ZUMTOBEL

LUXMATE LITENET

LIGHTING MANAGEMENT SYSTEM

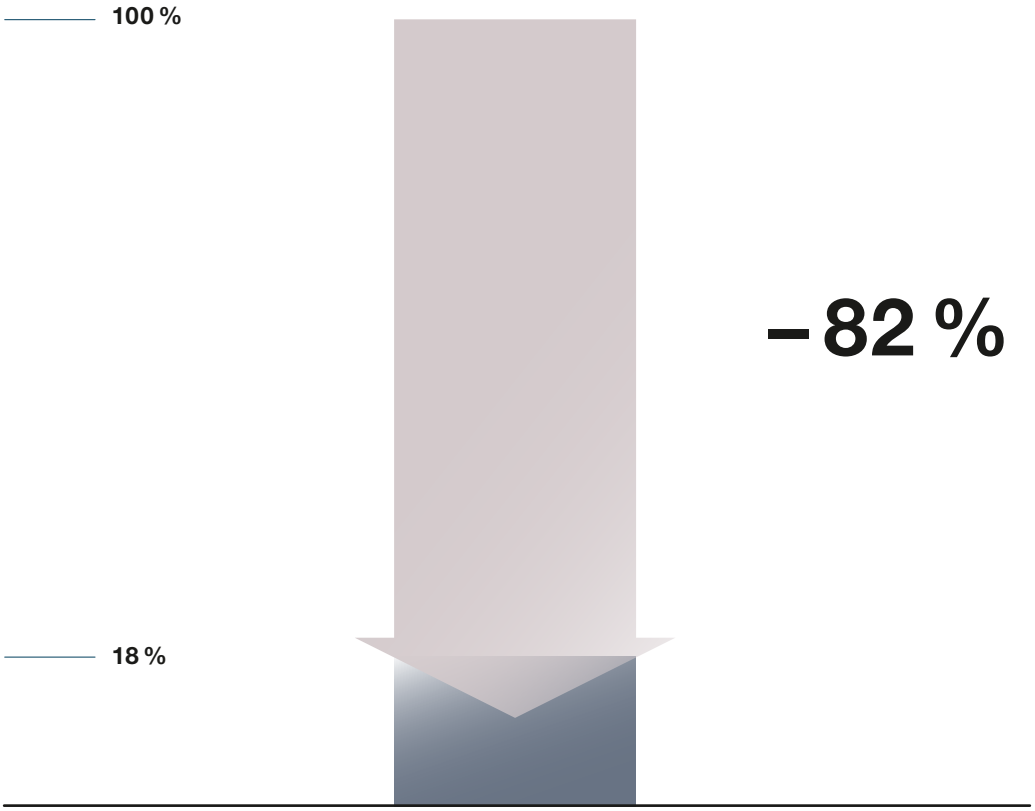
LUXMATE LITENET
Energy Efficiency and Building Certification

Label & Carrier	Country of Origin
LEED Leadership in Energy and Environmental Design	USA
BREEAM Building Research Establishment's Environmental Assessment Method	United Kingdom
DGNB Certification by the German Sustainable Building Council	Germany
Minergie Building standard for new and modernised buildings	Switzerland
WELL Building Standard	USA

Description	Lighting Criteria
LEED is an internationally used label. It is awarded in the categories of Platinum, Gold, Silver, and “Certified”.	Protection against light intrusion, energy efficiency, daylight illumination, visual connection to the outside, user-friendly lighting control.
BREEAM primarily assesses the ecological and social sustainability of buildings. The following ratings are awarded: Outstanding, Excellent, Very Good, Good, Pass.	Energy efficiency, daylight illumination, user-friendly efficient lighting control, glare protection, good colour rendering.
The DGNB certificate takes into account ecological, economic, and social sustainability factors. Around 40 criteria are assessed. The rating levels are Platinum, Gold, Silver, and Bronze.	Energy efficiency, cost efficiency, daylight illumination, visual connection to the outside, glare protection, good colour rendering, sunlight exposure.
Minergie primarily assesses buildings in terms of their energy consumption. Minergie-Eco sets additional requirements for healthy and ecological construction.	Bright room design, efficient light sources, luminaires with electronic ballast, optimised luminaire reflectors, daylight control or occupancy sensors.
The world’s first building certification standard that focuses on the health and well-being of people.	Circadian lighting design, glare limitation from electric light sources, glare limitation from daylight, glare-free workplaces, colour quality, automated control for shading and dimming of light sources, adequate amounts of sunlight.

The energy demand of buildings is documented in the EU through the energy performance certificate. A lower energy demand results in a better rating for the building and also reduces CO_2 emissions. The new EPBD 2024/1275 also stipulates that automatic lighting control must be installed by 2028.

Lower energy consumption
in 5 simple steps

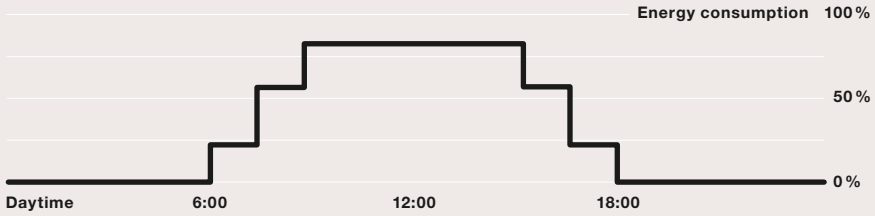


LITENET saves energy and money, e.g. by switching off luminaires at specific times or when rooms are empty. Or by synchronising blinds with luminaires for optimal use of daylight. In this way, our intelligent lighting management system can reduce your energy consumption by up to 82 %.

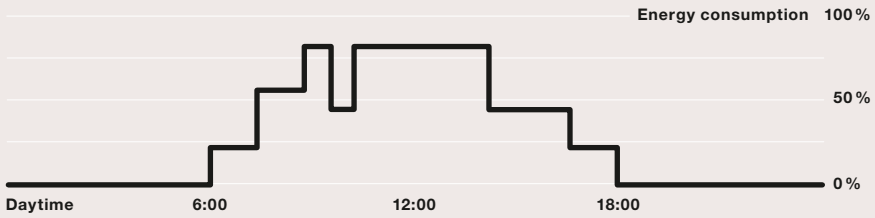
The scientific evidence that lighting management increases building efficiency is based on an actual office project:
zumtobel.com/PDB/Ressource/teaser/com-en/com/Study_Lightingmanagement_Barcelona.pdf

