

An advanced control approach for current harmonic cancellation using shunt active power filter

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Abstract: Generally, low harmonic frequencies such as the harmonic of the order 5 and 7 have a great influence to deteriorate the network current and interim the grid power factor. The objective is; to cancel out the selected harmonic order from the network current. The shapes of waves and the values of the THD of the network current before and after applying the proposed technique are introduced. The system is simulated and investigated using MATLAB/Simulink. The results prove the effectiveness of the design and control strategy (?-?). This paper deals with design, analysis and simulation of a three phase three wire shunt selective active power filter. It compensates the harmonic currents selectively under balanced power network. In order to improve, the power factor of the supply network, an advanced control approach based on a multivariable filter is adopted. The novelty of the proposed control approach developed in this paper is to use a multi-variable filter (MVF), which can extract the harmonics content of load current reference, according to the axis of Concordia.

Keywords : harmonic, shunt selective active power filter control, power factor, multi-variable filter, MVF, axis of Concordia, THD