Cala KNX MultiTouch T CH
Button for light, drive, scenes and temperature control

Cala KNX MultiTouch T Light/Sunblind CH
Item numbers 70891 (white), 70893 (black)

Cala KNX MultiTouch T Light/Scenes CH
Item numbers 70961 (white), 70963 (black)

Cala KNX MultiTouch T Light CH
Item numbers 70951 (white), 70953 (black)

For Swiss installation system 60 mm

elsner® elektronik

Installation and Adjustment

Elsner Elektronik GmbH • Sohlengrund 16 • 75395 Ostelsheim • Germany
Cala KNX MultiTouch T CH push button • from application 1.0
Version: 16.09.2020 • Technical changes and errors excepted.

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

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

Clarification of signs used in this manual

Safety advice.

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

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

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

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

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

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

1.   Description

The **Cala KNX MultiTouch T CH push button** has touch-sensitive buttons with which functions can be called up in the KNX building bus system. The glass surface is printed with areas for setting the light and temperature. Coloured LEDs (one white LED in the light symbol, one red and one blue LED in the thermometer symbol and three white LEDs each for level indication) are integrated in these areas and their behaviour can be adjusted. With **Cala KNX MultiTouch T Light/Sunblind CH**, an area for moving blinds/sunshades (up/down) is added, and with **Cala KNX MultiTouch T Light/ Scenes CH**, an area for calling up scenes (3 scenes).

A temperature sensor is integrated into **Cala KNX MultiTouch T CH**. An external temperature reading can be received via the bus and processed with its own data to create a total temperature (mixed value).

The **Cala KNX MultiTouch T CH** has a PI controller for heating and cooling. The set-point temperature can be changed using the "+" and "-" touch buttons.

Communication objects can be linked via AND and OR logic gates.

The device is supplemented with a frame of the switch series used in the building, and thus fits seamlessly into the interior fittings.

Functions:
- **Operating zone for light** with 3 areas (switching and dimming)
- **Operating zone for temperature control** with 3 areas (warmer, cooler, changeover heating/cooling)
- A total of 9 areas, all of which can be assigned either to the intended bus functions or to other individual bus functions (switches, changeover switches, dimmers, blinds, awnings, shutters, windows, 8- or 16-bit encoders, scene call/ saving)
- **LEDs** can be set. All LEDs Off, all LEDs On, active LEDs Always On, all LEDs On for specific time after button pressed, active LEDs On for specific time after button pressed. Settable, as to whether LED flashes at block object value = 1. LED brightness can be pre-set for day and night
- **Area function** when touching two or more push buttons. Can be configured as switch, selector switch, as 8 or 16 bit encoder or for scenario recall
- **Scene control.** 3 scene channels with 5 objects each
- **Temperature** measurements. **Mixed value** from own measured value and external values (proportion can be set by percentage), output of minimum and maximum values
- **PI-controller for heating** (one or two-level) and **cooling** (one or two-level) according to temperature. Regulation according to separate setpoints or basic setpoint temperature
- **4 AND and 4 OR logic gates** each with 4 inputs. All switching events as well as 8 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

Additional functions Cala KNX MultiTouch T Light/Sunblind CH:

- **Operating zone for blinds**, awnings, shutters or windows with 3 areas (up/down with short/long distinction, driving position)

Additional functions Cala KNX MultiTouch T Light/Scenes CH:

- **Operating zone for scene call and saving** with 3 areas for scenes

Configuration is made using the KNX software ETS 5. The **product file** can be downloaded from the ETS online catalogue and the Elsner Elektronik website on **www.elsner-elektronik.de** in the "Service" menu.

1.0.1. Area function

If the area function in ETS has been activated, another function is available alongside the regular key functions. This is triggered by touching multiple keys, e.g. if you touch the sensor with the palm of your hand.

Using the area function

If a key is pressed and another (different) key is touched within 0.2 seconds, the action set in the ETS is performed for the area operation (See Fig. 1 a) and b)). The keys are then blocked for 0.5 seconds.

Using the normal key function

If a key is pressed and no other key is touched within 0.2 seconds, the normal key function is enabled/provided for 5 seconds (See Fig. 1 c) and d)). This is extended for 5 seconds with each push of the button.

Fig. 1

Area function examples

a)

b)

Examples of normal key functions

c)

d)
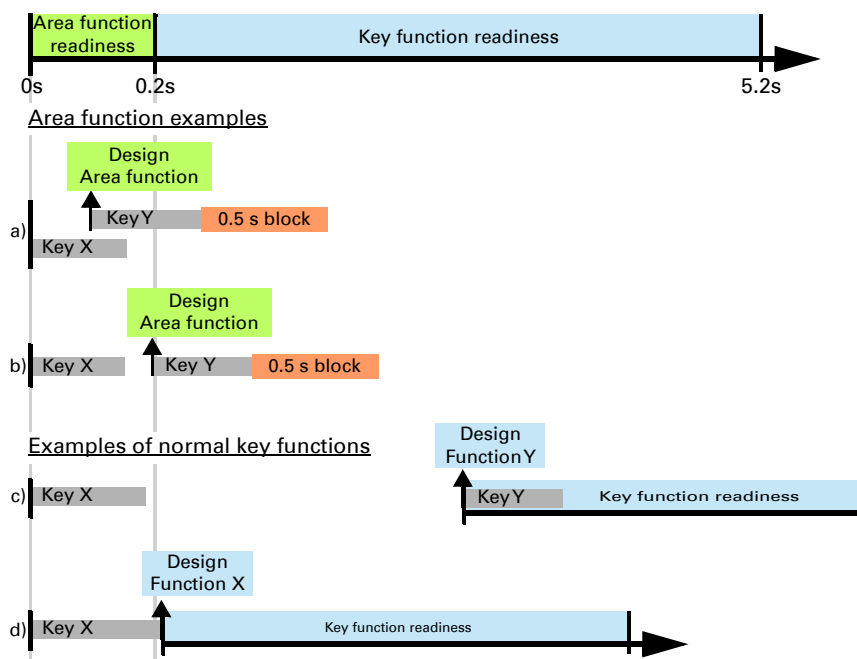
If the area function in the ETS is disabled, the keys can be used normally at any time.

1.0.2. Scope of delivery

- Push button in casing
- Mounting adapter with screws

Additionally required (not included in the deliverables):
- Cover frame (for insert 60 x 60 mm) and mounting plate (77 mm) for swiss installation standard
- Inlet box

1.1. Technical data

Casing	Genuine glass, plastic
Colours	• similar to RAL 9010 pure white • similar to RAL 9005 deep black
Assembly	Installation in inlet box
Degree of protection	IP 20
Dimensions	Housing approx. 60 x 60 (W x H, mm), Installation depth approx. 10 mm

Total weight	approx. 50 g
Ambient temperature	Operation and storage -25…+85°C
Ambient humidity	max. 95% RH, avoid condensation
Operating voltage	KNX bus voltage
Bus current	max. 19 mA
Data output	KNX +/- Bus plug-in terminal
Group addresses	max. 205
Assignments	max. 205
Communication objects	Cala KNX MultiTouch T Light/Sunblind CH: 199 Cala KNX MultiTouch T Light/Scenes CH: 198 Cala KNX MultiTouch T Light CH: 198
Temperature measurement range	-25…+85°C
Temperature resolution	0.1°C

The product is compliant with the provisions of EU Directives.

1.1.1. Accuracy of the measurement

Measurement variations from permanent sources of interference (see chapter *Installation position*) can be corrected in the ETS in order to ensure the specified accuracy of the sensor (offset).

