

## Installation and operating instructions for B.E.G. occupancy detector PD4-M-TRIO-2DALI/DSI-1C

### 1. Product information

- For operation of up to 50 electronic ballasts, divided into two separate groups (25 per channel), via broadcast command
- Suitable for dimmable digital electronic ballasts and control modules
- One additional switching channel (NO potential-free, dry) for blackboard illumination or controlling HVAC (heating, ventilation, air conditioning) devices
- DALI/DSI interface
- Constant light control (channel 1, channel 2)
- Manually switching / dimming the individual channels by means of separate pushbuttons
- Fully or semi-automatic mode
- Set value brightness, follow-up time – LIGHT/HVAC and orientation light adjustable
- Light measurement with two separate light sensors for wall and window side
- Sensor and power supply in one housing
- Infrared 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 light bands are regulated individually. If the ambient light is sufficient, lighting will not be switched on. If the ambient light level is below the brightness level, a movement activates the lighting in the room.

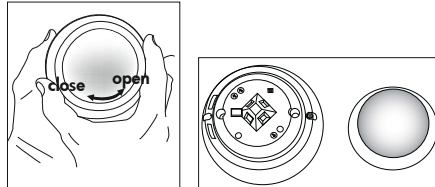
If there is enough natural light for 5 min, the detector switches the lighting off despite of people being present. After elapse of the follow-up time and no movement detected, the detector also switches the light off automatically. The third channel is designed as a relay contact and can selectively 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 advice

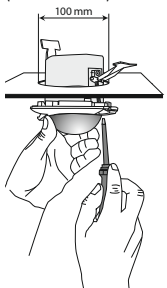
- Work on the 230V mains supply may only be carried out by qualified professionals or by instructed persons under the direction and supervision of qualified skilled electrical personnel in accordance with electrotechnical regulations.**
- Disconnect supply before installing!**
- The device is not suitable for disconnection.**
- After having connected all cables, please mount the cap onto the detector.**

### 4. Mounting

PD4-M-TRIO-2DALI/DSI-1C-SM



The detector has to be installed on a solid and plane surface. The lens has to be removed prior to mounting. To do this, twist the lens anti-clockwise through approximately 5° and lift off. After having connected up the wires in accordance with regulations, secure the detector with 2 screws. After installation replace the lens and lock (turn clockwise).



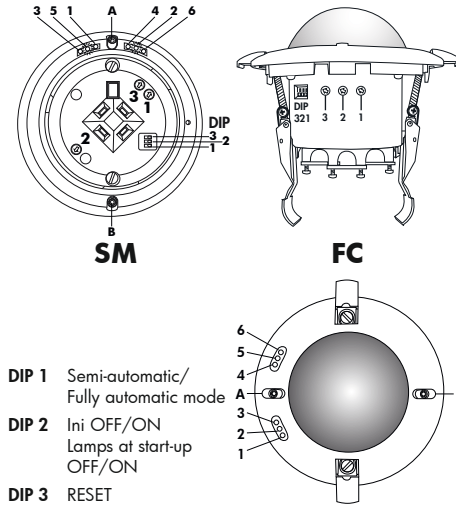
PD4-M-TRIO-2DALI/DSI-1C-FC

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

After having connected up the cables in accordance with regulations, insert the detector into the opening as shown and fix it into position with the retaining bracket using screws.

In Master/Slave operation, the master device has to be mounted at the place having less ambient light.

### 5. Position of potentiometers and DIP switches



- DIP 1** Semi-automatic/  
Fully automatic mode
- DIP 2** Ini OFF/ON  
Lamps at start-up  
OFF/ON
- DIP 3** RESET
- A** Light sensor channel 1 | **B** Light sensor channel 2
- 1 LED red OFF function
  - 2 LED green too bright/too dark CDS 2
  - 3 LED white semi-automatic Channel 1C
  - 4 LED white semi-automatic DA 1/2
  - 5 LED green too bright/too dark CDS 1
  - 6 LED red motion indicator/walking test

### 6. Self-test cycle / Start-up behaviour

After having first connected the supply, the device enters an initial 60-second self-test cycle. During this time, the device does not respond to movement and stays on. DIP switch 2 can be used for turning off the illumination during the self-test cycle.

### 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"**  
The time can be set at between 1 and 60 minutes. The time-setting is valid for all three channels.  
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: Brightness value for constant light control**  
The set value brightness can be set at between 10 and 1200 Lux. Using the potentiometer, the set values brightness can be adjusted as desired.  
Symbol : Night-time operation | Symbol : Daytime/Night-time operation
- Potentiometer 1: Orientation light** (20% of the nominal value)  
Manually switching ON and OFF the orientation light.  
"ON" for permanent orientation light.  
"OFF" for switching off the orientation light.

