

论文

陡降大电流形成的高梯度强磁场对智能配电设备的电磁干扰分析

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摘要:

对陡降大电流形成的高梯度强磁场的产生机制以及由此产生的强电磁干扰现象进行了详细分析,阐述了智能配电设备遭受电磁干扰的现象与表征,通过理论分析和实际试验,证明了陡降大电流形成的高梯度强磁场是影响智能配电设备运行安全的重大电磁干扰源,提出了运用数字量替代模拟量、光纤传输技术、空间方位分离等技术措施和时间闭锁分割、频率划分与滤波、吸收与旁路等技术方法,或将这些抗干扰措施进行优化组合,系统性解决和消除此类干扰问题的方案。

关键词:

Analysis on Electromagnetic Interferences of High-Gradient Strong Magnetic Filed due to Steeply Dropping High Current in Intelligent Power Distribution Equipments

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Abstract:

The forming mechanism of high-gradient magnetic field due to steep-drop of high current and the resulting strong distribution equipments is analyzed in detail. The phenomena and characterization that is generated in intelligent power distribution device is represented. That high-gradient and intense magnetic field which is formed by steep drop high-current is a great electromagnetic interference source of intelligent power distribution devices security of operation is verified through practice experiments and theoretical analysis. This paper proposes the technical measures such as analog quantity substituted by digital quantity, optic fiber transmission technology, dimensional orientation separation and technical method of time locked division, frequency division, filtration, sorption, bypass etc., or some systems solutions that can eliminate the interference via these anti-interference measures combined optimally.

Keywords:

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