LK+ CO2 Temp_rH BAT LRW

LoRaWAN® Duct sensor for air quality temperature and humidity

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
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» APPLICATION

Duct air quality sensor for measuring CO2 air quality, temperature and humidity in air ducts with LoRaWAN® interface.

» TYPES AVAILABLE

Duct sensor – LRW
- LK+ CO2 Temp_rH BAT LRW

» 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

» 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/lkplus

» 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

» 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.

» INFORMATION ABOUT INDOOR AIR QUALITY CO_2

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. The degree of drift is dependent on the use of components and product design. In addition, the following environmental conditions, among others, can accelerate/ favor the aging and wear of the sensors:

- Mechanical stress (also due to temperature fluctuation)
- Contamination (dust / fingerprints e.g.)
- Abrasive chemicals
- Environmental influences (high humidity / condensation on measuring element)

An internal self calibration function with dual channel technology compensates the caused drift. Thermokon sensors are for permanent use (e.g. hospitals).

» TECHNICAL DATA (TYPE-DEPENDENT)

|	
Measuring values	CO2, temperature and humidity
Power supply	1-2x AA batteries (1,5-3,6V)
Measuring range temp.	-20..+70 °C
Measuring range humidity	0..100% rH non-condensing
Measuring range CO2	0..5000 ppm
Accuracy temperature	±0,4 K (typ. at 21 °C)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Accuracy CO2	±50 ppm +3% of reading (typ. at 21 °C, 50% rH)
Air Speed	Min. 0,3 m/s, max. 12 m/s
Calibration CO2	self-calibration, Dual Channel
Sensor	**CO2** NDIR (non-dispersiv, infrared)
Enclosure	enclosure USE-M / cover, PC, pure white
Protection	IP65 according to EN 60529
Pipe	PA6, black, Ø=19,5 mm, length 150 mm
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Configuration	Thermokon LRWapp, uConfig software, LoRaWAN® Downlink
Battery life	+/- 5 years (depending on device configuration, LoRaWAN® network setup and environmental conditions)

» LoRaWAN®

Radio technology	LoRaWAN®
LoRaWAN® version	1.0.4
Device class	Class A
Frequency	EU868 (863-870 MHz)
Max. transmission power	+14 dBm (25 mW)
Receiver sensitivity	-137 dBm
Antenna	Internal send- / receiver antenna, external antenna available on request
LoRaWAN® Features	Over the Air Activation (OTAA), Adaptive Data Rate (ADR)
Data transmission	Heartbeat interval (Default: 1440 min), measurement interval (default: 1 min), hysteresis send behavior

» MOUNTING ADVICES

| **Mounting**	**Dismount**
The sensor can be mounted into the ventilation duct with the mounting flange MF20 TPO. To prevent condensate permeation the pipe must be installed in an orientation that occurring condensate can run off.	Remove the lower section of the sensor carefully and pulling straight out.
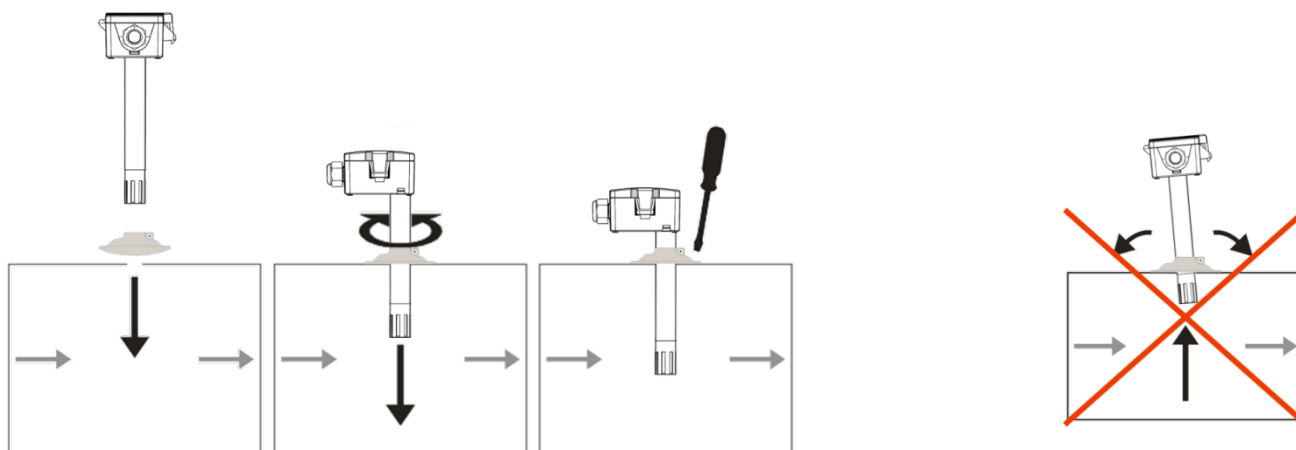
Dont tilt the sensor during mounting / dismounting!

