



**MICROSENS**

# DC Lighting

Modern, efficient lighting  
with DC voltage

## Modern, efficient lighting with DC voltage

Lighting systems which work with DC voltage are more efficient than conventional lighting with 230 V AC. The luminaires are managed and powered via the same application-neutral cabling according to DIN EN 50173-6. Complex installation with both electrical and data cabling is not required. In industrial environments, where particularly high demands are placed on equipment and systems in terms of reliability, efficiency and economy, DC power supplies have long proven their value. DC Lighting goes one step further: the combination of LED luminaires with sensors and an intelligent management system offers users more comfort and efficiency, and building operators and investors significantly lower costs for installation and operation.

## Groundbreaking energy efficiency

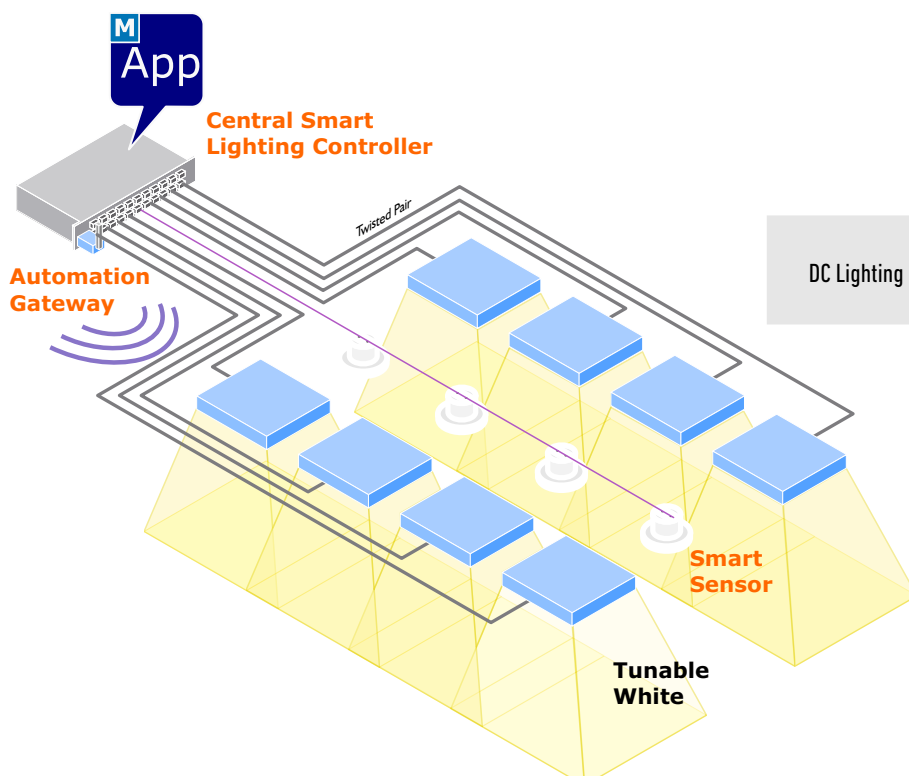
LED luminaires have a much higher efficiency than conventional lamps and require far less energy for the same amount of light. This is already a significant

advantage, but it is only in combination with powerful sensors and intelligent management that LED luminaires can fully exploit their advantages. This is supported by the central AC/DC conversion, which generates DC voltage from AC voltage and is proven to be more energy-efficient than individual conversions in each single fixture. A reduction in power consumption of the lighting by more than 70 percent compared to old-fashioned lighting is more than realistic.

## Optimal lighting at all times

Since the lighting is controlled via the data network, automated tasks can be implemented very easily. If people are present, the lighting switches on automatically depending on the lighting conditions; if the last person leaves the room, it switches off again. The problem of the lighting being switched on and consuming electricity in empty rooms, after work and at weekends is now a thing of the past.

Daylight harvesting automatically supplements the available daylight to the predefined brightness level, which can be set individually for each workplace. The variable dimming adapts so subtle to the changing daylight that users do not notice any change in the lighting conditions.



