LiCS INDOOR

DALI

Easy plug-and-play, quick configuration

Time-saving installation and commissioning of the system thanks to user-friendly solutions.

Tablet, Smartphone

Maximum flexibility and ease of use thanks to user-friendly controls with mobile end devices.

enocean® EnOcean (bidirectional)

Maintenance-free EnOcean technology guarantees a quick integration of multi-function push buttons/panels for a DALI system with a high radio range.

VS LIGHTING SOLUTIONS

CONTENTS

CONTROLLING, DIMMING, SAVING

WE'LL TELL YOU WHY

■ GOOD FOR THE ENVIRONMENT AND YOUR BUDGET

The world-wide shortage of raw materials and primary energy is developing into a global issue. In addition, we are faced with the challenge of protecting the climate by a sustained reduction in CO_2 emissions.

The primary task is as follows: Using energy as efficiently as possible. Alongside new highly efficient lighting systems, the trend is also moving towards technologies that focus on a further increase in energy efficiency combined with an additional improvement in convenience. These are light control or light regulation modules that can be used to switch individual luminaires or a group of luminaires on and off as required, and to dim them to optimise energy consumption.

■ CONVENIENCE IS A TOP PRIORITY

In our modern society, we expect rooms to be suitable for a flexible range of uses. This applies to both public and commercially used buildings. What is a meeting room today will be used for presentations the next day. A shop floor area for production may well be turned into a technical laboratory. And there are private homes which people use in a much more flexible and varied manner than in the past.

As these uses change, the lighting in these rooms is expected to change with them. To meet these expectations, it takes intelligent and flexible solutions allowing for the easy configuration of systems. Costly renovations are not required for this. The system lets you actuate individual luminaires or groups of luminaires via standard keys, for example.

VS LIGHTING SOLUTIONS

■ SAVINGS MADE VISIBLE

With the aid of the energy savings calculator on our website, you can calculate the savings potential of a lighting system in an easy, convenient way.

- Compares a lighting system with and without light management system, including your old system on request
- Yields results for annual energy savings (kWh/year), energy costs savings (€), CO_2 reduction (kg), as well as the expectable amortisation period.
- Possible both to store the result of the calculation as a PDF and to contact Vossloh-Schwabe directly for additional information


Calculate your personal project at:

www.vossloh-schwabe.com/en/home/solutions/lics-indoor/calculator.html

■ COMPARISON OF DIMMING PROCESSES DALI vs. 1–10 V

DALI stands for "Digital Addressable Lighting Interface" and is the international standard for the connection and operation of DALI devices from different manufacturers. The DALI system installation is particularly simple and affordable, since a special bus line is not required. In addition, DALI facilitates free and highly flexible light design. This guarantees long-term compatibility among the manufacturers and thereby security for the future.

DALI	1-10 V
Potential free control input	Potential free control input
2 control cables **(polarity-free)**	2 control cables (+/-)
Linear dimming curve (eye sensitivity)	Linear dimming curve (luminous flux)
Addressable: Single: max. 64 adresses (individual) Groups: max. 16 Broadcast (all together) **Group formation not dependent on wiring**	Not addressable **Group formation dependent on wiring**
Scene storage (operating devices)	–
Status request: Lamp error, hours of operation, dimmer setting	–
Storage of last dimmer setting	–
Integration of multiple sensors (light sensors)	max. 1 sensor (light sensor)

Communication

LIGHTING SOLUTIONS
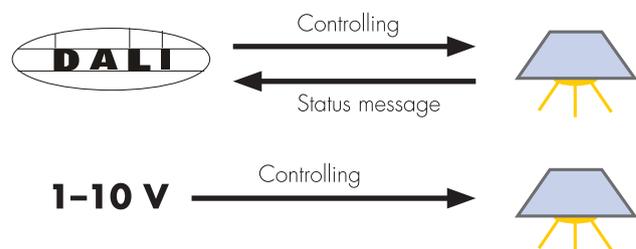
LiCS SYSTEM

FOR SMALLER AND MEDIUM-SIZED PROPERTIES

Light Controller L/LS, LW, LSW, S, XS

■ THE LIGHT MANAGEMENT SYSTEM

The Light Controllers of the LiCS System series were developed to enable the control and adjustment of lighting systems without requiring connection to a PC or a higher-level bus system.

Communication between the Light Controller and luminaires is based on the standardised DALI protocol. The Light Controllers comply with all the currently valid parts of standard IEC 62386.

