B.E.G. LUXOMAT® PD2-M-2C-24V

Installation and Operating Instruction for B.E.G. - Occupancy detectors PD2-M-2C-24V-3A-SM/-FC and PD2-M-2C-24V-RR-SM/-FC

1. Mounting preparations

Work on the 230 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!

When in Master/Slave mode of operation, the Master-appliance must always be installed at the location where there is least daylight.

2a. Installation of the LUXOMAT® PD2-M-2C-24V-SM
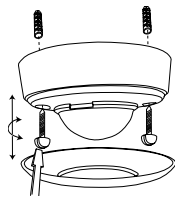
The detector must be installed on a solid and level surface. There is no need for frames.

For mounting remove lens (C) (turn anticlockwise). Fasten the mounting pod to the ceiling.

Having connected up the wires in accordance with regulations, secure the detector with 2 screws as per the illustration above.

In order to assemble the detector outside, the PD2-IP54 base-plate, which is available as an accessory, must be mounted between the detector and the surface on which it is to be installed.

### 2b. Installation of the LUXOMAT® PD2-M-2C-24V-FC
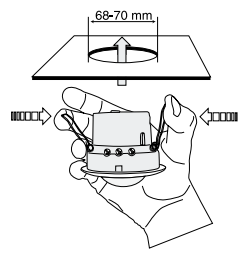
68-70 mm.

The detector has been designed and developed specifically for installation in suspended ceilings.

A circular opening of diameter 68 – 70 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 in the drawing opposite and fixed into position with the assistance of the spring clips.

2c. Self test cycle
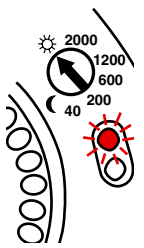
The product enters an initial 60-second self-test cycle, when the supply is first connected. The occupancy detector is ready for operation.

3. Putting into operation / Settings

Follow-up time for light control
The time can be set infinitely variably at between 15 seconds and 16 minutes.
Symbol ⊓: impulse < 1 sec.
Symbol **TEST**: Test mode
(Every movement switches on the light for a period of 1 second, switching it off for a period of 2 seconds after that regardless of the level of brightness.)
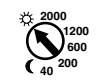
Twilight-switch
The switch-on value for the light can be set at between 10 and 2000 Lux. Using the rotary control, the luminance set points can be set as desired.
Symbol ☾: Night-time operation
Symbol ☀: Daytime/Night-time operation

Follow-up time for appliance-control
The time can be set infinitely variably at between 5 minutes and 120 minutes. There is a period of delay prior to switch-on of between 5 - 10 minutes for times set in excess of 15 minutes.
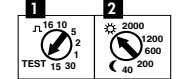Symbol ⊓: Impulse = 1 sec.
Symbol **A**: Alarm impulse = 1 sec.

4. Settings carried out using remote control (optional)
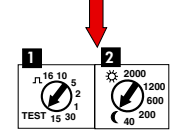
Remote control LUXOMAT® IR-PD
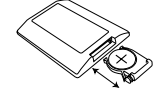
1. Check Battery:
open battery compartment by pressing the plastic springs together and removing the battery-holder.

2. IMPORTANT
Please pay attention, that the setting is Potentiometer 1 at "TEST" and Potentiometer 2 **not** at "SUN". All values which have been programmed using the remote control will be deleted in the event of power failure in the position "TEST/SUN". Please switch Potentiometer 2 over to "MOON" or any other value.

Caution:
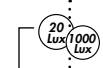Settings with remote control supersede the settings by courtesy of potentiometers.

Option:

IR-PD

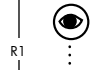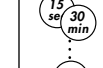**Wall bracket for remote control IR-PD**

IR-PD-Mini

⊓ **Unlocking device**

Luminance set point

Automatic reading in the current light value as new luminance set point
Individual light value 2 - 2500 Lux

R1

Follow-up time (relay and channel 1)
15 sec. up to 30 min.

Impulse function (relay and channel 1)
1 sec. ON, 9 sec. OFF

Time setting (relay and channel 2)
5 min. up to 120 min.

R2

Impulse function (relay and channel 2)
The voltage-free contact is closed for a period of 2 seconds. This is followed by a period of idle time of 8 seconds' duration.

Alarm impulse program for appliance control (relay 2)
The relay will not close until at least three movements have been registered over a period of 10 seconds (impulse = 1 second).

Preset/user mode

Fully automatic/semi automatic mode => (see page 2, point 5)
Semi automatic: red LED (flashing),
Fully automatic: red LED on for approx. 3 sec.

