ESYLUX

IMPROVE LEARNING CONDITIONS. ESY!

INTELLIGENT AUTOMATION AND LIGHTING FOR SECONDARY SCHOOLS

THE ENVIRONMENT AS A TEACHER

BETTER EDUCATION THROUGH INTELLIGENT BUILDING TECHNOLOGY

The design of schools as a living space is extremely important for ensuring successful learning. Because aside from hard work, talent and a sophisticated education system, students and teachers need an environment that gives them comprehensive support. This can be achieved through good acoustics, ergonomic equipment or an open learning environment, for example. According to literature in the field, the environment is therefore the third teacher in addition to children/young people and adults.

INTELLIGENT SYNERGY OF AUTOMATION AND LIGHTING

With intelligent automation across several areas and the development of high-quality LED lighting, ESYLUX has specialised in the most important aspects of the classroom: The sensor-based control unit creates a high level of comfort, allows all those in the classroom to work in a calm environment, reduces energy consumption and improves the climate in the room. Flicker-free light with perfect colour reproduction enables all visual tasks to be completed and uses changes in colour and brightness that imitate daylight to promote vitality, concentration and health.

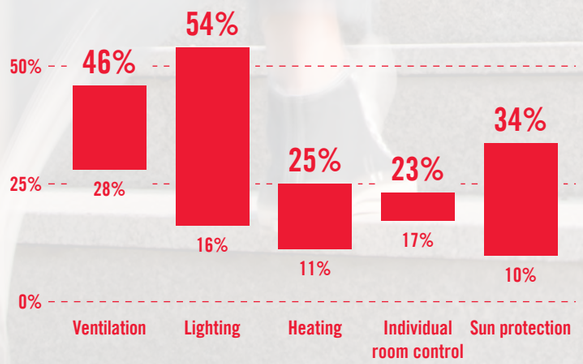
This intelligent synergy of automation and lighting therefore optimises learning conditions and ensures future learning success through an energy-efficient implementation that preserves resources. Students and teaching staff can focus fully on their work – and planners and installers benefit too: That's because ESYLUX solutions offer reliable quality and individual configuration options and are easy to implement!

CONTENTS

SUSTAINABLE MODERNISATION

FOR A MORE COST-EFFECTIVE APPROACH AND PROTECTION OF NATURAL RESOURCES

ENERGY SAVING POTENTIAL OF DEMAND-DRIVEN BUILDING AUTOMATION (MIN./MAX.)



Source: Zentralverband Elektrotechnik- und Elektroindustrie e.V. (ZVEI)/ Biberach University of Applied Sciences

Up to 70%

POTENTIAL ENERGY SAVINGS*
Through the use of control in line with demand combined with modern lighting.

* Source: Energy Efficiency Initiative, Deutsche Energie-Agentur GmbH (dena)

In recent years, the structural design of school buildings has become a key issue. And this is not simply because of necessary improvements in the quality of living and learning: Any building in which large numbers of people come together usually also requires a high consumption of energy. Artificial light illuminates the working spaces, ventilation delivers fresh oxygen, while the air conditioning or heating optimise the temperature. Energy efficiency is therefore a key issue in the modernisation of schools.

ENERGY EFFICIENCY THROUGH DEMAND-DRIVEN BUILDING AUTOMATION AND LED LIGHTING

Solutions from ESYLUX offer a huge savings potential in this area. This is because presence and motion detectors use energy only when it is really required, automatically increasing energy efficiency in the whole building across several areas. In its lighting, ESYLUX also deliberately uses economical LED illuminants with a long expected service life that is used in a optimal way thanks to the demand-driven automation of presence and motion detectors.

In this way, the intelligent automation and light solutions from ESYLUX ensure a sustainable operation of room technology while protecting natural resources – as well as your budget!

STANDARDS SET THE MINIMUM REQUIREMENTS

Stricter standards are now in place when it comes to the energy consumption of buildings and the quality of the room technology in schools. ESYLUX supports the EU's ambitious energy efficiency targets and ensures that its product solutions conform to the precise standards.

But when it comes to achieving the highest quality levels, the standard requirements will only ever represent the minimum prerequisites. This is why we like to exceed them – such as in our human centric lighting.

