1473-1-8101 | Rev. 01 | 11.2012

Operating Instructions
Busch-Wächter®

6747 AGM-…
220 WaveLINE

BUSCH-JAEGER

1 Safety

Warning

Electric voltage!
Risk of death and fire due to electrical voltage of 230 V.
– Work on the 230V supply system may only be performed by authorised electricians!
– Disconnect the mains power supply prior to installation and/or disassembly!

2 Intended use

The device is to be used exclusively with the components that are supplied and licensed as described in chapter "Setup and function".

3 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 electronic and electrical devices and the REACH ordinance.
(EU Directive 2002/96/EC WEEE and 2002/95/EC RoHS)
(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006)

4 Setup and function

The Busch-Watchdog 220 WaveLINE is a versatile cableless movement detector with a 220° detection range and is suitable for application on properties without a clear overview and for mounting to walls and ceilings.

The Busch-Watchdogs are passive infrared movement detectors which switch loads via the KNX bus when sources of heat move within its detection range.
Busch Watchdog is not an intrusion or attack alarm.

4.1 Features of function and equipment

- Coverage of 16 m
- Radio transmission in the detection range
- Battery operation for line-independent installation
- Cableless retrofitting
- Detection and status indication
- Battery test

4.2 Detection ranges

4.2.1 Overview of the detection ranges

4.2.2 Infrared range

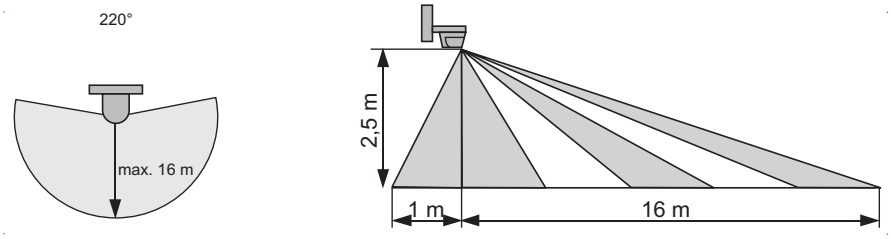


Fig. 1: Infrared range

Detection range

- The detection range is 220° and the coverage is 16 m.

Ceiling mounting:

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

4.2.3 Limitation of the detection range

The horizontal detection range of the Busch-Watchdog is 220°. 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 section of covering foil from the front onto the area of the sensor of your Busch-Watchdog where the detection is to be blocked out.

Note

For an illustration see chapter 7.1 on page 13.

4.3 Radio transmission coverage

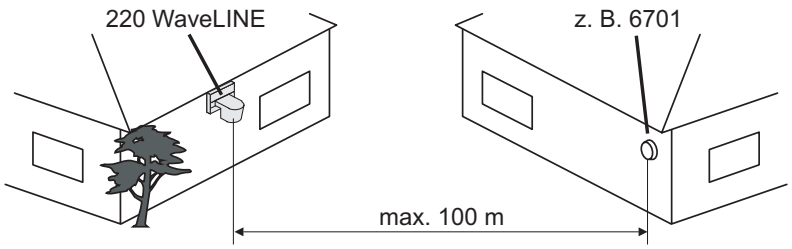


Fig. 2: Radio transmission coverage

The values below are guideline values and may vary depending on local conditions:

Material / surface	Guideline values
Direct (visual) connection	Approx. 100%

Walls, ceilings and similar obstacles reduce the radio transmission coverage.
The following approximate values can be expected:

Material / surface	Guideline values
Wood, plaster, uncoated glass	70 … 100 %
Bricks, chipboard	65 … 95 %
Reinforced concrete	10 … 90 %
Metal, aluminium lamination	0 … 10 %

Fire walls, lift wells, staircases and supply areas are considered as separating walls, just like the installation of the receiver in metal housings.
The distance between the transmitter and the receiver and from other transmitters that also emit high-frequency signals (e.g. computers, audio and video systems) should be 1.0 m minimum.

5 Technical data

Designation	Value
Power supply	IEC FR03 (L92 AAA 1.5 V) / IEC LR03 (AAA 1.5 V)
Horizontal detection	220°
Twilight sensor	0.5 … 300/∞ lux
Maximum coverage (installed 2.5 m high)	16 m
Radio control range (free field)	100 m
Transmitter frequency	868.3 MHZ
Forced switch-off (min.)	180
Operating temperature	-25 – 55°C
Protection type	IP 55

Information for the connection of ballasts

Please observe the following points regarding high inrush currents for ballasts:

- The ballast manufacturer’s specification determines the possible number of ballasts.

