Mini-Sewi KNX TH-Pr

Combined Sensor

Item number 70402

elsner elektronik

Installation and Adjustment

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

This manual is amended periodically and will be brought into line with new software releases. The change status (software version and date) can be found in the contents footer. If you have a device with a later software version, please check **www.elsner-elektronik.de** in the menu area "Service" to find out whether a more up-to-date version of the manual is available.

Clarification of signs used in this manual

Safety advice.

Safety advice for working on electrical connections, components, etc.

DANGER! ... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING! ... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

CAUTION! ... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.

ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

ETS In the ETS tables, the parameter default settings are marked by underlining.

1. Description

The **Sensor Mini-Sewi KNX TH-Pr** detects motion. It 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. In addition, an integrated actuating variable comparator can compare and output variables that were received via communication objects.

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

Functions:

- **Motion detection**
- 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)
- **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

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, 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
Communication objects	232
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
Motion sensor:	
Coverage angle	approx. 100° × 82° (see also *Coverage area of the motion detector*)
Range	approx. 5 m

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 **Sensor Mini-Sewi KNX TH-Pr** is installed surface mounted on the ceiling.

For **capturing movement** 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, 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).

2.2.1. Coverage area of the motion detector

Angle of coverage: approx. 100° × 82°
Range: approx. 5 m

Segmentation of the coverage area

Fig. 1
Distance 2.50 m

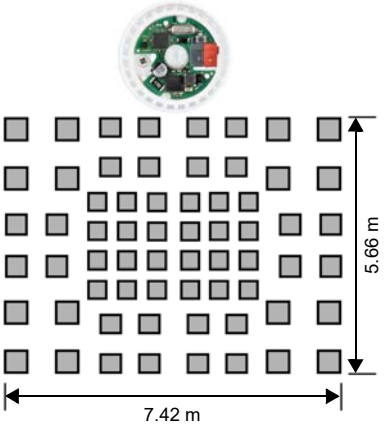
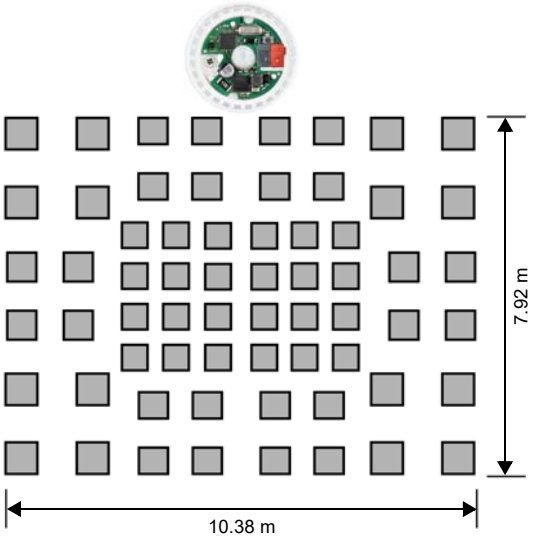


Fig. 2
Distance 3.50 m



Size of the coverage area

Distance	Length	Width
2.50 m	approx. 7.42 m	approx. 5.66 m
3.50 m	approx. 10.38 m	approx. 7.92 m

2.3. Construction of the sensor

2.3.1. Housing from the outside

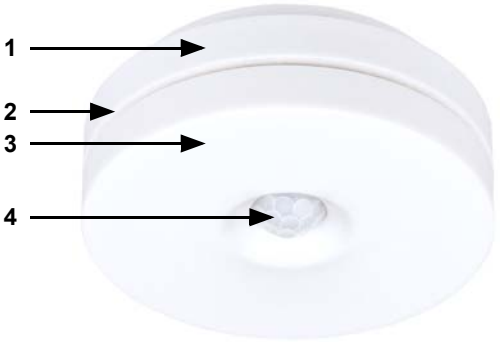


Fig. 3
1 Housing base
2 Air slots
3 Housing cover
4 Motion sensor

2.3.2. Printed circuit boards / connections

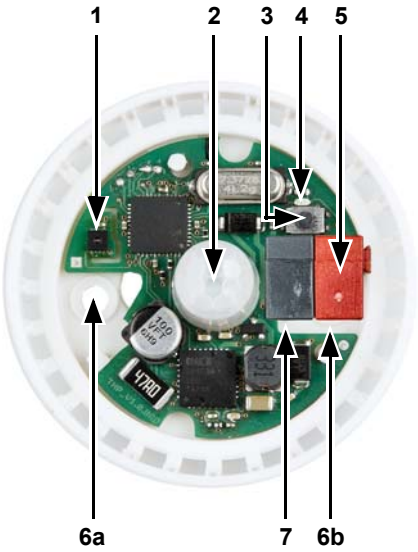


Fig. 4

1 Sensors for temperature, humidity
2 Motion sensor
3 Programming button
4 Programming LED
5 KNX terminal BUS +/-
6 a+b Holes for mounting (hole distance 30 mm)
7 Cable bushing (under the KNX terminal)

2.4. Assembly

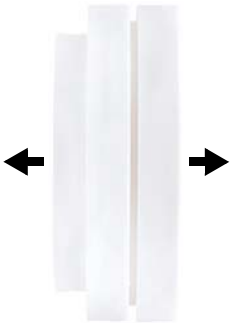


Fig. 5

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

Fig. 6

Remove the KNX terminal.

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

Fig. 7

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

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

Fig. 8

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

Fig. 9

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

2.4.1. Information on cavity wall mounting

Fig. 10

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.

The motion sensor has a start-up phase of approx. 15 seconds during which no motion detection takes place.

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. 4: No. 3).

4. Maintenance

The movement sensor and 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.

5. Transfer protocol

Units:

Temperatures in degrees Celsius
Brightness in Lux
Air humidity in %
Absolute air humidity in g/kg and/or g/m^3
Variables in %

5.1. List of all communication objects

Abbreviation flags:

C Communication
R Read
W Write
T Transfer
U Update

No.	Text	Function	Flags	Data Point Type	Size
0	Software version	Output	R-CT	[217.1] DPT_Version	2 Bytes
5	Motion sensor: Test object	Output	R-CT	[14] 14.xxx	4 Bytes
6	Motion sensor: Test object release (1 = release)	Input	-WC-	[1.1] DPT_Switch	1 Bit
7	Motion sensor: Slave: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
8	Motion sensor: Slave: Message	Output	R-CT	[1.1] DPT_Switch	1 Bit
9	Motion sensor: Slave: Cycle reset	Input	-WC-	[5.1] DPT_Scaling	1 Byte
10	Motion sensor: Master 1: brightness	Input	-WCT	[9.4] DPT_Value_Lux	2 Bytes
11	Motion sensor: Master 1: Brightn. thresh. val. On	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
12	Motion sensor: Master 1: Brightness hysteresis	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
13	Motion sensor: Master 1: Brightness waiting time	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
14	Motion sensor: Master 1: Output	Output	R-CT		1 Bit - 4 Bytes
15	Motion sensor: Master 1: Switch on delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
16	Motion sensor: Master 1: Switch off delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes

No.	Text	Function	Flags	Data Point Type	Size
17	Motion sensor: Master 1: Slave message	Input	-WC-	[1.1] DPT_Switch	1 Bit
18	Motion sensor: Master 1: Slave cycle reset	Output	--CT	[5.1] DPT_Scaling	1 Byte
19	Motion sensor: Master 1: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
20	Motion sensor: Master 1: Central Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
21	Motion sensor: Master 2: brightness	Input	-WCT	[9.4] DPT_Value_Lux	2 Bytes
22	Motion sensor: Master 2: Brightn. thresh. val. On	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
23	Motion sensor: Master 2: Brightness hysteresis	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
24	Motion sensor: Master 2: Brightness waiting time	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
25	Motion sensor: Master 2: Output	Output	R-CT		1 Bit - 4 Bytes
26	Motion sensor: Master 2: Switch on delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
27	Motion sensor: Master 2: Switch off delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
28	Motion sensor: Master 2: Slave message	Input	-WC-	[1.1] DPT_Switch	1 Bit
29	Motion sensor: Master 2: Slave cycle reset	Output	--CT	[5.1] DPT_Scaling	1 Byte
30	Motion sensor: Master 2: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
31	Motion sensor: Master 2: Central Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
32	Motion sensor: Master 3: brightness	Input	-WCT	[9.4] DPT_Value_Lux	2 Bytes
33	Motion sensor: Master 3: Brightn. thresh. val. On	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
34	Motion sensor: Master 3: Brightness hysteresis	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
35	Motion sensor: Master 3: Brightness waiting time	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
36	Motion sensor: Master 3: Output	Output	R-CT		1 Bit - 4 Bytes
37	Motion sensor: Master 3: Switch on delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
38	Motion sensor: Master 3: Switch off delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes

No.	Text	Function	Flags	Data Point Type	Size
39	Motion sensor: Master 3: Slave message	Input	-WC-	[1.1] DPT_Switch	1 Bit
40	Motion sensor: Master 3: Slave cycle reset	Output	--CT	[5.1] DPT_Scaling	1 Byte
41	Motion sensor: Master 3: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
42	Motion sensor: Master 3: Central Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
43	Motion sensor: Master 4: brightness	Input	-WCT	[9.4] DPT_Value_Lux	2 Bytes
44	Motion sensor: Master 4: Brightn. thresh. val. On	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
45	Motion sensor: Master 4: Brightness hysteresis	Input / Output	-WCT	[9.4] DPT_Value_Lux	2 Bytes
46	Motion sensor: Master 4: Brightness waiting time	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
47	Motion sensor: Master 4: Output	Output	R-CT		1 Bit - 4 Bytes
48	Motion sensor: Master 4: Switch on delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
49	Motion sensor: Master 4: Switch off delay	Input	RWC-	[7.5] DPT_TimePeriodSec	2 Bytes
50	Motion sensor: Master 4: Slave message	Input	-WC-	[1.1] DPT_Switch	1 Bit
51	Motion sensor: Master 4: Slave cycle reset	Output	--CT	[5.1] DPT_Scaling	1 Byte
52	Motion sensor: Master 4: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
53	Motion sensor: Master 4: Central Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
56	Temperature sensor: malfunction	Output	R-CT	[1.1] DPT_Switch	1 Bit
57	Temperature sensor: measured value external	Input	-WCT	[9.1] DPT_Value_Temp	2 Bytes
58	Temperature sensor: measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
59	Temperature sensor: measured value total	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
60	Temperature sensor: measured value min./max. query	Input	-WC-	[1.17] DPT_Trigger	1 Bit
61	Temperature sensor: measured value minimum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
62	Temperature sensor: measured value maximum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes

No.	Text	Function	Flags	Data Point Type	Size
63	Temperature sensor: measured value min./max. reset	Input	-WC-	[1.17] DPT_Trigger	1 Bit
66	Temp. thresholdV 1: Absolute value	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
67	Temp. thresholdV 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
68	Temp. thresholdV 1: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
69	Temp. thresholdV 1: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
70	Temp. thresholdV 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
71	Temp. thresholdV 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
72	Temp. thresholdV 2: Absolute value	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
73	Temp. thresholdV 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
74	Temp. thresholdV 2: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
75	Temp. thresholdV 2: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
76	Temp. thresholdV 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
77	Temp. thresholdV 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
78	Temp. thresholdV 3: Absolute value	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
79	Temp. thresholdV 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
80	Temp. thresholdV 3: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
81	Temp. thresholdV 3: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
82	Temp. thresholdV 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
83	Temp. thresholdV 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
84	Temp. threshold value 4: Absolute value	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
85	Temp. threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
86	Temp. thresh. val. 4: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes

No.	Text	Function	Flags	Data Point Type	Size
87	Temp. thresh. val. 4: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
88	Temp. threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
89	Temp. threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
95	Temp.control: HVAC mode (priority 1)	Input	-WC-	[20.102] DPT_HVACMode	1 Byte
96	Temp.control: HVAC mode (priority 2)	Input	-WCT	[20.102] DPT_HVACMode	1 Byte
97	Temp.control: Mode frost/heat protection activt.	Input	-WCT	[1.1] DPT_Switch	1 Bit
98	Temp.control: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
99	Temp.control: Current setpoint	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
100	Temp.control: Switch. (0: Heating | 1: Cooling)	Input	-WC-	[1.1] DPT_Switch	1 Bit
101	Temp.control: Setpoint Comfort heating	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
102	Temp.control: Setpoint Comfort heat.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
103	Temp.control: Setpoint Comfort cooling	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
104	Temp.control: Setpoint Comfort cool.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
105	Temp.control: Basic 16-bit setpoint shift	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
106	Temp.control: Setpoint Standby heating	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
107	Temp.control: Setpoint Standby heat.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
108	Temp.control: Setpoint Standby cooling	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
109	Temp.control: Setpoint Standby cool. (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
110	Temp.control: Setpoint Eco heating	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
111	Temp.control: Setpoint Eco heating (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
112	Temp.control: Setpoint Eco cooling	Input / Output	-WCT	[9.1] DPT_Value_Temp	2 Bytes
113	Temp.control: Setpoint Eco cooling (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
114	Temp.control: Control variable heating (level 1)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
115	Temp.control: Control variable heating (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
116	Temp.control: Control variable cooling (level 1)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
117	Temp.control: Control variable cooling (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
118	Temperature control: Variable for 4/6-way valve	Output	R-CT	[5.1] DPT_Scaling	1 Byte
119	Temp.control: Status Heat. level 1 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
120	Temp.control: Status Heat. level 2 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
121	Temp.control: Status Cool. level 1 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
122	Temp.control: Status Cool. level 2 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
123	Temp.control: Comfort extension status	Input / Output	-WCT	[1.1] DPT_Switch	1 Bit
124	Temp.control: Comfort Extension time	Input	-WCT	[7.5] DPT_TimePeriodSec	2 Bytes
130	Humidity sensor: malfunction	Output	R-CT	[1.1] DPT_Switch	1 Bit
131	Humidity sensor: measured value external	Input	-WCT	[9.7] DPT_Value_Humidity	2 Bytes
132	Humidity sensor: measured value	Output	R-CT	[9.7] DPT_Value_Humidity	2 Bytes
133	Humidity sensor: measured value total	Output	R-CT	[9.7] DPT_Value_Humidity	2 Bytes
134	Humidity sensor: measured value min./max. query	Input	-WC-	[1.17] DPT_Trigger	1 Bit
135	Humidity sensor: measured value minimum	Output	R-CT	[9.7] DPT_Value_Humidity	2 Bytes
136	Humidity sensor: measured value maximum	Output	R-CT	[9.7] DPT_Value_Humidity	2 Bytes
137	Humidity sensor: measured value min./max. reset	Input	-WC-	[1.17] DPT_Trigger	1 Bit
138	Humidity thresholdV 1: Absolute value	Input / Output	-WCT	[9.7] DPT_Value_Humidity	2 Bytes
139	Humidity thresholdV 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
140	Humidity thresholdV 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes

No.	Text	Function	Flags	Data Point Type	Size
141	Humidity thresholdV 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
142	Humidity thresholdV 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
143	Humidity thresholdV 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
144	Humidity thresholdV 2: Absolute value	Input / Output	-WCT	[9.7] DPT_Value_Humidity	2 Bytes
145	Humidity thresholdV 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
146	Humidity thresholdV 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
147	Humidity thresholdV 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
148	Humidity thresholdV 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
149	Humidity thresholdV 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
150	Humidity thresholdV 3: Absolute value	Input / Output	-WCT	[9.7] DPT_Value_Humidity	2 Bytes
151	Humidity thresholdV 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
152	Humidity thresholdV 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
153	Humidity thresholdV 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
154	Humidity thresholdV 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
155	Humidity thresholdV 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
156	Humidity thresholdV 4: Absolute value	Input / Output	-WCT	[9.7] DPT_Value_Humidity	2 Bytes
157	Humidity thresholdV 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
158	Humidity thresholdV 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
159	Humidity thresholdV 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
160	Humidity thresholdV 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
161	Humidity thresholdV 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
165	Humidity control: Block (1: blocking)	Input	-WC-	[1.2] DPT_Bool	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
166	Humidity control: Target value	Input / Output	-WCT	[9.7] DPT_Value_Humidity	2 Bytes
167	Humidity control: Target value (1:+ | 0:-)	Input	-WC-	[1.2] DPT_Bool	1 Bit
168	Humidity control: Act. variable dehumidification	Output	R-CT	[5.1] DPT_Scaling	1 Byte
169	Humidity control: Act. variable dehumid. 2nd stage	Output	R-CT	[5.1] DPT_Scaling	1 Byte
170	Humidity control: Act. variable humidification	Output	R-CT	[5.1] DPT_Scaling	1 Byte
171	Humidity control: Status dehumidif. (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
172	Humidity control: Status dehumidif.2 (1:ON|0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
173	Humidity control: Status humidif. (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
175	Dew point: Measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
176	Cooling medium temp.: Threshold value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
177	Cooling medium temp.: Actual value	Input	-WCT	[9.1] DPT_Value_Temp	2 Bytes
178	Cooling medium temp.: Offset change (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
179	Cooling medium temp.: Offset current	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
180	Cooling medium temp.: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
181	Cooling medium temp.: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
182	Cooling medium temp.: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
183	Cooling medium temp.: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
184	Absolute humidity [g/kg]	Output	R-CT	[14.5] DPT_Value_Amplitude	4 Bytes
185	Absolute humidity [g/m³]	Output	R-CT	[14.17] DPT_Value_Density	4 Bytes
186	Ambient climate status: 1=comfortable|0=uncomfort.	Output	R-CT	[1.1] DPT_Switch	1 Bit
187	Ambient climate status: Text	Output	R-CT	[16.0] DPT_String_ASCII	14 Bytes
189	Actuating variable comparator 1: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 Byte

