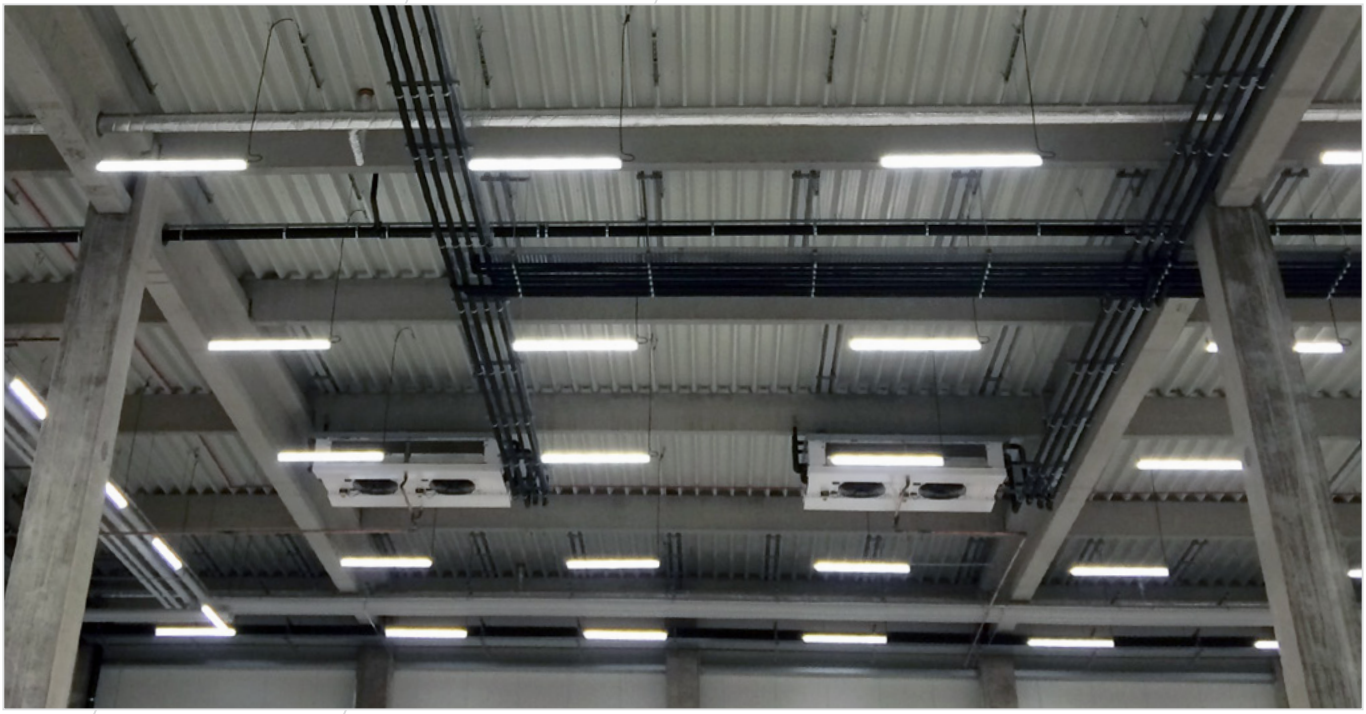
GREENTEK
LIGHTING

Light Guide for Industrial & Logistic Applications

NATURALLY REMARKABLE



Industrial & Logistic Applications

Industrial applications are very challenging to illuminate given the sheer variety of tasks and specific requirements. Manufacturing activities vary significantly – a beer factory is totally different from an auto-parts manufacturer and also from a high-tech medical appliance factory.

In recent years, as environmental concerns are mounting, industrial players are under pressure to offset their carbon footprint. Thus lighting should provide increasingly more energy in an efficient and sustainable manner.

Also, the illuminance levels directly impact the safety and the well-being of workers – who often work atypical shifts which disrupt their sleep cycles, increase error rates and damage their health on the long term.

