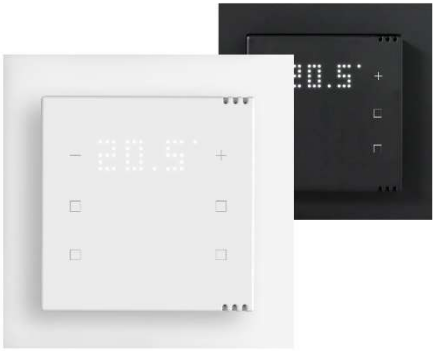
Technical manual

Application Description – Pushbutton / Temperature / Humidity / Air Quality Sensor / 0–10 V Outputs



TS / GS 5_6x.xx knx x

General Information

The device is intended for the following applications:
Monitoring of temperature, humidity, and air quality in building automation systems – for example, in schools, offices, hotels, or conference facilities. Push buttons for a wide range of functions such as switching, dimming, blind control, scene recall, and HVAC operation
Data transmission and control are handled via a KNX bus system.
Operation is permitted only within the limits defined in the technical specifications. The device is intended 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 intended.
Note: Manual setpoint adjustment is only available on devices of the TS / GS x8.xx KNX series.

Please note that the functions may vary depending on the product used:

Designation	Touch fields	Setpoint temperature display	Temperature value	Humidity value	Air pressure value	CO_2 value	Control panel neutral	Control panel temperature	Control panel light	Control panel shading
GS 68.00 knx 2	2	x	x	x	x	x		1	1	
GS 68.00 knx 4	4	x	x	x	x	x	2	1	1	
GS 68.00 knx 6	6	x	x	x	x	x	4	1	1	
GS 68.11 knx 6	6	x	x	x	x	x		1	1	1
GS 68.20 knx 6	6	x	x	x	x	x		1	2	
GS 67.00 knx 0	0		x	x	x	x			1	
GS 67.00 knx 2	2		x	x	x	x	2		1	
GS 67.00 knx 4	4		x	x	x	x	4		1	
GS 67.00 knx 6	6		x	x	x	x	6		1	
GS 67.21 knx 6	6		x	x	x	x			2	1
TS 58.00 knx 2	2	x	x					1	1	
TS 58.00 knx 4	4	x	x				2	1	1	
TS 58.00 knx 6	6	x	x				4	1	1	
TS 58.11 knx 6	6	x	x					1	1	1
TS 58.20 knx 6	6	x	x					1	2	
TS 57.00 knx 0	0		x						1	
TS 57.00 knx 2	2		x				2		1	
TS 57.00 knx 4	4		x				4		1	
TS 57.00 knx 6	6		x				6		1	
TS 57.21 knx 6	6		x						2	1

The room climate controller GS 6x.xx knx x can transmit the following data to the KNX bus and offers 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 Control (step 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)

Funktionen:	
Switching	Value output
Dimming	Value output
Shutters/Blinds	Value output
Value	Value output
Scenes	Value output
Switching sequences	Value output
Multiple operation	Value output
Impulsecounter	Value output
Logic	Value output
Timer	Value output
Time switch	Value output

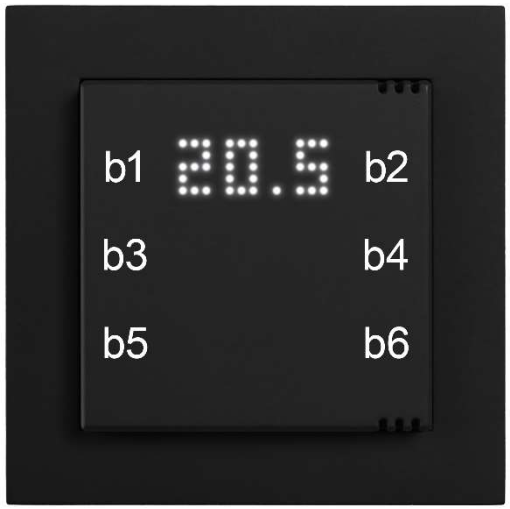
Buttons	Value output
External inputs	Value output
Outputs	0-10V

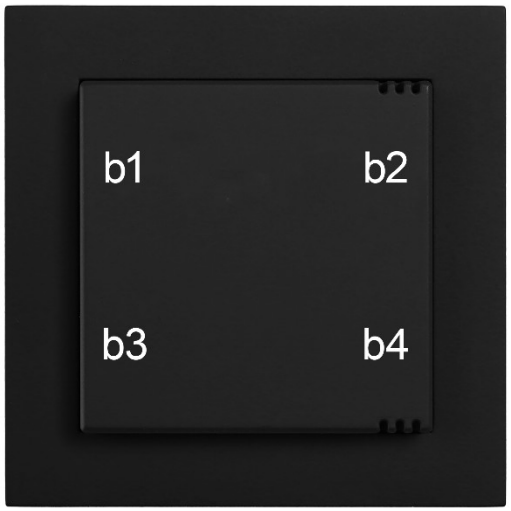
Note:

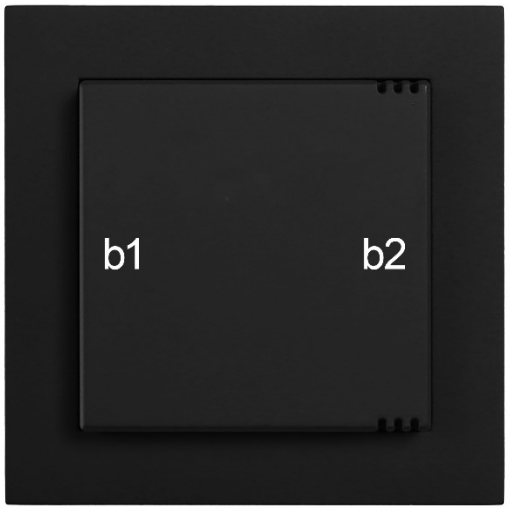
The available functions may vary depending on the device variant.
For detailed information regarding functionality, operation, and installation of the push-button sensors, please refer to the user manual included with the product.
Please also take into account the resolution of the 2-byte data type as specified in the KNX standard.

The individual buttons of the devices mentioned here are labeled and numbered according to the diagram. These labels will be referenced repeatedly throughout the parameterization process.

Note: Depending on the variant, the labels and numbering may vary accordingly.







Variante	b1	b2	b3	b4	b5	b6
knx2	✓	✓				
knx4	✓	✓	✓	✓		
knx6	✓	✓	✓	✓	✓	✓

Inhalt

Technical data

Manufacturer: Hugo Müller GmbH & Co KG, Karlstraße 90, D-78054 VS-Schwenningen
Program name: GS 68.21 ETS
Installation: Add the device to your device list and open a new project. The ETS database is available for download on our website:

https://hugo-mueller.de/en/downloads/knx-product-database/

Power supply	via KNX bus voltage
Bus current	< 12,5 mA
Bus system	KNX
Sensors:	*GS series:* CO_2, relative humidity, temperature, air pressure, touch *TS series:* temperature, touch
Measurement Range CO_2 Concentration:	425-5.000 ppm
Measurement Range Relative Humidity:	0-100%
Measurement Range Temperature:	0-50°C
Measurement Range Absolute Air Pressure:	300-1100 hPa
Ambient Temperature:	0°C …+50°C
Certification Mark:	CE
Housing:	Self-extinguishing thermoplastic
Housing Dimensions:	55 x 55 mm
Housing Colors:	Purewhite (similar RAL9010) Jet black (similar RAL 9005)
Mounting Type:	Flush-mounted
Connection Type:	Push-in connector, KNX connector
Outputs:	3x 0-10V outputs, freely configurable
Inputs:	3x binary inputs 1x analog input for external temperature sensor
Protection Rating:	IP 20 (nach DIN EN 60529)
Protection Class:	III
KNX-Secure	Yes
ETS Languages:	English, German
Buttons:	Depending on version: 0 to 6 freely configurable buttons
Display:	Status LEDs for indicating operating states, switching actions, and external feedback 75-segment display for showing the temperature setpoint and other values (TS / GS x8.xx KNX)

Subject to technical modifications

Infomation on KNX secure

KNX Secure – Data Security in Building Automation

As data protection and IT security requirements continue to rise, the protection of KNX installations is becoming increasingly 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 traditional media such as Twisted Pair (TP) or radio frequency (RF).

For push-button sensors with a direct bus connection, KNX Data Secure is the relevant standard.

Purpose of KNX Data Secure

KNX Data Secure specifically protects communication at the object level – such as when switching lights, changing setpoints, or controlling scenes. This is achieved through:

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

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

Integration in ETS

As of ETS version 5.5, KNX Secure can be integrated into projects. When a KNX Secure-capable device is added to a project, ETS prompts for a project password.
If no password is entered, the device is operated in a standard, unsecured mode. The password can also be added later.

Device Activation with FDSK

For secure commissioning, the so-called Factory Device Setup Key (FDSK) is required. This unique key is printed on the device label.
Once entered into ETS, it generates a tool-specific key that is then securely transferred to the device via the bus.

Neither the FDSK nor the tool key are transmitted in plain text.
Once the transfer is complete, the device will only accept the **tool key** for project configuration.
The FDSK is only required again if the device is reset to factory settings.

Project Configuration and Object Protection

The ETS allows targeted selection of communication objects to be transmitted securely.
Depending on the application, for example, only the communication of 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 optionally be operated without encryption. In this case, they behave like conventional KNX components.
To do this, secure commissioning must be deactivated in the ETS.

Parameter Overview

Parameter	Unterkategorie Parameter	Description
Global Settings	Global settings	Operating status transmission, transmission delay after bus voltage recovery, display duration*, setpoint display in the main display*, follow-up display* *Only for TS / GS x8.xx KNX
CO_2	CO_2 sensor	value correction, report sensor error, calibration via bus, transmit CO_2 on change / cyclically, send min/max values on change / cyclically, alarm on defined limit value violation
	CO_2 sensor compensation:	Air pressure compensation of the CO_2 sensor: without compensation, via internal air pressure value, via external air pressure value, or by entering the altitude (specify value)
	CO_2 controller	Type (inactive, single-stage, two-stage, three-stage, PI), allow base setpoint adjustment via bus, output value (output format, send on change, cyclically send), hysteresis (symmetrical) → only with step controller
Relative Humidity Sensor	Relative humidity sensor	Value correction, humidity sensor error detection, send value on change / cyclically, send min/max values on change / cyclically, alarm on limit violation, send alarm on bus on status change / cyclically
	Relative humidity controller	Settings: Type (inactive, 1-/2-/3-stage, PI), allow base setpoint adjustment via bus, output format of output value, send output on change / cyclically
	Comparator	Inactive / active, value 1 and 2 via bus or internal sensor, output value on threshold violation or error, send output value on change / cyclically
Temperature Sensor	Temperature sensor	Value correction (offset), temperature sensor error, send value on change / cyclically, send min/max values on change / cyclically, alarm on limit violation, send alarm on bus on status change / cyclically
	External temperature sensor	Sensor type, value correction, sensor error, send temperature values on change / cyclically, min/max temperature, alarm on limit violation, thresholds, send alarm on status change / cyclically
	Temperature controller 1	Configuration: heating, cooling or heating and cooling, additional stage for heating/cooling, control for heating/cooling, floor protection, heating/cooling request for display, enable additional cooling stage, cooling control, display cooling request, operating mode after reset or ETS download Setpoints: comfort temperature (heating), setback for standby / eco below comfort, frost protection heating, switch between heating and cooling, dead zone, raise for standby / eco above comfort (+ dead zone), overheating protection temp cooling, send setpoint on change / cyclically, setpoint override Blocking objects: blocking object for heating / cooling Actual value acquisition: temperature values 1–4 from internal sensor, external sensor, or bus (comm. object), send value on change / cyclically

		Control: min / max control value heating / cooling, max setpoint adjustment at min control value Floor protection: floor temperature source, frost / overheating protection Manual setpoint adjustment: setting range, increase / decrease setpoint, send manual offset on change / cyclically *Only for TS / GS x8.xx KNX Party function: party mode, duration, retrigger Main heating stage: controller type, effect of output value, proportional range, reset time, output format, PWM cycle, min/max output values, output on sensor error, send output on change / cyclically, behavior on blocking object (send nothing / fixed value)
	Temperatur controller 2	See Temperature Controller 1 – without extra levels, and manual setpoint adjustment.
Dew Point	Dew point temperature	Send dew point temperature on change / cyclically
	Dew point alarm	Dew point alarm: lead time, hysteresis (symmetric), send alarm on change / cyclically, telegram type for dew point alarm (switching command, priority, percentage, byte, scene)
Heat Index	Heat index temperature	Send heat index on change / cyclically
	Heat index alarm	Alarm: threshold value, lead time, send alarm on status change and on change / cyclically, telegram type for alarm (switching command, priority, percentage, byte, scene)
Air Pressure	Air pressure sensor	Error detection of the air pressure sensor, send absolute air pressure on change / cyclically, send relative air pressure on change / cyclically Define altitude above standard zero level (NHN)
VAV Controller	Settings	Settings: include CO2 controller, include relative humidity controller, include RTR 1 main heating stage, include RTR 1 auxiliary heating stage, include RTR 1 main cooling stage, include RTR 1 auxiliary cooling stage, include RTR 2 main heating stage, include RTR 2 auxiliary heating stage, include RTR 2 main cooling stage, include RTR 2 auxiliary cooling stage, include external object Second VAV parameter set, output format of control variable, minimum and maximum value of control variable, send VAV control variable on change / cyclically, lock object, behavior when lock is set
Functions	Switching	Input 1, Input 2: Cyclical transmission of value, lock object
	Dimming	Function: Dimming and color temperature, color influence and brightness, control type, Input 1–4, additional settings, increase brightness by, decrease brightness by, lock object
	Blinds / Shutters	Inactive / active, second input function inactive / active for fixed configuration of blind up and down movement, Input 1–4 selectable, lock object inactive / active.
	Value	Inactive / active, select Input 1–4, value sent when a "1" appears on the bus, second input function value sent when a "1" appears on the bus, counter value on download, ETS reset, and bus voltage recovery, send object cyclically, lock object inactive / active.
	Scene	Inactive / active, Input 1–4 selectable, value sent when a "1" appears on the bus, value of the second input function sent when a "1" appears on the bus, counter value on download, ETS reset, and bus voltage recovery, send object cyclically, lock object inactive / active.
	Switching sequences	Inactive / active, Input 1–4 selectable, number of steps (min. 2 to max. 5), reaction on actuation: binary or Gray code, actuation direction (up / down), second input function inactive / active, reaction on actuation / direction of actuation, lock object inactive / active Inactive / active,
	Multiple operation	Input 1–4 selectable, maximum number of actuations (min. 1 to max. 4), transmitted value (On, Off, Toggle), update and transmit on actuation: inactive / active, time interval for subsequent actuation, reset position, lock object inactive / active.

	Impulse counter	Inactive / active, input 1–4 selectable, data type, number and count per pulse, thresholds 1 to 4, reset counter, save counter value, send counter value on download, ETS reset and bus voltage recovery, send counter value on change / cyclically, save counter value: inactive / active, lock object inactive / active.
	Logic	Inactive / active, logic module and number of logic inputs selectable, assign inputs 1–4 to the logic, invert logic input, reset logic input, logic output: send a 1-bit or 8-bit object, invert logic output, send object cyclically, lock object inactive / active.
	Timer	Inactive / active, define initial value and default value, inputs 1–4 for timer start, send at timer value 0, reset at timer value 0: inactive / active, inputs 1–4 for timer stop, reset at timer stop: inactive / active, inputs 1–4 for timer reset, reset only with active timer stop: inactive / active, send object cyclically, lock object inactive / active.
	Time switch	Inactive / active, number of functions: 1 to 4, function type, time input, send state 1, send state 0, send object cyclically, lock object inactive / active.
Buttons	General Description	Send to the bus: inactive / active, input closed / open upon actuation, debounce time, long press as push-button command, repeat rate of the repeat key function, cyclic sending. The key surfaces are automatically assigned after selecting the function and do not need to be linked via group objects.
External inputs	General Description	Long press, repeat rate, send value on change, cyclic value sending, LED function.
Outputs	General Description	Inactive / active, input type: sensor, controller, external, input sensor selection, output value in case of error Range start value, start value voltage output, range end value, end value voltage output, initial voltage, lock object.

Number	Name	Objectfunction	Length	C	R	W	T	U	Datapoint type
1	Send '0' in operation	Output	1 Bit	C	-	-	T	-	1-bit, boolean
1	Send '1' in operation	Output	1 Bit	C	-	-	T		1-bit, boolean
2	Request status	Input	1 Bit	C	-	W	-		1-bit, trigger
3	operating hours counter[s]	Output (read only)	4 Bytes	C	R	-	-		4-byte signed, time difference (s)
4	Display: Display information	Input	1 Byte	C	-	W	-		8-bit unsigned, count pulses (0..255)
5	Status LEDs permanently ON	Input	1 Bit	C	-	W	-		1-bit, switching
5	Status LEDs permanently ON	Input	1 Bit	C	-	W	-		1-bit, switching
6	Display LEDs permanently ON	Input	1 Bit	C	-	W	-		1-bit, switching
145	CO2: CO2 value [ppm]	Output	2 Bytes	C	-	-	T		2-byte floating point value, parts per million (ppm)
146	CO2: CO2 value [ppm]	Output	1 Byte	C	-	-	T		8-bit unsigned, Percent (0..100%)
147	CO2: request CO2 value	Input	1 Bit	C	-	W	-		1-bit, trigger
148	CO2: sensor error	Output	1 Bit	C	-	-	T		1-bit, boolean
149	CO2: start/stop calibration	Input	1 Bit	C	-	W	-		1-bit, start/stop
150	CO2: adopt CO2 calibration value	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
151	CO2: CO2 value external [ppm]	Input	2 Bytes	C	-	-	T		2-byte floating point value, parts per million (ppm)
152	CO2: min value	Output	2 Bytes	C	-	-	T		2-byte floating point value, parts per million (ppm)
153	CO2: max value	Output	2 Bytes	C	-	-	T		2-byte floating point value, parts per million (ppm)
154	CO2: request min/max values	Input	1 Bit	C	-	W	-		1-bit, trigger
155	CO2: reset min/max values	Input	1 Bit	C	-	W	-		1-bit, trigger
156	CO2: low value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
157	CO2: high value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
270	CO2: absolute air pressure [Pa]	Input	2 Bytes	C	-	W	-		2-byte floating point value, pressure (Pa)
113	CO2C: external CO2 value 1 [ppm]	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
114	CO2C: external CO2 value 2 [ppm]	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
115	CO2C: external CO2 value 3 [ppm]	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
116	CO2C: external CO2 value 4 [ppm]	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
117	CO2C: control value (0...255)	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
117	CO2C: control value (0...100%)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
117	CO2C: scene (1...64)	Output	1 Byte	C	-	-	T		Szenennummer
117	CO2C: control value level 1 (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching
117	CO2C: control value level 1 (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control
118	CO2C: control value level 2 (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching
118	CO2C: control value level 2 (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control
119	CO2C: control value level 3 (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching
119	CO2C: control value level 3 (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control

120	CO2C: base set point [ppm]	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
121	CO2C: base set point (1 byte) [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
122	CO2C: blocking object level 1	Input	1 Bit	C	-	W	-		1-bit, enable
123	CO2C: blocking object level 2	Input	1 Bit	C	-	W	-		1-bit, enable
124	CO2C: blocking object level 3	Input	1 Bit	C	-	W	-		1-bit, enable
125	CO2C: blocking object	Input	1 Bit	C	-	W	-		1-bit, enable
125	CO2C: blocking object	Input	1 Bit	C	-	W	-		1-bit, enable
126	CO2C: Actual value	Output	2 Bytes	C	-	-	T		2-byte floating point value, parts per million (ppm)
127	CO2C: Actual value error	Output	1 Bit	C	-	-	T		1-bit, boolean
158	rH: humidity value [%]	Output	2 Bytes	C	-	-	T		2-byte floating point value, humidity (%)
159	rH: humidity value (1 byte) [%]	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
160	rH: request humidity value	Input	1 Bit	C	-	W	-		1-bit, trigger
161	rH: sensor error	Output	1 Bit	C	-	-	T		1-bit, boolean
162	rH: start/stop calibration	Input	1 Bit	C	-	W	-		1-bit, start/stop
163	rH: adopt rH calibration value	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
164	rH: humidity value external [%]	Input	2 Bytes	C	-	-	T		2-byte floating point value, humidity (%)
165	rH: min value	Output	2 Bytes	C	-	-	T		2-byte floating point value, humidity (%)
166	rH: max value	Output	2 Bytes	C	-	-	T		2-byte floating point value, humidity (%)
167	rH: request min/max values	Input	1 Bit	C	-	W	-		1-bit, trigger
168	rH: reset min/max values	Input	1 Bit	C	-	W	-		1-bit, trigger
169	rH: low value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
170	rH: high value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
128	RHC: humidity external value 1 [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
129	RHC: external humidity value 2 [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
130	RHC: external humidity value 3 [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
131	RHC: external humidity value 4 [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
132	RHC: control value (0...255)	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
132	RHC: control value (0...100%)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
132	RHC: scene (1...64)	Output	1 Byte	C	-	-	T		Szenennummer
132	RHC: control value level 1 (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching
132	RHC: control value level 1 (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control
133	RHC: control value level 2 (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching
133	RHC: control value level 2 (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control
134	RHC: control value level 3 (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching

134	RHC: control value level 3 (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control
135	RHC: base set point [%]	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
136	RHC: base set point (1 byte) [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
137	RHC: blocking object level 1	Input	1 Bit	C	-	W	-		1-bit, enable
138	RHC: blocking object level 2	Input	1 Bit	C	-	W	-		1-bit, enable
139	RHC: blocking object level 3	Input	1 Bit	C	-	W	-		1-bit, enable
140	RHC: blocking object	Input	1 Bit	C	-	W	-		1-bit, enable
140	RHC: blocking object	Input	1 Bit	C	-	W	-		1-bit, enable
141	RHC: Actual value	Output	2 Bytes	C	-	-	T		2-byte floating point value, humidity (%)
142	RHC: Actual value error	Output	1 Bit	C	-	-	T		1-bit, boolean
96	HUMCMP: Absolute humidity value 1 [g/m3]	Input	2 Bytes	C	-	W	-		8-bit unsigned value, percent (0..100%)
96	HUMCMP: Relative humidity value 1 [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
97	HUMCMP: Temperature value 1 [°C]	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
98	HUMCMP: Absolute humidity value 2 [g/m3]	Input	2 Bytes	C	-	W	-		8-bit unsigned value, percent (0..100%)
98	HUMCMP: Relative humidity value 2 [%]	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
99	HUMCMP: Temperature value 2 [°C]	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
100	HUMCMP: Humidity comparator Output	Output	1 Bit	C	-	-	T		1-bit, enable
171	T: temperature value [°C]	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
172	T: value (1 byte) [%]	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
173	T: request temperature value	Input	1 Bit	C	-	W	-		1-bit, trigger
174	T: sensor error	Output	1 Bit	C	-	-	T		1-bit, boolean
175	T: start/stop calibration	Input	1 Bit	C	-	W	-		1-bit, start/stop
176	T: adopt T calibration value	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
177	T: Temperature value external [°C]	Input	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
178	T: temperature min value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
179	T: temperature max value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
180	T: request min/max temperature values	Input	1 Bit	C	-	W	-		1-bit, trigger
181	T: reset min/max temperature values	Input	1 Bit	C	-	W	-		1-bit, trigger
182	Temp: low value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
183	Temp: high value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
184	T ext: temperature value [°C]	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
185	T ext: value (1 byte) [%]	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
186	T ext: request temperature value	Input	1 Bit	C	-	W	-		1-bit, trigger
187	T ext: sensor error	Output	1 Bit	C	-	-	T		1-bit, boolean

188	T ext: start/stop calibration	Input	1 Bit	C	-	W	-		1-bit, start/stop
189	T ext: adopt temperature calibration value	Input	2 Bytes	C	-	W	-		2-byte floating point value, parts per million (ppm)
190	T ext: Temperature value external [°C]	Input	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
191	T ext: temperature min value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
192	T ext: temperature max value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
193	T ext: request min /max temperature values	Input	1 Bit	C	-	W	-		1-bit, trigger
194	T ext: reset min/max temperature values	Input	1 Bit	C	-	W	-		1-bit, trigger
195	Temp. ext: low value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
196	Temp. ext: high value alarm	Output	1 Bit	C	-	-	T		1-bit, switching
10	RTC1: external temperature value 1	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
11	RTC1: external temperature value 2	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
12	RTC1: external temperature value 3	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
13	RTC1: external temperature value 4	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
14	RTC1: Actual value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
15	RTC1: Actual value error	Output	1 Bit	C	-	-	T		1-bit, boolean
16	RTC1: floor protection actual temperature value	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
17	RTC1: comfort temperature	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
18	RTC1: standby setback when heating	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
19	RTC1: eco setback when heating	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
20	RTC1: standby increment when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
21	RTC1: eco increment when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
22	RTC1: frost protection temperature when heating	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
23	RTC1: heat protection temperature when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
24	RTC1: current set point temperature	Output	2 Bytes	C	R	-	T		2-byte floating point value, temperature (°C)
25	RTC1: average comfort set point temperature (symmetrical)	Output	2 Bytes	C	R	-	T		2-byte floating point value, temperature (°C)
26	RTC1: heating(1)/cooling(0)	Input	1 Bit	C	-	W	-		1-bit, switching
26	RTC1: Dead zone between heating and cooling (0…10K)	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
27	RTC1: comfort temperature when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
28	RTC1: status heating/cooling	Output	1 Bit	C	R	-	T		1-bit, switching
29	RTC1: HVAC Mode: 1=comf, 2=stdb, 3=eco, 4=b-prot	Input	1 Byte	C	-	W	-		1-byte, HVAC mode
30	RTC1: HVAC Mode: 1=comf, 2=stdb, 3=eco, 4=b-prot	Output	1 Byte	C	R	-	T		1-byte, HVAC mode
31	RTC1: comfort mode enable	Input	1 Bit	C	-	W	-		1-bit, trigger
32	RTC1: standby mode enable	Input	1 Bit	C	-	W	-		1-bit, trigger
33	RTC1: eco mode enable	Input	1 Bit	C	-	W	-		1-bit, trigger

34	RTC1: Frost-/heat protection enable	Input	1 Bit	C	-	W	-		1-bit, trigger
35	RTC1: setpoint override value	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
36	RTC1: status heating	Output	1 Bit	C	-	-	T		1-bit, switching
37	RTC1: status cooling	Output	1 Bit	C	-	-	T		1-bit, switching
38	RTC1: RHCC status	Output	2 Bytes	C	R	-	T		16-bit field, RHCC status
39	RTC1: control value main level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
39	RTC1: control value main level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
39	RTC1: control value main level heating	Output	1 Bit	C	-	-	T		1-bit, switching
39	RTC1: control value main level heating	Output	1 Bit	C	-	-	T		1-bit, switching
40	RTC1: control value extra level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
40	RTC1: control value extra level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
40	RTC1: control value extra level heating	Output	1 Bit	C	-	-	T		1-bit, switching
40	RTC1: control value extra level heating	Output	1 Bit	C	-	-	T		1-bit, switching
41	RTC1: control value main level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
41	RTC1: control value main level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
41	RTC1: control value main level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
41	RTC1: control value main level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
42	RTC1: control value extra level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
42	RTC1: control value extra level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
42	RTC1: control value extra level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
42	RTC1: control value extra level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
43	RTC1: guide value [°C]	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
44	RTC1: blocking object heating	Input	1 Bit	C	-	W	-		1-bit, enable
45	RTC1: blocking object cooling	Input	1 Bit	C	-	W	-		1-bit, enable
46	RTC1: blocking object extra level heating	Input	1 Bit	C	-	W	-		1-bit, enable
47	RTC1: blocking object extra level cooling	Input	1 Bit	C	-	W	-		1-bit, enable
48	RTC1: Reset manual offset	Input	1 Bit	C	-	W	-		1-bit, trigger
49	RTC1: Block manual offset	Input	1 Bit	C	-	W	-		1-bit, enable
50	RTC1: Manual offset value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
51	RTC1: Party start/stop/retrigger	Input	1 Bit	C	-	W	-		1-bit, start/stop
52	RTC2: external temperature value 1	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
53	RTC2: external temperature value 2	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
54	RTC2: external temperature value 3	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
55	RTC2: external temperature value 4	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)

