

自动化

基于无线公网和ZigBee无线传感器网络技术的输电线路综合监测系统

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摘要

以无线公网(GPRS/CDMA)和ZigBee无线网络通信技术为基础研发了一套输电线路综合监测系统,该系统把与输电线路相关的各个监测硬件单元分别设计为独立的无线传感器节点,利用无线传感器网络进行数据收集,并通过无线公网把数据传回监测中心。文章详细阐述了监测主机以及用于监测弧垂、输电线温度和绝缘子的无线传感器节点的硬件结构和工作流程。采用ZigBee无线网络技术使得输电线路综合监测系统具有良好的可扩展性、可靠性和安全性,并且便于维护,功耗较低。

关键词 [综合监测](#) [无线传感器网络\(ZigBee\)](#) [无线公网\(GPRS/CDMA\)](#) [输电线路](#)

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On-line Comprehensive Monitoring System for Power Transmission Line Based on Wireless Public Network and Wireless Sensor Network Technologies

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Abstract

On the basis of wireless public network (GPRS/CDMA) and wireless sensor network (ZigBee) technologies, a set of comprehensive power transmission line monitoring system is developed. In this system, the monitoring hardware units related to transmission line are designed as independent wireless sensor nodes respectively, the data acquisition is implemented by ZigBee and the acquired data is sent back to monitoring center by GPRS/CDMA. The hardware structure and working process of monitoring host and wireless sensor nodes that monitor line sags, line temperatures and insulators are expounded. Adoption of ZigBee technology makes the comprehensive power transmission line monitoring system expandable, reliable and secure, besides, the developed monitoring system is easy to maintain and its power consumption is low.

Key words [comprehensive monitoring](#) [wireless sensor network \(ZigBee\)](#) [wireless public network \(GPRS/CDMA\)](#) [power transmission line](#)

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