TRILUX
SIMPLIFY YOUR LIGHT.

LIVELINK –
WHEN INTELLIGENCE
COMES TO LIGHT

Dietmar Zembrot, Member of the TRILUX Executive
Board/Technology

Martin Frechen, Managing Director of STEINEL

When intelligence comes to light

Intelligent light will revolutionise our everyday life just as the invention of the incandescent bulb
did way back when. The entry of LED technology into the mass market already constitutes the
foundation for these far-reaching changes. Already today, using LED results in massive energy
savings, but this does not exhaust the opportunities, not by a long shot. Light can support healing,
improves our ability to concentrate and perform and increases our well-being as well as safety
and security. What are we missing for this revolution? Light management that provides new
functions through intelligence and that makes designing and installation completely straight-
forward. In collaboration with sensor technology specialist STEINEL, we have combined our
know-how and our specific experience and developed just such a system: LiveLink.

Light management with LiveLink – When intelligence comes to light

What motivated TRILUX and STEINEL to develop a joint light management system in the form of LiveLink?

Dietmar Zembrot: The existing light management systems currently on the market are very complex and do not offer customers optimal value for money. A further disadvantage is that the majority of the components used are not optimally matched with each other. As experts in our respective fields, we both wanted to improve this situation. With LiveLink, we have developed a finely tuned light management system which is not only focused on providing customer benefits, but is also easy to install and operate – true to our Motto – LiveLink really does help to 'Simplify Your Light'.

What are the main benefits the system offers?

Martin Frechen: From the design stage, designers can already specify functions, settings and pre-defined Use Cases to be used in the system. At the commissioning stage, the electrical contractor can simply use the App to to download this data to their device to ensure that the light scenes defined by the designer are correctly implemented – a huge advantage for all parties involved.

Dietmar Zembrot: Thanks to the simple "Plug & Play" installation, the contractor does not need to have any specialist light management knowledge. The cabling is very straight-forward and the configuration is a matter of just a few minutes. The result: any contractor is able to offer an intelligent light management system with LiveLink and to create added value for his or her customers through energy savings or demand-oriented light scenarios and end users can comfortably control their LiveLink system themselves via push-button or by using the app on their smart phone.

Would you mind telling us a bit more about the background to your collaboration?

Martin Frechen: In addition to efficient luminaires, modern light requires an intelligent control and a prerequisite for this control are precisely working sensors. They must detect even the slightest movement and react sensitively to the changing daylight. The intelligence behind the system is the LiveLink Controller, which we developed jointly, this can be operated comfortably via WLAN from a tablet PC or smart phone. In our collaboration, our core competences combined to make a synergy, but our cooperation goes far beyond the development of perfectly tuned components. Together, STEINEL and TRILUX can draw on nearly 200 years of experience in the area of professional lighting: Modern production, leading experts in the development, supported by a strong network of partners. This means we will be able to make intelligent light as simple as possible for our customers in the future.

In that case, LiveLink is probably expensive, isn't it?

Dietmar Zembrot: To not use LiveLink is significantly more expensive! For the user, for the contractor and for the designer – because it is only with intelligence that we utilise all opportunities to save energy, time and expenditures in the best way possible and at the same time maximise the benefits.

LiveLink – the bridge to the new world of light

With the complete penetration of LED technology in the years ahead, the transformation of the light market will enter into a new phase. Light management, the intelligent control of light, will become the dominating topic.

The benefits of light management are clear: greater comfort, increased safety and security, better quality of light and higher efficiency are only the most apparent advantages.

Light will be capable of so much more though, it will become completely individualised. Be it safety or security, orientation, concentration, or convalescence: The light of the future will respond dynamically to its environment and detects individual contexts.
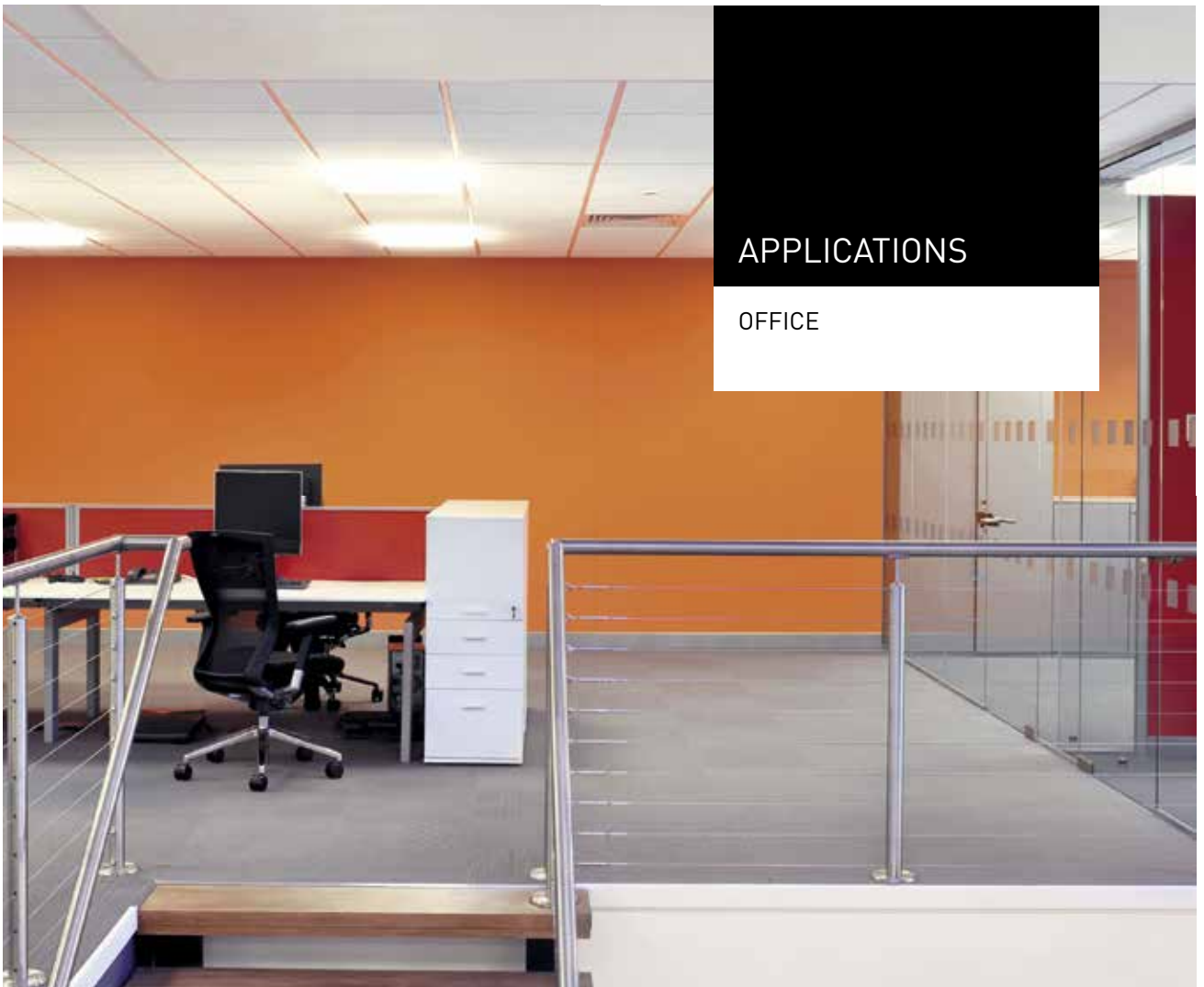
Modern day office life – as multi-faceted as our light management system

These days, flexibility is paramount in everyday work life. Highly-focused VDU work alternates between administrative tasks, meetings and brainstorming sessions – all in the same open-plan office. A lighting installation controlled by LiveLink satisfies these changing demands at any time. Sensors detect if the meeting corner is in use or whether the colleagues require extra brightness on their monitors. Pre-set light scenarios also support presentations.

Office canteens and corridors are lit only when necessary. This way, the light is adjusted exactly to the requirements of the people in the office. Due to the more pleasant working environment, productivity also increases. At the same time, the application of intelligent light management results in massive energy savings.

