# » LI65+ LON

## Outdoor multi-sensor

**Datasheet**

Subject to technical alteration
Issue date: 14.08.2020 • A110

**Thermokon®**
HOME OF SENSOR TECHNOLOGY

USEapp ✓

**LON**
*LOCAL OPERATING NETWORK*

## »APPLICATION

Outdoor sensor measuring light, temperature, humidity and atmospheric pressure typically used in lighting applications to optimise energy efficiency through lighting control. The device is designed for outdoor areas, greenhouses, warehouses or industrial halls. The device has an integrated ambient light sensor with precise optical filtering adapted to the human eye. The devices with relay outputs for a 2-point controller or a 2-stage 2-point controller allow for a wide range of applications. Depending on the model, the sensor can be individually configured via Thermokon USEapp. Tool-free opening, closing and wiring as well as removable cable entries ensure quick and easy installation.

## »TYPES AVAILABLE

**Outdoor sensor light + temperature – active LON**

Li65+ Temp LON

**Outdoor sensor light + temperature + humidity – active LON**

Li65+ Temp_rH LON

**Outdoor sensor light + temperature + humidity + atmospheric pressure – active LON**

Li65+ Temp_rH_hPa LON

## » 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.

## » BUILD-UP OF SELF-HEATING BY ELECTRICAL DISSIPATIVE POWER

Temperature sensors with electronic components always have a dissipative power, which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. This dissipative power has to be considered when measuring temperature. In case of a fixed operating voltage (±0,2 V) this is normally done by adding or reducing a constant offset value. As Thermokon transducers work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0..10 V / 4..20 mA have a standard setting at an operating voltage of 24 V =. That means, that at this voltage, the expected measuring error of the output signal will be the least. For other operating voltages, the offset error will be increased by a changing power loss of the sensor electronics. If a re-calibration should become necessary later directly on the sensor, this can be done by means of the USEapp software and an optional Bluetooth interface.

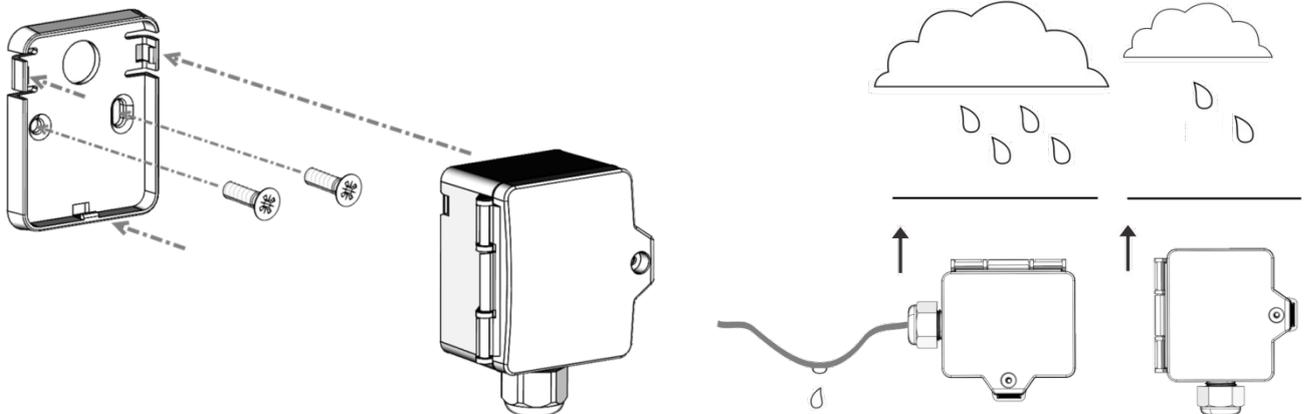## » APPLICATION NOTICE FOR HUMIDITY SENSORS

**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.

## » MOUNTING ADVICES

In case of outdoor installation avoid direct rain and sun contact. Probably use sun respectively rain protection. Cable entry from bottom or side. For side cable routing set loop so that precipitation can drain defined. Observe permissible ambient condition.

