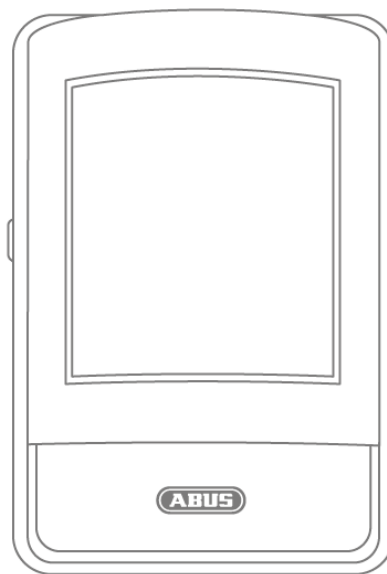




Security Tech Germany

PLBW10100

Nexello Motion Detector



Important information and FAQs about this product and other products can be found on the website

www.abus.com

Manual version: 1.2
Firmware version: 1.58



Introduction

Dear customer, dear customer,

we are pleased that you have decided to use our product and thank you for your trust! You have made a good choice.

This motion detector (hereinafter referred to as "device") has been developed and manufactured with the greatest care. Please read these operating instructions in full and observe all operating and safety instructions, as this ensures the best possible handling of the device. This document is regarded as assembly and maintenance instructions.

ABUS Security-Center hereby declares that the enclosed product complies with the following guidelines concerning the product:

RED Directive 2014/53/EU, EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EU, RoHS Directive 2011/65/EU. The full text of the EU Declaration of Conformity is available at the following Internet address

www.abus.com/product/PLBW10100

It can also be obtained from the following address:

**ABUS Security Center GmbH & Co KG,
Left Kreuthweg 5, 86444 Affing, GERMANY**

If you have any questions or suggestions, please contact our customer service:

Mail:	ABUS Support, Linker Kreuthweg 5, 86444 Affing, Germany
E-mail:	support@abus-sc.com
Phone:	+49 8207 959 90 0
Opening hours hotline:	Mon-Thu: 08 - 17 h; Fri: 08 - 14 h

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Disclaimer

This operating manual has been prepared with the utmost care. Should you nevertheless notice any omissions or inaccuracies, please notify us in writing at the address given above.

Your rights are limited to the repair or replacement of this product in the condition as delivered. ABUS Security Center assumes no liability for any special, incidental or consequential damages, including but not limited to loss of revenue, loss of profits, restrictions in the use of the software, loss or recovery of data, cost of replacement equipment, downtime, property damage and claims by third parties, as a result of, among other things, the followinga. contractual, statutory or damage compensation claims arising from the warranty, irrespective of other limited warranty provisions or those implied by law or in the event that the limited warranty does not apply, the scope of liability of ABUS Security Center is limited to the purchase price of the product.

The contents of this manual may be changed without prior notice.

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Important Safety Instructions

Appropriate use

Use the device exclusively for the purpose for which it was built and designed! Any other use is considered improper!

Damage caused by disregarding these safety instructions invalidates the warranty. We assume no liability for consequential damage!

Unpacking

While unpacking the device, handle it with extreme care. Packaging and packing materials are recyclable and should always be recycled.

If the original packaging is damaged, first check the device. If the unit is damaged, return it with the packaging and inform the delivery service.



Please ensure that the packaging contains the DSK (Device Specific Key) card. This card shows the DSK of your ABUS Z-Wave device. Please store it in a safe place. Every S2 (Security 2) certified Z-Wave controller needs the DSK to include (teach-in) the device.

Installation site Operating environment

Do not place any heavy objects on the unit. The unit is only designed for operation in rooms with appropriate temperature or humidity (e.g. bathrooms) or excessive dust. For exact specifications, check the technical data of the individual units. Ensure that there is always sufficient ventilation, that no direct heat sources act on the unit, that no direct sunlight or strong artificial light falls on indoor units, that the unit is not in the immediate vicinity of magnetic fields (e.g. speakers), that no open fire sources (e.g. In particular, the device must never be submerged (do not place objects filled with liquids, e.g. vases or drinks on or next to the device), no foreign objects may enter the device, the device must not be exposed to strong temperature fluctuations, as otherwise humidity can condense and lead to electrical short circuits, the device must not be exposed to excessive shocks and vibrations.