No.	Text	Function	Flags	Data Point Type	Size
190	Actuating variable comparator 1: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 Byte
191	Actuating variable comparator 1: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 Byte
192	Actuating variable comparator 1: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 Byte
193	Actuating variable comparator 1: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 Byte
194	Actuating variable comparator 1: Output	Output	R-CT	[5.1] DPT_Scaling	1 Byte
195	Actuating variable comparator 1: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 Bit
196	Actuating variable comparator 2: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 Byte
197	Actuating variable comparator 2: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 Byte
198	Actuating variable comparator 2: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 Byte
199	Actuating variable comparator 2: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 Byte
200	Actuating variable comparator 2: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 Byte
201	Actuating variable comparator 2: Output	Output	R-CT	[5.1] DPT_Scaling	1 Byte
202	Actuating variable comparator 2: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 Bit
204	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 Bit
205	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 Bit
206	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 Bit
207	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 Bit
208	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 Bit
209	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 Bit
210	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 Bit
211	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 Bit
212	Logic input 9	Input	-WC-	[1.2] DPT_Bool	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
213	Logic input 10	Input	-WC-	[1.2] DPT_Bool	1 Bit
214	Logic input 11	Input	-WC-	[1.2] DPT_Bool	1 Bit
215	Logic input 12	Input	-WC-	[1.2] DPT_Bool	1 Bit
216	Logic input 13	Input	-WC-	[1.2] DPT_Bool	1 Bit
217	Logic input 14	Input	-WC-	[1.2] DPT_Bool	1 Bit
218	Logic input 15	Input	-WC-	[1.2] DPT_Bool	1 Bit
219	Logic input 16	Input	-WC-	[1.2] DPT_Bool	1 Bit
220	AND logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
221	AND logic 1: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
222	AND logic 1: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte
223	AND logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
224	AND logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
225	AND logic 2: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
226	AND logic 2: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte
227	AND logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
228	AND logic 3: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
229	AND logic 3: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
230	AND logic 3: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte
231	AND logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
232	AND logic 4: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
233	AND logic 4: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
234	AND logic 4: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte

No.	Text	Function	Flags	Data Point Type	Size
235	AND logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
236	OR logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
237	OR logic 1: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
238	OR logic 1: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte
239	OR logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
240	OR logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
241	OR logic 2: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
242	OR logic 2: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte
243	OR logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
244	OR logic 3: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
245	OR logic 3: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
246	OR logic 3: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte
247	OR logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
248	OR logic 4: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
249	OR logic 4: 8 bit output A	Output	R-CT		1 Bit - 2x1 Byte
250	OR logic 4: 8 bit output B	Output	R-CT		1 Bit - 2x1 Byte
251	OR logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit

6. Parameter setting

6.1. Behaviour on power failure/ restoration of power

Behaviour following a failure of the bus power supply:

The device sends nothing.

Behaviour on bus restoration of power and following programming or reset:

The device sends all outputs according to their send behaviour set in the parameters with the delays established in the "General settings" parameter block.

6.2. General settings

Set basic characteristics for the data transfer.

Send delay after reset/bus restoration for:	
Measured values	5 s • ... • 300 s
Threshold values and switching outputs	5 s • ... • 300 s
Controller objects	5 s • ... • 300 s
Comparator and logic objects	5 s • ... • 300 s
Maximum telegram rate	• 1 message per second • ... • 10 messages per second • ... • 50 messages per second

6.3. Motion detector

The motion detector detects movement by means of temperature differences. Please note that the "no movement" message is only sent to the bus after a 5 second delay. After connecting the operating voltage and after a reset, it takes 15 seconds until the sensor is ready for operation.

Activate the **test object** if you would like to test the motion detection while commissioning.

With an active test object, you can enter the settings for analysis of the release object, the value prior to the first communication, and the type and value of the test object.

Use test object	No • Yes
If test object is used:	
Release object analysis	• at value 1: release | at value 0: block • at value 0: release | at value 1: block
Value prior to first communication	0 • 1

Type of test object	• 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 1 byte 0...63) scenario call-up • 2 byte counter without math. symbol • 2 byte counter with math. symbol • 2 byte floating point • 4 byte counter without math. symbol • 4 byte counter with math. symbol • 4 byte floating point
Test object value for movement	e.g. 0 • 1 [depending on the type of test object]
Test object value without movement	e.g. 0 • 1 [depending on the type of test object]

Select whether the motion detector is operated as **master or slave**.
For a master device, the reactions to motion detection are filed in the master settings 1 to 4. The master can thus control up to four different lamps, scenarios etc. and, as an option, also observe incoming motion messages from slave devices.
A slave device sends a motion message to the master via the bus.

Mode	Slave • Master

Motion detector as slave:

Activate the slave in order to use it.

Use slave	No • **Yes**

When a motion is detected, the device periodically sends a 1 to the master via the bus.

Information on setting the slave sending cycle and the cycle reset can be found in chapter *Align communication between master and slave*, page 29.

Set the **sending cycle** shorter than the master's switch-off delay.

Sending cycle in the event of movement (in seconds)	1...240; 2

Set the **object type and value** for the cycle reset input for the slave in the same way as for the cycle reset output for the master.

Cycle reset object type	• 1 bit • 1 byte (0%...100%)
Cycle reset at value	0 • 1 and/or 0...100; 1

The slave can be **blocked** via the bus.

Use block	No • **Yes**
Analysis of the blocking object	• at value 1: block | at value 0: release • at value 0: block | at value 1: release
Value prior to first communication	0 • 1

6.3.1. Master 1/2/3/4

If the device is set as a master, the additional master settings 1 to 4 will appear. This enables the **Sensor Mini-Sewi KNX TH-Pr** to perform four different control functions for motion detection. Activate the master in order to use it.

Use master 1/2/3/4	No • Yes

Set, in which cases **threshold values and delay times** received via object are to be retained. The parameter is only taken into consideration if the setting via object is activated below. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the 1st communication (setting via objects is ignored).

Maintain the	
threshold values and delays received via communication objects	• never • after power supply restoration • after power supply restoration and programming

Select, whether motion is to be detected **constantly or brightness dependent**.

Motion detection	constantly • brightness dependent

Settings for brightness dependent motion detection:

The **brightness dependent motion detection** can be used via separate threshold values for switch-on and switch-off or dependent on daylight. The separate threshold values are ideal for controlling the light in rooms which are only illuminated by artificial light. The daylight dependent control is ideal for rooms with daylight and artificial light.

Motion detection	**brightness dependent**
Type of brightness dependency	• separate switch-on and switch-off values • daylight dependent

For **daylight dependent motion detection with separate switch-on and switch-off threshold values** activate, as required, the objects for setting the threshold values. Then specify the switch-on and switch-off values (brightness range). The switch-on value is the value, below which the room should be lit in the event of

movement. The switch-off value should be higher than the brightness value of the artificially lit room.

Type of brightness dependency	**• separate switch-on and switch-off values**
Threshold values can be set via objects	No • Yes
Switch on sensor below Lux	1...5000; 200
Switch off sensor below Lux	1...5000; 500

For the **daylight dependent motion detection** activate, as required, the objects for setting the threshold values/hysteresis and waiting period. Then specify the switch-on value. This is the value, below which the room should be lit in the event of movement.

The switch-off value is derived from the brightness measurement that is performed by the sensor at the end of the waiting period. Set the waiting period such that after it all lamps are set to the final brightness. The hysteresis is added to the measured brightness value. If the room brightness later exceeds this total value because the room is illuminated by daylight, the motion control is switched off.

Type of brightness dependency	**• Daylight dependent**
Threshold values and hysteresis can be set via objects	No • Yes
Waiting period can be set via objects	No • Yes
Switch on sensor below Lux	1...5000; 200
Switch off sensor, at the earliest after a waiting period of seconds	0...600; 5
after motion detection and above measured brightness plus hysteresis in Lux	1...5000; 200

Settings for all types of motion detection:

The following settings can be made, independent of the motion detection type, i.e. for "constant" and "brightness dependent" motion recognition.

