NOVOS 3 Occ Lum RS485 Modbus

Roomsensor with motion and luminosity sensors

thermokon®
HOME OF SENSOR TECHNOLOGY

Data sheet

Subject to technical changes
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»APPLICATION

The maintenance-free sensor provides the basis for a comfortable indoor climate and enhanced wellbeing. Typical applications include schools, office buildings, hotels, and cinemas. The device can be used for intelligent control of lighting and HVAC systems based on occupancy and ambient conditions. Threshold values can be individually configured via the Thermokon NOVOSapp or the BUS.

»TYPES AVAILABLE

Room sensor – active RS485 Modbus

- NOVOS 3 Occ Lum RS485 Modbus

»INTENDED USE

Room sensor for acquiring measured values of the sensor-specific parameters. It must not be used in conjunction with devices that serve, directly or indirectly, health- or life-safety purposes, or whose operation may pose a risk to people, animals, or property.

The device is intended solely for its intended use. Unauthorized modifications or alterations are prohibited!

»SAFETY NOTICE – CAUTION

The installation and mounting of electrical devices may only be carried out by an authorized qualified electrician.
Devices with a power supply connection may only be connected when the supply line has been disconnected from the power source.

The following must also be observed:

- Applicable laws, standards, and regulations
- The state of the art at the time of installation
- The device's technical data and operating instructions

»PRODUCT COMPLIANCE

Declaration of Conformity
Explanations regarding the conformity of our products can be found on our website:
https://www.thermokon.de/direct/categories/novos-3

»DISPOSAL NOTICE

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

» TECHNICAL DATA

Housing	PC V0, pure white, design cover (optional)
Degree of protection	IP20, according to DIN EN 60529
Ambient conditions	-20..+60 °C, max. 85 % (non-condensing)
Mounting	Surface-mounted on a standard flush-mounted wall box (Ø = 60 mm) or screwed directly onto a flat surface. The housing base can be pre-mounted and wired separately from the housing cover.
Measured values	Motion, luminosity

Network Technology	RS485 Modbus RTU, half-duplex, baud rate: 9.600, 19.200, 38.400 or 57.600, parity: none (1 stop bit, alternatively 2 stop bits), even or odd (1 stop bit), **Fail-safe biasing required**
Power supply*	15..35 V = SELV or 19..29 V ~ SELV
Power consumption	Typ. 0,15 W (24 V =) or 0,4 VA (24 V~)
Entries	1 entry for potential free contact
Electrical connection	Tool-free spring clamp terminal, max. 1,5 mm²
Cable entry	Rear-side opening, bottom-side knock-outs, and top-side drill marking.
Notes	Configurable via software

Power supply
If multiple BUS devices are supplied from a 24 V AC power source, ensure that all „positive“ operating voltage inputs (+) of the field devices are interconnected and that all „negative“ operating voltage inputs (-), i.e. the common reference potential, are likewise interconnected (field devices connected in phase).

If the supply voltage polarity is reversed at one of the field devices, a short-circuit of the supply voltage will be created through that device. The resulting short-circuit current flowing through the field device may damage it.

Therefore, ensure correct wiring at all times!

» Motion (Occ)

Sensor	PIR (passive infrared)
Delay time	120 s

» Luminosity (Lum)

Measuring range luminosity	0..1000 lux
Accuracy luminosity	±5 % from the measured value, Field calibration via the BMS or controller required.

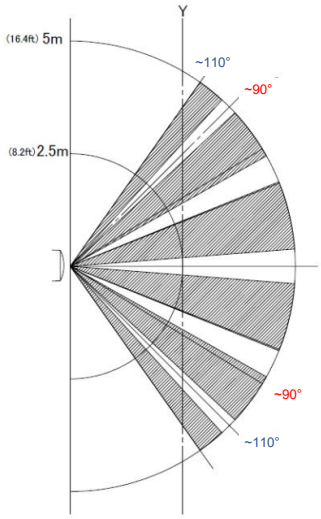
» FURTHER DOCUMENTS

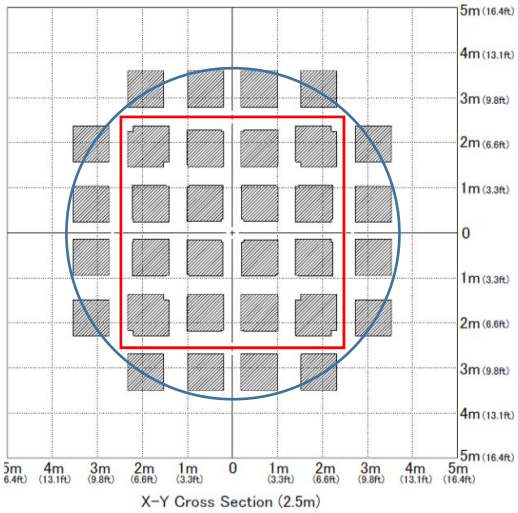
Assembly instructions:
https://www.thermokon.de/direct/alterra-base/mimes/get/7f4a6aed8043b207f

