Comparison of two digital flux-gate magnetometers developed for space application

W. Magnes
Institut für Weltraumforschung, ÖAW[1]

H.-U. Auster
Institut für Geophysik und Meteorologie, TU-Braunschweig[2]

A b s t r a c t: The design of two digital flux-gate magnetometers built for space application (ASTRID-2 and ROSETTA/Lander) is described and their basic parameters are compared. In a digital flux-gate magnetometer, the traditional analogue signal processing is replaced by mathematical algorithms calculated in either a field programmable gate array (FPGA) or a digital signal processor (DSP). In both instruments, a digital-to-analogue converter (DAC) is used for generating the feedback field. The non-linearity problem of such converters is discussed in more detail.

Key words: magnetometer, space exploration, flux-gate, signal processing

[1] Schmiedlstrasse 6, A-8042 Graz-Messendorf, Austria
e-mail: werner.magnes@oeaw.ac.at
[2] Mendelssohnstrasse 3, D-38106 Braunschweig, Germany