B.E.G. LUXOMAT® PD4-M-TRIO-C-3P

EN

Installation and Operating Instruction for B.E.G. - Occupancy detector PD4-M-TRIO-C-3P-SM

1. Product information

- 1-channel occupancy detector with two simultaneously-working relay outputs which enable division across different phases.
- The switching channel with the two relay outputs closes if the detector power supply fails, so that the lighting remains on as long as both phases of the lights are supplied with power.
- Especially for corridors
- Master version
- Extension of the detection area by slave devices is possible
- Manual switching via push-button possible
- Other functions adjustable by remote control (optional)

2. Functionality

The PD4-M-TRIO-C-3P can be connected to three different electric circuits (phases). The first electric circuit supplies the operating voltage, the other two electric circuits can be switched. A lighting system can therefore be split into two galvanically separated groups.

For increased operational safety the PD4-M-TRIO-C-3P switches when the operating voltage fails.

The integrated light sensor constantly measures the ambient light and compares it with the switch-lon threshold defined on the detector. If the ambient light is sufficient, lighting will not be switched. If the ambient light level is below the switch-on threshold, a movement activates the lighting in the room

The detector switches the light off despite of an actual presence of a person, if there is enough natural light for 5 min or if no movement is detected for one follow-up time.

3. Safety information

Work on the 110-240 V 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.

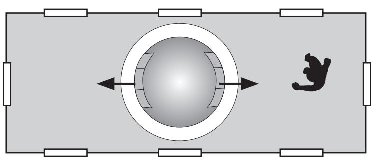
Disconnect supply before installing!

This device is not suitable for disconnection.

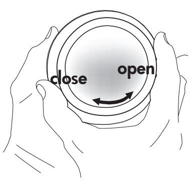
For all connected loads, proper interference suppression is obligatory (For all connected loads, proper interference suppression is obligatory).

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.

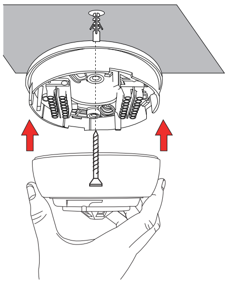
4. Montage

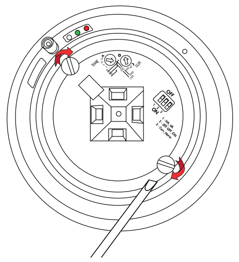


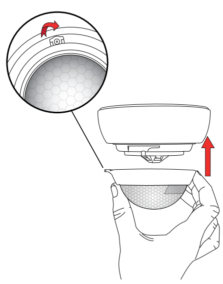
The corridor window in the lense is the essential feature for orientation when mounting the detector.

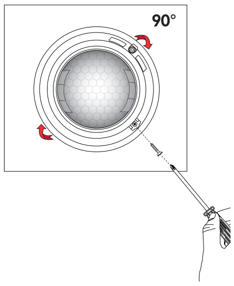


Before mounting, the lens must be removed. To remove it, the lens must be turned about 5° anticlockwise and taken out



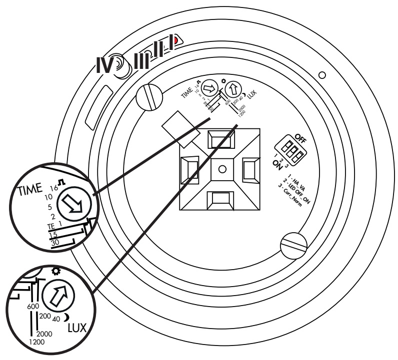






Use the supplied screws and wall plugs to mount the socket. After properly connecting the wiring, the detector must be placed on the socket and screwed in. Then reattach the lens, turning it clockwise, and fasten with a screw. Once mounted, the detector can be adjusted by approx. 90° max.

5. Position DIP switches, LEDs and Potentiometer



I red LED
II green LED
III white LED
IV Lightsensor

Potentiometer TIME: Follow-up time Light
Potentiometer LUX: switch-on threshold

Determining current brightness
Set TIME potentiometer to TE position. The green LED shows a steady light when the value set on the lux potentiometer is above the current measured brightness value.

DIP switch functions		
	ON	OFF
DIP 1	Semi-automatic mode (HA)	Full automatic mode (VA)
DIP 2	LED (function indicators) OFF	LED (function indicators) ON
DIP 3	Corridor mode (Corr)	Standard mode (NORM)

Corridor operation: if corridor function is active, the light remains switched off for 5s after manual switch-off even if movement is detected. Automatic mode is then active again.

6. Full / Semi-automatic mode

Full automatic operation
In this operating mode, the lighting switches automatically on and off for increased comfort, depending on presence and brightness. The light switches on when there is movement if the current light value is below the switch-on threshold.

