Abstract

In this work, a new approach applied to digital differential protection relay for a large power transformer is presented. First, the Fourier sine and cosine coefficients required for fundamental, second, third and fifth harmonic extraction have been determined using rectangular transfer technique. Then, these harmonics have been used in harmonics restrain and blocking techniques applied to differential protection system. Testes have been carried out on a variety of magnetizing conditions (normal aperiodic inrush and over excitation conditions). From the obtained simulation results using Simulink/MATLAB, it can be noticed that the developed approach provides good discrimination between the magnetizing current and the internal fault current..