System motion detector power unit surface-mounted
Order-No. : 150 29
System motion detector 180° surface-mounted
Order-No. : 151 09
System motion detector 240° surface-mounted
Order-No. : 152 09

Operation- and
Assembly Instructions

1 Safety instructions

Electrical equipment may only be installed and fitted by electrically skilled persons.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

Danger of electric shock. Device is not suitable for disconnection from supply voltage.

Danger of electric shock. Always disconnect before carrying out work on the devise or load. At the same time, take into account all circuit breakers that supply dangerous voltage to the device or load.

Do not press on the sensor window. Device can be damaged.

The device is not suitable for use as a burglar alarm or other alarm.

These instructions are an integral part of the product, and must remain with the end customer.

2 Device components

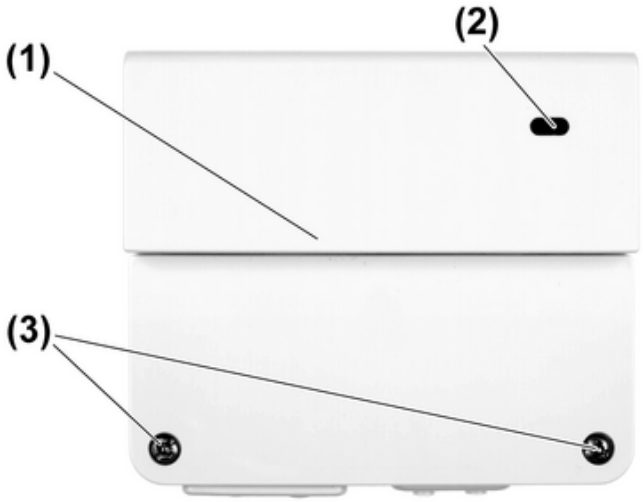

Figure 1: Surface-Mounted Power Pack

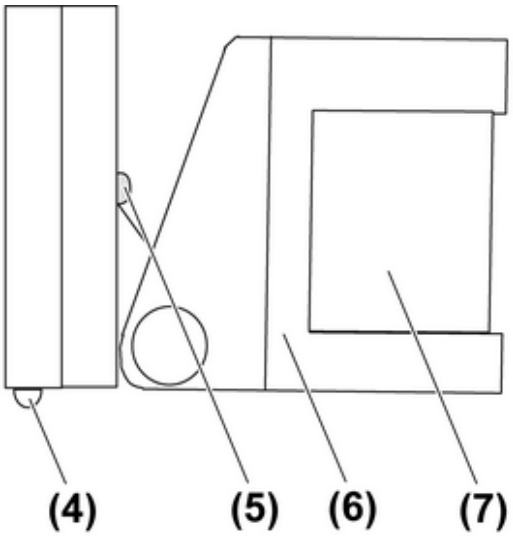

Figure 2: 180° System Sensor

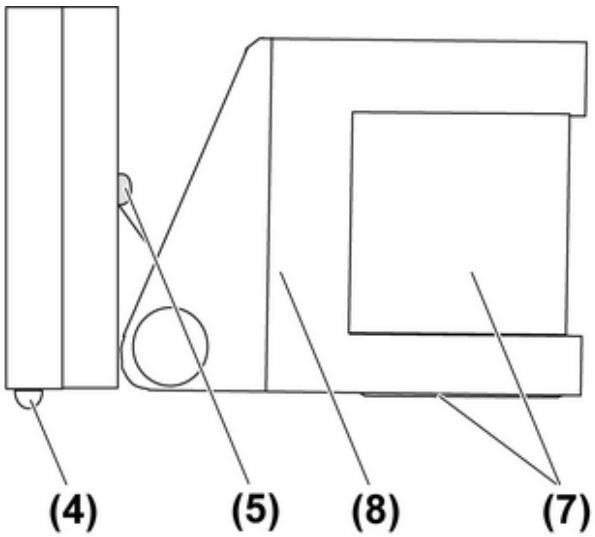

Figure 3: 240° System Sensor

(1) Surface-Mounted Power Pack
(2) Power pack status LED
(3) Housing lid screws
(4) System sensor status LED
(5) Central screw
(6) 180° System Sensor
(7) Sensor window
(8) 240° System Sensor

3 Function

Intended use

- Automatic switching of electrical loads for the duration of a settable time when the brightness drops below a brightness threshold
- System sensors report detected heat motions to the power pack
- Surface-mounting in indoor and outdoor areas

Product characteristics

Surface-Mounted Power Pack

- Device reacts to motion signals of system sensors
- Power supply for system sensors
- Brightness threshold settable
- Switch-on time settable
- Forced switch-off settable

180° System Sensor

- Protected against spray water
- Sensor head adjustable in 2 axes
- Cover panel for limiting the detection area
- 144 switching segments in 3 layers