The LiCS System control devices are intended for smaller and medium-sized property sizes and have more flexible features to enable a time-saving commissioning.

The entire configuration of the lighting system can easily be carried out directly on the Light Controller, without a PC or remote control. And any subsequently required modifications can also be carried out in the same way.
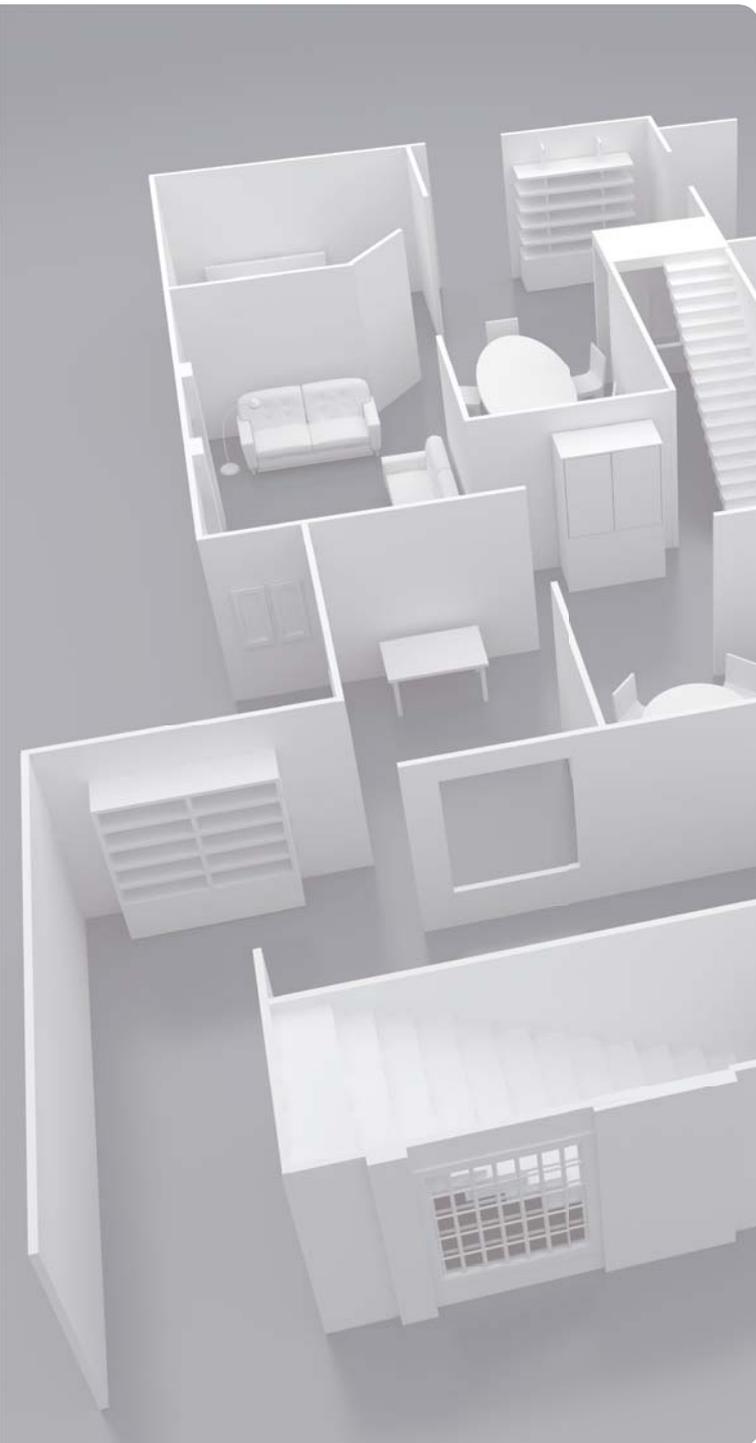
No PC needed

Wireless (EnOcean)