Resetting when open
All values which have been programmed using the remote control IR-PD are deleted, and those values which have been set by potentiometer are activated.

Lock device

Lock device

TEST **Test mode**
Reset to deactivate

RESET **Resetting when closed**
The lighting relay is switched off, i.e. opened and the follow-up times reset.

Permanent protection against sabotage
This function blocks the unit permanently (green LED is illuminated). This operating mode can only be activated during the period of 5 seconds after pressing the "lock" button. This status will only permit actuating the function "Light on/Light off".
The procedure for leaving this mode is as follows:
1. Switch off the current
2. Apply current for 31 – 59 seconds
3. Switch of the current again
4. Apply current
5. Open detector

Light on/off => (see page 2, point 6)
The light will remain switched on/off for as long as movements are detected in the areas of coverage. Once the last movement has been detected, the light will remain on for the duration of the follow-up time as per setting.
The appliance will then return independently to the mode selected (Fully or Semi-automatic).

5. Fully / Semi automatic mode
(for IR-PD functions see page 1)

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

Semiautomatic operation
(Semiautomatic can only be activated via the remote control!)
In this operating condition, in order to gain increased savings, the lighting is energized only after being manually switched on.
Switch-off takes place automatically.
The semiautomatic mode basically behaves like the fully automatic one. However, the difference is that switching-on must always be carried out manually!

As many (closer-contact) buttons as desired can be wired in parallel on the "R" button input (ON/OFF).

6. Manual Switching

You can switch the lighting on and off manually by pressing the pushbutton for a short time. It will stay on or off as long as people are detected plus the configured follow up time.

7. Indication of brightness by contact 1 in terms of a resistor value
(for button see point 11, page 2)

When required contact 1 can be switched into delivery of light proportional resistor value.
By means of this a suitable external circuit can deduct the actual brightness value at the mounting place of the occupancy sensor and can put it as variable on a LON or EIB bus. The value of that resistor will be delivered in function of
approx. 1 kOhm for bright
approx. 15 MOhm for dark

For the selction of the function the toggle switch on the back of the sensor to be put into the desired position:
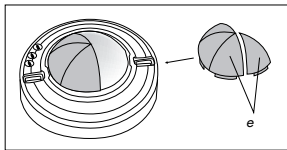
1: no function at all
2: dry contact, NO
3: delivery of resistor value

8. Range of Coverage
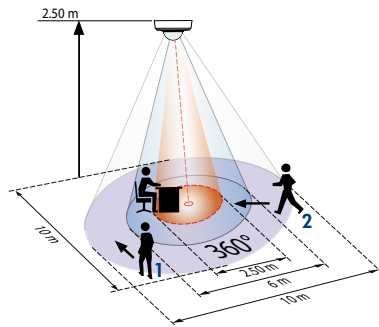
1	walking across
2	walking towards
	seated

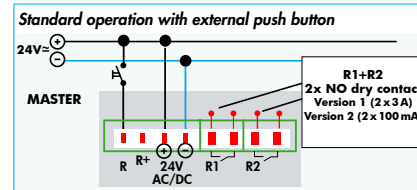## 9. Exclude sources of interference (PD2-M-2C-24V-SM)

In case the sensing area of the **LUXOMAT®** PD2-M-2C-24V is too large or areas are being covered that should not be monitored, the range can be reduced or limited through use of the enclosed masking clips (e).
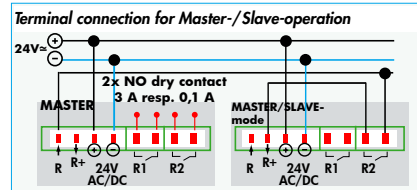
10. Wiring diagrams

*Terminal connection for standard operation*
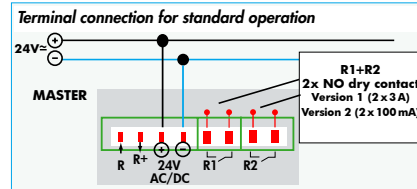
Standard operation

Standard operation, additional manual switching is possible (push the button approx. 2 sec.). The potentiometers not to be set on "Test" or "Sun", otherwise the preadjusted values will get lost during this manual operation.

Master-/Slave-operation, i.e. Masters operate as Slaves. The Master is the only unit to read in the Lux levels and to switch the connected loads. The Slave units will react on motion only, independently of the Lux levels, by sending an impulse via the dry contact, to the Master.