56	RTC2: Actual value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
57	RTC2: Actual value error	Output	1 Bit	C	-	-	T		1-bit, boolean
58	RTC2: floor protection actual temperature value	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
59	RTC2: comfort temperature	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
60	RTC2: standby setback when heating	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
61	RTC2: eco setback when heating	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
62	RTC2: standby increment when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
63	RTC2: eco increment when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
64	RTC2: frost protection temperature when heating	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
65	RTC2: heat protection temperature when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
66	RTC2: current set point temperature	Output	2 Bytes	C	R	-	T		2-byte floating point value, temperature (°C)
67	RTC2: average comfort set point temperature (symmetrical)	Output	2 Bytes	C	R	-	T		2-byte floating point value, temperature (°C)
68	RTC2: heating(1)/cooling(0)	Input	1 Bit	C	-	W	-		1-bit, switching
68	RTC2: Dead zone between heating and cooling (0…10K)	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
69	RTC2: comfort temperature when cooling	Input	2 Bytes	C	R	W	-		2-byte floating point value, temperature (°C)
70	RTC2: status heating/cooling	Output	1 Bit	C	R	-	T		1-bit, switching
71	RTC2: HVAC Mode: 1=comf, 2=stdb, 3=eco, 4=b-prot	Input	1 Byte	C	-	W	-		1-byte, HVAC mode
72	RTC2: HVAC Mode: 1=comf, 2=stdb, 3=eco, 4=b-prot	Output	1 Byte	C	R	-	T		1-byte, HVAC mode
73	RTC2: comfort mode enable	Input	1 Bit	C	-	W	-		1-bit, trigger
74	RTC2: standby mode enable	Input	1 Bit	C	-	W	-		1-bit, trigger
75	RTC2: eco mode enable	Input	1 Bit	C	-	W	-		1-bit, trigger
76	RTC2: Frost-/heat protection enable	Input	1 Bit	C	-	W	-		1-bit, trigger
77	RTC2: setpoint override value	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
78	RTC2: status heating	Output	1 Bit	C	-	-	T		1-bit, switching
79	RTC2: status cooling	Output	1 Bit	C	-	-	T		1-bit, switching
80	RTC2: RHCC status	Output	2 Bytes	C	R	-	T		16-bit field, RHCC status
81	RTC2: control value main level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
81	RTC2: control value main level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
81	RTC2: control value main level heating	Output	1 Bit	C	-	-	T		1-bit, switching
81	RTC2: control value main level heating	Output	1 Bit	C	-	-	T		1-bit, switching
82	RTC2: control value extra level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
82	RTC2: control value extra level heating	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
82	RTC2: control value extra level heating	Output	1 Bit	C	-	-	T		1-bit, switching
82	RTC2: control value extra level heating	Output	1 Bit	C	-	-	T		1-bit, switching

83	RTC2: control value main level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
83	RTC2: control value main level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
83	RTC2: control value main level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
83	RTC2: control value main level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
84	RTC2: control value extra level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
84	RTC2: control value extra level cooling	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
84	RTC2: control value extra level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
84	RTC2: control value extra level cooling	Output	1 Bit	C	-	-	T		1-bit, switching
85	RTC2: guide value [°C]	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
86	RTC2: blocking object heating	Input	1 Bit	C	-	W	-		1-bit, enable
87	RTC2: blocking object cooling	Input	1 Bit	C	-	W	-		1-bit, enable
88	RTC2: blocking object extra level heating	Input	1 Bit	C	-	W	-		1-bit, enable
89	RTC2: blocking object extra level cooling	Input	1 Bit	C	-	W	-		1-bit, enable
90	RTC2: Reset manual offset	Input	1 Bit	C	-	W	-		1-bit, trigger
91	RTC2: Block manual offset	Input	1 Bit	C	-	W	-		1-bit, enable
92	RTC2: Manual offset value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
93	RTC2: Party start/stop/retrigger	Input	1 Bit	C	-	W	-		1-bit, start/stop
101	DEWP: dew point temperature [°C]	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
102	DEWP: dew point alarm enabled (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching
102	DEWP: dew point alarm enabled (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control
102	DEWP: dew point alarm enabled (0...100%)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
102	DEWP: dew point alarm enabled (0...255)	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
102	DEWP: dew point alarm enabled scene (1...64)	Output	1 Byte	C	-	-	T		Szenennummer
103	DEWP: request dew point temperature	Input	1 Bit	C	-	W	-		1-bit, trigger
7	HI: heat index temperature [°C]	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
8	HI: request heat index temperature	Input	1 Bit	C	-	W	-		1-bit, trigger
9	HI: heat index alarm enabled (switching object)	Output	1 Bit	C	-	-	T		1-bit, switching
9	HI: heat index alarm enabled (priority)	Output	2 Bit	C	-	-	T		1-bit, switch control
9	HI: heat index alarm enabled (0...100%)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
9	HI: heat index alarm enabled (0...255)	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
9	HI: heat index alarm enabled scene (1...64)	Output	1 Byte	C	-	-	T		Szenennummer
104	P: absolute air pressure [Pa]	Output	2 Bytes	C	-	-	T		2-byte floating point value, pressure (Pa)
105	P: relative air pressure [Pa]	Output	2 Bytes	C	-	-	T		2-byte floating point value, pressure (Pa)
106	P: air pressure sensor error	Output	1 Bit	C	-	-	T		1-bit, boolean

107	P: request absolute air pressure	Input	1 Bit	C	-	W	-		1-bit, trigger
108	P: request relative air pressure	Input	1 Bit	C	-	W	-		1-bit, trigger
109	VAVC: control value (0...255)	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
109	VAVC: control value (0...100%)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
110	VAVC: external object (0…100%)	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
111	VAVC: Input set selection.	Input	1 Bit	C	-	W	-		1-bit, switching
112	VAVC: blocking object	Input	1 Bit	C	-	W	-		1-bit, enable
271	Switch {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
272	Switch {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
273	Switch {{0}}: Switchobject	Output	1 Bit	C	-	W	T		1-bit, switching
274	Switch {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
275	Switch {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
276	Switch {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
277	Switch {{0}}: Switchobject	Output	1 Bit	C	-	W	T		1-bit, switching
278	Switch {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
279	Dim {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
280	Dim {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
281	Dim {{0}}: External Object 3	Input	1 Bit	C	-	W	-		1-bit, switching
282	Dim {{0}}: External Object 4	Input	1 Bit	C	-	W	-		1-bit, switching
283	Dim {{0}}: Switching	Output	1 Bit	C	-	-	T		1-bit, switching
284	Dim {{0}}: Switching feedback	Input	1 Bit	C	-	W	-		1-bit, switching
285	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
285	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
285	Dim {{0}}: Brightness and Temperature	Output	3 Bytes	C	-	-	T		3-byte brightness and color temperature control
285	Dim {{0}}: Red value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
285	Dim {{0}}: RGB combined value	Output	3 Bytes	C	-	-	T		3-byte RGB color control
285	Dim {{0}}: RGBW combined value	Output	6 Bytes	C	-	-	T		6-byte RGBW color control
285	Dim {{0}}: Hue value	Output	1 Byte	C	-	-	T		8-bit color angle (0..360°)
286	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
286	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
286	Dim {{0}}: Green value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
286	Dim {{0}}: RGB combined feedback	Input	3 Bytes	C	-	W	-		3-byte RGBW color control
286	Dim {{0}}: RGBW combined feedback	Input	6 Bytes	C	-	W	-		6-byte RGBW color control
286	Dim {{0}}: Saturation value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)

287	Dim {{0}}: Blue value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
287	Dim {{0}}: Brightness value (V)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
288	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
288	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
289	Dim {{0}}: Red value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
289	Dim {{0}}: Hue value feedback	Input	1 Byte	C	-	W	-		8-bit color angle (0..360°)
290	Dim {{0}}: Green value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
290	Dim {{0}}: Saturation value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
291	Dim {{0}}: Blue value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
291	Dim {{0}}: Value value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
292	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
292	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
293	Dimmer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
294	Dim {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
295	Dim {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
296	Dim {{0}}: External Object 3	Input	1 Bit	C	-	W	-		1-bit, switching
297	Dim {{0}}: External Object 4	Input	1 Bit	C	-	W	-		1-bit, switching
298	Dim {{0}}: Switching	Output	1 Bit	C	-	-	T		1-bit, switching
299	Dim {{0}}: Switching feedback	Input	1 Bit	C	-	W	-		1-bit, switching
300	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
300	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
300	Dim {{0}}: Brightness and Temperature	Output	3 Bytes	C	-	-	T		3-byte brightness and color temperature control
300	Dim {{0}}: Red value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
300	Dim {{0}}: RGB combined value	Output	3 Bytes	C	-	-	T		3-byte RGBW color control
300	Dim {{0}}: RGBW combined value	Output	6 Bytes	C	-	-	T		3-byte RGBW color control
300	Dim {{0}}: Hue value	Output	1 Byte	C	-	-	T		8-bit color angle (0..360°)
301	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
301	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
301	Dim {{0}}: Green value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
301	Dim {{0}}: RGB combined feedback	Input	3 Bytes	C	-	W	-		3-byte RGBW color control
301	Dim {{0}}: RGBW combined feedback	Input	6 Bytes	C	-	W	-		3-byte RGBW color control
301	Dim {{0}}: Saturation value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
302	Dim {{0}}: Blue value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
302	Dim {{0}}: Brightness value (V)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)

303	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
303	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
304	Dim {{0}}: Red value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
304	Dim {{0}}: Hue value feedback	Input	1 Byte	C	-	W	-		8-bit color angle (0..360°)
305	Dim {{0}}: Green value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
305	Dim {{0}}: Saturation value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
306	Dim {{0}}: Blue value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
306	Dim {{0}}: Value value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
307	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
307	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
308	Dimmer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
309	Dim {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
310	Dim {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
311	Dim {{0}}: External Object 3	Input	1 Bit	C	-	W	-		1-bit, switching
312	Dim {{0}}: External Object 4	Input	1 Bit	C	-	W	-		1-bit, switching
313	Dim {{0}}: Switching	Output	1 Bit	C	-	-	T		1-bit, switching
314	Dim {{0}}: Switching feedback	Input	1 Bit	C	-	W	-		1-bit, switching
315	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
315	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
315	Dim {{0}}: Brightness and Temperature	Output	3 Bytes	C	-	-	T		3-byte brightness and color temperature control
315	Dim {{0}}: Red value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
315	Dim {{0}}: RGB combined value	Output	3 Bytes	C	-	-	T		3-byte RGBW color control
315	Dim {{0}}: RGBW combined value	Output	6 Bytes	C	-	-	T		3-byte RGBW color control
315	Dim {{0}}: Hue value	Output	1 Byte	C	-	-	T		8-bit color angle (0..360°)
316	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
316	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
316	Dim {{0}}: Green value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
316	Dim {{0}}: RGB combined feedback	Input	3 Bytes	C	-	W	-		3-byte RGBW color control
316	Dim {{0}}: RGBW combined feedback	Input	6 Bytes	C	-	W	-		3-byte RGBW color control
316	Dim {{0}}: Saturation value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
317	Dim {{0}}: Blue value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
317	Dim {{0}}: Brightness value (V)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
318	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
318	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)

319	Dim {{0}}: Red value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
319	Dim {{0}}: Hue value feedback	Input	1 Byte	C	-	W	-		8-bit color angle (0..360°)
320	Dim {{0}}: Green value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
320	Dim {{0}}: Saturation value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
321	Dim {{0}}: Blue value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
321	Dim {{0}}: Value value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
322	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
322	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
323	Dimmer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
324	Dim {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
325	Dim {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
326	Dim {{0}}: External Object 3	Input	1 Bit	C	-	W	-		1-bit, switching
327	Dim {{0}}: External Object 4	Input	1 Bit	C	-	W	-		1-bit, switching
328	Dim {{0}}: Switching	Output	1 Bit	C	-	-	T		1-bit, switching
329	Dim {{0}}: Switching feedback	Input	1 Bit	C	-	W	-		1-bit, switching
330	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
330	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
330	Dim {{0}}: Brightness and Temperature	Output	3 Bytes	C	-	-	T		3-byte brightness and color temperature control
330	Dim {{0}}: Red value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
330	Dim {{0}}: RGB combined value	Output	3 Bytes	C	-	-	T		3-byte RGBW color control
330	Dim {{0}}: RGBW combined value	Output	6 Bytes	C	-	-	T		3-byte RGBW color control
330	Dim {{0}}: Hue value	Output	1 Byte	C	-	-	T		8-bit color angle (0..360°)
331	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
331	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
331	Dim {{0}}: Green value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
331	Dim {{0}}: RGB combined feedback	Input	3 Bytes	C	-	W	-		3-byte RGBW color control
331	Dim {{0}}: RGBW combined feedback	Input	6 Bytes	C	-	W	-		3-byte RGBW color control
331	Dim {{0}}: Saturation value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
332	Dim {{0}}: Blue value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
332	Dim {{0}}: Brightness value (V)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
333	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
333	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
334	Dim {{0}}: Red value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
334	Dim {{0}}: Hue value feedback	Input	1 Byte	C	-	W	-		8-bit color angle (0..360°)

335	Dim {{0}}: Green value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
335	Dim {{0}}: Saturation value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
336	Dim {{0}}: Blue value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
336	Dim {{0}}: Value value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
337	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
337	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
338	Dimmer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
339	Dim {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
340	Dim {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
341	Dim {{0}}: External Object 3	Input	1 Bit	C	-	W	-		1-bit, switching
342	Dim {{0}}: External Object 4	Input	1 Bit	C	-	W	-		1-bit, switching
343	Dim {{0}}: Switching	Output	1 Bit	C	-	-	T		1-bit, switching
344	Dim {{0}}: Switching feedback	Input	1 Bit	C	-	W	-		1-bit, switching
345	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
345	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
345	Dim {{0}}: Brightness and Temperature	Output	3 Bytes	C	-	-	T		3-byte brightness and color temperature control
345	Dim {{0}}: Red value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
345	Dim {{0}}: RGB combined value	Output	3 Bytes	C	-	-	T		3-byte RGBW color control
345	Dim {{0}}: RGBW combined value	Output	6 Bytes	C	-	-	T		3-byte RGBW color control
345	Dim {{0}}: Hue value	Output	1 Byte	C	-	-	T		8-bit color angle (0..360°)
346	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
346	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
346	Dim {{0}}: Green value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
346	Dim {{0}}: RGB combined feedback	Input	3 Bytes	C	-	W	-		3-byte RGBW color control
346	Dim {{0}}: RGBW combined feedback	Input	6 Bytes	C	-	W	-		3-byte RGBW color control
346	Dim {{0}}: Saturation value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
347	Dim {{0}}: Blue value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
347	Dim {{0}}: Brightness value (V)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
348	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
348	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
349	Dim {{0}}: Red value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
349	Dim {{0}}: Hue value feedback	Input	1 Byte	C	-	W	-		8-bit color angle (0..360°)
350	Dim {{0}}: Green value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
350	Dim {{0}}: Saturation value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)

351	Dim {{0}}: Blue value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
351	Dim {{0}}: Value value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
352	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
352	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
353	Dimmer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
354	Dim {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
355	Dim {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
356	Dim {{0}}: External Object 3	Input	1 Bit	C	-	W	-		1-bit, switching
357	Dim {{0}}: External Object 4	Input	1 Bit	C	-	W	-		1-bit, switching
358	Dim {{0}}: Switching	Output	1 Bit	C	-	-	T		1-bit, switching
359	Dim {{0}}: Switching feedback	Input	1 Bit	C	-	W	-		1-bit, switching
360	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
360	Dim {{0}}: Temperature change	Output	4 Bit	C	-	-	T		3-bit, dimming
360	Dim {{0}}: Brightness and Temperature	Output	3 Bytes	C	-	-	T		3-byte brightness and color temperature control
360	Dim {{0}}: Red value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
360	Dim {{0}}: RGB combined value	Output	3 Bytes	C	-	-	T		3-byte RGB color control
360	Dim {{0}}: RGBW combined value	Output	6 Bytes	C	-	-	T		3-byte RGBW color control
360	Dim {{0}}: Hue value	Output	1 Byte	C	-	-	T		8-bit color angle (0..360°)
361	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
361	Dim {{0}}: Brightness change	Output	4 Bit	C	-	-	T		3-bit, dimming
361	Dim {{0}}: Green value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
361	Dim {{0}}: RGB combined feedback	Input	3 Bytes	C	-	W	-		3-byte RGBW color control
361	Dim {{0}}: RGBW combined feedback	Input	6 Bytes	C	-	W	-		6-byte RGBW color control
361	Dim {{0}}: Saturation value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
362	Dim {{0}}: Blue value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
362	Dim {{0}}: Brightness value (V)	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
363	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
363	Dim {{0}}: White value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
364	Dim {{0}}: Red value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
364	Dim {{0}}: Hue value feedback	Input	1 Byte	C	-	W	-		8-bit color angle (0..360°)
365	Dim {{0}}: Green value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
365	Dim {{0}}: Saturation value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
366	Dim {{0}}: Blue value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
366	Dim {{0}}: Value value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)

367	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
367	Dim {{0}}: White value feedback	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
368	Dimmer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
369	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
370	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
371	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
372	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
373	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T		1-bit direction control Up/Down
374	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T		1-bit, step
375	Shutter {{0}}: Stop	Output	1 Bit	C	-	-	T		1-bit, trigger
376	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
377	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
378	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
379	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
380	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
381	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T		1-bit direction control Up/Down
382	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T		1-bit, step
383	Shutter {{0}}: Stop	Output	1 Bit	C	-	-	T		1-bit, trigger
384	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
385	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
386	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
387	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
388	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
389	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T		1-bit direction control Up/Down
390	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T		1-bit, step
391	Shutter {{0}}: Stop	Output	1 Bit	C	-	-	T		1-bit, trigger
392	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
393	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
394	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
395	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
396	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
397	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T		1-bit direction control Up/Down
398	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T		1-bit, step
399	Shutter {{0}}: Stop	Output	1 Bit	C	-	-	T		1-bit, trigger

400	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
401	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
402	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
403	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
404	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
405	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T		1-bit direction control Up/Down
406	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T		1-bit, step
407	Shutter {{0}}: Stop	Output	1 Bit	C	-	-	T		1-bit, trigger
408	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
409	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
410	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
411	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
412	Shutter {{0}}: External Object &	Input	1 Bit	C	-	W	-		1-bit, switching
413	Shutter {{0}}: Long operation	Output	1 Bit	C	-	W	T		1-bit direction control Up/Down
414	Shutter {{0}}: Step operation	Output	1 Bit	C	-	W	T		1-bit, step
415	Shutter {{0}}: Stop	Output	1 Bit	C	-	-	T		1-bit, trigger
416	Shutter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
417	Value {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
418	Value {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
419	Value {{0}}: Event Priority switching value	Output	2 Bit	C	-	-	T		1-bit, switch control
419	Value {{0}}: Event Counter value	Output	1 Byte	C	-	-	T		1-bit switch control
419	Value {{0}}: Event Counter value	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
419	Value {{0}}: Event Percent value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
419	Value {{0}}: Event Counter value	Output	2 Bytes	C	-	-	T		8-bit unsigned value, percentage (0–100%)
419	Value {{0}}: Event Counter value	Output	2 Bytes	C	-	-	T		2-byte counter value
419	Value {{0}}: Event Floating point counter value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
419	Value {{0}}: Event Counter value	Output	4 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
419	Value {{0}}: Event Counter value	Output	4 Bytes	C	-	-	T		4-byte count value
420	Value {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
421	Value {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
422	Value {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
423	Value {{0}}: Event Priority switching value	Output	2 Bit	C	-	-	T		1-bit, switch control
423	Value {{0}}: Event Counter value	Output	1 Byte	C	-	-	T		1-bit switch control
423	Value {{0}}: Event Counter value	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)

423	Value {{0}}: Event Percent value	Output	1 Byte	C	-	-	T		8-bit unsigned, percent (0..100%)
423	Value {{0}}: Event Counter value	Output	2 Bytes	C	-	-	T		8-bit unsigned value, percentage (0–100%)
423	Value {{0}}: Event Counter value	Output	2 Bytes	C	-	-	T		2-byte counter value
423	Value {{0}}: Event Floating point counter value	Output	2 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
423	Value {{0}}: Event Counter value	Output	4 Bytes	C	-	-	T		2-byte floating point value, temperature (°C)
423	Value {{0}}: Event Counter value	Output	4 Bytes	C	-	-	T		4-byte count value
424	Value {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
425	Scene {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
426	Scene {{0}}: Reset	Input	1 Bit	C	-	W	-		1-bit, trigger
427	Scene {{0}}: Output	Output	1 Byte	C	-	-	T		1-byte scene control
428	Scene {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
429	Scene {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
430	Scene {{0}}: Reset	Input	1 Bit	C	-	W	-		1-bit, trigger
431	Scene {{0}}: Output	Output	1 Byte	C	-	-	T		1-byte scene control
432	Scene {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
433	Switching sequence {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
434	Switching sequence {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
435	Switching sequence {{0}}: Step 1	Output	1 Bit	C	-	W	T		1-bit, switching
436	Switching sequence {{0}}: Step 2	Output	1 Bit	C	-	W	T		1-bit, switching
437	Switching sequence {{0}}: Step 3	Output	1 Bit	C	-	W	T		1-bit, switching
438	Switching sequence {{0}}: Step 4	Output	1 Bit	C	-	W	T		1-bit, switching
439	Switching sequence {{0}}: Step 5	Output	1 Bit	C	-	W	T		1-bit, switching
440	Switching sequence {{0}}: Input 1 change direction	Input	1 Bit	C	-	W	-		1-bit direction control Up/Down
441	Switching sequence {{0}}: Input 2 change direction	Input	1 Bit	C	-	W	-		1-bit direction control Up/Down
442	Switching sequence {{0}}: Actuation	Input	1 Byte	C	-	W	-		8-bit unsigned, count pulses (0..255)
443	Switching sequence {{0}}: Actuation Output	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
444	Switching sequence {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
445	Switching sequence {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
446	Switching sequence {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
447	Switching sequence {{0}}: Step 1	Output	1 Bit	C	-	W	T		1-bit, switching
448	Switching sequence {{0}}: Step 2	Output	1 Bit	C	-	W	T		1-bit, switching
449	Switching sequence {{0}}: Step 3	Output	1 Bit	C	-	W	T		1-bit, switching
450	Switching sequence {{0}}: Step 4	Output	1 Bit	C	-	W	T		1-bit, switching
451	Switching sequence {{0}}: Step 5	Output	1 Bit	C	-	W	T		1-bit, switching

452	Switching sequence {{0}}: Input 1 change direction	Input	1 Bit	C	-	W	-		1-bit direction control Up/Down
453	Switching sequence {{0}}: Input 2 change direction	Input	1 Bit	C	-	W	-		1-bit direction control Up/Down
454	Switching sequence {{0}}: Actuation	Input	1 Byte	C	-	W	-		8-bit unsigned, count pulses (0..255)
455	Switching sequence {{0}}: Actuation Output	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
456	Switching sequence {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
457	Repeated Function {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
458	Repeated Function {{0}}: Step 1	Output	1 Bit	C	-	W	T		1-bit, switching
459	Repeated Function {{0}}: Step 2	Output	1 Bit	C	-	W	T		1-bit, switching
460	Repeated Function {{0}}: Step 3	Output	1 Bit	C	-	W	T		1-bit, switching
461	Repeated Function {{0}}: Step 4	Output	1 Bit	C	-	W	T		1-bit, switching
462	Repeated Function {{0}}: Reset Input Object	Input	1 Bit	C	-	W	-		1-bit, switching
463	Repeated Function {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
464	Repeated Function {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
465	Repeated Function {{0}}: Step 1	Output	1 Bit	C	-	W	T		1-bit, switching
466	Repeated Function {{0}}: Step 2	Output	1 Bit	C	-	W	T		1-bit, switching
467	Repeated Function {{0}}: Step 3	Output	1 Bit	C	-	W	T		1-bit, switching
468	Repeated Function {{0}}: Step 4	Output	1 Bit	C	-	W	T		1-bit, switching
469	Repeated Function {{0}}: Reset Input Object	Input	1 Bit	C	-	W	-		1-bit, switching
470	Repeated Function {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
471	Impulscounter {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
472	Impulscounter {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching
473	Impulscounter {{0}}: Threshold 1	Output	1 Bit	C	-	-	T		1-bit, switching
474	Impulscounter {{0}}: Threshold 2	Output	1 Bit	C	-	-	T		1-bit, switching
475	Impulscounter {{0}}: Threshold 3	Output	1 Bit	C	-	-	T		1-bit, switching
476	Impulscounter {{0}}: Threshold 4	Output	1 Bit	C	-	-	T		1-bit, switching
477	Impulscounter {{0}}: Counter value	Output	1 Byte	C	R	-	T		1-bit switch control
477	Impulscounter {{0}}: Counter value	Output	2 Bytes	C	R	-	T		8-bit unsigned value, percentage (0–100%)
477	Impulscounter {{0}}: Counter value	Output	2 Bytes	C	R	-	T		2-byte counter value
477	Impulscounter {{0}}: Counter value	Output	4 Bytes	C	R	-	T		2-byte floating point value, temperature (°C)
477	Impulscounter {{0}}: Counter value	Output	4 Bytes	C	R	-	T		4-byte count value
478	Impulscounter {{0}}: Change direction	Input	1 Bit	C	-	W	-		1-bit direction control Up/Down
479	Impulscounter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
480	Impulscounter {{0}}: External Object 1	Input	1 Bit	C	-	W	-		1-bit, switching
481	Impulscounter {{0}}: External Object 2	Input	1 Bit	C	-	W	-		1-bit, switching

482	Impulscounter {{0}}: Threshold 1	Output	1 Bit	C	-	-	T		1-bit, switching
483	Impulscounter {{0}}: Threshold 2	Output	1 Bit	C	-	-	T		1-bit, switching
484	Impulscounter {{0}}: Threshold 3	Output	1 Bit	C	-	-	T		1-bit, switching
485	Impulscounter {{0}}: Threshold 4	Output	1 Bit	C	-	-	T		1-bit, switching
486	Impulscounter {{0}}: Counter value	Output	1 Byte	C	R	-	T		1-bit switch control
486	Impulscounter {{0}}: Counter value	Output	2 Bytes	C	R	-	T		8-bit unsigned value, percentage (0–100%)
486	Impulscounter {{0}}: Counter value	Output	2 Bytes	C	R	-	T		2-byte counter value
486	Impulscounter {{0}}: Counter value	Output	4 Bytes	C	R	-	T		2-byte floating point value, temperature (°C)
486	Impulscounter {{0}}: Counter value	Output	4 Bytes	C	R	-	T		4-byte count value
487	Impulscounter {{0}}: Change direction	Input	1 Bit	C	-	W	-		1-bit direction control Up/Down
488	Impulscounter {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
489	Logic {{0}}: External object 1	Input	1 Bit	C	-	W	-		1-bit, switching
490	Logic {{0}}: Reset object 1	Input	1 Bit	C	-	W	-		1-bit, switching
491	Logic {{0}}: External object 2	Input	1 Bit	C	-	W	-		1-bit, switching
492	Logic {{0}}: Reset object 2	Input	1 Bit	C	-	W	-		1-bit, switching
493	Logic {{0}}: External object 3	Input	1 Bit	C	-	W	-		1-bit, switching
494	Logic {{0}}: Reset object 3	Input	1 Bit	C	-	W	-		1-bit, switching
495	Logic {{0}}: External object 4	Input	1 Bit	C	-	W	-		1-bit, switching
496	Logic {{0}}: Reset object 4	Input	1 Bit	C	-	W	-		1-bit, switching
497	Logic {{0}}: Binary Output	Output	1 Bit	C	-	-	T		1-bit, switching
497	Logic {{0}}: 8 Bit Output	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
498	Logic {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
499	Logic {{0}}: External object 1	Input	1 Bit	C	-	W	-		1-bit, switching
500	Logic {{0}}: Reset object 1	Input	1 Bit	C	-	W	-		1-bit, switching
501	Logic {{0}}: External object 2	Input	1 Bit	C	-	W	-		1-bit, switching
502	Logic {{0}}: Reset object 2	Input	1 Bit	C	-	W	-		1-bit, switching
503	Logic {{0}}: External object 3	Input	1 Bit	C	-	W	-		1-bit, switching
504	Logic {{0}}: Reset object 3	Input	1 Bit	C	-	W	-		1-bit, switching
505	Logic {{0}}: External object 4	Input	1 Bit	C	-	W	-		1-bit, switching
506	Logic {{0}}: Reset object 4	Input	1 Bit	C	-	W	-		1-bit, switching
507	Logic {{0}}: Binary Output	Output	1 Bit	C	-	-	T		1-bit, switching
507	Logic {{0}}: 8 Bit Output	Output	1 Byte	C	-	-	T		8-bit unsigned, count pulses (0..255)
508	Logic {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
509	Timer {{0}}: Start	Input	1 Bit	C	-	W	-		1-bit, switching