Easy plug-and-play, quick configuration

DALI

VS LIGHTING SOLUTIONS

■ OVERVIEW OF THE LiCS SYSTEM

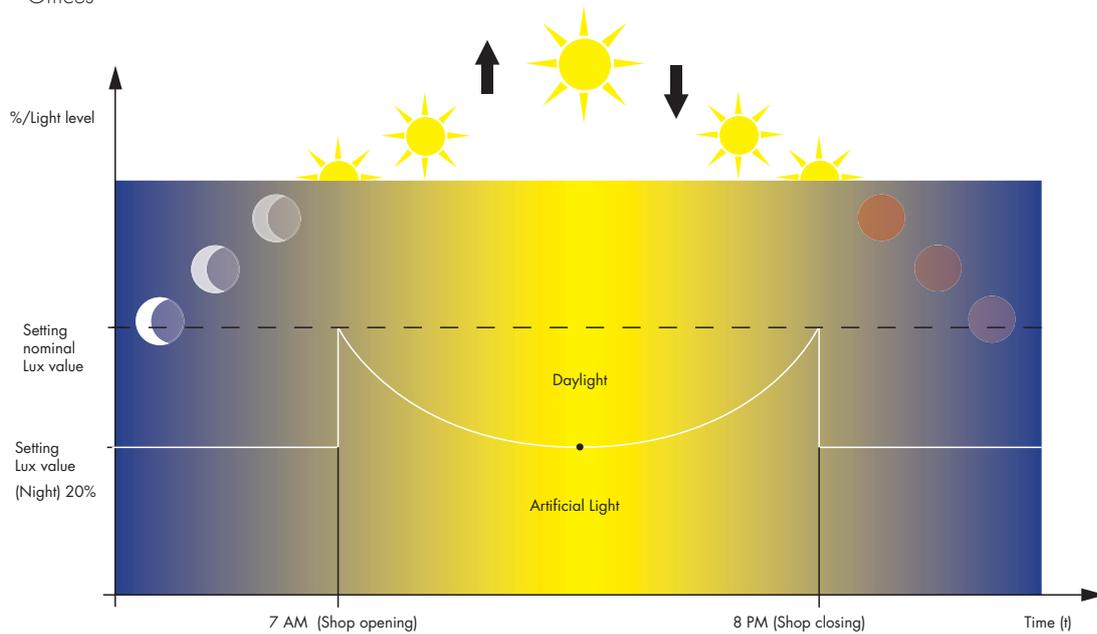| Product matrix	Light Controller L/LS	Light Controller LW/LSW	Light Controller S	Light Controller XS
	for installation in distribution boards	for installation in distribution boards – EnOcean wireless version	for independent operation	for operation in luminaires
MultiSensors	MultiSensors (motion and brightness), **power supply via DALI bus (4 mA)**			
Industrial sensors	Industrial sensors (motion) or brightness (constant light regulation)			
Extender	allows you to extend the maximum number of DALI operating devices in a standard DALI system			
Accessories	max. 6 push buttons (suitable for mains voltage)	Antenna (with magnetic or screw base); max. 6 push buttons (suitable for mains voltage), EnOcean wireless modules (max. 16 pcs)	Buttons (suitable for mains voltage)	

Functions	Light Controller		Light Controller		Light Controller	Light Controller
	L	**LS**	**LW**	**LSW**	**S**	**XS**
Control possibilities	Single and groups	Groups	Single and groups	Groups	Broadcast	Broadcast
Number of groups	max. 16		max. 16		–	–
Number of operating devices (DALI ballasts, LiCS extenders, HB sensors)	max. 64		max. 64		max. 64	max. 10
Number of MultiSensors	max. 36		max. 36		max. 36	max. 4
Motion detection (automatic and semi-automatic)	●		●		●	●
Constant light regulation	●		●		●	●
Scene setting	●	–	●	–	–	–
Push function (On/Off, Up and Down)	●		●		●	●
Dimming (only Up or only Down)	●		●		–	–
On/Off function	●		●		●	●
Overriding central switching function	●		●		–	–
Staircase function (timer)	●		●		–	–
Integrated digital timer	–	●	–	●	–	–
Anti-burglar function	–	●	–	●	–	–
System analysis software	●		●		–	–
Password protection	●		●		–	–
Menu navigation in:	German, English, French, Italian, Spanish		German, English, French, Italian, Spanish		–	–
Configuration with:	Rotary push key and display		Rotary push key and display		Dip switch	Dip switch

LiCS System – Applications

- Full automation
- Sensor-activation at preset times
- Daylight-controlled (window area)
- Defined night light for individual areas (0–100%)

Applications:
- Shops
- Gymnasiums
- Industrial areas
- Offices

%/Light level

Setting nominal Lux value

Setting Lux value (Night) 20%

Daylight

Artificial Light

7 AM (Shop opening)   8 PM (Shop closing)   Time (t)

Industrial sensors

- Protected housing (IP65)
- Motion/daylight control
- Easy integration in strip lighting (independent)

The sensors are connected via the DALI bus, which means that uniform or individual light levels can be set and controlled for an entire warehouse with just a single Light Controller for the very first time.

