

电力系统

基于无差拍控制的线电压检测动态电压恢复器

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摘要:

动态电压恢复器(dynamic voltage restorer, DVR)是用于电能质量控制的主要设备之一。文章设计了一种DVR拓扑结构,不同于传统三相独立补偿单元的DVR,它针对三相三线制电网,采用2个独立补偿单元,经由滤波电容直接串入主电网。根据技术要求设计实现的原理样机采用无差拍控制,通过线电压检测进行电压跌落补偿。实验证明,原理样机能及时检测系统电压扰动,并予以准确的补偿。

关键词: 动态电压恢复器(DVR) 电能质量控制 基波向量 无差拍控制

A Deadbeat Control Based Dynamic Voltage Restorer With Line Voltage Detection

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Abstract:

Dynamic voltage restorer (DVR) is one of important devices for power quality control. In this paper a novel topological structure of DVR is proposed. Different from traditional DVR adopting three-phase independent compensating units, aiming at three-phase three-wire power grid, the proposed DVR adopts two independent compensating units and is directly connected in series with main power network via filter capacitors. According to technical requirements the deadbeat control is applied to implemented principle prototype; and by means of detecting line voltage, the voltage sag is compensated. Experimental results show that the principle prototype can detect voltage disturbances in power system and correctly give them compensation.

Keywords: dynamic voltage restorer (DVR) control of power quality fundamental wave vector deadbeat control

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