SYLVANIA

by **FEILO SYLVANIA**

SYLSM∧RT
CONNECTED BUILDING

Luminaires with Integrated Lighting Control

by **FEILO SYLVANIA**

INTRODUCTION

With lighting accounting for around 30% of a commercial building's total energy consumption, effective lighting can have a significant impact on energy savings. Installing LED fixtures can achieve an energy saving of 60%, but there is more we can do.

Of the energy consumption remaining after installation of LED fixtures, advanced lighting control can save an additional 68%, bringing the total overall saving to 87%. It is therefore no surprise that many of today's building codes and regulations require advanced controls in order to achieve the highest rating.
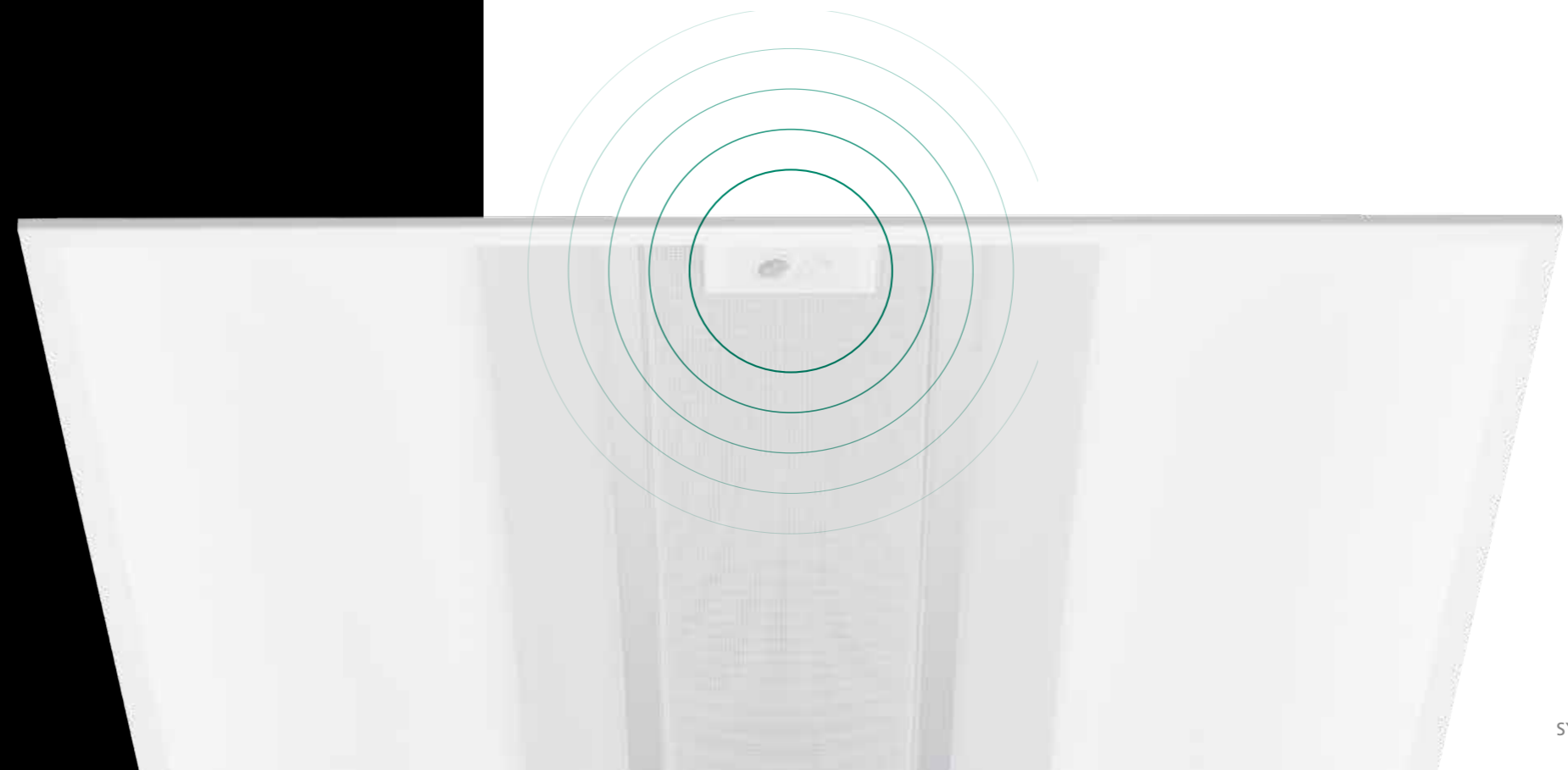
The British Council for Offices (BCO) recommends the inclusion of lighting controls to achieve compliance with Part L of the building regulations. BREEAM also gives two points for lighting controls that include daylight and presence sensing and individual light level controls for each luminaire. SylSmart technology achieves all of the above lighting requirements, including daylight linking, constant illumination and occupancy control.