APPLICATIONS

EDUCATION
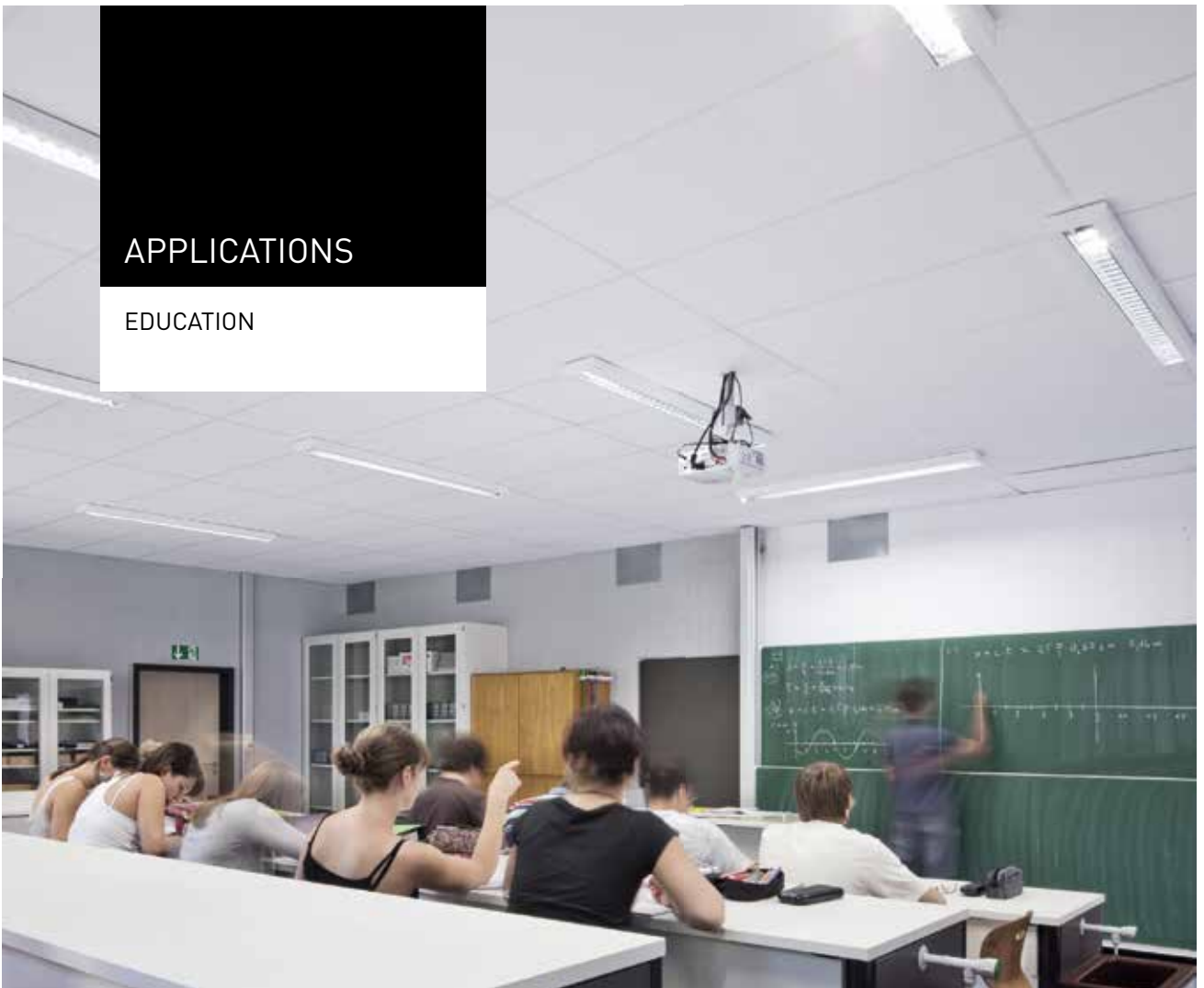
For a bright future: LiveLink at educational establishments

The right light at the right time can promote success of the learning process in classrooms or lecture theatres. Especially in traditional classrooms with their typical room layout, an automatic and/or semi-automatic lighting control via sensors lends itself. LiveLink detects the incident daylight and controls the amount of light exactly as necessary to achieve a desired, pre-set illumination level. Not only does this support the eyes and the ability of pupils, students and teachers, but used in combination with presence detection, the operating costs can also be reduced by more than 50%.

But LiveLink is capable of even more: Via push-button or via touch pad, pre-configured light scenes can be called up. For instance for showing a film or presentation, completely straight-forward and comfortably at the push of a button. Simply intelligent.

Intelligent lighting for the next industrial revolution

With its broad luminaire portfolio, TRILUX has set an industry-wide standard for the specific challenges of industrial lighting. LiveLink is the next step towards further optimisation of safety and security, productivity and cost reduction. The new control system optimally adjusts the lighting to the changing requirements in work processes. Sensors detect presence and the level of daylight in different zones of a room. The system then provides the required amount of light. Managing the light in this way means savings of up to 55% and more can be achieved.

LiveLink allows for flexible programming, so should the room be used for a different task in the future, a few changes to the settings in the App is all that is required to ensure the lighting is optimised again. Another important step towards intelligent lighting in the factory or warehouse.

Increasing revenues, lowering costs: light management in the Shop & Retail segment

Light is elementary for an eye-catching and attractive presentation of goods. All categories of products in the retail sector can be showcased targetedly with LiveLink. The system can intelligently cluster up to 64 luminaires in groups and selectively address them. This way, the different zones of a shop can be illuminated with individualised light scenes. The chemist's area, for instance with particularly cold light, the wine section with warm light. If the sales assortment or window decorations change, the light can be adjusted quickly and easily with LiveLink. A new light scene can be created even without extensive prior knowledge via a practical and user-friendly app.

In terms of costs, the light management system convinces with high savings potentials: e.g. LiveLink can, detect the daylight present in the shop – and only feed in the exact amount of light necessary to achieve the desired level of brightness.

A healthy solution – light management for hospitals and care facilities

In healthcare, light is developing into a competitive factor as well. Light is also gaining in impor-
tance as a design element, acting as a therapy-supporting concept. LiveLink offers the possibility
to render the stay more pleasant in terms of atmosphere for both patients and guests. Thanks
to the light scenes stored in the system, the lighting can switch from bright examination light to
subdued light for the conversation with the patient – at the push of a button or via touch pad.

LiveLink can drastically reduce energy bills. E.g.: Transit areas are a typical, efficiency-oriented
application for light control at hospitals. Where sensors detect very little to no public or patient
traffic at night, the system can regulate the LED lighting down to a defined residual light level.
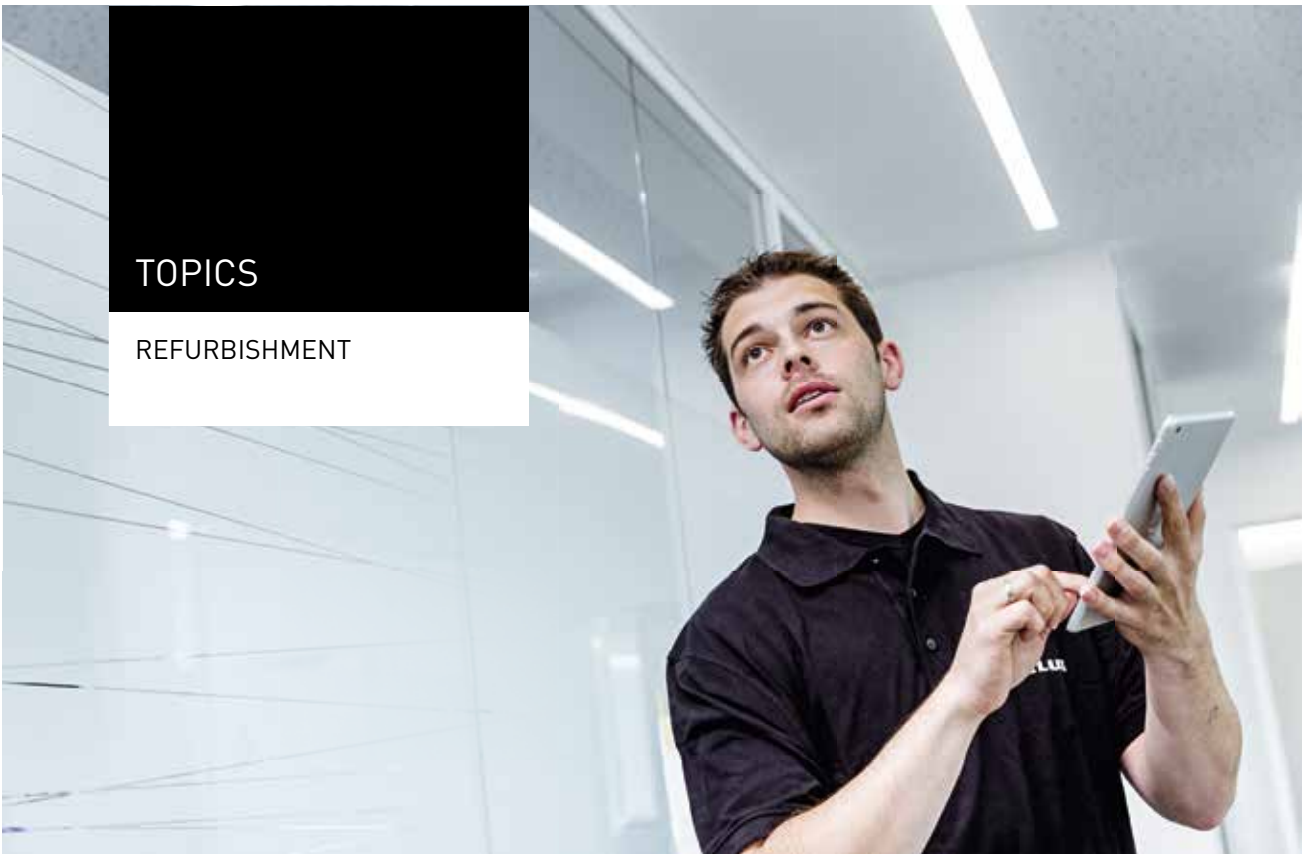
Refurbishment – LiveLink also wireless

When upgrading a conventional lighting solution to LED technology, operating costs can be cut by around 50%. These overheads can even be reduced by up to 85% if a light management system with daylight and presence sensors is used. The problem: installing a light management system often fails because cabling in older rooms or building sections is only 3-core and therefore has no DALI control lines.