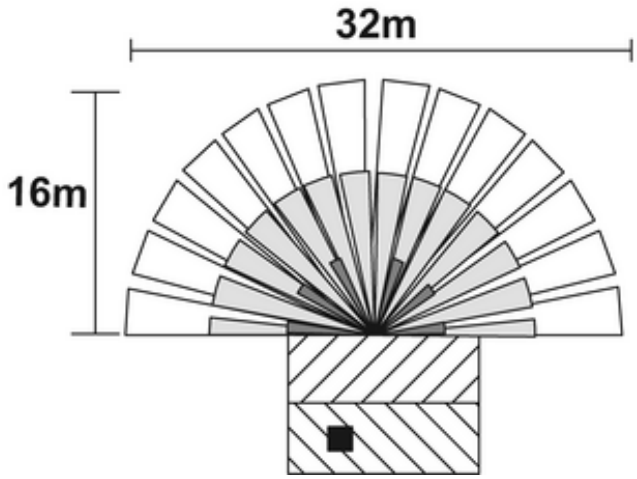

Figure 4: Detection area of 180° System Sensor

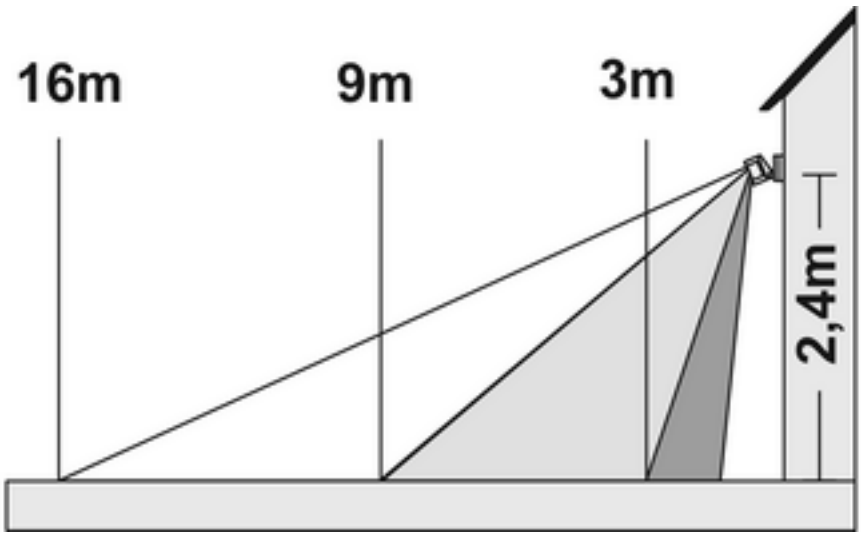

Figure 5: Range of 180° System Sensor

240° System Sensor

- Protected against spray water
- Sensor head adjustable in 2 axes
- Separate creep zone protection

- Cover panels for limiting the detection area
- 168 switching segments in 3 layers

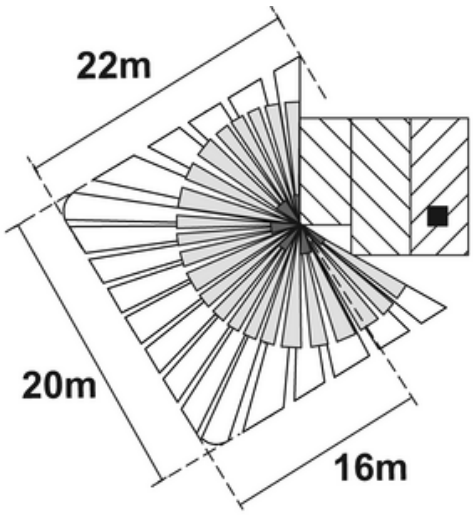

Figure 6: Detection area of 240° System Sensor

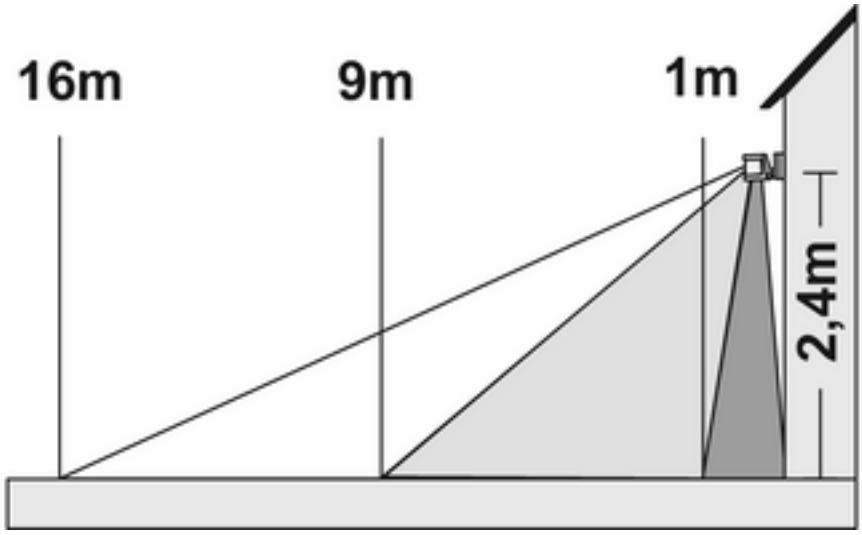

Figure 7: Range of 240° System Sensor

Automatic operation

System sensors detect heat movements or people, animals or objects and report them to the power pack. The current brightness value is transmitted to the power pack by only one system sensor.

