

# Sewi KNX TH

## Indoor Combined Sensor

### Technical specifications and installation instructions

Item numbers 70393 (white), 70693 (jet black)



## 1. Description

The **Sensor Sewi KNX TH** for the KNX bus system measures the temperature and the air humidity and calculates the dew-point. Via the bus, the indoor sensor can receive external values of temperature and humidity and process them further with its own data to a total value (mixed value, e.g. room average).

All measurement values can be used for the control of limit-dependent switching outputs. States can be linked via AND logic gates and OR logic gates. Multi-function modules change input data as required by means of calculations, querying a condition, or converting the data point type. In addition, an integrated manipulated variable comparator can compare and output variables that were received via communication objects.

Integrated PI-controllers control ventilation (according to humidity) and heating/cooling (according to temperature). The **Sewi KNX TH** can output a warning to the bus as soon as the comfort field, as per DIN 1946, is left.

### Functions:

- Measuring the **temperature** and **air humidity** (relative, absolute), each with **mixed value calculation**. The share of internal measurement value and external value can be set as a percentage
- Bus message, whether the values for temperature and air humidity are within the **comfort field** (DIN 1946). **Dew point** calculation
- **Threshold values** can be adjusted per parameter or via communication objects
- **PI-controller for heating** (one or two-stage) and **cooling** (one or two-stage) according to temperature. Regulation according to separate setpoints or basic setpoint temperature
- **PI controller for humidity** according to humidity: Ventilate/Air (one-stage) or Ventilate (one or two-stage)
- **8 AND and 8 OR logic gates**, each with 4 inputs. All switching events as well as 16 logic inputs (in the form of communications objects) can be used as inputs for the logic gates. The output of each gate can be configured optionally as 1-bit or 2 x 8-bit
- **8 multi-function modules** (computers) for changing the input data by calculations, by querying a condition or by converting the data point type
- **4 actuating variable comparators** to output minimum, maximum or average values. 5 inputs each for values received via communication objects
- **Summer compensation** for cooling systems. A characteristic curve matches the target temperature in the room to the external temperature and sets the minimum and maximum target temperature values

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

### 1.0.1. Scope of delivery

- Combined sensor

## 1.1. Technical data

General:	
Housing	Plastic
Colours	<ul style="list-style-type: none"> <li>• White similar to signal white RAL 9003 (skirting)/ grey white RAL 9002 (cover)</li> <li>• Jet black RAL 9005</li> </ul>
Assembly	Surface, wall or ceiling installation
Dimensions Ø x height	approx. 105 mm x approx. 32 mm
Degree of protection	IP 30
Weight	approx. 45 g
Ambient temperature	-25...+80°C
Ambient humidity	5...95% RH, non-condensing
Storage temperature	-30...+85°C
KNX bus:	
KNX medium	TP1-256
Configuration mode	S-Mode
Group addresses	max. 2000
Assignments	max. 2000
Communication objects	291

Nominal voltage KNX	30 V $\text{SELV}$
Power consumption KNX	max. 10 mA
Connection	KNX plug terminals
Duration after bus voltage restoration until data is received	approx. 5 seconds
Sensors:	
Temperature sensor:	
Measurement range	-25°C ... +80°C
Resolution	0.1°C
Humidity sensor:	
Measurement range	0% rH ... 100% rH
Resolution	0.1% rH

The product is compliant with the provisions of the EU guidelines.

### 1.1.1. Measuring accuracy

Deviations in measured values due to interfering sources (see chapter *installation location*) must be corrected in the ETS in order to achieve the specified accuracy of the sensor (offset).

During the **Temperature measurement**, the self-heating of the device is taken into consideration by the electronics. It is compensated by the software, therefore the displayed/output indoor temperature measuring value is correct.

## 2. Safety and use instructions

### 2.1. General 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.

- When planning and installing electrical systems, observe the applicable directives, regulations and provisions of the respective country.
- Ensure that the device or system can be disconnected. During installation, disconnect all cables from the power supply and take safety precautions against unintentional switch-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 the intended purpose described in this manual. 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.

## 3. Installation

### 3.1. Installation location and preparation



**Install and use only in dry interior rooms!** Avoid condensation.

The **Sensor Sewi KNX TH** is installed surface mounted on walls or ceilings.