Applications:
Industrial and production facilities with ceilings of up to 8 m in height or walls with a (frontal) detection field of up to 12 m.

VS LIGHTING SOLUTIONS

Flexible push buttons/EnOcean

- Programmable push buttons (230 V/EnOcean)
- Individual control of luminaires
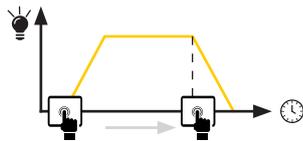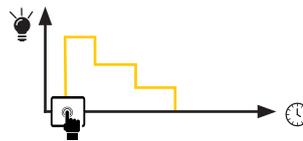- Fast and easy to modify
- Setting of defined light values

enocean®

Applications:
- Offices
- Corridors
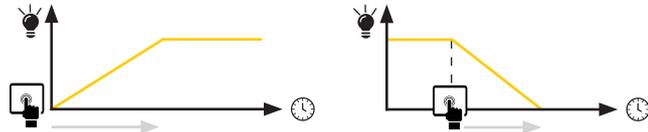- Theatre, function rooms
- Presentation rooms

Push function

Stairwell function

Scene configuration

Scene 1 10 % 20 %

Scene 2 30 % 40 %

DIM Up or DIM Down

Central function

| Group 1: OFF |
| Group 2: Scene 1, 10% |
| Group 3: 50% |

Central OFF → Central ON

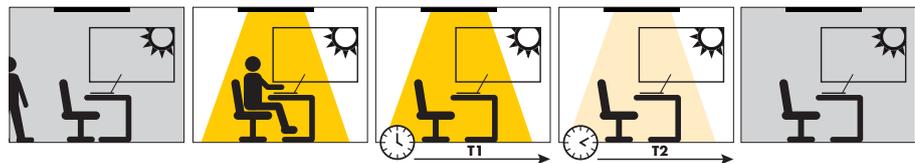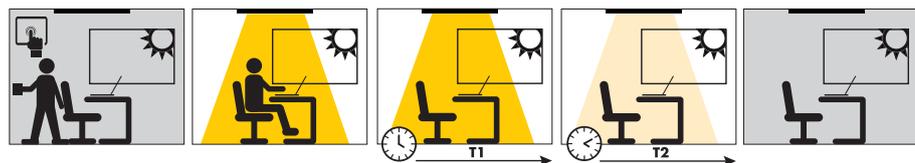| Group 1: OFF |
| Group 2: Scene 1, 10% |
| Group 3: 50% |
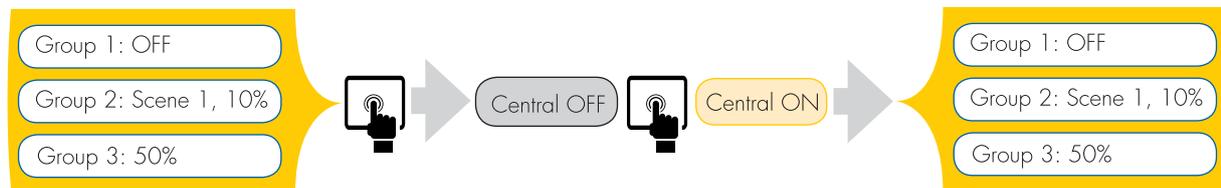
Sensors

■ FULLY AUTOMATIC

Sensor function: Light On/OFF
3 defined light levels without
push buttons

T1   T2

■ SEMI-AUTOMATIC

Button function: Light ON
Sensor function: Light OFF
3 defined light levels without
push buttons

T1   T2

Applications:
- Offices
- Corridors
- Classrooms

VS LIGHTING SOLUTIONS

9

LiCS SYSTEM NETWORK

FOR BUILDING SOLUTIONS

Light Controller IP/DALI

■ THE LIGHT MANAGEMENT SYSTEM

The Light Controllers of the LiCS System Network series were developed to link multiple Light Controllers together. They are networked via TCP/IP and controlled by a central server. Communication between the Light Controller and luminaires is based on the standardised DALI protocol. The Light Controllers comply with all the currently valid parts of standard IEC 62386.

