Product manual | **12.08.2024**

Busch-Watchdog® PRO

6251/28-xxx-WL
Busch-Watchdog® 280° WL

BUSCH-JAEGER

1 Information on the manual

Please read this manual carefully and observe the information it contains. This will assist you in preventing injuries and damage to property, and ensure both reliable operation and a long service life for the device.

Please keep this manual in a safe place.

If you pass the device on, also pass on this manual along with it.

Busch-Jaeger accepts no liability for any failure to observe the instructions in this manual.

If you require additional information or have questions about the device, please contact Busch-Jaeger or visit our Internet site at:

https://www.busch-jaeger.at/systeme/busch-freehome

2 Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent hazards of this kind.

Busch-Jaeger accepts no liability for any failure to observe the safety instructions.

2.1 Information and symbols used

The following Instructions point to particular hazards involved in the use of the device or provide practical instructions:

Danger

Risk of death / serious damage to health

– The respective warning symbol in connection with the signal word "Danger" indicates an imminently threatening danger which leads to death or serious (irreversible) injuries.

Warning

Serious damage to health

– The respective warning symbol in connection with the signal word "Warning" indicates a threatening danger which can lead to death or serious (irreversible) injuries.

Caution

Damage to health

– The respective warning symbol in connection with the signal word "Caution" indicates a danger which can lead to minor (reversible) injuries.

Attention

Damage to property

– This symbol in connection with the signal word "Attention" indicates a situation which could cause damage to the product itself or to objects in its surroundings.

NOTE

This symbol in connection with the word "Note" indicates useful tips and recommendations for the efficient handling of the product.

This symbol alerts to electric voltage.

2.2 Intended use

The Busch-Watchdog® are passive infrared movement detectors which switch loads via a time element when sources of heat move within its detection range. The device can also be operated via a push-button.

The device is intended for the following:

- Operation according to the listed technical data
- Installation on walls of buildings
- Use with the connecting options available on the device

The intended use also includes adherence to all specifications in this manual.

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use“ on page 6 is deemed improper use and can lead to personal injury and damage to property.

Busch-Jaeger is not liable for damages caused by use deemed contrary to the intended use of the device. The associated risk is borne exclusively by the user/operator.

The device is not intended for the following:

- Unauthorized structural changes
- Repairs
- Substitute for an alarm system.

2.4 Target group / Qualifications of personnel

2.4.1 Operation

No special qualifications are needed to operate the device.

2.4.2 Installation, commissioning and maintenance

Installation, commissioning and maintenance of the device must only be carried out by trained and properly qualified electrical installers.

The electrical installer must have read and understood the manual and follow the instructions provided.

The electrical installer must adhere to the valid national regulations in his/her country governing the installation, functional test, repair and maintenance of electrical products.

The electrical installer must be familiar with and correctly apply the "five safety rules" (DIN VDE 0105, EN 50110):

1. Disconnect
2. Secure against being re-connected
3. Ensure there is no voltage
4. Connect to earth and short-circuit
5. Cover or barricade adjacent live parts

2.5 Safety instructions

Danger - Electric voltage!

Electric voltage! Risk of death and fire due to electric voltage of 100 … 240 V.

Dangerous currents flow through the body when coming into direct or indirect contact with live components. This can result in electric shock, burns or even death.

- Work on the 100 … 240 V supply system may only be performed by authorised and qualified electricians.
- Disconnect the mains power supply before installation or dismantling.
- Never use the device with damaged connecting cables.
- Do not open covers firmly bolted to the housing of the device.
- Use the device only in a technically faultless state.
- Do not make changes to or perform repairs on the device, on its components or its accessories.

Caution! - Risk of damaging the device due to external factors!

Moisture and contamination can damage the device.

- Protect the device against humidity, dirt and damage during transport, storage and operation.

3 Information on protection of the environment

3.1 Environment

Consider the protection of the environment!

Used electric and electronic devices must not be disposed of with domestic waste.

– The device contains valuable raw materials which can be recycled. Therefore, dispose of the device at the appropriate collecting depot.

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

The products meet the legal requirements, in particular the laws governing electric and electronic devices and the REACH ordinance.

(EU Directive 2012/19/EU WEEE and 2011/65/EU RoHS and 2009/125 Ecodesign)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006)

4 Setup and function

4.1 Functions

The Busch-Watchdog® are passive infrared movement detectors. They switch connected loads via a timing element when sources of heat move within their detection range. The device can also be operated via a push-button.

The Busch-Watchdog® 280° WL is a movement detector with a detection range of 280°. It is suitable for use in private homes and for larger properties and free-standing houses.

The Busch-Watchdog® 280° WL offers numerous options.

– Direct setting on the device
– Operation via the Busch-free@home® Next App with an extended range of functions.
– Integration into a Busch-flexTronics® wireless system with an extended range of functions
  - as "Smart Device"
  - in a "Smart Room" installation with an extended range of functions
– Integration as wireless device into a Busch-free@home® system ("Home control")

The device is suitable for mounting on walls and ceilings. Mounting is also possible on ISO switch boxes (68 mm).

The Busch-Watchdog® do not serve as a substitute for intrusion or attack alarms.

The following list provides an overview of the most important functions.

