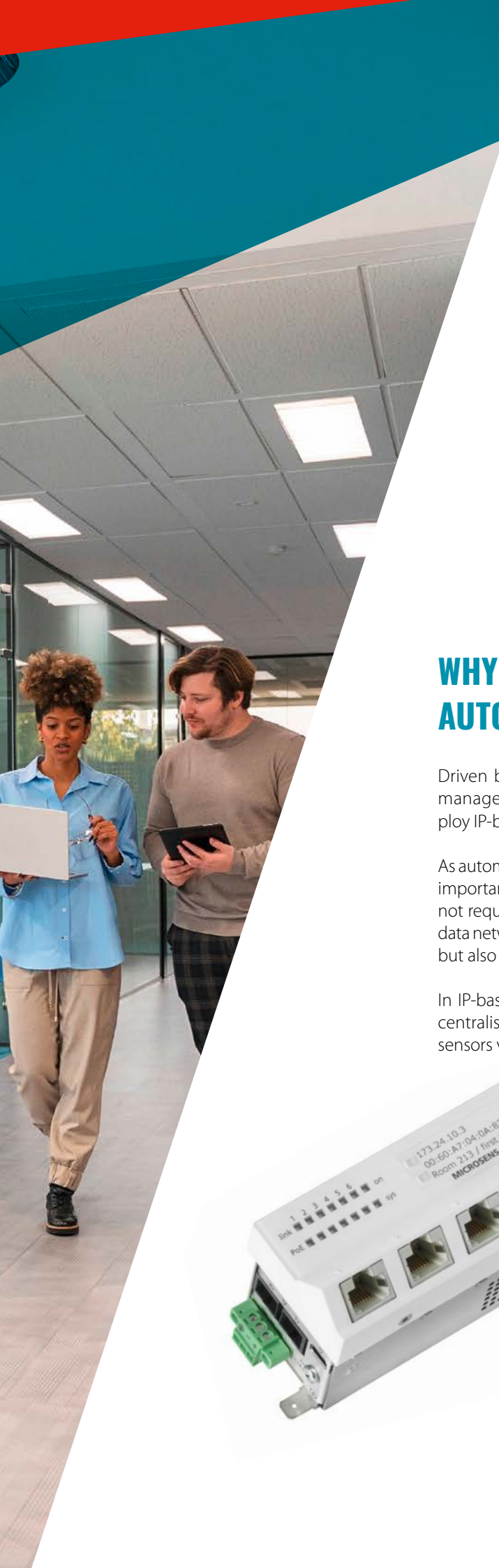




IP-BASED BUILDING AUTOMATION AND BUILDING MANAGEMENT

IP-BASED BUILDING AUTOMATION AND CONTROL SYSTEM





WHY CHOOSE IP-BASED BUILDING AUTOMATION?

Driven by the growing demand for energy-efficient buildings and the management of climate control and energy systems, an easy-to-deploy IP-based building automation system is the ideal solution.

As automation continues to increase, system security becomes increasingly important. Unlike conventional bus-based concepts, IP-based systems do not require a separate infrastructure. Instead, they utilise the existing local data network. This not only ensures maximum convenience and productivity but also enhances overall security.

In IP-based building automation, intelligent network switches act as decentralised control units, communicating with individual actuators and sensors via existing IT data cabling.



All processes are software-controlled and standardised, whether for HVAC, public address systems, lighting, access management, user permissions or other building functions.

As a result, compatibility issues and the time-consuming, costly reprogramming typically associated with bus systems become a thing of the past.

Using Power over Ethernet (PoE), the existing IP infrastructure serves both device control and power supply. This enables energy-efficient LED lighting systems to be fully integrated into the overall building automation concept.

IP-BASED BUILDING AUTOMATION AND CONTROL SYSTEM



SMART SENSOR

The MICROSENS Smart Sensor measures not only temperature and humidity, but also movement, CO₂ levels, air quality and light intensity. The collected data is securely transmitted via MQTT and used to optimise HVAC systems and lighting.

