

MAG-3 Satellite Magnetometer

The MAG-3 is a 3-axis satellite fluxgate magnetometer supporting reliable and accurate spacecraft attitude measurements. This space-qualified component and its predecessors have flown on numerous space missions and is particularly well suited to the radiation environments of high LEO orbits.

Key Features

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



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

MAG-3

Performance Specifications *(continued)*

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/°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°C
Radiation:	> 10 Krad TID

Heritage

- Bigelow Aerospace Genesis-1
- Georgia Tech PROX-1
- Bigelow Aerospace Genesis-2
- Naval Research Laboratory