

MATLAB-SIMULINK MODEL BASED SHUNT ACTIVE POWER FILTER USING FUZZY LOGIC CONTROLLER TO MINIMIZE THE HARMONICS

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ABSTRACT

Quality (PQ) maintenance has become an important concern to utility. Shunt Active Power Filters (SAPF) is considered as the best device among many harmonics compensating devices. Due to electrical energy demand, the power generation is also became an important concern. Among various renewable energy sources, solar energy is considered as best source for converting into electrical energy. The shunt compensator compensates for harmonics of load current, improves power factor, overcomes voltage sags, reduces total Harmonic Distortion (THD), etc., and thus enhances the power quality. Proportional Integral (PI), Fuzzy Logic Controller (FLC) based control algorithm is used for SAPF. A synchronous reference frame (SRF) algorithm is used for improving the SAPF performance. The proposed system is implemented in Matlab/Simulink environment and the simulation results exhibit the high value performance for micro grid applications.

KEYWORDS: *Power Quality, Harmonics, SAPF, Fuzzy Logic Controller, Synchronous Reference Frame*

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