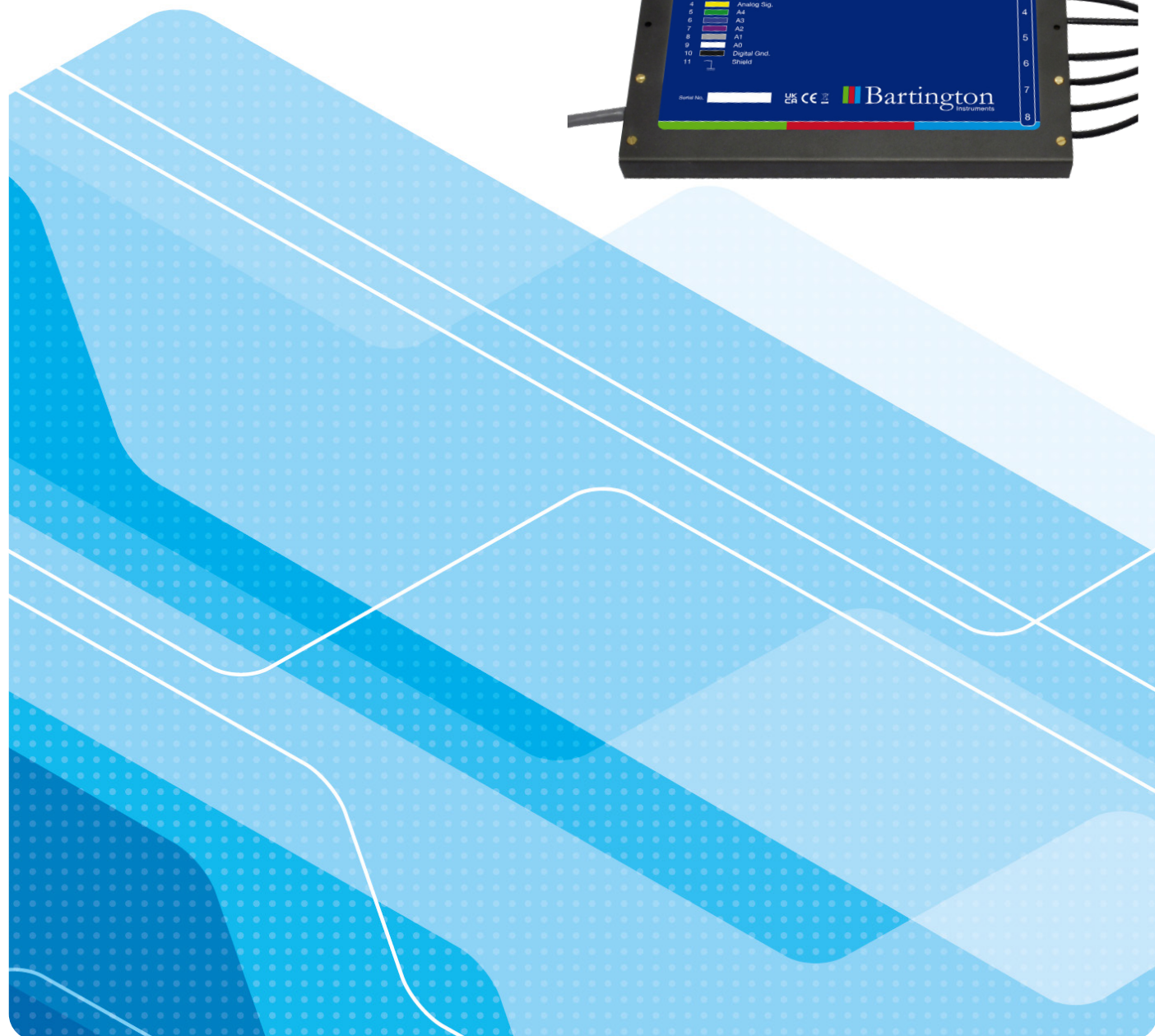


Mag613

Magnetometer Array





Mag613 Magnetometer Array

The Mag613 is an array of eight miniature three-axis fluxgate sensors, ideal for analysing the magnetic signatures of ship and submarine scaled models.

Each sensor is individually encapsulated in a miniature enclosure, and connected by a 3m cable to the electronics module which contains a power supply, the driving circuitry and an analogue multiplexer. The unit is designed to be used in an oil filled tank at pressures equivalent to 500m depth (50 bar).

The small volume of the sensors enables them to be mounted to achieve high spatial resolution, and crosstalk is suppressed up to 3kHz.



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Features

- Range of $\pm 300\mu\text{T}$ or $\pm 500\mu\text{T}$
- 6Hz bandwidth
- Test facility allows remote monitoring for fault diagnosis
- Outputs are multiplexed into a single analogue line

Typical Applications

- Simulating closed loop degaussing on scale models
- Magnetic signature analysis during ship design



Specifications

Performance	
Number of axes	24 (3 x 8 - Right Hand XYZ co-ordinate system)
Measuring range	$\pm 300\mu\text{T}$ or $\pm 500\mu\text{T}$
Bandwidth at -3dB (each channel)	>6Hz
Measurement noise floor	$<0.5\text{nTrms}/\sqrt{\text{Hz}}$ at 1Hz
Scaling	33mV/ μT (300 μT) 20mV/ μT (500 μT)
Scaling temperature coefficient	$<120\text{ppm}/^\circ\text{C}$
Offset	$<\pm 250\text{nT}$
Scaling error	$<\pm 2.5\%$
Orthogonality error	$<6^\circ$
Positional uncertainty	$\pm 0.5\text{mm}$
Offset change with pressure	$<\pm 0.5\text{nT}/\text{bar}$ maximum
Monitor voltage for each three axis sensor	400mV ($\pm 20\text{mV}$)
Excitation frequency	57.6kHz
Signal frequency	115.2kHz
Sensor active volume	5mm cube

Environmental	
Operating temperature range	-10°C to +40°C
Storage temperature range	-40°C to +50°C
Maximum pressure	<50 bars (in oil pressure tank)



Mechanical

	Sensors	Electronics
Dimensions	sensor head WxHxL: 8 x 8 x 15mm cable diameter: 3mm nominal cable length: 3m	WxHxL: 180 x 140 x 21mm
Enclosure material	Epoxy encapsulated PPS GF40	Al. Alloy 5251 with Type II Iridite NCP
Cables	5-way submersible, water-blocked	Interface cable: 10-way screened, water-blocked, length 1m supplied with ends stripped and tinned.
Minimum bend radius	45mm	75mm
Cable material	Viton	
Weight	1.7kg	
Mounting holes	n/a	2 x ø4.5mm - on centreline - 187mm pitch

Electrical

Power supply	18-24V DC, reverse voltage protected, 1.5kV isolation
Current consumption	1A at 18V, 0.75A at 24V
Signal frequency	115.2kHz
Binary address lines	5 lines TTL and 3V logic compatible, surge protected
Analog output settling time from address change with 10m output cable	400ns + 5ns/m
Short circuit protection	Analog output short circuit and surge protected



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

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