SylSmart-enabled luminaires deliver the most advanced lighting control solution to help you maximise energy savings and user comfort, without the drawbacks of traditional control systems:
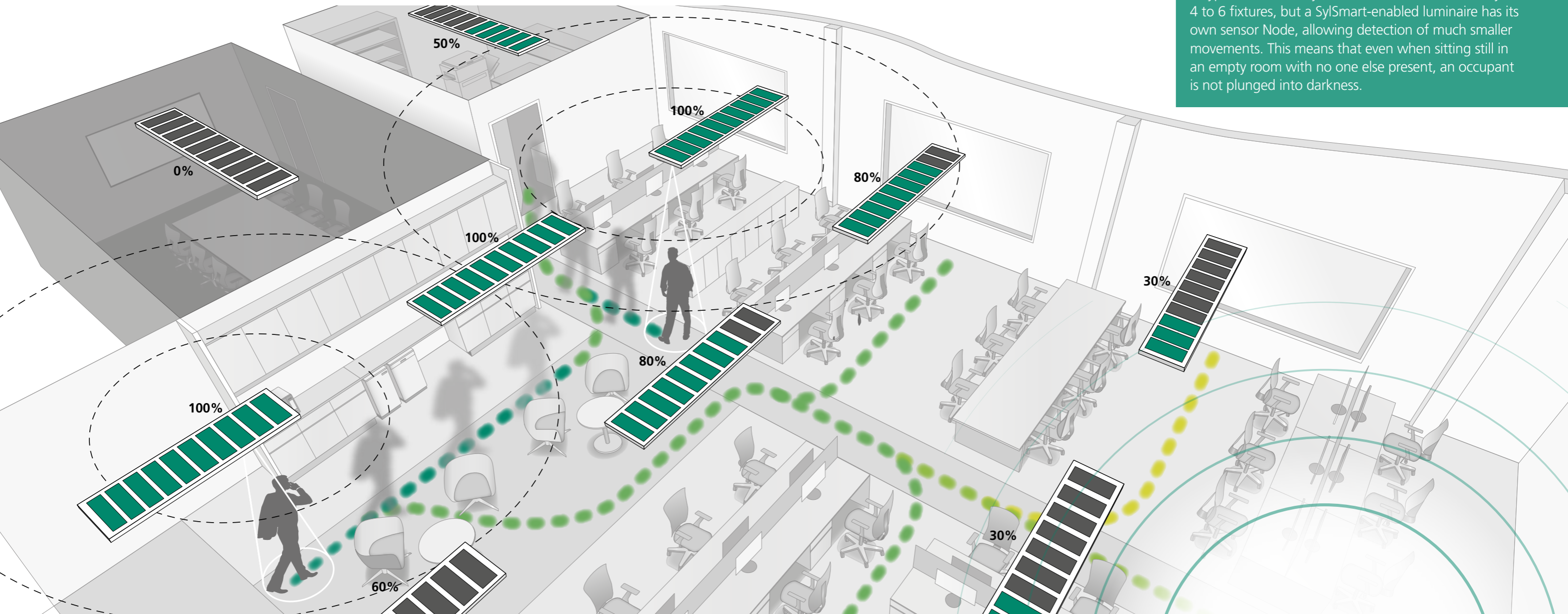
- It is **commissioning free**
- There are **no compatibility issues** as all controls are built into the luminaires
- Complete flexibility: the system **automatically adjusts** when the layout of a room changes
- **No control cabling** is required