- Integrated twilight sensor
- Ground and rear-field detection
- Brightness-independent mode for activation test
- Automatic interference suppression
- Automatic dazzle-proof
- Automatic range stabilisation (Sommer/winter operation)

Notice
Additional functions are available for the use of the Busch-free@home® Next App. Detailed information on the individual functions is available in the app manual for Busch-Watchdog® PRO movement detectors.

4.2 Scope of supply

The scope of delivery contains the movement detector including base.

Optionally a "Square" design via Busch-Watchdog® frames 6851/DR-xxx is also available (not included in the scope of delivery).

The corner adapter 6851-EA/xxx is available (not included in the scope of delivery) for corner mounting.

Notice
Additional information about the optional accessories is available in the electronic catalogue (https://www.busch-jaeger.de/online-katalog/).

4.3 Overview of types

Article No.	Colour
6251/28-131-WL	Brown, RAL 8017
6251/28-133-WL	Aluminium silver, RAL 9006
6251/28-134-WL	Studio white, RAL 9016
6251/28-135-WL	Anthracite, RAL 7016
6251/28-136-WL	Stainless steel

Fig.1: Colour variations

4.4 Device overview

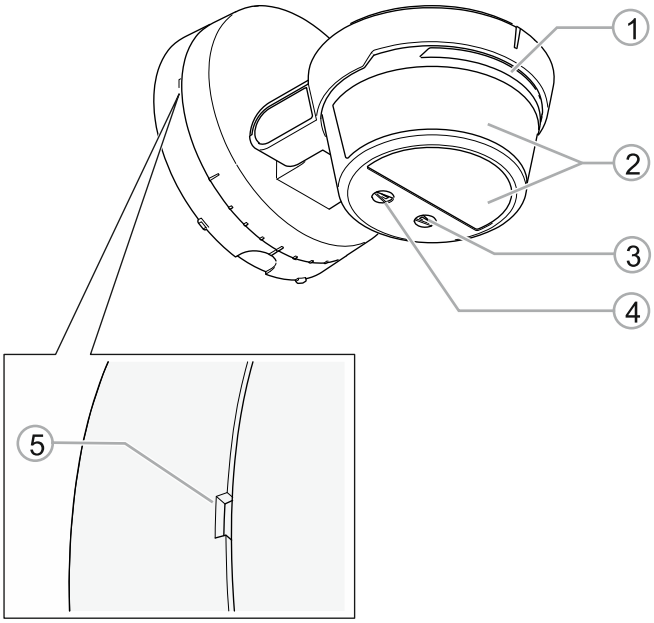


Fig. 1: Overview of devices

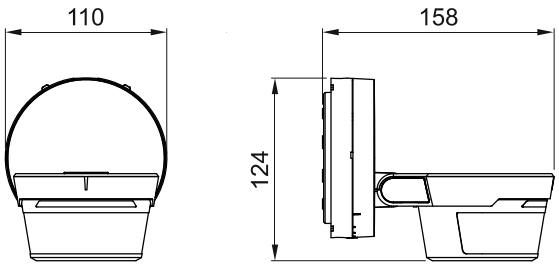
[1] LED
[2] Lens
[3] Selector switch switch-off delay, short-time pulse / reset
[4] Selector switch brightness limit value, activation test
[5] Recess for dismantling safety

5 Technical data

Designation		Value
Nominal voltage		230 V AC ± 10% 50/60 Hz
Switching capacity		2300 W/VA
Switching capacity LEDi		400 VA
Maximum power loss		0.3 W
Front lens		280°
Horizontal detection		280°
Twilight sensor		Typ. 0.5 - 1000 / ∞ lux
Switch-off delay		10 seconds - 30 minutes
Short-time pulse	Pulse duration	1 second
	Pause time	9 seconds
Maximum transmission range (for mounting at 2.5 m high)		16 m in radius
Number of PIR (can be switched off individually)		280° > 3 PIR + 1 PIR (bottom)
Mounting height		Recommended is 2.5 m.
Protection rating		IP55
Operating temperature		-25 °C to +55 °C
Transmission protocol		▪ free@home wireless (IEEE 802.15.4) ▪ Bluetooth low energy
Transmission frequency		2.400 to 2.483 GHz
Maximum transmission power	WL (wireless)	< 15 dBm
	Bluetooth (BLE)	< 10 dBm

Table 2: Technical data

5.1 Dimensional drawings



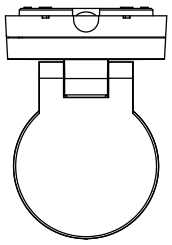
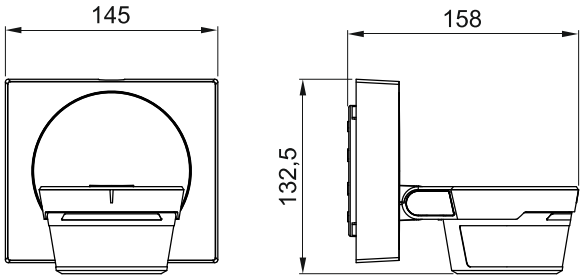


Fig. 2: Dimensions



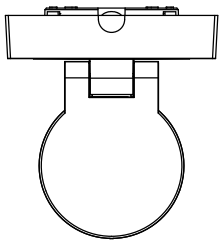


Fig. 3: Dimensions with design styling frame (optional)

Notice
All dimensions are in mm.