Efficient luminaires

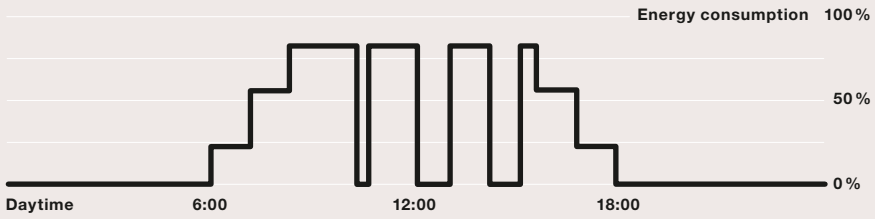
Time-based control
LITENET Calendar



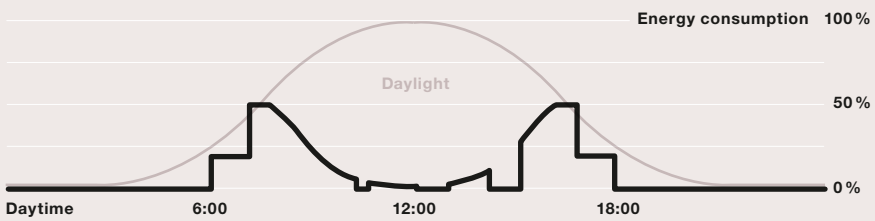
Light scenes
LITENET Mood editor



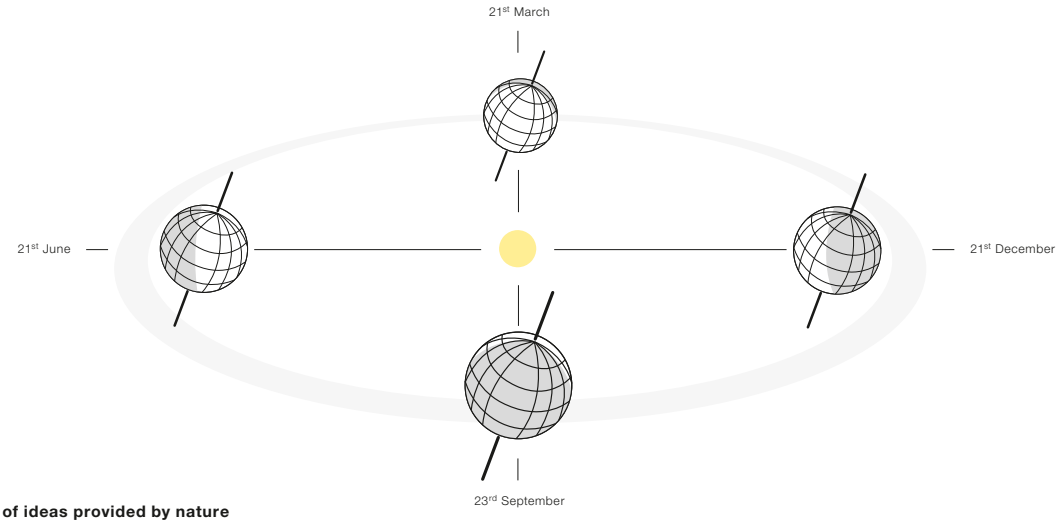
Presence sensor technology



Daylight-linked control
with LITENET



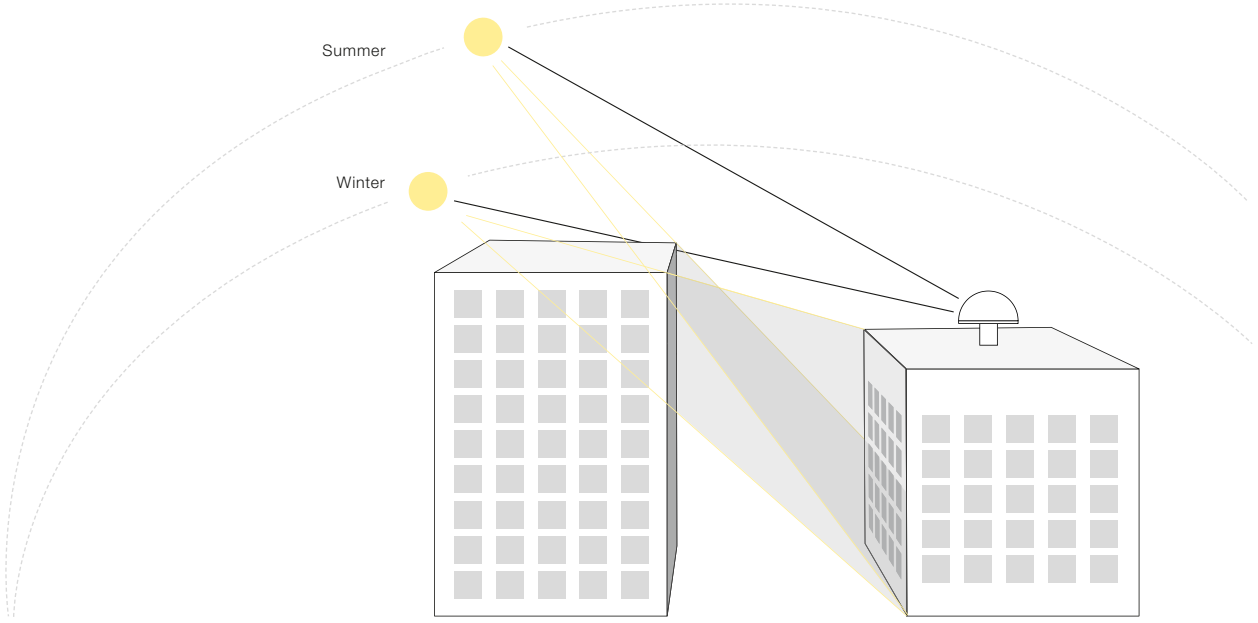
Using daylight
Integrate the strongest light source optimally



The wealth of ideas provided by nature
The sun has a particular relationship to every location on Earth. LITENET takes sunlight's various angles of incidence and intensities into account as well as changes in sunlight over the course of a day or a year.

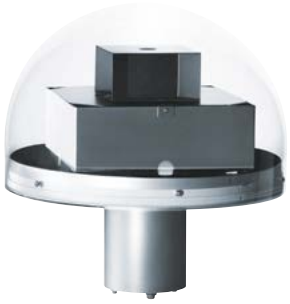
Keeping up with nature's complex transitions and changes poses a variety of complex challenges for a daylight-based system – from monitoring relevant lighting conditions through to mimicking natural changes in daylight and allowing user intervention at any time. A LITENET system embodies more than 20 years of lighting management experience. This cumulative knowledge and expertise is reflected in the control units, control modules and software.

Just a few LITENET highlights: the system responds cautiously in a non-disruptive manner. The automated system dims and switches artificial lighting in a manner that minimises and prevents any jarring effects. Users can employ a variety of control units to override the automatic control system and control luminaires and blinds manually. The specific geographical location of the installation, together with its range of sun positions, are stored in every installation in order to ensure optimal light sensor accuracy. The natural lighting conditions for every room can be determined precisely from all this information; the next step is to individually calculate the settings for each luminaire and set of blinds and control them very accurately at all times.



Artificial intelligence
Perfectly coordinated automation and management software make it possible to define and deliver optimal settings for lighting and blinds in every room, even if rooms are partially shaded by adjacent buildings.

Intelligent daylight-based control performs five tasks: it optimises glare protection and produces as much daylight as possible in the interior by controlling the way that the light and blinds interact. The slats of blinds can even be controlled precisely depending on the position of the sun where suitable blinds are fitted. Excessive direct sunlight on large-scale glazed panels can trigger a greenhouse effect. As a result, it costs more to keep the building cool. Consistently controlled blinds can help overcome this problem. Whether or not people feel at ease in a room depends not least on whether contact with the outdoor environment is preserved. Workplace legislation and standards therefore demand an unobstructed view of external surroundings as well as control of glare caused by daylight. LITENET solves these apparently conflicting requirements. Blinds are only lowered sufficiently to achieve the desired sunscreening. At the same time, the rotatable slats of the blinds are positioned to ensure the best possible visual link to the outside. One special feature is the fact that shadows cast by adjacent buildings, for instance, are detected and the blinds open, thus giving an unimpeded view out of the building. LITENET cleverly controls all the blinds so as not to spoil the attractive impression that a uniform façade look makes.

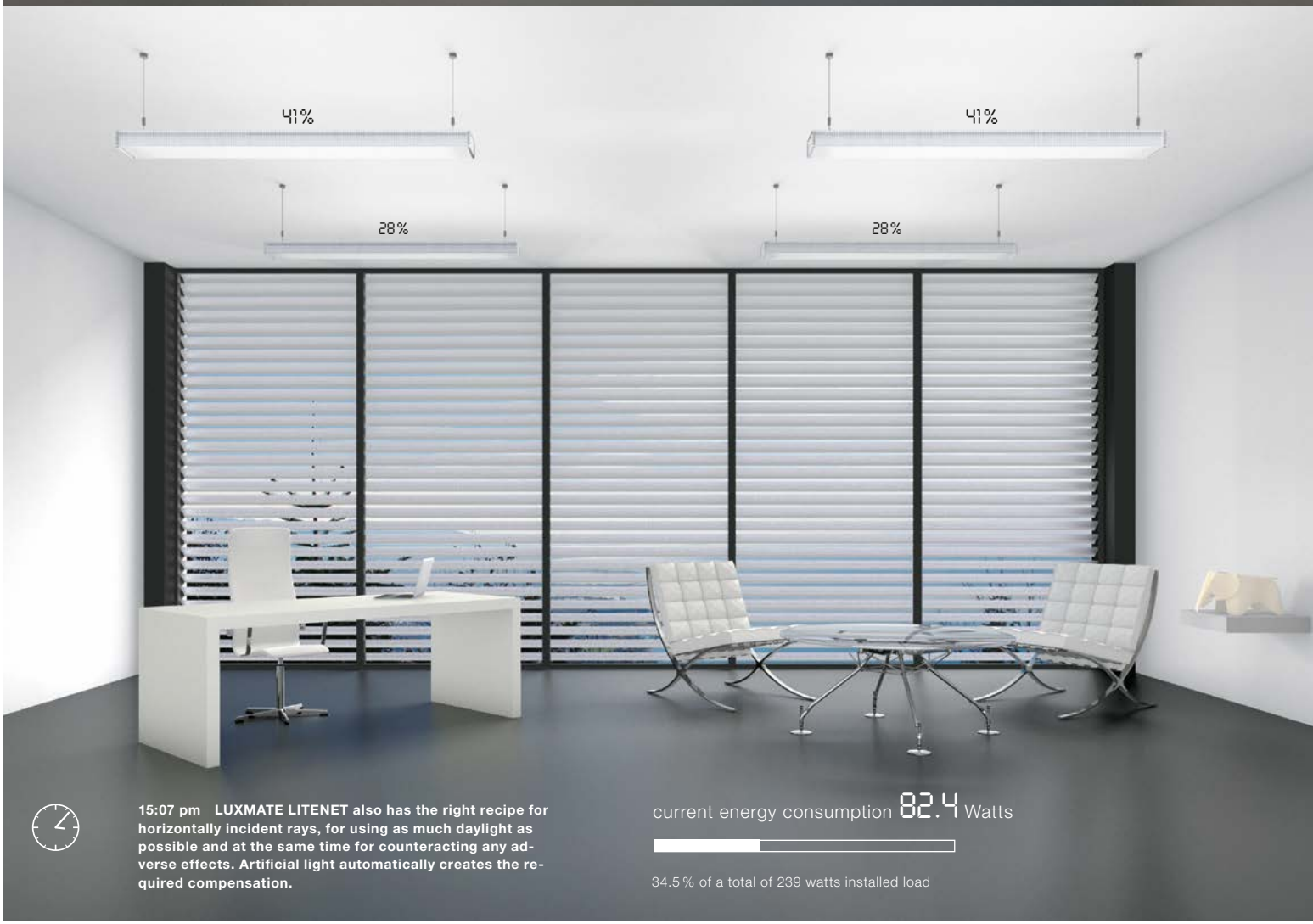


Daylight sensor with bus connection for capturing sky conditions with 8 calibrated photo cells

07:02 am The natural morning sunlight wakes up sleepy heads. Lack of brightness is compensated for, by the luminaires, with efficiently appropriate levels according to activity and distance from the window.

current energy consumption 119.5 Watts

50 % of a total of 239 watts installed load



15:07 pm LUXMATE LITENET also has the right recipe for horizontally incident rays, for using as much daylight as possible and at the same time for counteracting any adverse effects. Artificial light automatically creates the required compensation.