These advantages result in:

- **30% lower** upfront investment compared to DALI
- **35% additional** saving compared to standard DALI controls
- **68% reduction** in energy costs vs. non-controlled situations

HOW SYLSMART WORKS

A typical PIR-based system uses one sensor for every 4 to 6 fixtures, but a SylSmart-enabled luminaire has its own sensor Node, allowing detection of much smaller movements. This means that even when sitting still in an empty room with no one else present, an occupant is not plunged into darkness.

50%
0%
100%
100%
80%
30%
100%
80%
60%
30%

Feilo Sylvania's SylSmart-enabled luminaires feature a Sensor Node that is integrated into each luminaire during manufacture. Each Sensor Node contains a motion sensor, communications module, ambient light sensor and an intelligent microprocessor. As soon as a luminaire is connected to the power supply, it will start detecting.

Continuous auto-commissioning

There is no need to commission the lighting control as SylSmart-enabled luminaires will automatically detect surrounding conditions and set light output accordingly. Simply install the luminaires, connect the power and you are done. No further commissioning is needed. From the moment the unit is powered, the SylSmart system begins learning patterns of movement

in the space. Each sensor node detects movement and works with its neighbours to understand how the space is used to generate predictive lighting controls. The system then continues to learn if there are any changes to the pattern and adapts accordingly. A truly intelligent, autonomous lighting control system.

Maximum user comfort

The SylSmart control algorithm results in the highest level of user comfort possible. Each node lights up gradually on detection of an approaching occupant, preventing sudden light level changes that users perceive as uncomfortable. This means when sitting still in an empty room with no one else present, an occupant is not plunged into darkness. A typical PIR-based system uses one
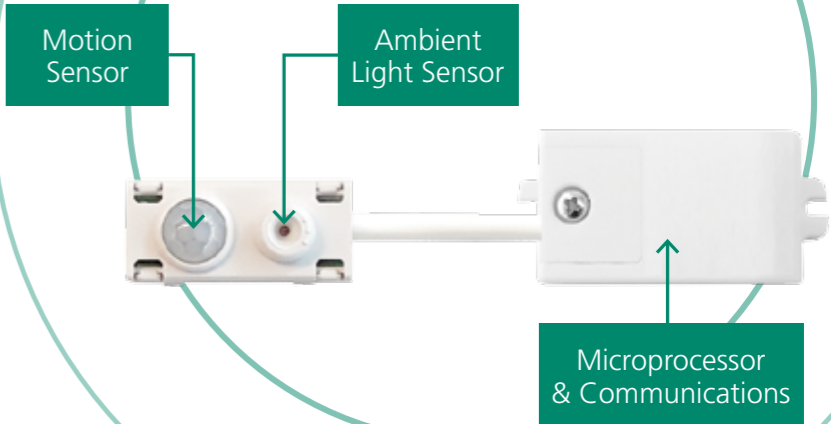
sensor for every 4 to 6 fixtures; however, a SylSmart-enabled luminaire has its own Sensor Node, allowing detection of much smaller movements.

Impressive energy savings possible

SylSmart-enabled luminaires can control an area with much finer control than central control systems. This ensures that only luminaires that are required to adequately light a space are illuminated, leading to an additional 35% of energy saving on top of a standard DALI system. The systems operates such that a person sitting alone in an open plan office will only be lit by their nearest fixtures, or a luminaire next to a window will automatically detect daylight levels and dim its light output, while a luminaire at the other side of the room will increase its light level.

