

B.E.G. LUXOMAT[®] net PD4-M-TRIO-2DALI/DSI-1C

Installation and Operating Instruction for B.E.G.-Occupancy detectors PD4-Master-TRIO-2DALI/DSI-1C-SM/-FC

1. Product information

- Occupancy detector for two separate lighting groups, for daylight-dependent lighting control
- One potential-free switching channel for control of equipment (HVAC) or lighting
- Two independent, adjustable light sensors
- One common detection area
- 2 DALI/DSI interfaces for control of digital dimmable electronic ballasts as a group
- Switching between DALI and DSI programme possible with remote control
- Version as Master device
- Manual switching and dimming via push button possible
- Detection area can be extended with Slave devices
- Orientation light function
- Additional functions can be set up using the optional remote control

2. Operation

The presence detector controls the light automatically depending on movement and ambient brightness.

The two integrated light sensors constantly measure the ambient light at the wall and window side and compare the measured values with the brightness level set in the detector. Thereafter, the two DALI interfaces are regulated individually. If the ambient light is sufficient, lighting will not be switched on. If the ambient light level is below the set value brightness, a movement activates the lighting in the room.

If there is enough natural light for 5 min, the detector switches the lighting off despite of people being present. After elapse of the follow-up time and no movement detected, the detector also switches the light off automatically. The third channel is designed as a relay contact and can selectively be used for blackboard illumination (ON/OFF) or for controlling devices (HVAC). In this case, the channel switches the connected load independent of the brightness.

3. Safety information

⚠ Work on the 110 - 240V mains supply may only be carried out by qualified professionals or by instructed persons under the direction and supervision of qualified skilled electrical personnel in accordance with electrotechnical regulations.

⚠ Disconnect supply before installing!

⚠ This device is not to be used to isolate other equipment from the mains supply.

⚠ The total number of switchable loads is limited due to high inrush currents of electronic ballasts and LED drivers. In case of a large number of connected loads please use an external contactor.

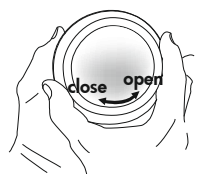
⚠ For all connected loads, proper interference suppression is obligatory (we recommend to use our arc extinction kits).

4. Mounting

⚠ In Master/Slave operation the Master device must always be installed at the site with less daylight.

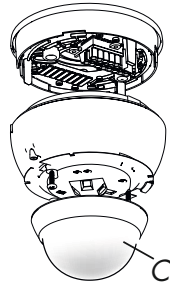
⚠ One of the light sensors should be oriented to the side away from the windows, and the other to the side near the windows.

4a. Mounting SM



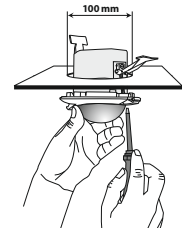
The detector must be installed on a solid and plane surface.

Before mounting, the lens must be removed. To remove it, the lens (C) must be turned about 5° anticlockwise and taken out.



Having connected up the wires in accordance with regulations, secure the detector with 2 screws. Then replace the lens by placing on the detector and turning clockwise. Connect mains voltage.

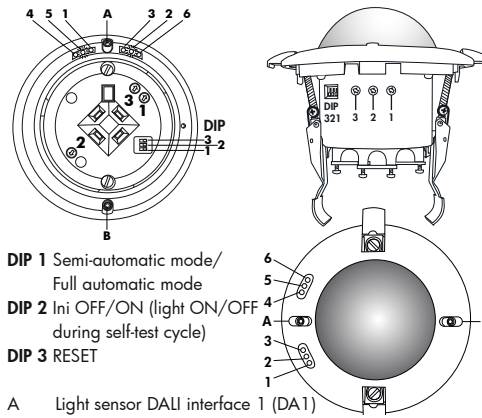
4b. Mounting FC



A circular opening of diameter 100 mm must be produced in the ceiling.

Having connected up the cables in accordance with regulations, the detector is inserted into the opening as shown and fixed into position with the retaining bracket using screws.