6 Installation and electrical connection

Warning

Electric voltage!
Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.
- Low-voltage and 230 V lines must not be installed together in a flush-mounted socket!

6.1 Requirements for the electrician

Warning

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 user 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 from power;
  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 supply network type (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

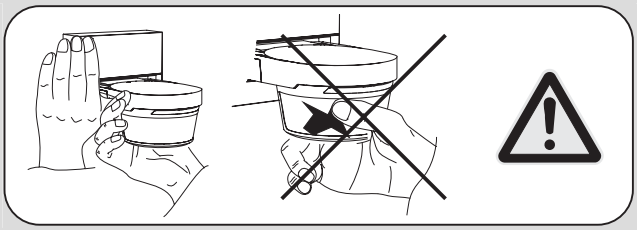
6.2 Mounting

Warning

Electric voltage!
Risk of death and fire due to electrical voltage of 230 V.
– Work on the 230V supply system may only be performed by authorised electricians!
– Disconnect the mains power supply prior to installation and/or disassembly!

Caution

Risk of damaging the device!
The lens of the device is sensitive and can easily sustain damage.
- Do not press on the lens when opening or closing the device.



6.2.1 Installation sites

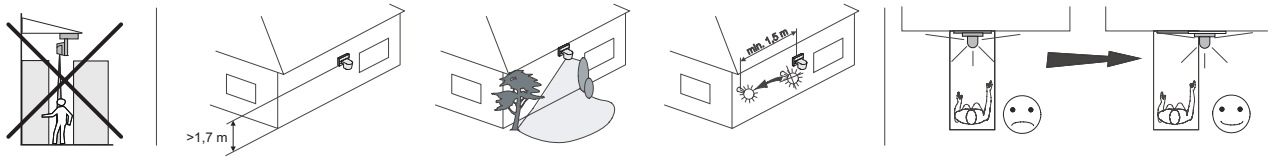


Fig. 3: Installation sites

- Ceiling mounting in narrow rooms is not recommended.
- The mounting height of the device should be between 1.7 m and 2.5. m.
- The distance between light and movement detector should be at least 1.5 m.
- For optimum detection of persons the approach into the detection range should always be offset and never frontal.

6.2.2 Preparing the installation

To prepare the installation of the device, perform the following steps:

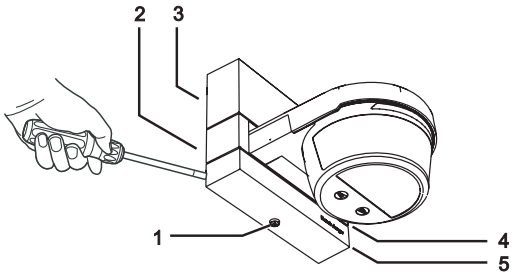


Fig. 4: Preparing the installation

No.	Function
1	Locking screw
2 … 5	Clamps

1. Remove the locking screw (1) (if installed).
2. Press in clamps 2 - 5 on the sides of the housing with a suitable tool.
3. Carefully remove the front of the device.

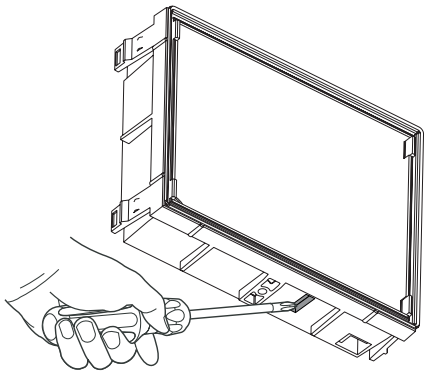


Fig. 5: Opening the water drain

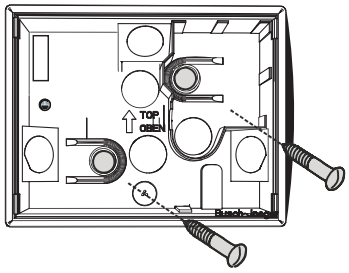
Depending on where the device is installed, the water drain may have to be opened.

- To do this, pierce the plastic membrane on the bottom of the device.

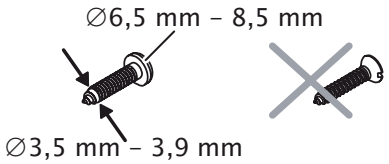
The installation is prepared.

6.2.3 Mounting steps

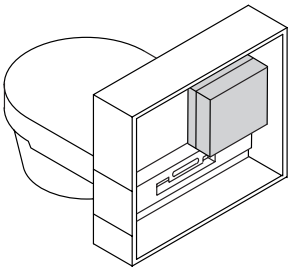
1. Mount the device to the wall.



