Technical manual

Application description –Temperature- / Humidity- / Air quality sensor / 0-10V Outputs

TS / GS 3_4x.12 knx

General Information

The device is intended for the following applications: monitoring temperature, humidity, and air quality in building automation systems, e.g. in schools, offices, hotels, or conference facilities. Data transmission and control are carried out via a KNX bus system.
Operation is only permitted within the limits defined in the technical data. The device is designed exclusively for use in dry indoor environments.
Use in safety-critical areas—such as emergency exits, fire protection systems, or fermentation cellars—is explicitly not permitted.

Please note that the available functions may vary depending on the product used.

The GS 4x.12 KNX room climate controller can transmit the following data to the KNX bus and provides the following functions:	
CO_2 :	Value output Control (step and PI control) Alarms
Relative Humidity:	Value output Control (step and PI control) Alarms
Temperature:	Value output Heating/Cooling control (2-point and PI control) Alarms
Dew Point:	Value output Alarm
Heat Index:	Value output Alarm
Air Pressure:	Value output
VAV:	Value output Control (PI control only)

Functions:	
Switching	Value output
Dimming	Value output
Shutter/Blind	Value output
Value	Value output
Scenes	Value output
Multiple operation	Value output
Pulse counter	Value output
Logic	Value output

Timer	Value output
Time switch	Value output
External Inputs	Value output
Outputs	0-10V

Note:

The available functions may vary depending on the device variant.
Detailed information on functionality, operation, and installation of the air quality controller can be found in the operating instructions supplied with the product.
Please also note the resolution of the 2-byte data type in accordance with the KNX specification.

Variant	Temp.	Rel. humidity	CO_2	Man. setpoint adjustment
TS 30.12 knx	✓			
TS 31.12 knx	✓			✓
GS 30.12 knx	✓	✓		
GS 31.12 knx	✓	✓		✓
GS 40.12 knx	✓	✓	✓	
GS 41.12 knx	✓	✓	✓	✓

Contents

Application program

Manufacturer: Hugo Müller GmbH & Co. KG, Karlstraße 90, D-78054 VS-Schwenningen
Program Name: --------
Installation: Add the device to your device list and open a new project. The ETS database is available for download on our website:
http://www.hugo-mueller.de/de/downloads/knx-produktdatenbank/

Technical data

Supply voltage:	via KNX bus voltage
Bus current:	< 12.5 mA
Bus system:	KNX
Sensor:	GS 4x.12 knx series: CO_2, relative humidity, Temperature, air pressure
	GS 3x.12 knx series: relative humidity, Temperature, air pressure
	TS 3x.12 knx series: Temperature
Measuring range CO_2 concentration:	425–5,000 ppm
Measuring range rel. humidity:	0–100%
Measuring range Temperature:	0–50 °C
Measuring range absolute air pressure:	300–1100 hPa
Ambient Temperature:	0 °C … +50 °C
Certification:	CE
Housing:	Self-extinguishing thermoplastic
Dimensions:	80,5 x 80,5mm
Housing color:	Studio white (similar to RAL 9016)
	Deep black (similar to RAL 9005)
Mounting type:	Wall mounting
Connection type:	KNX bus terminal / screw terminals (Inputs
Outputs:	3× 0–10 V outputs, freely configurable
Inputs:	4× binary inputs
	1× analog input for external Temperature sensor
Protection rating:	IP20 (according to DIN EN 60529)
Protection class:	III
KNX Secure:	Yes
ETS languages:	English, German, Italian, French

Technical changes reserved

Information on KNX Secure

KNX Secure – Data Security in Building Automation

With increasing requirements for data protection and IT security, the protection of KNX installations is becoming more important. To prevent manipulation and unauthorized access, the KNX Secure security concept was introduced. It includes two standards: KNX IP Secure for communication over IP networks and KNX Data Secure for classic media such as twisted pair (TP) or radio frequency (RF).

For air quality sensors with direct bus connection, KNX Data Secure is the relevant standard.

Objective of KNX Data Secure
KNX Data Secure specifically protects communication at object level – for example when switching lighting, adjusting setpoints, or controlling scenes. This is achieved through:

- Encryption of transmitted telegrams
- Authentication of the data source
- Protection against manipulation and eavesdropping

All objects with encrypted communication are marked with a corresponding symbol in the ETS.

Integration in ETS
From ETS version 5.5 onwards, KNX Secure can be integrated into projects. When a KNX Secure-capable device is added to a project, ETS prompts for a project password. Without a password, the device operates in standard, unsecured mode. The password can also be set at a later time.
Device activation with FDSK
For secure commissioning, the so-called Factory Device Setup Key (FDSK) is required. This individual key is located on the device label. After entering it into ETS, the tool generates a project-specific key, which is then securely transmitted to the device via the bus:

Neither the FDSK nor the tool key are transmitted in plain text.
Once the transmission is completed, the device accepts only the tool key for commissioning. The FDSK is only required again after a reset to factory settings.

Project Planning and Object Protection

ETS allows the targeted selection of communication objects that should be transmitted securely. Depending on the application, only sensitive control commands can be encrypted, while less critical objects remain unencrypted. This fine-grained selection enables an individual balance between security and bus load.
Operation without Secure
Devices with KNX Secure functionality can also be operated without encryption if required. In this case, they behave like conventional KNX components. For this purpose, secure commissioning is deactivated in ETS.

Parameter overview

Parameter	Subcategory Parameter	Description
Global Settings	Global Settings	Send on startup, send delay after bus voltage recovery
CO_2	CO_2 Sensor	Offset correction (offset), report sensor error, calibration via bus, send CO_2 value on change / cyclic, send min/max values on change / cyclic, alarm on exceeding or falling below defined threshold values
	CO_2-Sensor compensation	Air pressure compensation of the CO_2 sensor: no compensation, via internal air pressure value, via external air pressure value or via input of the installation altitude (enter value)
	CO_2 Controller	Type (inactive, single-stage, two-stage, three-stage, PI), output value (output format, send on change / cyclic), hysteresis (symmetric) → only for staged controller, actual value acquisition
Relative Humidity	Relative Humidity Sensor	Offset correction (offset), report sensor error, send relative humidity on change / cyclic, send min/max values on change / cyclic, alarm on exceeding or falling below defined threshold values
	Relative Humidity Controller	Humidity control settings: type (inactive, 1-/2-/3-stage, PI), allow change of base setpoint via bus, output format of control variable, send control variable on change / cyclic, hysteresis (symmetric) → only for staged controller, actual value acquisition
	Humidity Comparator	Comparator: inactive / active, value 1 and value 2 via bus or internal sensor, output value on threshold exceedance or error, send output value on change / cyclic
Temperature	Temperature sensor	Temperature sensor, offset correction (offset), send value on change, cyclic send value, interval, report sensor error, record min/max values, thresholds (monitor limit values)
	External temperature sensor	Temperature sensor, Temperature sensor type, offset correction (offset), send value on change, cyclic send value, interval, report sensor error, record min/max values, thresholds (monitor limit values)
	Temperature Controller 1	Configuration: type, heating/cooling changeover, comfort Temperature heating, relative to comfort, comfort Temperature cooling, eco Temperature heating, eco Temperature cooling, standby Temperature heating, standby Temperature cooling, heat protection Temperature cooling, frost protection Temperature heating, enable additional stage heating, enable additional stage cooling, mode after restart, mode after download, send setpoint Temperature on change / cyclic, global lock object heating, global lock object cooling Actual value acquisition: Temperature values 1, 2, 3, 4 via internal sensor, external sensor or via bus (communication object), send actual value on change / cyclic, actual value error Lock objects: lock object for heating mode, lock object for cooling mode Main stage heating: type, PWM cycle, characteristic, proportional band, reset time, min. control variable, max. control variable, hysteresis (symmetric), control variable on measurement value failure, send control variable on switching / cyclic, lock object, floor protection: Temperature source floor protection, frost protection, heat protection Manual setpoint adjustment: adjustment range, increase setpoint, decrease setpoint, send manual offset on change / cyclic *Only for TS / GS x1.12 KNX Party function: Party function, party mode, time limitation, duration, retrigger

		Main stage heating: Controller type, control direction of the control variable, proportional band, reset time, output format of the control variable, PWM cycle, minimum/maximum values of the control variable, control variable in case of measurement value failure, send control variable on change (inactive / active), cyclic send of control variable, behavior with lock object (send nothing / send fixed value) Main stage cooling: Controller type, control direction of the control variable, proportional band, reset time, output format of the control variable, PWM cycle, minimum/maximum values of the control variable, control variable in case of measurement value failure, send control variable on change (inactive / active), cyclic send of control variable, behavior with lock object (send nothing / send fixed value) Manual setpoint adjustment: Adjustment range, send manual offset on change / cyclic, lock object Mode control: Source of mode control, type, mode Party function: Party mode, time limitation (duration, retrigger)
	Temperature Controller 2	See Temperature controller 1 – except manual setpoint adjustment.
Dew point	Dew point Temperature	Dew point sensor, dew point alarm hysteresis (symmetric), dew point alarm lead, telegram type for dew point alarm, switching command at dew point alarm / after dew point alarm, send dew point alarm on status change / cyclic, interval
	Dew point alarm	Dew point alarm, value source, send dew point value on change (change by …) / cyclic, interval
Heat index	Heat index Temperature	Value source, send heat index on change (threshold) / cyclic, interval
	Heat index alarm	Alarm threshold, alarm lead, telegram type for alarm, switching command on alarm / no alarm, send alarm on status change / cyclic, interval
Air pressure	Air pressure sensor	Air pressure sensor, altitude above sea level, report sensor error, send absolute air pressure on change / cyclic, send relative air pressure on change / cyclic
VAV-Controller	Settings	Selection of the highest input value, Parameter set 1, Include external object, Parameter set 2, Second VAV parameter set, Include external object, Minimum output value, Maximum output value, Send value on change (value) / Send control value cyclically (interval), Blocking object, Behavior when blocking(Value)
Functions	Switching	Input 1 (type, reaction), input 2 (type, reaction), cyclic send value, lock object
	Dimming	Dimming and color Temperature, color control and brightness, control type, color space, value RGB / HSV, communication, input 1–4, type, reaction, additional settings, increase brightness by, decrease brightness by, lock object
	Shutter / Blind	Type, event source, type, reaction
	Value	Output type, input 1 (type, reaction), input 2 (type, reaction), cyclic send value, lock object
	Scene	Input 1 (type, reaction), input 2 (type, reaction), input 3 (type, reaction), input 4 (type, reaction), scene for 1x operation, scene for 2x operation, scene for 3x operation, scene for 4x operation, time interval for subsequent operation, reset scene position, cyclic send value, lock object Input 1 (type, reaction), input 2 (type, reaction), input 3 (type, reaction), input 4 (type, reaction), scene for 1x operation, scene for 2x operation, scene for 3x operation, scene for 4x operation, time interval for subsequent operation, reset scene position, cyclic send value, lock object
	Multiple operation	Maximum number of operations, transmitted value, update and send on operation, reset position, input 1 (type, reaction), input 2 (type, reaction), lock object

	Logic	Logic function, number of logic inputs, logic input 1 (operating mode, type, invert logic input, reset after), logic input 2 (operating mode, type, invert logic input, reset after), logic output sends, invert output, cyclic send value, lock object
	Timer	Value via bus (active/inactive), default start value, reactivatable (active/inactive), reaction after timer expires, restart after timer expires (active/inactive), input 1 (external object, type, scene, reaction), input 2 (external object, type, scene, reaction), input 3 (external object, type, scene, reaction), input 4 (external object, type, reaction), lock object (active/inactive)
	Time function	Weekly program (Monday–Sunday with switching times A1–A4), output type, action A1–A4 (on/off), cyclic send value (active/inactive), lock object (active/inactive)
External inputs	General description	Input on operation, debounce time, long button press (long operation), repeat button function (repeat rate), send value on change / cyclic, interval
Outputs	General description	External value format selection, start (range start value, output voltage start value), end (range end value, output voltage end value), initial voltage, error voltage, send on change / cyclic value transmission, lock object

Communication objects

Number	Name	Object function	Length	C	R	W	T	U	Datapoint type
1	General: Operationtime	Output	4 Bytes	C	R	-	T	-	4-byte signed, time difference (s)
2	General: Operationstate	Output	1 Bit	C	-	W	T	-	1-bit, boolean
3	General: Time of day	Input	3 Bytes	C	-	W	T	U	3-byte, time
4	General: Day / Night	Output	1 Bit	C	R	-	T	-	1-bit, day / night
5	General: Day / Night	Input	1 Bit	C	-	W	T	U	1-bit, day / night
6	CO2 sensor: Value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, parts per million (ppm)
7	CO2 sensor: Value request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
8	CO2 sensor: Malfunction	Output	1 Bit	C	R	-	T	-	1-bit, boolean
9	CO2 sensor: Min. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, parts per million (ppm)
10	CO2 sensor: Max. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, parts per million (ppm)
11	CO2 sensor: Min. max. request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
12	CO2 sensor: Min. max. reset	Input	1 Bit	C	-	W	-	-	1-bit, trigger
13	CO2 sensor: Threshold 1 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
14	CO2 sensor: Threshold 2 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
15	CO2 sensor: Calibration value	Input	2 Bytes	C	-	W	-	-	2-byte floating point value, parts per million (ppm)
16	CO2 sensor: Calibration start/stop	Input	1 Bit	C	-	W	-	-	1-bit, start/stop
17	CO2 sensor: Compensation absolute air pressure	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, pressure (Pa)
18	CO2 controller: Actual value recording - Input 1	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, parts per million (ppm)
19	CO2 controller: Actual value recording - Input 2	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, parts per million (ppm)
20	CO2 controller: Actual value recording - Input 3	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, parts per million (ppm)
21	CO2 controller: Actual value recording - Input 4	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, parts per million (ppm)
22	CO2 controller: Actual value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, parts per million (ppm)
23	CO2 controller: Actual value recording - error	Output	1 Bit	C	R	-	T	-	1-bit, boolean
24	CO2 Controller: Setpoint	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, parts per million (ppm)
25	CO2 Controller: Set setpoint	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, parts per million (ppm)

26	CO2 Controller: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
27	CO2 Controller: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
28	CO2 controller: Output 1	Output	1 Bit	C	R	-	T	-	1-bit, switching
29	CO2 controller: Output 1	Output	2 Bit	C	R	-	T	-	1-bit, switch control
30	CO2 controller: Output 1 - Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
31	CO2 controller: Output 2	Output	1 Bit	C	R	-	T	-	1-bit, switching
32	CO2 controller: Output 2	Output	2 Bit	C	R	-	T	-	1-bit, switch control
33	CO2 controller: Output 2 - Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
34	CO2 controller: Output 3	Output	1 Bit	C	R	-	T	-	1-bit, switching
35	CO2 controller: Output 3	Output	2 Bit	C	R	-	T	-	1-bit, switch control
36	CO2 controller: Output 3 - Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
37	CO2 controller: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
38	CO2 controller: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
39	CO2 controller: Output	Output	1 Byte	C	R	-	T	-	scene number
40	CO2 controller: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
41	rel. humidity sensor: Value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, humidity (%)
42	rel. humidity sensor: Value request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
43	rel. humidity sensor: Malfunction	Output	1 Bit	C	R	-	T	-	1-bit, boolean
44	rel. humidity sensor: Min. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, humidity (%)
45	rel. humidity sensor: Max. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, humidity (%)
46	rel. humidity sensor: Min. max. request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
47	rel. humidity sensor: Min. max. reset	Input	1 Bit	C	-	W	-	-	1-bit, trigger
48	rel. humidity sensor: Threshold 1 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
49	rel. humidity sensor: Threshold 2 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
50	rel. humidity sensor: Calibration value	Input	2 Bytes	C	-	W	-	-	2-byte floating point value, humidity (%)
51	rel. humidity controller: actual value recording - in 1	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)

52	rel. humidity controller: actual value recording - in 2	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
53	rel. humidity controller: actual value recording - in 3	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
54	rel. humidity controller: actual value recording - in 4	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
55	rel. humidity controller: Actual value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, humidity (%)
56	rel. humidity controller: actual value recording - error	Output	1 Bit	C	R	-	T	-	1-bit, boolean
57	rel. humidity controller: Setpoint	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, humidity (%)
58	rel. humidity controller: Set setpoint	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
59	rel. humidity controller: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
60	rel. humidity controller: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
61	rel. humidity controller: Output 1	Output	1 Bit	C	R	-	T	-	1-bit, switching
62	rel. humidity controller: Output 1	Output	2 Bit	C	R	-	T	-	1-bit, switch control
63	rel. humidity controller: Output 1 - Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
64	rel. humidity controller: Output 2	Output	1 Bit	C	R	-	T	-	1-bit, switching
65	rel. humidity controller: Output 2	Output	2 Bit	C	R	-	T	-	1-bit, switch control
66	rel. humidity controller: Output 2 - Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
67	rel. humidity controller: Output 3	Output	1 Bit	C	R	-	T	-	1-bit, switching
68	rel. humidity controller: Output 3	Output	2 Bit	C	R	-	T	-	1-bit, switch control
69	rel. humidity controller: Output 3 - Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
70	rel. humidity controller: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
71	rel. humidity controller: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
72	rel. humidity controller: Output	Output	1 Byte	C	R	-	T	-	scene number
73	rel. humidity controller: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
74	HUMCMP: Humidity comparator output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
75	HUMCMP: Absolute humidity value 1 [g/m3]	Input	2 Bytes	C	-	W	T	U	8-bit unsigned, percent (0..100%)

76	HUMCMP: Relative humidity value 1 [%]	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
77	HUMCMP: Temperature value 1 [°C]	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
78	HUMCMP: Absolute humidity value 2 [g/m3]	Input	2 Bytes	C	-	W	T	U	8-bit unsigned, percent (0..100%)
79	HUMCMP: Relative humidity value 2 [%]	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
80	HUMCMP: Temperature value 2 [°C]	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
81	Temperature sensor: Value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
82	Temperature sensor: Value request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
83	Temperature sensor: Malfunction	Output	1 Bit	C	R	-	T	-	1-bit, boolean
84	Temperature sensor: Min. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
85	Temperature sensor: Max. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
86	Temperature sensor: Min. max. request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
87	Temperature sensor: Min. max. reset	Input	1 Bit	C	-	W	-	-	1-bit, trigger
88	Temperature sensor: Threshold 1 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
89	Temperature sensor: Threshold 2 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
90	Temperature sensor: Calibration value	Input	2 Bytes	C	-	W	-	-	2-byte floating point value, temperature (°C)
91	Ext. temperature sensor: Value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
92	Ext. temperature sensor: Value request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
93	Ext. temperature sensor: Malfunction	Output	1 Bit	C	R	-	T	-	1-bit, boolean
94	Ext. temperature sensor: Min. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
95	Ext. temperature sensor: Max. value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)

96	Ext. temperature sensor: Min. max. request	Input	1 Bit	C	-	W	-	-	1-bit, trigger
97	Ext. temperature sensor: Min. max. reset	Input	1 Bit	C	-	W	-	-	1-bit, trigger
98	temperature sensor: Threshold 1 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
99	temperature sensor: Threshold 2 output	Output	1 Bit	C	R	-	T	-	1-bit, boolean
100	Ext. temperature sensor: Calibration value	Input	2 Bytes	C	-	W	-	-	2-byte floating point value, temperature (°C)
101	Temperature controller {{0}}: Request - HVAC mode	Input	1 Byte	C	-	W	T	U	1-byte, HVAC mode
102	Temperature controller {{0}}: Request - Comfort	Input	1 Bit	C	-	W	-	-	1-bit, trigger
103	Temperature controller {{0}}: Request - Eco	Input	1 Bit	C	-	W	-	-	1-bit, trigger
104	Temperature controller {{0}}: Request - Standby	Input	1 Bit	C	-	W	-	-	1-bit, trigger
105	Temperature controller {{0}}: Request - Off (Buildingprotection)	Input	1 Bit	C	-	W	-	-	1-bit, trigger
106	Temperature controller {{0}}: Status - resulting HVAC mode	Output	1 Byte	C	R	-	T	-	1-byte, HVAC mode
107	Temperature controller {{0}}: Status - RHCC	Output	2 Bytes	C	R	-	T	-	16-bit field, RHCC status
108	Temperature controller {{0}}: Status - Heating	Output	1 Bit	C	R	-	T	-	1-bit, boolean
109	Temperature controller {{0}}: Status - Cooling	Output	1 Bit	C	R	-	T	-	1-bit, boolean
110	Temperature controller {{0}}: Status - Heating/Cooling	Output	1 Bit	C	R	-	T	-	1-bit, heating / cooling
111	Temperature controller {{0}}: Heating/Cooling switch-over	Input	1 Bit	C	-	W	T	U	1-bit, heating / cooling
112	Temperature controller {{0}}: Setpoint	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)

113	Temperature controller {{0}}: Setpoint - Comfort heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
114	Temperature controller {{0}}: Setpoint - Comfort cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
115	Temperature controller {{0}}: Setpoint - rel. Comfort cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
116	Temperature controller {{0}}: Setpoint - rel. Eco heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
117	Temperature controller {{0}}: Setpoint - Eco heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
118	Temperature controller {{0}}: Setpoint - rel. Eco cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
119	Temperature controller {{0}}: Setpoint - Eco cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
120	Temperature controller {{0}}: Setpoint - rel. Standby heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
121	Temperature controller {{0}}: Setpoint - Standby heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
122	Temperature controller {{0}}: Setpoint - rel. Standby cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
123	Temperature controller {{0}}: Setpoint - Standby cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
124	Temperature controller {{0}}: Setpoint - Buildingprotection - Heatprotection	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
125	Temperature controller {{0}}: Setpoint - Buildingprotection - Frostprotection	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
126	Temperature controller {{0}}: Lock - heating	Input	1 Bit	C	-	W	-	-	1-bit, enable
127	Temperature controller {{0}}: Lock - cooling	Input	1 Bit	C	-	W	-	-	1-bit, enable
128	Temperature controller {{0}}: Actual value recording - in 1	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)

129	Temperature controller {{0}}: Actual value recording - in 2	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
130	Temperature controller {{0}}: Actual value recording - in 3	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
131	Temperature controller {{0}}: Actual value recording - in 4	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
132	Temperature controller {{0}}: Actual value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
133	Temperature controller {{0}}: Actual value recording - error	Output	1 Bit	C	R	-	T	-	1-bit, boolean
134	Temperature controller {{0}}: Main level heating - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
135	Temperature controller {{0}}: Main level heating - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
136	Temperature controller {{0}}: Main level heating - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
137	Temperature controller {{0}}: Main level heating - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
138	Temperature controller {{0}}: Main level heating - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
139	Temperature controller {{0}}: Main level heating - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
140	Temperature controller {{0}}: Extra level heating - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
141	Temperature controller {{0}}: Extra level heating - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
142	Temperature controller {{0}}: Extra level heating - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
143	Temperature controller {{0}}: Extra level heating - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
144	Temperature controller {{0}}: Extra level heating - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable

145	Temperature controller {{0}}: Extra level heating - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
146	Temperature controller {{0}}: Main level cooling - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
147	Temperature controller {{0}}: Main level cooling - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
148	Temperature controller {{0}}: Main level cooling - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
149	Temperature controller {{0}}: Main level cooling - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
150	Temperature controller {{0}}: Main level cooling - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
151	Temperature controller {{0}}: Main level cooling - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
152	Temperature controller {{0}}: Extra level cooling - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
153	Temperature controller {{0}}: Extra level cooling - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
154	Temperature controller {{0}}: Extra level cooling - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
155	Temperature controller {{0}}: Extra level cooling - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
156	Temperature controller {{0}}: Extra level cooling - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
157	Temperature controller {{0}}: Extra level cooling - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
158	Temperature controller {{0}}: Man. adjustment - reset	Input	1 Bit	C	-	W	-	-	1-bit, trigger
159	Temperature controller {{0}}: Man. adjustment - value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature difference (K)
160	Temperature controller {{0}}: Man. adjustment - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable

161	Temperature controller {{0}}: Event 1 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
162	Temperature controller {{0}}: Event 2 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
163	Temperature controller {{0}}: Event 3 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
164	Temperature controller {{0}}: Event 4 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
165	Temperature controller {{0}}: Event - scene	Input	1 Byte	C	-	W	-	-	scene number
166	Temperature controller {{0}}: Event - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
167	Temperature controller {{0}}: Party	Input	1 Bit	C	-	W	-	-	1-bit, start/stop
168	Temperature controller {{0}}: Request - HVAC mode	Input	1 Byte	C	-	W	T	U	1-byte, HVAC mode
169	Temperature controller {{0}}: Request - Comfort	Input	1 Bit	C	-	W	-	-	1-bit, trigger
170	Temperature controller {{0}}: Request - Eco	Input	1 Bit	C	-	W	-	-	1-bit, trigger
171	Temperature controller {{0}}: Request - Standby	Input	1 Bit	C	-	W	-	-	1-bit, trigger
172	Temperature controller {{0}}: Request - Off (Buildingprotection)	Input	1 Bit	C	-	W	-	-	1-bit, trigger
173	Temperature controller {{0}}: Status - resulting HVAC mode	Output	1 Byte	C	R	-	T	-	1-byte, HVAC mode
174	Temperature controller {{0}}: Status - RHCC	Output	2 Bytes	C	R	-	T	-	16-bit field, RHCC status
175	Temperature controller {{0}}: Status - Heating	Output	1 Bit	C	R	-	T	-	1-bit, boolean
176	Temperature controller {{0}}: Status - Cooling	Output	1 Bit	C	R	-	T	-	1-bit, boolean
177	Temperature controller {{0}}: Status - Heating/Cooling	Output	1 Bit	C	R	-	T	-	1-bit, heating / cooling
178	Temperature controller {{0}}: Heating/Cooling switch-over	Input	1 Bit	C	-	W	T	U	1-bit, heating / cooling

