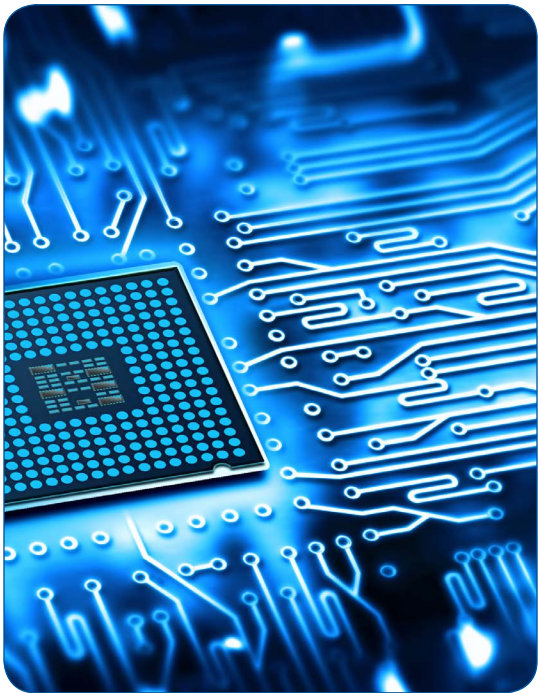


Mag-01H

Single Axis Fluxgate Magnetometer





Mag-01H Single Axis Fluxgate Magnetometer

This portable, high performance instrument provides precision measurements, in one axis, of the intensity of static and slowly varying magnetic fields from 0.1nT to 2mT (1mT = 10G). Axial, transverse and cryogenic probes are available.

The Mag 01H provides a resolution of 0.1nT and an offset control for up to $\pm 90\mu\text{T}$ in $10\mu\text{T}$ steps.

It is mains or battery powered and provide direct readings on a 4½ digit display together with an analogue output.

It features superb linearity and accuracy, and very low drift with time and temperature.

Calibration services provided by Bartington Instruments are traceable to National Standards (NPL). Please contact us if an accredited calibration certificate is required.



Applications

- Cryogenic probes to measure remanent magnetisation inside RF cavities in particle accelerators
- Field uniformity measurements during manufacture of electro and superconducting magnets
- Compass safe distance testing during EMC tests

Features

- Axial, transverse and cryogenic probes
- Resolution to 0.1nT
- Measuring range from $\pm 0.1\text{nT}$ to $\pm 2\text{mT}$
- Offset removal facility
- Very low drift

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Mag-01H Specifications

| Performance | |
|--|---|
| Number of axes | One |
| Polarity | +ve non-inverting output when pointing North |
| Measuring range | $\pm 0.2\text{mT}$ or $\pm 2\text{mT}$ depending on probe |
| Bandwidth | 0 to 10Hz, -12dB per octave roll off (DC for x10 sensitivity) |
| Scaling (analogue output) | Low field probes 10mV/ μT (100mV/ μT with x10 sensitivity) High field probes 1mV/ μT (10mV/ μT with x10 sensitivity) |
| Scaling temperature coefficient | <10ppm/ $^{\circ}\text{C}$ |
| Offset in zero field (at 20 $^{\circ}\text{C}$) | $\pm 5\text{nT}$ |
| Offset temperature coefficient | 0.01nT/ $^{\circ}\text{C}$ |
| Scaling error | $\pm 0.25\%$ |
| Maximum resolution | 0.1nT |

| Environmental | |
|-----------------------|--|
| Operating temperature | 0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$ |
| Relative humidity | 0-90% non-condensing |



Mag-01H Single Axis Fluxgate Magnetometer

| Mechanical | |
|--|--|
| Dimensions (W x H x D) | 155 x 68 x 175mm |
| Weight | 0.95kg |
| Enclosure material | High impact ABS |
| Front panel On/off switch Probe input Charge indicator Offset control (Mag-01H only) Sensitivity control (Mag-01H only) | Switches on internal battery 6 pole waterproof Fischer connector Illuminated when external supply connected Allows $\pm 90\mu\text{T}$ in steps of $\pm 10\mu\text{T}$ to be added or subtracted from the field at the probe Increases the sensitivity by a factor of 10 |

| Electrical | |
|---|--|
| Power supply | Integral rechargeable lead-acid battery |
| Battery charger inlet Analogue output low field probes high field probes Output impedance | 2.1mm socket 6-18V DC 0.5A max, polarity protected, continuous or intermittent use 4mm insulated sockets 5V full scale 2V full scale 1k Ω |
| Cable length | 5m |
| Maximum cable length | 25m |



Mag Probes

The following Mag 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 (axial) | Mag F Probe | Mag G Probe |

| Measurement range / resolution (LCD display) | | | | |
|--|-------------------------------|-----------------|--------------------------------|-----------------|
| Magnetometer | Low field probes (B, C and F) | | High field probes (D, E and G) | |
| | Range (μ T) | Resolution (nT) | Range (μ T) | Resolution (nT) |
| Mag-01H | 0–20 | 1 | 0–290 | 10 |
| | 20–290 | 10 | 290–1000 | 100 |
| Mag-01H (x10 sensitivity) | 0–2 | 0.1 | 0–20 | 1 |
| | 2–100 | 1 | 20–1000 | 10 |
| | 100–290 | 10 | 1000–2000 | 100 |

Note: Probes and electronic units are fully interchangeable with a cumulative calibration uncertainty of 0.25%.

Specifications



| Performance | |
|---|--|
| Linearity | 0.01% |
| Scaling accuracy | ±1% |
| Probe alignment error to case | <0.2° |
| Offset error when probe paired to Mag-01H low field probes high field probes | ±5nT ±25nT |
| Offset error when probe supplied alone low field with probe high field with probe | ±25nT ±125nT |
| Scaling temperature coefficient low field probes high field probes | ±10ppm/°C ±30ppm/°C |
| Sensitive volume of metal cores low field probes high field probes | 0.0023cm ³ 0.0015cm ³ |
| Excitation power low field probes high field probes | 26mW 16mW |
| Operating temperature axial and transverse probes cryogenic probes | -30°C to +75°C Liquid helium to +30°C |

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