

***hansen***  
technologie · elektronik · licht



# GREEN LIGHT TECHNOLOGY

Sustainability for people and the environment  
Reducing energy costs and CO<sub>2</sub> emissions



[www.hansen-led.com](http://www.hansen-led.com)



The ***hansen*** LED Tube and the ***hansen*** LED Chain are two key elements of our new **GREEN LIGHT TECHNOLOGY**.

Both products use LEDs in a series-connection, which reduces the energy consumption and hence CO<sub>2</sub> emissions compared to conventional 12 V systems with LEDs connected in parallel.

Customers choosing these products will receive our certificate for their project.

- ▶ **Approx. 25% energy savings thanks to series-connected LEDs**  
compared to conventional 12 V systems with parallel LEDs
- ▶ **Up to 25% less CO<sub>2</sub> emissions** (depending on the type of power generation)  
compared to conventional 12 V systems with parallel LEDs
- ▶ **Improved lifetime thanks to approx. 25% lower heat generation**  
compared to conventional 12 V systems with parallel LEDs
- ▶ **Light can be dimmed by central control**  
the brightness can be readily adapted, also at a later stage
- ▶ **Light-dependent control of lighting systems**  
night-time dimming, timed switch-off or special control schemes for events
- ▶ **Retroactive dimming, e.g. to meet stricter light pollution requirements**  
allows new requirements to be met when legal provisions become stricter
- ▶ **Advice & know-how for an energy-efficient use**  
we support our customers in the planning and implementation of their projects with our many years of experience

Further information on ***hansen*** **GREEN LIGHT TECHNOLOGY** can be obtained from our field representatives who are happy to inform you personally about the future-oriented possibilities provided by our technology.

## A key element to energy-savings is

## the series-connection of the LEDs

LEDs can be operated in two types of electrical connection:

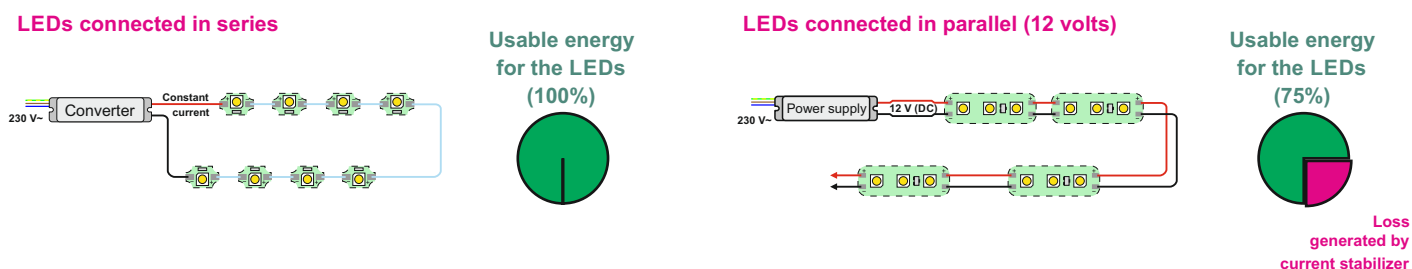
- series connection
- parallel connection

The larger the system, the more it makes sense to choose a series connection.

**The key advantage is the higher energy efficiency.**

**The problem:** In a parallel connection, approx. 1/4 of the electrical energy input is converted into lost heat. This heats up the environment, costs money and generates harmful CO<sub>2</sub>.

**The solution:** This problem does not apply to the series connection. The entire electrical energy is made available to the LEDs for light generation.