5. Position potentiometers, LEDs and DIP switches



DIP 1 Semi-automatic mode/
Full automatic mode

DIP 2 Ini OFF/ON (light ON/OFF during self-test cycle)

DIP 3 RESET

- A Light sensor DALI interface 1 (DA1)
- B Light sensor DALI interface 2 (DA2)
- 1 LED red shines: INI-OFF active
- 2 LED green too bright / too dark light sensor A
- 3 LED white semi-automatic DALI interfaces 1, 2
- 4 LED white semi-automatic relay channel 1C
- 5 LED green too bright / too dark light sensor B
- 6 LED red motion indicator / walk test

6. Self test cycle/Startup behavior

The product enters an initial 60-second self-test cycle, when the supply is first connected. During this time the device does not respond to movement and the lighting stays on (factory setting, INI-ON). DIP switch 2 can be used for turning off the illumination during the self-test cycle (INI-OFF).

Reset via DIP switch

During operation, DIP switch 3 has to be put in its OFF position. Otherwise, the detector re-starts the self-test cycle.

7. Putting into operation / Settings

Potentiometer 3: Follow-up time "light"
Factory settings: 10 min.
The time can be set at between 1 and 60 minutes. The time-setting is valid for the two DALI interfaces and the relay channel of the PD4-M-TRIO-2DALI/DSI-1C.

Symbol **TEST**: Test mode

Every movement switches the light ON for a period of 2 seconds, afterwards OFF for a period of at least 2 seconds.

Potentiometer 2: Set value brightness for constant light control

Factory settings: 500 Lux

The set value brightness can be set at between 10 and 2000 Lux. Using the potentiometer, the set value brightness can be adjusted as desired.

Symbol : Night-time operation

Symbol : Day- and night-time operation (light evaluation inactive)

Potentiometer 1: Orientation light

(20% of the nominal value)

Follow-up time of the orientation light.

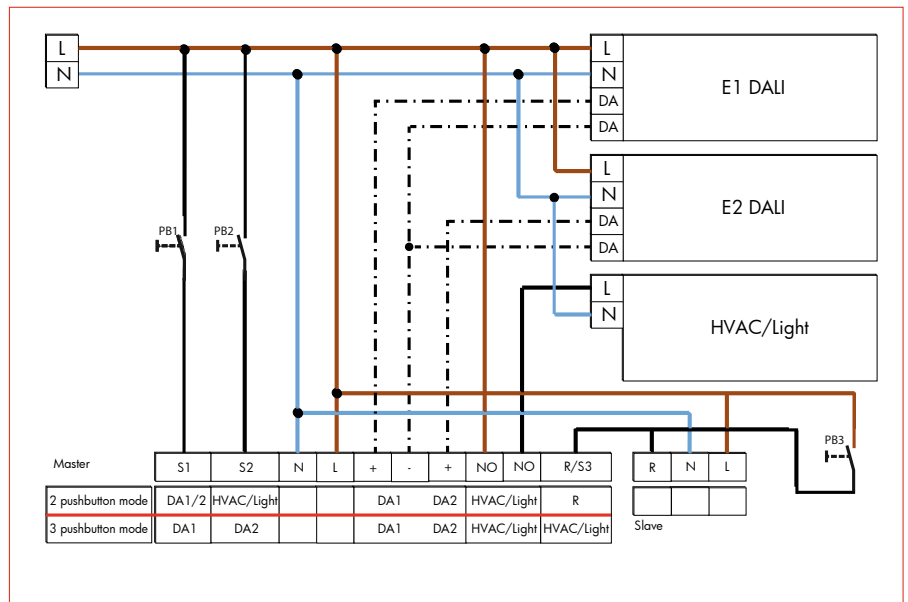
"ON" for permanent orientation light.

"OFF" for switching off the orientation light.

8. Wiring diagram: 2 and 3 pushbutton mode

Optional

PB1/PB2/PB3 for DALI 1, 2 and relay channel 1C, slave devices for enlargement of detection area. Schematic diagram - when connecting the detector, please respect the labelling of the terminal connections at the detector!



9. Manual switching and dimming

By means of the push button, the phase can be given to the desired S terminal (T1, T2 and T3).