Modbus manual:
https://www.thermokon.de/direct/files/thevios-3-rs485-modbus-handbuch-de.pdf

»DETECTION AREA

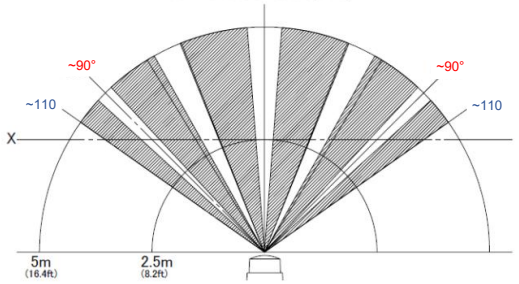
Detection area	
Range	Max. 7 m
Horizontal opening angle	89,4°
Vertical opening angle	89,4°
Measurement zones	32





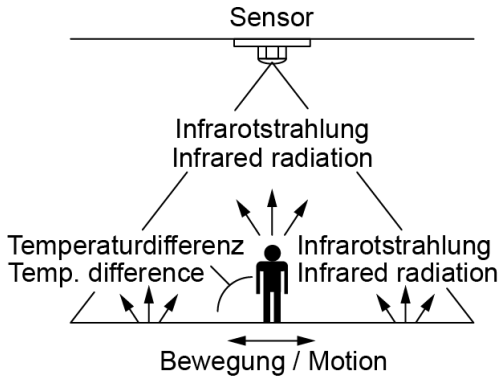
Formula: tan (55) × Mounting height = Detection radius x

Formula: tan (46,5) × Mounting height = Detection radius y



Functional Test
Perform a simple functional test to verify that movement is detected within the sensor's optical detection area. To do so, walk through the detection area and check whether a radio telegram has been transmitted.

»FUNCTIONAL DESCRIPTION



This sensor detects changes in infrared radiation that occur when a person (or an object) moves and its temperature differs from the ambient temperature. The specified detection ranges are based on average conditions at a defined mounting height and should therefore be regarded as guideline values.
To avoid false triggering, the motion detector should not be installed near sources of heat interference such as lamps, radiators, fans, or similar devices. The detection range may vary significantly under changing temperature conditions.

Object properties:	
Temperature difference (between object and ambient temperature)	min. 4 °C
Speed	min. 0,3 to 1,0 m/s
Minimum object size	700 × 250 mm

»MOUNTING ADVICE

The accuracy of the room sensors is influenced not only by their technical specifications but also by their positioning and method of installation.

When installing the device, observe the following:
- Seal the flush-mounted wall box (if present).
- The installation location, drafts, heat sources, radiant heat, or direct sunlight may affect the measured values.
- The construction-specific characteristics of the installation site *(e.g. brick, concrete, stud-partition, or cavity walls)* may affect the measured values.

Installation is not recommended:
- in areas exposed to drafts (e.g. near windows, doors, fans, etc.)
- in the immediate vicinity of heat sources
- in direct sunlight
- in niches or behind furniture

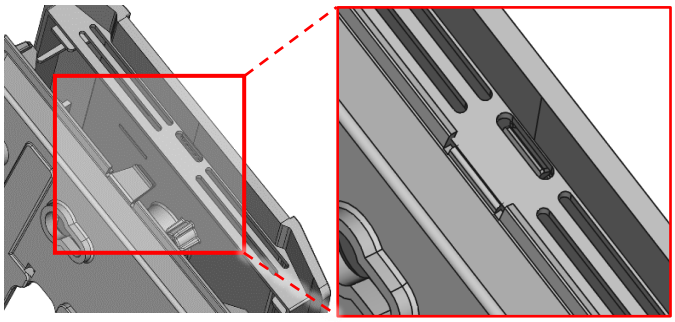
Ensure that the device is disconnected from the power supply before installation.

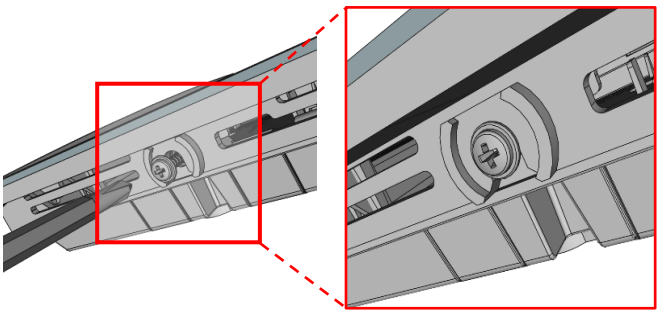
The device can be installed either on a flat wall surface or on a flush-mounted wall box. A representative location should be selected for the values to be measured. Direct sunlight and drafts, for example from installation conduits, must be avoided to prevent measurement errors. If necessary, seal the end of the installation conduit.

