

M5000

FOG based high-performance inertial navigation system

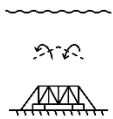
M5000 is an Inertial Navigation System (INS) providing position, true heading, attitude, speed, depth and heave. Its high accuracy inertial measurement unit is based on Micro Magic's Fiber-Optic Gyroscope (FOG) technology coupled with an embedded digital signal processor that runs an advanced Kalman filter.



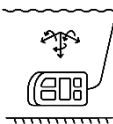
FEATURES AND BENEFITS

- Real time output of high precision attitude, heave, and heading information
- Compact, light and reliable
- FOG unique strap-down technology
- Multiple aiding available: DVL and GNSS sensor
- Adopting a titanium alloy water pressure resistant compartment, it can reach a depth of up to 6000 meters underwater
- No ITAR component inside
- IMU option for high accuracy platform stabilization
- Low latency
- Static and dynamic alignment modes, with and without GNSS
- 32Gb embedded data logger
- Versatile I/O options for an easy integration
- High reliability and maintenance free
- Reach subsea 3000-meter and 6000-meter depth

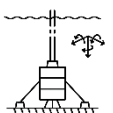
APPLICATIONS



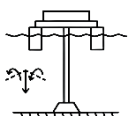
Subsea surveys
Precise subsea tilt (roll & pitch) measurements at affordable prices.



ROV/AUV
Reliable and accurate motion measurements for navigation and payload sensor compensation.



BOP monitoring
Accurate 6DoF motion and vibration measurements to monitor BOP and other subsea structures.



Riser monitoring
Topside motion sensors as input to the riser digital twin or subsea sensors attached to the riser.

TECHNICAL SPECIFICATIONS

System Accuracy	Product code	M5000-A	M5000-B	M5000-C
	Category	FOG-INS	FOG-INS	FOG-INS
	Heading accuracy (RMS, 1σ) ⁽¹⁾	≤0.2°secϕ (Pure inertial 1h) ≤0.1°secϕ (INS+GNSS)	≤0.3°secϕ (Pure inertial 1h) ≤0.2°secϕ (INS+GNSS)	≤0.4°secϕ (Pure inertial 1h) ≤0.2°secϕ (INS+GNSS)
	Attitude accuracy (RMS, 1σ)	≤0.01°	≤0.02°	
	Heave (RMS)	≤5cm or 5% Take the bigger value of H (H refer to Heave)		
	Angular velocity range	≤300°/s	≤500°/s	
Positioning Accuracy	GNSS Assistance (RMS)	≤0.3%±3m	≤0.3%±5m	
	DVL Assistance	0.6%D	0.8%D	
	Pure inertial	2nm/h	3nm/h	3nm/h
Interface	Output	2xRS232/2xRS422/Ethernet/PPS		
	Input	GNSS/DVL		
	Data frequency	0 ~ 200Hz (Configurable)		
	Protocol	NMEA0183/RS422/RS232/Customized		
Physical Characteristics	Size	≤ϕ180 × 205 (mm)		
	Weight	≤10Kg		
	Voltage	12 ~ 36VDC		
	Power	≤20W		
Timing	Starting time	≤5min		
Environment	Operation temp	-40℃ ~ 60℃		
	Storage temp	-40℃ ~ 70℃		
	Press resistance grade	Subsea 6000m	Subsea 3000m	

(1) Whichever is greater for wave periods up to 30 seconds. Smart Heave is delayed by 100 s fixed value. Real-time heave accuracy is 5 cm or 5% whichever is greater for period up to 25s.

All specifications subject to change without notice