5.2 Detection range

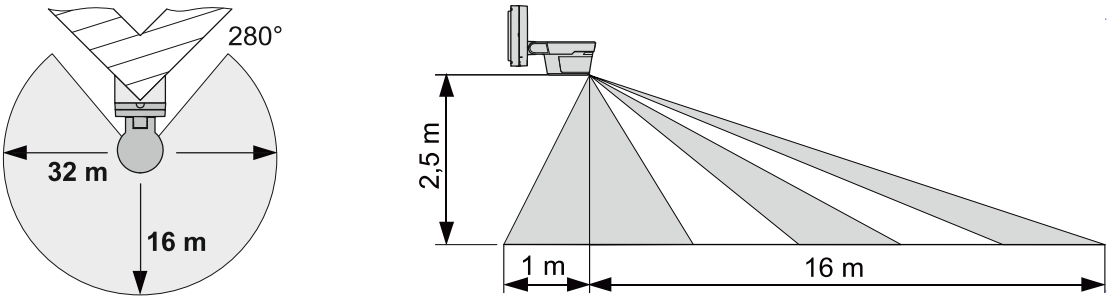


Fig. 4: Detection range

Detection range

- The detection range is 280°.
- The maximum transmission range is 16 m in radius.
- The movement detector also has rear-field detection of one meter.

Wall mounting

- The movement detector offers optimum surveillance if mounted to the wall at a maximum height of 2.5 m.

Notice
The corner adapter 6851/EA-xxx is available (not included in the scope of delivery) for corner mounting.

6 Connection, installation / mounting

6.1 Planning instructions

Notice

Notes on planning and application are available in the system manual Busch-flexTronics®. This can be downloaded at www.BUSCH-JAEGER.de.

Note

Planning and application instructions for the system are available in system manual for Busch-free@home®. This can be downloaded via www.busch-jaeger.de/en/smarter-home/systems/abb-freehome.

Note

Transmitter and receiver communicate via radio control. The transmission range depends on the structural conditions. Walls and ceilings, especially steel reinforcements or metal claddings, reduce the transmission range. The distance of components to each other and to other transmitters that also emit high-frequency signals (e.g. computers, audio and video systems) should be at least 1 m.

System limits

- **Bluetooth®:**
  - The radio range between the devices amounts to a maximum of 10 meters.
  - A Bluetooth® connection is used for the connection between the smartphone and an additional device. If thick walls are located within the planned radio line, the attainable transmission ranges are greatly reduced.
  - The same applies to connections on other floors. In this case the radio signals must pass through the floor ceilings.
- **Wireless 2.4 GHz:**
  - The radio range between the devices amounts to a maximum of 30 meters.
  - If thick walls are located within the planned radio line, the attainable transmission ranges are greatly reduced.
  - The same applies to connections on other floors. In this case the radio signals must pass through the floor ceilings.

6.2 Safety instructions

Danger - Electric shock due to short-circuit!

Risk of death due to electrical voltage of 100 to 240 V during short-circuit in the low-voltage line.

– Low-voltage and 100 - 240 V lines must not be installed together in a flush-mounted box!
– Observe the spatial division during installation (> 10 mm) of SELV electric circuits to other electric circuits.
– If the minimum distance is insufficient, use electronic boxes and insulating tubes.
– Observe the correct polarity.
– Observe the relevant standards.

Danger - Electric voltage!

Install the device only if you have the necessary electrical engineering knowledge and experience.

- Incorrect installation endangers your life and that of the users of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:

- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
  1. Disconnect
  2. Secure against being re-connected
  3. Ensure there is no voltage
  4. Connect to earth and short-circuit
  5. Cover or barricade adjacent live parts.
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).
- Observe the correct polarity.

6.3 Circuit diagrams

Standard connection

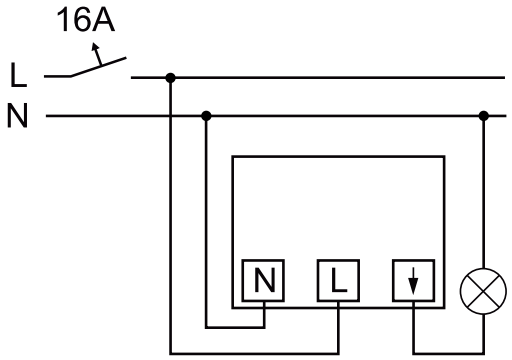


Fig. 5: Standard connection

Standard connection with break switch

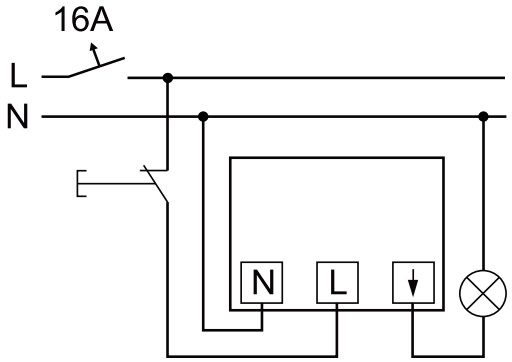


Fig. 6: Standard connection with break switch

After the break switch is actuated, the connected load is switched on for the duration of the switch-off delay.

