



Solid Solutions. Smart Lighting.

# Veko | Smart Lighting







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Smart lighting is all about operating your company lighting with an app on your smartphone, knowing precisely when maintenance is needed and targeted adjustment based on energy costs. Lights no longer burn uninterrupted in business premises. Lighting has become a source of information; a tool for cost saving, stock control and navigate in a shop, warehouse or carpark. Veko can offer the following solutions.

## **Dynamic switching: minimum energy consumption**

If you use dynamic lighting from Veko, only part of each aisle is switched on. This is achieved by progressively switching the luminaires in the aisles from 10% to 100% output, as soon as you enter the zone. By dimming the lighting level to 10% instead of 0% when the zone is not in use, you can improve the working comfort of your staff. The result is minimum energy consumption and maximum savings!

## **Constant light output with CLO**

Veko programmes its drivers just once, with Constant Light Output (CLO). The driver then manages the light source to deliver the same volume of light throughout its lifecycle. Every LED luminaire produces extra light output at the start of its lifecycle, with a steady fall in output towards the end. CLO compensates for this situation, thereby preventing over dimensioning. The result is an additional 10-20% extra saving on your energy consumption.

## **Automatic daylight regulation**

Optimum use of daylight in any commercial building is good for both well-being and productivity, but can also result in huge savings on energy costs. Using our Veko sensors enables

you to use a twilight sensor or maintain the ideal lux level by means of daylight control in combination with the DALI system.

## **Tailor-made lighting with DALI**

DALI allows all your lighting components to communicate. The result is an infinite range of possibilities for daylight adjustment, dimming, light levels and light colours. In other words, ultimate lighting comfort with a short payback time and attractive energy savings. Furthermore, DALI can be linked to other building management systems and can be easily reprogrammed in the future

## **Real-time contact with the Encelium light management system**

Encelium is an Osram-based light management system that connects all DALI components with a single system. On a monitor screen, you can simply (re)programme, dim, control and read out all the connected drivers. It is even possible to control and implement facility management and maintenance remotely.

## **YellowDot: Retail navigation**

YellowDot is a commercial navigation system that will guide your visitors to their destination. The technology also offers the option of sending specific offers to your customers via an app. A unique marketing tool.



# Dynamic switching

Veko can simply dim your lighting in a corridor function, without using DALI control. This is known as Dynamic Switching. The lighting system is equipped with a standard 7-core flat cable in the profiles. This can be expanded by up to two 3-core cables.