The LiCS System network control devices are intended for large properties (building solutions) and have ultra-flexible features to enable a time-saving commissioning. A browser-based user interface is used both as a configuration interface and for controlling the system by means of "software push buttons". The great advantage of the system lies in the almost unlimited integration of control devices. PCS, laptops, tablets or smartphones can be easily integrated to configure or control the luminaires.

Documentation, e-mail (reporting), BMS integration capability are only some examples of the large number of new functions.
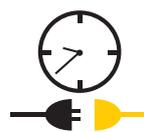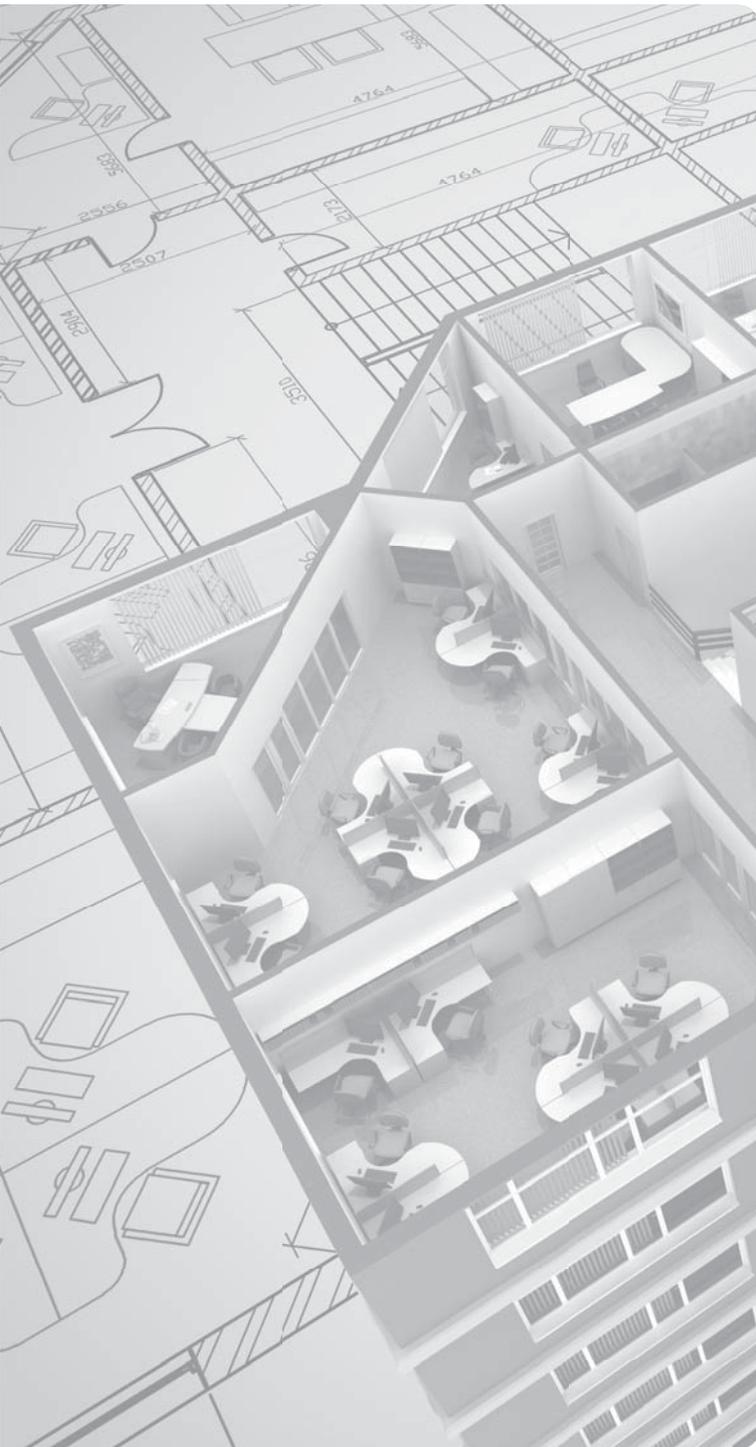
Easy plug-and-play, quick configuration

IP networking Light Controllers

BMS-Integration

Tablet, Smartphone

Reporting

Software button

Documentation

Bidirectional (EnOcean)

