NOVOS Touch RS485 Modbus Casambi

Room operating unit temperature, optional with humidity | CO2 | VOC

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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» APPLICATION

Room control unit with RS485 Modbus and Casambi radio interface for intuitive lighting control of Casambi ecosystem participants with up to four integrated sensors for recording room temperature, humidity, CO2 and VOC. A 4.8”-touchscreen is used to start scenes, select colours, switch lights or over Modbus control shading and climate functions. A monitoring function visualizes the measured values of the integrated sensors in colour. The simple configuration via the Casambi app allows device-specific settings or the configuration of scenes and lighting functions with Casambi radio.

» TYPES AVAILABLE

Touch screen room operating unit temperature + opt. humidity, CO2, VOC – Active BUS

- NOVOS Touch Temp RS485 Modbus Casambi
- NOVOS Touch Temp_rH RS485 Modbus Casambi
- NOVOS Touch CO2 Temp_rH RS485 Modbus Casambi
- NOVOS Touch VOC Temp_rH RS485 Modbus Casambi
- NOVOS Touch CO2+VOC Temp_rH RS485 Modbus Casambi

» 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. Unauthorized modifications are prohibited! The product must not be used in relation to any equipment that in case of 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 installation. 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

CE

Declaration of conformity
The declaration of conformity of the products is available on our website
https://www.thermokon.de/direct/en-gb/categories/novos-touch

»MOUNTING ADVICE ROOM SENSORS

The accuracy of the room sensors is influenced by their technical specifications as well as their installation position and mounting method.

During installation, observe the following:

- Seal the flush-mounted wall box (if applicable).
- Air drafts, heat sources, radiant heat, or direct sunlight at the installation location may affect the measurement.
- The building material at the installation location (e.g. brick, concrete, stud walls, or cavity walls) may affect the measurement.

Installation is not recommended in the following locations:

- Areas exposed to air drafts (e.g. near windows, doors, or ventilation outlets)
- Near heat sources
- In direct sunlight
- In niches or behind/between furniture

»BUILD-UP OF SELF-HEATING DUE TO ELECTRICAL POWER DISSIPATION

Sensors with electronic components always dissipate power, which affects the measurement of the ambient air temperature. In active temperature sensors, the power dissipation increases linearly with the operating voltage. This dissipated power must be considered when measuring temperature. With a fixed operating voltage (±0.2 V), this can normally be compensated for by applying a constant offset value.

Thermokon transducers can be operated with variable operating voltages. The transducers are factory-calibrated at a reference operating voltage of 24 V =. At this voltage, the expected measurement error of the output signal is minimized. Operating the transducers at other voltages may result in measurement deviations due to changes in the power dissipation of the sensor electronics.

Recalibration can be performed either directly on the device or via a software parameter (app or bus).

Note: Airflow improves the dissipation of heat generated by the sensor electronics. As a result, temporary fluctuations in the measured temperature may occur.

»APPLICATION NOTES FOR HUMIDITY SENSORS

Under normal environmental conditions, it is recommended to calibrate the sensor annually to verify that it continues to meet the accuracy requirements of the application. The following conditions may damage the sensor element or, over time, cause it to fall outside the specified accuracy:

- Mechanical stress
- Contamination (e.g. dust or fingerprints)
- Exposure to aggressive chemicals
- Adverse ambient conditions (e.g. condensation on the sensor element)



Do not touch the sensor element!

Recalibration or replacement of the sensor element is not covered by the standard warranty.

»INFORMATION ON THE CO2 SELF-CALIBRATION FEATURE

All gas sensors are subject to drift over time. The extent of this drift depends on the components used and the overall product design. In addition, the following environmental conditions may accelerate sensor aging and increase drift:

- Mechanical stress (including stress caused by temperature fluctuations)
- Contamination (e.g. dust or fingerprints)
- Exposure to aggressive chemicals
- Adverse ambient conditions (e.g. high humidity or condensation on the sensor element)

An integrated self-calibration function based on dual-channel technology automatically compensates for this drift. Thermokon sensors are designed for continuous operation, making them suitable for applications with permanent occupancy (e.g. hospitals).