510	Timer {{0}}: Stop	Input	1 Bit	C	-	W	-		1-bit, switching
511	Timer {{0}}: Timer time	Input	2 Bytes	C	-	W	-		2-byte, duration in seconds
512	Timer {{0}}: State	Output	1 Bit	C	-	-	T		1-bit, boolean
513	Timer {{0}}: Event	Output	1 Bit	C	-	W	T		1-bit, switching
514	Timer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
515	Timer {{0}}: Start	Input	1 Bit	C	-	W	-		1-bit, switching
516	Timer {{0}}: Stop	Input	1 Bit	C	-	W	-		1-bit, switching
517	Timer {{0}}: Timer time	Input	2 Bytes	C	-	W	-		2-byte, duration in seconds
518	Timer {{0}}: State	Output	1 Bit	C	-	-	T		1-bit, boolean
519	Timer {{0}}: Event	Output	1 Bit	C	-	W	T		1-bit, switching
520	Timer {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
521	Time function {{0}}: Channel switch	Output	1 Bit	C	-	-	T		1-bit, switching
522	Time function {{0}}: Time function Active	Output	1 Bit	C	R	-	T		1-bit, switching
523	Time function {{0}}: Time of day	Input	3 Bytes	C	-	W	T		3-byte, time of day
524	Time function {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
525	Time function {{0}}: Channel switch	Output	1 Bit	C	-	-	T		1-bit, switching
526	Time function {{0}}: Time function Active	Output	1 Bit	C	R	-	T		1-bit, switching
527	Time function {{0}}: Time of day	Input	3 Bytes	C	-	W	T		3-byte, time of day
528	Time function {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
201	Button {{0}}: Button pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
202	Button {{0}}: Button short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
203	Button {{0}}: Button long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
204	Button {{0}}: Button auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
205	Button {{0}}: Button release event	Output	1 Bit	C	-	-	T		1-bit, switching
206	Button {{0}}: Button state	Output	1 Bit	C	-	-	T		1-bit, switching
207	Button {{0}}: Enable Led	Input	1 Bit	C	-	W	-		1-bit, switching
208	Button {{0}}: Button pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
209	Button {{0}}: Button short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
210	Button {{0}}: Button long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
211	Button {{0}}: Button auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
212	Button {{0}}: Button release event	Output	1 Bit	C	-	-	T		1-bit, switching
213	Button {{0}}: Button state	Output	1 Bit	C	-	-	T		1-bit, switching
214	Button {{0}}: Enable Led	Input	1 Bit	C	-	W	-		1-bit, switching
215	Button {{0}}: Button pressed event	Output	1 Bit	C	-	-	T		1-bit, switching

216	Button {{0}}: Button short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
217	Button {{0}}: Button long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
218	Button {{0}}: Button auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
219	Button {{0}}: Button release event	Output	1 Bit	C	-	-	T		1-bit, switching
220	Button {{0}}: Button state	Output	1 Bit	C	-	-	T		1-bit, switching
221	Button {{0}}: Enable Led	Input	1 Bit	C	-	W	-		1-bit, switching
222	Button {{0}}: Button pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
223	Button {{0}}: Button short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
224	Button {{0}}: Button long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
225	Button {{0}}: Button auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
226	Button {{0}}: Button release event	Output	1 Bit	C	-	-	T		1-bit, switching
227	Button {{0}}: Button state	Output	1 Bit	C	-	-	T		1-bit, switching
228	Button {{0}}: Enable Led	Input	1 Bit	C	-	W	-		1-bit, switching
229	Button {{0}}: Button pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
230	Button {{0}}: Button short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
231	Button {{0}}: Button long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
232	Button {{0}}: Button auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
233	Button {{0}}: Button release event	Output	1 Bit	C	-	-	T		1-bit, switching
234	Button {{0}}: Button state	Output	1 Bit	C	-	-	T		1-bit, switching
235	Button {{0}}: Enable Led	Input	1 Bit	C	-	W	-		1-bit, switching
236	Button {{0}}: Button pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
237	Button {{0}}: Button short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
238	Button {{0}}: Button long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
239	Button {{0}}: Button auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
240	Button {{0}}: Button release event	Output	1 Bit	C	-	-	T		1-bit, switching
241	Button {{0}}: Button state	Output	1 Bit	C	-	-	T		1-bit, switching
242	Button {{0}}: Enable Led	Input	1 Bit	C	-	W	-		1-bit, switching
243	Ext Input {{0}}: pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
244	Ext Input {{0}}: short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
245	Ext Input {{0}}: long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
246	Ext Input {{0}}: auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
247	Ext Input {{0}}: release event	Output	1 Bit	C	-	-	T		1-bit, switching
248	Ext Input {{0}}: state	Output	1 Bit	C	-	-	T		1-bit, switching
249	Ext Input {{0}}: pressed event	Output	1 Bit	C	-	-	T		1-bit, switching

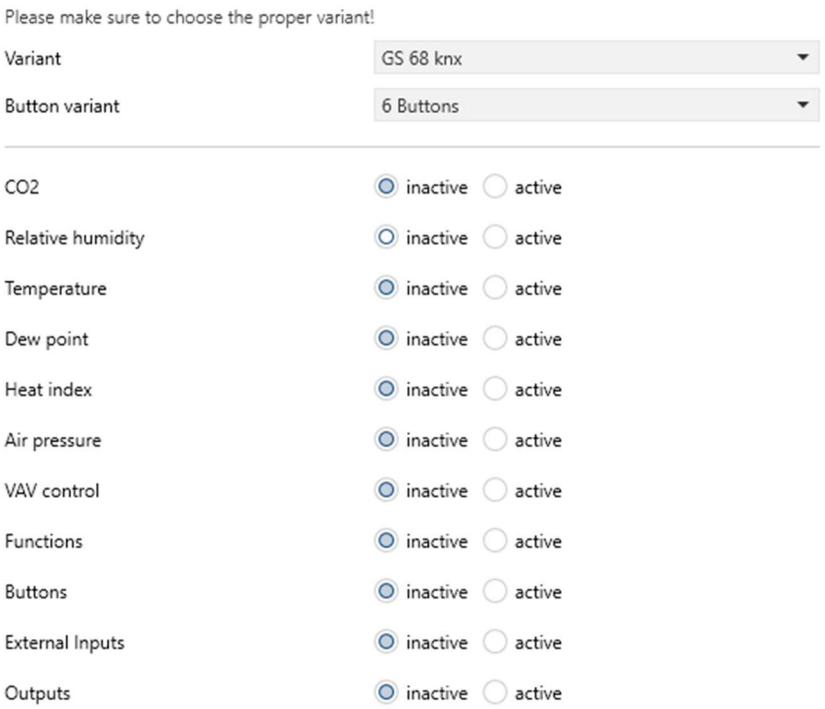
250	Ext Input {{0}}: short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
251	Ext Input {{0}}: long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
252	Ext Input {{0}}: auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
253	Ext Input {{0}}: release event	Output	1 Bit	C	-	-	T		1-bit, switching
254	Ext Input {{0}}: state	Output	1 Bit	C	-	-	T		1-bit, switching
255	Ext Input {{0}}: pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
256	Ext Input {{0}}: short pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
257	Ext Input {{0}}: long pressed event	Output	1 Bit	C	-	-	T		1-bit, switching
258	Ext Input {{0}}: auto repeat event	Output	1 Bit	C	-	-	T		1-bit, switching
259	Ext Input {{0}}: release event	Output	1 Bit	C	-	-	T		1-bit, switching
260	Ext Input {{0}}: state	Output	1 Bit	C	-	-	T		1-bit, switching
264	Output {{0}}: Input Value	Input	1 Bit	C	-	W	-		1-bit, switching
264	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		Szenennummer
264	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		1-bit switch control
264	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		8-bit unsigned, count pulses (0..255)
264	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
264	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		8-bit unsigned value, percentage (0–100%)
264	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		2-byte counter value
264	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
264	Output {{0}}: Input Value	Input	4 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
264	Output {{0}}: Input Value	Input	4 Bytes	C	-	W	-		4-byte count value
265	Output {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
266	Output {{0}}: Input Value	Input	1 Bit	C	-	W	-		1-bit, switching
266	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		Szenennummer
266	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		1-bit switch control
266	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		8-bit unsigned, count pulses (0..255)
266	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
266	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		8-bit unsigned value, percentage (0–100%)
266	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		2-byte counter value
266	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
266	Output {{0}}: Input Value	Input	4 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
266	Output {{0}}: Input Value	Input	4 Bytes	C	-	W	-		4-byte count value
267	Output {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable
268	Output {{0}}: Input Value	Input	1 Bit	C	-	W	-		1-bit, switching

268	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		Szenennummer
268	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		1-bit switch control
268	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		8-bit unsigned, count pulses (0..255)
268	Output {{0}}: Input Value	Input	1 Byte	C	-	W	-		8-bit unsigned, percent (0..100%)
268	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		8-bit unsigned value, percentage (0–100%)
268	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		2-byte counter value
268	Output {{0}}: Input Value	Input	2 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
268	Output {{0}}: Input Value	Input	4 Bytes	C	-	W	-		2-byte floating point value, temperature (°C)
268	Output {{0}}: Input Value	Input	4 Bytes	C	-	W	-		4-byte count value
269	Output {{0}}: Lock	Input	1 Bit	C	-	W	-		1-bit, enable

Communication flags

Flag	Name	Meaning
C	Communication	Object can communicate
R	Read	Object status can be queried (e.g. via ETS, display, etc.)
W	Write	Object can receive
T	Transfer	Object can send
U	Update	Object can request a value from another bus participant. The response is interpreted as a write command and updates the value of the communication object. Typically used to query current values from external sensors after bus voltage returns.

1. Configuration

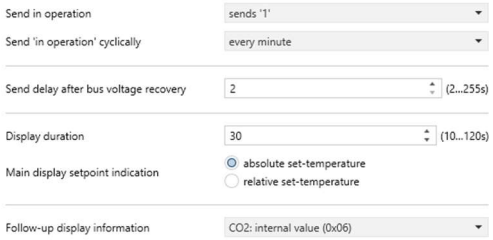


Designation	Options	Description
Variant	GS 68 knx GS 67 knx TS 58 knx TS 57 knx	Variant selection defines which device version is to be configured. Important: If the wrong variant is selected, the device will not operate correctly. This is indicated by a cyclic blinking of the two middle status LEDs on the device front. In this case, the ETS configuration must be checked and the correct variant selected..
Taster variant	0 Buttons 2 Buttons 4 Buttons 6 Buttons	This setting defines how many buttons are available and usable on the sensor. Selecting the correct number of buttons is essential to ensure that all button functions are available as intended. Important: If an incorrect number of buttons is selected, it may result in certain available buttons not functioning or not bong addressable.

Designation	Options	Description
CO2	Inactive active	In this settings overview, only the functions that are actually required in the respective project can be specifically activated.
Relative humidity	inactive active	By activating a desired function (e.g., "Temperature" or "VAV Controller"), the corresponding parameterization section will appear in the left-hand panel of the application program.
Temperature	inactive active	Deactivated functions do not appear in the parameterization structure and are not taken into account during commissioning.
Dew point	inactive active	This selective activation ensures:
Heat index	inactive active	A clearer parameterization in the ETS, A reduced bus load, as unnecessary communication objects are omitted.
Air pressure	inactive active	
VAV control	inactive active	
Functions	inactive active	
Buttons	inactive active	
External inputs	inactive active	
Outputs	inactive active	

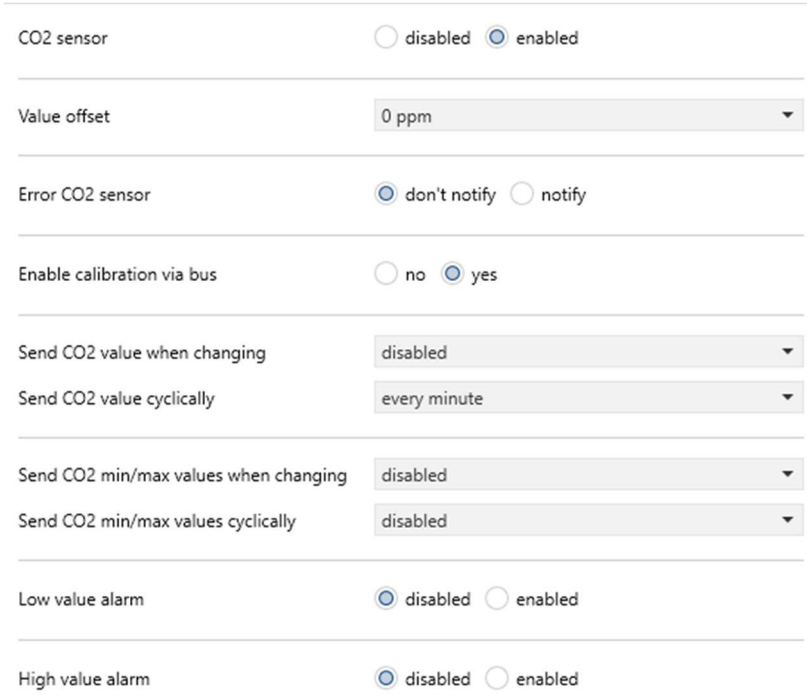
1. General commands

(Image shows modified default settings)



Designation	Options	Description
Send in operation	Inactive Sends ‘0’ Sends ‘1’	No reaction In operation” (0 or 1) is sent in an adjustable cycle (see following parameter).
Send cyclically during operation	Every minute to once a day	Setting the transmission interval for transmitting the “In operation” status in seconds
Transmission delay after bus voltage recovery in ... s	2 - 255 seconds	Setting for transmission delay after bus voltage recovery in seconds
Display duration (note version!)	10 - 120 seconds	The display duration determines how long the segment display should show the desired value. This period is specified in seconds and determines how long the value remains on the display before it is replaced by a new value or the display goes out. If the option „Follow-up display" is activated, the display duration is not applied to each individual value, but applies as the total display duration.
Setpoint display in the main display (note version!)	Absolute temperature	Absolute temperature: In this mode, the actual target value is shown directly on the display. This is the fixed target value, such as 21.0 °C. The user can therefore see the exact value that is targeted for the room or system. This mode is helpful if clear temperature specifications are to be displayed.
Setpoint display in the main display (note version)	Relative temperature	Relative temperature: In this mode, the deviation of the setpoint from the current value is displayed. Instead of the absolute setpoint value, +1 °C or -0.5 °C is displayed, for example, which represents the difference to the current setpoint temperature.
Follow-up display	Temperature: Internal value (0x00) Temperature: External value (0x01) Temperature: Values acquisition 1 (0x02) Temperature: Values acquisition 2 (0x03) Humidity: Internal value (0x04) Humidity: Values recorded (0x05) CO2: Internal value (0x06) CO2: Values recorded (0x07) Controller: CO2 (0x08) Controller: Humidity (0x09) Controller: Heat temp. 1 (0x0A) Controller: Cool temp. 1 (0x0B) Controller: Heat temp. 2 (0x0C) Controller: Cool temp. 2 (0x0D) Controller: VAV (0x0E) User defined (0x0F) deactivated (0xFF)	The follow-up display determines which value is shown in the main display after a certain time interval has elapsed. As long as temperature controller 1 is activated, the setpoint value is shown in the main display by default. This remains visible for a period of 5 seconds. After these 5 seconds have elapsed, the display automatically changes to the value defined in the subsequent display. This value is shown for the remaining time of the display duration (see Display duration setting). The subsequent display thus offers the option of displaying additional information such as the current room temperature, humidity or CO2 values (depending on the version).

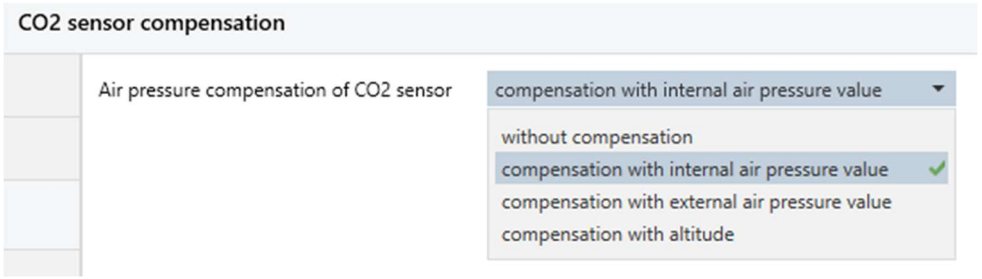
2. CO_2 Sensor



Designation	Options	Description
CO_2 Sensor	Inactive Active	No function CO2 sensor active.
Measured value correction	-500 ppm bis 500 ppm	The measured value correction (offset) of the CO_2 sensor allows the measured value to be adjusted in the range from -500 to +500 ppm. The recorded CO_2 value is corrected by this offset to compensate for measurement inaccuracies
CO2 sensor error	notify don´t notify	A sensor failure is reported if the CO_2 sensor does not send any new values for longer than 10 minutes. No sensor errors are reported
Calibration via bus	No Yes	No function Calibration via the bus enables the CO_2 sensor to be adapted using external specifications. The “Accept CO2 calibration value” object is used for this, in which the current calibration value is written.
Send CO2 value on change	inactive with a change of 10 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 the value has changed by the set threshold value. The threshold value defines the minimum change in ppm (parts per million) that is required for the value to be sent to the bus. The threshold value can be set in the range from 10 ppm to 500 ppm.
Send CO2 value cyclically	Inactive Every minute to once a day	No function This function makes it possible to automatically send the measured CO_2 value to the bus at regular intervals. Cyclical transmission ensures that the current measured values are transmitted continuously, regardless of changes, in order to provide a reliable database for the system.

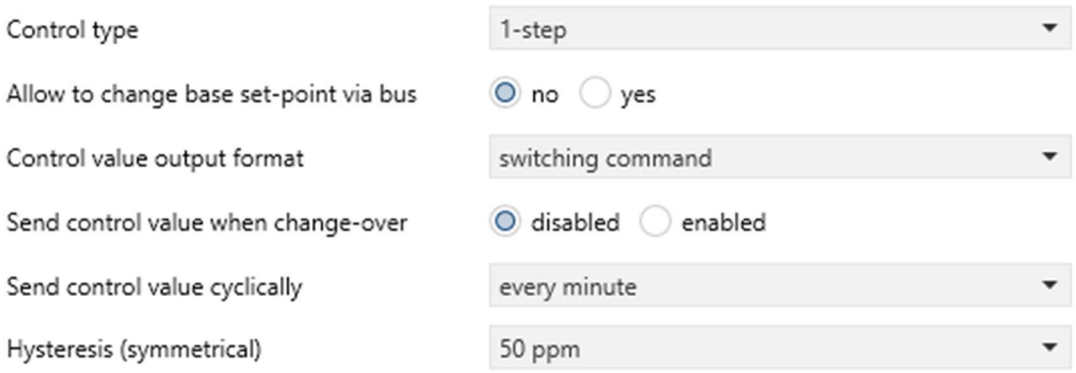
		The cycle in which the values are sent can be set flexibly. Time intervals between 1 minute and once a day are available.
Send CO2 min/max values on change	inactive With a change of 10 ppm to 500 ppm	No function The current CO_2 value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the adjustable change threshold is the new min/max value transmitted to the bus. The change threshold can be flexibly set by the user in the range from 10 ppm to 500 ppm
Send CO2 min/max value cyclically	Inactive Every minute to once a day	No function Enables the regular transmission of the recorded minimum and maximum CO_2 values within a defined time interval. Regardless of any change in the measured values, the current minimum and maximum CO_2 concentration values are sent to the bus at specified intervals.
Low value alarm When active - Threshold value - Send alarm on change - Send alarm cyclically	inactive active <450 ppm bis <1000 ppm inactive active inactive Every minute to once a day	No function Triggers an alarm as soon as the measured CO_2 value falls below a defined threshold value. The threshold value can be set individually within a range from <450 ppm to <1000 ppm. As soon as the CO_2 value falls below the set limit, the alarm can be triggered in two different ways: Send alarm on change: The alarm message is sent immediately as soon as the measured CO_2 value falls below the set threshold value. A new message is only sent when the value rises above the threshold again and then falls below it again. In this mode, a signal is sent at regular intervals - as long as the CO_2 value is below the set threshold value, a 1 is sent cyclically. If the threshold value is exceeded, a 0 is sent cyclically instead. This allows a continuous status update to be sent to the bus.
High value alarm When active: - Threshold value - Send alarm on change - Send alarm cyclically	inactive active >800 ppm bis >5000 ppm inactive active inactive Every minute to once a day	No function Triggers an alarm message as soon as the measured CO_2 value exceeds a defined threshold value. The threshold value can be set individually within a range of 800 ppm to 5000 ppm. If the set threshold value is exceeded, the alarm can be triggered in two ways: Send alarm on change: The alarm message is sent once as soon as the measured CO_2 value exceeds the set threshold value. A new message is only sent when the value falls below the limit again and is then exceeded again. In this mode, a signal is sent at regular intervals - as long as the CO_2 value is above the set threshold value, a 1 is sent cyclically. If the value falls below the threshold value, a 0 is sent cyclically instead. This allows a continuous status update to be sent to the bus.

2.1 CO2 Sensor compensation



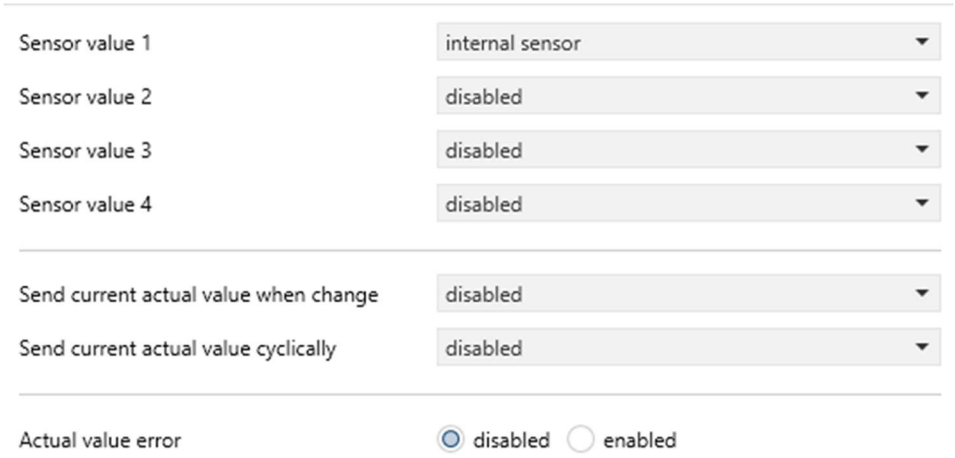
Designation	Options	Description
Air pressure compensation of the CO2 sensor	Without compensation Compensation with internal air pressure value Compensation with external air pressure value Compensation via local altitude: (0m to 5000m above sea level)	To obtain an accurate CO_2 value, it is important to take into account the air pressure conditions at the installation site. The sensor measures the CO_2 concentration as mass per volume, which is why the current air pressure is required for conversion to parts per million (ppm). If no separate air pressure value is entered, the calculation is performed by default with a reference value of 1,013 mbar (air pressure at sea level). The following options are available to compensate the air pressure: No additional compensation: The air pressure is calculated with the standard value of 1,013 mbar. Internal air pressure sensor: The sensor uses its integrated air pressure sensor to automatically adapt to the ambient conditions at the installation site. External air pressure sensor: Compensation is carried out via an external absolute air pressure value, which is provided via a communication object. Altitude-based compensation: The air pressure is calculated based on the specified altitude above sea level at the installation site.

3. CO2 Controller



Designation	Options	Description
CO_2 controller type	Inactive 1-step 2-step 3-step PI	No function The CO_2 controller can operate in 1-step, 2-step, 3-steps or as a PI controller. In single-stage mode, a single switching threshold is defined, above or below which a corresponding control value is output (see 4.1). The two-stage controller allows two switching thresholds to be defined in order to achieve finer control, while the three-stage controller uses three switching thresholds to enable even more precise gradations. The PI controller works continuously with a proportional-integral control behavior and adapts the control value precisely to the measured values. The adjustable parameters for the PI controller are described in section 4.2.
Control variable Output format	Switching command Priority Percent Byte Scene	The control value of the CO_2 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 system and system integration.
Send control value on changeover	Inactive Active	No function The control value is sent during a switchover to ensure that the current value is transmitted to the system immediately after a change in the operating mode or control strategy.
Send control value on change (only for PI)	Inactive With a change of 1% to 25%	No function Control value is sent when a change occurs. The transmission only takes place if the calculated control value changes compared to the previous value.
Send control value cyclically	Inactive Every minute to once a day	No function The control value can be sent cyclically, whereby the transmission frequency can be set between “every minute” and “once a day”.
Hysteresis (symmetrical) (only for 1/2/3-step)	50 to 300 ppm	The hysteresis can be set in the range from 50 to 300 ppm for one-, two- and three-stage CO_2 controllers. It defines the tolerance range around the switching thresholds in order to avoid too frequent switching and ensure stable control.
Allow change of the base setpoint via bus	No Yes	No function Allow change of the base setpoint via the bus enables the setpoint to be adjusted using external specifications. This creates a new object that can be used to change the current base setpoint,

3.1 CO_2 Controller – actual value control

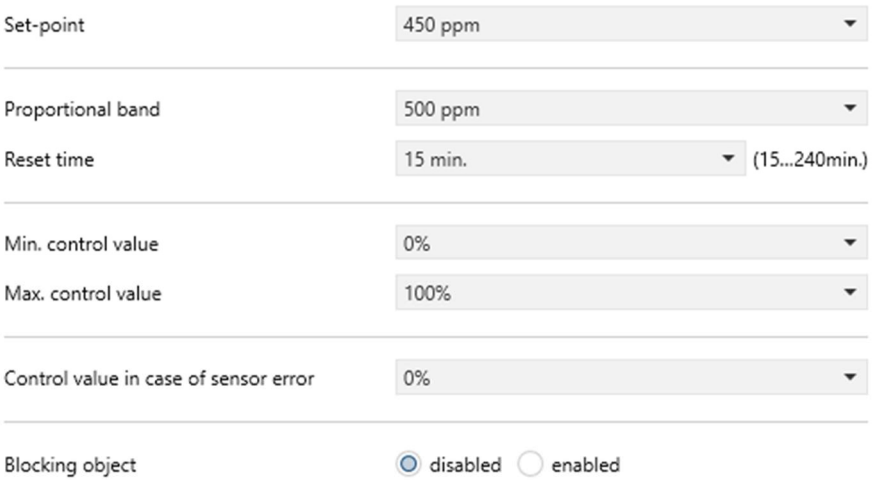


Designation	Options	Description
Sensor value 1	Internal sensor Via bus (communication object)	Value of the internal CO2 sensor is used. Value sent via the bus (communication object) is used.
Sensor value 2-4	Inactive Internal sensor Via bus (communication object)	No function Value of the internal CO2 sensor is used. Value sent via the bus (communication object) is used.
Value calculation type	Average Weighted average (1-4 [0-10]) Minimum value Maximum value	Calculates the value as an average Calculates the value as a weighted average. Each value can have a different weighting from 0 to 10. Selects the sensor with the lowest CO2 value. Selects the sensor with the highest CO2 value.
Send current actual value when change	Inactive With a change of 10-500 ppm	No function The current CO2 value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the adjustable change threshold is the new actual value transmitted to the bus. The change threshold can be flexibly set by the user in the range from 10 to 500 ppm
Sent current value cyclically	Inactive every minute - once a day	No function Enables the regular transmission of the determined actual values within a defined time interval. The actual values are sent to the bus in defined cycles regardless of a change in the measured values. No function
Actual value error	inactive active	The actual value error object is a 1-bit object that serves as an error indicator if an error occurs within the CO2 measurement. It signals whether the measurement is faulty and thus supports error detection and diagnosis in the system.