179	Temperature controller {{0}}: Setpoint	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
180	Temperature controller {{0}}: Setpoint - Comfort heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
181	Temperature controller {{0}}: Setpoint - Comfort cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
182	Temperature controller {{0}}: Setpoint - rel. Comfort cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
183	Temperature controller {{0}}: Setpoint - rel. Eco heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
184	Temperature controller {{0}}: Setpoint - Eco heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
185	Temperature controller {{0}}: Setpoint - rel. Eco cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
186	Temperature controller {{0}}: Setpoint - Eco cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
187	Temperature controller {{0}}: Setpoint - rel. Standby heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
188	Temperature controller {{0}}: Setpoint - Standby heating	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
189	Temperature controller {{0}}: Setpoint - rel. Standby cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature difference (K)
190	Temperature controller {{0}}: Setpoint - Standby cooling	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
191	Temperature controller {{0}}: Setpoint - Buildingprotection - Heatprotection	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
192	Temperature controller {{0}}: Setpoint - Buildingprotection - Frostprotection	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
193	Temperature controller {{0}}: Lock - heating	Input	1 Bit	C	-	W	-	-	1-bit, enable
194	Temperature controller {{0}}: Lock - cooling	Input	1 Bit	C	-	W	-	-	1-bit, enable

195	Temperature controller {{0}}: Actual value recording - in 1	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
196	Temperature controller {{0}}: Actual value recording - in 2	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
197	Temperature controller {{0}}: Actual value recording - in 3	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
198	Temperature controller {{0}}: Actual value recording - in 4	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
199	Temperature controller {{0}}: Actual value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
200	Temperature controller {{0}}: Actual value recording - error	Output	1 Bit	C	R	-	T	-	1-bit, boolean
201	Temperature controller {{0}}: Main level heating - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
202	Temperature controller {{0}}: Main level heating - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
203	Temperature controller {{0}}: Main level heating - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
204	Temperature controller {{0}}: Main level heating - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
205	Temperature controller {{0}}: Main level heating - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
206	Temperature controller {{0}}: Main level heating - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
207	Temperature controller {{0}}: Extra level heating - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
208	Temperature controller {{0}}: Extra level heating - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
209	Temperature controller {{0}}: Extra level heating - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
210	Temperature controller {{0}}: Extra level heating - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
211	Temperature controller {{0}}: Extra level heating - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable

212	Temperature controller {{0}}: Extra level heating - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
213	Temperature controller {{0}}: Main level cooling - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
214	Temperature controller {{0}}: Main level cooling - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
215	Temperature controller {{0}}: Main level cooling - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
216	Temperature controller {{0}}: Main level cooling - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
217	Temperature controller {{0}}: Main level cooling - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
218	Temperature controller {{0}}: Main level cooling - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
219	Temperature controller {{0}}: Extra level cooling - PWM	Output	1 Bit	C	R	-	T	-	1-bit, switching
220	Temperature controller {{0}}: Extra level cooling - control value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
221	Temperature controller {{0}}: Extra level cooling - lock object	Input	1 Bit	C	-	W	-	-	1-bit, enable
222	Temperature controller {{0}}: Extra level cooling - output	Output	1 Bit	C	R	-	T	-	1-bit, switching
223	Temperature controller {{0}}: Extra level cooling - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
224	Temperature controller {{0}}: Extra level cooling - Floor protection feedback temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
225	Temperature controller {{0}}: Man. adjustment - reset	Input	1 Bit	C	-	W	-	-	1-bit, trigger
226	Temperature controller {{0}}: Man. adjustment - value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature difference (K)
227	Temperature controller {{0}}: Man. adjustment - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable

228	Temperature controller {{0}}: Event 1 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
229	Temperature controller {{0}}: Event 2 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
230	Temperature controller {{0}}: Event 3 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
231	Temperature controller {{0}}: Event 4 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
232	Temperature controller {{0}}: Event - scene	Input	1 Byte	C	-	W	-	-	scene number
233	Temperature controller {{0}}: Event - lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
234	Temperature controller {{0}}: Party	Input	1 Bit	C	-	W	-	-	1-bit, start/stop
235	Dew point temperature: Value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
236	Dew point temperature: Request Value	Input	1 Bit	C	-	W	-	-	1-bit, trigger
237	Dew point temperature: External temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
238	Dew point temperature: external temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
239	Dew point alarm: Output	Output	1 Bit	C	-	W	T	U	1-bit, switching
240	Dew point alarm: Output	Output	2 Bit	C	R	-	T	-	1-bit, switch control
241	Dew point alarm: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
242	Dew point alarm: Output	Output	1 Byte	C	R	-	T	-	8-bit signed, count pulses (0..255)
243	Dew point alarm: Output	Output	2 Bytes	C	R	-	T	-	2-byte signed
244	Dew point alarm: Output	Output	4 Bytes	C	R	-	T	-	4-byte signed
245	Dew point alarm: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
246	Dew point alarm: Output	Output	2 Bytes	C	R	-	T	-	2-byte unsigned
247	Dew point alarm: Output	Output	4 Bytes	C	R	-	T	-	4-byte unsigned
248	Dew point alarm: Output	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
249	Dew point alarm: Output	Output	1 Byte	C	R	-	T	-	scene number
250	Dew point alarm: Error	Output	1 Bit	C	R	-	T	-	1-bit, boolean
251	Heatindex temperature: Value	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
252	Heatindex temperature: Request Value	Input	1 Bit	C	-	W	-	-	1-bit, trigger

253	Heatindex temperature: External temperature	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
254	Heatindex temperature: External rel. humidity	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, humidity (%)
255	Heatindex alarm: Output	Output	1 Bit	C	-	W	T	U	1-bit, switching
256	Heatindex alarm: Output	Output	2 Bit	C	R	-	T	-	1-bit, switch control
257	Heatindex alarm: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
258	Heatindex alarm: Output	Output	1 Byte	C	R	-	T	-	8-bit signed, count pulses (0..255)
259	Heatindex alarm: Output	Output	2 Bytes	C	R	-	T	-	2-byte signed
260	Heatindex alarm: Output	Output	4 Bytes	C	R	-	T	-	4-byte signed
261	Heatindex alarm: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
262	Heatindex alarm: Output	Output	2 Bytes	C	R	-	T	-	2-byte unsigned
263	Heatindex alarm: Output	Output	4 Bytes	C	R	-	T	-	4-byte unsigned
264	Heatindex alarm: Output	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
265	Heatindex alarm: Output	Output	1 Byte	C	R	-	T	-	scene number
266	Heatindex alarm: Error	Output	1 Bit	C	R	-	T	-	1-bit, boolean
267	P: Sensor error	Output	1 Bit	C	R	-	T	-	1-bit, boolean
268	P: Air pressure absolute [Pa]	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, pressure (Pa)
269	P: Request absolute Air pressure	Input	1 Bit	C	-	W	-	-	1-bit, trigger
270	P: Air pressure relative [Pa]	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, pressure (Pa)
271	P: Request relative Air pressure	Input	1 Bit	C	-	W	-	-	1-bit, trigger
272	VAV controller: Set 1 - external object	Input	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
273	VAV controller: Enable set 2	Input	1 Bit	C	-	W	-	-	1-bit, enable
274	VAV controller: Set 2 - external object	Input	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
275	VAV controller: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
276	VAV controller: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
277	External input {{0}}: on activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
278	External input {{0}}: long activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
279	External input {{0}}: short activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
280	External input {{0}}: continuous activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger

281	External input {{0}}: on disactivation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
282	External input {{0}}: state	Output	1 Bit	C	R	-	T	-	1-bit, boolean
283	External input {{0}}: on activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
284	External input {{0}}: long activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
285	External input {{0}}: short activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
286	External input {{0}}: continuous activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
287	External input {{0}}: on disactivation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
288	External input {{0}}: state	Output	1 Bit	C	R	-	T	-	1-bit, boolean
289	External input {{0}}: on activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
290	External input {{0}}: long activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
291	External input {{0}}: short activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
292	External input {{0}}: continuous activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
293	External input {{0}}: on disactivation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
294	External input {{0}}: state	Output	1 Bit	C	R	-	T	-	1-bit, boolean
295	External input {{0}}: on activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
296	External input {{0}}: long activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
297	External input {{0}}: short activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
298	External input {{0}}: continuous activation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
299	External input {{0}}: on disactivation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
300	External input {{0}}: state	Output	1 Bit	C	R	-	T	-	1-bit, boolean
301	Output {{0}}: Current voltage level	Output	4 Bytes	C	R	-	T	-	4-byte floating point value, electric potential (V)
302	Output {{0}}: Value input	Input	1 Bit	C	-	W	T	U	1-bit, boolean
303	Output {{0}}: Value input	Input	1 Byte	C	-	W	-	-	scene number
304	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
305	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit signed, count pulses (0..255)

306	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte signed
307	Output {{0}}: Value input	Input	4 Bytes	C	-	W	T	U	4-byte signed
308	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit unsigned, count pulses (0..255)
309	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte unsigned
310	Output {{0}}: Value input	Input	4 Bytes	C	-	W	T	U	4-byte unsigned
311	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
312	Output {{0}}: Malfunction	Output	1 Bit	C	R	-	T	-	1-bit, boolean
313	Output {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
314	Output {{0}}: Current voltage level	Output	4 Bytes	C	R	-	T	-	4-byte floating point value, electric potential (V)
315	Output {{0}}: Value input	Input	1 Bit	C	-	W	T	U	1-bit, boolean
316	Output {{0}}: Value input	Input	1 Byte	C	-	W	-	-	scene number
317	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
318	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit signed, count pulses (0..255)
319	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte signed
320	Output {{0}}: Value input	Input	4 Bytes	C	-	W	T	U	4-byte signed
321	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit unsigned, count pulses (0..255)
322	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte unsigned
323	Output {{0}}: Value input	Input	4 Bytes	C	-	W	T	U	4-byte unsigned
324	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
325	Output {{0}}: Malfunction	Output	1 Bit	C	R	-	T	-	1-bit, boolean
326	Output {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
327	Output {{0}}: Current voltage level	Output	4 Bytes	C	R	-	T	-	4-byte floating point value, electric potential (V)
328	Output {{0}}: Value input	Input	1 Bit	C	-	W	T	U	1-bit, boolean
329	Output {{0}}: Value input	Input	1 Byte	C	-	W	-	-	scene number
330	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
331	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit signed, count pulses (0..255)
332	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte signed
333	Output {{0}}: Value input	Input	4 Bytes	C	-	W	T	U	4-byte signed
334	Output {{0}}: Value input	Input	1 Byte	C	-	W	T	U	8-bit unsigned, count pulses (0..255)
335	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte unsigned
336	Output {{0}}: Value input	Input	4 Bytes	C	-	W	T	U	4-byte unsigned
337	Output {{0}}: Value input	Input	2 Bytes	C	-	W	T	U	2-byte floating point value, temperature (°C)
338	Output {{0}}: Malfunction	Output	1 Bit	C	R	-	T	-	1-bit, boolean
339	Output {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable

340	Switch {{0}}: Event 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
341	Switch {{0}}: Event 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger
342	Switch {{0}}: Scene input	Input	1 Byte	C	-	W	-	-	scene number
343	Switch {{0}}: Switchobject	Output	1 Bit	C	-	W	T	U	1-bit, switching
344	Switch {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
345	Switch {{0}}: Event 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
346	Switch {{0}}: Event 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger
347	Switch {{0}}: Scene input	Input	1 Byte	C	-	W	-	-	scene number
348	Switch {{0}}: Switchobject	Output	1 Bit	C	-	W	T	U	1-bit, switching
349	Switch {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
350	Dimmer {{0}}: Switching	Output	1 Bit	C	R	-	T	-	1-bit, switching
351	Dimmer {{0}}: Switching Feedback	Input	1 Bit	C	-	W	-	-	1-bit, switching
352	Dimmer {{0}}: Brightness and Temperature	Output	3 Bytes	C	R	-	T	-	3-byte brightness and color temperature control
353	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
354	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
355	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
356	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
357	Dimmer {{0}}: Red colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
358	Dimmer {{0}}: Green colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
359	Dimmer {{0}}: Blue colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
360	Dimmer {{0}}: Hue	Output	1 Byte	C	-	-	T	-	8-bit angle (0..360°)
361	Dimmer {{0}}: Saturation	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
362	Dimmer {{0}}: Brightness Value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
363	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
364	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
365	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
366	Dimmer {{0}}: Combined RGB value	Output	3 Bytes	C	R	-	T	-	3-byte RGB color control
367	Dimmer {{0}}: Combined RGBW value	Output	6 Bytes	C	R	-	T	-	6-byte RGBW color control
368	Dimmer {{0}}: External Object 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
369	Dimmer {{0}}: External Object 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger

370	Dimmer {{0}}: External Object 3	Input	1 Bit	C	-	W	-	-	1-bit, trigger
371	Dimmer {{0}}: External Object 4	Input	1 Bit	C	-	W	-	-	1-bit, trigger
372	Dimmer {{0}}: Scene	Input	1 Byte	C	-	W	-	-	scene number
373	Dimmer {{0}}: Red colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
374	Dimmer {{0}}: Green colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
375	Dimmer {{0}}: Blue colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
376	Dimmer {{0}}: Hue Feedback	Output	1 Byte	C	-	W	-	-	8-bit angle (0..360°)
377	Dimmer {{0}}: Saturation Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
378	Dimmer {{0}}: Brightness Value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
379	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
380	Dimmer {{0}}: Combined RGB value Feedback	Output	3 Bytes	C	-	W	T	U	3-byte RGB color control
381	Dimmer {{0}}: Combined RGBW value Feedback	Output	6 Bytes	C	-	W	-	-	6-byte RGBW color control
382	Dimmer {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
383	Dimmer {{0}}: Switching	Output	1 Bit	C	R	-	T	-	1-bit, switching
384	Dimmer {{0}}: Switching Feedback	Input	1 Bit	C	-	W	-	-	1-bit, switching
385	Dimmer {{0}}: Brightness and Temperature	Output	3 Bytes	C	R	-	T	-	3-byte brightness and color temperature control
386	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
387	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
388	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
389	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
390	Dimmer {{0}}: Red colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
391	Dimmer {{0}}: Green colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
392	Dimmer {{0}}: Blue colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
393	Dimmer {{0}}: Hue	Output	1 Byte	C	-	-	T	-	8-bit angle (0..360°)
394	Dimmer {{0}}: Saturation	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
395	Dimmer {{0}}: Brightness Value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)

396	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
397	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
398	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
399	Dimmer {{0}}: Combined RGB value	Output	3 Bytes	C	R	-	T	-	3-byte RGB color control
400	Dimmer {{0}}: Combined RGBW value	Output	6 Bytes	C	R	-	T	-	6-byte RGBW color control
401	Dimmer {{0}}: External Object 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
402	Dimmer {{0}}: External Object 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger
403	Dimmer {{0}}: External Object 3	Input	1 Bit	C	-	W	-	-	1-bit, trigger
404	Dimmer {{0}}: External Object 4	Input	1 Bit	C	-	W	-	-	1-bit, trigger
405	Dimmer {{0}}: Scene	Input	1 Byte	C	-	W	-	-	scene number
406	Dimmer {{0}}: Red colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
407	Dimmer {{0}}: Green colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
408	Dimmer {{0}}: Blue colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
409	Dimmer {{0}}: Hue Feedback	Output	1 Byte	C	-	W	-	-	8-bit angle (0..360°)
410	Dimmer {{0}}: Saturation Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
411	Dimmer {{0}}: Brightness Value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
412	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
413	Dimmer {{0}}: Combined RGB value Feedback	Output	3 Bytes	C	-	W	T	U	3-byte RGB color control
414	Dimmer {{0}}: Combined RGBW value Feedback	Output	6 Bytes	C	-	W	-	-	6-byte RGBW color control
415	Dimmer {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
416	Dimmer {{0}}: Switching	Output	1 Bit	C	R	-	T	-	1-bit, switching
417	Dimmer {{0}}: Switching Feedback	Input	1 Bit	C	-	W	-	-	1-bit, switching
418	Dimmer {{0}}: Brightness and Temperature	Output	3 Bytes	C	R	-	T	-	3-byte brightness and color temperature control
419	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming

420	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
421	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
422	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
423	Dimmer {{0}}: Red colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
424	Dimmer {{0}}: Green colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
425	Dimmer {{0}}: Blue colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
426	Dimmer {{0}}: Hue	Output	1 Byte	C	-	-	T	-	8-bit angle (0..360°)
427	Dimmer {{0}}: Saturation	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
428	Dimmer {{0}}: Brightness Value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
429	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
430	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
431	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
432	Dimmer {{0}}: Combined RGB value	Output	3 Bytes	C	R	-	T	-	3-byte RGB color control
433	Dimmer {{0}}: Combined RGBW value	Output	6 Bytes	C	R	-	T	-	6-byte RGBW color control
434	Dimmer {{0}}: External Object 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
435	Dimmer {{0}}: External Object 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger
436	Dimmer {{0}}: External Object 3	Input	1 Bit	C	-	W	-	-	1-bit, trigger
437	Dimmer {{0}}: External Object 4	Input	1 Bit	C	-	W	-	-	1-bit, trigger
438	Dimmer {{0}}: Scene	Input	1 Byte	C	-	W	-	-	scene number
439	Dimmer {{0}}: Red colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
440	Dimmer {{0}}: Green colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
441	Dimmer {{0}}: Blue colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
442	Dimmer {{0}}: Hue Feedback	Output	1 Byte	C	-	W	-	-	8-bit angle (0..360°)
443	Dimmer {{0}}: Saturation Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
444	Dimmer {{0}}: Brightness Value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
445	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)

446	Dimmer {{0}}: Combined RGB value Feedback	Output	3 Bytes	C	-	W	T	U	3-byte RGB color control
447	Dimmer {{0}}: Combined RGBW value Feedback	Output	6 Bytes	C	-	W	-	-	6-byte RGBW color control
448	Dimmer {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
449	Dimmer {{0}}: Switching	Output	1 Bit	C	R	-	T	-	1-bit, switching
450	Dimmer {{0}}: Switching Feedback	Input	1 Bit	C	-	W	-	-	1-bit, switching
451	Dimmer {{0}}: Brightness and Temperature	Output	3 Bytes	C	R	-	T	-	3-byte brightness and color temperature control
452	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
453	Dimmer {{0}}: Brightness change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
454	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
455	Dimmer {{0}}: Temperature change	Output	4 Bit	C	-	-	T	-	3-bit, dimming
456	Dimmer {{0}}: Red colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
457	Dimmer {{0}}: Green colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
458	Dimmer {{0}}: Blue colour value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
459	Dimmer {{0}}: Hue	Output	1 Byte	C	-	-	T	-	8-bit angle (0..360°)
460	Dimmer {{0}}: Saturation	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
461	Dimmer {{0}}: Brightness Value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
462	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
463	Dimmer {{0}}: White value	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
464	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
465	Dimmer {{0}}: Combined RGB value	Output	3 Bytes	C	R	-	T	-	3-byte RGB color control
466	Dimmer {{0}}: Combined RGBW value	Output	6 Bytes	C	R	-	T	-	6-byte RGBW color control
467	Dimmer {{0}}: External Object 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
468	Dimmer {{0}}: External Object 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger
469	Dimmer {{0}}: External Object 3	Input	1 Bit	C	-	W	-	-	1-bit, trigger
470	Dimmer {{0}}: External Object 4	Input	1 Bit	C	-	W	-	-	1-bit, trigger
471	Dimmer {{0}}: Scene	Input	1 Byte	C	-	W	-	-	scene number
472	Dimmer {{0}}: Red colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)

473	Dimmer {{0}}: Green colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
474	Dimmer {{0}}: Blue colour value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
475	Dimmer {{0}}: Hue Feedback	Output	1 Byte	C	-	W	-	-	8-bit angle (0..360°)
476	Dimmer {{0}}: Saturation Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
477	Dimmer {{0}}: Brightness Value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
478	Dimmer {{0}}: White value Feedback	Output	1 Byte	C	-	W	T	U	8-bit unsigned, percent (0..100%)
479	Dimmer {{0}}: Combined RGB value Feedback	Output	3 Bytes	C	-	W	T	U	3-byte RGB color control
480	Dimmer {{0}}: Combined RGBW value Feedback	Output	6 Bytes	C	-	W	-	-	6-byte RGBW color control
481	Dimmer {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
482	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down
483	Shutter {{0}}: Stop operation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
484	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down
485	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
486	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
487	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
488	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
489	Shutter {{0}}: Object scene	Input	1 Byte	C	-	W	-	-	scene number
490	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
491	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down
492	Shutter {{0}}: Stop operation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
493	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down
494	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
495	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
496	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
497	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
498	Shutter {{0}}: Object scene	Input	1 Byte	C	-	W	-	-	scene number
499	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
500	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down

501	Shutter {{0}}: Stop operation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
502	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down
503	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
504	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
505	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
506	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
507	Shutter {{0}}: Object scene	Input	1 Byte	C	-	W	-	-	scene number
508	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
509	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down
510	Shutter {{0}}: Stop operation	Output	1 Bit	C	-	-	T	-	1-bit, trigger
511	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T	-	1-bit, up/down
512	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
513	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
514	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
515	Shutter {{0}}: External object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
516	Shutter {{0}}: Object scene	Input	1 Byte	C	-	W	-	-	scene number
517	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
518	Value {{0}}: Output	Output	1 Bit	C	-	W	T	U	1-bit, switching
519	Value {{0}}: Output	Output	2 Bit	C	R	-	T	-	1-bit, switch control
520	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
521	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit signed, count pulses (0..255)
522	Value {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte signed
523	Value {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte signed
524	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
525	Value {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte unsigned
526	Value {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte unsigned
527	Value {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
528	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	scene number
529	Value {{0}}: External Object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
530	Value {{0}}: External Object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
531	Value {{0}}: Scene	Input	1 Byte	C	-	W	-	-	scene number
532	Value {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
533	Value {{0}}: Output	Output	1 Bit	C	-	W	T	U	1-bit, switching
534	Value {{0}}: Output	Output	2 Bit	C	R	-	T	-	1-bit, switch control

535	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
536	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit signed, count pulses (0..255)
537	Value {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte signed
538	Value {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte signed
539	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
540	Value {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte unsigned
541	Value {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte unsigned
542	Value {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
543	Value {{0}}: Output	Output	1 Byte	C	R	-	T	-	scene number
544	Value {{0}}: External Object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
545	Value {{0}}: External Object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
546	Value {{0}}: Scene	Input	1 Byte	C	-	W	-	-	scene number
547	Value {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
548	Scene {{0}}: Output	Output	1 Byte	C	-	-	T	-	1-byte, scene control
549	Scene {{0}}: event 1 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
550	Scene {{0}}: event 2 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
551	Scene {{0}}: event 3 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
552	Scene {{0}}: event 4 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
553	Scene {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
554	Scene {{0}}: Output	Output	1 Byte	C	-	-	T	-	1-byte, scene control
555	Scene {{0}}: event 1 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
556	Scene {{0}}: event 2 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
557	Scene {{0}}: event 3 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
558	Scene {{0}}: event 4 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
559	Scene {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
560	Repeated Function {{0}}: Step 1	Output	1 Bit	C	-	W	T	U	1-bit, switching

561	Repeated Function {{0}}: Step 2	Output	1 Bit	C	-	W	T	U	1-bit, switching
562	Repeated Function {{0}}: Step 3	Output	1 Bit	C	-	W	T	U	1-bit, switching
563	Repeated Function {{0}}: Step 4	Output	1 Bit	C	-	W	T	U	1-bit, switching
564	Repeated Function {{0}}: External Object 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
565	Repeated Function {{0}}: External Object 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger
566	Repeated Function {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
567	Repeated Function {{0}}: Step 1	Output	1 Bit	C	-	W	T	U	1-bit, switching
568	Repeated Function {{0}}: Step 2	Output	1 Bit	C	-	W	T	U	1-bit, switching
569	Repeated Function {{0}}: Step 3	Output	1 Bit	C	-	W	T	U	1-bit, switching
570	Repeated Function {{0}}: Step 4	Output	1 Bit	C	-	W	T	U	1-bit, switching
571	Repeated Function {{0}}: External Object 1	Input	1 Bit	C	-	W	-	-	1-bit, trigger
572	Repeated Function {{0}}: External Object 2	Input	1 Bit	C	-	W	-	-	1-bit, trigger
573	Repeated Function {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
574	Logic {{0}}: Activation event 1 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
575	Logic {{0}}: Reset event 1 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
576	Logic {{0}}: Activation event 2 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
577	Logic {{0}}: Reset event 2 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
578	Logic {{0}}: Activation event 3 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
579	Logic {{0}}: Reset event 3 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
580	Logic {{0}}: Activation event 4 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
581	Logic {{0}}: Reset event 4 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
582	Logic {{0}}: Binary output	Output	1 Bit	C	R	-	T	-	1-bit, switching
583	Logic {{0}}: 8-bit output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)

584	Logic {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
585	Logic {{0}}: Activation event 1 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
586	Logic {{0}}: Reset event 1 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
587	Logic {{0}}: Activation event 2 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
588	Logic {{0}}: Reset event 2 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
589	Logic {{0}}: Activation event 3 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
590	Logic {{0}}: Reset event 3 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
591	Logic {{0}}: Activation event 4 external object	Input	1 Bit	C	-	W	-	-	1-bit, switching
592	Logic {{0}}: Reset event 4 external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
593	Logic {{0}}: Binary output	Output	1 Bit	C	R	-	T	-	1-bit, switching
594	Logic {{0}}: 8-bit output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
595	Logic {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
596	Timer {{0}}: State	Output	1 Bit	C	R	-	T	-	1-bit, boolean
597	Timer {{0}}: Event	Output	1 Bit	C	-	W	T	U	1-bit, switching
598	Timer {{0}}: Timer time	Input	2 Bytes	C	-	W	T	U	2-byte unsigned, time period (min)
599	Timer {{0}}: Event 1 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
600	Timer {{0}}: Event 2 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
601	Timer {{0}}: Event 3 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
602	Timer {{0}}: Event 4 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
603	Timer {{0}}: Scene input	Input	1 Byte	C	-	W	-	-	scene number
604	Timer {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
605	Timer {{0}}: State	Output	1 Bit	C	R	-	T	-	1-bit, boolean
606	Timer {{0}}: Event	Output	1 Bit	C	-	W	T	U	1-bit, switching