Wireless DALI – an end to open walls
Ideal for refurbishments: LiveLink can also be used without DALI control lines. Communication between the luminaire and control unit is implemented wirelessly via radio, without having to dig channels in the walls and install new cables. For more information, see page 30.
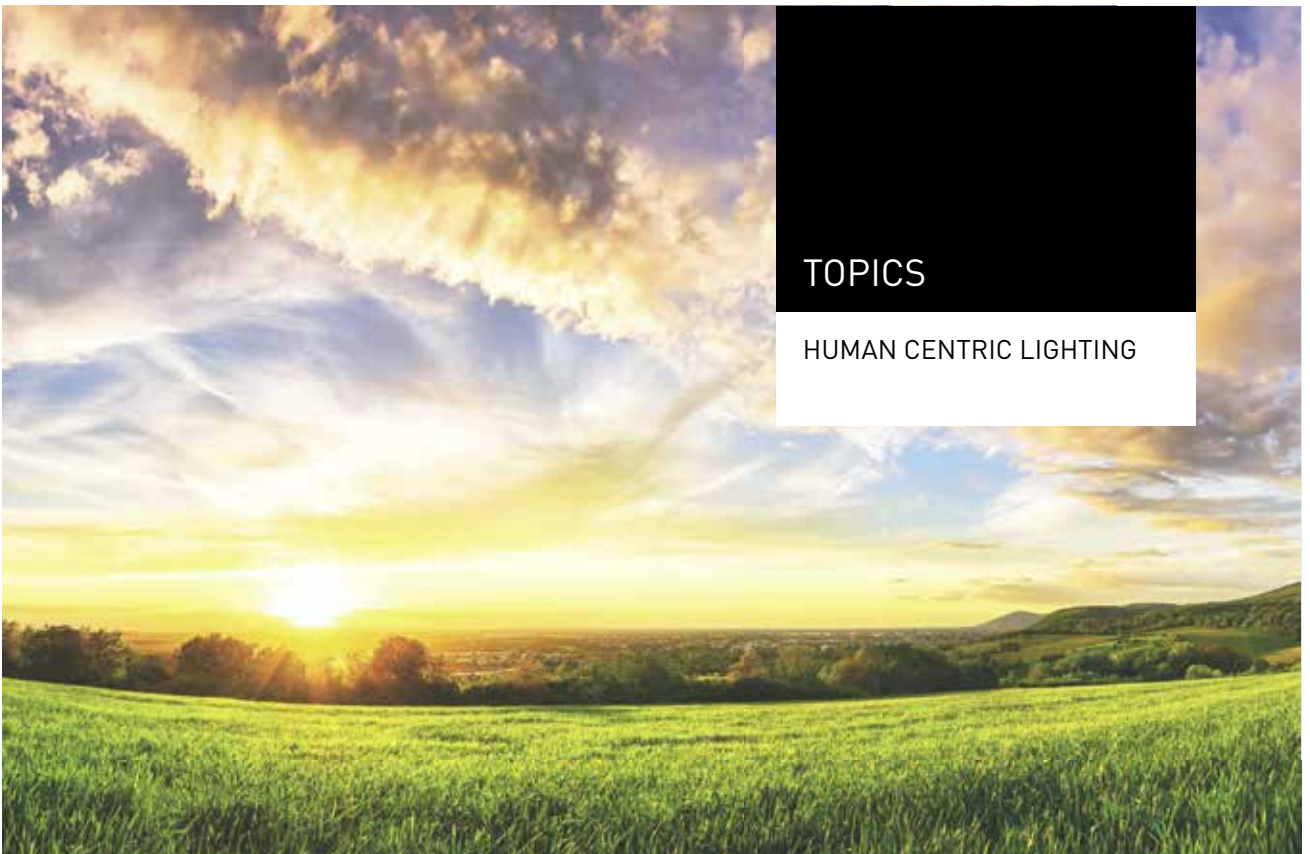
Human Centric Lighting – light that supports people

The colour of light influences many reactions in the human body, e.g. the ability to concentrate and perform, the level of well-being and the biological rhythm. Human Centric Lighting solutions make use of these effects by specifically adapting the light colour to the needs of the user.

HCL – the effect depends on the light colour
Cool white light has an activating affect, whereas warm white light is more relaxing. Especially complex: in nature, the colour of sunlight changes over the course of the day. This modification defines the circadian biological rhythm of people, i.e. the "inner clock" which orients itself to this sequence.

Use Cases – HCL at the press of a button
LiveLink enables even complex HCL applications to be quickly and simply implemented. For this purpose, sequence curves saved in the use cases for the various applications feature precisely the colour composition which optimally corresponds to the specific requirements. These can be simply installed at the press of a button. Users can also create their own curves for individual sequences.

SOFTWARE

USE CASES
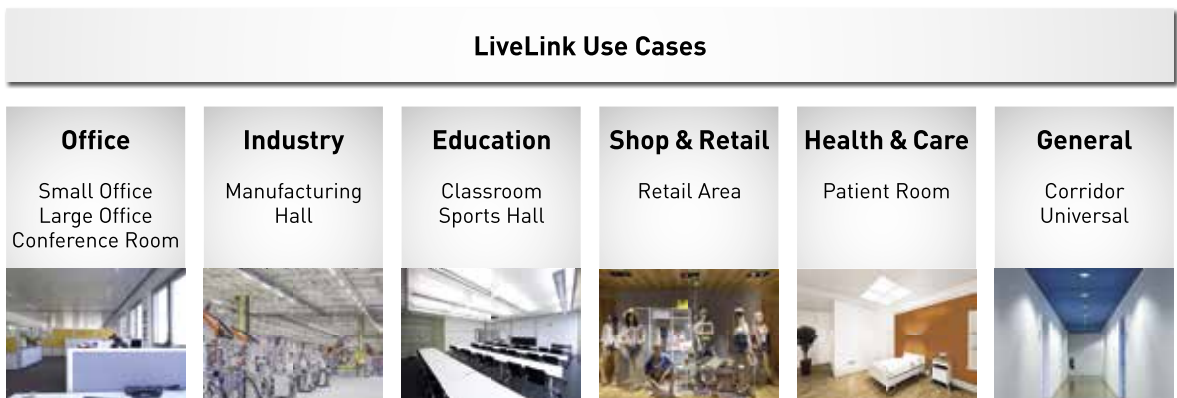
Software at the service of the people who use it

In developing the LiveLink software, the specific requirements of the users were the main focus. It was developed in close cooperation with designers, architects, electrical contractors and users. A graphical user interface and the intuitive user guidance proved to offer significant advantages for practical use. In addition, user-friendly functions guarantee the highest level of user comfort and flexibility.

Use Cases – matching solutions for typical rooms, effortlessly

In practice, designers are often confronted with relatively similar configuration requirements, e.g. with the planning of a light management system for a corridor, an office, or a classroom. To simplify the design, LiveLink provides the user with a series of pre-set room configurations – so-called Use Cases.

Incorporated in this is TRILUX's detailed knowledge of the architectural specifics, typical requirements and the optimal lighting in the respective industries. In each Use Case, the luminaires have already been combined in corresponding groups and programmed with the correct default settings. The sensors are pre-configured with basic parameters as well. Use Cases can also be individually created by TRILUX for special requirements. Using the saved data, installers can then effortlessly start-up the light management system.

This way, the Use Cases not only ease designing and installation, they also provide the user with the certainty that their lighting has been optimally configured and is standard-compliant. HCL curves are saved in the Use Cases for the various applications which correspond precisely to the requirements of the specific area. All Use Cases can be simply selected via the app.

LiveLink Use Cases

| **Office**	**Industry**	**Education**	**Shop & Retail**	**Health & Care**	**General**
Small Office Large Office Conference Room	Manufacturing Hall	Classroom Sports Hall	Retail Area	Patient Room	Corridor Universal

The non-visual effect of light has an essential influence on the well-being of people. The spectrum and light colour of daylight changes according to the time of day and season of the year and these changes influence the human psyche and physical constitution. Human Centric Lighting curves enable us to utilise these non-visual effects of light to contribute to improved light quality and quality of life.


Total luminous flux

Colour temperature

morning   noon   evening
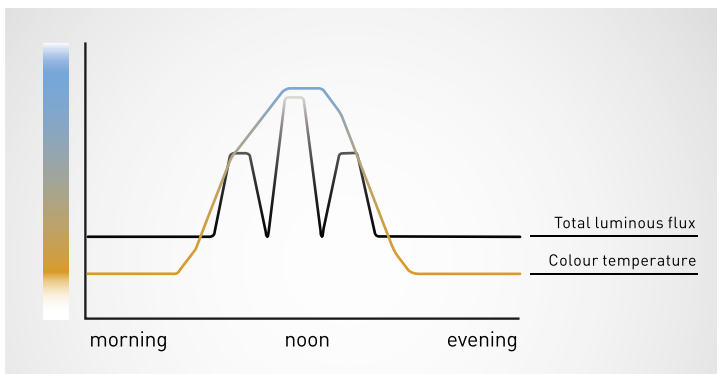
Education
- In the morning: daylight-synchronous improvement of well-being for optimum adaptation to the day.
- In the breaks: modified dynamics for quick relaxation.
- At the end of the school day: reduction to purely normative lighting.
- Standard-compliant light for cleaning during the evening and night.