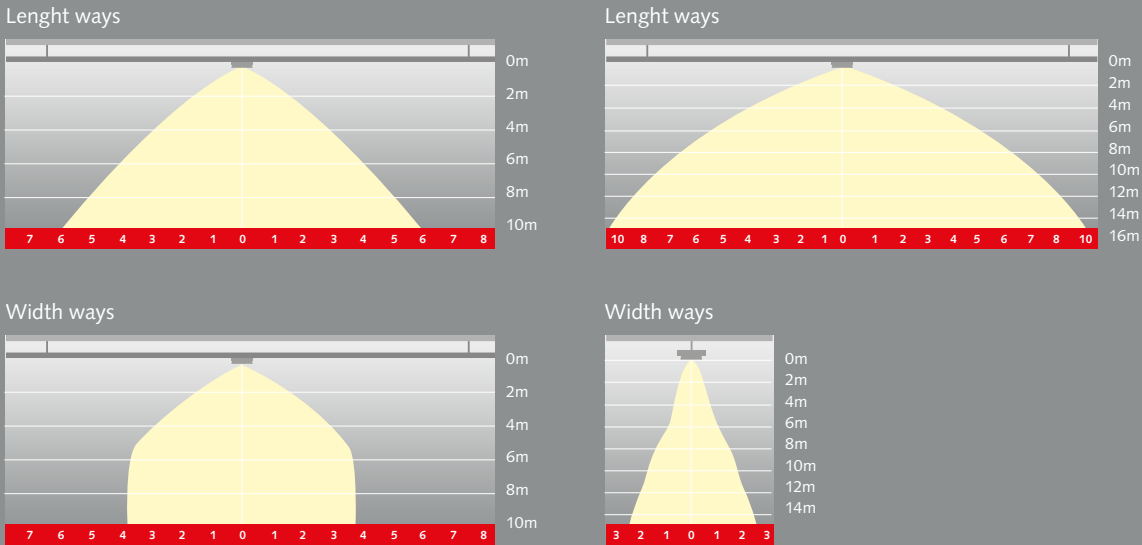


**Veko sensors**  
We install a series of sensors in the light line that are suitable for open spaces or specially developed for rack aisles. Each sensor and the accompanying luminaires are connected to the appropriate phase. If a presence detector measures activity, the entire phase is switched on.



**Drivers**  
Our drivers are programmed in the factory to a dimmer setting of 0-10-100-10-0 percent so that light is always gradually dimmed up and down. This allows your eyes to adjust to the light level. Your lighting will only be used when necessary, and dimming is optimised to increase comfort for the end user.

**Range Veko sensors**  
The left pictures represent the length and width range of the MD-L-R sensor developed for open spaces. The right pictures for the MD-L-Na sensor for racking paths.



**Presence sensors**  
As you can see from the illustrations above, the lighting responds to presence detection. The lighting in front of the forklift truck is dimmed to 10%, providing sufficient light for the route. Above the forklift truck, the lighting is raised to 100% for the ideal light level while at work. Behind the forklift truck, the light is once again dimmed to 10%. If no presence is detected, all lighting is switched off for extra energy saving.



**7-core profile**  
The left-hand photograph shows our most widely used 7-core profile. This profile is suitable for numerous applications. Should you wish to install additional devices with a separate power supply or to create a second circuit, the profile shown at the bottom left is the ideal solution, with a 7-core flat cable in the middle and a 3-core flat cable on each side. All profile sections are connected with Wago plugs.

- N Neutral
- E Protective Earth
- L1 Live 1
- L2 Live 2
- L3 Live 3
- D1 Controls DALI -
- D2 Controls DALI +

**The 7-core flat cable**  
The standard layout for the 7-core flat cable is shown here. We can, however, provide any other layout you require. In consultation with our specialists, we can adapt your cable to the needs of your project.

# Welcome to Encelium

Encelium is a hardware system that links all DALI control on a single server. Using Polaris 3D software, you the user have easy real-time access to operating hours records, error messages and functions of the (emergency) lighting and sensors. Programming dimming scenarios, comparing energy consumption or heat mapping to ensure optimum use of space were never easier. All via a database in the cloud.

**Our Encelium system consists of three main elements:**

## Field components

The first element comprises the field components such as the luminaires, sensors and light switches with integrated DALI control, connected by 2-core DALI wiring in our linear lighting systems.

## Network system devices

The second element consists of the network system devices. These devices process and translate the control orders to the DALI control. As a result, they use the same control language

so that all DALI devices in the building can constantly communicate. This makes the system scalable to any application or building size, or even for multiple buildings.

## Polaris 3D Software

The third element is the Polaris 3D Software. This is the heart of the system. This software facilitates and simplifies the commissioning process. The software also records consumption and analyses all data for the lighting installation.

The 3D visualisation shows how efficient your installation is, and reports immediately on the savings achieved and any defects.

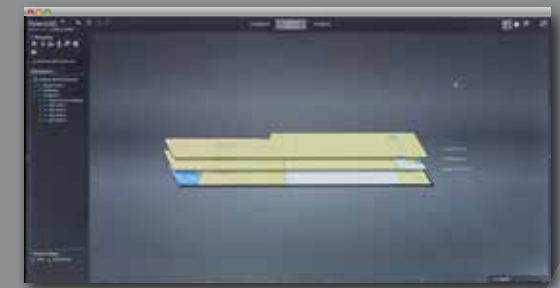
## Data reporting

Energy consumption can be simply checked in real time with the digital 3D output for the building. With a single click, energy consumption or energy savings reports can be generated automatically for a day, week, month or year, for every floor zone or luminaire, depending on the timeline the user wishes to view.

