

A series active power filter scheme for current harmonic compensation

Figuerola, D., Moran, L., Ruminot, P., & Dixon, J. (2008, June). A series active power filter scheme for current harmonic compensation. In 2008 IEEE Power Electronics Specialists Conference (pp. 3587-3591). IEEE. <10.1109/PESC.2008.4592511> Accessed 28 May 2022.

Abstract

A series active power filter to eliminate current harmonic components and compensate reactive power is presented and analyzed. The proposed active compensation technique is based in a series active filter composed by two single-phase inverters sharing the same DC bus, and is suitable for current harmonics and reactive power compensation generated by static converters. The proposed approach allows for low cost, simplicity and part count reduction in comparison with previous compensation solutions (passive and active). The paper analyzes the proposed series active power filter in terms of principles of operation, power circuit topology, control design and implementation. Experimental results obtained in a laboratory DSP based controlled prototype confirm the viability of the proposed compensation technique.

Keywords

Voltage control, Active filters, Power harmonic filters, Harmonic analysis, Rectifiers, Inverters, Power system harmonics.