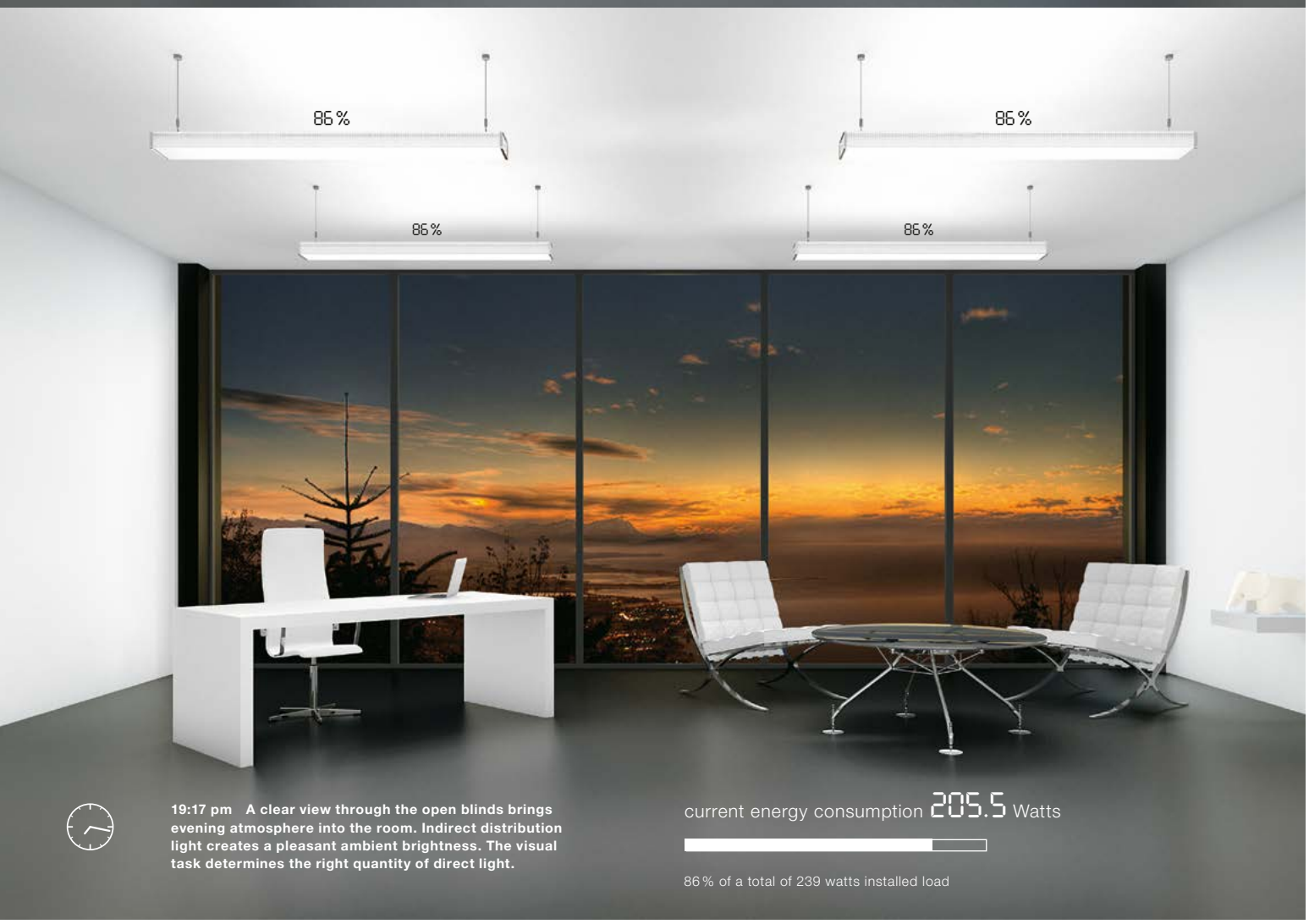
current energy consumption 82.4 Watts

34.5 % of a total of 239 watts installed load

11:45 am At lunchtime the sun is at its zenith, which may lead to undesired glare and warming. Correctly positioned blind slats allow sufficient light to enter the room, and luminaires directly at the window front are heavily dimmed.

current energy consumption 22.7 Watts

9.5 % of a total of 239 watts installed load



19:17 pm A clear view through the open blinds brings evening atmosphere into the room. Indirect distribution light creates a pleasant ambient brightness. The visual task determines the right quantity of direct light.

current energy consumption 205.5 Watts

86 % of a total of 239 watts installed load

Gone are the times when a luminaire's function was already fixed at the time of purchase and could only be changed at great expense and effort. Zumtobel decouples functionality from hardware and transforms the luminaire into a multifunctional tool that adapts to changing requirements. Switching or dimming? Standard or emergency luminaire? Decisions like these can be postponed to a later time. With LITENET, additional functions will also be available at a later date.

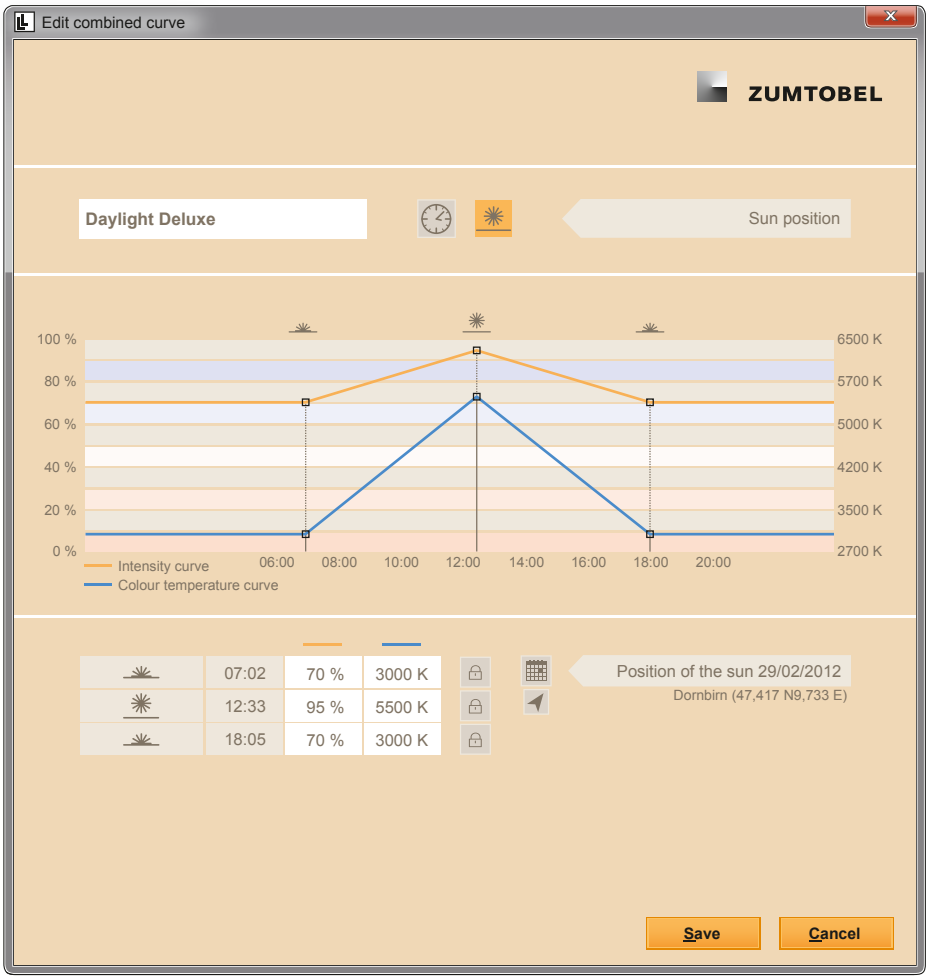
Function overview
LUXMATE LITENET

	Basic functions	Additional functions
Surface flexibility	•	
Usage flexibility	•	
Central monitoring	•	
Function adaptation via room profiles	•	
Time-based management	•	
TUNABLE WHITE Control	•	
Presence-based management	•	
Maintenance control	•	
Convenient operation	•	
E-mail and fax notification service	•	
ONLITE emergency lighting integration		•
Web-based operation		•
Central graphic visualisation and operation		•
Daylight-based lighting management		•
Daylight-based blinds management		•
System integration via BACnet or OPC *		•
Dynamic Lighting		•
Remote maintenance		•
Maintenance contract		•

Investing when you need it LUXMATE LITENET postpones investment until the time when it is actually required. This means that you decide on new functions and their cost only when there is a real need for them, for example when the use of a room changes or when a new tenant moves in and is willing to pay for an upgraded lighting solution. “On-demand features” reduce building owners investment risks and capital commitment and ensure that tenants wishes are met with greater flexibility. The basic functions of LUXMATE LITENET can be extended at a later time without installation or conversion work. The customer can purchase the additional functions in the form of “flex credits” and enable desired functions in the system via software.

