Bartington® Instruments

Mag-01 & *Mag*-01H

Single axis fluxgate magnetometers

For innovation in magnetic measuring instruments

Mag-01 & *Mag*-01H

Single Axis Fluxgate Magnetometers

These portable, high performance instruments provide precision measurements of the direction and intensity of static and slowly varying magnetic fields from 0.1nT to 2mT (1mT = 10G). Axial and transverse probes are available, together with unpackaged probes for cryogenic applications.

Both instruments are mains or battery powered and have a 4½ digit display and an analog output. The internal rechargeable battery provides 16 hours continuous use and can be recharged using the mains adaptor provided.

The ***Mag***-01 provides a maximum resolution of 1nT whilst the ***Mag***-01H has an additional sensitivity control providing a resolution of 0.1nT and an offset control for up to ±90µT in 10µT steps.

These instruments feature superb linearity and accuracy, and very low drift with time and temperature. Calibration is traceable to international standards and a re-calibration service is available.

Applications include the measurement of induced and remanent magnetisation and use in site surveys prior to the installation of MRI equipment.

A magnetic shield is available to minimise the effect of the earths magnetic field whilist measuring remanent magnetisation around a specimen.

Mag Probes

The following probes are available

Type	Low field probes (0 to 0.2mT)	High field probes (0 to 2mT)
Axial	*Mag* B Probe	*Mag* D Probe
Transverse	*Mag* C Probe	*Mag* E Probe
Cryogenic	*Mag* F Probe	*Mag* G Probe
Vacuum - to special order		

Measurement range / Resolution (LCD display)

Magnetometer	Low field probes		High field probes	
	Range (µT)	Resolution (nT)	Range (µT)	Resolution (nT)
Mag-01	0-20	1	0-200	10
	20-200	10	200-2000	100
Mag-01H (X10 sensitivity)	0-2	0.1	0-20	1
	2-100	1	20-1000	10
	100-290	10	1000-2000	100

The sensing axis of the B and D probes is in line with the axis of the cylindrical enclosure. The sensing axis of the C and E probes is along the axis of the short cylinder at the end of the probe. The magnetic detection axis and centre of sensitive volume are marked on each probe.

The cryogenic probes are suitable for operation at temperatures down to liquid helium and have 1m of 4 x 0.2mm enamelled copper wire connected to the element for use in a cryostat. This length can be extended to a maximum of 5 metres if required.

A magnetometer probe switch unit is available for the sequential selection of two or three ***Mag*** probes, type B - G, for operation with a ***Mag***-01 or ***Mag***-01H instrument. The ***Mag*** probes can be operated at a distance of up to 25 metres from the switch unit.

All fluxgate sensors are manufactured in-house and undergo rigorous processing and performance monitoring at all stages of production. Each probe is individually calibrated to a standard which is traceable to the UK National Physical Laboratory. Probes and electronics units are fully interchangeable with a cumulative calibration uncertainty of 0.25%.

Specifications – *Mag*-01 & *Mag*-01H instruments

Measuring range	0 to 0.2mT or 2mT depending on probe
Bandwidth	0 to 10Hz, -12dB per octave roll off
Calibration accuracy	0.1%
Maximum resolution	1nT (*Mag*-01), 0.1nT (*Mag*-01H)
Zero field offset error (@20°C)	±5nT
Scaling temperature coefficient	<10ppm/°C
Offset temperature coefficient	0.01nT/°C
Front panel	
on/off switch	switches on internal battery
probe input	6 pole waterproof Fischer connector
charge indicator	illuminated when external supply connected
offset control (*Mag*-01H only)	allows ±90µT in steps of ±10µT to be subtracted from the field at the probe
sensitivity control (*Mag*-01H only)	increases the sensitivity by a factor of 10
Rear panel connectors	
battery charger inlet	2.1mm socket 6-18V d.c. 0.5A max., polarity protected, continuous or intermittent use
analog output	4mm insulated sockets
low field probes	5V full scale 100µT/V (10µT/V with x10 sensitivity on *Mag*-01H)
high field probes	2V (min) full scale 1mT/V (0.1mT/V with x10 sensitivity on *Mag*-01H)
output impedance	1kΩ
Enclosure	high impact ABS
Operating temperature	-10°C to +50°C
Relative humidity	80% non-condensing
Dimensions (mm)	155 x 170 x 68
Weight (kg)	1.5