Define the **output type and value**. As a result of the different types, switchable lights (1 bit), dimmer (1 Byte 0-100%), scenarios (1 Byte 0...63 scenario call-up) and other functions can be controlled.

Output type	• 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 1 byte (0...63) scenario call-up • 2 byte counter without math. symbol • 2 byte counter with math. symbol • 2 byte floating point • 4 byte counter without math. symbol • 4 byte counter with math. symbol • 4 byte floating point
Output value in the event of motion	e.g. 0 • 1 [depending on the output type]
Output value without motion	e.g. 0 • 1 [depending on the output type]
Output value when blocked	e.g. 0 • 1 [depending on the output type]

Select whether delays can be set via objects and specify the **switching delays**. By setting a **blocking time** after switch-off, you prevent sensors from recognising a switched-off lamp in their detection zone as a temperature change, and sending a motion message.

Delays can be set via objects (in seconds)	No • Yes
Switch on delay (for setting via objects: valid until 1st communication)	0 s • 5 s • 10 s • ... 2 h *(for daylight dependent motion detection: fixed value 0s)*
Switch off delay (for setting via objects: valid until 1st communication)	0 s • 5 s • 10 s • ... 2 h
Blocking time for motion detection after switch off delay in seconds	0...600 ; 2

Set the master's output **sending pattern**.

Sending pattern	• on change • on change to movement • on change to no movement • on change and periodically • on change to movement and periodically • on change to no movement periodically
Cycle *(if sent periodically)*	1s • 5 s • ... 2 h

In addition, you can refer to a **slave signal**, i.e. a signal from an additional motion detector, for controlling purposes.

Use slave signal	No • Yes

The slave device periodically sends a 1 to the bus, as long as a motion is detected. The master receives this at the input object "master: slave message" and evaluates the slave message as an own sensor message.

Furthermore, the master has the possibility of triggering a reset of the slave sending cycle.

Information on setting the slave sending cycle and the cycle reset can be found in chapter *Align communication between master and slave*, page 29.

Set the **object type and value** for the master's slave cycle reset output in the same way, as the cycle reset input for the slave.

Slave cycle reset object type	• 1 bit • 1 byte (0%...100%)
Cycle reset at value	0 • 1 and/or 0...100; 1

The master can be **blocked** via the bus.

Use block	No • **Yes**
Analysis of the blocking object	• at value 1: block | at value 0: release • at value 0: block | at value 1: release
Value prior to first communication	0 • 1
Output pattern	
On block	• do not send anything • Send value
For release	• as for transmission pattern • send current value immediately

6.3.2. Align communication between master and slave

Sending cycle slave - switch-off delay master

Set the slave's **sending cycle** shorter than the master's switch-off delay. Thereby it is ensured that the master does not perform a switch-off action, while the slave is still detecting a motion.

Slave cycle reset

The cycle reset for the slave is required, if a master switch action by the "master: central off" object was triggered.

When the master performs a switch-off action, it simultaneously sends a message to the bus via the "master: slave cycle reset". . This message can be received by the slave via the "slave: cycle reset" in order to *immediately* send a message to the bus in the event of a motion detection. The master receives the motion message without having to wait for the next slave transmission cycle.

Please note that object type and value for the slave's cycle reset input and the master's cycle reset output must be set the same.

Application Example:

A person steps into a corridor, the master recognises this movement and switches on the corridor lighting. When leaving the corridor, the person wants to switch off the light using a switch.

However, in the meantime a second person has entered the corridor who is detected by a slave. This person would be in darkness and would have to wait for the slave's next transmission cycle before the light would be switched on again.

To prevent this, the switch command is connected to the "master: central off" object. As a result, the master sends a cycle reset command to the slave if the light is switched off manually. In the present example, the master would immediately switch the light back on.

6.4. Temperature Measurement

Select, whether a **malfunction object** is to be sent if the sensor is faulty.

Use malfunction object	No • Yes

Use **Offsets** to adjust the readings to be sent.

Offset in 0.1°C	-50…50; 0

The unit can calculate a **mixed value** from its own reading and an external value. Set the mixed value calculation if desired. If an external portion is used, all of the following settings (threshold values, etc.) are related to the overall reading.

Use external measured value	No • Yes
Ext. Reading proportion of the total reading	5% • 10% • ... • 50% • ... • 100%
Sending pattern for internal and total measured value	• never • periodically • on change • on change and periodically
At and above change of *(if sent on change)*	0.1°C • 0.2°C • 0.5°C • ... • 5.0°C
Send cycle *(if sent periodically)*	5 s • 10 s • ... • 2 h

The **minimum and maximum readings** can be saved and sent to the bus. Use the "Reset temperature min/max. value" objects to reset the values to the current readings. The values are not retained after a reset.

Use minimum and maximum value	No • Yes

6.5. Temperature PI control

Activate the control if you want to use it.

Use control	No • Yes

General control

Set, in which cases **setpoint values and extension time** received via object are to be retained. The parameter is only taken into consideration if the setting via object is activated below. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the 1st communication (setting via objects is ignored).

Maintain the	
Target values and extension time received via communication objects	• never • after power supply restoration • after power supply restoration and programming

For an adequate regulation of the ambient temperature, comfort, standby, eco and building protection modes may be used.
Comfort when present,
Standby during short absences,
Eco as a night-time mode and
Frost/heat protection (building protection) e. g. with the window open.

The settings for the temperature control include the setpoint temperatures for the individual modes. Objects are used to determine which mode is to be selected. A change of mode may be triggered manually or automatically (e.g. by a timer, window contact).

The **mode** may be switched with two 8 bit objects of different priority. Objects
„... HVAC mode (Prio 2)“ for switching in everyday operation and
„... HVAC mode (Prio 1)“ for central switching with higher priority.
The objects are coded as follows:
0 = Auto
1 = Comfort
2 = Standby
3 = Eco
4 = Building Protection

Alternatively, you can use three objects, with one object switching between eco and standby mode and the two others activating comfort mode and frost/heat protection mode respectively. The comfort object blocks the eco/standby object, and the frost/heat protection object has the highest priority. Objects
„... Mode (1: Eco, 0: Standby)“,
„... comfort activation mode" and
„... frost/heat protection activation mode"

Switch mode via	• two 8 Bit objects (HVAC Modes) • three 1 bit objects

Select the **mode to be activated after reset** (e.g. power failure, reset of the line via the bus) (Default).
Then configure a temperature control **block** via the blocking object.

Mode after reset	• Comfort • Standby • Eco • Building protection
Behaviour of the blocking object with value	• 1 = Block | 0 = release • 0 = block | 1 = release
Value of the blocking object after reset	0 • 1

Specify when the current **control variables** of the controller are to be **sent** to the bus. Periodic sending is safer, in case a message does not reach a recipient. You may also set up periodical monitoring by the actuator with this setting.

Send control variable	• on change • on change and periodically
from change (in % absolute)	1...10; 2
Cycle *(if sent periodically)*	5 s • ... • 5 min • ... • 2 h

The **status object** reports the current status of the control variables (0% = OFF, >0% = ON) and may for example be used for visualisation, or to switch off the heating pump as soon as the heating is switched off.

Send status objects	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle *(if sent periodically)*	5 s • ... • 5 min • ... • 2 h

Then define the **type of control**. Heating and/or cooling may be controlled in two levels.

Type of control	• Single level heating • Dual-level heating • Single-level cooling • Dual-level cooling • Single-level heating + single-level cooling • Dual-level heating + single-level cooling • Dual-level heating + dual-level cooling

General setpoint values

You may enter separate setpoint values for each mode or use the comfort setpoint as a basic value.
If you are using the control for both heating *and* cooling, you may also select the setting "separately with switching object". Systems used for cooling in summer and for heating in winter can thus be switched from one to the other.
If you are using the basic value, only the deviation from the comfort setpoint value is listed for the other modes (e.g, 2°C less for standby mode).

Receive changed setpoints after mode change	no • yes
Setting the setpoint values	• with separate setpoint values with Switching object • with separate setpoint values without Switching object • with comfort setpoint as a basis with Switching object • with comfort setpoint as a basis without Switching object
Behaviour of the switching object at value *(with switching object)*	• 0 = Heating | 1 = Cooling • 1 = Heating | 0 = Cooling
Value of the switching object after reset *(with switching object)*	0 • 1

The **increment** for the setpoint changes is predefined. Whether the change only remains temporarily active (not saved) or is also retained after power supply restoration (and programming), is specified in the first section of "General control". This also applies to a comfort extension.

