Application of Magson Fluxgate Magnetometers

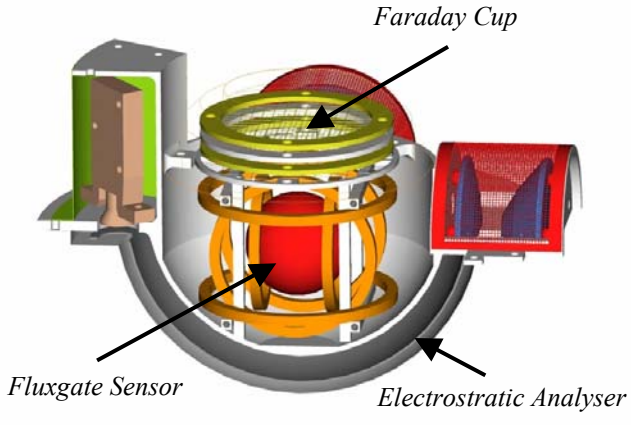
Shipboard Magnetometer for Geomagnetic Measurement

In marine geomagnetic survey tugged magnetometers are usually used. Sometimes, for instance in the arctic sea, the use of tugged equipment is not possible. Alternatively the measurement can be done by shipboard magnetometers. To conclude from the magnetic field values measured in the ship's co-ordinate system to the geomagnetic field values, the position of the ship (course angle, pitch angle, roll angle) has to be known for each measured vector. This information can be provided by the navigation system of the ship. Furthermore a correction matrix is needed to eliminate the permanent and induced magnetic influence of the ship. This correction matrix can be determined by a connecting measurement under known field conditions. First tests on the RV Polarstern show that this method is a suitable approach for geomagnetic measurements. The corrected data reached a relative accuracy of 10nT..

dynamic range :	+/-70000nT in full Earth field mode(DNL: 350pT)
resolution:	0.1nT
data acquisition:	magnetic field, time and attitude via RS485

Magnetometer for Extreme Environment

The low weight sensor is extremely suitable for application in which weight and power consumption are the limiting resources. Furthermore the digital fluxgate electronics can be simply extended to measure other parameters like temperature and pressure. One example is the measurement on sea bottom. The magnetometer can be additionally combined with tilt meters. Another example is magnetometers in space, e.g. the magnetometer for ESA's Rosetta mission. For the first time ever, the ROSETTA mission will provide magnetic field measurements at very low distances from a cometary nucleus in a situation where the cometary activity is not yet fully developed. The plasma detector on the Lander segment is a combination of magnetometer, electrostatic analyser and Faraday cup (see Figure). The complete instrument has a weight of 800g and a power consumption of less than 1Watt. The instrument was developed in cooperation with German and Hungarian institutes.



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