3.2 PI controller for CO2

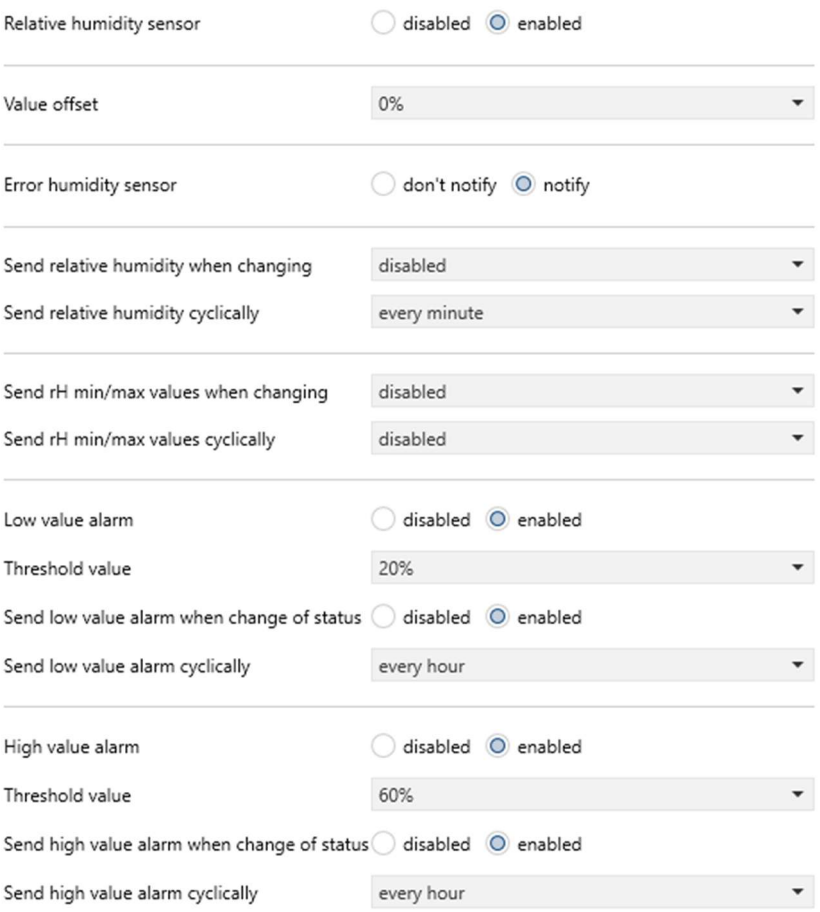
Designation	Options	Description
Setpoint	400 ppm to 2000 ppm	Setting the setpoint
Proportional range	100 ppm to 2000 ppm	The PI controller for CO_2 has an adjustable proportional range between 100 ppm and 2000 ppm. This means that within this range, the output variable of the controller reacts proportionally to the deviation of the CO_2 value from the setpoint value. A smaller proportional range (e.g. 100 ppm) leads to a stronger control effect on small deviations, while a larger proportional range (e.g. 2000 ppm) results in a smoother adjustment.
Reset time	15 min. to 240 min.	The reset time of the PI controller for CO_2 can be set in the range from 15 minutes to 240 minutes. This means that the integration 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 can lead to greater fluctuations. A longer reset time (e.g. 240 minutes) ensures a slower but more stable adjustment and is particularly advantageous in sluggish systems.
Min. control value	0% to 95%	The value of the minimum control value in the range from 0 % to 95 % specifies the minimum value to which the control value of the controller is limited, even if the CO_2 value is below the setpoint value or there is no control deviation. (minimum air supply or similar)
Max. control value	5% to 100%	The value of the maximum actuating value in the range from 5 % to 100 % defines the maximum level at which the actuating value of the controller can increase if CO_2 control is required.
Control value in case of sensor error	0% to 100%	Setting the control value in the event of measured value failure
Blocking Object Behavior when blocking	Inactive Active Don´t send Send value	No function If “Don't send” is enabled, no value is transmitted when the blocking is activated. In this case, the actuator retains its last value. When the blocking object is activated, a defined control value (0–100 %) is sent to the actuator. This overrides the normal control operation, and the output remains fixed at this value regardless of sensor inputs or other control parameters. The current actuating value is sent once the blocking object is set.

3.3 Switching commands / priority CO2 - thresholds 1/2/3



Designation	Options	Description
CO2 threshold 1/2/3	400 ppm to 1500 ppm	The CO_2 controller can be operated in threshold value mode, whereby control is based on defined CO_2 concentrations in the range from 400 to 1500 ppm. Up to three threshold values can be defined, each of which triggers a specific level of control.
Switching command below threshold 1/2/3	Off On	If the value falls below threshold 1/2/3, no switching command is sent If the value falls below threshold 1/2/3, a switching command is sent.
Schaltbefehl oberhalb der Schwelle 1/2/3	Off On	If threshold 1/2/3 is exceeded, no switching command is sent If threshold 1/2/3 is exceeded, a switching command is sent.
Control value in case of sensor error	Off On	If there is no measured value, no switching command is sent. If no measured value is available, a switching command is sent.
Blocking object If Blocking object is activated: - Behavior when blocking - Switching command when blocking	Inactive Active don´t send send value Off On	No reaction send no value when blocking object is released send value when the blocking object is released Switching command “off” is sent when the blocking object is set. Switching command “on” is sent when the blocking object is set.

4. Relative humidity sensor

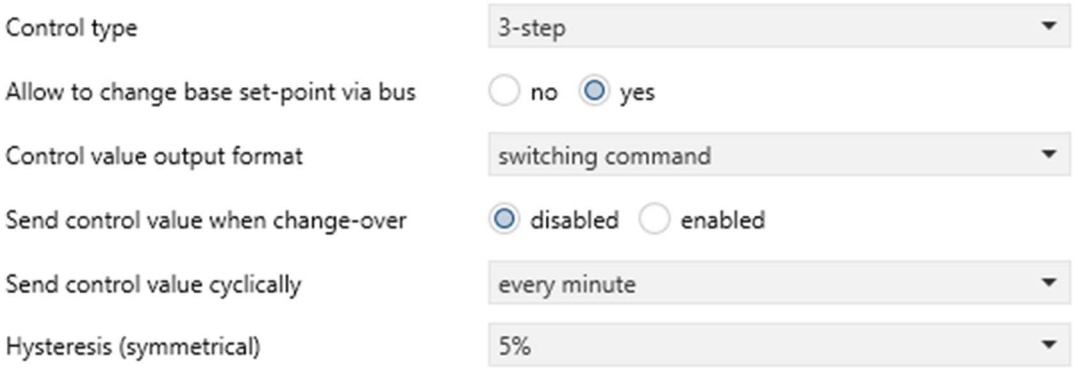


Designation	Options	Description
Relative humidity sensor	Inactive Active	No function Luftfeuchtesensor Active
Value offset	-5% bis 5%	The value correction (offset) of the RH sensor enables one adjustment of the measured value in the range from -5 to +5%. The recorded RH value is corrected by this offset in order to compensate for measurement inaccuracies
Error humidity sensor	notify don´t notify	If no new values are supplied by the sensor for more than 10 minutes, sensor failure is reported. No sensor errors are reported.
Send relative humidity when changing	Inactive With a change of 1% to 25%	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 adjustable change threshold is the current RH value transmitted to the bus. The change threshold can be set flexibly by the user in the range from 1 to 25%.
Send relative humidity cyclically	Inactive Every minute to once a day	No function enables the regular transmission of the current RH value within a defined time interval. Regardless of any change in the measured values, the current RH value is sent to the bus in a defined cycle.
Send rH min/max values when changing	Inactive With a change of 1% to 25%	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 adjustable change threshold is the new min/max value transmitted to the bus. The change threshold can be set flexibly by the user in the range from 1 to 25%.
rF min/max Werte zyklisch senden	Inactive Every minute to once a day	No function Enables the regular transmission of the recorded minimum and maximum relative humidity (rH) values within a defined time interval. Regardless of any change in the measured values, the current minimum and maximum rH values are sent to the bus at specified intervals.
Low value alarm Wenn active - Threshold value - Send alarm on change - Send alarm cyclically	Inactive Active 0% bis 95% Inactive Active Inactive Every minute to once a day	No function Triggers an alarm as soon as the measured humidity value falls below a defined threshold value. The threshold can be individually configured within a range from 0% to 95%. If the humidity value drops below the configured limit, the alarm can be triggered in two different ways: Send alarm on change: The alarm message is sent immediately as soon as the measured humidity value falls below the configured threshold. A new message is only sent once the value rises above the threshold again and then falls below it once more. In this mode, the value is sent to the bus at regular intervals. As long as the humidity value remains below the defined threshold, a '1' is transmitted cyclically – keeping the alarm state actively visible. Once the value exceeds the threshold again, a '0' is sent cyclically.
High value alarm Wenn active: - Threshold value - Send alarm on change - Send alarm cyclically	inactive active 0% bis 95% inactive active inactive Every minute to once a day	No function Triggers an alarm message as soon as the measured humidity value exceeds a defined threshold. The threshold can be individually configured within a range from 0% to 95%. If the configured limit is exceeded, the alarm can be triggered in two ways: Send alarm on change: The alarm message is sent once as soon as the measured humidity value exceeds the configured threshold. A new message is only sent once the value drops below the threshold and then exceeds it again. Cyclic transmission: In this mode, a signal is sent to the bus at regular intervals. As long as the humidity value remains above the defined threshold, a '1' is transmitted cyclically to indicate an active alarm state.

		Once the value falls below the threshold again, a '0' is sent cyclically to indicate the return to normal state.

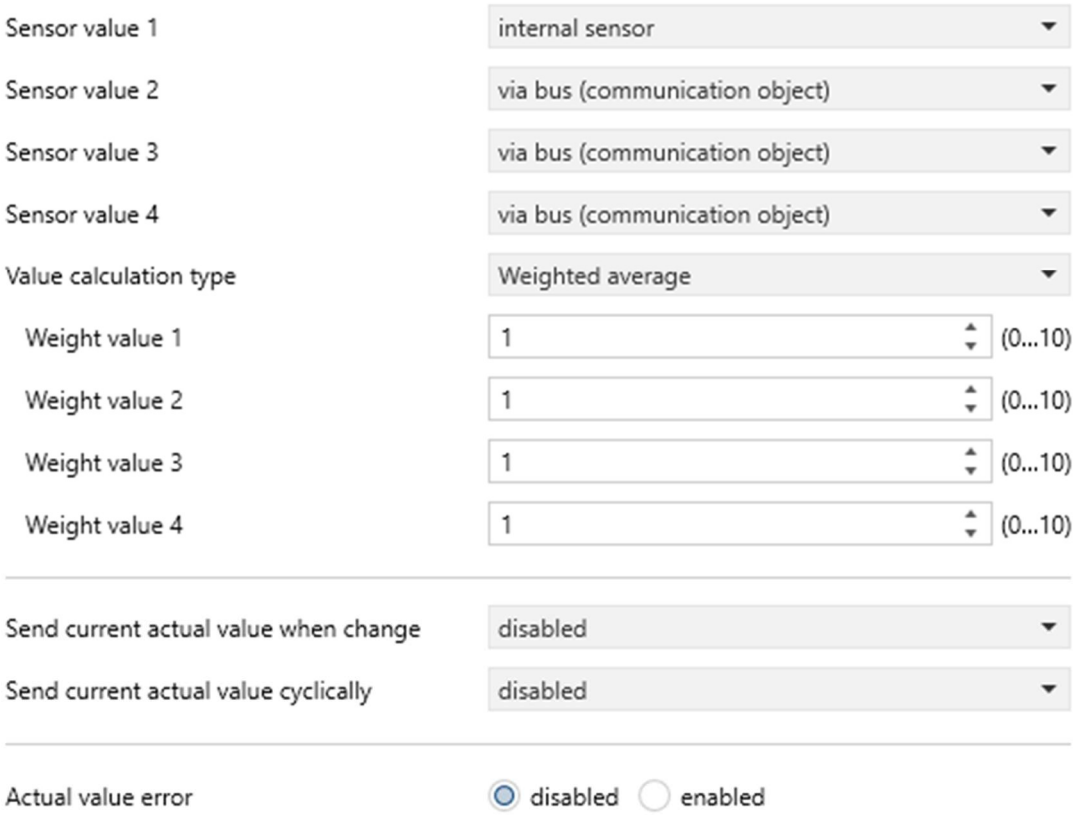
5. Relative humidity Controller



Designation	Options	Description
Control type	Inactive 1-step 2-step 3-step PI	Relative humidity controller deactivated The rF controller can operate in 1-step, 2-step, 3-step, or PI mode. In 1-step mode, a single switching threshold is defined; when this threshold is exceeded or undershot, a corresponding control output is activated (see section 6.1). The 2-step controller allows the definition of two switching thresholds to enable more precise control, while the 3-step controller uses three thresholds for even finer adjustment. The PI controller operates continuously with a proportional-integral control behavior and adjusts the output precisely to the measured values. The adjustable parameters for the PI controller are described in section 6.2.
Control value output format	Switching command Priority Percent Byte Scene	The output of the CO_2 controller can be provided in various output formats. It can be sent as a switching command, priority, percentage value, byte, or scene, depending on the requirements of the control system and system integration.
Send control value when changeover	Disabled Enabled	No function The output value is sent upon switching to ensure that the current value is immediately transmitted to the system after a change in operating mode or control strategy.
Send control value on change (only for PI)	Inactive If change above 1% bis 25%	No function The output value is sent upon a change. Transmission only occurs if the calculated output differs from the previous value.
Send control value cyclically	Inactive Every Minute to 12 hours or once a day	No Reaction

		The output value can be sent cyclically, with the transmission frequency adjustable between "every minute" and "once per day."
Hysteresis (symmetrical)	1% to 10%	The hysteresis can be adjusted between 1% and 50% for 1-step, 2-step, and 3-step rF controllers. It defines the tolerance range around the switching thresholds to prevent excessive switching and to ensure stable control.

5.1 Relative humidity control – Actual value recording



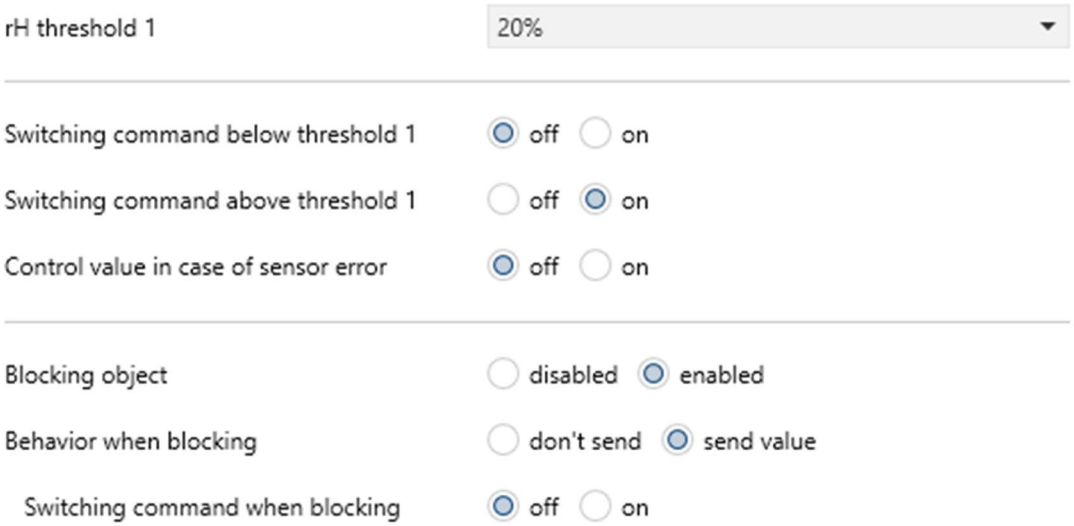
Designation	Options	Description
Sensor value 1	Internal sensor Via bus (communication object)	The value of the internal sensor is used. The value transmitted via the bus (communication object) is used.
Sensor value 2-4	Inactive Internal sensor Via bus (communication object)	No function The value from the internal sensor is used. The value transmitted via the bus (communication object) is used.
Value calculation type	Average Weighted average (1-4 [0-10])	Calculates the value as an average. Calculates the value as a weighted average. Each value can be assigned a different weighting from 0 to 10.

	Min. value Max.value	Selects the sensor with the lowest value. Selects the sensor with the highest value.
Send current actual value when change	Inactive If change above 1% bis 25%	No function The current rF value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the adjustable change threshold is the new actual value sent to the bus. The change threshold can be flexibly set by the user within a range of 1% to 25%.
Send current actual value cyclically	Inactive Every Minute to 12 hours or once a day	No function Enables the regular transmission of the measured actual values within a defined time interval. Regardless of changes in the measured values, the actual values are sent to the bus at fixed intervals.
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 rF (relative humidity) measurement. It signals whether the measurement is faulty, thereby supporting error detection and diagnosis within the system.

5.2 PI controller for relative humidity

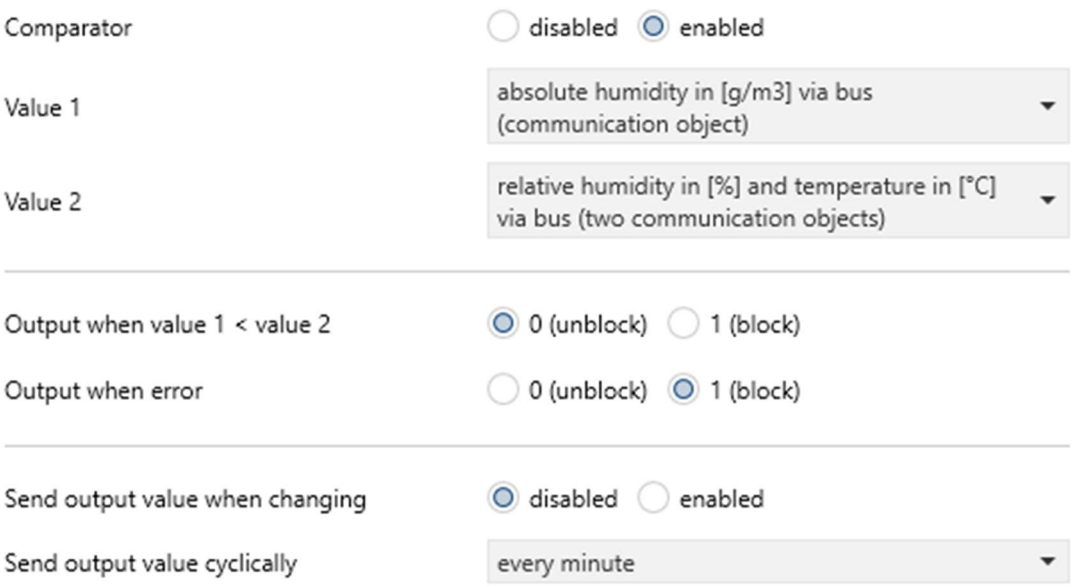
Designation	Options	Description
Set-point	10% bis 95% relative Feuchte	Setting of the setpoint
Proportional band	10% bis 40% relative Feuchte	The PI controller for relative humidity features a configurable proportional band ranging from 10% to 40%. This means that within this range, the controller's output responds proportionally to the deviation of the humidity 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%) produces a smoother adjustment."
Reset time	15 min bis 240 min	The reset time of the PI controller for relative humidity can be configured within a range of 15 to 240 minutes. This means that the integral component of the controller gradually compensates for the control deviation within this time span. A shorter reset time (e.g. 15 minutes) leads to a faster correction, but may cause greater fluctuations. A longer reset time (e.g. 240 minutes) results in a slower but more stable adjustment and is especially advantageous in sluggish systems.
Min. control value	0% bis 95%	The minimum output value, configurable between 0% and 95%, defines the lowest limit to which the controller's output can be reduced — even if the humidity value falls below the setpoint or no control deviation is present (e.g. to ensure a minimum air supply)
Max. control value	5% bis 100%	The maximum output value, configurable between 5% and 100%, defines the upper limit to which the controller's output can rise when humidity control is required.
Control value in case of sensor error	0% bis 100%	Configuration of the output value in case of sensor failure.
Blocking Object Behavior when blocking	Inactive Active Don´t send Send value	No function If "Don't send" is enabled, no value is transmitted when the blocking is activated. In this case, the actuator retains its last value. When the blocking object is activated, a defined control value (0–255) is sent to the actuator. This overrides the normal control operation, and the output remains fixed at this value regardless of sensor inputs or other control parameters. The current actuating value is sent once the blocking object is set.

5.3 Switching commands / Priority relative humidity – Thresholds 1/2/3



Designation	Options	Description
rH threshold 1/2/3	20% to 50%	The rF controller can operate in threshold mode, with control based on defined rF levels in the range of 20% to 50%. Up to three thresholds can be defined, each triggering a specific control stage.
Switching command below threshold 1/2/3	off on	If threshold 1/2/3 is undershot, no switching command is sent. If threshold 1/2/3 is undershot, a switching command is sent.
Switching command above threshold 1/2/3	off on	If threshold 1/2/3 is exceeded, no switching command is sent. If threshold 1/2/3 is exceeded, a switching command is sent.
Control value in case of sensor error	off on	If no measured value is available, no switching command is sent. If no measured value is available, a switching command is sent.
Blocking Object Behavior when blocking	Inactive Active Don´t send Send value	No function If “Don't send” is enabled, no value is transmitted when the blocking is activated. In this case, the actuator retains its last value. When the blocking object is activated, a defined control value (either On or Off) is sent to the actuator. This overrides the normal control operation, and the output remains fixed at this value regardless of sensor inputs or other control parameters. The current actuating value is sent once the blocking object is set.

6. Humidity comprator



Designation	Options	Description
Comparator	Inactive Active	No function The humidity comparator function enables 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 [%] ans Temperatur in [°C] via Bus (two communication objects)	The internal rF 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 in the control process.
Output when value 1 < Wert 2	0 1	Unblock Block
Output when error	0 1	Unblock Block
Send output value when changing	Disabled Enabled	No function The current output value is compared with the previously transmitted value. Only when the difference between the new measured value and the last transmitted value exceeds the adjustable change threshold is the new actual value sent to the bus.
Send output value cyclically	Inactive Every minute to once a day	No function

		Enables the regular transmission of output values within a defined time interval. Regardless of any changes in the measured values, the output values are sent to the bus at fixed intervals.

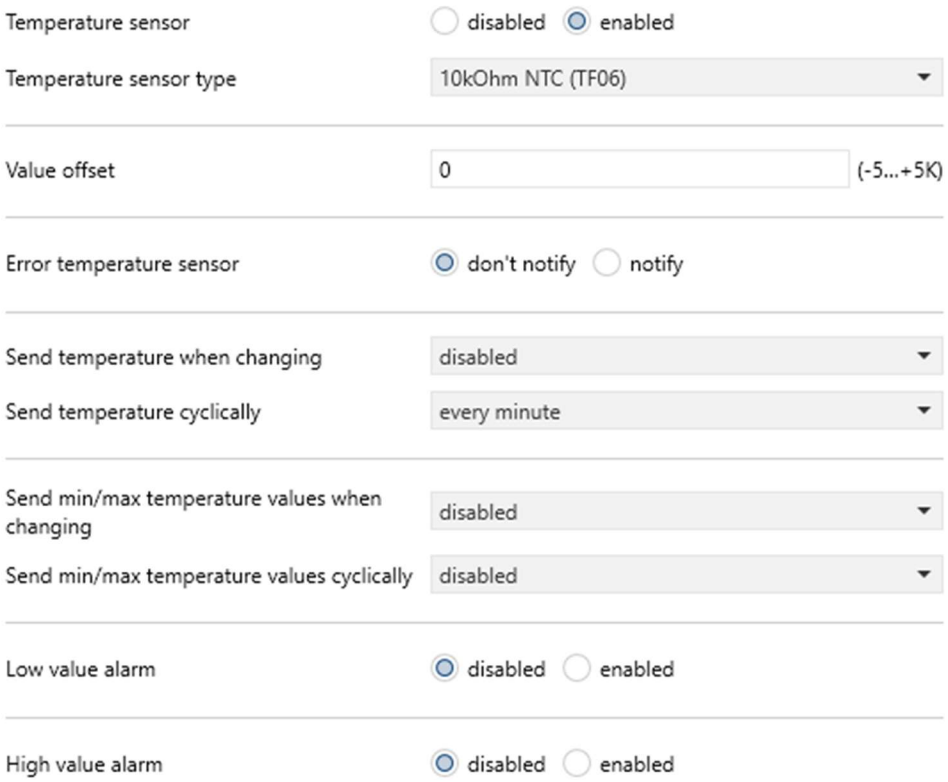
7. Temperature sensor

Designation	Options	Description
Temperature sensor	Disabled Enabled	No function Temperatursensor active
Value offset	-5K bis 5K	The measurement offset of the temperature sensor allows an adjustment of the measured value within a range of -5 K to +5 K.

		The recorded temperature value is corrected by this offset to compensate for measurement inaccuracies.
Error temperature sensor	Notify Don´t notify	If no new measurement values are provided by the sensor for more than 10 minutes, a sensor error is reported. No output of control values in case of sensor error.
Send temperature when changing	Inactive 0,1K-10K	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 adjustable change threshold is the current temperature value sent to the bus. The change threshold can be flexibly set by the user within a range of 0.1 to 10 K.
Send min / max temperature values when changing	Inactive Bei oner Änderung von 0,1 K bis 10,0 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 adjustable change threshold is the new min/max value sent to the bus. The change threshold can be flexibly set by the user within a range of 0.1 to 10 K.
Send min / max temperature values cyclically	Inactive Every minute to once a day	No function Enables the regular transmission of the recorded minimum and maximum temperature values within a defined time interval. Regardless of any changes in the measured values, the current minimum and maximum temperature values are sent to the bus at fixed intervals.
Low value alarm When active: - Threshold value - Send alarm on change - Send alarm cyclically	Inactive Active -10°C to 10°C Inactive Active Inactive Every minute to once a day	No function Triggers an alarm as soon as the measured temperature value falls below a defined threshold value. The threshold value can be individually set within a range of -10 °C to 10 °C. Once the temperature value drops below the set limit, the alarm can be triggered in two different ways: No function The alarm message is sent immediately as soon as the measured temperature value falls below the set threshold value. A new message is only sent once the value rises above the threshold again and then falls below it once more. No function In this mode, a signal is sent to the bus at regular time intervals. As long as the temperature value remains below the set threshold, a 1 is sent cyclically to indicate the alarm state. Once the value exceeds the threshold, a 0 is sent cyclically to indicate the return to normal state.
High value alarm Wenn active: - Threshold value	inactive active 20°C to 50°C	No function Triggers an alarm message as soon as the measured temperature value exceeds a defined threshold value. The threshold value can be individually set within a range of 20 °C to 50 °C. If the set threshold is exceeded, the alarm can be triggered in two different ways:

- Send alarm on change	inactive active	No function The alarm message is sent once as soon as the measured temperature value exceeds the set threshold value. A new message is only sent once the value falls below the threshold and then exceeds it again.
- Send alarm cyclically	inactive Every minute to once a day	No function In this mode, a signal is sent to the bus at regular time intervals. As long as the temperature value remains above the defined threshold, a 1 is sent cyclically to indicate the alarm state. Once the value falls below the threshold, a 0 is sent cyclically to indicate the return to the normal state.