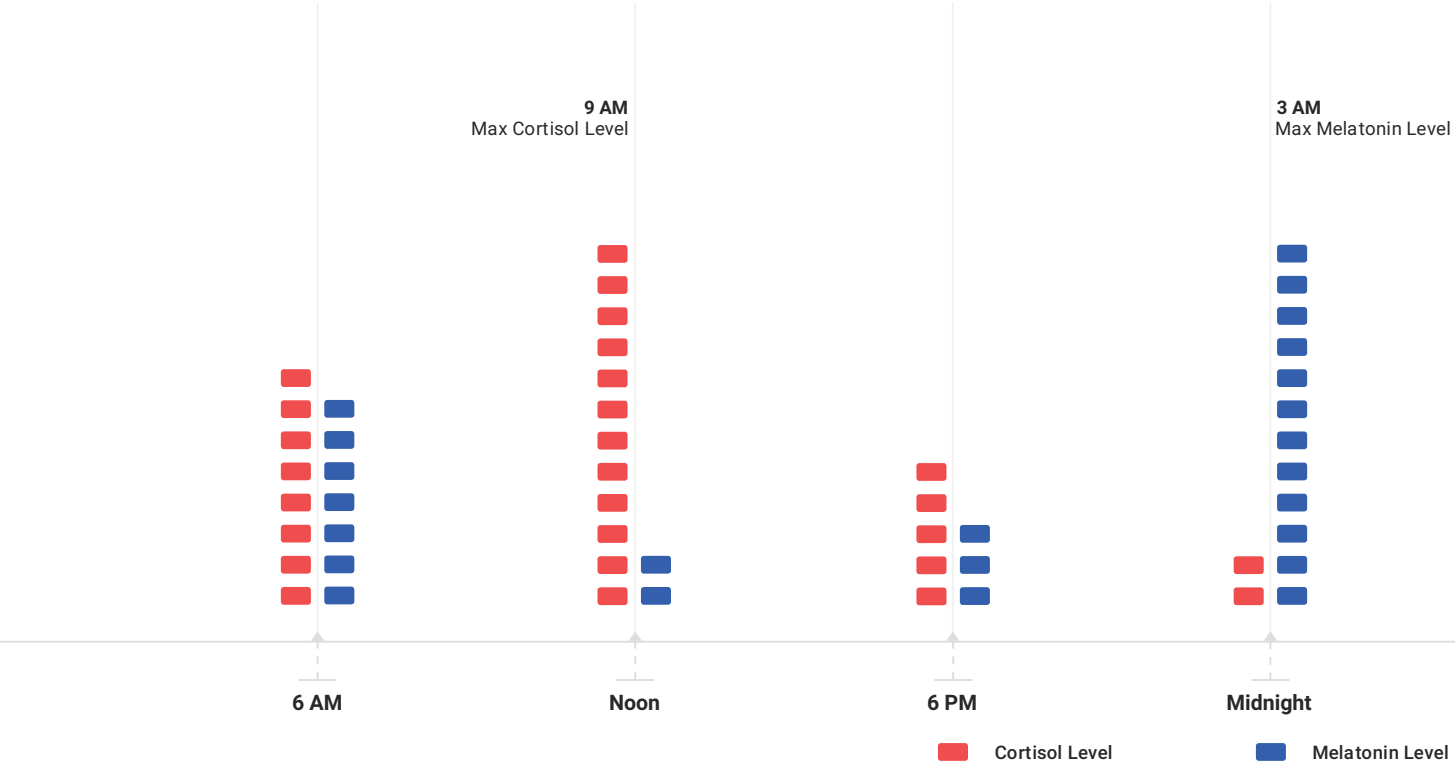
And lastly, in manufacturing and logistic tasks every minute counts: down-times due to broken or dirt-clad luminaires cannot be afforded since hourly quotas have to be met. Thus, the right type of luminaire should also have a long lifespan, with very few maintenance or cleaning operations performed.

