

Implementation of Synchronous Reference Frame Theory based Shunt Active Power Filter using DSP Controller.

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This paper conceptualizes shunt active power filter (SAPF) using synchronous-reference- frame (SRF) theory to mitigate the harmonics present in the power system. The shunt active power filter injects a suitable compensating current at a point called point of common coupling (PCC) so that the harmonics present in the line are cancelled out and sinusoidal nature of current waveforms is restored. A three phase current controlled voltage source inverter (VSI) with DC link capacitor across it is used as an active filter. Synchronous reference frame (SRF) algorithm is developed for low voltage laboratory prototype using TMS320F28335 Digital Signal Processor (DSP). The experimental test results demonstrate that the viability of the control strategy is successful in meeting the IEEE 519-1992 recommended harmonic standard limits.

Keywords—Active Power Filter, DSP controller, Synchronous Reference Frame.

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