

» SR04 CO2

Combined wireless sensor CO2/temperature/rel. humidity

thermokon[®]
HOME OF SENSOR TECHNOLOGY

Datasheet

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» APPLICATION

For detection of CO2 and temperature and humidity (optional) integrated in one unit.

» TYPES AVAILABLE

SR04 CO2 xxx Wireless Room sensor CO₂, temperature + optional

<u>rH</u>	integrated sensor for rel. humidity
<u>LCD</u>	LCD-Display for indication of measuring values and setting of properties
<u>TLF</u>	3 LEDs showing levels of CO ₂ concentration

» 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.

» 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.

Surface and Flush Mounting

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.

» 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.

Information about Indoor Air Quality CO₂

EN 13779 defines several classes for indoor air quality:

Category	CO ₂ content above the content in outdoor air 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

» INFORMATION ABOUT SELF-CALIBRATION FEATURE CO₂

All gas sensors are subject to drift caused by components. This fact results generally in the need to recalibrate the sensors regularly.

With dual channel technology Thermokon integrates automatic self-calibration for different fields of operation. In contrast to common used ABC-Logic sensors with self-calibration dual channel are suitable for applications operating 24 hours, 7 days a week as for example hospitals.

Manual calibration is not necessary!

» PRODUCT TESTING AND CERTIFICATION



Declaration of conformity

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

» 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.

» TECHNICAL DATA

Measuring values	temperature, CO ₂ , humidity (optional)
Radio technology	EnOcean (IEC 14543-3-10) EEP A5-09-04
Frequency	868 MHz, optional 928 MHz
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 1,5 W (24 V =) 3,6 VA (24 V ~)
Measuring range temp	0..+51 °C
Measuring range humidity optional	0..100% rH non-condensing (optional)
Measuring range CO ₂	0..2550 ppm
Accuracy temperature	±1% of measuring range (typ. at 21 °C)
Accuracy humidity optional	±3% between 20..80% rH (typ. at 21 °C)
Accuracy CO ₂	±75 ppm or ±10% of measuring range (typ. at 21 °C)
Measuring interval	WakeUp time = 100 sec. (default)
Transmission interval	every 100 sec. at change >0,4 K, >2,5% rH or 50 ppm, otherwise every 1000 sec.
Calibration	self-calibration, Dual Channel
Sensor	NDIR (non dispersiv, infrared)
Display optional	3 LEDs showing air quality (traffic light function 'TLF'), LCD 29x12 mm, monochrom (optional)
Enclosure	PC, pure white
Protection	IP30 according to EN 60529
Cable entry	breaking points top/bottom, rear entry
Connection electrical	terminal block max. 1,5 mm ²
Ambient condition	0..+50 °C, max. 85% rH non-condensing
Weight	90 g
Mounting	screw mounting onto flat surface
Notes	optional with display "LCD", optional with traffic light function "TLF"

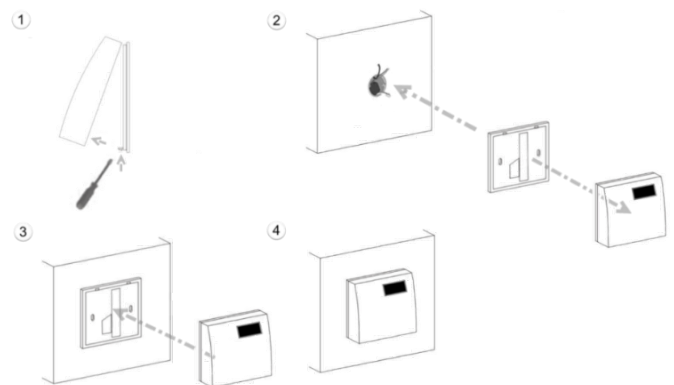
» MOUNTING ADVICE

Installation of the device only when de-energized.

The installation is performed either on a flush-mounted box or directly on the wall surface.

For the electrical connection, the rear side of the housing is detached from the upper housing part. Back and top are connected with a latch.