## » TECHNICAL DATA

| | |
|---|---|
| **Measuring values** *(type-dependent)* | temperature, light, humidity, atmospheric pressure (je nach Geräteausführung) |
| **Output voltage** | 1..4x 0..10 V or 0..5 V (adjustable via jumper; live-zero configuration via Thermokon USEapp), min. load 10 kΩ |
| **Network technology** | LON FT (free tpoplogy) |
| **Power supply** | 15..35 V = or 19..29 V ~ |
| **Power consumption** | typ. 0,6 W (24 V =) \| 1,5 VA (24 V ~) |
| **Measuring range temp.** | -40..+60 \| 0..+50 \| -20..+80 \| -15..+35, adjustable at the transducer, default setting: -20..+80 °C, (optional) |
| **Measuring range humidity** *(type-dependent)* | **Temp_rH \| Temp_rH_hPa** 0..100% rH non-condensing, (optional) |
| **Measuring range light** | 0..200 Lux \| 0..1000 Lux (default) \| 0..2 kLux \| 0..10 kLux \| 0..20 kLux \| 0..50 kLux, selectable at the device |
| **Measuring range atm. Pressure** *(type-dependent)* | **Temp_rH_hPa** 500..1500 hPa, (optional) |
| **Accuracy temperature** | ±0,5 K (typ. at 21 °C) |
| **Accuracy humidity** | ±2% between 10..90% rH (typ. at 21 °C) |
| **Accuracy light** | ±5% of measuring range |
| **Sensor** | Ambient light sensor with precise optical filtering appropriate to the human eye |
| **Enclosure** | enclosure USE-M, PC, pure white, cover PC, translucent |
| **Protection** | IP65 according to EN 60529 |
| **Cable entry** | M25, for wire max. Ø=7 mm, seal insert for fourfold cable entry |
| **Connection electrical** | **Mainboard** removeable plug-in terminal, max. 2,5 mm²   **Plug-in card** removeable plug-in terminal, max. 1,5 mm² |
| **Ambient condition** | -30..+70 °C, max. 85% rH short term condensation |

## » PRODUCT TESTING AND CERTIFICATION

**Declaration of conformity**

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

## » CONFIGURATION

**The Thermokon bluetooth dongle with micro-USB is required for communication between USEapp and USE-M / USE L (Item No.: 668262). Commercial bluetooth dongles are not compatible.**

Application-specific reconfiguration of the devices can be performed using the Thermokon USEapp. The configuration can be performed only when the device is powered.

**The configuration-app and the app description can be found in the Google Play Store or in the Apple App Store**.
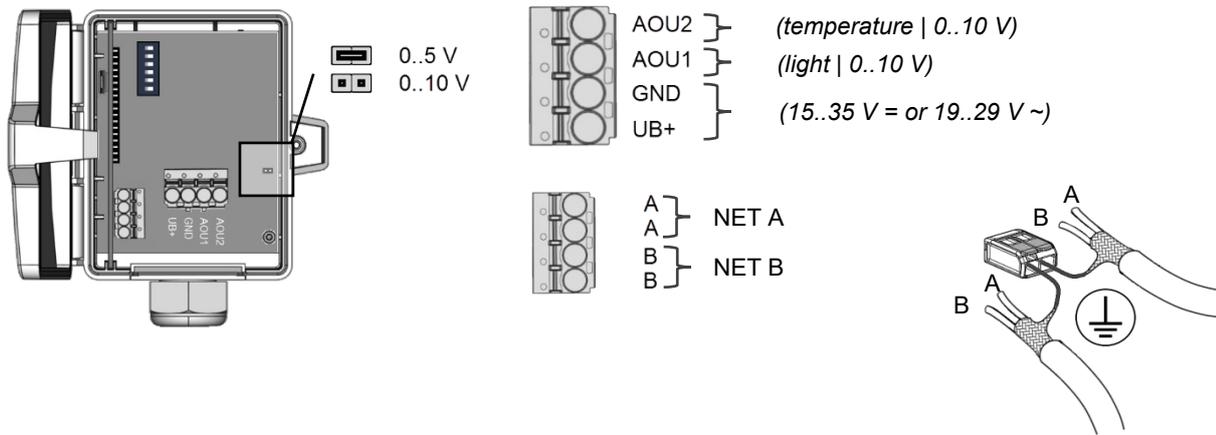
## » APPLICATION NOTICE

The housing cover must be completely closed in order to ensure the accuracy and reproducibility of the measured values during a test or service log via USEapp.

The Bluetooth dongle snaps into the socket easily. When removing, please fix the plug-in card (option PCB) so that it is not unintentionally pulled out.

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## » CONNECTION PLAN

If the cable is looped through, connect both cable shields using the enclosed 2-pol. Connect terminal as shown.
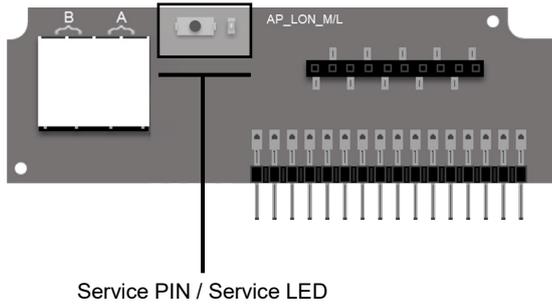
Li65+ **LON**

0..5 V
0..10 V

AOU2 — *(temperature | 0..10 V)*
AOU1 — *(light | 0..10 V)*
GND
UB+ — *(15..35 V = or 19..29 V ~)*

