

## » NOVOS 3 SR (x) | NOVOS 3 SR (x) rH

Wireless room sensor / operating unit temperature + humidity (optional)

**thermokon**<sup>®</sup>  
HOME OF SENSOR TECHNOLOGY

### Datasheet

Subject to technical alteration  
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*Illustration similar, depending on the type*

### » APPLICATION

Energy-harvesting room operating unit 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



**Radio room sensor temperature**  
NOVOS 3 SR (EEP A5-02-05)

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



**Radio room operating unit temperature**  
NOVOS 3 SR P (EEP A5-10-03)

**Temperature + humidity**  
NOVOS 3 SR P rH (EEP A5-10-12)



**Radio room operating unit temperature**  
NOVOS 3 SR PT (EEP A5-10-05)

**Temperature + humidity**  
NOVOS 3 SR PT rH (EEP A5-10-10)

P = Potentiometer – Set point adjustment  
T = Button – Occupancy

## » 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<sup>®</sup>" 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.

## » APPLICATION NOTICE FOR HUMIDITY SENSORS

**Refrain from touching the sensitive humidity sensor/element. Touching the sensitive surface will void warranty.**

For standard environmental conditions re-calibration is recommended once a year to maintain the specified accuracy.

When exposed to high ambient temperature and/or high levels of humidity or presence of aggressive gases (i.e. chlorine, ozone, ammonia) the sensor element may be affected and re-calibration may be required sooner than specified. Re-calibration and deterioration of the humidity sensor due to environmental conditions are not subject of the general warranty.

## » REMARKS TO ROOM SENSORS

### Location and Accuracy of Room Sensors

The room sensor should be mounted in a suitable location for measuring accurate room temperature. The accuracy of the temperature measurement also depends directly on the temperature dynamics of the wall. It is important, that the back plate is completely flush to the wall so that there is sufficient circulation of air through the vents in the cover, otherwise, deviations in temperature measurement will occur due to uncontrolled air circulation. The temperature sensor should not be covered by furniture or other objects. Mounting next to doors (due to draught) or windows (due to colder outside wall) should be avoided.

The measuring result is influenced by the thermal characteristics of the wall. A solid concrete wall responds to thermal fluctuations within a room in a much slower than a light-weight structure wall. Room temperature sensors installed in flush-mounted boxes have a longer response time to thermal variations. In extreme cases they detect the radiant heat of the wall even if the air temperature in the room is lower for example. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor is the smaller the deviations limited in time are.

» **PRODUCT TESTING AND CERTIFICATION****Declaration of conformity**

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

» **TECHNICAL DATA**

<b>Measuring values</b> (optional)	temperature + relative humidity
<b>Radio technology</b>	EnOcean (IEC 14543-3-10), transmission power <10 mW
<b>Frequency</b>	868 MHz, optional 928 MHz
<b>Power supply</b>	solar cell, internal super cap, maintenance free, optional: 1x alkaline manganese AA or 1x lithium 3.6V ER14505
<b>Measuring range temp</b> (optional)	0..+40 °C
<b>Measuring range humidity</b> (optional)	0..100% rH non-condensing
<b>Accuracy temperature</b>	±0,4 K (typ. at 21 °C)
<b>Accuracy humidity</b> (optional)	±5% between 30..70% rH (typ. at 21 °C)
<b>Measuring interval</b>	WakeUp time = 100 sec. (default)
<b>Transmission interval</b>	Heartbeat: immediately with every 10th WakeUp immediately on pressing the key, every 100 (240) seconds if the temperature changes >0.3 K or >5° angle of rotation (setpoint adjuster), or humidity value changes >1.6% rH
<b>Set point (P)</b> (optional)	potentiometer, for set point adjustment
<b>Button (T)</b> (optional)	for occupancy signal
<b>Enclosure</b>	PC V0, pure white, design cover (optional)
<b>Protection</b>	IP20 according to EN 60529
<b>Ambient condition</b>	0..+40 °C, max. 85% rH non-condensing
<b>Mounting</b>	to be mounted flat onto the surface using adhesive foil or screws
<b>Delivery content</b>	adhesive foil
<b>Notes</b>	integrated battery backup possibility for usage in dimly lit rooms

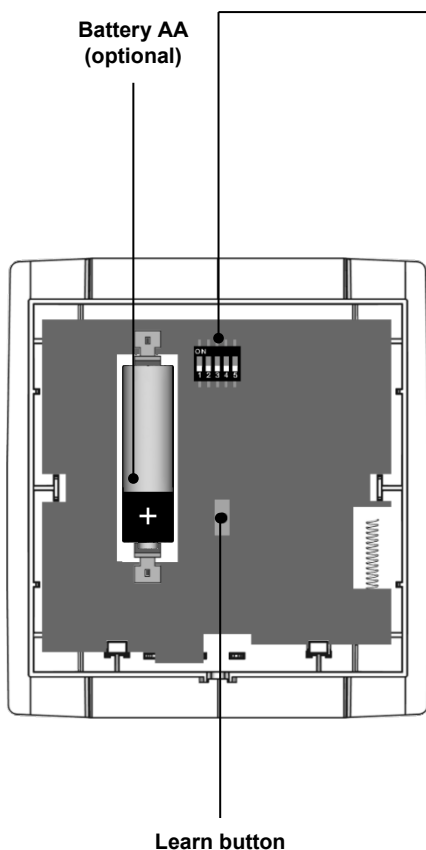
» **INFORMATION ABOUT EASYSSENS® (RADIO) / AIRCONFIG GENERAL USAGE****EasySens® - airConfig**

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 COMMISSIONING



**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.

<b>1</b>	<b>Factory default: off</b>
on	240 Sek. Wakeup / Heartbeat x10
off	100 Sek. Wakeup / Heartbeat x10

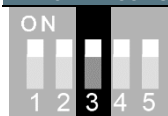
**DIP 2 – EnOcean Security**



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

<b>2</b>	<b>Factory default: off</b>
on	Encryption mechanism enabled
off	Encryption mechanism disabled

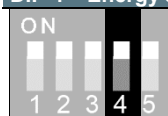
**DIP 3 – Check sum**



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.