LUXMATE LITENET with TUNABLE WHITE

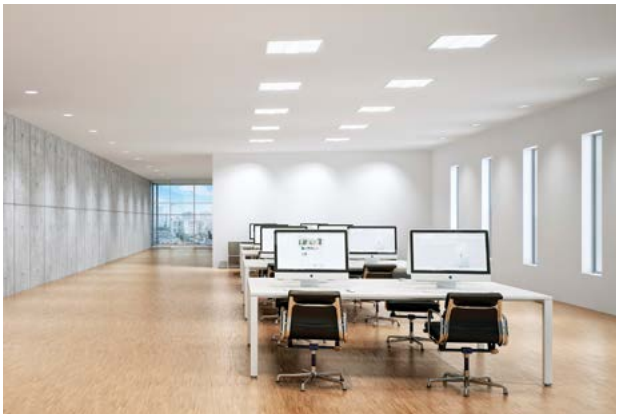
Latest-generation lighting management



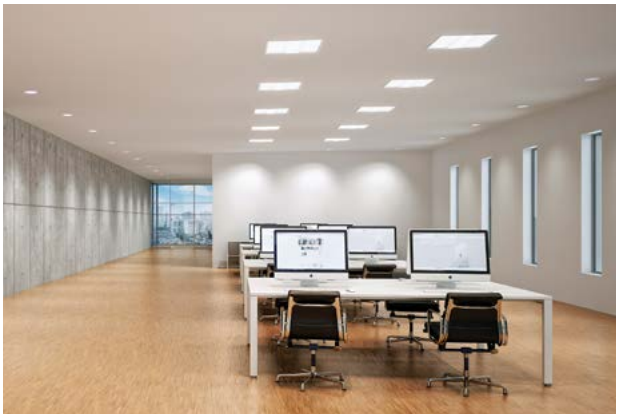
The lighting intensity and colour temperature of luminaires can be intuitively adjusted on graphically displayed timelines completely independently of each other.

LUXMATE LITENET manages small building units just as reliably as large building complexes. The latest generation has integrated the control of TunableWhite luminaires into the system. This makes it possible to define the intensity and color temperature of the lights completely freely and independently of each other. Zumtobel offers much more than just the technology.

The system also features a beneficial lighting concept based on the very latest scientific findings: predefined sequences over the course of the day for offices, production facilities or health-care settings optimise lighting for these different application areas. Starting, stopping and turning points for these sequences can be set depending on the position of the sun. This combination of dynamic colour temperature control and daylight-based intensity control produces a lighting solution that offers simply outstanding levels of convenience and efficiency.



10:30 Artificial lighting is turned down as more daylight becomes available and the light colour is made more intermediate



14:30 Intermediate white corridor and wall-mounted luminaires supplement the general lighting and compensate for low levels of daylight

Digital lighting management
Redefining rooms by a mouse click

Anyone investing in modern office premises or office buildings has to factor in possible changes over the entire useful life of the property. LUXMATE LITENET has mastered the fine art of long-term flexibility. Rooms can be made bigger, smaller or eliminated without any physical work on the lighting installation thanks to intelligent software. If for example a mobile partition is moved, the lighting system is simply reconfigured by a mouse click. A room previously used as a single-person office can then become part of an open-plan office. The luminaire groups can be flexibly divided or consolidated, without wiring effort, without the need for configuring hardware and without specially trained service technicians. The luminaire in former Room A becomes the luminaire for Room B by a mouse click. And the corresponding control units and switches are simply reconfigured via software as well.

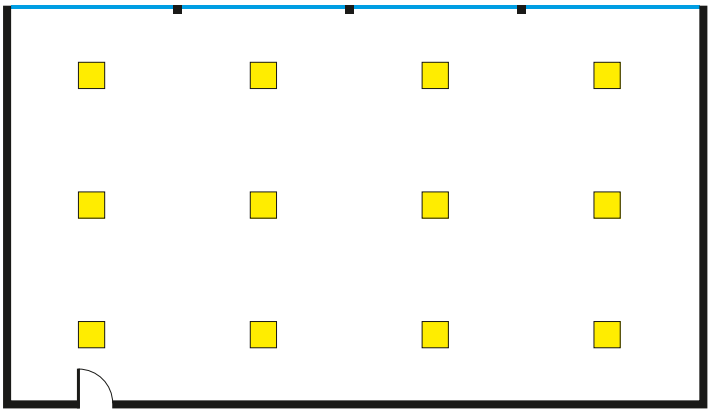
Your office **TODAY**

The linearity of the team office is loosened up with a meeting table. Luminaires and blinds can be controlled separately or together via the CIRIA control point on the left, or the cable and battery-free wireless touch switch on the glass partition on the right. All employees can also select the desired lighting scene via notebook, web browser and TCP/IP network.

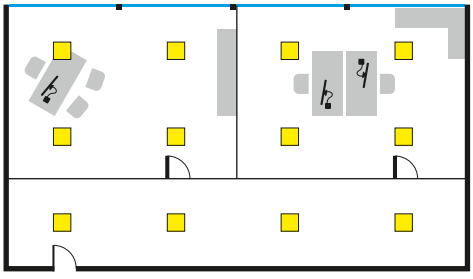
Your office **TOMORROW**

The room is partitioned by a glass panel. Both sections are now used separately without intervening in the existing wiring. The assignment of the luminaires and blinds is defined via the LITENET software with drag and drop: luminaires and blinds in the single-person office are operated via the CIRIA control point, and in the meeting room the wireless touch switch is used.

Area flexibility
The simple adoption of usage concepts

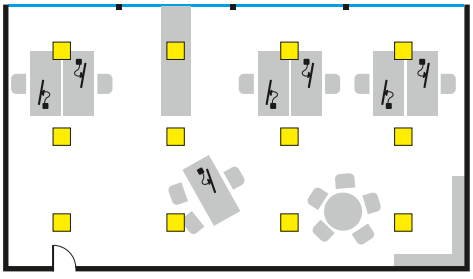


Basic room layout



Room use 1 **| Single-person offices with corridor**

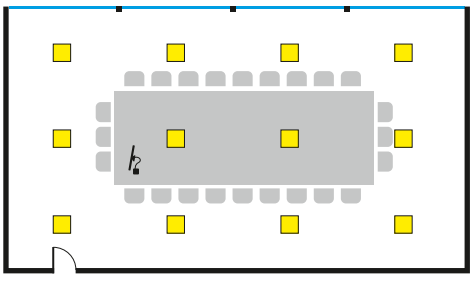
Two offices and a corridor: the room-specific functions of the lighting can be simply defined via the room profile. Presence detectors in the offices switch luminaires on and off.
In the corridor the luminaires can be switched off automatically following a freely defined time period. A room profile solution is also offered with presence detectors and minimal lighting.



Room use 2 **| Team office**

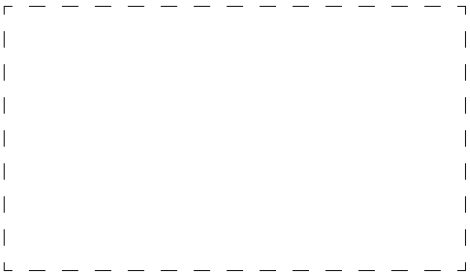
An open-plan office: the room profile coordinates ambient lighting using presence detectors installed above the workstations and meeting places. This guarantees that energy is also saved during normal work periods, as soon as the light can be dimmed or when employees leave their desks.

Drag & Drop Rigid room and workplace structures are being superseded by flexible, demand-oriented usage concepts. Various room uses make differing demands upon the lighting. LUXMATE LITENET is familiar with all of the features of offices, communication areas, conference rooms and corridors, and all typical uses are stored in the system as room profiles. These can be transferred to the room, independent of the number of luminaires. Drag & drop – and the various functions of luminaires and control units are already defined according to use. This shortens the time needed for basic installation and for each adaptation. Individual adaptations to customer requirements are carried out quickly and professionally.



Room use 3 **| Conference room**

A conference room: the operating units control all luminaires in the room. The presence detectors are used to automatically switch off the luminaires without recognisable use following a freely defined time period. At last: an end to brightly lit conference rooms devoid of people.