When **measuring temperature**, the self-heating of the device is considered by the electronics. The heating is compensated by the software.

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 the intended purpose described in this manual. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

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

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

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

2.2.   Installation location

The **Cala KNX MultiTouch T CH push button** is made for wall mounting in an inlet box. The device is supplemented with a frame of the 60 mm swiss installation standard.

> **May be installed and operated in dry interior rooms only. Avoid condensation.**

When selecting an installation location, please ensure that the measurement results are affected as little as possible by external influences. Possible sources of interference include:
- Direct sunlight
- Drafts from windows and doors
- Draft from ducts which lead from other rooms or from the outside to the junction box in which the sensor is mounted
- Warming or cooling of the building structure on which the sensor is mounted, e.g. due to sunlight, heating or cold water pipes
- Connection lines and ducts which lead from warmer or colder areas to the sensor

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

2.3. Device structure

2.3.1. Casing
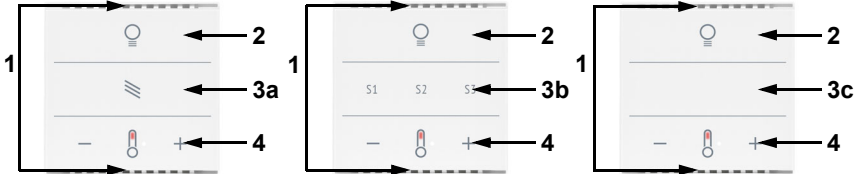
Fig. 2 Front
1   Ventilation slits (top and bottom)
2   "Light" area with 3 touch surfaces
3a   "Sun protection/drive" area with 3 touch surfaces
3b   "Scenes" area with 3 touch surfaces
3c   3 configurable touch surfaces
4   "Temperature" area with 3 touch surfaces
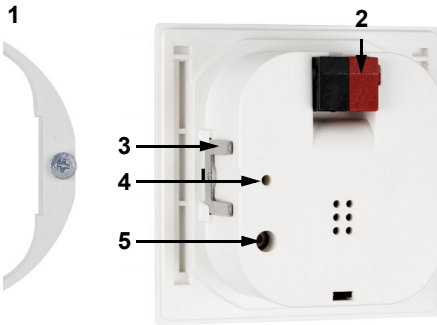
Fig. 3: Rear
1   Mounting adapter
2   KNX terminal BUS +/-
3   Catches
4   Programming LED (recessed)
5   Programming LED (recessed) for teaching the device

2.4. Installation of the sensor

First of all fit the windproof inlet box with connection. Also seal inlet pipes to avoid infiltration.

Turn the screws little way into the mounting adapter.
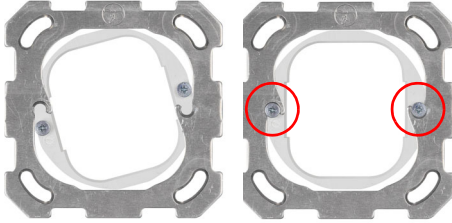
Fig. 4

Hook the mounting adapter into the mounting plate of the switch system and tighten the screws.
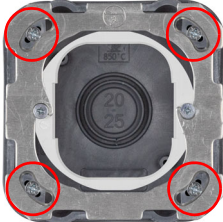
Fig. 5

Screw the mounting plate onto the inlet box

Position the frame of the switching programme. Connect the bus line +/- to the black-red plug.

Pin the housing with the notches on to the mounting adapter, so that device and frame are fixed.

2.5.　Notes on mounting and commissioning

Never expose the device to water (e.g. rain) or dust. This can damage the electronics. You must not exceed a relative humidity of 95%. Avoid condensation.

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

3.　Addressing of the device at the bus

The device is supplied with the bus address 15.15.255. You can program another address into the ETS by overwriting the 15.15.255 address or by teaching via the programming button.

4.　Maintenance

Ventilation slits must not be dirty of covered. As a rule, it is sufficient to wipe the device with a soft, dry cloth as required.

5.　Disposal

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

6. Transmission protocol

Units:

Temperatures in degrees Celsius

6.1. List of all communication objects

Abbreviations Flags:

C *Communication*
R *Read*
W *Write*
T *Transmit*
U *Update*

No	Text	Function	Flags	DPT type	Size
0	Software version	Output	R-CT	[217.1] DPT_Version	2 Bytes
27	Button vibration on/off	Input	-WC-	[1.1] DPT_Switch	1 Bit
28	1-bit push button wake object	Output	--CT	[1.1] DPT_Switch	1 Bit
29	1-byte push button wake object	Output	--CT	[5.10] DPT_Value_1_U-count	1 Byte
30	Push button wake object block	Input	-WC-	[1.1] DPT_Switch	1 Bit
31	Area operation on/off	Input	-WC-	[1.1] DPT_Switch	1 Bit
32	Area operation Output: Switch	Output	R-CT	depending on setting	2 Bytes
Only for Cala KNX MultiTouch T Light/Sunblind CH					
36	Drive movement position	Output	R-CT	[5.1] DPT_Scaling	1 Byte
For all models					
37	Push button 1 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
38	Push button 1 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
39	Push button 1 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
40	Push button 1 dimming	Input / Output	RWCT	[3.7] DPT_Con-trol_Dimming	4 Bit
41	Push button 1 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
42	Push button 1 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
43	Push button 1 Scene (recall)	Output	R-CT	depending on setting	1 Byte
44	Push button 2 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
45	Push button 2 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
46	Push button 2 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
47	Push button 2 dimming	Input / Output	RWCT	[3.7] DPT_Con-trol_Dimming	4 Bit
48	Push button 2 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
49	Push button 2 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
50	Push button 2 Scene (recall)	Output	R-CT	depending on setting	1 Byte

No	Text	Function	Flags	DPT type	Size
51	Push button 3 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
52	Push button 3 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
53	Push-button 3 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
54	Push button 3 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
55	Push-button 3 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
56	Push-button 3 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
57	Push button 3 Scene (recall)	Output	R-CT	depending on setting	1 Byte
58	Push button 4 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
59	Push button 4 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
60	Push-button 4 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
61	Push button 4 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
62	Push-button 4 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
63	Push-button 4 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
64	Push button 4 Scene (recall)	Output	R-CT	depending on setting	1 Byte
65	Push button 5 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
66	Push button 5 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
67	Push-button 5 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
68	Push button 5 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
69	Push button 5 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
70	Push button 5 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
71	Push button 5 Scene (recall)	Output	R-CT	depending on setting	1 Byte
72	Push button 6 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
73	Push button 6 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
74	Push-button 6 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
75	Push button 6 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
76	Push button 6 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
77	Push button 6 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
78	Push button 6 Scene (recall)	Output	R-CT	depending on setting	1 Byte
79	Push button 7 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
80	Push button 7 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
81	Push-button 7 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
82	Push button 7 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit

No	Text	Function	Flags	DPT type	Size
83	Push button 7 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
84	Push button 7 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
85	Push button 7 Scene (recall)	Output	R-CT	depending on setting	1 Byte
86	Push button 8 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
87	Push button 8 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
88	Push-button 8 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
89	Push button 8 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
90	Push button 8 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
91	Push button 8 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
92	Push button 8 Scene (recall)	Output	R-CT	depending on setting	1 Byte
93	Push button 9 long-term	Output	R-CT	[1.8] DPT_UpDown	1 Bit
94	Push button 9 short-term	Output	R-CT	[1.10] DPT_Start	1 Bit
95	Push button 9 switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
96	Push button 9 dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
97	Push button 9 encoder 8 bit	Output	R-CT	[5.10] DPT_Value_1_U-count	1 Byte
98	Push button 9 encoder 16 bit	Output	R-CT	[9] 9.xxx	2 Bytes
99	Push button 9 Scene (recall)	Output	R-CT	depending on setting	1 Byte
101	All LEDs On/Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
102	All LEDs Brightness	Input	-WC-	[5.1] DPT_Scaling	1 Byte
103	All LEDs Brightness day = 1 | night = 0	Input	-WC-	[1.1] DPT_Switch	1 Bit
106	Light LED On/Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
107	Light LED block	Input	-WC-	[1.1] DPT_Switch	1 Bit
110	Temperature LEDs Activation	Input	-WC-	[1.1] DPT_Switch	1 Bit
111	Temperature LED red On/Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
112	Temperature LED red block	Input	-WC-	[1.1] DPT_Switch	1 Bit
113	Temperature LED blue On/Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
114	Temperature LED blue block	Input	-WC-	[1.1] DPT_Switch	1 Bit
117	Temperature sensor: malfunction	Output	R-CT	[1.1] DPT_Switch	1 Bit
118	Temperature sensor: measured value external	Input	-WCT	[9.1] DPT_Value_Temp	2 Bytes
119	Temperature sensor: measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
120	Temperature sensor: measured value total	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes

No	Text	Function	Flags	DPT type	Size
121	Temperature sensor: measured value min./max. query	Input	-WC-	[1.17] DPT_Trigger	1 Bit
122	Temperature sensor: measured value minimum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
123	Temperature sensor: measured value maximum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
124	Temperature sensor: measured value min./max. reset	Input	-WC-	[1.17] DPT_Trigger	1 Bit
126	Temp. thresholdV 1: Absolute value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
127	Temp. thresholdV 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
128	Temp. thresholdV 1: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
129	Temp. thresholdV 1: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
130	Temp. thresholdV 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
131	Temp. thresholdV 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
132	Temp. thresholdV 2: Absolute value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
133	Temp. thresholdV 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
134	Temp. thresholdV 2: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
135	Temp. thresholdV 2: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
136	Temp. thresholdV 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
137	Temp. thresholdV 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
138	Temp. thresholdV 3: Absolute value	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
139	Temp. thresholdV 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
140	Temp. thresholdV 3: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
141	Temp. thresholdV 3: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
142	Temp. thresholdV 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
143	Temp. thresholdV 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
146	Temp.control: HVAC mode (priority 1)	Input / Output	RWCT	depending on setting	1 Byte

No	Text	Function	Flags	DPT type	Size
147	Temp.control: HVAC mode (priority 2)	Input / Output	RWCT	depending on setting	1 Byte
148	Temp.control: Mode frost/heat protection activt.	Input	RWCT	[1.1] DPT_Switch	1 Bit
149	Temp.control: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
150	Temp.control: Current setpoint	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
151	Temp.control: Switch. (0: Heating | 1: Cooling)	Input	-WC-	[1.1] DPT_Switch	1 Bit
152	Temp.control: Setpoint Comfort heating	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
153	Temp.control: Setpoint Comfort heat.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
154	Temp.control: Setpoint Comfort cooling	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
155	Temp.control: Setpoint Comfort cool.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
156	Temp.control: Basic 16-bit setpoint shift	Input	-WC-	[9.1] DPT_Value_Temp	2 Bytes
157	Temp.control: Setpoint Standby heating	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
158	Temp.control: Setpoint Standby heat.(1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
159	Temp.control: Setpoint Standby cooling	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
160	Temp.control: Setpoint Standby cool. (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
161	Temp.control: Setpoint Eco heating	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
162	Temp.control: Setpoint Eco heating (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
163	Temp.control: Setpoint Eco cooling	Input / Output	RWCT	[9.1] DPT_Value_Temp	2 Bytes
164	Temp.control: Setpoint Eco cooling (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
165	Temp.control: Control variable heating (stage 1)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
166	Temp.control: Control variable heating (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
167	Temp.control: Control variable cooling (stage 1)	Output	R-CT	[5.1] DPT_Scaling	1 Byte
168	Temp.control: Control variable cooling (level 2)	Output	R-CT	[5.1] DPT_Scaling	1 Byte

No	Text	Function	Flags	DPT type	Size
169	Temperature control: Variable for 4/6-way valve	Output	R-CT	[5.1] DPT_Scaling	1 Byte
170	Temp.control: Status Heat. stage 1 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
171	Temp.control: Status Heat. stage 2 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
172	Temp.control: Status Cool. stage 1 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
173	Temp.control: Status Cool. stage 2 (1=ON|0=OFF)	Output	R-CT	[1.1] DPT_Switch	1 Bit
174	Temp.control: Comfort extension status	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit
175	Temp.control: Comfort Extension time	Input	RWCT	[7.5] DPT_TimePeriod-Sec	2 Bytes
176	Temp. Controller: Fan coil levels 0 to 3	Output	R-CT	[5.1] DPT_Scaling	1 Byte
177	Temp. Controller: Fan coil level 1	Output	R-CT	[1.1] DPT_Switch	1 Bit
178	Temp. Controller: Fan coil level 2	Output	R-CT	[1.1] DPT_Switch	1 Bit
179	Temp. Controller: Fan coil level 3	Output	R-CT	[1.1] DPT_Switch	1 Bit
180	Temp. Controller: Fan coil auto=1 manual=0	Input / Output	RWCT	[1.1] DPT_Switch	1 Bit
185	Scene 1: Recall (8 bit)	Input	-WC-	[17.1] DPT_Scene-Number	1 Byte
186	Scene 1: Output 1	Output	RWCT	depending on setting	4 Bytes
187	Scene 1: Output 2	Output	RWCT	depending on setting	4 Bytes
188	Scene 1: Output 3	Output	RWCT	depending on setting	4 Bytes
189	Scene 1: Output 4	Output	RWCT	depending on setting	4 Bytes
190	Scene 1: Output 5	Output	RWCT	depending on setting	4 Bytes
191	Scene 2: Recall (8 bit)	Input	-WC-	[17.1] DPT_Scene-Number	1 Byte
192	Scene 2: Output 1	Output	RWCT	depending on setting	4 Bytes
193	Scene 2: Output 2	Output	RWCT	depending on setting	4 Bytes
194	Scene 2: Output 3	Output	RWCT	depending on setting	4 Bytes
195	Scene 2: Output 4	Output	RWCT	depending on setting	4 Bytes
196	Scene 2: Output 5	Output	RWCT	depending on setting	4 Bytes
197	Scene 3: Recall (8 bit)	Input	-WC-	[17.1] DPT_Scene-Number	1 Byte
198	Scene 3: Output 1	Output	RWCT	depending on setting	4 Bytes
199	Scene 3: Output 2	Output	RWCT	depending on setting	4 Bytes
200	Scene 3: Output 3	Output	RWCT	depending on setting	4 Bytes