Intuitive app for advanced control setting

The SylSmart system also has several advanced features that can be simply programmed with the Smartphone app. Lux levels for each luminaire can be individually adjusted in order to ensure the right regulatory lux level is achieved. Different profiles can be set to determine the optimal dimming profile for specific areas, such as in an open-plan office or for a corridor. Luminaires can also be assigned in zones with specific settings. These settings can be set to never turn off any hallway lights as long as one of the offices is occupied, or to keep certain zones 'always on'; such as accent lighting on feature walls. The app also enables simple programming of wall switch controls.

Motion Sensor

Ambient Light Sensor

Microprocessor & Communications

A LIFETIME OF SAVING YOU MONEY

> **"I have used SylSmart solutions in several projects and it's absolutely fabulous, it shortens the time to install by 25%, compared with a DALI installation. "**
>
> *Filip Salembier, Electrolyse*

SylSmart is a sound financial investment, saving you money in every phase of a project's lifecycle – from design and installation through to total cost of ownership – while also delivering the best possible light quality to your building occupants.

Whatever your project, be it new build or refurbishment and for a wide variety of applications, we can deliver cost savings that are extremely impressive.

SylSmart is one of the first lighting control solutions that makes sense from both a financial and user-comfort perspective. It is important for specifiers and lighting procurement officials to strike a fine balance between performance and cost. Adding controls to the lighting package ensures your system becomes even more efficient.

By using SylSmart-enabled luminaires, not only can you enjoy vastly superior lit environments, but you can also enjoy significant savings on capital expenditure as well as on operating costs.

To illustrate the strength of SylSmart in terms of Total Cost of Ownership (TCO), we have included example calculations on the opposite page for three common application scenarios. We are happy to run a set of calculations for your specific requirements – please contact us to learn more.

TOTAL COST OF OWNERSHIP EXAMPLES

Open-plan office refurbishment

COMPARED TO DALI:
10% reduction in capex
20% additional saving p.a.
Typically **1.5 years** quicker **payback**

	System Cost DALI	With SylSmart enabled luminaires
Payback Time saving vs DALI		**1.5**
Annual savings	£ 2,072	**£ 2,820**
Luminaire	£ 9,657	£ 16,761
Controls	£ 5,524	£ –
Installation	£ 1,840	£ 726
Commissioning	£ 1,920	£ –
TOTAL CAPEX	£ 18,941	**£ 17,487**
ECA Return (money off spend)	£ 3,788	**£ 3,497**
Annual Running (10p/kWh)	£ 1,111	**£ 673**
kWh	11,111	6,731
kWh saving	21,259	25,640
Carbon saving	11,565	**15,342**

For this example, figures have been calculated for an open-plan office layout featuring 83 standard 600 x 600mm 64W T8 luminaires. Taking into account the reduced installation and commissioning investment required, this scenario delivers impressive savings as well as reducing annual energy consumption from 32,370p/kwh to 6,731kwh; saving approximately £2,564 per year.

Data centre refurbishment

COMPARED TO INSTALLING LED LUMINAIRES ONLY:
2 years payback
(instead of 2.8 years)
85% additional saving
in annual running costs (GBP)

	With no controls	With SylSmart enabled luminaires
Payback Time	2.8	**2.0**
Annual Savings	£ 3,350	**£ 6,273**
Luminaire	£ 10,708	£ 15,231
Controls	£ –	£ –
Installation	£ 830	£ 830
Commissioning	£ –	£ –
TOTAL CAPEX	£ 11,538	**£ 16,061**
ECA Return (money off spend)	£ 2,308	**£ 3,212**
Annual Running (7p/kWh)	£ 3,262	**£ 325**
kWh	46,606	4,641
kWh Saving	47,586	89,551
Carbon saving	25,887	**48,754**
Reduction in cooling	£ 4,187	£ 7,841

Figures calculated for a data centre with 142 Twin 58W (118.4) Watt luminaires installed. The installation currently has no controls. Here we highlight potential savings possible by specifying SylSmart-enabled luminaires. Our simulations show that we could achieve a saving of approximately 90% on energy consumption.