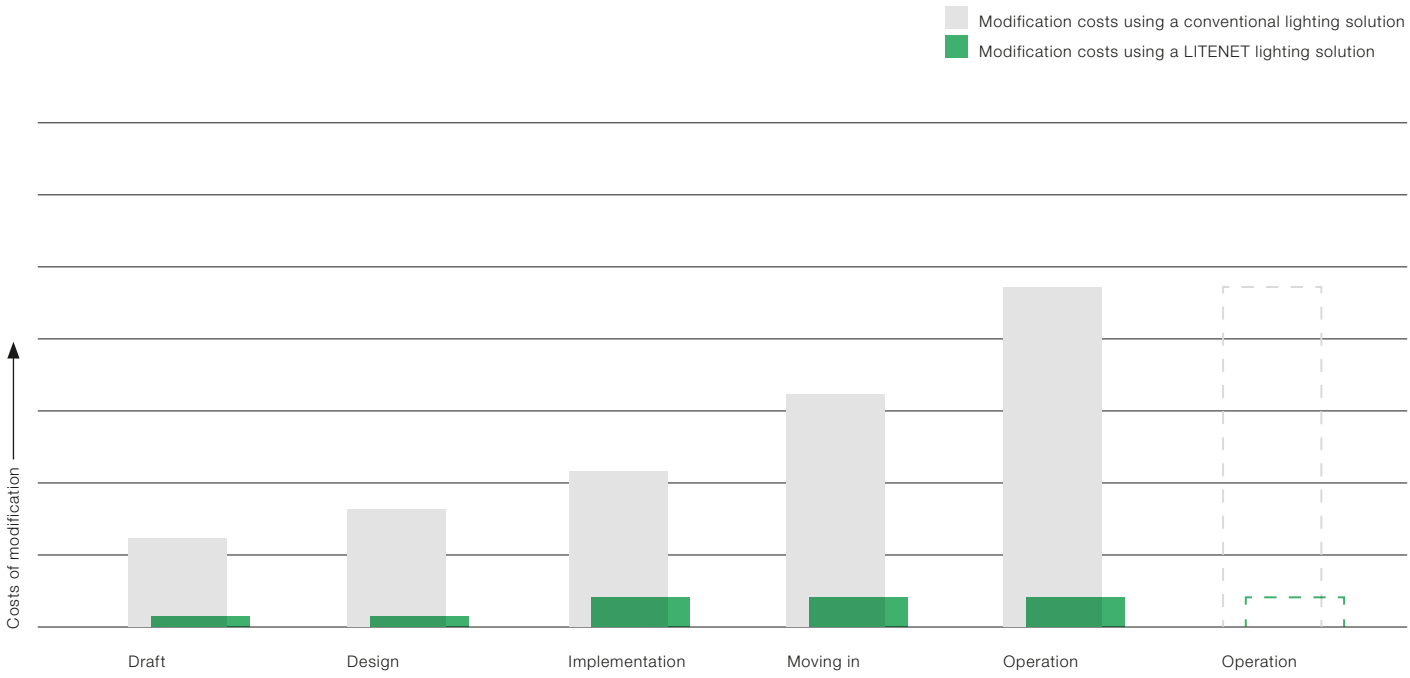


Room use **X**

LUXMATE LITENET makes available a highly diverse library of room profiles for various interiors. All room profiles can be simply transferred and individually adapted when required.

Investing intelligently
At the right place, at the right time

Costs for modification of the lighting solution over the complete life cycle of a building



An analysis of the building costs over the complete life cycle shows that expenditure for renovations and adaptations add up significantly over time. LUXMATE LITENET, however, keeps modification costs low for all project phases.

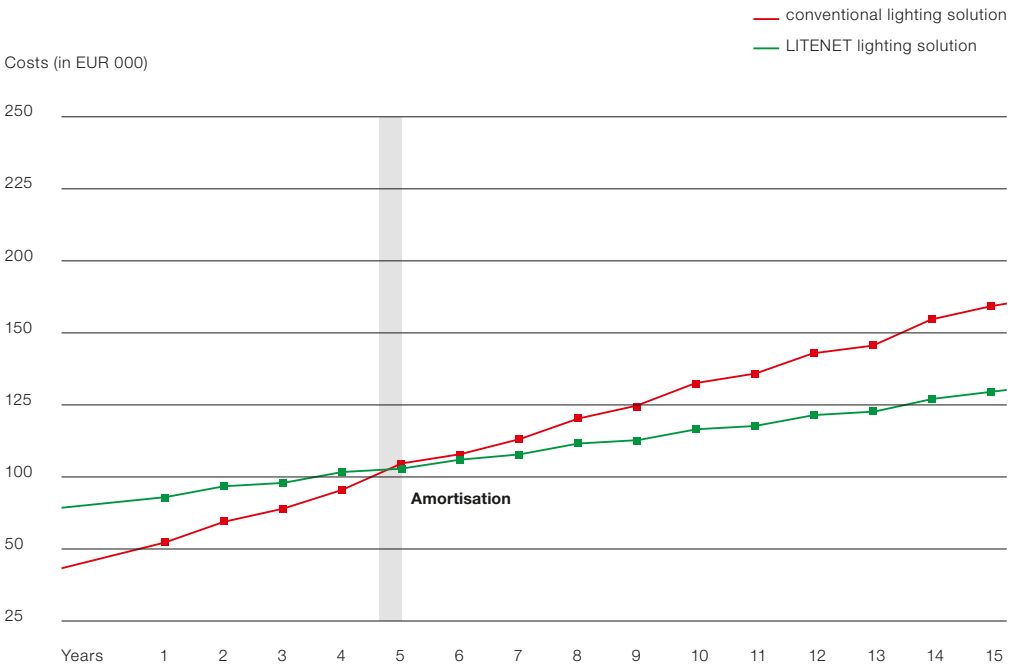
Draft and design With a conventional installation, a new module is required for every functional adaptation. Subsequent modifications mean unpredictably high costs. With LITENET this is completely different: because infrastructure remains the same, costs are minimised.

Implementation If additional functions were desired, this used to require an investment in new hardware. Material already supplied had to be replaced. With LITENET, reorganisation is implemented via software – simply and without wiring.

Moving in With conventional installations, adaptations desired by tenants during the moving in phase incur high material and personnel costs. With LITENET, modification requirements are carried out via a computer, without touching the wiring.

In operation During operation, simple reorganisation via software pays off twice: LITENET not only minimises costs for material and work time but also costs caused by disruptions to operation or idle operation that normally always occur with adaptations or reorganisation.

Amortisation of the lighting solution
(calculated using ecoCALC)



An innovative lighting solution may initially incur slightly higher costs. The reward for this is increased energy savings, comfort, and flexibility from day one. This makes the investment economically viable. The reduced energy consumption and more efficient maintenance processes keep operating costs low. Over the life cycle of the building, LUXMATE LITENET is thus the solution that costs less while also ensuring a healthy indoor climate.

ecoCALC

Variable scene concepts

The direct way to create an ideal lighting scene

Meeting scene

A bright room with a large direct light component is ideal for meetings in which notes are taken.

Video projector presentation scene

The room is perfectly set for presentation at the press of a button: the lighting level is dimmed, blinds are lowered and the screen is brought into position.

Each activity has its own perfect lighting scene.
LUXMATE LITENET enables users to compose suitable lighting scenes for recurring visual tasks themselves. Precisely prepared lighting quality can now be called up at a single press of a button, and the manual modification of existing lighting scenes is possible at any time. Lighting scenes once set can be very simply adapted if required. In addition to static lighting scenes, automated moods can also be defined, taking into account the available daylight or the presence of people. The Zumtobel symbol library provides the appropriate imagery for each lighting mood.

Break scene

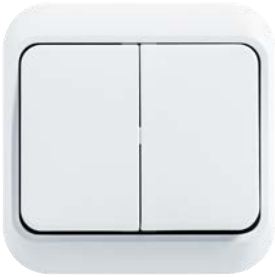
A large indirect light component creates a pleasant atmosphere for discussion. The automatically tilted upper windows let fresh air flow into the room.

Personal scenes

Users can create and save their personal scenes, and can call them up at any time via a control unit.

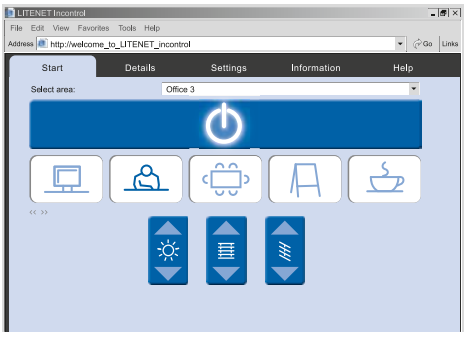
Intuitive and convenient
Lighting scenes at the touch of a button

Standard switches and buttons Familiar operation for lighting comes first. Classic switches and buttons are connected to LITENET using simple modules.



