

## *Mag592*

Low radiation single axis magnetic field sensor

## *Mag585*

Low radiation three axis magnetic field sensor

For innovation in magnetic measuring instruments





# Mag592 and Mag585

## Low radiation single and three axis magnetic field sensors

These compact high performance sensors with integral electronics provide precision measurements of static and alternating magnetic fields. They are available in measuring ranges from  $\pm 70$  to  $\pm 1000\mu\text{T}$ . Powered from any  $\pm 12\text{V}$  supply, outputs are in the form of one analog voltage per axis of  $\pm 10\text{V}$  full scale, proportional to the field in the relevant axis.

The sensors are designed to have zero radio frequency emission, specifically for use close to MRI installations.

### Specifications

#### Scaling independent parameters

Number of axes	<i>Mag592</i> <i>Mag585</i>	1 3
Supply voltage		$\pm 12\text{V}$ to $\pm 17\text{V}$
Analog output per channel		$\pm 10\text{V}$ ( $\pm 12\text{V}$ supply) swings to within 1V of supply voltage
Power supply rejection ratio		$5\mu\text{V}/\text{V}$
Output impedence		$< 220\Omega$
Linearity error		$< 0.01\%$
Calibration accuracy		$\pm 0.25\%$ <i>Mag585</i> $\pm 0.5\%$ <i>Mag592</i>
Alignment of magnetic axis		$0.2^\circ$ to long axis of case & $0.2^\circ$ between axes <i>Mag585</i> $1^\circ$ to long axis of case <i>Mag592</i>
Internal noise		$50\text{pTrms}/\sqrt{\text{Hz}}$ at 1Hz max.
Supply current (typical)		$\pm 90\text{ mA}$ <i>Mag585</i> $\pm 42\text{ mA}$ <i>Mag592</i>
Enclosure		reinforced epoxy
Dimensions (mm)		$32 \times 33 \times 150$ (excluding connector)
Mounting		4 x M4 holes c'bored $\varnothing 4.3 \times 15$ deep on $26 \times 110\text{mm}$ centres
Connector		DEM-9P-NMB (non ferrous) 'D' type
Mating connector		DEM-9S-NMB (non-ferrous) 'D' type
Operating temperature		$-40^\circ\text{C}$ to $+55^\circ\text{C}$
Weight (g)		155 <i>Mag585</i> 100 <i>Mag592</i>
Environmental		IP61
Output convention		output is positive when axis arrow points to geomagnetic north