8. External temperature sensor



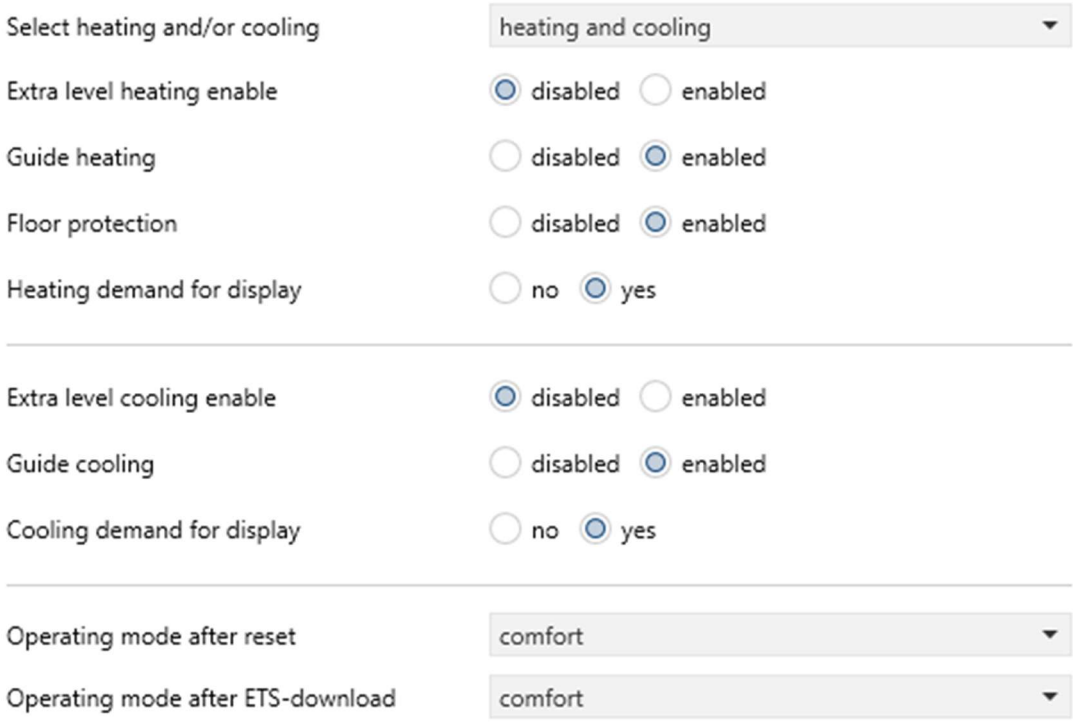
Designation	Options	Description
Temperature sensor	Inactive Active	No function External temperature sensor active

Temperature sensor type	PT 1000 2kOhm NTC 10kOhm NTC (TF06) 12kOhm NTC 15kOhm NTC 33kOhm NTC 47kOhm NTC 2kOhm PTC	Select the appropriate temperature sensor for the external input according to your application. The available sensor types differ in their resistance value and behavior in response to temperature changes.
Value offset	-5K to 5K	The measurement correction (offset) of the external temperature sensor allows an adjustment of the measured value within a range of -5 K to +5 K. The recorded temperature value is corrected by this offset to compensate for measurement inaccuracies.
Error temperature sensor	Don´t notify Notify	If no new values are received from the sensor for more than 10 minutes, a sensor failure is reported. No sensor errors are reported.
Send temperature when changing	Inactive If change above 0,1K bis 10K	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 adjustable change threshold is the new temperature value sent to the bus. The change threshold can be flexibly set by the user within a range of 0.1 K to 10 K.
Send temperature cyclically	Inactive Every minute to once a day	No function This function allows the measured temperature value to be automatically sent to the bus at regular intervals. Cyclic transmission ensures that the current measurement values are continuously transmitted, regardless of changes, providing a reliable data basis for the system. The cycle in which the values are sent can be flexibly configured. Time intervals from once per minute to once per day are available.
Send min / max temperature values when changing	Inactive If change above 0,1K bis 10K	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 adjustable change threshold is the new min/max value sent to the bus. The change threshold can be flexibly set by the user within a range of 0.1 K to 10 K.
Send min / max temperature values cyclically	Inactive Every minute to once a day	No function Enables the regular transmission of the recorded minimum and maximum temperature values within a defined time interval. Regardless of any changes in the measured values, the current minimum and maximum temperature values are sent to the bus at fixed intervals.
Low value alarm When active: - Threshold value - Send alarm on change	Disabled Enabled -10°C to 10°C Disabled Enabled	No function Triggers an alarm message as soon as the measured temperature value falls below a defined threshold value. The threshold value can be individually set within a range of -10 °C to 10 °C. If the set threshold is undershot, the alarm can be triggered in two different ways: No function The alarm message is sent once as soon as the measured temperature value falls below the set threshold value. A new message is only sent once the value rises above the threshold and then falls below it again.

- Send alarm cyclically	Inactive Every minute to once a day	No function In this mode, a signal is sent to the bus at regular time intervals. As long as the temperature value remains below the defined threshold, a 1 is sent cyclically to indicate the alarm state. Once the value rises above the threshold, a 0 is sent cyclically to indicate the return to the normal state.
High value alarm Wenn active	inactive active	No function
- Threshold value	>20°C to >50°C	Triggers an alarm message as soon as the measured humidity value exceeds a defined threshold value. The threshold value can be individually set within a range of 20 °C to 50 °C. If the set threshold is exceeded, the alarm can be triggered in two different ways:
- Send alarm on change	Inactive Active	No function The alarm message is sent once as soon as the measured humidity value exceeds the set threshold value. A new message is only sent once the value falls below the threshold and then exceeds it again.
- Send alarm cyclically	inactive Every minute to once a day	No function In this mode, a signal is sent to the bus at regular time intervals. As long as the humidity value remains above the defined threshold, a 1 is sent cyclically to indicate the alarm state. Once the value falls below the threshold, a 0 is sent cyclically to indicate the return to the normal state.

9. Temperature controller 1/2

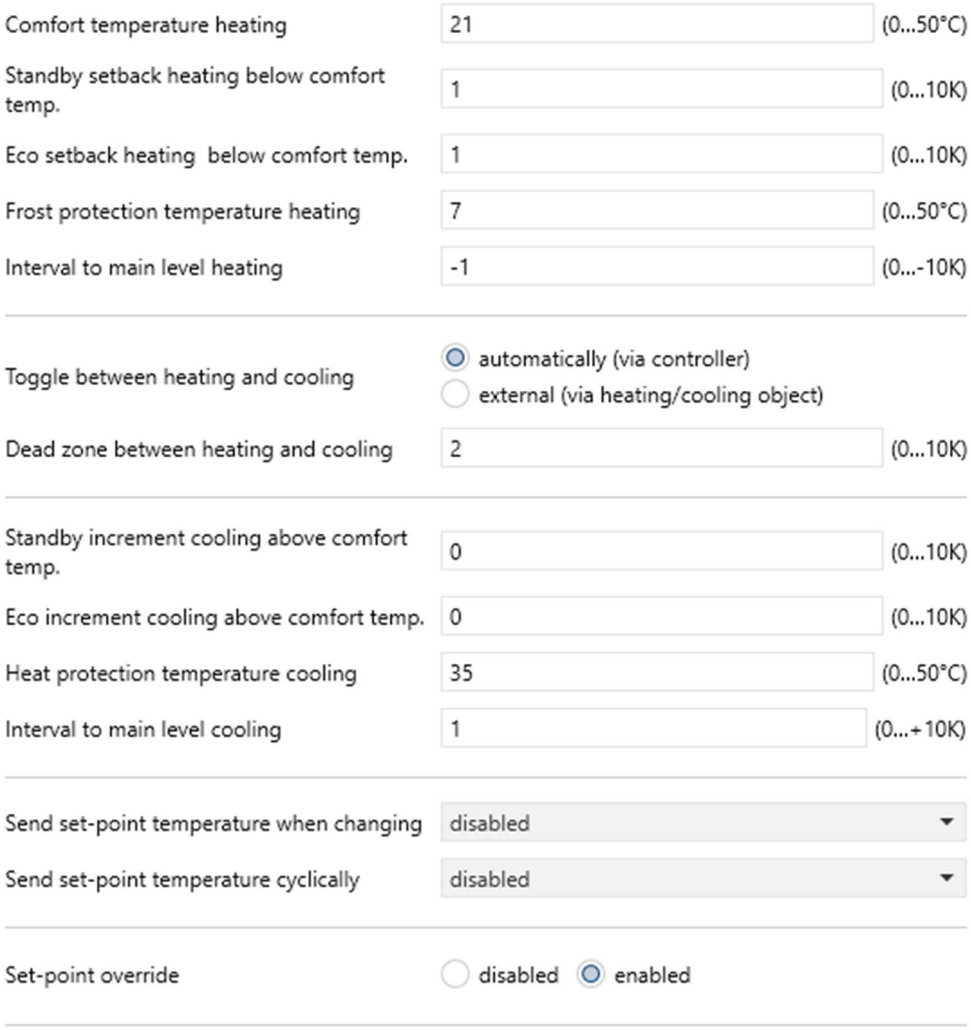
9.1 Temperature controller 1 / 2 settings



Designation	Options	Description
Select heating and / or cooling	Inactive Heating Cooling Heating and cooling	No function The system’s operating mode can be individually adjusted depending on the application. It is possible to choose between heating, cooling, or a combination of both. In heating mode, the temperature is regulated to reach and maintain a defined minimum temperature. In cooling mode, the system ensures that a specified maximum temperature is not exceeded. If the "Heating and Cooling" option is selected, the system automatically adjusts the temperature to keep it within a defined range. The selection of the appropriate operating mode should be based on the specific requirements of the application.
Extra level heating or cooling enable	Inactive Active	No function In addition to the main level (e.g., underfloor heating), an extra level (e.g., electric heater) can be used for slow-reacting systems. This extra level can shorten the warm-up phase of a slow underfloor heating system. For the extra level, you can choose between a PI controller and a 2-point controller.
Guide heating or cooling	Inactive	No function

	Active	The parameter Guide Heating or Guide Cooling allows the setpoint to be adjusted linearly based on any guidance variable measured by an external sensor. With appropriate configuration, a continuous increase or decrease of the setpoint can be achieved. Configuration is done under the “Setpoints” section.
Floor protection	Inactive Active	No function The floor protection function is designed to prevent damage to the flooring caused by excessive temperature exposure. It ensures that the floor temperature does not fall below or exceed a defined minimum or maximum value by adjusting the heating output accordingly.
Heating demand heating or cooling for display	Non Ja	No function This object is a status object that indicates the operating state of heating or cooling (active or inactive). It can be used to visualize the status on a display.
Operating mode after reset	Komfort Standby Eco Frost- / Hitzeschutz Letzter (gespeichert)	In this section, you can define which operating mode is automatically used after a bus reset. You can choose between Comfort, Standby, Eco, Frost/Heat Protection, and Last (stored) value, allowing the system to start with the desired settings after the reset.
Operating mode after ETS-Download	Komfort Standby Eco Frost- / Hitzeschutz	In this section, you can define which operating mode is automatically used after an ETS download. You can choose between Comfort, Standby, Eco, and Frost/Heat Protection, allowing the system to start with the desired settings after the download.

9.2 Temperature controller 1/2 – setpoints

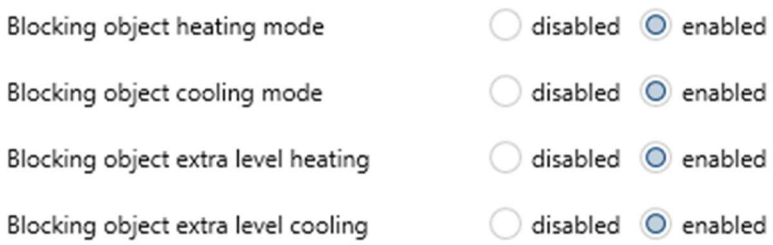


Designation	Options	Description
Comfort temperature heating	0 °C to 50 °C (only whole numbers selectable)	Definition of the Comfort Temperature
Standby setback heating below comfort temp.	0K bis 10K (only whole numbers selectable)	The temperature setpoint for standby mode defines the reduction of the heating temperature compared to the comfort temperature. The specified value (0 K – 10 K) is subtracted from the comfort temperature, so that the room temperature is reduced accordingly in standby mode.

Eco setback heating below comfort temp.	0K to 10K (only whole numbers selectable)	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, so that the room temperature is reduced accordingly in Eco mode.
Frost protection temperature heating	0 °C to 50 °C (only whole numbers selectable)	The frost protection temperature defines the minimum room temperature that the heating system maintains in frost protection mode. Unlike in Standby or Eco mode, no value is subtracted from the comfort temperature; instead, the desired temperature is specified directly. The heating system activates automatically when the room temperature falls below this value to prevent frost damage to pipes and the building structure.
Interval to main level heating	0K to -10K (only whole numbers selectable)	The offset to the main level defines the temperature difference at which the main level of the heating system is activated. (For example, if an offset of -1 K is set and the comfort setpoint is 21 °C, the main level is activated as soon as the temperature drops to 20 °C.)
Toggle between heating and cooling	Automatic (controlled by the internal regulator) External (via the Heating / Cooling communication object)	Switching between heating and cooling can be configured to occur either automatically or via external control. In automatic mode, the controller handles the switching based on the current room temperature and the configured setpoints. As soon as the temperature rises above the cooling setpoint or falls below the heating setpoint, the system automatically switches between heating and cooling to maintain the desired room climate. Alternatively, switching can be carried out externally via a heating/cooling object. In this case, the operating mode is not determined by the controller itself but by an external signal or control unit, such as a building management system or a separate switch.
Dead zone between heating and cooling	0K to 10K (only whole numbers selectable)	The dead zone between heating and cooling defines the temperature range in which neither heating nor cooling is active. This range helps avoid unnecessary switching between operating modes and ensures more efficient control. If the current value falls below the setpoint, heating is activated to raise the temperature. Once the temperature reaches the setpoint, heating stops. To prevent the system from immediately switching to cooling as soon as the setpoint is exceeded, the dead zone comes into effect. Cooling is only activated once the current value exceeds the setpoint plus the defined dead zone.
Standby increment cooling above comfort temp.	0K to 10K (only whole numbers selectable)	Setting of the increase from standby to comfort temperature in Kelvin. The dead zone must be added to the increase.
Eco increment cooling bove comfort temp.	0K to 10K (only whole numbers selectable)	Setting of the increase from Eco to comfort temperature in Kelvin. The dead zone must be added to the increase.
Heat protection temperature cooling	0K to 10K (only whole numbers selectable)	The heat protection temperature for cooling defines the temperature at which heat protection is activated to prevent system overheating. If the set temperature is exceeded, the heat protection mechanism engages to prevent damage to the system and ensure operational safety.
Interval to main level cooling	0K to 10K (only whole numbers selectable)	The offset to the main level for cooling defines the temperature difference at which the main level of the cooling system is activated. For example, if an offset of 1 K is set and the comfort setpoint is 24 °C, the main level is activated as soon as the temperature rises to 25 °C (24 °C + 1 K = 25 °C).
Send set-point temperature when changing	Inactive If change above 0,1K to 10K	No function The current setpoint is compared with the previously transmitted value. Only when the difference between the new value and the last transmitted value exceeds the adjustable change threshold is the new setpoint sent to the bus. The change threshold can be flexibly set by the user within a range of 0.1 K to 10 K.
Send set-point tempertaure cyclically	Inactive Every minute to once a day	No function

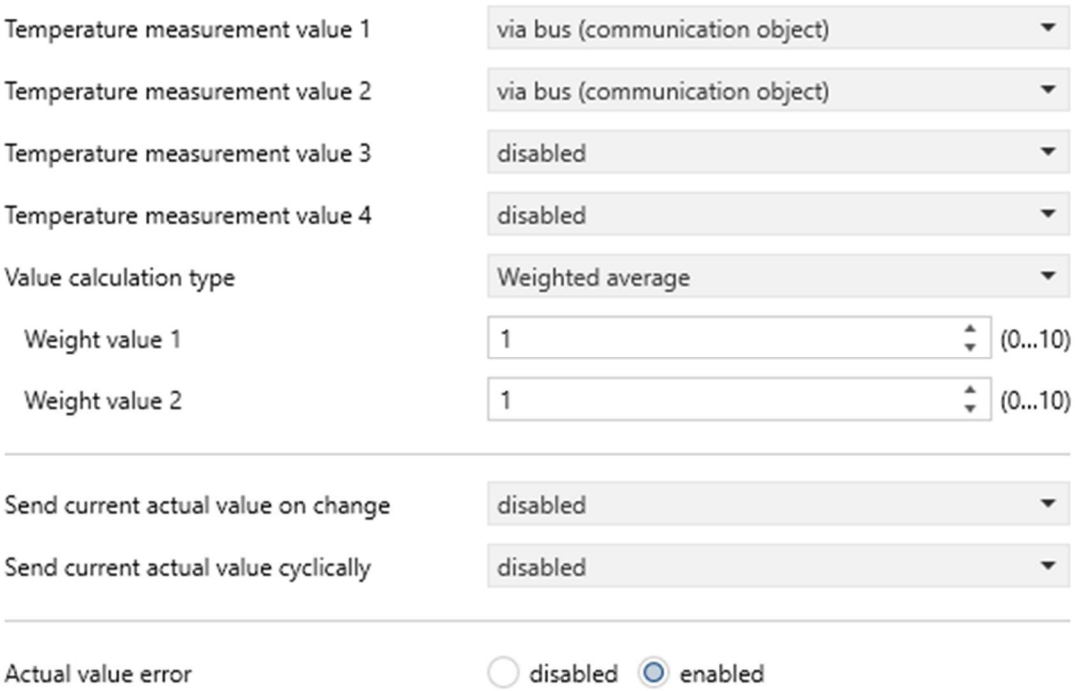
		This function allows the current setpoint to be automatically sent to the bus at regular intervals. Cyclic transmission ensures that the setpoint is continuously transmitted regardless of changes, providing a reliable data basis for the system. The cycle in which the values are sent can be flexibly configured. Time intervals from once per minute to once per day are available.
Set-point override	Disabled Enabled	No function The setpoint override function allows the currently configured setpoint to be modified via an additional communication object. Instead of changing the setpoint directly in the controller, it can be adjusted through an external control unit or a central building management system..

9.3 Temperature controller 1/2 – Blocking objects



Designation	Options	Description
Blocking object heating mode	Inactive Active	No function. The blocking object in heating mode is a function that specifically deactivates or limits the heating system. When the blocking object is activated, it either completely disables heating or restricts it in certain operating modes. This can be controlled by external signals (e.g., from a building management system, time schedules, or energy management systems).
Blocking object cooling mode	Inactive Active	No function. The blocking object in cooling mode is a function that specifically deactivates or limits the cooling system. When the blocking object is activated, it either completely disables cooling or restricts it in certain operating modes. This can be controlled by external signals (e.g., from a building management system, time schedules, or energy management systems).
Blocking object extra level heating	Inactive Active	No function. The blocking object for the heating extra level is a function that specifically deactivates or limits the activation of the additional heating stage. When the blocking object is activated, the auxiliary heating is completely disabled or restricted in certain operating modes. This can be controlled by external signals (e.g., from a building management system, time schedules, or energy management systems).
Blocking object extra level cooling	Inactive Active	No function. The blocking object for the cooling extra level is a function that specifically deactivates or limits the activation of the additional cooling stage. When the blocking object is activated, the auxiliary cooling is completely disabled or restricted in certain operating modes. This can be controlled by external signals (e.g., from a building management system, time schedules, or energy management systems).

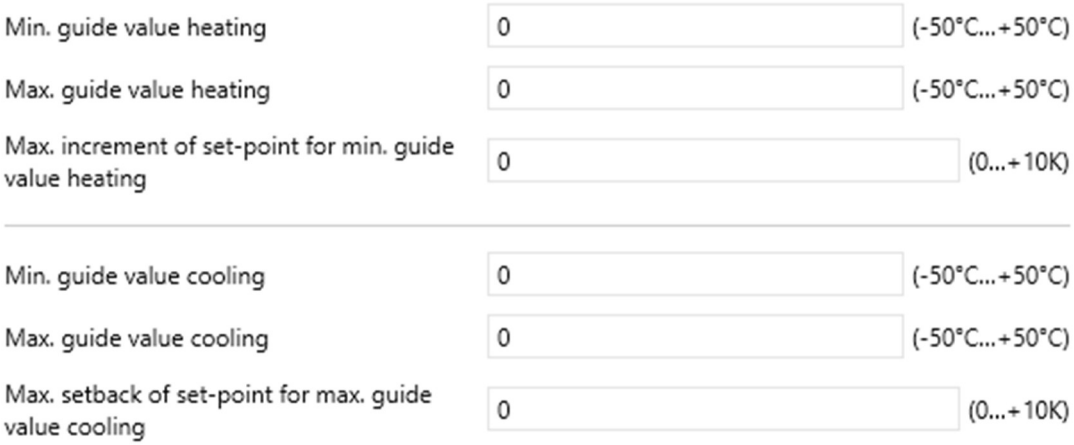
9.4 Temperature controller 1/2 – actual value recording



Designation	Options	Description
Temperature mesurement value 1	Inactive Internal sensor External temperature sensor Via bus (communication object)	No function The temperature value from the internal temperature sensor is used. The temperature value from an external temperature sensor is used. The temperature value transmitted via the bus (communication object) is used.
Temperature measurement value 2-4	Inactive Internal sensor External temperature sensor Via bus (communication object)	No function The temperature value from the internal temperature sensor is used. The temperature value from an external temperature sensor is used. The temperature value transmitted via the bus (communication object) is used.
Value calculation type	Average Weighted average / Weighting value 1–4 [0–10] Min value Max value	If up to four sensors provide a value, there are different methods for determining the final result. One option is to calculate the average, where all sensor values are equally weighted and the mean value is used. Alternatively, a weighted average can be calculated, where each sensor value is considered with an individual weight between 0 and 10. This allows the influence of individual sensors on the final result to be flexibly adjusted. Additionally, it is possible to specifically use the lowest (Min) or highest (Max) value of all active sensors. This method is particularly suitable for applications where extreme values are critical for control, such as protecting against over- or under-temperature.

		Depending on the application, the appropriate value calculation method can be selected to ensure precise and reliable control based on sensor data. 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 adjustable change threshold is the new actual value sent to the bus.
Send current actual value on change	Inactive If change above 0,1K to 10K	No function The change threshold can be flexibly set by the user within a range of 0.1 K to 10 K. The 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 adjustable change threshold is the new setpoint sent to the bus. The change threshold can be flexibly set by the user within a range of 0.1 K to 10 K.
Send current actual value cyclically	Inactive Every minute – once a day	No function This function allows the current setpoint to be automatically sent to the bus at regular intervals. Cyclic transmission ensures that the setpoint is continuously transmitted, regardless of any changes, providing a reliable data basis for the system. The cycle in which the values are sent can be flexibly configured. Time intervals from once per minute to once per day are available.
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 diagnosis within the system.

9.5 Temperature controller 1 – Guiding



Designation	Options	Description
Min. guide value heating / cooling	-50°C bis 50°C (only whole numbers selectable)	The minimum guidance value defines the lowest possible setpoint that can be used for heating or cooling operation. This value sets the lower limit that the control system must not fall below (in heating mode) or exceed (in cooling mode). In heating mode, the minimum guidance value ensures that the temperature does not drop below a certain level, for example, to maintain comfort or prevent frost damage. In cooling mode, it limits the maximum temperature to avoid insufficient cooling performance. This setting allows targeted limitation of control values and contributes to the efficiency and protection of both the system and the environment.
Max. guide value heating / cooling	-50°C bis 50°C (only whole numbers selectable)	The maximum guidance value defines the highest possible setpoint that can be used for heating or cooling operation. This value sets the upper limit to which the control system may raise (in heating mode) or lower (in cooling mode) the temperature. In heating mode, the maximum guidance value ensures that the temperature does not rise above a certain level, preventing energy waste or overheating. In cooling mode, it limits the minimum temperature to avoid excessive cooling and unnecessary energy consumption.
Max. increment of set-point for min.guide value heating / cooling	0K to 10K (only whole numbers selectable)	The maximum setpoint increase and maximum setpoint decrease define the permissible correction range of the setpoint based on the minimum or maximum guidance value in heating and cooling mode. The maximum setpoint increase defines how much the setpoint may be raised when the maximum guidance value is reached. This ensures that the temperature does not rise unnecessarily high, enabling energy savings and preventing overheating. The maximum setpoint decrease specifies how much the setpoint may be lowered when the minimum guidance value is reached. This prevents the temperature from dropping too far, helping to avoid unnecessary energy consumption while maintaining comfort. These settings ensure optimized temperature control by limiting extreme deviations and supporting energy efficiency as well as system protection.

9.6 Temperature controller 1 – floor protection

Designation	Options	Description
Floor temperature source	Ext. Temp sensor Via bus (communication object)	The temperature value from an external temperature sensor is used. The temperature value transmitted via the bus (communication object) is used.
Frost protection	Inactive Active / (5°C to 50°C)	No function Defines the minimum temperature that must be maintained for the floor. If the measured floor temperature drops below this value, the controller activates the heating to prevent damage caused by cold.
Heat protection	Inactive Active / (5°C to 50°C)	No function Defines the maximum floor temperature that must not be exceeded. If this limit is reached or exceeded, the controller switches off the heating to prevent damage caused by excessive temperatures.

9.7 Temperature controller 1 – manual set-point adjustment

Designation	Options	Description
Man. Adjustment range	Inactive +/- 5K	No function Value of the manual adjustment range.
Increase set point via button	b2	The setpoint on the temperature controller can be adjusted manually using buttons b1 (decrease) and b2 (increase). Alternatively, the setpoint can be overridden via the object “Setpoint Override Value” – for example, by control from a building management system.
Decrease set point via button	b1	
Send man. offset upon change	Inactive Active	No function The current manual offset value is compared with the previously transmitted value. Only if 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 man. offset cyclically	Inactive Every minute to once a day	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 sent regardless of changes, providing a reliable data basis for the system. The transmission cycle can be configured flexibly, with time intervals ranging from once per minute to once per day.

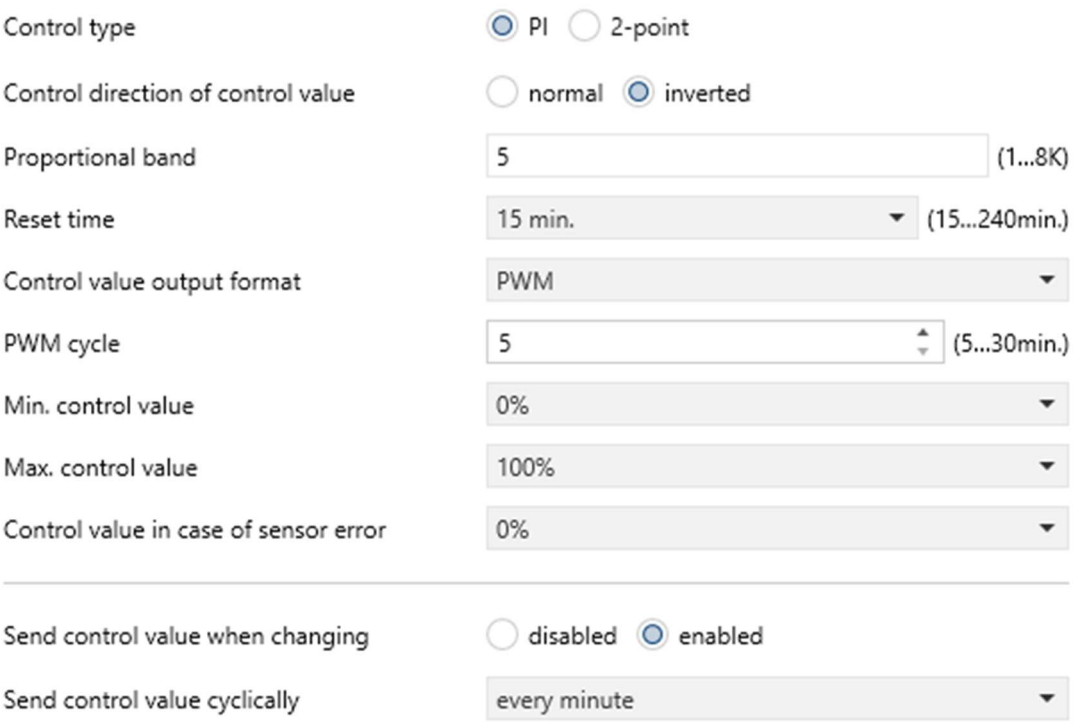
9.8 Partyfunction

Party Function:
Function to activate a specific controller mode outside the regular operating modes. This mode can be time-limited and repeated as needed.