AVOID UNNECESSARY ENERGY CONSUMPTION WITH EASE

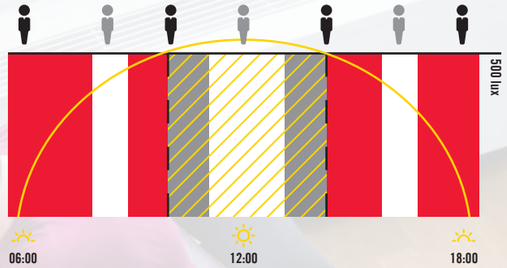
The principle of demand-driven automation is as easy as it sounds: Only use energy when it is really needed. It replicates typical human behaviour. Users of school buildings and other educational institutions often forget to switch off lighting, ventilation and heating systems when they leave a room. This results in far too much unnecessary energy consumption.

SAVING ENERGY THROUGH INTELLIGENT SENSOR TECHNOLOGY

The use of a simple presence detector alone already results in a significant improvement. This is because it automatically ensures that the lighting or other devices are only switched on when people are actually in the workplace. It also has a light sensor that checks the current brightness during operation. If the daylight that enters the room through the windows is adequate for work, the presence detector will also switch off the artificial light.

Even more energy can be saved by constantly adapting to current environmental conditions: Presence detectors with the ability to provide constant lighting control only dim up the artificial light to the extent necessary to achieve a set value, based on the available daylight. This is the best possible way of using daylight and also naturally ensures an extremely high level of convenience. It never becomes too dark or too bright...

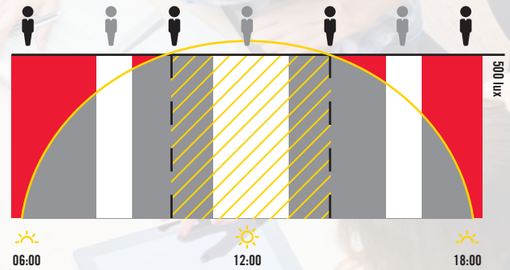
PRESENCE AND DAYLIGHT DEPENDENT LIGHT SWITCHING



Presence and daylight dependent light switching using a presence detector automatically reduces energy consumption (building efficiency class B).

Such as with the PD-C 360i/8 MIC presence detector
With its high-quality sensors, it switches the lighting reliably and also features an acoustic sensor for angled sanitary facilities.

PRESENCE AND DAYLIGHT DEPENDENT CONSTANT LIGHT CONTROL



The best use of daylight: Constant lighting control of a presence detector (building efficiency class A).

Such as with the PD-C 360i/24 DUO DALI presence detector
Its additional offset light channel enables daylight to be used with even greater energy efficiency, particularly in rooms with windows on just one side, such as classrooms.

LIGHT THAT MOTIVATES

HUMAN CENTRIC LIGHTING FOR IMPROVED LEARNING QUALITY AND HEALTH

SYMBILOGIC IS THE ESYLUX TECHNOLOGY FOR ENERGY-EFFICIENT HUMAN CENTRIC LIGHTING

SYMBI LOGIC™

INCREASES
VITALITY
MOTIVATION
OUTPUT

REDUCES
ERRORS
ABSENCES
RESTLESSNESS

Source: "Quantified benefits of human centric lighting" report by LightingEurope and ZVEI, April 2015

The best light for people is natural daylight. Through dynamic changes in light colour and brightness, it controls our circadian rhythm and has a positive influence on our hormonal balance, vitality and ability to concentrate. People simply have a greater sense of well-being and are more motivated. However, modern life means that our exposure to daylight is often limited – since we spend most of our time in closed rooms.

LEARNT FROM NATURE

ESYLUX is bringing the changes in natural daylight back to the modern world of work through its indoor lighting solutions with human centric lighting using SymbiLogic technology. They achieve the same biological effect and create an invigorating atmosphere in the classroom in a fully automatic process. They meet every standard, but go far beyond the minimum requirements.

In addition, SymbiLogic combines the well-being and effectiveness of students and teaching staff with the benefits of an intelligent control unit for more comfort and efficiency. As an automation specialist with many years of experience in the development of intelligent sensor systems, ESYLUX is better equipped than any other manufacturer to precisely customise this innovative light management system to modern requirements and the most varied of demands.

