

Constant Frequency Control of an Active Power Filter

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Abstract

Active Power Filters (APFs) improve the utility by correcting harmonic distortions created by non-linear loads. It also corrects for the poor power-factor resulted due to inductive loads. Topologies and control techniques available for APFs are numerous. This paper considers a single phase APF. A scheme that requires minimum calculation burden has been selected. The system considered, uses a unified constant frequency integration control that gives a minimum calculation burden and faster response. The control method adapted requires sensing the load current and DC-link voltage only. However, it causes some problems at the integration level. The analog integrator gives some initial voltage when operated at high frequencies due to inability to reset the integrator fully. To avoid errors due to offset in the integrator, an offset feedback is proposed and tested in this paper. The control is simulated and the results are validated with laboratory experimental waveforms.