

thanos EVO BlueRange

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

thermokon[®]
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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thanos**EVO**

WORKS WITH

 BlueRange



» APPLICATION

Room operating unit with detection of room temperature, optional humidity, CO2 or VOC and a monitoring function for colour visualization of the measured values. The maintenance-free sensor creates the conditions for a pleasant room climate and a sense of well-being. Typical areas of application are schools, office buildings, hotels or cinemas. The room operating unit has a high-resolution 4.8"-display with an elegant glass surface. The innovative and self-explanatory operation offers lighting, shading, climate and scene control functions for intelligent room automation. In combination with BlueRange Mesh technology, the device is ideal for digital buildings to sustainably increase user comfort and energy efficiency.

» TYPES AVAILABLE

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

- thanos EVO Temp BlueRange*
- thanos EVO Temp_rH BlueRange*
- thanos EVO CO2 Temp_rH BlueRange*
- thanos EVO CO2+VOC Temp_rH BlueRange*

** also available as design variant*

» 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



Declaration of conformity

The declaration of conformity of the products can be found on our website
<https://www.thermokon.de/direct/en-gb/categories/thanos-evo>

» 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

» NOTES ON DISPOSAL



The cross-out wheeled 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

» 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	Temperature, optional humidity CO2 VOC
Network technology	BlueRange Mesh 2,4 GHz
Power supply	24 V = ($\pm 10\%$) or 24 V ~ ($\pm 10\%$) SELV Power supplies with a 'hiccup' start-up behaviour are not suitable. <i>When using AC voltage, care must be taken to ensure correct polarity.</i>
Power consumption	Typ. 3 W (24 V =) 6 VA (24 V ~) ²
Measuring range temp	0..+50 °C
Accuracy temperature	$\pm 0,5$ K (typ. at 21 °C)
Control functions	Climate: setpoint adjustment, fan stages, ECO function, presence detection Lighting: On/Off, dimming, colour temperature Shading: blind and roller shutter up/down with slat adjustment, curtain, awning Other: Favourite buttons, call up scenes, measured value display & history, cleaning mode
Display	TFT 4,8", 1120x480 px, capacitive touch technology
Enclosure	PC V0 and glass, Surface glass, white or black design variant glass + aluminium
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 mm ²
Ambient condition	0..+50 °C, max. 85 % non-condensing
Mounting	Surface mounted on flush-mounting box ($\varnothing = 60$ mm) or to be mounted flat onto the surface using screws, base part can be mounted and wired separately

² type inrush current: 2A (< 5 ms)

» Humidity (optional)

Measuring range humidity (optional configurable)	Relative humidity (default) 0..100 % rH	Enthalpy 0..85 KJ/kg	Absolute humidity 0..50 0..80 g/m ³	Dew point 0..+50 -20..+80 °C
	configurable via Thermokon NOVOSapp or BUS			
Accuracy humidity	$\pm 2\%$ between 10..90 % rH (typ. at 21 °C)			

» CO2 (optional)

Measuring range CO2	0..2000 0..5000 ppm (configurable via the BlueRange IoT platform)
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

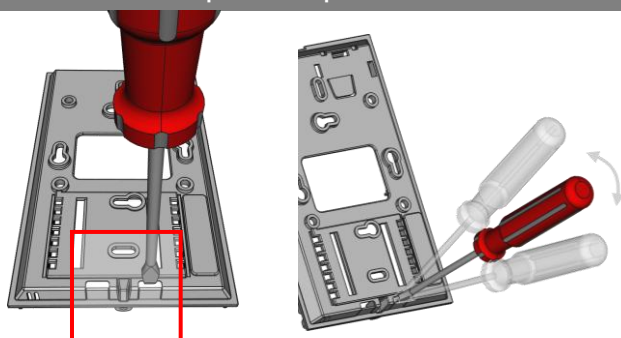
thanos EVO

7	—	n.c.
6	—	n.c.
5	—	n.c.
4	—	n.c.
3	—	n.c.
2	—	GND — 0 V ⊥
1	—	UB+ — 24 V = (±10 %) or 24 V ~ (±10 %)

» MOUNTING ADVICE

Cable entry

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



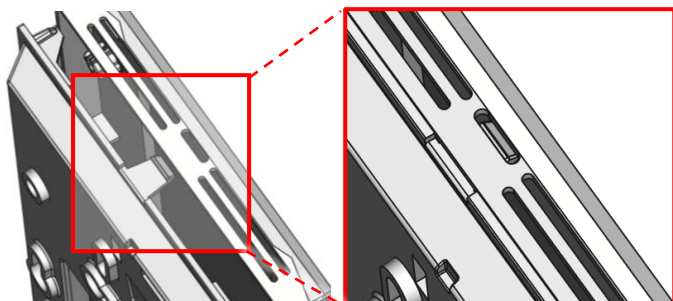
Please ensure that the device is de-energized before installation!

