Application Manual

INDUSTRIAL AND WAREHOUSE HALLS

REGIOLUX

Contents

Application manual – lighting controllers

Industrial and warehouse halls

Legal requirements, trends and increasing energy costs increasingly determine the technical equipment in building automation systems, including lighting systems. There has been a steady increase in the use of light controllers and light management systems in lighting facilities. The purpose of these systems is the energy-efficient control and regulation of systems, no matter whether these are large, medium-sized or small.

From a simple on-off switch, motion and presence detectors, right through to usage-optimised DALI systems with daylight control, Regiolux provides a wide variety of solutions for efficient lighting control and light regulation, tailored to the technical and financial requirements of the project in hand.

The installation of light control and regulation systems is useful in not only office environments but also industrial lighting facilities. Although it is not always possible to realise a daylight-dependent control, e.g. due to a lack of light, significant energy savings are possible in storage and rack areas that are not permanently occupied not insignificant energy savings can be generated by dimming or switching off the lighting.

Light control components from Regiolux cover the special requirements of industry:

- Daylight controllers with DALI signal
- Daylight controllers and presence/motion sensors with DALI signal
- Presence/motion sensor, On/Off switching only
- Presence/motion sensor with corridor function
- Presence/motion sensor with DALI signal

These control and regulation systems are available as distributed components or pre-assembled in device mounts as part of the Regiolux SDT quick-fit mounting system.

Benefits:

- Saves energy by using daylight and detecting presence/motion
- Straightforward project engineering
- Devices are pre-wired
- Plug-and-play
- Convenient settings adjustment and start-up using remote controls

Overview and properties of the presented components as a selection guide:

Blank device mount SDBA easy12:

- Mounted motion detector LC-BEG PD4-M-1C-GH-AP, Master switching
- Max. mounting height 16m
- Oval detection range at a height of 16m, longest diameter approx. 28m
- Max. switching power 2300 W at cosPhi=1
- Option to connect slaves to extend detection range
- Adjustment and start-up with IR remote control LC-BEG IR-PD4-GH or IR adapter LC-BEG BLE-IR-ADAPTER
⇨ See application examples 4 and 5

Blank device mount SDBA easy20:

- Mounted motion detector LC-BEG PD4-S-GH-AP, Slave
- Max. mounting height 16m
- Oval detection range at a height of 16m, longest diameter approx. 28m
- To extend the detection range, in combination with Master SDBA easy12 and easy07
⇨ See application examples 6, 9 and 10.2

Blank device mount SDBA easy06:

- Mounted presence/motion detector LC-BEG PD4-M-1C-AP, Master switching
- Max. mounting height 10m
- Circular detection range at a height of 10m: diameter approx. 36m
- Max. switching power 2300 W at cosPhi=1
- Option to connect slaves to extend detection range
- Adjustment and start-up with IR remote control LC-BEG IR-PD-E or IR adapter LC-BEG BLE-IR-ADAPTER
⇨ See application examples 1, 2, 3, 6, 7 and 10.3

Blank device mount SDBA easy19:

- Mounted presence/motion detector LC-BEG PD4-S-AP, Slave
- Max. mounting height 10m
- Circular detection range at a height of 10m: diameter approx. 36m
- To extend the detection range in combination with the Masters SDBA easy06 and SDBA easy15
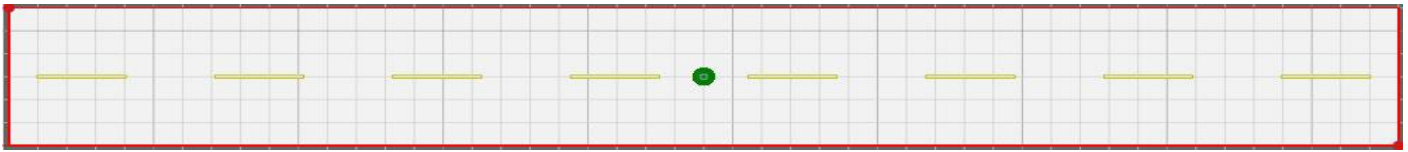⇨ See application examples 2, 3 and 7

Blank device mount SDBA easy15:

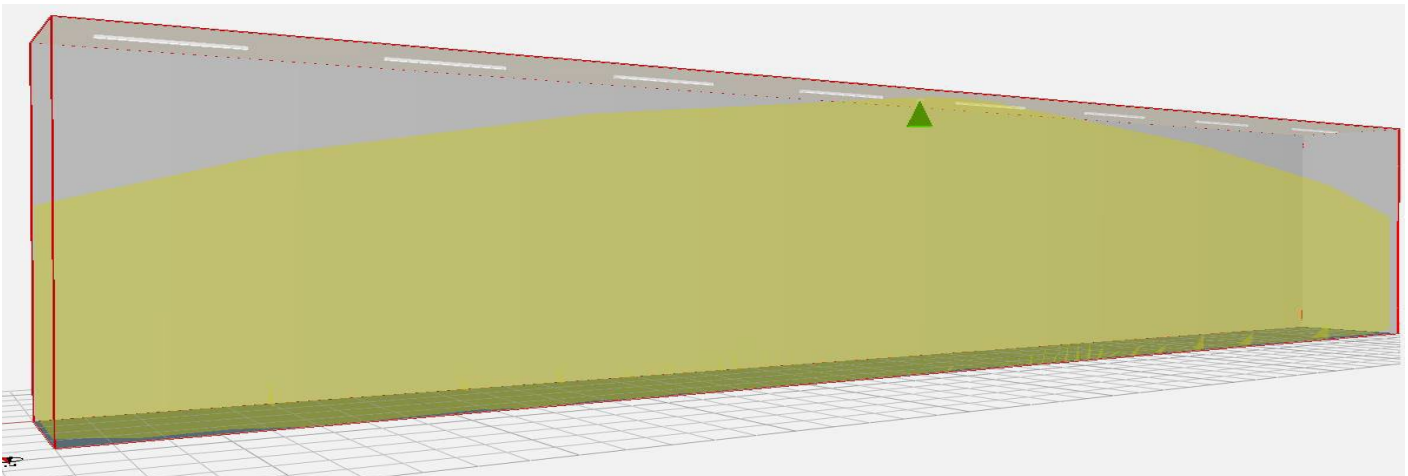- Mounted presence/motion detector LC-BEG PD4-M-DALI-AP, Master DALI
- Integrated daylight controller
- Optional, adjustable orientation light function
- Max. mounting height 10m
- Max. mounting height 5m for daylight control
- Circular motion detection range at a height of 5m: diameter approx. 24m
- Max. 50 DALI devices can be connected
- Option to connect slaves to extend detection range
- Adjustment and start-up using IR remote control LC-BEG IR-PD-DALI-E or IR adapter LC-BEG BLE-IR-ADAPTER
⇨ See application example 8

Blank device mount SDBA easy07:

- Mounted presence/motion detector LC-BEG PD4-M-DALI-GH-AP, Master DALI
- Integrated daylight controller
- Optional, adjustable orientation light function
- Max. mounting height 16m for daylight control
- Oval motion detection range: longest diameter approx. 30m
- Max. 50 DALI devices can be connected
- Option to connect slaves to extend detection range
- Adjustment and start-up using IR remote control LC-BEG IR-PD-DALI-E up to 8 m
- Adjustment and start-up using IR adapter LC-BEG BLE-IR-ADAPTER up to 16 m
⇨ See application examples 9, 10.1 and 10.2

Application examples

Example 1:   **Racking aisle lighting, 24m, mounting height 6m, light run with 8 luminaires, arrangement luminaire-blank-luminaire, 1 motion sensor**

Control: Motion-dependent on/off switching with adjustable shut-off delay
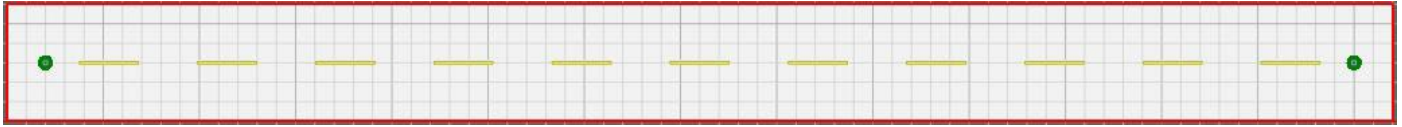
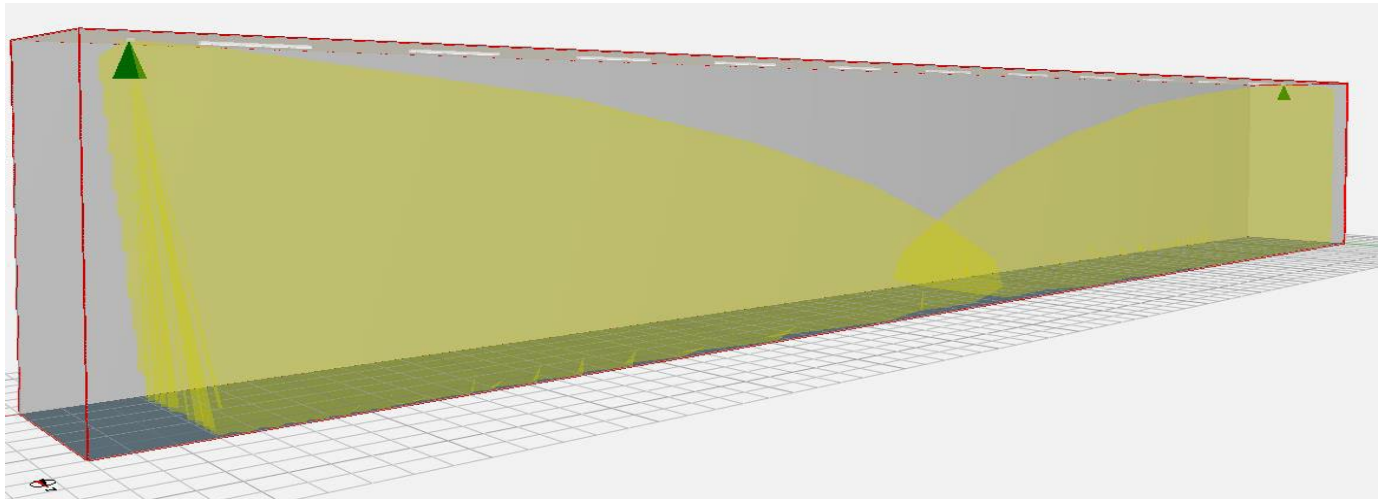

