



Fluxgate Magnetometers and Gradiometers

Product Range

www.bartington.com

Bartington[®]
Instruments

Single-Axis Fluxgate Magnetic Field Sensors

Mag646 Low Cost Unpackaged Sensor

A compact general purpose sensor with a frequency response from DC to >1kHz. Three measuring ranges are available: $\pm 100\mu\text{T}$, $\pm 500\mu\text{T}$ or $\pm 1000\mu\text{T}$. Available with two fluxgate element orientation, it is designed for integration in to OEM systems.

Mag670 Low Cost Compact Sensor

A compact general purpose sensor with a frequency response from DC to >1kHz. Three measuring ranges are available: $\pm 100\mu\text{T}$, $\pm 500\mu\text{T}$ or $\pm 1000\mu\text{T}$. Available with two fluxgate element orientation with an alignment error to datum $<2^\circ$. Suitable for a wide range of applications.

Mag678/Mag679 Low Power Sensors

A range of low power (10mW) sensors with bandwidth of >30Hz (Mag678) or >1kHz (Mag679). Two measuring ranges of $\pm 60\mu\text{T}$ or $\pm 100\mu\text{T}$ are available together with a low noise option. Submersible and unpackaged versions available for flexibility of use. These are typically used for surveillance and perimeter security applications.

Mag592 Low Radiation Sensor

A sensor offering low RF emission. It has a frequency response from DC to 2kHz and is available with measuring ranges from $\pm 70\mu\text{T}$ to $\pm 1000\mu\text{T}$. It is designed for field measurements close to permanent magnet MRI.

Mag-01H Magnetometer

A portable, high resolution, instrument used for precision measurements of DC magnetic fields. A range of low field ($\pm 0.2\text{mT}$) and high field ($\pm 2\text{mT}$) probes are available in a range of package (axial, transverse and cryogenic). Typical use include measurements of remanent magnetisation in RF cavities or compass safe distance.

Mag-01H Declinometer/Inclinometer system

This system includes a fluxgate sensor mounted on a 6 seconds Wild T1 non-magnetic theodolite, and a high resolution ($\pm 0.1\text{nT}$) readout unit. It is designed to measure declination and inclination of the geomagnetic field in Magnetic Observatory or for mapping purposes.



**Mag678/Mag679
Low Power
Sensors**



**Mag592 Low
Radiation Sensor**



**Mag646
Unpackaged
Sensor**



**Mag-01 and Mag-01H
Magnetometer**



**Mag670 Compact
Sensor**



**Mag-01H
Declinometer/
Inclinometer
system**

Three-Axis Fluxgate Magnetic Field Sensors

Mag-13 High Precision Magnetic Field Sensors

This range of high accuracy sensors offer four noise levels, down to 4pTrms/√Hz at 1Hz. Available in a range of enclosures, they are environmentally sealed and shielded from electrical interference. Their measuring ranges are from ± 60 to $\pm 1000\mu\text{T}$, with a frequency response from DC to 3kHz. They also include a test coil. Their extremely low noise allow for highly accurate measurements in a range of applications.

Mag-03 High Precision Magnetic Field Sensors

A range of high performance sensors with three noise levels down to <6pTrms/√Hz at 1Hz. They are available in a wide range of enclosures and measuring ranges from ± 70 to $\pm 1000\mu\text{T}$. This flexibility make these sensor suited for many applications including in the medical, industrial, physics or geophysics markets.

Mag639 Wide Bandwidth Sensor

This sensor, offering a 12kHz bandwidth, and a measuring range of $\pm 100\mu\text{T}$ is designed for measurements of fast changing magnetic fields. Applications include industrial EMC monitoring or geophysics.

Mag690 Low Cost Sensor

This low cost sensor offers measuring ranges from $\pm 100\mu\text{T}$ to $\pm 1000\mu\text{T}$ and a frequency response from DC to 1kHz. Its performance makes this sensor a general purpose sensor for precision measurements of magnetic fields.

Mag648/Mag649 Low Power Sensors

A range of low power (<15mW) sensors with bandwidth of >30Hz (Mag648) or >1kHz (Mag649). Two measuring ranges of $\pm 60\mu\text{T}$ or $\pm 100\mu\text{T}$ are available together with a low noise option. Submersible and unpackaged versions available for flexibility of use. These are typically used for surveillance and perimeter security applications.