When selecting an installation location, please ensure that the measurement results of **temperature and humidity** are affected as little as possible by external influences. Possible sources of interference include:

- Direct sunlight
- Drafts from windows and doors
- Draughts from ducts coming from other rooms or the outdoors
- 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 empty ducts which lead from warmer or colder areas to the sensor

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

### 3.2. Connection



**For installation and wiring at the KNX connection, the provisions and standards applicable to SELV circuits must be complied with!**

The **Sensor Sewi KNX TH** is surface-mounted but at the same time can also be screwed to a flush-mounted socket.

If the **Sensor Sewi KNX TH** is installed on a flush-mounted socket, it must not contain any wiring with 230 V.

### 3.2.1. Layout of the circuit board

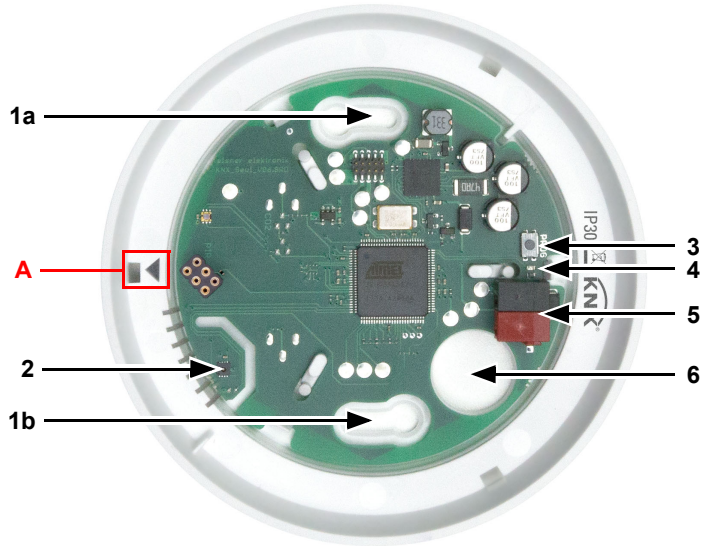


Fig. 1  
 1 a+b Long holes for mounting (hole distance 60 mm)  
 2 Sensors for temperature, humidity  
 3 Programming button  
 4 Programming LED  
 5 KNX-terminal BUS +/-  
 6 Cable bushing  
 A Mark for aligning the cover

### 3.2.2. Assembly



Fig. 2 Housing from the outside  
 A Recess to open the housing



Fig. 3  
 Open the housing. To do this, carefully lift the cover from the skirting. Start at the recess, e.g. with a flat-head screwdriver.

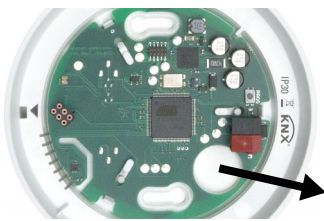


Fig. 4  
 Lead the bus cable through the cable bushing in the skirting.

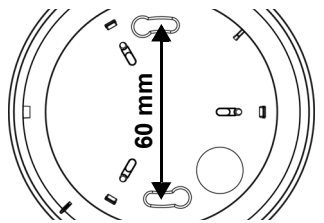


Fig. 5  
 Screw the skirting to the wall or the ceiling.  
 Hole distance 60 mm.

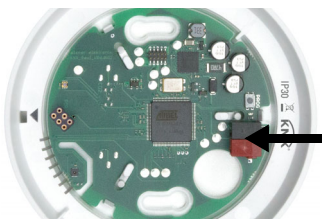


Fig. 6  
 Connect the KNX bus to the KNX terminal.



Fig. 7  
 Close the housing by positioning the cover and snapping it into place. To do this, align the recess on the cover to the marking on the skirting (the presence sensor must protrude through the opening in the cover).

## 4. Commissioning

The ventilation slots on the side must not be dirty, painted over or covered.

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

### 4.1. Addressing the equipment

The individual address is assigned via the ETS. For this purpose there is a button with a control LED on the unit (Fig. 1, No. 3+4).

The equipment is delivered with the bus address 15.15.255. Another address can be programmed using the ETS.

## 5. Maintenance

As a rule, it is sufficient to wipe the device with a soft, dry cloth twice a year.

## 6. Disposal

After use, the device must be disposed of or recycled in accordance with the legal regulations. Do not dispose of it with the household waste!