NOVOS 3 (EPD) Temp | Temp_rH

Room temperature sensor with optional humidity

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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novos

» APPLICATION

Room sensor for recording room temperature. The maintenance-free sensor creates the conditions for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels, cinemas or similar.

» TYPES AVAILABLE

Room sensor temperature – active V 0..10 V | A 4..20 mA

- NOVOS 3 Temp TRV*
- NOVOS 3 Temp TRA*

Room sensor temperature + humidity – active VV 0..10 V | AA 4..20 mA

- NOVOS 3 Temp_rH VV*
- NOVOS 3 Temp_rH AA*

Optional: additional passive temperatur sensor (type VVS / AAS) | optional available with ePaper Display

» 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

»BUILD-UP OF SELF-HEATING BY ELECTRICAL DISSIPATIVE POWER

Sensors with electronic components always have a dissipative power, which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. This dissipative power has to be considered when measuring temperature. In case of a fixed operating voltage (±0,2 V) this is normally done by adding or reducing a constant offset value.

Thermokon transducers can be operated with variable operating voltages. The transducers are set at the factory with a reference operating voltage of 24 V =.

At this voltage, the expected measuring error of the output signal will be the least. Other operating voltages, can cause a measurement deviation changing power loss of the sensor electronics.

A recalibration can be carried out directly on the unit or via a software variable (app or bus).

Remark: Occurring draught leads to a better carrying-off of dissipative power at the sensor. Thus temporally limited fluctuations might occur upon temperature measurement.

»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	Temperature + humidity (optional)	
Output voltage *(type-dependent)*	**TRV | VV | VVS** 1x/2x 0..10 V or 0..5 V, min load 10 kΩ (live-zero configuration 1..10/2..10 V) configurable via Thermokon NOVOSapp	
Output Amp *(type-dependent)*	**TRA | AA | AAS** 1x/2x 4..20 mA, max. load 500 Ω	
Output passive *(type dependent)*	**VVS | AAS** PT1000 / NI1000 / NTC10K	
Power supply *(type-dependent)*	**TRV | VV | VVS** 15..35 V = or 19..29 V ~ SELV	**TRA | AA | AAS** 15..35 V = SELV
Power consumption *(type-dependent)*	**TRV | VV | VVS** typ. 0,4 W (24 V =) | 0,8 VA (24 V ~)	**TRA | AA | AAS** max. 0,5 W / 24 V =
Display *(optional)*	ePaper, as measured value display, display can be parameterized via Thermokon NOVOSapp	
Enclosure	PC V0, pure white, design cover (optional)	
Protection	IP20 according to DIN EN 60529	
Cable entry	rear entry, breaking points bottom, drill mark top	
Connection electrical	tool-free mountable spring terminal, max. AWG16	
Ambient condition	0..50 °C, max. 85% non-condensing	
Mounting	surface mounted on flush-mounting box (Ø=2.36in. | 60 mm) or to be mounted flat onto the surface using screws, base part can be mounted and wired separately	
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)	

» Temperature

Output signal range temp. **scaling analogue output*	0..+50 °C (default setting), selectable from 4 temperature ranges -50..+50 | 0..+50 | -15..+35 | -20..+80 °C, configurable via NOVOSapp
Accuracy temperature *(type-dependent)*	±0,5K (typ. at 21 °C)

» Humidity *(optional)*

Measuring range humidity	**relative humidty** (default) 0..100% rH	**Enthalpy** 0..85 KJ/kg	**absolute humidity** 0..50 | 0..80 g/m³	**dew point** 0..+50 | -20..+80 °C
	configurable via Thermokon NOVOSapp			
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)			

** Devices with power supply are subject to self heating which is processed by the internal electronics. An offset is added before outputting a measuring value. The measurement principle of passive sensors does not allow an internal processing. The measured value of a passive sensor differs from the output signal of an active device, if both are mounted in the same device.*

»MOUNTING ADVICES

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.

Assembly not recommendet in…

- Air draught (e.g.: close to windows / doors / fans …)
- Near heating sources,
- Direct sunlight
- Niches / between furniture / …

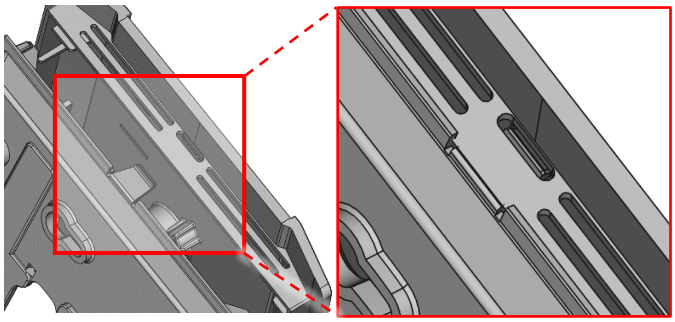
De-energize the device before installation.