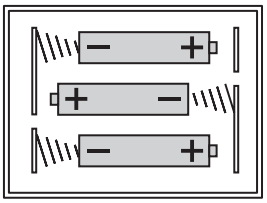
- Do not use countersunk head screws for mounting to the wall.
- Use screws with a head diameter of 6.5 mm - 8.5 mm.



2. Open the battery compartment.

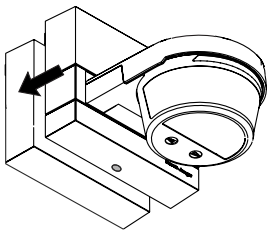


- Insert the enclosed type AAA batteries. Pay particular attention to the battery poles.

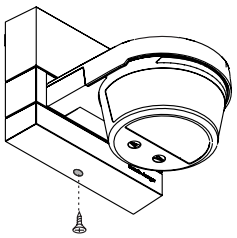


Note
Do not use zinc-carbon batteries as replacement!

3. Mount the upper part of the device.
   - The bolting dimensions of the base may be compatible with existing bores on older versions of the Busch-Watchdog.
   - Latch the upper part of the device onto the base.



4. To protect the device against unauthorized opening, the enclosed screw can be used on the bottom of the device.
   - To protect the device against unauthorized opening, screw the enclosed screw into the bottom of the device.

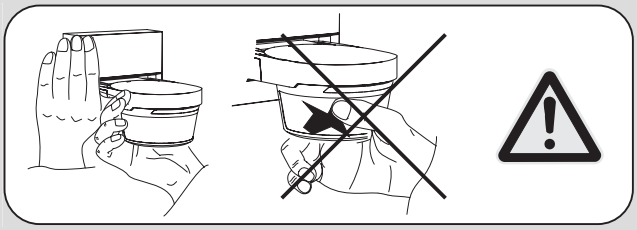


7 Commissioning

7.1 Setting / limiting the coverage and the detection range

Caution

Risk of damaging the device!
The lens of the device is sensitive and can easily sustain damage.
- Do not press on the lens when setting the device.



Use the following steps to set the coverage and the detection range:

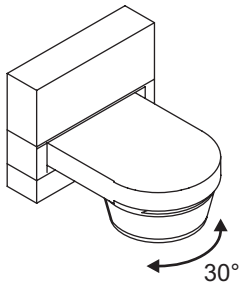


Fig. 6: Adjusting the lateral detection range

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

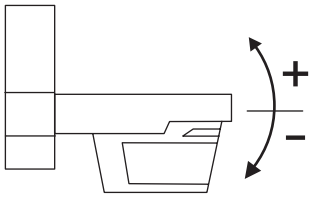


Fig. 7: Adjusting the coverage

2. Adjust the coverage by lifting or lowering the head of the device.
   – The minimum coverage is 6 m.

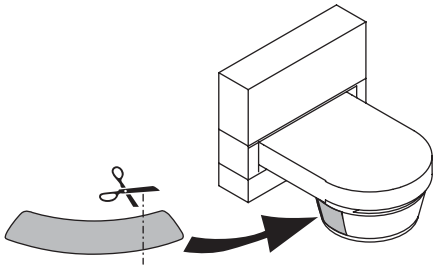


Fig. 8: Adjusting the detection range by masking

3. The range can be specifically limited by gluing on the enclosed foil.
   – Cut the enclosed foil to the size required.

The coverage and the detection range are set.

7.2 Activation test

The activation test can also be triggered via the service remote control (see separate operating manual).

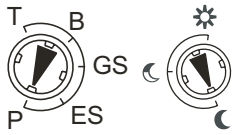


Fig. 9: Activation test

To carry out the activation test, perform the following steps:

1. Set selector switch to T/S.
   - The device is now in test mode for 10 minutes (daytime operation, switch-off delay 2 sec.). In addition, each detection is indicated by the status LED flashing quickly.
   - The device then switches back to the basic setting.
2. To carry out an additional activation test, set the selector switch back to position T or interrupt the operating voltage supply for more than 15 seconds.
   - The device is now in test mode for another 10 minutes. Test mode is exited automatically after 10 minutes or by adjusting the brightness.

The activation test has been carried out.