After years of research, we are fully aware of the variety of options and applications in the industrial field, thus we are able to use custom, modular, highly efficient LED lighting solutions that fulfill all the roles a state-of-the-art industrial lighting system should encompass:

1. Light that improves workers' wellbeing and enhances performance

2. Light that works reliably and safely in extreme conditions for many years

3. Light that provides higher output but with less energy-consumption than traditional fixtures

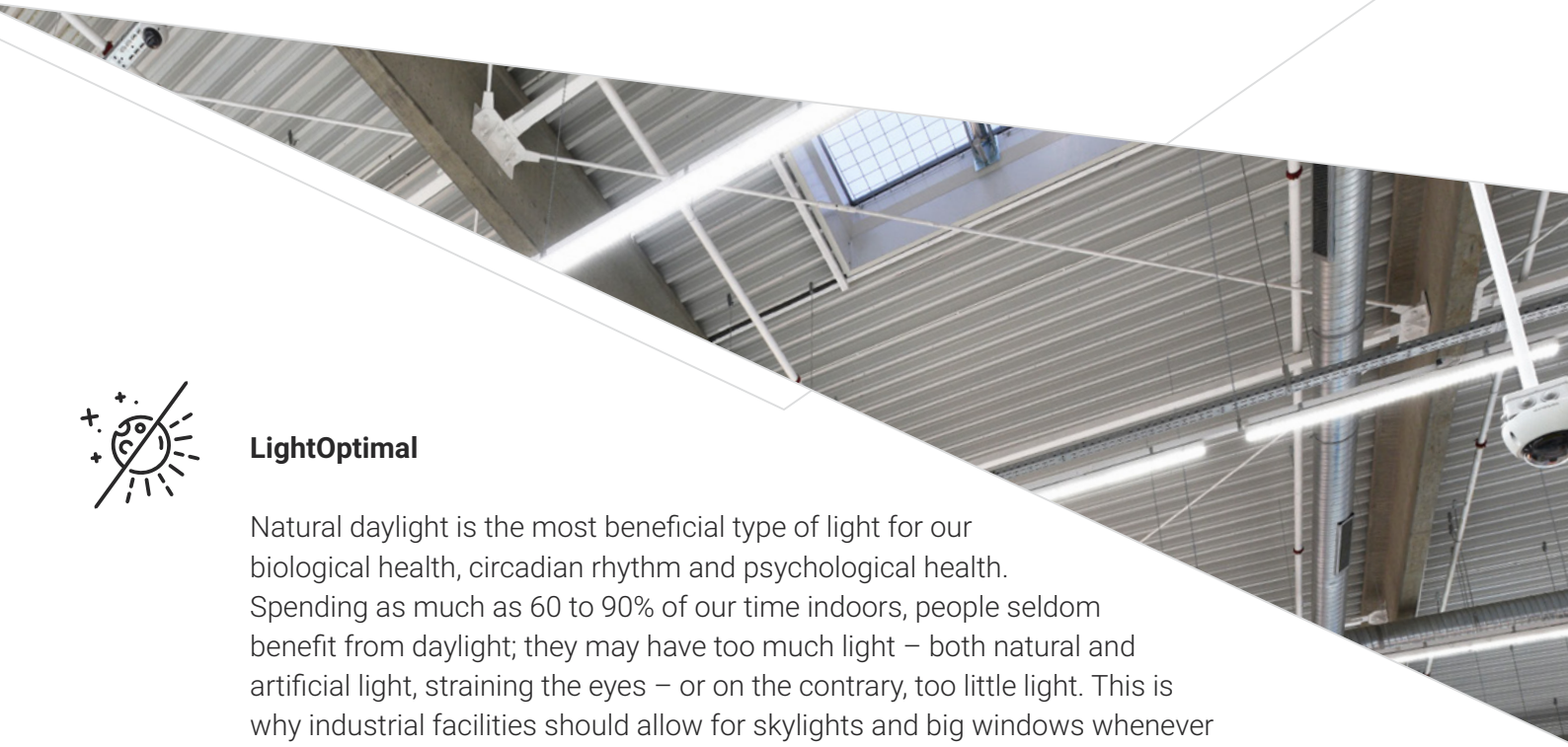


1. Enhanced productivity

Shift-work is typical for industrial settings, yet from a biological point of view they are very disturbing to workers' health, concentration or motivation. We are not built to sustain long waking hours during night time. Even early morning hours, before the sun is up, are damaging to our health.