»INFORMATION ON INDOOR AIR QUALITY CO2

EN 13779 defines several classes for indoor air quality:

Category	CO2 content above the outdoor air concentration in ppm		Description
	Typical range	Standard value	
IDA1	<400 ppm	350 ppm	Good indoor air quality
IDA2	400..600 ppm	500 ppm	Standard indoor air quality
IDA3	600..1.000 ppm	800 ppm	Moderate indoor air quality
IDA4	>1.000 ppm	1.200 ppm	Poor indoor air quality

» APPLICATION NOTES FOR VOC AIR QUALITY SENSORS

Volatile organic compounds (VOC) are gaseous and vaporous substances of organic origin present in the air. VOC-sensors monitor the significant part of humanly olfactory sensed air quality. (e.g. body odour, tobacco smoke, odour of materials, furniture, carpets, paint, adhesives, etc)

The VOC value is an application-specific indicator of air quality and does not provide any information about individual VOC components

A VOC sensor oxidizes organic molecules that meet its sensing element, resulting in a change in the semiconductor's resistance.

Any contact with the sensitive sensor element must be avoided, as it may invalidate the warranty.

The VOC sensor is factory-calibrated and can be recalibrated via the NOVOSapp if required.

» TECHNICAL DATA

Measuring values *(optional)*	Temperature, optional humidity | CO2 | VOC
Network technology	RS485 Modbus, RTU, half-duplex, baud rate 4800 | 9600 | 14400 | 19200 | 38400 | 56000 | 57600 or 115200, parity: none (2 stopbits), even or odd (1 stopbit), **Fail-safe Biasing required**
	Casambi (Evolution) 2,4 GHz
Power supply	24 V = (±10 %) or 24 V ~ (±10 %) SELV Power supplies with a 'hiccup' start-up behaviour are not suitable. *When using AC voltage, care must be taken to ensure correct polarity.*[1]
Power consumption	Typ. 3 W (24 V =) | 6 VA (24 V ~)
Measuring range temp	-50..+50 °C | 0..+50 °C | -15..+35 | -20..+80 °C, default setting: 0..+50 °C, optionally configurable via Thermokon NOVOSapp or BUS
Accuracy temperature	±0,5 K (typ. at 21 °C)
Inputs	1 x input for floating contact
Control functions Modbus	Occupancy signaling, blinds UP/DOWN/SET, setup scenarios, fan stages, setpoint, ECO function, measured value display & history
Casambi functions	Light ON/OFF/DIM, colour temperature, colour control RGBW, setup scenarios
Display	TFT 4,8", 1120x480 px, capacitive touch technology
Enclosure	PC V0, pure white, design surface glass colour enclosure: pure white, black or aluminium, design panel: glass, white or black
Protection	IP30 according to DIN EN 60529
Cable entry	Rear entry, breaking points bottom, drill mark top
Connection electrical	Tool-free mountable spring terminal, max. 1,5 mm²
Ambient condition	0..+50 °C, max. 85 % non-condensing
Mounting	Surface mounted on flush-mounting box (Ø = 60 mm) or to be mounted flat onto the surface using screws, base part can be mounted and wired separately

[1] When several bus devices are supplied by a single 24 V AC power supply, it must be ensured that all positive operating voltage input terminals (+) of the field devices are connected and that all negative operating voltage input terminals (-) (= reference potential) are connected (in-phase connection of field devices). If the polarity of one field device is reversed, this device may cause a short circuit of the supply voltage.

The resulting short-circuit current flowing through this field device will damage it. Therefore, ensure correct wiring.

» Humidity (optional)

Measuring range humidity (optional configurable)	**Relative humidity** 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 or BUS			
Accuracy humidity	±2 % between 10..90 % rH (typ. at 21 °C)			

» CO2 (optional)

Measuring range CO2	0..2000 | 0..5000 ppm (configurable via Thermokon NOVOSapp or BUS)
Accuracy CO2	±(50 ppm +3 % of reading), (typ. at 21 °C, 50% rH, 1015 hPa)
Calibration	Self-calibration dual channel
Sensor	NDIR (non-dispersive, infrared)