Total luminous flux

Colour temperature

morning   noon   evening
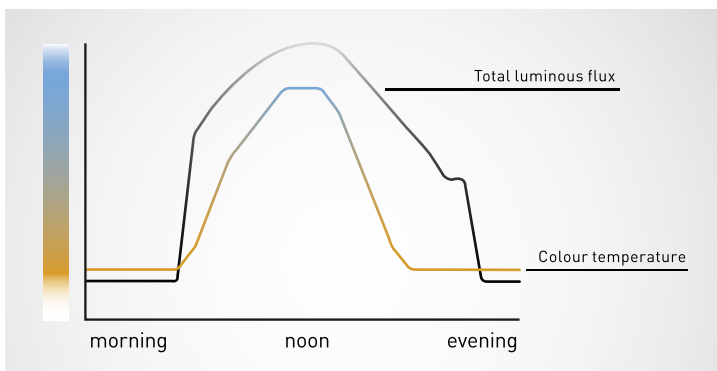
Health & Care
- In the morning: beginning of day-light-synchronous activation.
- At midday: modification of light colour and intensity for maximum well-being.
- In the early evening: normative lighting level.
- Late in the evening: night-time reduction.

morning   noon   evening

Total luminous flux

Colour temperature
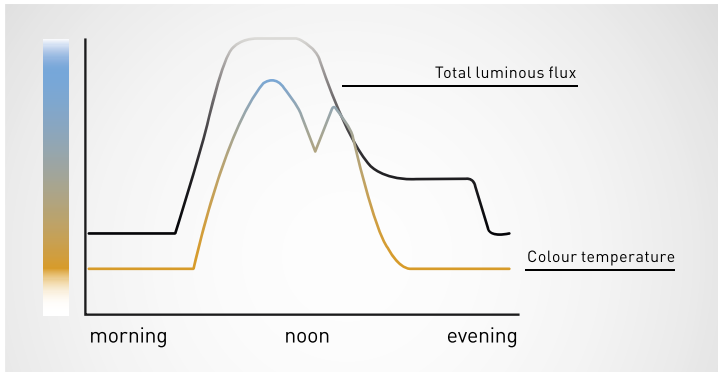
Office
- In the morning: daylight-synchronous activating sequence.
- At midday: slight reduction for improving well-being.
- During the afternoon: soft increase in light colour to counteract midday tiredness.
- In the evening: reduction to purely normative lighting level.
- At night and early morning: high-quality, energy-efficient light for cleaning.

morning   noon   evening

Total luminous flux

Colour temperature
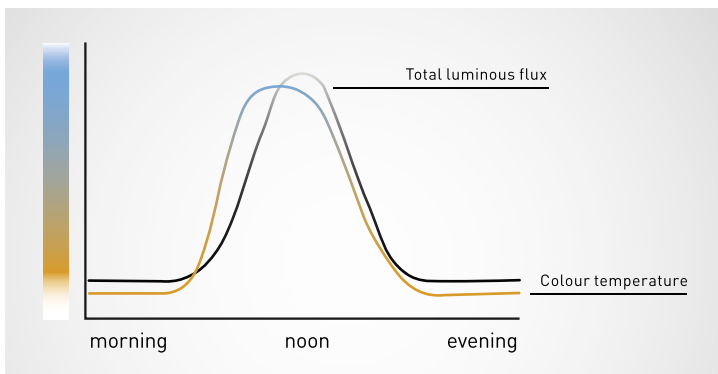
Shop & Retail
- In the morning: daylight-synchronous sequence.
- At midday: modification of light colour and intensity for maximum well-being.
- In the evening: reduction to purely nor-mative lighting level.
- At night and early morning: high quality, energy-efficient light for cleaning.

morning   noon   evening

Total luminous flux

Colour temperature
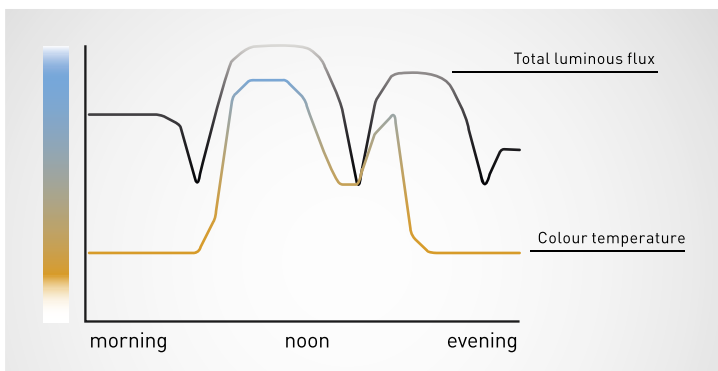
Industry
- In the morning: activating daylight-syn-chronous sequence for the early shift.
- At midday: reduced activation for the early shift.
- In the afternoon: increasing activation for the late shift.
- During early evening: modification of light colour to warm white with increased lighting intensity for improved alertness.
- In the late evening: reduced activation for the late shift.
- At the start of the night shift: increasing alertness only via increased lighting intensity.

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Apps – intelligent planning, mobile commissioning, comfortable control

There is software which helps make your every-day work easier, is intuitive and which you can start using straight away, LiveLink is just such an App. The two mobile apps (iOS and Android) are intuitive and designed for maximum ease of use and comfort. They simplify designing, commissioning and control significantly.

**User-friendly and practice-oriented – everything works together perfectly**
Through the already optimally configured standard Use Cases, all requirements of typical rooms in planning are taken into consideration automatically by the apps. This way, the lighting perfectly supports the room's function and all parties involved can rest assured that it will comply with the applicable standards.

Intuitive commissioning – thanks to the App
The commissioning App "LiveLink Install" provides the electrical contractor with numerous intelligent functions allowing a quick, safe and secure and straight-forward configuration of the light management system. This way, the contractor can utilise the App's Standard Use Cases in a number of standard room situations in order to commission the light management system without prior planning. For more individualised requirements, these can be modified quickly and simply.
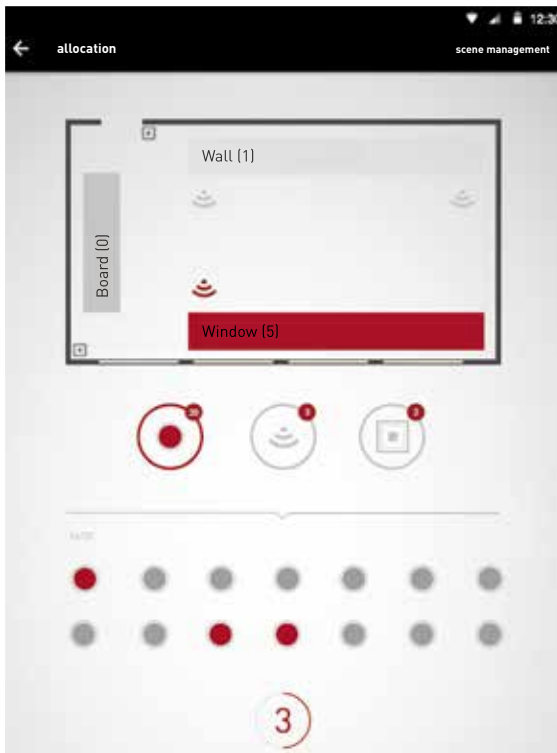
LiveLink Install App
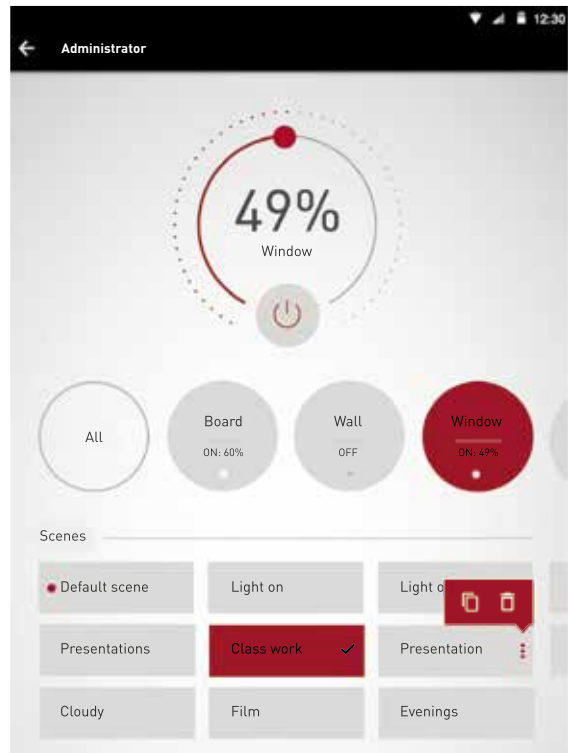
LiveLink Control App

