

# BartingtonNews

the Newsletter from Bartington Instruments

## New digital three-axis gradiometer



The new Grad-13 will be available from Bartington Instruments in summer 2013, for use in UXO detection on land, underwater, and in boreholes.

The instrument comprises two three-axis magnetic field sensors on a 500mm baseline, and sensors for measuring temperature and acceleration.

## New range of non-magnetic test equipment

Bartington Instruments is releasing a range of non-magnetic test equipment, filling the gap in the market that we and many of our customers have found in acquiring specialised non-magnetic equipment for our own needs.

Our new Degaussing Wand is a handheld device that generates an alternating field of  $\pm 100\mu\text{T}$  at 50/60Hz to remove accumulated magnetism from other instruments, and hence enhance the magnetic hygiene of any measurement or experiment being made. By holding the Wand close to the instruments in question, the field disrupts the alignment of the magnetic domains in the affected instrumentation, thus reducing any remanent magnetic field.

Bartington also plans to introduce a range of magnetic shields for 2013. A magnetic shield is essentially a cylinder that protects its contents from the Earth's magnetic field by diverting the flux around it. The first of these products is an open-ended chamber that can hold a sample with a maximum length of 300mm, and which attenuates the Earth's field of  $\sim 50,000\text{nT}$  to a level of 1nT.



## Magnetic susceptibility in banknote security



Work is taking place to develop a scheme that uses magnetic susceptibility (MS) to fight the counterfeiting of banknotes. The procedure means that any note can be scanned quickly and cheaply to confirm its authenticity.

The process involves mixing ferrous powder with the ink used to print elements of the banknote, which gives the ink a distinct magnetic signature. For added complexity and security, the signature can be made to vary across the note by using inks with different MS levels.

The MS scanning in the process is done with a Bartington Instruments MS2E scanner, which is designed to perform high resolution measurements on small areas.

## Fluxgate helps Metrolab expand to the nano-Tesla range

Metrolab Technology SA has been able to extend the range of its THM1176 family of magnetometers, which are designed for measurement of very strong magnetic fields (typically up to 20T), into the nano-Tesla range, thanks to Bartington's Mag649 low-power three-axis fluxgate sensor.

Metrolab settled on the Mag649 after evaluating several fluxgate magnetometers. The company reports: "It was an ideal match for the THM1176 family, with the key parameters being three-axis, low power, compact form factor, robustness,  $\pm 100 \mu\text{T}$  measurement range and 1kHz bandwidth – and noise figures that render all self-respecting Hall sensors green with envy."

Metrolab adds: "We now look forward to discovering what problems our customers will be able to address with this combination of a high performance, low power fluxgate sensor and an ultra-portable instrument system."

**A case study describing the work in more detail is available on the Bartington Instruments website.**

## Collaboration with University of Caen in design of hybrid magnetometer



Bartington Instruments has signed an agreement with the University of Caen's GREYC Laboratory to develop a hybrid magnetometer that will combine Bartington fluxgates with compact pairs of search coils.

The new instrument will be well suited for TDEM (time domain electromagnetics) surveying applications used extensively in mineral prospecting and UXO detection. Moreover, new markets are opening up in areas such as electric vehicle testing, occupational health and space science which require a wider bandwidth than our standard magnetometers.

The project is expected to be completed in 18 months.

Further details can be read at [www.bartington.com/news/hybrid-magnetometer](http://www.bartington.com/news/hybrid-magnetometer).