An online monitoring system of geomagnetically induced current in power grid

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Abstract: Strong magnetic storms can lead to the geomagnetically induced current (GIC) in power transmission lines with a frequency range from 0.0001 Hz to 0.01 Hz. GIC is characterized by happening at random and usually lasting from several minutes to several hours. Based on an analysis of the characteristics and influence of GIC in China's power grids, the proposal for building a GIC monitoring network system for the power grid is made. The method of extracting the grid GIC signal and the digital signal processing algorithm are given. The monitoring device has been developed. Tests and actual application show that the monitoring device can accurately measure the quasi-direct current and stochastic signal GIC, with few data to process and memory space to save.

Author Keywords: Design of hardware and software; Geomagnetic storm; Geomagnetically induced current (GIC) monitoring; Hall sensor

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