

PERFORMANCE ANALYSIS AND ASSESSMENT OF A TRANSFORMER DIFFERENT PROTECTION RELAY SEL387 AT 110KV LANG CO SUBSTATION

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Abstract:

Based on the influences of current transformer connection type, CT errors, magnetizing inrush current, errors because of tap changing and fault conditions on differential protection function, the paper establishes and assesses the performance of a numerical relay SEL387 model concerning the protection of the 115/24kV transformer at Lang Co Substation by Matlab/Simulink. The paper also calculates the setting value of two actual slope characteristics ($O87P = 0.3$, $U87P = 10$, $SLP1 = 25\%$, $SLP2 = 50\%$ and $IRS1 = 3$). The results can be applied to increase the accurate and reliable performance of the differential transformer protection relay against internal faults. Simulation has simplified the process of selecting relay and protection system. This can improve the quality of the protection system design early, thereby reducing the number of errors found later in the operation.

Key words: Different protection relay; Transformer; Two slope characteristics; Matlab/Simulink; SEL387.