B.E.G. The lighting control professionals



Highlights 2018









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B.E.G. Brück Electronic GmbH – a company with over 40 years of experience

Energy-efficient products combined with tradition

Founded in 1975, family-owned B.E.G., headquartered in Lindlar, Germany, has stood for quality and innovation for over 40 years. From the very beginning, our team's focus has been on satisfying customers. The B.E.G. product range is divided into six product lines: LUXOMAT®, LUXOMATIC®, LUXOMAT®net, SAFETYLUX®, CHRONOLUX® and B.E.G. SMARTHOME®. B.E.G. offers customers a wide product range, individual solutions, outstanding quality and personal service.

1975

The foundation stone of our comprehensive range was the development and production of emergency lights. Shortly afterwards came the production of complete systems for emergency lighting installations. While B.E.G. still has emergency lighting in its range today, this of course comes with state of the art technology and energy-saving LEDs.

1986

B.E.G. was one of the first companies in Germany to produce motion detectors and automatic lighting. Since then, B.E.G. has produced many generations of motion detectors, which are installed primarily outside buildings, in particular for security.

The rapid growth in building automation and the resultant rise in demand for intelligent control products has led to the continual expansion of the daylight-dependent/occupancy-dependent detection business. The installation of occupancy detectors is being driven not only by convenience, but also now by cost reduction through energy saving, and environmental protection.

2007

On a terrain of almost 4 ha, the current European distribution and logistics centre with adjoining production and development facilities started operation in Lindlar. 4 years later, the logistics centre was extended by several thousand m² to meet the increasing demand.

2014

The new administration building was build next door to the production and distribution centre. The new building is equipped with modern KNX bus technology and B.E.G.'s own KNX products, which provide for an important cost reduction of the operating costs. These products are also used in a research project of TH Köln (University of Applied Sciences).

2017

The former administration building becomes a research and development centre with light laboratory. For some time now, B.E.G. has its focus on networked products (e.g. DALI, LON, KNX). Thanks to the new development centre, B.E.G. is able to react to demands on the market within a short time.

B.E.G. has an ever increasing number of branches and agencies in many countries of the world. Each branch or agency employs well-trained personnel offering the best support possible in all issues with respect to building automation.

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WORLD FIRST – DALI occupancy detector with HCL function for biodynamic light



The PD4-M-HCL is the new DALI occupancy detector with "Tunable White" function for Human Centric Lighting (HCL). Like other DALI occupancy detectors, this detector regulates different lighting groups according to daylight and occupancy, to increase convenience and energy efficiency. A new feature is that the detector can also control the colour temperature in the room if DALI lights with "Tunable White Function" (Device Type 8) are connected.

Preset application profiles can be selected according to the room's current usage. These profiles control the colour temperature and light level in the room as the day progresses. The change in the colour temperature from warm white to cool white and the change in light level conform to human biorhythms. This takes place very slowly, and is hardly apparent to the user. This kind of biodynamic light is proven to increase wellbeing and has positive effects on health. There are numerous applications for biodynamic lighting control in offices and industry.

The introduction of this technology into schools and healthcare institutions also achieves positive effects. Biodynamic light is especially good in retirement homes, where it can help regulate the human body clock and significantly improve the quality of sleep. While other HCL controllers often require a complicated building-wide control system, the B.E.G. detector works completely independently thanks to its integrated real-time clock and DALI controller. This means each room can be individually configured. The detector supports up to 4 DALI lighting groups and 3 pushbutton inputs. The DALI lights are quickly and easily grouped using the bidirectional B.E.G. smartphone app. The PD4-M-HCL is thus ideal for retrofitting or refurbishment work in buildings where there is no bus system. Thanks to a large detection area of 24m, it can be installed effortlessly in areas with up to 64 DALI lights.

Slave units to extend the detection area can easily be connected to the DALI line.

With its unique "PureColour" system, the PD4-M-HCL can even replicate the current daylight with precision. A daylight colour sensor, available as an optional extra, transmits the current daylight colour temperature to the detector via the DALI bus.



Uniform lighting distribution

By using the PD4-M-HCL [] planners can distribute the lights uniformly across the ceiling, while still achieving consistent, taskappropriate illumination. Using defined DALI groups and the programmable offset values, the lights by the window output less light than those in the centre of the room (G1).

To achieve optimal illumination, the light sensor detection range (LUX) is adjusted to the darkest area of the room, if possible facing away from the blackboard lighting.

Light is good for you. We all experience this every year as spring comes: as the days become brighter, we feel more active, in a better mood and with better concentration than in the dark months of winter. Therefore vision is not the only reason that people need light. Light also regulates the human "body clock" – a complicated control system which coordinates and organises the functions of the body to a 24-hour rhythm.

This regulation system has to be resynchronised by daylight every day. If the required light stimulus, an important timer, is missing, the body clock goes off track. This can lead to people feeling listless and tired, with mood swings or even a weakened immune system.

Around the turn of the millennium, scientists identified photoreceptors in the eye's retina which are not for vision – instead they set the body clock by activating various hormones.

These cells react extremely sensitively to light with a high proportion of blue. This means that well-tuned lighting can significantly improve people's quality of life.

Human beings control the light – but the light also controls human beings: In 2002, scientists identified a third light receptor in addition to rods (twilight vision) and cones (colour vision). These ganglion cells are photosensitive, but non-visual. They only react on the ambient brightness and regulate biological processes accordingly – for example hormone production and pupillary reflex.

Hospitals

As a rule, staying in hospital means that patients' movements are restricted. Depending on the condition, patients generally have to stay in bed and only rarely get to go outdoors. Not every bed provides sufficient daylight. HCL lighting can support the healing process, by stabilising patients' circadian rhythms and improving their sleep.

Retirement homes

As the population becomes ever older, it is important that older people in retirement homes are cared for in the best way possible. With age, people's vision deteriorates, and when people stay for a long time in enclosed rooms, it is possible for their body clock to get out of sync and for residents to wake up in the night more often. HCL solutions help to reset residents' body clocks and support a better quality of sleep.

Offices

Circadian (circa, meaning "around", and diēm, meaning "day", around the day) illumination imitates the natural day night rhythm having a cycle duration of 24 hours. A biologic effective illumination (HCL = Human Centric Lighting) should be adapted to the user's circadian rhythm. It should support natural active times and resting periods. The PureColour detectors for well-being bring the vitality of daylight into rooms thanks to their ability to control the non-visual effects of artificial light. They are able to improve the effectivity and wellbeing of persons.