Children

Do not allow electrical devices to get into the hands of children! Never allow children to use electrical equipment unsupervised. Children are not always able to recognize possible dangers correctly. Small parts can be life-threatening if swallowed. Also keep the packaging films away from children. There is a danger of suffocation! This device should not be left in the hands of children. Springy parts can jump out if used improperly and cause injury (e.g. to eyes) to children.

Notes on handling batteries

- Make sure that batteries are not in the hands of children. Children could put batteries in their mouths and swallow them. This can cause serious damage to health. In this case, consult a doctor immediately!
- Normal batteries must not be charged, heated or thrown into an open fire (danger of explosion!)
- Do not expose the battery to any heat source or direct sunlight and do not store it in a place with a very high temperature.
- The battery must not come into contact with water.
- The battery must not be disassembled, punctured or damaged.
- The battery contacts must not be short-circuited.
- Replace weakening batteries in good time.
- Always replace all batteries at the same time and use batteries of the same type. Ideally, use identical batteries from the same manufacturer as those from the original scope of delivery, as the device has been intensively tested with these batteries to ensure optimal function.
- Leaking or damaged batteries can cause burns on contact with skin. In this case use suitable protective gloves. Clean the battery compartment with a dry cloth.

Cleaning

- Dusty equipment must be cleaned. Dust deposits in the air slots can be sucked off or blown out. If necessary, the dust can be removed with a brush.
- The surface can be cleaned with a cloth slightly moistened with soapy water. Use only suitable microfibre cloths for high-gloss surfaces.
- Make sure that no water gets inside the device!
- Do not clean the appliance in the dishwasher!
- Do not use sharp, pointed, abrasive, corrosive cleaning agents or hard brushes!
- Do not use chemicals!
- Do not clean the device with easily flammable liquids!

Notes on the disposal of the device

Attention: The EU Directive 2012/19/EU regulates the proper return, treatment and recycling of used electronic equipment. This symbol means that, in the interest of environmental protection, the device must be disposed of at the end of its service life in accordance with the applicable legal regulations and separately from household or commercial waste. The old device can be disposed of at the appropriate official collection points in your country. Observe the local regulations when disposing of the materials. For further details about the take-back (also for non-EU countries), please contact your local administration. Separate collection and recycling helps to conserve natural resources and ensures that all health and environmental regulations are respected when recycling the product.

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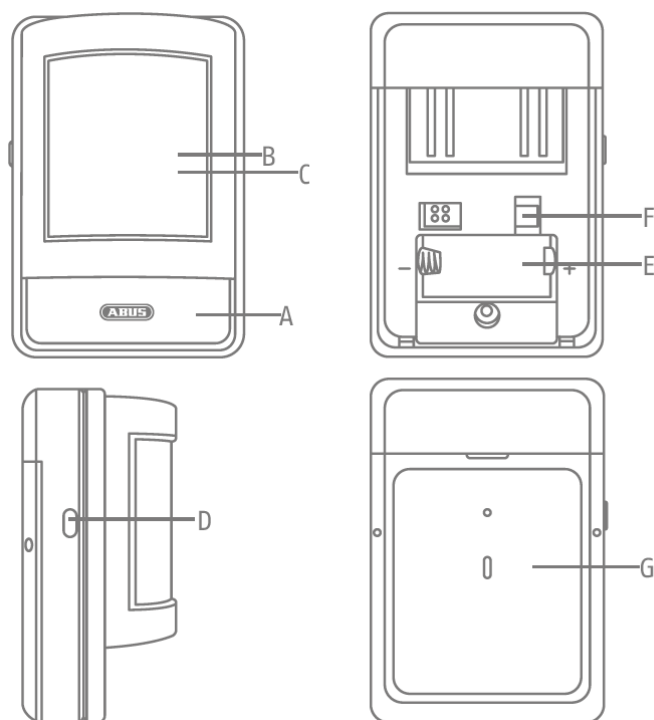
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1. Product launch

1.1. Scope of delivery

- Nexello Motion Detector
- 1x Duracell CR123A battery
- Mounting material: screws, dowels
- Quick guide & safety instructions
- DSK card

1.2. Device features



No	Designation	Comment
A	Front cover	Slided onto the holder
B	Fresnel Lens	For motion detection
C	LED indicator	Status display for various processes (Inclusion, exclusion, reset, error)
D	Link Button	Manual triggering of the wake-up command, inclusion, exclusion and reset
E	Battery compartment	Observe polarity
F	Sabotage contact	Triggers sabotage alarm
G	Mounting	For wall mounting: flat wall or corner mounting

1.3. Operating principle

The device was developed for use in alarm and home automation systems that use the Z-Wave wireless standard. The device has the following functions:

- **Motion detector**

It uses Passive Infrared (PIR) technology to detect movement in a defined area by detecting the changes in thermal radiation caused by the moving body inside or outside the detection zone. When the motion detector is triggered, an alarm signal is sent to the Z-Wave controller and, after receiving the signal, the Z-Wave controller performs a specific action according to its settings. When motion is detected, the indicator LED lights up.