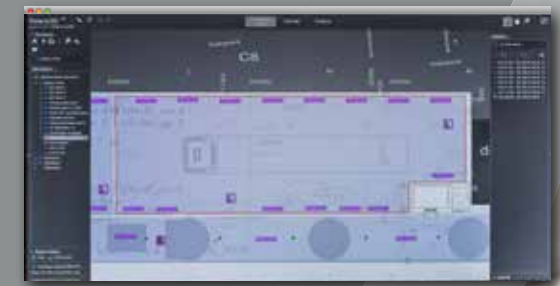
Facility managers can now easily trace irregularities. Encelium offers a unique colour phase display for data from the lighting system, to allow you to identify inefficiency trends or operational non-conformities.

## The system supplies the following information to the user:

- Lighting status (ON/OFF)
- Lighting levels
- Load shedding status (managing unnecessary energy consumption and electricity costs)
- Lighting power density or energy consumption
- Space and/or zone occupation status
- Energy consumption comparisons



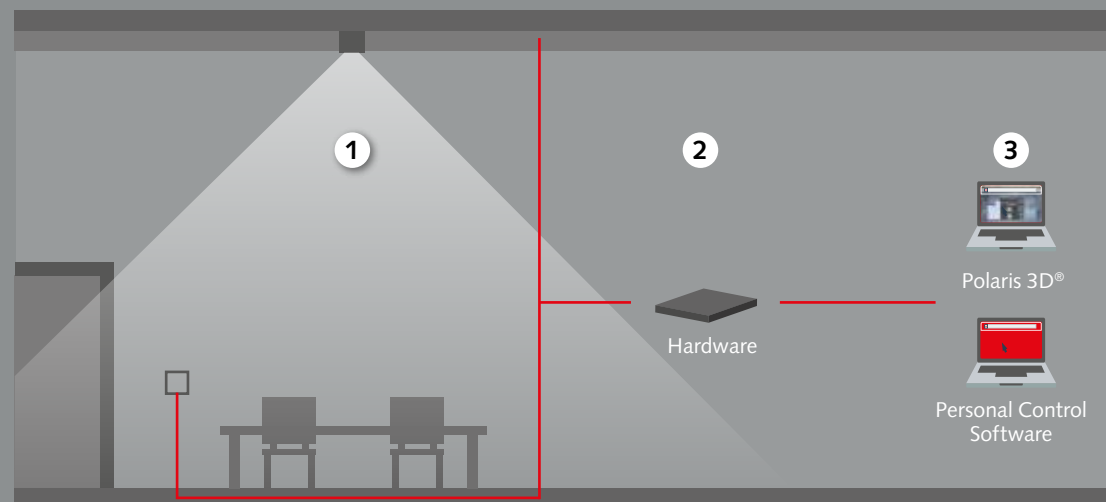
3D view of the floors.



Presence and status of all connected luminaires and sensors.



Energy consumption reporting compared to last year.





# CLO: Constant Light Output

With LED, the light output falls over time, as the diodes in the LED chips deteriorate. This fall in light output is more or less linear throughout the lifecycle of the diode. The luminaire itself can compensate for this fall in light output using a programmable control option in the driver. This is known as the Constant Light Output (CLO).

