

## Tactical grade GM-200A<sup>®</sup> GNSS/IMU

**GM-200A<sup>®</sup>** is a high performance silicon based 10-degree-of-freedom sensors which integrated with next generation GNSS receiver and has UART digital output. This high reliability inertial measurement system provides high precision 3-axis angular rate and linear acceleration. Inertial package intended for navigation, control, dynamics testing and instrumentation applications.

**GM-200A<sup>®</sup>** achieves its excellent performance by employing proprietary algorithms to characterize and correct for the effects of temperature, linearity and misalignment.

### Product Features :

- ITAR free
- 10-DoF high stability silicon based MEMS sensors
- Factory calibrated sensitivity, bias and axis 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
- Enable 1° to 2.0° compass heading accuracy
- Digital output
- Compact and robust design
- High CP value



### Applications

- Platform stabilization and control
- Navigation
- Instrumentation
- Guidance and control
- Robotics
- Positioning

### Output

- 3-axis angular rate
- 3-axis acceleration
- 3-axis magnetic flux
- Altitude
- GNSS coordinates and time

## Specification

IMU				
Sensors	Gyroscope	Accelerometer	Magnetometer	Barometer
● Operation range	±300°/sec	±3g	±8 gauss	300~1200 mbar
● In run bias stability (1σ)	5.0°/hr	0.05 mg (1σ)		
● Random walk (1σ)	0.22°/√hr	0.15 m/sec/√hr		
● Bias temperature coefficient	±0.001°/sec/°C	±0.1 mg/°C		
● Noise density (RMS)	0.004°/sec/√Hz	0.25 mg/√Hz	2 mgauss/√hr	
● Non-linearity (FS : full scale)	±0.1% of FS	±0.5% of FS	±0.1% of FS	
● Resolution			2 mgauss/√hr	0.02 mbar
● Misalignment (axis to axis)	±0.1 deg.	±0.2 deg.	±0.1 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	5 VDC			
● Power consumption	< 1.2 W			
I/O				
● Digital output	UART			
● Update rate	5 Hz default (GPS+GLONASS), 10 Hz (GPS only)			
● 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	USB connector			
Environment				
● Compensated temperature	-10 ~ +85°C			
● 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 (L × W × H)	53 mm × 53 mm × 23 mm			
● Weight	85 grams			
● Material	Aluminum alloy			