Connection with RC suppressor 6899 and relay

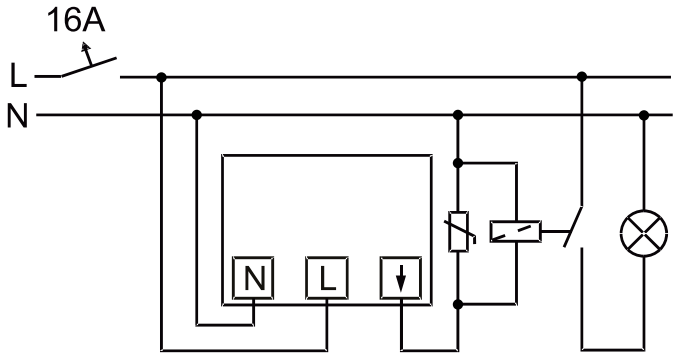


Fig. 7: Connection with RC suppressor 6899 and relay

Terminal assignment

[⏚] Green/yellow

[L] Brown

[N] Blue

[↓] Grey

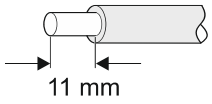


Fig. 8: Skinning length

The skinning length amounts to 11 mm.

Attention!

Protection of the skinned lengths

– Do not remove the wire end sleeves on the device cables.

Danger - Electric shock due to short-circuit!

Risk of death due to electrical voltage of 100 to 240 V during short-circuit in the low-voltage line.

– Low-voltage and 100 - 240 V lines must not be installed together in a flush-mounted box!
– Observe the spatial division during installation (> 10 mm) of SELV electric circuits to other electric circuits.
– If the minimum distance is insufficient, use electronic boxes and insulating tubes.
– Observe the correct polarity.
– Observe the relevant standards.

6.4 Mounting

Danger - Electric voltage!

Risk of death and fire due to electric voltage of 100 to 240 V.

– Work on the 100 - 240 V supply system may only be performed by authorised and qualified electricians.
– Disconnect the mains voltage prior to mounting and dismantling.

Caution! The device can sustain damage when coming into contact with hard objects!

The plastic parts of the device are sensitive.

– Pull the attachment off only with your hands.
– Do not lever parts off with screwdrivers or similar hard objects.

Attention! - Risk of damaging the device

The lens of the device is sensitive and can easily sustain damage.

– Do not press on the lens of the device!

Mounting of the device

1. If the cover and base are already latched, press the groove for dismantling (X) in with a screwdriver.

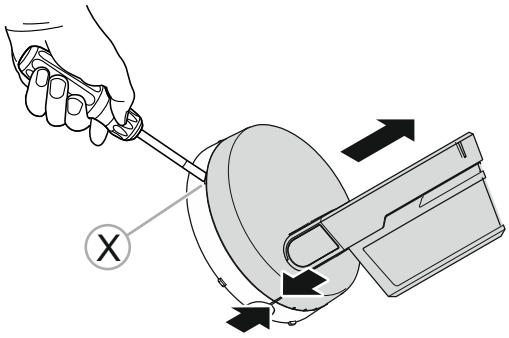


Fig. 9: Pressing in groove for dismantling

2. Turn the cover anticlockwise.

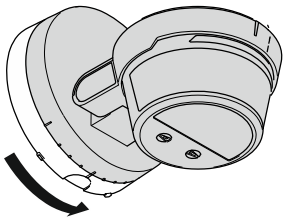


Fig. 10: Turning the cover anticlockwise

3. Carefully remove the cover.

4. Mount the base.
   – The bolting options [A] of the base are compatible with possibly available bores of older Busch-Watchdog®.
   – Do not use countersunk head screws for mounting the base.
   – Use screws with a head diameter of 6.5 mm - 8.5 mm.

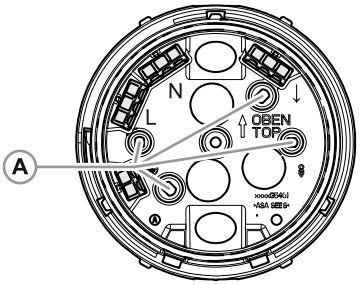


Fig. 11: Bolting options of base

5. Connect the power to the device.
   – Observe correct wiring see chapter 6.3 “Circuit diagrams“ on page 17().

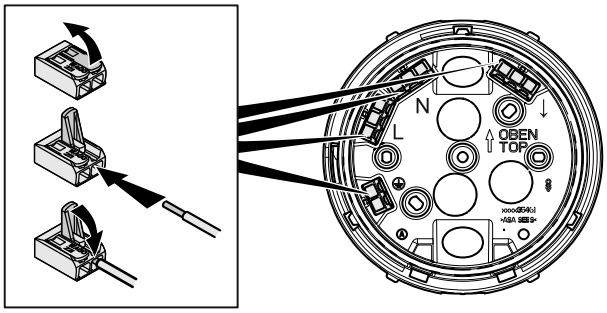


Fig. 12: Position of connecting terminals on the base

   – During wiring ensure that the venting hose [A] on the rear side of the cover does not get damaged.

