EVR_SP814 Z-Wave Presence Detector

Firmware Version : 1.3

Quick Start

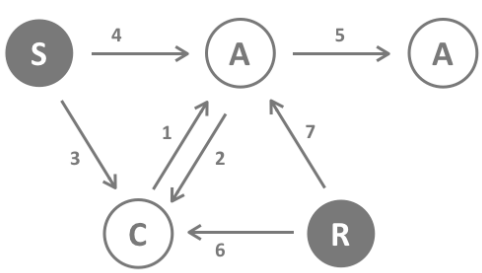
S This device is a Z-Wave Sensor. Inclusion, Exclusion and wakeup are confirmed by three times quickly hitting the tamper switch on the backside of the case.

Please refer to the chapters below for detailed information about all aspects of the products usage.

What is Z-Wave?

This device is equipped with wireless communication complying to the Z-Wave standard. Z-Wave is the **international standard for wireless communication** in smart homes and buildings. It is using the **frequency of 868.42 MHz** to realize a very stable and secure communication. Each message is reconfirmed (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

Z-Wave differentiates between Controllers and Slaves. Slaves are either sensors **(S)** transmitting metered or measured data or actuators **(A)** capable to execute an action. Controllers are either static mains powered controllers **(C)** also referred to as gateways or mobile battery operated remote controls **(R)**. This results in a number of possible communication patterns within a Z-Wave network that are partly or completely supported by a specific device.



1. Controllers control actuators
2. Actuators report change of status back to controller

3. Sensors report change of status of measured values to controller
4. Sensors directly control actuators
5. Actuators control other actuators
6. Remote controls send signals to static controllers to trigger scenes or other actions
7. Remote controls control other actuators.

There are two different role a controller can have. There is always one single primary controller that is managing the network and including/excluding devices. The controller may have other functions - like control buttons - as well. All other controllers don't manage the network itself but can control other devices. They are called secondary controllers. The image also shows that its not possible to operate a sensor just from a remote control. Sensors only communicate with static controllers.

Product description

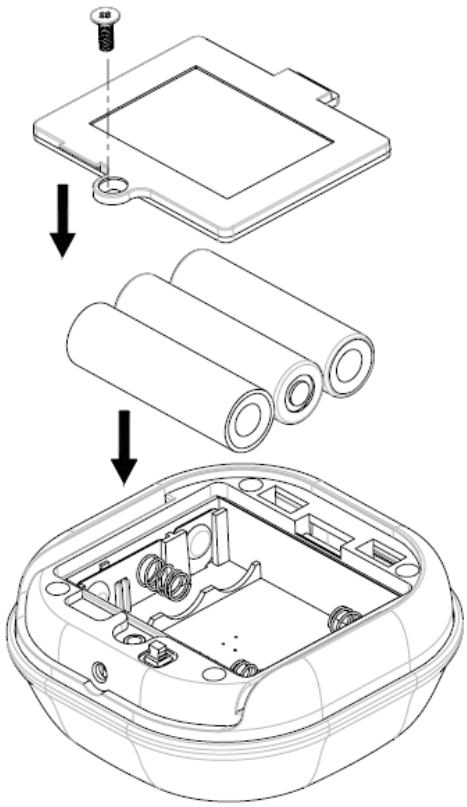
This presence detector using PIR (passive infrared receiver) detects the presence of a person in a room. The units send information to a controller or any other associated Z-Wave device. Up to 4 devices can be controlled from this device. The sensor is a battery-powered device, which is in sleeping non-operative mode unless an action is detected. After a programmable sleeping time the device wakes up and sends a status information. After this the unit goes back to sleeping modus. Batteries can be changed without unscrewing the device from the door or frame. The unit will give a visual warning on the device and sends a warning to the Z-Wave controller, when batteries need to be replaced. The unit offers a tampering control and sends an alarm message when tampered.

