

# 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.



- 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



# MAHRS Meridian Attitude & Heading Reference System

## TECHNICAL SPECIFICATIONS

<b>Heading</b>	Settle point error	±0.1° secant latitude
	Static error	±0.05° RMS secant latitude
	Dynamic accuracy	±0.2° RMS secant latitude
	Settle point repeatability	±0.1° secant latitude
	Follow-up speed	200° / second
	Settling time	<40 minutes (from initial 30° offset)
<b>Gimbal limits</b>	45° pitch and roll	
<b>Digital outputs</b>	2 serial ports, RS232 or RS422, baud rates 1200, 2400,4800, 9600, 19,200, 38,400	
<b>Data output rate</b>	Digital	Up to 200Hz
	Analogue	500Hz (heave, roll and pitch) – optional
<b>Digital data output formats</b>	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	
<b>Dimensions</b>	242mm (l) x 430mm (w) x 232mm (h) (including base plate)	
<b>Weight</b>	20Kg	
<b>Ambient operating temperature</b>	0 to 45°C (0 to 55°C with reduced accuracy)	
<b>Power requirement</b>	24V DC, 5A at switch on, 2.5A operating	
<b>Compensation</b>	Latitude	80N to 80S
	Speed	0 – 90 Knots
<b>Pitch and roll</b>	Resolution	0.01°
	Range	±45°
	Accuracy	0.03° RMS (for a 5° amplitude)
0.05° RMS (for a 45° amplitude)		
<b>Heave</b>	5cm or 5% whichever is greater (period 0 to 20s)	
<b>Shock (survival)</b>	10g	
<b>Warranty</b>	12 months international warranty including parts and labour. <i>Due to continuous development, specifications may vary from those listed above.</i>	



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