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

Designation	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 adopted according to the respective setpoints of the controller. Comfort mode is activated. Standby mode is activated. Eco mode is activated.
Duration limit	Inactive Active Limit: 1 to 1440 min.	No function Time limitation active, according to the parameters below. 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. Once the defined time has elapsed, the retrigger function can restart party mode.

9.9 Temperature Controller – Main and Extra levels



(Image shows main stage heating, PI controller with output format: PWM)

Designation	Regler	Options	Onstellungen	Description
Control type	PI	Control direction of control value	normal inverted	The control direction of the output defines how the temperature controller responds to a change in temperature and can be set to either *Normal* or *Inverse*. In normal operation, the controller decreases the output when the measured temperature rises and increases it when the temperature falls. A typical example is heating control: when the room temperature rises above the setpoint, the controller reduces the heating power to prevent overheating. If the temperature falls below the setpoint, the controller increases the output, supplying more heat. In inverse operation, the system behaves in exactly the opposite way. An increasing temperature leads to an increase in the output, while a decreasing temperature reduces the output. This setting is used, for example, in cooling processes, where a rise in temperature causes the controller to increase cooling to bring the temperature back to the setpoint. Inverse operation can also be useful for specific valve controls where the actuator responds inversely to the controller's output signal.
	PI	Proportional band	1k bis 8K	The PI controller for the main or secondary stage features a configurable proportional band ranging from 1 K to 8 K. This means that within this range, the controller's output responds proportionally to the deviation of the measured temperature 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) leads to a smoother, more gradual adjustment.
	PI	Reset time	15 Min. bis 240 Min.	The reset time (integral time) of the PI controller for the main or secondary stage can be configured between 15 and 240 minutes.

				This means that the integral component of the controller gradually compensates for the control deviation within this time span. A shorter reset time (e.g. 15 minutes) results in faster correction but may lead to greater fluctuations. A longer reset time (e.g. 240 minutes) provides slower but more stable adjustment and is particularly advantageous in sluggish systems.
	PI	Control value output format	Prozent Byte PWM	The output of the CO_2 controller can be provided in various output formats. Depending on the control requirements and system integration, it can be sent as a switching command, priority, percentage value, byte, or scene.
	PI	PWM cycle	5 Min. bis 30 Min.	The PWM cycle (pulse-width modulation) defines the rhythm in which the output 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 control the desired output. The PWM cycle can be configured between 5 and 30 minutes. A shorter cycle time of 5 minutes means the signal switches more frequently, allowing the system to respond more quickly to changes. This is beneficial for smaller or fast-reacting heating and cooling systems. A longer cycle time of 30 minutes provides smoother transitions and is especially suitable for slow-responding systems with high thermal mass, as it reduces frequent switching operations.
	PI	Min.control value	0% bis 95% 0 bis 240 Byte	The value of the minimum output, adjustable between 0% and 95%, defines the lowest limit to which the temperature controller’s output can be reduced—even if the actual temperature is below the setpoint or no control deviation exists. This setting ensures a minimum heat supply or another required base load is maintained, for example, to avoid temperature fluctuations or to guarantee a minimum heating level.
	PI	Max. control value	5% bis 100% 0 bis 255 Byte	The value of the maximum output, adjustable between 5% and 100% or 0 to 255 bytes, defines the upper limit to which the temperature controller’s output can increase. This limitation ensures that the maximum heating or cooling capacity is not exceeded, even in the case of a large control deviation. It allows the output to be adapted to the specific requirements of the system—for example, to prevent overload or to ensure smooth regulation.
	PI	Control value in case of sensor error	0% bis 100% 0 bis 255 Byte	Output behavior in case of sensor signal loss
	PI	Send control value when changing	Inactive Active	No function The current temperature value is compared with the previously transmitted value. Only if there is a difference between the new measurement and the last transmitted value, the new output is sent to the bus.
		Send control value cyclically	inactive Jede Minute- 1x am Tag	No function This function allows the current output value to be sent automatically to the bus at regular intervals. Cyclic transmission ensures that the output value is continuously sent, regardless of changes, providing a reliable data basis for the system. The transmission cycle can be configured flexibly, with time intervals ranging from once per minute to once per day.
	2-point	Hysteresis (symmertrical)	0,5K bis 5K	A 2-point controller switches between two states (e.g. ON/OFF), based on a defined threshold. Without hysteresis, the controller would toggle constantly between these states in response to even minimal fluctuations in the measured value (frequent switching). Hysteresis defines a tolerance range around the switching point to prevent unnecessary switching caused by small, rapid changes in value.
	2-point	Control value in case of sensor error	Off On	The behavior in case of sensor failure defines how the system reacts when no valid temperature reading is available—for example, due to a sensor error or a disconnected cable. If the function is enabled, the last switching state of the controller is retained, so the heating or cooling element remains in its current state until a valid measurement becomes available again. This can be useful to maintain operation and avoid sudden interruptions. If the function is disabled, the controller sets the output to 0%, deactivating the heating or cooling function.

	2-point	Send control value when change-over	Inactive Active	No function On changeover, the current output is sent.

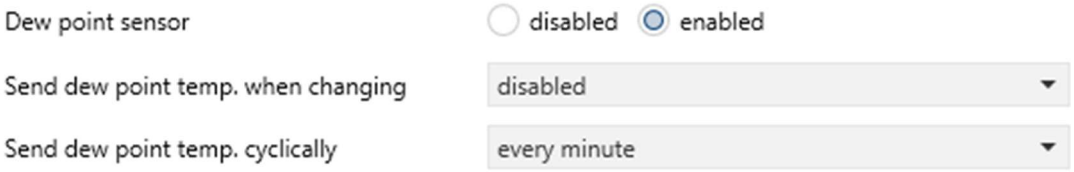
Designation	Options	Description
Wirksinn der Stellgröße	Normal Invertiert	The output increases when the measured value falls below the setpoint. The output increases when the measured value rises above the setpoint.
Stellgröße senden bei Umschaltung	Inactive Active	No function The output is transmitted upon switching to ensure that the current value is immediately sent to the system after a change in operating mode or control strategy.
Send control value cyclically	Inactive Every minute to once a day	No function The output can be transmitted cyclically, with a configurable transmission frequency ranging from once per minute to once per day.

PI controller:
A PI controller is a continuous controller composed of a proportional component (P component) and an integral component (I component).
The magnitude of the P component is specified in Kelvin, and the I component in minutes.
With continuous PI control, the output is adjusted in percentage steps up to a defined maximum value.

2-point Controller:
A 2-point controller transmits only two output states: ON and OFF.
The controller switches ON when the temperature falls below the setpoint, and switches OFF when it exceeds the setpoint.
The setpoint and switching hysteresis are defined in advance.

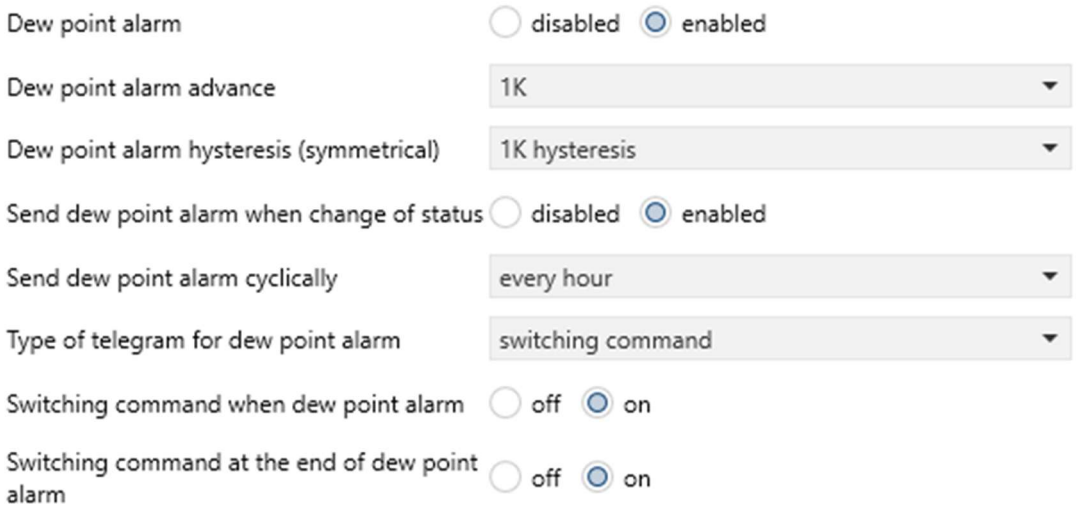
Main level and extra level:
In addition to the main level (e.g. underfloor heating), an extra level (e.g. electric heating) can be used in sluggish systems.
The extra level helps to shorten the heat-up phase of slow-reacting heating systems.
For the auxiliary output, either a PI controller or a 2-point controller can be selected.

10. Dew Point – Dew Point Temperature



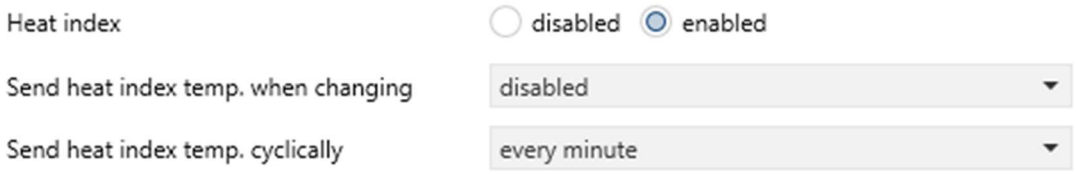
Designation	Options	Description
Dew point sensor	Inactive Active	No function Sending the current status
Send dew point temp.when changing	Inactive On change from 0.1 K to 10 K	No function The current dew point temperature value is compared with the previously transmitted value. Only when the difference between the new measurement and the last transmitted value exceeds the configurable change threshold, the new actual value is sent to the bus. The change threshold can be flexibly set by the user within a range of 0.1 K to 10 K.
Send dew point temp.cyclically	Inactive Every minute to once a day	No function In this mode, the dew point temperature is sent repeatedly at regular time intervals.

11. Dew Point – Dew Point Alarm



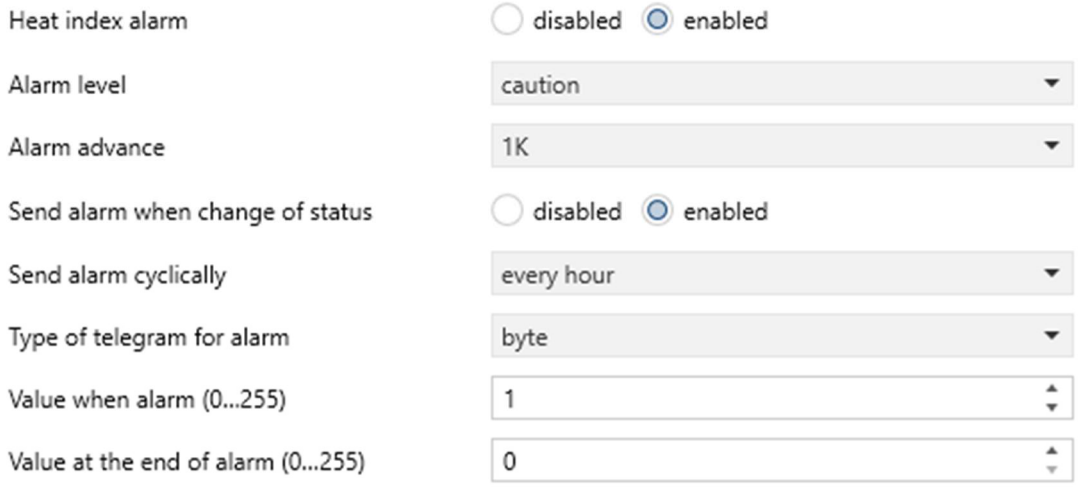
Designation	Options	Description
Dew point alarm	Disabled Enabled	No function The dew point alarm monitors the dew point, which is calculated based on humidity and temperature. As soon as the dew point is reached, the system sends an alarm.
Dew point alarm advance	1K to 5K	The dew point alarm is activated when the dew point is reached. The dew point alarm with lead function is a feature that triggers an alarm before the dew point is actually reached. The lead value can be configured between 1 and 5 Kelvin (K).
Dew point alarm hysteresis (symmetrical)	Without hysteresis Hysteresis (1K to 5K)	A hysteresis is used. The hysteresis of the dew point alarm ensures that the alarm is not deactivated immediately when the temperature rises slightly above the dew point.
Send dew point alarm when change of status	disabled enabled	No function The dew point alarm is sent upon a status change.
Send dew point alarm cyclically	Inactive Every minute to once a day	No function In this mode, the dew point temperature is sent repeatedly at regular time intervals.
Type of telegram for dew point alarm	Switching Command Priority Percentage Byte Scene	Setting for selecting the type of object to be used.
Switching command when dew point alarm	Depending on telegram type	Setting of the value to be sent when the dew point alarm is triggered.
Switching command at the end of dew point alarm	Depending on telegram type	Setting of the value to be sent when the dew point alarm ends

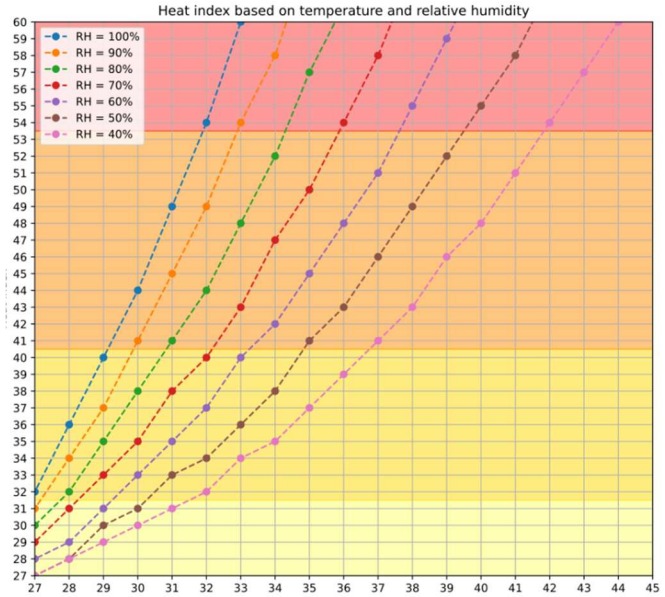
12. Heat Index – Heat Index Temperature



Designation	Options	Description
Heat index	Disabled Enabled	No function Sending the current status
Send heat index temp. when changing	Inactive On change from 0.1 K to 10 K	No function When a status change occurs, the current output value is sent.
Send heat index temp.cyclically	Inactive Every minute to once a day	No function Cyclic transmission of the output value according to the configured time.

13. Heat Index – Heat Index Alarm



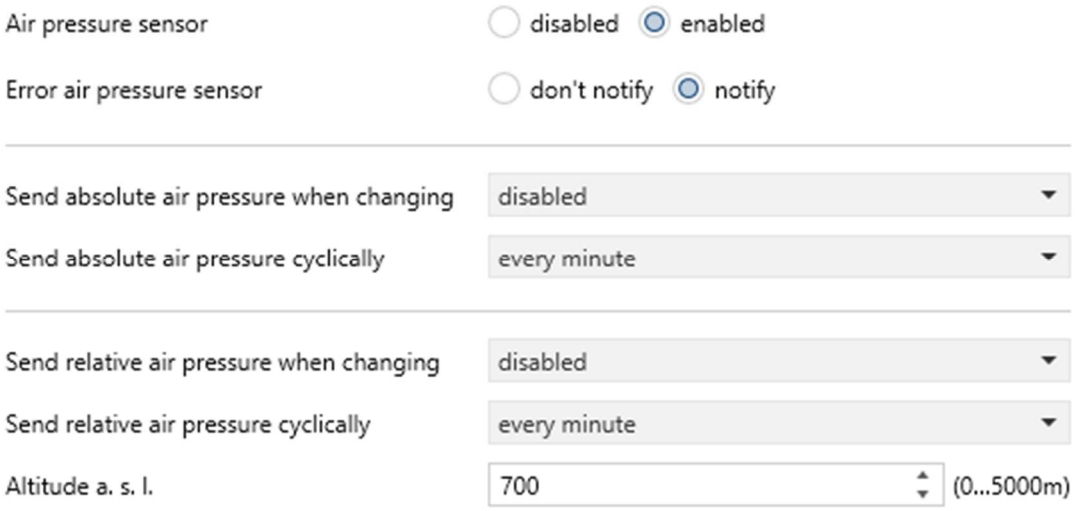


Quelle: https://en.wikipedia.org/wiki/Heat_index#/media/File:Heat_index_plot.svg

Designation	Options	Description
Heat index alarm	Disabled Enabled	No function The heat index alarm calculates the perceived temperature based on the combination of relative humidity and temperature. It is divided into four alarm levels: Caution, Extreme Caution, Danger, and Extreme Danger. As values rise, the strain on the body increases, since high humidity limits the body's natural cooling through sweat evaporation. The composition of the individual alarm levels can be found in the illustration.
Alarm level	Coution see fig., yellow area	The "Caution" threshold warns of initial physical strain due to heat, especially during prolonged exposure or physical activity, and recommends adequate hydration and reduced activity.
	Extreme coution see fig., light orange area	The "Extreme Caution" threshold indicates an increased risk of heat cramps and exhaustion, particularly during physical exertion. Cooling and sufficient fluid intake are strongly recommended.
	Danger see fig., orange area	The "Danger" threshold warns of serious health risks due to extreme heat, especially for individuals who are physically active or exposed to high temperatures for extended periods. There is a high risk of heat collapse, heat stroke, and other heat-related illnesses. Cooling, adequate hydration, and avoiding direct sunlight are urgently required.
	Extreme danger see fig., red area	The "Extreme Danger" threshold signals an acute threat to health and potentially life. Extreme heat can quickly lead to heat stroke, circulatory failure, or organ damage.

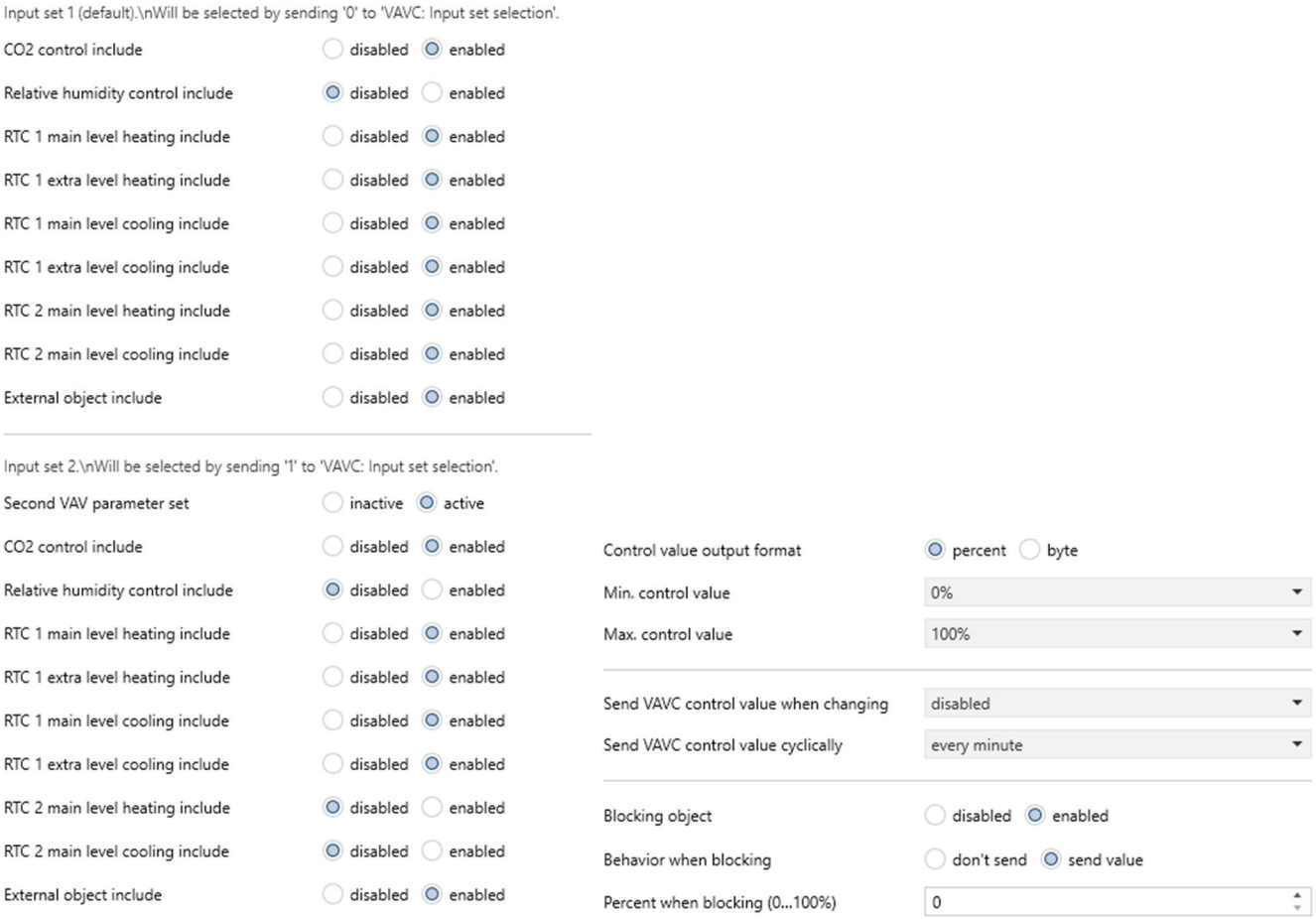
		Elderly people, children, and individuals with pre-existing conditions are particularly at risk, but even healthy adults are highly vulnerable under prolonged exposure.
Alarm advance	1K to 5K	The alarm is triggered 1 K to 5 K before the selected alarm threshold.
Send alarm when change of staus	Inactive Active	No function The heat index alarm is sent upon a status change.
Send alarm cyclically	Inactive Every minute to once a day	No function In this mode, the current alarm status is sent to the bus at regular intervals. If the alarm is active, a 1 is transmitted cyclically; if the alarm is inactive, a 0 is transmitted — ensuring that the status remains continuously visible on the bus.
Type of telegram for alarm	Switching Command Priority Percentage Byte Scene	Setting to select which type of object should be used.
Value when alarm (0…255)	Depending on telegram type	Setting of the value to be sent when the heat index alarm is triggered.
Value at the end of alarm (0…255)	Depending on telegram type	Setting of the value to be sent when the heat index alarm ends.

14. Air pressure sensor



Designation	Options	Description
Air pressure sensor	Disabled Enabled	No function Air pressure sensor activated
Error air pressure sensor	Don´t notify Notify	No transmission of sensor errors If no new measurement values are provided by the sensor for more than 10 minutes, a sensor error is reported.
Send absolute air pressure when changing	Disabled For a change between 1 hPa and 50 hPa	No function The current absolute air pressure value is compared with the previously transmitted value. Only when the difference between the new measurement 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 flexibly set by the user within a range of 1 hPa to 50 hPa.
Send absolute air pressure cyclically	Inactive Every minute to once a day	No function Enables the cyclic transmission of the absolute air pressure within a defined time interval. Regardless of changes in the measured values, the output values are sent to the bus at fixed intervals. The time interval can be flexibly configured between once per minute and once per day.
Send relative air pressure when changing	Inactive For a change between 1 hPa and 50 hPa	No function The current relative air pressure value is compared with the previously transmitted value. Only when the difference between the new measurement 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 flexibly set by the user within a range of 1 hPa to 50 hPa.
Send relative air pressure cyclically	Inactive Every minute to once a day	No function Enables the cyclic transmission of the relative air pressure within a defined time interval. Regardless of changes in the measured values, the output values are sent to the bus at fixed intervals. The time interval can be flexibly configured between once per minute and once per day.
Altitude a.s.l.	0 m to 5000 m	Since air pressure decreases with altitude, the measured absolute air pressure is converted into relative air pressure at sea level based on the configured site altitude (0–5000 m above sea level). This enables comparable values, e.g. for weather analysis.

15. VAV Controller – VAVR Settings



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

Designation	Options	Description
CO2 control include	Disabled Enabled	No function The CO_2 controller is integrated into the VAV control and uses the currently measured CO_2 value to calculate the output of the VAV controller.
Relative humidity control include	Disabled Enabled	No function The humidity controller is integrated into the VAV control and uses the currently measured relative humidity (%) value to calculate the output of the VAV controller.
RTC 1/2 main level heating include	Disabled Enabled	No function The relative humidity (rH) controller is integrated into the VAV control and uses the currently measured rH% value to calculate the output of the VAV controller.

RTC 1/2 extra level heating include	Disabled Enabled	No function The current output value of the heating auxiliary stage (%) is included in the calculation of the VAV controller's output.
RTC 1/2 main level cooling include	Disabled Enabled	No function The current output value of the main cooling stage (%) is included in the calculation of the VAV controller's output.
RTC 1/2 extra level cooling include	Disabled Enabled	No function The current output value of the cooling auxiliary stage (%) is included in the calculation of the VAV controller's output.
External object include	Disabled Enabled	No function The values of an external object are included in the calculation of the VAV controller's output.
Second VAV parameter set	Disabled Enabled	No function When the second VAV parameter set is activated, the configuration options for the second VAV controller become available. This allows the second VAV controller to be individually configured and integrated into the control strategy.
Control value output format	Percentage Minimum output value: 0% to 95% Maximum output value: 5% to 100% Byte Minimum output value: 0 to 240 bytes Maximum output value: 10 to 255 bytes	Definition of the output format (percentage or byte) for the output value. The values from the PI controllers are limited to the configured minimum value. The values from the PI controllers are limited to the configured maximum value.
Send VAVR output value on change	Inactive On change of: 1% to 25% or: 1 to 50 bytes	No function The current temperature value is compared with the previously transmitted value. Only when the difference between the new output value and the last transmitted output value exceeds the configurable change threshold, the current output value is sent to the bus. The change threshold can be flexibly set by the user within a range of 1% to 25%, or alternatively 1 to 50 bytes.
VAVR Send control value cyclically	Inactive Every minute to once a day	No function Enables the regular transmission of the determined minimum and maximum output values within a defined time interval. Regardless of any change in the output value, the current minimum and maximum values are sent to the bus at fixed intervals.
Blocking Object Behavior when blocking	Inactive Active Don´t send Send value	No function If "Don't send" is enabled, no value is transmitted when the blocking is activated. In this case, the actuator retains its last value. When the blocking object is activated, a defined control value (0–100 %) is sent to the actuator. This overrides the normal control operation, and the output remains fixed at this value regardless of sensor inputs or other control parameters. The current actuating value is sent once the blocking object is set.

