

# MAHRS

MERIDIAN ATTITUDE & HEADING REFERENCE SYSTEM

## Accurate stand-alone heading solutions.

MAHRS is a master heading reference instrument employing the characteristics of a dynamically tuned gyro (DTG) and 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 with a computed MTBF of 30,000 hours. 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.

Backed by the largest global support network of any manufacturer, 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

<b>Heading</b>	Settle point error	$\pm 0.1^\circ$ RMS secant latitude
	Static error	$\pm 0.05^\circ$ RMS secant latitude
	Dynamic accuracy	$\pm 0.2^\circ$ RMS secant latitude
	Settle point repeatability	$\pm 0.1^\circ$ RMS secant latitude
	Follow-up speed	200° / second
	Settling time	<40 minutes within 0.7°
<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 200 Hz Analogue – 500 Hz (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>	20 Kg	
<b>Ambient operating temperature</b>	-10°C to +55°C	
<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	$\pm 90^\circ$
	Accuracy	0.03° (for a 5° amplitude)
0.05° (for a 45° amplitude)		
<b>Heave</b>	5cm or 5% whichever is greater (period 0 to 20s)	
<b>Shock (survival)</b>	10g	
<b>Housing</b>	IP65	
<b>Warranty</b>	12 months international warranty including parts and labour	

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

WORLD LEADERS IN MARINE NAVIGATION



**TELEDYNE TSS**  
A Teledyne Technologies Company



Certificate Number: 160263  
BS EN ISO 9001 : 2000

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