Abstract

An efficient method for power quality disturbances recognition and classification is presented in this paper. The method used is based on the Kalman filter and fuzzy expert system. Various classes of disturbances are generated using Matlab parametric equations. Kalman filter is used for extracting the input features of various power disturbances. The extracted features such as amplitude and slope are applied as inputs to the fuzzy expert system that uses some rules on these inputs to classify the PQ disturbances. Fuzzy classifier has been implemented and tested for various types of power quality disturbances. The results clearly indicate that the proposed method has the ability to detect and classify PQ disturbances accurately. The performance of the proposed method has been evaluated by comparing the results against Kalman filter based neural classifier.

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**Index Terms**

Computer Science  
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**Keywords**

Power quality, Power quality events, Kalman Filter, Fuzzy logic, Fuzzy-expert system.