Increment for setpoint changes (in 0.1 °C)	1… 50; 10

The control may be reset to comfort mode from eco mode, which is used as night mode, via the comfort extension. This allows the user to maintain the comfort setpoint value for a longer time, e.g. when having guests. The duration of this comfort extension period is set. After the comfort extension period expires, the system returns to eco mode.

Comfort extension time in seconds (can only be activated from eco mode)	1…36000; 3600

Comfort Setpoint

Comfort mode is usually used for daytime mode when people are present. A starting value is defined for the comfort setpoint as well as a temperature range in which the setpoint value may be modified.

Starting heating/cooling setpoint (in 0.1 °C) valid until 1st communication *(not upon saving the setpoint value after programming)*	-300…800; 210

If setpoint values are entered separately:

Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the reduction/increment of the value is set.

Minimum base setpoint (in 0.1°C)	-300…800; 160
Maximum base setpoint (in 0.1°C)	-300…800; 280
Reduction by up to (in 0.1°C)	0…100; 50
Increase by up to (in 0.1°C)	0…100; 50

If the comfort setpoint is used as the basis without a switching object, a dead zone is specified for the control mode "heating *and* cooling" to avoid direct switching from heating to cooling.

Dead zone between heating and cooling *(only if both heating AND cooling are used)*	1…100; 50

Standby setpoint

Standby mode is usually used for daytime mode when people are absent.

If setpoint values are entered separately:

A starting setpoint value is defined as well as a temperature range in which the setpoint value may be changed.

Starting heating/cooling setpoint (in 0.1 °C) valid until 1st communication	-300…800; 180
Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the reduction/increment of the value is set.

Reduce heating setpoint (in 0.1°C) *(for heating)*	0…200; 30
Increase cooling setpoint (in 0.1°C) *(for cooling)*	0…200; 30

Eco setpoint

Eco mode is usually used for night mode.

If setpoint values are entered separately:

A starting setpoint value is defined as well as a temperature range in which the setpoint value may be changed.

Starting heating/cooling setpoint (in 0.1 °C) valid until 1st communication	-300…800; 160
Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the reduction/increment of the value is set.

Reduce heating setpoint (in 0.1°C) *(for heating)*	0…200; 50
Increase cooling setpoint (in 0.1°C) *(for cooling)*	0…200; 60

Setpoint values for frost/heat protection (building protection)

The building protection mode is for example used as long as windows are opened for ventilation. Setpoints for frost protection (heating) and heat protection (cooling) are determined which may not be modified from outside (no access via operating devices etc.). The building protection mode may be activated with delay, which allows you to leave the building before the controls switch to frost/heat protection mode.

Setpoint frost protection (in 0.1°C)	-300…800; 70
Activation delay	less than • 5 s • ... • 5 min • ... • 2 h
Setpoint heat protection (in 0.1°C)	-300…800; 350
Activation delay	less than • 5 s • ... • 5 min • ... • 2 h

General control variables

This setting appears for the control types "Heating *and* Cooling" only. Here, you can decide whether to use a common control variable for heating and cooling. If the 2nd level has a common control variable, you also determine the control mode of the 2nd level here.

For heating and cooling	• separate control variables are used • common control variables are used for Level 1 • common control variables are used for Level 2 • common control variable are used for Level 1+2
Use control variable for 4/6-way valve *(only for common control variables in level 1)*	No • Yes

Control type *(for level 2 only)*	• 2-point-control • PI control
Control variable of the 2nd Level is on *(only for level 2 with 2 point controlling)*	• 1 bit object • 8 bit object

When using the control variable for a 4/6 way valve, the following applies:
0%...100% heating = 66%...100% control variable
OFF = 50% control variable
0%...100% cooling = 33%...0% control variable

6.6. Temperature threshold values

Activate the required temperature threshold values. The menus for setting the threshold values are displayed.

Use threshold value 1/2/3/4	Yes • No

6.6.1. Threshold value 1, 2, 3, 4

Threshold value

Set, in which cases **threshold values and delay times** received via object are to be retained. The parameter is only taken into consideration if the setting via object is activated below. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first communication (setting via objects is ignored).

Maintain the	
threshold values and delays received via communication objects	• never • after power supply restoration • after power supply restoration and programming

Set the threshold value directly in the application program using parameters, or define them via the bus using a communication object.

Threshold value setting via parameter:

Set the threshold values and hysteresis directly.

Threshold value setting via	**Parameter** • Communication objects
Threshold value in 0.1°C	-300 ... 800; 200

Threshold value setting via a communication object:

Define, how the threshold value is to be received from the bus. Basically, a new value can be received, or simply a command to increase or decrease.

During initial commissioning, a threshold value must be defined, which will be valid until the first communication with a new threshold value. For units which have already

been taken into service, the last communicated threshold value can be used. Basically, a temperature range is given, in which the threshold value can be changed (object value limit).

A set threshold value will be retained until a new value or a change is transferred. The current value is saved, so that it is retained in the event of a power supply failure and will be available once the power supply is restored.

Threshold value setting via	Parameter • **Communication objects**
Start threshold value in 0.1°C valid until first communication	-300 ... 800; 200
Object value limit (min) in 0.1°C	-300...800
Object value limit (max) in 0.1°C	-300...800
Type of threshold value change	Absolute value • Increase/decrease
Increment *(upon increase/decrease change)*	0.1°C • ... • 5°C

Set the **hysteresis** independent of the type of threshold value specification.

Hysteresis setting	in % • absolute
Hysteresis in 0.1°	0...1100; 50
Hysteresis in % of the threshold value	0 ... 50; 20

Switching output

Set the behaviour of the switching output when a threshold value is exceeded/undercut. The output switching delay can be set using objects or directly as a parameter.

When the following conditions apply, the output is (TV = Threshold value)	• TV above = 1 | TV - hyst. below = 0 • TV above = 0 | TV - hyst. below = 1 • TV below = 1 |TV + hyst. above = 0 • TV below = 0 |TV + hyst. above = 1
Delays can be set via objects (in seconds)	No • Yes
Switching delay from 0 to 1 *(If delay can be set via objects: valid until 1st communication)*	None • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching delay from 1 to 0 *(If delay can be set via objects: valid until 1st communication)*	None • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching output sends	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle *(only if sending periodically is selected)*	5 s • 10 s • 30 s... • 2 h

Block

The switching output can be blocked using an object.

Use switching output block	No • Yes

If the block is activated, define specifications here for the behaviour of the output when blocked.

Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before 1st communication	0 • 1
Behaviour of the switching output	
On block	• Do not send message • send 0 • send 1
On release (with 2 seconds release delay)	[Dependent on the "Switching output sends" setting]

The behaviour of the switching output on release is dependent on the value of the parameter "Switching output sends" (see "Switching output")

Switching output sends on change	• Do not send message • Send switching output status
Switching output sends on change to 1	• Do not send message • if switching output = 1 ➔ send 1
Switching output sends on change to 0	• Do not send message • if switching output = 0 ➔ send 0
Switching output sends on change and periodically	Send switching output status
Switching output sends on change to 1 and periodically	if switching output = 1 ➔ send 1
Switching output sends on change to 0 and periodically	if switching output = 0 ➔ send 0

6.6.2. Heating control level 1/2

If a heating control mode is configured, one or two setting sections for the heating levels are displayed.

In the 1st level, heating is controlled by a PI control, which allows to either enter control parameters or select predetermined applications.

In the 2nd level (therefore only in case of 2-level heating), heating is controlled via a PI or a 2-point-control.

In level 2, the setpoint difference between the two levels must also be specified, i.e. below which setpoint deviation the second level is added.

Setpoint difference between 1st and 2nd level (in 0.1°C) *(for level 2)*	0...100; 40
Control type *(for level 2, no common control variables)*	• 2-point-control • PI control
Control variable is a *(for level 2 with 2-point controlling, no common control variables)*	• 1 bit object • 8 bit object

PI control with control parameters:

This setting allows individual input of the parameters for PI control.

Control type	**• PI control**
Setting of the controller by	**• Controller parameter** • specified applications

Specify the deviation from the setpoint value at which the maximum control variable value is reached, i.e. the point at which maximum heating power is activated.
The reset time shows how quickly the controller responds to deviations from the setpoint value. In case of a short reset time, the control responds with a fast increase of the control variable. In case of a long reset time, the control responds somewhat less urgently and needs longer until the necessary control variable for the setpoint value deviation is reached.
You should set the time appropriate to the heating system at this point (observe manufacturer's instructions).