Semi-automatic operation
The semi-automatic mode basically behaves like the full automatic mode. The only difference is that the switching on has to be done by hand.

The main light can be switched on again automatically by movement within 10s after the follow-up time has passed. After this time has passed, the switch must be pressed again to switch on the main light.

Semi-automatic mode can be activated via DIP switches or via the remote control "HA ON/OFF" command. If semi-automatic mode is activated, this is indicated by the white status LED

7. Self test cycle

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 stays on.

8. Light measuring

In order to calculate a switch-off threshold, there is a five-minute light measurement. For this, the light is switched off by the detector for all channels for 5s and then switched on for 5 min.

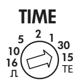
Measurement is carried out if:

- the level goes below the switch-on threshold for the very first time
- the switch-on threshold is changed on a potentiometer
- a new switch-on threshold is programmed by remote control (finish setting up with CLOSE button)

The measurement is not done during the activated test function.

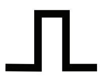
Unlocking the device halts light measurement.
After programming ends, light measurement is restarted.

9. Putting into operation / Settings

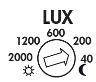


Potentiometer TIME - Adjustment follow-up time "Light"
Symbol TE: Test mode, reacts on motion only. Every movement switches on the light for a period of 2 seconds, switching it off for a period of 2 seconds

The follow-up time can be set infinitely variably at between 15 sec. and 16 minutes.



Pulse function
The pulse function can be used to control external HVAC systems. When movement is detected, a 1s pulse is sent every 9s.



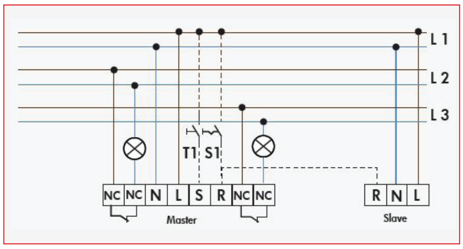
Potentiometer LUX - setting - switch-on threshold
The switch-on threshold can be set to between approx. 10 and 2000 Lux.

When the detector is set to "Sun", it switches on at every movement regardless of brightness. (Light analysis disabled)

Factory setting
If the potentiometers are in "Test" and "Sun" positions, the factory settings are activated (detector not programmed): 500 Lux and 10 min.

10. Wiring diagram

Standard mode with Master/Slave



Schematic diagram - when connecting the detector, please-respect the labelling of the terminal connections at the detector!

The multi-terminals can be used for through wiring.

11. Manual switching/slave connection

It is important to ensure that buttons, switches and/or slave units are connected to the phase that supplies power to the master unit.

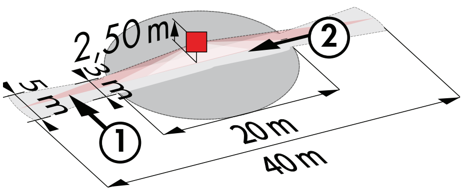
S-Terminal

Using a conventional NO button T1, the phase can be placed on the S-Terminal. To switch the light on or off, use a short press. The light remains on or off for as long as the detector detects movement plus the follow-up time previously configured.

R-Terminal

The R-Terminal is for connecting slave units to the master unit. In addition, the phase can be placed on the R-Terminal with switch S1. The lighting switches on only 10s after operation of the switch (S1).

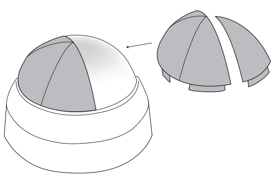
12. Range of Coverage



1 Walking across

2 Walking towards

13. LED function indicators



If the detection zone is too large, or areas are covered that should not be monitored, use the blinds to reduce or limit those areas.

14. Daylight-dependent switch-off

After the light is switched on, the detector calculates a switch-off threshold internally. The current light value must be above this switch-off threshold (detected as too bright) for a certain duration before the detector switches off the lighting (delayed switch-off).

In order to avoid unwanted frequent and unnecessary switching on and off of the lighting, after the light has been switched off due to daylight levels rising, the detector also waits a certain duration (delayed switch-on) before the light can be switched on again from a new movement.

