

## A NOVEL APPROACH ON INSTANTANEOUS POWER CONTROL OF D-STATCOM WITH CONSIDERATION OF POWER FACTOR CORRECTION

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### ABSTRACT

This paper presents a modified instantaneous power control scheme of D-STATCOM for power factor and harmonic compensation. The proposed control strategy has been introduced in order to enhance some steady-state performances besides its functional elimination of power quality disturbance. Power factor and harmonic current of a controlled feeder section are two vital roles in steady-state power distribution system operation. Utilizing an already installed D-STATCOM to achieve these additional control objectives can help system operators maximize overall system performances. In this paper, a control scheme with constant power and sinusoidal current compensation is exploited. In order to correct the power factor, a power factor control loop is required and therefore included in the control block. To verify its use, a 22kv power distribution feeder. With a three-phase rectifier load was tested. Results showed that integration of the proposed reactive power control loop can correct the power factor the controlled feeder to be unity power factor.

**KEYWORDS:** D-STATCOM, System Operators, Power Systems