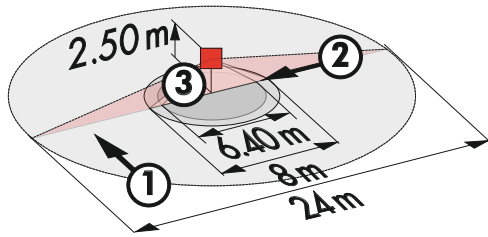
A short press of the pushbutton switches the light on or off. A long press of the pushbutton is for dimming.

When releasing the pushbutton, the current dimming value is kept. Another press of the pushbutton reverses the dimming direction. The light remains on or off as long as movement is detected, plus the set follow-up time. Afterwards, the device automatically returns in the selected operating mode (full automatic or semi-automatic).

There are 2 push button control modes: In "2-push-button-mode" (factory setting) input S1 overrides both DALI channels DA1 + DA2 simultaneously. Input S2 is linked to the integrated relays (HVAC or Light). In "3-push-button-mode" the DALI interfaces DA1 + DA2 can be overridden separately (S1 = DA1 / S2 = DA2). Now Input R/S3 is linked to the integrated relay (HVAC or Light). You can connect a slave device and/or a push button (only short press possible) to input R/S3.

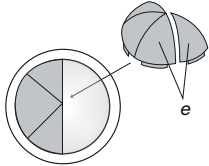
Please refer to paragraph 17 for instructions how to activate both modes.

10. Detection area/range



- ① Walking across
- ② Walking towards
- ③ Smaller movements

11. Exclude sources of interference



If the detection zone of the LUXOMAT[®] net PD4-M-TRIO-2DALI/DSI-1C is too large or areas are covered that should not be monitored, use the blinds (included) (e) to reduce or limit those areas.

12. Technical data

Sensor and power supply in one housing

Power supply: 110-240 VAC, 50/60 Hz

Power consumption: approx. 1 W

Ambient temperature: -25°C - +50°C

Degree / class of protection: IP20 / II

Recommended

mounting height: 2.5 m

Range of coverage Ø H 2.50 m / T = 18°C:

smaller movements 6.40 m / tangential 24 m / radial 8 m

Detection area: circular 360°

Dimensions Ø x H: SM FC
124 x 85 117 x 100

Visible portion when built

into ceiling FC Ø x H: 117 x 37 mm

Light values - Potentiometer: 10 - 2000 Lux

DALI/DSI: DA1 and DA2 for light control depending on brightness (broadcast per interface)

Max. number of

connected EBs: up to 50 (25 for DA1 and DA2, respectively)

Time settings potentiometer: 1-60 min. / Test

Relay channel 1C: for light switching (blackboard illumination), brightness- or motion-controlled, HVAC circuit only motion-controlled

Contact type: NOC, potential-free (dry), with pretravel tungsten contact, μ -contact

Contact load: 3000 W, 230V~, 16 A $\cos\phi=1$ /
1500 VA $\cos\phi=0.5$

max. inrush peak current I_p (20ms): 165 A

EU Declaration of Conformity:

This product respects the directives concerning

1. electromagnetic compatibility (2014/30/EU)
2. low voltage (2014/35/EU)
3. restriction of the use of certain hazardous substances in electrical and electronic equipment (2011/65/EU)



13. Article / part no. / Accessory

Type	SM	FC	FM
PD4-M-TRIO-2DALI/DSI-1C (Master device)	92751	92756	-
PD4-S (Slave device)	92142	92254	92163

LUXOMAT[®] Remote control:

IR-PD4-TRIO-DALI (incl. wall bracket)	92104
IR-Adapter for Smartphones	92726

Accessory:

Socket SM IP54 for 92751	92386
BSK Wire basket (Ø 200 x 90 mm)	92199
BSK Wire basket (Ø 164 x 143 mm)	92467
Wall bracket for remote control as replacement	92100
Arc extinction kit	10880
Mini-Arc extinction kit	10882