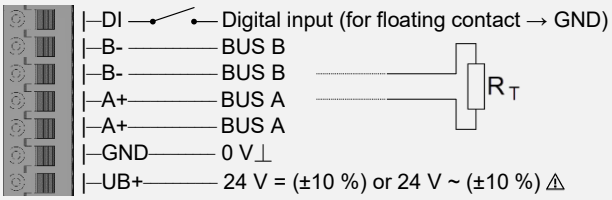
» VOC (optional)

Measuring range VOC	0..100 %
Sensor	VOC sensor (heated metal oxide semiconductor)

»CONNECTION PLAN

Room operating unit – Active RS485 Modbus

NOVOS Touch RS485 Modbus Casambi



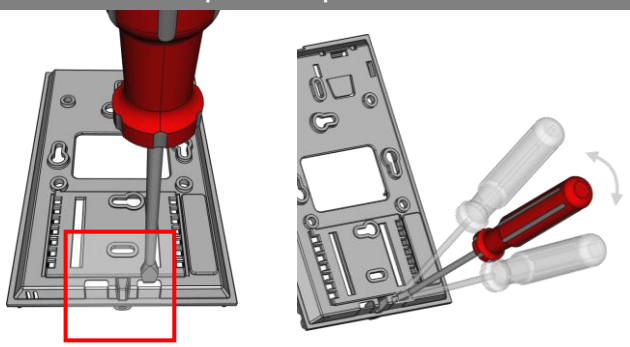
With alternating voltage, the correct polarity must be ensured!
Please note the technical data.

Do not forget the BUS termination (120 Ω) at the last device of the line!
(Not included in delivery)

»MOUNTING ADVICE

Cable entry

The underside of the base plate features two predetermined break-out points for optional cable entries



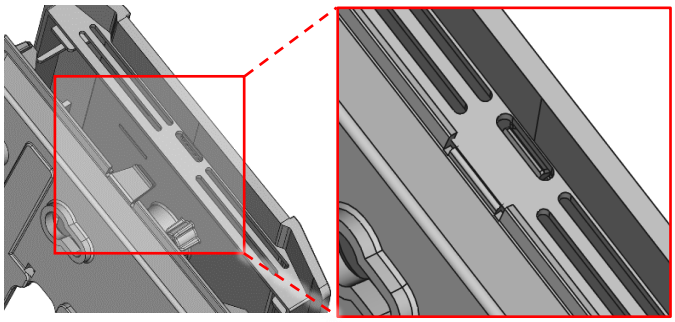
Please ensure that the device is de-energized before installation!

The installation can be performed on a flat wall surface or on a flush-mounted box. A representative installation location should be selected. Direct sunlight and drafts, e.g. through the installation tube, should be avoided to prevent falsification of the measurement result. Seal the end of the installation tube.

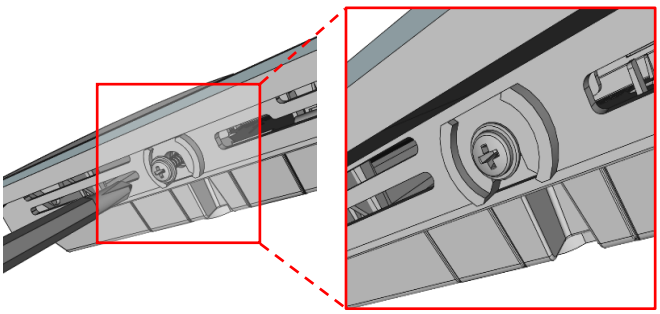
- For wiring, the upper part of the device must be removed from the base plate. The base plate and the upper part are detachably connected by means of locking lugs.
- The base plate is mounted on the flat wall surface using wall plugs and screws.
  - Finally, the device is attached to the base plate and secured with the screw.

Opening / Closing the Housing

Snap the upper part of the housing into the locking lug on the upper side



Secure the upper part of the housing on the underside with the screw



»NOTES ON DISPOSAL

The cross-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

» FUNCTION DESCRIPTION – HOME SCREEN NOVOS TOUCH

Home screen
The display on the home screen of the NOVOS room control unit can be freely parameterised. All icons and notifications can be switched on and off.
Set point can also be overwritten.



Headline
In the header of the home screen various icons can be shown or hidden as desired.

