

KNX TH-AP

Thermo-Hygrometer

Technical specifications and installation instructions



1. Description

The **Temperature and Humidity Sensor KNX TH-AP** measures temperature and humidity 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 TH-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, 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)
- **7 switching outputs** with adjustable threshold values (Threshold values can be set by 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 **programme file** (format VD), the data sheet and the manual can be downloaded from the Elsner Elektronik homepage on www.elsner-elektronik.de in the "Service" menu.

1.1. Technical specifications

Housing	Plastic material
Colour	White (similar to RAL 9016)
Mounting	On-wall
Protection category	IP 20
Dimensions	approx. 85 x 51 x 35 (W x H x D, mm)
Weight	approx. 35 g
Ambient temperature	Operation -20...+70°C, storage -55...+150°C
Ambient humidity	max. 95% R. H., avoid bedewing
Operating voltage	KNX bus voltage
Bus current	max. 6 mA, max. 10 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	-40...+100°C
Resolution (temperature)	0,1°C
Accuracy (temperature)	± 0,9°C at 25°C
Measurement humidity	0...100%
Resolution (humidity)	0,1%
Accuracy (humidity)	0...20 % = ± 5% R. H. 20...80 % = ± 3% R. H. 80...100 % = ± 5% R. H.
Drift (humidity)	± 0,5% R. H. per year in normal air

The following standards have been considered for the evaluation of the product in terms of electro magnetic compatibility:

Transient emissions:

- EN 60730-1:2000 Section EMV (23, 26, H23, H26) (threshold category: B)
- EN 50090-2-2:1996-11 + A1:2002-01 (threshold category: B)
- EN 61000-6-3:2001 (threshold category: B)

Interference resistance:

- EN 60730-1:2000 Section EMV (23, 26, H23, H26)
- EN 50090-2-2:1996-11 + A1:2002-01
- EN 61000-6-1:2004

The product has been tested for the above mentioned standards by an accredited EMV laboratory.

2. Installation and commissioning

2.1. Notes on installation



Installation, inspection, commissioning and troubleshooting of the device must only be carried out by a competent electrician.

Disconnect all lines to be assembled, and take safety precautions against accidental switch-on.

The device is exclusively intended for appropriate use. With each inappropriate change or non-observance of the instructions for use, any warranty or guarantee claim will be void.

After unpacking the device, check immediately for any mechanical damages. In case of transport damage, this must immediately be notified to the supplier.



If damaged, the device must not be put into operation.

If an operation without risk may supposedly not be guaranteed, the device must be put out of operation and be secured against accidental operation.

The device must only be operated as stationary system, i.e. only in a fitted state and after completion of all installation and start-up works, and only in the environment intended for this purpose.

Elsner Elektronik does not assume any liability for changes in standards after publication of this instruction manual.

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).



The sensor may be installed and operated in dry interior rooms only. Avoid condensation.

2.3. Mounting and connection

2.3.1. Layout of casing and pcb

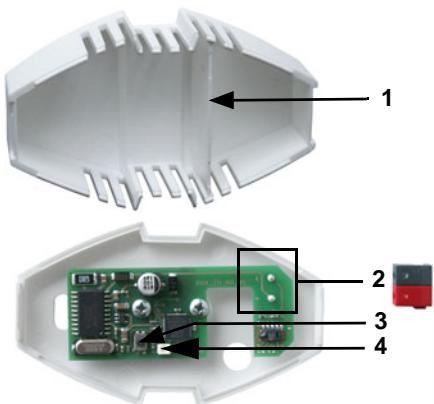


Fig. 1

- 1 Division in the top of the housing
- 2 Slot for KNX terminal BUS +/-
- 3 Programming button for teaching the device
- 4 Programming LED

2.3.2. Connecting the sensor

Open the KNX TH-AP housing. The upper part is placed on the lower part. Fit the lower part. Connect the bus line +/- (black/red plug) to the connector terminals provided for this purpose on the KNX TH-AP sensor board.

The physical address is allocated automatically via the KNX software. There is a button for this with a monitoring LED on the sensor (3, 4).

To close the housing place the upper part on again. Ensure that the division (1) sits on the correct side (the upper part should click in slightly).

2.4. Notes on mounting and commissioning

Sensor must not be exposed to water (rain) or dust. This could result in the electronic being damaged. A relative air humidity of 95% must not be exceeded. Avoid bedewing.

After the bus voltage has been applied, the device will enter an initialisation phase lasting 5 seconds. During this phase no information can be received via the bus.

3. Maintenance

The sensor 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.



As a precaution, the device should always be separated from bus current for maintenance works.