14. LED function indicators

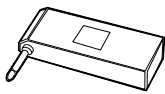
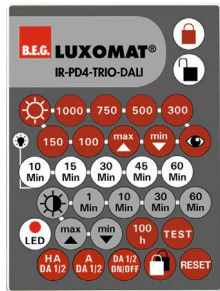
LED	Colour	Function	Type of indication
6	red	Motion indicator	Lights up for motion detection
5	green	Light status indicator DA 1	flashes twice per sec.: - <i>bright enough (light OFF)/too bright (daylight-dependent switch-off active)</i> flashes once per sec.: - <i>Switch-on delay active</i>
4	white	HA/VA relay channel 1C	shines when in semi-automatic mode
3	white	HA/VA DA 1/2	shines when in semi-automatic mode
2	green	Light status indicator DA 2	flashes twice per sec.: - <i>bright enough (light OFF)/ too bright (daylight-dependent switch-off active)</i> flashes once per sec.: - <i>Switch-on delay active</i>
1	red	INI-OFF	shines when the feature is activated, i.e. during the self-test cycle the light is off
all LEDs		Acknowledgement	flashes once per sec.: - <i>correct input</i> flashes twice per sec.: - <i>incorrect input</i> flashes three times/once per sec.: - <i>Reset when locked</i> flashes twice/once per sec.: - <i>Double locked shine for 2 sec.:</i> - <i>HVAC mode relay channel 1C activated shine for 0.5 sec.:</i> - <i>light control mode relay channel 1C active</i>
all LEDs		Status	flash briefly once per sec.: - <i>detector is double locked</i>

15. Settings by remote control (optional)

Settings with remote control override the potentiometer and DIP settings.

The DIP settings are reactivated:

- by means of DIP switch 3 (Factory reset): Put DIP 3 in its "ON" position briefly and back to its "OFF" position, or
- by pressing the "Reset" button on the remote control in open state

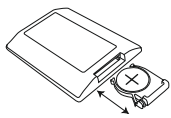


IR-Adapter for Smartphones



IR-PD4-TRIO-DALI

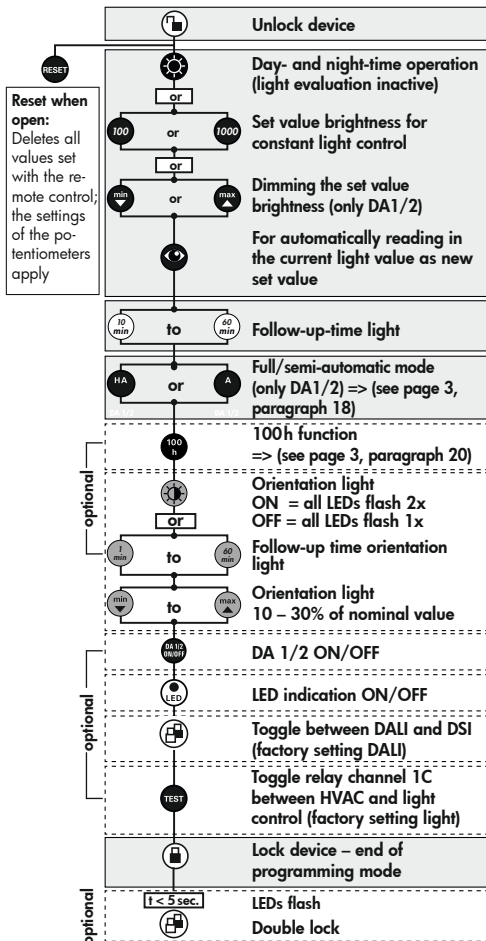
Wall bracket for remote control IR-PD4-TRIO-DALI



Check battery

Open battery compartment by pressing the plastic springs together and removing the battery-holder.

16. Settings by remote control in open state



17. Settings during self-test cycle

"DA1/2 ON/OFF" toggle between 2-pushbutton-mode (2PB) and 3-pushbutton mode (3PB)

- 2PB: red LEDs shine for 3sec. (factory setting)
- 3PB: green LEDs shine for 3sec.

Soft-start (startup behaviour):

Pressing the "min" button activates the soft-start function, i.e. the light switches on with an initial value of 10% and dims up to the set value. Pressing the "max" button deactivates the soft-start function (factory setting is soft-start off-light on at 100%)

Indication: soft-start activated -> green LED / soft-start deactivated -> red LED

When soft-start and orientation light are activated and the value set for the orientation light is higher (brighter) than the value set for the soft-start, it is possible that the light dims down initially and then up again.

