



MOSE-G1000

Datawell - Oceanographic Instruments

GPS-based motion sensor for periods up to 1000 s

To measure long period motions of floating platforms and large buoys Datawell offers the MOSE-G1000 sensor.

The MOSE-G1000 measures its three-dimensional motion in 3 frequency regimes where each regime has its own precision. Centimetre precision is achieved in the high frequency regime (1-100 s periods). Here the MOSE-G1000 works just like the Datawell DWR-G directional wave buoys. For very low frequencies the GPS position is output every 10 seconds with a precision of several meters. In addition to these high and very low frequency regimes the MOSE-G1000 covers the low frequency regime (10-1000 s periods) in between. In this regime the precision amounts to several centimetres depending on the filter selected.

As the measurement noise increases with longer periods, 3 filters with cut-off periods of 300, 600 or 1000 s have been implemented. The correct choice of filter will minimize the noise while preserving the motion periods of interest. To eliminate unwanted motion on the short period side 2 filters with a 10 or 30 s cut-off period are available. These latter 2 filters have no effect on the noise.

All data are output through one RS232 port. The MOSE-G1000 is NMEA compliant. Human readable NMEA proprietary messages are output. A single cable carrying power and signal lines enters the unit. The unit has a base plate with 4 holes for mounting. Since GPS refers directly to the WGS84 reference frame no special alignment is required.



As an example of an interesting MOSE-G1000 application refer to the Waveguide On Board (WOB) on the Radac website www.radac.nl.



MOSE-G1000

Datawell - Oceanographic Instruments

Specifications

Motion sensor	Sensor	single GPS (not differential)
	Periods	1 - 100 s (high frequency) 10 - 1000 s (low frequency)
	Precision	1 - 2 cm (high frequency) 5 - 10 cm (low frequency, 1000 s cut-off) 3 - 5 cm (600 s cut-off) 2 - 3 cm (300 s cut-off) all 1 σ , lower limit horizontal precision, upper limit vertical precision
	Calibration	not required ever
	Exclusion	Selective Availability (SA, may be switched on by US Department of Defence for strategic reasons) will have the following effect: low frequency motion not resistant to SA high frequency motion period range reduces to 1 - 30 s
	Motion data	Data
Resolution		1 mm
Rate		2 Hz (high frequency) 0.2 Hz (low frequency)
Latency		approx. 4 min (high frequency) approx. 40 min (low frequency)
Reference		WGS84
Position	Sensor	GPS
	Precision	5 - 10 m, 1 σ
	Rate	every 10 sec.
	Exclusion	SA will reduce position precision to 100 m
	Data	date, time, longitude, latitude, height, HDOP, VDOP
Interface	Port	RS232, NMEA compliant
	Format	NMEA proprietary messages
General	Outer dimensions	height 0.16 m (incl. GPS ant.) base plate 0.20 m \times 0.20 m
	Weight	approx. 5 Kg
	Housing material	stainless steel AISI316
	Power	10 - 30 V, 1.5 W