OUTSIDE ON A SUNNY DAY, WE RECEIVE
100,000 LUX

OUTSIDE ON A CLOUDY DAY, WE RECEIVE
10,000 LUX

IN THE OFFICE, WE STILL ONLY RECEIVE A BRIGHTNESS OF
500 LUX

HUMANS SPEND
90%
OF THEIR TIME IN ENCLOSED SPACES

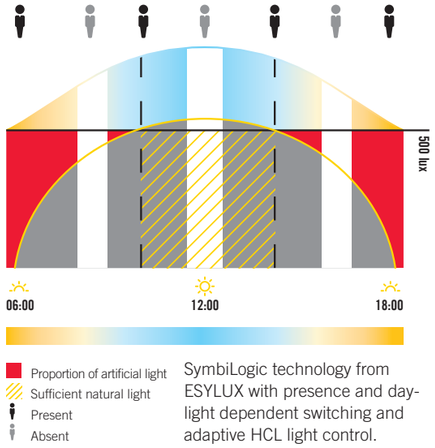
EFFICIENCY AND WELL-BEING IN HARMONY: SYMBILOGIC TECHNOLOGY FROM ESYLUX

The fully automatic lighting sequences from SymbiLogic imitate daylight. They start in the early morning with the warm, white light of the rising sun, before the brightness and level of blue light dynamically increase. This increase creates a refreshing level of activation in the classroom. Light is also the most important timing mechanism for controlling the human circadian rhythm. Bright, cold white light during the day stabilises this rhythm.

Towards the evening, SymbiLogic dims the light and turns it a warm white colour, allowing people to wind down to rest at an appropriate time. With its innovative control system, SymbiLogic ensures a more refreshing sleep and supports essential regeneration. Perfect for new vitality and long-term health.

EFFECTIVE THANKS TO THE FAR ABOVE AVERAGE LIGHT INTENSITY, AT AN EFFICIENCY THAT IS MUCH HIGHER THAN STANDARD LEVELS

But SymbiLogic is not just effective in a range of situations – it is also uniquely energy-efficient thanks to the use of intelligent presence detector sensors: The lighting is switched on or off depending on human presence and daylight, achieving the highest level of innovation in its dynamic brightness levels with its use of daylight. This is because the adaptive HCL light closed loop control takes the proven principle of constant lighting control and applies it to state-of-the-art indoor lighting – and helps to save a great deal of energy in a fully automatic process.



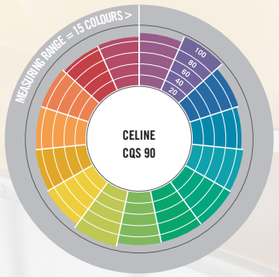
SymbiLogic technology from ESYLUX with presence and day-light dependent switching and adaptive HCL light control.

SYMBI LOGIC™

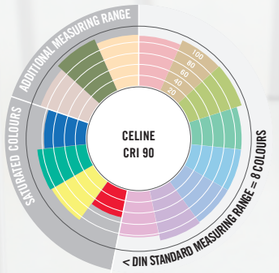
SCIENTIFICALLY PROVEN EFFECT

An experiment by the University Medical Centre Hamburg-Eppendorf involving 166 students between 8 and 16 years of age as well as 18 teachers impressively demonstrated the effect of human centric lighting in everyday school activities:

Among other findings, reading speed increased by more than 30% through lighting that imitates daylight, while the error rate fell by 45% through an improved ability to concentrate. It was possible to reduce restlessness through the targeted use of dimmed, warm, white light by no less than 76%.



ESYLUX CRI spectrum
Measurement result; example based on CELINE



ESYLUX CQS spectrum
Measurement result; example based on CELINE

FIRST-CLASS LIGHT QUALITY

Daylight sets the benchmark not only for human centric lighting, but also when ensuring natural colour reproduction, for example. This is why ESYLUX uses all 15 test colours of the Color Rendering Index (CRI), rather than just the eight compulsory ones. ESYLUX is also one of the first manufacturers to integrate the Color Quality Scale (CQS) into its measuring methods.

Together, the CRI and CQS guarantee the realistic rendering of even weak colours and highly saturated colours.

LOW FLICKER FACTOR, HIGH VISUAL QUALITY

If you care about the well-being of students and teachers, you should also use flicker-free LED lighting. Even if the flickering is within a frequency range not visible to the human eye, it can still be tiring, create feelings of vertigo and, in some cases, even have far-reaching health consequences. This is why ESYLUX uses indoor lighting with the lowest flicker factor.

SYSTEM LIGHTS FEATURING ESYLUX LIGHT CONTROL:

- **Simple, error-resistant installation, grouping, scaling and networking via plug-and-play**
- **Ready for use immediately**
- **Energy-efficient human centric lighting for more vitality, concentration and health**
- **Alternatively with fixed light colour and presence and daylight dependent constant light control**
- **Cost-effective lighting solution for standard-compliant and future-proof modernisation**

MODERNISATION VIA PLUG-AND-PLAY: ESYLUX SYSTEM LIGHTS WITH SYMBILOGIC

Simple plug-and-play can also often be used to assign system lights to the individual light channels.

