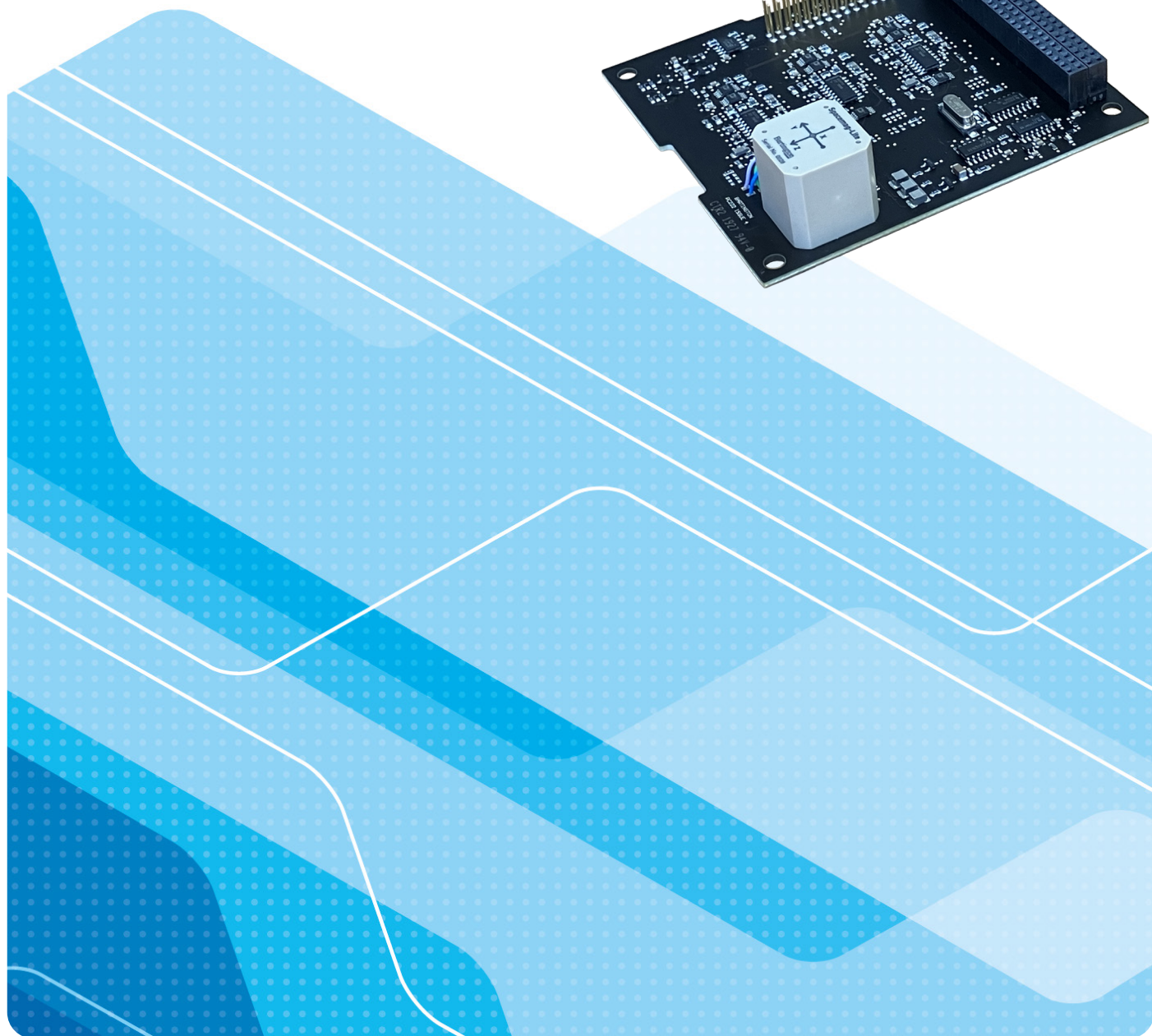
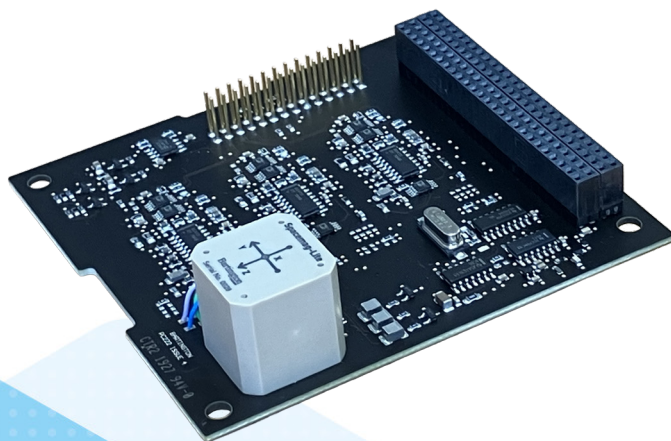


Spacemag-Lite[®]