These imbalances in workers' biorhythm lead to more errors and more sick days, which inevitably affect production schedules and output. Devising ways to improve workers' wellbeing during both daytime and night time shifts is mandatory for production efficiency.

A smart lighting system suitable for each task is proven to positively influence the health of employees, their motivation and their engagement at work.



LightOptimal

Natural daylight is the most beneficial type of light for our biological health, circadian rhythm and psychological health. Spending as much as 60 to 90% of our time indoors, people seldom benefit from daylight; they may have too much light – both natural and artificial light, straining the eyes – or on the contrary, too little light. This is why industrial facilities should allow for skylights and big windows whenever possible.

With the daylight harvesting system Greentek recommends - Light Optimal -, the output of luminaires is automatically adjusted to the quantity of sunlight coming in the workspace area. Sunlight is monitored by sensors, which help keep the total illuminance of the space at optimum levels throughout the day.

This translates into higher performance, productivity and wellbeing for your employees, but also in an additional energy savings up to 20%, counting towards reducing carbon.

Task-area adjustable lighting and different demographics

Each particular tasks a worker performs requires a different level of illuminance. Quality controls and machine inspections require high lighting levels. For tasks that require color discrimination, lights with good color rendering index are necessary.

Also, the lighting system should allow for flexibility over certain areas because companies may decide to alter the production flow and move task-stations.

All this flexibility is provided by smart lighting controls – either automatically according to sensors or manually, according to preset scenarios. Increasing automation means that certain tasks don't need constant human supervision, thus they require lower illuminance levels. They only need to be checked from time to time – where presence sensors detect human movement and dim up the lights.

For example, large warehouse spaces could employ the corridor function, keeping a very low illuminance level when no one is around, and gradually and partially lighting up when someone enters an area. Thus, maximum energy efficiency is achieved, while providing a feeling of safety and optimum visual performance for the workers.

Additionally – for various warehousing ceiling heights – luminaires with different lenses can be used, therefore making sure there is no wasted light, the beam falling exactly on desired place. In the case of Lanka luminaire - mounted on a trunking system, can be used in a continuous-row to match the workstations or the production line layout. **Lanka** also comes with 5 beam angles: TB (30 degrees), NB (60 degrees), WB (90 degrees), DA (Double-Asymmetric), SA (Simple-Asymmetric), meaning it can be adjustable to various ceiling heights mounting. Lanka can be equipped with various individual lenses or with classic polycarbonate covers.

Customized products:

Our research & development department creates and adapts customized products to meet special lighting requirements and needs.

LANKA ONE

Lanka One is a sleek luminaire mounted on Lanka trunking system. It is suitable for any retail space or industrial environment, with an ultra-flat housing of only 26 mm. It can be used in continuous line systems, mounted in any shape desired with a variety of connections: L,T or X. The luminaire has various lens angles - from narrow beams to large ones and even double-asymmetrical beams.

2. Superior performance and reliability

Industrial settings often have extreme ambient and operating conditions. Extreme temperatures, dust, humidity and chemical particles – all require a resistant luminaire housing. High IP rating housing ensures that no particles enter the luminaire, affecting its operation.