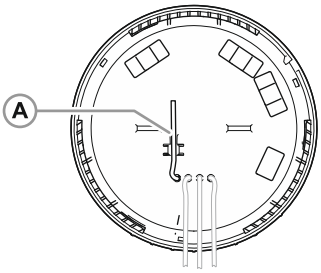


Fig. 13: Venting hose [A] on cover

6. Latch the cover of the device onto the base.

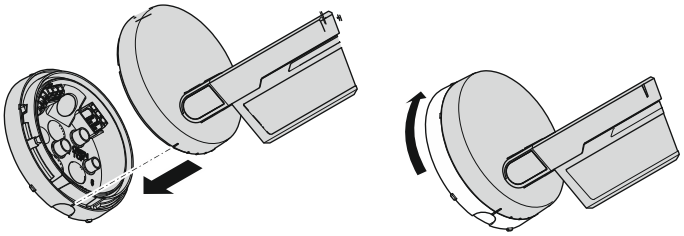


Fig. 14: Latching front of device onto base

7. Attach the cover so that the markings are above each other.

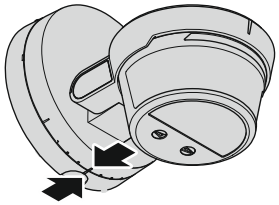


Fig. 15: Aligning markings

8. Turn the cover clockwise until it latches with an audible click.

Mounting the design styling frame (optional)

Notice
The Busch-Watchdog® Design styling frame Designrahmen is not included in the scope of delivery and can be ordered separately.

Notice
TheBusch-Watchdog® Design styling frame Designrahmen is suitable for mounting on walls and ceilings, yet not for corner mounting.

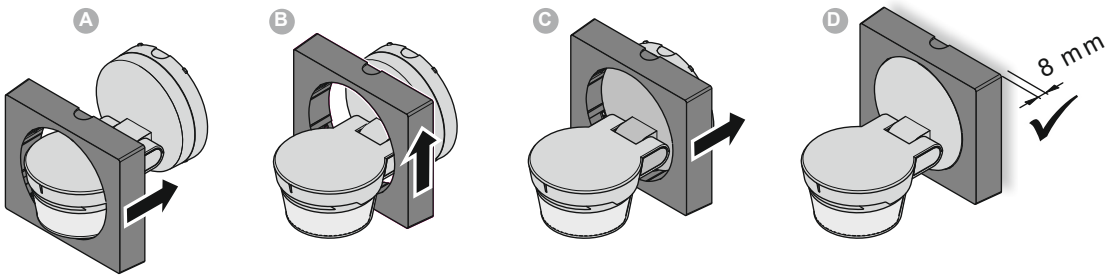


Fig. 16: Mounting the design styling frame (optional)

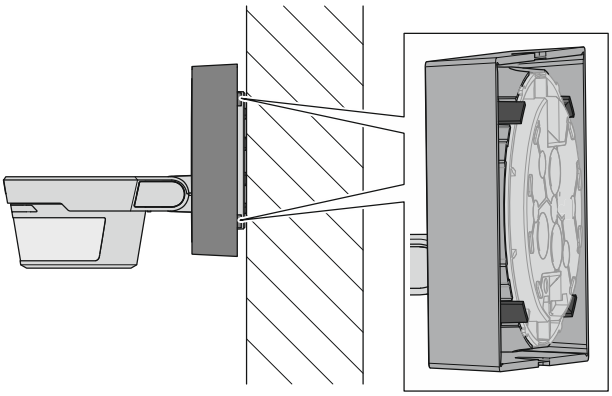


Fig. 17: Detailed view of design styling frame

Mounting the corner adapter (optional)

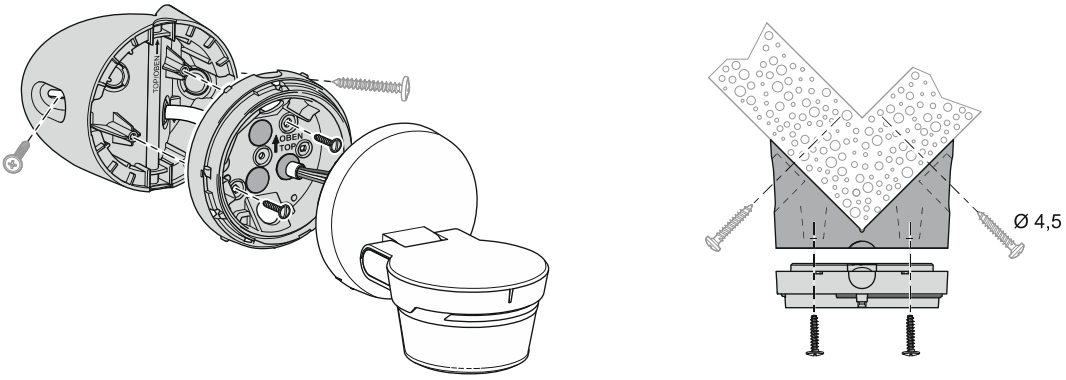


Fig. 18: Mounting the corner adapter (optional)

Notice
The corner adapter 6851/EA-xxx is available (not included in the scope of delivery) for corner mounting.

6.5 Mounting method

There are different types of mounting methods for the movement detector. The mounting hole is compatible with all previously available models. The possible mounting methods are described in the following.