- The light is switched on if a person enters the monitored detection area and the brightness is below the set threshold.
- The light is switched off if no more movement is detected in the detection area and the follow-up time has elapsed.

In order to avoid light oscillations due to the cooling of a bulb, the power pack does not evaluate any signals for approx. 3 seconds after switch-off.

Switching on the mains voltage of the power pack triggers a switching operation on the power pack.

The status LED of the power pack (2) lights up when the load is switched on. The status LED of a system sensor (4) lights up when a motion signal is forwarded to the power pack.

4 Information for electrically skilled persons

4.1 Fitting and electrical connection

DANGER!
Electrical shock when live parts are touched.
Electrical shocks can be fatal.
Before carrying out work on the power pack or load, disengage all the corresponding circuit breakers. Cover up live parts in the working environment.

CAUTION!
Damage to the device when heat radiation is too high.
Sensors will be destroyed.
Align the system sensor so that no direct sunshine hits the sensor window.
Do not place system sensors in the sun.

Selecting the installation location for system sensors

The optimum range of the system sensors is achieved at an installation height of 2.40 m and alignment transverse to the direction of motion (Figure 8).

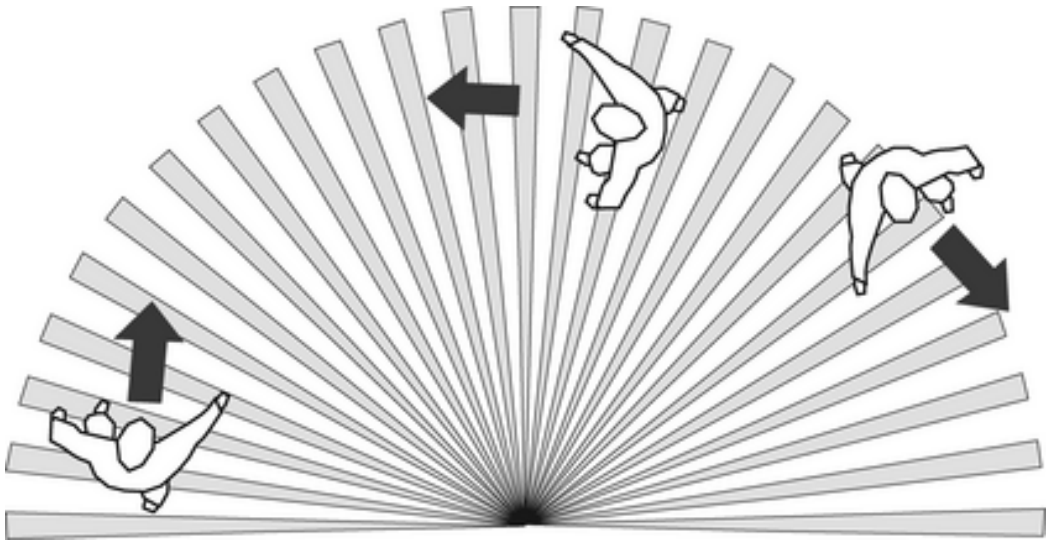

Figure 8: Recommended direction of motion

The range is reduced in the case of:
- Ground sloping upwards
- Tilted sensor head
- Low temperature difference
- Installation height less than 2.4 m
- Effects of weather, e.g. rain or snow

The range is increased in the case of:
- Ground sloping downwards
- Sensor head pointed upwards
- High temperature difference
- Installation height greater than 2.4 m

- Select a vibration-free installation location. Vibrations can lead to unwanted switching.

- Avoid interference sources in the detection area. Interference sources, e.g. heaters, ventilation, air conditioners, or cooling light bulbs can lead to unwanted switching.
- Take direction of motion into account.
- Determine installation height.

Installing the power pack

- Slacken the two screws (3) and remove housing lid (Figure 1).

i The diameter of the mains cable must not exceed 11 mm when inserted from the rear, and 13 mm when inserted from below.

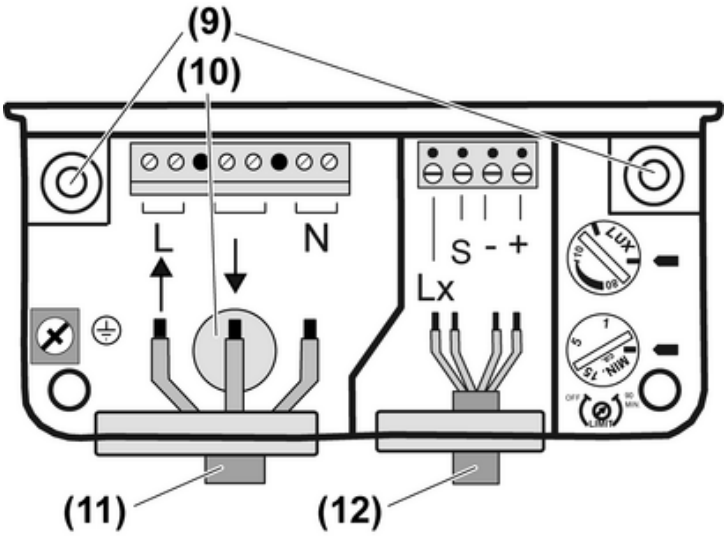

Figure 9: Power pack connection compartment

- For rear mains cable insertion, penetrate the rubber sheath (10) (Figure 9).
- Fasten power pack with two screws (9).
- Insert mains cable (11) and cable to the system sensors (12) into the connection housing and connect them (see "Connecting the power pack").

i A connecting terminal is included with the device in order to connect cables through.

