InsCore™

High-Precision GNSS/MEMS Navigation Engine Module

InsCore™ is a MEMS inertial navigation system module. It effortlessly upgrades external single- or multi-frequency high-precision GNSS inputs into a more powerful and versatile integrated navigation system. The module ensures continuous, centimeter-level positioning performance even in challenging environments such as urban canyons, signal-blocked areas, or interference-prone conditions—without requiring odometer assistance. With its compact 9.7 mm × 10.1 mm package, it delivers robust performance in a highly space-efficient design.

Key Features

- Uninterrupted navigation in urban canyons, tunnels, and other GNSS-challenged environments
- Seamless support for external NMEA GNSS input
- 3D attitude output with free-angle installation flexibility
- Fast online calibration for quick deployment
- High-precision positioning without odometer dependency
- Configurable update rates up to 50 Hz
- Multi-Hz hardware pulse reference for synchronizing external devices such as cameras or vision sensors

Performance Specifications

Position（1σ）	Open Sky*	Standalone	1.5m
		RTK	0.1m
	GPS Outages	5s*	0.3m
		30s	8.0m
		>60s	2% of travel distance
Attitude（1σ）	Roll	1.5^0	
	Pitch	1.5^0	
	Heading	2.0^0	
Velocity（1σ）	0.1m/s		
Output Rate	1Hz （configurable to 10Hz/20Hz/50Hz）		
Gyroscope	Stability 5°/hr		
Accelerometer	Stability 3mg		

*: specifications depending on external GNSS RTK.