Three-Axis Magnetometer



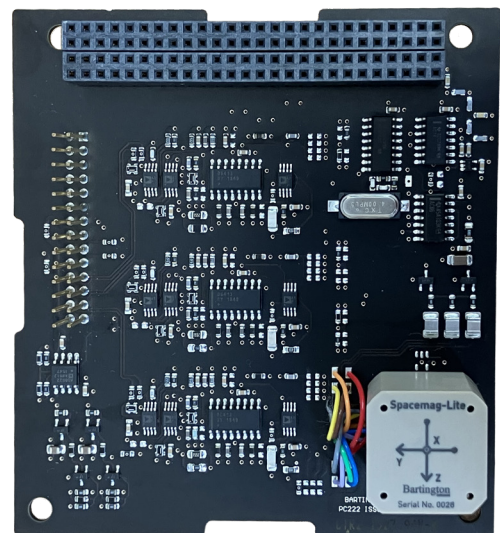
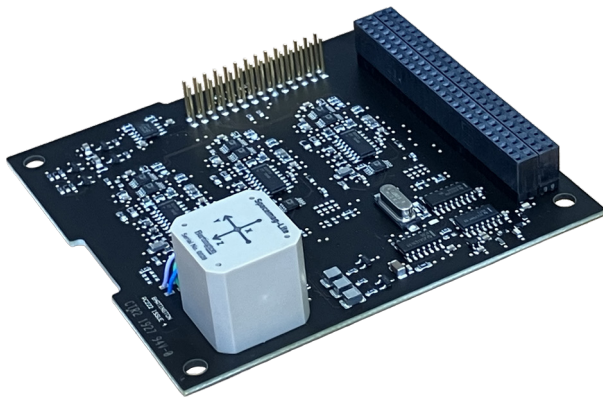


Spacemag-Lite® Three-Axis Magnetometer

Bartington Instruments offers a fluxgate magnetometer for spaceflight applications.

Spacemag-Lite® is ideal for a variety of low Earth orbit (LEO) missions, including commercial and scientific missions, where cost is a consideration.

The standard sensor is designed for CubeSat integration, though other configurations are also available depending on the mission requirement.



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Specifications

Performance	
Number of axes	Three (right hand XYZ coordinate system)
Polarity	+ve non-inverting output when pointing North
Full-scale measuring range	$\pm 60\mu\text{T}$
Measurement noise floor	>10 to $\leq 50\text{pTrms}/\sqrt{\text{Hz}}$ at 1Hz
Offset error	$\pm 100\text{nT}$ (max) at 25°C
Scaling temperature coefficient	$\pm 100\text{ppm}/^\circ\text{C}$
Calibration error	$\pm 0.5\%$
Orthogonality error	$<0.5^\circ$
Frequency response	$<5\%$ amplitude error DC to 100Hz
Frequency range to -3dB	DC-1kHz minimum within -3dB level
Hysteresis	$<0.1\%$ range for exposure to up to 10x range when unpowered
Excitation breakthrough	$<20\text{mV}$ pk-pk at 16kHz
Start-up/settling time	99% of final value in 0.5s



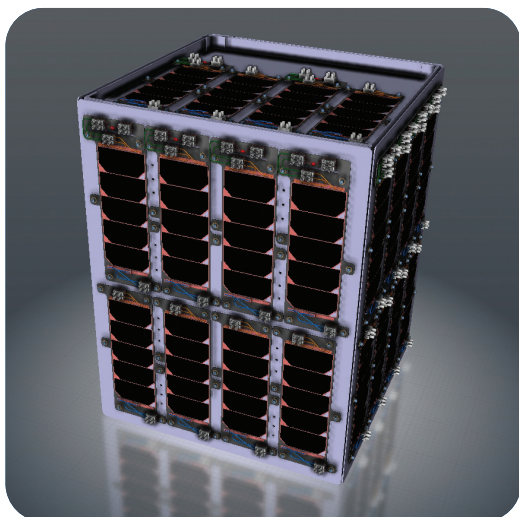
Environmental	
Operating temperature - continuous	-40°C to +65°C
Operating temperature - intermittent	-40°C to +85°C
Storage temperature	-40°C to +85°C
EMC approvals	BS EN61326
Thermal vacuum testing ¹	<10 ⁻⁵ mbar -30°C to +60°C
Conformal coating	None

¹ Thermal Vacuum Testing carried out on one validation model. Thermal Vacuum Testing is not performed on each unit manufactured.

Mechanical	
Construction	Un-packaged PCB with PCB-mounted Probe or Harnessed Probe
Harness length	Up to 2 metres
Construction materials	All materials achieve ≤1% TML and ≤0.1% CVCM
Dimensions - probe	20mm x 20mm x 20mm
Dimensions - electronics	90.2mm x 95.9mm (CubeSat 810-00253 rev A5, PC-104)
Weight - SpaceMag-Lite	67g
Weight - SpaceMag-Lite (harness variant)	94g
Weight - SpaceMag-Lite Probe	42g
Mounting arrangement	See DR3777 Outline Drawing

Electrical

Voltage input	5V and 3.3V
Current consumption - positive	33.5mA zero field; 35mA in full range field (5V) and 8.5mA (3.3V)
Analogue output	$\pm 3V$ Balanced Differential output, each output 0.15V to 3.15V
Output impedance	1.5 Ω



The specifications of the products described in this brochure are subject to change without prior notice.

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Instruments