Seatex MRU 5
Marine Motion Sensor

DPS
DYNAMIC POSITIONING SERVICES

The third generation MRU 5 is specially designed for high precision motion measurements in marine applications and for users requiring high accuracy roll, pitch and heave measurements.

The MRU 5 provides high performance motion data for various marine applications ranging from small underwater vehicles to large ship motion control. Very high reliability is achieved by using solid-state sensors with no moving parts and the proven MRU electrical and mechanical construction.

FEATURES AND BENEFITS

- High accuracy roll, pitch and heave measurements during turns and accelerations
- Each MRU delivered with Calibration Certificate
- Small size, light weight, low power consumption
- Improved dynamic accuracy in heave, roll and pitch
- Negligible drift in heave after vessel turns
- High output data rate (100 Hz)
- No limitation in mounting orientation
- Lever arm compensation when mounted off the vessel CG (centre of gravity)
- Selectable communication protocols in the Windows based MRC configuration software
- 2-year warranty

TECHNICAL SPECIFICATION

Orientation output data	
Angular orientation range	±180°
Angular rate range	150°/s
Resolution in all axes	0.001°
Angular rate noise roll, pitch, yaw	0.015°/s RMS
Accuracy1, 2 roll, pitch (for a ±5° amplitude)	0.020° RMS
Scale factor error	0.15% RMS
Acceleration sensors	
Number of sensors	3
Acceleration range (all axes)	±30 m/s2
Acceleration noise	2 0.0020 m/s2 RMS
Acceleration accuracy	0.01 m/s2 RMS
Scale factor error	0.020% RMS
Heave motion output	
Output range	±50 m, adjustable
Periods	0 to 25 s
Dynamic accuracy	5 cm or 5% whichever is highest
Data output	
Analog channels	#4, ±10V, 14 bit resolution
Digital output variables	#16 (max), RS 232 or RS 422
Data output rate	(max) 100 Hz
Internal update rate	400 Hz (angular)
Power	
Power requirements	12-30V DC, max 11 W

Velocity input formats
NMEA 0183, incl. VTG, VHW, VBW or IEEE single precision floating point

Heading input formats
NMEA 0183, HDT, HDM, LR 40 interface or IEEE single precision floating point (unit in radians)

Environment	
Temperature range	-5° to +55°C
Humidity range, electronics	Sealed, no limit
Max vibration (operational)	0.5 m/s2 (10-2000 Hz continuous)
Max vibration (non operational)	20 m/s2 (0-2000 Hz continuous)
Max shock (non operational)	1000 m/s2 (10 ms peak)
Other data	
MTBF (computed)	50000 h
Housing dimensions	Ø105 x 204 mm (4.134" x 8.051")
Material	Anodised Aluminium
Weight	2.5 kg
Connector Souriau	851-36RG 16-26S50

Data output protocols

- MRU normal	- Sounder
- Elac Nautik (analog)	- Submetrix
- NMEA 0183 proprietary	- Sonar R & D Imaging system
- Atlas Fansweep 15/-20	- Simrad EM 1000
- Digital Hippy 120	- Simrad EM 3000
- RDI ADCP	- Reson Seabat

1) When the MRU is exposed to a combined two-axes sinusoidal angular motion with five minutes duration.
2) When the MRU is stationary over a 30 minutes period.

Note: Dynamic Positioning Services reserve the right to amend this specification without prior notice.

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