Detection range of sensor

Components:

- SDG blank device mounts with motion detector, type SDBA easy06
    - Mounted sensor LC-BEG PD4-M-1C-AP
    - Max. mounting height 10m
    - Circular detection range at a height of 6m: diameter approx. 32m
    - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up with IR remote control LC-BEG IR-PD-E or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG luminaire device mount with standard ballast/driver, not dimmable
- SDT mounting rail 7-pole or 11 pole

Example 2: **Racking aisle lighting, 36m, mounting height 6m, light run with 11 luminaires, arrangement luminaire-blank-luminaire, 2 motion detectors**

Control: Precise, motion-dependent On/Off switching with adjustable shut-off delay, louvres inserted to limit the detection range
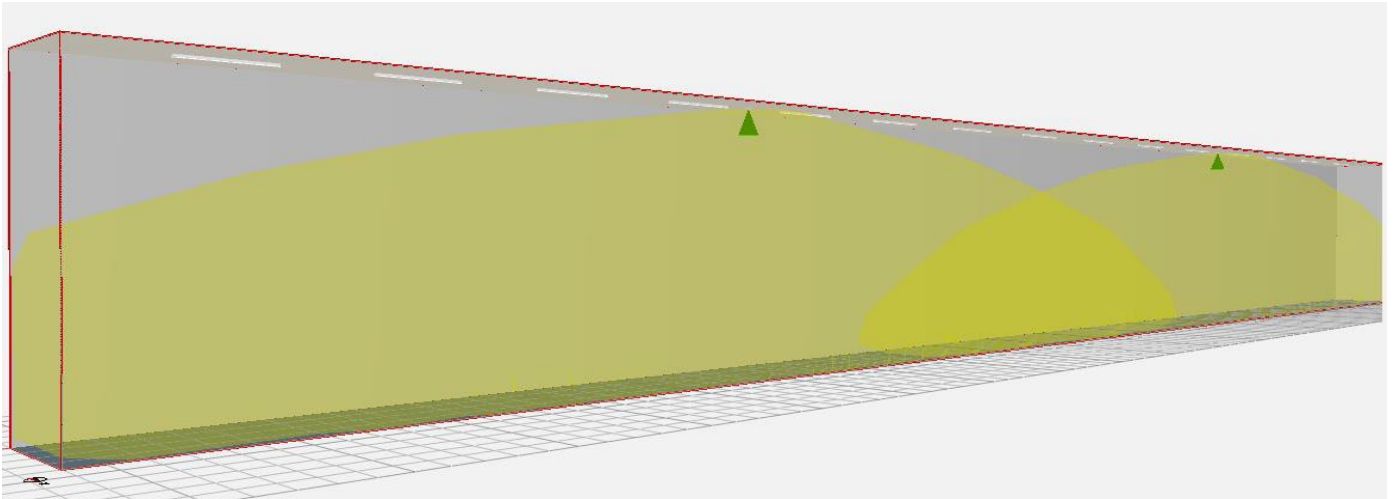

Detection range of sensors

Components:

- SDG blank device mount with motion sensor master, type SDBA easy06
  - Mounted sensor LC-BEG PD4-M-1C-AP
  - Max. mounting height 10m
  - Circular detection range at a height of 6m: diameter approx. 32m
  - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up using IR remote control LC-BEG IR-PD-E or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG blank device mount with motion sensor slave, type SDBA easy19
  - Mounted sensor LC-BEG PD4-S-AP
  - Max. mounting height 10m
  - Circular detection range at a height of 6m: diameter approx. 32m
  - To extend the detection range in tandem with the master easy06
- SDG luminaire device mount with standard ballast/driver, not dimmable
- SDT mounting rail 7-pole or 11 pole

There is no limit to the number of slave sensors that can be used. Any number of sensors can be planned according to the area to be covered by the sensor system.

Example 3:   Racking aisle lighting, 48m, mounting height 6m, light run with 15 luminaires, arrangement luminaire-blank-luminaire, 2 motion detectors

Control: Motion-dependent On/off switching with adjustable shut-off delay
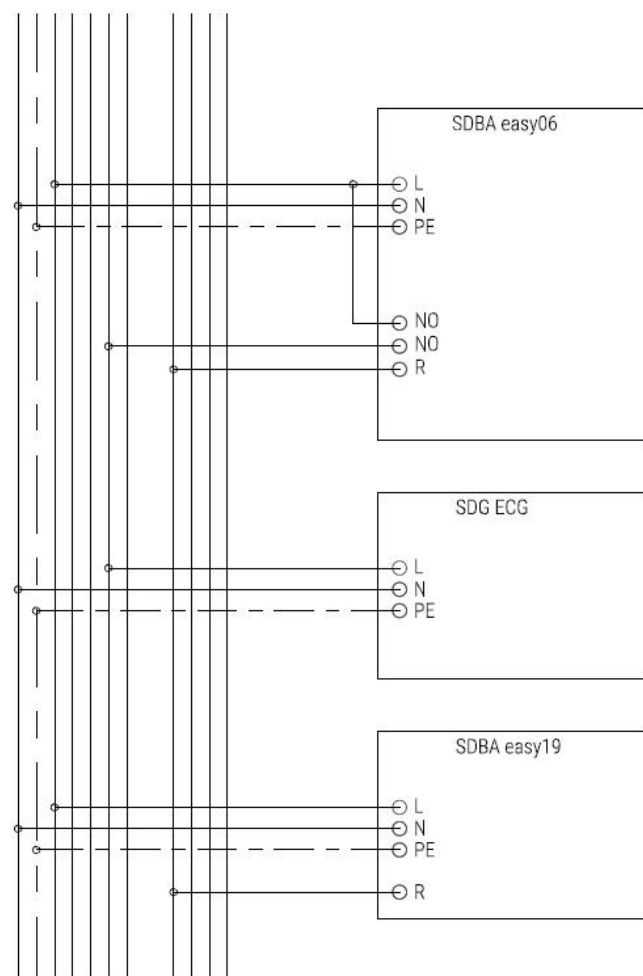

Detection range of sensors

Components:

- SDG blank device mount with motion sensor master, type SDBA easy06
    - Mounted sensor LC-BEG PD4-M-1C--AP
    - Max. mounting height 10m
    - Circular detection range at a height of 6m: diameter approx. 32m
    - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up with IR remote control LC-BEG IR-PD-E or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG blank device mount with motion sensor slave, type SDBA easy19
    - Mounted sensor LC-BEG PD4-S-AP
    - Max. mounting height 10m
    - Circular detection range at a height of 6m: diameter approx. 32m
    - To extend the detection range in tandem with the master easy06
- SDG luminaire device mount with standard ballast/driver, not dimmable
- SDT mounting rail 7-pole or 11 pole

There is no limit to the number of slave sensors that can be used. Any number of sensors can be planned according to the area to be covered by the sensor system.
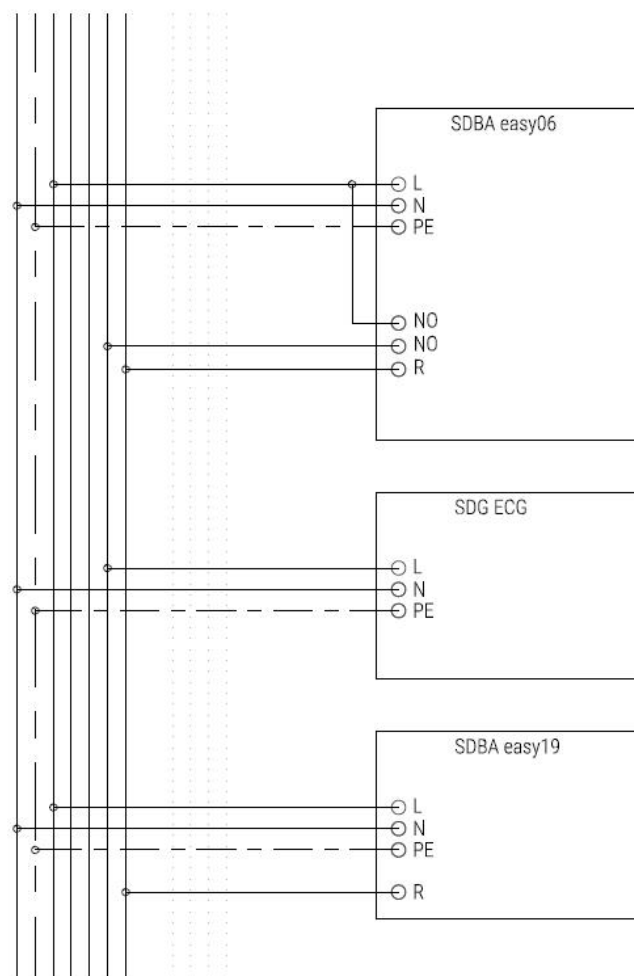
Connection diagram

SDT mounting rail 11-pole
N PE L1 L2 L3 + -   A B C D

SDBA easy06
- L
- N
- PE
- NO
- NO
- R

SDG ECG
- L
- N
- PE
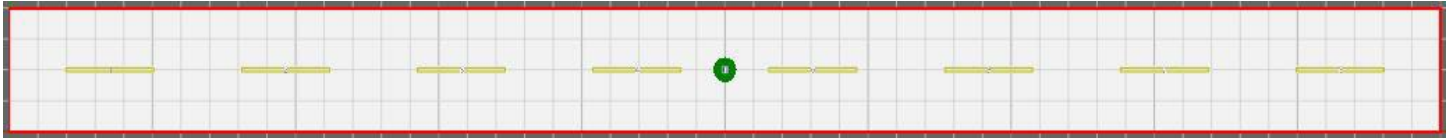
SDBA easy19
- L
- N
- PE
- R

parallel wiring of multiple SDBA easy06 possible
L1 = continious
+ = switched wire to luminaires
A = (R) switched wire slave sensor

