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住宅PE线故障电压监视系统设计

(国立华侨大学建筑设计院,福建 泉州 362021)

Monitoring System of Residential PE-Conductor Fault-Voltage

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摘要 探讨了住宅楼内某处发生单相接地故障而保护装置不能有效切断故障电路时,故障电压将沿相互连通的PE线传递到各住宅用户中,并导致各家用电器的金属外壳带电从而引发人身电击事故的问题.通过对各种常见接地系统在发生单相接地故障后的电路特点的分析,结果表明:不论住宅楼采用哪种接地系统,在接地故障持续的时间内各用户配电箱中的L与PE间的电压有明显降低,甚至接近于零.利用这个特点,可以采用在各用户配电箱中的L与PE间装设欠压脱扣器的方法来制作PE线故障电压监视装置.

关键词: PE线 住宅 故障电压 监视

Abstract: When there are single-phase grounding faults happening somewhere in the apartment buildings and the protection devices can not effectively cut the fault circuit,the fault voltage will pass along the mutual PE conductor and then transfer to all apartments,making the metal shell of electric appliances alive and causing electric shock accidents.Through the analysis of the feature of the circuit of various common protective grounding system with single-phase grounding faults,the author finds no matter what kind of grounding system is employed,the voltage between L and PE conductors will turn significantly low or close to zero in each family distribution box after the grounding faults happen.Therefore,an effective way to solve the problem is to stall undervoltage tripping device between L and PE conductor in each family distribution box as a monitoring device to find fault voltage on PE conductor.Finally,the paper introduces the design principle and application of the PE-conductor fault voltage monitoring devices.

Key words: PE-conductor residence fault-voltage monitoring

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