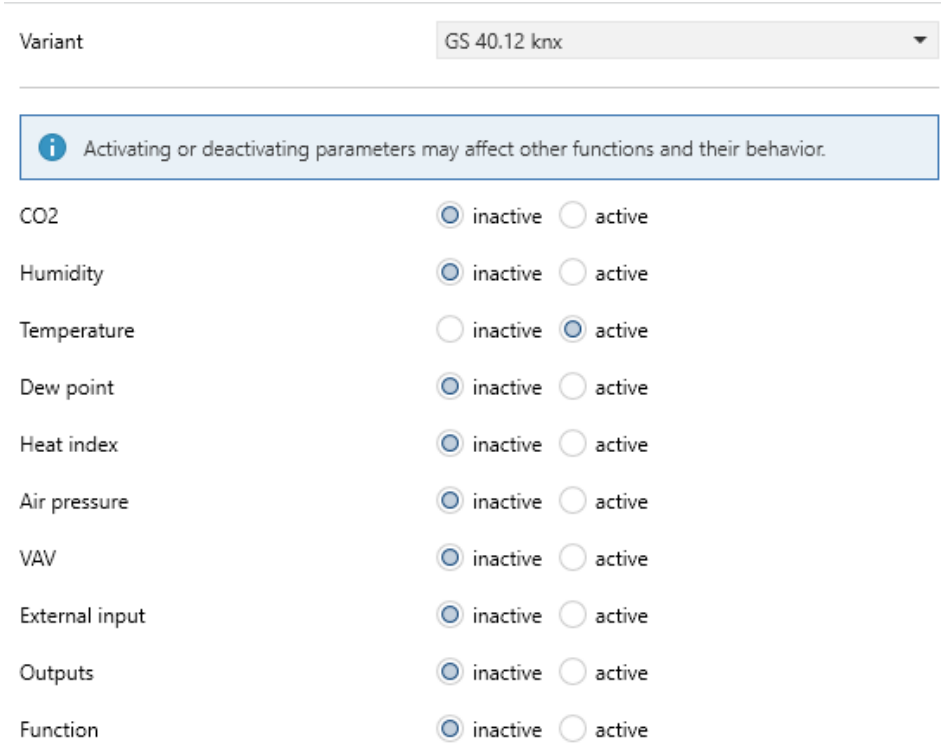
607	Timer {{0}}: Timer time	Input	2 Bytes	C	-	W	T	U	2-byte unsigned, time period (min)
608	Timer {{0}}: Event 1 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
609	Timer {{0}}: Event 2 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
610	Timer {{0}}: Event 3 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
611	Timer {{0}}: Event 4 - external object	Input	1 Bit	C	-	W	-	-	1-bit, trigger
612	Timer {{0}}: Scene input	Input	1 Byte	C	-	W	-	-	scene number
613	Timer {{0}}: Blocking object	Input	1 Bit	C	-	W	-	-	1-bit, enable
614	Time function {{0}}: Output	Output	1 Bit	C	R	-	T	-	1-bit, switching
615	Time function {{0}}: Output	Output	2 Bit	C	R	-	T	-	1-bit, switch control
616	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
617	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit signed, count pulses (0..255)
618	Time function {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte signed
619	Time function {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte signed
620	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
621	Time function {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte unsigned
622	Time function {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte unsigned
623	Time function {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)
624	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	scene number
625	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	1-byte, HVAC mode
626	Time function {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable
627	Time function {{0}}: Output	Output	1 Bit	C	R	-	T	-	1-bit, switching
628	Time function {{0}}: Output	Output	2 Bit	C	R	-	T	-	1-bit, switch control
629	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, percent (0..100%)
630	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit signed, count pulses (0..255)
631	Time function {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte signed
632	Time function {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte signed
633	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	8-bit unsigned, count pulses (0..255)
634	Time function {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte unsigned
635	Time function {{0}}: Output	Output	4 Bytes	C	R	-	T	-	4-byte unsigned
636	Time function {{0}}: Output	Output	2 Bytes	C	R	-	T	-	2-byte floating point value, temperature (°C)

637	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	scene number
638	Time function {{0}}: Output	Output	1 Byte	C	R	-	T	-	1-byte, HVAC mode
639	Time function {{0}}: Lock	Input	1 Bit	C	-	W	-	-	1-bit, enable

Communication flags

Flag	Name	Bedeutung
C	Communication	Object can communicate
R	Read	Object status can be read (e.g. via ETS or display)
W	Write	Object can receive values
T	Transmit	Object can send values
U	Update	Object can request a value from another bus device. The response is interpreted as a write command and updates the value of the communication object. Typically used to request current values from external sensors after bus voltage recovery.

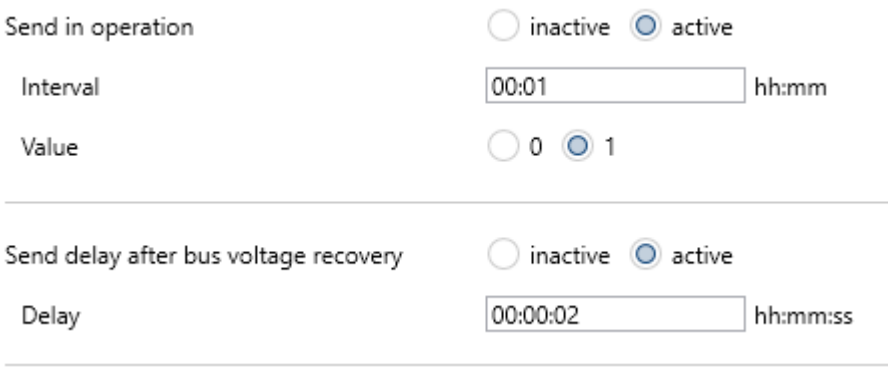
1. Configuration



Description	Optionsen	Description
Variant	GS 40.12 knx GS 41.12 knx GS 30.12 knx GS 31.12 knx TS 30.12 knx TS 31.12 knx	The variant selection defines which device variant is to be configured. Important: If an incorrect variant is selected, the device cannot be operated properly. In this case, the ETS configuration must be checked and the correct variant must be selected. Activating or deactivating functions will show or hide the corresponding parameters and may affect other functions and their behavior. If no application is loaded, the LED on the back of the device flashes slowly.

Description	Options	Description
CO2	Inactive active	In this settings overview, only the functions that are actually required for the respective project can be specifically activated. By activating a desired function (e.g. “Temperature” or “VAV controller”), the corresponding parameterization area is displayed in the left-hand menu of the application program. Deactivated functions do not appear in the parameter structure and are not taken into account during commissioning. This selective activation ensures: A clearer parameterization in ETS, A reduced bus load, as unnecessary communication objects are omitted. It should be noted that if a previously activated function is deactivated afterwards, existing links (group addresses) of this function must be removed or checked. It must also be ensured that activated functions are fully parameterized. Functions that are activated but not parameterized may operate with default values and may therefore lead to unintended system behavior.
Relative humidity	Inactive active	
Temperature	Inactive active	
Dew point	Inactive active	
Heat index	Inactive active	
Air pressure	Inactive active	
VAV controller	Inactive active	
Functions	Inactive active	
External inputs	Inactive active	
Outputs	Inactive active	

2. General commands



Description	Options	Description
Send on operation	Inactive Send ‘0’ Send ‘1’	No reaction In operation” (0 or 1) is sent cyclically at an adjustable interval (see parameter below).
Interval	1 min – 24 h	Setting of the transmission interval for sending the “In operation” status
Value	0 / 1	The parameter “Value” defines which value (0 or 1) is cyclically sent on the KNX bus during the “Send on operation” function.
Send delay after bus voltage recovery in … s	1 sek – 1 h	Setting of the transmission delay after a bus voltage recovery in seconds

3. CO_2 sensor

CO2 sensor	○ inactive ◉ active
Offset value	0 ppm
Send value on change	○ inactive ◉ active
Threshold	100 ppm
Send value cyclically	○ inactive ◉ active
Interval	00:01 hh:mm
Sensor error	○ don't notify ◉ notify
Min/max recording	○ inactive ◉ active
Send min/max values on change	○ inactive ◉ active
Threshold	100 ppm
Send min/max values cyclically	○ inactive ◉ active
Interval	00:01 hh:mm
Thresholds	○ inactive ◉ active
Threshold 1	◉ inactive ○ active
Threshold 2	◉ inactive ○ active
Air pressure compensation of CO2 sensor	compensation with internal air pressure value

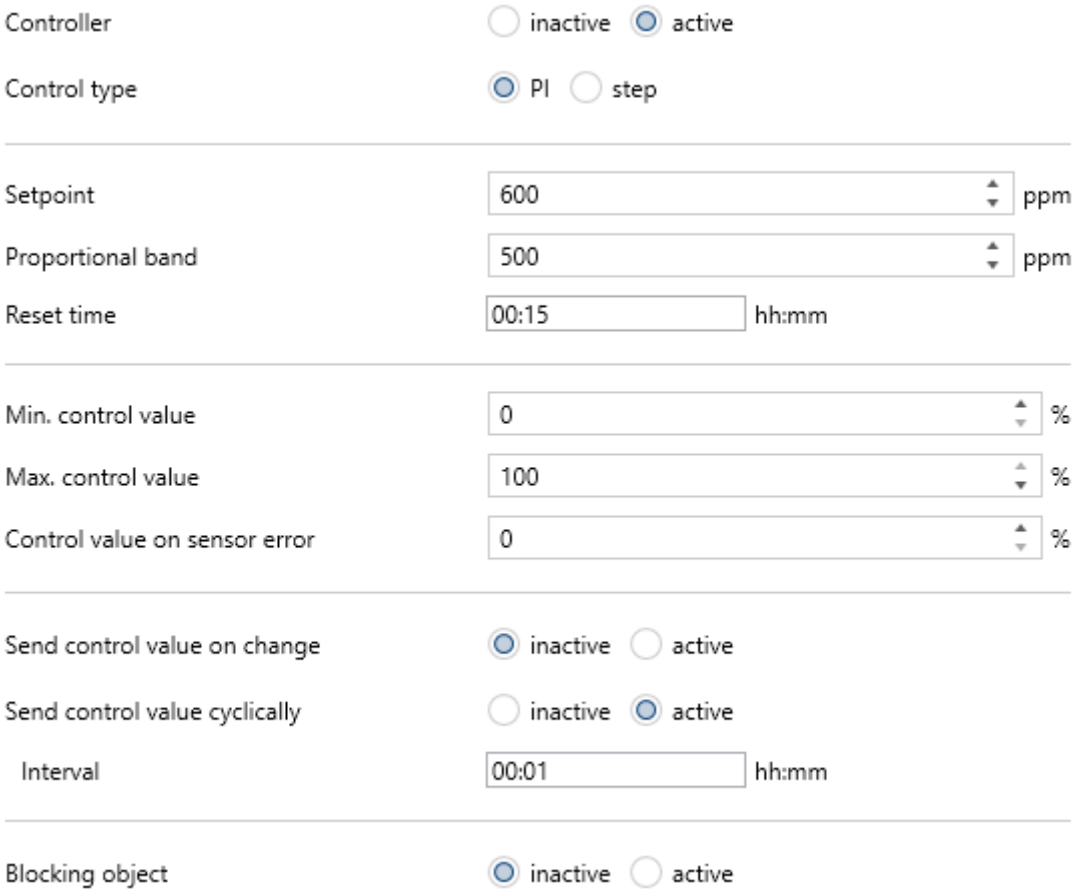
Description	Options	Description
CO_2 Sensor	Inactive Active	No function CO_2 sensor active.
Offset value	-500 ppm to 500 ppm	The offset value of the CO_2 sensor allows adjustment of the measured value within a range of -500 to +500 ppm. The measured CO_2 value is corrected by this offset to compensate for measurement inaccuracies.
Send value on change	Inactive on change by10 ppm to 500 ppm	No function When this function is activated, the currently measured CO_2 value is sent to the bus as soon as it changes by the configured threshold. The threshold defines the minimum change in ppm (parts per million) required for the value to be transmitted. The threshold can be set within a range of 10 ppm to 500 ppm.
Send value cyclically	Inactive 1 min – 24 h	No function This function allows the measured CO_2 value to be sent automatically to the bus at regular intervals. Cyclic transmission ensures that current measured values are continuously transmitted regardless of changes, providing a reliable data basis for the system. The transmission interval can be configured flexibly. Time intervals from 1 minute up to once per day are available.
Sensor error	notify don´t notify	A sensor failure is reported if the CO_2 sensor does not send any new values for more than 10 minutes. No sensor error is reported.
Min/max recording	Inactive On change by10 ppm to 500 ppm Send cyclically 1 min – 24 h	No function The current CO_2 value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new min/max value is sent to the KNX bus. The change threshold can be set by the user within a range of 10 ppm to 500 ppm. In addition, the min/max values can be sent cyclically to the KNX bus at a configurable interval (1 min to 24 h), independently of this.
Thresholds Threshold X Value Switching command above Threshold X Switching command below Threshold X Hysteresis Send value on change Send cyclically	Inactive 450…5000 ppm Off On Off On 50…300 ppm Inactive Active 1 min – 24 h	The threshold function is deactivated. Defines the CO_2 limit value that is used as the basis for the switching commands. Specifies which switching value is sent when the CO_2 value is above the defined threshold. Specifies which switching value is sent when the CO_2 value is below the defined threshold. Defines a tolerance range to prevent frequent switching when the CO_2 value fluctuates. Sends the switching state as soon as the CO_2 value exceeds or falls below the defined threshold. Activates the regular transmission of the CO_2 value.

Air pressure compensation of the CO_2 sensor	No compensation	No additional compensation: The air pressure is calculated using the standard value of 1.013 mbar.
	Compensation using internal air pressure value	Internal air pressure sensor: The sensor uses an integrated air pressure sensor to automatically adapt to the environmental conditions at the installation site.
	Compensation using external air pressure value	External air pressure sensor: Compensation is carried out using an external absolute air pressure value provided via a communication object.
	Compensation via altitude: (0 m to 5000 m above sea level)	Altitude-based compensation: The air pressure is calculated based on the specified altitude above sea level of the installation location.

4. CO2 controller

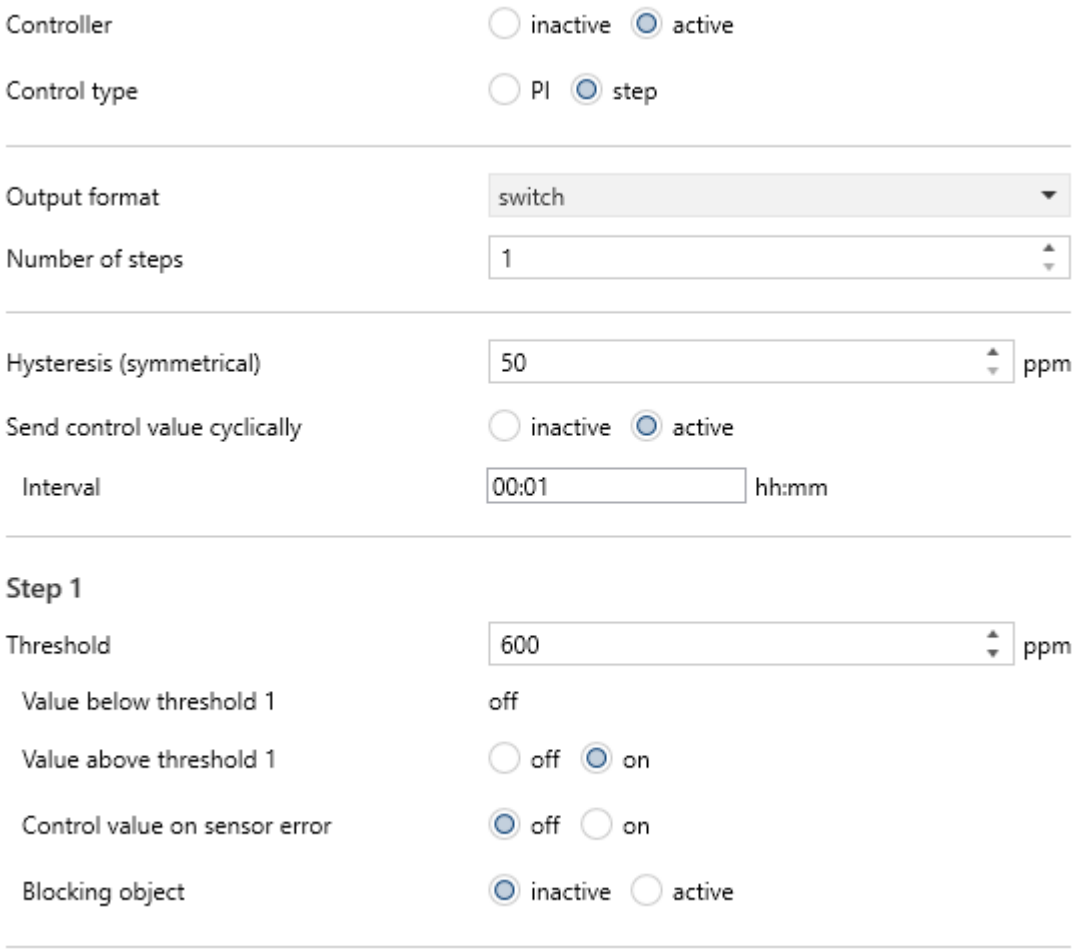
Description	Options	Description
CO_2 controller type	PI Step	The CO_2 controller can operate as a single-stage, two-stage, three-stage, or PI controller. In single-stage mode, a single switching threshold is defined; when this threshold is exceeded or not reached, a corresponding control value is output (see section 4.1). The two-stage controller allows the definition of two switching thresholds for more refined control, while the three-stage controller uses three switching thresholds for even finer gradation. The PI controller operates continuously with proportional-integral control behavior and adjusts the control value precisely to the measured values. The configurable parameters for the PI controller are described in section 4.2.

4.1 PI-controller CO2



Description	Options	Description
Setpoint	450 ppm to 5000 ppm	Adjustment of the setpoint
Proportional band	100 ppm to 2000 ppm	The PI controller for CO_2 has an adjustable proportional band ranging from 100 ppm to 2000 ppm. This means that within this range, the controller output responds proportionally to the deviation of the CO_2 value from the setpoint. A smaller proportional band (e.g. 100 ppm) results in a stronger control response to small deviations, while a larger proportional band (e.g. 2000 ppm) provides a smoother adjustment.
Reset time	0 min. to 24h	The reset time of the PI controller for CO_2 can be adjusted within a range of 15 minutes to 240 minutes. This means that the integral component of the controller gradually compensates for the control deviation within this time period. A shorter reset time (e.g. 15 minutes) results in a faster correction but may lead to stronger fluctuations. A longer reset time (e.g. 240 minutes) provides a slower but more stable adjustment and is particularly advantageous in systems with high inertia.
Min. control value	0% to 100%	The minimum control value, adjustable in the range of 0% to 95%, defines the lowest limit to which the controller output is restricted, even if the CO_2 value is below the setpoint or no control deviation exists (e.g. minimum air supply).
Max. control value	0% to 100%	The maximum control value, adjustable in the range of 5% to 100%, defines the highest level to which the controller output can rise when CO_2 control is required.
Control value on sensor error	0% to 100%	Adjustment of the control value in case of sensor error
Send control value on change	Value 1…100%	The control value is sent when a change occurs. Transmission only takes place if the calculated control value differs from the previous value.
Send control value cyclically	Interval 1 min – 24 h	The control value can be sent cyclically, with the interval adjustable between 1 min and 24 h.
Blocking object Behavior when blocking	Inactive Active Don´t send Send value Value 0…100%	No function When the lock is activated, no control value is sent. When the lock is activated, a defined value is sent.

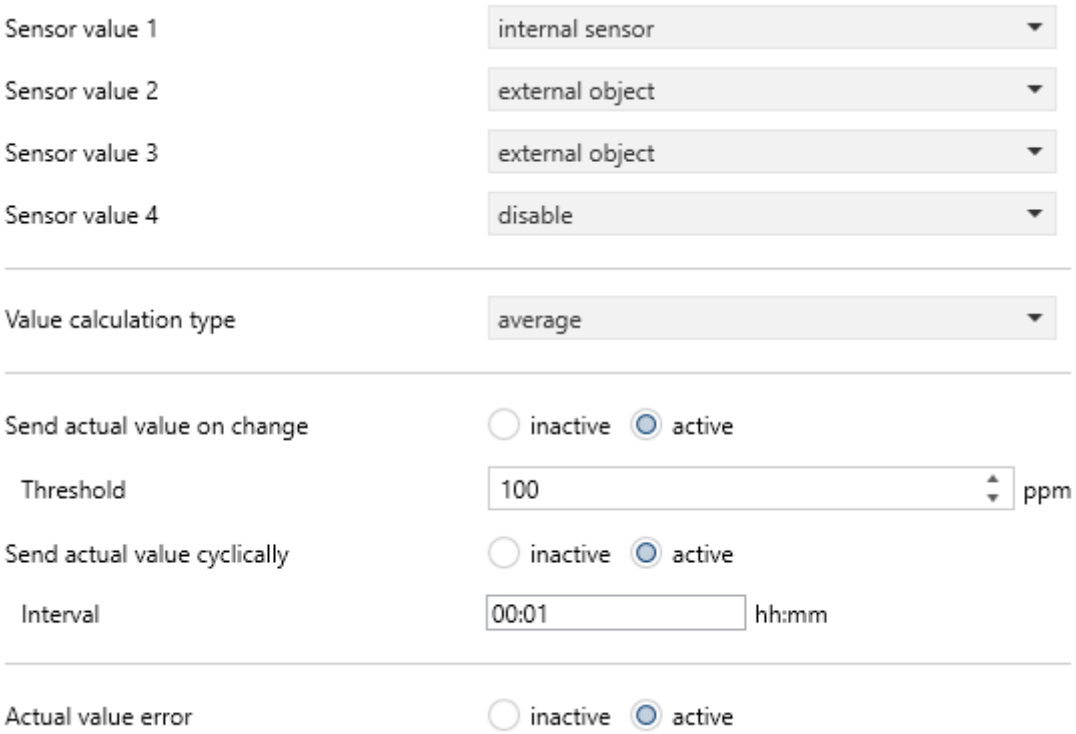
4.2 Step controller CO2



Description	Options	Description
Output format	Switching Priority Scene Percent Byte	Output as 1-bit switching value (On/Off) Output as prioritized switching command Output of a scene recall Output as percentage value (0–100%) Output as 1-byte value (0–255)
Number of steps	1…3	Defines how many switching stages the controller uses. Each stage has its own threshold and switching command and is activated depending on the CO_2 value.

Hysteresis (symmetrical)	50…300ppm	Defines a tolerance range around the thresholds to prevent frequent switching when CO_2 values fluctuate.
Send control value cyclically	Inactive Active Interval 1 min – 24 h	No function If no measured value is available, no switching command is sent. The control value can be sent cyclically, with the interval adjustable between 1 min and 24 h.
Step X		
Threshold	450…2000ppm	Defines the CO_2 value at which the respective stage is activated.
Value below threshold X		Defines the value that is sent when the measured value is below the defined threshold. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte).
Value above threshold X		Defines the value that is sent when the measured value is above the defined threshold. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte).
Control value on sensor error		Defines the value that is output in the event of a sensor error. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte).
Blocking object	Inactive Active	No funcion The step controller can be blocked via a KNX object. When the blocking object is active, the normal control behavior is overridden and no regular switching according to the thresholds takes place.
Behavior when blocking	Don´t send Send value	Defines whether a value is sent when the lock is activated. When selecting “Send value”, the defined value is transmitted on the KNX bus according to the selected output format (e.g. switching, scene, percent, byte).