Hospital corridor

COMPARED TO INSTALLING LED LUMINAIRES ONLY:
1.9 years payback
(instead of 2.3 years)
68% additional saving
in annual running costs (GBP)

	With no controls	With SylSmart enabled luminaires
Payback Time	2.3	**1.9**
Annual Savings	£ 3,344	**£ 5,622**
Luminaire	£ 8,671	£ 12,597
Controls	£ –	£ –
Installation	£ 770	£ 770
Commissioning	£ –	£ –
TOTAL CAPEX	£ 9,441	**£ 13,367**
ECA Return (money off spend)	£ 1,888	**£ 2,673**
Annual Running (10p/kWh)	£ 2,883	**£ 606**
kWh	28,829	6,054
kWh Saving	33,441	56,216
Carbon saving	18,192	**30,582**

Figures calculated on 50W SylSmart-enabled luminaires 600x600mm (49 standard and 17 emergency). Previously, the hospital was fitted with 66 4x18W luminaires, consuming 62,270kWh.

PLEASE NOTE: Figures are indicative only. Pricing can vary based on the individual circumstance of the client.

KEY APPLICATION AREAS – FEATURES AND BENEFITS

OFFICE LIGHTING

HEALTHCARE, EDUCATION AND LOCAL GOVERNMENT

PROPERTY DEVELOPER

- Prevent delays – The commissioning of a lighting control system can cause sign-off delays. As SylSmart functions as soon as power is connected to the luminaires, there are no delays; your building can open on time

- Adhere to planning requirements – There is increasing pressure to build energy efficient buildings in order to get planning permission. Selecting SylSmart-enabled luminaires is a cost effective way to score additional points on your green building certificates, such as BREEAM

BUILDING OWNER

- Improved returns – SylSmart delivers a greener building, lower energy consumption and more comfortable lighting, which will attract higher rents

- Shorter rent-free periods – When new tenants come in, lighting does not need to be recommissioned, shortening moving-in periods so landlords can reduce rent-free periods

- Reduce maintenance costs – Malfunctioning lighting control systems are a common cause of maintenance calls. The simplicity of the SylSmart system, coupled with the system's lack of a central point of failure, has been shown to significantly reduce faults and consequently reduce the number of maintenance calls

TENANT

- Flexibility – Tenants can repartition space without recommissioning or moving sensors, as the SylSmart system will automatically adapt

- Year-on-year improvements – Deliver energy savings year after year by leveraging collected data to retune the system, or integrate collected data with other BMS systems to improve other services, such as heating

- Control energy performance/ESOS improvements – Tenants often have little control over potential energy saving measures, such as the quality of insulation in a premises. SylSmart offers the opportunity to deliver significant energy savings by a simple point by point replacement of the luminaires

HEALTHCARE

- Lights on 24/7 – In healthcare environments, lights are often left on continuously in hallways and corridors when no one is there, as there is no acceptable dimming solution available that suit key hospital and health care facility requirements. SylSmart provides a very attractive solution:

- Never enter a dark room – It is established best practice that no patient should enter a room in darkness. SylSmart-enabled luminaires illuminate as a person approaches an unlit area, ensuring that patients will never find themselves in the dark

EDUCATION

- Light when it is needed – Educational institutions often contain many areas that are intermittently used, like hallways and storage areas. SylSmart offers the perfect solution by allowing light to be dimmed in these areas when not in use

- Out of hours – SylSmart is particularly suitable for environments such as universities – where facilities, such as libraries, are open for long hours and energy usage is large. In these areas in particular, an SylSmart dimming solution can deliver significant energy savings

- Schools and classrooms often feature many windows, and with SylSmart's daylight sensors, illumination is tailored to utilise the existing daylight to the maximum, meaning no wasted lighting

LOCAL GOVERNMENT

- Government and local authorities typically have higher energy efficiency targets for their own buildings than the private sector may have. SylSmart is a perfect solution to help achieve targets such as BREEAM

