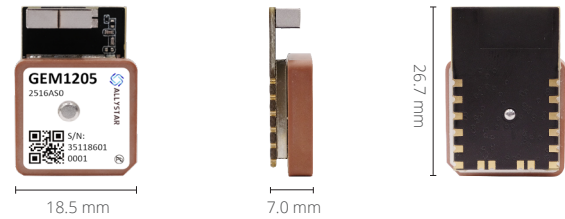


# GEM1205

Dual-band Multi-system GNSS Positioning Module



## PRODUCT DESCRIPTION

GEM1205 is a high-performance dual-band (L1/L5) GNSS positioning module. It supports the global civil navigation systems, including 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

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

*\* Supported by specific firmware upgrade*

## 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

### |Velocity & Time Accuracy

GNSS 0.1 m/s CEP  
PPS\_1σ 20 ns

### |Operation Limit

Velocity 515 m/s  
Altitude 18,000m

### |Time to First Fix (TTFF)

Hot start 1s  
Cold start 30s

### |External Antenna Interface

Antenna Type Active  
Antenna Power Supply GEM1205 module

### |Sensitivity

Cold start -149 dBm  
Reacquisition -158 dBm  
Tracking -162 dBm

### |Power Supply

VDD 3.1-5.0 V, Typical 3.3V  
VDD\_BAK 1.7-3.6 V, Typical 3.3V

### |Interface

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

### |Power Consumption

Operating mode Acquisition: 42 mA @ 3.3V  
(GPS+QZSS+BDS+Galileo+NavIC) Tracking: 40 mA @ 3.3V  
Standby mode 12 uA @ 3.3V

## ENVIRONMENT DATA

Operation temperature -40°C to +85°C  
Storage temperature -40°C to +85°C

## PACKAGE

Weight Approx. 8.5g  
Dimensions 26.7\*18.5\*7.0 mm



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