

自动化

基于双端故障信息的高压电缆-架空线混合线路故障测距方法

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摘要:

提出了一种基于双端故障信息的高压混合线路测距算法, 利用输电线路首、末端电压、电流工频量分段递推, 通过搜索两端线路沿线电压曲线的交点来确定故障点位置, 并讨论了伪根的鉴别方法, 进而针对双端数据不同步、不同采样频率、不同过渡电阻等各种情况进行了全面的仿真计算。仿真结果表明, 该方法测距精度高, 且不要求线路两端数据同步, 不受线路两端系统阻抗和故障点过渡电阻的影响, 具备较高的实用价值。

关键词: 混合线路 高压电缆 架空线 故障测距 伪根

A Fault Location Algorithm for Hybrid Transmission Line Composed by High Voltage Cable and Overhead Line Based on Two-Terminal Information

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Abstract:

A two-terminal fault information based fault location algorithm for hybrid transmission line composed by high voltage cable and overhead line is proposed. In the proposed algorithm that decides fault position by searching the crossover point of voltage curves along the hybrid line from the beginning terminal and ending terminal respectively, the piecewise recursion of power frequency voltages at the beginning and ending terminals of the hybrid line as well as the power frequency current flowing along the hybrid line is used and the method to discriminate the false root is researched; and then according to various conditions, including asynchronous two-terminal data, different sampling frequency and different transition resistances, an overall simulated. Simulation results show that the proposed method is a practical fault location method that can offer fault location with high precision, and does not affected by the impedances at both terminals of the hybrid line and transition resistance.

Keywords: hybrid transmission line high voltage power cable overhead line fault location false root

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