Maximum control variable is reached at setpoint/actual difference of (in °C)	0...5
Reset time (in min.)	1...255; 30

Now specify what should be sent when the control is blocked. Set a value greater 0 (=OFF) to receive a basic heating level, e.g. for floor heating.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

PI control with predetermined application:

This setting provides fixed parameters for frequent applications.

Control type	**• PI control**
Setting of the controller by	• Controller parameter **• specified applications**

Application	• Warm water heating • Floor heating • Convection unit • Electric heating
Maximum control variable is reached at setpoint/actual difference of (in °C)	Warm water heating: 5 Floor heating: 5 Convection unit: 4 Electric heating: 4
Reset time (in min.)	Warm water heating: 150 Floor heating: 240 Convection unit: 90 Electric heating: 100

Now specify what should be sent when the control is blocked. Set a value greater 0 (=OFF) to receive a basic heating level, e.g. for floor heating.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

2-point-control (only level 2):

2-point-control is used for systems which are only set to ON or OFF.

Control type *(is determined at a higher level for common control variables)*	• **2-point-control**

Enter the hysteresis that prevents frequent on/off switching of temperatures in the threshold range.

Hysteresis (in 0.1°C)	0...100; 20

If separate control variables are used, select whether the control variable of the 2nd level is a 1 bit object (on/off) or an 8 bit object (on with percentage/off).

Control variable is a	• 1 bit object • 8 bit object
Value (in %) *(for 8 bit object)*	0...100

Now specify what should be sent when the control is blocked. Set a value greater 0 (=OFF) to receive a basic heating level, e.g. for floor heating. On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *only if a value is sent*	0...100

6.6.3. Cooling control level 1/2

If a cooling control mode is configured, one or two setting sections for the cooling levels are displayed.

In the 1st level, cooling is controlled by a PI control in which either control parameters can be entered or predetermined applications can be selected.

In the 2nd level (therefore only for 2-level cooling), cooling is controlled via a PI or a 2-point-control.
In level 2, the setpoint deviation between the two levels must also be specified, i.e. above which setpoint value deviation the second level is added.

Setpoint difference between 1st and 2nd level (in 0.1°C) *(for level 2)*	0...100; 40
Control type *(for level 2, no common control variables)*	• 2-point-control • PI control
Control variable is a *(for level 2 with 2-point controlling, no common control variables)*	• 1 bit object • 8 bit object

PI control with control parameters:

This setting allows individual input of the parameters for PI control.

Control type	• **PI control**
Setting of the controller by	• **Controller parameter** • specified applications

Specify the deviation from the setpoint value which reaches maximum variable value, i.e. the point at which maximum cooling power is activated.
The reset time shows how quickly the controller responds to deviations from the setpoint value. In case of a short reset time, the control responds with a fast increase of the control variable. In case of a long reset time, the control responds somewhat less urgently and needs longer until the necessary control variable for the setpoint value deviation is reached. You should set the time appropriate to the cooling system at this point (observe manufacturer's instructions).

Maximum control variable is reached at setpoint/actual difference of (in °C)	0...5
Reset time (in min.)	1...255; 30

Now specify what should be sent when the control is blocked.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

PI control with predetermined application:

This setting provides fixed parameters for a cooling ceiling

Control type	• **PI control**
Setting of the controller by	• Controller parameter • **specified applications**
Application	• Cooling ceiling
Maximum control variable is reached at setpoint/actual difference of (in °C)	Cooling ceiling: 5
Reset time (in min.)	Cooling ceiling: 30

Now specify what should be sent when the control is blocked.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

2-point-control (only level 2):

2-point-control is used for systems which are only set to ON or OFF.

Control type *is determined at a higher level for common variables*	• **2-point-control**

Enter the hysteresis that prevents frequent on/off switching of temperatures in the threshold range.

Hysteresis (in 0.1°C)	0...100; 20

If separate control variables are used, select whether the control variable of the 2nd level is a 1 bit object (on/off) or an 8 bit object (on with percentage/off).

Control variable is a	• 1 bit object • 8 bit object
Value (in %) *(for 8 bit object)*	0...100

Now specify what should be sent when the control is blocked.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• not be sent • send a specific value
Value (in %) *(if a value is sent)*	0...100

In case of a common control variable for heating and cooling, 0 is always transmitted as a fixed value.

6.7. Humidity Measurement

Select, whether a **malfunction object** is to be sent if the sensor is faulty.

Use malfunction object	No • Yes

Use **Offsets** to adjust the readings to be sent.

Offset in 0.1% RH	-100…100; 0

The unit can calculate a **mixed value** from its own reading and an external value. Set the mixed value calculation if desired. If an external portion is used, all of the following settings (threshold values, etc.) are related to the overall reading.

Use external measured value	No • Yes
Ext. Reading proportion of the total reading	5% • 10% • ... • 50% • ... • 100%
Sending pattern for internal and total measured value	• never • periodically • on change • on change and periodically
At and above change of *(if sent on change)*	0.1% RH • 0.2% RH • 0.5% RH • 1.0% RH • ... • 20.0% RH
Send cycle *(if sent periodically)*	5 s • 10 s • ... • 2 h

The **minimum and maximum readings** can be saved and sent to the bus. Use the "Reset humidity min/max. value" objects to reset the values to the current readings. The values are not retained after a reset.

Use minimum and maximum value	No • Yes

6.8. Humidity threshold values

Activate the required air humidity threshold values. The menus for setting the threshold values are displayed.

Use threshold value 1/2/3/4	Yes • No

6.8.1. Threshold value 1, 2, 3, 4

Threshold value

Set, in which cases **threshold values and delay times** received via objects are to be retained. The parameter is only taken into consideration if the setting via object is activated below. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first communication (setting via objects is ignored).

Maintain the	
threshold values and delays received via communication objects	• never • after power supply restoration • after power supply restoration and programming

Set the threshold value directly in the application program using parameters, or define them via the bus using a communication object.

Threshold value setting using parameter:

Set the threshold values and hysteresis directly.

Threshold value setting using	**Parameter** • Communication objects
Threshold value in 0.1% RH	1 ... 1000; 650

Threshold value setting using a communication object:

Define, how the threshold value is to be received from the bus. Basically, a new value can be received, or simply a command to increase or decrease.

During initial commissioning, a threshold value must be defined, which will be valid until the first communication with a new threshold value. For units which have already been taken into service, the last communicated threshold value can be used. Basically, a humidity range is specified in which the threshold value can be changed (object value limit).

A set threshold value will be retained until a new value or a change is transferred. The current value is saved, so that it is retained in the event of a power supply failure and will be available once the power supply is restored.

Threshold value setting using	Parameter • **Communication objects**
Starting threshold value in 0.1% RH valid until first communication	1 ... 1000; 650
Object value limit (min.) in 0.1%RH	1...1000
Object value limit (max.) in 0.1%RH	1...1000
Type of threshold value change	Absolute value • Increase/decrease
Increment *(upon increase/decrease change)*	0.1% RH • ... • 2.0% RH • ... • 20.0% RH

Set the **hysteresis** independent of the type of threshold value specification.

Hysteresis setting	in % • absolute
Hysteresis in 0.1% RH	0...1000; 100
Hysteresis in % (relative to the threshold value)	0 ... 50; 20

Switching output

Set the behaviour of the switching output when a threshold value is exceeded/undercut. The output switching delay can be set using objects or directly as a parameter.

When the following conditions apply, the output is (TV = Threshold value)	• TV above = 1 | TV - hyst. below = 0 • TV above = 0 | TV - hyst. below = 1 • TV below = 1 |TV + hyst. above = 0 • TV below = 0 |TV + hyst. above = 1
Delays can be set via objects (in seconds)	No • Yes
Switching delay from 0 to 1 *(If delay can be set via objects: valid until 1st communication)*	None • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching delay from 1 to 0 *(If delay can be set via objects: valid until 1st communication)*	None • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching output sends	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle *(is only sent if periodically is selected)*	5 s • 10 s • 30 s... • 2 h

Block

The switching output can be blocked using an object.

Use switching output block	No • Yes

If the block is activated, define specifications here for the behaviour of the output when blocked.

Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first communication	0 • 1
Behaviour of the switching output	
On block	• Do not send message • send 0 • send 1

On release (with 2 seconds release delay)	[Dependent on the "Switching output sends" setting]

The behaviour of the switching output on release is dependent on the value of the parameter "Switching output sends" (see "Switching output")

Switching output sends on change	• Do not send message • Send switching output status
Switching output sends on change to 1	• Do not send message • if switching output = 1 ➔ send 1
Switching output sends on change to 0	• Do not send message • if switching output = 0 ➔ send 0
Switching output sends on change and periodically	Send switching output status
Switching output sends on change to 1 and periodically	if switching output = 1 ➔ send 1
Switching output sends on change to 0 and periodically	if switching output = 0 ➔ send 0

6.9. Humidity PI control

If you activate humidity control, you can use the following settings to define control type, setpoint values, and humidification and dehumidification.

Use humidity control	No • Yes

General control

Sensor Mini-Sewi KNX TH-Pr can be used to control one- or two-level dehumidification or combined humidification/dehumidification.

Type of control	• One-level dehumidification • Two-level dehumidification • Humidification and dehumidification

Configure a block for the humidity control using the blocking object.

Behaviour of the blocking object with value	• 1 = Block | 0 = release • 0 = block | 1 = release
Blocking object value before first communication	0 • 1

Specify when the current control variables are to be sent to the bus. Periodic sending is safer, in case a message does not reach a recipient. You may also set up periodic monitoring using an actuator with this setting.

Send control variable	• on change • on change and periodically

Send cycle (*is only sent if "periodically" is selected)*	5 s • 10 s • ... • 5 min • ... • 2 h

The status object shows the current status of the output variable (0 = OFF, >0 = ON) and can for example be used for visualisation.

Send status object(s)	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Send cycle (*is only sent if "periodically" is selected)*	5 s • 10 s • ... • 5 min • ... • 2 h

Controller setpoint

Set, in which cases **setpoint values** received via object are to be retained. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first communication (setting via objects is ignored).

Maintain the	
setpoint value received via communication object	• never • after power supply restoration • after power supply restoration and programming

During initial commissioning, a **setpoint value** must be defined which is valid until the first communication of a new setpoint value. For units which have already been taken into service, the last communicated setpoint value can be used. Basically, an air humidity range is specified in which the setpoint value can be changed (**object value limit**).

Enter, how the setpoint value will be received from the bus. Basically, a new value can be received, or simply a command to increase or decrease.

A set setpoint value will be retained until a new value or a change is transferred. The current value is saved, so that it is retained in the event of a power supply failure and will be available once the power supply is restored.

Start setpoint in % valid until first communication *(not upon saving the setpoint value after programming)*	0 ... 100; 50
Object value limit (min.) in %	0...100; 30
Object value limit (max.) in %	0...100; 70

Type of setpoint value change	Absolute value • Increase/decrease
Increment *(upon increase/decrease change)*	1% • 2% • 5% • 10%

In "Humidification and dehumidification" control mode, a dead zone is specified so that a direct changeover switching between humidification and dehumidification can be avoided.

Dead zone between humidification and dehumidification in % *(only if both humidification and dehumidification are used)*	0…50; 10

Humidification starts, when the relative air humidity is lower or equal to the setpoint value - dead zone value.

Dehumidification and/or humidification

Depending on the control mode, settings sections for humidification and dehumidification appear (level 1/2).

For dual-level dehumidification, the setpoint value difference between the two levels must be defined, i.e. the setpoint value which, when exceeded, triggers the switch to the 2nd level.

Target value difference between level 1 and 2 in % *(for level 2 only)*	0...50; 10

Determine the deviation from the setpoint value at which the maximum variable value is reached, i.e. the point at which maximum output is used.
The reset time shows how quickly the controller responds to deviations from the setpoint value. In case of a short reset time, the control responds with a fast increase of the control variable. In case of a long reset time, the control responds somewhat less urgently and needs longer until the necessary control variable for the setpoint value deviation is reached.
You should set the time appropriate for the humidification/dehumidification system at this point (note manufacturer instructions).

Maximum control variable is reached at target/actual difference of %	1...50; 5
Reset time in minutes	1...255; 3

Now specify, what should be sent when the control is blocked.
On release, the control variable follows the rule again.

When blocked, the control variable shall	• do not transmit anything • send a value
Value in % (*if a value is sent)*	0...100

6.10. Dewpoint measurement

The **Sensor Mini-Sewi KNX TH-Pr** calculates the dewpoint temperature and can output the value to the bus.

Sending pattern	• never • periodically • on change • on change and periodically
At and above change of *(if sent on change)*	0.1°C • 0.2°C • 0.5°C • 1.0°C • 2.0°C • 5.0°C
Send cycle *(if sent periodically)*	5 s • 10 s • 30 s • 1 min • ... • 2 h

Activate the monitoring of the coolant temperature if required. The menus for setting the monitoring are displayed.

Use monitoring of the coolant temperature	No • Yes

6.10.1. Cooling medium temp. monitoring

A threshold value can be set for the temperature of the coolant, which is based on the current dewpoint temperature (offset/deviation). The switching output of the coolant temperature monitoring system can provide a warning prior to any build-up of condensation in the system, and/or activate appropriate countermeasures.

Threshold value

Threshold value = dewpoint temperature + offset

Set, in which cases **offset** received via object is to be retained. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first communication (setting via objects is ignored).

Maintain the	
offset received via communication object	• never • after power supply restoration • after power supply restoration and programming
.	

During initial commissioning, an **offset** must be defined which is valid until the first communication of a new offset. For units which have already been taken into service, the last communicated offset can be used.

A set offset will be retained until a new value or a change is transferred. The current value is saved, so that it is retained in the event of a power supply failure and will be available once the power supply is restored.

Start offset in °C valid until first communication	0...200; 30
Increment for offset change	0.1°C • 0.2°C • 0.3°C • 0.4°C • 0.5°C • 1°C • 2°C • 3°C • 4°C • 5°C
Hysteresis setting	in % • absolute
Hysteresis of the threshold value in % *(for setting in %)*	0 ... 50; 20
Threshold value hysteresis in 0.1°C increments *(at absolute setting)*	0 ... 1000; 50
Threshold value sends	• never • periodically • on change • on change and periodically
At and above change of *(if sent on change)*	0.1°C • 0.2°C • 0.5°C • 1.0°C • 2.0°C • 5.0°C
Send cycle *(if sent periodically)*	5 s • 10 s • 30 s • 1 min • ... • 2 h

Switching output

The output switching delay can be set using objects or directly as a parameter.

When the following conditions apply, the output is (TV = Threshold value)	• TV above = 1 | TV - hyst. below = 0 • TV above = 0 | TV - hyst. below = 1 • TV below = 1 |TV + hyst. above = 0 • TV below = 0 |TV + hyst. above = 1
Delays can be set via objects (in seconds)	No • Yes
Switching delay from 0 to 1 *for setting via objects:* *valid until 1st communication*	None • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching delay from 1 to 0 *for setting via objects:* *valid until 1st communication*	None • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching output sends	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Send cycle *(is only sent if periodically is selected)*	5 s • 10 s • 30 s... • 2 h

Blocking

The switching output can be blocked using an object. Define specifications here for the behaviour of the output when blocked.

Use switching output block	No • Yes
Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first communication	0 • 1
Behaviour of the switching output	
On block	• Do not send message • send 0 • send 1
On release (with 2 seconds release delay)	[Dependent on the "Switching output sends" setting]

The behaviour of the switching output on release is dependent on the value of the parameter "Switching output sends" (see "Switching output")

Switching output sends on change	• Do not send message • Send switching output status
Switching output sends on change to 1	• Do not send message • if switching output = 1 ➔ send 1
Switching output sends on change to 0	• Do not send message • if switching output = 0 ➔ send 0
Switching output sends on change and periodically	Send switching output status
Switching output sends on change to 1 and periodically	if switching output = 1 ➔ send 1
Switching output sends on change to 0 and periodically	if switching output = 0 ➔ send 0

6.11. Absolute humidity

The absolute air humidity value is detected by the **Mini-Sewi KNX TH-Pr** and can be output to the bus.

Use measured values	No • Yes

Sending pattern	• never • periodically • on change • on change and periodically
At and above change of *(if sent on change)*	0.1 g • 0.2 g • 0.5 g • 1.0 g • 2.0 g • 5.0 g
Send cycle *(if sent periodically)*	5 s • 10 s • 30 s... • 2 h

6.12. Comfort field

The **Sensor Mini-Sewi KNX TH-Pr** can send a message to the bus if the limits of the comfort field are exceeded. In this way, it is for example possible to monitor compliance with DIN 1946 (standard values) or even to define your own comfort field.

Use comfort field	No • Yes

Specify the **sending pattern**, a **Text** for comfortable and uncomfortable and the **Object value**.

