

A Novel Solution to Restricted Earth Fault Low Impedance Relay Mal Operation

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Abstract : In this paper, the various methods of providing restricted earth fault protection are discussed. The proper operation of high and low impedance restricted earth fault (REF) protection for various applications has been discussed. The mal operation of a relay due to improper placement of CTs has been identified and a simple/unique solution has been proposed in this work with a case study. Moreover, it is found that the proper placement of CT in high impedance method will provide the same result with reduced CT. This methodology has been successfully implemented in Al Takreer refinery for a 2000 KVA transformer. The outcome of the paper may be included in IEEE C37.91 standard to give the proper guidance for protection engineers to sort out the problems related to mal functioning of REF relays.

Keywords : relay mal operation, transformer, low impedance REF, MATLAB, 64R, IEEE C37.91

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