

Bartington®
Instruments

Mag-01MS

Single Axis Magnetic Field Sensor

For innovation in magnetic measuring instruments



This compact high performance sensor with integral electronics provides precision measurements of static and alternating magnetic fields in the presence of a high cross-field. It is available in measuring ranges from ± 70 to ± 1000 μT . Powered from any $\pm 12\text{V}$ supply, output is in the form of an analog voltage from 0 to $\pm 10\text{V}$ proportional to the field in the sensor axis.

The sensor is designed to have low radio frequency emission and is internally shielded.

Specification-

Scaling independent parameters	
Supply voltage	$\pm 12\text{V}$ to $\pm 17\text{V}$
Analog output	$\pm 10\text{V}$ ($\pm 12\text{V}$ supply) swings to within 1V of supply voltage
Power supply rejection ratio	$5\mu\text{V}/\text{V}$
Output impedance	$< 220\Omega$
Linearity error	$< 0.0015\%$
Calibration accuracy	$\pm 0.25\%$
Bandwidth	0 to 1kHz
Alignment of magnetic axis	$< 0.2^\circ$ to long axis of case
Internal noise	$20\text{pTrms}/\sqrt{\text{Hz}}$ at 1Hz typical
Supply current	$\pm 13\text{mA}$ ($+1.4\text{mA}$ per 100 μT)
Enclosure	reinforced epoxy
Dimensions (mm)	32 x 20 x 141
Mounting	4 x 3.2mm holes on 26 x 110mm centres, M3 screws supplied
Connector	DEM-9P-NMB (non ferrous) 'D' type
Mating connector	DEM-9S-NMB (non-ferrous) 'D' type
Operating temperature	-40°C to $+70^\circ\text{C}$
Weight	100g
Environmental	none
EMI	internally shielded
Output convention	output is positive when axis arrow points to geomagnetic north

Scaling dependent parameters

Measuring range	± 70	± 100	± 250	± 500	± 1000	μT
Scaling	143	100	40	20	10	$\text{mV}/\mu\text{T}$
Offset error	± 5	± 5	± 12	± 25	± 50	nT
Scaling temperature coefficient	+15	+15	+15	+15	+15	$\text{ppm}/^\circ\text{C}$
Offset temperature coefficient	± 0.1	± 0.1	± 0.2	± 0.33	± 0.6	$\text{nT}/^\circ\text{C}$

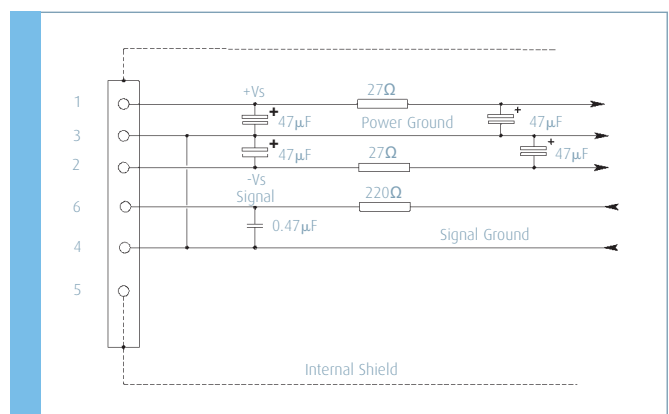
Connector pin allocation

Pin	Signal
1	+12V supply
2	-12V Supply
3	Signal/power ground
4	Signal/power ground
5	Shield
6	Output
7	No connection
8	No connection
9	No connection
Shell	Shield

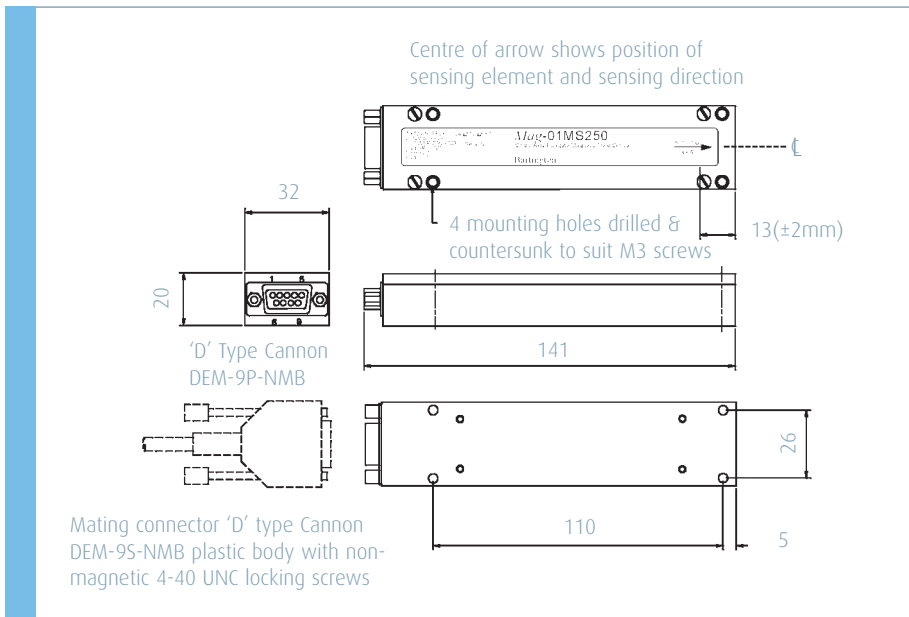
Signal/power ground lines are connected together within the sensor.

A shielded cable is recommended with the shield connected to pin 5 only at the sensor and to power ground at the power supply.

Electrical Interface (internal components shown)




Mechanical Interface



Ordering Information

The sensor should be specified as **Mag-01MS** followed by the measuring range in μT .
eg. **Mag-01MS100** - specifies 100 μT full-scale range.



**The specification of the product described in this brochure is subject to change without prior notice.
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