Date / time
The time and date are in the centre of the home screen.

Setpoint / room temperature
The currently set target value of the room control unit and the room temperature are shown on the display.

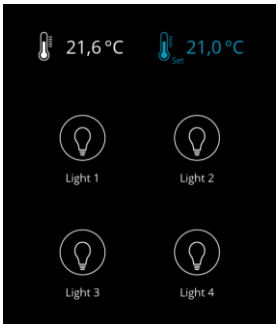
Navigation bar
The navigation bar is a central element on the home screen. It contains all menus such as climate, light, blinds, scene, monitoring, display ON/OFF and settings. If certain menus are not needed, they can be switched off as desired. With a swipe gesture you can scroll between the menu pages in the navigation bar.



Status messages
At any time, any text message (max. 24 characters) can be displayed on the home screen for status reporting or notification.

Favourite buttons
Light, scene groups or complete submenu can be placed on the home screen as a favourite button that is quickly accessible (if only one favourite key is used = favourite button 1) . Up to 4 favourite buttons (favourite buttons 2-5) are possible.

Example below: 4 different Light circles (Favourite buttons 2-5)

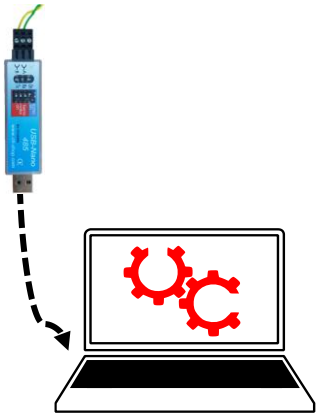
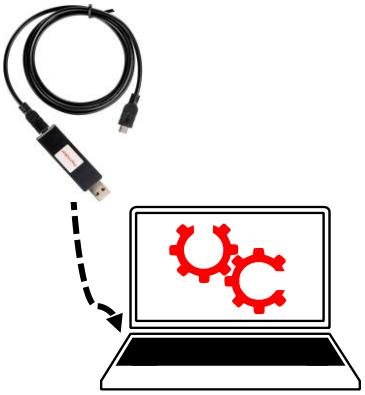


To reduce the risk of burnt-in effects of the screen contents, it is recommended to activate the screen saver. By default, the screen saver switches on 120 seconds after the last interaction.

Modbus addresses:
NOVOS-RS485 Modbus interface
A detailed description of the Modbus addresses can be found under the following link: → Download

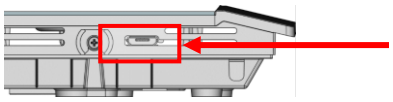
»CONFIGURATION

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

Device connection	RS485	Micro-USB	Casambi communication
Configuration adapter	USB-RS485 converter 	Thermokon USB-Interface 	internal 
Configuration software	PC/Notebook with uConfig software *Parameterization with Thermokon uConfig software, via USB/RS485 converter* (Art.-No.: 668293)*	PC/Notebook with uConfig software *Partly parameterization with Thermokon uConfig software, via Thermokon USB-Interface* (Art.-No.: 597838)*	Smartphone/Tablet with CASAMBI App *Parameterization with mobile device via Bluetooth and CASAMBI App.*

**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.*

Additionally, a configuration via RS485 interface via BMS during powered state is possible.



Position of the Micro-USB port, see bottom of the device, for configuration with Bluetooth dongle or Thermokon USB-Interface

»CASAMBI COMMUNICATION



A NOVOS Touch Casambi serves as an interface between a Building Management System (BMS) and a connected Casambi network.

All information received from the NOVOS Touch via Casambi is forwarded to the BMS, allowing the current status to be viewed and used in the building management system at any time.

