Mini-Sewi KNX L-Pr and Mini-Sewi KNX TH-L-Pr Brightness and Presence Detectors

Technical specifications and installation instructions
Item numbers
70403 Mini-Sewi KNX TH-L-Pr
70428 Mini-Sewi KNX L-Pr

1. Description

The **Sensor Mini-Sewi KNX L-Pr** for the KNX building bus system captures brightness and the presence of persons in rooms.

The **Sensor Mini-Sewi KNX TH-L-Pr** *additionally* 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). Integrated PI-controllers control ventilation (humidification/dehumidification according to humidity) and heating/cooling (according to temperature).

The **Sensor Mini-Sewi KNX TH-L-Pr** can output a warning to the bus as soon as the comfort field, as per DIN 1946, is left. Actuating variable comparators can compare and output variables that were received via communication objects.

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.

Functions:
- **Brightness measurement** with **brightness control**
- **Presence of persons is detected**
- **Threshold values** can be adjusted per parameter or via communication objects
- **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

Additional functions Mini-Sewi KNX TH-L-Pr:
- 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
- **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)
- **2 actuation variable comparators** to output minimum, maximum or average values. 5 inputs each for values received via communication objects

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

General:	
Housing	Plastic
Colour	White matt
Assembly	Surface, ceiling installation
Dimensions Ø x height	approx. 51 mm x approx. 19 mm
Degree of protection	IP 30
Weight	approx. 20 g
Ambient temperature	-20…+60°C
Ambient humidity	5...95% RH, non-condensing
Storage temperature	-30…+70°C
KNX bus:	
KNX medium	TP1-256
Configuration mode	S-Mode
Group addresses	max. 254
Assignments	max. 254
Communication objects	Mini-Sewi KNX TH-L-Pr: 252 Mini-Sewi KNX L-Pr: 122
Nominal voltage KNX	30 V $=$ SELV
Power consumption KNX	max. 10 mA
Connection	KNX plug terminals
Duration after bus voltage restoration until data is received	approx. 5 seconds
Sensors:	
Brightness sensor:	
Measurement range	0 lux … 2,000 lux (higher values can be measured and output)
Resolution	1 lux at 0…2,000 lux
Presence sensor:	
Detection method	Passive infrared method (PIR)
Coverage angle	approx. 94° × 82° (see also *Coverage area of the presence detector*)
Range	approx. 5 m
Temperature sensor (only Mini-Sewi KNX TH-L-Pr):	
Measurement range	-20°C … +60°C
Resolution	0.1°C
Humidity sensor (only Mini-Sewi KNX TH-L-Pr):	
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

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

CAUTION!
Live voltage!
There are unprotected live components inside the device.
- Inspect the device for damage before installation. Only put undamaged devices into operation.
- Comply with the locally applicable directives, regulations and provisions for electrical installation.
- Immediately take the device or system out of service and secure it against unintentional switch-on if risk-free operation is no longer guaranteed.

Use the device exclusively for building automation and observe the operating instructions. Improper use, modifications to the device or failure to observe the operating instructions will invalidate any warranty or guarantee claims.
Operate the device only as a fixed-site installation, i.e. only in assembled condition 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 is installed surface mounted on the ceiling.

To detect the presence of persons make sure that the desired area is covered by the sensor's coverage angle and that no obstacles obstruct the recording.

When selecting an installation location for **Mini-Sewi KNX TH-L-Pr**, 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).

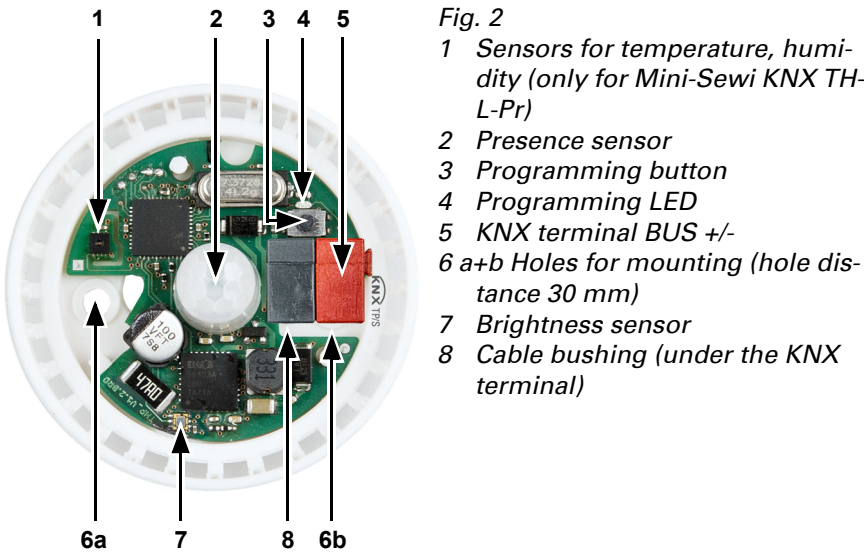### 3.1.1. Coverage area of the presence detector