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.

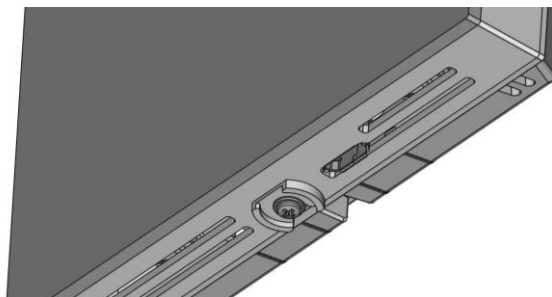
- For wiring, the upper part of the device must be removed from the base plate. The base plate and the upper part are detachably connected by means of locking lugs.
- The base plate is mounted on the flat wall surface using wall plugs and screws.
- Finally, the device is attached to the base plate and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



» FUNCTION DESCRIPTION – HOME SCREEN THANOS EVO

Home screen

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

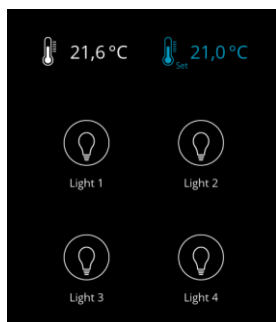
Status messages

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

Favourite buttons

Light, blind circles or complete submenu can be placed on the home screen as a favourite button that is quickly accessible. Up to 4 favourite buttons are possible.

Example below: 4 different Light circles

**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

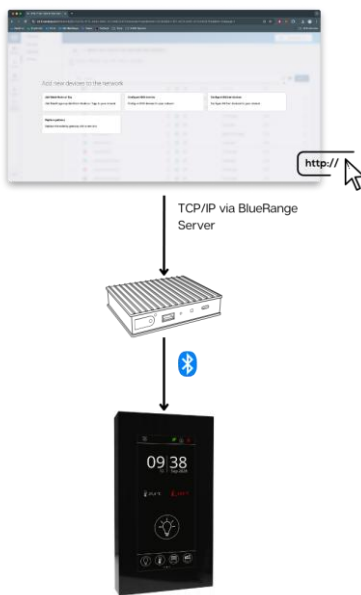
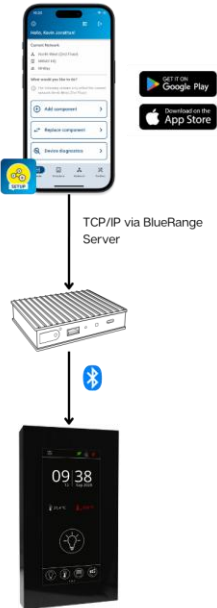
The navigation bar is a central element on the home screen. It contains all menus such as climate, light, blinds, scene, monitoring, display ON/OFF and settings. If certain menus are not needed, they can be switched off as desired. With a swipe gesture you can scroll between the menu pages in the navigation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



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.

» REGISTRATION AND CONFIGURATION

Commissioning is basically carried out in three steps: Installation, enrollment and configuration. Once the installation has been prepared, the enrollment and configuration are carried out in a powered state. The following options are available for this.

User interface	BlueRange IoT platform (PC/notebook)	BlueRange Setup App (smartphone/tablet)*
Communication	via BlueRange Gateway	via BlueRange Gateway
Diagram		
Configuration	Parameterization with BlueRange IoT platform or BlueRange Setup App	Parameterization with BlueRange IoT platform or BlueRange Setup App

* You can download the BlueRange Setup App free of charge from the Google Play Store or the Apple App Store. For the full range of functions, you need a mobile device that supports at least Bluetooth version 4.1.

