

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

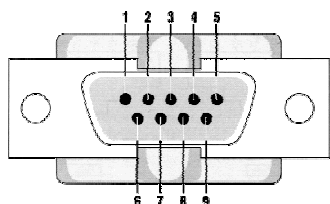
Output

- 3-axis Position
- 3-axis velocity
- GPS heading angle, altitude and time

Specification

| IMU | | |
|---------------------------------|---|---------------|
| Sensors | Gyroscope | Accelerometer |
| ● Rang | ±300 deg | ±10 g |
| ● Bias(operational temperature) | 54 deg/hr | 20 mg |
| ● Noise density | 0.07 deg/sec/√Hz | 1.85 mg/√Hz |
| ● Non-linearity | 0.1 % of FS | ±0.2 % of FS |
| ● Alignment | ±0.5 deg | ±0.5 deg |
| GPS receiver | | |
| ● Receiver type | 50-channel, GPS L1, C/A code | |
| ● Supports | SBAS (WASS, MSAS and EGNOS) | |
| ● Navigation update rate | 4 Hz | |
| ● Velocity accuracy | 0.1 m/s (50% @ 30 m/s) | |
| ● Position accuracy | 2.0 m CEP (SBAS), 2.5 m CEP autonomous, no SA | |
| ● Time accuracy (1PPS) | 30 ns | |
| ● Optional limits | Altitude 18,000 m Velocity 1,854 km/hr (~1000 knots) | |
| ● Acquisition | Cold start 32 sec, Warm start 32 sec, Hot start < 3 sec, Aided start < 1 sec | |
| I/O interface | | |
| ● Digital output | RS232 (RS485 optional) | |
| ● 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 | 70 mm x 60 mm x 40 mm (L x W x H) | |
| ● Weight | < 160 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 |