In the course of the day the biologic effective illumination changes. The colour temperature changes from warm white to daylight white and the illumination intensity from 500 to 1500 lux and therefore adapts to the circadian rhythm of human beings. The dimming of the individual lights is continuous and harmonious so that the change is not directly visible – but the effectiveness is permanent.

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one device

The complete solution for HCL in

Controller, push-button interface and occupancy detector are integrated into one device. Using the pre-programmed factory setting and the convenient B.E.G. smartphone app, the sensor is ready to use immediately, and can be configured in no time at all. The mechanical switches in the installation can be used via the three pushbutton inputs.

An economical solution for the **DALI** standard

Thanks to a large detection area and support for up to 64 DALI electronic ballasts, the detector is also suitable for large rooms, and is therefore a very economical solution for HCL with DALI lights which support "Tunable White" (Device Type 8) – see compatibility list.



Simple to extend

Up to 4 additional slave units can easily be connected via the DALI bus, enabling economical extension of the detection area.



A fully-featured occupancy detector

The occupancy detector provides occupancy-dependent daylight integration for energy saving and can control up to 4 DALI lighting groups e.g. training rooms, conference rooms or open plan offices. Its offset constant light regulation provides uniform lighting levels in rooms where the daylight falls from one side, thereby contributing to energy savings.

Flexible relay included

The built-in relay can be used to control non-DALI lighting for example. Alternatively, the occupancy information can be forwarded to a BMS. Or, the relay can be used for a "cut-off" function, through which the DALI electronic ballasts are powered down when not being used. Depending on manufacturer, this saves between 0.2 and 1 watt per electronic ballast in standby losses.



Real-time biodynamic colour profiling

Different application profiles can be selected, e.g. for retirement homes, healthcare institutions and circadian lighting. The system runs autonomously thanks to its built-in real-time clock. But HCL can also be deactivated or pre-configured with a customer-specific profile.



World first - Pure Colour

Instead of simulating changes in daylight through the day, an optional external daylight sensor detects the actual daylight colour temperature and uses this information to control the HCL. This has the advantage of exactly replicating actual daylight colour temperature.

Orientation light



The "orientation light" function can be activated, and operates after the follow-up time previously configured. It limits the maximum output level of connected lights to an adjustable value. This means that areas with a safety requirement are not completely dark, but energy is still saved compared to full illumination.

Complete DALI HCL control in one device



Multisensor as Master PD4-M-HCL

- High-sensitivity occupancy detector with the ability to address up to 64 DALI electronic ballasts automatically, with segmented control via 4 groups
- Rapid commissioning and maintenance processes with smartphone/tablet app (Android, iOS) – PC tool not required
- 3 lighting zones: A for the main lighting with segmented constant light regulation across 3 DALI groups and offset control, B for accent lighting via a separate DALI group, C for accent lighting via the built-in relay
- Manual switching and dimming available with conventional pushbuttons
- HCL function for DALI lights (DT8, Tc) can be activated.

Technical Data

- Voltage: 110 240 V AC 50/60 Hz
- Typical power consumption: 0.4 W
- Mounting height min./ max./recommended: 2 m / 10 m / 2.5 m
- Dimensions: SM= Ø 124 x 85 mm FC= Ø 117 x 100 mm
- Degree/ class of protection: SM= IP20 / Class II FC= IP20 / Class II
- Ambient temperature: -25 °C to +50 °C
- Detection area: 360°
- Range:





The PL1 series – Panel lights with Tunable White DALI DT8



B.E.G.'s new PL1 "Tunable White" LED panel lights combine an attractive design with modern LED technology. The extremely flat housing is particularly suitable for installation into modular suspended ceilings with little installation depth. The diffuser is homogeneously illuminated and offers a convenient light distribution in the room. The lights are also available with a microprismatic cover allowing to reduce the glare to UGR <19. The high-quality and economical LEDs assure an operating time of more than 40000 hours with a luminous efficacy of up to 3550 lumens.

The luminaires are equipped with warm-white and daylight-white LEDs which can be controlled separately. The LED driver works according to the newest DALI device type 8 standard for Tunable White. Therefore, only one DALI address is required per luminaire instead of two. The LED panel lights can be dimmed and also the colour temperature can be steplessly adjusted from warm white (2900 K) to daylight white (6800 K). Therefore, the luminaires are perfectly suited for Human Centric Lighting (HCL). With this type of lighting control, the colour temperature and the light intensity are changed over the day, imitating the natural daylight. The luminaires can be biodynamically controlled with B.E.G.'s HCL occupancy detector PD4-M-HCL. It is also possible to control the luminaires with other DALI HCL systems supporting Device Type 8.

This HCL technology is particularly suited for offices and other work stations as well as retirement homes and hospitals. Especially in the medical sector, the imitation of daylight can improve healing processes. A cool daylight-white illumination is stimulating and activating. However, the warm-white light is also important. It is relaxing and supports a healthy sleep.

The PL1 LED panel lights are available in several versions: with diffuser or microprismatic structure, with dimensions 600×600 mm or 625×625 mm or in the long versions $300 \times$ 1,200 mm or 312.5×1250 mm.

B.E.G. offers these luminaires with a frame in the colours white or aluminium-like silver. Thanks to this, the luminaires fit perfectly into many ceiling systems.



