KNX TH65-AP
Thermo-Hygrometer

Technical specifications and installation instructions
Item number 70184

KNX

1. Description

The Temperature and Humidity Sensor **KNX TH65-AP** measures temperature and humidity in indoor and outdoor areas and calculates the dew point. The sensor can receive external measured values via the bus and process them with the own data to an overall temperature and overall air humidity (mixed values).

The **KNX TH65-AP** provides seven switching outputs with adjustable threshold values as well as additional AND and OR logic gates. The sensor has got a PI controller for heating and cooling (depending on temperature) and for ventilation (depending on air humidity) and it can emit a warning to the bus as soon as the area of optimum comfort (according to DIN 1946) is left.

Functions:
- **Measurement of temperature and air humidity** (relative and absolute), calculation of **dew point**
- **Mixed values** from own measured values and external values (proportions can be set in percentage)
- **PI controller for heating** (one or two step) and **cooling** (one or two step) depending on temperature
- **PI controller for ventilation** depending on humidity: Dehumidify/humidify (one step) or dehumidify (one or two step)
- **Threshold values** can be adjusted per parameter or via communication objects
- **4 AND and 4 OR logic gates** with each 4 inputs. Every switching incident as well as 8 logic inputs in the form of communication objects may be used as inputs for the logic gates. The output of each gate may optionally be configured as 1 bit or 2 x 8 bits

Configuration is made using the KNX software ETS. The **product file** can be downloaded from the Elsner Elektronik website on **www.elsner-elektronik.de** in the "Service" menu.

1.0.1. Scope of supply
- Sensor in on-wall housing

1.1. Technical specifications

Housing	Plastic material, sensor sleeve metal
Colour	Grey
Mounting	On-wall
Protection category	Casing: IP65 Outside sensor: IP43
Dimensions	approx. 65 × 91 × 38 (W × H × D, mm)
Weight	approx. 80 g
Ambient temperature	Operation -25…+80°C, Storage -55…+105°C, avoid bedewing
Operating voltage	KNX bus voltage
Bus current	max. 5,5 mA, max. 9 mA when programming LED is active
Data output	KNX +/- bus terminal plug
BCU type	Own micro controller
PEI type	0
Group addresses	max. 184
Allocations	max. 184
Communication objects	110
Measurement range temperature	-25...+80°C
Resolution (temperature)	0,1°C
Accuracy (temperature)	±0,8°C at -25...-10°C ±0,5°C at -10...+65°C ±0,6°C at +65...+80°C

Measurement range humidity	0% RH … 100% RH
Resolution (humidity)	0,1%
Accuracy (humidity)	±7,5% RH at 0...10% RH ±4,5% RH at 10...90% RH ±7,5% RH at 90...100% RH
Drift (humidity)	±0,5%RH per year in normal air

The product conforms with the provisions of EU directives.

2. Installation and commissioning

2.1. Installation notes

Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.

CAUTION!
Live voltage!
There are unprotected live components inside the device.
- National legal regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

2.2. Location

The sensor is designed for surface mounting. When selecting an installation location, please ensure that the measurement results are affected as little as possible by external influences. Possible sources of interference include:
- Direct sunlight
- Drafts from windows and doors
- Warming or cooling of the building structure on which the sensor is mounted, e.g. due to sunlight, heating or cold water pipes
- Connection lines which lead from warmer or colder areas to the sensor

Temperature variations from such sources of interference must be corrected in the ETS in order to ensure the specified accuracy of the sensor (temperature offset).

For outdoor installation it must be ensured that a 60 cm gap is left below the sensor in order to prevent it from being snowed during snowfall.

The sensor must be mounted vertically. The measurement probe and the cable outlet must point downwards.

## 2.3. Notes on mounting and commissioning

Do not open the temperature sensor if penetration of water (rain) is likely: Only a couple of drops could damage the electronic.

Do not dip the measuring tip (metal sleeve with sensor) in water.

Avoid the bedewing of the device. For critical applications, where condensate formation is expectable, please ask Elsner Elektronik for customized solutions.

2.4. Mounting and connection

2.4.1. Layout of casing and pcb
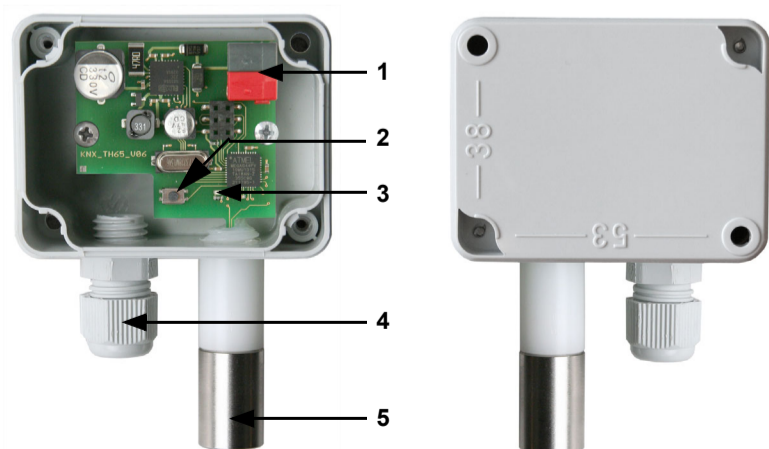
Fig. 1 Opened casing, board
1 *KNX terminal +/-*
2 *Programming button for tea-ching the device*
3 *Programming LED*
4 *Cable entry with threaded joint*
5 *Sensor tip*

Fig. 2 Rear view with dimensioning of openings for mounting

2.4.2. Connection of the sensor

Remove the screwed on cover. Lead the KNX bus connection cable through the cable entry on the bottom of the casing and connect the bus +/- to the terminal provided for this purpose. Screw the cover back on.

After the bus voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received or sent via the bus.

3.   Addressing of the device at the bus

The device is supplied with the bus address 15.15.255. You can program another address into the ETS by overwriting the 15.15.255 address or by teaching via the programming button.

4.   Maintenance

⚠ Always isolate the device from the voltage supply for servicing and cleaning.

The device must regularly be checked for dirt twice a year and cleaned if necessary. In case of severe dirt, the sensor may not work properly anymore.

🛑 **ATTENTION**
The device can be damaged if significant volumes of water penetrate the
housing.
• Do not clean with high pressure cleaners or steam jets.