DALI

VS LIGHTING SOLUTIONS

■ OVERVIEW OF THE LiCS SYSTEM NETWORK

Light Controller Software package	Light Controller IP/DALI	Light Controller IP/DALI W
	 for installation in distribution boards	 for installation in distribution boards
MultiSensors	 MultiSensors (motion and brightness), **power supply via DALI bus (4 mA)**	
Industrial sensors	 Industrial sensors (motion and brightness)	
Extender	 allows you to extend the maximum number of DALI operating devices in a standard DALI system	
Accessories	8 push button inputs (suitable for mains voltage)	8 push button inputs (suitable for mains voltage), EnOcean wireless modules

| System information	Functions
Server (Win 7) Optional: Access point for control element	Networked Light Controller
	Motion detection (automatic and semi-automatic)
	Intelligent daylight- and time-dependent switching function
	Constant light regulation
	Astronomic light level
	Push button and control element
	Intelligent replacement of DALI devices
	Scene setting
	Push function (On/Off, Up and Down)
	Dimming (only Up or only Down)
	On/Off function, On function, Off function
	Staircase function (timer)
	Documentation
	Documentation for luminaires
	Saving/Loading
	Reporting (e-mail)
	DALI failure light level
	User accounts (password protection)
	Multiple languages

LiCS SYSTEM NETWORK

APPLICATIONS

Light Controller IP/DALI
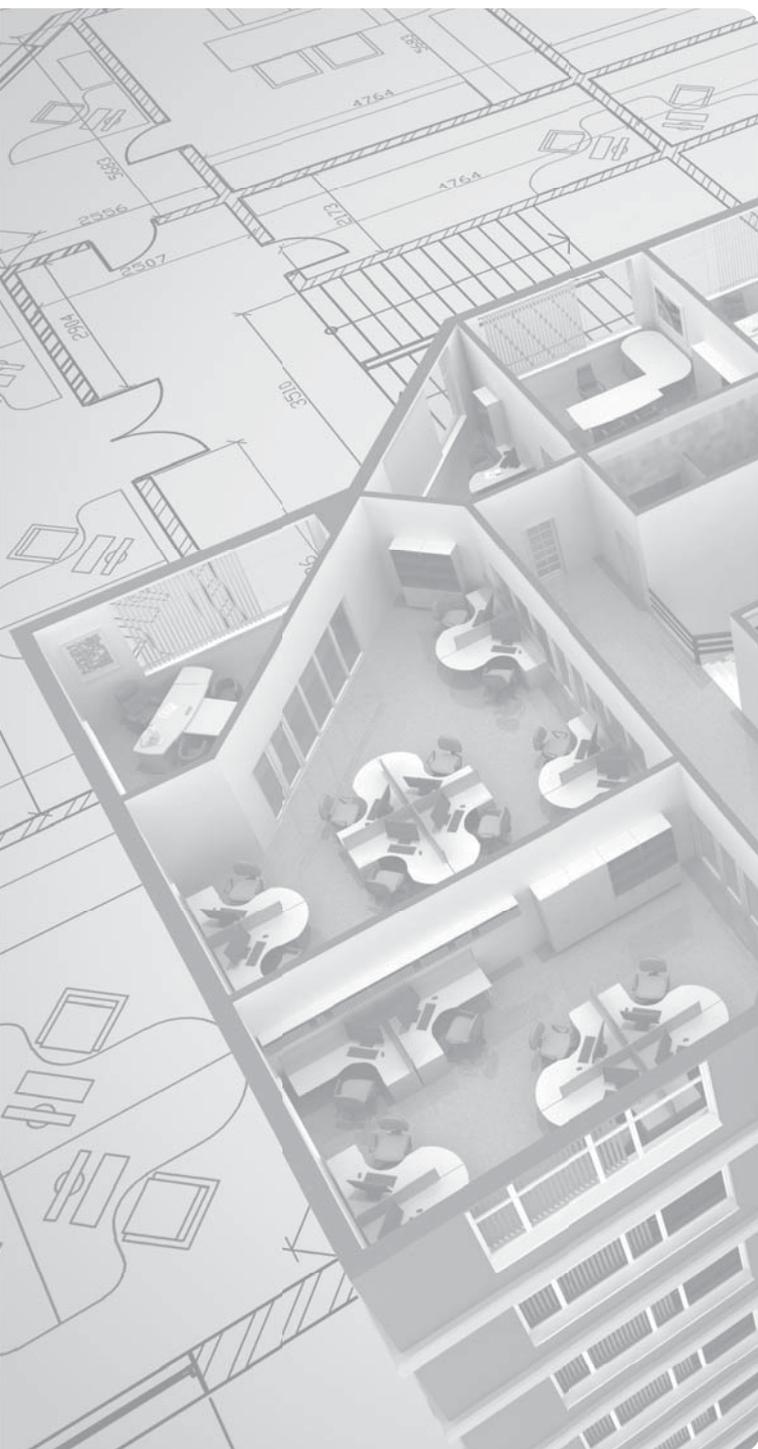
NETWORKING

- Unlimited number of light points
- Easy networking (Ethernet, TCP/IP)
- Central management
- Easy coupling of Light Controllers (daisy chain)
- Remote access
- Use of infrastructure already available (Ethernet, TCP/IP)

