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# -Design and Implementation of a Multifunction DSP-based Numerical Relay

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## Abstract:

This paper is aimed at proposing a multifunction numerical relay (MNR) for protection against over-current, over- and under-voltage and over- and under-frequency. The MNR serves also as a directional relay. The performance of the MNR is investigated through simulation using MATLAB/Simulink and implementation of a prototype using TMS320F28335 Experimenter Kit. The MNR trips a circuit breaker at abnormal conditions of current, voltage and frequency. The novelty of the proposed relay lies on being a numerical compact-sized relay serving multi protection functions.

## Keywords:

Protection; Photovoltaic; Numerical relay; DSP

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