No	Text	Function	Flags	DPT type	Size
201	Scene 3: Output 4	Output	RWCT	depending on setting	4 Bytes
202	Scene 3: Output 5	Output	RWCT	depending on setting	4 Bytes
205	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 Bit
206	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 Bit
207	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 Bit
208	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 Bit
209	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 Bit
210	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 Bit
211	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 Bit
212	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 Bit
217	AND logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
218	AND logic 1: 8 bit output A	Output	R-CT	depending on setting	1 Byte
219	AND logic 1: 8 bit output B	Output	R-CT	depending on setting	1 Byte
220	AND logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
221	AND logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
222	AND logic 2: 8 bit output A	Output	R-CT	depending on setting	1 Byte
223	AND logic 2: 8 bit output B	Output	R-CT	depending on setting	1 Byte
224	AND logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
225	AND logic 3: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
226	AND logic 3: 8 bit output A	Output	R-CT	depending on setting	1 Byte
227	AND logic 3: 8 bit output B	Output	R-CT	depending on setting	1 Byte
228	AND logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
229	AND logic 4: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
230	AND logic 4: 8 bit output A	Output	R-CT	depending on setting	1 Byte
231	AND logic 4: 8 bit output B	Output	R-CT	depending on setting	1 Byte
232	AND logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
233	OR logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
234	OR logic 1: 8 bit output A	Output	R-CT	depending on setting	1 Byte
235	OR logic 1: 8 bit output B	Output	R-CT	depending on setting	1 Byte
236	OR logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
237	OR logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
238	OR logic 2: 8 bit output A	Output	R-CT	depending on setting	1 Byte
239	OR logic 2: 8 bit output B	Output	R-CT	depending on setting	1 Byte
240	OR logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
241	OR logic 3: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit

No	Text	Function	Flags	DPT type	Size
242	OR logic 3: 8 bit output A	Output	R-CT	depending on setting	1 Byte
243	OR logic 3: 8 bit output B	Output	R-CT	depending on setting	1 Byte
244	OR logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
245	OR logic 4: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
246	OR logic 4: 8 bit output A	Output	R-CT	depending on setting	1 Byte
247	OR logic 4: 8 bit output B	Output	R-CT	depending on setting	1 Byte
248	OR logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit

7. Setting the parameters

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 the basic properties of the data transmission.

Transmission delay after reset/bus restoration	5 s • ... • 300 s
Maximum message rate	• 1 message per second • ... • 10 messages per second • ... • 50 messages per second

7.3. Buttons

With the **Cala KNX MultiTouch T CH** there is a wake function, i.e. if you want to heat or cool, press "+" or "-" once and wake up the device (this first key press does not change the settings) - the LEDs light up and you can see the current setting - now you can raise and lower the temperature with "+" and "-". This function only makes sense if the LED mode is set to "...". On for a certain time after pressing the button" is set.

Use wake function	No • Yes
Use wake function	Yes

Wake up after after last keystroke	5 • ... • 300; 10 seconds
Bit object value when waking	0 • 1
Byte object value when waking	0 • ... • 255
Value for blocking object after reset 1 = blocked | 0 = not blocked	0 • 1

Cala KNX MultiTouch T CH has an area control, i.e. if you touch multiple buttons at the same time, you can activate another function. The value (0 or 1) can be set for the evaluation of the activation of the surface operation.

Set whether you want to use the screen control.

Use screen control	No • Yes
Use screen control	Yes
Activation object assessment	• Value 1 = active | Value 0 = inactive • Value 0 = active | Value 1 = inactive
Object value after reset	0 • 1
Function	• Switch • Selector switch • 8 bit value 0 ... 255 • 8 bit value 0 ... 100% • 16-bit floating point value • Scenario recall
Value (*switch*)	0 • 1
Value (*8 bit value 0 ... 255*)	0 • ... • 255
Value (*8 bit value 0 ... 100%*)	0 • ... • 100
Value in 0.1 (*16 bit value floating point*)	-6707600 • ... • 6707600; 10
Scenario number(*Scenario recall*)	1 • ... • 64

Press the required button. The menus for the additional settings of the buttons are then displayed.

> **For Cala KNX MultiTouch T Light CH and Cala KNX MultiTouch T Light/Scenes CH, the mode of the middle key line is always "3 individual keys".**

Mode of upper line of buttons	3 individual push buttons • Switch / dim light
Mode of the middle line of buttons	3 individual push buttons • Drive
Mode of lower line of buttons	3 individual push buttons • Temperature controller

Mode of upper line of buttons	3 individual push buttons
Use push button 1 (top left)	No • Yes

Use push button 2 (top centre)	No • Yes
Use push button 3 (top right)	No • Yes

> **The Cala KNX MultiTouch T Light/Scenes CH uses buttons 4-6 by default ("Yes").**

Mode of upper line of buttons	3 individual push buttons
Use push button 4 (middle left)	No • Yes
Use push button 5 (middle)	No • Yes
Use push button 6 (middle right)	No • Yes

Mode of upper line of buttons	3 individual push buttons
Use push button 7 (bottom left)	No • Yes
Use push button 8 (middle centre)	No • Yes
Use push button 9 (bottom right)	No • Yes

7.3.1. Switch / dim light

The commands of the upper line of buttons are as follows:

Briefly press upper left button = switch off

Press upper left button long = dim darker

Press top push-button centre = switch over (switch off or switch on)

Briefly press upper right button = switch on

Press upper right button long = dim brighter

Here you can set the time between switching and dimming and whether the dimming command is to be repeated.

Time between switching and dimming (in 0.1 s)	0 • ... • 50; 5
Repeat the dim command	No • Yes
Repetition of the dimming command	Yes
Repeat the dim command on long button press	every 0.1 s • ... • every 2 s; every 0.5 s
Dimming by	100% • ... • 1,5%; 6%

7.3.2. Push-button drive

> **This menu is only available with the Cala KNX MultiTouch T Light/Sunblind CH.**

The commands of the middle line of buttons are as follows:

Press the middle button left/right briefly = short time command

Press middle button left/right long = long time command

Press middle button = send travel position

Here you can set the travel position when pressing the middle button, the function, the control mode (see *7.3.5.Control modes for drive control*), the time between short and long.

Travel position when middle button pressed	0 • ... • 100; <u>75</u>
Function	• <u>Blind</u> • Blinds • Awning • Window
Time between tap and hold (in 0.1 sec)	0 • ... • 50; <u>10</u>

7.3.3. Button temperature controller

The commands of the lower line of buttons are as follows:

Press bottom left button = reduce temperature

Press bottom right button = increase temperature

Press bottom button middle long (>1s) = switch heating/cooling

7.3.4. Push button 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9

Set the function of the push button.

> **With Cala KNX MutliTouch T Light/Scenes, the function of push-buttons 4-6 is set to "Scene recall / scene saving" by default.**

Function	• <u>Switch</u> • Selector switch • Blind • Shutters • Awning • Window • Dimmer • 8-bit encoder • 16-bit encoder • Scenario recall/ Scenario storage

Push button as switch

If a switching function is assigned to the push-button, select the "Switch" function and define which value is sent when the push-button is pressed/released and when it is sent.

Function	Switch
Command when pressing the button	• 0 Send • 1 Send • Do not send message
Command when releasing the button	• 0 Send • 1 Send • Do not send message
Send value	• If there is a 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 transmission is "cyclical"*)	5 s • ... • 1 min • ... • 2 h

Push button as selector switch

If a changeover function is assigned to the push-button, select the "Changeover switch" function and determine whether the changeover is performed when the push-button is pressed or released and whether there is an additional function when the push-button is held down for a long time.

