



# **IBETOR provides highly accurate positioning and navigation (IbNS)**

IBETOR specializes on military satellite communication, specifically on satellite-on-the-move technology: providing reliable communications to moving platforms (land, sea, air).

IbNS is a sensor fusion platform that integrates low-cost sensors with GNSS. IbNS has world class integration technology that enables accurate navigation for long periods without wireless updates. 3D positions, velocities and attitudes are continuously available, even when wireless signals are blocked or inaccurate (indoor, underground, thick foliage, urban centers, ...)

**IbNS can provide trusted positioning and navigation info, compliant with the most demanding scenarios**

## **Configurations**

IbNS integrates GPS, differential GPS, dual antenna derived heading, accelerometers, gyroscopes, magnetometers, and a barometer. IbNS is provided in two different versions, balancing cost and performance

- IbNS FOG: integrates fiber optic gyroscopes technology offering ultra accurate data and performance
- IbNS MEMS: includes MEMS gyroscopes technology, providing a very competitive price while still ensuring the highest quality position information

All configurations output via USB to a host display where an optional GUI application program displays the navigation solution in real-time.

## **Applications**

- Vehicle navigation
- People, fleet and asset tracking
- Machine control & guidance
- Port & marine automation
- Man wearable



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Performance measurements and technical details of both versions follow

The following tables show System Configuration #1 and #2 performance with and without GNSS updates. GNSS updates include position, velocity and heading updates from the BD982 receiver.

**IbNS FOG** (Attitude data at 1 KHz rate and Velocity and Position data at 100 Hz rate, with and without GNSS updates)

Outage duration	Position RMS Error		Velocity RMS Error		Attitude RMS error			
	Time (Sec)	Hztal. (m)	Vertical (m)	Hztal. (m)	Vertical (m)	Roll(deg)	Pitch(deg)	Azim.(deg)
GPS(1Hz updates)		0,45	0,35	0,091	0,062	0,045	0,078	0,04
10s		1,19	0,69	0,16	0,07	0,046	0,1	0,042
30s		3,99	1,18	0,31	0,08	0,058	0,13	0,12
60s		10,42	2,05	0,55	0,1	0,062	0,17	0,15
120s		27,49	4,15	0,93	0,11	0,085	0,21	0,21
300s		73,71	12,68	1,24	0,13	0,12	0,28	0,64
600s		190,04	36,35	1,36	0,16	0,17	0,36	1,45

**IbNS MEMS** (Attitude data at 1 KHz rate and Velocity and Position data at 100 Hz rate, with and without GNSS updates)

Outage duration	Position RMS Error		Velocity RMS Error		Attitude RMS error			
	Time (Sec)	Hztal. (m)	Vertical (m)	Hztal. (m)	Vertical (m)	Roll(deg)	Pitch(deg)	Azim.(deg)
GPS(1Hz updates)		0,5	0,4	0,095	0,065	0,12	0,1	0,04
10s		0,55	0,42	0,1	0,07	0,14	0,12	0,045
30s		4,26	1,26	0,36	0,08	0,15	0,17	0,15
60s		15,59	2,63	0,8	0,11	0,16	0,23	0,19
120s		36,35	4,69	0,95	0,12	0,17	0,28	0,55
300s		129,28	13,1	1,76	0,15	0,19	0,36	1,55
600s		294,15	39,96	2,12	0,19	0,35	0,42	2,9

GPS-only position accuracy

- SBAS < 5 m 3DRMS
- Code differential < 50cm
- Update rate: 1Hz

Dual antenna heading accuracy

- 2 m baseline: < 0.09°
- Update rate: 1Hz



Ib-NS vehicle version  
(ultralight, low cost, man  
wearable version also  
available)