» SR-MOW Solar

Solar wireless wall motion sensor

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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enocean®

»APPLICATION

The battery- and wireless wall sensor is designed for movement detection in room or office spaces. Radio telegrams are transferred according to EnOcean standard. Integrated solar energy storage for maintenance-free operation.

Functions of the SR-MOW:

- Wireless transmission of telegrams
- Monitoring of charging voltage of the energy storage
- Motion detection with PIR

»SECURITY ADVICE – CAUTION

The installation and assembly of electrical equipment should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets. Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

»NOTES ON DISPOSAL

As a component of a large-scale fixed installation, Thermokon products are intended to be used permanently as part of a building or a structure at a pre-defined and dedicated location, hence the Waste Electrical and Electronic Act (WEEE) is not applicable. However, most of the products may contain valuable materials that should be recycled and not disposed of as domestic waste. Please note the relevant regulations for local disposal.

»GUIDELINES FOR DEVICES WITH SOLAR ENERGY STORAGE

Due to the energy-optimized EnOcean radio technology used in "EasySens®" wireless sensors, the devices can work without batteries and self-charge themselves using electric energy generated by integrated solar cells. This makes the devices almost maintenance free and environmentally sound due to not having to replace batteries.

For optimum use, the device should be mounted in a location with sufficient ambient brightness. Minimum illumination of 200 lx (artificial light or ambient) is required for at least 3 to 4 hours each day. (The health and safety regulations at work require a minimum illumination of 500 lx for office workplaces). The solar cell should be mounted facing towards the window direction if possible. If the device has a temperature sensor, then even periodic direct sun radiation should be avoided due to incorrect false temperature readings.The mounting position should be selected so that the device will not be obstructed in the future: for example by placement areas, additional furniture or roll-fronted cupboards.

The sensor is supplied in an operational state. If the sensor has been stored in darkness for longer periods, the internal solar energy storage will most likely need to be recharged. This would normally happen automatically during commissioning or during initial start up in ambient light. If the initial charge is not sufficient, the sensor will reach its full operating state up to 3 to 4 days, if the requirements for minimum illumination per day are met. The sensor will then transmit continuously in darkness as specified f (2/3 days on factory default telegram timing). Depending on the application it is also possible for the devices to operate in darker rooms (with brightness <100 lx) by using the battery back-up option. Batteries to be used are listed in accessories.

The operating time when using batteries will depend on the transmission frequency as well as the component aging and the self-discharge of the battery. Standard operating time will be 5-10 years on factory default telegram timing. Changing of the device from solar to battery operation is done automatically by simply adding a battery to the device.

»INFORMATION ABOUT EASYSENS® (RADIO) / AIRCONFIG GENERAL USAGE

EasySens® - airConfig

Basic information about EasySens® radio and about general usage of our airConfig software, please download from our website.

»OVERVIEW OF THE RADIO TELEGRAMS

EEP

The structure of the data contained in the telegram can be found in the EEP (EnOcean equipment profile) list provided by the EnOcean Alliance.

»TECHNICAL DATA

Measuring values	motion
Radio technology	EnOcean (IEC 14543-3-10), transmission power <10 mW EEP A5-07-01
Frequency	868 MHz
Power supply	solar cell, internal super cap, maintenance-free, Battery: Coin cell CR2032 (optional), terminal block for external power supply 3..5 V =
Measuring -/transmission interval	immediately at status change from no motion to motion, during occupancy: every 2 min., no occupancy: after 10 and 30 min., every hour as heartbeat (optional)
Detection range	Wide angle lens up to 15 m, field lens up to 30 m when mounted at height 2,10 m
Sensor	PIR (passive infrared)
Enclosure	PC, white
Protection	IP20 according to EN 60529
Ambient condition	-10..+40 °C, max. 85% rH
Mounting	surface mounting, to be mounted flat onto the surface using adhesive foil (included) or screws