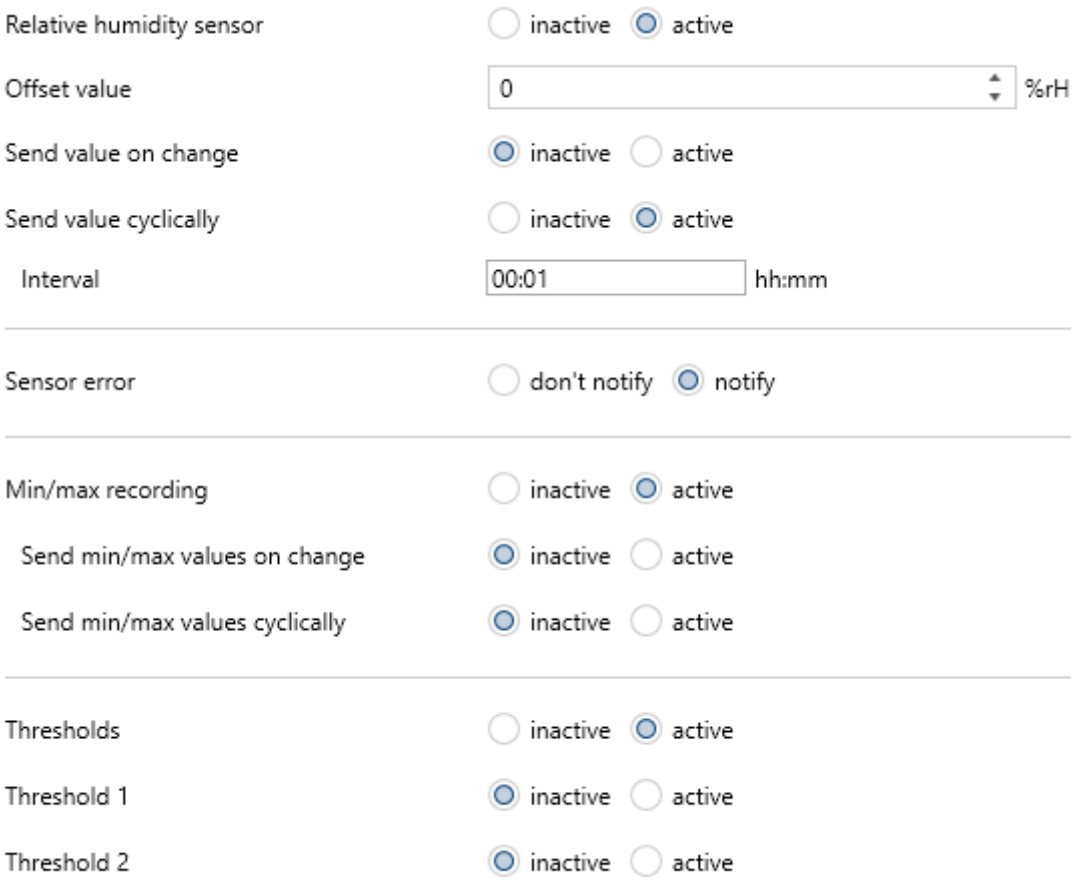
4.3 CO2 Controller – Actual value recording



Description	Options	Description
Sensor value 1	Internal sensor Via bus (communication object)	The value of the internal CO_2 sensor is used. The value transmitted via the bus (communication object) is used.
Sensor value 2-4	Inactive Internal sensor Via bus (communication object)	No function The value of the internal CO_2 sensor is used. The value transmitted via the bus (communication object) is used.
Value calculation type	Average Min Max Weighted (1-4 [0-10])	Calculates the value as an average. Selects the sensor with the lowest CO_2 value. Selects the sensor with the highest CO_2 value. Calculates the value as a weighted average. Each value can be assigned an individual weighting from 0 to 10.
Send actual value on change	Inactive On change by 10-500 ppm	No function The current CO_2 value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new actual value is sent to the bus.

		The change threshold can be set by the user within a range of 5 to 500 ppm.
Send actual value cyclically	Inactive Active Interval 1 min – 24 h	No function Enables the regular transmission of the calculated actual values at a defined time interval. Regardless of changes in the measured values, the actual values are sent to the bus in fixed cycles. No function
Actual value error	Inactive Active	The actual value error object is a 1-bit object that serves as an error indicator when a fault occurs in the CO_2 measurement. It signals whether the measurement is faulty and thus supports error detection and diagnostics within the system.

5. Relative humidity sensor



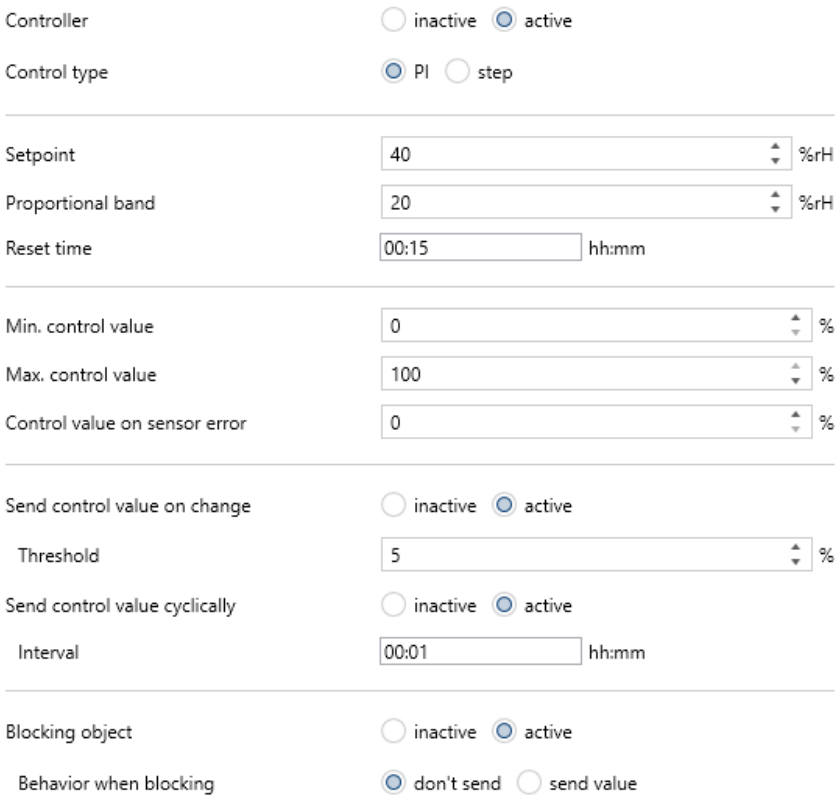
Description	Options	Description
Relative humidity sensor	Inactive Active	No function Relative humidity sensor active.
Offset value	-5% rH to 5% rH	The offset value allows adjustment of the measured value within a range of -5 to +5% rH. The measured rH value is corrected by this offset to compensate for measurement inaccuracies.
Send value on change	Inactive Active on change by 1% to 100% rH	No function When this function is activated, the currently measured rH value is sent to the bus as soon as it changes by the configured threshold. The threshold defines the minimum change in % rH required for the value to be transmitted. The threshold can be set within a range of 1% to 100%.
Send value cyclically	Inactive Active Interval 1 min – 24 h	No function This function allows the measured rH value to be sent automatically to the bus at regular intervals. Cyclic transmission ensures that current measured values are continuously transmitted regardless of changes, providing a reliable data basis for the system. The transmission interval can be configured flexibly. Time intervals from 1 minute up to once per day are available.
Sensor error	notify don´t notify	A sensor failure is reported if the rH sensor does not send any new values for more than 10 minutes. No sensor error is reported.
Min/max recording	Inactive Active On change by1% to 100% rH Send cyclically 1 min – 24 h	No function The current rH value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new min/max value is sent to the KNX bus. The change threshold can be set by the user within a range of 1% to 100%. In addition, the min/max values can be sent cyclically to the KNX bus at a configurable interval (1 min to 24 h), independently of this.
Thresholds Threshold X Value Value below Threshold X Value above Threshold X Hysteresis Send value on change Send cyclically	Inactive Threshold X Value 0…100% rH OFF OFF ON 0…10% rH Inactive Active Inactive	The threshold function is deactivated. Defines the rH limit value that is used as the basis for the switching commands. Defines the value that is sent when the measured value is below the defined threshold. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte). Defines the value that is sent when the measured value is above the defined threshold. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte). Specifies which switching value is sent when the rH value is below the defined threshold. Defines a tolerance range to prevent frequent switching when the rH value fluctuates. No function

	Active Interval 1 min – 24 h	Sends the switching state as soon as the rH value exceeds or falls below the defined threshold. No function Activates the regular transmission of the rH value. Defines the time interval for cyclic transmission (e.g. 1 min – 24 h).

6. Relative humidity controller

Description	Options	Description
Relative humidity controller type	Inactive PI Step	No function The rH controller can operate as a single-stage, two-stage, three-stage, or PI controller. In single-stage mode, a single switching threshold is defined; when this threshold is exceeded or not reached, a corresponding control value is output. The two-stage controller allows the definition of two switching thresholds for more refined control, while the three-stage controller uses three switching thresholds for even finer gradation. The PI controller operates continuously with proportional-integral control behavior and adjusts the control value precisely to the measured values.

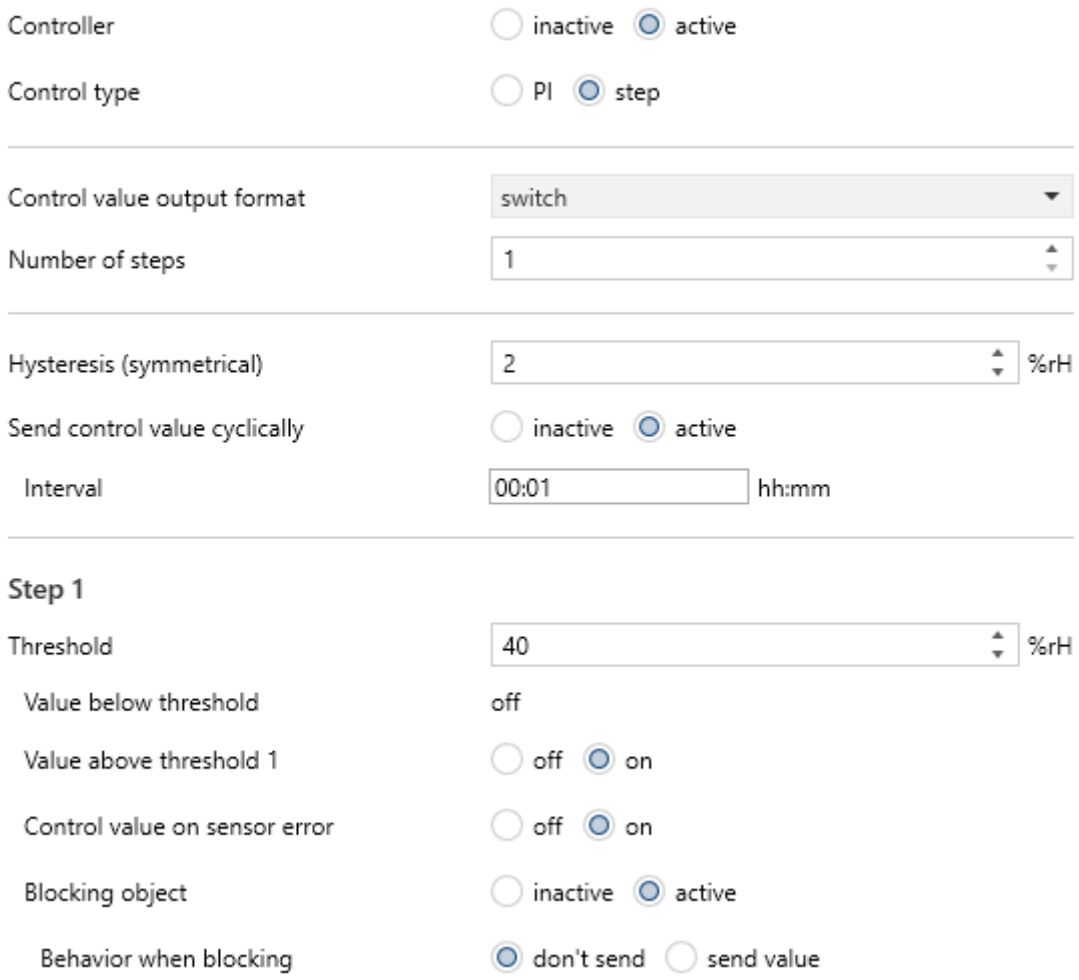
6.1 PI-Controller relative humidity



Description	Options	Description
Setpoint	0% to 100% rF	Adjustment of the setpoint.
Proportional band	0% to 100% rF	The PI controller for relative humidity has an adjustable proportional band ranging from 10% to 40%. This means that within this range, the controller output responds proportionally to the deviation of the rH value from the setpoint. A smaller proportional band (e.g. 10%) results in a stronger control response to small deviations, while a larger proportional band (e.g. 40%) provides a smoother adjustment.
Reset time	0 min. to 24h	The reset time of the PI controller for relative humidity can be adjusted within a range of 15 minutes to 240 minutes. This means that the integral component of the controller gradually compensates for the control deviation within this time period. A shorter reset time (e.g. 15 minutes) results in a faster correction but may lead to stronger fluctuations. A longer reset time (e.g. 240 minutes) provides a slower but more stable adjustment and is particularly advantageous in systems with high inertia.
Min. control value	0% to 100%	The minimum control value, adjustable in the range of 0% to 100%, defines the lowest limit to which the controller output is restricted, even if the rH value is below the setpoint or no control deviation exists.

Max. control value	0% to 100%	The maximum control value, adjustable in the range of 0% to 100%, defines the highest level to which the controller output can rise when rH control is required.
Control value on sensor error	0% to 100%	Adjustment of the control value in case of sensor error.
Blocking object	Inactive Active	No function The PI-controller can be blocked via a KNX object. When the blocking object is active, the normal control behavior is overridden .
Behavior when blocking	Don´t send Send value Value 0…100%	Defines whether a value is sent when the lock is activated. When selecting “Send value”, the defined value is transmitted on the KNX bus according to the selected output format (e.g. switching, scene, percent, byte). When the lock is activated, a defined value between 0 and 100% is sent.

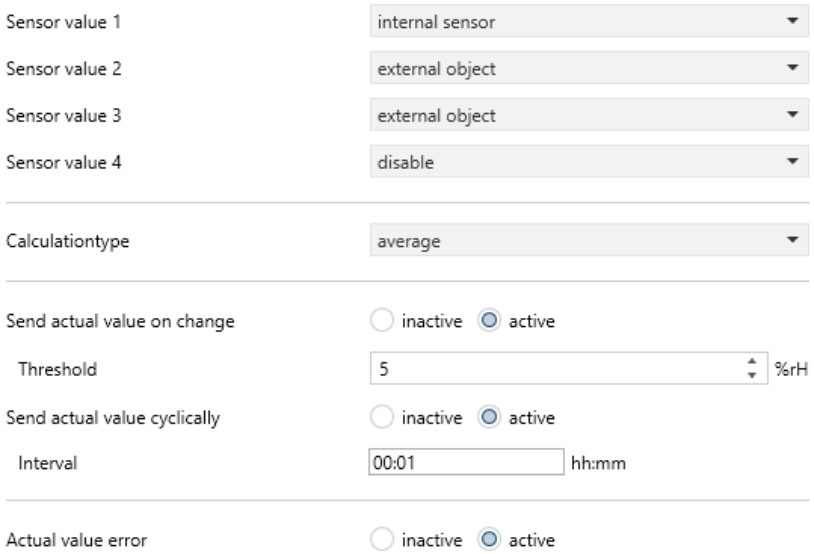
6.2 Step controller relative humidity



Description	Options	Description
Output format	Switching Priority Scene Percent Byte	Output as 1-bit switching value (On/Off) Output as prioritized switching command Output of a scene recall Output as percentage value (0–100%) Output as 1-byte value (0–255)
Number of steps	1…3	Defines how many switching stages the controller uses. Each stage has its own threshold and switching command and is activated depending on the rH value.
Hysteresis (symmetrical)	0…10 %rH	Defines a tolerance range around the thresholds to prevent frequent switching when the rH value fluctuates.

Send control value cyclically	Inactive Active Interval 1 min – 24 h	No function If no measured value is available, no switching command is sent. The control value can be sent cyclically, with the interval adjustable between 1 min and 24 h.
Threshold X		
Threshold	0…100 %rH	Defines the rH value at which the respective stage is activated.
Value below threshold X	OFF	Defines the value that is sent when the measured value is below the defined threshold. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte).
Value above threshold X	OFF ON	Defines the value that is sent when the measured value is above the defined threshold. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte).
Control value on sensor error	OFF ON	Defines the value that is output in the event of a sensor error. The value is transmitted according to the selected output format (e.g. switching, priority, scene, percent, byte).
Blocking object	Inactive Active	The step controller can be blocked via a KNX object. When the blocking object is active, the normal control behavior is overridden .
Behavior when blocking	Don´t send Send value	Defines whether a value is sent when the lock is activated. When selecting “Send value”, the defined value is transmitted on the KNX bus according to the selected output format (e.g. switching, scene, percent, byte).

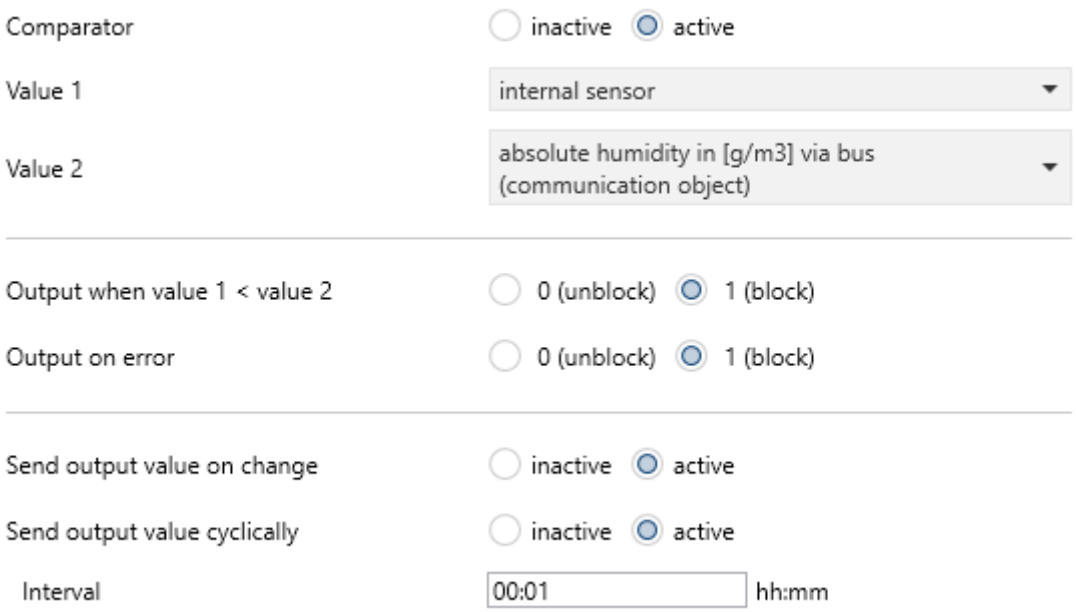
6.3 Relative humidity controller – Actual value recording



Description	Options	Description
Sensor value 1	Internal sensor Via bus (communication object)	The value of the internal rH sensor is used. The value transmitted via the bus (communication object) is used.
Sensor value 2-4	Inactive Internal sensor Via bus (communication object)	No function The value of the internal rH sensor is used. The value transmitted via the bus (communication object) is used.
Value calculation type	Average Min Max Weighted (1-4 [0-10])	Calculates the value as an average. Selects the sensor with the lowest rH value. Selects the sensor with the highest rH value. Calculates the value as a weighted average. Each value can be assigned an individual weighting from 0 to 10.
Send actual value on change	Inactive On change by1-100 %rH	No function The current rH value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new actual value is sent to the bus. The change threshold can be set by the user within a range of 1 to 100 %rH.
Send actual value cyclically	Inactive 1 min – 24 h	No function Enables the regular transmission of the calculated actual values at a defined time interval. Regardless of changes in the measured values, the actual values are sent to the bus in fixed cycles.
Actual value error	Inactive	No function

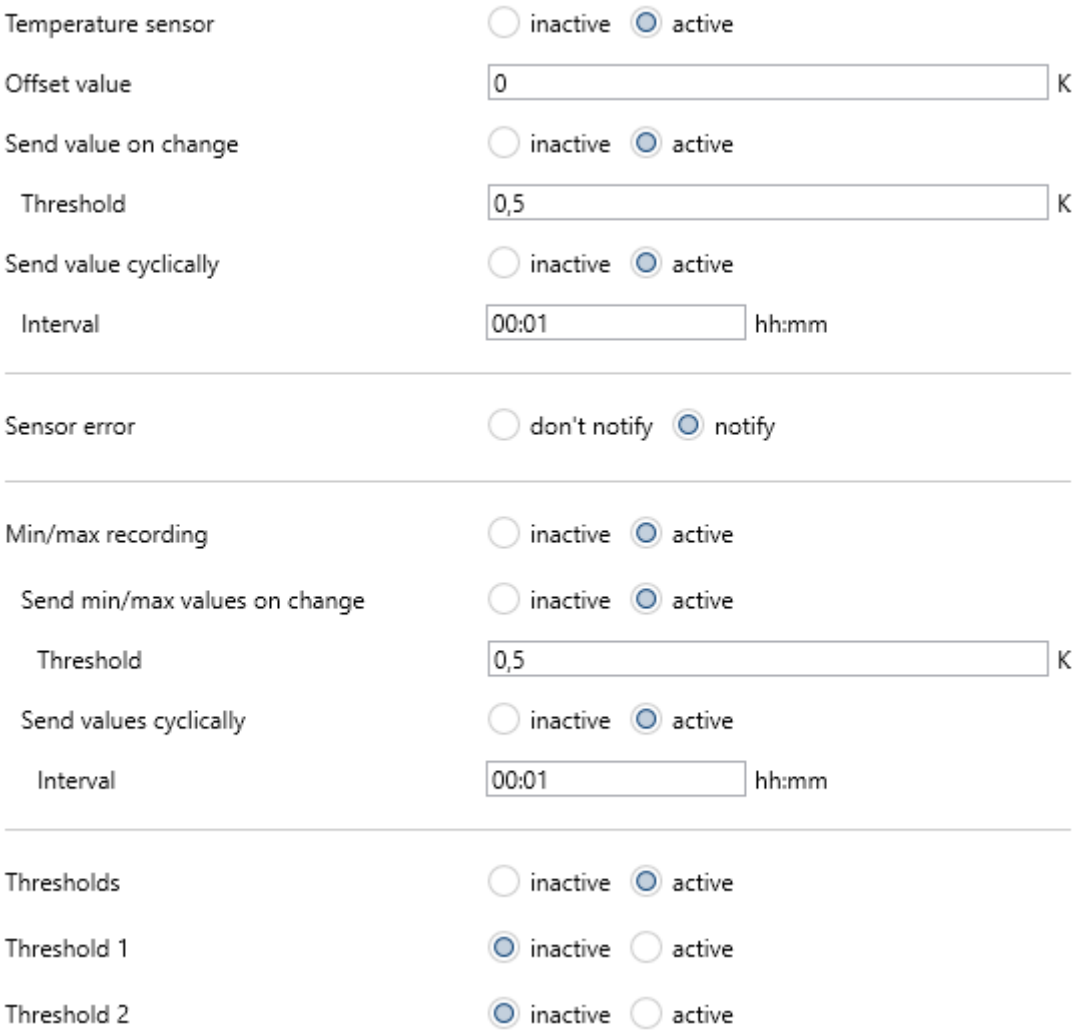
	Active	The actual value error object is a 1-bit object that serves as an error indicator when a fault occurs in the rH measurement. It signals whether the measurement is faulty and thus supports error detection and diagnostics within the system.

7. Humidity comparator



Description	Options	Description
Comparator	Inactiv Active	No function The humidity comparator function allows the comparison of two humidity values to determine the value relevant for control. Once the comparator is activated, the system analyzes both values and automatically selects the one with the higher priority.
Value 1 / 2	Internal sensor Absolute Humidity in [g/m³] Via bus (communication object) Relative humidity in [%] and temperature in [°C] via bus (two communication objects)	The internal rH sensor is used. The absolute humidity value provided via a communication object is used. The relative humidity and the temperature value are provided via the bus as two separate communication objects and are used for control.
Output when value 1 < value 2	0 (unblock) 1 (block)	Unlock Lock
Output on error	0 (unblock) 1 (block)	Unlock Lock
Send output value on change	Inactive Active	No function Sends the output state of the comparator to the KNX bus as soon as the evaluation result changes (e.g. due to a change in value 1 or value 2).
Send output value cyclically	Inactive Active 1 min – 24 h	No function Enables the regular transmission of the output values at a defined time interval. Regardless of changes in the measured values, the output values are sent to the bus in fixed cycles.

