Vari KNX 3L-TH-D GPS

Combined Outdoor Sensor

Item number 70390

elsner elektronik

Installation and Adjustment

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

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

Clarification of signs used in this manual

Safety advice.

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

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

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

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

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

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

1. Description

The **Sensor Vari KNX 3L-TH-D GPS** for the KNX building bus system records brightness, temperature, air humidity and air pressure outside. The devices also receives the GPS signal for time and location and uses it to compute the position of the sun (azimuth and elevation).

All measurement values can be used for the control of limit-dependent switching outputs. States can be linked via AND logic gates and OR logic gates. Multi-function modules change input data as required by means of calculations, querying a condition, or converting the data point type. In addition, an integrated control variable comparator can compare and output variables that were received via communication objects.

Integrated PI-controllers control ventilation (according to humidity) and heating/cooling (according to temperature). The **Vari KNX 3L-TH-D GPS** can output a warning to the bus as soon as the comfort field (as per DIN 1946) is exited.

The compact housing of the **Vari KNX 3L-TH-D GPS** accommodates the sensors, evaluation circuits and bus-coupling electronics.

Functions:

- **Brightness measurement**: The current light intensity is measured by three sensors. Of the three measurement values, the maximum value or a calculated mixed value can be output optionally.
- **GPS receiver**, outputting the current time and location coordinates. The **Sensor Vari KNX 3L-TH-D GPS** also computes the position of the sun (azimuth and elevation)
- **Temperature and humidity measurement** (relative, absolute), in each case with **Mixed value calculation**. The share of internal measurement value and external value can be set as a percentage.
  In addition the bus output will indicate whether the values are inside the **comfort field** (DIN 1946). The **dewpoint** will be calculated
- **Air pressure measurement:** Output of the value as normal pressure and optionally as barometric pressure
- **Switching outputs** for all measured and computed values. Threshold values can be adjusted per parameter or via communication objects
- **PI-controller for heating** (one or two-stage) and **cooling** (one or two-stage) according to temperature. Regulation according to separate setpoints or basic setpoint temperature
- **PI controller for humidity** according to humidity: Ventilate/Air (one-stage) or Ventilate (one or two-stage)
- **Weekly and calendar time switch**: All time switching outputs can be used as communication objects.
  The **weekly time switch** has 24 periods. Each period can be configured either as an output or as an input. If the period is an output, then the switching time is set per parameter or per communication object.
  The **calendar time switch** has 4 periods. Two on/off switching operations, which are executed daily, can be set for each period

- **8 AND and 8 OR logic gates**, each with 4 inputs. All switching events as well as 16 logic inputs (in the form of communications objects) can be used as inputs for the logic gates. The output of each gate can be configured optionally as 1-bit or 2 x 8-bit
- **8 multi-function modules** (computers) for changing the input data by calculations, by querying a condition or by converting the data point type
- **4 control variable comparators** to output minimum, maximum or average values. 5 inputs each for values received via communication objects
- **Summer compensation** for cooling systems. A characteristic curve matches the target temperature in the room to the external temperature and sets the minimum and maximum target temperature values

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

1.0.1. Scope of delivery

- Sensor
- Stainless steel installation band for pole installation
- 4×50 mm stainless steel Roundhead screws and 6×30 mm dowels for wall mounting. Use fixing materials that are suitable for the base!

1.1. Technical specification

Housing	Plastic
Colour	White / Translucent
Assembly	Surface mount
Protection category	IP 44
Dimensions	approx. 65 × 80 × 30 (W × H × D, mm)
Weight	approx. 60 g
Ambient temperature	Operation -25…+80°C, Storage -40…+85°C, avoid condensation
Operating voltage	KNX bus voltage
Bus current	max. 20 mA
Data output	KNX +/- bus connector terminal
BCU type	Integrated micro controller
PEI type	0
Group addresses	max. 2000
Assignments	max. 2000
Communication objects:	603
Temperature sensor:	
Measurement range	-25°C … +80°C
Resolution	0.1°C