»BATTERY INSTALLATION

The LK+ BAT LRW is permanently supplied by 1 or 2 installed AA batteries. When using 2 batteries, the battery life is increased. Insert the batteries into the battery compartment as shown in the picture. (included in the scope of delivery)

Taster
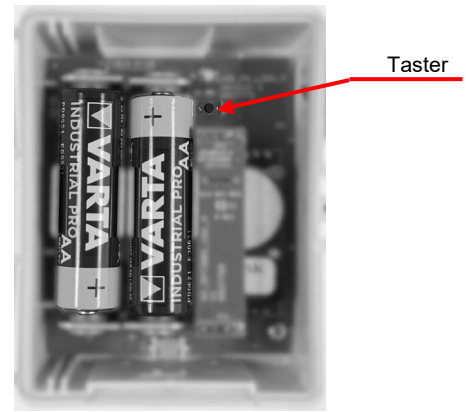
»ADVICE FOR COMISSIONING:

The LoRaWAN credentials required for commissioning can be read out via the uConfig software or the LRWapp. On request, the LoRaWAN credentials can also be provided in digital form. For this purpose, please contact your respective contact person.

»INFORMATION ABOUT LORAWAN SPECIFICATION

The Thermokon LoRaWAN specification can be downloaded from our website.

»CONFIGURATION

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

| Device connection	Micro-USB cable	Bluetooth radio	LoRaWAN® downlink
		GET IT ON Google Play / Download on the App Store	LoRaWAN® DOWNLINK
Configurations-software	PC/Notebook with uConfig software	Smartphone/Tablet with LRWApp	LoRaWAN Infrastructure

The configuration app with the corresponding instructions can be downloaded from the Google Play Store or the Apple App Store.

»ADVICE FOR BLUETOOTH CONFIGURATION

Press the button to start Bluetooth communication. After pressing the button, a connection can be established via the app within approx. 20 seconds. This is indicated by a flashing LED.

» DIMENSIONS (MM)
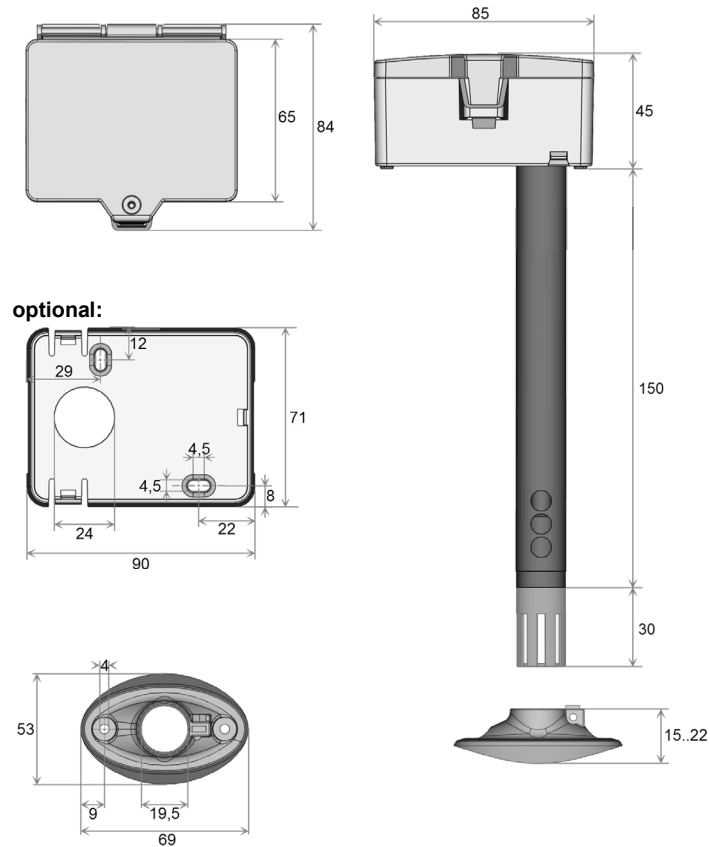
» ACCESSORIES (INCLUDED IN DELIVERY)

Battery 1,5V AA	Item No. 459099
Mountingflange MF20	Item No. 724296
Mounting kit universal	Item No. 698511

• Cover screw + screw cover• 2 Rawlplugs • 2 Screws (countersunk head) • 2 Screws (rounded head)

» ACCESSORIES (OPTIONAL)

Mounting base	Item No. 631228
Battery ER14505 (Lithium 3,6V AA)	Item No. 759182