Mini-Sewi KNX T Temperature Sensor and Mini-Sewi KNX TH Temperature/Humidity Sensor

Technical specifications and installation instructions

Item numbers
70400 (Mini-Sewi KNX T) and
70401 (Mini-Sewi KNX TH)

KNX

1.   Description

The **Sensors Mini-Sewi KNX T and Mini-Sewi KNX TH** measures the ambient temperature. **Mini-Sewi KNX TH** additionally captures the air humidity and calculates the dew-point. Via the bus, the indoor sensors can receive external values of temperature or humidity and process them further with their 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. In addition, an integrated actuating variable comparator can compare and output variables that were received via communication objects.

An integrated PI-controller controls a heating/cooling (according to temperature). **Mini-Sewi KNX TH** offers a second controller for ventilation (humidification/dehumidification according to humidity) and a warning can be output to the bus as soon as the comfort field, as per DIN 1946, is left.

Functions:
- Measuring the **temperature**, with **mixed value calculation**. The share of internal measurement value and external value can be set as a percentage
- **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
- **4 AND and 4 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
- **2 actuation variable comparators** to output minimum, maximum or average values. 5 inputs each for values received via communication objects

Mini-Sewi KNX TH additionally:
- Measuring the **air humidity** (relative, absolute), 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
- **PI controller for humidity** according to humidity: Ventilate/Air (one-stage) or Ventilate (one or two-stage)

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 delivery
- Combined sensor
- 2 dowels 4 × 20 mm, 2 countersunk screws 3 × 25 mm

1.1. Technical data

Housing	Plastic
Colour	White matt
Assembly	Surface, wall or ceiling installation
Protection category	IP 20
Dimensions	Ø approx. 51 mm, height approx. 19 mm
Total weight	approx. 20 g
Ambient temperature	Operation -20…+60°C, storage -20…+70°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	KNX bus voltage
Bus current	max. 10 mA
Data output	KNX +/- bus plug-in terminal
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 254
Assignments	max. 254

Mini-Sewi KNX T:

Communication objects	124
Temperature sensor:	
Measurement range	-20°C … +60°C
Resolution	0.1°C
Accuracy*	±0.7°C at -20°C...-10°C ±0.5°C at -10°C...+60°C

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

Mini-Sewi KNX TH:

Communication objects	179
Temperature sensor:	
Measurement range	-20°C … +60°C
Resolution	0.1°C
Accuracy*	±0.7°C at -20°C...-10°C ±0.5°C at -10°C...+60°C
Humidity sensor:	
Measurement range	0% rH … 100% rH
Resolution	0.1% rH
Accuracy	± 7,5% rH at 0% … 10% rH ± 4,5% rH at 10% … 90% rH ± 7,5% rH at 90% … 100% 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 site*) 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.   Installation and start-up