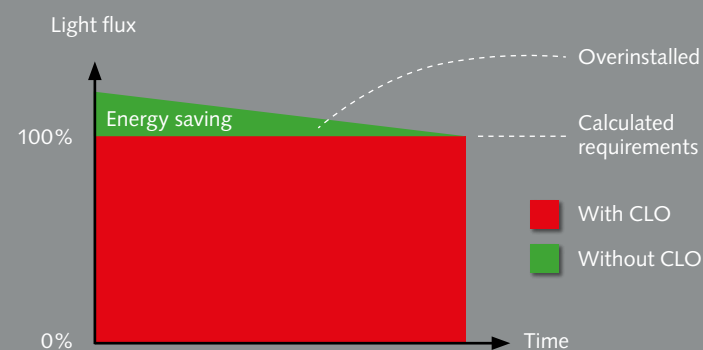


## LB Factor of a luminaire

The L-value describes the deterioration of diodes over time. A CLO luminaire with L100 guarantees that after 50,000 running hours, the diodes deliver the same level of light as when they were initially installed.

An L80 luminaire, on the other hand, has lost 20% of its original lighting level. Thanks to favourable guarantee conditions from Veko, we can offer luminaires with an L100B0 factor.

Should your luminaires break down, they will be replaced, subject to the general terms and conditions. This makes investing in your LED lighting a smart choice. The system is energy efficient and worry-free.



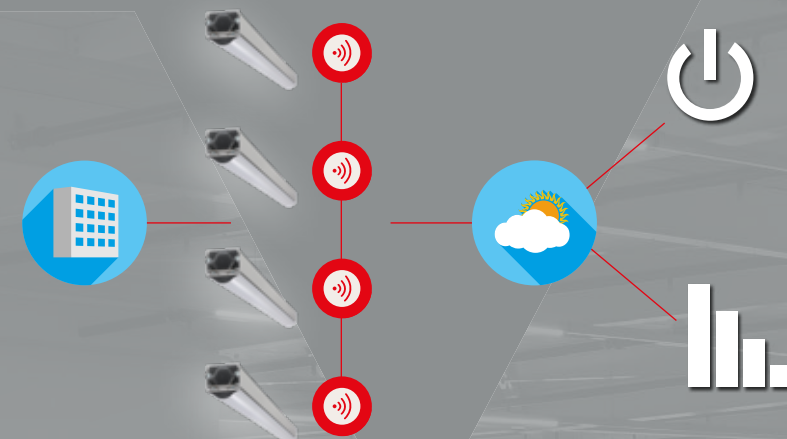
# Automatic daylight regulation

The best lighting for any space is 100% daylight. This is healthy for your employees and energy efficient. When using artificial lighting in your building, Veko can help you achieve the optimum balance between natural daylight and artificial lighting.

A twilight sensor can be used to control your lighting. Using this sensor, the lighting is switched fully on or off as soon as the sensor measures a minimum lux value.

You can go one step further with the use of natural daylight thanks to our sensors with daylight regulation. Simply set the constant lux value you require at workstations or on the floor, in advance. The sensors measure the highest lux value achieved by incoming daylight. The luminaires then deliver the additional lux value. Over-lighting is now a thing of the past; your luminaires enjoy a longer lifecycle and you achieve optimum savings on your energy costs.

## Infogram daylight control





# Reference projects

Over the past few years, Veko has completed numerous eye-catching projects based on our innovative luminaires, backed up by the latest technology. We are proud to share the results and findings of our customers.

## **Nissan and DHL – Dynamic Switching**

In the rack aisles at the distribution centres operated by DHL and Nissan, dynamic switching is used to achieve considerable savings on energy costs.

## **Bakkerij Holland - Encellium**

In response to growth, the premises of Bakkerij Holland has been substantially expanded. Encellium was chosen to carefully monitor all lighting and energy costs. The system is also ideal for controlling the lighting from the workplace.

## **Decathlon - YellowDot**

Decathlon Alkmaar and Tilburg are fitted with LED lighting combined with the additional YellowDot functionality. YellowDot offers visitors and store personnel numerous advantages including ultra-quick product location, route guidance and assistance during restocking.







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