



汽轮发电机组轴系扭振保护装置RTDS测试
李战鹰, 韩伟强, 黄立滨, 杨煜

摘要: 利用RTDS实时仿真技术, 对盘南电厂装设的机组轴系扭振保护TSR装置, 形成闭环测试系统, 对扭振保护装置的性能进行试验研究。闭环测试系统由实时数字仿真系统、扭振保护装置, 功率放大器以及实际的直流控制保护装置等组成。搭建了基于南方电网的交直流混合RTDS模型以模拟各种不同开机方式和不同的直流运行方式的系统运行方式。解决了将转速信号转换为扭振保护装置所要求的高频方波脉冲信号的问题。对扭振保护装置的功能和动态特性进行了较为全面的验证。这是国内首次将联接实际直流控制保护装置的RTDS应用于汽轮机组扭振保护装置的性能测试。

关键词: 实时数字仿真; 次同步振荡; 扭振保护; 实时数字仿真; 闭环测试

RTDS Test to Torsional Stress Relay Devices of Turbine Generators

LI Zhan-ying, HAN Wei-qiang, HUANG Li-bin, YANG Yu

Abstract: The torsional stress relay (TSR) devices has been applied in Pannan plant. In this paper a closed-loop test system is established with RTDS technology to study whether the TSR devices can effectively function to protect the turbine generators. The test system consists of RTDS, TSR devices, power amplifier, real HVDC control and protection equipments. The hybrid HVAC/DC RTDS model of China Southern Power Grid was set up to simulate the combinations of different generators and HVDC operating modes. The issue of converting rotate speed signal into high frequency square wave pulses for the TSR devices has been resolved as well. The functional performance and dynamic performance of the TSR devices were thoroughly tested in the test system, and it is the first time in China for RTDS to be employed to test the TSR devices under the condition of RTDS connected with real HVDC control and protective devices.

Key words: RTDS; subsynchronous oscillation; torsional stress relay; real time digital simulation; closed-loop test

[点击此处下载](#)

关闭窗口