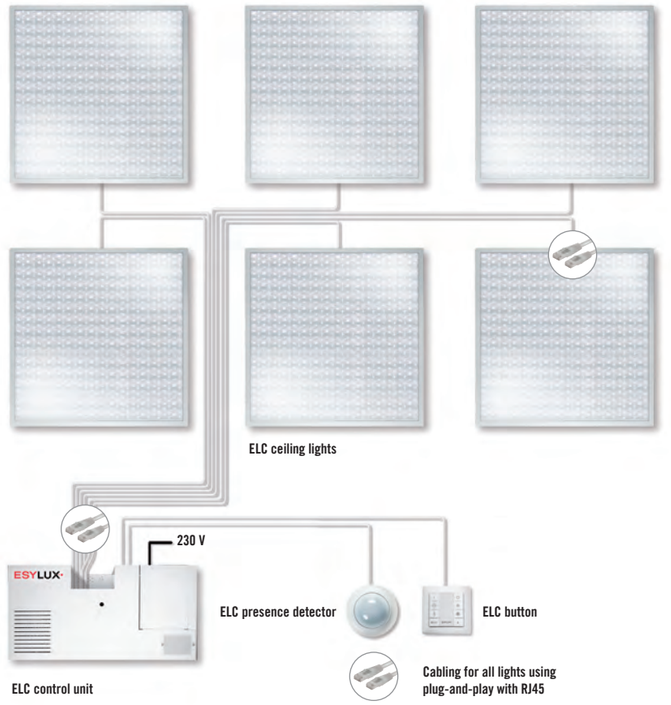
System lights with ESYLUX Light Control ELC and integrated SymbiLogic technology are the simplest and most economical way to implement energy-efficient human centric lighting in the classroom and other school rooms. The systems combine ELC ceiling lights, ELC presence detectors, ELC control units, cabling and accessories and can be installed via plug-and-play. They can be used immediately without any programming and enable rapid modernisation, even in ongoing operation.

GROUPING, SCALING AND NETWORKING VIA PLUG CONNECTION

There are various options available depending on the requirements: In addition to preconfigured set solutions, the ELC system lights offer unrestricted configuration of the components in seven simple steps. Configuration, time, integration and control functions allow a flexible design for every application situation. As an alternative to designs with SymbiLogic, the systems are also available with a fixed light colour and presence and daylight dependent constant light control.

They are scaled using a plug-and-play process: Up to 400 lights can be controlled with SymbiLogic designs within the same system – more than enough for any room. In addition, control outputs are available for conventional DALI lights, e.g. for additional downlights. If the DALI actuator from ESYLUX is integrated, the ELC system lights also provide optimal air in the room automatically!

The ELC system lights are available with an optional integrated KNX module. This removes the need for a separate gateway and simplifies planning and installation.



AIR FOR CLEAR MINDS

IMPROVE THE INDOOR CLIMATE WITH ENERGY-EFFICIENT CONTROL

A lack of oxygen plus evaporation create a bad atmosphere in the classroom – quite literally. They cause tiredness, reduce concentration, and impact mood. Insufficient air quality also affects health. With an intelligent, sensor-based control system from ESYLUX, indoor air can be automatically improved – while simultaneously reducing the energy consumption of the air-conditioning or ventilation system to a minimum.

FROM PRESENCE DEPENDENT VENTILATION...

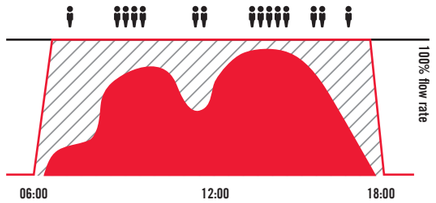
The DALI actuator from ESYLUX offers a simple solution for presence dependent switching of the ventilation. Controlled, for example, by the DUO-DALI presence detector from the COMPACT series, it ensures that the ventilation system only operates when there are actually people in the room. It is also easy to integrate it into the system lights with ESYLUX Light Control.

...TO AUTOMATIC CONTROL OF AIR QUALITY

However, there is still room for improvement: With its combination of presence and air quality sensors, the PD-ATMO 360i/8 O KNX presence detector does not activate the air conditioning and ventilation system until the air quality really makes this necessary – during operation it still ensures that the system only works at the required level of intensity.

Thanks to its unique multi-sensor system, the PD ATMO detects changes in the light situation, air humidity, temperature and air quality – with exceptional sensitivity through the VOC sensor*. It is particularly thorough in ensuring that a healthy, productive and comfortable climate is maintained in the room, while at the same time ensuring optimal lighting. For situations in which presence detection is particularly challenging, the high-quality passive infrared presence detector is supported by an acoustic sensor. This total of six “senses” in only one device eliminates the need for multiple individual solutions and complex assembly.

