# Simple Control Strategy of the Series Filter within a Unified Power Quality Conditioner (UPQC)

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***Abstract*— Unified power quality conditioner (UPQC) consists of combined shunt and series active power filters which acts both on the source side and on the load side for improving the power quality. The paper presents a simple method for controlling the series filter under unbalanced and distorted load conditions. The proposed control method is based on a three phase locked loop (PLL). For giving a complete approach of the UPQC, the control of the shunt filter is also presented. The whole system is then simulated. The results emphases on one hand a specific starting procedure and on the other hand the corrections of the power quality on the source side, by comparing the power factor and current THD before and after use of the UPQC. The simulation was performed by using the Matlab-Simulink environment.**

***Keywords*— Active power filter (APF), phase locked loop (PLL), unified power-quality conditioner (UPQC)**

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