

The range of induction-coil magnetic field sensors for geophysical explorations

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Abstract. The results of many years team-work of specialists' group from Radiophysical Research Institute (NIRFI) and VEGA Geophysics Ltd (VEGA, St. Petersburg) on designing of modern induction-coil magnetic field sensors are given. The comparative analysis of the world's most famous models of sensors is carried out and basic methods and peculiarities of designing and testing are considered. The range of low-noise induction-coil magnetometers designed by the authors for scientific and geophysical ground-based explorations (IMS-007, IMS-008, IMS-009) is described. The results obtained with the sensors for geothermal water exploration by broadband magnetotelluric sounding, lithosphere's deep structure investigation by the method of controlled source electromagnetic sounding, as well as natural electromagnetic Earth's field monitoring are presented.

Keywords: induction-coil magnetometer, magnetotelluric sounding, variable magnetic field of the Earth, ionospheric Alfven resonator.