- Close the housing lid.

Connecting the power pack

The power pack can be connected in various ways.

- Select the appropriate connection diagram depending on what installations are present.

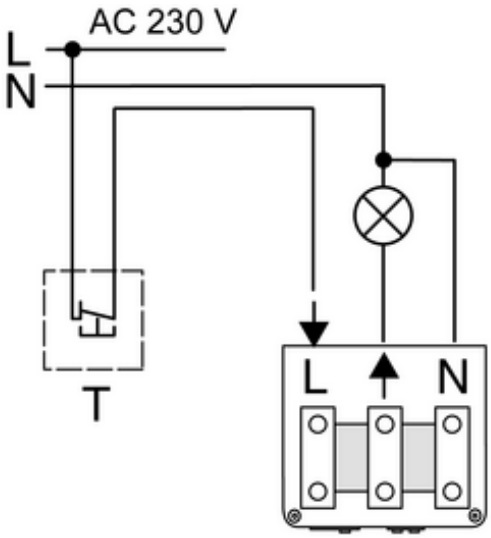

Figure 10: Connecting the power pack

Each time the installation push-button T (normally closed contact) is pressed, a switching operation of the power pack is triggered (Figure 10).

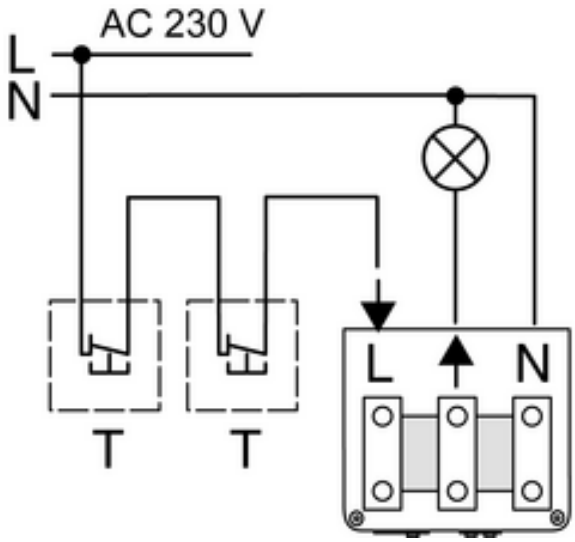

Figure 11: Changeover switch

Changeover switches that are present can be replaced by installation button T, a normally closed contact (Figure 11).

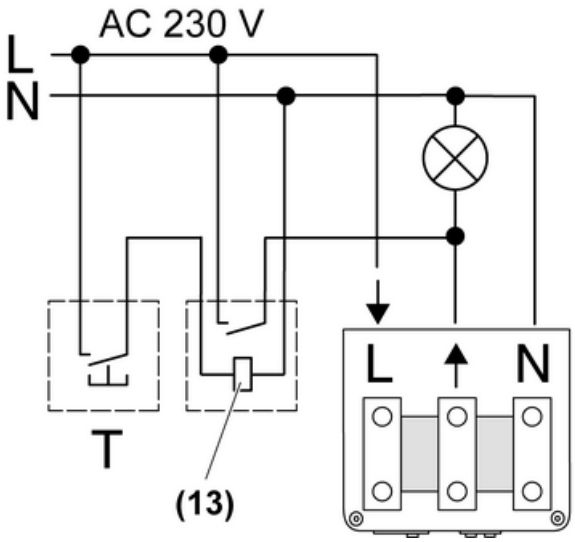

Figure 12: Connection in parallel with automatic staircase light switch / impulse relay

The lighting is switched on either by the automatic staircase light switch (13) or by the power pack in combination with system sensors (Figure 12).

Installing the system sensors

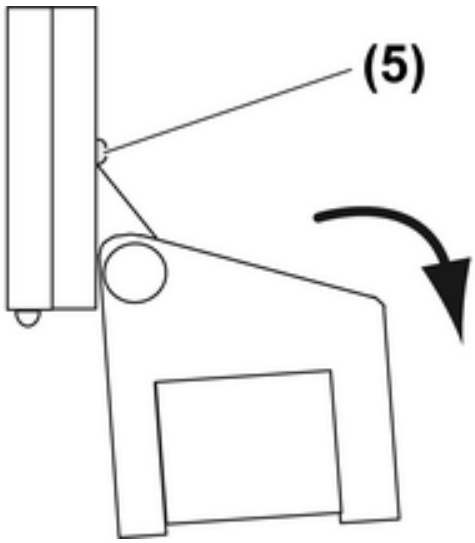

Figure 13: Opening the system sensor

- Incline sensor head downwards and slacken central screw (5).