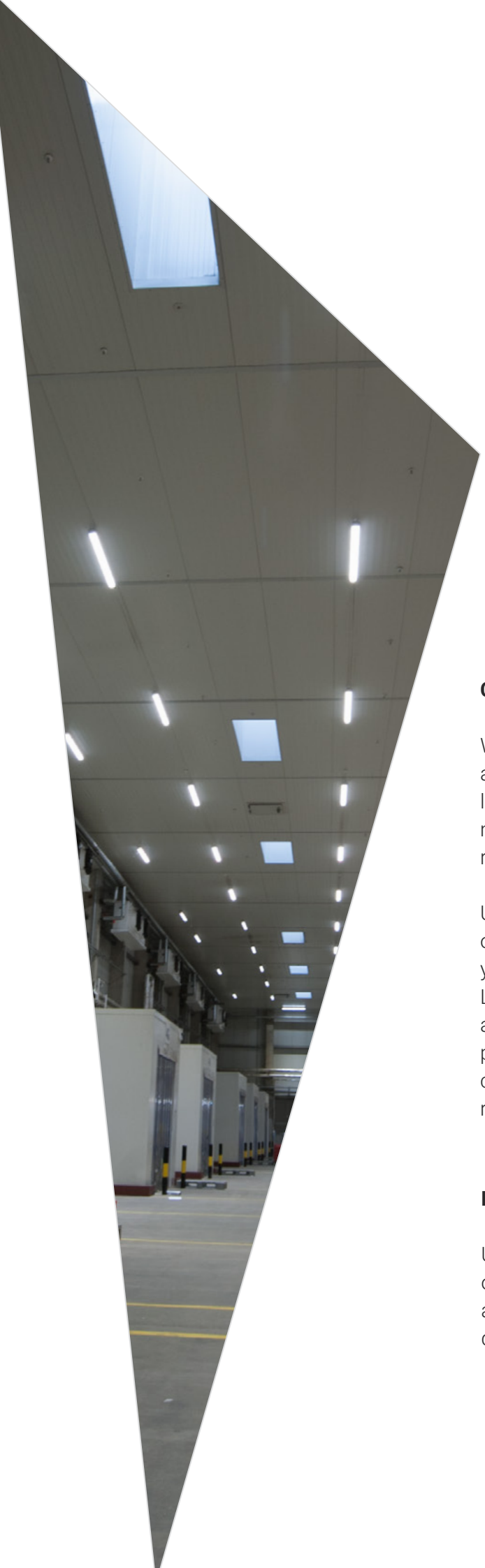
Numerous bodies have issued standards regarding processes and risks. Luminaires with IP65 offer adequate protection, safety, maintenance-ease and efficiency. They can help you achieve these goals.

LIWA
High-impact resistance luminaire suitable for very wet or cold environments such as freeze warehouses , with IP 68. Its various beam angles (30/60/90 degrees) make it suitable for very tall warehouses where the beam can be adjusted to shine the light precisely on the shelves.

GALAXY BLADE
Galaxy Blade is a luminaire suitable for general lighting. It has modular, versatile and endless design options.

Maintenance-free

Traditional solutions such as metal halide lamps or high-pressure sodium lamps lose 50% of their output after only 10,000 to 20,000 h of usage. If you consider a daily usage of 12h, you should replace the HIE 400W lamps every 2 years. LED-based solutions such as our GALAXY line is optimized for over 50,000h of continuous operation, and the end-of-life luminous flux is over 90%. The failure rate is <1%, thus your savings are significant in both direct maintenance and replacement costs. Not to mention possible downtimes in production due to lamp replacement works.



3. Higher efficiency

Lighting system efficiency has several parameters to consider: from reducing CO2 emissions, to lowering energy costs all the way to time-based light management.

CO2 emissions

Worldwide treaties and country-specific legislation now exist all over Europe and they stipulate admissible CO2 emissions levels. Carbon allowances are now traded on the European market based on an EU procedure where each country receives a set number of CO2 certificates.

