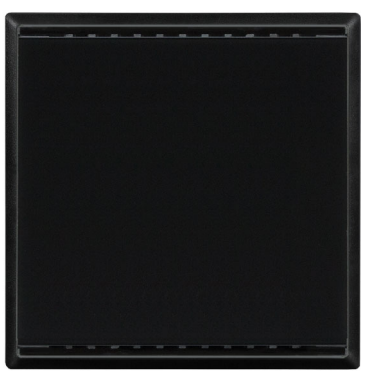
KNX TH-UP gl CH
Combined Indoor Sensor

For Swiss installation system 60 mm

Technical specifications and installation instructions

Item numbers 70644 (white), 70645 (black)



1. Description

The **Sensor KNX TH-UP gl** measures the 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 overall values (mixed values, e. g. room average).

The **KNX AQS/TH-UP Touch** provides switching outputs with adjustable threshold values. The switching outputs and further communication objects can be linked by AND and OR logic gates. Additionally, an integrated actuating variable comparator can compare and output values that are received via communication objects.

Integrated PI controllers allows for control of a ventilation (depending on air humidity) and a heating/cooling system (depending on temperature). The **KNX AQS/TH-UP Touch** can emit a warning to the bus as soon as the area of optimum comfort (according to DIN 1946) is left.

The device is completed with a frame of the switching series installed in the building and thus merges with the interior.

Functions:

- Measurement of **temperature** and **air humidity** (absolute and relative), calculation of the 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. Control according to separate target values or basic target temperature
- **PI controller for ventilation** depending on humidity: dehumidification/ humidification (one step) or dehumidification (one or two step)
- **Threshold values** can be adjusted per parameter or via communication objects: 3 × temperature, 2 × humidity
- **4 AND and 4 OR logic gates** with each 4 inputs. Every switching incident as well as 16 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
- **2 actuating variable comparators** for output of minimum, maximum or average values. Each with 5 inputs (for values received via communication objects)

Configuration is made using the KNX software ETS 5. The **product file** can be downloaded from the ETS online catalogue and the Elsner Elektronik website on **www.elsner-elektronik.de** in the “Service” menu.

1.0.1. Scope of delivery

- Housing
- Mounting adapter with screws

You will need *in addition* (not supplied):

- Inlet box
- Cover frame (for insert 60 x 60 mm) and mounting plate (77mm) for swiss installation standard

1.1. Technical specifications

Housing	Real glass, plastic
Colours	• similar to RAL 9010 pure white • similar to RAL 9005 jet black
Mounting	Installation in inlet box
Protection category	IP 20
Dimensions	Housing approx. 60 x 60 (W x H, mm), mounting depth approx. 8 mm
Total weight	approx. 50 g
Ambient temperature	Operation 0…+50°C, storage -10…+60°C
Ambient air humidity	max. 95% RH, avoid bedewing
Operating voltage	KNX bus voltage
Bus current	max. 10 mA
Data output	KNX +/- bus terminal plug
BCU type	Own micro controller
PEI type	0
Group addresses	max. 254
Allocations	max. 254
Communication objects	158
Temperature measurement range	0…+50°C
Temperature resolution	0.1°C
Humidity measurement range	0% RH …95% RH
Humidity resolution	0.1%
Humidity drift	± 0.5% R.H. per year in normal air

The product conforms with the provisions of EU guidelines.

1.1.1. Accuracy of the measurement

Measurement variations from permanent sources of interference (see chapter *Installation position*) can be corrected in the ETS in order to ensure the specified accuracy of the sensor (offset).

When **measuring temperature**, the self-heating of the device is considered by the electronics. The heating is compensated by the software.

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. Installation position

The **Sensor KNX TH-UP gl** is made for wall mounting in an inlet box. The device is supplemented with a frame of the 60 mm swiss installation standard.

May be installed and operated in dry interior rooms only.
Avoid condensation.

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
- Draft from ducts which lead from other rooms or from the outside to the junction box in which the sensor is mounted
- 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 and ducts which lead from warmer or colder areas to the sensor

Measurement variations from permanent sources of interference can be corrected in the ETS in order to ensure the specified accuracy of the sensor (offset).

2.3. Composition

2.3.1. Housing

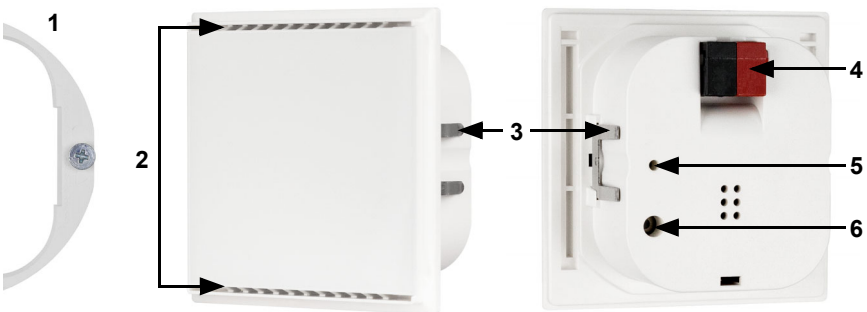


Fig. 1
1 Mounting adapter with screws
2 Openings for air circulation
3 Catches
4 KNX terminal BUS +/-
5 Programming-LED (recessed)
6 Programming-Button (recessed) for teaching device

2.4. Assembly of the sensor

First of all fit the windproof inlet box with connection. Also seal inlet pipes to avoid infiltration.
Turn the screws a little way into the mounting adapter.

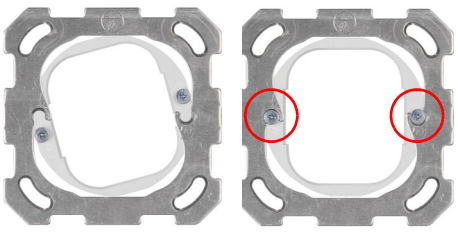


Fig. 2

Hook the mounting adapter into the mounting plate of the switch system and tighten the screws.

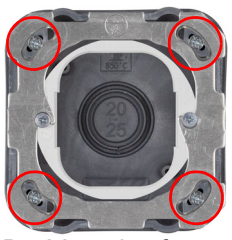


Fig. 3

Screw the mounting plate onto the inlet box

Position the frame of the switching programme. Connect the bus line +/- to the black-red plug.
Pin the housing with the notches on to the mounting adapter, so that device and frame are fixed. The device has to be inserted such that the bus terminal faces up (see Fig. 1). This is necessary for a correct temperature measurement.

2.5. Notes on mounting and commissioning

Never expose the device to water (e.g. rain) or dust. This can damage the electronics. You must not exceed a relative humidity of 95%. Avoid condensation.

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.