- For wiring, the device cover must be removed from the base plate. The base plate and cover are connected by releasable snap latches.
- Mount the base plate on a flat wall surface using wall plugs and screws.
- Finally, attach the device to the base plate and secure it with the screw.

Opening and closing the housing

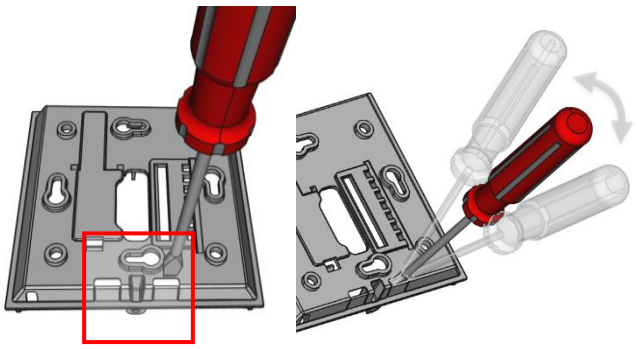
Hook the upper part of the housing into the latch at the top.	Secure the lower part of the housing with the supplied screw.

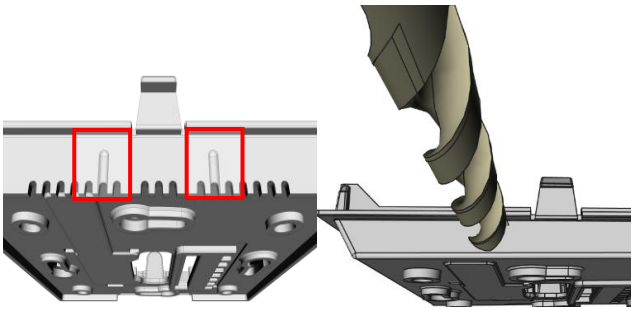




Cable entry for surface mounting

The bottom side of the base plate features knock-out sections for two optional cable entries.	The top side of the base plate includes reference markings indicating drilling positions for holes with a max. Ø 6 mm.



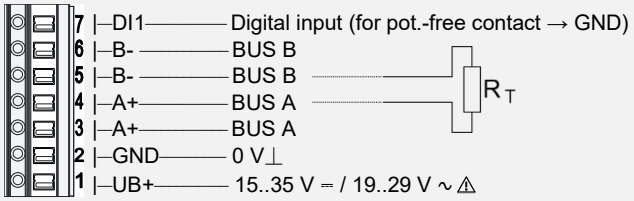


When using a drill, ensure that the base plate is securely clamped in place. Before drilling through, reduce the drilling pressure and continue drilling carefully to prevent chipping or cracking at the drill exit point.

»WIRING DIAGRAM

Room sensor – active, RS485 Modbus

NOVOS 3 Occ Lum RS485 Modbus

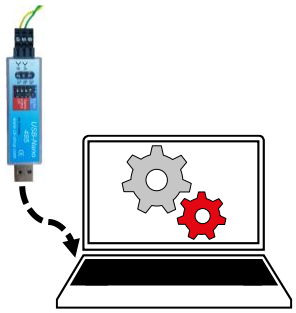


For AC voltage, ensure correct polarity. Observe the technical data.

Please note the terminating resistance (120 Ω) at the last device on the BUS line!
(Not included in the scope of delivery)

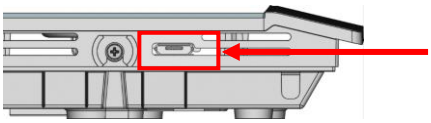
» CONFIGURATION

Configuration is performed while the device is powered. The following options are available for configuring the device:

Connection to the device	RS485	Micro USB	Micro USB
Configuration adapter	USB/RS485 converter 	Thermokon USB interface 	USB Bluetooth dongle 
Configuration software	PC/notebook with uConfig software *Parameterisation via Thermokon uConfig software, via USB/RS485 converter* – Art.-No.: 668293.*	PC/notebook with uConfig software *Partial parameterisation via Thermokon uConfig software, via Thermokon USB interface* – Art.-No.: 597838.*	Smartphone/tablet with NOVOSapp *Parameterisation using mobile devices via Bluetooth and NOVOSapp. A separately available Bluetooth dongle* is required for this purpose – Art.-No.: 668262.*

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

In addition, configuration via the building management system (BMS) using the RS485 interface is possible with the system running.

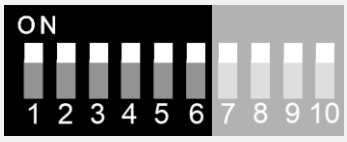


Location of the Micro USB port on the underside of the device for configuration using a Bluetooth dongle or Micro USB programming interface.