15. Article / Part nr. / Accessory

Typ	Part nr.
PD4-M-TRIO-C-3P-SM	92747

LUXOMAT® Remote control:

IR-PD-1C (incl. wall bracket)	92520
R-PD-1C-E	92077
IR-Adapter for Smartphones	92726

Accessory:

Recommended slave: PD4-S-C-SM	92442
Sockel IP54 PD4-TRIO-SM	92836
RC-Arc extinction kit	10880
Mini-RC-Arc extinction kit	10882
Wire basket BSK (Ø 200 x 90 mm)	92199

16. Technical data

Power supply:	110 -240VAC, 50/60Hz
Power consumption:	ca. 0.5W
Ambient temperature:	-25°C – +50°C
Housing:	Polycarbonate, UV-resistant
Factory setting:	10 min 500 Lux
Degree of protection/class:	IP20 / II
Contact load:	2300W, cosφ=1 / 1150VA, cosφ=0.5, µ-Contact NO contact with tungsten pre-make contact
Recommended height for mounting:	2.4- 2.6 m
Range of coverage H 2,50m/T=18°C:	tangential 40 m / radial 20 m
Area of coverage:	circular 360°
Dimensions:	Ø 124 x 85 mm

EU Declaration of Conformity: CE

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

17. LED function indicators

LED function indicators after each mains recovery (60 sec. self-test cacle)			
Operating state	**LED function indicators**		
Factory program active	white, red and green successively blink quickly for 10s, then LED display in self-test cycle, see below		
Double-locked	white and green illuminate every 20s, then LED display in self-test cycle		
	Detector not programmed	**Detector programmed**	**Indicator also when forced shutdown is activated**
Standard mode	Red flashes	Red flashes quickly	Every 5s, 4 x white, red and green in quick succession
Party ON/OFF active	Red and green flash	Red and green flash quickly	Every 5 sec., 4 x white, red and green in quick succession
Corridor active	Red and white flash	Red and white flash quickly	Every 5 sec., 4 x white, red and green in quick succession
CdS active (twilight switch function)	–	Red and white flash	Then no red LED for motion detection

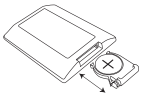
LED function indicators during operation	
Operation	**Function indicator LED**
Process	red flashes on each detected movement
Semi-automatic mode active	white is ON
Impulse active	red and green flash one time all 4s
Corridor active	white ON 1s and OFF 4s
Corridor and semi-automatic mode active	white ON 4s and OFF 1s
Too bright detected	green flashes
Light measurement active	green flashes once every 10s
Party ON/OFF- function active	red and green flash alternately
Manual on (S1)	red flashes quickly
IR-command	white flashes once
IR command „Open“ and permanent double lock active	white and green flash once slowly

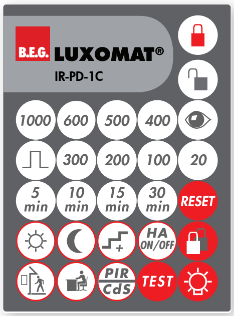
18. Putting into operation of the remote control (optional)

The DIP switch and potentiometer settings are overriden using the remote control.

The DIP settings are enabled again by:

- Reset with test sun setting at the potentiometers
- "RESET" when open

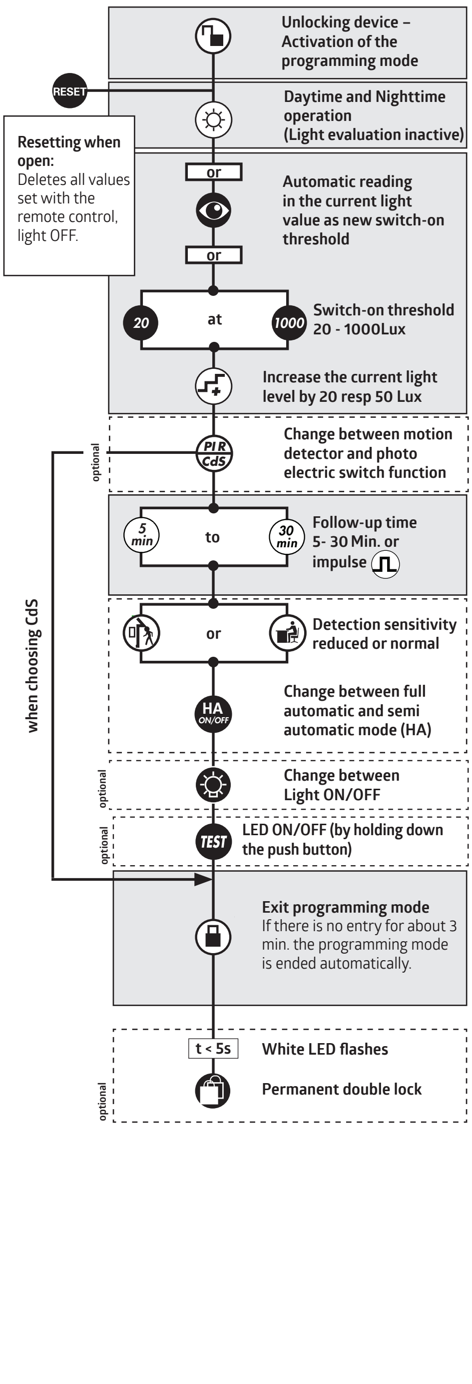




IR-PD-1C

Wall bracket for remote control IR-PD-1C

19. Settings by remote control in open state



20. Explanation of the remote control button functions

Pressing a button is confirmed by a short switching of both relays.