Function	Selector switch
Use additional function for button held down	No • Yes

Use additional function for button held down	No
Command when pressing the button	• Switch • Do not send message
Command when releasing the button	• Switch • Do not send message

Use additional function for button held down	Yes
Time between tap and hold (0.1 sec)	0 ... 50; 10
Command when pressing the button	Do not send message
Command when releasing before time expires	• Switch • Do not send message

Command when pressing the button	• 0 Send • 1 Send • Switch • <u>Do not send message</u>
Command when releasing the button	• 0 Send • 1 Send • Switch • <u>Do not send message</u>
Send value	• <u>If there is a change</u> • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Transmission cycle (if cyclically sent)	5 s • <u>10 s</u> • ... • 2 h

Push button as blind, shutter, awning or window control

If the push-button is used to control a drive, select the "blind", "awning", "shutter" or "window" function and define the push-button function and control mode.

Push button as blind

Function	**Shutter**
Command	• <u>Up</u> • Down
Control mode	• <u>Standard</u> • Standard inverted • Comfort mode • Dead man switch

Standard:

Behaviour for button actuation (up): short = Stop/Step | long = Up Behaviour for button actuation (down): short = Stop/Step | long = Down	
Time between tap and hold (0.1 sec)	0 ... 50; <u>10</u>

Standard inverted:

Behaviour for button actuation (up): long = Stop/Step | short = Up Behaviour for button actuation (down): short = Stop/Step | long = Down	
Time between tap and hold (0.1 sec)	0 ... 50; <u>10</u>
Repetition of the step command upon extended button press	none • every 0.1 s • ... • <u>every 0.5 s</u> • ... • every 2 s

Comfort mode:

Push-button is pressed and	
released before expiry of Time 1 Maintained for longer than Time 1 Triggered between Times 1 and 1 + 2 Triggered after Times 1 + 2	Stop/Step Up | Down Stop No more stop
Time 1 (in 0.1 sec)	0 ... 50; <u>4</u>
Time 2 (in 0.1 sec)	0 ... 50; <u>20</u>

Dead man switch:

Press button	Up | Down command
Release button	Stop command

Push button as shutter

Function	**Shutters**
Command	• <u>Up</u> • Down • Up/Down
Control mode	• <u>Standard</u> • Standard inverted • Comfort mode • Dead man switch

Standard:

Behaviour for button actuation (up): short = Stop | long = Up Behaviour for button actuation (down): short = Stop | long = Down Behaviour for button actuation (up/down): short = Stop | long = Up/Down	
Time between tap and hold (0.1 sec)	0 ... 50; <u>10</u>

Standard inverted:

Behaviour for button actuation (up): long = Stop | short = Up Behaviour for button actuation (down): short = Stop | long = Down Behaviour for button actuation (up/down): short = Stop/Step | long = Up/Down	
Time between tap and hold (0.1 sec)	0 ... 50; <u>10</u>
Repetition of the step command upon extended button press (only for up)	none • every 0.1 s • ... • <u>every 0.5 s</u> • ... • every 2 s

Comfort mode:

Push-button is pressed	
released before expiry of Time 1 Maintained for longer than Time 1 Triggered between Times 1 and 1 + 2 Triggered after Times 1 + 2	Stop Up | Down | Up/Down Stop No more stop
Time 1 (in 0.1 sec)	0 ... 50; <u>4</u>
Time 2 (in 0.1 sec)	0 ... 50; <u>20</u>

Dead man switch:

Press button	Up | Down | Up/Down command
Release button	Stop command

Push button as awning

Function	**Awning**
Command	• Retract • Extend • Retract/Extend
Control mode	• Standard • Standard inverted • Comfort mode • Dead man switch

Standard:

Behaviour for button actuation (retract): short = Stop | long = Retract Behaviour for button actuation (extend): short = Stop | long = Extend Behaviour for button actuation (retract/extend): short = Stop | long = Extend/Retract	
Time between tap and hold (0.1 sec)	0 ... 50; 10

Standard inverted:

Behaviour for button actuation (retract): long = Stop | short = Retract Behaviour for button actuation (extend): long = Stop | short = Extend Behaviour for button actuation (retract/extend): hold = long | stop = Extend/Retract	
Time between tap and hold (0.1 sec)	0 ... 50; 10
Repetition of the step command upon extended button press (only for up)	none • every 0.1 s • ... • every 0.5 s • ... • every 2 s

Comfort mode:

Push-button is pressed and	
released before expiry of Time 1 Maintained for longer than Time 1 Triggered between Times 1 and 1 + 2 Triggered after Times 1 + 2	Stop Retract • Extend • Retract/ Extend Stop No more stop
Time 1 (in 0.1 sec)	0 ... 50; 4
Time 2 (in 0.1 sec)	0 ... 50; 20

Dead man switch:

Press button	Retract | Extend | Retract/Extend Command
Release button	Stop command

Push button as window

Function	**Window**
Command	• Close • Open • Open/Close
Control mode	• Standard • Standard inverted • Comfort mode • Dead man switch

Standard:

Behaviour for button actuation (close): short = Stop | long = Close Behaviour for button actuation (open): short = Stop | long = Open Behaviour for button actuation (open/close): short = Stop | long = Open/Close	
Time between tap and hold (0.1 sec)	0 ... 50; 10

Standard inverted:

Behaviour for button actuation (close): long = Stop | short = Close Behaviour for button actuation (open): long = Stop | short = Open Behaviour for button actuation (open/close): long = Stop | short = Open/Close	
Time between tap and hold (0.1 sec)	0 ... 50; 10
Repetition of the step command upon extended button press (only for up)	none • every 0.1 s • ... • every 0.5 s • ... • every 2 s

Comfort mode:

Push-button is pressed and	
released before expiry of Time 1 Maintained for longer than Time 1 Triggered between Times 1 and 1 + 2 Triggered after Times 1 + 2	Stop Close | Open | Open/Close Stop No more stop
Time 1 (in 0.1 sec)	0 ... 50; 4
Time 2 (in 0.1 sec)	0 ... 50; 20

Dead man switch:

Press button	Close | Open | Open/Close command
Release button	Stop command

Push button as dimmer

If the push button should be used as a dimmer, select the function "Dimmer" and define the push button function, time interval (switching/dimming) and if required, the repeat interval for extended pressing of the push button.

Function	**Dimmer**

Command	• <u>Brighter</u> • Darker • Lighter/Darker
Time between switching and dimming (in 0.1 s)	0 ... 50; <u>5</u>
Repeat the dim command	<u>No</u> • Yes
Repeat the dim command with a long hold of the button	every 0.1 s • ... • <u>every 0.5 s</u> • ... • every 2 s
Dim by	100% • ... • <u>6%</u> • ... • 1.5%

Push button as 8 bit encoder

If the push button is to be used as an 8-bit encoder, select the function "8-bit encoder" and define which value is to be transmitted.

Range	• <u>0 ... 255</u> • 0% ... 100% • 0° ... 360°
Value	• <u>0</u>... 255 • <u>0</u> ... 100 • <u>0°</u>... 360°

Push button as 16 bit encoder

If the push button is to be used as a 16-bit encoder, select the function "16-bit encoder" and define which value is to be transmitted.

Value (in 0.1)	-6707600 ... 6707600; <u>0</u>

Push button as scenario control:

If a scenario is to be recalled and saved with a push button, select the "Recall scenario / Save scenario" function and specify whether the push button should also be used to save the scenario (press longer).

Scenario (0-63, corresponds to scenario no. 1-64)	<u>0</u> ... 63
Scenario function	<u>Call up</u> • Call up and storage
Press button longer than (in 0.1s) --> Scene memory (*(for call up and storage)*)	0 ... <u>50</u>

7.3.5. Control modes for drive control

Behaviour on button actuation in standard control mode:

	short	hold
Blind	Stop/Step	Up or down
Shutters	Stop	Up or down
Awning	Stop	In or out
Windows	Stop	Closed or open

Standard:

If briefly operated, the drive will move incrementally or stops. If operated longer, the drive will move up to the end position. The time difference between "short" and "long" is set individually.

