

Combined Fuzzy and Predictive Controller for Unity Power Factor Converter

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Abstract : This paper treats a design of combined control of a single phase power factor correction (PFC). The strategy of the proposed control is based on two parts, the first, for the outer loop (DC output regulated voltage), and the second govern the input current of the converter in order to achieve a sinusoidal form in phase with the grid voltage. Two kinds of regulators are used, Fuzzy controller for the outer loop and predictive controller for the inner loop. The controllers are verified and discussed through simulation under MATLAB/Simulink platform. Also an experimental confirmation is applied. Results present a high dynamic performance under various parameters changes.

Keywords : boost converter, harmonic distortion, Fuzzy, predictive, unity power factor

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