CIRCLE control point As small as a standard momentary-action light switch, it achieves a great deal more: three individually dimmable lighting scenes are ready at the press of a button, and even blinds can be integrated. Alternatively, there is a multifunction switch for Tunable White luminaires. In this version, the convenient control unit also controls the colour temperature.

LITENET incontrol Working at a computer screen is part of everyday life, and so controlling light using browser-based software should be second nature. “Lighting scenes by a mouse click” make lighting convenience perfect.

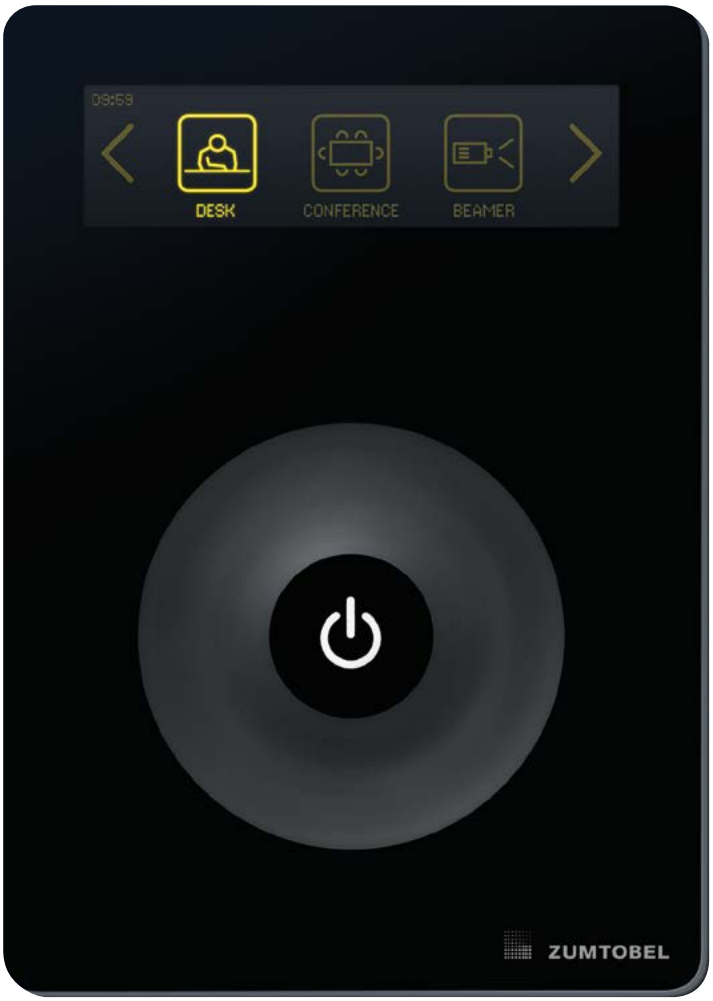


LUXMATE CIRIA
Design by Matteo Thun

product design award 2010

LUXMATE CIRIA The high-end unit assumes the minimalist design language of modern communication media, thereby combining convenient operation with functional diversity in a fascinatingly simple way.

An all-round talent CIRIA is a multi-service unit. As well as light, all services in the rooms such as blinds, windows and projection screens can be conveniently controlled. Individual setting is possible at any time via the navigation buttons. And the best thing about it: no complicated instruction manuals or training is needed. The user discovers the diverse possibilities of CIRIA simply by testing.



Original size

With its compact design, CIRIA can be installed in one single euro wiring box in accordance with DIN 0606 with at least 50 mm recess depth.

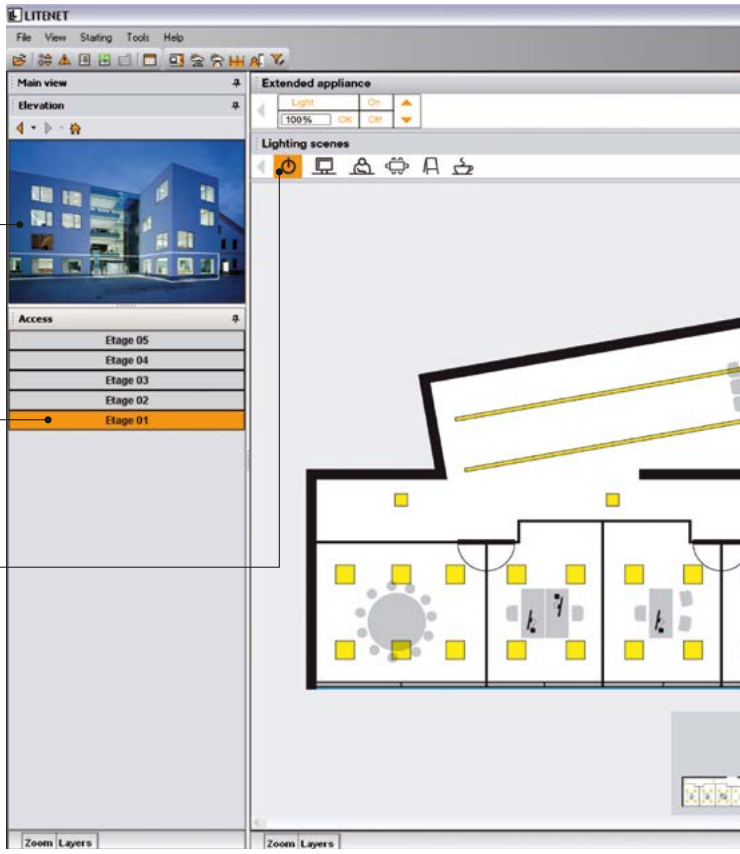
Experience CIRIA live at **zumtobel.com/ciria**

LITENET graphics
The control centre for facility management

Integration of graphics and photos

Direct access to buildings, floors and staircases

Control panel for direct access to the building services involved



Visualisation at the highest level "The bigger the building, the more time facility managers have to spend on routine monitoring and checks". This statement has been rendered invalid with LITENET graphics, because a central control centre now bundles all this information together and displays the current status on the screen. The central software tool also allows extensive intervention in the system and emergency lighting tests – from any location in the building.
Zumtobel has enriched the software with design capability for simple orientation in very large or complex buildings. With LITENET graphics advanced, visualisation comes very near to reality. The importing of CAD files enables the person responsible for maintenance to navigate intuitively through the building and to rapidly localise defects.

LITENET graphics: facts

- Central visualisation, monitoring and control of a LITENET system
- Animated status display for luminaires, blinds and windows
- Rapid localisation of defects
- Stepless zoom with very good image resolution for detailed display
- Integration of images, graphics and CAD plans
- Layers can be displayed or hidden
- Personalised interface for freely positionable partial windows
- Package sizes of 500, 2000 and up to 10 000 visualised output actuators

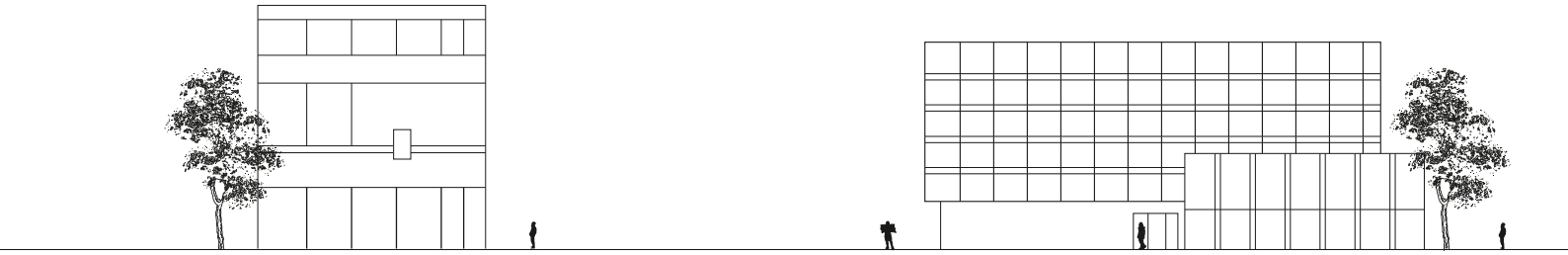
Animated status display
for luminaires, blinds and
windows

Integration of CAD plans as
vector graphics for extremely
well-focused image display