Reset of electronic ballasts:

If required the connected EBs can be reset and preset parameter can be deleted. Press the button "Reset" for 3 seconds during self-test cycle.

18. Full automatic mode / Semi-automatic mode

(see functions DIP switch p. 1)

Full automatic mode

In this operating mode, the lighting switches automatically on and off for increased comfort, depending on presence and brightness.

Semi-automatic mode

In this operating mode, in order to gain increased savings, the lighting can only be switched on manually.

The semi-automatic mode basically behaves like the full automatic mode. However, the difference is that switching on has to be carried out manually!

The main light can be switched back on automatically if there is movement in the 10 seconds after the end of the follow-up time. After this time has elapsed, the light has to be switched on manually.

The operation mode is switched over by using the buttons "HA DA 1/2" and "A DA 1/2". By pressing the button "HA DA 1/2", the two DALI interfaces DA 1 and DA 2 are put in semi-automatic mode. This is indicated by the white LED 3.

In order to put the relay channel 1C in semi-automatic mode, DIP switch 1 has to be set to its semi-automatic position (whole detector: DA 1, DA 2 and relay channel 1C). The two LED 3 and 4 shine.

Press button "A DA 1/2" in order to put channels DA 1 and DA 2 back into fully automatic mode. The relay channel 1C remains in semi-automatic mode. This is indicated by LED 4.

19. Test mode / Reset (in closed state)

The test mode is for identifying the detection area. Upon each movement, the light is switched on for a short time. Press "TEST" button for activating the test mode, "Reset" button for deactivating it.

The lighting is switched off, and the follow-up times are reset.

20. 100 h function

For activating the function, press button "100h" in open state.

Before the lamp can be dimmed, the dimming function has to be suppressed for a certain time in order to burn in the lamps.

- T5 fluorescent tubes: 80 h
- T8 fluorescent lamps: 100 h

During this time, the detector only switches the light ON or OFF. A dimming to the set value does not take place. By pressing the button "100h" again, it is possible to deactivate the function before the time has elapsed. The two green LEDs flash alternately while the function is activated.

Failure to comply to the 100 h burn-in would lead to reducing the life of the lamp. A further disadvantage could be unwanted random variations in light intensity.

21. Adjustment of the set value brightness (open state)

For adjusting a set value take the following steps (example workplace): Place a lux meter flat on the desk, then, using the remote control, adjust the light up or down. To do this, press the button "max" or "min", respectively, (or "brighter" and "darker" in the app) until the desired light value has been reached. Enter this value by pressing the "eye" button.

22. Dimming / Switching (closed state)

Switching: Press this button briefly for switching the light on or off. The light remains on or off as long as motions are detected. After the last motion detected, the light remains on or off for the duration of set follow-up time. Afterwards, the device returns automatically to its selected operating mode (full/semi-automatic mode).

Dimming: You can dim manually by pressing the button for a long time (> 2 sec.). When the button is released, the current dimming value is retained. Interfaces DALI 1 and 2.

23. Orientation light

Orientation light ON/OFF (permanently)

A duration of 1 to 60 minutes can be adjusted.

Note: During the orientation light phase, the constant light regulation is active: if there is sufficient brightness, dimming occurs < 20% and, if applicable, the lighting is switched off.

Orientation light – Adjustment of the light intensity

The orientation light is adjustable in a range of 10 to 30% of the nominal light. Standard adjustment is 20%.

24. Reset the detector

The double lock being activated, the detector can be reset as follows:

- Hardware reset using DIP switch 3 (put it in its ON position briefly then back to its OFF position. After the reset, the actual DIP switch and potentiometer settings are active).
- Pressing the "RESET" button on the remote control in opened mode will delete all of the values which were set by the remote control also and set the detector back to its factory settings (except INI ON/OFF setting during self-test cycle).

or

- Disconnect operating voltage
- Connect operating voltage for 31 to 59 secs.
- Disconnect operating voltage again
- Connect operating voltage again and wait for the self testing
- Open the detector

With this procedure, the remote control programmed values (before activation of the double lock) are not deleted.

If the setting is not changed by remote control after deactivation of the double lock, the detector changes in the double locked mode again after a period of 15 minutes. This way the detector cannot be unlocked during an accidental power failure.