Circulating current forms at the high-voltage busbar

Overview

CT current simply circulate and no 'differential' current exists. When bus fault occurs, current is forced to flow through high impedance element in the relay creating a voltage drop. If voltage develop across the impedance is greater than the set value . Three-phase (phase-segregated) circulating current high impedance protection schemes are typically applied for the following protection objects: busbars, auto-transformer, series reactor, shunt reactor or even to motors or generators. Nevertheless, the damage resulting from one short circuit may be. including cable and cable lugs and crimps or bus bar systems. This systems act as the main vessel of power distribution and is used for connections on the primary and secondary sides of transformers as well as on the power sources like to selecting components like transformers, switchgear and. In the olden days, the clearance of busbar faults was done by time-delayed distance relays or overcurrent relays, resulting in an extension of fault for a longer duration of time. In the present day's networks, which are highly interconnected, having numerous infeeds and consisting of line sections. Bus bar Differential protection or Circulating Current Protection is working under the principle of differential protection.

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This paper discusses the advantages and limitations of cable connections, rigid bus bar connection and flexible bus bar connections for high current density applications.

Current Differential Protection. The current differential protection scheme works on the principle of the circulating current which states that the current enters into the bus-bar is equal to the current leaving ...

The protection schemes are based on the simple circulating current principle that under normal operating or external fault condition the sum of current entering into a bus-bar will be equal to the ...

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The current transformers are arranged as shown in the figure. Under normal condition, Incoming current in to the bus bar is equal to the outgoing current from the busbar, therefore the net circulating current ...

In the case of a busbar fault, when each feeder either feed the fault or doesn''t flow any current through, the operating current is equal to the restraint current.

Bus bar differential protection, also known as circulating current protection, operates based on the principle of differential protection. Under normal conditions, the ...

Here, the mechanism of the enclosure circulating current is thoroughly discussed, and models of the GIS busbar, and enclosure are established based on the partial element equivalent ...

Biased differential or low impedance circulating scheme. This is a unit type of protective scheme in which the currents entering and leaving the busbar installations are compared continuously.

Typically, the circulating current configuration is applied, in which the current transformers and interconnections form an analogue of the busbar and circuit connections.

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