SAVINGS POTENTIAL IS OFFERED BY DEMAND-CONTROLLED VENTILATION

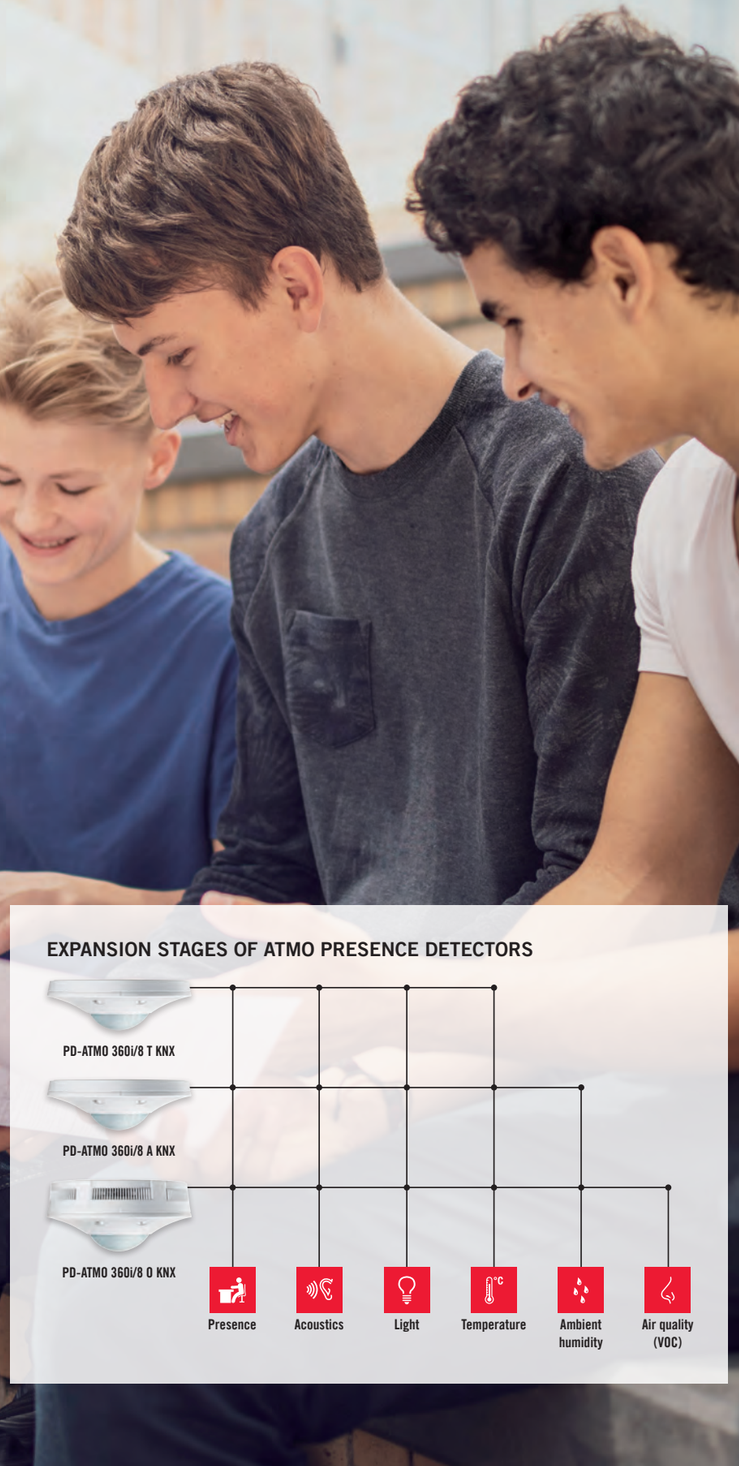


- Constant air volume flow
- Intelligent controlled ventilation
- Energy saving

* VOCs (Volatile Organic Compounds) are mixed gases resulting from vapours and are more harmful to health than an increasing concentration of CO_2 in the air. Activating the ventilation reliably removes both impurities from the air.

Presence detector
PD-ATMO 360i/8 O KNX

Switch actuator
ACTUATOR FULL AUTO C3 DALI



SIMPLE OVERRIDE

...AND MOBILE PARAMETERISATION, ADMINISTRATION AND DOCUMENTATION!

There is nothing more convenient than demand-driven automation, which enables everyone in the room to concentrate on their work. However, situations arise in everyday life at school in which an individual override is necessary or desirable. ESYLUX solutions offer this option at all times – whether by push button input, remote control or a combination of ESY-Pen and ESY-App.