Wall mounting

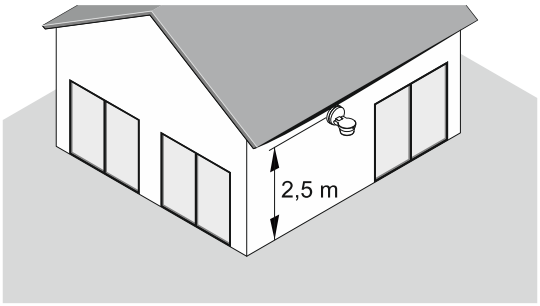


Fig. 19: Wall mounting on free-standing one-family house

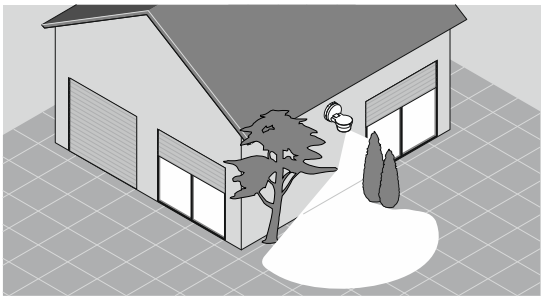


Fig. 20: Wall mounting on free-standing one-family house with limited detection range

Wall mounting in hillside location

Wall mounting in hillside location, for example, is recommended on a building situated on a hill or with a gradient. This allows the detection ranged to be used effectively.

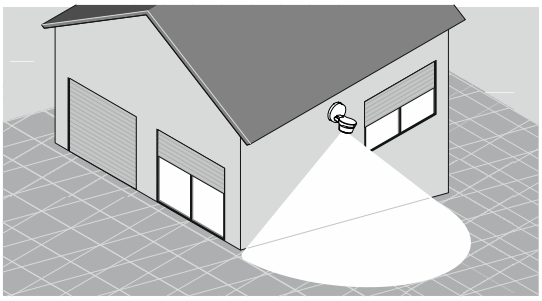


Fig. 21: Wall mounting in hillside location

Ceiling mounting

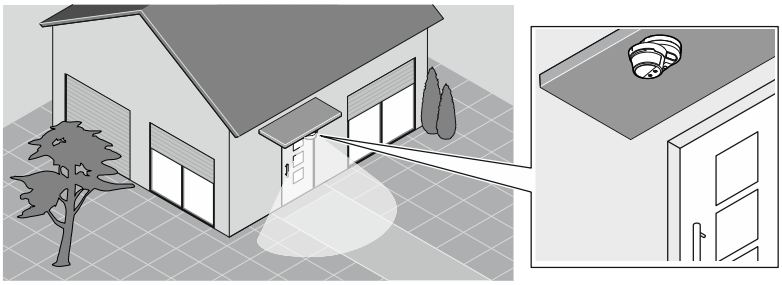


Fig. 22: Ceiling mounting, example of canopy

Corner mounting

Corner mounting on building corners makes the surveillance of two sides of the house possible.

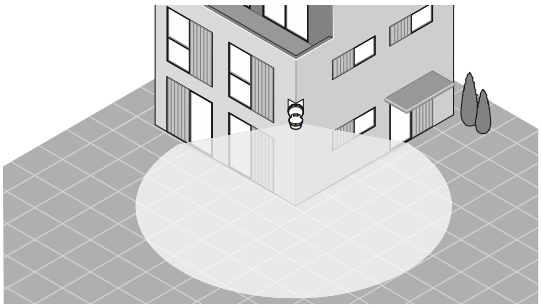


Fig. 23: Corner mounting on building corners

Notice
The corner adapter 6851/EA-xxx is available (not included in the scope of delivery) for corner mounting.

6.6 Installation site

- Ceiling mounting in narrow rooms is not recommended.
- The recommended mounting height of the device is 2.5 m.
- The distance of the movement detector to light and heat sources should be at least 1.5 m.
- The ideal mounting position of the movement detector is an arrangement that is easily offset into the direction of movement.

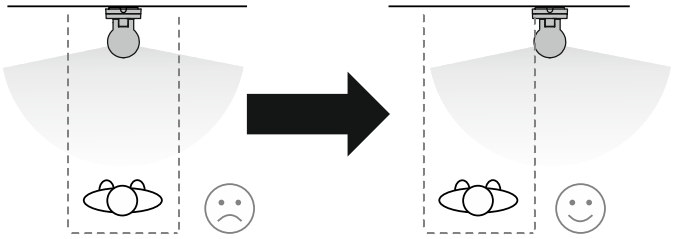


Fig. 24: Mounting position

6.7 Adjusting the transmission range

Adjusting the transmission range as follows:

1. Adjust the transmission range by lifting or lowering the head of the device (at least 6 metres).

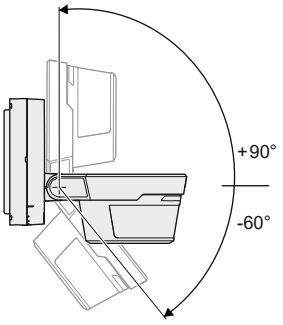


Fig. 25: Transmission range

7 Commissioning

7.1 Reducing the detection range

The reduction of the detection range can be made both by means of specific gluing on of the supplied foil and also via the app.

The detection range of the Busch-Watchdog® amounts to 280°. The detection range can be limited in case of special local circumstances. To do this, proceed as follows:

1. Cut the included adhesive film to the desired length.
2. Glue the shortened adhesive film from the front before the lens of your Busch-Watchdog® to the area where the detection should be blocked out.