16. Functions

16.1 Switching 1/2

Designation	Options	Description
Description		Text field for a free description of the “Switching” function
Function	Inactive Active	No function The parameters of the “Switching” function are opened, allowing individual configuration.
Input	Inactive	No function
	b1 b2 b3 b4 b5 b6 i1 i2 i3	The switching function is triggered either by the buttons of the touch sensor (b1–b6, depending on the model) or via the external inputs (i1–i3). Alternatively, the switching process can also be triggered via the switching object using any group address.

Trigger	on activation short activation (Default Value) repeated activation long activation release change of state	A switching command is triggered by a simple press of the button. A short press of the button (time defined under “Button”) triggers a switching command. The command is repeated as long as the signal remains active. For example, if the button is pressed and held, the defined command is resent at specified intervals (interval time can be configured under “Button”). A long press of the button triggers a switching command (time defined under “Button”). The switching command is not sent when the button is pressed, but only upon release. A switching command is triggered by a change of state (rising or falling edge), regardless of the press duration. It can be configured whether the action is executed on press (rising edge) or on release (falling edge).
Reaction	On Off Toggle	When the switching function is triggered, an "ON" command is sent to the configured group address. When the switching function is triggered, an "OFF" command is sent to the configured group address. With each button press, the current state toggles: if the linked device or function is active, it is deactivated (OFF); if it is inactive, it is activated (ON).
Send value cyclically	Inactive Every minute to once a day	No function Enables the regular transmission of the current switching state within a defined time interval. Regardless of any change in the output value, the current minimum and maximum values are sent to the bus at specified intervals.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the switching function of the touch sensor. Once the blocking function is active, no switching commands are sent to the KNX bus, regardless of any button presses.

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

Description	1
Function	inactive / active
Function	dimming and colour temperature / colour control and brightness
Type of control	dimming
Input 1	b1
Trigger	change of state
Reaction	off
Input 2	b2
Trigger	short activation
Reaction	on
Input 3	b1
Trigger	long activation
Reaction	darker
Send Stop on release	✓
Input 4	b2
Trigger	long activation
Reaction	brighter
Send Stop on release	✓
Additional settings	✓
Brightness increase by	1,5 %
Brightness decrease by	1,5 %
Blocking object	inactive / active

Description	1
Function	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	b1
Trigger	change of state
Reaction	off
Input 2	b2
Trigger	short activation
Reaction	on
Input 3	b1
Trigger	long activation
Reaction	on
Input 4	b2
Trigger	long activation
Reaction	on
Additional settings	✓
Start value	last transmitted value
Colour step width	30 °
Blocking object	inactive / active

Designation	Options	Description
Desciption		Text field for a free description of the “Dimming” function
Function	Inactive Active	No function The parameters of the “Dimming” function are opened, allowing individual configuration.
Function	Dimmen und Lichttemperatur	
Type of control	dimming colour temperature dimming + colour temperature	Enables gradual increase or decrease of the brightness of a connected light source. The direction and step size of the dimming function are configurable, e.g. under “Additional settings”. Control is based on the selected operating logic. Enables adjustment of the colour temperature of tunable white luminaires. The light temperature is adjusted step by step to warmer or cooler values, depending on the configuration and triggered control command. The step size is configurable under “Additional settings”. Combines the control of brightness and light temperature. Both dimming and colour temperature adjustment can be controlled via a shared communication object or via two separate communication objects.
Input	Inactive b1 b2 b3 b4 b5 b6 i1 i2 i3 external object	No function The control types can be triggered via the inputs. Control is carried out either via the buttons of the touch sensor (b1, b2, b3, b4, b5, b6), the external inputs (i1, i2, i3), or via an external object. Depending on the configuration, this allows switching, dimming, or colour temperature functions to be controlled.
Trigger	on activation short activation (Default Value) repeated activation long activation release change of state	A simple press of the button or activation of the external object controls the brightness or colour temperature. A short press of the button or brief activation of the external object (time defined under “Button”) can recall a predefined brightness or colour temperature. The command is repeated as long as the signal remains active. For example, if the button is pressed and held, the defined command is resent at specified intervals (interval can be configured under “Button”). A long press of the button or prolonged activation of the external object initiates a continuous change of brightness or colour temperature until the desired setting is reached (time defined under “Button”). Adjustment of brightness or colour temperature is not triggered by pressing, but only upon releasing the button or deactivating the external object. A command is triggered by a state change (rising or falling edge), regardless of the press duration. It can be configured whether the action is executed on press (rising edge) or on release (falling edge).

Reaction	On Off Toggle Brighter Darker Toggle brighter/darker Warmer Cooler Toggle warmer/cooler	Depending on the selected control type, different response options are available. For the switching function, the light can be turned on, off, or toggled between these states. With the dimming function, the brightness can be gradually increased or decreased; alternatively, toggling between brighter and darker is possible. When controlling the light temperature, the colour temperature can be adjusted to warmer or cooler values, or toggled between the two.
Additional settings	Increase brightness by Decrease brightness by Increase colour temperature (cooler) by Decrease colour temperature (warmer) by	In addition to the basic response options, specific settings can be made for adjusting brightness and colour temperature. Brightness can be increased or decreased by a defined value, and the colour temperature can be precisely adjusted by setting it to warmer or cooler values. The step size of the changes is freely selectable and can be configured between 1.5% and 100%, allowing for both fine adjustments and significant changes with a single activation.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the dimming function of the touch sensor.

Designation	Options	Description
Function	Colour control and brightness	
Type of control	Colour	The color loop enables step-by-step adjustment of the hue (H) within a range of 0 to 360°. If the color space is set to “RGB” or “RGBW”, the device automatically converts the color value changes internally. When the adjustment is triggered by a prolonged input, the device continuously sends updated values, allowing the full color spectrum to be 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 contrast, in “RGB” or “RGBW” mode, the red, green, and blue values continuously change depending on the output position at the start of the adjustment.
	Brightness adjustment	Brightness adjustment enables step-by-step control of the brightness value (V) within a range of 0 to 100%. The step size can be individually configured under “Additional settings”. Depending on the command, the brightness is either increased or decreased. With a prolonged input, the device continuously sends updated values, resulting in a smooth brightness transition. This process stops automatically when either the maximum value of 100% or the minimum value of 0% is reached.

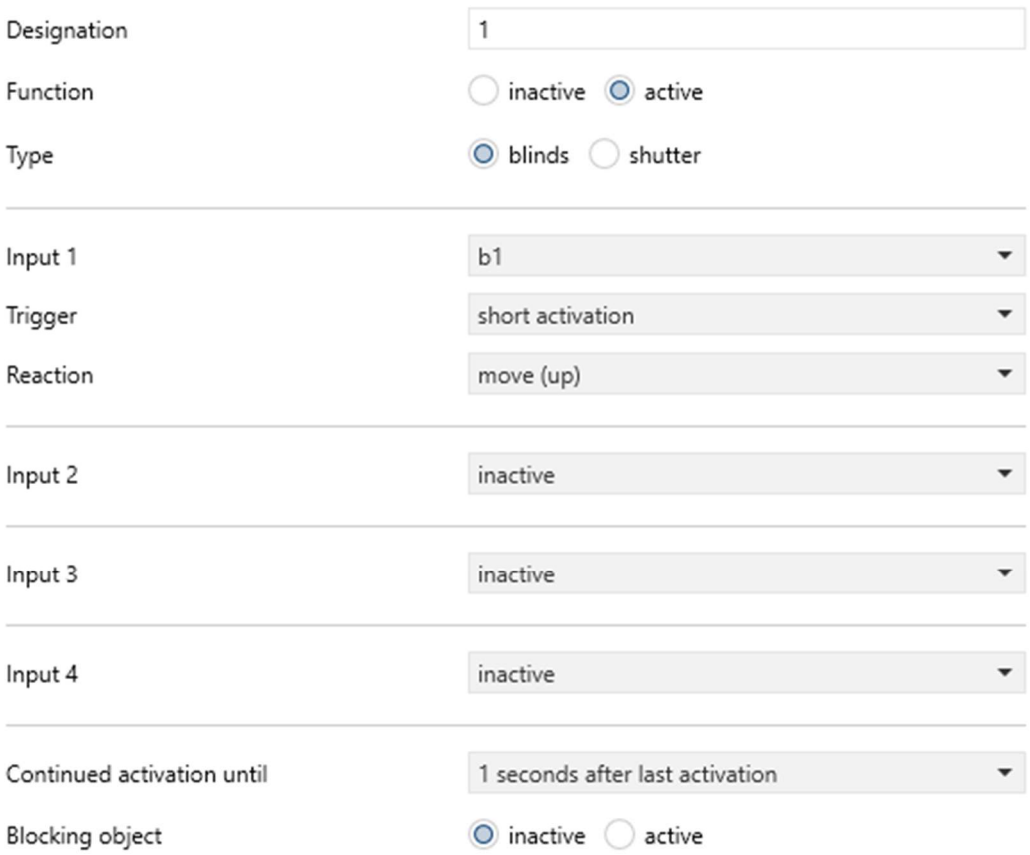
		In the “HSV” or “HSVW” color space, the brightness value (V) changes in defined steps according to the parameter settings, while the hue (H) and saturation (S) remain unchanged. In contrast, in “RGB” or “RGBW” mode, the red (R), green (G), or blue (B) values are continuously adjusted depending on the output position during the change.
	Colour + brightness adjustment	The combined function for color and brightness control enables flexible adjustment of both hue and brightness within a system. Users can choose between color control and brightness control modes, allowing different inputs or buttons to be assigned to specific functions. For example, inputs 1 and 2 can be used for color control, while buttons 3 and 4 are assigned to brightness adjustment. Color control can be implemented either via separate objects or a combined object that integrates both functions. This allows for flexible implementation of various application scenarios. Additionally, the initial value and the step sizes for color and brightness adjustments can be individually configured under “Additional settings”
Colour space	RGB	The RGB color space is based on additive color 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, the result is white, whereas the complete absence of light produces black.
	RGBW	The RGBW color space extends the classic RGB model with an additional white channel (W). While RGB generates different colors by mixing red (R), green (G), and blue (B), the integration of a white channel allows for improved brightness control and more accurate color reproduction. In conventional RGB systems, white is created by mixing red, green, and blue equally — which can result in a slightly bluish or unnatural white. The additional white channel in RGBW ensures a purer and more natural representation of white tones and also enhances overall brightness without compromising color saturation. This makes it possible to display 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 traditional RGB model. A color is defined using three parameters: Hue (H) determines the actual color and is represented on a color wheel from 0° to 360°, where, for example, 0° stands for red, 120° for green, and 240° for blue. Saturation (S) indicates how vivid or muted a color appears. A saturation of 100% represents a fully saturated, pure color, while decreasing saturation results in a more grayish tone. Value (V) controls how light or dark the color appears. A value of 0% corresponds to black, while 100% represents the maximum brightness of the selected color.**
	HSVW	The HSVW color space extends the HSV model with an additional white channel (W), allowing for more precise brightness control and improved color rendering. The white channel (W) ensures a cleaner white display and enhances brightness control without affecting color saturation.
Value RGB/HSV	R/0-255	The R value in the RGB color space represents the intensity of the red component of a color.

Value (W)		It can be set in a range from 0 to 255, where 0 means no red is present, and 255 represents the maximum intensity of red.
	G/0-255	The G value in the RGB color space represents the intensity of the green component of a color. It can be set on a scale from 0 to 255, where 0 means no green is present, and 255 represents the maximum intensity of green.
	B/0-255	The B value in the RGB color space represents the intensity of the blue component of a color. It can be set on a scale from 0 to 255, where 0 means no blue 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°. 0° corresponds to red, 120° to green, and 240° to blue, with smooth transitions in between. A value of 360° corresponds to red again, as the color wheel is circular. Combined with saturation (S) and brightness (V), various hues with different intensities and brightness levels can be created.
	S/0-100%	The S value (Saturation) in the HSV color space defines how vivid or dull a color is and is expressed as a percentage from 0% to 100%. A value of 100% represents a fully saturated, vibrant color, while 0% completely desaturates the color, resulting in a shade of gray. In combination with hue (H) and brightness (V), a wide range of nuanced colors with varying intensities can be created.
	V/0-100%	The V value (Value or Brightness) in the HSV color space indicates the brightness of a color and ranges from 0% to 100%. A value of 100% represents the maximum brightness of the color, while 0% darkens it completely to black. Together with the hue (H) and saturation (S), the V value determines how light or dark a color appears.
	W/0-255	In the RGBW and HSVW color spaces, the white component (W) enhances color rendering and improves brightness control. In RGBW, white no longer needs to be produced by mixing red, green, and blue, but is available directly as a separate light source. This allows for a purer and more natural white representation. In HSVW, the white channel provides additional brightness adjustment without reducing color saturation, making pastel tones softer and color gradients more natural.
Communication	Individual objects	For control, you can 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). This allows each color to be adjusted independently.
	Combined object	Alternatively, a combined object can be used, where a unified RGB value is available. In this case, color adjustment is performed via a single control variable, resulting in synchronized changes of the color values.
Input	Inactive b1 b2 b3 b4 b5 b6 i1	The respective control types can be triggered via the inputs. Control is carried out either through the buttons of the touch sensor (b1, b2, b3, b4, b5, b6), the external inputs (i1, i2, i3), or via an external object. Depending on the configuration, switching, dimming, color control, and color temperature control functions can be performed.

	i2 i3 external object	
Trigger	on activation	A simple press of the button or activation of the external object controls the brightness or color.
	short activation (Default Value)	A short press of the button or brief activation of the external object (time defined under “Button”) can recall a predefined brightness or color.
	repeated activation	The command is repeated as long as the signal remains active. For example, if the button is pressed and held, the defined command is resent at specified intervals (interval can be configured under “Button”).
	long activation	A long press of the button initiates a continuous change of brightness or color until the desired setting is reached (time defined under “Button”).
	release	Adjustment of brightness or color is not triggered by pressing, but only upon releasing the button.
	change of state	A command is triggered by a state change (rising or falling edge), regardless of the press duration. It can be configured whether the action is executed on press (rising edge) or on release (falling edge).
Reaktion	On	Turns the light or illumination on.
	Off	Turns the light or illumination off.
	Toggle	Toggles between the “On” and “Off” states.
	Color change clockwise	Changes the color clockwise along the HSV color wheel (e.g., from red to yellow, then green, etc.).
	Color change counterclockwise	Changes the color counterclockwise along the color wheel (e.g., from red to magenta, then blue, etc.).
	Toggle color change	Toggles between two predefined colors or starts a continuous color change.
	Darker	Gradually decreases the brightness of the lighting.
	Brighter	Gradually increases the brightness of the lighting.
	Toggle brighter/darker	Toggles between increasing and decreasing brightness with repeated activation.
Additional settings	Adjust white vaue when dimming	The setting “Adjust white value during dimming” can be enabled when the control mode is set to either color and brightness control or brightness control only. It determines whether the white component is reduced proportionally with brightness during dimming. If enabled, the white component decreases along with the brightness, creating a more natural lighting atmosphere. If disabled, the white value remains constant, so the white component stays unchanged even at lower brightness levels.

	Start value Configured Value Last transmitted value Feedback value Colour step width Brightness increase by Brightness decrease by	The starting value for the control can be individually configured when brightness control, color control, or a combination of both is selected. There are three options available: Configured value, Last transmitted value, and Feedback value. The configured value defines a fixed start value applied each time the control is activated. Choosing the last transmitted value starts the light with the last set brightness or color, ensuring consistent lighting after an interruption. The feedback value adjusts dynamically based on external feedback, for example from another control device or sensor, adapting the start value accordingly. The color and brightness step size determines the magnitude of value changes during adjustment. For color control, the hue step size can be set between 1° and 60° per step. A smaller step size results in finer and more precise color adjustments, while larger values allow faster color transitions. For brightness control, the step size for increasing and decreasing brightness can be set individually between 1% and 15%. A lower value allows smooth brightness adjustments, whereas higher values cause quicker and more noticeable changes. These settings allow flexible adaptation to different applications and user preferences.
Blocking object	Inactive Active	No function The blocking object is used to selectively disable or block the dimming function of the touch sensor. As soon as the blocking function is active, no further commands are sent to the KNX bus, regardless of any button press or external object control.

16.3 Shutter / blind 1/2



Designation	Options	Description
Designation		Text field for free description of the “Shutter / Blind” function
Function	Inactive Active	No function The parameters of the “Shutter / Blind” function are opened, allowing for individual configuration..
Type	Blinds 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 a simple up/down movement without slat adjustment. Typical for external, closed shading systems.

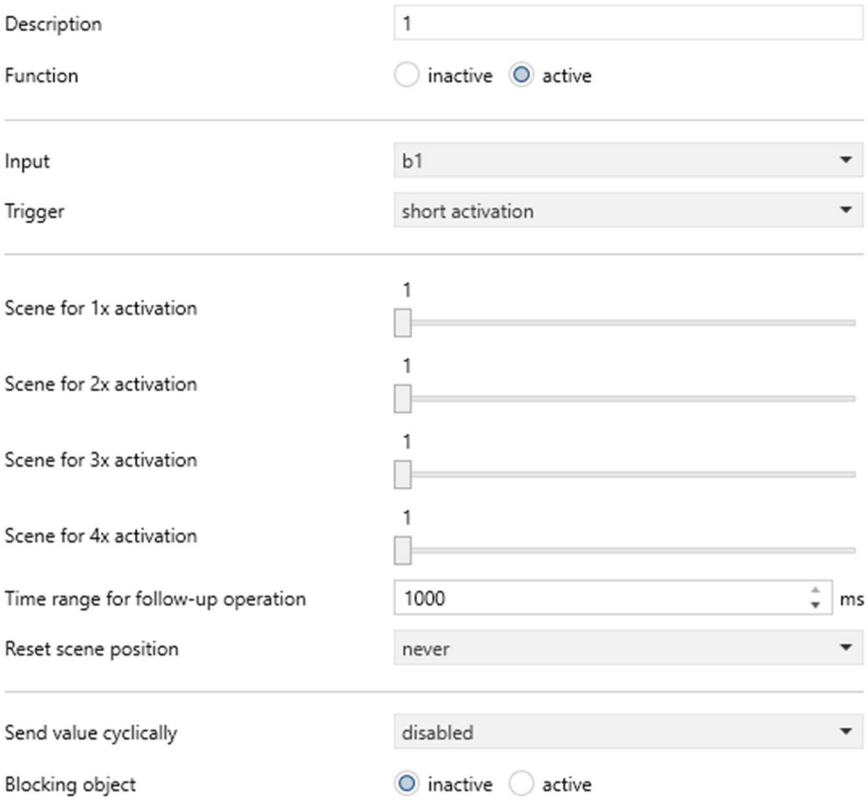
Input	Inactive b1 b2 b3 b4 b5 b6 i1 i2 i3 externes Objekt	No function The control types can be assigned via the inputs. Control is carried out either via the buttons of the touch sensor (b1, b2, b3, b4, b5, b6), the external inputs (i1, i2, i3), or via an external object. Depending on the configuration, this allows control of a shutter or blind function – for example, up/down movements or slat adjustment.
Trigger	on activation short activation (Default Value) repeated activation long activation release change of state	A simple press of the button triggers the reaction defined in the configuration. A short press of the button (duration can be set under “Button”) triggers the configured reaction for this case. 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 specified intervals. 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 specified intervals. (Interval can be configured under “Button”) The reaction is not triggered when the button is pressed, but only when it is released. A command is triggered by a change of state (rising or falling edge) – independent of the button press duration. It can be configured whether the action should occur on press (rising edge) or on release (falling edge).
Reaction	Move (up) Move (down) Move (toggle) Stop Step (up) Step (down) Step (toggle)	By pressing a button or triggering an external object, a defined shutter or blind function is activated. Depending on the configuration, the system responds as follows: - Move (up): Starts a complete upward movement. - Move (down): Starts a complete downward movement. - Move (toggle): Switches between upward and downward movement. - Stop: Stops the current movement. - Step (up): Executes a short, stepwise upward movement. - Step (down): Executes a short, stepwise downward movement. - Step (toggle): Executes a stepwise movement and switches the direction. The exact behavior depends on the selected button logic and the configuration under the “Button” menu.
Continued activation until Blocking object	1 second after last activation 5 seconds after last activation 5 seconds after first activation 10 seconds after first activation Inactive Active	For continuous movement, the function of ongoing activation is available. It allows defining how long the movement should automatically continue after the button is pressed. No function The blocking object is used to specifically deactivate or block the shutter or blind function of the touch sensor. As soon as the blocking function is active, no commands are sent to the KNX bus – regardless of whether the button or an external object is triggered.

16.4 Value 1/2

Designation	Options	Description
Description		Text field for free description of the “Value” function
Function	Inactive Active	No function The parameters of the “Value” function are opened, allowing for individual configuration. Via an input of the touch sensor, a defined value can be sent to the KNX bus. The type of value can be freely selected – depending on the desired application and datapoint type
Output type	1-byte value (–128 to +127) 1-byte value (0 to +255) 1-byte percentage (0 to +100%) 2-byte value (–32.7k to +32.7k) 2-byte value (0 to +65.5k) 2-byte floating point value 4-byte value (–2.1 billion to +2.1 billion) 4-byte value (0 to +4.2 billion)	This function allows a fixed predefined value to be transmitted upon input (e.g., via a binary input or button) – for example, to control scenes, setpoints, brightness levels, or other KNX components.

Input	Inactive b1 b2 b3 b4 b5 b6 i1 i2 i3 externes Objekt	No function The “Value” function is triggered either by the buttons of the touch sensor (b1–b6, depending on the model) or via the external inputs (i1–i3). Alternatively, the transmission can also be initiated via the object using any group address.
Trigger	on activation short activation (Default Value) repeated activation long activation release change of state	A simple press of the button triggers the reaction defined in the configuration. A short press of the button (duration can be set under “Button”) triggers the configured reaction for this case. 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 specified intervals. 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 specified intervals. (Interval can be configured under “Button”) The reaction is not triggered when the button is pressed, but only when it is released. A command is triggered by a change of state (rising or falling edge) – independent of the button press duration. It can be configured whether the action should occur on press (rising edge) or on release (falling edge).
Reaction	priority 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 float value 4-byte value (–2.1B … +2.1B) 4-byte value (0 … +4.2B)	When triggered, this function sends a predefined value to the KNX bus. The reaction consists of transmitting the configured value, which can be selected from various data types depending on the application. This enables flexible use for controlling setpoints, lighting levels, scenes, and other KNX components.
Send value cyclically	Inactive Every minute to once a day	No function Enables the regular transmission of a defined value at a specified time interval. Regardless of any 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 of the touch sensor. As soon as the blocking function is active, no values are sent to the KNX bus – regardless of whether the button or an external object is triggered.

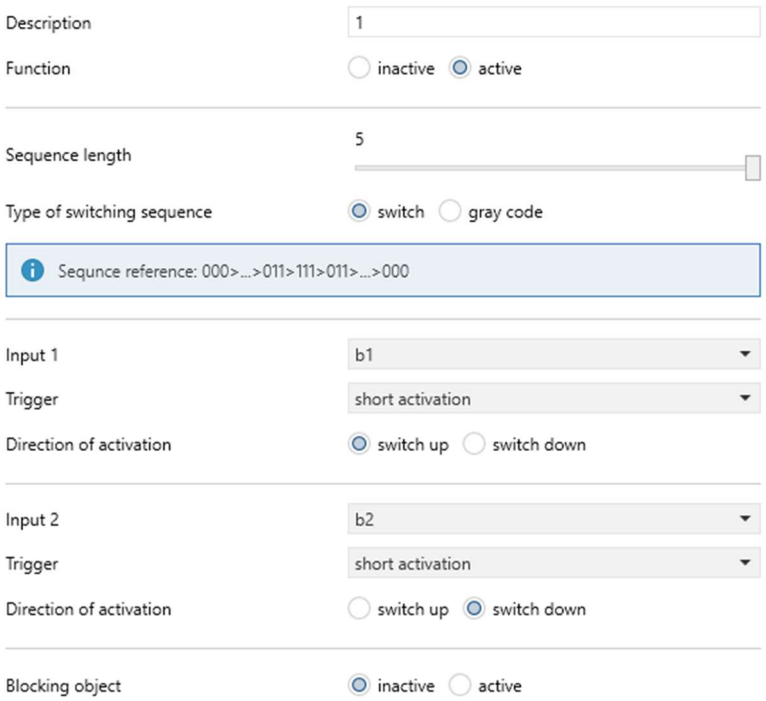
16.5 Scenes 1/2



Designation	Options	Description
Description		Text field for free description of the “Scene” function
Function	Inactive Active	No function The parameters of the “Scene” function are opened, allowing for individual configuration.
Input	Inactive b1 b2 b3 b4 b5 b6 i1 i2	No function The “Value” function is triggered either by the buttons of the touch sensor (b1–b6, depending on the model) or via the external inputs (i1–i3). Alternatively, the transmission can also be triggered via the object using any group address.

	i3 external object	
Trigger	on activation short activation (Default Value) repeated activation long activation release change of state	A simple press of the button triggers the reaction defined in the configuration. A short press of the button (duration can be set under “Button”) triggers the configured reaction for this case. 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 specified intervals. 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 specified intervals. (Interval can be configured under “Button”) The reaction is not triggered when the button is pressed, but only when it is released. A command is triggered by a change of state (rising or falling edge) – independent of the button press duration. It can be configured whether the action should occur on press (rising edge) or on release (falling edge).
Scene for x activation	1-64	Definition of the scene that is triggered by a specific number of consecutive activations. For example, pressing once activates Scene 1, pressing twice activates Scene 2, and so on. This allows multiple scenes to be conveniently called via a single input.
Time range for follow-up operation	300-1000 ms	Specifies the time period in milliseconds within which multiple activations are recognized as part of the same sequence. If the next activation occurs within this time window, it is counted as an additional activation (e.g., 2x, 3x, or 4x). If the time window is exceeded, the count resets to a single activation.
Reset scene position	Never 1 second after last activation 5 seconds after last activation 5 seconds after first activation 10 seconds after first activation External object	Defines when the count for multiple activations is reset. If the option “never” is selected, the last detected activation remains active until a new one is recognized. Other settings allow for an automatic reset after a defined time or an event (e.g., value change) via the external object.
Send value cyclically	Inactive Every minute to once a day	No function Enables the regular transmission of a predefined scene at a specified time interval. Regardless of any 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 of the touch sensor. As soon as the blocking function is active, no values are sent to the KNX bus – regardless of whether the button or an external object is triggered.

16.6 Switching sequence 1/2



*Note – Switching Sequence Type = “On/Off Switching (multiple buttons)”:
When using this option, two binary inputs must be configured as “switching sequences.” One of the inputs must be set to “switch up” when activated, the other to “switch down.”
To ensure synchronous counting and correct incrementing/decrementing, the communication objects “Input Activation Number” of both inputs must be linked to the same group address.

Example:
Using E1 for switching up, E2 for switching down
E1 Activation Number → Group address 1/1/5
E2 Activation Number → Group address 1/1/5

Designation	Options	Description
Description		Text field for free description of the “Switching Sequence” function
Function	Inactive Active	No function The parameters of the “Switching Sequence” function are opened, allowing for individual configuration.
Sequence length	2-5	
Type of switching sequence	Switch	With each activation (e.g. short button press), the function advances to the next step. The direction in which the steps are executed – either upward (increment) or downward (decrement) – is defined via the “Activation Direction” setting. Once the upper or lower limit is reached, the counting direction automatically reverses, causing the steps to be traversed in the opposite direction. This results in a pendulum-like switching behavior within the defined range.
	Gray code	When the “Gray Code” switching sequence is selected, the control of the outputs does not follow a traditional linear order, but instead uses the principles of Gray code. This is a special binary sequence in which only one single bit changes between each successive state. This method reduces the likelihood of state errors — for example, due to transmission disturbances — and is particularly suitable for applications involving multiple digital outputs or states.

