

عنوان مقاله:

Harmonic Reduction Technique Using Flying Capacitor Based Z Source Inverter for a DVR

محل انتشار:

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خلاصه مقاله:

The Dynamic Voltage Restorer (DVR) is a commercially available, popular device to eliminate voltage sags and swells in the distribution lines. Its basic function is to inject the voltage difference (difference between the pre-sag and sag voltage) to the power line and maintains the pre-sag voltage condition in the load side. The efficiency of the DVR depends on the performance of the efficiency control technique involved in switching the inverters. Z-source inverters are recent topological options proposed for buck-boost energy conversion with a number of possible voltage- and current-type circuitries. Common feature noted is their inclusion of an LC impedance network, placed between the dc input source and inverter bridge. This impedance network allows the output end of a voltage-type Z source inverter to be shorted for voltage boosting without causing a large current flow and the terminal current of a current-type inverter to be interrupted for current boosting without introducing over voltage oscillations to the system. Therefore, Z-source inverters are, in effect, safer and less complex and can be implemented using only passive elements with no additional active semiconductor needed. This paper presents a selective harmonic elimination using flying capacitor connection in Z-source inverter. Closed loop control for a simple system is modeled and simulated using MATLAB software. The simulation results are presented to demonstrate the effectiveness of the proposed DVR system

کلمات کلیدی:

DVR, Z-Source Converter, Flying Capacitor, Voltage Sag, Power Quality

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