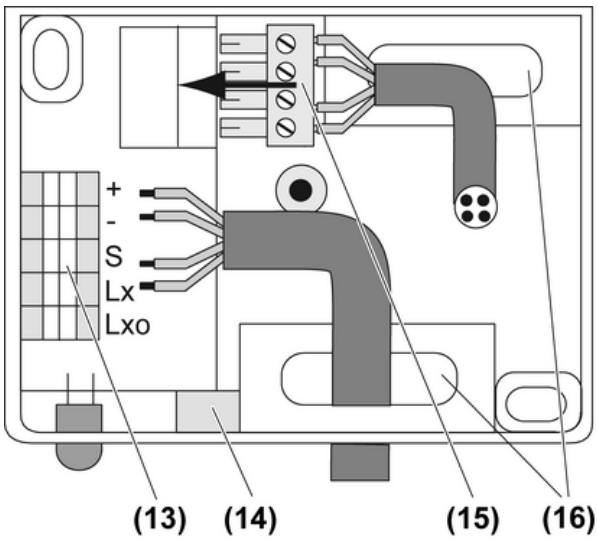

Figure 14: System sensor connection box

- Open the condensation water hole (14), except in case of installation in dusty rooms (Figure 14).

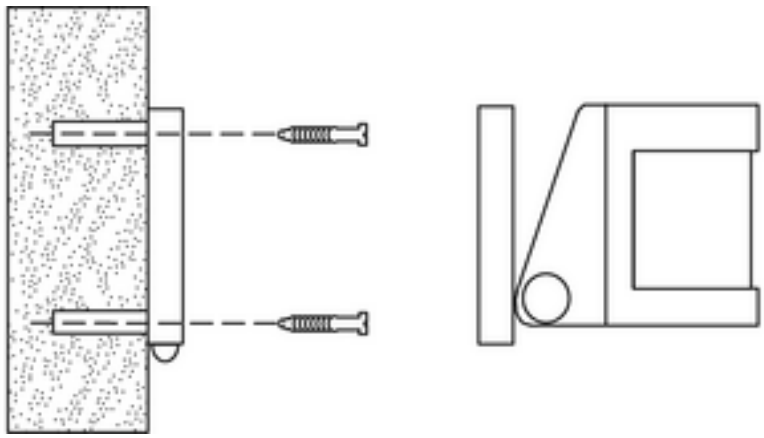

Figure 15: Installation on a flat wall

- Fasten connection box to the wall with 2 screws so that the condensation water hole is at the bottom (Figure 15).

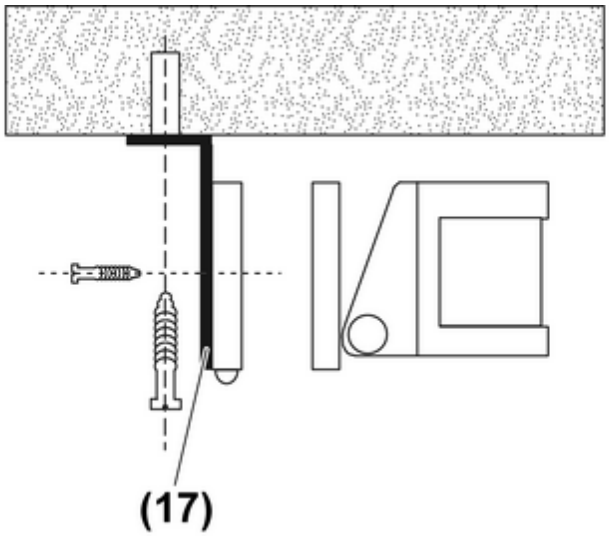

Figure 16: Ceiling installation

- For ceiling installation, a mounting bracket (17) is necessary (Figure 16) (see "Accessories").

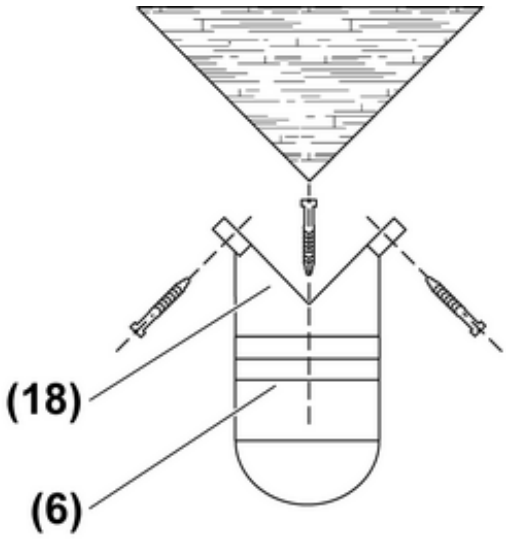

Figure 17: Installation on external corner

- For mounting on the corner of a building, a corner piece (18) is necessary (Figure 17) (see "Accessories").

Connecting the system sensor

i To prevent the ingress of moisture, we recommend inserting the cables from below.