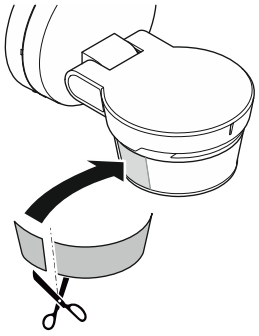


Fig. 26: Glueing the detection range

Notice
The bottom lens can also be glued with the enclosed foils as described above.

7.2 Changing the lateral detection range

Adjust the lateral detection range as follows:

1. Adjust the lateral detection range by turning the head of the device.

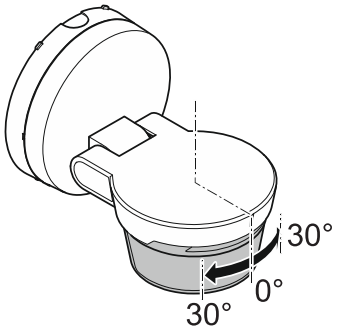


Fig. 27: Lateral detection range

7.3 Adjusting to the hillside location

To adjust the detection range to the hillside location, proceed as follows:

1. Adjust the level of the detection range by turning the top part of the device on the base.

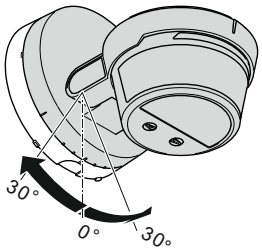


Fig. 28: Adjusting the detection range to the hillside location

7.4 Activation test

The activation test serves for checking the detection range by means of pacing off. A switch-off delay of two seconds is activated during the activation test, the device operates independent of brightness.

Notice
The detection range can be reduced by glueing on a foil or via the app (see chapter 7.1 “Reducing the detection range“ on page 25).

Activating the activation test

The device is in the activation test for 10 minutes (the red status LED flashes fast with 5 Hz):

- Initial at first voltage supply.
- When the selector switch is briefly set on "Test".
  - After activating the activation test, set the selector switch to the desired brightness value.

Selector switch

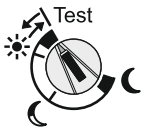


Fig. 29: Activation test

Performing the activation test

1. Pace off the detection range.
   - Each detection is indicated by the status LED flashing quickly.
2. Adjust the detection range according to your needs and test the adjustment by means of renewed pacing off.

Ending the activation test

The device ends the "Activation test" function under the following prerequisites:

- Automatically 10 minutes after the start of the activation test when the selector switch is set on a desired brightness value.
- Manually ending the activation test:
  - Turn the selector switch to any desired brightness value and then briefly to setting "Test".
  - Now set the desired brightness value.

Notice

When the selector switch is left in the "Test" setting and is not turned back, the device deactivates after approx. 5 s.

To activate the device, turn the selector switch out of the "Test" setting.

8 Operation

The devices respond to moving body heat and switch on the lights. They have been pre-programmed accordingly.

Action by the user is not necessary.

8.1 Operating modes at local operation

Standard operation

Lighting during advancing twilight remains switched on for 3 minutes after the last detection.

Selector switch

Fig. 30: Standard operation

Standard operation (time- and brightness dependent)

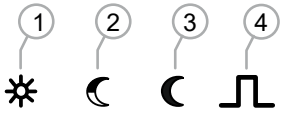


Fig. 31: Icons

[1] Switching during all brightness levels
[2] Switching during advancing twilight
[3] Switching during darkness
[4] Short-time pulse

Selector switch

Fig. 32: Standard operation

1. Set the values for the brightness limit value and the switch-off delay (ON period of the light after the last detection).
   – Short-time pulse for activating the staircase light timer switches or door bells.

Notice

Local operation can be blocked via the Busch-free@home® Next App. In this case both the operation and the master reset are deactivated via the selector switch on the device.

The blockage can only be cancelled via the app.

8.2 Operating modes at operation via the app

Notice
Detailed information on the setting options and the operation via Busch-free@home® Next App is available in the app manual for Busch-Watchdog® PRO movement detectors.

8.3 LED status display

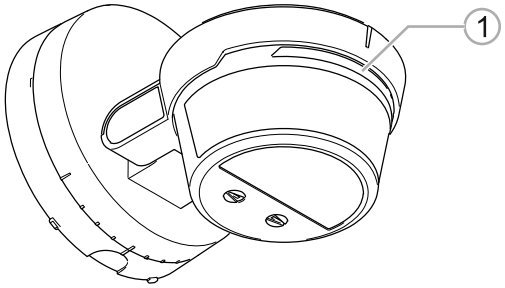


Fig. 33: Position of LED

[1] LED

Display	Function
▪ Blue LED - flashes twice (1 Hz)	Starting the device after the return of voltage, when the device is in factory status and has not been connected with the app
▪ Red LED - flashes twice (1 Hz)	Starting the device after the return of voltage, when the device has already been read into the system or has been connected with the app
▪ Blue LED pulsates (1 Hz)	During the connection process with the app
▪ Blue LED flashes fast for 20 seconds (5 Hz)	Device identification via app
▪ Red LED - flashes fast (5 Hz)	Movement detection in "Activation test" mode
▪ Red LED flashes three times and then pauses for 3 s	Movement detection during standard operation
▪ Red LED - lights up permanently	Function "Lock to brightness" activated (via the app)
▪ Red LED - flashes (1 Hz)	Master reset phase 1, first 5 seconds (via selector switch)
▪ Red LED - flashes (2 Hz)	Master reset phase 2, following 5 seconds (via selector switch)
▪ Violet LED - flashes (1 Hz) during the entire update	Firmware update

Table 3: LED status display

8.4 RESET (Resetting the device)

There are two options to reset the device to the point of delivery:

– Master reset via selector switch directly on the device
– Master reset via app

Notice
Local operation can be blocked via the Busch-free@home® Next App. In this case both the operation and the master reset are deactivated via the selector switch on the device.
The blockage can only be cancelled via the app.