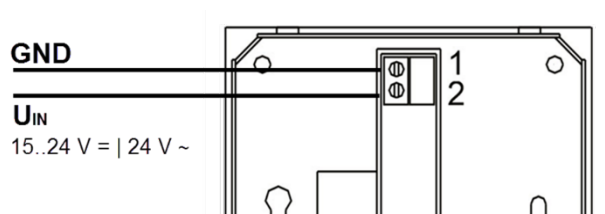
In order to prevent measurement deviations, the end of the installation pipe must be sealed against any draft when installing on a standard flush-mounted box.



» CRC8 CHECKSUM

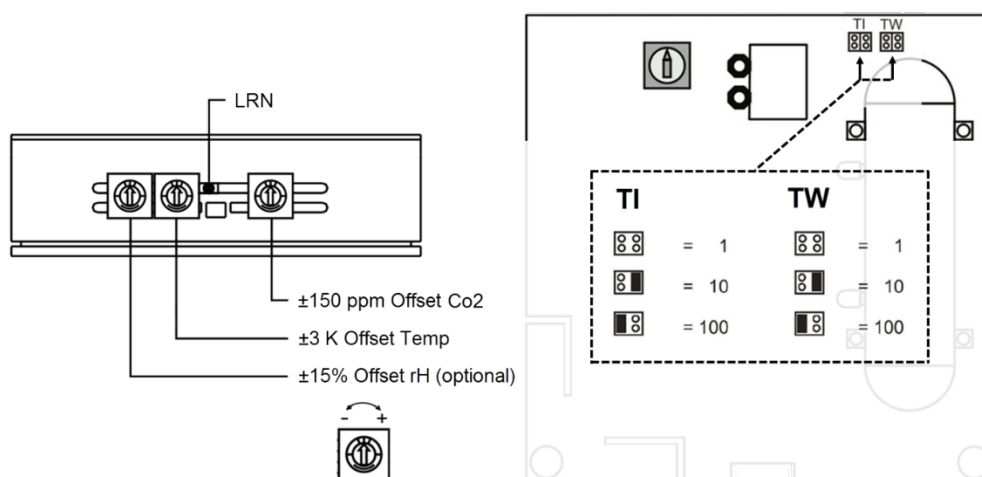
By default, the radio transmitter uses the checksum CRC8 in its telegrams (according to factory setting from 05/2019). This has the advantage that faulty telegrams can be better verified and sorted out on critical radio ranges. Radio receivers older than the TCM3xx only support a simple checksum. In 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.

» CONNECTION PLAN



» CONFIGURATION

In order to assure a correct evaluation of the measuring values by the receiver, it is necessary to have the devices learned into the receiver. This is done automatically by means of a “learn button” (LRN) 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.



Pre-setting:

(TW) T_{wake up}: 100, (TI) T_{interval}: 10

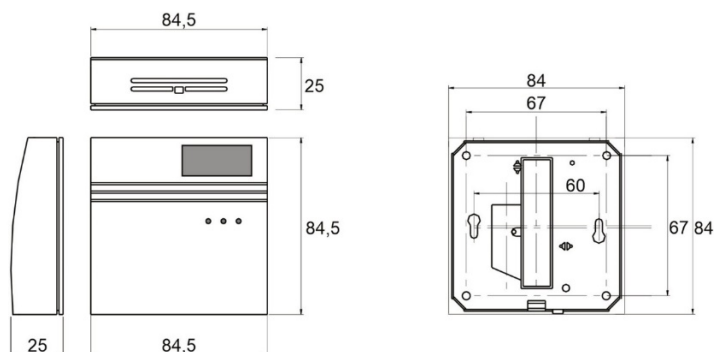
T_{send} = 100 seconds wake up * 10 interval = 1.000 seconds = ca. 16 minutes

TLF Traffic light function (optional)

The LEDs visualize the air quality

0..33%	0..750 ppm	green LED flashing
34..66%	751..1250 ppm	yellow LED flashing
67..100%	1251..2000 ppm	red LED flashing

» DIMENSIONS (MM)



» ACCESSORIES

Raw plugs and screws (2 pcs. each)
EnOcean usb transceiver for airConfig/airScan (incl. licence) 868MHz

Item No. 102209
Item No. 566711