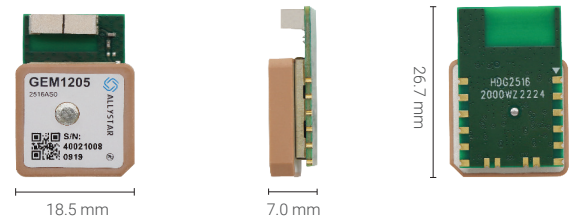


GEM1205

Dual-band Multi-system GNSS Positioning Module



PRODUCT DESCRIPTION

GEM1205 is a high-performance dual-band (L1/L5) GNSS positioning module. It supports all global civil navigation systems, including 136 signal channels from GPS, NavIC, BDS, GLONASS, Galileo, and QZSS.

Embedded antennas ensure GEM1205 to work at L1 and L5 bands simultaneously to increase the number of visible satellites assisting by GPS, BDS, Galileo, and NavIC signals, which makes this module achieve high positioning accuracy and short TTFF, especially in a rough urban environment. GEM1205 supports external active antenna featured with auto-detecting and auto-switching.

With a compact body and high performance, GEM1205 is widely applied to tracking applications, like the automotive, consumer, and industrial tracking.

HIGHLIGHTS

- Support GPS, BDS, NavIC, Galileo and QZSS systems covering L1 and L5 bands
- Support 136 GNSS signal channels in total
- Support AGPS/DGPS/SBAS (WAAS/EGNOS/MSAS/GAGAN)
- Built-in LNA & SAW for better sensitivity
- Integrated with dual-feed (L1&L5) antenna
- Support Geo-Fence function
- Support message broadcast service for NavIC (Upon request)
- Ultra-low power consumption around 40 mA in dual-band tracking mode
- Support external active antenna featured with auto-detecting and auto-switching
- Compact size: 26.7*18.5*7.0 mm

APPLICATIONS



Automotive Navigation



Asset tracking



e-Bike



UAV

GENERAL SPECIFICATIONS

GNSS Reception

P/N	Option	GPS/QZSS		BDS		GLONASS	Galileo		NavIC
		L1C/A	L5C	B1I	B2a	L1	E1	E5a	L5
GEM1205	A (Default)	•	•	•	•	-	•	•	•
	B	•	•	-	-	•	•	•	•
	C	•	•	-	-	-	-	-	•

Positioning Accuracy

GNSS: <1m CEP @ Open Sky

Protocol

NMEA 0183 V4.10

GNSS Signal Channel

136 channels in total

96 for acquisition and 40 for tracking

Operation Limit

Velocity 515 m/s

Altitude 18,000m

Velocity & Time Accuracy

GNSS 0.1 m/s CEP

PPS_{1σ} 20 ns

External Antenna Interface

Antenna Type Active

Antenna Power Supply GEM1205 module

Time to First Fix (TTFF)

Hot start 1s

Cold start 30s

Power Supply

VDD 3.1V-5.0V, Typical 3.3V

VDD_BAK 1.7V-3.6V, Typical 3.3V

Sensitivity

Cold start -149 dBm

Reacquisition -158 dBm

Tracking -162 dBm

Power Consumption

Operating mode Acquisition: 52 mA @ 3.3V
(GPS+QZSS+BDS+Galileo+NavIC)
Tracking: 50 mA @ 3.3V

Standby mode 12 uA @ 3.3V

Interface

UART Adjustable: 9600-460800 bps;
Default: 9600 bps
Update Rate: 1 Hz (Default), up to 10 Hz

PACKAGE

Weight Approx. 8.5g

Dimensions 26.7*18.5*7.0 mm

ENVIRONMENT DATA

Operation temperature -40°C to +85°C

Storage temperature -40°C to +85°C



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