

MAHRS

MERIDIAN ATTITUDE & HEADING REFERENCE SYSTEM

Accurate stand-alone attitude and heading solution.

MAHRS is a master heading reference instrument employing the characteristics of a dynamically tuned gyro (DTG), the effect of gravity and the earth's rotation to produce exceptional heading performance. This is combined with a Dynamic Motion Sensor (DMS) to provide accurate heave, roll and pitch.

MAHRS has been designed to provide reliable, maintenance free operation. The remarkably stable heading provided by MAHRS can be maintained for turn rates in excess of 200° per second making the system ideal for use on fast survey craft and in river/harbour environments.

TSS has complete repair, test and calibration facilities in the UK and USA aided by factory-trained service engineers on every continent.

By closely coupling the two sensors, the MAHRS becomes a simple and fast method of providing accurate heading and attitude data.



Features

- Innovative design with state-of-the-art motion sensors and DTG elements
- Attitude and heading in all dynamics
- Small, lightweight and versatile
- Fast 40 minute settling time
- 0.1° heading accuracy
- 0.03° roll and pitch accuracy
- Maintenance-free dry element
- MTBF >30,000 hours
- Dynamic turn rates of up to 200° per second



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TECHNICAL SPECIFICATIONS

Heading	Settle point error	$\pm 0.1^\circ$ secant latitude
	Static error	$\pm 0.05^\circ$ RMS secant latitude
	Dynamic accuracy	$\pm 0.2^\circ$ RMS secant latitude
	Settle point repeatability	$\pm 0.1^\circ$ secant latitude
	Follow-up speed	200° / second
	Settling time	<40 minutes (from initial 30° offset)
Gimbal limits	45° pitch and roll	
Digital outputs	2 serial ports, RS232 or RS422, baud rates 1200, 2400, 4800, 9600, 19,200, 38,400	
Data output rate	Digital – up to 200Hz Analogue – 500Hz (heave, roll and pitch) – optional	
Digital data output formats	TSS HRP, TSS1 +NMEA HDT; TSS1 default; TSS1 with remote heave; TSS3; Simrad EM1000; Simrad EM1000 with remote heave; Simrad EM3000; Simrad EM3000 with remote heave; NMEA PRDID; BMT1; Polled, user configurable; NMEA HDT; NMEA ROT; S G Brown (1/6th); S G Brown (1/10th); Robertson	
Dimensions	242mm (l) x 430mm (w) x 232mm (h) (including base plate)	
Weight	20Kg	
Ambient operating temperature	0 to 45°C (0 to 55°C with reduced accuracy)	
Power requirement	24V DC, 5A at switch on, 2.5A operating	
Compensation	Latitude	80N to 80S
	Speed	0 – 90 Knots
Pitch and roll	Resolution	0.01°
	Range	$\pm 45^\circ$
	Accuracy	0.03° RMS (for a 5° amplitude)
0.05° RMS (for a 45° amplitude)		
Heave	5cm or 5% whichever is greater (period 0 to 20s)	
Shock (survival)	10g	
Warranty	12 months international warranty including parts and labour	

Due to continuous development, specifications may vary from those listed above.

WORLD LEADERS IN MARINE INSTRUMENTATION



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