Abstract

Inrush current is a very important phenomenon which occurs in transformer during energization at no load. It depends on several factors like magnetizing properties of magnetic material, resistant and inductance of primary winding, supply frequency, switching angle of circuit breaker, applied voltage etc. Objective of this study is to estimate the maximum value of transformer inrush current. Measurement of inrush current is difficult issue for large rating of transformer under different switching conditions. Therefore this study is used to demonstrate Artificial Neural Network (ANN) for modeling and simulation. This helps in prediction of maximum inrush current for large rating of transformer. Back Propagation with Levenberg–Marquardt (LM) algorithm was used to train the ANN architecture and same was tested for the various data sets. For effective training of ANN various operating conditions are considered. These are Transformer VA rating, Applied Voltage, switching angle and Remnant flux. This study was carried out to develop ANN model in a generalize manner which can be utilize for predicting maximum value of current and harmonic for any single phase transformer provide core material and frequency remains same.
References


Index Terms

Computer Science
Networks

Keywords
Transformer, Inrush Current, ANN, Modeling, Simulation, Harmonic.