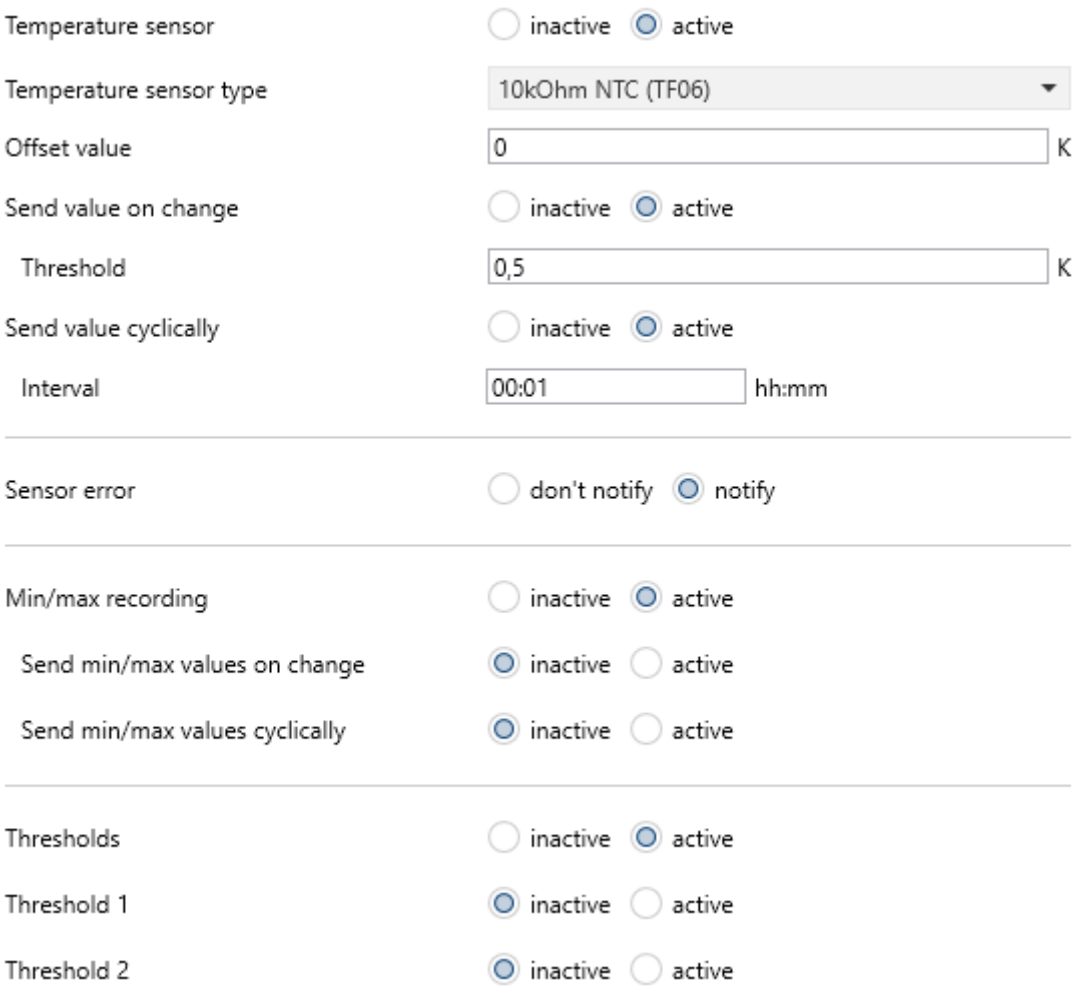
8. Temperature sensor



Description	Options	Description
Temperature sensor	Inactive Aktive	No function Temperature sensor active
Offset value	-5K to 5K	The offset value of the temperature sensor allows adjustment of the measured value within a range of -5 K to +5 K. The measured temperature value is corrected by this offset to compensate for measurement inaccuracies

Send value on change	Inactive Active On change by 0.1 K to 10 K	The current temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold,
Send value cyclically	Inactive Active 1 min – 24 h	No function Enables the regular transmission of the calculated actual values at a defined time interval. Regardless of changes in the measured values, the actual values are sent to the bus in fixed cycles.
Sensor error	Notify don´t notify	If no new measured values are provided by the sensor for more than 10 minutes, a sensor error is reported. No function
Min/max recording	 Inactive Active On change by 0.1 K to 10 K Send cyclically 1 min – 24 h	No function The current temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new min/max value is sent to the bus. The change threshold can be set by the user within a range of 0.1 to 10 K.
Thresholds Threshold X Value Switching command above Threshold X Switching command below Threshold X Hysteresis Send value on change Send cyclically	Inactive Active -10°C…50°C OFF ON OFF ON 0,5…5K Inactive Active Interval Active 1 min – 24 h	The threshold function is deactivated. Defines the temperature limit value that is used as the basis for the switching commands.. Specifies which value is sent when the temperature value is above the defined threshold. Specifies which value is sent when the temperature value is below the defined threshold. Defines a tolerance range to prevent frequent switching when the temperature value fluctuates. Sends the switching state as soon as the temperature value exceeds or falls below the defined threshold. Activates the regular transmission of the temperature value.

9. External temperature sensor



Description	Options	Description
Temperature sensor	Inactive Active	No function External temperature sensor active.
Temperature sensor type	PT 1000 2kOhm NTC 10kOhm NTC (TF06) 12kOhm NTC 15kOhm NTC 33kOhm NTC 47kOhm NTC	Select the appropriate temperature sensor for the external input according to your application. The available sensor types differ in their resistance values and behavior with temperature changes.

	2kOhm PTC	
Offset value	-5K to 5K	The offset value of the temperature sensor allows adjustment of the measured value within a range of -5 K to +5 K. The measured temperature value is corrected by this offset to compensate for measurement inaccuracies.
Send value on change	Inactive Active On change by 0.1 K to 10 K	No function The current temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new min/max value is sent to the bus. The change threshold can be set by the user within a range of 0.1 K to 10 K.
Send value cyclically	Inactive Active 1 min – 24 h	No function The current temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the current temperature value is sent to the bus. The change threshold can be set by the user within a range of 0.1 K to 10 K.
Sensor error	Notify don´t notify	If no new measured values are provided by the sensor for more than 10 minutes, a sensor error is reported. No sensor error is output.
Min/max recording	Inactive Active On change by 0.1 K to 10 K Send cyclically 1 min – 24 h	No function The current temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new min/max value is sent to the bus. The change threshold can be set by the user within a range of 0.1 K to 10 K. Enables the regular transmission of the calculated minimum and maximum temperature values at a defined time interval. Regardless of changes in the measured values, the current min and max temperature values are sent to the bus in fixed cycles.
Thresholds Threshold X Value Switching command above Threshold X Switching command below Threshold X Hysteresis Send value on change	Inactive Active -10K…100K OFF ON OFF ON 0,5…5K	The threshold function is deactivated. Defines the temperature limit value that is used as the basis for the switching Specifies which value is sent when the temperature value is above the defined threshold.. Specifies which value is sent when the temperature value is above the defined threshold. Specifies which value is sent when the temperature value is below the defined threshold. Defines a tolerance range to prevent frequent switching when the temperature value fluctuates. Sends the switching state as soon as the temperature value exceeds or falls below the defined threshold.

Send cyclically	1 min – 24 h	Activates the regular transmission of the temperature value.

10. Temperature controller 1/2

10.1 Temperature controller 1/2 – Settings

Type	heating and cooling
Switchover heating/cooling	automatic / external object

Comfort settings

Comfort temperature heating	21 °C
Relative to comfort	
Comfort tempertaure cooling	23 °C

Eco settings

Eco temperature heating	19 °C
Eco temperature cooling	25 °C

Standby settings

Standby setback heating	15 °C
Standby setback cooling	30 °C

Building protection settings

Heat protection temperature cooling	35 °C
Frost protection temperature heating	7 °C

Extra level settings

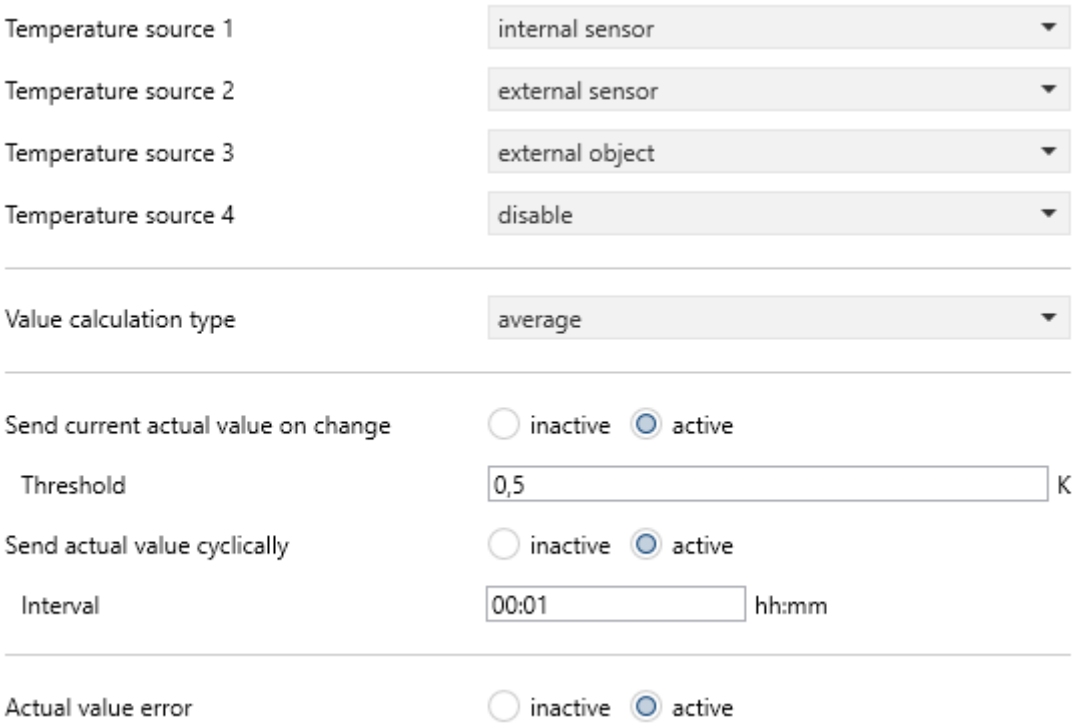
Extra level heating enable	inactive / active
Extra level cooling enable	inactive / active

Mode after Reset	last active
Mode after Download	comfort
Send setpoint temperature on change	inactive / active
Send setpoint temperature cyclically	inactive / active
Interval	00:01 hh:mm
Global heating blocking object	inactive / active
Global cooling blocking object	inactive / active

Description	Options	Description
Select heating and/or cooling	Inactive Active Heating Cooling Heating und Cooling	No function The operating mode of the system can be individually adjusted depending on the application. It is possible to select between heating, cooling, or a combination of both. In heating mode, the temperature is controlled to reach and maintain a defined minimum temperature. In cooling mode, the system ensures that a specified maximum temperature is not exceeded. If the Options “heating and cooling” is selected, the system automatically adjusts the temperature to keep it within a defined range. The appropriate operating mode should be selected according to the requirements of the respective application.
Heating/cooling changeover	Automatisch Externes Objekt	
Comfort settings Comfort temperature heating Relative to comfort Comfort temperature cooling	 5…50°C OFF ON 5…50°C	 Defines the setpoint temperature in heating mode for comfort mode. Allows adjustment of the cooling temperature as a relative deviation from the comfort temperature instead of a fixed absolute value. Defines the setpoint temperature in cooling mode for comfort mode.
Eco settings Eco temperature heating Eco temperature cooling	 0K to 10°C 0K to 10°C	 The temperature setpoint for eco mode defines the reduction of the heating temperature compared to the comfort temperature. The specified value (0 K – 10 K) is subtracted from the comfort temperature, reducing the room temperature accordingly in eco mode.
Standby settings Standby temperature heating Standby temperature cooling	0K to 10°C 0K to 10°C	The temperature setpoint for standby mode defines the reduction of the heating temperature compared to the comfort temperature. The specified value (0 K – 10 K) is subtracted from the comfort temperature, reducing the room temperature accordingly in standby mode.
Building protection settings Heat protection temperature cooling Frost protection temperature heating	 5°C to 50°C 5°C to 50°C	The building protection setting defines the minimum room temperature that the heating system maintains in building protection mode. Unlike standby or eco mode, no value is subtracted from the comfort temperature; instead, the desired temperature is specified directly. The heating system is automatically activated when the room temperature falls below this value to prevent frost damage to pipes and the building structure.

Additional stage settings		
Extra level heating enable	Inactive Active	No function In addition to the main stage (e.g. underfloor heating), an additional stage (e.g. electric heating) can be used in slow-response systems. This can shorten the heating phase of a slow underfloor heating system. For the additional stage, a PI controller or a 2-point controller can be selected.
Below heating setpoint	0K to 10K	Defines the temperature deviation below the heating setpoint at which the additional heating stage is activated.
Extra level cooling enable	Inactive Active	No function Activates an additional cooling stage that is enabled when a defined temperature deviation is exceeded.
Above cooling setpoint	0K to 10K	Defines the temperature deviation above the cooling setpoint at which the additional cooling stage is activated.
Mode on restart	Comfort Standby Eco Off (building protection) Last state	In this section, it can be defined which operating mode is automatically used after a bus restart. It is possible to select between comfort, standby, eco, building protection, and last value, so that the system starts with the desired settings after a restart.
Mode on download	Comfort Standby Eco Off (building protection) Last state	In this section, it can be defined which operating mode is automatically used after an ETS download. It is possible to select between comfort, standby, eco, and frost/heat protection, so that the system starts with the desired settings after download.
Send setpoint temperature on change	Inactive Active	No function Sends the current setpoint temperature to the KNX bus as soon as it changes, for example due to a change in operating mode (comfort, eco, standby) or manual adjustment.
Send setpoint temperature cyclically	1 min – 24 h	Sends the current setpoint temperature to the KNX bus at regular intervals, regardless of changes, to ensure continuous updating.
Global blocking object heating Global blocking object cooling	Inactive Active Inactive Active	No fuction Allows central blocking of the heating function via an external communication object. No function Allows central blocking of the cooling function via an external communication object.

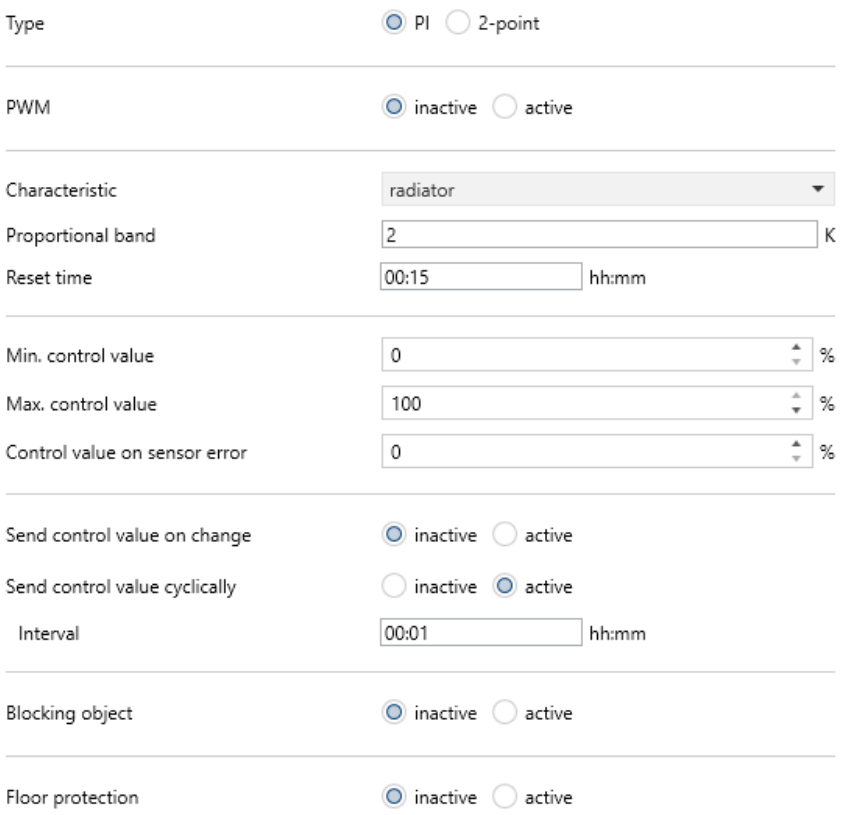
10.2 Temperature controller – Actual value recording



Description	Options	Description
Sensor value 1	Internal sensor Via bus (communication object)	The value of the internal temperature sensor is used. The value transmitted via the bus (communication object) is used.
Sensor value 2-4	Inactive Internal sensor Via bus (communication object)	No function The value of the internal temperature sensor is used. The value transmitted via the bus (communication object) is used.
Value calculation type	Average Min Max Weighted (1-4 [0-10])	Calculates the value as an average. Selects the sensor with the lowest temperature value. Selects the sensor with the highest temperature value. Calculates the value as a weighted average. Each value can be assigned an individual weighting from 0 to 10.
Send actual value on change	Inactive Active On change by 0.1…10°C	No function The current temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new actual value is sent to the bus. The change threshold can be set by the user within a range of 0.1 to 10 °C.

Send actual value cyclically	Inactive Active 1 min – 24 h	No function Enables the regular transmission of the calculated actual values at a defined time interval. Regardless of changes in the measured values, the actual values are sent to the bus in fixed cycles.
Actual value error	Inactive Active	No function The actual value error object is a 1-bit object that serves as an error indicator when a fault occurs in the temperature measurement. It signals whether the measurement is faulty and thus supports error detection and diagnostics within the system.

10.3 Temperature controller 1/2 – Main level heating



Description	Controller	Parameter	Options	Description
Type		PI Step		The controller operates as a continuous PI controller and calculates the control value continuously based on the deviation between the actual value and the setpoint. The controller operates as a step controller and switches the output value in fixed stages depending on the measured value using defined thresholds.

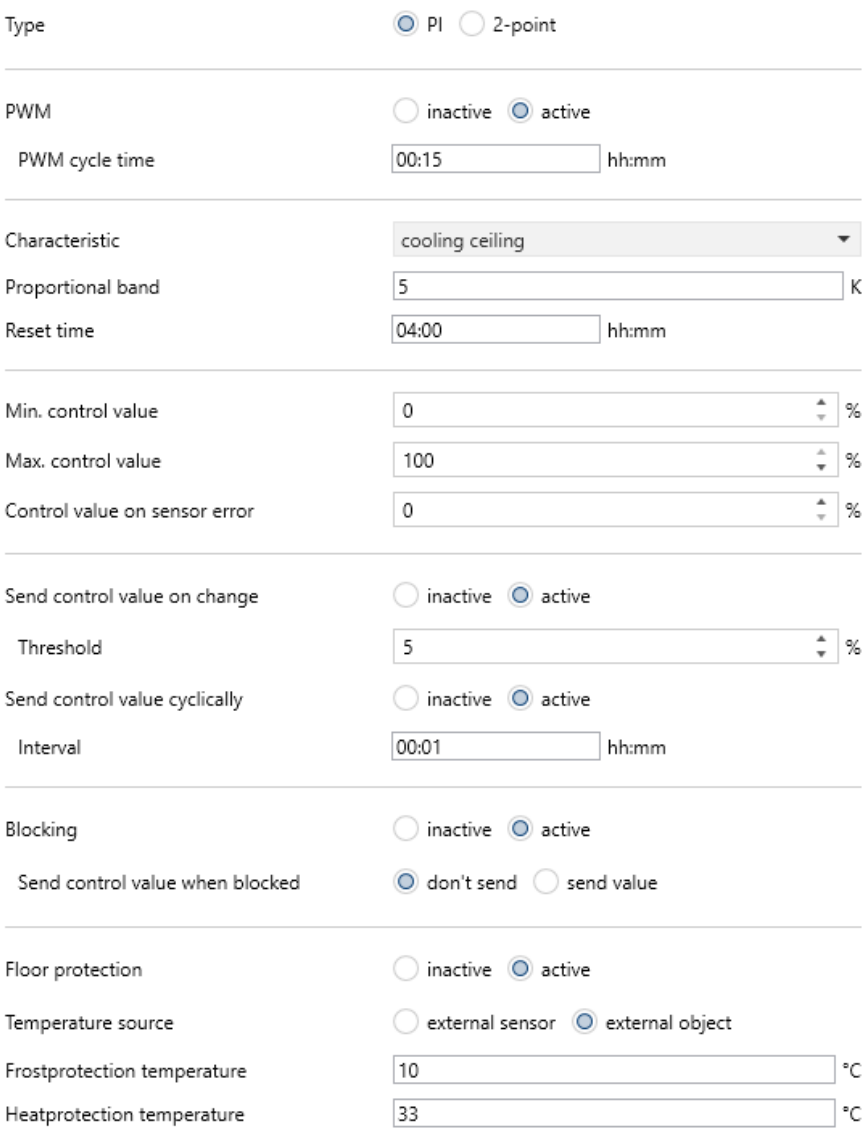
	PI	PWM cycle	1 min – 24 h	The PWM cycle (pulse-width modulation) defines the rhythm in which the control value is regulated by periodically switching the output signal on and off. The total cycle time remains constant, while the ratio of on-time to off-time varies to achieve the desired output. The PWM cycle can be adjusted between 1 min and 24 h. A shorter cycle time (e.g. 1 min) means that the signal switches more frequently, allowing the system to respond faster to changes. A longer cycle time (e.g. 24 h) results in smoother transitions and is particularly suitable for slow-response systems, as frequent switching is avoided.
	PI	Characteristic	Radiator Floor (water) Floor (electro) Custom	Predefined control characteristic for classic radiators with medium thermal inertia and moderate control behavior. Predefined control characteristic for water-based underfloor heating systems with high thermal inertia and slow temperature changes. Predefined control characteristic for electric underfloor heating systems with low thermal inertia and faster control behavior. Allows individual adjustment of the control parameters according to the application requirements.
	PI	Proportional band	0K to 10K	The PI controller for the main or additional stage has an adjustable proportional band ranging from 0 K to 10 K. This means that within this range, the controller output responds proportionally to the deviation of the temperature value from the setpoint. A smaller proportional band (e.g. 1 K) results in a stronger control response to small deviations, while a larger proportional band (e.g. 10 K) provides a smoother adjustment.
	PI	Reset time	0 min – 24 h	The reset time of the PI controller for the main or additional stage can be adjusted within a range of 0 min to 24 h. This means that the integral component of the controller gradually compensates for the control deviation within this time period. A shorter reset time (e.g. 15 min) results in a faster correction but may lead to stronger fluctuations. A longer reset time (e.g. 24 h) provides a slower but more stable adjustment and is particularly advantageous in systems with high inertia.
	PI	Control value output format	Prozent Byte PWM	The control value of the temperature controller can be provided in various output formats. It can be output as a switching command, priority, percentage value, byte, or scene, depending on the requirements of the control and system integration.
	PI	Min. control value	0% to 100%	The minimum control value, adjustable in the range of 0% to 100%, defines the lowest limit to which the controller output is restricted, even if the actual temperature is below the setpoint or no control deviation exists. This setting ensures that a minimum heat supply or another required base load is maintained, for example to avoid temperature fluctuations or to ensure a minimum heating level.
	PI	Max. control value	0% to 100%	The maximum control value, adjustable in the range of 0% to 100%, defines the highest level to which the controller output can rise. This limitation ensures that the maximum heating or cooling capacity is not exceeded, even in the case of a large control deviation. This allows the output to be adapted to the specific requirements of the system, for example to avoid overload or to ensure stable control behavior.
	PI	Control value on sensor error	0% to 100%	Adjustment of the control value in case of sensor error.
	PI	Send control value on change	Inactive Active Threshold 0% to 100%	No function The current temperature value is compared with the previously transmitted value. Only when a difference between the new measured value and the last transmitted value exists, the new control value is sent to the bus.
		Send control value cyclically	Inactive Active	No function

			1 min – 24 h	This function allows the current control value to be sent automatically to the bus at regular intervals. Cyclic transmission ensures that the control value is continuously transmitted regardless of changes, providing a reliable data basis for the system. The transmission interval can be configured flexibly. Time intervals from every minute up to once per day are available.
	2-point	Hysteresis (symmetrical)	0,5K to 5K	A 2-point controller switches between two states (e.g. ON/OFF), based on a defined threshold. Without hysteresis, the controller would continuously switch between these states even with minimal fluctuations in the measured value (frequent switching). Hysteresis defines a tolerance range around the switching point to prevent unnecessary switching due to small, rapid value changes.
	2-point	Control value on sensor error	Off On	The behavior in case of measurement value failure defines how the system reacts when no valid temperature value is available, for example due to a sensor error or a broken connection. If the function is enabled, the last switching state of the controller is maintained, so that the heating or cooling element remains in its current state until a valid measured value is available again. This can be useful to maintain operation and avoid sudden interruptions. If the function is disabled, the controller sets the control value to 0%, thereby deactivating the heating or cooling function.
	2-point	Send control value when change-over	Inactive Active	No function When a change (switch-over) occurs, the current control value is sent.
Blocking object	PI / 2-point		Inactive Active	Allows the controller to be blocked via a KNX object. When the lock is active, the control function is overridden and the measured value is no longer processed normally.
		Send control value when blocked	Don´t send	When the control value changes, no telegram is sent to the KNX bus.
			Send value (nur PI) 0…100%	When the control value changes, the current or configured value is sent to the KNX bus.
Floor protection	PI / 2-point		Inactive Active	No function The floor protection is active and limits the control to prevent impermissibly high or low floor temperatures.
		Temperature source	External sensor	Defines whether the temperature for control is provided via an external sensor or an external object.
			External object	The temperature is provided via an external KNX object and used for control.
		Frost protection temperature heating	5°C to 50°C	Defines the minimum temperature in heating mode, below which the heating is activated to prevent overcooling or freezing.
		Heat protection temperature cooling	5°C to 50°C	Defines the maximum temperature in cooling mode, above which the cooling is activated to prevent overheating.

10.4 Temperature Controller 1/2 – Extra level heating

The parameters of the extra level correspond to those of the main (see section 10.3).

