

Benslimane, Tarak; Chetate, Boukhemis; Abdelkrim, Thameur

Use of asymmetrical currents waveforms to detect and localize open switch faults for two level voltage source inverter three-phase shunt active power filter. (English) [Zbl 1270.93080](#)
Arch. Control Sci. 21, No. 1, 105-117 (2011).

Summary: This paper proposes an open switch faults detection and localization algorithm for shunt three phase active filter topology. It mainly details converter configuration and examines a simple and reliable optimized fault diagnosis method. The converter topology is based on classical three-leg active power filter topology. A new fault diagnosis method is proposed, based on classical currents measurements. It includes combinatory logic to analyze and validate error signals. Hysteresis control is applied before and after fault detection, which avoids any controller reconfiguration. Simulation results obtained with Matlab/Simulink/Plecs tools prove the effectiveness of this method.

MSC:

93C95 Application models in control theory
93E11 Filtering in stochastic control theory
93B40 Computational methods in systems theory (MSC2010)

Keywords:

active power filter; fault detection; two level three phase voltage source inverter; current mean value; open switch faults detection; active filter topology; asymmetrical currents waveforms; hysteresis control; localization algorithm; error signals

Software:

Matlab; Plecs; Simulink

Full Text: [DOI](#) [Link](#)