LED panel light for biodynamic light - variants

Square -PL1-600-LED-AG-DALI-TW PL1-625-LED-AG-DALI-TW

- Very flat square LED panel light
- For installation into suspended ceilings Module 600 or 625
- Light colour adjustable from 2900 K to 6800 K
- DALI driver type 8 for controlling the light temperature
- Very uniform brightness of the luminaire
- Good glare reduction thanks to microprismatic structure UGR < 19 (version AG)



- Voltage: 200 - 240 V AC 50/60 Hz
- Power consumption:45 W
- Illuminant: LED module
- Luminous intensity: approx. 2900 K warm white approx. 5800 K / 6800 K daylight white
- Luminous flux: to 3550 lm Colour
- reproduction: > CRI 80
 - Glare reduction: UGR<19 (version AG)
- Photobiological safety:
- **Dimmability: DALI Device Type 8** Degree /

RG0

- class of protection: IP20 / II False ceiling
- Mounting: mounting Modul 600 / 625
- Case: white / silver aluminium frame

PL1-625-LED-DALI-TW-S 93681 620 x 620 mm, Modul 625, silver PL1-600-LED-AG-DALI-TW-S 93151 595 x 595 mm, Modul 600, UGR<19, silver PL1-600-LED-AG-DALI-TW 93084 595 x 595 mm, Modul 600, UGR<19, white PL1-625-LED-AG-DALI-TW 93094 620 x 620 mm, Modul 625, UGR<19, white



Linear · PL1-31125-LED-AG-DALI-TW PL1-30120-LED-AG-DALI-TW

- Extremely flat linear LED panel light
- For installation into suspended ceilings Module 300 or 312.5
- Light colour adjustable from 2900 K to 6800 K
- DALI driver type 8 for controlling the light temperature
- Very uniform brightness of the luminaire
- Good glare reduction thanks to microprismatic structure UGR < 19 (version AG)



- 200 240 V AC Voltage: 50/60 Hz Power consumption:45 W
- Illuminant: LED module
- Luminous intensity: approx. 2900 K warm white approx. 5800 K /
- 6800 K daylight white Luminous flux: to 3550 lm
- Colour > CRI 80 reproduction:
- UGR<19 Glare reduction: (version AG)
- Photobiological safety:
- Dimmability: **DALI Device Type 8** Degree /
 - class of protection: IP20 / II False ceiling
- Mounting:

Case:

mounting Modul 300 / 312.5

RG0

white / silver aluminium frame PL1-30120-LED-AG-DALI-TW 93066 295 x 1195 mm, Modul 300, UGR<19, white PL1-31125-LED-AG-DALI-TW 93077

307 x 1245 mm, Modul 312.5, UGR<19, white



DALI LINK – The intelligent and economical single room solution from B.E.G.



The entry-level set for small offices consists of a DALI LINK power supply, a PD11 DALI LINK multisensor and a DALI LINK 4-way pushbutton interface with built-in Bluetooth gateway. The super-flat PD11 is the first choice for the most demanding architectural considerations, with a large detection range for its class.

Unlike other systems, the DALI LINK PD11 is not only a multisensor but also a master occupancy detector with its own intelligence as a controller. Therefore B.E.G. DALI LINK is highly fail-safe, expandable and economical. All components are also available individually, so that larger rooms such as conference rooms and classrooms can be covered.

The free DALI LINK app for iOS and Android has a simple and intuitive design, both for the end user and for commissioning. Addressing of DALI lights, adjustments to factory settings or programming of scenes takes place intuitively in just a few steps.

The 4 pushbutton module inputs can be individually programmed, either to access scenes (up to 16) or to control lighting groups. As there is rarely room for 16 pushbuttons, the B.E.G. DALI LINK app has a special function to access scenes by mobile phone. The "Guided Light" function, already wellknown from B.E.G. DALISYS, and unique in this form, can be used in hallways and stairways in particular to raise the brightness level in any section and the areas adjacent to it. Guided Light provides a pool of light to accompany users through the building – optimum energy efficiency and maximum convenience.

The B.E.G. DALI LINK PD11 multisensor as a master occupancy detector offers offset constant light regulation for up to 2 lighting zones. As well as occupancy, daylight is also taken into account in regulating light levels, to produce uniform illumination while also saving energy.

All DALI lighting groups, pushbutton interface(s) and all detectors (including slaves) only require a single DALI circuit. This makes retrofitting in particular much easier.

The existing 2-wire wiring for pushbuttons or light switches can be used for the DALI bus for connecting the B.E.G. DALI LINK pushbutton module.





DALI LINK components

DALI LINK multisensor PD11

- Setup via B.E.G. BLE app
- Detection area: vertical, 360°
- Voltage: 16 VDC DALI bus
- Range: max. Ø 9 m tangential, max. Ø 6 m towards, max. Ø 3 m small movements/ seated activities

DALI LINK Bluetooth pushbutton interface

- Setup via B.E.G. BLE app
- Voltage: 16 VDC DALI bus
- Cable length: max. 50 cm
- Time setting: 1 min 150 min, only in stairway mode
- Can be combined with all 4-way switch surfaces from major manufacturers

DALI LINK Bluetooth app

- The B.E.G. Bluetooth app is available free of charge in the relevant app stores.
- Programming can be carried out direct from your smartphone, with no additional devices
- Smartphone not included
- The B.E.G. Bluetooth app contains a protected area with which the installer can set up the DALI LINK component parameters.
- All devices and their options can automatically be polled and displayed in the app.
- Standard scenes can be used, or custom scenes applied.
- The lighting can be switched and dimmed as required and scenes can be activated.

DALI LINK Power supply

- Voltage: 230 V AC
- Dimensions: 165 x 24 x 24 mm
- Short circuit detection and overheat protection



As well as the PD11, there are other multisensors available for DALI LINK, with various mounting options.









DALI LINK single room solution





Controllable from any smartphone Using the DALI LINK Bluetooth app, a user with a smartphone can control room lighting and scene selection individually.



Simple lighting regulation

The definition of two lighting groups (DUO function) with offset function using continuous DALI wiring can be carried out quickly and directly for each multisensor via the programming.



Guided Light

Additional DALI multisensors can be installed not only as slave units, but also for "Guided Light". Adjacent areas are then maintained at comfortable orientation light levels.



Demanding design requirements

The super-flat PD11 means there is now a design-oriented DALI room solution.



Expandable

A maximum of 25 DALI lights and 6 control devices (multimasters or pushbutton interfaces) can be connected to the power supply. The number of usable devices can be doubled by using another DALI LINK power supply.

Orientation light

The "orientation light" function can be activated, and operates after the follow-up time previously configured. It limits the maximum dimming level of connected lights to an adjustable value. This means that safety-relevant areas are never completely dark, but energy is still saved compared to full illumination.



4 pushbutton inputs

All pushbutton inputs can be freely configured to control lighting groups or access scenes.



Lighting scenes

Up to 16 lighting scenes can be programmed. The scenes can be accessed by a pushbutton or via the DALI LINK Bluetooth app.

