

课题名称 智能建筑 BAS 系统设计

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## 摘要

现代社会经济高速发展，能源短缺出现的问题日益突出，智能建筑节能减排刻不容缓。智能化建筑是当今建筑的主流方向，通过控制器合理的控制机电设备，形成一个复杂的自动化控制系统，是现代计算机技术、物联网技术、控制技术、电力电子技术、通信技术等与传统建筑相结合的产物。

本文阐述智能建筑的系统组成和结构、工作原理、以及节能减排的重要意义。论文主要对智能建筑设备自动化系统（BAS）进行了分析讨论，着重讨论照明监控系统的控制原理和工作原理，并对校园照明监控系统进行了具体的设计，论文根据校园照明系统的控制需求，在充分的市场调查后选择合适的控制器和现场设备，并给出初步预算表。最后在现有的条件下完成了小规模照明控制系统的设计和实现。

最后本文分析了小规模照明系统的节能效果，讨论系统存在的问题，并对照明控制系统的节能措施及其发展趋势进行展望。

**关键字：**智能建筑；楼宇设备自动化系统；照明监控；DDC；

## Abstract

With the rapid development of modern society and economy, the problem of energy shortage is becoming more and more serious. Intelligent building is the mainstream direction of today's architecture. A complex automatic control system is formed through the reasonable control of electromechanical equipment by the controller. It is a combination of modern computer technology, Internet of things technology, control technology, power electronics technology, communication technology and traditional architecture.

This paper describes the system composition and structure of intelligent building, working principle, as well as the significance of energy saving and emission reduction. Thesis mainly to the intelligent building equipment automation system (BAS) is analyzed and discussed, focus on lighting control principle and working principle of the monitoring system, and the campus lighting monitoring system design in detail, based on campus lighting system control requirements, after adequate market research to choose the appropriate controller and field devices, and gives a preliminary budget. At last, the design and implementation of small scale lighting control system are completed under the existing conditions.

Finally, this paper analyzes the energy-saving effect of small-scale lighting system, discusses the problems existing in the system, and forecasts the energy-saving measures and development trend of lighting control system.

**Keyword:** Intelligent buildings; Building automation systems; Lighting monitoring; DDC;

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