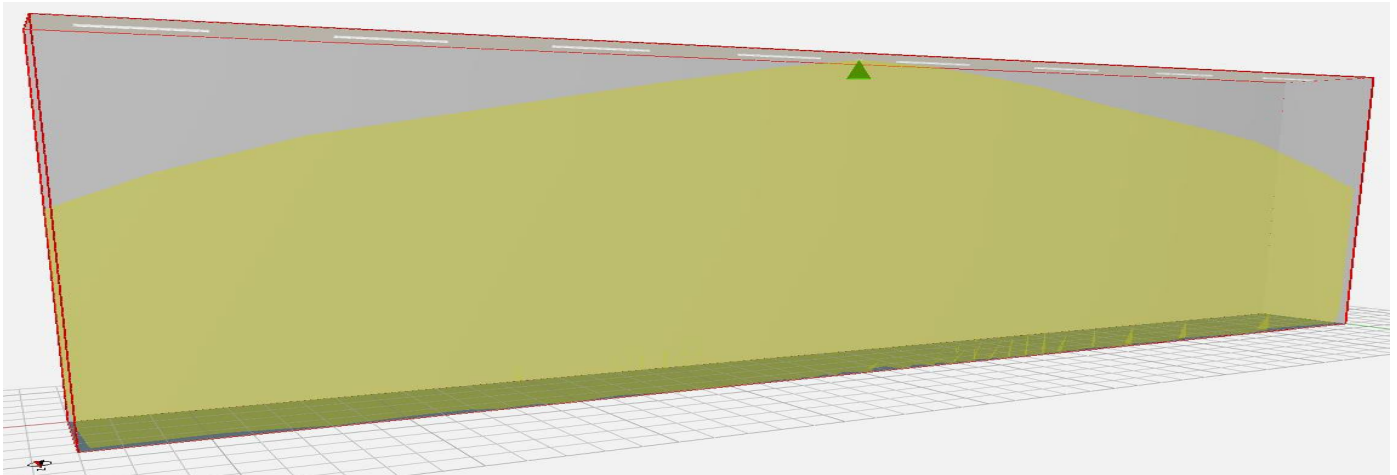SDT mounting rail 7-pole
N PE L1 L2 L3 + -   A B C D

SDBA easy06
- L
- N
- PE
- NO
- NO
- R

SDG ECG
- L
- N
- PE

SDBA easy19
- L
- N
- PE
- R

parallel wiring of multiple SDBA easy06 possible
L1 = continious
+ = switched wire to luminaires
A = (R) switched wire slave sensor

Example 4: **Racking aisle lighting, 24m, mounting height 10m, light run with 8 luminaires, arrangement luminaire-blank-luminaire, 1 motion sensor**

Control: Motion-dependent On/Off switching with adjustable shut-off delay
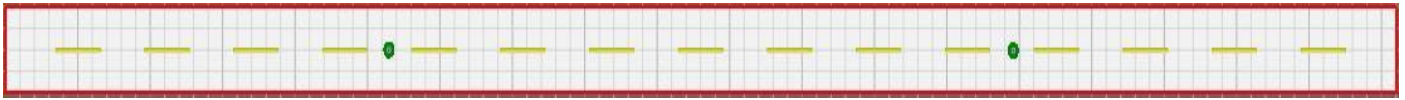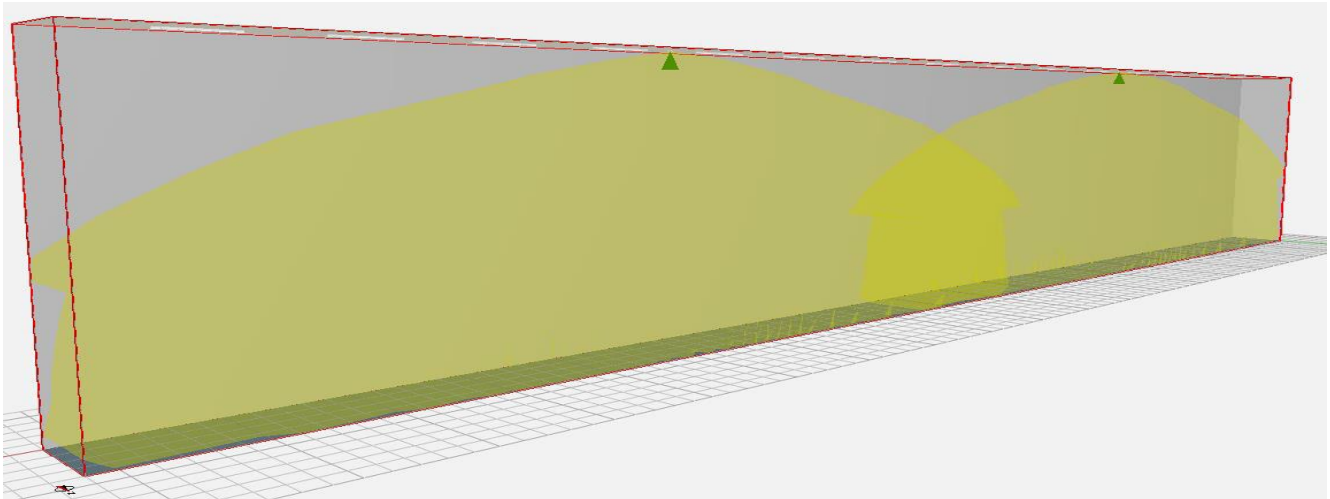

Detection range of sensor

Components:

- SDG blank device mounts with motion detector, type SDBA easy12
  - Mounted sensor LC-BEG PD4-M-1C-GH-AP
  - Max. mounting height 16m
  - Oval detection range at a height of 10m: longest diameter approx. 30m
  - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up with IR remote control LC-BEG IR-PD4-GH or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG luminaire device mount with standard ballast/driver, not dimmable
- SDT mounting rail 7-pole or 11 pole

Example 5: **Racking aisle lighting, 48m, mounting height 10m, light run with 15 luminaires, arrangement luminaire-blank-luminaire, 2 motion detectors**

Control: Motion-dependent On/Off switching with adjustable shut-off delay
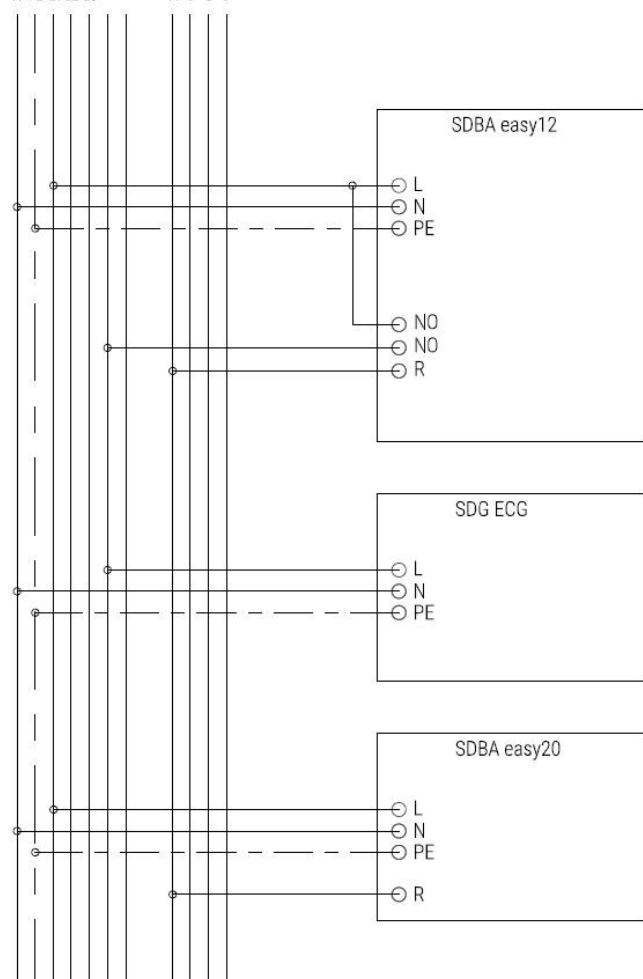

Detection range of sensors

Components:

- SDG blank device mount with motion sensor master, type SDBA easy12
    - Mounted sensor LC-BEG PD4-M-1C-GH-AP
    - Max. mounting height 16m
    - Oval detection range at a height of 10m: longest diameter approx. 30m
    - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up with IR remote control LC-BEG IR-PD4-GH or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG blank device mount with motion sensor slave, type SDBA easy20
    - Mounted sensor LC-BEG PD4-S-GH-AP
    - Max. mounting height 16m
    - Oval detection range at a height of 10m: longest diameter approx. 30m
    - To extend the detection range in combination with the master easy12
- SDG luminaire device mount with standard ballast/driver, not dimmable
- SDT mounting rail 11-pole

