Dynamic Voltage Restorer based on Voltage-space-vector PWM Control

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Abstract

A dynamic voltage restorer (DVR) based on the voltage-space-vector pulse width-modulation algorithm is presented. Phase-jump compensation is achieved using a software phase-locked loop and a lead-acid battery energy store. A battery-charging control technique using the DVR itself is also described. To validate the control of the DVR, a three-phase prototype with a power rating of 10 kVA has been successfully developed. Simulation and experimental results are shown to validate the control methods.