Straight-forward control – for custom light

The operating App LiveLink Control enables the quick and easy adjustment of the light to personal or situational requirements. Via the intuitive user interface, users can, for example, use their smart phones or tablets to dim the lighting in a conference room to the desired level for a presentation.
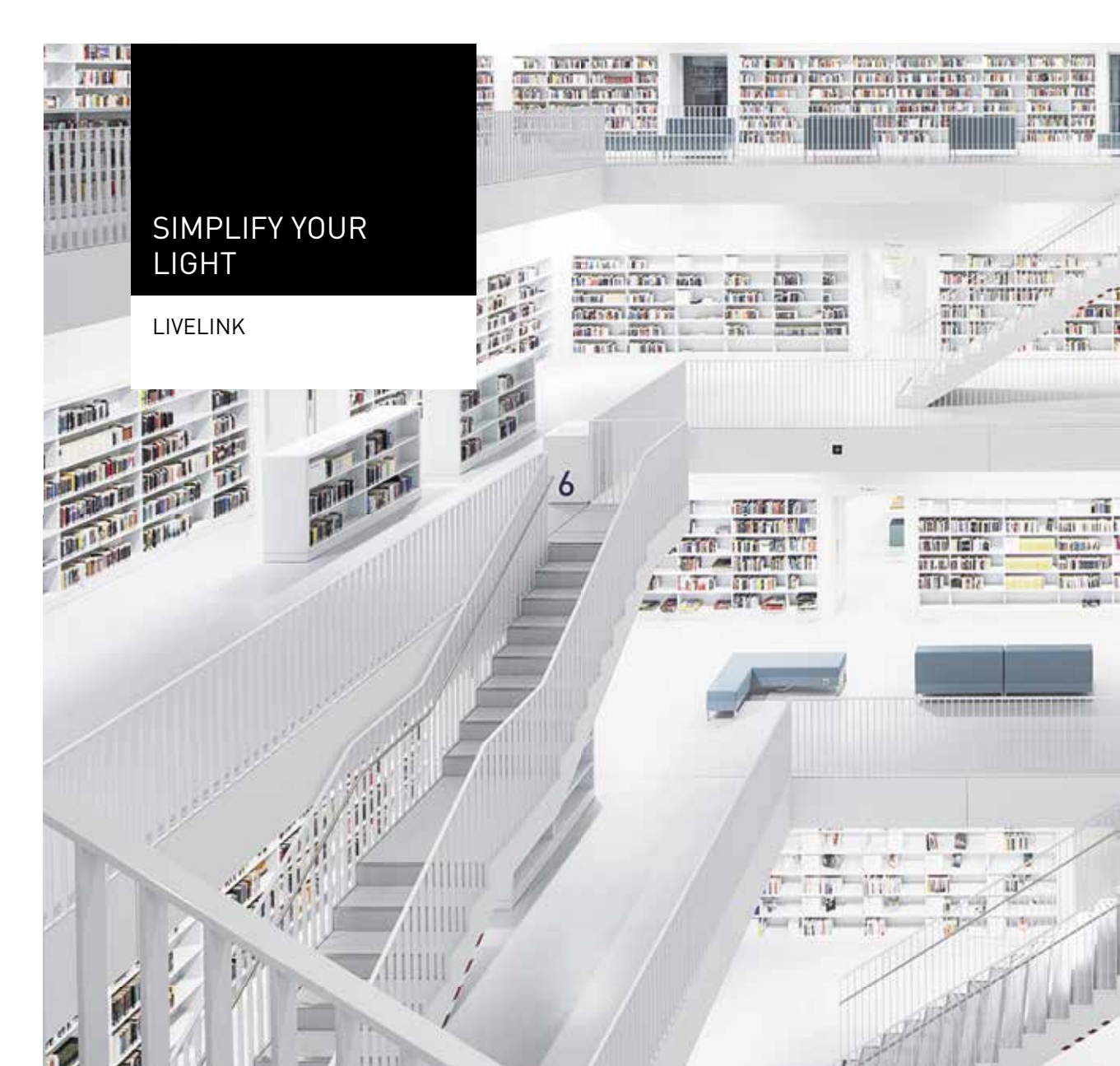
Just as easily, stored light scenes, e.g. for VDU work, can also be called up as and when required.

New programs with tried and tested control – touch-screen with intuitive operation

To make them even easier to use, the apps rely on tried and tested touch-screen commands. Touch, mark, move, drag & drop – everything can be done effortlessly.

www.trilux.com/livelink-downloads

SIMPLIFY YOUR
LIGHT

LIVELINK

Simplify your Light – LiveLink simplifies and optimises light management

To optimise and to simplify. That is the philosophy of LiveLink. Every party involved – from the operator via the designer and electrical contractor, all the way to the user – can find an optimal solution for their respective requirements. Self-explanatory software tools with graphical user interfaces replace complicated manuals and all components interact seamlessly so that interface problems simply do not arise. That's our understanding of straight-forward light management.

SIMPLIFY YOUR LIGHT

PLANNING

Good planning is half the job – and with LiveLink this is done quite easily

The standard-compliant planning of a lighting system with light management is considered a complex and labour-intensive process. With LiveLink, that's a thing of the past, once and for all. In LiveLink, the requirements from practical application are taken into consideration from the very beginning. Matching solutions can be readily called up. This simplifies the planning process enormously.

Pre-set room configuration
LiveLink offers a broad selection of pre-set room configurations for typical areas of use. These so-called Use Cases refer, among other things, to schools, offices, or industrial halls. In case of more complex requirements, they can be modified individually.
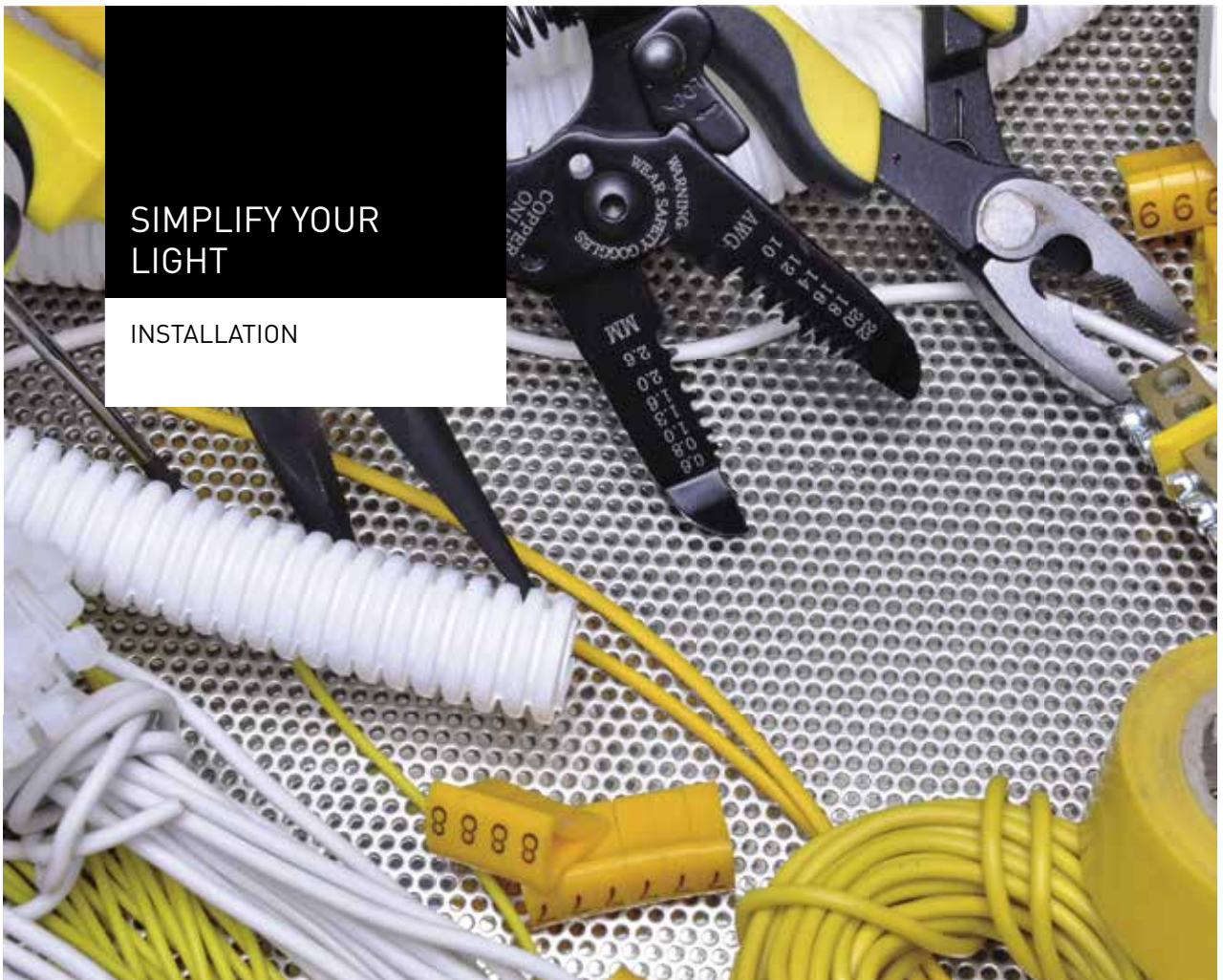
SIMPLIFY YOUR
LIGHT

INSTALLATION

Secure installation – double-checked by the system

The commissioning – time-saving, simple and risk-free. The installation of LiveLink starts with conventional DALI wiring: The components – luminaires, sensors and push-buttons – are connected to the control device via DALI. In addition, the control device and luminaires need a standard mains connection.

Practical:
Testing the installation even without a tablet
LiveLink provides the contractor with an easy method to check whether the wiring of all

components has been carried out correctly: If the lighting has not yet been configured, each and every push-button allows for a touch dim function. All push-buttons can be individually programmed quickly and easily later in the setup process.

