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A Sufficient Fuzzy Controller for Improving the Transient Response in Electric Motors

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Abstract : The control of the response of electric motors plays a significant role in the damping of transient responses. In this regard, this paper presents a static VAR compensator (SVC) based on a fuzzy logic which is applied to an industrial power network consisting of three phase synchronous, asynchronous and DC motor loads. The speed and acceleration variations of a specific machine are the inputs of the proposed fuzzy logic controller (FLC). In order to verify the effectiveness and proficiency of the proposed Fuzzy Logic based SVC (FLSVC), several non-linear time-domain digital simulation tests are performed. The proposed fuzzy model can properly control the response of electric motors. The results show that the FLSVC is successful to improve the voltage profile significantly over a wide range of operating conditions and disturbances thus improving the overall dynamic performance of the network.

Keywords : fuzzy logic controller, VAR compensator, single cage asynchronous motor, DC motor
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