» DIP SWITCH SETTINGS

The device's Modbus address is set via a 6-position DIP switch using binary coding in the range 1..63. Setting the DIP switch to address 0 enables an extended address range (64..247) via the NOVOSapp.

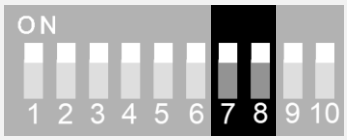
Modbus address – DIP 1..6 (binary-coded)



DIP switch	1 = ON	2 = ON	3 = ON	4 = ON	5 = ON	6 = ON
Value	2^0 (1)	2^1 (2)	2^2 (4)	2^3 (8)	2^4 (16)	2^5 (32)

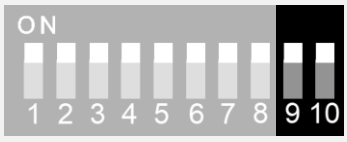
Default setting, address 63

Baud rate – DIP 7 & 8



7	8	Baud rate	
OFF	OFF	9.600	
ON	OFF	19.200	
OFF	ON	38.400	
ON	ON	57.600	Default setting

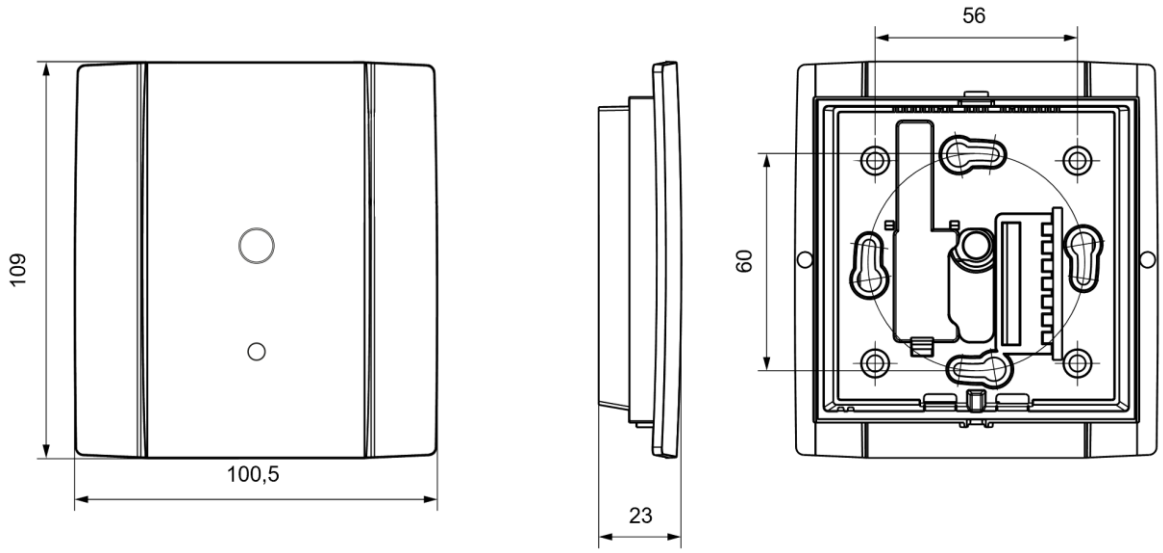
Parity/stop bits – DIP 9 & 10



9	10	Parity
OFF	OFF	None – 2 stop bits
ON	OFF	Even – 1 stop bit
OFF	ON	Odd – 1 stop bit
ON	ON	None – 1 stop bit (default setting)

Parameters	Description	Min.	Max.	Default	Access	Address
Room allocation	Room occupancy switching 0 = Unoccupied 1 = Occupied	0	1		R/W uint16_t	100
Light (lux)	[Measured value]	0	32767		R int16_t	512
Room occupancy delay time (s)	Delay time for room occupancy 5..28800 s (≙ 8 h)	5	28800	120	R/W uint16_t	1314

» DIMENSIONS (MM)



» OPTIONAL ACCESSORIES

Wall plugs and screws (2 pcs. each)	Art.-Nr.: 102209
PSU-UP 24 – flush-mounted power supply, 24 V (AC input: 100..240 V ~ | DC output 24 V = 0,5 A)	Art.-Nr.: 645737
NOVOS 3 surface-mounting base, white	Art.-Nr.: 795050
NOVOS 3 surface-mounting base, black	Art.-Nr.: 795074
Bluetooth dongle	Art.-Nr.: 668262
Thermokon USB interface	Art.-Nr.: 597838
USB RS485 Modbus RTU logger	Art.-Nr.: 809917
USB interface RS485 (incl. driver CD)	Art.-Nr.: 668293
RS485 biasing adapter	Art.-Nr.: 811378