Mag B Probe

Mag C Probe

Mag F Probe

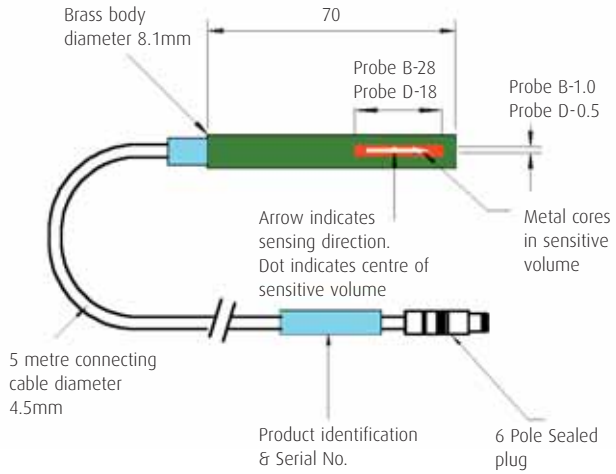
Specifications *Mag* Probes

Linearity	0.01%
Calibration accuracy	1%
Probe alignment error to case	<0.2°
Offset error	
low field probes	±5nT
high field probes	±25nT
Scaling temperature coefficient	
low field probes	±10ppm/°C
high field probes	±30ppm/°C
Sensitive volume of metal cores	
low field probes	0.0023cm³
high field probes	0.0015cm³
Excitation power	
low field probes	26mW
high field probes	16mW
Operating temperature	
axial and transverse probes	-30°C to +75°C
cryogenic probes	liquid helium to +30°C

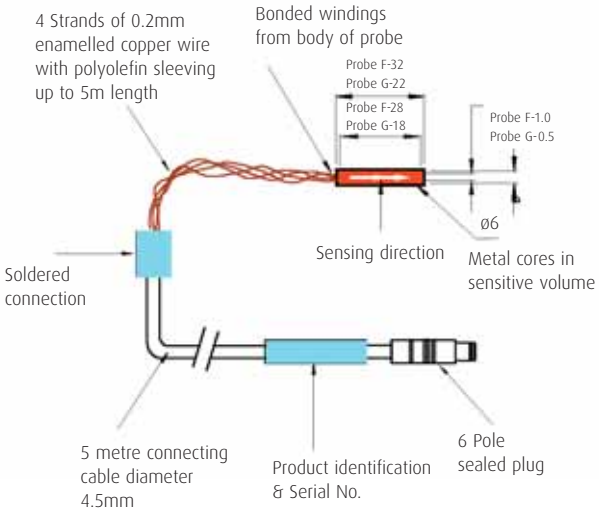
Accessories

Magnetic Shield
a.c. mains adaptor for 110V or 220/240V with outlet adaptors
Carrying bag for instrument and B,C,D & E probes
Operation manual
Service manual (available on request)

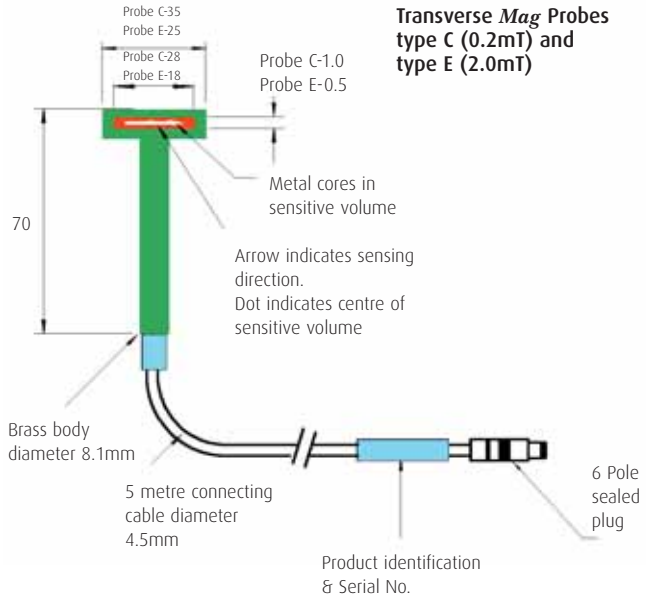
Axial *Mag* Probes type B (0.2mT) and type D (2.0mT)



Low temperature *Mag* Probes type F (0.2mT) and type G (2.0mT)



Transverse *Mag* Probes type C (0.2mT) and type E (2.0mT)



All dimensions in mm

Not to Scale

■ Indicates probe active regions

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