

Mag566

Low Power Three-Axis Magnetometer

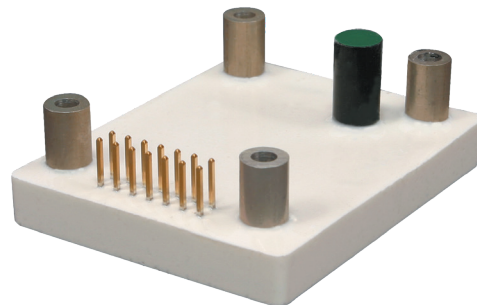




Mag566 Low Power Three-Axis Magnetometer

This low-cost miniature magnetometer comprises a single board assembly with fluxgate sensors and electronic circuitry. The electronics is encapsulated in epoxy resin to provide a high degree of environmental protection, including exposure to increased levels of shock and vibration.

The unit is optimised for low power operation, making it ideal for battery powered applications. It is suitable for use in multi-sensor arrays, with typical applications in vehicle surveillance and orientation control.



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Features

- Operates from $\pm 5V$ supply with 20mW power consumption
- Measuring range of $\pm 100\mu T$
- Bandwidth of 0 to 30-40Hz
- Electronics encapsulated in epoxy resin
- Drop tested in accordance with MIL-STD-810F

Typical Applications

- Incorporation in multi-sensor surveillance systems
- Use in remote installations
- Navigation



Specifications

Performance	
Number of axes	Three
Polarity	+ve non-inverting output when pointing North
Measuring range	$\pm 100\mu\text{T}$
Bandwidth (-3dB)	30-40Hz
Measurement noise floor	$< 1.5\text{nT}_{\text{rms}}/\sqrt{\text{Hz}}$ at 1Hz
Scaling	45mV/ μT
Scaling temperature coefficient	$\pm 50\text{ppm}/^\circ\text{C}$ ($\pm 10\%$)
Offset (in zero field)	$\pm 500\text{nT}$
Offset temperature coefficient	$\pm 0.2\text{nT}/^\circ\text{C}$
Scaling error	$\pm 3\%$
Orthogonality error	$\pm 2^\circ$ maximum
Linearity	$< 50\text{ppm}$
Hysteresis	$< 10\text{nT}$ max/mT external field
Excitation breakthrough	$< 10\text{mV}$ pk-pk, at 5.3-5.7kHz typical
Test response, 0V on test input	± 70 to $\pm 150\text{nT}$ ($\pm 10\%$)

Environmental	
Operating temperature range	-32°C to $+50^\circ\text{C}$ tested in accordance with MIL-STD-202G
Storage temperature range	-40°C to $+70^\circ\text{C}$ tested in accordance with MIL-STD-202G
Environmental protection	Resin encapsulation
Transit drop test (in suitable enclosure)	Completed in accordance with MIL-STD-810F method 516.5



Mechanical

Dimensions (W x H x D)	42 x 20 x 52 (± 0.5)mm
Weight	27g
Enclosure material	Epoxy resin
Connector	14 way, Samtec MTSW-107-08-S-D-340
Mating connector (not supplied)	14 way, Samtec SSM-107-S-DV-LC-P-TR
Mounting	4 x 3.2mm internal diameter chromated aluminium pillars on 40mm x 30mm fixing centres

Electrical

Supply voltage	$\pm 4.8\text{V}$ to $\pm 5.2\text{V}$ DC ($\pm 5.5\text{V}$ absolute maximum)
Current consumption	± 2 (± 0.4)mA quiescent, plus a maximum of 1.5mA/100 μT external field
Current surge at power on	± 7 -9mA (allow 20 seconds for full stability)
Analogue output	$\pm 4.5\text{V}$ (unbalanced, single ended ref. 0V)
Output impedance	100 Ω short circuit protected, drives capacitive loads up to 1 μF
Power supply rejection ratio	-60dB
Test input	Active low, 27k Ω pull-up resistor, over-voltage protection



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

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