- Show visitors that you lead by example and are green. Lighting control is one of the few energy efficiency measures that is immediately visible, highlighting your effort and dedication to energy saving and efficiency

DATA CENTRES

OTHER AREAS

OWNER-MANAGED AND CO-LOCATED DATA CENTRES

- Increase power usage effectiveness – Installing more efficient lighting and lighting control has been shown to increase the power usage effectiveness (PUE) in data centres by 25%. Using SylSmart, maximum increases in PUE are achieved without the risk of being left in the dark or the need for new wiring

- Never left in the dark – SylSmart does not rely on timed lighting, instead every luminaire is equipped with a sensor. This ensures there are no 'black spots', and even the smallest movement is noticed and responded to

- No new wiring – Data centres often have a large amount of cables in the ceiling, with SylSmart there is no need to pull additional control wires

- Reduce heat production – Cooling is a substantial cost for data centres. By using SylSmart-enabled luminaires, the heat produced by the lighting system is significantly reduced; saving on the cost of running air conditioning systems

- High output when needed – Typically, lighting in data centres run at 1,000 Lux and is left on all the time. If high light output is needed, yet cost efficiency is to be maintained, using the SylSmart system to achieve this same result works even better. The brighter the light required, the more energy you use and therefore, the bigger the saving achieved from using SylSmart to manage your lighting system

AIRPORTS

- Back-of-house – Lighting is not always continuously needed in these areas. With SylSmart, you do not need to worry that the lighting is left on all the time costing money, or conversely if lighting is switched off, that staff are walking into unlit and potentially unsafe environments

- Minimise downtime – Quick to fit, with minimal commissioning and with integrated lighting control, overrunning installation risks are reduced with no incompatibility issues

- Gate lighting – With airports layouts positioning numerous gates across large areas, ensure gates are dimmed when not in use, yet pre-lit when approached

Coming soon:

- Heat-mapping – With the use of heat-mapping, owners and operators can reduce cleaning costs, improve security and assign additional staff by knowing exactly what areas have been used and where people are

DELIVERING VALUE FOR ALL

ARCHITECT

- Allow your creative vision to be realised, delivering energy efficient buildings that meet energy and performance targets – No compromise on your designs

- Create alluring interiors without interfering with your designs – With no need for wall mounted control panels, interiors can be clean, clutter-free and more in tune with the building's occupants

- Improve the energy efficiency and your building's BREEAM, LEED or other certificate's score at no extra cost

LIGHTING DESIGNER

- Save time – By choosing luminaires with integrated lighting control, remove the need to create a separate lighting control plan

- Your clients can enjoy an unprecedented level of engagement and feel in control of their lighting

- Allow lux levels to be set easily to required levels in the lighting code using the simple-to-use app, ensuring you are compliant without ever overlighting a space

INSTALLER

- Reduce on-site headaches and cut installation time, as no separate wiring is required for the control system

- Keep trades to a minimum – There is no need to employ additional trades to separately commission the lighting control, as the luminaires automatically commission themselves. Any electrician can install the luminaire and turn it on, and immediately the system will configure itself

ENERGY CONSULTANT

- Deliver significant energy savings to clients at a reduced capital expenditure, compared to what can be delivered with a DALI system

- Maintain an ongoing relationship with your client by leveraging the data from the lighting controls system, to deliver further energy savings into the future

MAINTENANCE MANAGER

- Reduce recommissioning costs – The system automatically adjusts when new partitions are added or the layout is changed, removing the need for complex recommissioning

- Replace luminaires without recommissioning – Simply take the old luminaire out, put the new luminaire in and it will start communicating with its neighbours straight away

- Make simple changes yourself without complex programming – You can dim the light level of a luminaire or increase its dwell time simply by pointing your mobile phone at the luminaire and clicking two buttons in the app

EXAMPLE LUMINAIRES WITH SYLSMART

SYLSMART

OUR SYLSMART-ENABLED PRODUCTS

OFFICELYTE LED   **Concord**

Concord Officelyte LED has SylSmart incorporated into the luminaire, offering flexibility as well as out-of-box functionality and efficiency. With a slim fully enclosed design profile that meets building regulations, the Officelyte LED Low Profile includes a high efficiency and a lumen output making it one of the most efficient luminaires available on the market in its class combined with state of the art lighting controls.

