



(1)

Ferroresonance phenomenon in power transformers- experimental assessment

Abdallah, A.S. and El-Kady, M.A

Abstract:

This paper reports on the results of recent research and development efforts to study and assess various impacts of ferroresonance phenomenon on operating performance of power transformers and to investigate ways to mitigate the effects of such phenomenon. Three-phase core-type transformers are used in the study. The results of the technical investigation and the associated ferroresonance experimental work performed showed that ferroresonance can cause dangerous overvoltages and overcurrents in three-phase coretype transformers. Sensitivity analysis results are also presented to determine the impact of various design and operating parameters on the resulting overvoltages and overcurrents caused by ferroresonance.

Keywords:

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(2)

Symmetrical component analysis of multi-pulse converter systems

Abdel-Salam, M., Abdel-Sattar, S., Abdallah, A.S., and Ali, H.

Abstract:

This article describes a new method for dynamic simulation of multi-converter systems. This simulation is based on symmetrical components in time domain analysis and general representation of converter transformers to meet Y/Δ , Y/Y , and Y/Z connections. The simulation is suitable for harmonic analysis of balanced and unbalanced AC voltages. The computed currents and voltages agreed reasonably with those measured and reported in the literature for the characteristic and non-characteristic harmonics.

Keywords:

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(3)

Digital symmetrical analysis of AC/DC interactions and harmonic mitigations for multi-pulse converter systems

Abdel-Salam, M., Abdel-Sattar, S., Abdallah, A.S., and Ali, H.

Abstract:

This article develops a digital mathematical model in symmetrical components to handle multi-pulse converters power system equipped with correction power factor capacitors or shunt passive harmonic filters. The model simulates AC/DC interaction system in both AC and DC sides with balanced and unbalanced AC system voltages and is adapted for general representation of converter transformers to meet Y/?, Y/Y, and Y/Z connections. Comparison results with previous works are given with correction power factor capacitors or shunt passive harmonic filters. The results also included the interaction of AC/DC systems resonating with shunt capacitors at one or more of harmonic power-frequency and the resulting zero sequence harmonics due to AC unbalanced voltage.

Keywords:

Digital symmetrical analysis of AC/DC interactions and harmonic mitigations for multi-pulse converter systems

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(4)

Fully-Quadrature Spatial Modulation over Rician Fading Channels

Hany S. Hussein, Mohamed Elsayed and Usama Sayed Mohamed

Abstract:

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