Control mode	Standard
Behavior during button operation: short = stop/increment long = Up or Down	
Time between short and long in 0.1 seconds	1...50; <u>10</u>

Standard inverted:

When pushed shortly, the drive moves up to the end position. When pushed for longer, the drive moves incrementally or stops. The time difference between "short" and "long" and the repeat interval is set individually.

Control mode	Standard inverted
Behavior during button operation: short = Up or Down long = Stop/Step	
Time between short and long in 0.1 seconds	1...50; <u>10</u>
Repeat the step command for a long button press	every 0.1 s • every 2 sec; <u>every 0.5 sec</u>

Comfort mode:

In the **comfort mode** actuating the button briefly, a bit longer and long will trigger different responses of the drive. The time intervals are set individually.

Short actuation (shorter than Time 1): The drive is positioned step-wise and stopped.
Holding it slightly longer (longer than Time 1, but shorter than Time 1+2): Drive running. Drive stops when the button is released.
Long holding (release after Time 1+2 runs out): Drive moves independently to the end position. The movement can be interrupted by a short tap.

Fig. 6
Time interval comfort mode diagram

Time 1	Time 2	
0	1	1 + 2
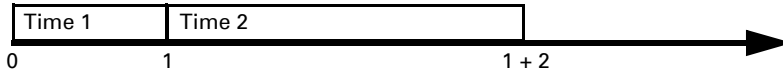
Point in time 0:	Actuate of button, start of time 1
Release before time 1 expired:	step (or stop if drive is moving)
Point in time 1:	End of time 1, start of time 2
	Moving command
Release after time 1 expired but before time 2 expires:	Stop
Release after time 1 + 2 expired:	Move into end position

Control mode	**Comfort mode**
Behavior during button operation: Button is pushed and released before time 1 expired = stop/step held longer than time 1 = Up or Down released between time 1 and 1-2= stop released after time 1 +2 = no more stop	
Time 1	0.0s ... • 2 s; 0.4 s
Time 2	0 s • 2 s; 2 s

Dead man's switch:

The drive moves as soon as the button is actuated and stops as soon as the button is released.

Control mode	**Dead man's switch**
Behavior during button operation: Push button = Up or Down command Release button = Stop command	

7.4. LEDs

Set the LED mode.

LED mode	• All LEDs off • All LEDs on • Active LEDs always on • All LEDs on for specific time after button pressed • Active LEDs on for specific time after button pressed

All LEDs on

Here you can set the brightness of the LEDs and whether objects are used.

LED mode	All LEDs on
Brightness	0 ... 100%; 30%
Use objects on/off and brightness	No • Yes
Object value on/off after reset (*(if objects on/off and brightness are used*)	0 • 1
Use day / night object	No • Yes
Use day / night object	Yes
Brightness for object value 1 = day	0 ... 100%
Brightness for object value 0 = night	0 ... 100%; 5%

Active LEDs always on

Here you can set the brightness of the active LEDs and whether objects are used. An active LED is, for example, the red LED at the bottom in the middle when heating.

LED mode	Active LEDs always on
Brightness	0 ... 100%; 30%
Use objects on/off and brightness	No • Yes
Object value on/off after reset (*(if objects on/off and brightness are used)*)	0 • 1
Use day / night object	No • Yes
Use day / night object	Yes
Brightness for object value 1 = day	0 ... 100%
Brightness for object value 0 = night	0 ... 100%; 5%
Light LED	is controlled by light LED object
Object value after reset	0 • 1
Use block (*If the block is active, the LED flashes*)	No • Yes
Temperature LEDs	• are controlled by the controller • are controlled by objects
Use activation object	No • Yes
Object value after reset	0 • 1
Temperature LEDs	are controlled by objects
Object value LED red on/off after reset	0 • 1
Object value LED blue on/off after reset	0 • 1
Use block object for LED red (*If block active, the LED flashes*)	No • Yes
Use block object for LED blue (*If block active, the LED flashes*)	No • Yes

If the temperature LEDs are controlled by the controller:

If heating is active, the red LED lights up.

If cooling is active, the blue LED lights up.

When switching to heating, the red LED flashes 3 times.

When switching to cooling, the blue LED flashes 3 times.

If frost protection active, the red LED flashes.

If heat protection active, the blue LED flashes.

The temperature +- LEDs are only active in LED mode "On for specific time".

All LEDs on for specific time after button pressed

Here you can set the brightness of the LEDs and whether objects are used.

LED mode	All LEDs on for specific time after button pressed
Time in seconds	1 ... 300; <u>10</u>
Brightness	0 ... 100%; <u>30%</u>
Use objects on/off and brightness	<u>No</u> • Yes
Object value on/off after reset (*(if objects on/off and brightness are used)*)	0 • <u>1</u>
Use day / night object	<u>No</u> • Yes
Use day / night object	Yes
Brightness for object value 1 = day	0 ... <u>100%</u>
Brightness for object value 0 = night	0 ... 100%; <u>5%</u>

The temperature +- LEDs are only active in LED mode "On for specific time".

Active LEDs on for specific time after button pressed

Here you can set the brightness of the active LEDs and whether objects are used. An active LED is, for example, the red LED at the bottom in the middle when heating.

LED mode	Active LEDs on for specific time after button pressed
Time in seconds	1 ... 300; <u>10</u>
Brightness	0 ... 100%; <u>30%</u>
Use objects on/off and brightness	<u>No</u> • Yes
Object value on/off after reset (*(if objects on/off and brightness are used)*)	0 • <u>1</u>
Use day / night object	<u>No</u> • Yes
Use day / night object	Yes
Brightness for object value 1 = day	0 ... <u>100%</u>
Brightness for object value 0 = night	0 ... 100%; <u>5%</u>
Light LED	is controlled by light LED object
Object value after reset	<u>0</u> • 1
Use block (*If block active, the LED flashes*)	<u>No</u> • Yes

Temperature LEDs	• <u>are controlled by the controller</u> • are controlled by objects
Use activation object	<u>No</u> • Yes
Object value after reset	0 • <u>1</u>
Temperature LEDs	are controlled by objects
Object value LED red on/off after reset	<u>0</u> • 1
Object value LED blue on/off after reset	<u>0</u> • 1
Use block object for LED red (*If block active, the LED flashes*)	<u>No</u> • Yes
Use block object for LED blue (*If block active, the LED flashes*)	<u>No</u> • Yes

If the temperature LEDs are controlled by the controller:

If heating is active, the red LED lights up.

If cooling is active, the blue LED lights up.

When switching to heating, the red LED flashes 3 times.

When switching to cooling, the blue LED flashes 3 times.

If frost protection active, the red LED flashes.

If heat protection active, the blue LED flashes.

The temperature +- LEDs are only active in LED mode "On for specific time".

7.5. Temperature measured value

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

Use malfunction object	<u>No</u> • Yes

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

Offset in 0.1°C	-50…50; <u>0</u>

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	<u>No</u> • Yes
Ext. Reading proportion of the total reading	5% • 10% • ... • <u>50%</u> • ... • 100%
Sending pattern for internal and total measured value	• <u>never</u> • periodically • on change • on change and periodically

At and above change of *(if sent on change)*	0.1°C • 0.2°C • <u>0.5°C</u> • ... • 5.0°C
Send cycle *(if sent periodically)*	5 s • <u>10 s</u> • ... • 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	<u>No</u> • Yes

7.6. Temperature threshold values

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

Use threshold value 1 / 2 / 3	Yes • <u>No</u>

7.6.1. Threshold value 1, 2, 3

Threshold value

Decide in which cases **threshold values and delay times** received are to be kept per object. The parameter is only taken into consideration if the setting by object is activated further down. 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).

