EN

Salva KNX TH, Salva KNX basic

Smoke alarm

elsner elektronik

Installation and Operation

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.

This document describes the functions for ALL device models. Please check the information at the beginning of the chapter and in the text which describes the functions available for the respective individual models.

1. Description

Salva KNX TH and Salva KNX basic are smoke detector sensors for the KNX building bus system. Their compact housing accommodates the sensors, evaluation circuits and bus-coupling electronics.

The smoke alarm features an automatic evaluation sensor system for early and accurate fire alarms. Alarms are output as a local acoustic signal and a bus telegram. **Salva KNX basic** signals smoke alarm, **Salva KNX-TH** signals smoke and/or heat alarm.

AND logic gates and OR logic gates allow for a link between data and statuses. Multifunctional modules change input data as required by means of calculations, querying a condition, or converting the data point type.

The **Salva KNX TH** model additionally features integrated sensors for temperature and air humidity. The measured values can be used for the control of limit-dependent switching outputs. The devices have PI controls for heating/cooling (depending on temperature) and for ventilation (depending on humidity).

Functions:

- **Smoke alarm sensors** with optical detection based on the scattered light principle, certified according to EN 14604:2005/AC:2008 and 1172-CPR-150013. Local acoustic alarm signal output (warning sound at least 85 dB) and transfer to KNX bus. Local alarm acknowledgement
- Signalling of **smoke alarm**
- Smoke chamber pollution measurement and pollution display according to UL directive
- Power supply via battery (9 V). Lack of battery capacity is signalled optically and acoustically for 30 days and transmitted to the bus
- High operative safety due to elaborate automatic self-testing of the entire electronics and separate energy measurement
- Faults signalled locally and via the bus
- High deceptive alarm immunity due to powerful measuring chamber and consideration of temperature fluctuations (though no temperature smoke alarm)
- **8 AND and 8 OR logic gates** each with 4 inputs. All switching events as well as 16 logic inputs (in the form of communications objects) can be used as inputs for the logic gates. The output from each gate can be configured optionally as 1-bit or 2 x 8-bit
- **8 multi-function modules** (computers) for changing the input data by calculations, by querying a condition or by converting the data point type
- **4 actuating variable comparators** to output minimum, maximum or average values. 5 inputs each for values received via communication objects

Additional functions for Salva KNX TH:

- Signalling of **heat alarms**
- **Temperature sensor** and **air humidity sensor** with mixed value calculation, dewpoint calculation, comfort field query (DIN 1946)
- **Threshold values** for measured and calculated values, adjustable via parameters or communication objects
- **PI control for heating/cooling** (depending on temperature)
- **PI controller for ventilation** (depending on air humidity)

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. Deliverables

- Sensor (housing with skirting)
- 9 V battery
- 2 screws and dowels for assembly (always use fastening material that is suitable for the material underneath)

1.1. Technical specifications

Housing	ABS, glass
Colour	White / Translucent
Assembly	Surface mount
Protection category	IP 30
Dimensions	Ø approx. 113 mm, height approx. 58 mm
Weight	approx. 280 g
Ambient temperature	Operation -10…+50°C, storage -10°C … +60°C
Surrounding air humidity	max. 90% RH, avoid condensation
Operating voltage	9 V (battery)
Auxiliary supply	KNX bus voltage
Data output	KNX +/- bus connector terminal
BCU type	Integrated microcontroller
PEI type	0
Communication objects	Salva KNX TH: 311 Salva KNX basic: 192
Smoke alarm:	
Detection principle	Tyndall effect (optical)
Alarm display	optically (LED red) and acoustically (signal tone >85 dB(A) / 3 m)
Complies with	EN 14604:2005
Max. monitoring area	60 m² to 6 m height
Air velocity	max. 20 m/s
Response sensitivity	0.15 dB/m typical

Shelf life for the alarm	max. 2 years
Temperature sensor (Salva KNX TH):	
Measurement range	0…+50°C
Resolution	0.1°C
Accuracy*	±1°C at -10...+85°C ±1,5°C at -25...+150°C
Humidity sensor (Salva KNX TH):	
Measurement range	0% RH … 90% RH
Resolution	0.1% RH
Accuracy	± 7,5% RH at 0% …10% RH ± 4,5% RH at 10% … 90% RH

* Please note the information on *Accuracy of temperature/humidity measurement*, page 7

1.1.1. Accuracy of temperature/humidity measurement

Only for Salva KNX TH model.

Measured value deviations for temperature and humidity due to sources of interference (see chapter *Installation location*) must be corrected in the ETS in order to ensure the specified accuracy of the sensor (offset).

During **temperature measurement**, the self-heating of the device is taken into consideration by the electronics. The software compensates the self-heating by reducing the measured temperature. During the 2 hour warm-up phase, the displayed interior temperature measured value increasingly approaches the actual room temperature.

2. Installation and commissioning

2.1. Installation notes

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

CAUTION!
Live voltage!
There are unprotected live components inside the device.

- National legal regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

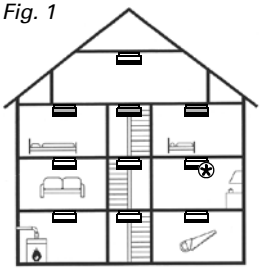
The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

2.2. Installation location

2.2.1. Equipping the building with smoke alarms

Fig. 1



Minimum equipment

Ideal equipment

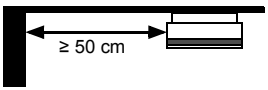
Equipment with limitations

The minimum protection is the installation of smoke alarms in the bedrooms and halls and/or corridors to ensure that you are woken up during the night in case of a smoke alarm. If the building has several floors, at least one smoke alarm should be installed in the hall on every floor. Please refer to DIN 14676 for further installation guidelines.

2.2.2. Positioning and distances

Install the smoke alarm on the room ceiling. If the smoke alarm is installed in the middle of the room, it has its best detection characteristics.

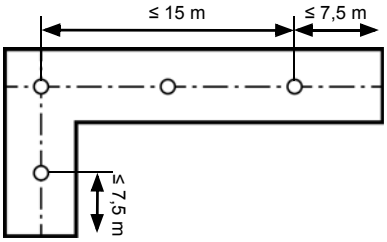
WARNING!
Mains voltage for in-wall concealed cables!
- If the device is attached by means of screws, first ensure that there is no power line installed under the assembly point!



