

自动化

面向船舶电力系统监测的混合网络技术

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摘要:

分析了船舶电力系统目前和未来的监测需求, 结合工业以太网、Zigbee网络的特性以及特殊船舶电力系统的监测环境, 提出了将2种网络混合起来对船舶电力系统进行底层监测的方案。从网络协议结构入手, 论证了Zigbee网转以太网网关的直接和间接实现方案, 用硬件和软件设计了间接方案下的协议转换器, 并对船舶电力系统的推进电机进行了数据监测实验。技术分析工程实现结果表明: 该混合网络运行稳定、可行, 能够满足目前和未来船舶电力系统监测对网络性能的要求。

关键词:

Shipboard Power System Monitoring-Oriented Hybrid Network Technology

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Abstract:

The present and future requirements of monitoring of shipboard power systems are analyzed. Combining the features of industrial Ethernet and Zigbee with monitoring environment of special shipboard power system, a project to perform bottom layer monitoring of shipboard power system, in which the two kinds of networks are mixed, is proposed. Starting with the structure of network protocol, the gateways of direct implementation project and the indirect implementation project, by which the Zigbee network is interfaced with Ethernet network, are demonstrated; and the hardware and software of protocol converter for indirect implementation project are designed, and the experiments of data monitoring of propulsion motor in shipboard power system is carried out. Technical analysis and engineering implementation show that the proposed hybrid network is feasible and its operation is stable, so it can meet the demands of network performances from present and future monitoring of shipboard power systems.

Keywords:

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