Visualised alarms

Stepless zooming and
navigating in all directions

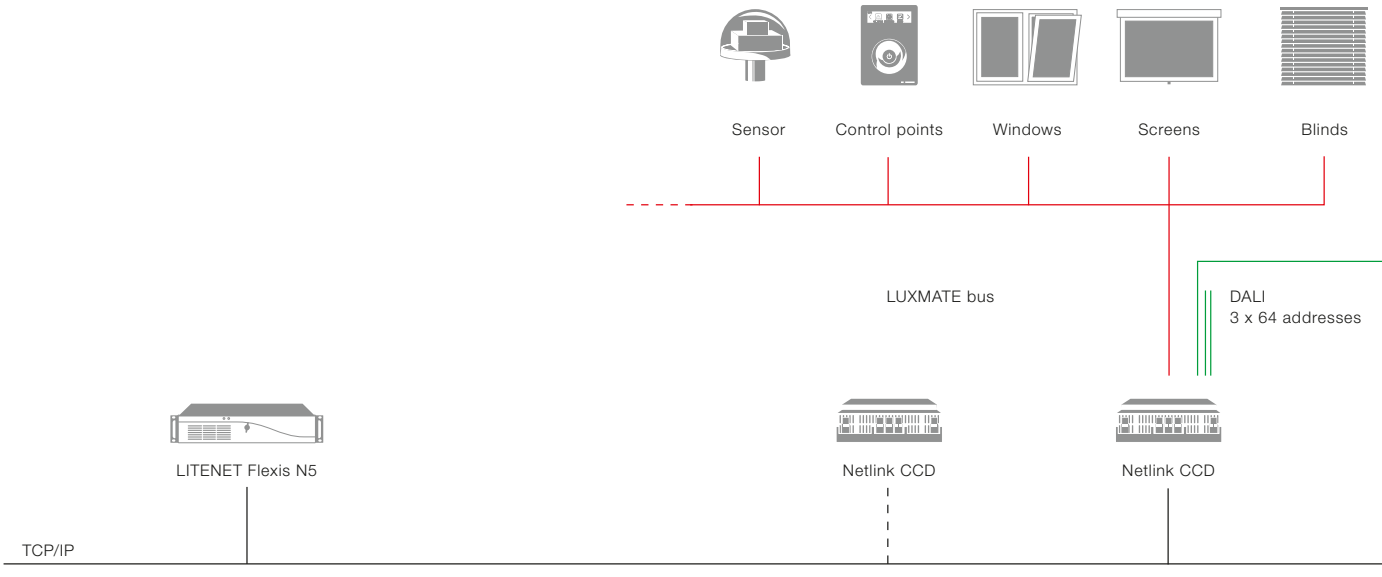
LUXMATE LITENET
Scalable in size and function

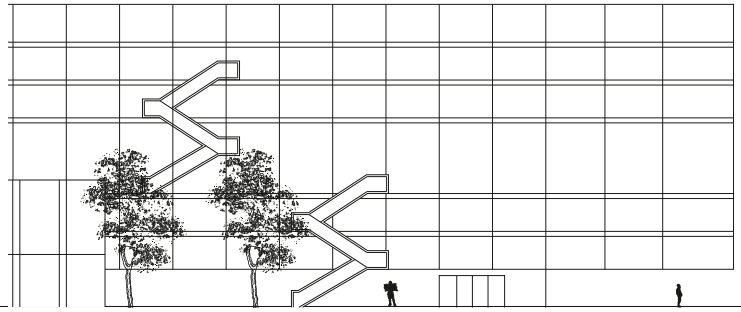


LUXMATE LITENET is particularly suitable for applications involving 500 to 10 000 luminaires and blinds. The LITENET Flexis N5 serves as the central control unit.

In conjunction with the multifunctional netlink CCD, the control commands are reliably communicated to the field devices.

A customer-specific server hardware can also be used if desired. LITENET is also available as a software package.





Control points
Sensor
Luminaires

PC with InbuildPro
management software

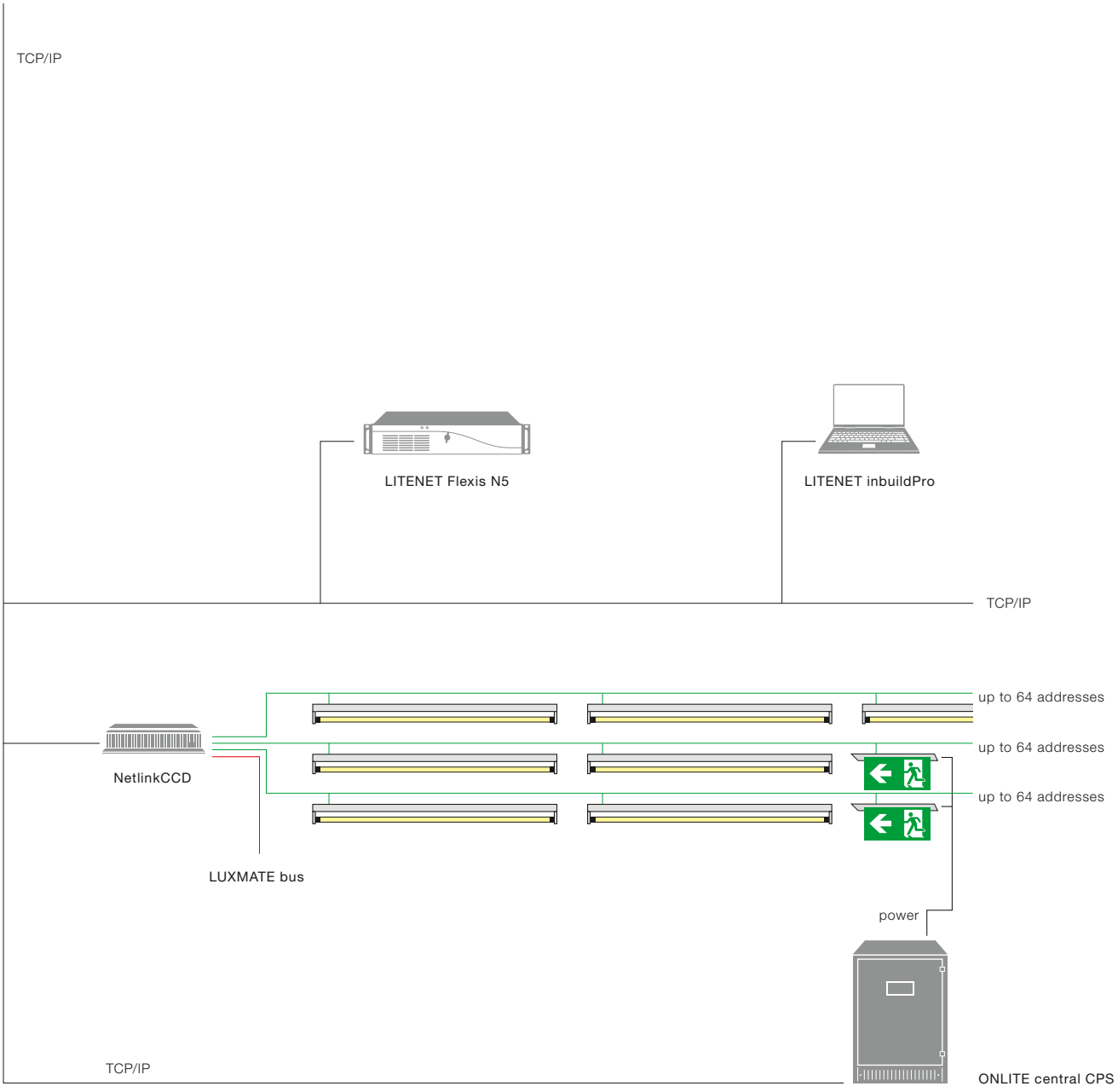
TCP/IP

LITENET + ONLITE

Lighting and emergency lighting go hand in hand

The LUXMATE LITENET leading lighting system and ONLITE CPS, with central battery system, come together to make a high performance duo: LITENET assumes automatic monitoring of the emergency luminaires, and the CPS central battery system takes on the role of supply in case of emergency. In this way ambient lighting and emergency lighting merge to become one functional unit. The facility manager experiences LITENET and ONLITE as a consistent system. Other emergency lighting options available include: separate battery monitoring, ONLITE LPS group battery, and integration of diesel generators.

ONLITE ARTSIGN
LED escape sign luminaire
Design: Matteo Thun



Future-proof system topology
Open standards for openness to the future

DALI for light

Because of individual addressability, DALI provides the basis for affordable axial flexibility. In the past, DALI luminaires were more expensive to buy because only dimmable versions were available. With “dimming on demand” luminaires, Zumtobel now offers the first switched DALI luminaires at a significantly lower price.
This makes it possible to keep investment costs down during the construction phase, but at the same time ensure readiness for future lighting requirements. From lighting scenes through to daylight-based lighting control systems, anything is possible.

Ethernet and building automation

There is a marked trend in building automation towards the use of Ethernet and TCP/IP as transport media and protocols for all the services in a building. The standard TCP/IP Internet protocol is taking over in more and more building automation applications as the backbone and, where necessary, right down to field level.
The still widely encountered fieldbus is being increasingly superseded. Ethernet cabling is already one of an electrician’s everyday tasks. In the future, office solutions and building automation will increasingly converge and use a shared network. Technically well-engineered security precautions ensure that data traffic is adequately protected with this overarching integration.

Advantages of Ethernet

- Good scalability
- Flexible features
- Optimum updating
- Optimum diagnostic capabilities
- Good investment security

Software upgrades instead of conversion work

LUXMATE LITENET uses the hardware infrastructure as a stable basis. New functions are obtained by software upgrades. Simple updates and on demand functions ensure absolute peace of mind when it comes to investment and reliability of design.