Maintain a minimum distance of 50 cm to:
- walls
- lamps
- live wires

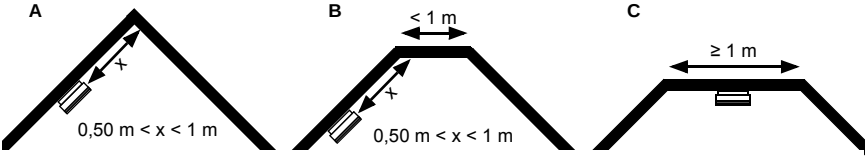
Small rooms: If the minimum distance to the wall cannot be maintained, install the alarm on the wall. Keep a distance of at least 0.50 m and maximum 1 m to the ceiling.

Halls and corridors:



Attach the first alarm at a maximum distance of 7.50 m to the end of the room in long structures. Distribute at least 3 alarms on 15 m of corridor. Attach alarms in the middle of corners and crossroads in the corridor.

Gables:



A + B: For pointed and flat gables with a ceiling area of less than 1 m width: Attach alarms at a minimum distance of 0.50 m and a maximum distance of 1 m to the top.
C: For flat gables with a ceiling area of more than 1 m width: Attach to the middle of the ceiling like in other rooms.

Rooms with a gallery: Attach an additional alarm underneath the gallery if said gallery is longer and wider than 2 m and has more than 16 m².

Segmented ceilings: If there are separate areas in the ceiling with a depth of more than 0.20 m and an area of more than 32 m² (e.g. due to beams separating the areas), install an alarm in each area (on the ceiling or on the beams).

The device is only approved for interior spaces. Do not install in rooms with temperatures of less than -10°C or more than +50°C! Avoid condensation.

Do not install in rooms in which a high degree of water vapour is produced under normal circumstances (e.g. kitchen, bathroom, toilet)!

Do not install near places of fire or open fireplaces!

Do not install near ventilation shafts (e.g. of air conditioning or circulating air systems)!

Do not paint the smoke alarms!

Avoid the following sources of interference in order to limit distortion of measuring results for temperature, humidity and pressure:

- Direct sunlight
- Draughts from windows and doors
- 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, which lead from warmer or colder areas to the sensor

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

2.3. Device design

2.3.1. Exterior view

Fig. 2

1 *Skirting*
2 *Housing with electronics and battery*
3 *Openings for air circulation*
4 *Light transmission bar: Red LED for Operating and alarm signals*, page 17 *and Push-button for Function test, page 15*

2.3.2. Skirting

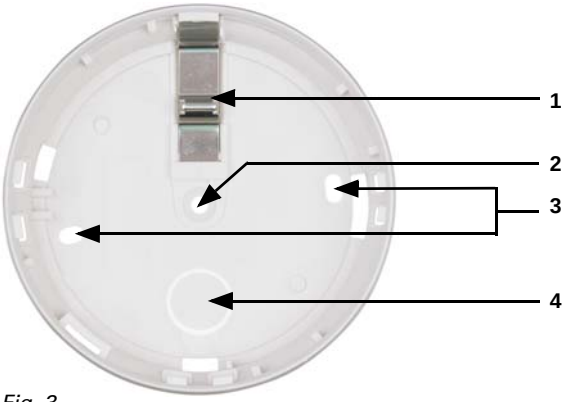


Fig. 3

1 Battery assembly lock (the housing cannot be closed without a battery)
2 Fastening opening with 1 screw
3 Openings for fastenings with 2 screws (distance 67 mm)
4 Opening for bus cable

2.3.3. Interior view of the housing

Fig. 4

1 Battery
2 KNX terminal
3 LED programming
4 Programming key (recessed) for bus addressing, see Addressing the equipment, page 14

2.4. Installing the device

2.4.1. Instructions for assembly and initial start-up

Never expose the device to water (e.g. rain) or dust (e.g. drilling dust). This can damage the electronics and the sensor system. A relative air humidity of 93% may not be exceeded. Avoid condensation.

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

2.4.2. Assembly preparation and skirting assembly

Determine the installation point on the room ceiling. Please observe the instructions in chapter *Installation location*, page 8 for this.

BEWARE!
Injury hazard in case of improper fastening!
The device may fall and injure people if it is not fastened properly.
- Observe, the carrying capacity of the wall/ceiling material when selecting the place of installation.
- Use fixing materials that are suitable for the material underneath.

If you are using the screws and dowels provided, use a 6mm drill to drill holes with a distance of 67 mm (if you are using two screws for installation). Use the skirting of the smoke alarm as a stencil. Insert the dowels into the drilling holes.

Fig. 5

The housing is removed from the skirting by turning it anti-clockwise.

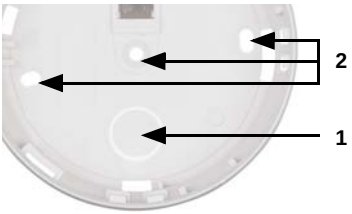


Fig. 6

Remove the cover on the opening for the supply line (1) from the skirting and thread the cable through it.

Screw the smoke alarm skirting onto the ceiling (2, openings for screws).

As an alternative, the skirting of the alarm may be attached to the ceiling with double-sided adhesive pad (VdS approved). Carefully check the ceiling surface carefully for lasting carrying and adhesive capacity before using adhesive pads. If necessary, do a test glueing application. Optimum adhesive power can only be obtained on a clean surface.

Remove the protective foil form one side of the adhesive pad and attach the pad in the middle of the alarm skirting. Then remove the protective foil on the other side and attach the skirting by firmly pressing it to the ceiling.

2.4.3. Connection

The supply line of the smoke alarm occurs via a 9 V battery. In addition, the KNX module receives the bus voltage via the KNX terminal.

WARNING!
Danger of explosion in case of improper handling of the battery!
Property damage by battery leakage.

- Do not recharge batteries.
- Do not short-circuit batteries.
- Do not force batteries open or damage them
- Do not bring batteries in contact with fire, water or high temperatures.

ATTENTION!
Do not use rechargeable batteries or mains units for voltage supply!

- In case of mains voltage, the device would be out of order if the mains is out and could not signal any fire.
- The lower rechargeable battery voltage would trigger a low battery capacity alarm.