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 location

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

The **Sensors Mini-Sewi KNX T and Mini-Sewi KNX TH** are installed surface mounted on walls or ceilings.
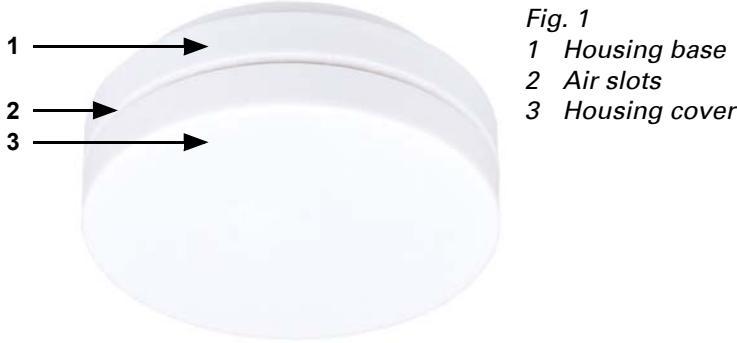
When selecting an installation location, please ensure that the measurement results of **temperature and humidity** are affected as little as possible by external influences. Possible sources of interference include:
- Direct sunlight
- Drafts from windows and doors
- Draughts from ducts coming from 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
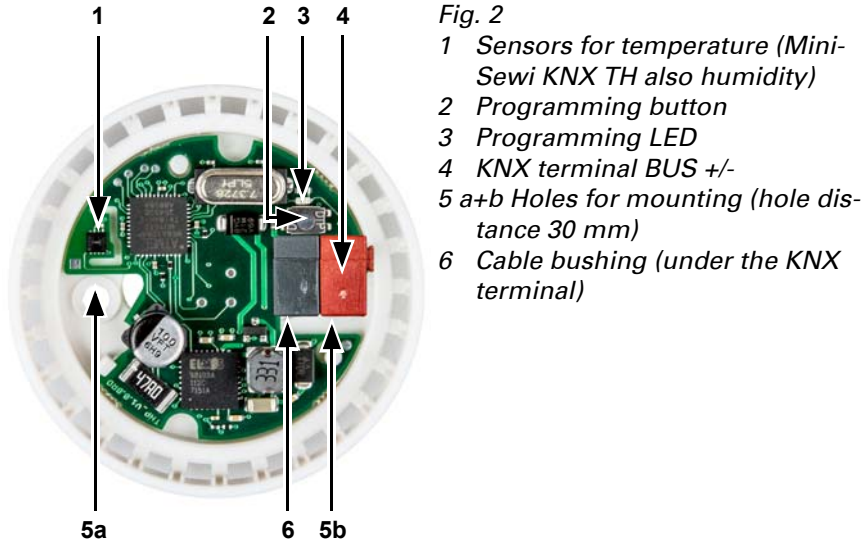
Measurement variations from such sources of interference must be corrected in the ETS in order to ensure the specified accuracy of the sensor (offset).
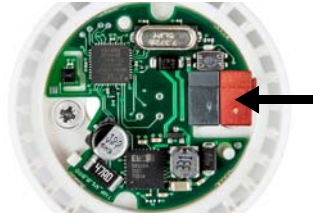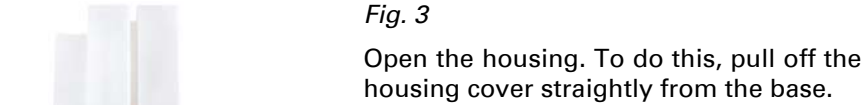
2.3. Construction of the sensor

2.3.1. Housing from the outside

Fig. 1
1 Housing base
2 Air slots
3 Housing cover

2.3.2. Printed circuit boards / connections

Fig. 2
1 Sensors for temperature (Mini-Sewi KNX TH also humidity)
2 Programming button
3 Programming LED
4 KNX terminal BUS +/-
5 a+b Holes for mounting (hole distance 30 mm)
6 Cable bushing (under the KNX terminal)

2.4. Assembly

Fig. 3

Open the housing. To do this, pull off the housing cover straightly from the base.

Fig. 4

Remove the KNX terminal.

Lead the bus cable through the cable bushing in the base an connect it to the terminal.

Fig. 5

Screw the base to the wall or the ceiling. Hole distance 30 mm.
Use mounting material suitable for the wall condition. Also see *Information on cavity wall mounting*.

Fig. 6

Plug the KNX terminal with the bus cable to the slot.

Fig. 7

Close the housing by positioning the cover and snapping it into place.

2.4.1. Information on cavity wall mounting

Fig. 8

For *cavity wall mounting*, use a wall light junction box. In this case, screw the base on the box with only one screw.

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.

The air slots on the side must not be closed or covered. The device must not be painted over.

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 the equipment

The equipment is delivered with the bus address 15.15.255. You can program a different address in the ETS by overwriting the address or by teaching the device via the programming button.

The programming button is on the inside of the housing (Fig. 2: No. 2).

4.   Maintenance

The air slots on the side must not get dirty or covered. As a rule, it is sufficient to wipe the device with a soft, dry cloth twice a year.