

继电保护、通信及自动化

基于IEC61850/MMS的电力运动通信的研究

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摘要: 变电站通信标准IEC 61850是将来电力系统无缝通信系统体系标准的基础之一。本文对现有电力系统远动通信协议中存在的一些缺陷进行了分析,对将IEC 61850应用于电力运动通信的实现方法进行了研究,提出了基于IEC 61850和制造报文规范(MMS)的远动系统的网络结构与通信模型。同时,为了解决现有远动系统到新型远动系统的平稳过渡,本文提出了IEC 61850/MMS网关的结构模型和数据模型,并给出了其数据和服务同传统远动规约之间映射的实现方法。另外,结合基于IEC 61850的电力运动通信的需要,首次对MMS通信功能子集进行了设计与实现,使其成为一种面向电力远动的实时通信软件。通过基于IEC 61850的电力运动原型系统的开发和测试,验证了模型的正确性和方案的可行性。

关键词: IEC 61850 制造报文规范 电力远动 网关

THE STUDY ON DATA COMMUNICATION OF A POWER TELEMONITORING SYSTEM BASED ON IEC 61850/MMS

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Abstract: IEC 61850 Standard for substation communication is the foundation of seamless communication of monitoring and control information of a power system in the future. Based on the analysis of the problems existing in the current communication protocols for power system telemonitoring, the implementation of applying IEC 61850 to the communication of power system telemonitoring information has been studied. In the paper, the network structure, communication model for telemonitoring information of a power system have been proposed based on IEC61850 and manufacturing message specification (MMS). To solve the compatibility of the existing power telemonitoring systems with new ones based on IEC61850, a layered architecture model and data model of the proposed IEC 61850/MMS Gateway are put forward, and the mapping method between the information and services of IEC61850/MMS to those of current power telemonitoring communication protocols has been given. Furthermore, considering the actual requirements of power system telemonitoring based on IEC61850, the telecommunication software based on a subset of MMS has been designed and implemented, which is dedicated to the realtime communication of power telemonitoring. The validity and feasibility of the proposed models and methods have been proven through developing and testing a prototype system for power telemonitoring information communication based on IEC 61850.

Keywords: IEC 61850 MMS power system telemonitoring network gateway

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