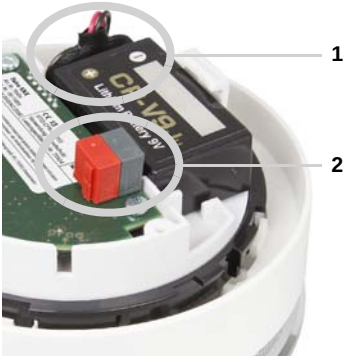
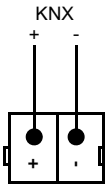


Fig. 7

1. Connect the battery (check for correct polarity!) and insert it into the battery compartment.

2. Connect the device to the KNX bus via the pluggable terminal (+|-).



2.4.4. Completing the installation

Fig. 8

Place the housing onto the skirting and fasten it by turning it clockwise.

Check if the LED is flashing and conduct a function test.
> *Function test*, page 15

3. Addressing the equipment

The equipment is delivered with the bus address 15.15.250. You can program a different address in the ETS by overwriting the address 15.15.250 or by teaching the device via the programming button.

The programming button is on the inside of the housing. The housing is removed from the skirting by turning it anti-clockwise, and fixed in place by turning clockwise.

Fig. 9

Use a thin object to reach the button, e.g. a wire.

4. Maintenance

In some German federal states, the owner of houses and flats are responsible for the installation and functioning of smoke alarms according to LBO (State construction laws) (see www.rauchmelder-lebensretter.de). Maintenance has to be conducted at least annually and, according to DIN 14676 includes a visual inspection, a function test and, if required, a battery change. A function test also has to be conducted after any longer absence, at ,after 1 year at the latest.

The used battery and the device must be disposed of correctly so that valuable resources may be recycled. Neither the battery nor the device may be disposed of together with domestic or company waste.

4.1. Function test

BEWARE!
Danger of hearing damage!
During the function test (pressing on the light transmission bar), a loud, shrill tone is sounded (at least 85 dB).
- Keep a minimum distance of 50 cm between smoke alarm and ear.

1. Conducting a visual inspection:

Check:
- Is the device found at the expected position?
- Are the smoke entry openings clean? - Remove dust if necessary. The device must not be painted over.
- Is the device free from mechanical damage? - Replace the device if it is damaged.

2. Conducting a function test:

Fig. 10

Press the light transmission bar for at least 1 second.

If the function test is successful, a signal tone sounds. The smoke alarm works properly. If there is no signal tone, the device is not functioning. In this case, replace the battery and conduct the function test again. If there is still no signal tone, the device is defect and must be replaced.

STOP Smoke alarms must be replaced with new devices after a maximum period of 10 years according to DIN 14604.

4.2. Replace the battery

The device is supplied with 9 V voltage from a battery. Lack of battery capacity is signalled optically and acoustically for 30 days and transmitted to the bus.

Fig. 11

Separate the smoke alarm from the skirting by turning it anti-clockwise.

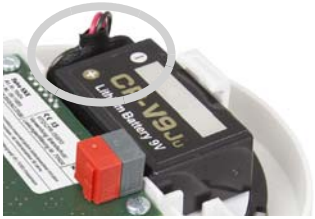


Fig. 12

Connect the new battery to the smoke alarm (check for correct polarity!) and insert it into the battery compartment.

Fig. 13

Place the housing with the new battery onto the skirting and fasten it by turning it clockwise.

Check if the LED is flashing and conduct a function test.
> *Function test*, page 15

4.2.1. Types of batteries

WARNING!
Danger of explosion in case of improper handling of the battery!

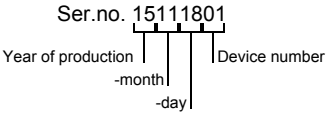
- Only replace with a lithium battery type DFK CP-V9Ju.
- Do not use rechargeable batteries or mains units for voltage supply to ensure a sufficiently high voltage and supply even in case of a mains outage.
- Do not recharge batteries and do not short-circuit them.
- Do not force batteries open or damage them and do not bring them into contact with fire, water or high temperatures.

Approved battery type	FDK CP-V9Ju Only use lithium batteries
Average service life	approx. 10 years (typical), under normal conditions as per EN 14604

The used battery and the device must be disposed of properly so that valuable resources may be recycled. Neither the battery nor the device may be disposed of together with domestic or company waste.

4.2.2. Serial number

The serial number on the type plate inside the device contains the production data and device number:



5. Device alarm functions

5.1. Alarm mute (acknowledgement)

Fig. 14

The alarm can be muted by pressing the flashing light transmission bar.

In this case, only the LED continues to flash every 10 seconds. After about 10 minutes, the devices switches back to normal operating mode.

5.2. Alarm memory

An alarm is saved in the device for 24 hours. During this time, the LED briefly flashes 3 times every 43 seconds. The alarm memory can be reset by pressing the light transmission bar (red LED) once.

5.3. Operating and alarm signals

Function / meaning	Signal tone	Red LED
Normal operating mode (automatic self-test)	No sound	Flashes every 40 seconds
Alarm status	Loud interval tone in 0.5 second rhythm	Flashing twice per second
Fault / dirt	Short signal tone 3 times every 40 seconds	LED off
Battery exchange display	1x Short signal tone every 40 seconds	Flashes every 40 seconds together with the signal tone
Alarm mute (acknowledgement)	No sound	Flashes every 10 seconds

Function / meaning	Signal tone	Red LED
Alarm memory active (i.e. there was an alarm state during the previous 24 hours)	No sound	Flashes 3 times every 43 seconds
Function test	Loud interval tone	Flashing twice per second while the light transmission bar is pressed

6. Transfer protocol

Units:

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

6.1. List of all communication objects

Abbreviation flags:

C Communication
R Read
W Write
T Transfer
U Update

No.	Text	Function	Flags	DPT type	Size
For all models:					
1	Software version	Output	R-CT	[217.1] DPT_Version	2 bytes
For Salva KNX TH only:					
41	Temperature sensor: Malfunction	Output	R-CT	[1.1] DPT_Switch	1 bit
42	Temperature sensor: External measurement	Input	-WCT	[9.1] DPT_Value_Temp	2 bytes
43	Temperature sensor: Measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
44	Temperature sensor: Total measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
45	Temperature sensor: Min./Max. measurement query	Input	-WC-	[1.017] DPT_Trigger	1 bit
46	Temperature sensor: Minimum measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
47	Temperature sensor: Maximum measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
48	Temperature sensor: Min./Max. measurement reset	Input	-WC-	[1.017] DPT_Trigger	1 bit
51	Temp. threshold value 1: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
52	Temp. threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
53	Temp. threshold value 1: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
54	Temp. threshold value 1: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes

No.	Text	Function	Flags	DPT type	Size
55	Temp. threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
56	Temp. threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
58	Temp. threshold value 2: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
59	Temp. threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
60	Temp. threshold value 2: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
61	Temp. threshold value 2: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
62	Temp. threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
63	Temp. threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
65	Temp. threshold value 3: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
66	Temp. threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
67	Temp. threshold value 3: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
68	Temp. threshold value 3: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
69	Temp. threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
70	Temp. threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
72	Temp. threshold value 4: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
73	Temp. threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
74	Temp. threshold value 4: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
75	Temp. threshold value 4: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
76	Temp. threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
77	Temp. threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
For Salva KNX TH only:					
311	Humidity sensor: Malfunction	Output	R-CT	[1.1] DPT_Switch	1 bit
314	Humidity sensor: External measurement	Input	-WCT	[9.7] DPT_Value_Humidity	2 bytes
315	Humidity sensor: Measured value	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes

No.	Text	Function	Flags	DPT type	Size
316	Humidity sensor: Total measurement	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes
317	Humidity sensor: Min./Max. measurement query	Input	-WC-	[1.017] DPT_Trigger	1 bit
318	Humidity sensor: Minimum measurement	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes
319	Humidity sensor: Maximum measurement	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes
320	Humidity sensor: Min./Max. measurement reset	Input	-WC-	[1.017] DPT_Trigger	1 bit
331	Humidity threshold value 1: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
332	Humidity threshold value 1: (1:+|0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
333	Humidity threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
334	Humidity threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
335	Humidity threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
336	Humidity threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
337	Humidity threshold value 2: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
338	Humidity threshold value 2: (1:+|0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
339	Humidity threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
340	Humidity threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
341	Humidity threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
342	Humidity threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
343	Humidity threshold value 3: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
344	Humidity threshold value 3: (1:+|0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
345	Humidity threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
346	Humidity threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
347	Humidity threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
348	Humidity threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit

No.	Text	Function	Flags	DPT type	Size
349	Humidity threshold value 4: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
350	Humidity threshold value 4: (1:+|0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
351	Humidity threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
352	Humidity threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
353	Humidity threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
354	Humidity threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
For Salva KNX TH only:					
381	Dewpoint: Measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
382	Coolant temp.: Threshold value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
383	Coolant temp.: Actual value	Input	RWCT	[9.1] DPT_Value_Temp	2 bytes
384	Coolant temp.: Offset change (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
385	Coolant temp.: Current offset	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
386	Coolant temp.: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
387	Coolant temp.: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
388	Coolant temp.: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
389	Coolant temp.: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
For Salva KNX TH only:					
391	Absolute humidity [g/kg]	Output	R-CT	[14.5] DPT_Value_Amplitude	4 bytes
392	Absolute humidity [g/m²]	Output	R-CT	[14.17] DPT_Value_Density	4 bytes
For Salva KNX TH only:					
394	Ambient climate status: 1 = comfortable | 0 = uncomfortable	Output	R-CT	[1.1] DPT_Switch	1 bit
395	Ambient climate status: Text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
For Salva KNX TH only:					
482	Temp. controller: HVAC mode (priority 2)	Input	RWCT	[20.102] DPT_HVACMode	1 byte
483	Temp. controller: Mode frost/heat protection activation	Input	RWCT	[1.1] DPT_Switch	1 bit

No.	Text	Function	Flags	DPT type	Size
484	Temp. controller: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 bit
485	Temp. controller: Current setpoint	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
486	Temp. controller: Switching (0: Heating | 1: Cooling)	Input	-WC-	[1.1] DPT_Switch	1 bit
487	Temp. controller: Setpoint comfort heating	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
488	Temp. controller: Setpoint comfort heating (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
489	Temp. controller: Setpoint comfort cooling	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
490	Temp. controller: Setpoint comfort cooling (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
491	Temp. controller: Basic 16-bit setpoint shift	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
492	Temp. controller: Setpoint standby heating	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
493	Temp. controller: Setpoint standby heating (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
494	Temp. controller: Setpoint standby cooling	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
495	Temp. controller: Setpoint standby cooling (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
496	Temp. controller: Setpoint eco heating	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
497	Temp. controller: Setpoint, eco heating (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
498	Temp. controller: Setpoint eco cooling	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
499	Temp. controller: Setpoint, eco cooling (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
500	Temp. controller: Control variable, heating (level 1)	Output	R-CT	[5.1] DPT_Scaling	1 byte
501	Temp. controller: Control variable, heating (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 byte
502	Temp. controller: Control variable, cooling (level 1)	Output	R-CT	[5.1] DPT_Scaling	1 byte
503	Temp. controller: Control variable, cooling (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 byte
482	Temp. controller: HVAC mode (priority 2)	Input	RWCT	[20.102] DPT_HVACMode	1 byte
504	Temperature controller: Variable for 4/6-way valve	Output	R-CT	[5.1] DPT_Scaling	1 byte

No.	Text	Function	Flags	DPT type	Size
505	Temp. controller: Status heating level 1 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
506	Temp. controller: Status heating level 2 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
507	Temp. controller: Status cooling level 1 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
508	Temp. controller: Status cooling level 2 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
509	Temp. controller: Comfort extension status	Input/ Output	RWCT	[1.1] DPT_Switch	1 bit
510	Temp. controller: Comfort extension time	Input	RWCT	[7.5] DPT_TimePeriodSec	2 bytes
For Salva KNX TH only:					
515	Summer Compensation: Outside temperature	Input	-WCT	[9.1] DPT_Value_Temp	2 bytes
516	Summer Compensation: Setpoint value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
517	Summer Compensation: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 bit
For Salva KNX TH only:					
521	Humidity controller: Block (1: block)	Input	-WC-	[1.2] DPT_Bool	1 bit
522	Humidity controller: Setpoint value	Input/ Output	RWCT	[9,007] DPT_Value_Humidity	2 bytes
523	Humidity controller: Setpoint value (1:+ | 0:-)	Input	-WC-	[1.2] DPT_Bool	1 bit
524	Humidity controller: Control variable dehumidification	Output	R-CT	[5.1] DPT_Scaling	1 byte
525	Humidity controller: Control variable dehumidification level 2	Output	R-CT	[5.1] DPT_Scaling	1 byte
526	Humidity controller: Control variable humidification	Output	R-CT	[5.1] DPT_Scaling	1 byte
527	Humidity controller: Dehumidification status (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
528	Humidity controller: Dehumidification 2 status (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
529	Humidity controller: Humidification status (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
For all models:					
1111	Control variable comparator 1: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1112	Control variable comparator 1: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte

No.	Text	Function	Flags	DPT type	Size
1113	Control variable comparator 1: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte
1114	Control variable comparator 1: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1115	Control variable comparator 1: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1116	Control variable comparator 1: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1117	Control variable comparator 1: Block: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
1118	Control variable comparator 2: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1119	Control variable comparator 2: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte
1120	Control variable comparator 2: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte
1121	Control variable comparator 2: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1122	Control variable comparator 2: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1123	Control variable comparator 2: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1124	Control variable comparator 2: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
1125	Control variable comparator 3: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1126	Control variable comparator 3: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte
1127	Control variable comparator 3: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte
1128	Control variable comparator 3: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1129	Control variable comparator 3: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1130	Control variable comparator 3: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1131	Control variable comparator 3: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
1132	Control variable comparator 4: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1133	Control variable comparator 4: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte
1134	Control variable comparator 4: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte

No.	Text	Function	Flags	DPT type	Size
1135	Control variable comparator 4: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1136	Control variable comparator 4: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1137	Control variable comparator 4: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1138	Control variable comparator 4: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
For all models:					
1141	Computer 1: Input I1	Input	RWCT	Dep. on setting	4 bytes
1142	Computer 1: Input I2	Input	RWCT	Dep. on setting	4 bytes
1143	Computer 1: Input I3	Input	RWCT	Dep. on setting	4 bytes
1144	Computer 1: Output O1	Output	R-CT	Dep. on setting	4 bytes
1145	Computer 1: Output O2	Output	R-CT	Dep. on setting	4 bytes
1146	Computer 1: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1147	Computer 1: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1148	Computer 1: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1149	Computer 2: Input I1	Input	RWCT	Dep. on setting	4 bytes
1150	Computer 2: Input I2	Input	RWCT	Dep. on setting	4 bytes
1151	Computer 2: Input I3	Input	RWCT	Dep. on setting	4 bytes
1152	Computer 2: Output O1	Output	R-CT	Dep. on setting	4 bytes
1153	Computer 2: Output O2	Output	R-CT	Dep. on setting	4 bytes
1154	Computer 2: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1155	Computer 2: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1156	Computer 2: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1157	Computer 3: Input I1	Input	RWCT	Dep. on setting	4 bytes
1158	Computer 3: Input I2	Input	RWCT	Dep. on setting	4 bytes
1159	Computer 3: Input I3	Input	RWCT	Dep. on setting	4 bytes
1160	Computer 3: Output O1	Output	R-CT	Dep. on setting	4 bytes
1161	Computer 3: Output O2	Output	R-CT	Dep. on setting	4 bytes
1162	Computer 3: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1163	Computer 3: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1164	Computer 3: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1165	Computer 4: Input I1	Input	RWCT	Dep. on setting	4 bytes
1166	Computer 4: Input I2	Input	RWCT	Dep. on setting	4 bytes
1167	Computer 4: Input I3	Input	RWCT	Dep. on setting	4 bytes
1168	Computer 4: Output O1	Output	R-CT	Dep. on setting	4 bytes
1169	Computer 4: Output O2	Output	R-CT	Dep. on setting	4 bytes

No.	Text	Function	Flags	DPT type	Size
1170	Computer 4: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1171	Computer 4: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1172	Computer 4: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1173	Computer 5: Input I1	Input	RWCT	Dep. on setting	4 bytes
1174	Computer 5: Input I2	Input	RWCT	Dep. on setting	4 bytes
1175	Computer 5: Input I3	Input	RWCT	Dep. on setting	4 bytes
1176	Computer 5: Output O1	Output	R-CT	Dep. on setting	4 bytes
1177	Computer 5: Output O2	Output	R-CT	Dep. on setting	4 bytes
1178	Computer 5: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1179	Computer 5: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1180	Computer 5: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1181	Computer 6: Input I1	Input	RWCT	Dep. on setting	4 bytes
1182	Computer 6: Input I2	Input	RWCT	Dep. on setting	4 bytes
1183	Computer 6: Input I3	Input	RWCT	Dep. on setting	4 bytes
1184	Computer 6: Output O1	Output	R-CT	Dep. on setting	4 bytes
1185	Computer 6: Output O2	Output	R-CT	Dep. on setting	4 bytes
1186	Computer 6: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1187	Computer 6: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1188	Computer 6: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1189	Computer 7: Input I1	Input	RWCT	Dep. on setting	4 bytes
1190	Computer 7: Input I2	Input	RWCT	Dep. on setting	4 bytes
1191	Computer 7: Input I3	Input	RWCT	Dep. on setting	4 bytes
1192	Computer 7: Output O1	Output	R-CT	Dep. on setting	4 bytes
1193	Computer 7: Output O2	Output	R-CT	Dep. on setting	4 bytes
1194	Computer 7: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1195	Computer 7: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1196	Computer 7: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1197	Computer 8: Input I1	Input	RWCT	Dep. on setting	4 bytes
1198	Computer 8: Input I2	Input	RWCT	Dep. on setting	4 bytes
1199	Computer 8: Input I3	Input	RWCT	Dep. on setting	4 bytes
1200	Computer 8: Output O1	Output	R-CT	Dep. on setting	4 bytes
1201	Computer 8: Output O2	Output	R-CT	Dep. on setting	4 bytes
1202	Computer 8: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1203	Computer 8: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1204	Computer 8: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
For all models:					

No.	Text	Function	Flags	DPT type	Size
1391	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 bit
1392	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 bit
1393	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 bit
1394	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 bit
1395	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 bit
1396	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 bit
1397	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 bit
1398	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 bit
1399	Logic input 9	Input	-WC-	[1.2] DPT_Bool	1 bit
1400	Logic input 10	Input	-WC-	[1.2] DPT_Bool	1 bit
1401	Logic input 11	Input	-WC-	[1.2] DPT_Bool	1 bit
1402	Logic input 12	Input	-WC-	[1.2] DPT_Bool	1 bit
1403	Logic input 13	Input	-WC-	[1.2] DPT_Bool	1 bit
1404	Logic input 14	Input	-WC-	[1.2] DPT_Bool	1 bit
1405	Logic input 15	Input	-WC-	[1.2] DPT_Bool	1 bit
1406	Logic input 16	Input	-WC-	[1.2] DPT_Bool	1 bit
1411	AND logic 1: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1412	AND logic 1: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1413	AND logic 1: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1414	AND logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1415	AND logic 2: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1416	AND logic 2: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1417	AND logic 2: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1418	AND logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1419	AND logic 3: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1420	AND logic 3: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1421	AND logic 3: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1422	AND logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1423	AND logic 4: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1424	AND logic 4: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1425	AND logic 4: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1426	AND logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1427	AND logic 5: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit

No.	Text	Function	Flags	DPT type	Size
1428	AND logic 5: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1429	AND logic 5: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1430	AND logic 5: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1431	AND logic 6: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1432	AND logic 6: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1433	AND logic 6: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1434	AND logic 6: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1435	AND logic 7: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1436	AND logic 7: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1437	AND logic 7: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1438	AND logic 7: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1439	AND logic 8: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1440	AND logic 8: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1441	AND logic 8: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1442	AND logic 8: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1443	OR logic 1: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1444	OR logic 1: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1445	OR logic 1: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1446	OR logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1447	OR logic 2: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1448	OR logic 2: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1449	OR logic 2: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1450	OR logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1451	OR logic 3: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1452	OR logic 3: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1453	OR logic 3: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1454	OR logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1455	OR logic 4: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit

No.	Text	Function	Flags	DPT type	Size
1456	OR logic 4: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1457	OR logic 4: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1458	OR logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1459	OR logic 5: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1460	OR logic 5: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1461	OR logic 5: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1462	OR logic 5: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1463	OR logic 6: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1464	OR logic 6: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1465	OR logic 6: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1466	OR logic 6: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1467	OR logic 7: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1468	OR logic 7: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1469	OR logic 7: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1470	OR logic 7: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1471	OR logic 8: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1472	OR logic 8: 8-bit output A	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1473	OR logic 8: 8-bit output B	Output	R-CT	[5.10] DPT_-Value_1_Ucount	1 byte
1474	OR logic 8: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
For all models:					
1491	Smoke alarm: alarm (1: active)	Output	R-CT	[1.1] DPT_Switch	1-bit
1492	Smoke alarm: acknowledgeable alarm (1: active)	Output	R-CT	[1.1] DPT_Switch	1-bit
1493	Smoke alarm: acknowledgeable alarm off (1:Quit)	Input	-WC-	[1.1] DPT_Switch	1-bit
1495	Smoke alarm: button acknowledgement (1: active)	Output	R-CT	[1.1] DPT_Switch	1-bit
1497	Smoke alarm: External alarm (1: active)	Input	-WC-	[1.1] DPT_Switch	1-bit
1500	Smoke alarm malfunction (1: active)	Output	R-CT	[1.1] DPT_Switch	1-bit
1502	Smoke alarm: Battery warning (1: flat)	Output	R-CT	[1.1] DPT_Switch	1-bit

No.	Text	Function	Flags	DPT type	Size
1503	Smoke alarm: Smoke chamber warning (1: defective)	Output	R-CT	[1.1] DPT_Switch	1-bit
For Salva KNX TH only:					
1504	Smoke alarm: Heat warning (1: active)	Output	R-CT	[1.1] DPT_Switch	1-bit
For all models:					
1508	Smoke alarm: Diagnosis memory date/time	Input	-WCT	[19.1] DPT_Date-Time	8 bytes
1509	Smoke alarm: Diagnosis memory date	Input	-WCT	[11.1] DPT_Date	3 bytes
1510	Smoke alarm: Diagnosis memory time of day	Input	-WCT	[10.1] DPT_-TimeOfDay	3 bytes
1511	Smoke alarm: Diagnosis memory scroll	Input	-WC-	[1.1] DPT_Switch	1-bit
1512	Smoke alarm: Diagnosis memory (1: delete)	Input	-WC-	[1.1] DPT_Switch	1-bit
1513	Smoke alarm: Diagnosis memory text: Name	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1514	Smoke alarm: Diagnosis memory text: Number	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1515	Smoke alarm: Diagnosis memory text: Type	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1516	Smoke alarm: Diagnosis memory text: Date	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1517	Smoke alarm: Diagnosis memory text: Time	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes

7. Setting the parameters for all models

7.1. 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.

7.2. General settings

Set basic characteristics for the data transfer. A different transmission delay prevents an overload of the bus shortly after the reset.

Send delay after power-up and programming for:	
Measured values	5 s • ... • 2 h
Threshold values and switching outputs *(Salva KNX TH only)*	5 s • ... • 2 h
Controller objects *(Salva KNX TH only)*	5 s • ... • 2 h
Comparator and computer objects	5 s • ... • 2 h
Logic objects	5 s • ... • 2 h
Maximum telegram rate	• 1 telegrams per second • ... • 10 telegrams per second • ... • 20 telegrams per second

7.3. Smoke alarm

Activate the smoke alarm functions and assign a name to the device.

Use smoke alarm	No • Yes
Smoke alarm name	[Free text max. 14 characters.]

Alarm

Set the value the smoke alarm object is to have in the event of an alarm, and the circumstances in which it is to be sent.

Object evaluation	1 = active • 0 = active
Send pattern	• on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodical
Cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... 2 h

Acknowledgeable alarm

The acknowledgeable alarm is active when the smoke alarm is activated. This special alarm message can, however, be acknowledged and thus "reset" via the bus, e.g. with a button or a control display. Set the function to "yes" to send an acknowledgeable alarm with the smoke alarm to the bus.

Use acknowledgeable alarm	No • Yes

Then determine the value for the output object "smoke alarm: acknowledgeable alarm" in the event of an alarm and when it is to be sent. The object is activated when there is a smoke alarm.

Object evaluation	1 = active • 0 = active
Send pattern	• on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodical
Cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... 2 h

The alarm can only be switched off with the input object "smoke alarm: acknowledgeable alarm off". Set the value the acknowledgement is to have.

Evaluation of the acknowledgement object	1 = acknowledgement • 0 = acknowledgement

Button acknowledgement

Acknowledge the smoke alarm using the button on the device to turn the acoustic alarm signal off (see also *Alarm-Stummschaltung (Quittierung)*, Seite 18).

If the button acknowledgement is to be sent to the bus, set the function to "yes". Acknowledgement is automatically switched off again 10 minutes after the end of the smoke detection.

Use button acknowledgement	No • Yes

Then determine the value for the output object "smoke alarm: button acknowledgement" in case of active acknowledgement and when it is to be sent.

