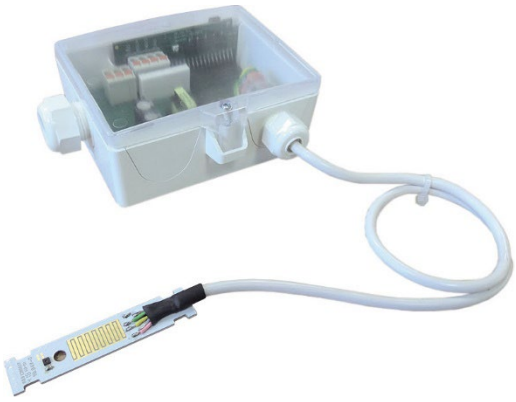
WK02+ ext. LRW 24V

Condensation detector with temperature and humidity

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
Issue date: 27.03.2026 • A142



» APPLICATION

Condensation sensor with LoRaWAN® interface as well as LED signal and a relay output to prevent condensation on chilled surfaces. For control and monitoring applications or connection to cooling valves to stop the flow of chilled water flow upon condensation. The 'ext.' model uses a 2m remote sensor for a more flexible installation. In radio-shielded mounting locations, an optional external antenna can be used to optimize the radio link between the device and the gateway.

» TYPES AVAILABLE

Condensation sensor + humidity + temperature – LRW

- WK02+ ext. LRW 24V L2000

» 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/wk02plus

» 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

»ANWENDERHINWEISE FÜR FEUCHTEFÜHLER

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.

»TECHNICAL DATA

Measuring values	Humidity, temperature, conductivity
Output switch contact	NO contact, max. 250 V / 3,0 A (resistive, floating)
Power supply	15..24 V = (±10%) or 24 V ~ (±10%) SELV
Power consumption	max. 2,3 W (24 V =) | max. 4,3 VA (24 V ~)
Measuring range humidity	0..100% rH non-condensing
Accuracy temperature	±0,5 K (typ. at 21 °C, within default measuring range)
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)
Display	LED green – power supply OK; LED red – condensation
Enclosure	enclosure USE-L, PC, pure white, cover PC, transparent, with removable cable entry
Protection	IP65 according to EN 60529
Cable entry	Flextherm M20 for wire Ø=4,5..9 mm incl. seal insert for double cable entry for wire max Ø=6 mm and M25, for wire max. Ø=7 mm, seal insert
Connection electrical	removable plug-in terminal, max. 2,5 mm², sensor wire white 2 m (default), for other lengths please request
Ambient condition	0..+50 °C, max. 85% rH short term condensation
Delivery content	1x syringe with terminal contact fluid, incl. mounting base enclosure USE-L pure white
Configuration	Thermokon USEapp, LoRaWAN® Downlink
Notes	other cable lengths on request

» LoRaWAN®

Radio technology	LoRaWAN®
LoRaWAN version	1.0.3
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 *(configurable)*	Configurable transmission interval, factory default value 5 min

»INFORMATION ABOUT LORAWAN SPECIFICATION

The Thermokon LoRaWAN specification can be downloaded from our website.

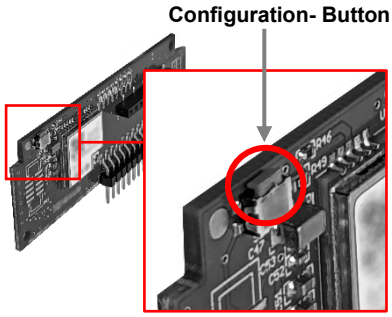
»CONFIGURATION



The Thermokon Bluetooth-Dongle (Item-No. 668262) is required for Communication between USEapp and USE-M/USE-L LRW-products. Commercial bluetooth dongles are not compatible.

Application-specific reconfiguration of the devices can be carried out using the Thermokon USEapp. The configuration is carried out in the voltage-supplied state.

The configuration-app and the app description can be found on the website www.thermokon.de



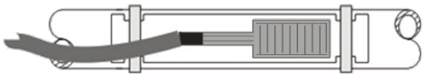
1. Connect the sensor with the power supply according to wiring diagram
2. Plug in the bluetooth dongle
3. Press the button to start configuration mode.
4. Configure the sensor using the USEapp on a mobile device.
5. Disconnect the bluetooth connection.
6. Remove the bluetooth dongle off the sensor.
7. Press the button to stop configuration mode.
8. Configuration values are saved and the device is ready for use.

»USER ADVICE

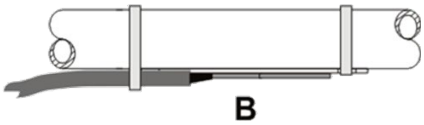
After a certain time, dirt in the air can collect on the filter and then adversely affect the operation of the sensor. Under normal ambient condition an annual maintenance is recommended. Rinse the filter after cleaning with distilled water and dry it using clean oil-free air or nitrogen. Extremely contaminated filters should be replaced. At extreme ambient conditions, e.g. corrosive gases, the humidity sensor may have to be changed.