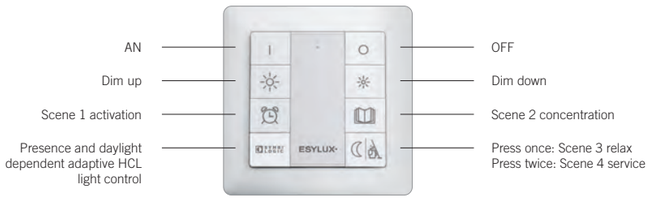
The ESY-Pen and ESY-App also enable simple parameterisation of all remotely controlled products and ESYLUX solutions as well as mobile administration and documentation of projects. The configuration can be cloned and applied to products of the same type. If you like, you can complete parameterisation in your office and transfer it later at the building site to the installed device via ESY-Pen. A project report can then be exported as a PDF file – for up to 64 floors with a total of 4096 rooms and 262,144 products per property!

For example, the lighting of ELC system lights can be conveniently customised with a simple 230V button:

Left-hand button
Short press: Switch the lighting on/off
Long press: Dim up/down

Right-hand button
Short press: Call up individual scenes
Long press: Change the light colour

As an alternative, the ELC push buttons from ESYLUX enable intuitive operation of the ELC system lights through easy-to-understand symbols:



ESY CONTROL

Bluetooth control for Android and iOS

ESY-Pen and ESY-App enable easy parameterisation, remote control as well as mobile project management and documentation for all ESYLUX remote-controlled products and solutions!

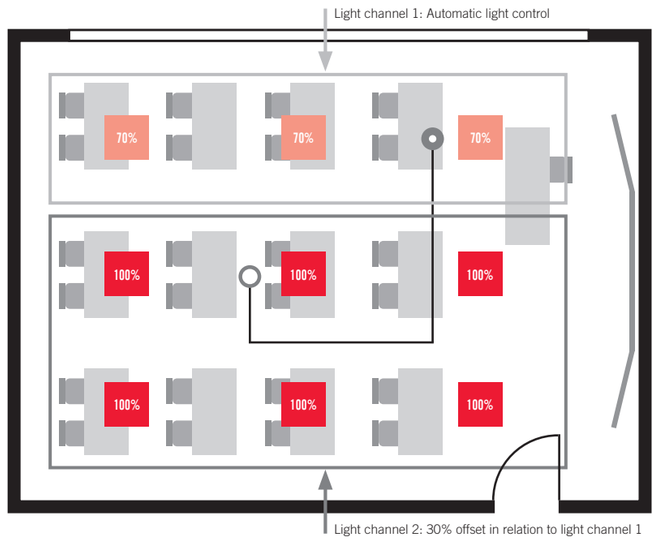
STAGING ROOMS

FLEXIBLE LIGHT IN ANY SITUATION

Rooms in which people learn and work every day are often used in very different ways. And not all rooms are the same, which is why solutions often need an individual design. This is why ESYLUX offers many ways to adapt the configuration and the light management to the specific, on-site requirements.

For example, the DUO-DALI presence detector from the COMPACT series uses an additional offset light channel to further improve lighting conditions and energy efficiency. If it is connected to the DALI actuator from ESYLUX, it can use this to switch the ventilation – or the board lighting – in fully automatic or semi-automatic operation.

CONSTANT LIGHTING CONTROL WITH OFFSET CHANNEL



		Item no.
9x	Ceiling light CELINE PNL 600 DDP TR 4100 840 IP20 DALI	EQ10125560
1x	Presence detector PD-C 360i/24 DUO DALI	EP10427459
1x	Presence detector PD-C 360/8 Slave	EP10055379
Optional for switching board lighting and ventilation		
DALI actuator	ACTUATOR SEMI AUTO C4 DALI	EP10427480
	ACTUATOR FULL AUTO C3 DALI	EP10427473

ROOM HEIGHT: 3 m
ROOM SIZE: approx. 60 m²

Illuminance of recessed lights in %
Presence detector 24 m
Slave presence detector 8 m
Chair
Table
Whiteboard

In this example, light channel 2 of the DUO-DALI presence detector is operating with an offset of 30% to light channel 1: As soon as the illuminance of the lights close to the window falls below 70% as a result of adequate daylight, the dimming of the interior lights begins. This concept improves the lighting condition in the room and energy efficiency.

