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电力系统

直接功率控制的三相空间矢量脉宽调制整流器离散域建模

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摘要：

直接功率控制的动态响应比电压定向控制（VOC）快，无内部电流环，省去交流电压传感器，但其开关频率高且不固定，所以将SVPWM控制与直接功率控制相结合，使开关频率固定，动态响应好。在Simulink和基于加拿大Lyrtech公司的VHS-ADC这一FPGA高速数字信号处理平台上分别搭建了连续域和离散域模型，实验验证了其离散域模型的正确性，对实际大功率验证有指导意义。在实际样机中，可利用自动代码生成工具将整流器的离散域模型生成代码，下载到FPGA芯片中，方便了样机开发和试制。

关键词：

Discrete Control Modeling for Three-Phase SVPWM Rectifier Based on Direct Power Control

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Abstract:

The dynamic response of the direct power control method is faster than that of the voltage-oriented control method（VOC）,it requires no internal current control loops and line voltage sensors,but it needs high sampling frequency and the switching frequency is variable, so the direct power control method was combined with SVPWM. Two models in both continuous and discrete domain were constructed on the basis of simulink and the high-speed signal processing system which is called VHS-ADC,it is based on field programmable gate array(FPGA) and belonged to Lyrtech company in Canada.The validity of the proposed discrete domain control model was proved by the experiment research.It has directive significance in the verification of high power experiment.In the real prototype machine, the model in discrete domain can be compiled to code which can be downloaded to FPGA chip by automatic tool,it is convenient to develop and produce the prototype machine.

Keywords:

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