IEC 61850数字化保护动模测试系统设计与实现

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摘要：IEC 61850标准的应用给变电站自动化系统带来了重大变革。在此类变电站中，保护装置可以直接从电子式互感器处获取所需的电流、电压数字量信息，并向智能开关控制器发送数字化跳闸命令。这种数字化保护与传统的微机型保护在硬件结构和信号处理方面都存在差异，传统的保护测试方法将不再适用。文章分析了基于IEC 61850的数字化保护装置的测试要求，提出通过对传统的物理模拟系统进行升级改造，建立符合要求的测试系统。根据这一思路，该新型测试系统在山东大学电力系统动态模拟实验室的基础上开发而成。初步试验结果表明，测试平台能够提供所需要的二次接口特征和测试环境，可以对不同种类的IEC 61850保护装置进行动模测试。

关键词：IEC 61850；数字化保护；保护测试；物理模型；动态模拟

Design and Implementation of Dynamic Simulation Testing System for Digital Protection Based on IEC 61850

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Abstract: The application of IEC 61850 standard has brought significant reform to substation automation system. In such substations, protection equements get digital siginal of currents and voltages directly from electronic transducers and issue digital tripping signal to intelligent circuit breaker controller. Such digital protection relays are different from traditional micro-computer based relays in both hardware and signal processing. The traditional relay testing methods are no ever adaptable to such new type of relays. This paper analyzed the requirement for testing digital protection relay based on IEC 61850 , proposed an idea for how to establish a suitable testing system by upgrading conventional power system dynamic simulation system. The new testing system has been implemented in the power system dynamic simulation labortary of shandong University according to the proposed idea. The prelimentary test results has showed that the new testing platform is able to provide required secontary interface characterstic and testing environment. This proposed testing system can be used to carry out dynamic simulation tests to different kinds of IEC 61850 based protection relays.

Key words: IEC 61850; digital protection; relay testing; physical model; dynamic simulation

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