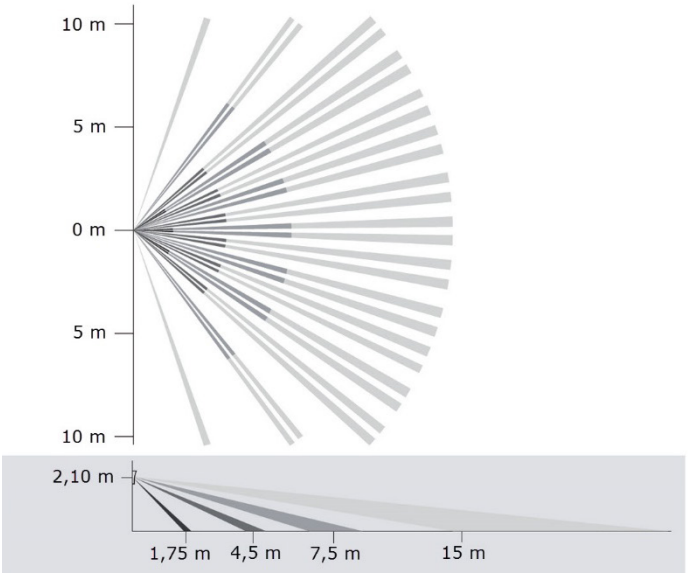
»PRODUCT TESTING AND CERTIFICATION

Declaration of conformity

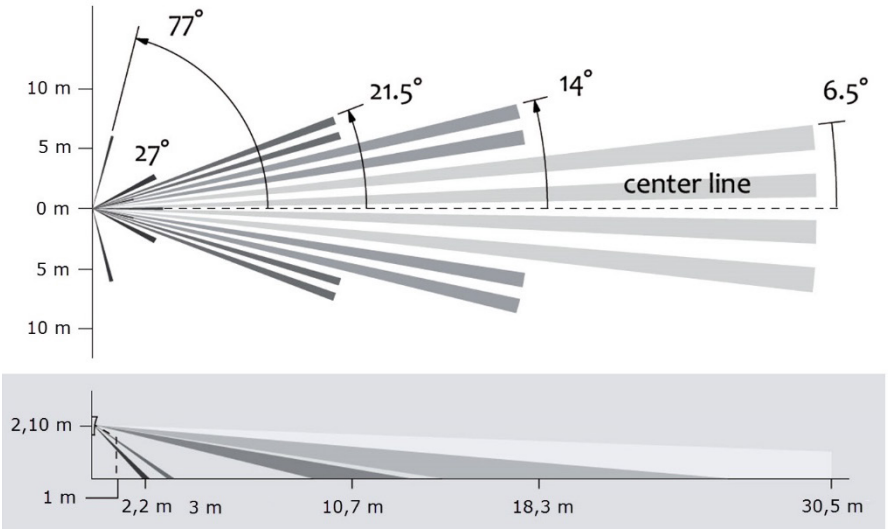
The declaration of conformity of the products can be found on our website https://www.thermokon.de/.

» DETECTION RANGE

Wide angle lens



Long range lens



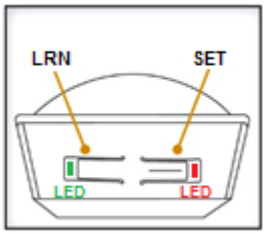
»MOUNTING ADVICES

The sensor is shipped ready for operation. Perhaps the solar-powered energy storage has to be recharged after longer warehousing of the radio sensors in darkness. Normally this works automatically during commissioning or during the first operating phase in daylight. Please refer to remarks in chapter “Guidelines for Devices with Solar Energy Storage“.

When mounting the device please regard, that the mounting place has sufficient ambient brightness, that the detection range covers the needs and that the radio signal to the receiver is convenient.

Walk Test

Use the walk test to confirm that motion is within the sensor’s detection range.



Note: Before starting the test, you should recharge the sensor for 1.5 hours with bright light (2000 lux). Alternatively, put a battery into the battery holder or charge the sensor temporarily using 3..5 V =.

