

Pitch & Roll

Heave

Depth

**Pitch Roll Heave
MRU 333**



Single Beam Surveying
Multi-beam Surveying
Motion Stabilization
USBL Navigation

**Pitch Roll Heading
MHRU 33**



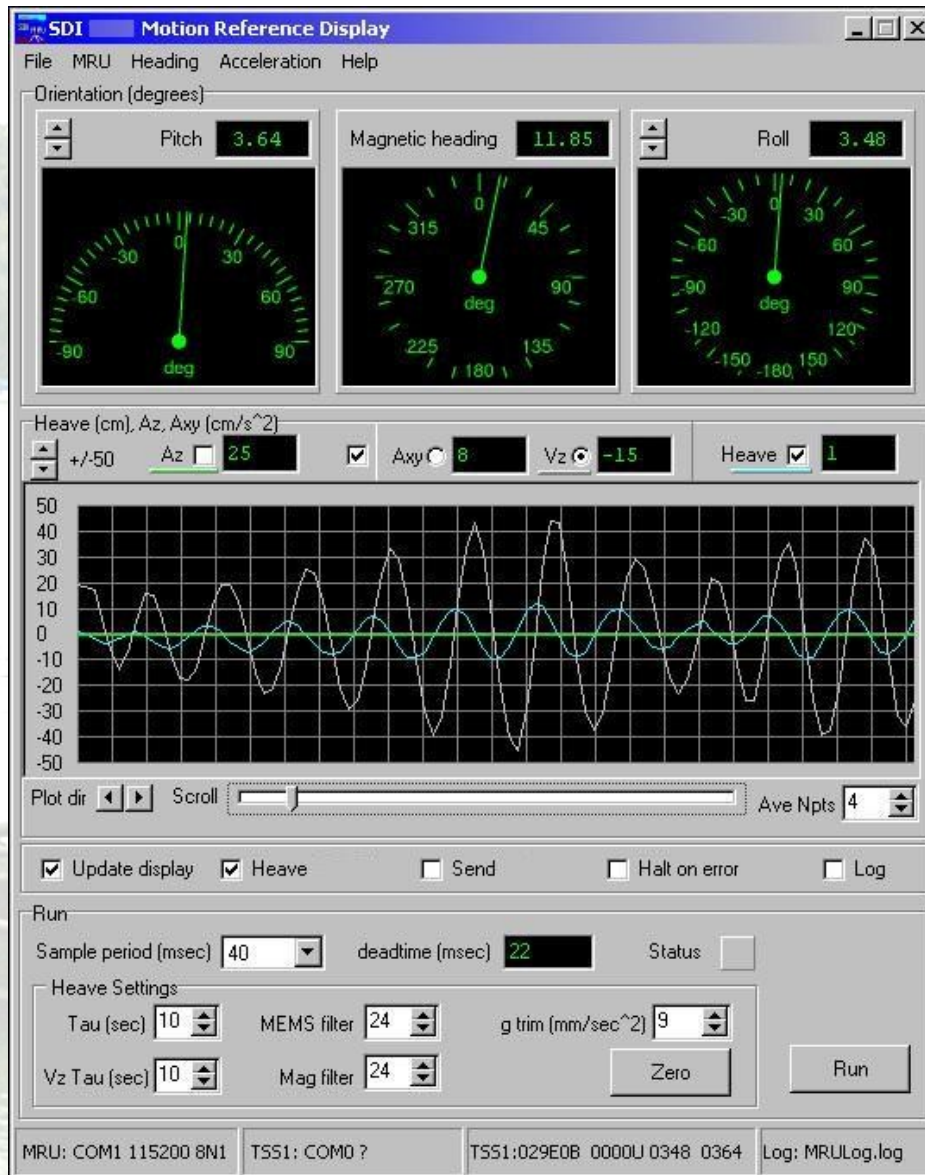
Under-water Vehicles
ROV Attitude
Directional Drilling
Dredging Operations

**Pitch Roll Heading
Depth**



MDHU 33
Diver Tracking Systems
Under-water Construction
Dredging Operations
Directional Drilling

**MRU Series
Graphics
Display**



**Industry
Standard
Formats**

**HYPACK
Compatible**

MRU Mechanical Specifications

Material	6061 anodized marine Aluminum
Diameter	7.6 cm (3 inch)
Length	25.5 cm (10 inch)
Weight	1.1 kg. (2.5 lbs.)
Depth Rating	450 m (1500 Ft.) or 1,800 m (6,000 ft.) optional

MRU 333 software includes display graphics and communications for simple interface.

The MRU uses 3 axis accelerometers and 3 axis Gyros integrated with dual embedded micro-processors to produce accurate pitch, roll and heave information in an industry standard format. The MHRU adds a 3 axis magneto-inductive sensors and an adaptive "in-use" calibration program to calibrate out local magnetic anomalies. A built in true north world magnetic map is used to produce a true north output. A "learning" software routine adjusts the MRU series to the boat characteristics to further improve overall accuracy. The MRU Series is ideal for bathymetric survey systems, underwater vehicles and dredging operations

MRU 333 Performance Specifications

Pitch Roll and Heading	Resolution Degrees	Accuracy Degrees Static	Range Degrees	Repeatability Degrees
Pitch	0.02	0.2	+/- 180	0.05
Roll	0.02	0.2	+/- 180	0.05
MHRU Heading	0.10	0.3	360	0.10
Update Rate		All Parameters		30 per second
Heave	Heave Amplitude Accuracy	Maximum Update Rate Samples /Sec.	Range Meters	Drift (T = 10s)
MRU 333	5 cm 0-10 sec +/- 5%	30	5	<5 cm (uncorrected)



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