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

Threshold value setpoint using parameter:

Set the threshold values and hysteresis directly.

Threshold value setpoint using	**Parameter** • Communication objects
Threshold in 0.1°C	-300… 800; <u>200</u>

Threshold value setpoint using a communication object:

Beforehand, enter how the threshold value will 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 call 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 in so that it is retained in the event of a power supply failure and will be available again once the power supply is restored.

Threshold value setpoint using	Parameter • **Communication objects**
The last communicated value should	• <u>never</u> • after restoration of power • after power restoration and Programming
Start threshold value in 0.1°C valid until first Communication	-300 … 800; <u>200</u>
Object value limit (min) in 0.1°C	<u>-300</u>…800
Object value limit (max) in 0.1°C	-300…<u>800</u>
Type of threshold value change	<u>Absolute value</u> • Increase/decrease
Interval *(upon increase/decrease change)*	<u>0.1 °C</u> • ... • 5°C

Set the **hysteresis** independently of the type of threshold value setting.

Hysteresis in % of the threshold value	0 … 50; <u>20</u>
Hysteresis in 0.1°C	0 … 1100; <u>50</u>

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)	• <u>TV above = 1	TV - Hyst. below = 0</u> • LV above = 0 |LV - hysteresis below = 1 • TV below = 1 |TV + hysteresis above = 0 • TV below = 0 |TV + hysteresis above = 1
Delays can be set via objects (in seconds)	<u>No</u> • Yes
Switching delay from 0 to 1 *(if delay is adjustable via objects: valid until 1st communication)*	<u>None</u> • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching delay from 1 to 0 *(if delay is adjustable via objects: valid until 1st communication)*	<u>None</u> • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching output sends	• <u>on change</u> • 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 sent only if "periodically" is selected)*	<u>5 s</u> • 10 s • 30 s... • 2 h

Block

The switching output can be blocked using an object.

Use switching output block	<u>No</u> • Yes

Set the cases in which threshold vlaues and delay times received per object are to be retained.

Assessment of the block object	• <u>At value 1: block	At value 0: release</u> • At value 0: block	At value 1: release
Blocking object value before first Commu-nication	<u>0</u> • 1
Switching output behaviour	
On blocking	• <u>Do not send message</u> • 0 Send • 1 Send
On release (with 2 second 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

7.7. Temperature PI controller

Activate the controller if you want to use it.

Use controller	<u>No</u> • Yes

General rules

Decide in which cases **nominal values and delay times** received per object are to be kept. The parameter is only taken into consideration if the setting by object is activated further down. 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).

For an adequate regulation of the indoor temperature, comfort, standby, eco and building protection modes may be used.

Comfort when present,
Standby when absent,
Eco as a night-time mode and
Frost / heat protection (building protection) e.g. when the window is 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 are used to activate comfort mode or frost/heat protection mode. The comfort object then blocks the eco/standby object, and frost/heat protection objects have 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** using 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** are to be **sent** to the bus. Periodic transmission is safer if 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 of (in % absolute)	1...10; 2
Cycle *(if sent periodically)*	5 s • ... • 5 min • ... • 2 h

The **status object** reports the current status of the output (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	• <u>on change</u> • 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 • ... • <u>5 min</u> • ... • 2 h

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

Type of control	• <u>Single stage heating</u> • Dual-stage heating • Single-stage cooling • Single-stage heating + single-stage cooling • Dual-stage heating + single-stage cooling • Dual-stage heating + dual-stage 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 controls for both heating *and* cooling, you may also select the setting "separately with switching object". Systems used for cooling in the summer and for heating in the 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).

Keep modified setpoints after mode change	<u>No</u> • Yes
Setting the nominal values	• <u>separate with switching object</u> • separate without switching object • with comfort setpoint as a basis with switching object • with comfort setpoint as a basis without switching object
Analysis of the status object / Behaviour of the switching object at value	• <u>0 = Heating	1 = Cooling</u> • 1 = Heating	0 = Cooling
Switching object value before first Communication (*only if switching object is used*)	<u>0</u> • 1

The **grades** for the setpoint changes is predefined. Whether the change remains active only temporarily (do not store) or remains stored even after restoration of power (and

programming) is determined in the first section of "General controller". This also applies to a comfort extension.

Grading for setpoint changes (in 0.1 °C)	1... 50; <u>10</u>
Storage of setpoint(s)	• not be retained • <u>after power restoration</u> • after restoration of power and programming

The controller can be switched from eco mode, i.e. night mode, to comfort mode via the comfort extension. This means that the comfort setpoint can be maintained for longer, for example when having guests. The duration of this comfort extension period is set. After the comfort extension period is terminated, the system returns to eco mode.

Comfort extension time in seconds (can only be activated from eco mode)	1...36000; <u>3600</u>

Setpoint Comfort

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 nominal value may be modified.

Initial heating/cooling setpoint (in 0.1 °C) valid until first Communication *(not upon saving the target value after programming)*	-300...800; <u>210</u>

If setpoint values are entered separately:

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

If the comfort setpoint value is used as a basis:

If the comfort setpoint is used as the basis, the increase/decrease of this value is indicated.

Minimum base setpoint (in 0.1°C)	-300...800; <u>160</u>
Maximum base setpoint (in 0.1°C)	-300...800; <u>280</u>
Reduction by up to (in 0.1°C)	1...100; <u>50</u>
Increase by up to (in 0.1°C)	1...100; <u>50</u>

If the comfort setpoint is used as the basis, a dead zone is determined 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; <u>50</u>

Setpoint for standby

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.

Heating initial setpoint (in 0.1 °C) valid until first Communication	-300…800; 180
Cooling initial setpoint (in 0.1 °C) valid until first Communication	-300…800; 240
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 is used as the basis, the increase/decrease of this value is indicated.

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.

Heating initial setpoint (in 0.1 °C) valid until first Communication	-300…800; 160
Cooling initial setpoint (in 0.1 °C) valid until first Communication	-300…800; 280
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 is used as the basis, the increase/decrease of this value is indicated.

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 used, for example, as long as windows are open 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.

Nominal value frost protection\r\n(in 0,1°C)	-300…800; 70
Activation delay	no • 5 s • ... • 5 min • ... • 2 h
Nominal value heat protection (in 0,1°C)	-300…800; 350
Activation delay	no • 5 s • ... • 5 min • ... • 2 h

General variables

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

For heating and cooling	• separate variables are used • common variables are used for Stage 1 • common variables are used for Stage 2 • common variables are used for Stage 1+2
Use variable for 4/6-way valve *(only with common variable at stage1)*	No • Yes
Control type *(for stage 2 only)*	• 2-point-control • PI control
Regulating variable of the 2nd Stage is on *(only for stage 2 with 2-point control)*	• 1-bit object • 8-bit object

When using the variable for a 4/6 way valve:
0%...100% Heating = 66%...100% variable
OFF = 50% variable
0%...100% Cooling = 33%...0% variable

7.7.1. Heating control stage 1/2

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

In the first stage, heating is controlled by a PI controller which allows to either enter control parameters or select predetermined applications.