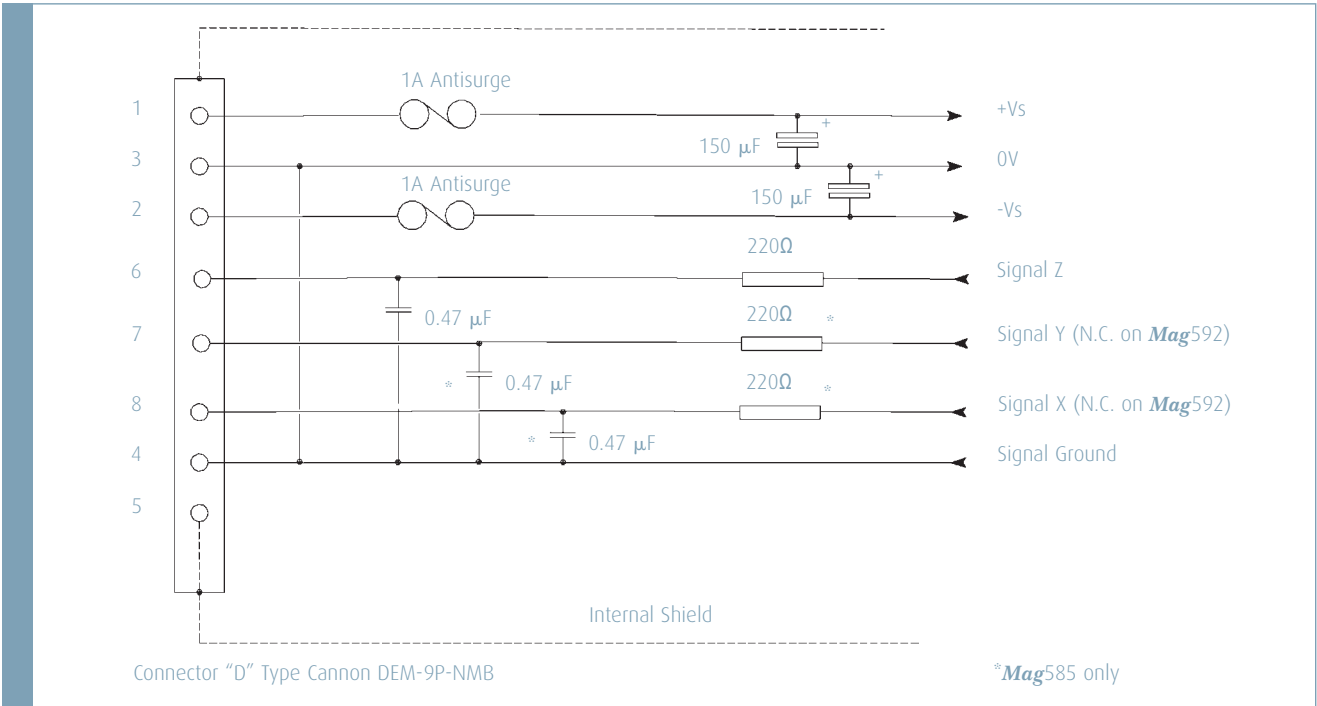
#### Scaling dependent parameters

Measuring range	$\pm 70$	$\pm 100$	$\pm 250$	$\pm 500$	$\pm 1000$	$\mu\text{T}$
Scaling	143	100	40	20	10	$\text{mV}/\mu\text{T}$
Offset error	$\pm 5$	$\pm 5$	$\pm 12$	$\pm 25$	$\pm 50$	nT
Bandwidth	2	2	2	2	1.5	kHz
Scaling temperature coefficient	+15	+15	+15	+15	+15	ppm/ $^\circ\text{C}$
Offset temperature coefficient	$\pm 0.05$	$\pm 0.06$	$\pm 0.15$	$\pm 0.3$	$\pm 1.5$	nT/ $^\circ\text{C}$

#### Connector Pin Allocation

Pin	<i>Mag592</i> Sensor	<i>Mag585</i> Sensor
	Signal	Signal
1	+12V Supply	+12V Supply
2	-12V Supply	-12V Supply
3	Signal/Power Ground	Signal/Power Ground
4	Signal/Power Ground	Signal/Power Ground
5	Shield	Shield
6	V out	VZ out
7	No connection	VY out
8	No connection	VX out
9	No connection	No connection
Shell	Shield	Shield

## Electrical Interface (internal components shown)



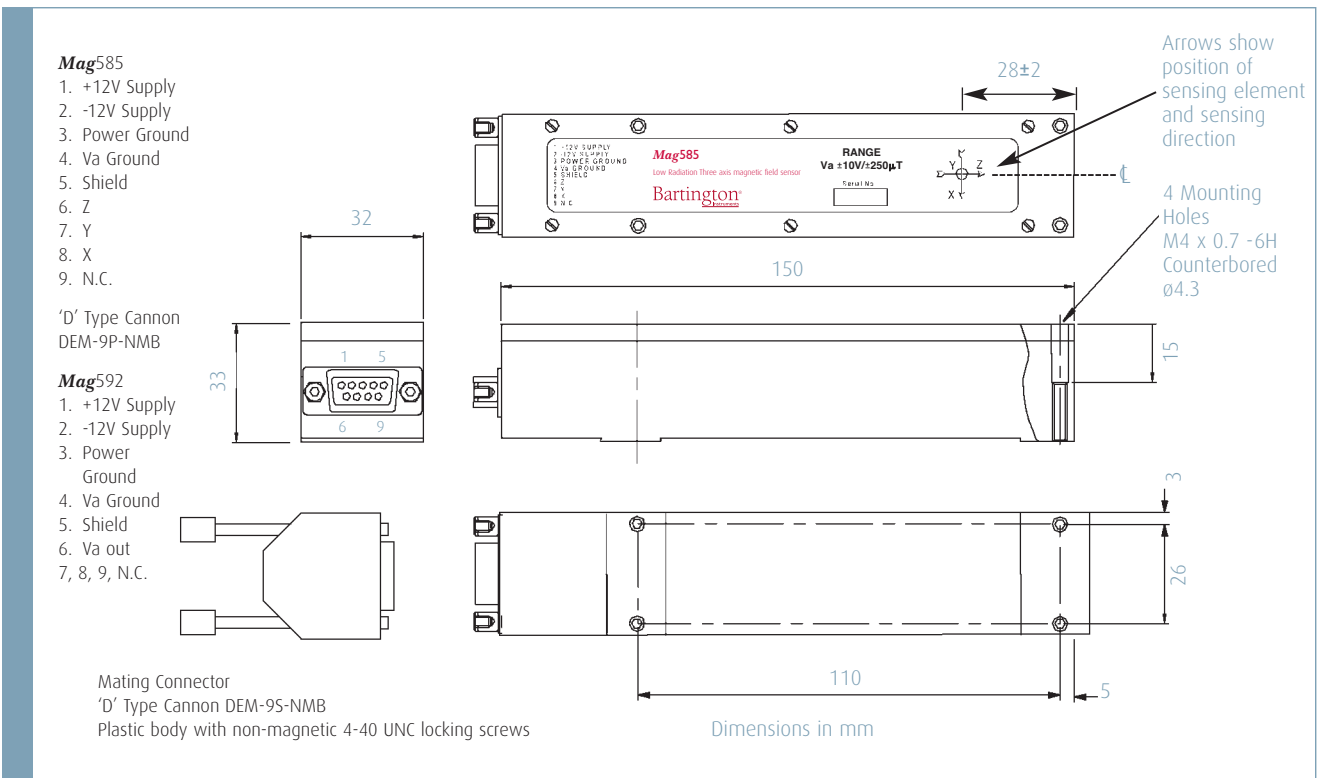
Signal/power ground lines are connected together within the sensor.

