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POWER QUALITY IMPROVEMENT IN ELECTRICAL NETWORK BY USING UNIFIED POWER QUALITY CONDITIONER

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ABSTRACT

Power quality (PQ) problems associated with non-linear loads have increased rapidly in electrical network. The non-linear loads are the main sourceof (PQ) problems. Harmonics, voltage sags, voltage swells are the most commonlyoccurring PQ problem in electrical networks. The unified power quality conditioner (UPQC) is one of the FACTS contrller used for mitigating the effect of current harmonic and voltage harmonics. The series compensator in the UPQC is used for compensating the voltage harmonics and the shunt compensator in the UPQC is used compensate the current harmonics. In the proposed UPQC, the conventional PI controller has replaced by a fuzzy logic controller (FLC). The control structure is developed with FLC and simulated using MATLAB/SIMULINK. The results presented in this paper clearly show that the proposed UPQC with FLC has capable to meet the IEEE-519 standard recommendations on harmonic levels

KEYWORDS: Power Quality (PQ), Unified Power Quality Conditioner (UPQC), Fuzzy Logic Controller (FLC)