<b>3</b>	<b>Factory default: off</b>
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.

<b>4</b>	<b>Factory default: off</b>
on	Activated
off	Disabled

**DIP 5 – reserved**



<b>4</b>	
on	
off	

## » FACTORY DEFAULT – SHIPPING MODE

After delivery the room operating unit 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 operating unit 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].

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.

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](#)".

## » 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-Ethernet and evaluated by the superior control unit (BMS).**

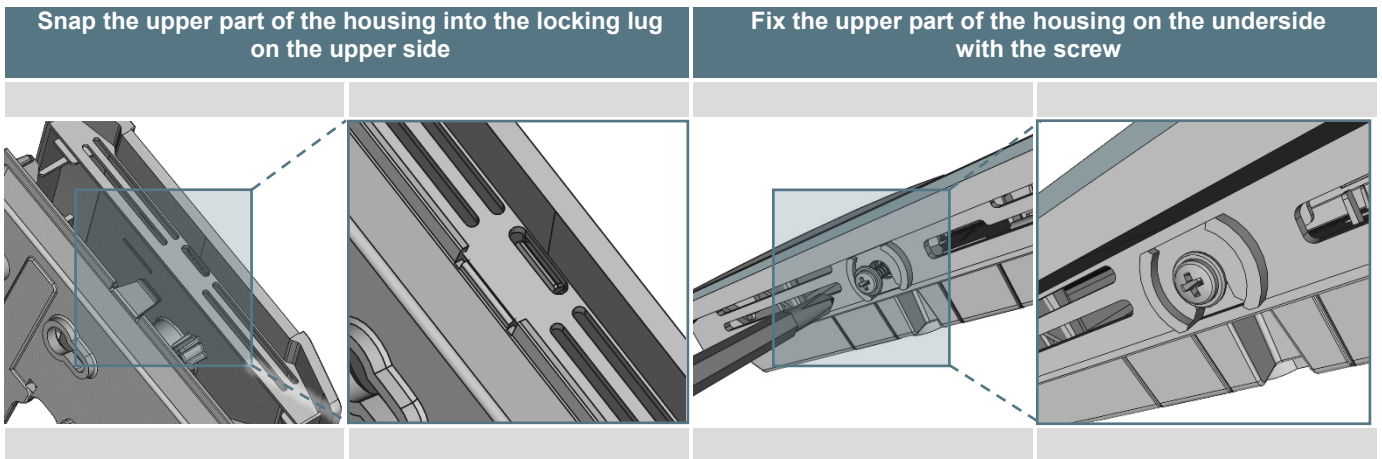
### Telegram content

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

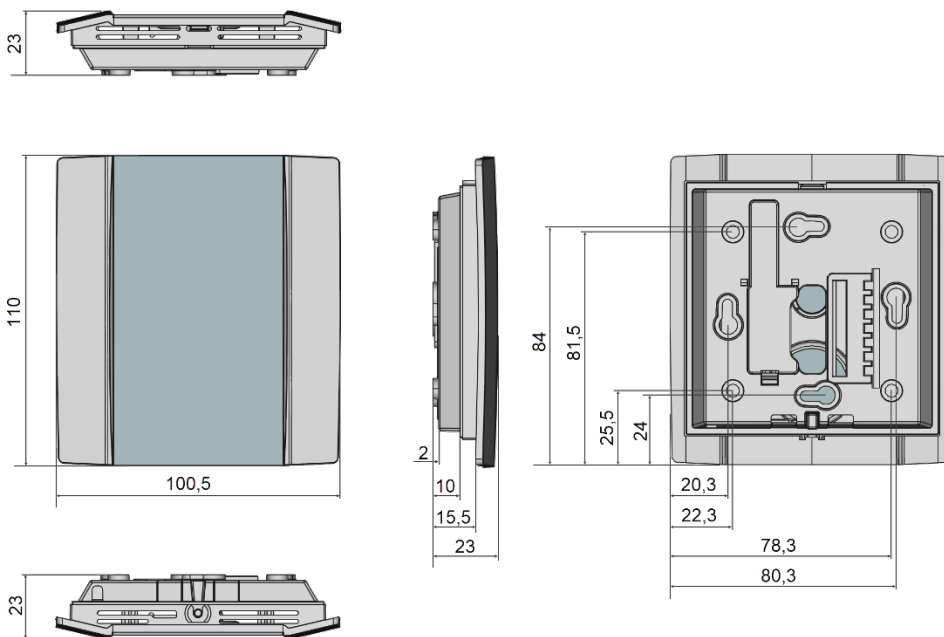
## » MOUNTING ADVICE

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



## » DIMENSIONS (MM)



## » ACCESSORIES (INCLUDED IN DELIVERY)

Adhesive foil for fixing the base plate

Item No. 773386

## » ACCESSORIES (OPTIONAL)

Rawlplugs and screws (2 pcs. each)  
Battery ER14505 (Lithium 3,6V AA)

Item No. 102209  
Item No. 759182