There is no limit to the number of slave sensors that can be used. Any number of sensors can be planned according to the area to be covered by the sensor system.
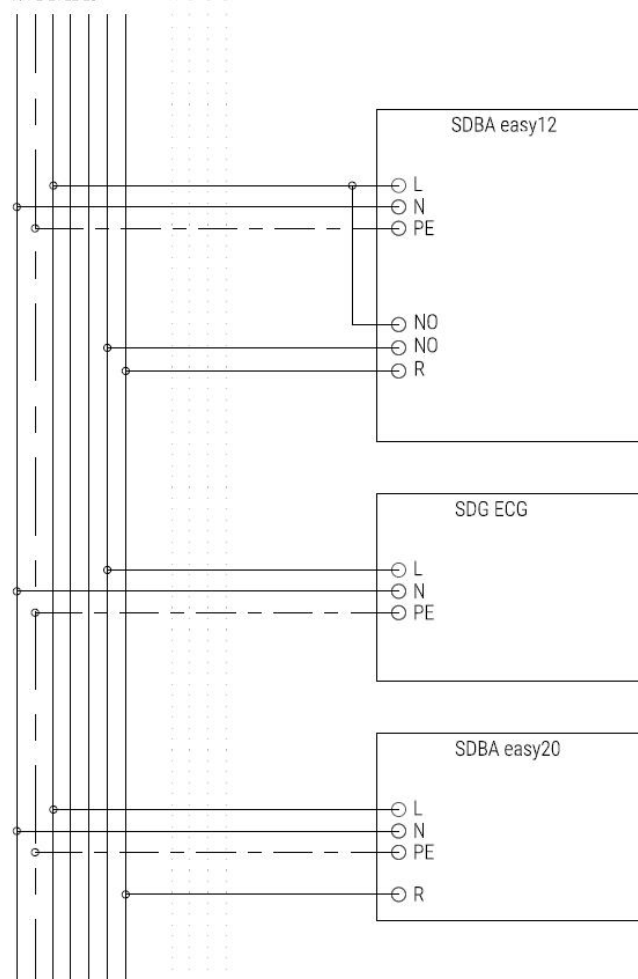
Connection diagram
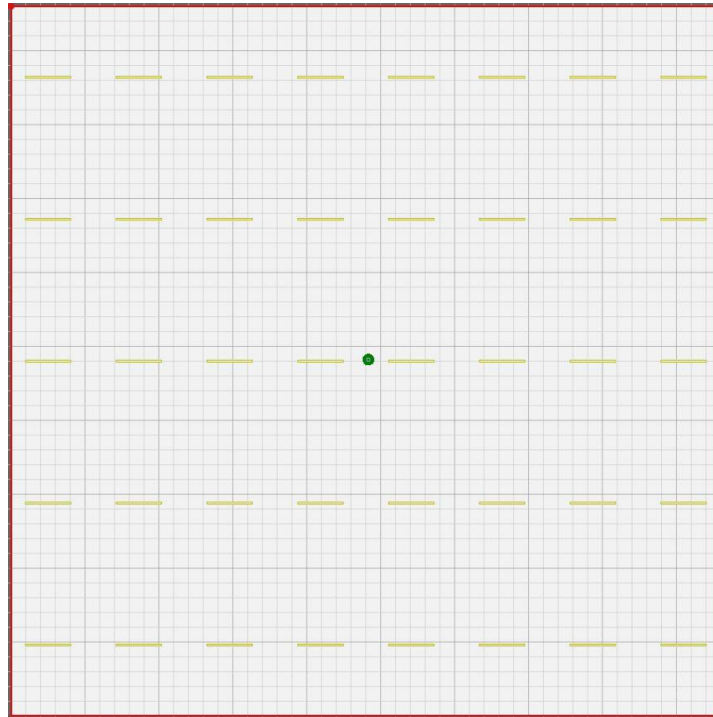
SDT mounting rail 11-pole
N PE L1 L2 L3 + -   A B C D

SDBA easy12

L
N
PE

NO
NO
R

SDG ECG

L
N
PE

SDBA easy20

L
N
PE

R

SDT mounting rail 7-pole
N PE L1 L2 L3 + -   A B C D

SDBA easy12

L
N
PE

NO
NO
R

SDG ECG

L
N
PE

SDBA easy20

L
N
PE

R

parallel wiring of multiple SDBA easy12 possible
L1 = continious
+ = switched wire to luminaires
A = (R) switched wire slave sensor
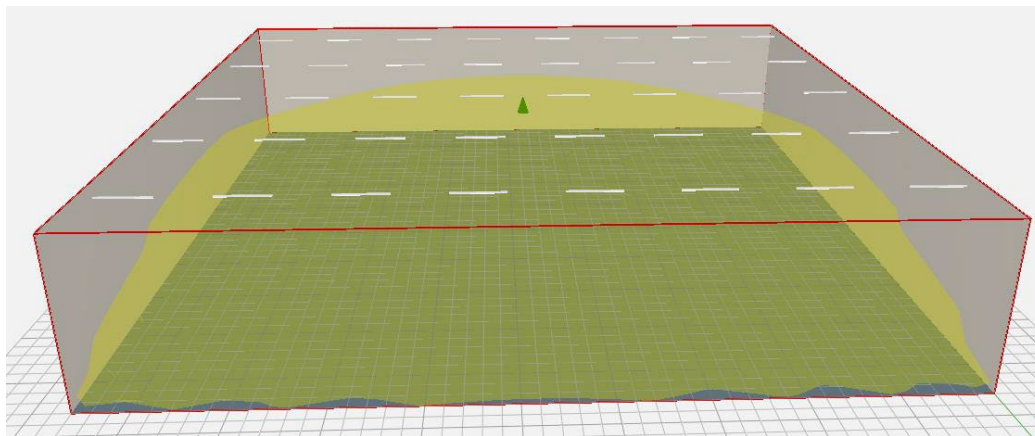
parallel wiring of multiple SDBA easy12 possible
L1 = continious
+ = switched wire to luminaires
A = (R) switched wire slave sensor

Example 6: **Lighting of 24m x 24m hall, mounting height 5m, 5 light runs with 8 luminaires each, arrangement luminaire-blank-luminaire, 1 motion sensor**

Control: Motion-dependent On/off switching with adjustable shut-off delay
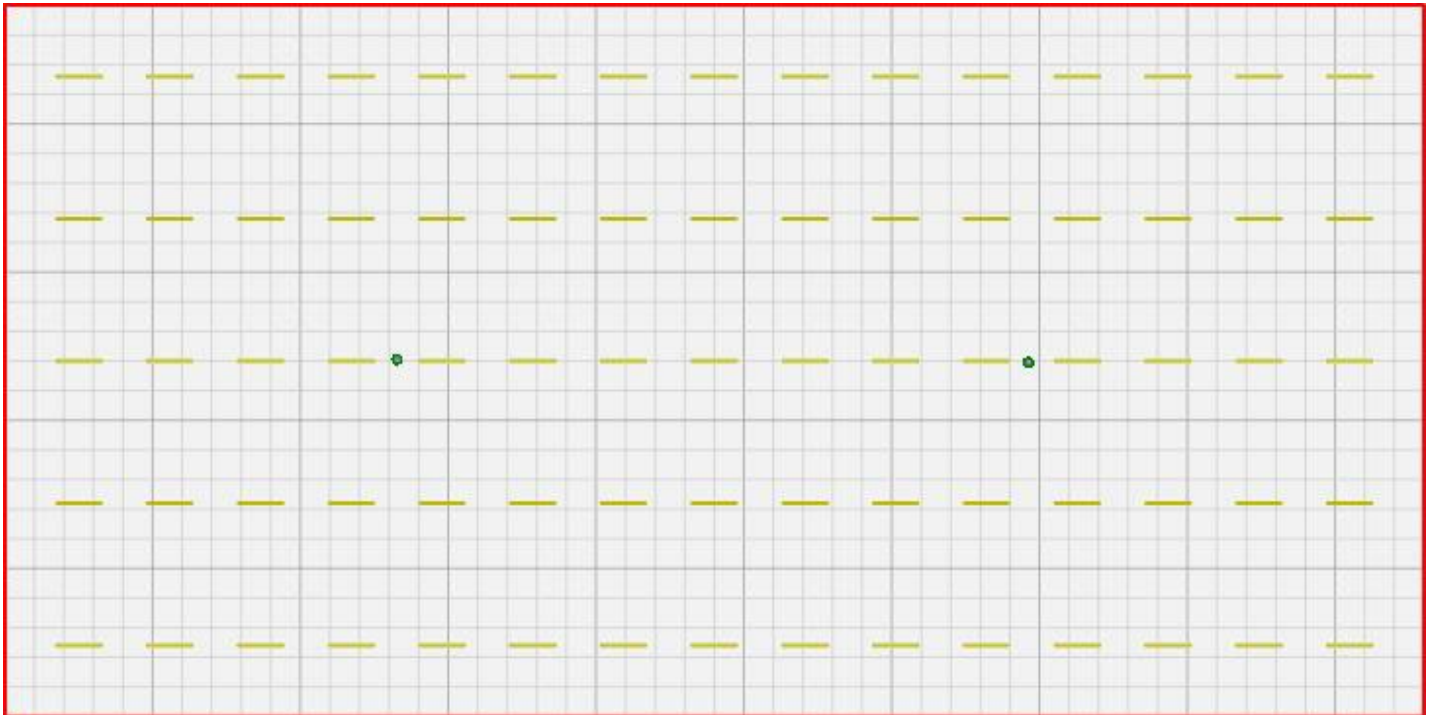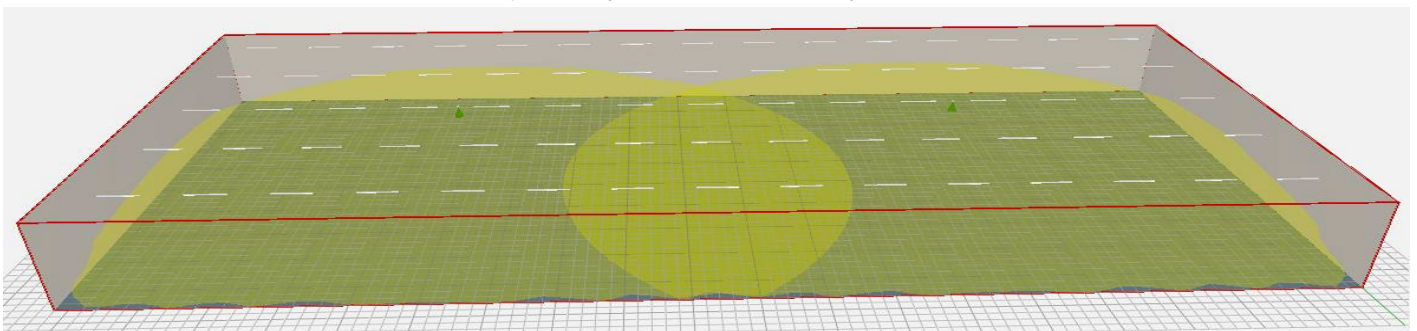

Detection range of sensor

Components:

- SDG blank device mount with motion/presence sensor, type SDBA easy06
    - Mounted sensor LC-BEG PD4-M-1C-AP
    - Max. mounting height 10m
    - Circular detection range at a height of 5m: diameter approx. 34m
    - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up with IR remote control LC-BEG IR-PD-E or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG luminaire device mount with standard ballast/driver, not dimmable
- SDT mounting rail 7-pole or 11 pole

