

自动化

具有高信息冗余的广域后备保护系统

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摘要:

提出一种基于方向信息和距离信息实现信息冗余的变电站集中式广域后备保护系统, 借助关联矩阵实现信息的容错, 完成对故障的判断。介绍了广域后备保护系统的结构与工作原理, 讨论了冗余信息的处理方法, 根据实时电网的拓扑结构, 制定了节点-支路关联矩阵、方向关联矩阵、距离关联矩阵及综合关联矩阵的形成策略。对不同的故障情况进行了仿真分析, 并提出了特殊情况下保护的应对策略。

关键词: 广域后备保护 拓扑结构 方向信息 距离信息 信息冗余 关联矩阵

A Wide-Area Backup Protection System With High Information Redundancy

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Abstract:

A centralized wide-area backup protection system for substation, in which the information redundancy is implemented based on direction and distance information, is proposed. By means of incidence matrix the fault tolerance of information is implemented to judge the fault. The architecture and working principle of wide-area backup protection system are presented, and the processing method of redundant information is researched, i.e., according to real-time topology of power network the formation strategy for draft node-branch incidence matrix, direction incidence matrix, direction incidence matrix and composite incidence matrix is drafted. Simulations for different types of faults are performed, and the strategy of the proposed wide-area backup protection system to cope with special circumstances is put forward.

Keywords: wide-area backup protection topological structure direction information distance information information redundancy incidence matrix

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