

# Mag639

Three-Axis Magnetic Field Sensor



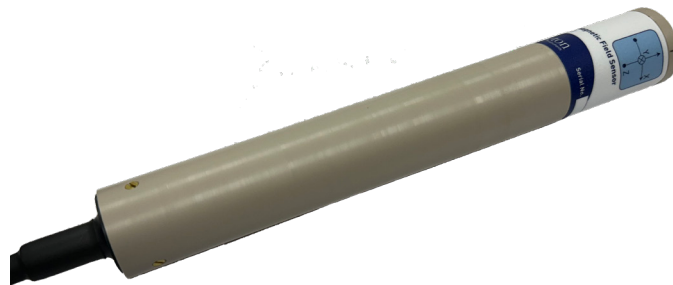


## Mag639 Three-Axis Wide Bandwidth Magnetic Field Sensor

---

This wide bandwidth fluxgate sensor allows for measurements from DC to 12kHz of field strengths up to  $\pm 100\mu\text{T}$ .

Creation of eddy currents is prevented by a non-conductive, cylindrical enclosure. A 2.5m shielded cable removes the sensor connector from the immediate proximity of fluxgates. The three concurrent fluxgate elements minimise the effect of high magnetic field gradients.



## Features

---

- Wide bandwidth – DC to 12kHz
- Noise level  $<20\text{pTrms}/\sqrt{\text{Hz}}$  at 1Hz
- $\pm 100\mu\text{T}$  measuring range
- Concurrent axes (single point of intersection)
- Environmentally sealed to IP65

## Typical Applications

---

- Time-domain electromagnetics (TDEM)
- Magnetotellurics (MT)
- EMC Interferences measurement
- Unexploded ordnance (UXO) detection



## Specifications

| Performance             |                                              |
|-------------------------|----------------------------------------------|
| Number of Axes          | Three                                        |
| Polarity                | +ve non-inverting output when pointing North |
| Measuring range         | $\pm 100\mu\text{T}$                         |
| Bandwidth (-3dB)        | 0 to 12kHz ( $\pm 5\%$ ) (at 50% full scale) |
| Measurement noise floor | $< 20\text{pTrms}/\sqrt{\text{Hz}}$ at 1Hz   |
| Scaling                 | $100\text{mV}/\mu\text{T}$                   |
| Offset error            | $< 50\text{nT}$                              |
| Scaling error           | $\pm 0.5\%$                                  |
| Orthogonality error     | $< 0.5^\circ$                                |
| Roll off (-dB/Octave)   | 11dB                                         |
| Frequency response      | DC-5kHz ( $\pm 5\%$ )                        |
| Hysteresis              | $< 5\text{nT}$ at $100\mu\text{T}$           |
| Excitation breakthrough | $< 20\text{mV}$ pk-pk at 31.25kHz typical    |

| Environmental            |                                           |
|--------------------------|-------------------------------------------|
| Operating temperature    | $-20^\circ\text{C}$ to $70^\circ\text{C}$ |
| Environmental protection | IP65                                      |

| Mechanical                         |                                                           |
|------------------------------------|-----------------------------------------------------------|
| Dimensions (Ø x L) excluding cable | 28.1 x 218mm                                              |
| Integral cable length              | 2500mm (Ø 6mm)                                            |
| Weight                             | 300g                                                      |
| Enclosure                          | PEEK                                                      |
| Connector                          | Hirose RM15TRD10S                                         |
| Mating connector                   | Hirose RM15TRD10P with 100mm long flying leads (supplied) |

| Electrical          |                                              |
|---------------------|----------------------------------------------|
| Supply Voltage      | $\pm 15V$ to $\pm 17V$                       |
| Current Consumption | +59mA, -35mA                                 |
| Analogue output     | $\pm 10V$ (unbalanced, single ended ref. 0V) |



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

Bartington Instruments Ltd  
5, 8, 10, 11, 12 & 16 Thorney Leys Business Park  
Witney, Oxford OX28 4GE. England

**Telephone:** +44 (0)1993 706565  
**Email:** sales@bartington.com

 **Bartington**<sup>®</sup>  
Instruments