Example 7: **Lighting of 24m x 24m hall, mounting height 5m, 5 light runs with 15 luminaires each, arrangement luminaire-blank-luminaire, 2 motion sensors**

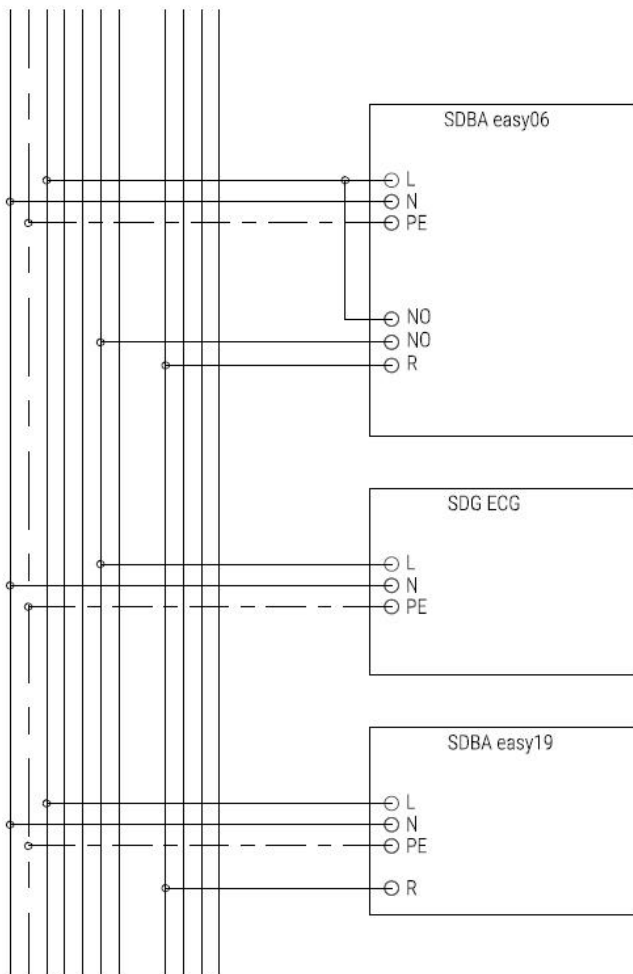**Control:** Motion-dependent On/off switching with adjustable shut-off delay

Detection range of sensor

Components:

- SDG blank device mount with motion/presence sensor, type SDBA easy06
    - Mounted sensor LC-BEG PD4-M-1C-AP
    - Max. mounting height 10m
    - Circular detection range at a height of 5m: diameter approx. 34m
    - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up with IR remote control LC-BEG IR-PD-E or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG blank device mount with motion sensor slave, type SDBA easy19
    - Mounted sensor LC-BEG PD4-S-AP
    - Max. mounting height 10m
    - Circular detection range at a height of 5m: diameter approx. 34 m
    - To extend the detection range in tandem with the master easy06
- SDG luminaire device mount with standard ballast/driver, not dimmable
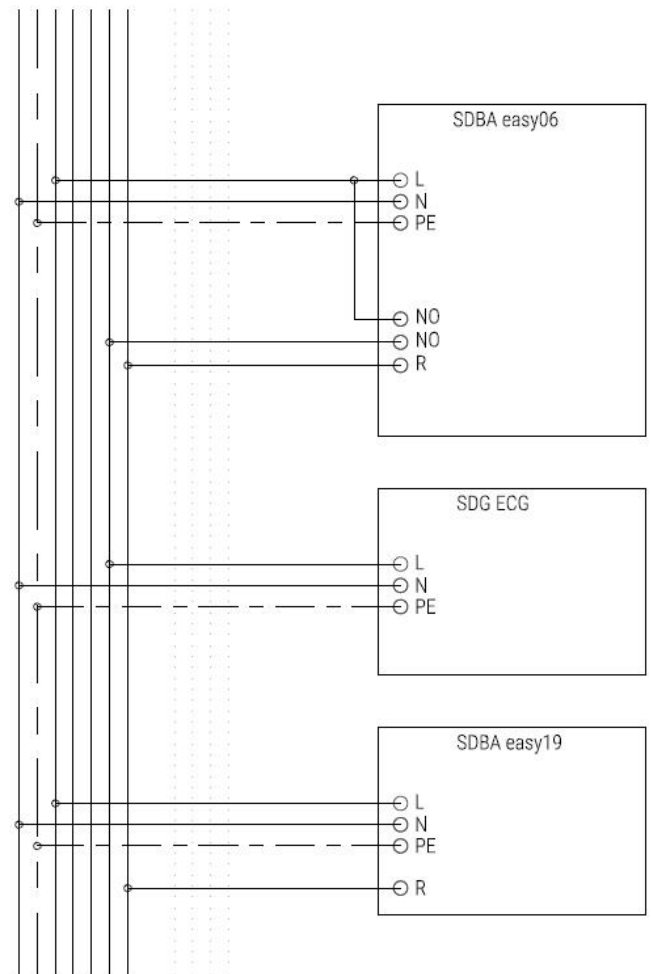- SDT mounting rail 7-pole or 11 pole

Connection diagram

SDT mounting rail 11-pole
N PE L1 L2 L3 + - A B C D

SDBA easy06

- L
- N
- PE
- NO
- NO
- R

SDG ECG

- L
- N
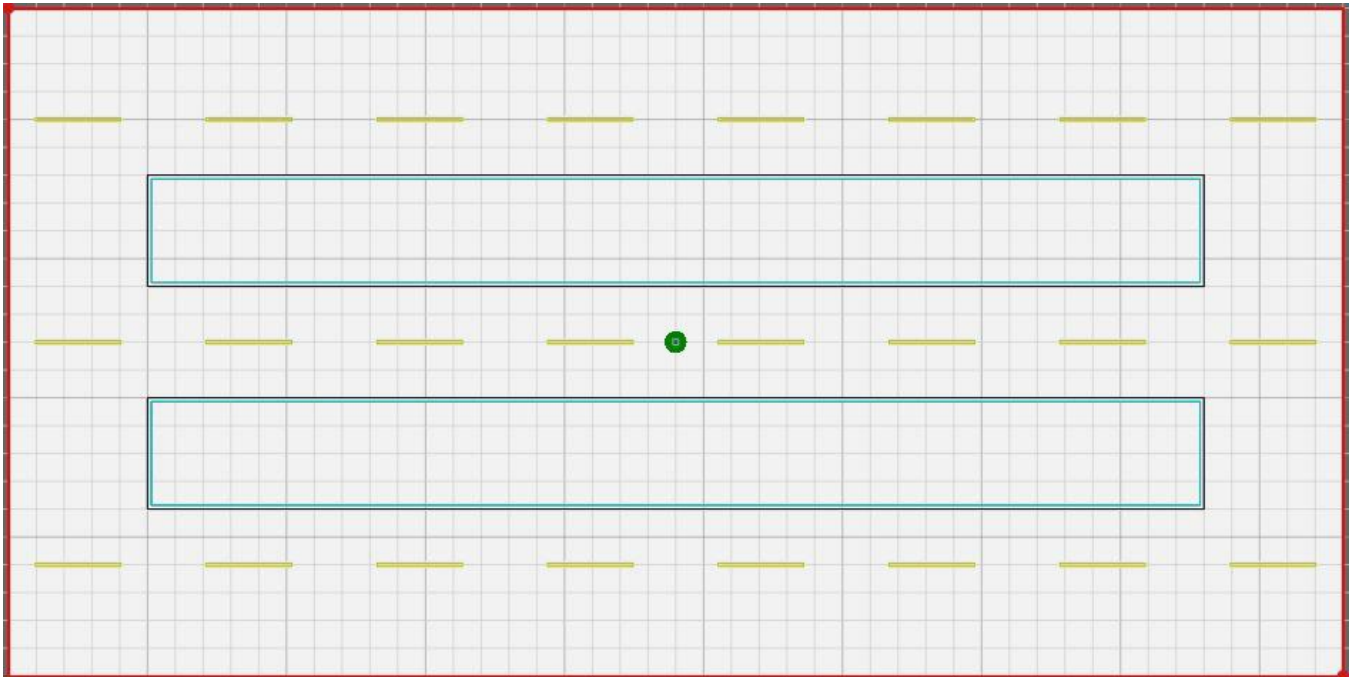- PE

SDBA easy19

- L
- N
- PE
- R

parallel wiring of multiple SDBA easy06 possible
L1 = continious
+ = switched wire to luminaires
A = (R) switched wire slave sensor

SDT mounting rail 7-pole
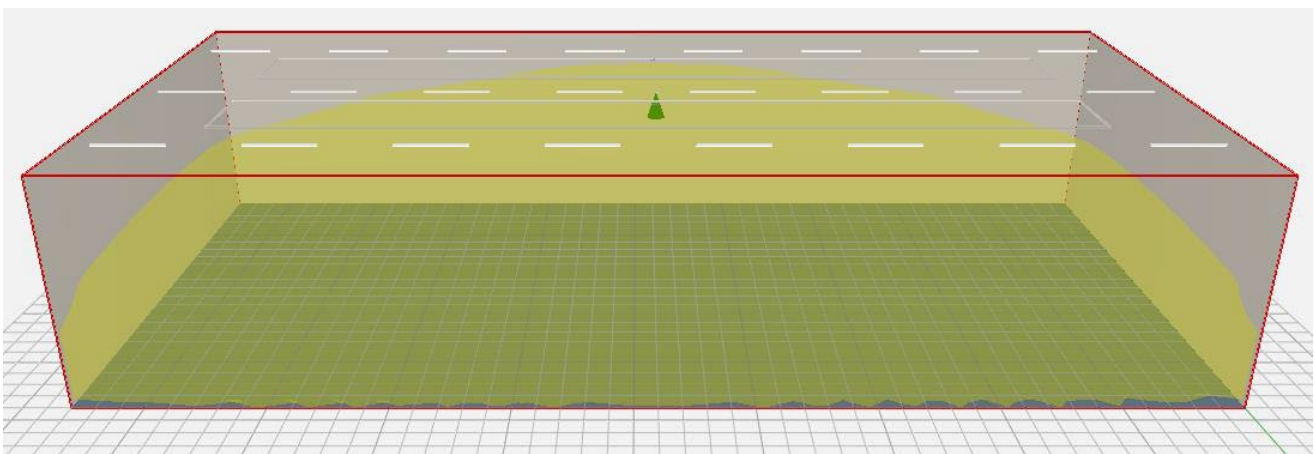N PE L1 L2 L3 + - A B C D