DC Lighting - lighting control with only a few components

## Human Centric Lighting

Brightness and light colour can be adapted to the daily course of sunlight. In this way, the workplace lighting corresponds to natural light, which stabilizes the employees' internal clock and thus improves concentration, mood and motivation. In addition, users can quickly and easily adjust the lighting to their personal needs and wishes via smartphone, tablet, PC, control panel on the wall and, of course, as usual via light switch.

## Simple, flexible configuration

The functions and settings can be configured quickly and easily via software. Time-consuming programming, which bus systems sometimes still require today, or even changes in the cabling, are unnecessary. Subsequent changes and extensions can also be done quickly and easily via software. Rearrangement and regrouping of luminaires in case of a changed room layout is done at the click of a mouse. DC Lighting thus offers a flexibility that cannot be achieved with classic lighting solutions.

## Simple setup with only a few components

DC Lighting consists of only a few components: The Central Smart Lighting Controller receives the input signals from the sensors connected to it, controls the luminaires, supplies them with power and establishes the connection to the data network. The Micro RTS management software also runs on the controller; a server is not required. A Central Smart Lighting Controller controls and supplies up to 24 luminaires, which is much more efficient than the classic concept

where each luminaire needs its own rectifier. Fewer components result in lower costs for installation and maintenance, reduce operating costs and increase reliability - what is not there does not need to be maintained and cannot break.

In addition to brightness and presence, the sensors can also detect temperature and humidity. Since the Smart Lighting Controller is connected to the data network, it can also make the sensor data available to other systems such as the controllers of heating, ventilation and air conditioning, which thus do not need their own sensors. All communication is encrypted and secure.

## Worldwide standardised cabling

DC Lighting uses globally standardized, universal cabling according to ISO/IEC 11801-6 and its German equivalent DIN EN 50173-6. The two standards define application-neutral cabling for distributed building services, which include WiFi and IP video surveillance as well as lighting, building services and building automation. This uniform cabling has a simple structure and is easy to install with little effort. Since it is designed to be application-neutral, it can be used flexibly for the various applications without being tied to one manufacturer or device type. The widespread standardization also eliminates the national restrictions of classic electrical engineering.



## **No electrical installation required**

With DC Lighting, the luminaires are supplied with power via the data cable. This eliminates the need for the entire electrical installation that would otherwise be required for the lighting. No electrical cables, no clamping points, no circuit breakers, no electrical sub-distribution board, no wiring work. Only the Smart Lighting Controller requires an electrical connection; with DC Lighting, the LED luminaires are operated with extra-low voltage. This means that no electrician is required for installation, maintenance, conversion or extensions, which significantly reduces costs for both equipment and labor during installation (capex) and operation (opex). Another added value: as the luminaires do not have their own power supply and driver, they can be built extremely compact and flat, which saves space and opens up new, design options.

## **High reliability**

In industrial environments, where equipment and systems have always been subject to particularly high demands in terms of reliability, efficiency and cost, DC power supplies have long proven their value. They work more reliably than AC networks, do not know any failure of device or plug-in power supplies and the rectifiers and controllers made of robust, durable industrial electronics such as the Central Smart Lighting Controller supply the connected loads safely and reliably.

## **High security**

With its built-in current limitation, the Smart Lighting Controller ensures that the current does not exceed the permissible values even in the event of a fault - for example, a short circuit in a luminaire - which could otherwise lead to consequential

damage and fires. If the Smart Lighting Controller is connected to an uninterruptible power supply (UPS), the lighting will operate even in the event of a power failure. Another plus in terms of safety: since DC Lighting eliminates the classic electrical installation, fewer cables are installed, resulting in lower fire loads.

## **Expansion according to requirements**

The standardized cabling allows for easy installation and removal in segments or rooms. As the lighting works independently of the electrical cabling, there is no need to switch off the power anywhere during extensions and modifications. The expansion takes place entirely as required, which is good for the budget and makes both the planning and the execution of the work much easier. And since the user only pays for what is actually needed and installed, this in turn increases the overall cost-effectiveness.

## **Additional advantages through photovoltaics**

DC Lighting is an ideal solution in combination with photovoltaics and storage batteries. Both already work with DC voltage; rectifiers and the associated electrical losses are eliminated. The same also applies if the lighting is to be connected directly to an uninterruptible power supply (UPS): The double conversion of AC to DC and back to AC with its associated losses is no longer necessary.