Object evaluation	1 = active • 0 = active
Send pattern	• on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodical
Cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... 2 h

External alarm

If an alarm message from another device to this device is also to trigger an alarm, then set the function to "yes". Then determine the value for the alarm input object "smoke alarm: external alarm" at which the external alarm should be active.

Use external alarm	No • Yes
Object evaluation	1 = active • 0 = active

Sensor malfunction

If a sensor malfunction is to be sent to the bus, set the function to "yes".

Use malfunction object	No • Yes

Then determine the value for the output object "smoke alarm: malfunction" in the event of a malfunction and when it is to be sent.

Object evaluation	1 = active • 0 = active
Send pattern	• on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodical
Cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... 2 h

Battery warning

If a warning is to be issued when the battery is nearly flat, set the function to "yes". A battery that is nearly flat is also always indicated locally on the device.

Use battery warning	No • Yes

Then determine the value for the output object "smoke alarm: battery warning" should the battery be nearly flat and when it is to be sent.

Object evaluation	1 = flat • 0 = flat
Send pattern	• on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodical
Cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... 2 h

Smoke chamber fault warning

If a warning is to be issued when the smoke chamber is faulty, set the function to "yes". Dirt in the smoke chamber is also indicated as a fault.

Use smoke chamber fault warning	No • Yes

Then determine the value for the output object "smoke alarm: smoke chamber fault" in the event that it is faulty and when it is to be sent.

Object evaluation	1 = faulty • 0 = faulty
Send pattern	• on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodical
Cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... 2 h

Heat warning

This function is only available for Salva KNX TH.

If a drastic temperature rise is to be sent to the bus, set the function to "yes". The system can then detect the heat from fire, which does not always coincide with smoke emission.

Use heat warning	No • Yes

Set the threshold value and hysteresis for the heat warning. Warning stops when value falls below the "threshold value minus hysteresis"

Heat warning threshold value (in 0.1°C)	-300...800; 570
Heat warning hysteresis (in 0.1°C)	0...1100; 50

Then determine the value for the output object "smoke alarm: heat warning" in the event of active heat warning and when it is to be sent.

Object evaluation	1 = faulty • 0 = faulty
Send pattern	• on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodical
Cycle *(if sent periodically)*	5 s • 10 s • 30 s • ... 2 h

Diagnostics memory

If the messages and warnings set above are to appear in the diagnostics memory, set this function to "yes". Only the functions marked with "yes" are saved to the memory. The latest error always has the number 1.

Use diagnosis memory	No • Yes

Messages are indicated with the date and time. For this, the time data must first be received via the bus. Set whether the time and date are to be received as separate objects or as one common object.
If time and date are received via two objects , then a maximum of 10 seconds only may elapse between receiving the date and receiving the time. Furthermore, a change of date may not occur between receiving both objects. The objects must be received by the device on the same day.

Date and time will be set by	• two separate objects • one common object

The diagnosis memory may be deleted with the input object 1512 "smoke alarm: diagnosis memory (1/0:delete)". Set the object value at which the memory is to be cleared.

Clear diagnosis memory	• at value 1 • at value 0 • at value 0 or 1

For a diagnosis message, the output text is:
1513 "smoke alarm.: Diagnosis memory text: name": Equipment name.
1514 "smoke alarm.: diagnosis memory text: number": The latest message always has the number 1.
1515 "smoke alarm: diagnosis memory text: type": Define a separate text for each type of message
1516 "smoke alarm.: diagnosis memory text: date:".
1517 "smoke alarm.: diagnosis memory text: time:".

Set the texts for the individual messages that are output with it:

Internal alarm active	[Free text max. 14 characters.]
Internal alarm inactive	[Free text max. 14 characters.]

Acknowledgeable alarm active	[Free text max. 14 characters.]
Acknowledgeable alarm inactive	[Free text max. 14 characters.]
External alarm active	[Free text max. 14 characters.]
External alarm inactive	[Free text max. 14 characters.]
Sensor malfunction active	[Free text max. 14 characters.]
Sensor malfunction inactive	[Free text max. 14 characters.]
Battery warning active	[Free text max. 14 characters.]
Battery warning inactive	[Free text max. 14 characters.]
Smoke chamber fault warning active	[Free text max. 14 characters.]
Smoke chamber fault warning inactive	[Free text max. 14 characters.]
Heat warning active	[Free text max. 14 characters.]
Heat warning inactive	[Free text max. 14 characters.]

Determine the cases in which diagnosis messages are to be sent.

Send pattern	• on receipt of scroll object • on receipt of scroll object and new message

7.4. Variable comparator

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

Use comparator 1/2/3/4	No • Yes

7.4.1. Control variable comparator 1/2/3/4

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

7.5. Computer

Activate the multi-functional computer, with which the input data can be changed by calculation, querying a condition or converting the data point type. The menus for the further setting of the computer are then displayed.

Computer 1/2/3/4/5/6/7/8	No • Yes

7.5.1. Computer 1-8

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

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

Select the function set the input mode and starting values for input 1 and input 2.

Function (I = Input)	• Prerequisite: E1 = E2 • Prerequisite: E1 > E2 • Prerequisite: E1 >= E2 • Prerequisite: E1 < E2 • Prerequisite: E1 <= E2 • Prerequisite: E1 - E2 >= E3 • Prerequisite: E2 - E1 >= E3 • Prerequisite: E1 - E2 amount >= E3 • Calculation: E1 + E2 • Calculation: E1 - E2 • Calculation: E2 - E1 • Calculation: E1 - E2 Amount • Calculation: Output 1 = E1 × X + Y | Output 2 = E2 × X + Y | • Transformation: General
Tolerance for comparison *(in the case of prerequisite E1 = E2)*	0 ... 4,294,967,295
Input type	[Selection options depending on the function] • 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 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
Starting value E1 / E2 / E3	[Input range depending on the type of input]

Prerequisites

When querying the prerequisites set the output type and output values at different statuses:

Output type	• 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 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 *(if applicable output value A1 / A2)*	

if the condition is met	0 [Input range depending on the type of output]
if the condition is not met	0 [Input range depending on the type of output]
if the monitoring time period is exceeded	0 [Input range depending on the type of output]
if blocked	0 [Input range depending on the type of output]

Set the output send pattern.

Output sends	• on change • on change and after reset • on change and periodically • when receiving an input object • when receiving an input object and periodically
Type of change *(is only sent if "on change" is selected)*	• on each change • on change to condition met • on change to condition not met
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s

Set the text to be displayed for conditions met / not met.