System integration using standard interfaces

There are two main ways of ensuring that all systems in a building (lighting, heating, ventilation, air conditioning, security system, lifts, access control, etc.) work together properly and do not interfere with each other: running everything through one system, or installing a specific system for each service in order to achieve optimum functionality in every area. Zumtobel adopts the best detailed solution by offering the best interfaces with other building services and higher-level systems (building services management system) in the form of BACnet [1] and OPC [2] standardised interfaces between fieldbuses and Windows applications in order to achieve seamless system integration.

[1] Building Automation and Control Network, ISO EN standardised language for building automation

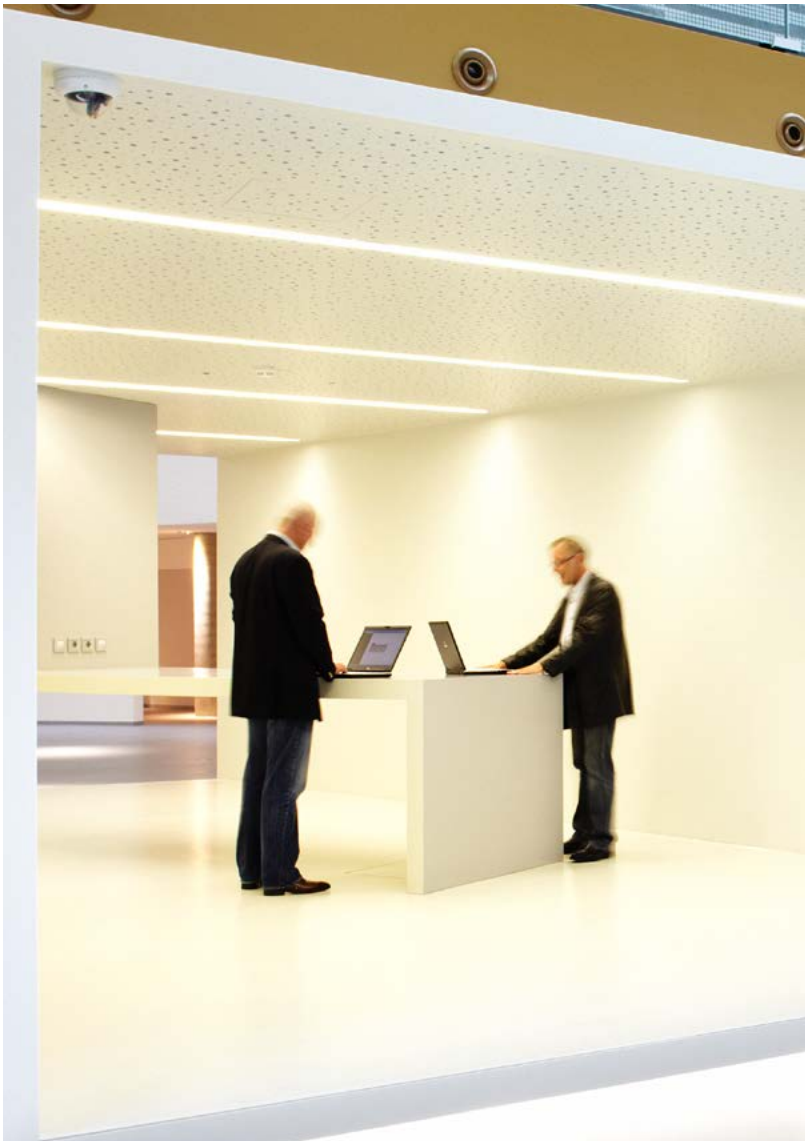
[2] Object Linking and Embedding for Process Control

ZUMTOBEL service

Zumtobel is at your side through all the phases in a building's life

Buildings and their life cycles

The purpose of building management is to ensure that the value of an asset is exploited to the full in the sense of meeting the requirements in question. Regular maintenance and optimisation are needed to make sure that this goal is achieved despite changing requirements and underlying conditions. Zumtobel lighting solution consultants, service engineers and project managers from 75 offices in 57 countries look after lighting systems belonging to an extremely wide variety of customers through all the phases of their buildings' lives.

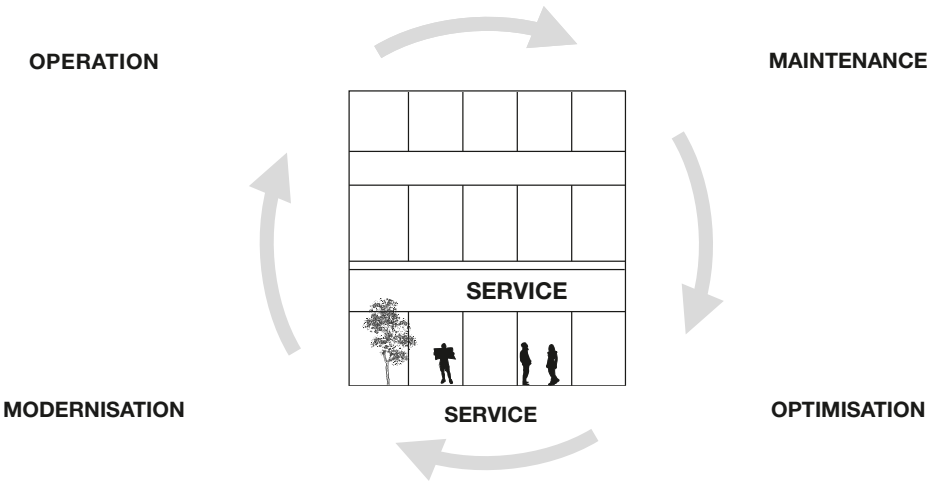


DESIGN & DEVELOPMENT

Zumtobel lighting solution and system consultants are specialists in areas such as lighting, lighting control systems, emergency lighting and system integration. They have the necessary expertise and experience to integrate cutting-edge lighting solutions, including lighting control systems and automation engineering, as part of a building automation strategy to obtain best performance.

CONSTRUCTION & COMMISSIONING

Zumtobel's Project Management plans and organises all the resources needed to complete customers' solutions on time and on budget and to guarantee performance as well as quality. Zumtobel deploys regularly trained service engineers and project managers equipped with state-of-the-art equipment to ensure trouble-free commissioning and efficient operation.



OPERATION
Day-to-day operations demand fast, effective solutions. Zumtobel offers every kind of dependable support, ranging from telephone support and remote maintenance through to on-site callouts. Customers can be given intensive technical training to enable them to operate the system independently and more effectively.

MAINTENANCE
Quality assurance for a lighting system involves regular, professional maintenance. This guarantees that a lighting solution will continue to operate reliably and efficiently for many years. Zumtobel's maintenance contracts make provision for various service level agreements and are backed up by a transparent package of services.

OPTIMISATION
Circumstances and lighting conditions change over the years. We offer various types of maintenance and optimisation measures to ensure continued maximum energy savings with excellent lighting quality and this work is completed without disrupting normal on-going operations.

MODERNISATION
Zumtobel is a professional partner when it comes to any questions regarding modernisation and lighting refurbishments: from design through to project support and commissioning. You can be sure of achieving a perfect blend of lighting quality and energy efficiency.

Light for offices and communication
VHV Group, Hanover | DE

The workplace of the future is already a reality at the head office of Hannoversche Lebensversicherung AG. This highly efficient building with triple glazing and thermally insulating façade elements uses geothermal probes, heat pumps and district heating to meet its considerably reduced energy requirements.

The future starts now
The client wanted a highly efficient office building that provided maximum flexibility and was ideally prepared to cope with a large number of anticipated alterations in room layouts. It was looking for a company that supported lighting management externally, took over facility management and performed maintenance.

Lighting control strategies
All the luminaires and blinds in the three-part building complex are controlled by LITENET. All settings and changes in the system can be made at a central location using the user-friendly LITENET InbuildPRO software.

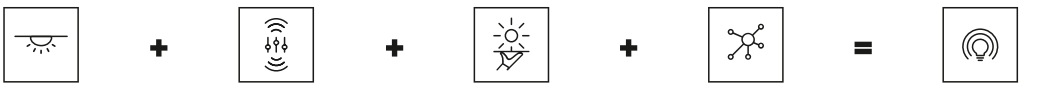
Available daylight is measured by a central daylight measuring head. Exterior blinds with a light guidance function are adjusted appropriately depending on the position of the sun. The dimming level necessary for a constant illumination level of each individual luminaire is recalculated and adjusted by LITENET Flexis N5 every minute. Presence detectors reduce the operating hours of luminaires in line with staffing levels.

Key data
- 8000 m² of office space divided up between three buildings
- 1500 workstations
- 60 % energy saving by using daylight-based management
- System support provided by trained building services specialists and Zumtobel

Central daylight-based control and blinds control | LUXMATE LITENET

VHV Group, Hanover | DE
Architects: BKSP Grabau Leiber Obermann & Partner, Hanover | DE
Lighting technology: Lumen³, Munich | DE
Electrical consultants: Taube + Goerz GmbH, Hanover | DE
Lighting solution: LUXMATE LITENET lighting management system, SLOTLIGHT II light line, SCUBA moisture-proof luminaire, PANOS downlight, PHAOS recessed luminaire, LINARIA and TECTON continuous-row systems, LIGHT FIELDS recessed luminaires

T H E L I G H T



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