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CONTROL ANALYSIS OF STATIONARY REFERENCE FRAME BASED CURRENT CONTROLLER FOR A GRID TIED INVERTER BASED DISTRIBUTED GENERATION

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ABSTRACT

This paper presents an overview of stationary frame controlbased power flow controller for a two level three phase grid-tied inverter for 50Hz grid frequency. The controller is designed for high power applications. This stationary frame controller has robust behavior against system variations and have better transient characteristics. The total harmonic distortion in grid current obtained can be less than 2%. Sinusoidal Pulse Width Modulation technique ensures proper switching of the inverter. Frequency based controller design is demonstrated which deals with real/reactive power variations as well as external variations such as transient changes in grid voltage or frequency. Simulation based results shows the effectiveness of the control scheme under different power disturbance scenarios.

Keywords: Voltage source inverter· Sinusoidal Pulse width Modulation · dq frame · αβ frame· Harmonic Compensation