Besides helping to save electrical energy and costs, the ***hansen* GREEN LIGHT TECHNOLOGY** offers the following advantages:

- ▶ reduces power consumption and CO<sub>2</sub> emissions by approx. 25% (compared to conventional 12 V technology)
- ▶ longer lifetime as no additional heat-generating components are required for stabilization
- ▶ no overloading of the cables from the converter to the LEDs, even over larger distances (e.g. 150 m)
- ▶ dimming can be used to improve perception of the lighting system and to achieve additional energy savings
- ▶ dimming can be done retroactively to meet future anti-pollution and emission protection regulations
- ▶ light-dependent control allows optimized perception of the lighting system at twilight and at night
- ▶ connection to the building management system (DALI) is possible
- ▶ quality made in Germany
- ▶ reduced maintenance effort for advertising towers due to separation of illumination (top) and technical equipment (bottom)



## Another magic word:

# Dimming



Making the lighting dimmable from the very beginning makes many things simpler and easier:

- The brightness can be exactly adapted to the customer's needs during commissioning
- If a neighbour feels disturbed by the brightness, it can be adapted accordingly
- Dimming additionally reduces power consumption and CO<sub>2</sub> emissions
- The brightness can be readily adapted to meet stricter light pollution requirements
- In indoor applications, daylight-dependent lighting control improves people's well-being and saves energy

### Dimming systems with series-connected LEDs

Such a lighting system can be made dimmable by using dimmable converters. These are available from **hansen** with the typical power ratings. In addition, a control device (in the simplest case a potentiometer or remote control) is needed. The dimming can also easily be coupled to an existing building control system (e.g. DALI).

### Dimming systems with parallel LEDs (12/24 volts)

Here, an additional dimming device must be connected between the power supply module and the LEDs. These devices as well as the required control devices (potentiometer or remote control) are also available from **hansen**. Coupling the dimming to an existing building control system (e.g. DALI) is also possible.

*Please note: Not all the 12/24 V LED modules available on the market are suitable for dimming. Check the LED modules for their dimming capability prior to installation.*

All in all it can be said that dimmability of lighting systems is already playing an important role and that the demand for dimmable systems will further increase in the future. By offering its experience and the necessary technical equipment **hansen** supports all those who want to sell sustainable systems already today.

## Dimming equipment:

# Converters, controllers, peripheral devices



Dimmable converters with  
0–10 V control input



Interface for adaptation  
to DALI, KNX, etc.

Remote control



Controllers



Light-sensitive  
controllers



Converter boxes and cabinets  
for larger systems

# CERTIFICATE

By using the



the company

## Exemplary Ltd.

in cooperation with Sample Co.

**has chosen a sustainable, energy-efficient  
and future-proof  
LED lighting system.**

We herewith confirm that  
by using our GREEN LIGHTING TECHNOLOGY  
the company Exemplary Ltd.  
in 12345 Anytown  
achieves energy savings of approx. 25% compared  
to conventional 12 volt technology\*.

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Logo Exemplary Ltd.

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\* For further information please refer to [www.hansen-led.com/know-how/green-light-technology](http://www.hansen-led.com/know-how/green-light-technology)

## Production, service and sales



For more than 35 years the name Hansen GmbH has stood for high-quality lighting and control technology products. With a team of 80 employees, the entire value creation and production takes place in Haselund, Northern Germany. Our in-house development department designs tailor-made LED products and converters for various applications. All our products are manufactured exclusively at our headquarters in Haselund.

**Made by Hansen = quality made in Germany**

## Sustainability – facts & figures

**We use renewable energy sources in the form of photovoltaics, regional district heating and our own geothermal heating system.**

- \* In 2021 our degree of self-sufficiency (only self-generated electricity) was 51% in total and up to 70% during the summer months.
- \* Approx. half of the electricity generated (the excess power we cannot use ourselves) is fed into the grid.
- \* The total production of the PV plant in 2021 was 171,000 kWh
- \* The PV plant is rated at 240 kWp, with its east/west split making it ideal for a production facility.

### **We promote the use of bicycles and support electromobility**

Since summer 2019 we have been using “JobRad”, a leasing scheme giving our employees access to company bicycles and pedelecs. Employees can use their bikes whenever they wish: on the way to work, in their spare time, on holiday or for sport. JobRad makes sure that everything runs smoothly. This is made possible by German legislation, offering tax benefits for company bicycles in order to reduce traffic and protect the environment. By July 2022, 40 members of staff had applied for a bike, wanting to do something for their health and be sustainably mobile. This is fun and 100% CO<sub>2</sub>-fee!

The company car fleet currently includes 20 electric vehicles, and all our employees and customers with an electric vehicle can charge their cars at our five charging stations.

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