Mag690 Low Cost Sensor



Mag585 Low Radiation Sensor



Mag-13 Range of Magnetic Field Sensors



Mag-03 Range of Magnetic Field Sensors



Mag639 Wide Bandwidth Sensor



Mag648/Mag649 Low Power Sensors

Three-Axis Fluxgate Magnetic Field Sensors

Mag610/Mag611 High Temperature Magnetic Field Probes

For applications requiring high shock and temperature resistance, these sensors operate to 175°C and 215°C respectively. A low noise (<30pTrms/VHz) version of Mag610 is available. For integration into a downhole directional drilling tool, a sensor drive electronics design document is also available.

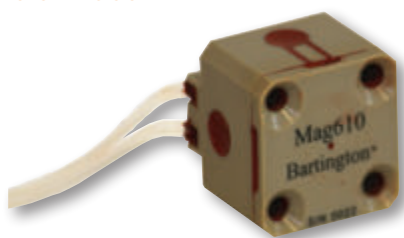
Mag614 Compact High Temperature Magnetic Field Probes

This small size fluxgate probe offers high shock and temperature resistance, and operates up to 175°C. For integration into a downhole directional drilling tool, a sensor drive electronics design document is also available.

Mag658 Unpackaged Digital Magnetometer

This digital sensor has an RS422 interface and integrate a three-axis accelerometer. Its measuring range of $\pm 524\mu\text{T}$ and frequency response from DC to 30Hz make it suitable for a range of applications including airborne measurements from an UAV.

Mag610 High Temperature Magnetic Field Probe



Mag650 Unpackaged Low Power Sensor

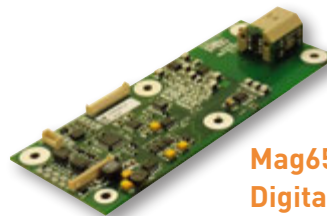
This low cost sensor offering low power consumption (~7mW) has a noise level between 10 and 50pTrms/VHz at 1Hz. Combined with a measuring range of $\pm 60\mu\text{T}$ and bandwidth >30Hz, this sensor is ideal for applications such as surveillance.

Mag651 Unpackaged Low Power Sensor

This low cost sensor offering low power consumption (~8mW) has a noise level between 10 and 20pTrms/VHz at 1Hz. Combined with a measuring range of $\pm 60\mu\text{T}$ and bandwidth >30Hz, this sensor is ideal for applications such as surveillance.

Mag585 Low Radiation Sensor

A sensor offering low RF emission. It has a frequency response from DC to 2kHz and is available with measuring ranges from $\pm 70\mu\text{T}$ to $\pm 1000\mu\text{T}$. It is designed for field measurements close to permanent magnet MRI.



Mag650 Unpackaged Low Power Sensor



Mag651 Unpackaged Low Power Sensor

Fluxgate Gradiometers

Grad-13 Digital Three-Axis Fluxgate Gradiometer

This gradiometer comprises two three-axis magnetic field sensors with separation from 500mm to 1000mm, and a measuring range of ± 70 or $\pm 100\mu\text{T}$. Available in either land or shallow submersible (200m) this unit is ideal for UXO detection, Archaeogeophysics or Geotechnics. Multi-sensor GPS based surveys are possible using the Non-Magnetic Cart and third party data collection software.

Grad601 Gradiometer System

This easy to use, portable system comprising of either one or two Grad-01-1000L sensors, a data logger and a battery power supply is ideally suited to magnetic field surveys undertaken in Archaeology.

Grad-01-1000L Fluxgate Gradiometer Sensor

This high precision single axis magnetic field gradient sensor has a 1m baseline. This sensor is typically used for Archaeogeophysics, for the detection of shallow magnetic anomalies. Multi-sensor GPS based surveys are possible using the Non-Magnetic Cart and third party data collection software.

Grad-03 Three-Axis Gradiometer

Available in land or marine versions, this gradiometer comprises two three-axis fluxgate sensors with separation of 300, 500, 750 or 1000mm. Combined with the Grad-03ACU, display resolution of 1nT are achieved. Typically used in downhole UXO detection or borehole Geotechnics.

Non-Magnetic Cart

This lightweight carbon-fibre cart is easily assembled and disassembled. Easily transportable, it is ideal for multi-sensor GPS-based surveys.



**Grad-13 Digital
Three-Axis Fluxgate
Gradiometer**



Non-Magnetic Cart



**Grad601
Gradiometer System**



**Grad-03 Three-Axis
Gradiometer**



**Grad-01-1000L
Fluxgate Gradiometer**

Data Acquisition and Conditioning Units

PSU1 Power Supply Unit

This battery powered portable power supply is compatible with most single or three-axis Bartington® Instruments magnetic field sensors. The unit includes a low pass filter and a switch-controlled AC/DC coupling.