A
A — NET A
B
B — NET B

A
B
A
B

## » DIP SWITCH CONFIGURATION

| Measuring range light - DIP 1..3 | | | |
|---|---|---|---|
| | **#0 (factory default)**<br>SI = 0..1 kLux<br>IMP = 0..100 fc | | **#1**<br>SI = 0..0,2 kLux<br>IMP = 0..20 fc |
| | **#2**<br>SI = 0..2 kLux<br>IMP = 0..200 fc | | **#3**<br>SI = 0..10 kLux<br>IMP = 0..1000 fc |
| | **#4**<br>SI = 0..20 kLux<br>IMP = 0..2000 fc | | **#5**<br>SI = 0..50 kLux<br>IMP = 0..5000 fc |

| Measuring range temperature - DIP 4,5 | | | |
|---|---|---|---|
| | **#0 (factory default)**<br>SI = -20..+80 °C<br>IMP = 0..+200 °F | | **#8**<br>SI = 0..+50 °C<br>IMP = +40..+140 °F |
| | **#16**<br>SI = -40..+60 °C<br>IMP = -40..+160 °F | | **#24**<br>SI = -15..+35 °C<br>IMP = 0..+100 °F |

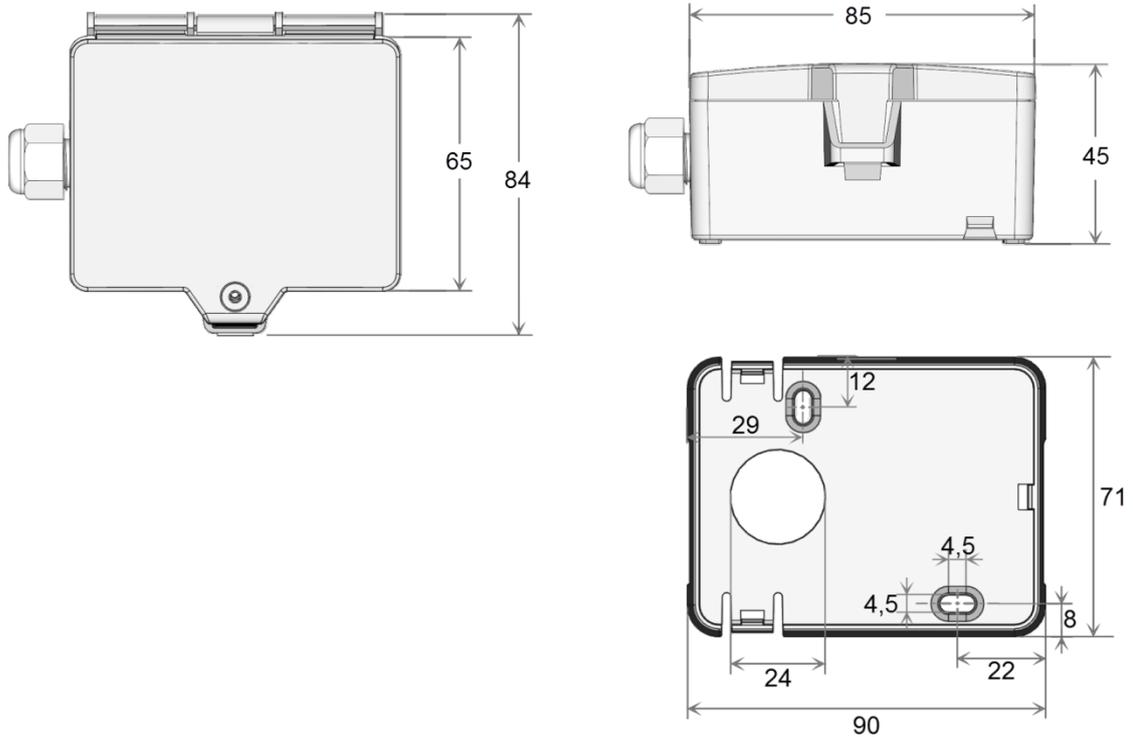| System of units - DIP 6 | | | |
|---|---|---|---|
| | **#0 (factory default)**<br>SI | | **#32**<br>IMP |

**Service-Pin-Telegramm**

When the service pin is activated, the service pin telegram is transmitted with the LON device identification - the Neuron Chip ID.

Service PIN / Service LED

**Specification LON:**
USE-LON Interface

A detailed description of the LON variables can be found in our downloadcenter:
→ **Download**

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## » DIMENSIONS (MM)

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## » ACCESSORIES (INCLUDED IN DELIVERY)

| | |
|---|---|
| Mounting base | Item No. 631228 |
| Mounting kit universal | Item No. 698511 |
| • Cover screw + screw cover• 2 Rawlplugs • 2 Screws (countersunk head) • 2 Screws (rounded head) | |

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## » ACCESSORIES (OPTIONAL)

| | |
|---|---|
| Bluetooth dongle | Item No. 668262 |
| Cable entry M25 USE white, sealing insert 4x Ø=7 mm (4 pcs) | Item No. 641364 |

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