11. PD2-M-2C-24V - Connections

Connections PD2-M-2C-24V-SM

Connections PD2-M-2C-24V-FC
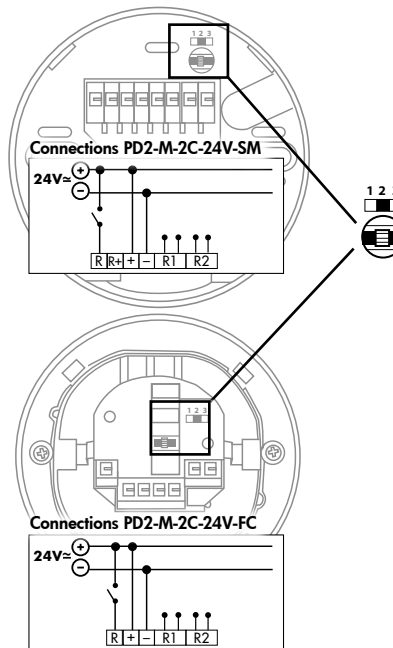
12. Article / Part nr. / Accessory

Type	SM	FC
PD2-M-2C-24V-3A	92154	92164
PD2-M-2C-24V-RR	92305	92306

LUXOMAT® Remote control:
IR-PD (incl. wall bracket)   92160
IR-PD-Mini   92159

Accessory:
BSK Ball basket guard   92199
Wall bracket for remote control as replacement 92100
Occupancy detectors - Covering IP23 92206
Socket IP54   92161

13. Technical data PD2-Master-2C-24V

Sensor and power supply in one case
Power supply: 24 V AC/DC +6%/-10%
Power consumption: < 1W
Ambient temperature: -25°C to +50°C
Degree of protection/class: SM IP20 with accessory Socket IP54, FC IP20 with accessory Covering IP23 / II
Settings: locally and by remote control
Light values - IR-PD: 10 - 2000 Lux
Extension of the detection area: with Slaves
Area of coverage: circular 360°
Range of coverage Ø H 2.50 m / T = 18°C:
seated 2.50 m / tangential 10 m / radial 6 m
Recommended height for mounting: 2 - 3 m
Light measurement: mixed light, daylight + artificial light
Lux values - Potentiometer: 10 - 2000 Lux
• Channel 1 and Channel 2: each a potential-free contact NO
Contact load:
Version 3A   24 V AC/DC, 3 A cos(φ)=1
Version RR with Reed-Relay 24 V AC/DC, 100 mA for extra low-noise switching, cos(φ)=1
Time settings (Channel 1): 15 sec. - 16 min. (30 min. with remote control) / Test
Time settings (Channel 2): alarm-impulse with 3 impulses per 10 sec.
Dimensions H x Ø [mm]   SM   FC
PD2-M-2C-24V   50 x 98   84.5 x 80
Visible portion when built into ceiling: 34 x 79 mm

CE **Declaration of Conformity:** The product complies with the low voltage recommendation 2006/95/EC and the EMV recommendation 2004/108/EC.

14. LED-functional indicators, fault-finding

The functional indicators in the case of the **LUXOMAT®** PD2-M-2C-24V (red and green LED's)

Red LED indicating self-checking mode (over a period of 60 seconds following mains'-supply lock-on)
Flashing at intervals of 1 second
EEPROM/memory empty

Flashing rapidly
EEPROM/memory contains information

Red LED as an indicator of status
Flashing irregularly
Movements are detected within the area of coverage

Flashing regularly
Detector identifies bright, light off
(dependent upon operating mode)

Not illuminated
Detector identifies dark, light on
(dependent upon operating mode)

Flashing extremely rapidly
Too bright / Too dark / Undefined

Red LED as an acknowledgement of receipt for commands from the remote control
Illuminated for 2 seconds
Signal validly received

Illuminated for 0.5 seconds
Not-accepted command, detector blocked

Flashing extremely rapidly
Not-accepted command, occurs, for example, when an attempt is made to input twilight-value are too bright or too dark

Lights up for 3 seconds
Fully automatic mode

Flashing for 3 seconds
Semi automatic mode

Green LED as an indicator of status (only for status "Permanent protection against sabotage")
Flashing irregularly
Movement are detected within the area of coverage

Flashing regularly
Detector identifies bright, light off
(dependent upon operating mode)

Not illuminated
Detector identifies dark, light on
(dependent upon operating mode)

Iluminated for 2 seconds
Signal validly received
(dependent upon operating mode)