The bluetooth dongle snaps in the connector, when removing the bluetooth dongle hold the board down to prevent pulling out the board.

»MOUNTING ADVICE



A



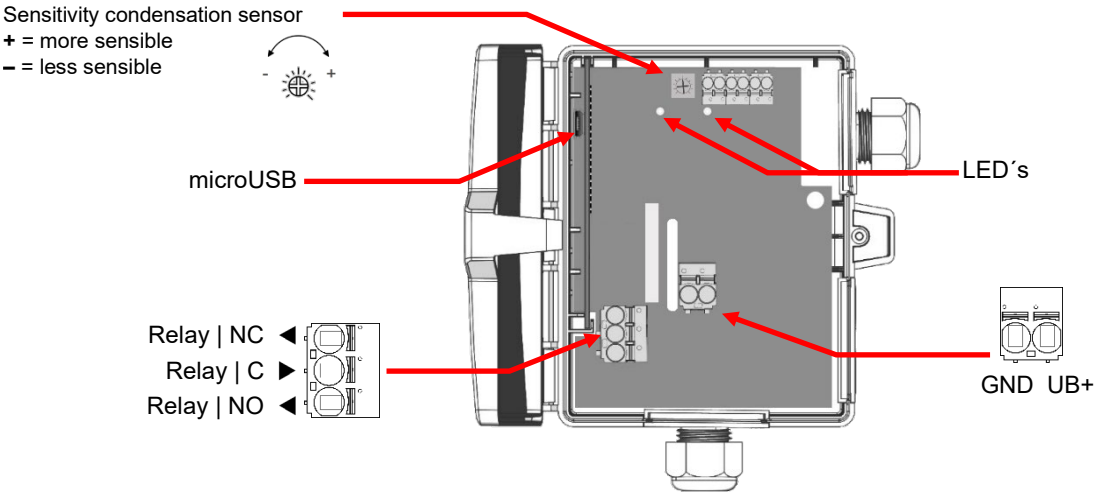
B

For detection of water condensation, the sensor must be mounted on the coldest point of the medium. Please ensure a good thermal contact to the measuring medium. A thermal connection between sensor und medium with heat conducting paste is necessary. Mounting effects by means of included cable ties (binders). Mounting can be made directly on a pipeline.

The sensor surface may be damaged by an aggressive and solvent-contaminated ambient. Always keep the sensor clean and free of dust and dirt. A dirt film may affect the sensor's switching characteristic.

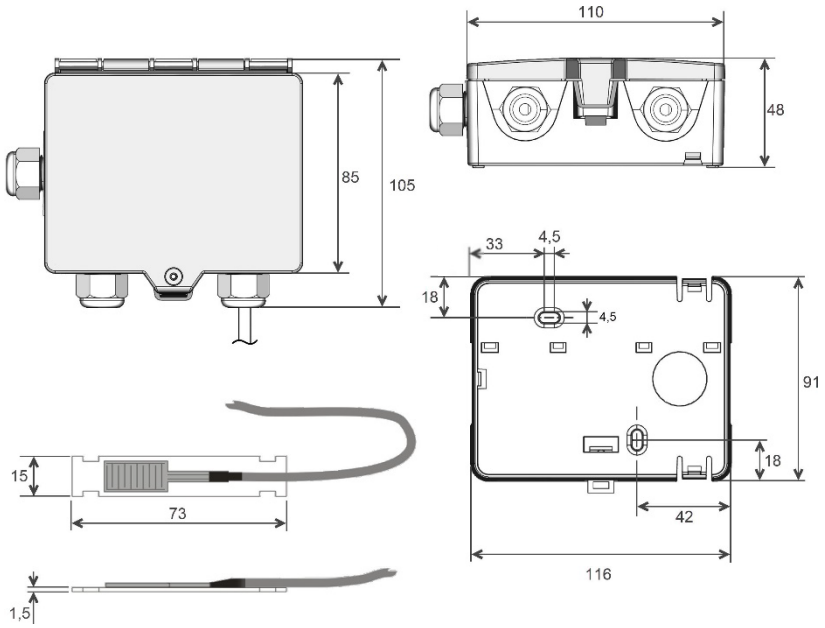
Note the mounting side of the metal strip (see the figure A).
In order to avoid dust deposits, the sensor should be installed at the bottom of the pipe if possible (see the figure B).

»CONNECTION PLAN



The relay is energized in the operating state (relays NO and C connected). Upon dew permeation or when the operating voltage is switched-off, the relay falls off.

»DIMENSIONS (MM)



»ACCESSORIES (INCLUDED IN DELIVERY)

Syringe with terminal contact fluid	Item No. 102308
Cable ties 140x3,6 mm	Item No. 007610
Mounting kit universal	Item No. 698511

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

»ACCESSORIES (OPTIONAL)

Cable entry M20 USE white, sealing insert 2x Ø=6 mm (PU 10 pcs)	Item No. 641319
Cable entry M20 USE white, sealing insert 2x Ø=7 mm (PU 10 pcs)	Item No. 641333
Bluetooth dongle	Item No. 668262