To avoid malfunction the positive and negative power supplies must be switched on simultaneously.

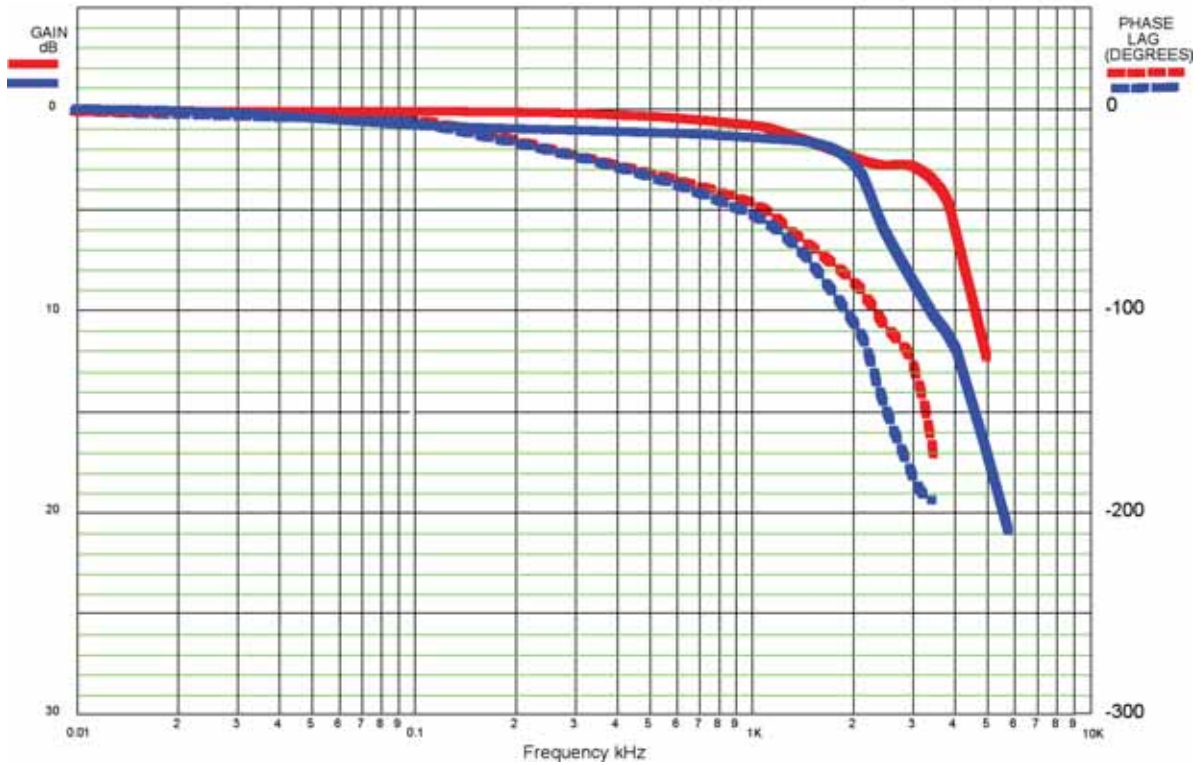
The maximum rate of rise for the power supplies should not exceed 1V/ms.

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

## Mechanical Interface



**Gain & Phase response versus frequency**  
 For Mag585 & Mag592, 250µT full scale range  
 Measured at 10% (RED) and 40% (BLUE) full scale



### Ordering Information

The sensor should be specified as **Mag585** or **Mag592** followed by the measuring range e.g. **Mag585-250** is a 3-axis sensor with measuring range of  $\pm 250\mu\text{T}$ .

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