SIMPLIFY YOUR
LIGHT

COMMISSIONING

The commissioning – time-saving, simple and risk-free

The commissioning of LiveLink can be taken care of very quickly – thanks to a straight-forward graphical user interface which can be operated intuitively and comfortably. For this, the control device establishes a secure WLAN of its own. With the tablet and the commissioning App "LiveLink Install", you can now communicate directly with the system.

Touch, move, done
LiveLink Install takes you step-by-step through the commissioning of the system. Intelligent control and feedback functions provide the electrical contractor with a high degree of safety and certainty. When luminaires and sensor are touched in the App, they blink.

Mix-up impossible. The configuration is carried out via drag & drop. All steps are intuitive, even to first-time users.

That's how quickly things can be done
Particularly straight-forward and safe: LiveLink provides the electrical contractor with a selection of preset room configurations: Use Cases. They feature a simple schematic drawing of the room with all information for the configuration of the components, e.g. the placement of the luminaire groups and sensors.

First the groups, then the scenes
Once the luminaires, sensors and push-buttons have been assigned, the electrical contractor can adjust the pre-configured light scenes or create additional ones, as required.
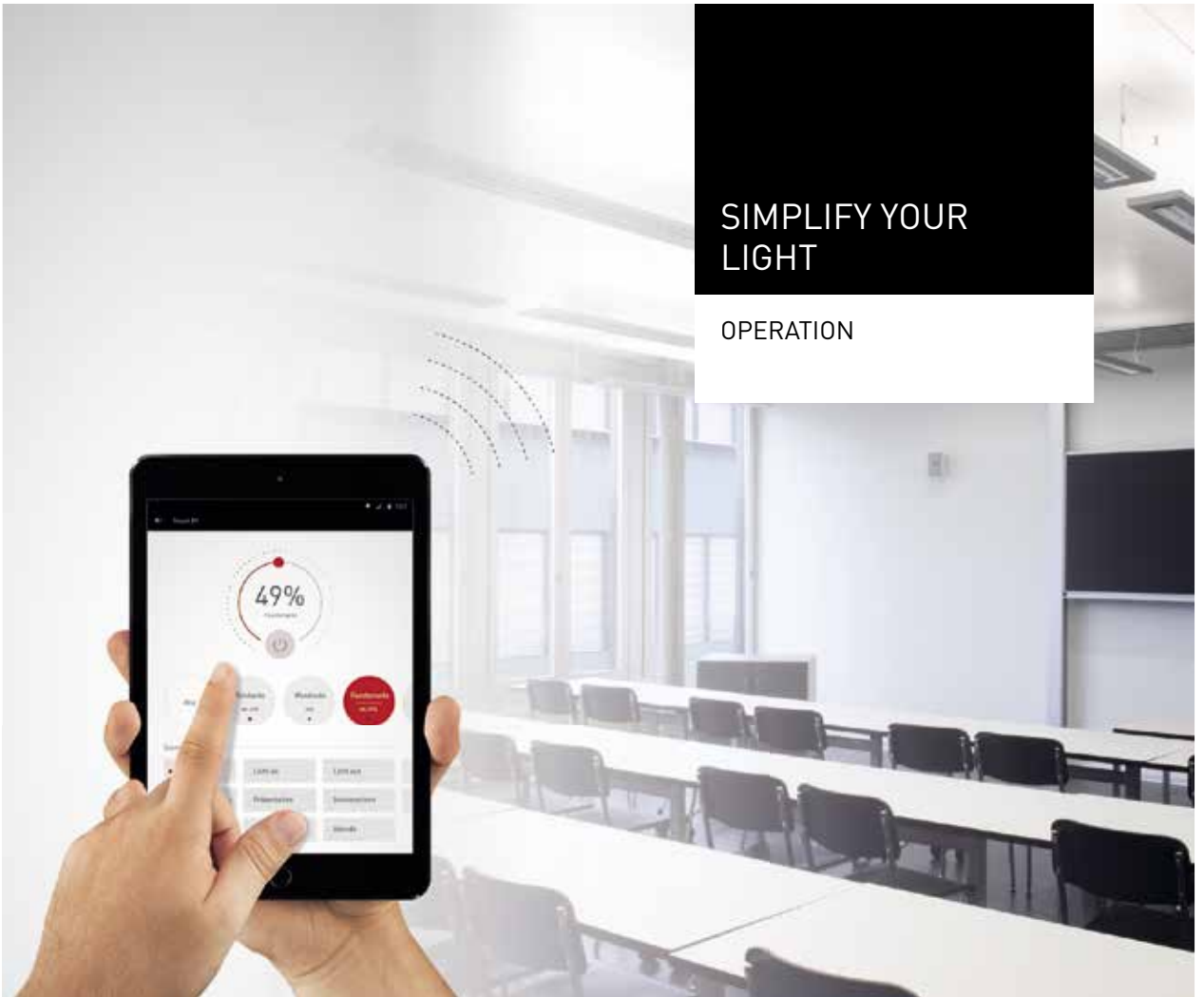
Operation – comfortably via app or straight-forward via push-button

In practice, there are a lot of functions that LiveLink can perform automatically: These include controlling of the lighting level with daylight-dependent control and presence detection. In addition, the user can control all luminaires in the room in a coordinated manner with light scenes. These light scenes can be called up either via conventional push-button on the wall or via a user-friendly mobile app.

The LiveLink Control app – a handle on everything

The LiveLink Control app has been designed for mobile end devices such as tablets and smart phones. When the user starts the app, the mobile device connects to the LiveLink control device and receives the stored system configurations, meaning luminaire groups and light scenes, automatically. With the self-explanatory graphical user interface, the user can control the brightness of the luminaires and call up light scenes.

TRILUX and STEINEL.
The best of both worlds. United in a solution.

First-class light management means the ability to adjust light to the requirements and needs of the user, individually and flexibly. For this, three prerequisites must be fulfilled: an exact recognition of the conditions in the room, an intelligent control and an optimal lighting installation. TRILUX and STEINEL are experts in both areas. With over 100 years of experience, TRILUX is the German market leader for professional lighting solutions and STEINEL is the technology and innovation leader for sensor-controlled light.

With LiveLink, TRILUX and STEINEL combine their expertise and know-how in lighting and sensor systems, connecting both worlds and thereby opening up a new dimension of light. The result: Perfect light and maximum energy efficiency.

LiveLink provides designers, electrical contractors and users with access to options for light control which are professional, yet at the same time are straight-forward, safe and secure. This way, virtually any area of application in any industry can profit from this technology of the future already today, quickly and risk-free.

LiveLink – the best results, intuitively

Light management has never been safer and more secure, nor quicker to plan, install and operate than with LiveLink. With just a single control device and two comfortable apps, individually definable rooms can be configured and controlled in next to no time.

Versatile combination: The control device is based on DALI. Due to this control protocol, the system is compatible with all DALI luminaires, of which TRILUX has a broad selection in its portfolio. The connection of the LiveLink components via DALI control line is carried out as usual; in addition, the luminaires and the control device itself require a mains connection.

Designing instinctively: LiveLink software can be operated intuitively. The mobile apps for the Android and iOS operating systems include a wide selection of pre-set room configurations, e.g. for applications in the areas of industry, education and office. Here, decades of experience with the application-specific requirements as well as state-of-the-art know-how are condensed optimally into pre-configured lighting solutions. This way, typical lighting scenarios can be designed and commissioned effortlessly, always with the certainty that the installation will comply with all applicable standards.

Effortless commissioning: LiveLink Install guides the electrical contractor through the commissioning process step-by-step and in a clearly comprehensible manner. The system recognises all DALI-wired members and integrates them in a direct visual interface with the contractor. Numerous intelligent functions simplify the process of assigning and grouping of the luminaires, setting of the desired parameters, as well as troubleshooting.

Easy to operate: Be it via push-button, or via the app on a mobile end device, individually functions, such as brightness, can be controlled just as comfortably as the calling up of stored light scenes. Both apps, for commissioning and for operation, are available as an iOS or Android version.

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LiveLink DALI sensor

Mains connection

LiveLink DALI push-
button coupler

Direct connection for
1 push-button

LiveLink

DALI

LiveLink
control device

Option

LiveLink

70 %

Connection to an
existing network

Option

LiveLink
Install

Connection to KNX
building control

29

The radio solution for refurbishment projects

The LiveLink refurbishment solution enables light management systems to be quickly and simply installed even in difficult building situations. If building cabling has no 2-core DALI control lines, LiveLink can be optionally operated via wireless DALI. In such applications, communication between the controller and luminaires uses the ZigBee radio standard. The luminaires have a ZigBee DALI interface for this purpose that transforms radio signals transmitted from the control unit into DALI commands. Hard-wired components can also be effortlessly integrated into the system for maximum flexibility. Both the control unit and the ZigBee DALI interface in the luminaires feature a DALI output, enabling for example further luminaires, push-buttons and sensors to be integrated.

Mains connection

LiveLink DALI
push-button coupler

LiveLink DALI sensor

LiveLink

LiveLink
control device

DALI

Option

Connection to an
existing network

Option

Connection to KNX
building control

LiveLink is open for everything

Controlling heating, air-conditioning and ventilation – increasing numbers of users use building automation to interconnect components and conveniently operate them. With LiveLink, DALI-based lighting control can be seamlessly integrated into KNX building automation. For this purpose the KNX control can be expanded with a LiveLink KNX interface and WLAN access point, communication between LiveLink and the KNX system is then simply and wirelessly via WLAN. Up to 6 LiveLink control units can be integrated for each KNX interface. The result – luminaires, groups of luminaires and lighting scenes can be integrated seamlessly into building control and can be directly controlled via KNX.