- Run the connection cable into the connection compartment through a rubber sleeve (16) (Figure 14).
- Connect sensor cable to terminal block (13) (Figure 14).

Connection terminal	Meaning
+ and **-**	Supply for the system sensors
S	Switching signal of the system sensors
L_X	Brightness evaluation, only of one system sensor
L_{X0}	Unconnected terminal for connecting the L_X signal through

- Plug sensor connector (15) onto contacts in connection box (Figure 14).
- Set sensor housing on connection box and fasten with central screw (5).

Connect power pack and system sensors to each other

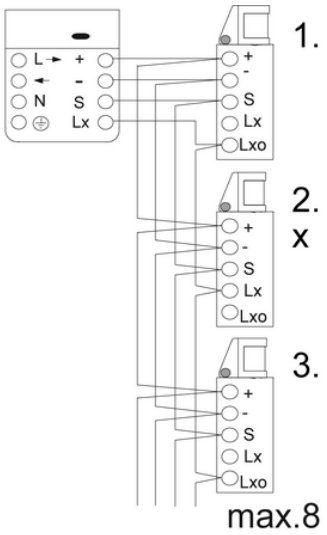

Figure 18: Connecting system sensors in parallel

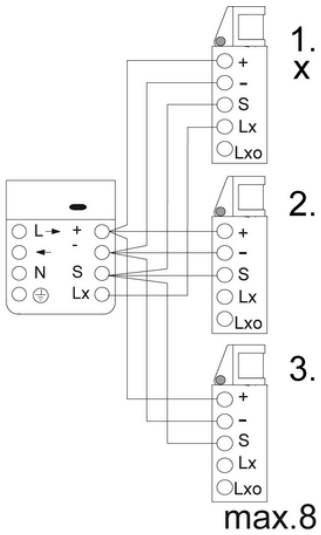

Figure 19: Connecting system sensors in a star configuration

The system sensors can be connected in parallel (Figure 18) or in a star configuration (Figure 19).

Each system sensor has a brightness sensor. However, within a system only the brightness sensor - terminal L_X - of a single system sensor may be connected. Only this reference sensor forwards the measured brightness to the power pack.
In connection examples (Figure 18) and (Figure 19) the reference sensor is marked with an "x".

- Connecting the power pack and system sensors.
- Mark reference sensor.

i The cable length between the power pack and the farthest system sensor must not exceed 100 m.

i Connection of more than one power pack to a single system sensor is not permitted. This will cause malfunctions. To increase the connected load, use relays.

4.2 Commissioning

Configuring the power pack

The three adjusters in the connection compartment of the power pack can be used to set the run-on time, the brightness threshold and, if necessary, a forced switch-off after 90 minutes.

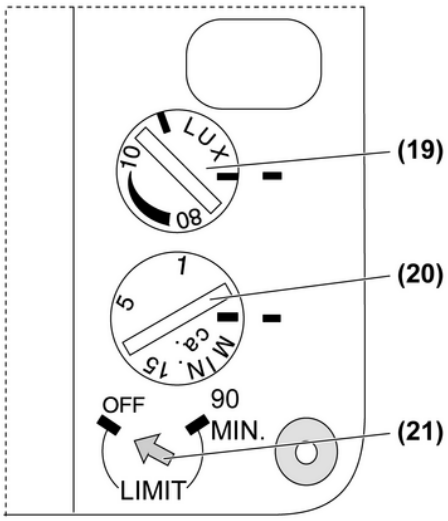

Figure 20: Power pack adjuster

(19) Brightness threshold adjuster **LUX**

(20) Run-on time adjuster **MIN**

(21) Forced switched-off rotary switch **LIMIT**

Setting the run-on time

The light remains switched on for this time after the last movement detection. The run-on time is set between approx. 4 seconds and 15 minutes.

- Turn the **MIN** adjuster (20) to the required position (Figure 20)

Setting the brightness threshold

The brightness threshold is set between approx. 3 to 80 lux and day operation.

- Turn the **LUX** adjuster (19) to the required position (Figure 20). A setting of approx. 10 lux activates the device at the start of twilight. For switching independent of brightness, turn the adjuster to the far right.

Switching on the forced switched-off

The **LIMIT** adjuster (21) can be used to switch a forced switch-off on or off. Forced switch-off prevents the light from switching off when there is constant movement detection, even if it is bright enough. The power pack switches off after 90 minutes at the latest. Switch-on only takes

place again if the brightness is below the set threshold and movement is again detected in the detection area.

- Set **LIMIT** adjuster (21) to **90 MIN**.

Putting motion detector system into operation

- Connect the system sensors in sequence and test them individually in order to guarantee the function.
- Set the power pack for the function testing of the sensors as follows:
  MIN adjuster approx. 4 seconds at left stop
  LUX adjuster, Day mode right stop.
- Pace off the detection area for each system sensor, paying attention to reliable detection and to interference sources (see "Limiting the detection area").
- After commissioning the system sensors, set the **MIN**, **LUX** and **LIMIT** adjusters for normal operation.