In the second stage (therefore only in case of 2-stage heating), heating is controlled via a PI or a 2-point-control.
In stage 2, the setpoint deviation between the two stages must also be specified, i.e. beyond which setpoint undershoot the second stage is then added.

Setpoint difference between stages 1 and 2 stages (in 0.1°C) *(At stage 2)*	0...100; <u>40</u>
Control type *(at stage 2, no common variables)*	• 2-point-control • PI control
Control variable is on *(for stage 2 with 2-point control, no common variables)*	• <u>1-bit object</u> • 8-bit object

PI controller 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. 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 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)	1...<u>5</u>
Reset time (in min.)	1...255; <u>30</u>

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

When blocked, the control variable should	• <u>not be sent</u> • send a specific value
Value (in %) *(only if a value is sent)*	<u>0</u>...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 stage, e.g. for floor heating.
On release, the control variable follows the rule again.

When blocked, the control variable should	• not be sent • send a specific value
Value (in %) *(only 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 stage 2):

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

Control type *(is determined at a higher stage for com-* *mon 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 variables are used, select whether the variable of the 2nd stage is a 1-bit object (on/off) or an 8-bit object (on with percentage value/off).

Control variable is on	• 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 stage, e.g. for floor heating. On release, the control variable follows the rule again.

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

7.7.2. Cooling control stage 1/2

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

In the first stage, cooling is controlled by a PI controller in which either control parameters or predetermined applications can be selected.

In the second stage (therefore only ifor 2-stage cooling), cooling is controlled via a PI or a 2-point-control.
In stage 2, the setpoint deviation between the two stages must also be specified, i.e. beyond which setpoint value undershoot the second stage is then added.

Setpoint difference between stages 1 and 2 stages (in 0.1°C) *(At stage 2)*	0...100; 40
Control type *(at stage 2, no common variables)*	• 2-point-control • PI control
Control variable is on *(for stage 2 with 2-point control, no common variables)*	• 1-bit object • 8-bit object

PI controller 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. 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 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)	1...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 should	• not be sent • send a specific value
Value (in %) *(only 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 should	• not be sent • send a specific value
Value (in %) *(only if a value is sent)*	0...100

2-point-control (only stage 2):

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

Control type *is determined at a higher stage 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 variables are used, select whether the variable of the 2nd stage is a 1-bit object (on/off) or an 8-bit object (on with percentage value/off).

Control variable is on	• <u>1-bit object</u> • 8-bit object
Value (in %) *(for 8-bit object)*	0...<u>100</u>

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 should	• <u>not be sent</u> • send a specific value
Value (in %) *(only if a value is sent)*	<u>0</u>...100

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

7.7.3. Fan Coil Control

The fan coil control enables the regulation of the fan of convector heating/cooling systems.

Activate the fan coil control.

Use fan coil control	<u>No</u> • **Yes**

In fan coil control, the fan is automatically controlled by one or, in multi-level systems, several control variables for heating or cooling. Select which actuating variable(s) are to control the output. The selection depends on the type of heating/cooling control and the settings made for the actuating variables.

Output is controlled via actuating variable	• <u>Heating 1</u> • Heating 2 • Cooling 1 • Cooling 2 • Heating 1 and cooling 1 • Heating 2 and cooling 1 • Heating 1 and cooling 2 • Heating 2 and cooling 2

Select whether the first fan level should also be on when the second and third level are running and whether the second fan level should also be on when the third level is running.

Switch Level 1 on also with Level 2 and 3	<u>No</u> • Yes
Switch Level 2 on also with Level 3	<u>No</u> • Yes

7.8. Scenes

If the set scene number is received via the *Scene X* object, the *Scene X output 1-5* objects send their set value.

Set whether you want to use no, one, two or three scenes.

Using scene 1/2/3	<u>No</u> • Yes

Set the mode.

Mode	• Call via 1 bit object (value 1 or 0) • Call via 8 bit scene object • Call and storage via 8-bit scene object

Assign a scene number to the scene save point.

Scene number (*only for 8-bit object*)	<u>1</u> .. 64

Set whether stored values are to be retained.

Saved values should (*only for calling and saving via 8-bit scene object*)	• not be retained • after restoration of power • after power restoration and Programming
should	

Set the output type and the output value of the objects.

Output type object 1/2/3/4/5	• 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 Object 1/2/3/4/5	<u>0</u> [Input range depending on the type of output]

7.9. Logic

The device has 8 logic inputs, 4 AND and 4 OR logic gates.

Activate the logic inputs and assign object values up to 1st communication.

Use logic inputs	Yes • <u>No</u>

Object value prior to 1st communication for	
- Logic input 1 ... 8	<u>0</u> • 1

Activate the required logic outputs

AND logic

AND logic 1/2/3/4	<u>not active</u> • active

OR logic

OR logic 1/2/3/4	<u>not active</u> • active

7.9.1. AND logic outputs 1/2/3/4 and OR logic outputs 1/2/3/4

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

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

1. / 2. / 3. / 4. Input	• <u>Do not use</u> - Logic inputs 1...8 - Logic inputs 1...8 inverted • all switching events that the device provides (see the chapter *Connection inputs for AND or OR logic*)
Output type	• <u>a 1-bit-object</u> • sends 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	<u>1</u> • 0
Output value if logic = 0	1 • <u>0</u>
Output value If block active	1 • <u>0</u>
Output value if monitoring time exceeded	1 • <u>0</u>

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

Object type	• <u>value (0…255)</u> • Percent (0…100%) • Angle (0…360°) • Scene call-up (0…63)
Output value object A if logic = 1	0 … 255 / 100% / 360° / 63; <u>1</u>

Output value object B if logic = 1	0 … 255 / 100% / 360° / 63; <u>1</u>
Output value object A if logic = 0	0 … 255 / 100% / 360° / 63; <u>0</u>
Output value object B if logic = 0	0 … 255 / 100% / 360° / 63; <u>0</u>
Output value object A If block active	0 … 255 / 100% / 360° / 63; <u>0</u>
Output value object B If block active	0 … 255 / 100% / 360° / 63; <u>0</u>
Output value object A if monitoring time exceeded	0 … 255 / 100% / 360° / 63; <u>0</u>
Output value object B if monitoring time exceeded	0 … 255 / 100% / 360° / 63; <u>0</u>

Set the output send pattern.

Transmission behaviour	• <u>on change of logic</u> • 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 cyclically
Send cycle *(if sent periodically)*	5 s • <u>10 s</u> • ... • 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	<u>No</u> • Yes
Assessment of the block object	• <u>At value 1: block | At value 0: release</u> • At value 0: block | At value 1: release
Blocking object value before first Communication	<u>0</u> • 1
Output behaviour when blocking	• <u>Do not send message</u> • Send block value [see above, output value if block active]
when released (with 2 second release delay)	• <u>Do not send message</u> • transmit 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 moni-toring time	• Do not send message • Send value exceeding [= value of the parameter "Monitoring period"]

7.9.2. AND logic connection inputs

do not use
Logic input 1
Logic input 1 inverted
Logic input 2
Logic input 2 inverted
Logic input 3
Logic input 3 inverted
Logic input 4
Logic input 4 inverted
Logic input 5
Logic input 5 inverted
Logic input 6
Logic input 6 inverted
Logic input 7
Logic input 7 inverted
Logic input 8
Logic input 8 inverted
Temperature/humidity sensor malfunction = ON
Temperature/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
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

7.9.3. OR LOGIC connection inputs

The OR logic connection inputs are the same as those for the AND logic. Additionally, 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