NOVOS 3 SR | NOVOS 3 SR rH

Wireless room sensor temperature + humidity (optional)

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
Issue date: 05.02.2024 • A127

enocean®

Illustration similar

» APPLICATION

Energy-harvesting room sensor for integrated measurement of temperature and relative humidity (rH version) in residential and office spaces. The device is mounted via adhesive pad or screws and sends its values unidirectional to corresponding receivers or gateways, which process the information directly or – depending on the application – forward it to a central control unit.

» TYPES AVAILABLE

(additional colours and Design Variants available)

Radio room sensor temperature

NOVOS 3 SR (EEP A5-02-05)

Temperature + humidity
NOVOS 3 SR rH (EEP A5-04-01)

» 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

»PRODUCT TESTING AND CERTIFICATION

Declaration of conformity
The declaration of conformity of the products can be found on our website
https://www.thermokon.de/direct/en-gb/categories/novos-3

»NOTES ON DISPOSAL

The crossed-out wheelie bin symbol indicates that the product or removable batteries must not be disposed of with household or commercial waste. Within the EU, you are legally obliged to dispose of the product separately and appropriately in accordance with the national laws of your country. Alternatively, please contact your supplier or Thermokon Sensortechnik GmbH. Further information can be found at: www.thermokon.com

»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.

»MOUNTING ADVISE ROOM SENSORS

The Accuracy of the room sensors are influenced by the technical specifications as well as the positioning and the installation type.

During Assembly:
- Seal mounting box (if present).
- Installation type, air draught, heat source, radiation heat or direct sunlight can affect the measurement.
- Bulding material specific properties of the installation place *(brick-, concrete-, partition wall, cavity wall, …)* can affect the measurement.
    (e.g.: Concrete accepts room temperature variation slower than cavity walls)

Assembly not recommendet in…
- Air draught (e.g.: close to windows / doors / fans …)
- Near heating sources,
- Direct sunlight
- Niches / between furniture / …

»APPLICATION NOTICE FOR HUMIDITY SENSORS

At regular environmental condition, it is recommended to calibrate the sensor annually to check the compliance with the accuracy required in the application. The following conditions can damage the sensor element or lead in long therm to loss of the specified accuracy:

- Mechanical stress
- Contamination (e.g. dust / fingerprints)
- Aggressive chemicals
- Ambient conditions (e.g. condensation on measuring element)

Do not touch the sensor elements!

Re-calibration or exchange of the sensor element are not subject of the general warranty.

» TECHNICAL DATA

Measuring values *(optional)*	temperature + relative humidity	
Radio technology	EnOcean (IEC 14543-3-10), transmission power <10 mW	
Frequency *(type depentend)*	868 MHz	902 MHz
Power supply	solar cell, internal super cap, maintenance free, optional: 1x alkaline manganese AA or 1x lithium 3.6V ER14505	
Measuring range temp *(optional)*	0..+40 °C	
Measuring range humidity *(optional)*	0..100% rH non-condensing	
Accuracy temperature	±0,4 K (typ. at 21 °C)	
Accuracy humidity *(optional)*	±2% between 30..70% rH (typ. at 21 °C)	
Measuring interval	WakeUp time = 100 sec. (default) or 240 sec., adjustable via dip switch	
Transmission interval	Heartbeat: immediately with every 10th WakeUp every 100 (240) seconds if the temperature changes >0.3 K, or humidity value changes >1.6% rH	
Enclosure	PC V0, pure white, design cover (optional)	
Protection	IP20 according to EN 60529	
Ambient condition	0..+40 °C, max. 85% rH non-condensing	
Mounting	to be mounted flat onto the surface using adhesive foil or screws	
Delivery content	adhesive foil	
Notes	integrated battery backup possibility for usage in dimly lit rooms	

» 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.
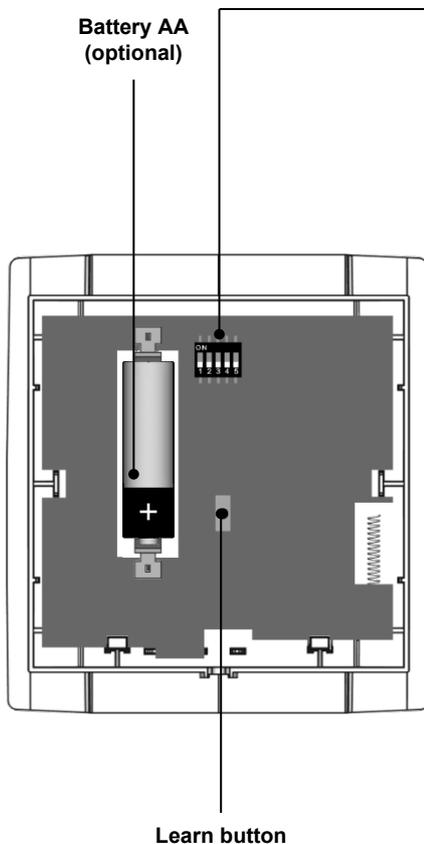
» OVERVIEW OF THE RADIO TELEGRAMS

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.
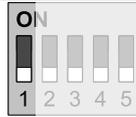
» CONFIGURATION AND COMMISIONING

ℹ️ After configuring the dip switches, the device does not accept the settings made until the learn button is pressed.

