International Journal of Advances in Electronics Engineering ISSN:2335-1209 Vol 1, No 3 pp 159-168 (2013)

Volume 01, Issue 03, 2013, Pages 159-168

Real Time Implementation of Shunt Active PowerFilter (SAPF)for Harmonic suppression and PowerQuality Improvement

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Abstract: In this paper, A Shunt Active Power Filter (SAPF) is implemented using a dSPACEDS1104 processor to compensate harmonics and reactive power produced by nonlinearload. The reference source current is computed based on the measurement of harmonicsin the supply voltage and load current. A hysteresis based current controller has beenimplemented in a DSP processor for injecting the compensating current into the powersystem, so that SAPF allows suppression of the harmonics and reactive power componentof load current, resulting in a supply current that is purely sinusoidal. Simulation andexperimental results of the proposed SAPF to meet the IEEE-519 standards are presented.

Keywords : Harmonics, Power quality, Active power filter, hystérisis comparator, real time control