The configuration options of the ELC system lights are even more flexible. By combining light groups via the ELC bus, they allow a highly individual light closed loop control to be implemented in any room zone. In addition, lights can be assigned to the light channels of the systems and then overridden together regardless of the group they are assigned to – for example, by scene.

Fully or semi-automatic integration of ventilation or board lighting into the presence dependent control is also possible in this case with the DALI actuator from ESYLUX.

INDIVIDUAL LIGHT CLOSED LOOP CONTROL IN ROOM ZONES WITH SCENE CONFIGURATION

Illuminance of ELC lights in %
ELC presence detector 24 m
ELC presence detector 8 m
ELC SmartDriver control unit
Chair
Table
Whiteboard

In the example, the presence detectors of the light groups connected via the ELC bus ensure individual light closed loop control in both room zones. In addition, the lights in the front and rear room area are each assigned to different light channels, enabling them to be overridden individually – as in this projector presentation.

SYMBI LOGIC™

		Item no.
9x	Ceiling light CELINE PNL 600 DDP TR 4200 8TW IP20 ELC	EQ10122101
1x	Presence detector PD-C 360i/24 ELC	EP10427619
1x	Presence detector PD-C 360i/8 ELC	EP10427602
1x	Control unit SMARTDRIVER x8 TW ELC (incl. 1x bus cable ELC and CO)	EC10431036
1x	Control unit SMARTDRIVER x4 TW ELC (incl. 1x bus cable ELC and CO)	EC10430572
Accessories		
1x	CABLE-SET RJ45 5m TW x8	EC10431203
1x	CABLE RJ45 5m BL	EQ10019982
1x	CABLE RJ45 5m RD	EQ10019890
1x	PUSH BUTTON x8 TW ELC	EC10430930
Optional for switching board lighting and ventilation		
DALI actuator	ACTUATOR SEMI AUTO C4 DALI	EP10427480
	ACTUATOR FULL AUTO C3 DALI	EP10427473

OTHER EXAMPLE SOLUTIONS

SOLUTION 1:
ELC SYSTEM LIGHTS WITH SYMBILOGIC

CELINE ELC
with mounting frame

PD-C ELC
with surface-mounted box

SMARTDRIVER ELC

SYMBI LOGIC

		Item no.
Lighting	Ceiling light CELINE PNL 600 DDP TR 4200 8TW IP20 ELC	EQ10122101
Automation	Presence detector PD-C 360i/24 ELC	EP10427619
	Presence detector PD-C 360i/8 ELC	EP10427602
	Control unit SMARTDRIVER x8 TW ELC (incl. 1x bus cable ELC and C0)	EC10431036
	Control unit SMARTDRIVER x4 TW ELC (incl. 1x bus cable ELC and C0)	EC10430572
Accessories	MOUNTING FRAME 600/625 SM WH	EQ10113468
	CABLE-SET RJ45 5m TW x8	EC10431203
	CABLE RJ45 5m BL	EQ10019982
	CABLE RJ45 5m RD	EQ10019890
	COMPACT MOUNTING BOX IP20 SM WH	EP10425370
	PUSH BUTTON x8 TW ELC	EC10430930
Optional for switching board lighting and ventilation		
DALI actuator	ACTUATOR SEMI AUTO C4 DALI	EP10427480
	ACTUATOR FULL AUTO C3 DALI	EP10427473

SOLUTION 2:
ELC SYSTEM LIGHTS WITH FIXED LIGHT COLOUR

CELINE ELC

PD-C ELC

SMARTDRIVER ELC

		Item no.
Lighting	Ceiling light CELINE PNL 600 DDP TR 4200 840 IP20 ELC	EQ10122088
Automation	Presence detector PD-C 360i/24 ELC	EP10427619
	Presence detector PD-C 360i/8 ELC	EP10427602
	Control unit SMARTDRIVER x8 ELC (incl. 1x bus cable ELC and C0)	EC10430763
	Control unit SMARTDRIVER x4 ELC (incl. 1x bus cable ELC and C0)	EC10430664
Accessories	CABLE-SET RJ45 5m x8	EC10431227
	CABLE RJ45 5m WH	EC10430695
Optional for switching board lighting and ventilation		
DALI actuator	ACTUATOR SEMI AUTO C4 DALI	EP10427480
	ACTUATOR FULL AUTO C3 DALI	EP10427473

