

GN-100 INS/GPS

The **GN-100** is an excellent, small size, low weight and MEMS based Inertial Measurement Unit (IMU) with integrated next generation GPS receiver for control and navigation applications. It provides a wide range of output modes and advanced settings for specific usage scenarios.



GN-100 has an onboard navigation computer, which runs a real-time Kalman filter providing drift-free and GPS enhanced attitude/heading and inertial data.

Highlights

- Real-time computed GPS-enhanced attitude/heading and inertial enhanced position/velocity data
- Kalman-filter algorithms provided
- Full INS solution
- Misalignment, temperature and sensor cross-sensitivity calibrated
- Easy installation in any system application
- Next-generation RF technology (support GPS and Galileo)
- Digital output (3-D position, velocity and time)
- Compact and robust design
- Low weight and low power consumption

Fields of application

- UAV, Drone and Marine dynamics
- Autonomous vehicles
- Antenna stabilization
- Attitude reference
- Train & Container tracking
- Robotics

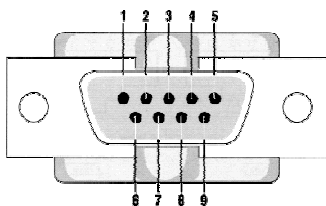
Output

- Position coordinates, velocity, time
- Heading and Pitch/Roll attitude

GN-100 Specification

Sensors		Gyroscope	Accelerometer
● Rang		±300°	±10 g
● In run bias stability		54°/hr	20 mg
Operation range			
● Heading		0°~360°	
● Pitch		±90°	
● Roll		±180°	
● Altitude		18,000 m	
● Velocity		1,854 km/hr (~1000 knots)	
Accuracy			
● Heading		<1.5°	
● Pitch/Roll		<1.0°	
● Position accuracy		2.0 m CEP (SBAS), 2.5 m CEP autonomous	
● Velocity accuracy		0.1 m/s (50% @ 30 m/s)	
● Time accuracy (1PPS)		30 ns	
GPS receiver			
● Receiver type		50-channel, GPS L1, C/A code	
● Supports		SBAS (WASS, MSAS and EGNOS)	
● Navigation update rate		1 Hz	
● Acquisition		Cold start 32 sec, Hot start < 3 sec,	Warm start 32 sec, Aided start < 1 sec
I/O interface			
● Digital output		RS232	
● Output sampling rate		50 Hz (100 Hz for optional)	
● Baud rate		9600 bps @ 50 Hz	
Electrical			
● Power input		9 ~ 32 VDC	
● Power consumption		< 1.2 W	
● Start-up time		35 sec	
Environment			
● Operation temperature		-40 ~ +85°C	
● Storage temperature		-40 ~ +85°C	
● Vibration		5g, RMS (20~2,000 Hz)	
● Shock		60g, 8ms 1/2 sine wave	
Physical			
● Size		85 mm x 65 mm x 50 mm (L x W x H)	
● Weight		< 300 grams	

Connector pins definition



Pin	Signal
1	Digital Transmit data
2	Digital Receive data
3	Positive power input (+Vc)
4	Power ground
5	Chassis ground
6	GPS Tx
7	GPS Rx
8	Signal ground
9	1 PPS out