The sensitivity & characteristics of the PIR sensor can be adjusted via the parameter settings so that the sensor hides pets up to approx. 38kg so that your pet can move freely without triggering the sensor.

- **Integrated illuminance* sensor with separate day/night report**

The device automatically sends the measured brightness value and the day/night report to the Z-Wave controller or on request of the Z-Wave controller at periodic intervals.

In addition, the brightness and day/night report is sent with each motion detection (default setting). You can adjust the lux threshold of the day/night report via parameter.



*A photoconductive sensor is used to measure the illuminance (LUX). As this sensor can have up to 25% error tolerance on measured values, we recommend using the light values only to distinguish between day and night.

- **Tamper protection between the device and wall bracket**

When the housing is opened, the sabotage switch is triggered and the device sends a sabotage alarm to the Z-Wave controller.

1.4. Performance features

The device...:

- ... is a battery-powered motion detector
- ... is due to its design only suitable for wall mounting
- ... is Z-Wave Plus compatible & certified
- ... supports the Z-Wave S2 standard (Security 2)
- ... has a low battery warning function
- ... was developed for indoor installation

1.5. Use in systems of different manufacturers

This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All mains operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

1.6. DSK code

The DSK code (Device-Specific Key) is the device-specific key of your device and is required for secure inclusion (teach-in) via S2 on the Z-Wave controller. The first 5 digits of the DSK code can be found on the QR Code on the back of the product. Please enter them in the inclusion process when prompted. Alternatively, you can transfer the entire DSK code that you find on the enclosed DSK card to the Z-Wave controller via QR Code Scan. Please keep the DSK card in a safe place!

Hint:

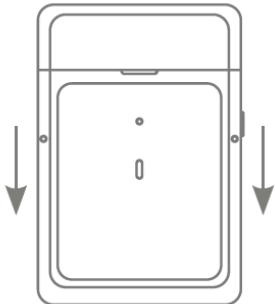
We recommend the secure S2 inclusion (must be supported by the Z-Wave controller) Please enter the 5 digits of the DSK code (bottom of the device) or the entire DSK code (QR code) when prompted.

2. Functional overview

2.1. Inclusion / teach-in device

This product supports SmartStart:

SmartStart-enabled products can be added to a Z-Wave network by scanning the Z-Wave QR code present on the product with a controller that provides SmartStart integration. No further action is required, and the SmartStart product will be automatically added within 10 minutes of powering up near the network.

	Slide the holder of the device down.
	If your Z-wave controller does not support SmartStart, follow these instructions for Product Classic Inclusion: Activate the inclusion mode (teach-in mode) on the Z-Wave controller. (for more details, please refer to the Z-Wave controller's user manual) Press the "+" button (Add / Inclusion) in your Z-Wave app and follow the instructions to set the Z-Wave controller to inclusion mode.
	Keep the device within reach of the Z-Wave controller. Remove the safety strip from the battery compartment. We recommend using only the original Duracell battery supplied. Press the Link button 3 times quickly (within 1.5 seconds) to start the inclusion on the device. The LED starts flashing red for up to 60 seconds

	The successful inclusion is displayed in the app or on the Z-Wave controller and the status LED on the device lights up red for 2 seconds. Repeat the inclusion process if it was not successful. If a new attempt fails as well, first carry out a factory reset on the device, see 2.5.
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2.2. Planning, assembly and installation

The device uses low-power radio signals to communicate with the Z-Wave controller. For best results, please note the following:

- Please do not attach directly to metal planes or metal constructions, as this may limit the range.
- The device has a radio range of up to 40 m indoors.
- The battery life of the device is reduced if the wireless connection to the Z-Wave controller is not direct but via a repeater.

Test mode

Press the tamper switch 3 times in 1.5 seconds to activate the test mode. The LED lights up for 2 seconds to confirm. The test mode switches off automatically after 10 minutes.