Text if the condition is met	[Free text max. 14 chars.]
Text if the condition is not met	[Free text max. 14 chars.]

If applicable set the send delays.

Send delay in the event of change to the condition is met	none • 1 s • ... • 2 h
Send delay in the event of change to the condition is not met	none • 1 s • ... • 2 h

Calculations and transformation

For calculations and transformations set the output values to the various conditions:

Output value (if applicable A1 / A2)	
if the monitoring time period is exceeded	0 [Input range depending on the type of output]
if blocked	0 [Input range depending on the type of output]

Set the output send pattern.

Output sends	• on change • on change and after reset • on change and periodically • when receiving an input object • when receiving an input object and periodically
on change of *(only if calculations are transmitted for changes)*	1 ... [Input range depending on the type of input]
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s

For **Calculations of the form output 1 = E1 × X + Y | output 2 = E2 × X +Y** define the variables X and Y. The variables can have a positive or negative sign, 9 digits before and 9 digits after the decimal point.

Formula for output A1: A1 = E1 × X + Y	
X	1.00 [free input]
Y	0.00 [free input]
Formula for output A2: A2 = E2 × X + Y	
X	1.00 [free input]
Y	0.00 [free input]

Further settings for all formulas

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 feedback.

Use input monitoring	No • Yes
Monitoring of	• E1 • E2 • E3 • E1 and E2 • E1 and E3 • E2 and E3 • E1 and E2 and E3 [depending on the function]
Monitoring period	5 s • ... • 2 h; 1 min
Value of the object "monitoring status" if period is exceeded	0 • 1

If necessary, activate the computer block and set what a 1 or 0 at the block entry 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

Value before first call	0 • 1
Output pattern On block	• do not send anything • send value
On release	• as send pattern [see above] • send current value immediately

7.6. Logic

The device has 16 logic inputs, eight AND and eight 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 8	not active • active

OR logic

OR logic 1	not active • active
OR logic ...	not active • active
OR logic 8	not active • active

7.6.1. AND logic 1-8 and OR logic outputs 1-8

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…127)
Output value object A if logic = 1	0 … 255 / 100% / 360° / 127; 1
Output value object B if logic = 1	0 … 255 / 100% / 360° / 127; 1
Output value object A if logic = 0	0 … 255 / 100% / 360° / 127; 0
Output value object B if logic = 0	0 … 255 / 100% / 360° / 127; 0
Output value object A if block is active	0 … 255 / 100% / 360° / 127; 0
Output value object B if block is active	0 … 255 / 100% / 360° / 127; 0
Output value object A if monitoring period is exceeded	0 … 255 / 100% / 360° / 127; 0
Output value object B if monitoring period is exceeded	0 … 255 / 100% / 360° / 127; 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"]

7.6.2. AND logic connection inputs

For all models:

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
Smoke alarm internal alarm active
Smoke alarm internal alarm inactive
Smoke alarm acknowledgeable alarm active
Smoke alarm acknowledgeable alarm inactive
Smoke alarm button acknowledgement active
Smoke alarm button acknowledgement inactive
Smoke alarm external alarm active
Smoke alarm external alarm inactive
Smoke alarm malfunction active
Smoke alarm malfunction inactive
Smoke alarm battery warning active
Smoke alarm battery warning inactive
Smoke alarm smoke chamber fault active
Smoke alarm smoke chamber fault inactive

Additionally for Salva KNX TH:

Smoke alarm heat warning active
Smoke alarm heat warning inactive
Temperature sensor malfunction ON
Temperature sensor malfunction OFF
Humidity sensor malfunction ON
Humidity sensor malfunction OFF
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 inactive

7.6.3. 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
Switching output AND logic 5
Switching output AND logic 5 inverted
Switching output AND logic 6
Switching output AND logic 6 inverted
Switching output AND logic 7
Switching output AND logic 7 inverted
Switching output AND logic 8
Switching output AND logic 8 inverted

8. Temperature and humidity parameters

In the following you will find a description of the parameters that are available only for the Salva KNX TH.

8.1. 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

8.2. 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

8.2.1. 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

8.3. 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).

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...200; 50
Increase by up to (in 0.1°C)	0...200; 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; 210
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; 210
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

8.3.1. 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

8.3.2. 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.

8.4. Summer Compensation

With the summer compensation the target value for the room temperature can automatically be adapted by cooling at higher outdoor temperatures. The objective is to prevent a too great a difference between indoor and outdoor temperature in order to keep the energy consumption low.

Activate the summer compensation.

Use summer compensation	No • **Yes**

Using the points 1 and 2, define the outdoor temperature range in which the target value for the indoor temperature is to be adapted linearly. Then, specify which indoor temperature target values are to be valid below point1 and above point 2.

Standard values according to DIN EN 60529

Point 1: External temperature = 20°, Target value = 20°C.
Point 2: External temperature = 32°, Target value = 26°C.

Characteristic curve description:	
External temperature point 1 (in 0.1°C increments)	0 ... 500 ; 200
Outdoor temperature point 2 (in 0.1°C increments)	0 ... 500 ; 320
below point 1 the target value is (in 0.1°C)	0 ... 500 ; 200
above point 2 the target value is (in 0.1°C)	0 ... 500 ; 260

Set the send pattern for the summer compensation.

Send pattern	• periodically • on change • on change and periodically
on change of *(if sent on change)*	0.1°C • 0.2°C • 0.5°C • 1°C • 2°C • 5°C
Send cycle *(if sent periodically)*	5 s ... 2 h; 1 min

If necessary, activate the block for the summer compensation 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
Action when locking	• do not send • Send value
Value (in increments of 0.1°C) *(if a value is sent during blocking)*	0 ... 500; 200

8.5. 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°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% 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

8.6. 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

8.6.1. 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

8.7. 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

Smoke alarm Salva KNX 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 • ... • 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 • ... • 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% • 3% • 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	• not be sent • send a specific value
Value in % (*if a value is sent)*	0...100

8.8. Dewpoint measurement

The **Smoke alarm Salva KNX** 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

8.8.1. 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 in-

itial 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

8.9. Absolute humidity

The absolute air humidity value is detected by the **Salva KNX** and can be output to the bus.

Use absolute humidity	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

8.10. Comfort field

The **Smoke alarm Salva KNX** 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	• never • periodically • on change • on change 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

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