



# Seamless Integration Architecture of EnOcean Wireless Technology with BACnet Systems using Advanced Distributed Automation Systems

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## Abstract

This paper presents a comprehensive architectural framework for the integration of EnOcean energy-harvesting wireless technology with Building Automation and Control Networks (BACnet) through Advanced Distributed Automation Systems (ADAS). The proposed architecture addresses the growing demand for energy-efficient and flexible building automation solutions by combining the self-powered wireless capabilities of EnOcean devices with the standardized communication protocol of BACnet. The integration methodology details the protocol translation mechanisms, data mapping procedures, and system-level interactions that enable seamless interoperability between these disparate technologies. This paper further examines the implementation challenges and presents validation results from real-world deployments, demonstrating significant improvements in energy efficiency, installation flexibility, and maintenance cost reduction. The findings indicate that this integrated approach provides a robust foundation for next-generation building automation systems with enhanced scalability and adaptability to evolving requirements.