In test mode

- the preset waiting time is ignored and set to 5 seconds.
- each motion alarm is acknowledged after 5 seconds, but to send a new motion alarm, the motion detector must not have detected any motion for 5 seconds.

Use the test mode to select the optimal installation location.

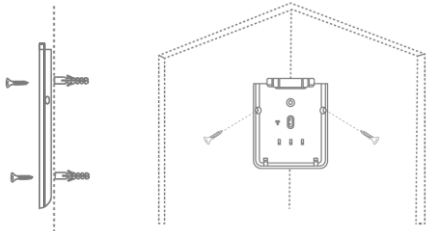
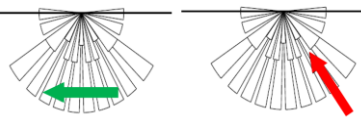
Select installation location

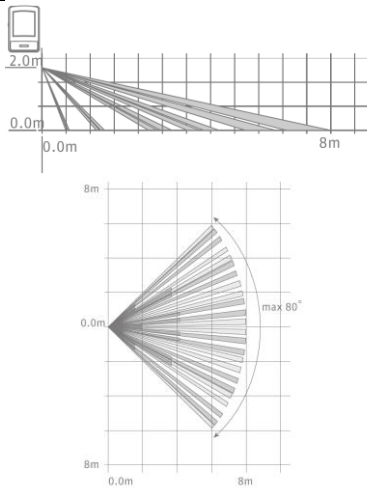
The detector is only suitable for indoor installation.

When selecting a position for the detector, the following points should be observed:

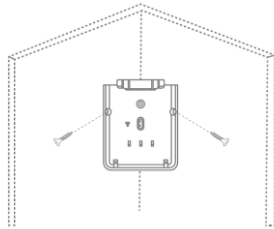
- Do not install the detector opposite a window or where it is exposed to direct sunlight. PIR detectors are not suitable for use in conservatories due to the high temperature fluctuations.
- Do not install the detector where it is exposed to fans or air conditioning.
- Do not install the detector near a heat source (e.g. fire, radiator, boiler, etc.).
- Do not mount the detector in a position where it is subject to excessive vibration.

Assembly instructions:

	The detector is designed for mounting on a flat wall or in a corner.
 Sensitive Insensitive	If possible, mount the detector in the corner of the room so that the path of a person passes through the detection zone. PIR detectors respond more effectively to movement through the detection zone than to movement towards the sensor.



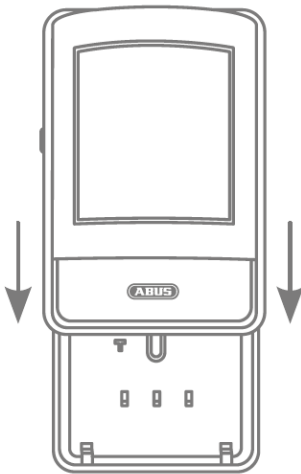
Mount the PIR detector at a height of 1.9m -2.3m At this height the detection range of the detector is optimised, i.e. 8m range and 80° angle of detection.



Use the bracket as a template to mark the position of two drill holes on the wall. There are two markings each for wall and corner mounting.

Fix the bracket to the wall using the supplied plugs and screws.

Do not overtighten the screws to avoid damaging the bracket.

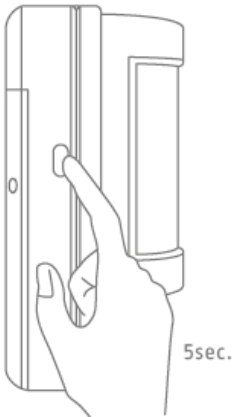


Place the base on the bracket.

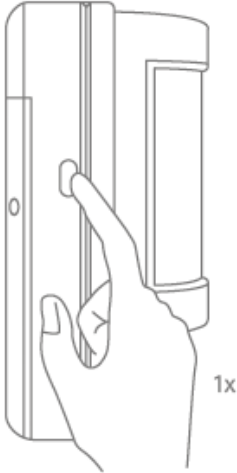
2.3. Exclusion / teach out device

	Activate the exclusion mode (learn mode) on the Z-Wave controller. (for more details, please refer to the Z-Wave controller's user manual) Press the "-" button (Remove / Exclusion) in your Z-Wave app and follow the instructions to set the Z-Wave controller to Exclusion mode.
	Press the Link button 3 times quickly (within 1.5 seconds) to start the exclusion on the device. The LED starts flashing red for up to 60 seconds
	Successful exclusion is displayed in the app or on the Z-Wave controller and the status LED on the device lights up red for 2 seconds.