### DIP1

#### Fully automatic operation

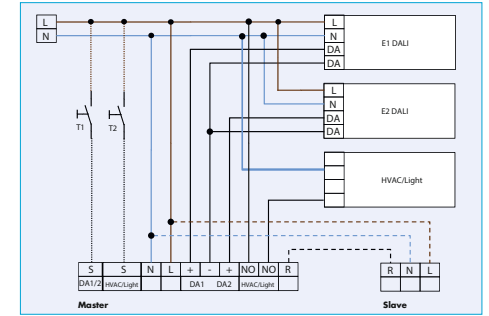
In this operating mode, the lighting switches automatically on and off for increased comfort, depending on presence and brightness.

#### Semi-automatic operation (all three channels)

In this operating mode, in order to gain increased savings, the lighting can only be switched on manually by using the pushbutton or the remote control. It can be switched off automatically or manually.

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

### 8. Wiring diagram – Standard mode with Master-TRIO-2DALI/DSI-1C occupancy detectors



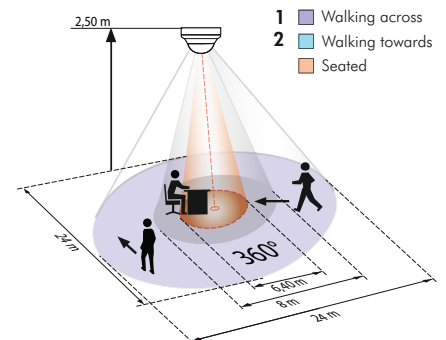
#### optional

T1&2 = NO button for semi-automatic mode  
Slave for enlargement of detection area

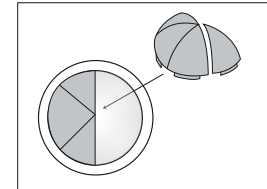
### 9. Manual switching and dimming

By means of the push button, the phase can be given to the desired S terminal (T1 and T2). 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 (fully automatic or semi-automatic).

### 10. Detection area/range



### 11. Exclude sources of interference



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

### 12. Technical data PD4-M-TRIO-2DALI/DSI-1C

- Sensor and power supply in one housing
- Power supply:** 110-240 VAC, 50/60 Hz
- Power consumption:** approx. 1W
- Ambient temperature:** -25°C – +50°C
- Degree of protection/class:** IP20 / II
- Recommended mounting height:** 2 – 3m
- Range of coverage Ø H 2.50 m / T = 18°C:**  
seated 6.40m / tangential 24m / radial 8m
- Detection area:** circular 360°
- Dimensions H x Ø [mm]:** SM FC  
124 x 85 97 x 103
- Visible portion when built into ceiling H x Ø [mm]:** 37 x 117mm
- Light values - Potentiometer:** 10 – 2000 Lux

**DALI/DSI:** DA 1 and DA2 for light control depending on brightness (broadcast per channel)

**Max. number of connected EBs:** up to 50 (25 for DA1 and DA2, respectively)

**Time settings potentiometer:** 1 – 60min. / Test

**Third channel:** for light switching (blackboard illumination), brightness- or motion-controlled, HVAC circuit only motion-controlled

**Contact type:** NOC with pretravel tungsten contact

**Contact load:** 3000W, 16A cos.  $\Phi = 1$   
1500VA cos  $\Phi = 0,5$ ,  $\mu$  kontakt

**Technical data PD4 Slave**

**Power supply:** 110 – 240VAC 50/60Hz

**Impulse output:** Optocoupler max. 2V

**Impulse duration:** 2 s oder 9 s

**Declaration of Conformity:**

This product respects the directives concerning

1. electromagnetic compatibility (2004/108/EU)
2. low voltage (2006/95/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)	92751	92756	-
PD4-S (Slave)	92142	92254	92163

**LUXOMAT® Remote control:**

IR-PD4-TRIO-DALI (incl. wall bracket) 92104

**Accessory:**

Socket SM IP 44 for 92751 92386  
BSK Wire basket 92199  
Wall bracket for remote control as replacement 92100

**14. LED function indicators**

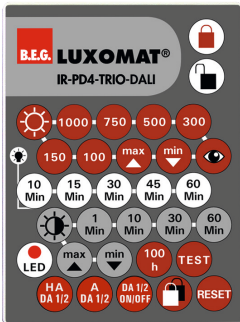
LED	Colour	Function	Type of indication
6	red	Motion indicator	Lights up for motion detection Flashes during INI period
5	green	Light status indicator DA 1	<i>lashes twice per sec.:</i> - bright enough (light OFF)/ too bright (light ON) <i>flashes once per sec.:</i> - Delay time active (By means of a short flashing of the green LEDs (5, 2), the detector indicates that the current brightness value fell below the set value and therefore the light will be switched on.)
4	white	HA/VA Channel 1C	shines when semi-automatic
3	white	HA/VA DA 1/2	shines when semi-automatic
2	green	Light status indicator DA 2	<i>flashes twice per sec.:</i> - bright enough (light OFF)/ too bright (light ON) <i>flashes once per sec.:</i> - Delay time active
1	red	OFF function	shines when the feature is activated, i.e. in the initialization phase the light is off
all LEDs		Acknowledgement	<i>flash once per sec.:</i> - correct input <i>flash twice per sec.:</i> - incorrect input <i>flash three times for 1 sec.:</i> - Reset when locked <i>flash two times for 1 sec.:</i> - Double locked <i>shine for 2 sec.:</i> - HVAC mode Channel 1C activated <i>shine for 0.5 sec.:</i> - light control mode Channel 1C active
all LEDs		Status	<i>flash briefly once per sec.:</i> - detector is double locked

