mm × 2.6 mm
Weight	Approx. 1.4 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +90 °C
GNSS 特性	
Supported Bands(Primary Antenna/Secondary Antenna)	GPS: L1 C/A, L2C, L5 GLONASS: L1*, L2* Galileo:E1, E5a, E5b, E6* BDS: B1I, B1C, B2I, B2a, B2b, B3I* QZSS: L1 C/A, L2C, L5, L6* NavIC: L5
Default Constellations	GPS + GLONASS + Galileo + BDS + QZSS + NavIC
Number of Tracking Channels	1040
SBAS	WASS、EGNOS、BDSBAS、MSAS、GAGAN and SDCM
Function	RTK + Heading
Horizontal Position Accuracy	Autonomous: 0.7 m ^① RTK: 0.8 cm + 1ppm ^②
Vertical Position Accuracy	Autonomous: 2.5 m ^① RTK: 1.5 cm + 1ppm ^②
Velocity Accuracy ^③	Without Aid: 0.03 m/s
1PPS Signal Accuracy (1σ) ^③	5 ns
RTK Convergence Time ^②	5s
Heading Accuracy ^④	0.1°
TTFF (with AGNSS*)	Cold Start: TBD Warm Start: TBD Hot Start: TBD
TTFF (without AGNSS*) ^③	Cold Start: 28 s Warm Start: 28 s Hot Start: 1.7 s
Sensitivity (@ Default Constellations) ^⑤	Acquisition: -145 dBm Tracking: -160 dBm Reacquisition: -155 dBm
Dynamic Performance ^③	Maximum Altitude: 10000 m Maximum Velocity: 490 m/s Maximum Acceleration: 4g
Update Rate	Default: 10 Hz Max: 20 Hz
Certifications	
Regulatory	Europe: CE*
Others	RoHS
Interfaces	
UART	× 3 Adjustable: 9600-3000000 bps Default: 460800 bps
I2C*	× 1 Max. 400 kbps
SPI*	× 1 Recommended baud rate range: 1-3 Mbps
CAN*	× 1 (Multiplexed from UART3)
Protocols	
Protocol	NMEA0183 / RTCM 3.x
Antenna Interface	
Antenna Type	External active antenna
Antenna Power Supply	External
Electrical Characteristics	
Supply Voltage Range	3. 0~3.6 V, Typ. 3.3 V
I/O Voltage	Typ. 3.3 V
Current Consumption ^③ (@ 3.3 V, Default Constellations)	Normal Operation: 85 mA (280.5 mW) @ Acquisition 100 mA (330 mW) @ Tracking Power Saving Mode: 12 μA (39.6 μW) @ Backup Mode

NOTE:

*: Under development/in progress.

①: CEP 50, instrument configuration: GPS L1 + L5, Galileo E1 + E5a and BDS B1I + B2a; static 24 h; -130 dBm.

②: CEP 50, with active high-precision antennas in an open-sky environment and within 1 km from the base station.

③: Room temperature, all satellites at -130 dBm.

④: Standard deviation value, static, open-sky, 1 m baseline length.

⑤: Demonstrated with a low noise external LNA.