Abstract

The increasing use of power electronic based loads (adjustable speed drives, switch modern power supplies, etc) to improve system efficiency and controllability is increasing concern for harmonic distortion levels in end use facilities and on overall power system. The Active Power Filter uses power electronic switching to generate harmonic currents that cancel harmonic content from non-linear loads. The basic principle of Shunt Active Power Filter is that it generates a current equal and opposite in phase to the harmonic current drawn by the load and injects it at point of common coupling there by forcing currents to be pure sinusoidal. The active filter configuration implemented in this paper is based on the pulse – width modulated (PWM) voltage source inverter (VSI) that interfaces to the system through filter. In this configuration the filter is connected in parallel for harmonic current cancellation so that the current being supplied from the source is sinusoidal. The control scheme of this three phase shunt Active Power Filter is based on the instantaneous Id – Iq theory. The compensating current controlled is achieved is with the VSI in the current controlled mode, the desired by accurately controlling the switching of the IGBTs through hysteresis current controller. Theoretical analysis and spectrum analysis have been completed. To validate the theoretical analysis simulation is conducted for such developed model and control schemes under MATLAB/Simulink.
Enhancement of THD in HVDC System using Shunt Active Power Filters

References

- Lining Zhou, "Evaluation And Implementation Of Pwm Approaches".

Index Terms

Computer Science Power Systems

Keywords

Power Quality Harmonics Total Harmonics Distortion.