2.4. Resetting to factory settings

 A line drawing of a hand pressing a button on a device. The button is labeled 'Link' and has a small 'o' next to it. The text '5sec.' is written next to the hand, indicating the duration of the press.	Press and hold the Link button for at least 5 seconds. Release the button when the red LED stops blinking and lights up continuously. The device is now reset to factory settings. Hint: Please use this procedure only if the primary network controller is missing or otherwise not functional. If the device is set to factory default, the status is set to "not included" and the association settings and possible configurations are reset to default.
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2.5. Wake-up / Waking up the device

 A line drawing of a hand pressing a button on a device. The button is labeled 'Link' and has a small 'o' next to it. The text '1x' is written next to the hand, indicating a single press.	Press the Link button once to wake up the device. It will then establish a connection to the Z-Wave controller and transmit the current status.
--	--

2.6. Behaviour PIR sensor

Warm up phase

It takes about 1 minute for the PIR sensor to warm up after the battery is inserted and for the unit to signal motion alarms.

Hint:

- This has no effect on the inclusion/exclusion process.
- After removing the batteries, wait 5 seconds before inserting them again.

PIR waiting time

As soon as motion is detected, the device's LED lights up and it sends a motion alarm to the Z-Wave controller. The device now waits for a preset time (waiting time) until it acknowledges the motion alarm to the Z-Wave controller.

Each new movement during the waiting period resets the time span. Only when the waiting time has elapsed without motion detection will the detector acknowledge the motion alarm and thus be able to send a motion alarm when a new motion is detected.

The standard waiting period is 1 minute. **Changes have a significant effect on the expected battery life.**

PET immunity

You can activate the PET immunity of the motion detector by setting parameters. With activated immunity, animals up to approx. 38kg are ignored.

Depending on the size of the object, the speed of movement and the installation location, it is possible in exceptional cases that when the function is activated, animals trigger a false alarm or people do not trigger an alarm. We therefore recommend that you only activate the function, if it is really necessary and monitor the area with additional sensors (e.g. Magnetic contacts).

3. Advanced Z-Wave Parameters

3.1. Association Groups

Z-Wave devices can control other devices directly. This direct control is called association in Z-Wave. The device ID of the device to be controlled must be stored in the controlling devices. This is done in so-called association groups. An association group is always linked to an event in the controlling device (keystroke or triggering of a sensor). When this event occurs, a control command - usually a BASIC SET - is sent to all devices stored in an association group.

The device supports two association groups:

Group-Number	Maximum Devices	Group name	Profile	command class
Group 1	5	Lifeline	General	notification report battery report Device Reset Locally Notification Sensor Multilevel Report
Group 2	5	on/off control	Notification	basic set

Group 1 (Association Z-Wave Controller)

- The Lifeline Association is automatically established between the Z-Wave controller and the device during inclusion and defines what information is exchanged between the Z-Wave controller and the device.

Group 2 (direct association to terminals)

- When the motion alarm is triggered, it sends a BASIC SET On / Off command to the nodes of group 2

3.2. WakeUp Time

The time between the WakeUp Notification Commands can be set in the Wakeup Command Class within the following values:

Description	Value
Minimum wake-up interval	20s
Maximum wake-up interval	86400s (1 day)
Default value Wake-up interval	21600s (6 hours)
Interval steps	20s

3.3. Reports

Notification report

Event	Type	Attribute	Parameter Length	Event Parameters
Motion alarm	0x07	0x08	0x00	
Motion alarm acknowledgement	0x07	0x00	0x01	0x08
Tamper alarm	0x07	0x03	0x00	
Tamper alarm acknowledgement	0x07	0x00	0x01	0x03
Battery alarm (replace soon)	0x08	0x0A	0x00	
Battery alarm (replace now)	0x08	0x0B	0x00	
Battery alarm acknowledgement	0x08	0x00	0x01	0x0A / 0x0B
Light alarm (day)	0x14	0x01	0x00	
Light alarm (night)	0x14	0x00	0x01	0x01

Battery report

Value	Description
0x05 - 0x64 (5 – 100)	Battery charge level in percent (%)
0xFF (256)	Low battery

Sensor Multilevel Report

Description	Type	Precision	Measured variable	Size	Value
Illuminance	0x03	1	Lux	2 bytes	0x0000 - 0x7FFF (0 lux - 32767 lux)

3.4. Configuration parameters

Z-Wave products can be used directly after inclusion in the network. However, configuration settings can be used to adapt the behaviour of the device even better to the requirements of the application and to activate additional functions.

