

Abstract

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Online fault detection of transmission line using artificial neural network

As the voltage and current waveforms are deformed due to transient during faults, their pattern changes according to the type of fault. The artificial neural network (ANN) can then be used for fault detection due to its distinguished behavior in pattern recognition. In order to minimize the structure and timing of the ANN, preprocessing of the voltage and current waveforms was done. The data delivered from a simulated power system using PSCAD (EMTP with cad system) was used for training and testing the ANN. An experimental setup, consists of a 3 phase power supply module and transmission line module, is utilized. A set of signal conditioning circuits is designed and implemented in order to transfer data to a PC which is used as an online relay for fault detection. This is done via a data acquisition card (CIO-DAS1602/12). The Matlab program captures and processes real data for training the ANN. Applying different types of faults for testing the system, right tripping action was taken and the type of fault was correctly identified. The suggested artificial neural network algorithm has been found simple and effective hence could be implemented in practical application