Aligning the system sensors

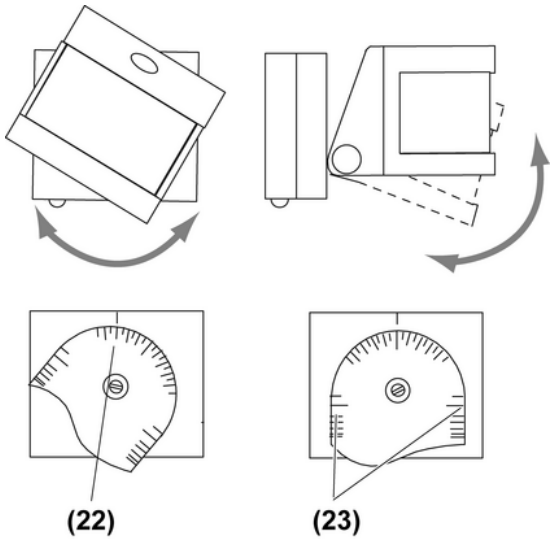

Figure 21

For optimal alignment of the detection area the system sensors can be tilted and turned (Figure 21). To allow reproduction of a selected alignment, scales are provided on the sensor housing (22) and (23).

- Adjust the sensor head to the local conditions by tilting and turning it.

Adjusting sensitivity on 240° System Sensor

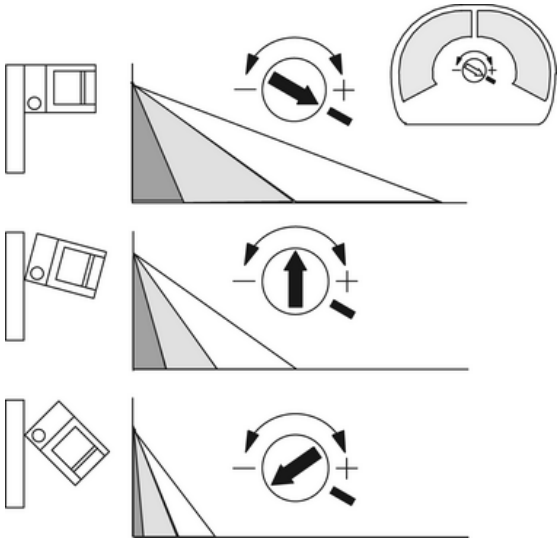

Figure 22

On the 240° System Sensor the sensitivity can be adjusted depending on the tilt of the sensor head. The sensitivity should be reduced if the detection area is made shorter.

- First select the highest sensitivity level and then reduce the sensitivity after tilting the sensor head (Figure 22).

Limiting the detection area

Unrequired detection areas can be hidden using the cover panel (26). See (Figure 23) and (Figure 24).

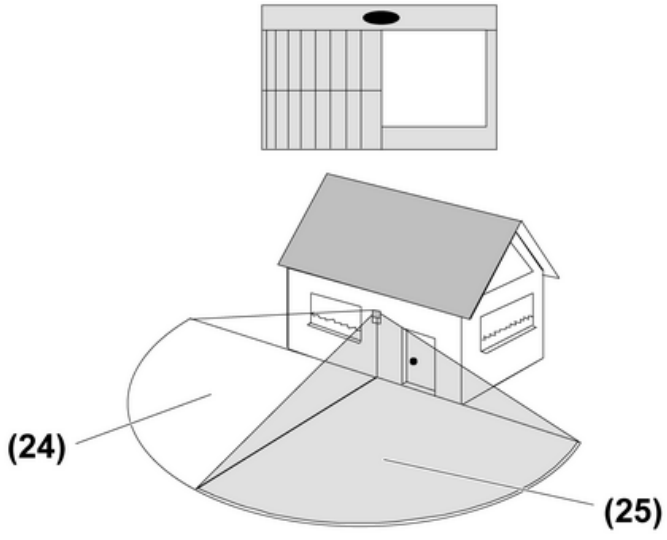

Figure 23: Hiding the side areas

(24) Hidden area

(25) Monitored area

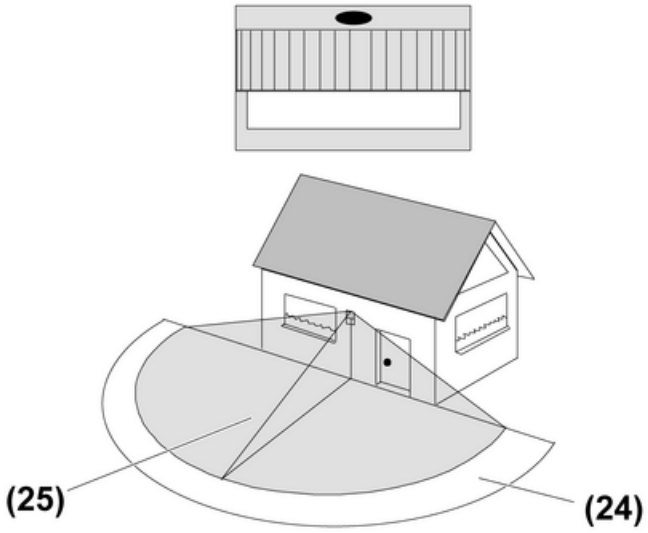

Figure 24: Hiding the long range

i To hide the long range area, cut out the bottom slats of the cover panel and leave the top cover panel slats alone.