SOLUTION 3:
DUO-DALI PRESENCE DETECTOR AND CELINE LINEAR LUMINAIRES

CELINE
with mounting frame

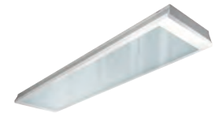
PD-C DUO DALI
with surface-mounted box

DALI actuator

		Item no.
Lighting	Ceiling light CELINE PNL 1200 LDP TR 4100 840 IP20 ELC	EQ10126536
Automation	Presence detector PD-C 360i/24 DUO DALI	EP10427459
	Presence detector PD-C 360/8 Slave	EP10055379
Accessories	DRIVER-SET 30W RJ45 WAGO WINSTA DALI	EQ10127762
	MOUNTING FRAME 1200/1250 SM WH	EQ10113765
	COMPACT MOUNTING BOX IP20 SM WH	EP10425370
Optional for switching board lighting and ventilation		
DALI actuator	ACTUATOR SEMI AUTO C4 DALI	EP10427480
	ACTUATOR FULL AUTO C3 DALI	EP10427473

SOLUTION 4:
ATMO PRESENCE DETECTOR AND CELINE LINEAR LUMINAIRES

CELINE



PD-ATMO

		Item no.
Lighting	Ceiling light CELINE PNL 1200 LDP TR 4100 840 IP20 ELC	EQ10126536
Automation	Presence detector PD-ATMO 360i/8 0 KNX	EP10427220
Accessories	DRIVER-SET 30W RJ45 WAGO WINSTA DALI	EQ10127762
Interface for lighting	KNX-DALI gateway from third-party provider	

OTHER EXAMPLE SOLUTIONS

ELSA-2 MD with mounting frame

ELH SM CORRIDOR

		Item no.
Lighting	Downlight ELSA-2 DL 225 OP 110° 1800 840 MD IR WH	EO10299032
	Downlight ELSA-2 DL 225 OP 110° 1800 840 WH	EO10299018
Automation	Motion detector in the luminaire	
Accessories	ELSA-2 MOUNTING FRAME 225 SM WH	EO10300899
optional	Escape luminaires ELH EL LED 3h SC SM CORRIDOR	EN10080005

ELLEN MD

ALMA MD

		Item no.
Lighting	Ceiling/wall light ELLEN WCL 300 OP 1300 840 IP20 MD	EO10850066
	Ceiling/wall light ELLEN WCL 300 OP 1300 840 IP20	EO10850073
	Ceiling/wall light ALMA WCL 300 OP 1600 840 IP65 MD	EO10850325
	Ceiling/wall light ALMA WCL 300 OP 1600 840 IP65	EO10850332
Automation	Motion detector (HF) in the light	

ELSA-2 MD

SLX FLAT 14M

		Item no.
Lighting	Downlight ELSA-2 DL 225 OP 110° 1800 830 MD IR WH	EO10299025
	Downlight ELSA-2 DL 225 OP 110° 1800 830 WH	EO10299001
Automation	Motion detector in the luminaire	
optional	Escape sign luminaire SLX EL LED FLAT COVER 3h 14m IR SM	EN10077609

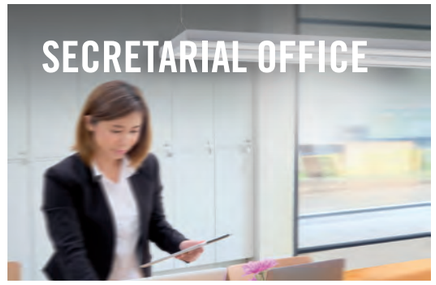
CELINE QUADRO-SET

SYMBI LOGIC

STINA

DALI actuator

		Item no.
Lighting	System light QUADRO-SET CELINE HCL 600 DDP OP 8TW ELC	EQ10122538
	Downlight STINA DL 112 TR 60° 1300 830 DALI WH	EO10304385
Automation	Presence detector PD-C 360i/24 ELC in the system light	
Accessories	ACTUATOR FULL AUTO C3 DALI	EP10427473



ISABELLE FSL PD

ISABELLE PDL PD

		Item no.
Lighting	Free-standing light ISABELLE FSL U-BASE DDP TR 6300 840 PD IR WH	EO10306051
	Pendant light ISABELLE PDL 1200 DDP TR 8800 840 PD IR DALI WH	EO10306204
Automation	Presence detector in the lights	

ALVA bollard light with/without MD

ALVA up-/downlights

DALI actuator

		Item no.
Lighting	Bollard light ALVA BL 940 / 170 TR 360° 1000 830 MD IR DALI AN	EL10820403
	Bollard light ALVA BL 940 / 170 TR 360° 1000 830 DALI AN	EL10820205
	Up-/downlight ALVA UDL TR 13° 900 830 AN	EL10830006
Automation	Motion detector in the bollard light	
Accessories	ACTUATOR FULL AUTO C3 DALI	EP10427473

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