**15. Putting into operation of the remote control IR-PD-DALI-1C (optional)**

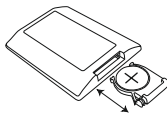
Settings with remote control override the potentiometer and DIP settings.

The DIP settings are reactivated

- by means of DIP switch 3: 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



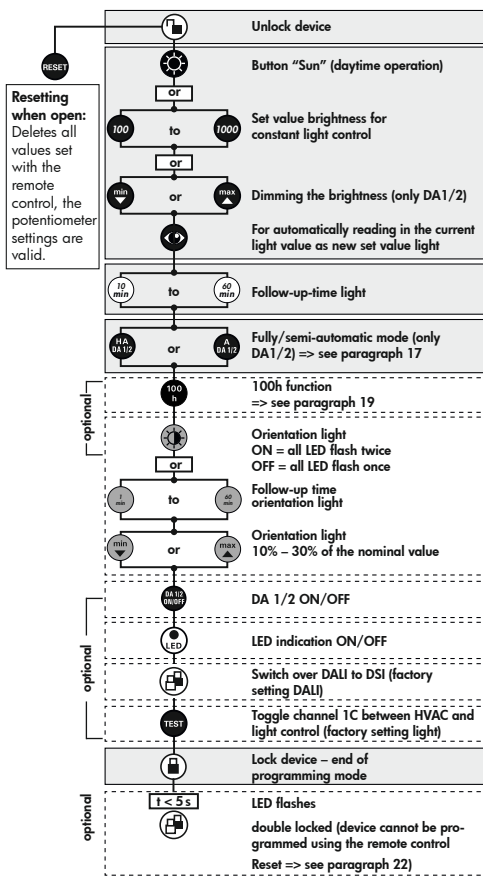
**Wall bracket for remote control IR-PD4-TRIO-DALI**



**Battery check:**

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

**16. Settings by remote control in open state**



**17. Fully/Semi-automatic mode**

(see DIP switch functions on page 1 and description IR-PD4-TRIO-DALI)



**Fully automatic operation**

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



**Semi-automatic operation**

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

The semi-automatic mode basically behaves like the fully automatic mode. The only difference is that the switching on has to be done by hand, always!

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 channels DA 1 and DA 2 are put in semi-automatic mode. This is indicated by the white LED 4.

In order to put the LIGHT/HVAC channel in semi-automatic mode, DIP switch 1 has to be set to its semi-automatic position (whole detector: DA1, DA2 and LIGHT/HVAC). The two LED 3 and 4 shine.

Afterwards, press button "A DA 1/2" in order to put channels DA 1 and DA2 back into fully automatic mode. The LIGHT/HVAC channel remains in semi-automatic mode. This is indicated by LED 3.

**18. Test mode / Reset (closed state)**



**Test mode:** Press "TEST" button for activating the test mode, "Reset" button for deactivating it.



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

**19. 100h function**



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: 80h

T8 fluorescent lamps: 100h

For activating the function, press button "100h" in open state. During this time, the detector only switches the light ON or OFF. A dimming to the set value does not take place. After having activated the function, the two green LED flash alternately. By pressing the button "100h" again, it is possible to deactivate the function before the time has elapsed.

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

**20. Dimming / Switching (open state)**



**Setting the light value using the remote control:**

For adjusting a set value take the following steps (example workplace): Place a lux meter flat on the desk, then, using the remote control IR-PD4-TRIO-DALI, adjust the light up or down. To do this, press the button "max" or "min", respectively, until the desired light value has been reached. Enter this value by pressing the "eye" button.



**Switching:** Press button "DA 1/2 ON/OFF" 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 off for the duration of set follow-up time. Afterwards, the device returns automatically to its selected operating mode (fully/semi-automatic mode).

**20.a Dimming when locked:**



You can dim manually (channels DA1 and DA2.) by pressing the button for a long time (> 2 sec.). When the button is released, the current dimming value is retained. Upon renewed dimming, the dimming direction is reversed.

**21. Orientation light**



Follow-up time orientation light ON/OFF (open state)



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%.

**22. 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).
- 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
- Now it is possible to open the detector again

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