Upgrading your traditional lighting system with a LED-based one can quickly save large amounts of CO2 and energy, thus your investment can be recouped more quickly.
LED-based luminaires have virtually zero ballast (whereas a traditional luminaire ballast can go up to 20%) and performant optics systems that avoid wasted light. LEDs also can be transformed into an intelligent lighting system that reduces energy consumption overall.

Lower energy costs

Using LED luminaires versus traditional metal halide lamps or high-pressure sodium lamps, results in an energy saving anywhere between 50% to 80% with motion-based and daylight LightOptimal technology.

Motion sensors

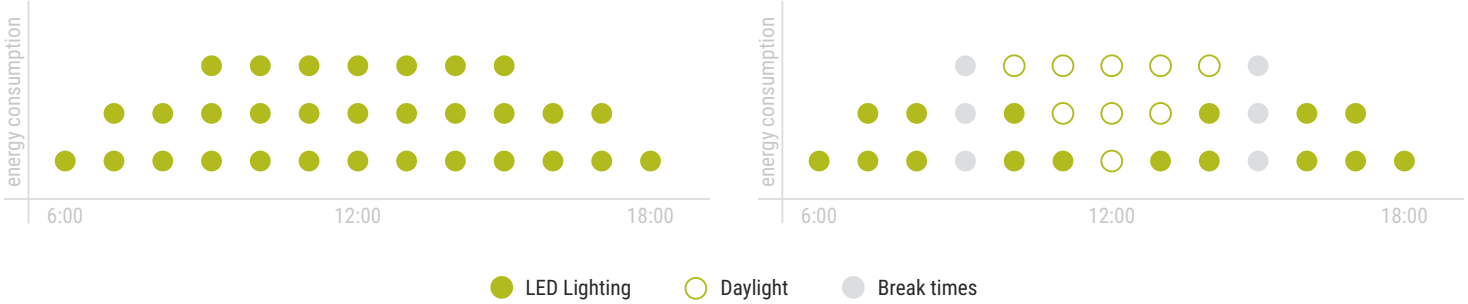
Highly innovative sensors respond to movements and light levels, automatically switching the light ON and OFF again after a preselected time. Motion sensors are ideal for large heights in depots, high-bay warehouses, machine shops, check-in areas and departure lounges, passageways, corridors and commonly used spaces, and rooms with false ceilings.

For Transgourmet Foodservice Logistics in Berlin we used motion sensors with a large detection zone: 30 x 4 m (360° radial, passive infrared). The motion sensors system ensured that the illuminance is elevated only when workers are detected in the area. After workers leave the area, the lights dim down.

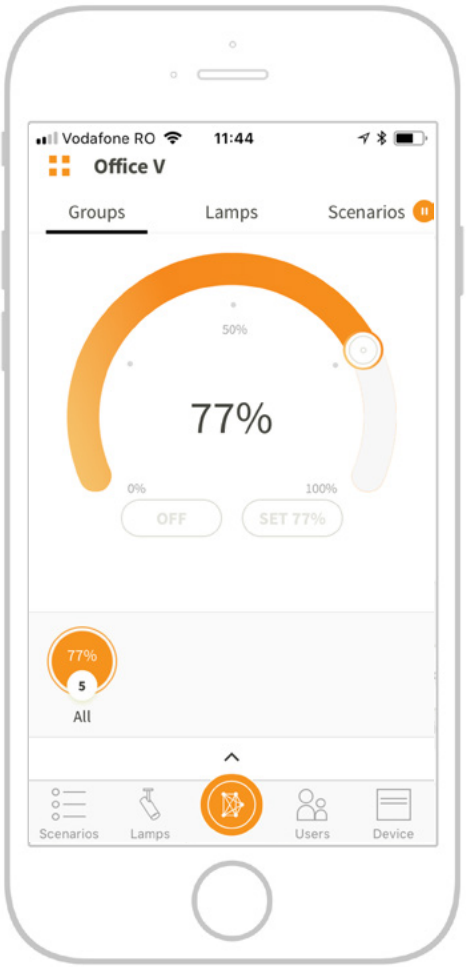
Time-based light management

Energy requirements in industrial settings are very intensive due to long operating hours. These can be offset by shifting to a time-based light management system that takes into account break times, daylight presence, motion sensors and shift times.

