

GM-150 GNSS/IMU

GM-150 is a high performance silicon based 6-degree-of-freedom sensors which integrated with next generation GNSS receiver. This high reliability inertial system provides accurate measurement of angular rate, linear acceleration and magnetic flux. Inertial package intended for navigation, control, dynamics testing and instrumentation applications.

GM-150 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 silicon based MEMS sensors
- Factory calibrated sensitivity, bias and alignment
- All sensors have temperature compensation
- Time synchronization between GNSS and IMU signals
- Supports GPS, GLONASS, BeiDou, Galileo, QZSS and SBAS
- Enable 0.3° GNSS receiver heading accuracy
- Digital output
- Compact and robust design



Applications :

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

Output

- 3-axis angular rate
- 3-axis acceleration
- position, velocity and time

Specification

IMU		
Sensors	Gyroscope	Accelerometer
● Operation range	±300°/sec	±18g
● In run bias stability (1σ)	12°/hr	0.13 mg (1σ)
● Random walk (1σ)	1°/√hr	0.076 m/sec/√hr
● Bias temperature coefficient	±0.005°/sec/°C	±0.1 mg/°C
● Noise density (RMS)	0.02°/sec/√Hz	0.06 mg/√Hz
● Non-linearity	0.025% of FS	0.1% of FS
● Misalignment (axis to axis)	±0.05 deg	±0.035 deg
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	< 220 grams	
● Material	Aluminum alloy	
● Mounting	4ea M4 screws	