Modeling and Control of Three-Phase Active front-end Converters

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Abstract

Insulated Gate Bipolar Transistor based active front-end converters are widely utilized by industries thanks to the advantages of bi-directional power flow, unity power factor, low harmonic distortion of the line current, and smaller filter size. In this paper, the model and control of the active front-end converter system are presented and the operation principles are analyzed. Detailed discussions on controller designs aiming at enhancing the disturbance rejection capability and robustness are presented, and the performance is validated by experimental results

Keyword：active front-end converter