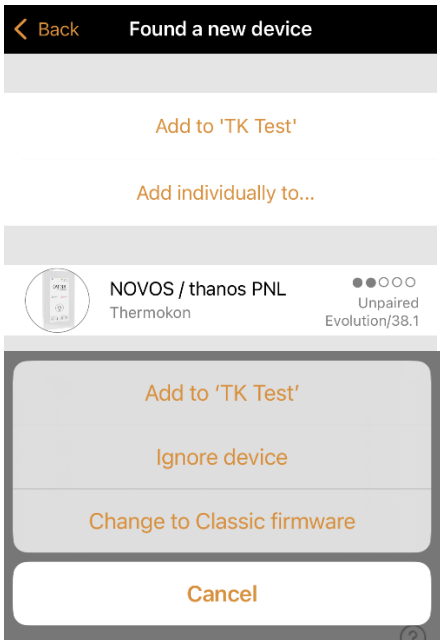
Commands for Casambi functions sent to the NOVOS Touch via bus communication are transmitted to the Casambi network via Casambi radio.

» CASAMBI COMISSIONING

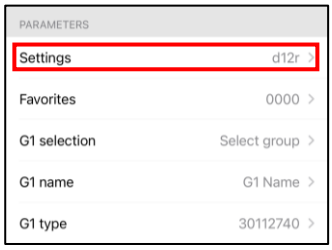
1. Connect the device to the power supply. Observe the connection diagram!
2. Open Casambi App (iOS App Store / Android Play Store)

   If an unpaired device is found, it is suggested to add the device to a network.
3. Add NOVOS Touch to an existing Casambi network, if required switch to other Casambi network first.

   *After pressing the "**back**" button the network can be changed ("my networks").*
4. The device appears in the gateway section.
5. Configure the NOVOS Touch Casambi parameters.



» CASAMBI PARAMETER



Settings *(parameter LTBC)*

L = Language
D – German
E – English
X – No change

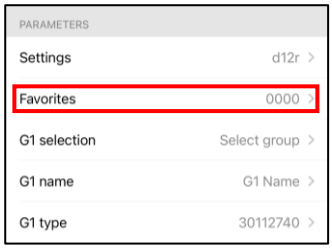
T = Time synch
0 – No time synch
1 – Time synch from Casambi to device

B = Behavior
1 – External control (configurable via BUS)
2 – Standalone/panel (configurable only via CASAMBI)

C = Display color scheme

x	Background color / text color	**B**	Black / white	**G**	Green / white	**R**	Red / white
0	No change	**W**	White / black	**L**	Blue / white		

Example settings: d12l = German | time synch | standalone/panel | background color blue / text color white

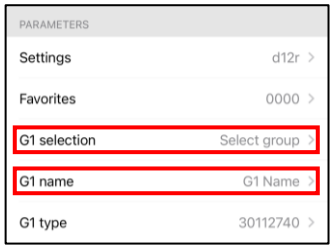


Favourites* *(ABCDE)*

A Favorite button 1
B Favorite button 2
C Favorite button 3
D Favorite button 4
E Favorite button 5

Default value: 0 - none

i.e.: 0b300
– None / scene 2 / group 3



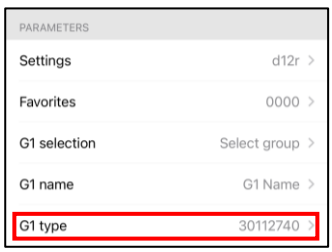
Gx selection / name
(Selection / input field)

Selection – Casambi group

Name – Group name

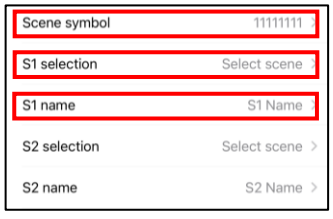
Favourites

1	Group 1	a	Scene 1	i	Presence	q	Shading 1
2	Group 2	b	Scene 2	j	Eco	r	Shading 2
3	Group 3	c	Scene 3	k	Climate menu	s	Shading 3
4	Group 4	d	Scene 4	l	Lighting menu	t	Shading 4
5	Group 5	e	Scene 5	m	Blind menu	u	Shading 5
6	Group 6	f	Scene 6	n	Scene menu	v	Shading 6
7	Group 7	g	Scene 7	o	Monitoring menu	w	Shading 7
8	Group 8	h	Scene 8	p	Fan menu (Novos 7)	x	Shading 8



Gx type
(Light group configuration)

ITDSMnMx
I – Icon
T – Type
D – Dim function
S – Step size
Mn / Mx – Minimum / maximum colour temperature