Magmeter-2 Power Supply and Display Unit

This battery powered portable unit powers and display magnetic field values with a resolution of up to 10nT. It is compatible with most single or three-axis Bartington® Instruments magnetic field sensors. The unit includes a low pass filter and a switch-controlled AC/DC coupling.



PSU1 Power Supply Unit

SCU1 Signal Conditioning Unit

A high-precision units suitable for use with most single or three-axis Bartington® Instruments magnetic field sensors. It powers the sensor, conditions and displays its analogue outputs. Gain and offset control are independent to each axis, whilst low- and high-pass filters are common to all three axes. Use either as a standalone field measuring instrument or as a conditioning unit for an A to D data acquisition system.

DecaPSU Power Supply Unit

A mains-powered unit which provides power and conditioning for up to 10 magnetometers. The unit is compatible with most single or three-axis Bartington® Instruments sensors. Analogue output are available for connection to an external digitiser.

SCU1 Signal Conditioning Unit



Magmeter Power Supply and Display Unit

DecaPSU Power Supply Unit



Data Acquisition and Conditioning Units

Spectramag-6 Data Acquisition Unit

A 24-bit acquisition unit which offers synchronous digitisation of six outputs from magnetic field sensors, accelerometers and acoustic sensors. It is battery powered and controlled via software. Features include gain, low-pass filtering and time and frequency domain display. It is specially designed to perform magnetic field site surveys, including prior to MRI installation.

Mag-03DAM Data Acquisition Module

This battery powered unit provides power and digitises the signal from one or two three-axis sensors. The 24-bit resolution and optional digital filtering makes it ideal for recording of DC and low frequency signals.

Decaport Analogue Interface Module

A mains-powered unit which provides power and conditioning for up to 10 magnetometers. The unit is compatible with most single or three-axis Bartington® Instruments sensors. Analogue output are available for connection to a NI™ PXI system. I/O connections allow for programming of analogue low-pass filters.

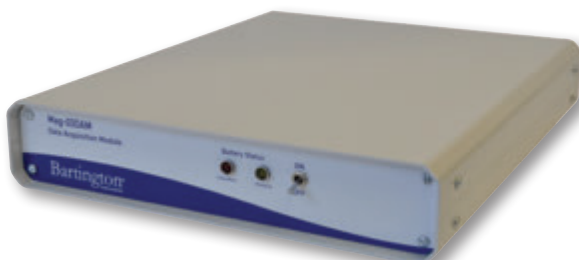
DAS1 Data Acquisition System

A PXI-based unit connected to one or more Decaport which can digitise of up to 160 magnetic field sensors. The A-D card provided has a resolution of 18-bit extendable to 24-bit with oversampling.

Spectramag-6 Data Acquisition Unit



Decaport Analogue Interface Module



Mag-03DAM Data Acquisition Module

DAS1 Data Acquisition System



Product Compatibility

Use this table to cross-check which products are compatible with our range of data processing units.

	PSU1	Magmeter	SCU1	Spectramag-6	Mag-03DAM	DecaPSU	Decaport	DAS1
Mag-13*	•	•	•	•	•	•	•	•
Mag-03	•	•	•	•	•	• ¹	•	•
Mag690	•	•	•	•	•	• ¹	•	•
Mag648/649	•	•	•			•	•	•
Mag639**	•		•			• ¹		
Mag650	•	•	•			•	•	•
Mag651	•	•	•			•	•	•
Mag585	•	•	•	•				
Mag646	•	•	•	•	•	• ¹	•	•
Mag670	•	•	•	•	•	• ¹	•	•
Mag678/679	•	•	•			•	•	•
Mag592	•	•	•	•	•	• ¹	•	•

* Mag-13 Test Coil function will only operate with DecaPSU and Decaport. An adaptor cable will be required when connected to Mag-03DAM.

** Mag639 will see a bandwidth reduction when used with SCU1 and DecaPSU, and range reduction when used with PSU1.

¹ An adaptor cable is required.



Bartington® Instruments

T: +44 (0)1993 706565
F: +44 (0)1993 774813
E: sales@bartington.com

Bartington Instruments Limited
5 Thorney Leys Business Park
Witney, Oxford, OX28 4GE, England.

www.bartington.com

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