

Mag670

Low Cost Single Axis Magnetic Field Sensor





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This compact, versatile, low cost fluxgate sensor provides measurements of static and alternating fields up to 1mT. It is a packaged single axis sensor with two options for orientation of the fluxgate element.



Features

- Noise $<20\text{pTrms}/\sqrt{\text{Hz}}$ at 1Hz
- Frequency response from DC to $>1\text{kHz}$
- Measuring ranges from $\pm 100\mu\text{T}$ to $\pm 1000\mu\text{T}$
- Two fluxgate element orientations

Typical Applications

- Incorporation in security systems
- Detection of magnetic materials
- Traffic monitoring



Product Identification

Product name	Orientation	Range in μT
Mag670	I = In-line R = Right-angle	± 100 ± 500 ± 1000

Example: Mag670-I-1000 is a $\pm 1000\mu\text{T}$ sensor with an in-line orientation.

Mag670 Specifications

Performance			
Number of axes	One		
Polarity	+ve output when pointing North		
Measuring range	$\pm 100\mu\text{T}$	$\pm 500\mu\text{T}$	$\pm 1000\mu\text{T}$
Bandwidth at -3dB	>1kHz		
Measurement noise floor	>10 to $\leq 20\text{pTrms}/\sqrt{\text{Hz}}$ at 1Hz		
Scaling	100mV/ μT	20mV/ μT	10mV/ μT
Scaling temperature coefficient	$\pm 200\text{ppm}/^\circ\text{C}$		
Start-up time	150ms		
Warm-up time	15mins		
Offset (in zero field)	$\pm 100\text{nT}$		
Offset temperature coefficient	<2nT/ $^\circ\text{C}$		
Scaling error	$\pm 5\%$		
Alignment error (to reference face)	<2 $^\circ$		
Linearity error	0.01% (across full scale)		
Hysteresis	<100nT at full scale		
Excitation breakthrough	<20mV pk-pk at 15.625kHz typical		

Environmental	
Operating temperature range	-20 $^\circ\text{C}$ to +70 $^\circ\text{C}$
Storage temperature range	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$
Environmental protection	N/A - Molex connector

Mechanical	
Dimensions	80 x 35 x 15mm
Weight	60g
Enclosure material	Black acetal and polyurethane potting compound
Connector	Molex 22-05-7058 0.1" connector 5 pins
Mating connector	Molex 22-01-1052 + Crimps 08-70-0069
Mounting	4 x M2.5 threaded holes
Angle between axis and reference	I -0° or R -90° (specify on order)

Electrical	
Supply voltage	±11V to ±17V DC
Supply current	+18mA, -3mA maximum
Power ON surge current	+40mA, -8mA (<150ms)
Voltage protection	Polarity reversal to 40V
Analogue voltage output	±10V (unbalanced, single ended ref. 0V)
Output impedance	10Ω typical
Output protection	Protected against short circuit to 0V

Power Supplies

The Mag670 range is compatible with the following data acquisition and power supply units from Bartington Instruments:

- PSU1 Power Supply Unit
- DecaPSU Power Supply Unit (adaptor cable required)
- Magmeter-2 Power Supply and Display Units
- Spectramag-6 Data Acquisition Unit
- SCU1 Signal Conditioning Unit
- Mag-03DAM Data Acquisition Module

Accessories

	Mag670
Cables	Optional extra
Mating connectors	Not supplied

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