20a. During the self-test cycle

12 h Light ON/OFF (party function)
Activated by "Light" - push button

Deactivated by "Reset"- push button (default)

Corridor function
Activated by "sun" - push button

Deactivated by "inside"- push button (default)

Forced shutdown
Activated by "sun" - push button

Deactivated by "moon"- push button (default)

The forced shutdown can be activated or deactivated. If the light is switched on manually in the "too bright" state (switch-on threshold exceeded), it is automatically switched off after 45 min if forced switch-off is activated.

20b. In closed state during operation

Light ON/OFF during the detection of motion plus follow-up time; Activation of the 12 h-ON/OFF-function by holding down the push button. This button switches the lighting on or off for the duration of any movement plus a follow-up time. When the party function is activated, this time extends to 12 h

Activation/Deactivation of the test function
After 3 minutes the test mode will be automatically closed

Switches channel off and is immediately active again, stops all timers, interruption of light measurement

This push button opens the detector and the following functions can then be programmed.
Attention: The detector is closed automatically:
- after every voltage recovery
- after 3 minutes

20c. In open state during operation

Change between full automatic and semi- automatic mode (HA)

Setting – switch-on threshold

Smallest settable switch-on threshold 10 Lux

When set to "sun", the detector switches independent-ly of the brightness with every movement.

The device distinguishes between 2 procedures to determine switch-on and switch-off threshold

Read in current brightness value when lighting is switched on:

The switch-on value is determined automatically

Determining the switch-on value
1. Press the "eye" push button
2. Switch off the light (2 seconds later)
3. Read in the brightness
4. Switch-on value = Read brightness

Read in current brightness value when lighting is switched off (switch-on threshold):

When the push button is pressed, the current brightness is spe-cified as the switch-on value. The switch-off value is determined automatically.

Set fixed switch-on threshold:

Each time the push button is pressed, the device increases the current switch-on value in increments of 20 Lux for a current switch-on value of < 100 Lux and in increments of 50 Lux for a current switch-on value of > 100 Lux

Standard sensitivity

Reduced sensitivity

When the pulse function of channel 1 is active, a pulse of 1s is generated every 9s. If the pulse function is acti-vated via remote control, the pause between 2 pulses can be modified.

After activating the function via the "Pulse" push button, select the desired time within 5s.

5 min = 9s, 10 min = 10s, 15 min = 15s, 30 min = 30s

The "Test" push button can be used to set the LED ON/OFF function. To do this, hold down the push but-ton for 3s. Please note that in the open state and in test mode, the LED indicators are always ON.

Twilight switch function (CdS)
If the CdS function is active, the detector acts as a simple twilight switch. Only the brightness can be set in this mode. Movements are no longer indicated by the red LED.

Activate double lock
Status is changed to "detector locked". For the first 5s, the white LED blinks at 0.5 second intervals. During this time, the detector can be double-locked

t < 5s

If it is double-locked, no changes to parameters can be made via the remote control.

21. Behaviour of external button / IR "light" button

The corridor and party functions (12 h ON/OFF) are mutually exclusive. If both are activated, the detector behaves according to the corridor function. There is a difference between a long button press (>3s) and a short button press (<1s) (button press = BP)..

Light ON:
short BP = light off while there is motion
+ follow-up time previously configured

Light OFF:short BP = light on while there is motion
+ follow-up time previously configured

Behaviour when party function (12 h ON/OFF) activated:

Light ON:
short BP = light off while there is motion
+ follow-up time previously configured
long BP = light off for 12 h

Light OFF:
short BP = light on while there is motion
+ follow-up time previously configured
long BP = light on for 12 h

Behaviour with activated corridor function (Party function (12h ON/OFF) is deactivated):

Light ON:
BP = light off for 5s, then normal switching behaviour

Light OFF:
BP = light on while there is motion
+ follow-up time previously configured

22. Reset the detector

If both potentiometers are moved from any position to the "Test" and "Sun" positions, a reset is performed. All values programmed with the remote control are cleared.

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.

23. Reset the double lock

· Switch off the power supply and switch it back on
· Switch the power supply off again after 31 seconds of theself testing and before 59 seconds
· Apply power again and wait for for the self testing
· Press the unlock

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 min. This way the detector cannot be unlocked during an accidental power failure.