Use your Z-Wave controller to initiate the changes to the parameters. In order for the device to receive the values, a wake-up must be performed on the device itself. (see point 2.5)

Parameter	Byte size	Function	Default value	Description
10	1	Threshold value battery alarm	10	Percentage value from when the low battery alarm should be transmitted. Adjustable from 5 - 50 in percent (Hexadecimal: 0x05 - 0x32)
12	1	PIR sensor Active / Deactive	1	Enable / disable the PIR sensor. 0 = Sensor is deactivated 1 = Sensor is activated (Hexadecimal: 0x00 - 0x01)
13	2	Waiting time between two motion alarms	60	Waiting time from one motion alarm to the next triggering. Adjustable from 5 - 15300 in seconds (Hexadecimal: 0x05 - 0x3BC4)
14	1	BASIC SET to association group 2 (motion alarm)	0	BASIC SET should be sent after a motion alarm. 0 = Disabled 1 = Active (Hexadecimal: 0x00 - 0x01)
15	1	Invert value of BASIC SET command	0	Set the value of the BASIC SET command for movement alarm and acknowledgement. 0 = The motion alarm sends the BASIC SET value "On" (0xFF), the acknowledgement sends the BASIC SET value "Off" (0x00) 1 = The motion alarm sends the BASIC SET value "Off" (0x00), the acknowledgement sends the BASIC SET value "On" (0xFF) (Hexadecimal: 0x00 - 0x01)
16	1	Sensitivity PIR sensor	9	Sensitivity value of the PIR sensor. The value 10 is the highest sensitivity. The value 1 is the lowest sensitivity. Adjustable from 1 - 10 (Hexadecimal: 0x01 - 0x0A)
17	1	Pet Immunity Active / Deactive	0	Activate/deactivate the pet immunity. 0 = Pet immunity is deactivated 1 = Pet immunity is activated (Hexadecimal: 0x00 - 0x01)

18	1	Light values after movement alarm	3	Defines which additional reports are to be sent in the event of a movement alarm. 1 = Sensor multilevel report (LUX) 2 = Light alarm report is sent 3 = Lux and light alarm report is sent. (Hexadecimal: 0x0 - 0x03)
19	2	Threshold value for light alarm report	50	Threshold value from which LUX value the light alarm (day) is sent. Adjustable from 0 - 500 in lux

3.5. Supported command classes

Command class	Version
Association	Version 2
Association Group Info	Version 3
Battery	Version 1
Configuration	Version 4
Device Reset Locally	Version 1
Firmware Update Md	Version 5
Indicator	Version 3
manufacturer specific	Version 2
Multi Channel Association	Version 3
Notification	Version 8
Power level	Version 1
Security	Version 1
Security 2	Version 1
Sensor Multilevel	Version 5
Supervision	Version 1
Transport Service	Version 2
Version	Version 3
wake up	Version 2
Z-Wave Plus Info	Version 2

3.6. Supported security levels

- Security S2 Authenticated
- Security S2 Unauthenticated
- Security S0 Authenticated

4. Technical data

Parameters	PLBW10100
Dimensions (W x H x D)	90 x 61 x 42,5 mm
Weight	106 g
Operating temperature	>0° – 40°C
IP class	IP 20 (indoor area)
Radio frequency	868.42 MHz (Z-Wave Plus, Europe)
Modulation	FSK (BFSK/GFSK)
Transmitting power:	< 5 dbm
Power supply	3 V DC
Type of battery	1x CR123A
Battery life	~3 years
Sabotage protection	Yes
Firmware updateable	Yes, OTA
Z-Wave manufacturer ID	0x0403
Z-Wave Product Type ID	0x0002
Z-Wave Device ID	0x0007
Z-Wave SmartStart supported	Yes
Z-Wave Plus supported	Yes
Z-Wave Network Security	Yes
Z-Wave AES-128 Security (S0)	Yes
Z-Wave S2 Security	Yes (S2 Authenticated)
Z-Wave Chip Generation	700
Z-Wave Device Type	Notification Sensor
Z-Wave Roll Type	Reporting Sleeping Slave
Z-Wave DevKit Version	07.12.02