RANA   *SYLVANIA*

The Sylvania RANA offers a dynamic approach to commercial lighting by suiting both retrofit and new installations. To help create a harmonious lighting scheme, a complete range of recessed modular, surface and suspended luminaires are available, furthering the already impressive Sylvania Luminaires Office portfolio.

RUBICO   *SYLVANIA*

Sylvania Rubico, which comes in both 600 x 600mm and 1,200 x 300mm sizes, provides contractors and end-users with a high-output, easy-to-install office lighting solution at a competitive price. Rubico builds on the comprehensive portfolio of office lighting products already under the Feilo Sylvania umbrella.

START PANEL   *SYLVANIA*

Start Panel LED is a recessed LED luminaire for general indoor lighting applications; corridors, breakout areas, offices and meeting rooms. Start Panel LED with SylSmart provides exceptional performance with a wide and homogenous light emitting surface while ensuring low glare.

ACCESSORIES

App for Apple IOS and Google Android
For further optimisation of the system, to maximise user comfort and energy efficiency, download the app from the Apple Store or Google Play Store and use it to tailor your SylSmart system to suit your needs. Must be used in conjunction with the IR Dongle.

SylSmart Wall Switch
Enables users to control light scenes and the dimming of luminaires within a designated area. A typical application of the wall switch is to select a pre-programmed lighting scene to enhance a presentation. The wall switch is wireless and battery free ensuring a maintenance free experience with the flexibility to be mounted any where needed including glass partitions as needed. Android device with NFC needed for configuration of the wall switch.

LYCÉE EUGENE DECOMBLE, CHAUMONT, FRANCE

MATRIX EMC, GLASGOW, SCOTLAND

BBTK OFFICES, BRUSSELS, BELGIUM

CASE STUDIES

A LARGE OFFICE SPACE IN LONDON, UK, BENEFITS FROM IMMEDIATE ENERGY SAVINGS

SylSmart-enabled luminaires can be found on a wide variety of projects across the world. Organisations including retail outlets, commercial businesses and large charity organisations are benefi ting from the energy saving credentials of this innovative lighting control solution. Here are three examples of businesses that have recently installed SylSmart and are reaping the rewards.

A prominent charity organisation' based in Southwark, London, has selected SylSmart-enabled luminaires to refurbish their fi ve story, 2,000m² office space; benefitting from the energy saving potential of SylSmart technology.

Two hundred and forty SylSmart-enabled Concord OfficeLyte LED recessed luminaires were used to illuminate the main open plan areas, as well as in both large and small meeting rooms.

By installing Feilo Sylvania luminaires with integrated lighting control, the organisation benefitted from a reduced overall installation time and had handover deadlines comfortably met, thanks to the easy to install and commission luminaires.

SylSmart's ability to be configured as soon as each part of the building was completed through its quick zone commissioning ensured that the project moved ahead swiftly.

The organisation saw immediate lighting energy savings as soon as each zone was commissioned, thanks to the independent, yet connected, nature of each SylSmart-enabled luminaire.

ACHIEVING THE GRADE AT EUGENE DECOMBLE HIGH SCHOOL

Feilo Sylvania, has supplied its innovative SylSmart-enabled luminaires to provide an energy-efficient lighting and control system at the all-new Eugene Decomble High School in France. A High Environmental Quality (HQE) approach was adopted for the building, especially when it came to the lighting scheme as it represented the most important energy consumption.

Eugene Decomble High School is the result of merging two professional schools, Ashton and Haut du Val in Chaumont and has capacity for 431 students who are undertaking training in the automotive, industrial, building or public works sectors. The school construction plan involved restructuring the Ashton site, which was approx. 23,000m² and make it a showcase for eco-construction and sustainable development.

