

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
Accuracy ^{1, 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/s ²
Acceleration noise	2 0.0020 m/s ² RMS
Acceleration accuracy	0.01 m/s ² 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

Analogue 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
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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/s ² (10-2000 Hz continuous)
Max vibration (non operational)	20 m/s ² (0-2000 Hz continuous)
Max shock (non operational)	1000 m/s ² (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.