DALI over IP
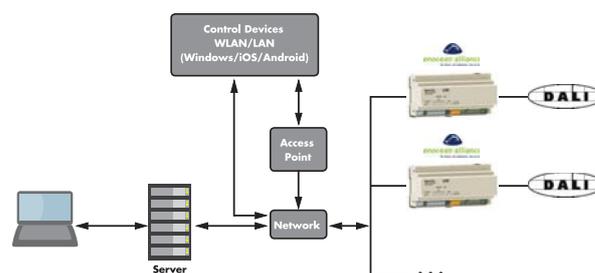
Applications:
- Office buildings
- Industrial buildings
- Shops

REPORTING/DOCUMENTATION

Reporting
- Automated e-mail, can be set periodically
- System status notifications (fault monitoring)
- Statistics

Documentation
- Automatic creation of documentation (PDF)
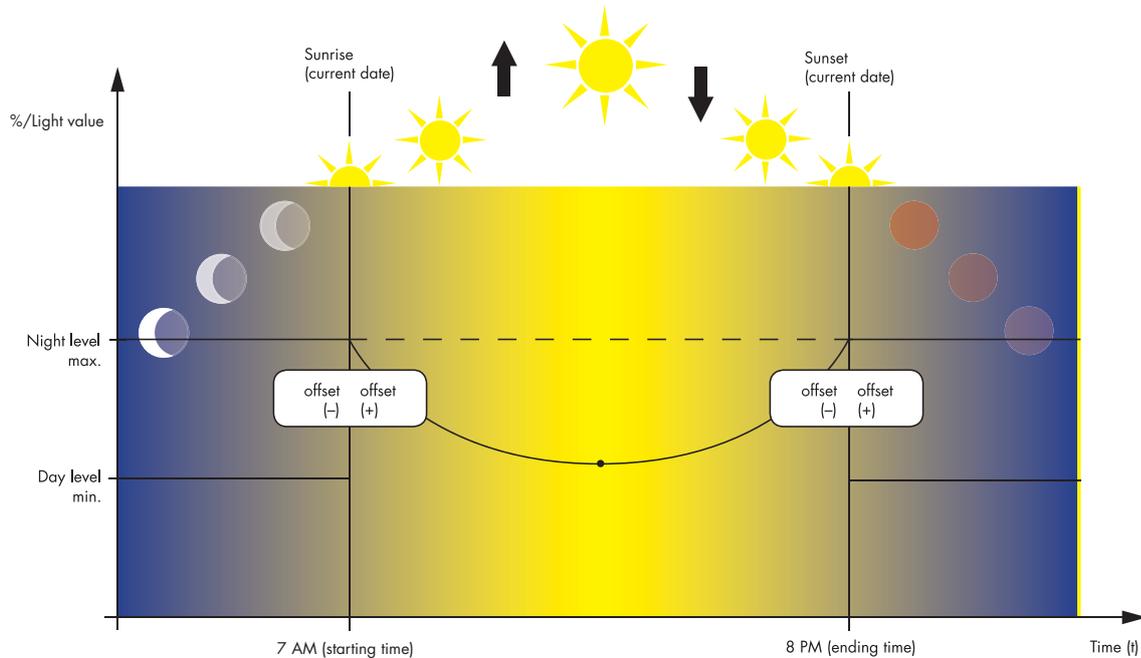- Layout plan can be integrated as JPG, placement of luminaires in the plan

VS LIGHTING SOLUTIONS

Tablet, Smartphone

Automatic astronomic light level

- Astronomic switch-on/off behaviour
- Adjustable offset
- Can be adapted to the geographic position
- Fully automatic function, without sensors

Sunrise
(current date)

Sunset
(current date)

%/Light value

Night level
max.

offset
(–)

offset
(+)

offset
(–)

offset
(+)

Day level
min.