If stored energy is too low, it is not possible to start the test mode. If the LED doesn´t turn to ON or if the red LED flashes when pressing SET button, the device doesn´t have enough energy.

1. Press and hold the Set button for 5 seconds.
   -> Red LED flashes several times to confirm, that walk test is active.
2. Step in and out of the sensor‘s range to determine the area of detection.
   -> The red LED at the sensor and the LEDSs beyond the lens flash several times, if the sensor detects motion.
3. Move your hands from outside into the range of detection to see, if the movement is detected
4. The walk test will be terminated automatically after 3 minutes or by pressing LRN button for 5 seconds.

NOTE: Ensure the sensor is not activated by activities outside of the desired area or by other heating or motion sources. In those cases it is possible to adjust the sensitivity changing the switch next to the battery slot from “REG” to “LOW”.

Light Test

Use the light test to measure real-time light levels and confirm whether the occupancy sensor has sufficient light.

1. Create realistic lighting condition (the test measures the real-time light level)
2. Press and hold Set button for 10 seconds
   -> red and green LED will flash confirming, that light test is active
3. Watch the LED flash rate to determine the light strength:

5x flashing	light condition is perfect (200 lux or more).
4x flashing	light condition is good
3x flashing	light condition is sufficient
2x flashing	light condition is low – please look for a better position
1x flashing	light condition is too low – sensor will not work without battery backup
No flashing	No solar contribution - sensor will not work without a backup battery or power supply

4. The test will terminate automatically after 3 minutes or by pressing the LRN button for 5 seconds.

Check radio signal strength

For testing the radio signal strength, place AirScan or a similar tool at the receiver. Send telegrams by (multiple) activating the LRN button and measure the field strength at the receiver position.

Mounting Height

The mounting height has direct influence on the detection range of the occupancy sensor. Best mounting height will be between 1,8..2,5 m. Other heights will have effect on detection range.

Fixed Installation

The occupancy sensor has to be mounted on a solid ground, as every motion of the sensor itself leads to accidental releases.

Distance to Switched Lamps

In order to avoid unintended switch-on of the lamp triggered by the occupancy sensor, the lamps should not be mounted in the detection range of the sensor. Also the sensor should not be installed above a lamp. The heat radiation of the lamp can affect the functionality of the occupancy sensor and might probably cause a faulty release due to the PIR.

Distance to Sources of Interferences

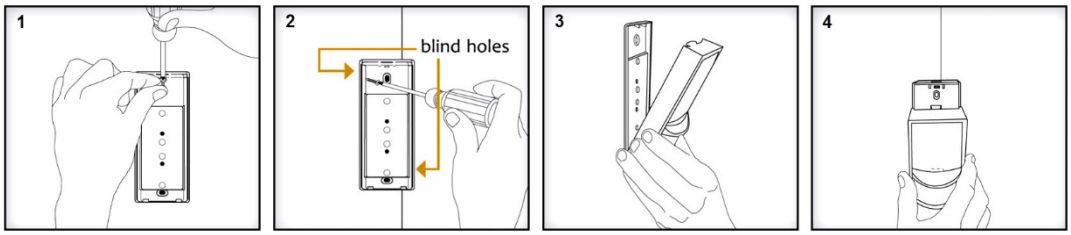
In order to avoid any faulty releases, sources of interferences such as heat radiators, lamps, air exits of air-conditioning systems etc. should be outside the detection range. Direct sun should be avoided.

»ASSEMBLY

The mounting plate can be installed flush to the wall or angled in a corner.

NOTE: It is easier to link the sensor before it is mounted onto the wall. Refer to the Linking section.