Sending pattern	• not • on change • on change to comfortable • on change to uncomfortable • on change and periodically • on change to comfortable and periodically • on change to uncomfortable and periodically
Text for comfortable	[Free text max. 14 chars.]
Text for uncomfortable	[Free text max. 14 chars.]
Object value is at	• comfortable = 1 | uncomfortable = 0 • comfortable = 0 | uncomfortable = 1
Send cycle *(if sent periodically)*	5 s • 10 s • 30 s... • 2 h

Define the comfort field by specifying the minimum and maximum values for temperature and humidity. The specified standard values comply with DIN 1946

Maximum temperature in °C (Standard 26°C)	25 ... 40; 26
Minimum temperature in °C (Standard 20°C)	10 ... 21; 20
Maximum relative humidity in % (Standard 65%)	52 ... 90; 65
Minimum relative humidity in % (Standard 30%)	10 ... 43; 30
Maximum absolute humidity in 0.1 g/kg (Standard 115 g/kg)	50 ... 200; 115

Temperature hysteresis: 1°C
Relative humidity hysteresis: 2% RH
Absolute humidity hysteresis: 2 g/kg

6.13. Variable comparator

The integrated variable comparators can output maximum, minimum and average values.

Use comparator 1/2	No • Yes

6.13.1. Control variable comparator 1/2

Determine what the control variable comparator should output, and activate the input objects to be used. Transmission patterns and blocks can also be set.

Output delivers	• Maximum value • Minimum value • Average value
Use input 1 / 2 / 3 / 4 / 5	No • Yes
Output sends	• on change of output • on change of output and periodically • when receiving an input object • when receiving an input object and periodically
Send cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... • 5 min • ... • 2 h
At and above change of *(if sent on change)*	1% • 2% • 5% • 10% • 20% • 25% • 50%
Analysis of the blocking object	• at value 1: block | at value 0: release • at value 0: block | at value 1: release
Blocking object value before 1st communication	0 • 1
Behaviour of the switching output	
On block	• do not send message • Send value
Sent value in %	0 ... 100
output sends on release (with 2 seconds release delay)	• the current value • the current value after receipt of an object

6.14. Logic

The device has 16 logic inputs, four AND and four OR logic gates.

Activate the logic inputs and assign object values up to first call.

Use logic inputs	Yes • No
Object value prior to first call for:	
- Logic input 1	0 • 1
- Logic input ...	0 • 1
- Logic input 16	0 • 1

Activate the required logic outputs.

AND logic

AND logic 1	not active • active
AND logic ...	not active • active
AND logic 4	not active • active

OR logic

OR logic 1	not active • active
OR logic ...	not active • active
OR logic 4	not active • active

6.14.1. AND logic 1-4 and OR logic outputs 1-4

The same setting options are available for AND and OR logic.

Each logic output may transmit one 1 bit or two 8 bit objects. Determine what the out put should send if logic = 1 and = 0.

1. / 2. / 3. / 4. Input	• do not use - Logic inputs 1...16 - Logic inputs 1...16 inverted • all switching events that the device provides (see *Connection inputs of the AND/OR logic*)
Output type	• a 1-Bit-object • two 8-bit objects

If the **output type is a 1-bit object**, set the output values for the various conditions.

Output value if logic = 1	1 • 0
Output value if logic = 0	1 • 0
Output value If block is active	1 • 0
Output value if monitoring period is exceeded	1 • 0

If the **output type is two 8-bit objects**, set the type of object and the output values for the various conditions.

Object type	• Value (0…255) • Percent (0…100%) • Angle (0…360°) • Scene call-up (0…63)
Output value object A if logic = 1	0 … 255 / 100% / 360° / 63; 1
Output value object B if logic = 1	0 … 255 / 100% / 360° / 63; 1
Output value object A if logic = 0	0 … 255 / 100% / 360° / 63; 0
Output value object B if logic = 0	0 … 255 / 100% / 360° / 63; 0
Output value object A if block is active	0 … 255 / 100% / 360° / 63; 0
Output value object B if block is active	0 … 255 / 100% / 360° / 63; 0
Output value object A if monitoring period is exceeded	0 … 255 / 100% / 360° / 63; 0
Output value object B if monitoring period is exceeded	0 … 255 / 100% / 360° / 63; 0

Set the output send pattern.

Send pattern	• on change of logic • on change of logic to 1 • on change of logic to 0 • on change of logic and periodically • on change of logic to 1 and periodically • on change of logic to 0 and periodically • on change of logic+object receipt • on change of logic+object receipt and periodically
Send cycle *(if sent periodically)*	5 s • 10 s • ... • 2 h

Block

If necessary, activate the block for the logic output and set what a 1 or 0 at the block input means and what happens in the event of a block.

Use block	No • Yes
Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first call	0 • 1

Output pattern On block	• Do not send message • Transmit block value [see above, Output value if blocking active]
On release (with 2 seconds release delay)	[send value for current logic status]

Monitoring

If necessary, activate the input monitoring. Set which inputs are to be monitored, at which intervals the inputs are to be monitored and what value the "monitoring status" should have, if the monitoring period is exceeded without a feedback being given.

Use input monitoring	No • Yes
Input monitoring	• 1 • 2 • 3 • 4 • 1 + 2 • 1 + 3 • 1 + 4 • 2 + 3 • 2 + 4 • 3 + 4 • 1 + 2 + 3 • 1 + 2 + 4 • 1 + 3 + 4 • 2 + 3 + 4 • 1 + 2 + 3 + 4
Monitoring period	5 s • ... • 2 h; 1 min
Output behaviour on exceeding the monitoring time	• Do not send message • Send value exceeding [= value of the parameter "monitoring period"]

6.14.2.AND logic connection inputs

Do not use
Logic input 1
Logic input 1 inverted
Logic input 2
Logic input 2 inverted
Logic input 3
Logic input 3 inverted
Logic input 4
Logic input 4 inverted
Logic input 5
Logic input 5 inverted
Logic input 6
Logic input 6 inverted
Logic input 7
Logic input 7 inverted
Logic input 8
Logic input 8 inverted
Logic input 9
Logic input 9 inverted
Logic input 10
Logic input 10 inverted
Logic input 11

Logic input 11 inverted
Logic input 12
Logic input 12 inverted
Logic input 13
Logic input 13 inverted
Logic input 14
Logic input 14 inverted
Logic input 15
Logic input 15 inverted
Logic input 16
Logic input 16 inverted
Temperature sensor malfunction ON
Temperature sensor malfunction OFF
Humidity sensor malfunction ON
Humidity sensor malfunction OFF
Motion detector test output
Motion detector test output inverted
Motion detector slave output
Motion detector slave output inverted
Motion detector master 1 output
Motion detector master 1 output inverted
Motion detector master 2 output
Motion detector master 2 output inverted
Motion detector master 3 output
Motion detector master 3 output inverted
Motion detector master 4 output
Motion detector master 4 output inverted
Switching output 1 Temperature
Switching output 1 Temperature inverted
Switching output 2 Temperature
Switching output 2 Temperature inverted
Switching output 3 Temperature
Switching output 3 Temperature inverted
Switching output 4 Temperature
Switching output 4 Temperature inverted
Switching output 1 Humidity
Switching output 1 Humidity inverted
Switching output 2 Humidity
Switching output 2 Humidity inverted
Switching output 3 Humidity
Switching output 3 Humidity inverted
Switching output 4 Humidity
Switching output 4 Humidity inverted
Switching output coolant temperature
Switching output coolant temperature inverted
Ambient climate is comfortable
Ambient climate is uncomfortable
Comfort temperature controller active

Comfort temperature controller inactive
Standby temperature controller active
Standby temperature controller inactive
Eco temperature controller active
Eco temperature controller inactive
Frost protection temperature controller active
Frost protection temperature controller inactive
Heating 1 temperature controller active
Heating 1 temperature controller inactive
Heating 2 temperature controller active
Heating 2 temperature controller inactive
Cooling 1 temperature controller active
Cooling 1 temperature controller inactive
Cooling 2 temperature controller active
Cooling 2 temperature controller inactive
Humidity controller dehumidification 1 active
Humidity controller dehumidification 1 inactive
Humidity controller dehumidification 2 active
Humidity controller dehumidification 2 inactive
Humidity controller humidification active
Humidity controller humidification 1 inactive

6.14.3. Connection inputs of the OR logic

The OR logic connection inputs correspond to those of the AND logic. In addition, the following inputs are available for the OR logic:

Switching output AND logic 1
Switching output AND logic 1 inverted
Switching output AND logic 2
Switching output AND logic 2 inverted
Switching output AND logic 3
Switching output AND logic 3 inverted
Switching output AND logic 4
Switching output AND logic 4 inverted

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