



基于PSCAD/EMTDC逆变器自定义定关断角

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摘要: 在PSCAD中建立了关断角测量模块及定关断角闭环控制框图, 从而构建了自定义定关断角闭环控制模块。取代CIGRE原有的标准控制模型, 采用所建立的自定义定关断角控制模块对高压直流输电系统的阀控进行了仿真, 将结果与标准控制模型下的结果进行了对比, 验证了自定义的闭环定关断角控制模块具有良好的动态及静态控制性能, 且与标准的CIGRE控制系统具有完全的等价性。同时, 针对实际系统的一些故障情况, 可以对自定义的定关断角控制模块进行结构优化, 使系统具有一定的故障保护功能。总之, 自定义的定关断角控制模块为实际的复杂系统实现PSCAD建模和仿真分析提供了更为有效的手段。

关键词: HVDC; 关断角测量; 定关断角控制; 闭环控制; 自定义控制模块

Realization of Self-Defined Control Module for Constant Extinction Angle Control in PSCAD/EMTDC

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Abstract: A new constant-extinction-angle measurement module and a logic chart for close loop control in PSCAD are built up, and thus a self-defined close-loop control module is available for constant extinction angle control. Simulation analysis on the thyristor control of actual HVDC systems is carried out with the new self-defined module, instead of the original CIGRE module in PSCAD. By comparing the simulation results to that from the original module, it is concluded that the new self-defined control module has better characteristics of both dynamic control and static control, and has complete equivalence to the original module. In addition, the new self-defined module can be optimized in configuration against some failures occurred in the actual system so that it is possible to provide protective functions to the system. In a word, the new self-defined module is an effective means for PSCAD/EMTDC simulation analysis to the actual HVDC system.

Key words: HVDC; constant-extinction-angle measurement; constant-extinction-angle control; close-loop control; self-defined control module

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