

GM-100 IMU/GPS

GM-100 is a high performance MEMS based six-degree-of-freedom sensors integrated with next generation GPS receiver. This high reliability strap-down inertial system provides accurate measurement of angular rate and linear acceleration. Inertial package intended for navigation, control, dynamics testing and instrumentation applications.

GM-100 achieves its excellent performance by employing proprietary algorithms to characterize and correct for the effects of temperature, linearity and misalignment.

Product Features :

- 6-DOF high stability MEMS sensors
- Factory calibrated sensitivity, bias and alignment
- All sensors have temperature compensation
- Time synchronization between GPS and IMU signals
- Next-generation RF technology
- Supports WASS, EGNOS and MSAS
- Max. navigation update rate of 50 Hz
- RS232 digital output
- Compact and robust design
- Low power consumption



Applications :

- Guidance and control
- Platform control and stabilization
- UAV, Drone & Land vehicle testing
- Antenna pointing
- Robotics

Output

- 3-axis angular rate
- 3-axis acceleration
- GNSS coordinates, velocity and time

Specification

IMU		
Sensors	Gyroscope	Accelerometer
● Full scale	±300 deg/sec	±10 g
● In run bias stability	0.015 deg/s	0.7 mg
● Random walk	4.2 deg/√ hr	2.0 m/s/√ hr
● Non-linearity	0.1 % of FS	±0.2 % of FS
● Noise	0.05 deg/sec/√ hr	1.85 mg/√ hr RMS
● Alignment error	±0.5 deg	±0.5 deg
● Temperature coefficient	40 ppm/°C	40 ppm/°C
GNSS module (u-blox NEO- M8N)		
Channel	72-channel	
Supports	GPS + GLONASS + BeiDou + Galileo + SBAS + QZSS	
Protocol	NMEA-0183 V4.0	
Time-to-First-Fix		
● Cold start	27 sec	
● Hot start	1 sec	
Sensitivity		
● Cold start	-148 dBm	
● Hot start	-156 dBm	
● Re-acquisition	-160 dBm	
● Tracking sensitivity	-167 dBm	
Position accuracy	2.0 m CEP (SBAS) , 2.5 m CEP autonomous	
Velocity accuracy	0.05 m/ sec	
Heading accuracy	0.3°	
Time accuracy (1PPS)	30 ns (RMS)	
Operation limits	Altitude 50,000 m , Velocity 1,800 km/hr (972 knots)	
Electrical		
● Power input	9 ~ 32 VDC	
● Power consumption	< 1.2 W	
I/O		
● Digital output	RS232	
● Output sampling rate	100 Hz (200 Hz for optional)	
● Baud rate	4800 / 9600 / 38400 / 57600 / 115200 bps are adjustable, 115200 bps (default)	
● GPS receiver	SMA female connector	
● I/O	DB-9 connector	
Environment		
● Operation temperature	-40 ~ +85°C	
● Storage temperature	-40 ~ +85°C	
● Vibration	4 g, RMS (20~2000 Hz)	
● Shock	40 g, 11 ms 1/2 sine wave	
Physical		
● Size	85 mm × 50 mm × 40 mm (L × W × H)	
● Weight	< 200 grams	
● Material	Aluminum alloy	
● Mounting	4ea M4 screws	