Remove the mounting plate from the sensor assembly by pressing the release tab located on the top of the sensor. Decide which of the two installation options is appropriate:

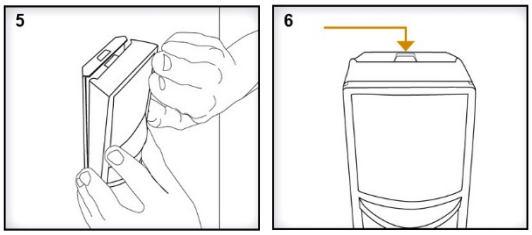


Flush to the wall (1)

- Orientate the mounting plate using the pencil marks. Mark the two mounting screw drill points.
- Drill two holes with a 3/16” bit and insert wall anchors.
- Insert the first screw loosely and level the mounting plate.
- Insert the second screw, then hand-tighten the first screw.

Angled in a Corner (2)

- Orientate the mounting plate using the pencil marks.
- Carefully drill through two of the four blind holes on the angled sides of the mounting plate (one on each side).
- Mark the two mounting screw drill points and drill two pilot holes with a 3/16” drill bit and insert the wall anchors.
- Insert the two screws and hand-tighten them.
- Fit the sensor into the groove at the bottom of the mounting plate (3) and close the top (4). The sensor snaps into the tab at the top (5/6).



» COMMISSIONING

Learning-in and out of the motion sensor

In order to connect the sensor to a receiver, the receiver has to be ON, has to be located within transmission range and has to be ready for learning in. Details can be found in the software documentation of the receiver.

By pressing the LRN button, a "learn" telegram is transmitted and the sensor and the receiver will get connected. The receiver stores the sensor mapping information permanently. If the device is learned in again, then normally the old connection information will be overwritten automatically.

NOTE: The LRN button is only used for connecting and testing. Parameterizing as possible delay times can be done at the receiver, if supported.

Optional settings

Two other settings can be configured on request. Both settings consume energy. Therefore they are not recommended for installations with non-optimal lighting conditions. No problems with battery or DC supply.

LED flashing when detecting motion: The red LED beyond the Fresnel lens flashes, when movement is transmitted (default is deactivated).

To change the setting, press and hold the LRN button for 3 seconds until the green LED flashes briefly. Activated status is shown by flashing of the red or green LED:

green LED flashes 3 times	activated
red LED flashes 3 times	disabled

Heartbeat Transmission

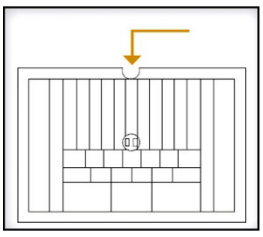
The presence detectors regularly transmits the status “occupied” to the transceiver. Status “unoccupied” is transmitted only 10 and 30 minutes after the last detected movement. To tell the connected receiver/gateway, that the sensor is still available and working, heartbeat can be enabled. This unoccupied heartbeat message will be sent every hour without motion (defaublt is deactivated).

To change the setting, press and hold the LRN button for 5 seconds until the both LEDs flash briefly. Activated status is shown by flashing of the red or green LED:

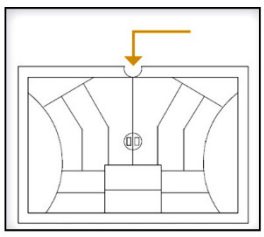
green LED flashes 3 times	activated
red LED flashes 3 times	disabled

» CHANGING THE LENS

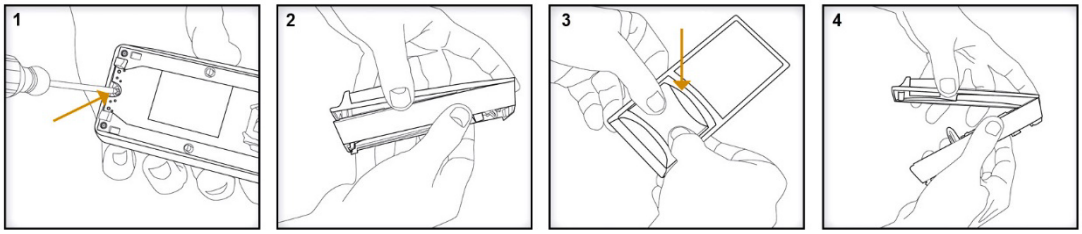
The occupancy sensor package contains two lenses: a wide angle lens and a long range lens. The wide angle lens is installed by default and can be distinguished from the long range lens by the pattern.