Industrial tasks are highly precise in both time and location; thus, they could benefit the most from a system which allows for simple, programmable lighting. All the changes in lighting are centrally managed, from a computer – no manual action is necessary.



DARA
LIGHTING



Dara Lighting is the easiest way to control your lights and reduce energy bills. The solution is highly flexible, suitable for any type of business – from office spaces, manufacturig, industrial and logistic applications all the way to the largest of retailers.

With just a few taps you can control luminaires one by one or as a group. For example you can set up a group for the office space and another one for a meeting room or a kitchinette and dim lights up or down in each of these spaces.

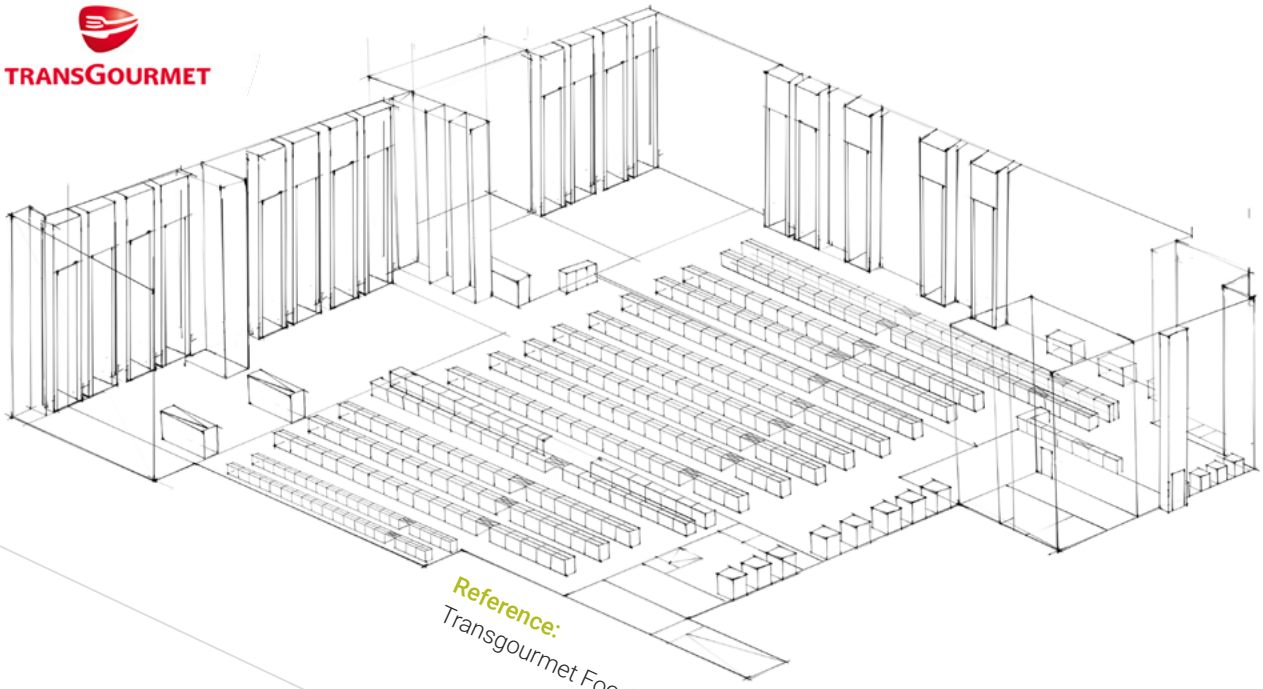
You can also create scenarios depending on the day of the week, time of the day or other relevant events. Set the lights at a higher dim level for the office space and a lower dim level for the corridors and save all these settings in a scenario. Or set all lights to dim down once office hours or retail open hours are over.