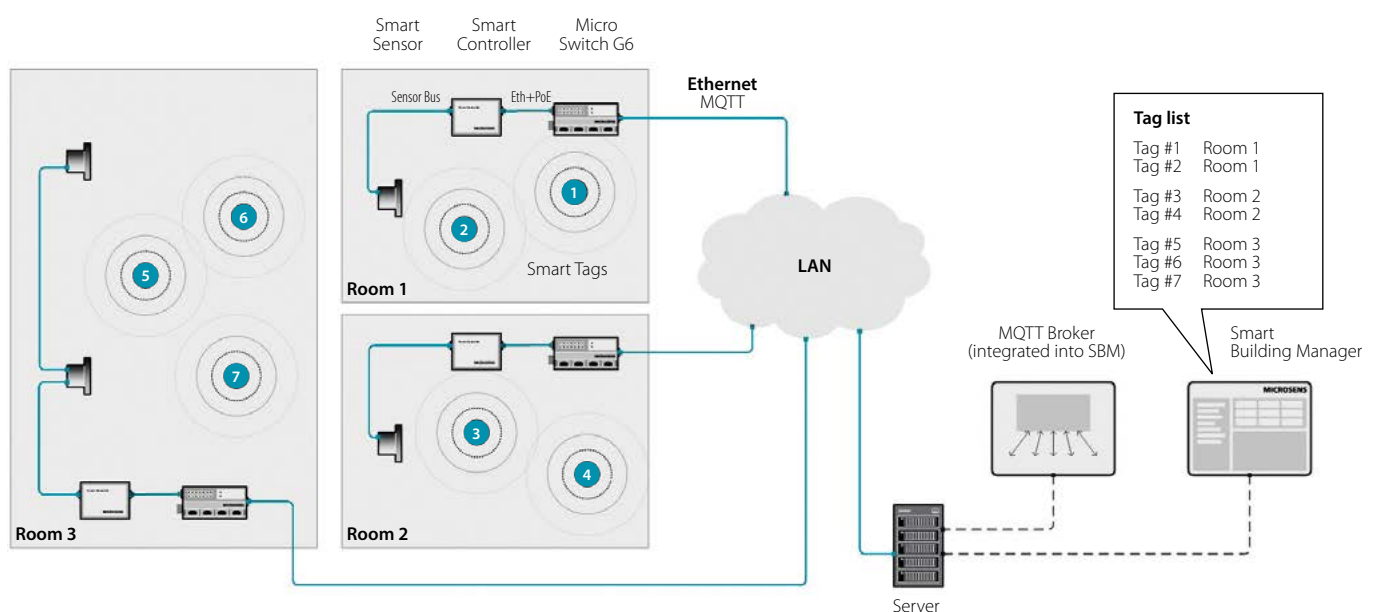
The Smart Sensor is also widely used in healthcare environments for automated asset tracking of hospital beds, medical devices and other equipment requiring regular sterilisation or maintenance.

Combined with a high-performance network, these assets can

be monitored in real time, significantly improving operational efficiency.

Another notable feature is the wireless collection of vital data, such as blood glucose levels. This information is securely transmitted across the internal network and analysed using artificial intelligence.

The sensor also incorporates integrated Bluetooth beacon technology, enabling indoor positioning as well as real-time location tracking of medical devices and hospital beds..



SMART I/O CONTROLLER

The Smart I/O Controller serves as an interface for controlling HVAC systems.

It integrates devices directly at sensor and actuator level into the IP infrastructure of modern buildings. Even legacy field devices can therefore be connected to the IP network and managed using modern automation and control capabilities.

Furthermore, analogue devices can be controlled directly via Ethernet. With this product, MICROSENS provides a simple, fully IP-based building automation solution without interface compatibility issues. Thanks to Power over Ethernet Plus (PoE+), dedicated control buses and additional power cabling are no longer required.



Alternative: one intelligent Multi Sensor

All measurements and intelligence in a single sensor



Occupancy



Daylight



Temperature



CO₂



Humidity



Sound



- ✓ One sensor for all relevant measurements
- ✓ Faster installation and commissioning
- ✓ Lower material costs and reduced maintenance
- ✓ Simple integration with GACS/BMS systems

BENEFITS:
Reduced complexity
Lower Total Cost of Ownership (TCO)
Intelligent lighting systems

IP-BASED BUILDING AUTOMATION AND CONTROL SYSTEM



INTELLIGENT LIGHTING SYSTEMS

Although lighting accounts for a relatively small share of overall energy consumption, improving energy efficiency can generate significant cost savings, particularly in large-scale production environments operating 24 hours a day, seven days a week.

For lighting control, we offer two solutions: a centralised DC system and a decentralised PoE system.

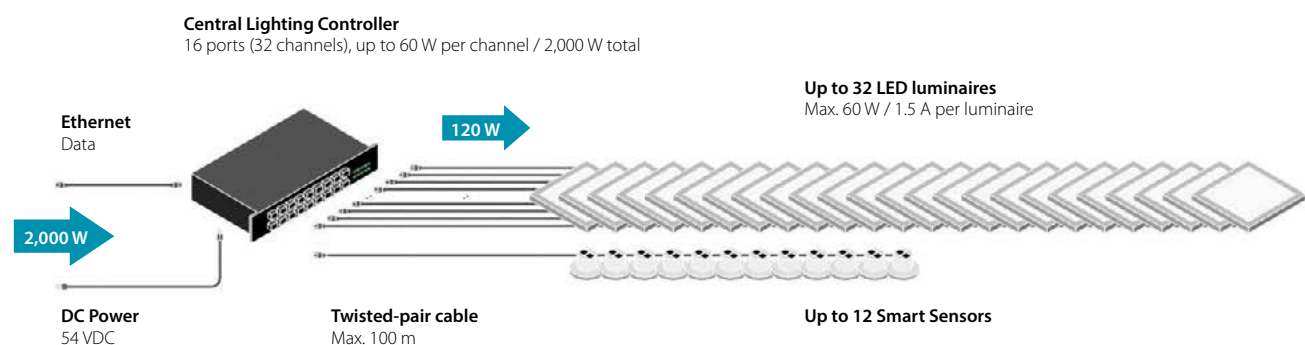
A simple way to control lighting is with a centralised IP-based DC system (54 V). This solution uses an intelligent lighting controller that functions as a constant-current source and provides multiple ports for up to 32 individually controllable LED luminaires. The controller operates on MICRO RTS management software, eliminating the need for a separate server.