Battery AA (optional)
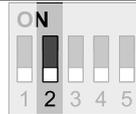
Learn button

DIP 1 – WakeUp cycle / Heartbeat

The "WakeUp" time defines the interval in which the device "wakes up" and sends a telegram if necessary (see technical data). With every 10th WakeUp a telegram is definitely generated.

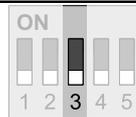| 1	Factory default: off
on	240 Sek. Wakeup / Heartbeat x10
off	100 Sek. Wakeup / Heartbeat x10

DIP 2 – EnOcean Security

Encrypted data transmission protects against various types of attack, such as repeat and eavesdropping attacks or fake telegrams.

| 2	Factory default: off
on	Encryption mechanism enabled
off	Encryption mechanism disabled

DIP 3 – Check sum

By default, the radio transmitter uses the checksum CRC8 in the transmitted telegrams. This has the advantage that faulty telegrams are better verified and sorted out in critical radio links. Radio receivers older than the TCM3xx only support simple checksum. In this case the radio transmitter must be changed to simple checksum. To do this, the learn button must be pressed 5 times in succession. The simple checksum is compatible with all receivers. If you want to change the transmitter back to CRC8 checksum, press the learn button three times in succession.

3	Factory default: off
on	Simple Check sum
off	CRC8

DIP 4 – Energy status message
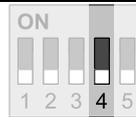
If the energy state is low, an additional signal telegram (SIG) - [06 01] is sent every 2nd transmission interval. Ensure sufficient ambient brightness, change the battery or insert a battery for support due to insufficient ambient brightness.

4	Factory default: off
on	Activated
off	Disabled

DIP 5 – reserved

4	
on	
off	

» NOTES ON COMMISSIONING

The sensor is supplied in an operational status. Probably, the internal solar energy storage must be recharged after a longer storage of the radio sensors in darkness. Basically, the recharging process is done automatically during the first operating hours in daylight. For this purpose, please refer to the remarks "Guidelines for Devices with Solar Energy Storage".

» FACTORY DEFAULT – SHIPPING MODE

After delivery the room sensor might be in default shipping mode, in this case press the learn button (<1 second) at the rear of the device [Signal telegram will be send. SIG -> 0x0F // shipping mode deactivated].

For further shipment, it is possible to set the room sensor back in default shipping mode. In this case the learn button must be pressed for >3sec [Signal telegram will be send, SIG -> 0x0E // shipping mode activated].

» TEACH-IN

In order to assure a correct evaluation of the measured values by the receiver, it is necessary to have the devices learned in by the receiver. This is done automatically by means of a "learn button" at the sensor or manually by input of the 32bit sensor ID and a special "learning procedure" between sender and receiver. The respective details are described in the corresponding software documentation of the receiver.

» BACK UP BATTERY

The device is primarily supplied from the internal energy storage. An inserted battery supports and recharges the internal energy storage. Mignon AA 1.5V (alkaline manganese) or LS 14500 AA 3.6V (lithium battery) can be used. Insert the battery correctly into the battery compartment as indicated.

» CRC8 CHECKSUM

By default, the radio transmitter uses the checksum CRC8 in its telegrams. This has the advantage that faulty telegrams can be better verified and sorted out on critical radio ranges. Radio receivers older than the TCM3xx only support a simple checksum. In this case, the radio transmitter must be set to simple checksum. To do this, the teach-in button must be pressed 5x consecutively following. The simple checksum is compatible with all receivers. If the transmitter is to be reset to CRC8 checksum, then the learn button must be pressed 3x consecutively.

» ENERGY STATUS (SIGNAL TELEGRAM)

The device is primarily supplied from the internal energy storage. An inserted battery supports and recharges the internal energy storage. If the energy state is low, an additional signal telegram (SIG) - [06 01] is sent every 2nd transmission interval. Ensure sufficient ambient brightness, change the battery or insert a battery for support due to insufficient ambient brightness.

If the energy state reaches a critical level, an additional signal telegram (SIG) - [06 00] is sent out 15 times with each transmission interval. After the last transmission interval, the device falls into the shipping mode to prevent the device from irreversible damage to the energy storage by deep discharge.

The device can now only be retrieved from the shipping mode by pressing the learn button.

Please recharge the device for a long time in sufficient ambient light or via the optionally available programming interface (see accessories), or insert a new battery.

If the energy status is good after awakening from the shipping mode, an additional signal telegram with the energy state 100% is transmitted with the respective first 3 transmission intervals (SIG) - [06 64].