10.5 Temperature controller 1/2 – Main level cooling



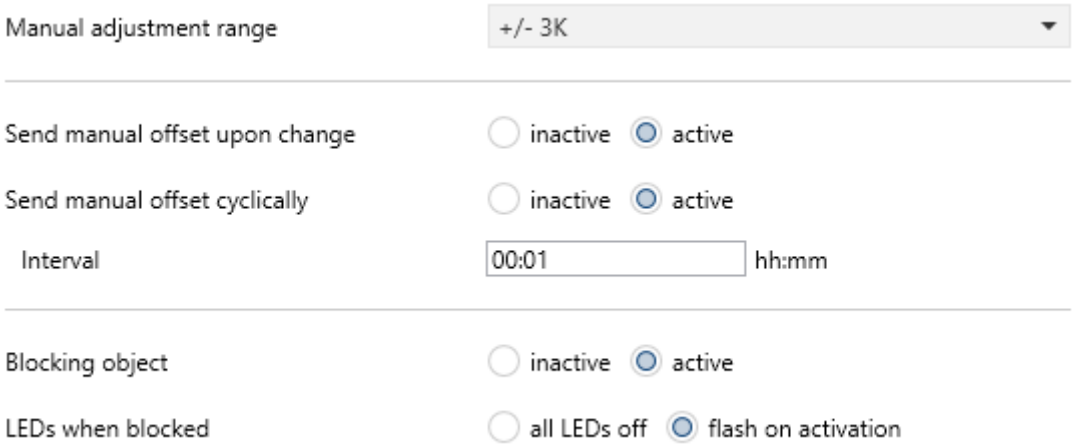
Description	Controller	Parameter	Options	Description
Typ		PI Step		The controller operates as a continuous PI controller and calculates the control value continuously based on the deviation between the actual value and the setpoint. The controller operates as a step controller and switches the output value in fixed stages depending on the measured value using defined thresholds.
	PI	PWM cycle	1 min – 24 h	The PWM cycle (pulse-width modulation) defines the rhythm in which the control value is regulated by periodically switching the output signal on and off. The total cycle time remains constant, while the ratio of on-time to off-time varies to achieve the desired output. The PWM cycle can be adjusted between 1 min and 24 h. A shorter cycle time (e.g. 1 min) means that the signal switches more frequently, allowing the system to respond faster to changes. A longer cycle time (e.g. 24 h) results in smoother transitions and is particularly suitable for slow-response systems, as frequent switching is avoided.
	PI	Characteristic	Cooling ceiling Fan coil unit custom	Predefined control characteristic for chilled ceilings with medium to high thermal inertia and uniform cooling performance. Predefined control characteristic for fan coil systems with fast response time, where the output is controlled via fan stages and valves. Allows individual adjustment of the control parameters according to the specific requirements of the application.
	PI	Proportional band	0K to 10K	The PI controller for the main or additional stage has an adjustable proportional band ranging from 0 K to 10 K. This means that within this range, the controller output responds proportionally to the deviation of the temperature value from the setpoint. A smaller proportional band (e.g. 1 K) results in a stronger control response to small deviations, while a larger proportional band (e.g. 10 K) provides a smoother adjustment.
	PI	Reset time	0 min – 24 h	The reset time of the PI controller for the main or additional stage can be adjusted within a range of 0 min to 24 h. This means that the integral component of the controller gradually compensates for the control deviation within this time period. A shorter reset time (e.g. 15 min) results in a faster correction but may lead to stronger fluctuations. A longer reset time (e.g. 24 h) provides a slower but more stable adjustment and is particularly advantageous in systems with high inertia.
	PI	Control value output format	Prozent Byte PWM	The control value of the temperature controller can be provided in various output formats. It can be output as a switching command, priority, percentage value, byte, or scene, depending on the requirements of the control and system integration.
	PI	Min. control value	0% to 100%	The minimum control value, adjustable in the range of 0% to 100%, defines the lowest limit to which the controller output is restricted, even if the actual temperature is below the setpoint or no control deviation exists. This setting ensures that a minimum heat supply or another required base load is maintained, for example to avoid temperature fluctuations or to ensure a minimum cooling level.
	PI	Max. control value	0% to 100%	The maximum control value, adjustable in the range of 0% to 100%, defines the highest level to which the controller output can rise. This limitation ensures that the maximum heating or cooling capacity is not exceeded, even in the case of a large control deviation. This allows the output to be adapted to the specific requirements of the system, for example to avoid overload or to ensure stable control behavior.
	PI	Control value on sensor error	0% to 100%	Adjustment of the control value in case of sensor error.
	PI	Send control value on change	Inactive Active	No function

			Threshold 0% to 100%	The current temperature value is compared with the previously transmitted value. Only when a difference between the new measured value and the last transmitted value exists, the new control value is sent to the bus.
		Send control value cyclically	Inactive Active 1 min – 24 h	No function This function allows the current control value to be sent automatically to the bus at regular intervals. Cyclic transmission ensures that the control value is continuously transmitted regardless of changes, providing a reliable data basis for the system. The transmission interval can be configured flexibly. Time intervals from every minute up to once per day are available.
	2-point	Hysteresis (symmetrical)	0,5K to 5K	A 2-point controller switches between two states (e.g. ON/OFF), based on a defined threshold. Without hysteresis, the controller would continuously switch between these states even with minimal fluctuations in the measured value (frequent switching). Hysteresis defines a tolerance range around the switching point to prevent unnecessary switching due to small, rapid value changes.
	2-point	Control value on sensor error	Off On	The behavior in case of measurement value failure defines how the system reacts when no valid temperature value is available, for example due to a sensor error or a broken connection. If the function is enabled, the last switching state of the controller is maintained, so that the heating or cooling element remains in its current state until a valid measured value is available again. This can be useful to maintain operation and avoid sudden interruptions. If the function is disabled, the controller sets the control value to 0%, thereby deactivating the heating or cooling function.
	2-point	Send control value when change-over	Inactive Active	No function When a change (switch-over) occurs, the current control value is sent.
Blocking object	PI / 2-point		Inactive Active	Allows the controller to be blocked via a KNX object. When the lock is active, the control function is overridden and the measured value is no longer processed normally.
		Send control value when blocked	Don´t send Send value (nur PI) 0…100%	When the control value changes, no telegram is sent to the KNX bus. When the control value changes, the current or configured value is sent to the KNX bus.

10.6 Temperature controller 1/2 – Extra level cooling

The parameters of the extra level correspond to those of the main (see section 10.4).

10.7 Temperature control 1 – Manual setpoint adjustment



Description	Options	Description
Manual adjustment range	Inactive +/- 1,5K +/- 3K +/- 6K	No function Value of the manual adjustment range.
Send manual offset upon change	Inactive Active	No function The current manual offset value is compared with the previously transmitted value. Only when the difference between the new value and the last transmitted value exceeds the configurable change threshold, the new value is sent to the bus.
Send manual offset cyclically	Inactive 1 min – 24 h	No function This function allows the current manual offset value to be sent automatically to the bus at regular intervals. Cyclic transmission ensures that the value is continuously transmitted regardless of changes, providing a reliable data basis for the system. The transmission interval can be configured flexibly. Time intervals from every minute up to once per day are available
Blocking object	Inactive Active	No Function Activates a KNX communication object to block the manual setpoint adjustment. When the blocking object is active, manual changes to the setpoint (e.g. via buttons or external objects) are ignored and no offset values are transmitted.

LED´s when blocked	All LED´s off Flash on activation	Defines the behavior of the status LEDs for the manual setpoint adjustment when it is blocked. The LEDs can either remain off or briefly flash upon activation of the blocking object, indicating that manual adjustment is currently disabled.

10.8 Temperature controller 1/2 – Mode control

Mode control: ○ inactive ◉ active

Mode source: external object

Type: ◉ trigger ○ scene

Mode: comfort

Mode source: external object

Type: ○ trigger ◉ scene

Scene: 1

Mode: eco

Mode source: external object

Type: ◉ trigger ○ scene

Mode: standby

Mode source: external object

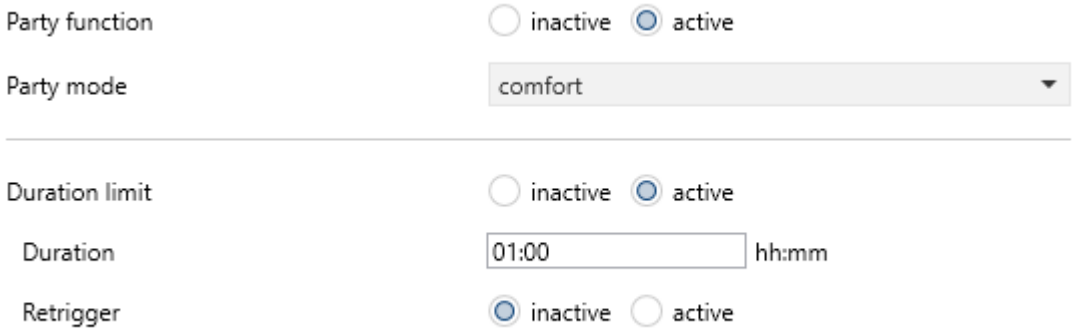
Type: ◉ trigger ○ scene

Mode: off (building protection)

Blocking object: ◉ inactive ○ active

Description	Options	Description
Mode control	Inactive Active	No function The mode control is active and allows switching between different operating modes.
Mode source		Defines the source via which the respective mode is activated (external KNX object).
Typ	Trigger Szene	The mode is activated by an incoming telegram. The mode is activated by a scene recall.
Mode	Comfort Standby Eco Off (Gebäudeschutz)	Activates comfort mode with normal setpoints. Activates energy-saving mode with reduced setpoints. Activates a reduced operation mode during temporary non-use. Deactivates normal operation and activates protection functions such as frost or heat protection.
Blocking object	Inactive Active	No function The mode control can be blocked via a KNX object; when the lock is active, no mode switching takes place.

10.9 Party function



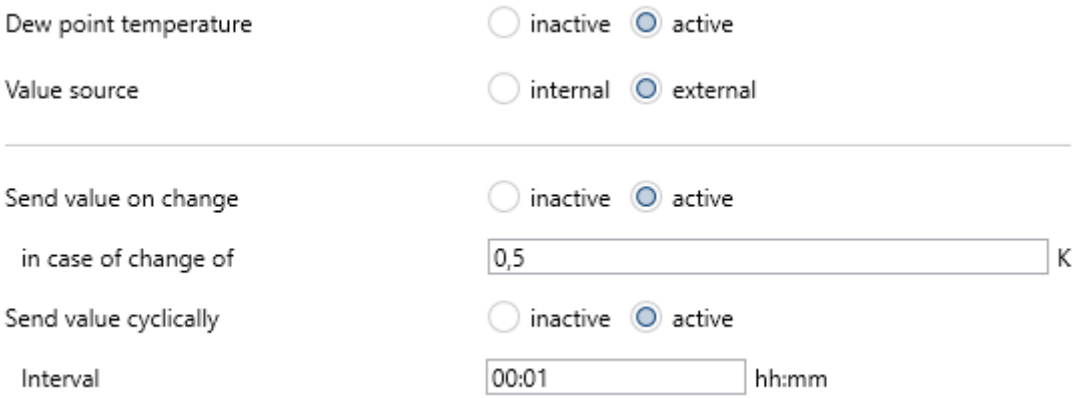
PartyFunction:
Function for activating a specific controller mode outside the regular operating modes. This mode can be time-limited and repeated if required.

Application example:
Outside business hours, the Eco mode is activated by default, reducing the temperature. During an event or party, the temperature can be raised to comfort mode for a defined period without changing the regular time schedule.

Description	Options	Description
Party function	Inactive Active	No function Party function is active and can be parameterized.
Party mode	 Comfort-Mode Standby-Mode Eco-Mode	Parameters are applied according to the respective controller setpoints. Comfort mode is activated. Standby mode is activated. Eco mode is activated.
Time limitation	Inactive Active 1 min – 24 h	No function Time limitation active, according to the following parameters. Party mode is activated only for the configured duration.

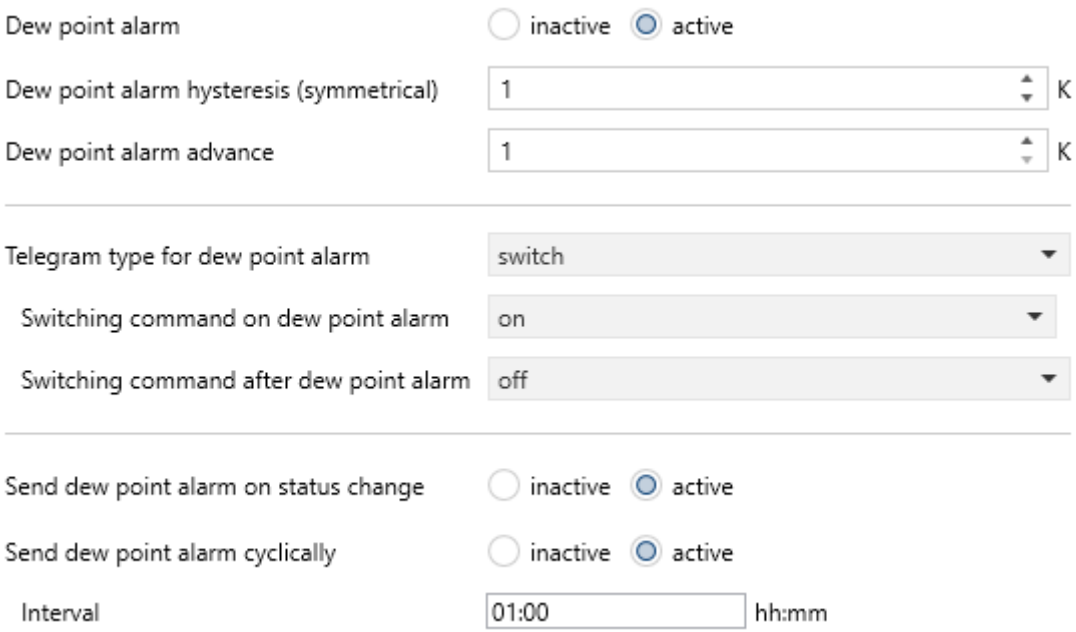
Retrigger	Inactive Active	No function When party mode is activated, it remains active for the predefined duration. After the defined time has elapsed, the retrigger function can restart the party mode.

11. Dew point – Dew point temperature



Description	Options	Description
Dew point Temperature	Inactive Active	No function Send the current status
Value source	Internal External	The dew point is calculated by the device based on its internal sensor values (e.g. temperature and humidity). The dew point value is received via a KNX communication object from an external device or system.
Send dew point temperature on change	Inactive Active On change by 0.1 K to 10 K	No function The current dew point temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the new actual value is sent to the bus. The change threshold can be set by the user within a range of 0.1 K to 10 K.
Send dew point temperature cyclically	Inactive Active 1 min – 24 h	No function In this mode, the dew point temperature is transmitted cyclically at regular intervals.

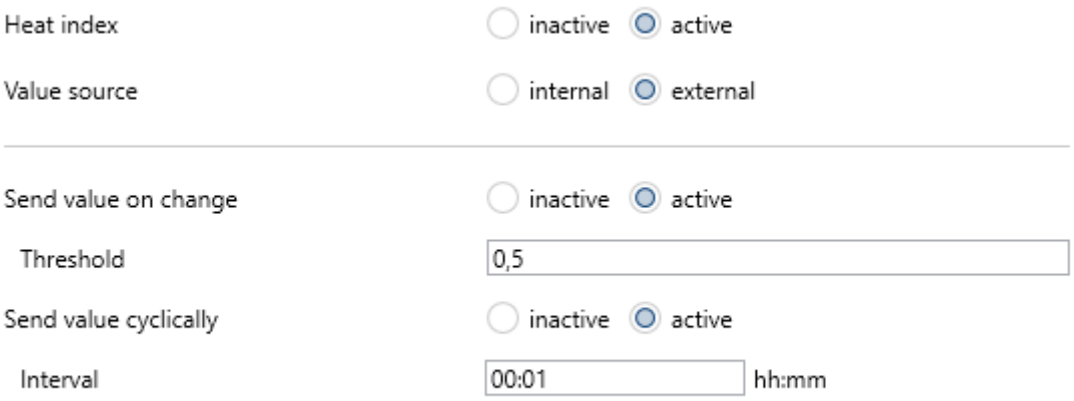
11.1 Dew point – Dew point alarm



Description	Options	Description
Dew point alarm	Inactive Active	No function The dew point alarm monitors the dew point, which is calculated from humidity and temperature. As soon as the dew point is reached, the system sends an alarm.
Dew point alarm advance	None 1 K to 5 K	The dew point alarm is activated when the dew point is reached. The dew point alarm with lead is a function that triggers an alarm before the dew point is reached. The lead can be adjusted between 1 and 5 Kelvin (K).
Dew point alarm hysteresis (symmetrical)	No hysteresis Hysteresis (1 K to 5 K)	No hysteresis is used. The hysteresis of the dew point alarm ensures that the alarm is not immediately deactivated when the temperature rises slightly above the dew point.
Send dew point alarm on status change	Inactive Active	No function The dew point alarm is sent when a status change occurs.
Send dew point alarm cyclically	Inactive Active 1 min – 24 h	No function In this mode, the dew point temperature is transmitted cyclically at regular intervals.
Telegram type for dew point alarm	Switching command Priority Percent Byte Scene	Defines which type of object is used.
Value on dew point alarm	Depending on telegram type Depending on telegram type	Defines the value that is sent when the dew point alarm is triggered.

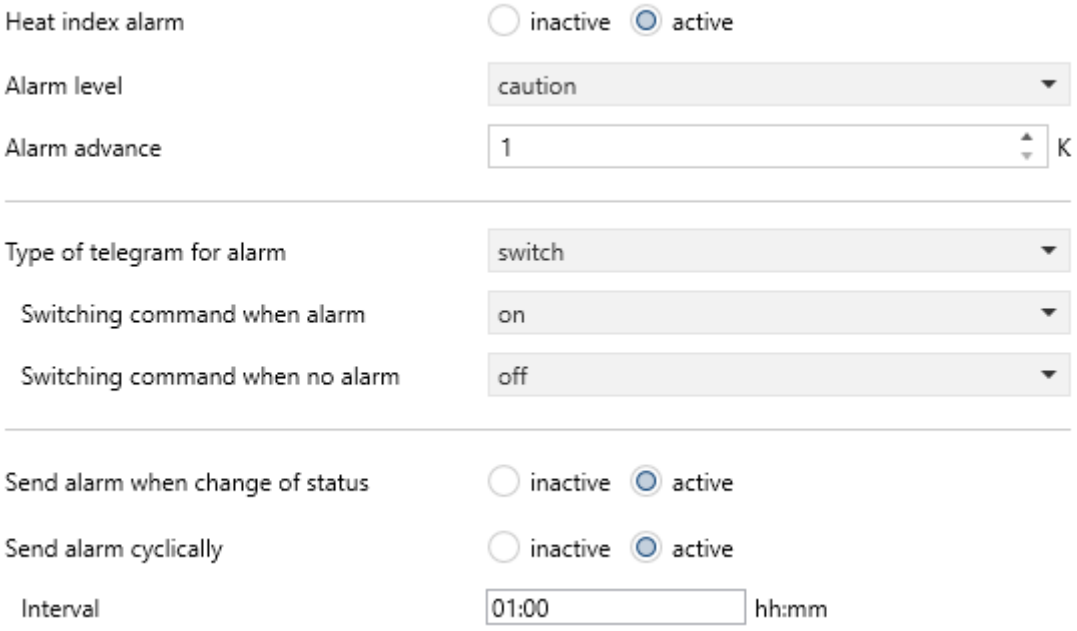
Value after dew point alarms	Inactive Active	Defines the value that is sent when the dew point alarm ends.
Send dew point alarm on change	Inactive Active	No function When activated, a KNX telegram is sent whenever the dew point alarm status changes (e.g. from inactive to active or vice versa). This ensures that changes in the alarm condition are immediately communicated.
Send dew point alarm cyclically	Inactive Active 1 min – 24 h	No function When activated, the current status of the dew point alarm is sent at regular intervals, regardless of whether the status has changed. The transmission interval can be defined via the “Interval” parameter.

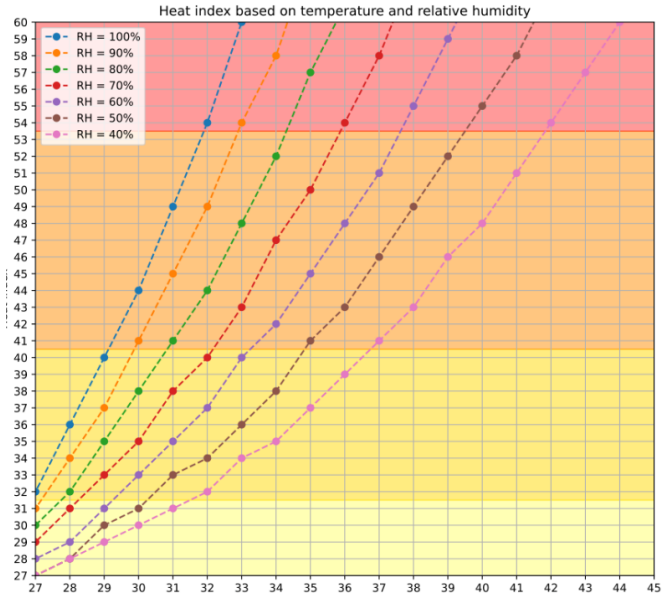
12. Heatindex – Heat index temperature



Description	Options	Description
Heatindex	Inactive Active	No function Send the current status
Value source	Intern Extern	
Send value on change	Inactive On change by0,1K to 10K	No function On status change, the current control value is sent.
Send value cyclically	Inactive 1 min – 24 h	No function Cyclic transmission of the control value according to the configured time interval.

12.1 Heatindex – Heatindex alarm



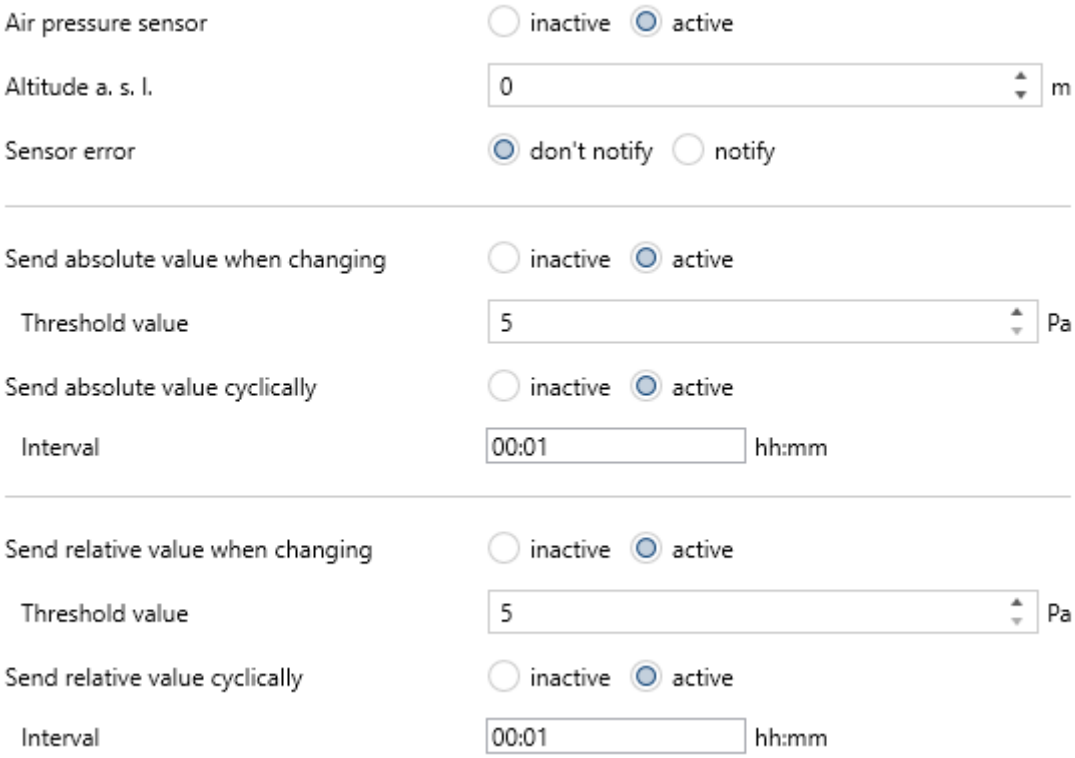


Quelle: https://en.wikipedia.org/wiki/Heat_index#/media/File:Heat_index_plot.svg

Description	Options	Description
Heat index alarm	Inactive Active	No function The heat index alarm calculates the perceived temperature value based on the combination of relative humidity and temperature. It is divided into four alarm stages: Caution, Extreme Caution, Danger, and Extreme Danger. As the values increase, the health risk rises, since high humidity reduces the body's ability to cool itself through sweat evaporation. The composition of the individual alarm stages can be found in the corresponding illustration.
Alarm level	Caution see fig., yellow range Extreme caution see fig., light orange range Danger see fig., orange range	The alarm threshold "Caution" warns of initial physical stress due to heat, especially during prolonged exposure or exertion, and recommends sufficient fluid intake and reduced activity. The alarm threshold "Extreme Caution" indicates an increased risk of heat cramps and exhaustion, particularly during physical activity, making cooling and hydration strongly recommended. The alarm threshold "Danger" warns of serious health risks due to extreme heat, especially for individuals who are physically active or exposed to heat for extended periods. There is a high risk of heat collapse, heat stroke, and other heat-related illnesses. Cooling, adequate fluid intake, and avoiding direct sunlight are essential.

	Extreme danger see fig., red range	The alarm threshold “Extreme Danger” signals an acute threat to health and potentially life. Extreme heat can quickly lead to heat stroke, circulatory failure, or organ damage. Elderly people, children, and individuals with pre-existing conditions are particularly at risk, but even healthy adults are at significant risk under prolonged exposure.
Alarm advance	1K to 5K	The alarm is triggered 1 K to 5 K before the selected alarm threshold.
Type of telegram foFVr alarm	Switch Controlled switch Percent 1-byte signed 2-byte signed 4-byte signed 1-byte unsigned 2-byte unsigned 4-byte unsigned 2-byte floating point Scene	Defines which type of object is used for the alarm.
Value when alarm	Dependent on the selected “Type of telegram”	Defines the value that is sent when a heat index alarm is active. The exact value depends on the selected “Type of telegram” (e.g. ON/OFF for switch, specific value for other telegram types).
Value when no alarm	Dependent on the selected “Type of telegram”	Defines the value that is sent when no heat index alarm is present. The value is also dependent on the selected “Type of telegram” and represents the normal (non-alarm) state.
Send alarm when change of status	Inactive Active	No function The heat index alarm is sent on status change.
Send alarm cyclically	Inactive Active 1 min – 24 h	No function In this mode, the current alarm status is transmitted to the bus cyclically at regular intervals. When the alarm is active, a value of 1 is sent cyclically; when inactive, a value of 0 is sent, ensuring the status remains continuously visible on the bus.