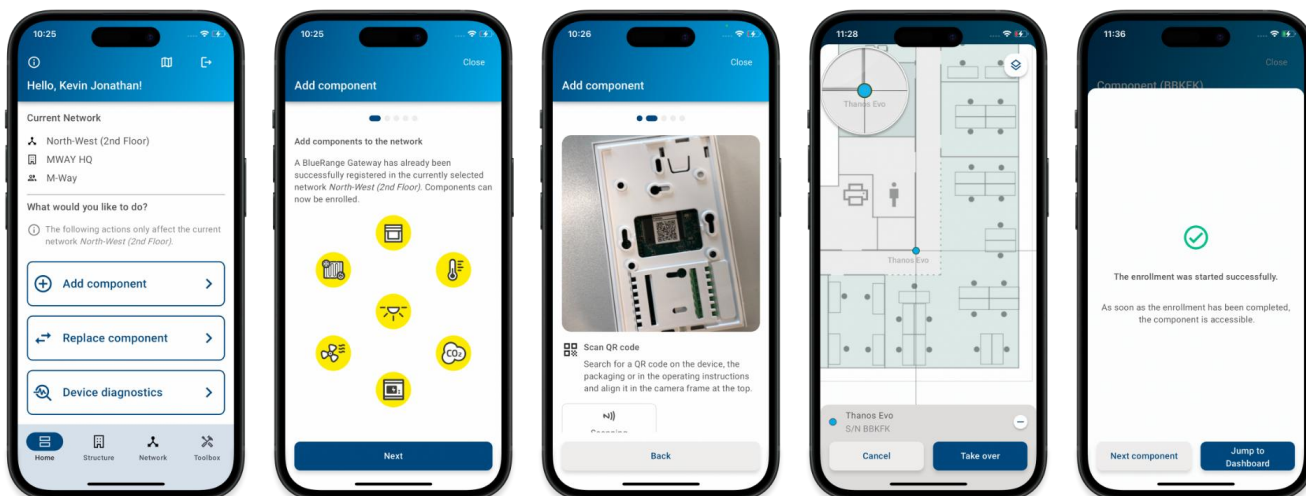
» BLUERANGE BRIEF DESCRIPTION & NOTICE

BlueRange is a mesh network technology that operates on the 2.4 GHz frequency. This enables the room operating unit to communicate wirelessly with other devices in the network to record and exchange data on temperature, humidity, CO₂ concentration and VOC values. During commissioning, therefore, only a power supply needs to be considered - no data cabling is required. The use of mesh network technology increases reliability and data transparency, as the component can be easily kept up to date via over-the-air (OTA) updates. This enables more comprehensive monitoring and control of the indoor climate in real time, resulting in greater comfort and energy efficiency. The system is configured and commissioned either via the BlueRange IoT platform or the BlueRange Setup App, which establishes a direct connection to the device via the BlueRange Gateway.

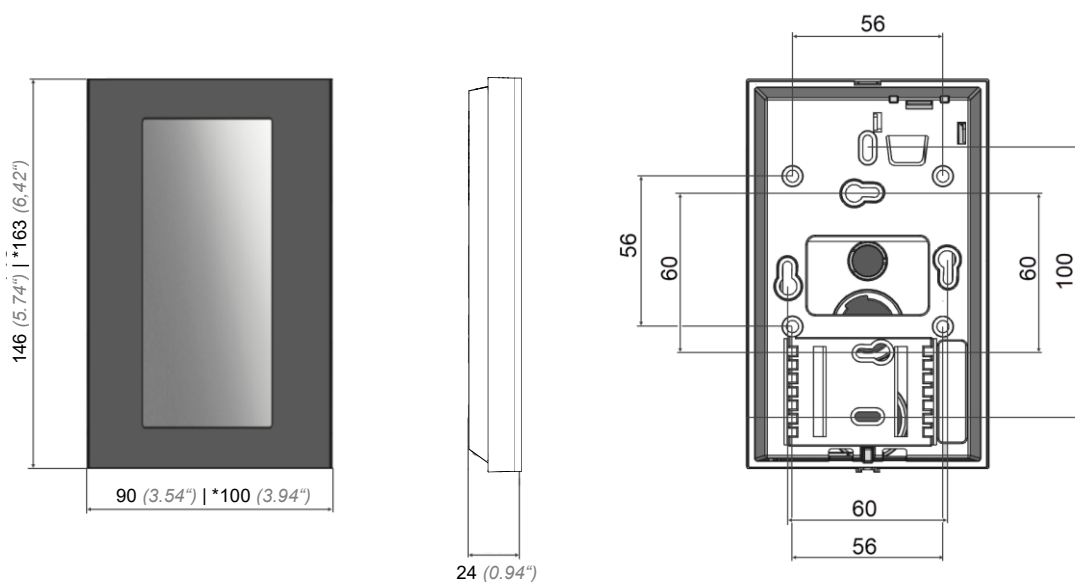
The use of a BlueRange Gateway and the BlueRange IoT platform is required to operate a BlueRange Mesh network. The gateway enables access to the mesh network data and forwards it securely to the BlueRange IoT platform. This architecture supports the central collection and visualization of building data, which allows operations to be continuously optimized and adapted to needs-based usage.

» COMMISSIONING: REGISTRATION VIA APP

To better illustrate this, the enrolment of the room operating unit via the BlueRange Setup App is visualized below. The application guides the user intuitively through the enrollment process. Please note that a QR code is required to identify the device, which must be scanned during enrollment. This can be found on the back of the circuit board as well as in the enclosed box.



» DIMENSIONS (MM)



* Thanos Evo Design
Dimensions

» ACCESSORIES (OPTIONAL)

Wall plugs and screws (2 pcs. each)

PSU-UP24 – flush mount power supply 24 V (AC Input: 100..240 V ~ | DC Output 24 V = 0,5 A)

Item No. 102209

Item No. 645737