LiveLink DALI sensor

Mains connection

LiveLink DALI push-button coupler

DALI

LiveLink
control device

WLAN

KNX

J-J

Ø 2.8

C

B

B-B

C

B

E

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15 ±0,06

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177,6

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13,4

The LiveLink controller – the intelligent command centre

It doesn't get any easier: The LiveLink control device developed by TRILUX and STEINEL merely requires a mains connection and a DALI control line – and just like that, the electrical contractor has access to the whole service portfolio and to all configuration options. The core element of the LiveLink control device is a Linux-based high-performance computer module which processes the incoming data streams and issues control commands to the system components. To make the communication with the electrical contractor and the user as simple as possible, the control device is equipped with an integrated WLAN module which can be controlled via tablet or smart phone.

Comfortable control via tablet or push-button
The luminaires and/or groups of luminaires can be controlled either with a commercially available push-button or via the app on a tablet or smart phone. Additional push-buttons can be connected via an optional LiveLink DALI push-button coupler which can be simply integrated into the DALI control circuit. The push-button can be configured freely – this way, "offline" groups of luminaires can also be controlled or light scenarios called up.

Compact design – great flexibility
Thanks to its compact dimensions with a construction depth of just 21 millimetres, the control device can fit into shallow suspended ceilings without any problems.

Autarkic encryption for increased security
To protect against external access, the control device is equipped with a WLAN network with autarkic encryption. This way, the system remains unaffected by cyber attacks against the general computer network.

DALI interface for clever light management
With the universal DALI interface, DALI-capable luminaires, sensors and push-buttons can be integrated, configured and controlled effortlessly. Each control device can individually address up to 16 luminaire groups. The maximum number of DALI members is 64.

Configuration survives power outages
No reprogramming is required after a power outage. The system configuration is stored in the control device so that the light management system is immediately fully operational again in the case of a restart.

SYSTEM OVERVIEW

STEINEL SENSORS

IR Quattro HD
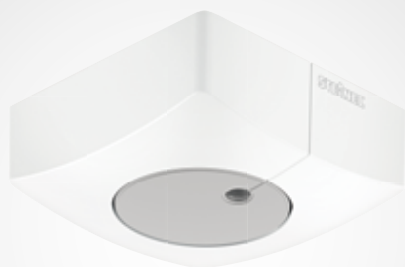
Light Sensor Dual
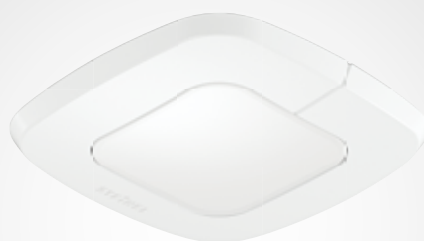
IR Quattro Slim

IS 345 MX Highbay
IS 3360 MX Highbay

Dual HF

IR Micro

IR Micro

Any brain needs its sensory organs – and any light management system its sensors

Light when and where it is wanted and as bright as necessary. For a lighting control system to meet all the client's requirements, the situations must be detected precisely. This task is handled by STEINEL's intelligent sensor technology. It provides LiveLink with information regarding the current daylight levels in the rooms and the presence of people. LiveLink Install can be used e.g. to set the target value of the light control and the shut-off delay period.

Dual HF. Doubly convincing across the board
The high frequency corridor sensor Dual HF, with its detection area of 20 x 3 metres, is suitable for long corridors. Decisive for a corridor sensor is how well radial movements are detected. This refers to the frontal direction of walking towards the sensor. The STEINEL high frequency technology masters this perfectly.

Equipment and functions:
- Two integrated HF sensor with dual directional characteristic for up to 20 metres of radial detection
- Detects equally well from any direction of walking
- Continuously variable, electronic setting

IR Quattro HD. Detects the most minute movements, all the way into any corner
The infra-red presence detector IR Quattro HD is ideal for medium to large offices, conference rooms and meeting rooms as well as classrooms and lecture halls. Its high resolution detection is ideal in the case of sitting activities.

Equipment and functions:
- Highest quality of detection due to 4 pyro sensors with 4,800 switching zones per 64 m²
- Straight-forward planning with square detection area
- Quick setting due to patented mechanical scalability without loss of quality
- 8 x 8 metres presence detection, 8 x 8 metres radial detections and 20 x 20 metres tangential detection
- Suitable for ceiling heights from 2.5 up to 10 metres
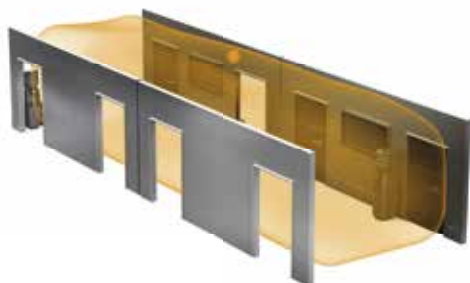
**Monitoring at the highest levels –
IS 345 MX Highbay**

The IS 345 MX Highbay infrared motion sensor for indoor and outdoor applications is ideal for high heights in e.g. warehouses, logistics halls and highbay racking areas. The sensor has a detection angle of 180°, a detection field of 30 x 4 metres (radial) and is equipped with a special optical system designed for high mounting heights of up to 14 metres. The generous connection space enables simple mounting.

Features and functions:
- Special optical system enables mounting to ceiling heights of 4 to 14 metres
- Two pyro-sensors for radial detection of up to 30 x 4 metres at a 180° detection angle
- Simple mounting thanks to generous connection space

**Higher, further, quicker – with the
IS 3360 MX Highbay**

The IS 3360 MX Highbay infrared motion sensor indoor and outdoor applications with a mounting height of up to 14 metres is ideal for detecting movement in high rooms and wide areas such as parking garages, underground garages, production or storage areas and dispatch halls. The IS 3360 MX Highbay infrared motion sensor achieves seamless all-round detection in rooms thanks to a 360° detection angle and aperture angle of 180°. It is equipped with three high-sensitivity pyro-sensors which register movements in a radius of up to 18 metres. Installation is very simple thanks to the generous connection space.

Features and functions:
- Sensor for ceiling mounting at heights of 3 to 14 metres
- Three pyro-sensors with a detection radius of max. 18 metres
- All-round detection via 360° detection angle and 180° aperture angle
- Simple installation thanks to generous connection space
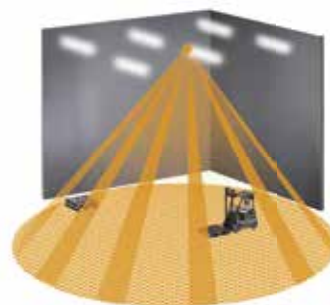
The duality of light measurement –
Light Sensor Dual

Whether measurements are directed or diffuse, both work perfectly with the Light Sensor Dual. The challenge is considerable: in order to gain information about the light situation in a room that is suitable for evaluation purposes, it's not sufficient to just determine general brightness. What's important is measuring at table height, for example, and combining this with the recording of diffuse general brightness. In this way, influences of error can be eliminated in favour of better light control. The Light Sensor Dual is ideal for this purpose.

Features and functions:
• Sensor technology with two photo-diodes
• Two light measurement methods:
  diffuse and targeted measurement

Compact dimensions and high performance –
IR Quattro Slim

Sensor technology is a must-have in many buildings today, but presence sensors, especially in offices and prestigious areas, should blend as discreetly as possible into the room. This is the ideal application for the IR Quattro Slim infrared presence sensor. With a construction height of just 4 mm the sensor installs almost flush to the ceiling and is practically invisible for observers. A genuine highlight is the globally unique retina lens, enabling a square detection range of an astounding 16 m² at an installation height of up to 4 metres despite its flat construction design. The presence sensor even responds to motion hardly perceptible to the human eye thanks to its extremely high resolution and absolutely precise sensor technology.

Features and functions:
• Sensor blends discreetly into the room
  with a construction height of only 4 mm
• Suitable for ceiling heights of 2.5 to 4 metres
• PIR with retina lens and hexagonal Fresnel
  structure for large detection range
• Square detection zone (presence, radial,
  tangential) of 16 m²
• High resolution, precise detection

Compact, integrated and with high-performance – the IR Micro embedded sensor

The IR Micro embedded sensor bundles outstanding sensor technology in a highly compact space. Equipped with a high-sensitivity pyrosensor and special lens, the miniature sensor quickly and reliably detects even the minutest movements. The sensor is so compact that it can be assembled into almost all TRILUX luminaires – and blends harmoniously into the luminaire design thanks to its discreet appearance. With a mounting height of up to 4 metres and a square detection range of 36 m² the IR Micro embedded sensor is ideal for use in offices and classrooms. A further benefit: because it is already integrated in the luminaire, no extra installation effort is necessary.

Features and functions:
- Miniature sensor for assembling in luminaires with almost all TRILUX product ranges
- High-sensitivity pyro-sensor with special lens for detecting the smallest of movements
- Mounting height of up to 4 m
- Square detection range of up to 36 m^2
- No additional installation effort because the sensor is already built in to the luminaire

LiveLink and KNX – a perfect team

Especially in larger projects, building management systems based on KNX are used for networking and controlling various systems. The light management system is often handled as an integral component of the building management technology and must be accordingly integrated and controlled via KNX with high effort. In comparison, integrating the DALI-controlled LiveLink light management system offers several advantages.