wide angle lens



long range lens



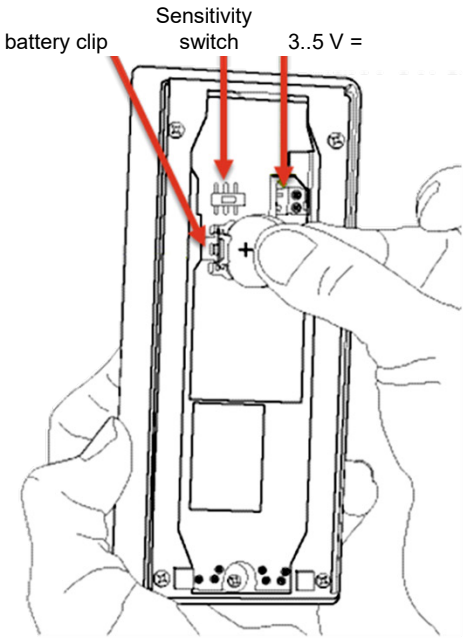
Press the top tab and remove the sensor from the mounting plate. Unscrew the small screw on the back at the bottom (1) and remove the front cover (2). Remove the installed lens by gently squeezing it to ease one side out of its groove, and then the other (3). Insert the lens you want to use by aligning the notch with the top on the front cover. Orientate the smooth side facing out, and the textured side facing the sensor. Hold both edges of the lens, flex it gently and push until it pops into the grooves. Make sure the edges are flush (4).

Note: The lens has to be located at the correct position. Otherwise the sensor will not detect activity properly.

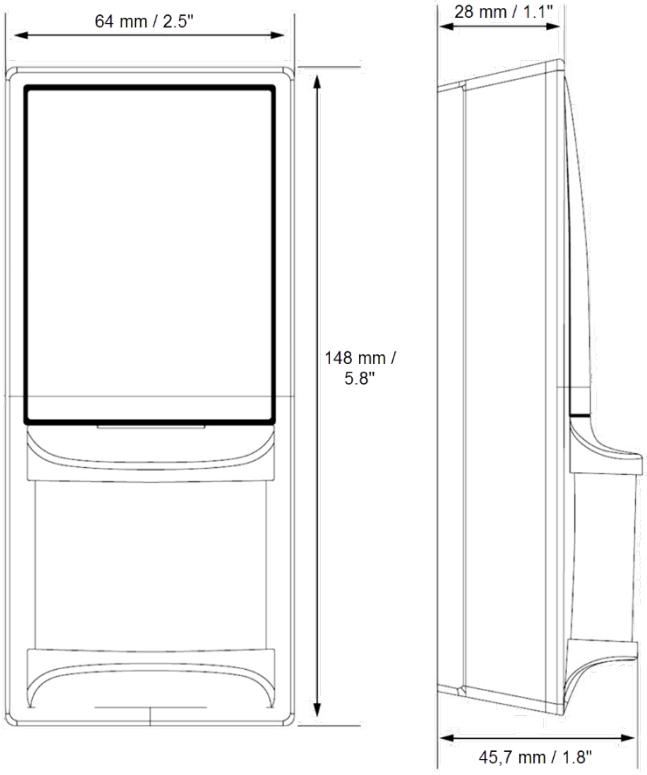
Place the front cover to the back part and fix the screw. Ensure that antenna is seated properly before fixing the front cover. Remount sensor to the base plate.

» MAINTENANCE

Battery change (optional power supply according to technical data)



» DIMENSIONS (MM / IN.)



» ACCESSORIES

Coin cell CR2032	Art. No. 347013	
Rawlplugs and screws (2 pcs. each)	Art. No. 102209	(included)