Conversion with existing wiring





1. Start point: light switch



2. Use of previous L and N for DALI bus.



3. Connection of 4-way pushbutton.



3. Built-in pushbutton interface



4. Now, instead of a switch, there is a pushbutton switch with four pushbuttons available.

KNX – intelligent building automation using sensors from B.E.G.







KNX sensors from B.E.G. are specially developed for the creation of economical solutions for building automation. This means energy saving potential is used effectively and the building's running costs are substantially reduced. Depending on application type, different sensors may be used, e.g. the PD4 with a large detection area, the design-oriented PD11 occupancy detectors (with a visible surface height of only 0.85 mm) or the PICO, the smallest KNX occupancy detector in the world.

Sensors

Depending on version, B.E.G. KNX occupancy detectors switch or regulate up to 3 lighting zones. This means not only is energy saved, but also uniform lighting is achieved when daylight falls from one side. Therefore energy is only consumed where required with occupancy detection. As well as lighting control, all B.E.G. KNX occupancy detectors can control other building functions such as heating, ventilation and cooling by time and/or occupancy. The DX series of KNX occupancy detectors with integrated temperature sensor can easily be incorporated into practically all heating systems for room-specific temperature regulation. To carry out more complex functions, the DX versions of the B.E.G. KNX occupancy detectors have an integrated logic module. This means that logical and time-related dependencies can be programmed directly using the ETS software.

Actuators

Using the new B.E.G. KNX switch actuators, all connected loads can be controlled automatically via the KNX bus system or manually by switches. For example, this can be used for on-demand switching of ventilation and for switching of sockets or DALI ballasts to reduce standby consumption. The SA8-230/16/EM/KNX REG or SA4-230/16/EM/KNX REG switch actuators also capture and monitor current and energy consumption, which can be represented in a visualisation. Adjustable threshold values mean that faults in the installation can be detected and logged accordingly. To minimise standby consumption, the sockets can be switched off, e.g. at night.

Push-button interface

The entirely newly-developed 4-way flush-mounting push-button interface offers completely new options for the connection of conventional pushbutton switches. Four channels can be programmed as inputs or outputs as required.

Many additional functions are available, which are freely programmable per channel via the ETS software. This means that standard functions such as switching or dimming, as well as more complex functions such as scene control, can be assigned.

Occupancy detectors

Using the remote control specially developed for end customers, functions can be controlled easily via infrared. Installed master units can be supplemented with slave sensors as required to easily extend the detection area. Logical allocation takes place simply via the ETS software. New requirements from a change in use of the room can easily be accommodated by changes in the programming.

For more complex lighting conditions, brightness values from different sensors can be set as reference points at different times of the day. DALI lighting groups can be controlled and configured via the DALI/KNX Gateway. The webserver built in to the B.E.G. DALI/KNX Gateway makes it convenient to define lighting groups or make them larger or smaller via smartphone or any WLAN-capable device via the web interface.

KNX Generation 6 – Software & Hardware

Tenante Contractor Con

New software

The new B.E.G. Generation 6 KNX detectors have been completely revised to meet individual requirements: the new hardware enables a much smaller mounting depth, which makes installation considerably easier, particularly in restricted installation spaces, e.g. suspended ceilings. In addition, the sensors include models and variants with integrated noise sensors, temperature sensors and, for the Indoor 140-L wall switch, LEDs for orientation and night light function, as well as a 2-way push-button interface.

KNX sensors from B.E.G. have a range of functionality unique in the market. A variety of new functions such as separate control of individual movement sensors, integrated offset regulation for balancing different brightness levels within one room and the fully-featured integrated logic module for complex connectivity offer you an extensive range of functionality and a secure investment in the future.

New hardware - Highlights*

- Internal and external light sensors
- End-customer remote control
- External optional BLE-IR-Adapter
- Sensor sensitivity individually adjustable
- Setting and reading of parameters via bidirectional smartphone app
- Direction detection
- Temperature sensor*

*version-dependent

External optional BLE-IR-Adapter

for exact light measurement, e.g. on a desk. The external lux meter communicates with the KNX occupancy detector via an infrared interface.

End-customer remote control

with five buttons, freely configurable (e.g. switching, dimming, blinds, scenes)

Two light sensors

The detector has an internal light sensor (covers wide areas) and an external light sensor (localised); see software

Noise sensor

detects noises above a threshold which is individually adjustable, enables reactivation of the lighting by sound detection.



Basic – Economic solution for simple requirements



Standard – comprehensive solution for common requirements



Deluxe – premium solution for demanding applications



The tried and tested PD4-M-GH family with an enormous motion detection area of up to 44 m diameter (at a mounting height of up to 16 m) is now extended with new DALI variants. As well as a DALI compact variant, which is able to control whole light bands directly via Broadcast, there is also now a PD4-GH variant for DALISYS and DALI-2-BMS. The DALI-2-BMS variant is optimised for third party lighting control systems.

The high point: the new DALI variants of the GH family now offer an external light sensor with telescope function, which enables constant light regulation up to a 16 m mounting height. The light sensor's detection area can be adjusted simply by pulling out the telescopic part of the light sensor to the relevant mounting height.

The motion detection is optimised for high-bay warehouses and mounting heights larger than 10 m. Through better integration of daylight and a dimming option, these new detectors can save even more energy in many applications. Of course all DALI occupancy detectors have the orientation light function. Thanks to this function, it is possible to illuminate corridors, for example, with a dim light such as 10% of the total light output for improving the safety of people present. DALISYS and "Guided Light" offer a thinking ahead following light.

When used in high-bay warehouses, care should be taken that, in the cross-aisles of the warehouse, detectors are installed that can detect movement only in the desired aisle locations, by using blinds or other technical arrangements.

Daylight-dependant regulation to a mounting height of up to 16 m

The telescopic part of the light sensor is pulled out according to the mounting height. This enables a daylight-dependant regulation to a mounting height of up to 16 m.