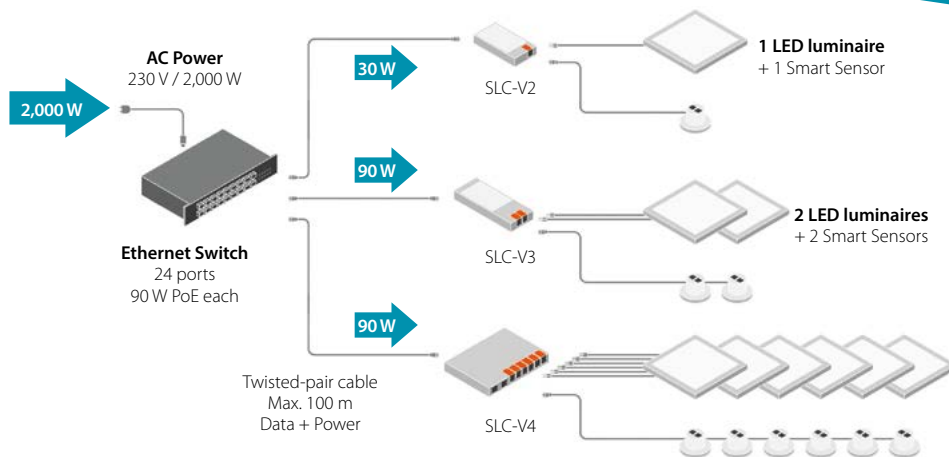
Standardised twisted-pair cabling delivers up to 60 W of power per luminaire. The controller ensures consistent light output and flicker-free dimming of connected luminaires. Motion or occupancy sensors can be connected via four wired bus inputs. Light switches and other sensors or actuators can also be integrated wirelessly into the system. The EnOcean wireless standard is currently supported.

DC Power Lighting consists of only a few components: the central intelligent lighting controller receives input signals from connected sensors, controls the luminaires, supplies power and provides connectivity to the data network. This is significantly more efficient than conventional lighting concepts, where each luminaire requires its own rectifier.

Functions and settings can be configured quickly and easily through software. Time-consuming programming, which is still often required with bus systems, and even modifications to the cabling infrastructure, are no longer necessary. Future changes and extensions can also be implemented rapidly through software. Reorganising and regrouping luminaires following changes to room layouts can be accomplished with a single mouse click. DC Lighting therefore offers a level of flexibility that cannot be achieved with traditional lighting solutions.

DC Lighting uses globally standardised universal cabling in accordance with ISO/IEC 11801-6 and EN 50173-6. These standards define application-independent cabling for distributed building services, including Wi-Fi and IP video surveillance, as well as lighting, building services and building automation.





SMART BUILDING MANAGER

An alternative approach is decentralised lighting control based on Smart Lighting Controllers (SLCs). The controller forms the link between the LED luminaires and the IP network by integrating the Smart Sensor, controlling the luminaires and providing power via the data network using Power over Ethernet (PoE).

A key advantage is that standard network cabling simultaneously delivers both power and data for energy-efficient, dimmable LED lighting. Unlike other network-based lighting solutions, there is no need for the time-consuming and costly installation of dedicated bus systems.

Thanks to lower installation, maintenance and operating costs, combined with reduced energy consumption and lower CO₂ emissions, LED luminaires have become the standard choice for modern lighting systems.

This infrastructure is managed via IP networks and powered through the data cabling using Power over Ethernet (PoE). The interaction between sensors, LED luminaires and intelligent control systems delivers levels of comfort and energy efficiency that cannot be achieved with conventional lighting solutions. Building owners and facility managers benefit from significantly lower costs during both installation and operation.

PoE lighting is an important building block of the Internet of Things (IoT), providing a universal platform for advanced sensing technologies and data collection within smart buildings.

The Smart Building Manager (SBM) is an optional software package for managing an IP-based building management system, although its use is not essential.

SBM enables the centralised visualisation and management of all building components, from lighting and HVAC systems to sensors, actuators and asset-tracking applications. Alarms and automated events can also be configured with ease. This makes SBM a valuable tool for offices, hotels, healthcare facilities and other complex buildings.





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