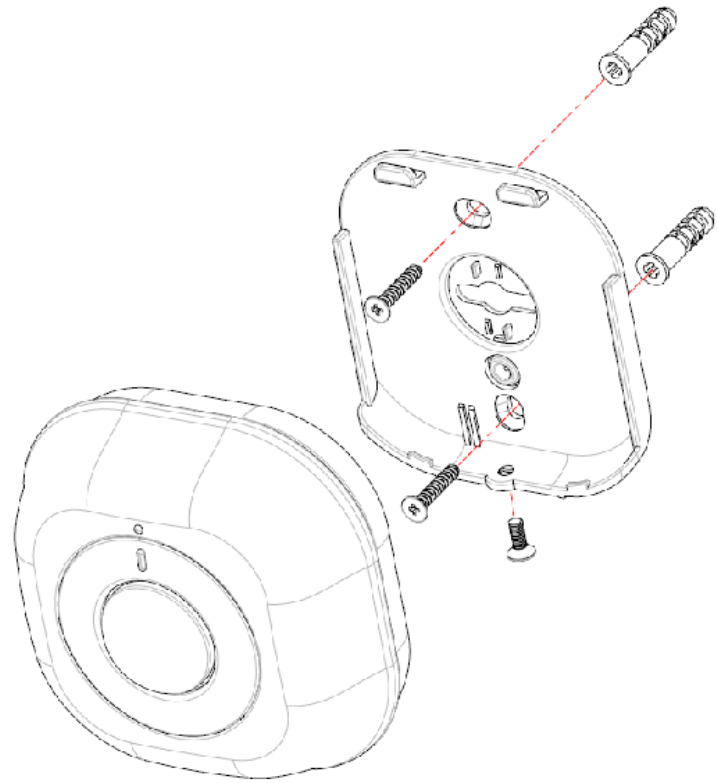
Batteries

The unit is operated by batteries. Use only batteries of correct type. Never mix old and new batteries in the same device. Used batteries contain hazardous substances and should not be disposed of with household waste!

Battery Type: 1 * CR2

Installation Guidelines

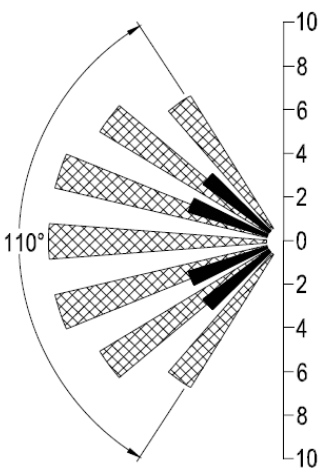




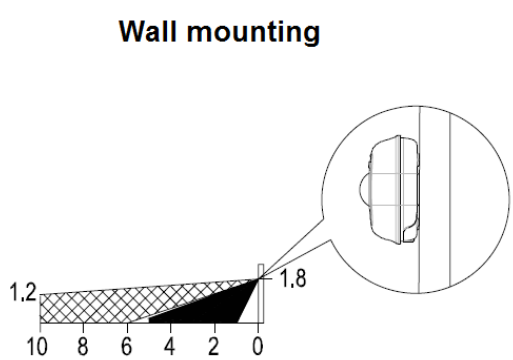
1. Release the Sensor from the battery cover by removing the fixing screws.

2. Put the 3 * AA 1.5V batteries in the battery compartment.

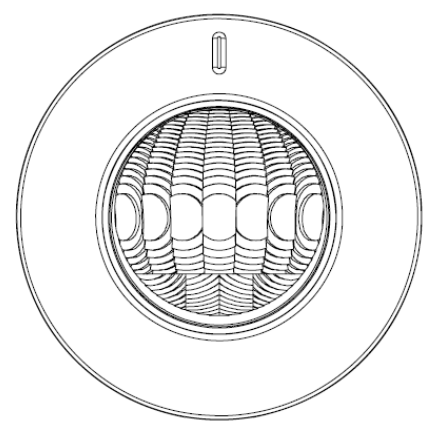
3. For mounting use mount plate and the screws.



Top view



Side view

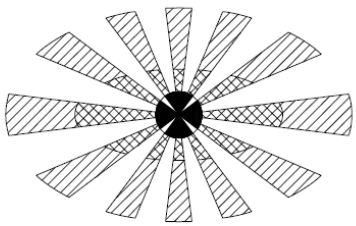


Lens cover

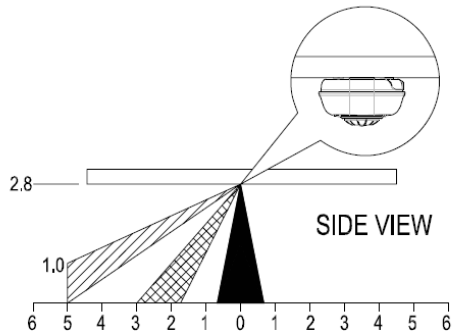
The detector can be mounted either on a wall or under a ceiling. There is a dedicated lens cover for the two mounting positions which has to be installed.