Signal telegrams (SIG) can be received with an STC-Bacnet IP (ab V3.0.3.4) or a STC-IoT Gateway and evaluated by the superior control unit (BMS).

Telegram content

| Offset	Size	Data	Shortcut	Description	
0	8	Message index	MID	Enumeration: 0x06 – Energy status of the device	
8	8	Energy	ERG	Description	Telegram (SIG)
				0..100 %	
				100: Energy level good	hex(06 64)
				1: Energy level low	hex(06 01)
				0: Energy level critical	hex(06 00)

»MOUNTING ADVICE

Installation is made by gluing the sensor base plate to the smooth wall surface using the adhesive tape included. If required, the base plate can also be fixed by means of Rawlplugs and screws.
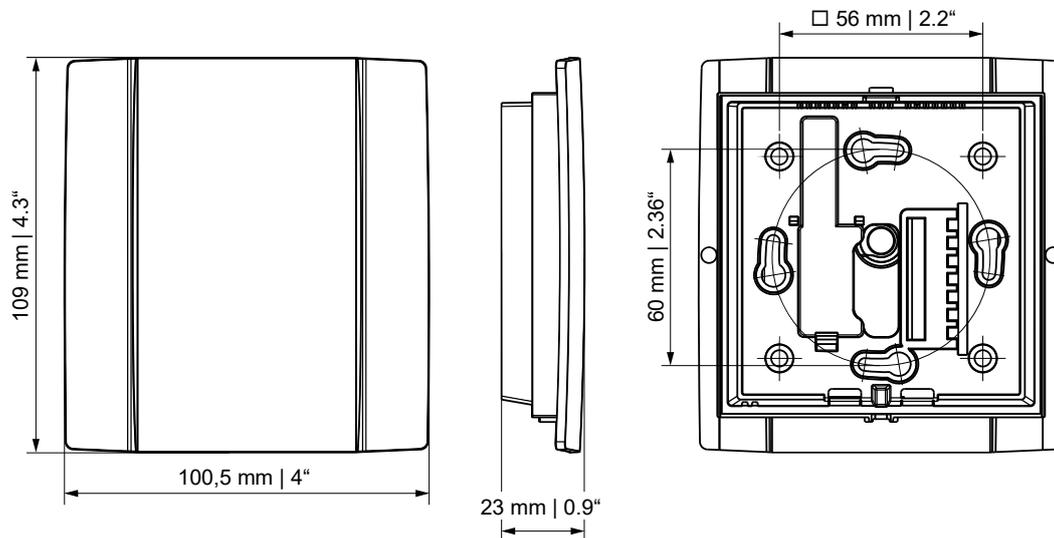
Housing open / close

Snap the upper part of the housing into the locking lug on the upper side	Fix the upper part of the housing on the underside with the screw included in the delivery.

»DIMENSIONS MM | INCH

109 mm | 4.3"

100,5 mm | 4"

23 mm | 0.9"

☐ 56 mm | 2.2"

60 mm | 2.36"
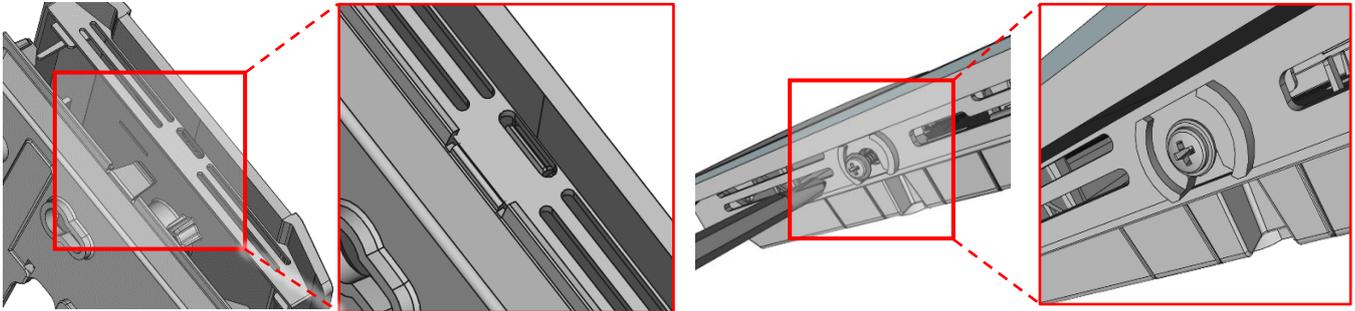
»ACCESSORIES (INCLUDED IN DELIVERY)

Adhesive foil for fixing the base plate   Item No. 773386

»ACCESSORIES (OPTIONAL)

Rawlplugs and screws (2 pcs. each)   Item No. 102209
Mounting bracket (surface mounted) white   Item No. 795050
Mounting bracket (surface mounted) black   Item No. 795074
Battery ER14505 (Lithium 3,6V AA)   Item No. 759182