

Sliding Mode Control and Its Application in Custom Power Device: A Comprehensive Overview

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Abstract : Nowadays the demand for receiving the high quality electrical energy is being increasing as consumer wants not only reliable but also quality power. Custom power instruments are of the most well-known compensators of power quality in distributed network. This paper present a comprehensive review of compensating custom power devices mainly DSTATCOM (distribution static compensator), DVR (dynamic voltage restorer), and UPQC (unified power quality compensator) and also deals with sliding mode control and its applications to custom power devices. The sliding mode control strategy provides robustness to custom power device and enhances the dynamic response for compensating voltage sag, swell, voltage flicker, and voltage harmonics. The aim of this paper is to provide a broad perspective on the status of compensating devices in electric power distribution system and sliding mode control strategies to researchers and application engineers who are dealing with power quality and stability issues.

Keywords : active power filters(APF), custom power device(CPD), DSTATCOM, DVR, UPQC, sliding mode control (SMC), power quality

Conference Title : ICECECE 2016 : International Conference on Electrical, Computer, Electronics and Communication Engineering

Conference Location : Berlin, Germany

Conference Dates : May 19-20, 2016