



Heading Reference Sensors AMR2

Three axis magnetometer

The AMR2 is a strapdown magnetometer designed to provide high precision vector measurement of the ambient magnetic field and is ideal for use in Attitude & Heading Reference Systems (AHRS).

The use of strapdown fluxgate sensor technology provides high reliability and enables operation in harsh environments. The AMR2 has no moving parts and thus overcomes the dynamic platform problems experienced with mechanical gimbaled sensors.

The AMR2 has been specially designed for use in harsh environments and has successfully completed a comprehensive Qualification Test Program including EMC environments.

The AMR2 provides fluxgate sensing elements and electronics integrated in a small single lightweight package. The unit has been designed to offer the system designer with LRU features including Built-In-Test (BIT) and a unit specification which provides full interchangeability.



The AMR2 incorporates the latest fluxgate magnetometer circuit design providing high precision magnetic field measurement. The unit operates from standard regulated d.c. power supplies and generates field proportional analogue voltage outputs suitable for integration within modern electronic data acquisition systems.

The magnetometer 3 axis outputs can be used with pitch and roll attitude data from the platform to determine magnetic heading data.

Typical applications

Three axis magnetometers can be integrated into AHRS and vehicle navigation systems to provide an accurate, low cost, solution for directional azimuth referencing. PMES offers a range of standard 3-axis magnetometers for use in a variety of platforms and vehicle systems including:

- Unmanned aircraft – UAV’s
- Underwater vehicles – ROV’s/UUV’s
- Data buoys and decoys
- Towed platforms
- Sounding rockets & satellites
- Rotary and fixed wing aircraft

PMES also supply high precision magnetometers for specialist applications, Magnetic Measurement Instruments and Magnetic Range Systems.

AMR2 Performance Specification

Supply power	
Voltage	+15V± 10%
Current	25mA max
Output Voltage Swing	0 to ±10v nominal can exceed this in overload range
Overload Range	±2mT
Output Scaling	
Loads>100Ω	6,000nT/V
Scale factor errors	
Accuracy OTR & SL	better than ±1.5%
Matching @ ambient	better than ±0.1%
Matching OTR & SL	better than ±0.5%
Alignment error wrt reference surfaces and dowel holes (OTR & SL)	<0.15° on any axis
Mounting repeatability	<0.05° in all axis
Orthogonality	<0.2°
Offset	
Absolute	<30nT
OTR & SL	<100nT
Hysteresis	<5nT
Non linearity	<0.1%
Noise	
0.1 to 30Hz	<3nT RMS (<0,5mV RMS)
Bandwidth	dc to 50Hz min
Output impedance	>150Ω
Reliability – GBE25	>1M hrs
Operational – GBE65	>125k hrs
Temperature range	
Operating	-32°C to +70°C
Storage	-40°C to +80°C
Weight	<300 grammes (excluding cable which can be provided in varying lengths)
Size (case)	140 x 60 x 40mm

OTR – Operating Temperature Range
 SL – Service Life
 GBE – Ground Benign Environment at 25°C and 65°C



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