SDBA easy06

- L
- N
- PE
- NO
- NO
- R

SDG ECG

- L
- N
- PE

SDBA easy19

- L
- N
- PE
- R

parallel wiring of multiple SDBA easy06 possible
L1 = continious
+ = switched wire to luminaires
A = (R) switched wire slave sensor

Example 8:   **Lighting hall 24m x 12m, mounting height 5m, 2 roof light runs, 3 light runs**
with 8 luminaires each, arrangement luminaire-blank-luminaire, 1 motion sensor/daylight controller
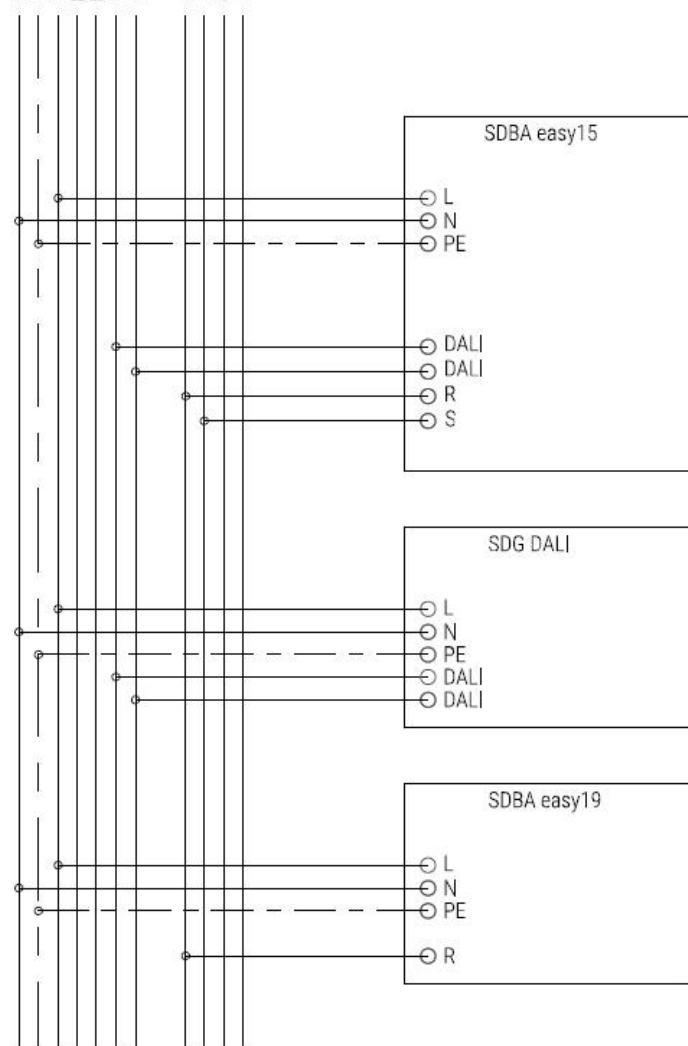

Control: Motion-dependent daylight control

Detection range of sensor

Components:

- SDG blank device mount with motion/presence sensor and daylight controller, type SDBA easy15
  - Mounted sensor LC-BEG PD4-M-DALI-AP
  - Max. mounting height 5m for daylight control
  - Circular motion detection range at a height of 5m: diameter approx. 24m
  - Max. 50 DALI devices can be connected
- Adjustment and start-up using IR remote control LC-BEG IR-PD-DALI-E or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG luminaire device mount with DALI ballast/driver
  SDT mounting rail 11-pole, 7-pole with restriction possible

Connection diagram

SDT mounting rail 11-pole
N PE L1 L2 L3 + -   A B C D

SDBA easy15
- L
- N
- PE
- DALI
- DALI
- R
- S

SDG DALI
- L
- N
- PE
- DALI
- DALI

SDBA easy19
- L
- N
- PE
- R

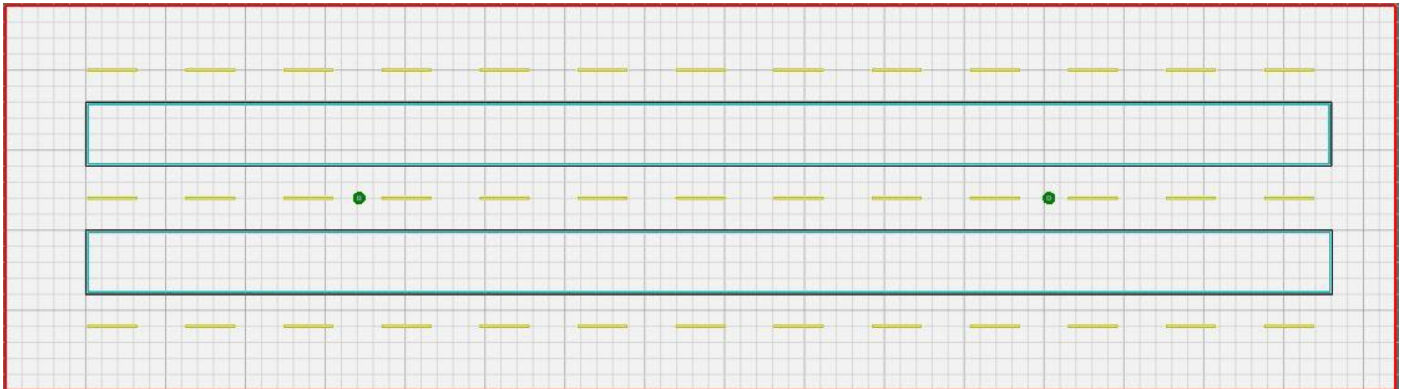parallel wiring of multiple SDBA easy15 not possible
L1 = continous
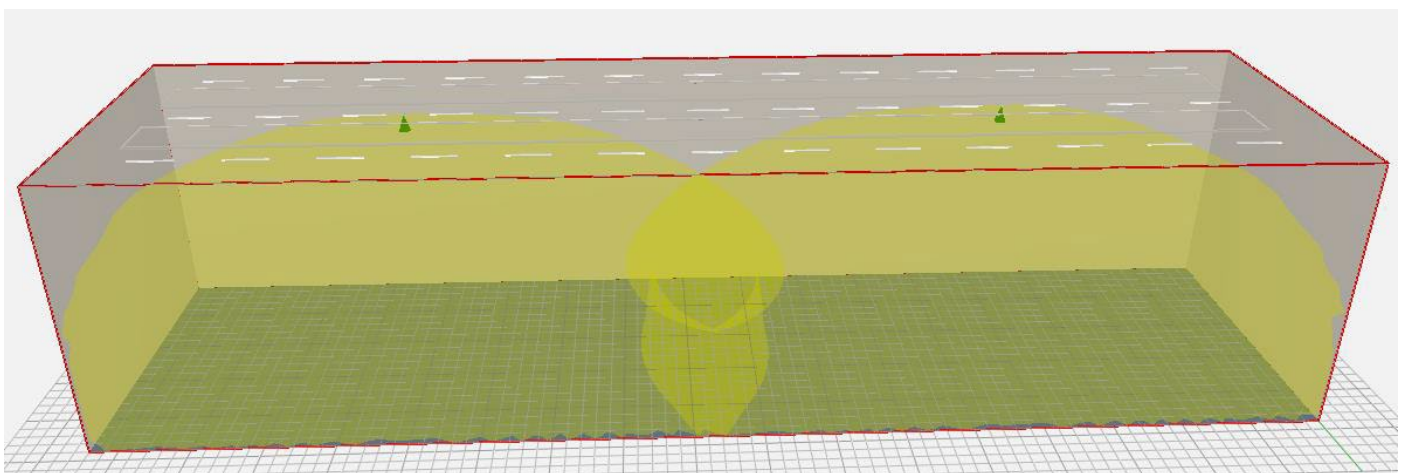+/- = DALI-bus to luminaires
A = (R) switched wire slave sensor (optional)
B = (S) input push button on/off/dim (optional)

Example 9: **Lighting hall 24m x 12m, mounting height 10m, 2 roof light runs, 3 light runs with 13 luminaires each, arrangement luminaire-blank-luminaire, 2 motion sensors/daylight controllers**

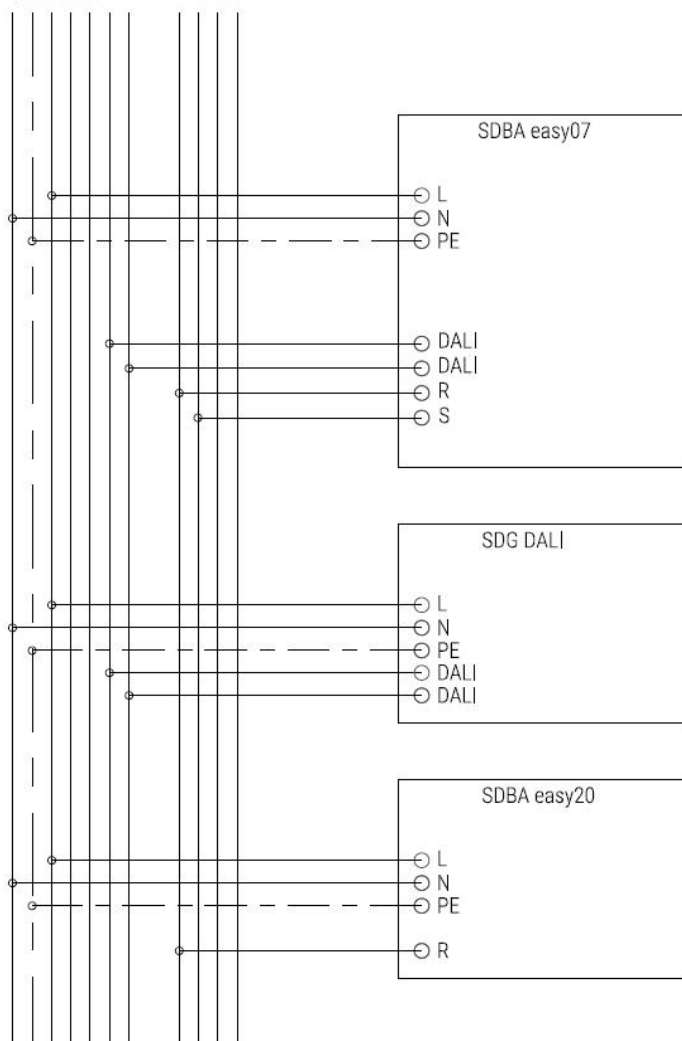

Control: Motion-dependent daylight control

Detection range of sensor

Components:

