

自动化

500 kV数字化变电站动模试验研究

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摘要:

浙江500 kV兰溪、海宁变电站是首次应用IEC 61850标准的500 kV电压等级的新建数字化变电站工程。为了充分验证工程中应用的基于IEC 61850标准的过程层、间隔层及站控层3层设备的适用性, 考核各设备在故障期间的动作行为、整体配合性能, 需进行系统级动模测试。为此详细分析了整体动模试验难点, 提出试验方案, 内容包括: 建立变电站级物理动态模拟一次系统; 构建与试验规模相适应的过程层、站控层2层网络; 智能终端、保护装置、数字式录波器、保护信息主子站等3层设备在实验系统中的接入方式; 试验项目设计原则; 模拟故障试验项目和网络性能测试项目; 装置测试性能要求。最后简要介绍了试验情况。

关键词: IEC 61850 数字化变电站 动模试验

Dynamic Simulation Test for 500kV Digital Substation

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Abstract:

Lanxi substation and Haining substation located in Zhejiang province, China are newly-built 500 kV digital substations where the new IEC 61850 standard is adopted. To fully verify the applicability of devices, which are complied with IEC 61850 and applied in the three-layers of substation, i.e., the process layer, bay layer and substation layer, and to examine the behaviors, actions and integral coordination performance of these devices during the fault, it is necessary to perform dynamic simulation test in system level. For this purpose, the difficult points in the integral dynamic simulation test are analyzed in detail; then the testing program is put forward, including establishing a physical primary system in substation-level for dynamic simulation, constructing a two-layer network containing process-layer and substation-layer that copes with the scale of the test, the modes to connect devices of the three layers with the experimental system, such as smart terminals, protection devices, digital recorder, master-station and sub-station, design principle of test items, test items of simulated faults and testing items of network performance, and test performance requirements of devices; finally, the experiments are briefly presented.

Keywords: IEC61850 digital substation dynamic simulation test

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