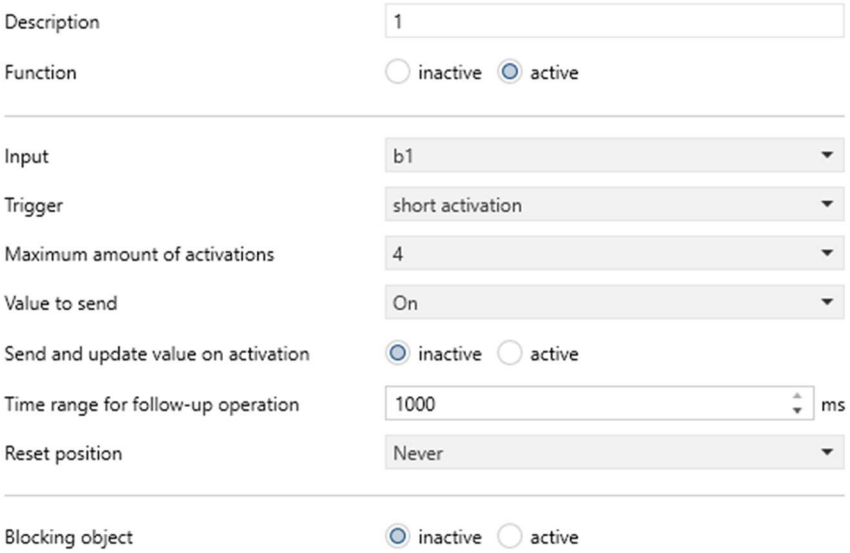
		The configuration supports up to 5 steps, allowing for a maximum of 32 unique states. Each switching action triggers the next state in the Gray code sequence. Thanks to the one-bit transitions, it enables particularly safe and stable evaluation within KNX logic or external control systems. A typical area of application is the binary output of states across multiple communication objects, such as for representing positions, scenes, or counter values. Because only one bit changes at a time, error-prone multi-bit transitions are avoided — especially when states are evaluated synchronously via the bus.
Input	Inactive	No function
	b1 b2 b3 b4 b5 b6 i1 i2 i3 externes Objekt	The “Switching Sequence” function is triggered either by the buttons of the touch sensor (b1–b6, depending on the model) or via the external inputs (i1–i3). Alternatively, the transmission can also be triggered via the object using any group address.
Trigger	on activation	A simple press of the button triggers the reaction defined in the configuration.
	short activation (Default Value)	A short press of the button (duration can be set under “Button”) triggers the configured reaction for this case.
	repeated activation	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 specified intervals.
	long activation	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 specified intervals. (Interval can be configured under “Button”)
	release	The reaction is not triggered when the button is pressed, but only when it is released.
	change of state	A command is triggered by a change of state (rising or falling edge) – independent of the button press duration. It can be configured whether the action should occur on press (rising edge) or on release (falling edge).
Direction of activation	Switch up Switch down	The “Direction of activation” setting defines the direction in which the switching steps are traversed with each activation – either sequentially upward (increment) or downward (decrement). This logic applies regardless of the selected switching sequence type – both in the linear “Toggle” variant and in the encoded “Gray Code” variant.

		Increment: The sequence starts at the lowest step and moves up by one step with each activation, until the maximum step is reached. Decrement: The sequence starts at the highest step and moves down by one step with each activation, until the lowest step is reached.
Blocking object	Inactive Active	No function When the blocking object is active, the *Switching Sequence* function is disabled. No switching steps are executed while blocking is active, regardless of any trigger events.

** Example of a Gray code switching sequence with 5 bits:

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5
0	0	0	0	0
0	0	0	0	1
0	0	0	1	1
0	0	0	1	0
0	0	1	1	0
0	0	1	1	1
0	0	1	0	1
0	0	1	0	0
0	1	1	0	0
0	1	1	0	1
0	1	1	1	1
0	1	1	1	0
0	1	0	1	0
0	1	0	1	1
0	1	0	0	1
0	1	0	0	0
1	1	0	0	0
1	1	0	0	1
1	1	0	1	1
1	1	0	1	0
1	1	1	1	0
1	1	1	1	1
1	1	1	0	1
1	1	1	0	0
1	0	1	0	0
1	0	1	0	1
1	0	1	1	1
1	0	1	1	0
1	0	0	1	0
1	0	0	1	1
1	0	0	0	1
1	0	0	0	0

16.7 Multiple operation 1/2



Designation	Options	Description
Designation		Text field for free description of the “Multiple Operation” function
Function	Inactive Active	No function The parameters of the “Multiple Operation” function are opened, allowing for individual configuration.
Input	Inactive b1 b2 b3 b4 b5 b6 i1 i2 i3 external object	No function The “Multiple Operation” function is triggered either by the buttons of the touch sensor (b1–b6, depending on the model) or via the external inputs (i1–i3). Alternatively, the transmission can also be triggered via the object using any group address.
Trigger	on activation short activation (Default Value)	A simple press of the button triggers the reaction defined in the configuration. A short press of the button (duration can be set under “Button”) triggers the configured reaction for this case.

	repeated activation	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 specified intervals.
	long activation	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 specified intervals. (Interval can be configured under “Button”)
	release	The reaction is not triggered when the button is pressed, but only when it is released.
	change of state	A command is triggered by a change of state (rising or falling edge) – independent of the button press duration. It can be configured whether the action should occur on press (rising edge) or on release (falling edge).
Maximum amount of activations	1-4	This defines how many consecutive activations within a specified time window are evaluated. Depending on the selected setting (1 to 4), the input can respond differently – for example, Scene 1 on the first press, Scene 2 on the second, and so on.
Value to send	On Off Toggle	Defines which value is transmitted when triggered: On: A switching value of "1" (on) is sent to the bus. Off: A switching value of "0" (off) is sent. Toggle: The current state is inverted – “on” becomes “off” and the other way around This is especially useful for toggle functions, e.g. switching lights on/off.
Send and update value on activation	Inakiv Active	Defines when the count for multiple activations is reset. If the “never” option is selected, the last detected activation remains active until a new one is recognized. Other settings allow for an automatic reset after a defined time or an event (e.g. value change) via the external object.
Time range for follow-up operation	Inactive 300-1000 ms	No function Specifies the time period within which an additional activation is recognized as part of a multi-activation sequence. If the next activation occurs within this time window, it is counted as the second, third activation, etc. If the time is exceeded, the count resets to the first activation. Typical use cases include scene switching via multi-click. Regardless of any changes, the configured scene is sent to the bus in fixed cycles.
Reset position	Never 1 second after last activation 5 seconds after last activation 5 seconds after first activation 10 seconds after first activation External object	Defines when the count for multiple activations is reset. If the “never” option is selected, the last detected activation remains active until a new one is recognized. Other settings allow for an automatic reset after a defined time or an event (e.g. value change) via the external object.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the function of the touch sensor. As soon as the blocking function is active, the *Multiple Operation* function is disabled – no switching steps are executed, regardless of whether the button or an external object is triggered.

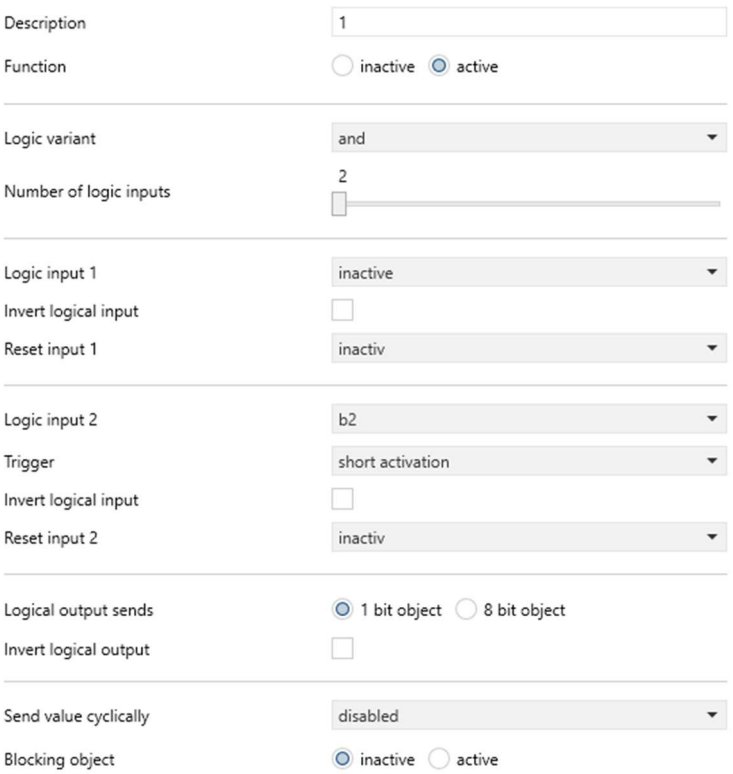
16.8 Impulscounter 1/2

Designation	Options	Description
Description		Text field for free description of the “Impulse Counter” function
Function	Inactive Active	No function The parameters of the “Impulse Counter” function are opened, allowing for individual configuration.
Input	Inactive b1 b2 b3	No function

	b4 b5 b6 i1 i2 i3 external object	The “Impulse Counting” function is triggered either by the buttons of the touch sensor (b1–b6, depending on the model) or via the external inputs (i1–i3).
Trigger		
Datatype	1-Byte Wert (–128 … +127) 2-Byte Wert (–32,7k … +32,7k) 2-Byte Wert (0 … +65,5k) 4-Byte Wert (–2,1 Mrd … +2,1 Mrd) 4-Byte Wert (0 … +4,2 Mrd)	The selected datapoint type defines the format in which the counter value is transmitted to the KNX bus. Depending on the chosen type, different value ranges are available.
Number of input pulses for one count value	1-10000	This parameter defines how many input pulses are required to generate one count value. Example: If the value is set to 1, each input pulse increments the counter. If set to 10, the counter increases only with every tenth pulse.
Counter reading change per counting pulse	-10000…10000	This setting defines by how much the counter value changes with each detected counting pulse. The default value is 1. A higher value causes the counter to increase faster accordingly. Negative values (if supported by the selected data type) could theoretically be used for counting down.
Threshold	-128…128	The limit values are used to monitor the counter value. If the entered thresholds are reached or exceeded, a defined action can be triggered (e.g. sending a limit flag or setting an object).
Reset counter	inactive b1 b2 b3 b4 b5 b6 i1 i2 i3 external object	No function This function allows the counter value to be reset via a communication object or an action. If this function is set to "inactive", the counter value cannot be reset. When active, the reset can be triggered, for example, by a bus telegram.
Save counter value (every 24h)	Inactive Active	No function If this option is active, the current counter value is saved once per day. This function increases data security, as a system failure does not result in a complete loss of the counter value. In case of an error, the last saved value can be restored.

Send counter on dwonload, ETS-reset or busvoltage return	Inactive Active	No function Defines whether the current counter value is automatically sent to the KNX bus after an ETS download, an ETS reset, or when the bus voltage returns.
Send counter reading at change	Inactive Active	No function Defines whether the current counter value is automatically sent to the KNX bus as soon as it changes due to an activation.
Send value cyclically	inactive Every minute to once a day	No function Enables the cyclic transmission of the current counter value at defined intervals. The counter value is sent to the KNX bus regularly, regardless of any changes.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the Impulse Counter function.

16.9 Logic 1/2



Designation	Options	Description
Description		Text field for free description of the “Logic” function
Function	Inactive Active	No function The parameters of the “Logic” function are opened, allowing for individual configuration.
Logic Variant	And Or Xor	Determines which logical operator is used for the inputs. Available options are: AND: Both inputs must be true for the logic to be executed. (see truth table AND, p.106) OR: At least one of the inputs must be true. (see truth table OR, p.106) XOR: Exactly one of the inputs must be true, but not both. (see truth table Exclusive OR, p.126)
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.

Logic input X	inactive b1 b2 b3 b4 b5 b6 i1 i2 i3 external object	No function This defines which input is used as a logic input – e.g. b1, i2, or an external object. The logic input can be set to “Inactive” if it should not be included in the logic calculation. Otherwise, it is “Active” and will be considered during evaluation.
Invert logical input	Inactive Active	This setting defines whether the first logic input should be inverted. If this option is activated, the input is reversed, meaning an active input is treated as inactive, and an inactive input is treated as active.
Reset input	Inactive Event 5 seconds 10 seconds 30 seconds 1 minute 5 minutes Variable time	No function This setting defines after which period or event the logic output is reset. Available options range from no reset to fixed time intervals such as 5 seconds, 10 seconds, 30 seconds, 1 minute, 5 minutes, or a variable time that can be customized individually.
Logical output sends	1 bit object 8 bit object	Defines whether the logic output should be sent as a 1-bit object or as 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 states.
Send value cyclically	inactive Every minute to once a day	This setting defines whether the logic value should be sent cyclically at defined intervals. If this option is activated, the value is continuously transmitted at regular intervals.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the “Logic” function. As soon as the blocking function is active, the logic is no longer executed – regardless of whether the trigger conditions are met.

Truth table for AND

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

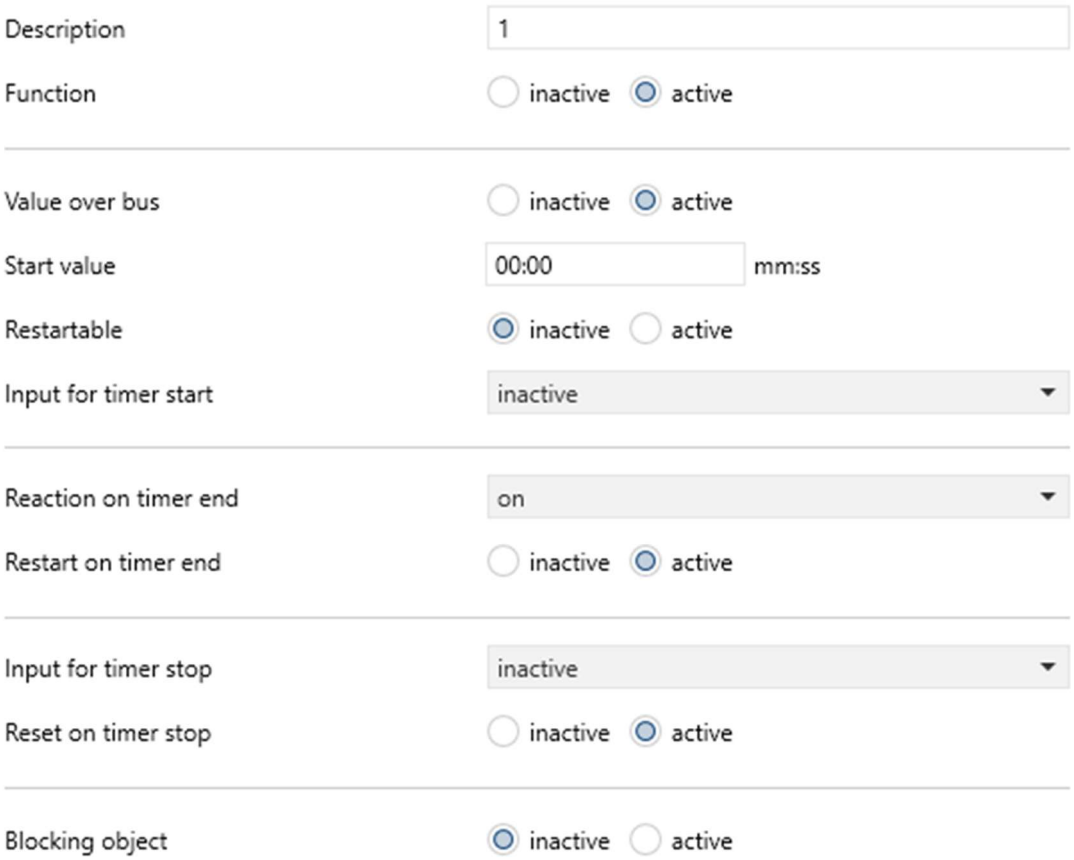
Truth table for XOR

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

Truth table for OR

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

16.10 Timer 1/2

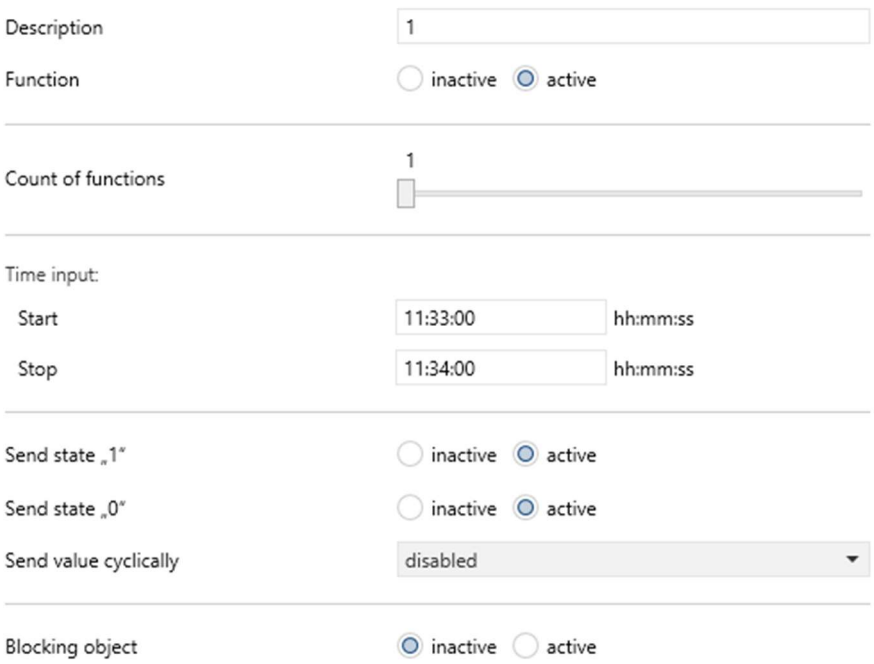


Designation	Options	Description
Description		Text field for free description of the “Timer” function
Function	Inactive Active	No function The parameters of the “Timer” function are opened, allowing for individual configuration.
Value over bus	Inactive Active	No function This option defines whether the start value of the timer can be set via an object (e.g. an external device) over the bus.
Start value	00:01- 99:99 mm:ss	Definition of the start value (between 00:01 and 99:99 minutes).
Restartable	Inactive Active	No function Defines whether the timer can be reactivated or reset after it has expired.
Input for timer Start	inactive	No function

	b1 b2 b3 b4 b5 b6 i1 i2 i3 external object	Definition of the input that starts the configured timer.
Reaktion on timer end	On Off Toggle	ON: After the timer expires, an “ON” command is sent. The timer ensures that the output is activated after the preset time. OFF: After the timer expires, an “OFF” command is sent. The timer ensures that the output is deactivated after the preset time. Toggle: After the timer expires, a “Toggle” command is sent. The timer ensures that the output state is switched after the preset time.
Restart on timer end	Inactive Active	No function The “Restart after timer expiration” function determines whether the timer automatically restarts after the configured time has elapsed. If this option is activated, the timer restarts from the beginning after each cycle, continuously repeating the interval without user intervention. This is especially useful for recurring actions or timing intervals, such as regular control tasks or measurements. If this function is deactivated, the timer runs only once and remains inactive after expiration until it is manually triggered again.
Input for timer stop	inactive b1 b2 b3 b4 b5 b6 i1 i2 i3 external object	No function Definition of the input that stops the configured timer.
Reset on timer stop	Inactive Active	No function The “Reset on Timer Stop” function defines whether the timer is reset when it is stopped. If this option is activated, the timer resets to its initial output state as soon as it is stopped, and the countdown starts from the beginning with the next activation. This ensures that no previous time values are retained when the timer is stopped. If the option is deactivated, the timer remains in its current state after being stopped, and the countdown is not reset. When started again, the timer continues counting from where it was stopped.

Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the “Timer” function. As soon as the blocking function is active, the timer is no longer executed – regardless of the configured start conditions or elapsed times.

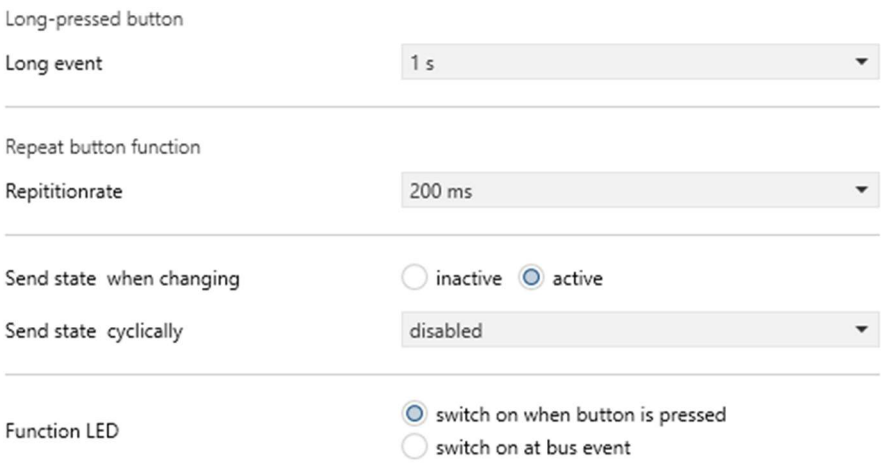
16.11 Time switch 1/2



Designation	Options	Description
Designation		Text field for free description of the “Time Switch” function
Function	Inactive Active	No function The parameters of the “Time Switch” function are opened, allowing for individual configuration.
Count of functions	1-4	This setting defines the number of functions for the time switch. Each function corresponds to a time block that specifies a defined period with a "From" and "To" time. For example, if “1” is selected, only one time block is configured in which the time switch performs an action. If set to “2” or more, multiple time blocks can be configured to define different times and actions.
Time input Start Stop	 00:00:01- 99:99:99 hh:mm:ss 00:00:01- 99:99:99 hh:mm:ss	 The “From” time defines the point at which the time switch function is activated — in other words, the start time for the specified action. This marks when the function begins to perform a certain action, such as switching on a device or starting a process. When the function is activated, a defined action is executed at the specified start time (“From”) and another action at the end time (“To”). For example, an object can be activated at the start time and deactivated at the end time.

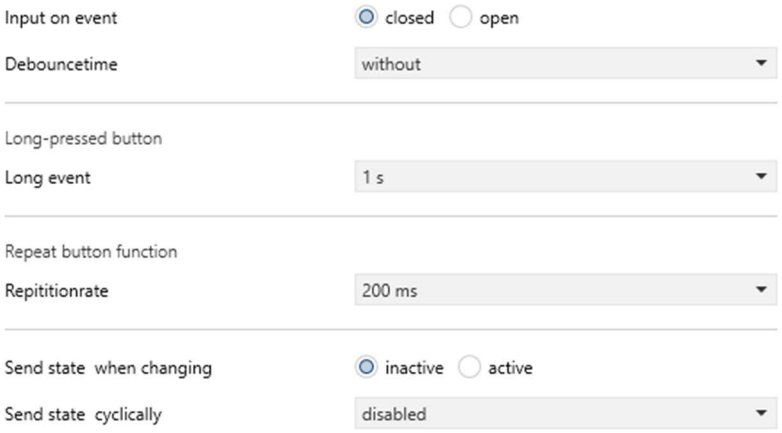
		If this option is activated, a state of “1” is sent at the beginning of a time block. This means that the device or function is deactivated.
Send state “1”	Inactive Active	No function If this option is activated, a state of “0” is sent after the time block ends. This means that the device or function is activated.
Send state “0”	Inactive Active	This function allows the defined value (e.g. “1” or “0”) to be sent not just once, but cyclically at regular intervals during the time block. If this option is activated, the value is repeatedly transmitted throughout the specified time frame.
Send value cyclically	Every minute to once a day	
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the “Time Switch” function. As soon as the blocking function is active, no values are sent to the KNX bus – regardless of whether the button or an external object is triggered.

17. Buttons b1 – b6



Designation	Options	Description
Long event	500ms-5s	This setting defines how long the button must be pressed before a “long press” is recognized.
Repititionrate	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 especially relevant for dimming functions or step-by-step control.
Send state when changing	Inactive Active	This setting defines whether a communication object should be sent upon a state change of the button. Inactive: No automatic transmission is triggered when the state changes. Active: With each change in button state (rising edge / falling edge), the current value is sent to the bus.
Send state cyclically	Every minute to once a day	This setting controls whether the button value is sent cyclically once it has been activated. If this option is enabled, the value is continuously transmitted at regular intervals over the bus until the button is released. If disabled, the value is sent only once when the button is pressed.
Function LED (b3-b6)	Switch on when button is pressed Switch on at bus event	This option defines when the LED on the button is activated: - “On when button is pressed”: The LED lights up when the button is pressed. - “On upon bus event”: The LED lights up when an event is received via the bus, e.g. another control unit sends a signal. These configuration options provide flexible control of the button’s functionality and allow detailed customization of responses and LED behavior based on inputs and events.

18. External Inputs



Designation	Options	Description
Input on event	Close Open	This setting defines how the input responds to an activation. You can choose whether the input is interpreted as “closed” or “open” when an action occurs.
Debouncetime	Without Regular Medium Long	This setting defines how long a signal must remain stable at an input before it is recognized as valid. It is used to suppress contact bounce (brief, unintended interruptions during switching). Depending on the application, you can choose between Without, Regular, Medium, or Long – the longer the debounce time, the longer the signal must remain constant to be recognized.
Long event	500ms – 5s	This setting defines how long the button must be pressed before a “long press” is recognized.
Repetitionrate	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 step-by-step control.
Send state when changing	Inactive Active	No function This setting defines whether a communication object should only be sent when the button state changes. Inactive: No automatic transmission is triggered on changes. Active: With each change in button state (rising edge / falling edge), the current value is sent to the bus.
Semd state cylically	Every minute to once a day	This setting controls whether the button value is sent cyclically once it has been activated. If this option is activated, the value is continuously transmitted at regular intervals over the bus until the button is released. If it is deactivated, the value is sent only once when the button is pressed.

19. Outputs

Function	○ inactive ◉ active	
Input Type	controller	
Controller selecting	VAV	
Range starting value	0	[%]
Voltage output starting value	10	[V]
Range ending value	100	[%]
Voltage output ending value	10	[V]
Startup voltage output	0	[V]
Blocking object	◉ inactive ○ active	

Designation	Options	Description
Function	Inactive Active	No function The parameters of the “Output” function are opened, allowing for individual configuration.
Input Type	Sensor Controller External	This setting defines which source is used to control the output value: Sensor: The output value is determined by an internal sensor (e.g. temperature, CO_2). Controller: The output value is calculated by the internal controller (e.g. PI controller). External**:** The value is received via an external KNX communication object (e.g. from another source).
Senosr / controller / external value selecting	CO2 PI controller humidity PI controller VAV temp. controller 1 heating temp. controller 1 cooling temp. controller 2 heating temp. controller 2 cooling CO2 value CO2C actual value recording humidity value RHC actual value recording internal temperature value external temperature value temp. controller 1 actual value recording temp. controller 2 actual value recording switch/ alarm scene 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 float value 4-byte value (–2.1B … +2.1B) 4-byte value (0 … +4.2B)	This setting defines the value that is used as the control input for the output. The selected value is evaluated according to the configured scaling parameters and converted into an analog output signal.
Output value on error	0-10V	This setting defines the output value that is used if the configured input source (e.g. sensor, controller, or external object) becomes unavailable or invalid. In such a case, the system will switch to this predefined fallback value to ensure a safe or defined output state.
Range starting value		Defines the lowest logical input value at which the conversion to 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.

Voltage output starting value	0-10V	Example: With a starting value of 0 (e.g. 0% or 0 byte), the linear mapping to the analog output begins from this point. Zusammen mit dem Bereichs-Endwert definiert dieser Wert den Skalierungsbereich für die Spannungsumrechnung. Together with the range end value, this value defines the scaling range for voltage conversion.
Range ending value Voltage output ending value	0-10V	Defines the input value at which the maximum output voltage is reached. This value also depends on the selected data format. The voltage is calculated linearly between the start and end values. Defines the output voltage that is issued 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 values, the output voltage is scaled linearly.
Startup voltage output	0-10V	Defines the voltage that is initially applied when the output is activated, before a valid input value has been received or calculated. This voltage is issued, for example, at device startup or after a reset, until a new output voltage is determined by the input signal.
Blocking object	Inactive Active	No function The blocking object is used to specifically deactivate or block the function of the outputs.