

RELIABLE & ACCURATE SPACECRAFT ATTITUDE MEASUREMENTS



The AAC SpaceQuest MAG-3 is a 3-axis satellite fluxgate magnetometer enables reliable and accurate spacecraft attitude measurements. This space-qualified component and its predecessors have flown on numerous space missions from Georgia Tech PROX-1, Bigelow Aerospace Genesis-1 to Naval Research Laboratory missions and is particularly well suited to the radiation environments of high LEO orbits. The low noise magnetometer consists of three magnetic sensors, X, Y and Z, operating independently and simultaneously. The unit consists of a "sense" (secondary) coil surrounding an inner "drive" (primary) coil that is wound around permeable core material. The phase detector identifies key harmonics, and these signals are integrated and processed to produce a highly sensitive magnetic field measurements.

KEY HIGHLIGHTS:

- 3-Axis Measurement
- Radiation Tolerant
- Low Mass Rugged Design
- Space Qualified (TRL-9)



RELIABILITY

The flight proven compact fluxgate Magnetometer produces highly sensitive and accurate magnetic field measurements.



ADAPTABLE

The units may be configured to client requirements for supply voltage, total magnetic field range and total voltage range for various analogue outputs.



HERITAGE

This space-qualified component and its predecessors have flown on numerous space missions from Georgia Tech PROX-1, Bigelow Aerospace Genesis-1 to Naval Research Laboratory missions.

TECHNICAL SPECIFICATIONS

Performance Specifications	
Accuracy:	$\pm 0.75\%$ of Full Scale (0.5% typical)
Linearity:	$\pm 0.015\%$ of Full Scale (15 to 34 VDC input) $\pm 0.15\%$ of Full Scale (5 V option)
Sensitivity:	100 $\mu\text{V/nT}$ (other sensitivities available)
Scale Factor Temperature Shift:	0.007% Full Scale/ $^{\circ}\text{C}$ Typical
Analog Output Options:	± 10 Volts = $\pm 100\mu\text{T}$ or ± 5 Volts = $\pm 60\mu\text{T}$ (other options available)
Axial Alignment:	Orthogonality Better Than ± 1 degree
Noise:	12 picoTesla RMS/ $\sqrt{\text{Hz}}$ @1 Hz <100 picoTesla RMS/ $\sqrt{\text{Hz}}$ @1 Hz (0 to 5 Volt Model)
Analog Output @ Zero Field:	± 0.025 Volt
Zero Shift with Temperature:	± 0.6 nT/ $^{\circ}\text{C}$
Susceptibility to Perming:	± 8 nT Shift with ± 5 Gauss Applied
Output Impedance:	332 $\Omega \pm 5\%$
Frequency Response:	3 dB @ > 500 Hz (to > 4 kHz Wideband)
Over Load Recovery:	± 5 Gauss Slew < 2 ms

Electrical Specifications	
Input Voltage:	15 to 34 VDC or 5 Volt Regulated
Power Consumption:	Voltage Dependent (30 mA at any input voltage)
Connectors:	9 Pin Male "D" Type

Mechanical and Environmental	
Mass:	100 grams
Size:	3.51 cm x 3.23 cm x 8.26 cm
Operating Temperature:	-55°C to $+85^{\circ}\text{C}$
Radiation:	> 10 Krad TID

To make an enquiry, request a quotation or learn about AAC Clyde Space's other products and services, please contact:

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