The recommended position for **wall mounting** is at the height of 1.8m from the floor. At this height the optimum detection range is up to 10m with coverage range of 110 degrees.

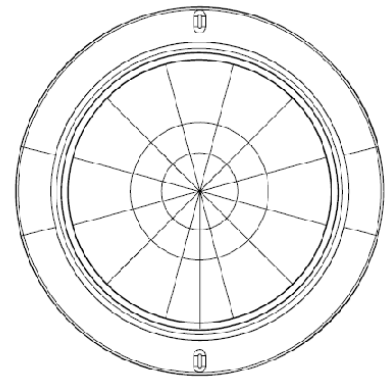
Ceiling mounting



Top view



Side view



Lens cover

The recommended position for **ceiling mounting** is at the height of 2.8m from the floor. At this height, the optimum detection range is up to 5m with coverage range of 360 degrees.

Before selecting a position for a Motion Detector the following points should be noted:

Do not position the detector facing a window or direct sunlight. Motion Detectors are not suitable for use in conservatories or draughty areas.

Do not position the detector directly above or facing any source of heat, eg: fires, radiators, boiler etc.

Where possible, mount the detector so that the logical path of an intruder would cut across the fan pattern rather than directly towards the detector.

4. It will take approximately 2 minutes to warm up after battery has been connected. During this period, the detector beeps once every 3 seconds. When a long beep is sounded with red LED turns on steadily for 5 seconds, it implies warm-up procedure is completed and the detector is ready for detection.

Behavior within the Z-Wave network

I On factory default the device does not belong to any Z-Wave network. The device needs to join an existing wireless network to communicate with the devices of this network. This process is called **Inclusion**. Devices can also leave a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller will be turned into exclusion respective inclusion mode. Please refer to your primary controllers manual on how to turn your controller into inclusion or exclusion mode. Only if the primary controller is in inclusion or exclusion mode, this device can join or leave the network. Leaving the network - i.e. being excluded - sets the device back to factory default.

If the device already belongs to a network, follow the exclusion process before including it in your network. Otherwise inclusion of this device will fail. If the controller being included was a primary controller, it has to be reset first.

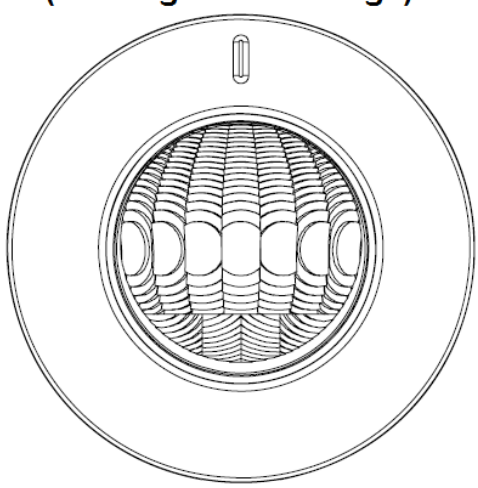
Make sure that your Z-Wave Controller is in the Inclusion-/Exclusion-Mode. Click three times quickly the tamper switch behind the battery cover to confirm the process.

Operating the device

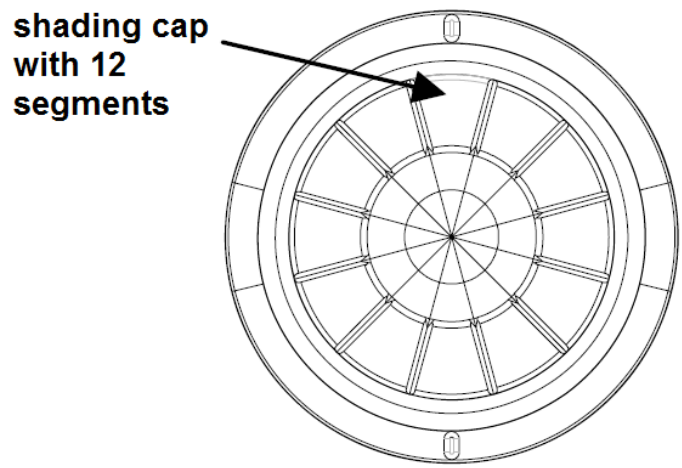
Coverage Range Adjustments:

Two types of lens covers are provided for the detector. Wall-lens cover is to be used when the detector is wall-mounted, whereas ceiling-lens cover is to be used when the detector is ceiling-mounted. The coverage range adjustment is only applicable to ceiling-lens cover; choose correct lens cover before mounting. The shading cap for **ceiling mounting** is composed of 12 segments for limiting the detection coverage, and each segment covers detection angle of 30 degrees. Follow the grooves on the cap, cut the cap to a suitable size and place it onto the ceiling-lens cover. The remaining segments are used for blanking off an undesirable detection area.

Wall mounting lens cover (110 degrees coverage)



Ceiling mounting lens cover (up to 360 degrees coverage)



By walking into a protected area the detector will now be triggered each time the detector senses movement. The orange LED on the detector will be illuminated and the associated appliances will be activated. For example, siren will be sounded or indication of movement detection will be shown on the controller. It implies that the unit is working properly.

Wakeup Intervals - how to communicate with the device?

W This device is battery operated and turned into deep sleep state most of the time to save battery life time. Communication with the device is limited. In order to communicate with the device, a static controller **C** is needed in the network. This controller will maintain a mailbox for the battery operated devices and store commands that can not be received during deep sleep state. Without such a controller, communication may become impossible and/or the battery life time is significantly decreased.

This device will wakeup regularly and announce the wakeup state by sending out a so called Wakeup Notification. The controller can then empty the mailbox. Therefore, the device needs to be configured with the desired wakeup interval and the node ID of the controller. If the device was included by a static controller this controller will usually perform all necessary configurations. The wakeup interval is a tradeoff between maximal battery life time and the desired responses of the device.

Click three times quickly on the tamper switch behind the battery cover or a detected action by the sensor will wake up the device and keep it awake.

It is possible to set the node ID to 255 to send wakeup notifications as broadcast. In this mode device takes more time to go to sleep and drains battery faster, but can notify all it's direct neighbors about a wakeup.

Node Information Frame

NI The Node Information Frame is the business card of a Z-Wave device. It contains information about the device type and the technical capabilities. The inclusion and exclusion of the device is confirmed by sending out a Node Information Frame. Beside this it may be needed for certain network operations to send out a Node Information Frame.

Click three times quickly on the tamper switch behind the battery cover or a detected action by the sensor sends a Node Information Frame.

Associations

A Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called *association*. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called **association groups** and they are always related to certain events (e.g. button pressed, sensor triggers, ...). In case the event happens all devices stored in the respective association group will receive a common wireless command.

Association Groups:

1	Devices controlled by open/close events (max. nodes in group: 5)

Command Classes

Supported Command Classes
Basic (version 1)
Battery (version 1)
Wake Up (version 1)
Association (version 1)
Version (version 1)
Binary Sensor (version 1)
Alarm (version 1)
Manufacturer Specific (version 1)

Controlled Command Classes
Basic (version 1)

Alarm (version 1)

Technical Data

Battery Type	1 * CR2
Explorer Frame Support	No
SDK	5.02 pl2
Device Type	Slave with routing capabilities
Generic Device Class	Binary Sensor
Specific Device Class	Routing Binary Sensor
Routing	No
FLiRS	No
Firmware Version	1.3

Explanation of Z-Wave specific terms

Controller — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways, Remote Controls or battery operated wall controllers.
Slave — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
Primary Controller — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
Inclusion — is the process of bringing new Z-Wave devices into a network.
Exclusion — is the process of removing Z-Wave devices from the network.
Association — is a control relationship between a controlling device and a controlled device.
Wakeup Notification — is a special wireless message issued by a Z-Wave device to annonces that is is able to communicate.
Node Information Frame — is a special wireless message issued by a Z_Wave device to announce its capabilities and functions.

Disposal Guidelines

The product contains batteries. Please remove the batteries when the device is not used.

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.