7 AM (starting time)

8 PM (ending time)

Time (t)

Tablet – Configuration and control

Configuration
- DALI configuration via tablet
- Time- and cost-saving commissioning

Control
- Control of light via software push buttons and sliders
- Browser-based
- Easy integration in already existing systems
- Use of available control elements
- Any number can be integrated
- Assignment of usage rights
- Visual feedback (ON/OFF/%)
- No cables (W-LAN)
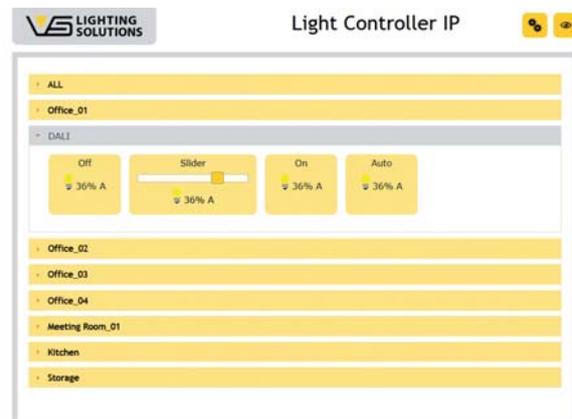
REFERENCE PROJECT

SUPERMARKET X5-GROUP MOSCOW, RUSSIA

■ SUPERMARKET X5, MOSCOW

One of the largest supermarket chains in Russia utilises one of the most efficient lighting solutions in the market. From the light source all the way to the central control system, Vossloh-Schwabe offers a complete solution. More and more businesses are opting for energy-efficient technology.

The project goal was an automated, efficient lighting solution to be employed during business and working hours as well as a night lighting solution for preventing break-ins.

Thanks to the use of a VS extender, 67 dimmable DALI luminaires could be installed and addressed individually or in groups by the Light Controller LW (LiCS Indoor). The sensors were addressed separately in order to provide information for a constant light regulation. For business and working hours, two groups (2 x 11 luminaires) were formed and combined with sensors for constant light regulation on the window side in order to reduce energy consumption.

For additional groups that were not equipped with sensors, light levels (< 100%) with different lux levels were defined for different areas, e.g. the check-out areas.

The on-site system is activated in the evening at a preset time in order to access a scenario for the night. Three different brightness levels (5%, 10% and 20%) were set for the night scenario. In the morning, the system behaviour changes back to its regular function, including the constant light regulation.

The lighting solution consists of an intelligent DALI driver and a LED COB module (4000 K) with holder and diffusor. A system luminous flux of 1,400 lumen, an efficiency of 115 lumen per watt for the light source and an intelligent driver with a high performance factor make this concept one of the most efficient light solutions on the market.

The additional system check function facilitates maintenance.

A total of 32% of the power consumption is cut down thanks to the intelligent use of daylight, scenarios for different groups and the automatic control of the lighting.

Components used:
1 x VS Light Controller LW
2 x VS MultiSensor FM
1 x VS Extender
67 x LED luminaires
• VS LED driver
• VS LUGA LED modules

Reasons for the DALI installation
• Simple configuration (approx 40 seconds per luminaire)
• Flexible configuration without black box behaviour
• Individual addressing and group formation
• Reduction of energy consumption
• Light automation (time-based)
• Increased convenience

Advantages of DALI:
• Minimum time required for installation (e.g. polarity-free)
• Combination of functions (scene with constant light regulation)
• System check (feedback of components)

Project name: Supermarket – X5-Group – Moscow, Russia
Year of installation: 2013
Location: Moscow, Russia
Light designer: DEMOS LED/cbet.ru

■ OLD INSTALLATION (250 LUX)

Piece	Components	System output (W)/piece
56	T8 luminaires CB + 4 x18 W, 15,000 h	100 W
	Total energy consumption	**32,704 kWh**

■ NEW INSTALLATION (500 LUX)

Piece	Components	System output (W) /piece
67	LED luminaires LED driver + LED modules (COB), 50,000 h	63 W
1	Light Controller LS	9 W
2	MultiSensors (power supply via DALI bus)	0 W
1	Extender	6 W
	Total energy consumption without sensors	24,651 kWh
	Total energy consumption with sensors (– 32%)	**16,852 kWh**

Lighting situation:
365 days/year, 16 hours/day, € 0.20/kWh

Old installation:
Annual costs **€ 6,541**

New installation, including sensors:
Annual costs **€ 3,370**