Master reset via selector switch

1. Disconnect the device from power for 10 seconds.
2. Switch on the voltage again.
   – A master reset can be carried out within the next 5 minutes.
3. Set the selector switch to position "Reset".
   – After 10 seconds the red LED starts to flash slowly for 5 seconds (1 Hz, flash code master reset phase 1).
   – Then the red LED starts to flash faster for 5 seconds (2 Hz, flash code master reset phase 2).
   – Then the LED goes out.
   – The master reset was performed.
4. Now turn the selector switch again to position "Reset".

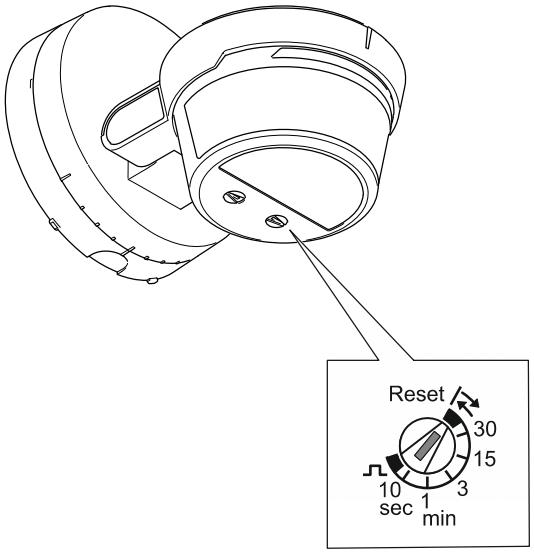


Fig. 34: Reset selector switch

Notice

When the switch-off delay selector switch is left in the "Reset" setting and is not turned back, the device deactivates after approx. 5 s and does not perform a master reset.

Master reset via app

Notice

Detailed information on the setting options and the operation via Busch-free@home® Next App is available in the app manual for Busch-Watchdog® PRO movement detectors.

9 Integration in Busch-free@home®

Notice
General information about commissioning and parameterization is available in the Busch-free@home® system manual.

It is assumed that the basic commissioning steps of the overall system have already been carried out. Knowledge about the basic functions of the commissioning software of the System Access Point is assumed.

Commissioning of the device is carried out via the web-based surface of the System Access Point or the Busch-free@home® Next App. The System Access Point establishes the connection between the free@home Bus participants and the smartphone, tablet or PC. The System Access Point is used to identify and program the participants during commissioning.

After being energized, a device that has not been programmed is in programming mode for 30 minutes and can be logged into the system. Programmed devices share information about their type and supported functions with the System Access Point.

During initial commissioning all devices are given a universal name (e.g. "sensor/switch actuator", "sensor/dimming actuator", "sensor/blind actuator", "room temperature controller", "movement detector", etc.). The fitter can change these names within the commissioning process to names practical and specific for the system (in case of an actuator, e.g. to "Living room ceiling light").

The devices must be parameterised for the use of additional functions.

Notice
Detailed information on the setting options and the operation via Busch-free@home® Next App is available in the app manual for Busch-Watchdog® PRO movement detectors.

10 Update

A firmware update of the device is possible.

- The firmware update takes place via the app "Busch-free@home® Next App"
- If the device is integrated in a Busch-free@home® system, the firmware update can also take place alternatively via the System Access Point.

11 Maintenance

Check the device from time to time for software updates to guarantee the stability and the compatibility of the system.

In addition, the device is maintenance-free. In case of damage, e.g. during transport or storage, do not perform repairs. Once the device is opened, the warranty is void.

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

11.1 Cleaning

Caution! - Risk of damaging the device!

- When spraying on cleaning agents, these can enter the device through crevices.
  - Do not spray cleaning agents directly onto the device.
- Aggressive cleaning agents can damage the surface of the device.
  - Never use caustic agents, abrasive agents or solvents.

Clean dirty devices with a soft dry cloth.

– If this is insufficient, the cloth can be moistened slightly with a soap solution.

12 Declaration of conformity

Busch-Jaeger herewith declares, that radio system type 280° WL conforms to directive 2014/53/EU.

The complete text of the EU declaration of conformity is available at the following Internet address:

- https://www.busch-jaeger.de/online-katalog/detail/2CKA006200A0861

13 Notes

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Busch-Jaeger Elektro GmbH
A member of the ABB Group

Freisenbergstraße 2
D-58513 Lüdenscheid, Germany

www.BUSCH-JAEGER.de

Customer service:
Tel.: +49 2351 956-1600

2CKA000073B5794

BUSCH-JAEGER