The project involved creating a lighting scheme for the school's 25 classrooms, corridors and boarding house. Grzeszczak-Rigaud Architects worked with Engineering office, Artelia, and Marseille based installers, Groupe SNEF, to install a lighting scheme that guaranteed the best visual comfort for the students and staff.

An SylSmart solution was implemented to suit the dimensions of the classrooms, two versions of the SylSmart-enabled luminaires were installed: 150 fixtures with a luminous flux of 3,210lm (2 x 15W) and 100 with a flux of 7,700 lm (3 x 15W). The luminaires are equipped with a very low luminance grid and a microprismatic diffuser, associated to a colour temperature of 4,000K. The daylight sensors help to maintain the illuminance level of 450 lux on the tables, regardless of natural light contribution. The lighting management system operates as follows: as soon as someone enters the classroom, the first set of luminaires lights up to 100%, the second set of luminaires located three meters further receive the information from the previous set and lights up to 80%. They in turn transmit a signal to the luminaires located at 6m from there, which lights up to 60%.

SYLSMART-ENABLED LUMINAIRES ARE THE PERFECT FIT FOR FITNESS 24 SEVEN

Fitness 24 Seven, one of the Nordic region's fastest growing fitness chains, is now benefitting from SylSmart's energy-efficient and easily controlled lighting system at its gym in Turku, Finland.

As the gym is open 24 hours a day, seven days a week, the owners required a lighting solution that could easily and simply adapt to suit the occupant levels within building. Over 85 Sylvania RANA SylSmart-enabled luminaires were chosen to meet this demand.

"We want our customers to be able to use our facilities at a time that is convenient to them," said Project manager Tiina Ruoho from Fitness 24 Seven. "In the past, our lighting was on all the time to make sure customers did not enter a dark space or have the lights turn off when they were still working out. This meant a lot of wasted light and expensive energy bills for us. We selected SylSmart-enabled luminaires from Feilo Sylvania because they met all of our criteria for an intelligent and energy-efficient lighting system."

"We are delighted with the new lighting scheme. The fact we know the lighting is off when there is no one in the building and automatically comes on when a customer enters is fantastic. We can guarantee the comfort of our customers and save energy and money."

FEILO SYLVANIA CREATES THE PERFECT WORKING ENVIRONMENT IN PORI, FINLAND

Feilo Sylvania's innovative SylSmart-enabled luminaires are providing an energy-efficient lighting and control system at Länsipuisto 24, the base for the Finnish city of Pori's IT department. The way the building had been constructed made a traditional wired controls system expensive and time consuming, so SylSmart's intuitive and wireless controls solution proved to be the perfect choice.

The owners required an easy to use and instinctive lighting control solution that included motion sensors and no wall switches. "Other control solutions would require a lot of independent sensors, which would not work together," said Janne Aaltonen, electrical specifier from Etteplan Design Center Oy.

"It was also not possible to install the luminaires in the ideal places according to the floor plan and office tables. For this reason, the lighting levels of most of the fixtures had to dim down individually in order to create an even light level in the open office space. I was very impressed how easy and fast this light level optimizing was done by Feilo Sylvania's product manager with an SylSmart apps-equipped mobile phone. The SylSmart solution proposed by Feilo Sylvania proved to be the ideal choice."

MADE BY US FOR YOU

We hate to see our planet's precious resources go to waste, which is why we strive to work as efficiently as possible. We maximise the energy-efficiency of all our products for the benefit of the environment and our customers.

Unlike other lighting providers, we are a global company with local manufacturing and operations hubs strategically placed across the globe. This means we are able to deliver our services quickly and efficiently to all our customers, wherever they are, and with a personal touch. We are proud of our business model, which enables us to work in smart and "green" ways to minimise our impact on the environment and maximise the benefits for our customers.

Our short payback period and post-installation lamp warranties provide our customers extra reassurance.

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