Share your network with other users and let them adjust the lighting. **Dara Lighting** has several levels of users (network owner, administrator or simple user), each with their own corresponding lights.

Dara Lighting has mesh capabilities, thus the functionality is dependable, redundant and resilient over hundredes of square meteres. Due to its dual control – both BLE (Bluetooth Low Energy) for DALI communication and Wi-Fi, – a user can individually control an unlimited number of luminaires.

With this solution any business has the power to tailor its lighting preferences and, at the same time, greatly reduce its energy expenses by making sure light is present only when needed.

TRANSGOURMET



Reference:
Transgourmet Foodservice Logistics

STUDY CASE

The perfect lighting for every area of a food logistic center

For Transgourmet Foodservice Logistics located near Berlin, Greentek designed and implemented a tailored lighting concept that ensures better cargo handling and proper lighting comfort for the working rooms and offices.

A. The cargo preparation area

Casey, a strong suspended and surface-mounted luminaire, was specified in the cargo preparation areas. This tubular-shaped luminaire with an IP65 factor is waterproof and dustproof. The Casey used in Transgourmet warehouse has an extra-wide 130-degree angle.

B. The office area

For the office area, we used **Kaypro** recessed luminaires. The simple and compact design of this modular luminaire provides proper visual comfort for office activities. The wide 100-degree beam equally spreads light onto the ceiling and the office room. The average illuminance is 550 lx at 0.8 m above ground - a high level of vertical illuminance in order to help workers focus on the task at hand.

C. The dry-food area

The general lighting in the dry-food area of the foodservice logistics is provided by linear trunking system luminaires – **Lanka IL**, all with a narrow 30-degree beam. The narrow beam ensures that a minimum illumination level is focused on the top levels of the shelves, for the safety and security of the workers. On the other hand, continuous-row trunking systems provide maximum flexibility for large open spaces that need proper illumination.

D. The refrigerated area and the fresh-food area

The refrigerated-food area and the fresh-food area required an illumination system especially designed for extremely wet and cold environments (up to -28°C). Surface-mounted **Liwa** damp-proof luminaires with IP68 factor were used. With a 30-degree adjustable angle, Liwa luminaires are suitable for the tall ceiling and perfect for adjusting the beam to target the light on the products and shelves area. The white color of the housing easily integrates them into the industrial and sterile environment of the refrigerating rooms.

E. Auxiliary Areas: Facades and Car Parking

For the outdoor areas, we used **Myriaky** luminaires, designed for parking spaces and industrial applications. Myriaky is a high-efficiency luminaire with 125 lm/w at 4000K, great performance and durability. Above the entrance doors - Greentek light designers specified surface-mounted **Casey** luminaires.

Why Greentek?

TRUST: We have 8+ years' experience developing innovative led lighting solutions.

SPECIAL COLORS: Greentek is a pioneer in developing special tonal effects for retail and DIY industries, proven to enhance purchase intent.

FLEXIBILITY AND CUSTOMISATION: For us, business is personal. Greentek can develop or adjust luminaires according to your needs in order to create savings and value.

INCREDIBLE CUSTOMER CARE: We are in the business of customer care and we happen to create led luminaires. We take a 360° client view from technical consultancy, Intelligent Light Solutions, Project Management and site survey, to on-site implementation, product development and lab testing.

LIGHT CONCEPT & DESIGN: Our lighting experts analyze your lighting infrastructure and provide you the best plan to implement it, based on the latest industry requirements and trends.

MADE IN EU: In order to keep high quality, Greentek luminaries are designed and manufactured in the European Union using European components.

DIVERSITY: We cover all ranges of ceiling mounted and light distribution systems, special colors and other niche products.

GREENTEK
LIGHTING

182 A, GH. Titeica Street
020303, 2nd District
Bucharest, Romania

www.greentek.eu
office@greentek.eu
sales@greentek.eu