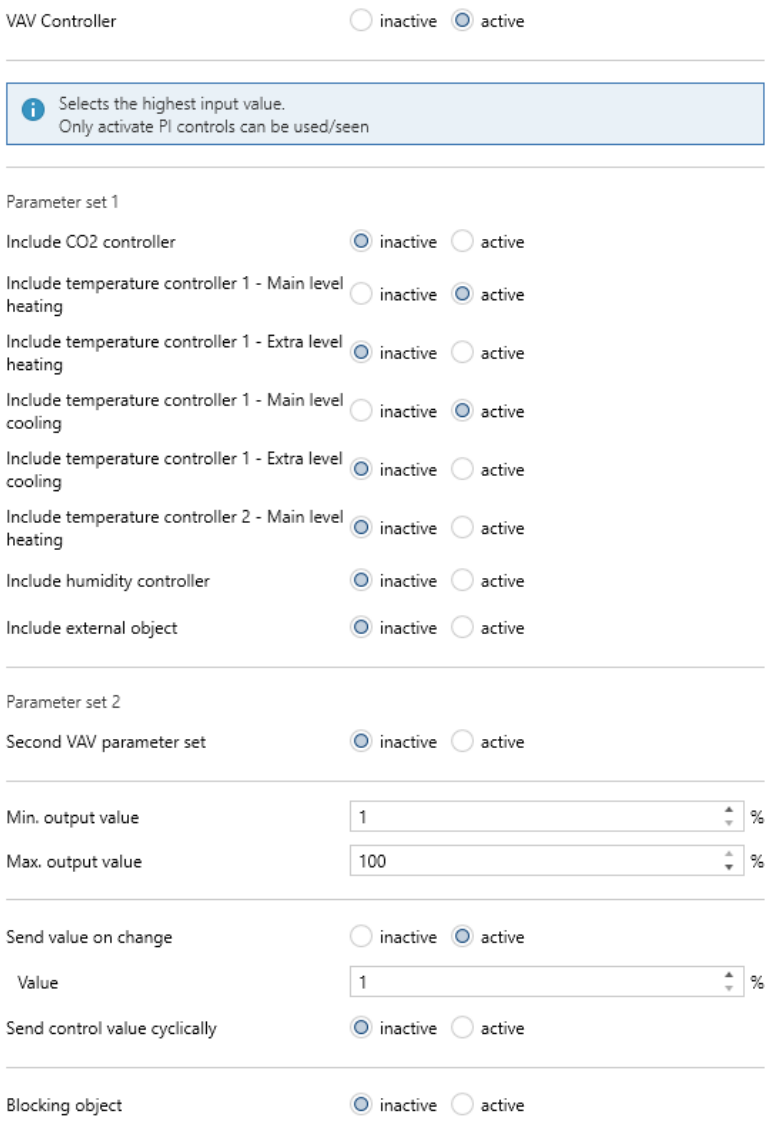
13. Air pressure sensor



Description	Options	Description
Air pressure sensor	Inactive Active	No function Air pressure sensor active
Altitude above sea level [m above NHN]	0m to 9000m	Since air pressure decreases with altitude, the measured absolute air pressure is converted into relative air pressure at sea level based on the configured altitude (0–9000 m above sea level). This enables comparable values, e.g. for weather analysis.
Sensor error	Don´t notify Notify	No sensor error is output If no new measured values are provided by the sensor for more than 10 minutes, a sensor error is reported.
Send absolute air pressure on change	Inactive Active On change by 5 hPa to 50 hPa	No function The current absolute air pressure value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the current air pressure value is sent to the bus. The change threshold can be set by the user within a range of 5 hPa to 50 hPa.
Send absolute air pressure cyclically	Inactive Active 1 min – 24 h	No function Enables the cyclic transmission of the absolute air pressure at a defined time interval. Regardless of changes in the measured values, the output values are sent to the bus at fixed intervals. The transmission interval can be configured flexibly between one minute and once per day.

Send relative air pressure on change	Inactive Active On change by 1 hPa to 50 hPa	No function The current relative air pressure value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the current air pressure value is sent to the bus. The change threshold can be set by the user within a range of 1 hPa to 50 hPa.
Send relative air pressure cyclically	Inactive Active 1 min – 24 h	No function Enables the cyclic transmission of the relative air pressure at a defined time interval. Regardless of changes in the measured values, the output values are sent to the bus at fixed intervals. The transmission interval can be configured flexibly between one minute and once per day.

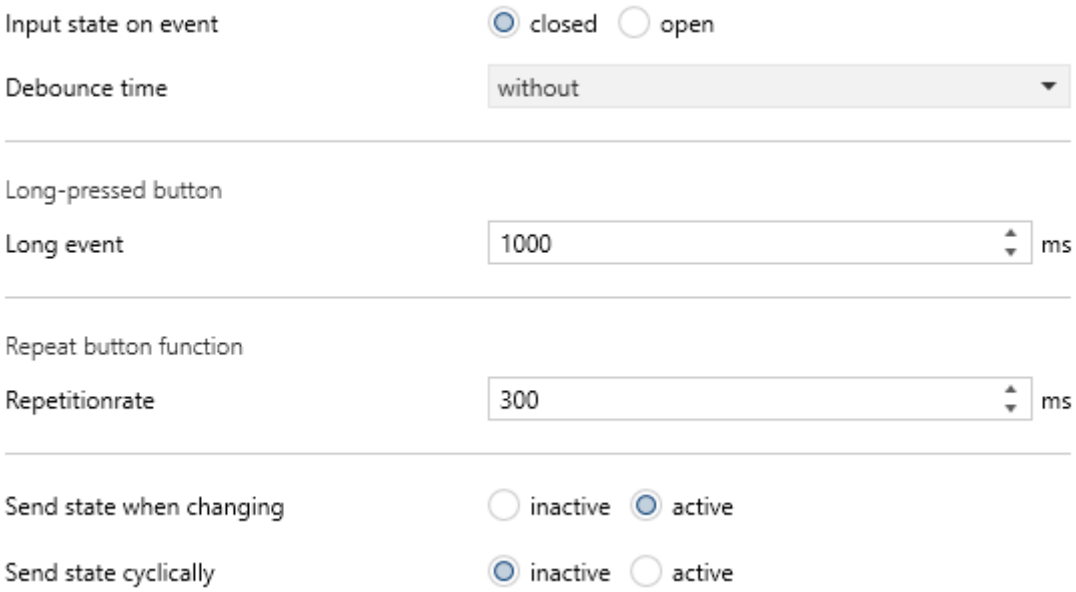
14. VAV-Controller



Function of the VAV controller:
The highest value of the active PI controllers for CO_2, relative humidity, and temperature is determined and used for VAV control. This value is transmitted via a communication object..

Description	Options	Description
Include CO_2 controller	Inactive Active	No function The CO_2 controller is included in the VAV control and uses the currently measured CO_2 value to calculate the control value of the VAV controller.
Include temperature controller 1 – Main level heating	Inactive Active	No function The current control value of the main stage heating (%) is included in the calculation of the VAV controller control value.
Include temperature controller 1 – Extra level heating	Inactive Active	No function The current control value of the additional stage heating (%) is included in the calculation of the VAV controller control value.
Include temperature controller 1 – Main level cooling	Inactive Active	No function The current control value of the main stage cooling (%) is included in the calculation of the VAV controller control value.
Include temperature controller 1 – Extra level cooling	Inactive Active	No function The current control value of the additional stage cooling (%) is included in the calculation of the VAV controller control value.
Include temperature controller 2 – Main level heating	Inactive Active	No function The current control value of the main stage heating (%) is included in the calculation of the VAV controller control value.
Include temperature controller 2 – Main level cooling	Inactive Active	No function The current control value of the main stage cooling (%) is included in the calculation of the VAV controller control value.
Include humidity controller	Inactive Active	No function The humidity controller is included in the VAV control and uses the currently measured humidity value to calculate the control value of the VAV controller.
Include external object	Inactive Active	No function An external value is included in the VAV control and used to calculate the control value of the VAV controller.
Min. output value Max. output value	Min. control value 1% to 100% Min. control value 1% to 100%	Sets the minimum value that the output can take, even if the calculated control value is lower.. Sets the maximum value that the output can take, even if the calculated control value is higher.
Send value on change	Inactive Active Bei oner Änderung von: 1% to 100%	No function The current temperature value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the configurable change threshold, the current control value is sent to the bus. The change threshold can be set by the user within a range of 1% to 100%.
Send control value cyclically	Inactive Active 1 min – 24 h	No function Enables the regular transmission of the calculated minimum and maximum control values within a defined time interval. Regardless of changes in the control value, the current min and max values are sent to the bus in fixed cycles.
Blocking object If active: – Behavior when blocking Value	Inactive Active Inactive Active 1% to 100%	No function The blocking object can be assigned via a communication object. No function When the lock is activated, the defined value is sent.

15. External Inputs



Description	Options	Description
External Input X	Inactive Active	No function The external input is enabled and evaluated. The signals present at the input (e.g. push buttons, sensors, or contacts) are processed and can trigger corresponding functions in the device.
Input state on event	Closed Open	This setting defines how the input reacts to an operation. It can be selected whether the input is interpreted as “closed” or “open” when an action occurs.
Debounce time	Without Regular Medium Long	This setting defines how long a signal must be present at an input before it is recognized as valid. It is used to suppress contact bouncing (short, unintended interruptions during switching). Depending on the application, “Without”, “Regular”, “Medium”, or “Long” can be selected – the higher the debounce time, the longer the signal must remain stable to be recognized.
Long – pressed button	500ms – 5s	This setting defines how long the button must be pressed before a “long press” is detected.
Repeat button function	200ms – 5s	The repeat rate defines the time interval at which signals (e.g. “1”) are continuously sent while the button is held down. The shorter the configured time (e.g. 200 ms), the faster telegrams are repeatedly sent to the bus. This is relevant, for example, for dimming functions or stepwise control.
Send state when changing	Inactive	No function

	Active	This setting defines whether a communication object is sent only when the button state changes. Inactive: No automatic transmission is triggered on changes. Active: On every change of the button state (rising edge / falling edge), the current value is sent to the bus.
Send state cyclically	1 min – 24 h	This setting controls whether the button value is sent cyclically once it has been activated. If this Options is enabled, the value is continuously sent at regular intervals via the bus as long as the button is pressed. If it is disabled, the value is sent only once when the button is pressed.

16. Outputs

External value format: 1-byte percent (0 ... +100)

Start

Range starting value: 0

Voltage output starting value: 0 V

End

Range ending value: 100

Voltage output ending value: 10 V

Startup voltage output: 0 V

Malfunction voltage output: 0 V

Send on Change: inactive / active

Threshold: 1 V

Send value cyclically: inactive / active

Interval: 00:01 hh:mm

Blocking object: inactive / active

Output value on blocking object: 0 V

Description	Options	Description
Output X Function	 Inactive Active	 No function The parameters of the “Output X” function are opened so that it can be individually parameterized.
External value format	Switch (0/1) Scene (1…64) 1-byte percent (0 … +100) 1-byte value (-128 … +127) 2-byte value (-32.7k … +32.7k) 4-byte value (-2.1 billion … +2.1 billion) 1-byte value (0 … +255) 2-byte value (0 … +65.5k) 4-byte value (0 … +4.2 billion) 2-byte floating point value	This Options defines the data format in which an external value is received via the bus. Depending on the selection (e.g. 1-byte value, percent, floating point, scene, etc.), the received value is interpreted accordingly. This setting is required to ensure that the received data value can be correctly converted into an analog output voltage.
Range starting value Voltage Output start value	Switch (0/1) Scene (1…64) 1-byte percent (0 … +100) 1-byte value (-128 … +127) 2-byte value (-32.7k … +32.7k) 4-byte value (-2.1 billion … +2.1 billion) 1-byte value (0 … +255) 2-byte value (0 … +65.5k) 4-byte value (0 … +4.2 billion) 2-byte floating point value 0-10V	Defines the lowest logical input value at which the conversion into an analog output voltage begins. The value depends on the selected data format (see External value – format selection), e.g. 1-byte value, percent, or floating point. Example: With a start value = 0 (e.g. 0% or 0 byte), the linear conversion to the analog output starts at this point. Together with the range end value, this value defines the scaling range for voltage conversion.
Range endig value Voltage output ending value	Switching / alarm (0…1) Scene (1…64) 1-byte value (-128 … +127) 1-byte value (0 … +255) 1-byte percent (0 … +100) 2-byte value (-32.7k … +32.7k) 2-byte value (0 … +65.5k) 2-byte floating point value 4-byte value (-2.1 billion … +2.1 billion) 4-byte value (0 … +4.2 billion) 0-10V	Defines the input value at which the maximum output voltage is reached. This value also depends on the selected data format. Between the start and end value, the voltage is calculated linearly. Defines the output voltage that is provided when the configured range end value is reached or exceeded. The output depends on the previously defined input signal and its data format. Between the start and end value, the output voltage is scaled linearly.

Startup voltage output	0-10V	Defines the output voltage that is present when the output is activated before a valid input value has been received or calculated. This voltage is output, for example, when the device starts or after a reset until a new output voltage is determined by the input signal.
Malfunction voltage output	0-10V	Defines the output voltage that is applied in case of a malfunction (e.g. sensor error or invalid input value) to ensure a defined and safe system behavior.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the function of the outputs.
Send on change	Inactive Active On change by: 0-10V	No function The current output value is compared with the previously transmitted value. Only when the difference between the new output value and the last transmitted value exceeds the configured change threshold, the current value is sent to the bus. The change threshold can be set by the user within a range of 0 to 10 V and directly refers to the voltage range of the 0–10 V output.
Send value cyclically	Inactive Active 1 min – 24 h 0-10V	No function Enables the cyclic transmission of the current 0–10 V output value at a defined time interval. Regardless of changes in the output value, the current voltage value is sent to the bus at fixed intervals.
Blocking object Output value on blocking object	Inactive Active 0-10V	No function The blocking object is active. The 0–10 V output can be influenced via an external blocking signal. When the lock is active, the output is set to a defined value (e.g. 0 V or a parameterized substitute value) and no longer responds to internal control as long as the lock is active.

17. Functions

17.1 Switching 1/2

Input 1	○ external input ◉ external object
Type	○ trigger ◉ scene
Scene	1
Reaction	on

Input 2	○ external input ◉ external object
Type	○ trigger ◉ scene
Scene	1
Reaction	on

Send value cyclically	○ inactive ◉ active
Interval	00:01 hh:mm

Blocking object	○ inactive ◉ active

Description	Options	Description
Switching X		
Function	Inactive Active	No function The parameters of the “Switching X” function are opened so that it can be individually parameterized.
Description		Text field for a free description of the “Switching” function.
Input	External input External object	The input is triggered via a KNX group object. Incoming telegrams (e.g. ON/OFF or trigger) are evaluated and, according to the configured reaction (e.g. switching ON/OFF), lead to the execution of the function.
Type	Trigger Scene	The received telegram is interpreted as a scene recall. A specific scene number activates a previously defined state (e.g. ON or OFF).
Trigger	On activation Short activation Continious activation Long activation On deactivation Change of status	The switching command is triggered when the input is activated (e.g. button press or rising edge). The switching command is triggered by a short button press, based on the configured time threshold under “Button”. The switching command is repeatedly sent as long as the button remains pressed. The transmission interval is defined under “Button”. The switching command is triggered when the button is pressed and held longer than the defined time. The switching command is triggered when the input is released (falling edge). The switching command is triggered on every change of the input state, regardless of whether it is activation or deactivation.
Scene	1…64	Defines the scene number that is triggered when the function is activated. The selected value (1–64) corresponds to a predefined scene, allowing a specific state or action to be recalled via the KNX bus.
Reaction	Off ON Toggle	When triggered, the switching function is set to ON. When triggered, the switching function is set to OFF. With each trigger, the current switching state of the function is toggled (ON ↔ OFF).
Send value cyclically	Inactive Active 1 min – 24 h	No function Enables the regular transmission of the current switching state at a defined time interval. Regardless of changes in the control value, the current state is sent to the bus in fixed cycles.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the switching function. As soon as the lock is active, no switching commands are sent to the KNX bus.

17.2 Dimming 1/2/3/4/5/6

Function: (●) dimming and colour temperature ( ) colour control and brightness
Type of control: dimming

Input 1: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Input 2: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Input 3: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Input 4: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Additional settings: ☐
Blocking object: (●) inactive ( ) active

Function: ( ) dimming and colour temperature (●) colour control and brightness
Type of Control: colour
Colour space: RGB
Value RGB/HSV: #B90F24
Communication: (●) individual Objects ( ) combined object

Input 1: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Input 2: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Input 3: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Input 4: ( ) external input (●) external object
Type: (●) trigger ( ) scene
Reaction: on

Additional settings: ☐
Blocking object: (●) inactive ( ) active

Description	Options	Description
Dimmer X		
Description		Text field for a free description of the “Dimming” function.
Function	Inactive Active	No function The parameters of the “Dimming” function are opened so that it can be individually parameterized. No function
Function	Dimming and color temperature	Enables combined control of brightness and colour temperature. Depending on the selected control type, the light can be dimmed and the colour temperature adjusted (warmer or cooler).
Type of control	Dimming Color temperature Dimming and color temperature	Allows the stepwise increase or decrease of the brightness of a connected lighting device. The direction and step size of the dimming function are configurable, e.g. under “Additional settings”. The control depends on the selected operating logic. Allows the adjustment of the color temperature of tunable white luminaires. The light temperature is adjusted stepwise warmer or cooler depending on the configuration and the triggered control command. The step size can be configured under “Additional settings”. Combines the control of brightness and color temperature. Dimming and color temperature can be controlled either via a single communication object or via two separate communication objects.
Communication	Individual objects Combined object	Defines how brightness and colour temperature values are transmitted via the KNX bus. With *individual objects*, dimming and colour temperature are controlled via separate communication objects, while *combined object* allows both functions to be controlled via a single communication object.
Input X	External input External object	
Trigger	On activation Short activation Continious activation Long activation	By pressing the button or activating the external object, the brightness or color is controlled. A short press of the button or a short activation of the external object (time defined under “Button”) can recall a predefined brightness or color. The command is repeated as long as the signal is present. For example, if the button is pressed and held, the defined command is sent repeatedly at defined intervals (time configurable under “Button”). A long press of a button starts a continuous adjustment of brightness or color until the desired setting is reached (time defined under “Button”).

	On deactivation	The adjustment of brightness or color is not performed when pressing the button, but only when it is released.
	Change of status	A command is triggered by a state change (rising or falling edge), regardless of the duration of the button press. It can be configured whether the action is executed on pressing (rising edge) or releasing (falling edge).
Type	Trigger Scene	The received telegram is used directly as a trigger for a dimming action.. The received telegram is interpreted as a scene recall. A defined scene sets a predefined state, e.g. a specific brightness or color temperature.
Scene	1…64	Defines the scene number that is triggered when activated. The selected scene recalls a predefined combination of brightness and colour temperature via the KNX bus.
Reaction	On Off Toggle Brighter Darker Brighter/darker switch Warmer Cooler Warmer/cooler switch Increase brightness by Decrease brightness by Increase color temperature (cooler) by Decrease color temperature (warmer) by Color shift clockwise Color shift in anti – clockwise direction Color shift toggle	Depending on the selected control type, different reaction Options are available. For switching functions, the light can be turned on or off or toggled between these states. For dimming functions, the brightness can be increased or decreased stepwise, or toggled between brighter and darker. When color temperature control is used, the color temperature can be adjusted warmer or cooler, or toggled between these values.
Additional Settings	Increase brightness by Decrease brightness by Increase color temperature (cooler) by Decrease color temperature (warmer) by	In addition to the basic reaction Options, specific settings for adjusting brightness and color temperature can be configured. The brightness can be increased or decreased by a defined value, and the color temperature can be adjusted accordingly. The step size of the changes can be freely selected between 1.5% and 100%, allowing both fine adjustments and large changes with a single operation.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the dimming function.

Description	Options	Description
Function	Color control and brightness	
Control type	Color control	The color cycle enables a stepwise adjustment of the hue (H) in the range from 0 to 360°. If the color space is set to “RGB” or “RGBW”, the change of color values is automatically converted within the device. If the adjustment is triggered by a long press, the device continuously sends updated values so that the entire color spectrum is cycled through. In the “HSV” or “HSVW” color space, the hue (H) changes cyclically by the defined step size, while saturation (S) and brightness (V) remain unchanged. In “RGB” or “RGBW” mode, however, the color values for red, green, or blue change continuously depending on the initial output position.
	Brightness	The brightness adjustment enables stepwise control of the brightness value (V) in the range from 0 to 100%. The step size can be individually configured under “Additional settings”. Depending on the command, the brightness is either increased or decreased. During a long press, the device continuously sends updated values, resulting in a smooth adjustment of brightness. This process automatically stops when either the maximum value of 100% or the minimum value of 0% is reached. In the “HSV” or “HSVW” color space, the brightness value (V) changes in defined steps according to the parameterization, while hue (H) and saturation (S) remain unchanged. In “RGB” or “RGBW” mode, the values for red (R), green (G), or blue (B) change continuously depending on the output position during adjustment.
	Color control and brightness	The combined function for color and brightness control allows flexible adjustment of both color and brightness within a system. It is possible to choose between color control and brightness control, enabling the use of different inputs or buttons for different control functions. For example, inputs 1 and 2 can be used for color control, while buttons 3 and 4 are used for brightness adjustment. Color control can be implemented either via separate objects or via a combined object that integrates both functions. This allows flexible implementation of various application scenarios. In addition, the initial value as well as the step sizes for color and brightness adjustments can be individually configured under “Additional settings”.
Color space	RGB	The RGB color space is based on the additive mixing of the three primary colors red (R), green (G), and blue (B). By varying the intensity of these colors, a wide range of color tones can be created. When all three colors are combined at maximum brightness, white is produced, while the complete absence of light results in black.
	RGBW	The RGBW color space extends the classic RGB model by adding an additional white channel (W). While RGB is based on mixing the three primary colors red (R), green (G), and blue (B) to generate different colors, the integration of the white channel allows improved brightness control and more accurate color reproduction. In conventional RGB systems, white is created by evenly mixing red, green, and blue, which can result in a slightly bluish or unnatural white. The additional white channel in RGBW provides a cleaner and more natural representation of white tones and also improves overall brightness without affecting color saturation. This allows softer pastel tones as well as more intense colors with higher luminosity.
	HSV	The HSV color space (Hue, Saturation, Value) describes colors in a way that is closer to human perception than the classic RGB model. A color is defined by three parameters: Hue (H) represents the actual color and is

	HSVW	displayed on a color wheel from 0° to 360°, where, for example, 0° corresponds to red, 120° to green, and 240° to blue. Saturation (S) indicates how intense or pale a color appears. A saturation of 100% represents a fully saturated color, while reducing the saturation results in a more grayish tone. The third parameter, Value (V), controls the brightness of the color. A value of 0% corresponds to black, while 100% represents the maximum brightness of the selected color. The HSVW color space extends the classic HSV model (Hue, Saturation, Value) by adding an additional white channel (W), enabling more precise brightness control and improved color reproduction. The additional white channel (W) provides a cleaner white representation and enhances brightness control without affecting color saturation.
Value RGB/HSV	R/0-255	The value R in the RGB color space represents the intensity of the red component of a color. It can be adjusted within a range of 0 to 255, where 0 means no red component is present and 255 represents the maximum intensity of red.
	G/0-255	The value G in the RGB color space represents the intensity of the green component of a color. It can be adjusted within a range of 0 to 255, where 0 means no green component is present and 255 represents the maximum intensity of green.
	B/0-255	The value B in the RGB color space represents the intensity of the blue component of a color. It can be adjusted within a range of 0 to 255, where 0 means no blue component is present and 255 represents the maximum intensity of blue.
	H/0-360°	The H value (Hue) in the HSV color space defines the color on a color wheel from 0° to 360°. In this representation, 0° corresponds to red, 120° to green, and 240° to blue, with smooth transitions in between. A value of 360° again corresponds to red, as the color wheel is circular. In combination with saturation (S) and brightness (V), different color tones with varying intensity and brightness can be created.
	S/0-100%	The S value (Saturation) in the HSV color space indicates how intense or pale a color is and is specified in a range from 0% to 100%. A value of 100% represents a fully saturated, vivid color, while 0% completely desaturates the color, turning it into a shade of gray. In combination with the H value (hue) and the V value (brightness), different color nuances with varying intensity can be generated.
	V/0-100%	The V value (Value, brightness) in the HSV color space defines the brightness of a color and is specified in a range from 0% to 100%. A value of 100% represents the maximum brightness of the color, while 0% completely darkens the color to black. In combination with the H value (hue) and the S value (saturation), the V value determines how bright or dark a color appears.
Value (W)	W/0-255	In the RGBW and HSVW color spaces, the white component (W) complements the color representation and improves brightness control. In RGBW, white no longer needs to be generated by mixing red, green, and blue but is available as a separate light source, resulting in a cleaner and more natural color reproduction. In HSVW, the white channel enables additional brightness adjustment without reducing color saturation, making pastel tones appear softer and color transitions more natural.
Communication	Individual objects	For control, it is possible to choose between individual objects and a combined object. When using individual objects, separate control channels are available for each color component—red (R), green (G), blue (B), and white (W)—allowing each color to be adjusted individually.
	Combined object	Alternatively, a combined object can be used, where a single RGB value is provided. In this case, color adjustment is performed using one control value, causing the color components to change synchronously.
Input X	External object	Control is performed via a KNX communication object. Incoming telegrams trigger the parameterized function.