- SDG blank device mount with motion/presence sensor and daylight controller, type SDBA easy07
    - Mounted sensor LC-BEG PD4-M-DALI-GH-AP
    - Max. mounting height 16m for daylight control
    - Oval motion detection range at a height of 10m: longest diameter approx. 30m
    - Max. 50 DALI devices can be connected
    - Adjustment and start-up using IR remote control LC-BEG IR-PD-DALI-E up to 8m
    - Adjustment and start-up using IR adapter LC-BEG BLE-IR-ADAPTER up to 16m
- SDG blank device mount with motion sensor slave, type SDBA easy20
    - Mounted sensor LC-BEG PD4-S-GH-AP
    - Max. mounting height 16m
    - Oval detection range at a height of 10m: longest diameter approx. 30m
    - To extend the detection range in tandem with the Master easy07
- SDG luminaire device mount with DALI ballast/driver
- SDT mounting rail 11-pole, 7-pole with restriction possible

Connection diagram

SDT mounting rail 11-pole
N PE L1 L2 L3 + -   A B C D

SDBA easy07

- L
- N
- PE
- DALI
- DALI
- R
- S

SDG DALI

- L
- N
- PE
- DALI
- DALI

SDBA easy20

- L
- N
- PE
- R

parallel wiring of multiple SDBA easy07 not possible
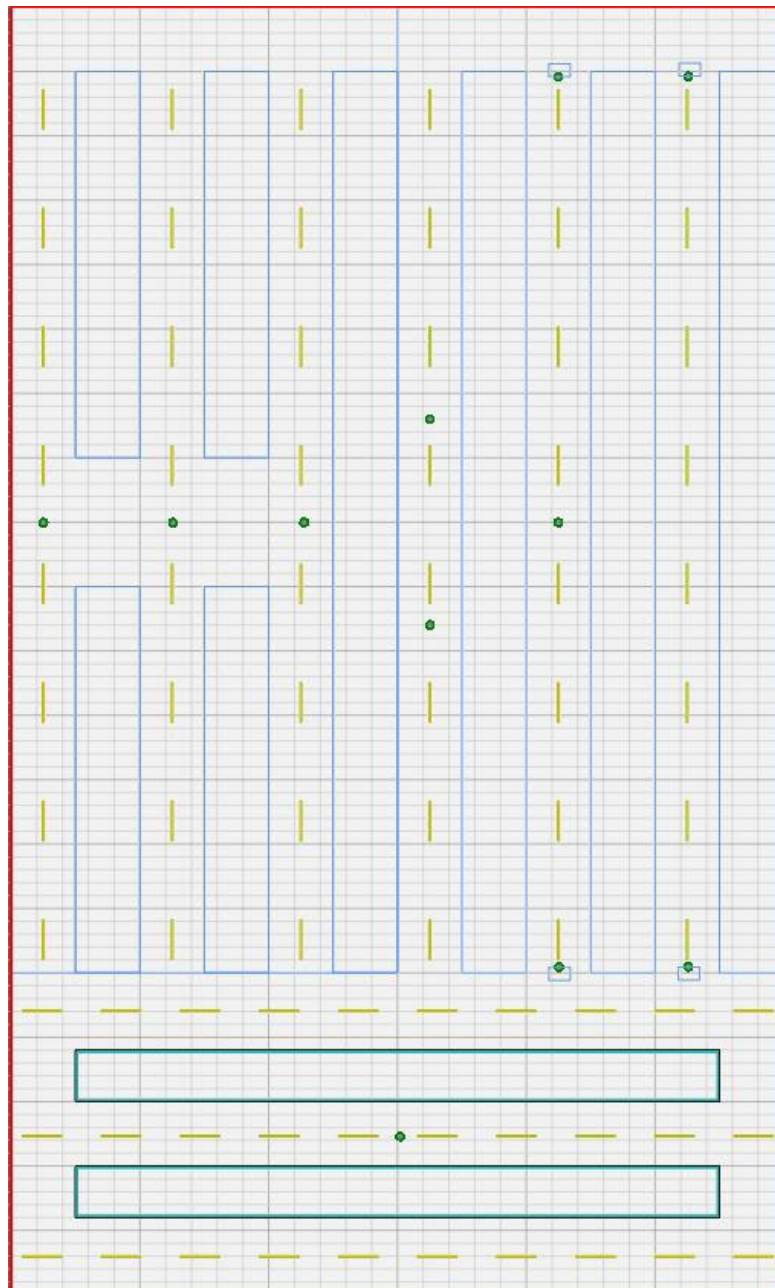L1 = continious
+/- = DALI-bus to luminaires
A = (R) switched wire slave sensor (optional)
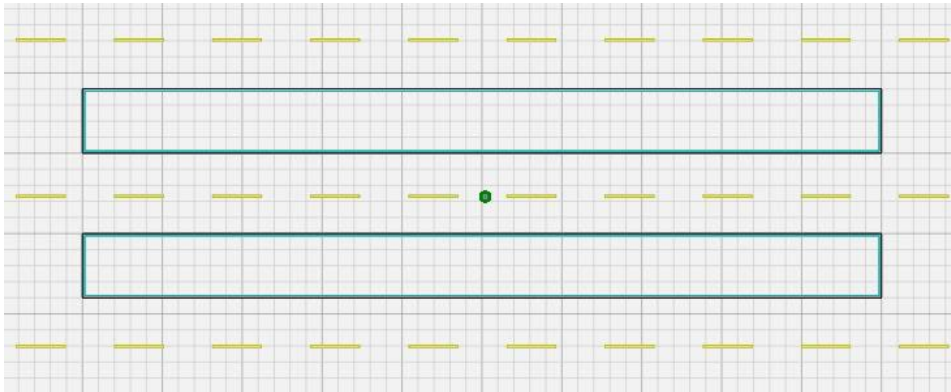B = (S) input push button on/off/dim (optional)

Example 10: **Project example for a warehouse with rack aisles, mezzanine floor and picking area.**   **Hall 50m x 30m, mounting height 14m, mounting height under mezzanine floor 7m, 2 roof light runs, window front**
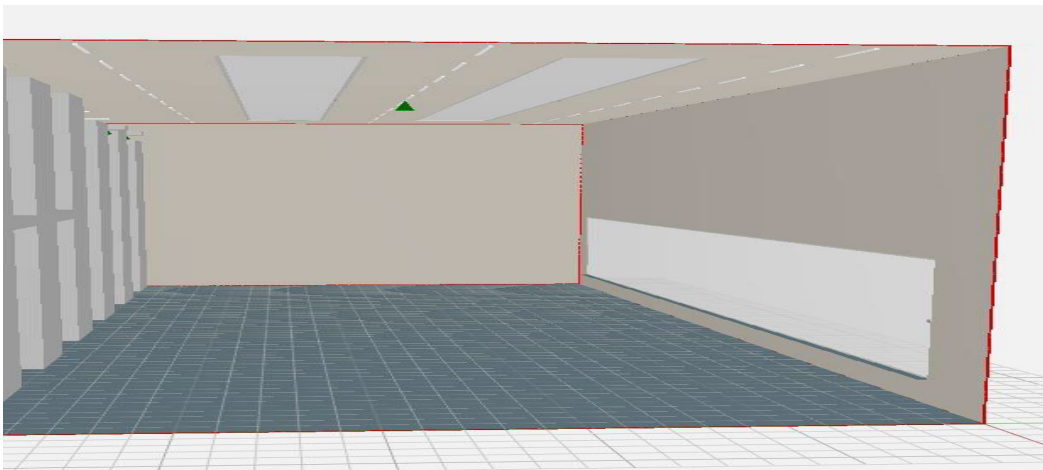

Control:

- Daylight control in the picking area, on/off/dimming via button input, motion detection disabled
- High-bay rack for forklift traffic. Motion-dependent switching, corridor function with adjustable light values and shut-off delays
- Manual warehouse mezzanine floor. Motion-dependent On/Off switching with adjustable shut-off delay
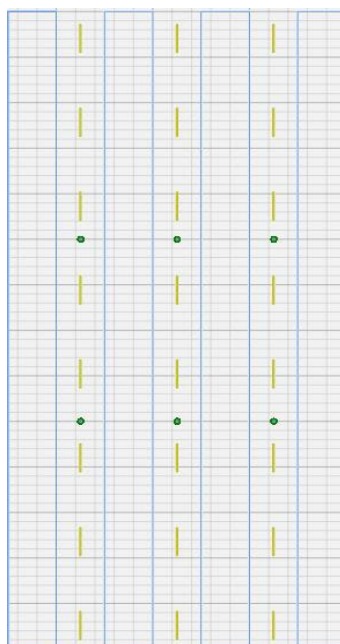
Control: Daylight control, on/off/dimming via button input, motion detection disabled

Components:

- SDG blank device mount with motion/presence sensor and daylight controller, type SDBA easy07
  - Mounted sensor LC-BEG PD4-M-DALI-GH-AP
  - Max. mounting height 16m for daylight control
  - Oval motion detection range at a height of 10m: longest diameter approx. 30m optional
  - Max. 50 DALI devices can be connected
  - Adjustment and start-up using IR remote control LC-BEG IR-PD-DALI-E up to 8m
  - Adjustment and start-up using IR adapter LC-BEG BLE-IR-ADAPTER up to 16m
- SDG luminaire device mount with DALI ballast/driver
- SDT mounting rail 11-pole, 7-pole with restriction possible

Example 10.2: **High-bay rack for forklift traffic, mounting height 14m, 3 light runs with 8 luminaires each, arrangement luminaire-blank-blank-luminaire, 2 or 3 motion detectors/daylight controllers**