Fewer additional hardware components
With purely KNX-based light management systems, DALI luminaires must be individually integrated into the building management system via special KNX DALI gateways. Furthermore, only KNX sensors and push-buttons can be used. LiveLink offers a distinct advantage: it bundles all existing commercially-available DALI elements on the room side and commonly connects these with the building management technology via a single LiveLink KNX interface.

Simple integration via ETS
LiveLink has a KNX interface which enables the light management system to be very simply integrated into an existing KNX system. The required properties and parameters of the LiveLink interface are saved in the ETS database for this purpose.

All luminaires at the same time
With LiveLink, it is no longer the case that each luminaire has to be individually addressed in KNX – now the whole room can be linked at the same time to the KNX system. The single luminaire groups and light scenes can then be conveniently assigned using the LiveLink app in the specific room.

Plug & Play instead of programming
As standard, KNX offers no predefined module for constant light control, meaning complex programming would be required in such cases. HCL applications such as circadian light curves and colour sequences are also complex to create via KNX. With LiveLink on the other hand, these and many other applications can be quickly and simply implemented via plug & play.

SYSTEM OVERVIEW: SENSORS

LUMINAIRES
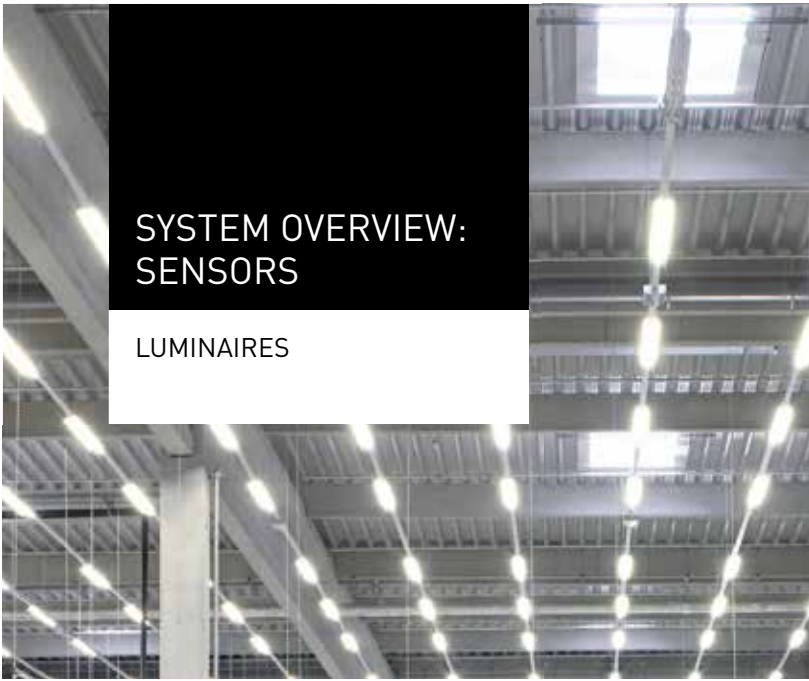
The perfect light is emitted by the right luminaire

For over 100 years, TRILUX has developed tailored products for practically every application. Luminaires with narrow-angle light distribution for high halls as well as glare-free LED luminaires for VDU workspaces in an open-plan office, or planar light in characteristic design for executive offices. Each offers excellent quality of light, a long useful life, high energy efficiency and particularly easy installation and maintenance, ...and that's not all: All TRILUX luminaires are DALI-capable and can be connected to the LiveLink light management system via plug & play.

Tailored – a broad portfolio for the most stringent of requirements
The best light management system is only as good as the products which it controls. TRILUX offers numerous luminaires for different applications with which lighting designers and architects have great flexibility and can always create optimal light conditions.

Master luminaires – the light control on board
Master luminaires already house the whole control intelligence. The control device, the sensor system and the connecting wires are integrated into the luminaire's body. Under certain conditions, this can help simplify the installation – e.g. in the case of suspended installation and in rooms with a high component of indirect light. Upon request, TRILUX can offer luminaires from almost all product families as a master luminaire.

Active luminaires – the step to Human Centric Lighting
TRILUX offers special Active luminaires, which, together with LiveLink, can specifically support well-being and concentration through biologically effective light. The light colour emitted by the luminaires varies between 3,000 Kelvin (warm white) and 6,500 Kelvin (cool white) for this purpose. This spectrum enables the desired colour mix to be individually selected via LiveLink, or circadian lighting to be set – light which tracks the course of natural daylight.

The portfolio of Active luminaires ranges from recessed and surface-mounted luminaires used for example in patient rooms, offices and classrooms for wide-area illumination, to downlights for relaxation and waiting rooms.

ADDED VALUE

THE PATH TO SUCCESS

LiveLink's most important function: Providing added value for all

With LiveLink, light management is changing from a discipline exclusively for specialists to a matter of course for a growing group of users. An automated light control system which is tailored to the client's requirements saves costs and optimises lighting conditions. It allows for customised light and maximum comfort under all framework conditions and in any situation. LiveLink provides all this with minimal outlay.

Users – reducing costs with light solutions
The switch from conventional lamps to LED is a considerable step for many investors. Taking this step alone already offers significant advantages and reduces operating costs. Those who want to systematically take full advantage of the potentials of LED however, go one step further: With a light management system, the energy costs can be reduced further – by up to 55 percent. This means an extremely short payback period and a quick ROI. Additionally, it optimises the quality of light for the individual requirements of the users.

Lighting designers – helping to shape the light of the future
Light management is a booming market segment – and the future of the light industry. Those who master light management early on and actively communicate this with their clients can gain new customers and provide them with a tangible added value. The expenditure is doubly rewarding because with LiveLink it is minimal. The designing can be carried out easily, quickly, comfortably and securely.

Contractors – easily expanding their service portfolio
With the LiveLink system, all light control components interact smoothly with one another which makes commissioning easy, quick and risk-free. Without the need for any specialist training, light management can become part of the contractor's service portfolio.

Users – always the right light at the right time
Many will be familiar with the situation with their cars, cameras or their TVs: We don't use all the options that technology offers us. Quite simply because the options are not immediately apparent. LiveLink utilises a mobile app with an intuitive user interface for operation, but, in addition to this, the system can also be controlled via a conventional push-button or automatically via sensors. This way, users can optimise the light for themselves at any time, without any problems.

LIVELINK

STARTER KIT

Simply get started!
With the starter kits for standard rooms

Order, unpack, install – done! With three different starter kits, TRILUX is making the entry into light management even easier than it already is with LiveLink. TRILUX has configured a complete and compact set of equipment for three types of rooms. The starter kits contain all necessary components. The contractor merely needs luminaires and a tablet for commissioning.

LiveLink Room Kit Standard – energy savings

The Room Kit Standard contains all components necessary to set up a light management system in small and medium-sized rooms to save energy. The kit consists of the LiveLink control device and a STEINEL presence detector IR Quattro HD for presence detection and constant light control. The control is possible either via push-button or using the App.
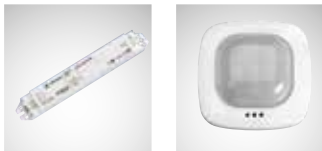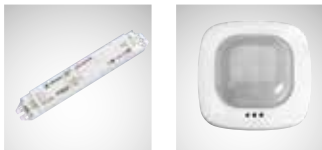

LiveLink Room Kit Comfort – energy savings and light scenes

The right light for presentations, meetings, or video conferences. For recurring light scenes such as in classrooms or conference rooms, the Room Kit Comfort is perfect. The kit consists of the LiveLink control device, a STEINEL presence detector IR Quattro HD for presence detection and constant light control, as well as a DALI push-button coupler. The latter can integrate multiple push-buttons in order to call up pre-configured light scenes. Optionally, all functions are possible via the App.

LiveLink Corridor Kit – energy savings as well as safety and security

With the corridor kit, gangways, hallways and corridors can be illuminated both safely and securely as well as in an energy-saving manner. The corridor solution consists of a control device and the STEINEL corridor sensor Dual HF for presence detection and constant light control.

Reference	TOC	Description
Starter Kits		
LiveLink Room Kit Standard	65 661 00	Standard room package consisting of LiveLink control device and STEINEL presence detector IR Quattro HD for energy saving in small to medium-sized offices.
LiveLink Room Kit Comfort	65 66 200	Comfort room package consisting of LiveLink control device, push-button coupler and STEINEL presence detector IR Quattro HD for energy savings e.g. in classrooms or conference rooms with additional scene control via commercial installation push-buttons.
LiveLink Corridor Kit	65 66 300	Corridor package consisting of LiveLink control device and STEINEL corridor sensor Dual HF for energy savings in corridors.

CONTACTS

TRILUX GmbH & Co. KG
Heidestraße · D-59759 Arnsberg
Postbox 19 60 · D-59753 Arnsberg
Tel. +49 2932 3010
Fax +49 2932 301375
sales@trilux.com · www.trilux.com

TRILUX LIGHTING LIMITED
TRILUX HOUSE, Winsford Way
Boreham Interchange
Chelmsford, Essex
CM2 5PD
Tel. +44 1245 463463
Fax +44 1245 462646
sales@trilux.co.uk · www.trilux.co.uk