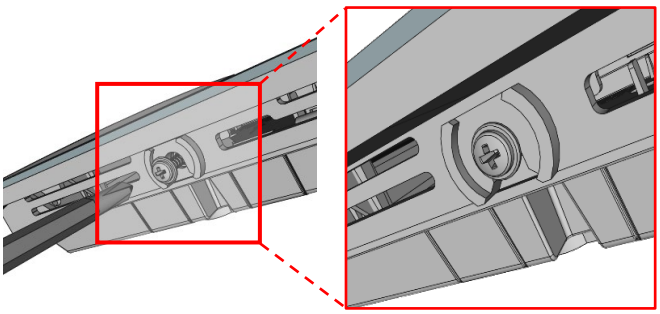
The installation can be performed on the flat wall surface or on a flush-mounted box. A representative place should be selected. Sunshine and draft, e.g. in the installation tube should be avoided, so that the measurement result is not falsified. Seal the end of the installation tube.

- For wiring, the upper part of the device must be removed from the base plate. Base plate and upper part are detachably connected to each other by means of locking lugs.
- The mounting of the base plate on the flat wall surface is done with rawplugs and screws.
- Finally, the device is attached to the base plate and fixed with the screw.

Housing open / close

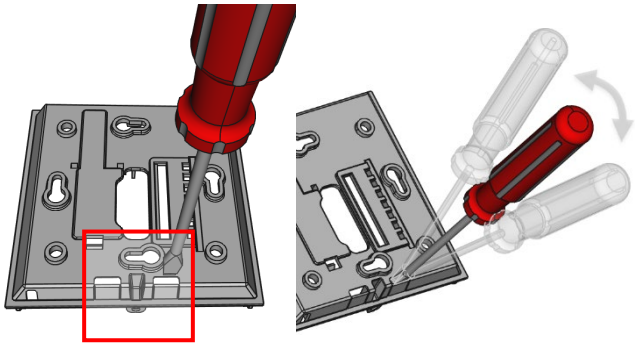
Snap the upper part of the housing into the locking lug on the upper side	Fix the upper part of the housing on the underside with the screw

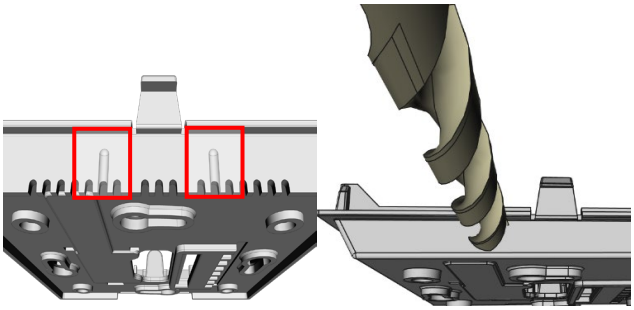




Cable entry

There are predetermined breaking points for 2 optional cable entries on the underside of the base plate	On the upper side of the base plate there are 2 grits as position for a drill hole max. Ø 6 mm





When using a drill, you should absolutely ensure that the base plate is firmly clamped. Before drilling, the pressure must be reduced and carefully drilled. A sudden break-through of the drill bit can be the result.

»CONNECTION PLAN

The following connection diagrams show the assignment of measuring values to analog outputs in factory default. Output variables reconfigurable via Thermokon NOVOSapp.

Room sensor temperature – active TRV 0..10 V | TRA 4..20 mA

NOVOS 3 Temp TRV MultiRange	NOVOS 3 Temp TRA MultiRange
3 |–AOU1—— Temperature | 0..10 V 2 |–GND—— 0 V⊥ 1 |–UB+—— 15..35 V = oder 19..29 V ~	3 |–AOI1—— Temperature | 4..20 mA 2 1 |–UB+—— 15..35 V =

Room sensor temperature + humidity – active VV 0..10 V | AA 4..20 mA

NOVOS 3 Temp_rH VV MultiRange	NOVOS 3 Temp_rH AA MultiRange
4 |–AOU2—— Temperature | 0..10 V 3 |–AOU1—— Humidity | 0..10 V 2 |–GND—— ⊥ 1 |–UB+—— 15..35 V = or 19..29 V ~	4 |–AOI2—— Temperature | 4..20 mA 3 |–AOI1—— Humidity | 4..20 mA 2 1 |–UB+—— 15..35 V =

AA design: *To use only the temperature output, connect AOI1 and use the NOVOS app to configure AOI1 as temperature output. Alternatively connect the GND of the analouge input terminal to AOI1.*

Room sensor temperature + humidity – active VV 0..10 V | AA 4..20 mA

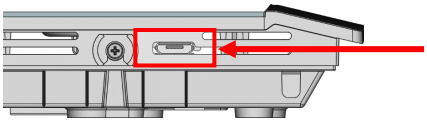
NOVOS 3 Temp_rH VVS MultiRange	NOVOS 3 Temp_rH AAS MultiRange
7 | ST- —— Temperature | passive 6 | ST+ —— Temperature | passive 5 | n.c. 4 | AOU2— Temperature | 0..10 V 3 | AOU1— Humidity | 0..10 V 2 | GND —— 0 V⊥ 1 | UB+—— 15..35 V = or 19..29 V ~	7 |- ST- —— Temperature | passive 6 |- ST+ —— Temperature | passive 5 |- n.c. 4 |- AOI2 —— Temperature | 4..20 V 3 |- AOI1 —— Humidity | 4..20 V 2 |- GND —— 0 V⊥ 1 |- UB+ —— 15..35 V =