Type	Trigger	The received telegram is used directly as a trigger for a dimming action. Depending on the configuration (e.g. increase or decrease brightness), the dimming value is adjusted stepwise.
	Scene	The received telegram is interpreted as a scene recall. A defined scene sets a predefined state, e.g. a specific brightness or color temperature.
Reaction	On	Switches the light or lighting on.
	Off	Switches the light or lighting off.
	Toggle	Toggles between the states “On” and “Off”.
	Color shift clockwise	Changes the color along the color wheel in the HSV color space in a clockwise direction (e.g. from red to yellow, then to green, etc.).
	Color shift counterclockwise	Changes the color in the opposite direction along the color wheel (e.g. from red to magenta, then to blue, etc.).
	Toggle color shift direction	Toggles between two predefined colors or starts a continuous color change.
	Darker	Decreases the brightness of the lighting stepwise.
	Brighter	Increases the brightness stepwise.
	Toggle brighter/darker	Toggles between increasing and decreasing brightness with repeated operation.
Additional settings	Change white value during dimming	The setting “Change white value during dimming” can be activated if the control type “color and brightness” or “brightness only” is selected. It determines whether the white component is reduced proportionally when dimming. If enabled, the white component decreases as brightness decreases, resulting in a more natural lighting effect. If disabled, the white value remains constant, meaning the white component is unchanged even at lower brightness levels.
	Start value Configured value Last transmitted value Feedback value	The start value for control can be individually defined when the control type brightness, color control, or a combination of both is selected. Three Options are available: configured value, last transmitted value, and feedback value. With the configured value, a fixed start value is defined and applied on each activation. If the last transmitted value is selected, the light starts with the last set brightness or color, ensuring a consistent lighting state after interruptions. The feedback value is based on external feedback, for example from another control device or sensor, and adjusts the start value dynamically.
	Color step size	The color and brightness step size defines how much the values change during an adjustment.
	Increase brightness by	For brightness control, the step size for increasing and decreasing can be set individually between 1% and 15%. A lower value allows smooth brightness adjustment, while higher values result in faster and more noticeable changes. These settings allow flexible adaptation to different applications and user preferences.
	Decrease brightness by	
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the dimming function. As soon as the lock is active, no commands are sent to the KNX bus, regardless of any button operation or external object activation.

17.3 Shutter / blind 1/2/3/4

Type: (•) blind ( ) shutter

Input: ( ) external input (•) external object

Type: (•) trigger ( ) scene

Reaction: move (up)

Input: ( ) external input (•) external object

Type: (•) trigger ( ) scene

Reaction: move (up)

Input: ( ) external input (•) external object

Type: (•) trigger ( ) scene

Reaction: move (up)

Input: ( ) external input (•) external object

Type: (•) trigger ( ) scene

Reaction: move (up)

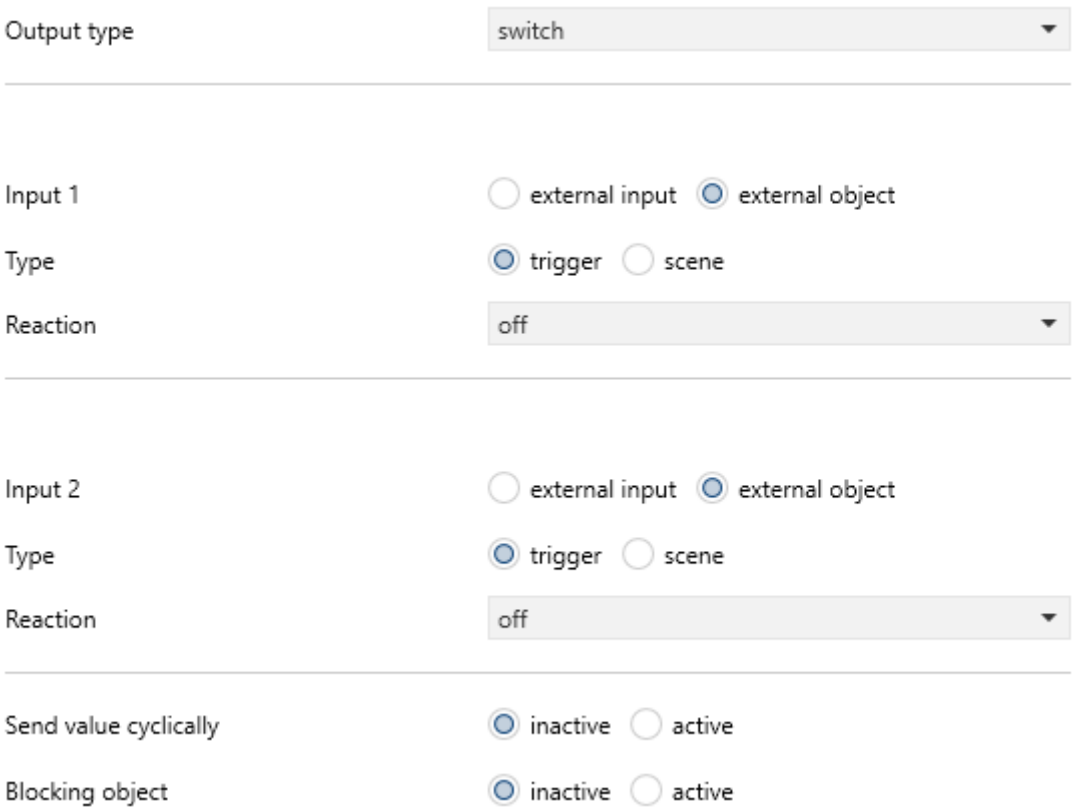
Continued activation until: 1 second after last activation

Blocking object: (•) inactive ( ) active

Description	Options	Description
Shutter / blind X		
Function	Inactive Active	No function The parameters of the “Shutter / Blind” function are opened so that it can be individually parameterized.
Description		Textfeld zur freien Description der Function „Rollladen / Jalousie“
Type	Blind Shutter	The “Blind” type allows, in addition to the up/down function, the adjustment of the slat angle (slat adjustment). Suitable for systems with adjustable slats for targeted light control. When selecting the “Shutter” type, control is limited to simple up/down movement without slat adjustment. Typical for external, closed shading systems.
Input X	External input External object	Control is performed via a KNX communication object. Incoming telegrams trigger the parameterized function.
Trigger	On activation Short activation Continious activation Long activation On deactivation Change of status	The function is executed immediately when the input becomes active (e.g. button press or incoming telegram). The function is triggered only if the input is activated briefly (short button press within the defined time). The function remains active as long as the input signal is present (e.g. button is pressed and held), enabling continuous movement. The function is triggered when the input is held for a defined longer time (long button press). The function is executed when the input becomes inactive (e.g. button release). The function is triggered on any change of the input state (both activation and deactivation).
Reaction	Move (up) Move (down) Move (toggle) Stop Step (up) Step (down) Step (toggle)	By pressing a button or activating an external object, a defined shutter or blind function is executed. Depending on the configuration, the system responds as follows: Move (up): Starts full upward movement. Move (down): Starts full downward movement. Move (toggle): Switches between upward and downward movement. Stop: Stops the current movement. Step (up): Performs a short stepwise movement upwards. Step (down): Performs a short stepwise movement downwards. Step (toggle): Performs a stepwise movement and toggles the direction. The exact behavior depends on the configured button logic.

Continuous activation until	1 second after last operation 5 seconds after last operation 5 seconds after first operation 10 seconds after first operation	For continuous movement, the function of sustained activation is available. It can be defined how long the movement continues automatically after activation.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the shutter or blind function. As soon as the lock is active, no commands are sent to the KNX bus, regardless of whether a button or an external object is activated.

17.4 Value 1/2



Description	Options	Description
Value X		
Function	Inactive Active	No function The parameters of the “Value” function are opened so that it can be individually parameterized.
Description		Text field for a free description of the “Value” function.
Output type	Switch Controlled switch	A defined value can be sent to the KNX bus via an input. The type of value can be freely selected depending on the desired application and data point type. The following formats are available: Outputs a simple switching value (1-bit). The value is either ON (1) or OFF (0).

	Percent 1-byte signed 2-byte signed 4-byte signed 1-byte unsigned 2-byte unsigned 4-byte unsigned 2-byte floating point Scene	Also outputs a switching value, but takes higher-level control into account (e.g. via logic or blocking functions). The output value can be specifically influenced by external conditions. Outputs a continuous value in the range from 0 to 100%. Signed integer in the range -128 to +127. Signed integer in the range approx. -32,768 to +32,767. Signed integer in the range approx. -2.1 billion to +2.1 billion. Unsigned integer in the range 0 to 255. Unsigned integer in the range 0 to 65,535. Unsigned integer in the range 0 to approx. 4.2 billion. Floating-point value (e.g. temperature values) with high precision in a compact format. Transmits a scene number to trigger predefined states.
Input X	External Input External object	Control is performed via a KNX communication object. Incoming telegrams trigger the parameterized function.
Trigger	On activation	The configured value is sent when the input becomes active (e.g. rising edge).
	Short activation	The configured value is sent after a short activation of the input, based on the defined time threshold.
	Continious activation	The configured value is sent repeatedly as long as the input remains active. The transmission is performed at defined intervals.
	Long activation	The configured value is sent when the input remains active longer than the defined time.
	On deactivation	The configured value is sent when the input is released (falling edge).
	Change of status	The configured value is sent on every change of the input state, regardless of whether it is activation or deactivation.

Typ	Trigger Scene	The received telegram is used directly as a trigger for an action. The defined function is executed immediately. The received telegram is interpreted as a scene recall. A specific scene number activates a predefined state or sequence.
Reaction	Off On Toggle Controlled stop Controlled off Controlled on 0…100% -128…+127 -32,768 to +32,767 -2.1 billion to +2.1 billion 0 to 255 0 to 65,535 0 to approx. 4.2 billion -670,760.96 to 670,433.28 1…64	Defines which value is sent when the configured trigger occurs. The selected Options determines the output value (e.g. ON, OFF, percentage or numerical value) that is transmitted to the KNX bus.
Send value cyclically	Inactive Active 1 min – 24 h	No function Enables the regular transmission of a defined value at a specified time interval. Regardless of changes, the configured value is sent to the bus in fixed cycles.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the value function. As soon as the lock is active, no values are sent to the KNX bus.

17.5 Scenes 1/2

Input 1 — external input / external object
Type: trigger
Reaction: activate / reset

Input 2 — external input / external object
Type: trigger
Reaction: activate / reset

Input 3 — external input / external object
Type: trigger
Reaction: activate / reset

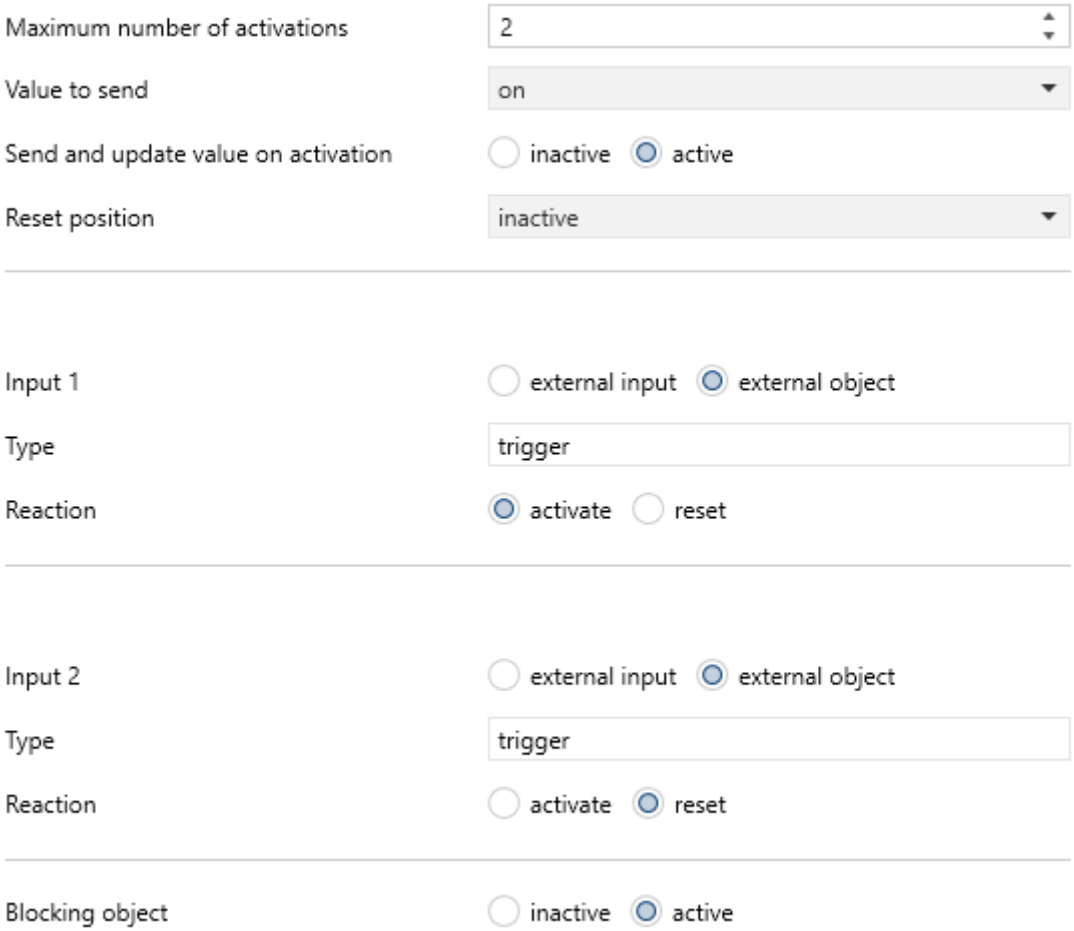
Input 4 — external input / external object
Type: trigger
Reaction: activate / reset

Scene for 1x activation: 1
Scene for 2x activation: 1
Scene for 3x activation: 1
Scene for 4x activation: 1
Time range for follow-up operation: 300
Reset scene position: inactive

Send value cyclically: inactive / active
Blocking object: inactive / active

Description	Options	Description
Scene X		
Function	Inactive Active	No function The parameters of the “Scene” function are opened so that it can be individually parameterized.
Description	External object	Text field for a free description of the “Scene” function.
Input X	1–64	Control is performed via a KNX communication object. Incoming telegrams trigger the parameterized function.
Scene for x activation	300–1000 ms	Defines the scene that is triggered by a specific number of consecutive activations. For example, pressing once activates scene 1, pressing twice activates scene 2, etc. This allows multiple scenes to be conveniently triggered via a single input.
Time range for follow-up operation	Never 1 second after last operation 5 seconds after last operation 5 seconds after first operation 10 seconds after first operation	Specifies the time period in milliseconds within which multiple activations are recognized as consecutive. If the next activation occurs within this time frame, it is counted as an additional activation (e.g. 2x, 3x, or 4x). If the time frame is exceeded, the count is reset to a single activation.
Reset scene position	External object	Defines when the count for multiple activations is reset. If the Options “never” is selected, the last detected activation remains until a new one is detected. Other settings allow automatic reset after a defined time or an event (e.g. value change) via the external object.
Send value cyclically	Inactive Active 1 min – 24 h	No function Enables the regular transmission of a defined scene at a specified time interval. Regardless of changes, the configured scene is sent to the bus in fixed cycles.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the scene function. As soon as the lock is active, no values are sent to the KNX bus, regardless of whether a button or an external object is activated.

17.6 Multiple operation 1/2



Description	Options	Description
Multiple activation X		
Function	Inactive Active	No function The parameters of the “Scene” function are opened so that they can be individually parameterized.
Description	1–4	Text field for a free description of the “Scene” function.

Max. number of activations	On Off Toggle	Defines which value is transmitted when triggered: On: A switching value “1” (on) is sent to the bus. Off: A switching value “0” (off) is sent. Toggle: The current state is inverted – “on” becomes “off” and vice versa. This is particularly suitable for toggle functions, e.g. switching a light on/off.
Transmitted value	Inactive Active	Defines which value is transmitted when triggered: On: A switching value “1” (ON) is sent to the bus. Off: A switching value “0” (OFF) is sent. Toggle: The current state is inverted – “ON” becomes “OFF” and vice versa. This is particularly suitable for toggle functions, e.g. switching lights on/off.
Update and send on activation	Never 1 second after last operation 5 seconds after last operation 5 seconds after first operation 10 seconds after first operation	Defines when the count for multiple activations is reset. If the Options “never” is selected, the last detected activation remains until a new one is detected. Other settings allow automatic reset after a defined time or an event (e.g. value change) via the external object.
Reset position	Trigger	Defines when the count for multiple activations is reset. If the Options “never” is selected, the last detected activation remains until a new one is detected. Other settings allow automatic reset after a defined time or an event (e.g. value change) via the external object.
Input X	External Input External Object	External input External object
Type	Trigger	The activation is counted and increases the current position within the multiple activation sequence.
Trigger	On activation Short activation Continious activation Long activation On deactivation Change of status	By pressing the button or activating the external object multiple times in succession, different actions can be triggered depending on the number of detected operations. A short press or activation of the external object is counted as one operation. Additional presses within the defined time window (configured under “Button”) are counted as consecutive operations (e.g. double press, triple press). Continuous operation means that the defined value is transmitted repeatedly as long as the button is pressed and held. Each long button press is interpreted as one operation. Consecutive long presses within the defined time window are counted and evaluated as multiple operations, allowing different actions to be triggered depending on the number of operations. The execution of the assigned action takes place after the sequence of operations has been completed or after the defined time window has elapsed. Alternatively, a command can also be triggered directly by a state change (rising or falling edge), independent of the duration of the button press. It can be configured whether the action is executed on pressing (rising edge) or releasing (falling edge).
Reaction	Activate Reset	Counts a detected operation and advances the operation sequence. The current activation count is reset and starts again from the beginning.
Blocking object	Inactive	No function

	Active	The blocking object is used to specifically deactivate or block the function. As soon as the lock is active, no values are sent to the KNX bus, regardless of whether an external object is activated.

17.7 Logic 1/2

Logic variant: AND

Number of logic inputs: 2

Mode of Function: (•) event ( ) state

Logic input 1: ( ) external input (•) external object

Type: trigger

Invert logic input: [ ]

Reset after: inactive

Mode of Function: (•) event ( ) state

Logic input 2: ( ) external input (•) external object

Type: trigger

Invert logic input: [ ]

Reset after: inactive

Logic output sends: (•) 1 bit object ( ) 8 bit object

Invert output: [ ]

Send value cyclically: ( ) inactive (•) active

Interval: 00:01 hh:mm

Blocking object: ( ) inactive (•) active

Description	Options	Description
Logic X		
Function	Inactive Active	No function The parameters of the “Logic” function are opened so that it can be individually parameterized.
Description		Text field for a free description of the “Logic” function.
Logic variant	AND OR Exclusive OR	Defines which logical operator is used for the inputs. Possible Options are: AND: All inputs must be true for the logic function to be executed. (cf. truth table AND, p. 111) OR: At least one input must be true. (cf. truth table OR, p. 111) Exclusive OR: Exactly one input must be true, but not more than one. (cf. truth table XOR, p. 111)
Number of logic inputs	2-4	The number of logic inputs defines how many inputs are included in the logic. Between 2 and 4 inputs can be configured.
Mode of function	Event State	The input reacts to individual telegrams (impulses). Each received change or signal is interpreted as an event and triggers the logic function. The input is interpreted as a continuous state. The logic function evaluates the current value (e.g. ON/OFF) continuously, not only on change.
Logic input X	External input External object	Control is performed via a KNX communication object. Incoming telegrams trigger the parameterized function.
Trigger	On activation Short activation Continious activation Long activation On deactivation Change of status	The logic input is triggered when the input becomes active (e.g. rising edge). The signal is evaluated at the moment of activation. The logic input is triggered by a short activation of the input, based on the configured time threshold. The logic input is triggered repeatedly as long as the input remains active. The signal is evaluated at defined intervals The logic input is triggered when the input remains active longer than the defined time. The logic input is triggered when the input is released (falling edge). The logic input is triggered on every change of the input state, regardless of whether it is activation or deactivation.
Type	Trigger	The incoming telegram is interpreted as an impulse. Each received value triggers an action at the logic input, regardless of the current state.
Invert logic input	Inactive Active	Defines whether the first logic input is inverted. If this Options is enabled, the input is inverted, so an active input is interpreted as inactive and an inactive input as active.
Reset after	Inactive	No function

	Time 1 min – 24 h Event	The logic input is automatically reset after a defined time interval. The interval can be configured, e.g. from “every minute” to “once per day”. The logic input is reset by an external telegram. A received trigger via the assigned communication object resets the input.
Logic output sends	1-bit object 8-bit object	Defines whether the output of the logic function is sent as a 1-bit object or an 8-bit object. A 1-bit object transmits only two states (on/off), while an 8-bit object can transmit a wider range of values.
Invert output	0 / 1	Inverts the result of the logic function before output. If enabled, a calculated value is output inverted (ON becomes OFF and OFF becomes ON).
Send value cyclically	Inactive 1 min – 24 h	Defines whether the logic value is sent cyclically at defined intervals. If this Options is enabled, the value is transmitted continuously at regular intervals.
Blocking object	Inactive Active	No function The blocking object is used to specifically block the “Logic” function.

Truth table AND

A	B	X
0	0	0
0	1	0
1	0	0
1	1	1

Truth table exclusive OR

A	B	X
0	0	0
0	1	1
1	0	1
1	1	0

Truth table OR

A	B	X
0	0	0
0	1	1
1	0	1
1	1	1

17.8 Timer 1/2

Value over Bus	◉ inactive ○ active
Start value	00:10 hh:mm
Restartable	◉ inactive ○ active
Reaction on timer end	on
Restart on timer end	◉ inactive ○ active

Input 1	○ external input ◉ external object
Type	◉ trigger ○ scene
Reaction	start

Input 2	○ external input ◉ external object
Type	◉ trigger ○ scene
Reaction	pause

Input 3	○ external input ◉ external object
Type	◉ trigger ○ scene
Reaction	stop and reset

Input 4	○ external input ◉ external object
Type	◉ trigger ○ scene
Reaction	start

Blocking object	◉ inactive ○ active

Description	Options	Description
Timer X		
Function	Inactive Active	No function The parameters of the “Timer” function are opened so that it can be individually parameterized.
Description		Text field for a free description of the “Timer” function.
Value over Bus	Inactive Active	No function This Options defines whether the start value of the timer can be set via an object (e.g. an external device) via the bus.
Start value	1 min – 24 h	Definition of the start value
Restartable	Inactive Active	No function Defines whether the timer can be reactivated or reset after expiration.
Reaction on timer end	ON OFF Toggle	ON: After the timer has elapsed, an “ON” command is sent. The timer ensures that the output is activated after the configured time. OFF: After the timer has elapsed, an “OFF” command is sent. The timer ensures that the output is deactivated after the configured time. Toggle: After the timer has elapsed, a “toggle” command is sent. The timer ensures that the output state is switched after the configured time.
Restart on timer end	Inactive Active	No function The function “Restart after timer expiration” defines whether the timer is automatically restarted after the configured time has elapsed. If this Options is enabled, the timer restarts automatically after each cycle, resulting in continuous repetition without user interaction. This is particularly useful for recurring actions or intervals, e.g. for periodic control or measurements. If this function is disabled, the timer is executed only once and remains inactive after expiration until it is started again manually.
Input X	External object	
Trigger	On activation Short activation Continious activation Long activation On deactivation Change of status	The timer action is triggered when the input becomes active (e.g. rising edge). The timer action is triggered by a short activation of the input, based on the configured time threshold. The timer action is triggered repeatedly as long as the input remains active. The defined timer command (e.g. start, pause) is executed continuously. The timer action is triggered when the input remains active longer than the defined time. The timer action is triggered when the input is released (falling edge). The timer action is triggered on every change of the input state, regardless of whether it is activation or deactivation.

Type	Trigger Scene	The received telegram is interpreted as an impulse and immediately triggers the configured timer action (e.g. start, pause, stop). The received telegram is interpreted as a scene recall. Only when the corresponding scene number is received is the assigned timer action executed.
Reaction	Stop and reset Start Pause	The timer is stopped and reset to the defined start value. The timer is started or resumed and runs for the configured time. The timer is paused. The remaining time is retained and can be resumed later.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the “Timer” function.

17.9 Time function 1/2

Weekdays		A1		A2		A3		A4
Monday	✓	07:00	✓	09:00	✓	15:00	✓	21:00
Tuesday	✓	07:00	✓	09:00	✓	15:00	✓	21:00
Wednesday	✓	07:00	✓	09:00	✓	15:00	✓	21:00
Thursday	✓	07:00	✓	09:00	✓	15:00	✓	21:00
Friday	✓	07:00	✓	09:00	✓	15:00	✓	21:00
Saturday	✓	07:00	✓	09:00	✓	15:00	✓	21:00
Sunday	✓	07:00	✓	09:00	✓	15:00	✓	21:00

Output type: switch

Action (A1): ○ off ◉ on

Action (A2): ○ off ◉ on

Action (A3): ○ off ◉ on

Action (A4): ◉ off ○ on

Send value cyclically: ○ inactive ◉ active

Interval: 00:01 hh:mm

Blocking object: ○ inactive ◉ active

Description	Options	Description
Time function X		
Timeschedule	Inactive Active	No function The parameters of the “Timer program” function are opened so that it can be individually parameterized.
Description		Text field for a free description of the “Timer program” function.

Weekday / time slots (A1–A4)	Monday – Friday A1–A4	Defines up to four individual time points (A1–A4) per weekday. For each time point, a time can be defined and activated. Activated time points trigger the corresponding function at the configured time.
Output type	Switch Controlled switch Percent 1-byte signed 2-byte signed 4-byte signed 1-byte unsigned 2-byte unsigned 4-byte unsigned 2-byte floating point Scene HVAC mode	Defines the data format in which the value is sent to the KNX bus. The selected output type determines how values are interpreted and transmitted (e.g. as switching value, percentage value, or numeric value). Depending on the selection, the corresponding communication object with the appropriate data type is provided.
Action A1–A4	Off On Toggle Controlled stop Controlled off Controlled on 0…100% -128…+127 -32,768 to +32,767 -2.1 billion to +2.1 billion 0 to 255 0 to 65,535 0 to approx. 4.2 billion -670,760.96 to 670,433.28 1…64	Defines which value or action is triggered at the defined time points (A1–A4) and sent to the bus. The available values depend on the selected output type (e.g. On/Off, toggle, percentage value, numeric value, scene, or HVAC mode).
Send value cyclically	1 min – 24 h	This function allows the defined value (e.g. “1” or “0”) to be sent not only once but cyclically at regular intervals during the time block. If this Options is enabled, the value is continuously transmitted within the defined time frame.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the “Timer program” function. As soon as the lock is active, no values are sent to the KNX bus, regardless of whether a button or an external object is activated.