

Design of a DC Current Sensor Based on Fluxgate Principle

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Abstract. In this study, we designed a current sensor working with fluxgate principle. It has mainly two coils toroidally wound around a ring core that is cobalt-based amorphous ribbon, namely Metglass 2714A. We have seen that there is quite linear relation between the magnitude of measured DC current and 2f signal induced on the pick-up coil. The sensor has a noise level of $46 \mu\text{A}/\sqrt{\text{Hz}}$ at 1 Hz and a scale factor of 149 mV/A.