»CONFIGURATION

The configuration is performed in powered state. The following options are available for configuring the device:

Device connection	Micro-USB	Micro-USB
Configuration adapter	Thermokon USB-Interface	USB-Bluetooth Dongle
Confguration interface	PC/Notebook with uConfig software Parameterization partial via desktop PC/Notebook with uConfig software, via Thermokon USB-Interface*. Item No. 597838	Smartphone/Tablet with NOVOS App Parameterization with mobile devices via Bluetooth and NOVOSapp. A separately available Bluetooth dongle* is required. Item no. 668262

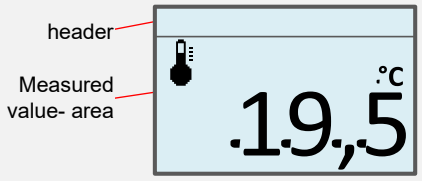
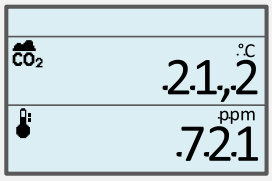
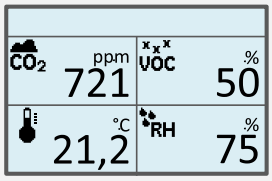
**Commercially available Bluetooth dongles or USB to Micro-USB adapter cables are not compatible. You need a mobile device that supports at least Bluetooth version 4.1. The configuration app with the corresponding instructions can be downloaded from the Google Play Store or the Apple App Store.*



Position of the micro USB port, see bottom of the device, for configuration with Bluetooth dongle or Micro-USB programming interface

» DISPLAY

The display scales automatically depending on the device and the number of measured variables. Parameters such as the display/hiding of measured variables are changed via the app. The software and hardware versions are displayed during the boot process. Measured values from the passive sensors are not shown on the display.

Display		
1 Measured value	2 Measured values	3 / 4 Measured values
		

Symbols			
Measured values*			
	Temperature	Humidity	
Additional symbols *(displayed when triggered)*			
Notice	Internal sensor error (display next to measured variable)	Measured value range	

*depending on variant

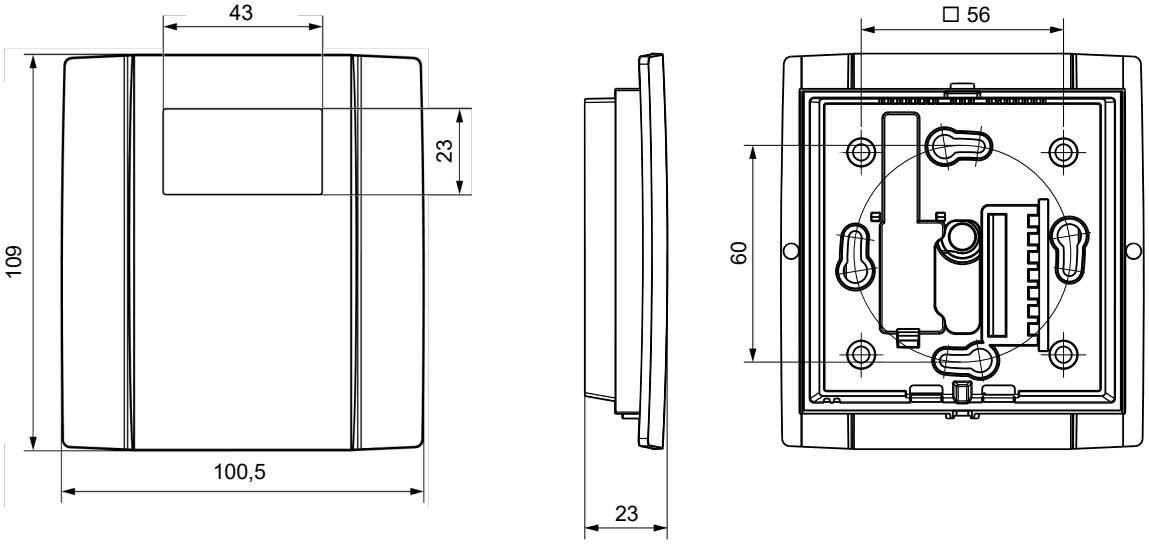
»PRODUCT TESTING AND CERTIFICATION

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

»DIMENSIONS (MM)



»ACCESSORIES (OPTIONAL)

Rawlplugs and screws (2 pcs. each)	Item No. 102209
PSU-UP24 – flush mount power supply 24 V (AC Input: 100..240 V ~ | DC Output 24 V = 0,5 A)	Item No. 645737
Bluetooth dongle	Item No. 668262
Thermokon USB-Interface	Item No. 597838
Mounting bracket (surface mounted) white	Item No. 795050
Mounting bracket (surface mounted) black	Item No. 795074