Single core sensor system for tri-axial fluxgate magnetometer

Ryuta Tanaka [1], Fumio Tohyama [2]

[1] Space Engineer.,Tokai Univ, [2] Space Engineer., Tokai Univ

http://srp.ms.u-tokai.ac.jp/

We research possibility for 3 components of magnetic field by single core, and miniaturized volume of fluxgate magnetometer sensor, which usually use 2 or 3 cores. First we tried measuring 3 components of magnetic field by the single ring core which inclined to the coordinate system of this sensor. Output voltage showed hysteresis loop in case of rotating this sensor on the flat table. The second we could measure 3 components of magnetic field by the single cylindrical core without hysteresis. This sensor has the characteristic that both rectangular 3 components of 2 radial and parallel direction outputted by Zero method. Therefore, we will solve hysteresis mechanism and the matter why cylindrical core make parallel direction magnetic flux density which depends on external magnetic field.