Control: Motion-dependent switching, corridor function with adjustable light values and shut-off delays
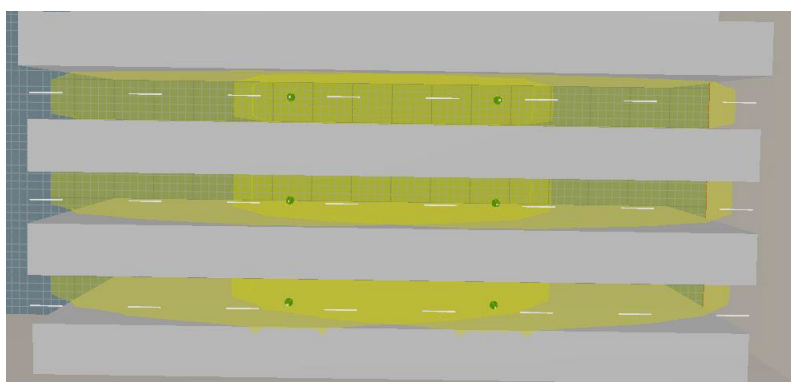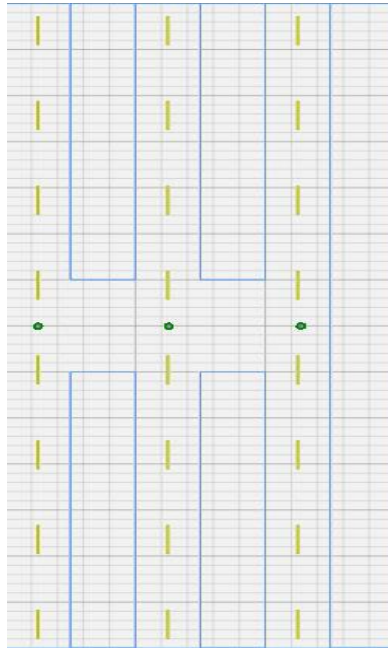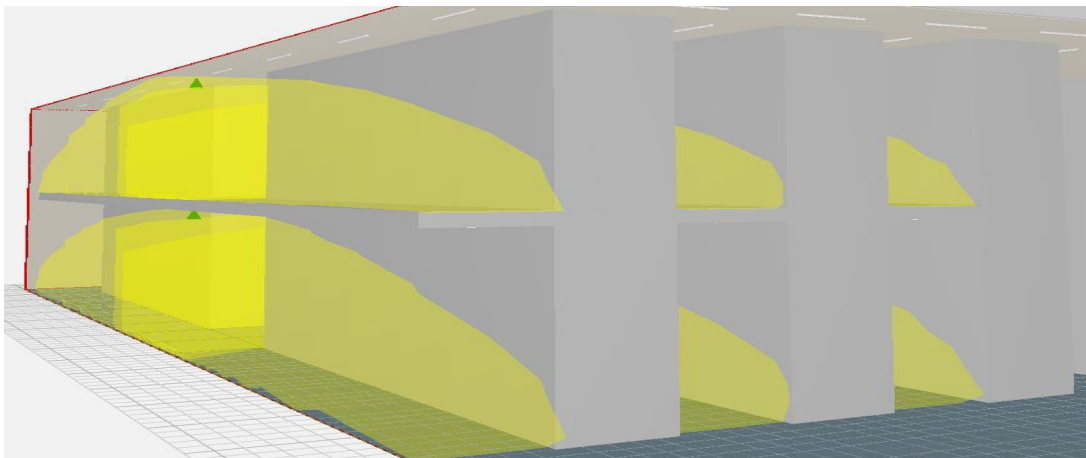

Components:

- SDG blank device mount with motion/presence sensor and daylight controller, type SDBA easy07
    - Mounted sensor LC-BEG PD4-M-DALI-GH-AP
    - Max. mounting height 16m for daylight control
    - Oval motion detection range at a height of 10m: longest diameter approx. 30m
    - Max. 50 DALI devices can be connected
    - Adjustment and start-up using IR remote control LC-BEG IR-PD-DALI-E up to 8m
    - Adjustment and start-up using IR adapter LC-BEG BLE-IR-ADAPTER up to 16m
- SDG blank device mount with motion sensor slave, type SDBA easy20
    - Mounted sensor LC-BEG PD4-S-GH-AP
    - Max. mounting height 16m
    - Oval detection range at a height of 10m: longest diameter approx. 30m
    - To extend the detection range in tandem with the Master easy07
- SDG luminaire device mount with DALI ballast/driver
  SDT mounting rail 11-pole, 7-pole with restriction possible

Example 10.3: **Manual warehouse mezzanine floor, mounting height 7m, 6 light runs with 10 luminaires each, arrangement luminaire-blank-luminaire, 1 motion sensor**

Control: Motion-dependent On/Off switching with adjustable shut-off delay

Components:

- SDG blank device mount with motion/presence sensor, type SDBA easy06
  - Mounted sensor LC-BEG PD4-M-1C-AP
  - Max. mounting height 10m
  - Circular detection range at a height of 7m: diameter approx. 34m
  - Max. switching power 2300 W at cosPhi=1
- Adjustment and start-up with IR remote control LC-BEG IR-PD-E or IR adapter LC-BEG BLE-IR-ADAPTER
- SDG luminaire device mount with standard ballast/driver, not dimmable
- SDT mounting rail 7-pole or 11 pole

More information

The aforementioned examples provide a representative overview for common use cases. Additional sensor types and device combinations, individual project solutions, including those with complex DALI controllers, are available on request.

The blank device mounts SDBA are suitable for use with luminaire device mounts with electronic ballasts (EVG) and for LED device mounts with electronic drivers (ET) or DALI ballasts.

Blank device mounts of the type SDBA with installed sensors are supplied as standard with fixed position connector parts and IP20 degree of protection. For special requirements, the blank device mounts can be manufactured as SDBAV with variable connection or as SDBAS and IP54 degree of protection.

Designations

SDG ECG   Luminaire device mount with electronic ballast/driver,
                                             not dimmable

SDG DALI   Luminaire device mount with DALi ballast/driver, dimmable

SDBA easy12:   Blank device mount with mounted motion detector
                                             LC-BEG PD4-M-1C-GH-AP (Master)

SDBA easy20:   Blank device mount with mounted motion sensor
                                             LC-BEG PD4-S-GH-AP (Slave)

SDBA easy06:   Blank device mount with mounted presence/motion sensor
                                             LC-BEG PD4-M-1C-AP (Master)

SDBA easy19:   Blank device mount with mounted presence/motion sensor
                                             LC-BEG PD4-S-AP (Slave)

SDBA easy15:   Blank device mount with mounted presence/motion sensor
                                             LC-BEG PD4-M-DALI-AP (Master)

SDBA easy07:   Blank device mount with mounted presence/motion sensor
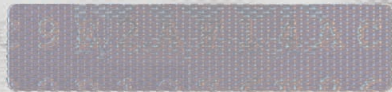   LC-BEG PD4-M-DALI-GH-AP (Master)
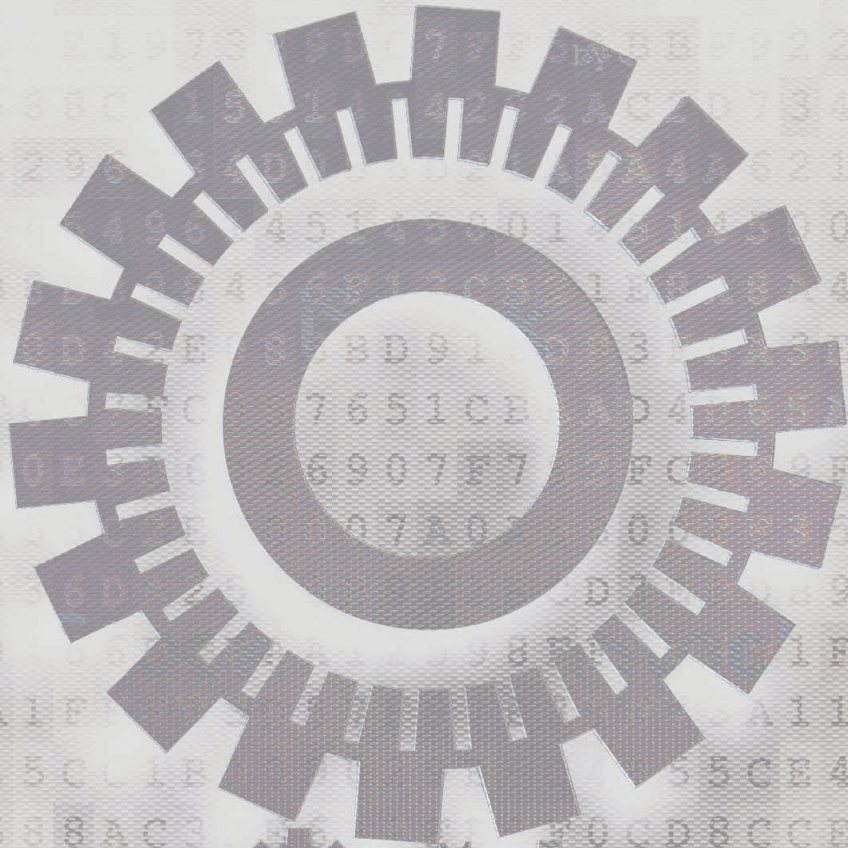
Configuration and commissioning

Information about operating conditions, configuration and commissioning can be found in the respective operating manuals of the components. The relevant documents can be found on the product pages of our website (www.regiolux.de) where they can be downloaded or requested.

When using device mounts with directly load-switching presence/motion detectors, pay attention to the permissible total output based on the device specifications or the enclosed assembly/instruction manual for the sensor. Where necessary, the switching load must be adapted to the lighting system using power contactors provided by the customer.

Please note!

DALI is not SELV (safety extra-low voltage)! Voltages >50 V can occur in the DALI bus, mainly when using the touch dim and corridor function (230 V) special functions. For this reason, a low-voltage line must be installed with a cross section of at least 1.5 mm². We recommend to install the DALI bus in a line together with the mains power supply.

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