A.c. magnetic-field measurements using the fluxgate - DTU Orbit (16/12/2018)

A.c. magnetic-field measurements using the fluxgate

Fluxgate sensors are mostly used in closed-loop d.c. magnetometer systems; they can also measure alternating fields up to several kilohertz, either in open-loop mode or from an error signal in the slow-feedback loop as in the Thunderstorm rocket magnetometer, which has 0.1 nT resolution up to 3 kHz. The alternative is to use the direct induction effect in the pick-up or feedback coil. While the low L/R constant of the pick-up coil causes a high -3 dB frequency corner, the spherical feedback coil has a narrow frequency characteristics and low noise up to 10 kHz when used as a search coil. The noise level achieved is 56 pT r.m.s. from 123 Hz to 10 kHz.

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