Fig. 1

KNX terminal

Angle of coverage: approx. 94° × 82°
Range: approx. 5 m

D

L

W
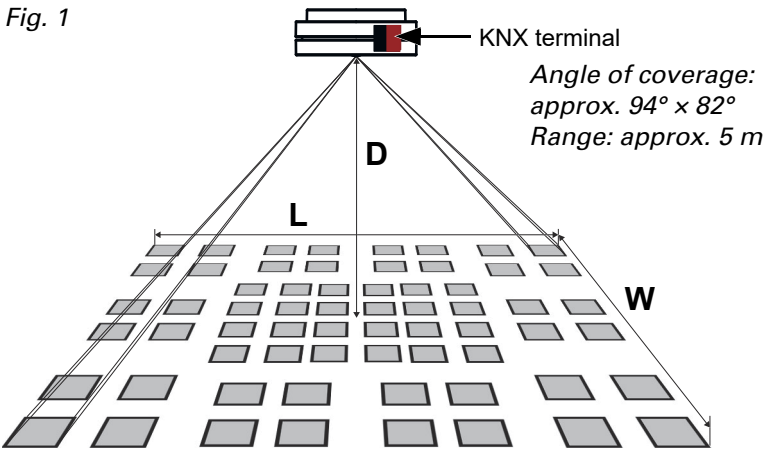
Distance D	Length L	Width W
2.50 m	approx. 5.40 m	approx. 4.30 m
3.50 m	approx. 7.50 m	approx. 6.10 m

3.2. Connection

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

3.2.1. Layout of the circuit board

Fig. 2
1 Sensors for temperature, humidity (only for Mini-Sewi KNX TH-L-Pr)
2 Presence sensor
3 Programming button
4 Programming LED
5 KNX terminal BUS +/-
6 a+b Holes for mounting (hole distance 30 mm)
7 Brightness sensor
8 Cable bushing (under the KNX terminal)

1 2 3 4 5

6a 7 8 6b

3.2.2. Assembly (surface-mounted)

Fig. 3
1 Housing base
2 Air slots
3 Housing cover
4 Presence sensor

1
2
3
4

Fig. 4

Open the housing. To do this, pull off the housing cover straightly from the base.
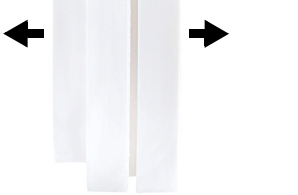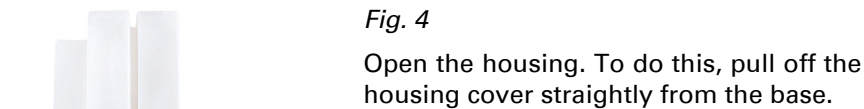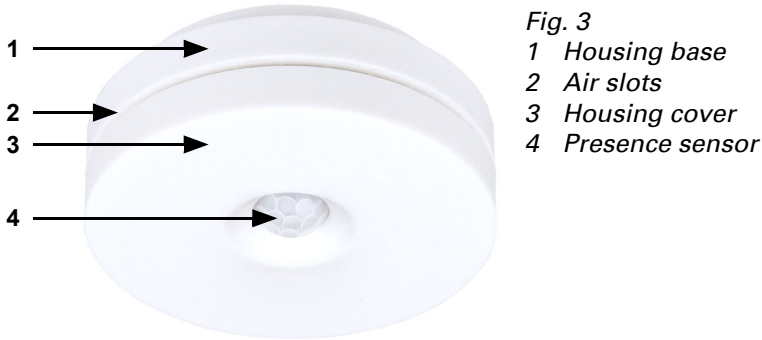
Fig. 5

Remove the KNX terminal.

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

Fig. 6

Screw the housing base to the ceiling. Hole distance 30 mm.

Use mounting material suitable for the wall condition. Also see *Information on cavity wall mounting*.
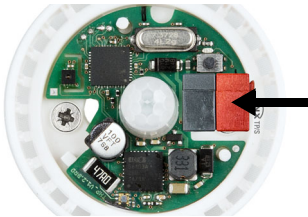
Fig. 7

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

Fig. 8

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

3.2.3. Assembly with wall light junction box

Fig. 9

When installed in a flush-mounted socket (Ø 35 mm) there must be no 230 V wiring in it. In this case, screw the housing base on the box with only one screw.

4. Commissioning

Presence sensor and ventilation slots on the side must not be dirty, painted over or covered.

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

The presence sensor has a start-up phase of approx. 15 seconds, during which the presence of persons is not detected.

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. 2, 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 in accordance with the legal regulations. Do not dispose of it with the household waste!