Special occupancy detectors and multi-sensors for mounting at high levels



PD4-M-DALI/DSI-GH-SM, Part. nr. 93015

- DALI occupancy detector for surface mounting in large mounting heights
- External telescopic light sensor for a mounting height between 5 and 16 m (mechanically adjustable) for measuring the light according to the application
- DALI/DSI interface for the control of digital dimmable ballasts as a group
- Permanent or time-limited orientation light
- Extension of the detection area possible with slave devices

Technical Data

Voltage:	110 - 240 V AC 50 / 60 Hz
Power consumption:	0.9 W
Detection area:	360°
Range:	max. Ø 44 m across max. Ø 30 m towards
Degree / class of protection:	IP54 / II
DALI:	up to 50 DALI / DSI EB
Follow-up time:	1 min 30 min
Brightness set value:	10 - 2500 Lux
Orientation light:	5 % - 100 % / 1 min - 120 min / ∞
Light measurement:	mixed light measurement

PD4-DALISYS-GH-SM, Part. nr. 93345

- Addressable DALI multi-sensor for surface mounting in large mounting heights
- External telescopic light sensor for a mounting height between 5 and 16 m (mechanically adjustable) for measuring the light according to the application
- Seamless integration into the scalable B.E.G. LUXOMAT®net DALISYS
- Individual and powerful localisation LED for a quick and secure commissioning
- Guided Light, Soft-Start PLUS, orientation light PLUS
- The complete scope of functions is only activatable using accessory from the B.E.G. LUXOMAT®net DALISYS product range

Technical Data

Voltage:	Typ. 16 V DC (DALI)
Nominal current:	7 mA
Detection area:	360°
Range:	max. Ø 44 m across max. Ø 30 m towards
Degree / class of protection:	IP54 / II
Follow-up time:	1 s - 120 min
Orientation light:	5 % - 100 % / 1 min - 120 min / ∞

Brightness set value: 10 - 2500 Lux

PD4-DALI-2-BMS-GH-SM, Part. nr. 93025

- Addressable DALI multi-sensor for surface mounting in large mounting heights
- External telescopic light sensor for a mounting height between 5 and 16 m (mechanically adjustable) for measuring the light according to the application
- Individual and powerful localisation LED for a quick and secure commissioning
- Addressable and operable conforming to IEC 62386 Part 103 (control device)
- Level 0 provides information concerning room occupancy and motion detection according to IEC 62386 Part 303 on the DALI bus
- Level 1 provides LUX values according to IEC 62386 Part 304 on the DALI bus

Technical Data

	/oltage:	Typ. 16 V DC (DALI
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- Nominal current: 7 mA
- Detection area: 360°
- Range:

max. Ø 44 m across max. Ø 30 m towards

- Degree / class of protection: IP54 / II
 - Brightness set value: 10 2500 Lux

DALISYS – Intelligent Lighting Control and more



What is DALISYS?

DALISYS is an innovative bus system for lighting control based on DALI, comparable in flexibility and functionality with KNX, but less expensive, simpler and reliable in operation. Our large range of DALISYS occupancy detectors offers the right detector for applications in all types of buildings, from single rooms to high-bay warehouses. DALISYS is open to other building automation systems via BACnet/IP.

What is the difference between DALISYS and many other DALI systems?

The distributed intelligence. While other systems often use simple sensors needing further controllers, the B.E.G. multimaster sensors can control DALI luminaires and other actuators thanks to their own intelligence. The decentralised control of DALISYS improves system stability and simplifies configuration considerably.

What does DALISYS offer?

Regardless of the project size DALISYS can take complete control of the DALI Lighting. It provides:

- blind actuators
- actuators for HVAC applications, and the possibility
- to manage DALI emergency lights via DALISYS
- the DALISYS visualisation server "ViStation"

What does the software offer?

- Guided Light Plus => it has never been easier to realise a thinking ahead following light over several DALI loops
- comprehensive management and convenience functions with the DALI router
- calendar function
- energy monitoring
- messaging services

and much more (see page 21 / an overview of all functions)

Is support offered during the realisation of a DALISYS project?

B.E.G.'s project department and its experienced DALISYS integration service offer assistance and support from the very first idea through the planning process to commissioning and final acceptance on site.



The stairway is entered at the bottom floor. Immediately, groups 1 and 2 activate their main lights, and group 3 activates its orientation lighting. While the stairway is being used, the main light is always on for the floor where the user is, and for the floors directly above and below. Two floors above and below, the orientation lighting is also on but dimmed. After the user has left the stairway at the fourth floor, the groups switch off in sequence.

DALISYS – Multi-room and building solution



Installation example - multi-room solution

This solution is ideal for small buildings, warehouses, open plan offices, multi-floor offices, stairways etc. with simple or complex requirements for modern lighting control. Commissioning is carried out with an intuitive PC tool (Windows) via the DALI power supply as a rail-mounted device with integrated USB interface. In this way, using a convenient user interface, for example on a laptop, up to 64 DALI components can be addressed, up to 16 groups can be formed and up to 16 scenes configured.

With the multi-room solution, the "Guided Light" function can be used to synchronise movement detection across groups. The high-performance 210 mA DALI power supply can drive lighting devices from any manufacturer, B.E.G. relay modules, B.E.G. multisensors and B.E.G. pushbutton modules. Deployment of B.E.G. multisensors is limited to a total of eight, if they are to regulate one zone according to ambient light. Installation example - building solution

With up to 100 DALI routers each with 4 integrated USB interfaces, in practice 400 interconnected DALI lines can be set up over a local network (LAN/Ethernet). The benefit from this is firstly to enable central management of the entire decentralised lighting control system – including emergency lighting – in one or more buildings. Secondly, lighting control can be automated on a time basis using the calendar function, and maintenance processes can be streamlined thanks to the email reporting system – for example lamp faults.

In addition, the "Guided Light PLUS" function is available, which can synchronise lighting control triggered by motion detection not only across groups, but also across DALI lines, meaning there are no more limits to proactive, people-oriented lighting control. The energy monitor enables continuous monitoring. Analysis and information on energy consumption and the update function offer additional protection of your investment through regular optimisation and additional functionality.

The worry-free option

Various DALISYS components are pre-mounted and pre-wired by B.E.G. in an enclosure. The installer only has to connect the input and output wires to a labelled terminal block.

DALISYS offers a wide variety of options for combining devices and functions, which can be selected and set up according to local requirements and the building concerned. B.E.G. will plan the perfect solution for your project with you. If you tell us your requirements, our experts can plan a suitable DALISYS configuration in your CAD files. All the way from the first drawing to commissioning, we will be by your side with help to achieve our common goal: satisfied customers.