8 Operation

8.1 Control elements

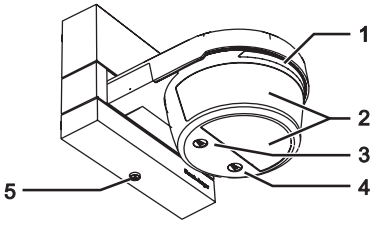


Fig. 10: Control elements

No.	Function
1	LED - Flashes fast - detection in test mode • Flashes 3 times - detection in standard and normal operation
2	Lens
3	Trim potentiometer for brightness value
4	Trim potentiometer for operating mode
5	Screw for dismantling safety

8.2 Operation mode

8.2.1 Test operation for start-up

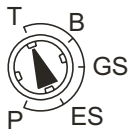


Fig. 11: Test operation

After 10 minutes, the device automatically returns to the basic setting ("GS" operating mode). Set the desired operating mode “GS” or “ES”.

After activating the mains supply voltage the device remains in test mode for 10 minutes (see chapter "Activation test").

8.2.2 Battery test

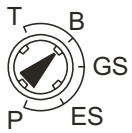


Fig. 12: Battery test

If the battery voltage is sufficient, the LED (pos. 1) lights up for approx. 10 seconds. If the LED flashes, the voltage is too low. Please replace the batteries! After 30 seconds, the device automatically returns to the basic setting. Set the desired operating mode “GS” or “ES”.

8.2.3 Group mode

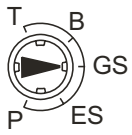


Fig. 13: Group mode

If persons move in the detection area, switching signals will be transmitted. The brightness limit value can freely selected. The switch-off delay has to be set via the actuator (receiver).
In this operating mode, several watchdogs and actuators can communicate with each other.

8.2.4 Single mode

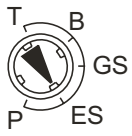


Fig. 14: Single mode

If persons move in the detection area, switching signals will be transmitted. The brightness limit value can freely selected. The switch-off delay is fixed to 3 minutes. The switch-off delay of the receiver, e.g. 6701, must be set to a value > 3 minutes.
In this operating mode, only one watchdog can send signals to a specific actuator.

8.2.5 Programming

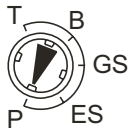


Fig. 15: Programming

Note
The individual programming steps are contained in chapter 8.4 "Programming devices" on page 17.

8.3 Brightness-dependent switching

Icon	Function
☼	Switching during all brightness levels
☾	Switching during advancing twilight
☾	Switching during darkness

8.4 Programming the device
8.4.1 Programming the device

For programming, perform the following steps:

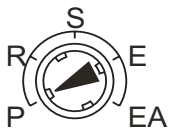


Fig. 16: Selector switch of the receiver

1. Set the selector switch of receiver 6701 on "P", LED flashes green.

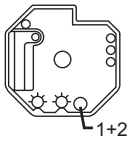


Fig. 17: Programming button

2. Press the programming button on receiver 6701 (2), the LED (1) lights permanently green.

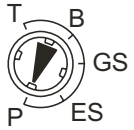


Fig. 18: Set the selector switch on “P”.

3. Set the selector switch of the Busch-Watchdog on "P", the status LED lights up for approx. 10 seconds (with a slight delay).
4. The devices are being programmed to each other.
5. After successful programming, the LED starts to flash green again. If programming is not successful (the LED continues to light up), reset the selector switch on the Busch-Watchdog to “P” and repeat the procedure.
6. Set the operating mode of **receiver 6701** on "R" or "S" or program additional Watchdogs.
7. Select the operating mode of the **Busch-Watchdog** on “ES” or “GS”.

8.4.2 Deleting programmed devices

Tor delete all programming take the following steps:

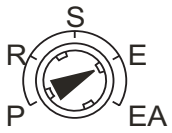


Fig. 19: Selector switch of the receiver

1. Set the selector switch of receiver 6701 on "E", LED flashes red.

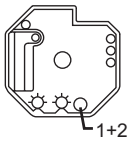


Fig. 20: Programming button

2. Press the programming button on receiver 6701 (2), the LED (1) lights permanently red.

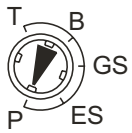


Fig. 21: Set the selector switch on “P”.

3. Set the selector switch of the Busch-Watchdog on "P", the status LED lights up for approx. 10 seconds (with a slight delay).
4. The link will be deleted.
5. After a successful deleting process, the LED starts to flash red again. If the deleting procedure is not successful (the LED continues to light up), reset the selector switch on the Busch-Watchdog to “E”again and repeat the procedure.
6. Set the operating mode of **receiver 6701** on "R" or "S" or program additional Watchdogs.
7. Select the operating mode of the **Busch-Watchdog** on “ES” or “GS”.

A member of the ABB Group

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