Scene symbol
(Scene symbol configuration) *
1. digit = Scene symbol 1
2. digit = Scene symbol 2…

Sx selection / name
(Selection / input field)

Selection – Scene

Name – Scene name

Gx type parameter listing

I	0 – Universal, 1 – Spot, 2 – Cassette, 3 – Floor lamp (default)
T	0 – Slider (default), 1 – RGBW colourpicker, 2 – Colour temperature picker
D	0 – Not dimmable, 1 – Dimmable (default)
S	0 – 1, 1 – 1 (default), 2 – 2, 3 – 3, 4 – 4, 5 – 5, 6 – 10, 7 – 15, 8 - 20 (in %)
Mn	Input value (2 digits) multiplied with 100 = minimum kelvin (colour temperature) (i.e.: Mn = 27 -> CTmin = 27 * 100 = 2700 K (default))
Mx	Input value (2 digits) multiplied with 100 = maximum kelvin (colour temperature) (i.e.: Mx = **40** -> CTmax = 40 * 100 = 4000 K (default))

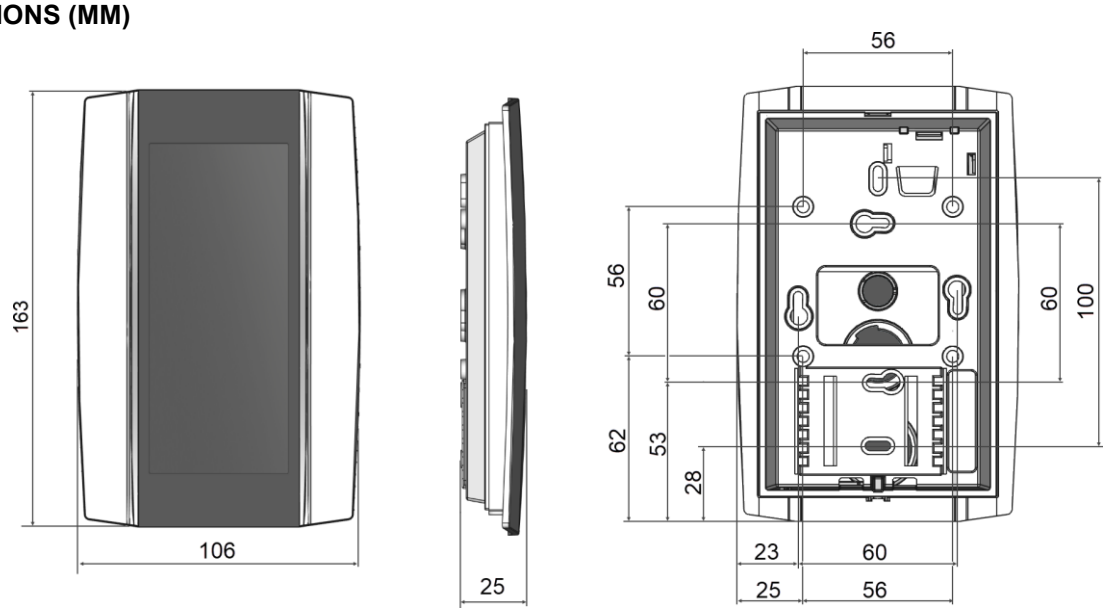
Example Gx type: 30112740 = Floor lamp | slider | dimmable | 1 | min kelvin color temp 2700k | max kelvin color temp 4000k

Scene symbol parameter listing

0	Work (briefcase)
1	Presentation (canvas)
2	Cinema (screen)
3	Party (cocktail glass)
4	Bedroom (bed)
5	Food (serving bell)
6	Do not disturb (lock)
7	Cleaning (vacuum cleaner)
8	Scene (clapperboard)

Example scene symbol: 02437000 = Scene 1: work | scene 2: cinema | scene 3: bedroom | scene 4: party | scene 5: cleaning

»DIMENSIONS (MM)



»ACCESSORIES (OPTIONAL)

Wall plugs 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
Thermokon USB-Interface	Item No. 597838
USB RS485 Modbus RTU Logger	Item No. 809917
USB Interface RS485 (incl. driver CD)	Item No. 668293
RS485 Biasing adapter	Item No. 811378