



AK Tech Training and Placements

Transform Dreams into Reality

Comparative Performance Analysis Involving a Three-Phase UPQC Operating with Conventional and Dual/Inverted Power-Line Conditioning Strategies

In this project, to perform comparative analysis of active power-line conditioning in three phase Unified Power Quality Conditioner (UPQC) conventional and dual/inverted compensation strategies are proposed. In the conventional strategy, the series converter of the UPQC operates as a non-sinusoidal voltage source, while the parallel converter operates as a non-sinusoidal current source. Differently, when the UPQC operates with a dual/inverted strategy, the series converter operates as a sinusoidal current source, while the parallel converter is controlled to act as a sinusoidal voltage source. Although, in theory, the results achieved using the mentioned strategies looks similar, in practical applications there are considerable differences in both static and dynamic performances that must be considered for choosing the best compensation strategy to be adopted. Thus, this paper addresses aspects related to the mathematical modelling, control and generation of the control references applied to the UPQC, which are implemented using two three-level neutral-point clamped inverters. The effectiveness of the proposed system is verified by simulation in MATLAB/SIMULINK.

Domain: Power Systems _ Hybrid Systems

Technology: Electrical