Are you interested in DALISYS? We look forward to seeing your project:

Phone: +49 / (0)2266-90121-0 Internet: www.beg-luxomat.com

The ViStation – Function overview





Show defective lamps at a glance

Monitor lighting conditions in real time

The B.E.G. visualisation solution for DALISYS offers exactly what is needed for the vast majority of applications.

Using your plans, graphics, photos or drawings, we will produce an individual visualisation for you. All lights, multisensors and other relevant DALISYS components are registered at the factory and the end customer receives a ready-to-go visualisation with an informative display that also allows manual intervention. The platform-independent web interface for PC, tablets and smartphones allows for various use scenarios. User management and permissions allocation take place centrally at the ViStation, and both the systems integrator and the end-customer can assign a practically unlimited number of users and roles. The presence of people can also be checked, as if there is enough daylight, the lighting is switched off despite people being present.



The ViStation offers powerful user management with different roles.

B.E.G. VISTATION - LOGIN			
	Name		
	User		
	Password		
	••••		
	LUGIN		

Depending on permissions, lighting can be controlled manually building-wide, for example.



Or users can have permissions only for "their" rooms or other approved rooms.



DALISYS – Overview of all features



Features

Functions

- Networkable, modular multimaster design
- Combines management of normal lighting and emergency lighting, control of blinds and HVAC functions on one platform
- Decentralised control with distributed Intelligence, to provide a high level of operational reliability
- B.E.G. multisensors have no power supply, and are master and slave in one unit
- Visualisation and central functions available without an upstream BMS
- BMS connection available via BACnet
- Planning, commissioning and maintenance by B.E.G.

- Scene control
 Occupancy-dependent control of light and heating, ventilation and airconditioning units
- Constant light regulation
- Orientation light PLUS
- Soft Start PLUS
- Emergency Light management, including self test and reporting
- Control of blinds
- Guided Light PLUS
- Super-flat sensor available (PD11)
- Central functions: email reporting, calendar function, energy monitoring
- ViSTATION visualisation with user administration and virtual user terminals
- BACnet interface



SAFETYLUX[®] LED – Emergency Lights using the latest DALI bus technology



The new generation of Safetylux emergency lights was optimized by B.E.G. lighting experts. The result is a bright and very uniform LED

light illumination of the escape route symbol.

The new electronics and software no provide a wide and extensive list of functions, including the integrated automatic test function.

A special highlight is the variety of convenient maintenance options for emergency lights.

Settings, test results and faults can be quickly read on the emergency light via LEDs or via the read out on the BEG operated smartphone app. Among other things, the app will include the latest test results, version and part number will be displayed.

Likewise, many settings such as the time of automatic tests can be configured.

All of this makes it much easier, particularly in smaller properties without their own emergency lighting bus system, to meet the legally required inspection and documentation obligations.



- Energy saving technology
- Long life / no lamp replacement
- Environmentally friendly production
- Very good illumination
- Automatic self-test



- Only monthly and visual inspection
- Great time and cost savings



Self Test

Bidirectional B.E.G.
 Smartphone App

- Readable with the smartphone
- Settings via smartphone
- Functions immediately after installation.



DALI bus monitor

- With B.E.G. DALISYS common monitoring of emergency lights, lights and B.E.G.-DALISYS components such as multi-sensors
- No visual control
- Monthly check on PC or smartphone incl. automatic documentation

Central emergency lighting management via DALISYS

All ceiling / wall emergency lights are optionally available with DALI interface. These can be used to integrate the emergency lights in B.E.G. DALISYS. The otherwise cumbersome commissioning of DALI emergency lights is solved very simply, because the DALI address of the emergency light can be read via the remote control app.

All system emergency lights can then be conveniently displayed on the PC, tablet or smartphone via the web interface and the (automatically performed) test results can be viewed and output as PDF files. The test times can be set in the system, so that, for example, the routine tests take place after hours.



SAFETYLUX[®] LED – All features at a glance

SAFETYLUX® Diamant DT32 LED

Technical Data

Visibility range:

Illuminant:

Battery:

- LED escape sign luminaire with single battery
- Slim aluminum housing
- Pictogram with very bright and even illumination
- Bidirectional remote control with B.E.G. smartphone app
- Automatic self-test with two colored status LEDs
- Optionally with central monitoring B.E.G. DALISYS

SAFETYLUX® Classic-2DN LED

- LED escape sign luminaire with single battery
- Robust plastic housing IP54
- Pictogram with very bright and even illumination
- Bidirectional remote control with B.E.G. smartphone app
- Automatic self-test with two colored status LEDs
- Optionally with central monitoring B.E.G. DALISYS

Burn time: 3 h emergency light
Degree /

32 m

NiMh 3.6 V

- class of protection: IP20/II
- Mounting:
- Housing:
- False ceiling mounting Aluminum profile Side panels, UV-resistant polycarbonate, white

LED board 12 x 0.5 W

- Technical Data
 Visibility range: 14/32 m
 Illuminant: LED board 12 x 0.5 W
 Battery: NiMh 3.6 V
 Burn time: 3 h emergency light
 Degree / class of protection: IP54/II
 Mounting: Wall and false
 - UV-resistant polycarbonate,

white

ceiling mounting

230 V AC -15 %, +10 %

50/60 Hz

max. 210 mA

DT32/6/3DALI-LED	1210
356 x 50 x 281 mm, DALI	
2DN14/6/3SC-LED	1200
359 x 90 x 105 mm, automatic self-test	
2DN14/6/3DALI-LED	1201
359 x 90 x 105 mm, DALI	
2DN32/6/3SC-LED	1206
359 x 90 x 215 mm, automatic self-test	
2DN32/6/3DALI-LED	1215
359 x 90 x 215 mm, DALI	

DT32/6/3SC-LED

356 x 50 x 281 mm,

automatic self-test



DATA CONTROL N

- Central control unit for emergency lights by DALI bus
- DALISYS router with integrated web server
- DALI power supply with integrated application controller for addressing
- Central monitoring and adjustment of emergency lights
- Automatic generation of standardized test reports
- Operable via compatible web browsers of any end devices

Technical Data

Housing:

- Voltage:
- Output voltage: 16 V DC
- Current:
- Power consumption: max. 10 W
- Degree / class of protection: IP65 / II
- Parameterization: Web application in B.E.G. DALI router

DATA CONTROL N

295 x 129 x 333 mm





The HF series – the new generation of (HF) microwave detectors



HF microwave occupancy detectors can function through many materials such as wood, partition walls and glass, and therefore they can be installed "hidden" in lights or flush-mounted.