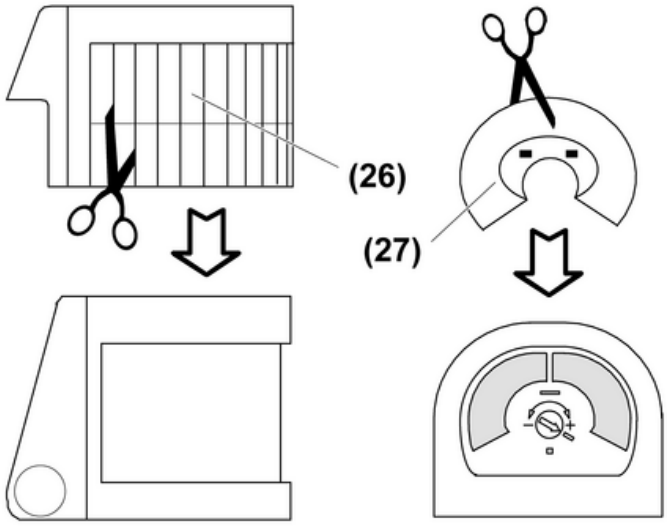

Figure 25: Cutting out the cover panel

- Cut out the cover panel (26) (Figure 25).
- On the 240° System Sensor it is also possible to fit a panel (27) on the creep zone protection.
- Push the cover panel onto the sensor head. If necessary fit creep zone protection cover panel on the creep zone protection.

i If the 240° System Sensor is installed on a flat wall of a building, the detection area must be limited to 180° using the cover panel (26). Otherwise detection of the building wall at extremely short range will lead to faulty switching.

5 Appendix

5.1 Technical data

System motion detector power unit surface-mounted, Order-No. 150 29

Rated voltage	AC 230 V ~
Mains frequency	50 Hz
Power consumption	approx. 1.1 W
Ambient temperature	-25 ... +55 °C
Protection rating	IP 55
run-on time	approx. 4 s ... 15 min
Brightness setting	approx. 3 ... 80 lx (and day operation)
Connected load	
Incandescent lamps	2300 W
HV halogen lamps	2300 W
Tronic transformers	1200 W
Inductive transformers	1200 VA
Electronic ballast	Type-dependent
Fluorescent lamps, uncompensated	1200 VA
Fluorescent lamps, parallel compensated	920 VA
Fluorescent lamps, duo circuit	2300 VA
Switching current	
Switch-on current	max. 20 A Per channel
Minimum switching current AC	100 mA
Contact type	µ
Number of system sensors	max. 8
Total length power cable	max. 100 m

System motion detector 180° surface-mounted, Order-No. 151 09

Rated voltage	DC 15 V
Power consumption	approx. 60 mW
Ambient temperature	-25 ... +55 °C
Protection rating	IP 55
Installation height	approx. 2.40 m
Connection	
Single stranded	0.25 ... 0.75 mm²

System motion detector 240° surface-mounted, Order-No. 152 09

Rated voltage	DC 15 V
Power consumption	approx. 60 mW
Ambient temperature	-25 ... +55 °C
Protection rating	IP 55
Installation height	approx. 2.40 m
Connection	
Single stranded	0.25 ... 0.75 mm²

5.2 Troubleshooting

The lighting does not switch on.

Cause 1: The ambient brightness at the reference sensor is greater than the set brightness threshold.

Increase the brightness threshold on the **LUX** adjuster.

Cause 2: Detection area is limited.

Align sensor heads of and adapt cover panels if necessary.

Lighting switches on, although there is no-one in the detection area.

Cause: Interference sources in the detection area, e.g. ventilation, cooling light bulbs, trees and bushes.

Align sensor heads of the system sensors and use cover panels.

Motion detector does not switch off after the set follow-up time has elapsed

Cause: Motion detector detects motions constantly. Interference sources in the detection area, e.g. ventilation, cooling light bulbs, trees and bushes.

Align sensor heads of the system sensors and use cover panels.

Lighting switched on during darkness remains lit during the day

Cause: Device detects motions constantly.

Set **LIMIT** adjuster to **90 MIN**. The power pack switches off after 90 minutes at the latest.

Lighting switches off and cannot be switched on again

Cause: Continuous short-circuit on the supply cable of the system sensors. Power pack overheats and switches off.

Eliminate short-circuit and wait for power pack to cool down.

5.3 Accessories

Ceiling installation bracket for controllers/ sensors	Order-No. 148
Double ceiling installation bracket for controllers/sensors	Order-No. 158
Corner installation piece for controllers/sensors	Order-No. 149 09
Mast fastening for controllers/sensors	Order-No. 154

5.4 Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

Our products are under guarantee within the scope of the statutory provisions.

If you have a warranty claim, please contact the point of sale or ship the device postage free with a description of the fault to the appropriate regional representative.

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