Fluxgate magnetometers and their applications
Company Profile

- Designs and manufactures fluxgate magnetometers, Helmholtz Coil systems, and magnetic susceptibility instrumentation.

- £4.4 million turnover (year ending 30.09.14).

- Worldwide network of agents and distributors, with customers in over 90 countries.

fluxgate principals and configurations

The basic FGM sensor configuration

Configuration of double-rod core, ring core and race-track core fluxgate sensors
Bartington’s Double-rod Fluxgate Specifications

Functional:
- 3 axis Sensor
- Range of measurements: ±2mT, (±100uT)
- Noise specification: <5pTrms /√Hz at 1Hz (<10pTrms)
- Frequency range: DC to 15KHz, (DC to 3KHz)
- Linearity: 0.0015%
- Drift: <0.4nT in 10 hours
- Offset: <5nT (<20nT)

Electrical:
- Power: <15mW (1W)

Environmental:
- Temperature range: -269°C to 250°C (-40°C to 70°C)
- Temperature dependence: <1nT/°C and <0.01%/°C
- Pressure: Vacuum to 500 bars
- Shock: 1.3ms 150G peak shock

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Applications 1: Magnetic Field Environment

- Compassing
  (ROV, rockets, calibration of, directional drilling)

- Attitude and position sensing
  (Satellite, ROV, magnetic field mapping)

- Earth Studies
  (Magnetic field observatories, solar weather monitoring, earthquake prediction)

- Other magnetic field observation
  (H&S for mobile phone systems, trains, cars, MRI; particles accelerators)

- Site survey and Magnetic field data correction
  (MRI, electron microscopes, magnetic field calibration systems, compass pads)

- Magnetic field cancellation, active shielding
  (Magnetometers calibration, science experiments)
Applications 2: Magnetic Signature of Metal Objects

- Magnetic Anomaly Detection
  (Planes/submarine, fixed barriers/ROV and divers)

- Security perimeters and door entry systems
  (Border control, prisons, MRI)

- Degaussing and cancellation systems
  (Fixed installations, on-board systems)

- Signature range systems
  (Land ranges, sea ranges, satellites)

- Quality control of non-magnetic parts
  (MRI, demining, satellites, magnetometers/compasses)

- Non Destructive Testing
  (magnetic signature faults)

- Buried Metal objects
  (UXO detection)
Applications 3: Magnetic Signature of other Materials

Signature of soils
- Near-surface geophysics (Archaeology, forensics, mineral exploration)
- Time Domain Electromagnetics (TDEM) (Conductivity measurements, mineral exploration)
- Magnetotellurics (MT) (Deep resistivity measurements, mineral exploration, earthquake)

Other Signatures
- Magnetic nanoparticles (Manufacturing)
- Human body (Muscle signature, Magneto encephalography)
- Large Electrical Currents (Pipe & Cable Location)
some USB sticks with application notes and case studies are available

For more information check our Website

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Sales 2013-2014

Sales by Market Sector
- Defence and Aerospace: 31%
- Geosciences: 17%
- Near Surface Geophysics: 17%
- Physics and Medical Sciences: 14%
- Oil, Gas and Mineral Exploration: 13%
- Industry: 7%
- Other: 1%

Sales by Region
- UK: 29%
- USA and Canada: 16%
- Europe: 13%
- Far East and Asia: 18%
- Rest of World: 9%

Sales by Product
- Fluxgate Magnetometers: 68%
- Fluxgate Gradiometers: 13%
- Magnetic Susceptibility Instruments: 10%
- Data Acquisition Systems: 9%

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