In order to enable daylight-dependent lighting control, B.E.G. has fitted the new HF-MD3 and HF-MD4 microwave detectors with light sensors.

The external light sensors (optional on the HF-MD3) can be perfectly positioned (e.g. above the workstation, where light is most needed), while the power unit can be positioned near the lights for example. As well as an external light sensor, the HF-MD4 also has an external HF microwave sensor, which can for example be placed invisibly in the switch box next to the door. But the use of HF microwave technology can also be useful in conventional ceiling-mounted occupancy detectors. The advantages over the commonly-used passive infrared devices are especially apparent in corridor areas, as the HF sensor is particularly sensitive to towards movements. B.E.G. has developed the HF-MD6-C occupancy detector especially for this purpose. It uses two HF microwave modules, each monitoring half the corridor, thus ensuring optimum motion detection. All the necessary settings can be made conveniently from ground level using the smartphone app.

The new range is completed by the HF-MD5 ceiling-mounted occupancy detector. This is particularly suitable for instances where the positioning of the sensor does not allow a direct line of sight due to beams, dividing walls or changes in level.



In the high ambient temperatures of kitchens and swimming pools, HF detectors perform better than PIR-based detectors.



HF detectors also have their advantages in cold rooms and data centres. In cold rooms, people are often so well insulated that there is not enough of a heat source for detection.



HF detectors can be installed almost invisibly, thus offering good protection against vandalism.

Brightness-dependent lighting regulation even with flush mounting

HF-MD3

- Light sensor integrated into case
- Setup via potentiometer on device
- External light sensor sold separately
- With optional light sensor, also remote controll-capable using the B.E.G. smartphone app

Technical Data

- Voltage:
- Detection area:
- Degree/
 - IP20 / II class of protection:

110-240 V AC,

50/60 Hz

360°

- Ambient temperature: -15°C - +50°C
- Dimensions: 121 x 40 x 26 mm



Automatical Control Co

HF-MD4

- Optimum and individual alignment using external light sensor and external HF microwave sensor
- Fast connection of power element with light sensor and microwave sensor using plug contacts
- Convenient programming using the B.E.G. smartphone app

Technical Data

- 110-240 V AC, Voltage: 50/60 Hz 360° Detection area: Degree/ IP20 / II class of protection: Ambient temperature: -15°C - +50°C 121 x 40 x 60 mm
 - Dimensions:

Technical Data

110-240 VAC, Voltage:

- Range:
- Recommended mounting height: 2.5 m
- Degree/ class of protection: IP20 / II
- Switch-on threshold: 10 - 2000 Lux

50/60 Hz

Ø 12 m

- -15°C +50°C Ambient temperature:
- Switching capacity: 2300 W, cos phi = 1

Technical Data

1	Voltage:	110-240 VAC, 50/60 Hz
	Range:	Ø 20 m
1	Recommended mounting height:	2.5 m
1	Degree/ class of protection:	IP20 / II
•	Switch-on threshold:	10 - 2000 Lux
•	Ambient temperature:	-15°C - +50°C
	Switching capacity:	2300 W.

cos phi = 1





25

HF-MD5

- Round detection area
- Detection range adjustable in five steps
- Available for installation in suspended ceilings and for surface mounting
- Settings via App
- Factory settings 500 Lux, 10 min.

HF-MD6-C

- Oval detection area
- Detection range adjustable in five steps
- Available for installation in suspended ceilings and for surface mounting
- Settings via App
- Factory settings 500 Lux, 10 min.

The AL series - extremely flat luminiares with broad light distribution











B.E.G.'s surface-mount luminaires AL8 and AL12 offer an attractive design in combination with modern LED technology. The robust flat polycarbonate diffuser provides rooms with an even light distribution that is easy on the eye. The premium-quality, economical LEDs and the dimmable driver offer high light output with low energy consumption.

The wide light distribution of 120° assures the illumination of a large surface. Premium-quality economical LEDs guarantee a 40000 hour service life and offer high light output for low energy consumption.

Typical applications:

Stairways, hallways, cellars, garages, storerooms, and all interior and exterior areas in which energy-saving lighting is required.

AL8-25-300-LEDN-HF with (HF) microwave detector

- Surface height of only 48 mm, flat diffuser for modern design
- Case made of robust polycarbonate with high fire protection rating (V0) and degree of protection IP20.
- Integrated (HF) microwave detector, not externally visible, wide detection range
- DIP switches to set follow-up time, switch-on threshold and sensor sensitivity
- Service life over 40000 hours
- Simple mounting with separate mounting bracket
- Protection ring against vandalism available as accessory



Technical Data – AL8-25-300-LED-3C

- Voltage: 200 240 V AC, 50 Hz
- Power consumption: 25 W
- Luminous flux: 2000 lm / 2100 lm / 2120 lm
- Luminous intensity: 3000 K / 4000 K / 5700 K
- Colour reproduction: > CRI 80
- Dimensions: Ø 300 x 40 mm
- Degree/ class of protection: IP54 / II
- Impact protection: IK08 (5.0 Joule)
- Photobiological safety: RG0

AL8-25-300-LED-3C

- Surface height of only 40 mm, flat diffuser for modern design
- Case made of robust polycarbonate with high fire protection rating (VO).
- 3 colours in one light, switchable selection between warm white, neutral white and daylight white.
- Service life over 40000 hours
- Simple mounting with separate mounting bracket
- Protection ring against vandalism available as accessory



AL8-25-300-LED-3C-HF

- Surface height of only 48 mm, flat diffuser for modern design
- Case made of robust polycarbonate with high fire protection rating (V0) and degree of protection IP20.
- 3 colours in one light, switchable selection between warm white, neutral white and daylight white.
- Integrated (HF) microwave detector, not externally visible, wide detection range
- DIP switches to set follow-up time, switch-on threshold and sensor sensitivity
- Service life over 40000 hours
- Simple mounting with separate mounting bracket
- Protection ring against vandalism available as accessory

Technical Data – AL12-25-300-LED-3C

- Voltage: 200 240 V AC, 50 Hz
- Power consumption: 25 W
- Luminous flux: 2000 lm / 2100 lm / 2120 lm
- Luminous intensity: 3000 K / 4000 K / 5700 K
- Colour reproduction: > CRI 80
- Dimensions: 300 x 300 x 40 mm
- Degree/ class of protection: IP54 / II
- Impact protection: IK08 (5.0 Joule)
- Photobiological safety: RGO

