

Analyzing the Effectiveness of a Bank of Parallel Resistors, as a Burden Compensation Technique for Current Transformer's Burden, Using LabVIEW™ Data Acquisition Tool

Authors : Dilson Subedi

Abstract : Current transformers are an integral part of power system because it provides a proportional safe amount of current for protection and measurement applications. However, due to upgradation of electromechanical relays to numerical relays and electromechanical energy meters to digital meters, the connected burden, which defines some of the CT characteristics, has drastically reduced. This has led to the system experiencing high currents damaging the connected relays and meters. Since the protection and metering equipment's are designed to withstand only certain amount of current with respect to time, these high currents pose a risk to man and equipment. Therefore, during such instances, the CT saturation characteristics have a huge influence on the safety of both man and equipment and on the reliability of the protection and metering system. This paper shows the effectiveness of a bank of parallel connected resistors, as a burden compensation technique, in compensating the burden of under-burdened CT's. The response of the CT in the case of failure of one or more resistors at different levels of overcurrent will be captured using the LabVIEW™ data acquisition hardware (DAQ). The analysis is done on the real-time data gathered using LabVIEW™. Variation of current transformer saturation characteristics with changes in burden will be discussed.

Keywords : accuracy limiting factor, burden, burden compensation, current transformer

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