

Abstract

A differential relay that is very sensitive relay operating even at its limits may be used for protecting a power transformer. However, this characteristic may lead to unnecessary tripping due to transient currents such as an inrush and over excitation current. In order to avoid this mal-operation of the relay, a second and fifth harmonic blocking technique has been used; however this technique is not reliable if a second harmonic magnitude is weak. In this paper, a new approach is proposed using even harmonics (second and fourth). The test results show that this proposed approach is a good blocking technique associated with the differential relay even for large modern power transformer which has small second harmonic as well; it provides a good discrimination between the transient currents and the internal fault currents during internal fault.