AL12-25-300-LED-3C

- Surface height of only 40 mm, flat diffuser for modern design
- Case made of robust polycarbonate with high fire protection rating (VO).
- 3 colours in one light, switchable selection between warm white, neutral white and daylight white.
- Service life over 40000 hours
- Simple mounting with separate mounting bracket



AL12-25-300-LED-3C-HF

- Surface height of only 48 mm, flat diffuser for modern design
- Case made of robust polycarbonate with high fire protection rating (VO) and degree of protection IP20.
- 3 colours in one light, switchable selection between warm white, neutral white and daylight white.
- Integrated (HF) microwave detector, not externally visible, wide detection range
- DIP switches to set follow-up time, switchon threshold and sensor sensitivity
- Service life over 40000 hours
- Simple mounting with separate mounting bracket

RC-plus next N – the new premium category





The new RC-plus-next-N family of products, like its predecessors, covers all typical use cases with three detection areas of 130°, 230° and 280° and comes in the familiar co-lours of white, black, brown and stainless steel finish.

All detectors can be set up for wall, corner or ceiling mounting, using the practical swivel mechanism. And of course, despite the facelift, the new detectors are compatible with the well-established B.E.G. RC-plus and RCplus-next sockets, which have sold millions over their 20-year history. The single-hand push socket guarantees simple mounting. New features are the introduction of digital sensors, which can be fine-tuned by remote control. Quality of detection has been improved yet again, and it now offers a temperature-stabilised range of up to 20 m. The swivelling spherical optical sensor, and the ability to mechanically adjust the range of each sensor separately, means that uniquely in this format, the motion detector can be adjusted to the room's geometry. B.E.G. detectors do not require an additional socket, for example to look diagonally downwards. As before, all settings and programs such as the photoelectric switch or holiday and comfort function can be set up via the B.E.G. remote control or the B.E.G. app.

With an NC button in the supply, the new detector can be switched on as well as off. A practical way of manually changing the detector's status. After the follow-up time expires, the detector then goes back to automatic mode.

- Motion detector with 130°, 230° or 280° detection area and anti-creep zone
- Adjustable head
- Mechanical range adjustment can be set per sensor.
- Digital sensors and improved algorithms
- Simple installation with push-fit socket
- Wall, ceiling or corner mounting
- Immediate commissioning option with factory settings
- Additional functions can be set up using the optional remote control
- Remotely switchable with NC button or switch

Functions and direction



- Blinds for blocking unwanted detection areas
 Adjuster for precise mechanical range adjustment, individually for each sensor
- C) Socket
- D) Potentiometers for follow-up time and switch-on threshold
- E) 360° anti-creep zone, can be switched off by remote control



By moving the adjustable head in different directions, the detection area can be set up perfectly. The detector can also be mounted on the ceiling by turning the socket through 90°.

Adjustment of range and detection angle





The range can be precisely adjusted by individual mechanical setting of each separate sensor. One sensor in the 130° model, two in the 230° model and three in the 280° model can be set independently of each other.

LUXOMAT®

RC-plus next N – Potentiometers and mounting options





white RC-plus next N 130/230/280 Part. nr.: 93321/93331/93341



black RC-plus next N 130/230/280 Part. nr.: 93323/93333/93343



brown RC-plus next N 130/230/280 Part. nr.:93324/93334/93344



silver RC-plus next N 230 Part. nr.: 93346

Technical Data

Voltage: 110 - 240 V AC 50 / 60 Hz (available with other mains voltages on request) Typical power consumption: approx. 0.5 W Recommended mounting height: 2.5 m 121 x 71 x 85 mm Dimensions: Protection rating/class: IP54 / Class II Ambient -25 °C to +50 °C temperature: Case: Polycarbonate, UV-resistant Switching power: 3000 W, cos phi = 1 1500 VA, cos phi = 0,5 300 W LED max. inrush current peak lp (20ms) = 165 A (200 µs) = 800 A Contact type: $\boldsymbol{\mu}$ contact, NO contact with tungsten pre-make contact 15 sec - 16 min, pulse Follow-up time: Switch-on 2 - 2000 Lux threshold:

Potentiometer





Wall mounting

Ceiling mounting





External corner

mounting

SAFETYLUX® Portable LED – Safety to go



- LED safety hand spotlight
- Luminous head can be swiveled 120° vertically
- Extremely powerful LED headlamp with a beam range of up to 150 m (> 1 lx)
- Environmentally friendly NiMH battery with deep discharge protection
- Charging part integrated in the floodlight

Technical Data

•	Illuminant: Spotlight:	Power LED with reflector 10W
	Ambient / flashing light:	LED board 10 x 0.25 W
•	Range:	≈150 m (>1 Lux)
•	Battery:	NiMh 4.8 V
•	Useful life:	3 h head light 12 h secondary light
•	Dimensions:	166 x 125 x 252 mm
•	Ambient temperature:	-0°C to +35°C
•	Degree / class of protection::	IP44/II
•	Housing:	UV-resistant polycarbonate, grey / red

The portable B.E.G. Emergency light SAFETYLUX® Portable LED was equipped with modern LED technology. The integrated battery with deep discharge protection enables a 3h operation of the main light and 12h operation of the secondary light. The charging unit is integrated directly into the luminaire and the charging cable can also be found there. If the light is connected to the mains, the emergency light automatically activates in the selected operating mode in the event of a power failure. The swiveling light head can be individually aligned so that the required area is illuminated even when the light is switched off.

The Portable LED offers three different operating modes, which can be selected with the supporting hand via switch on the light head. This makes the luminaire ideal for most work and emergency situations.

With the extremely powerful 10 watt LED spotlight, large distances of up to 150 m can be specifically illuminated. The uniform illumination of rooms or larger areas is made possible by an LED ring. To point out far-reaching danger spots, the LED ring has a flashing light function.

Optionally a suitable filter assortment in the colors yellow / red / green is available.



SAFETYLUX [®] Portable LED	93120
166 x 125 x 252 mm, grey	
SAFETYLUX [®] Portable LED	93121

166 x 125 x 252 mm, red







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