Accuracy	±0,8°C at -25...-10°C ±0,5°C at -10...+65°C ±0,6°C at +65...+80°C
Humidity sensor:	
Measurement range	0% RH ... 100% RH
Resolution	0.1% RH
Accuracy	±7,5% RH at 0...10% RH ±4,5% RH at 10...90% RH ±7,5% RH at 90...100% RH
Pressure sensor:	
Measurement range	300 mbar ... 1100 mbar
Resolution	0.1 mbar
Accuracy	±4 mbar
Brightness sensor:	
Measurement range	0 lux ... 150,000 lux
Resolution	1 lux at 0…255 lux 6 lux at 256…2,645 lux 96 lux at 2,646…128,256 lux 762 lux at 128,257…150,000 lux
Accuracy	±15% of the measurement value at 35 lux ... 150,000 lux

The product conforms with the provisions of EU directives.

2. Installation and start-up

2.1. Installation notes

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

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

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

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

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

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

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

2.2. Installation location

Due to the GPS receiver, the **Sensor Vari KNX 3L-TH-D GPS** must be installed outside.

The device should be protected from condensation. For critical applications in which the formation of condensation is expected, please consult Elsner Elektronik about special solutions.

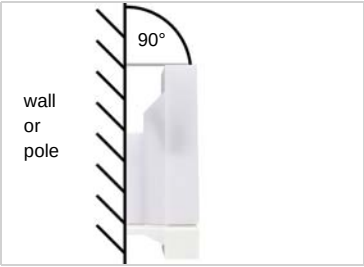


Fig. 1
The device must be attached to a vertical wall (or a pole).

Fig. 2
The device must be mounted in the horizontal (transverse) direction.

Select an installation position on the building where the sensors can measure sunshine without any obstructions. The weather station should not be shaded by structures or, for example, trees. Ensure no shadow is thrown on the device by an extended awning.

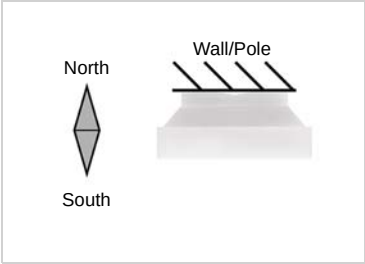


Fig. 3
For installation in the northern hemisphere, the device must be aligned to face south.

For installation in the southern hemisphere, the device must be aligned to face north.

Temperature measurements can also be distorted by external influences such as warming or cooling of the building structure on which the sensor is mounted (sunlight, heating or cold water pipes). Temperature variations from such sources of interference must be corrected in the ETS in order to ensure the specified accuracy of the sensor (temperature offset).

Magnetic fields, transmitters and interference fields from electrical consumers (e.g. fluorescent lamps, neon signs, switch mode power supplies etc.) can block or interfere with the reception of the GPS signal.

2.3. Device design

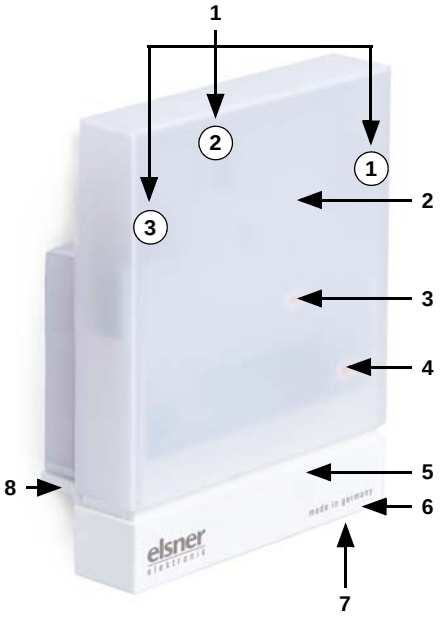


Fig. 4
1 *Position of the brightness sensors 1-3. With alignment of the device to the south*
Sensor 1 = East
Sensor 2 = South
Sensor 3 = West
2 *Semi-transparent cover (GPS receiver and pressure sensor below)*
3 *Position of the Signal LED (under the cover). LED is freely controlled via two objects*
4 *Position of the programming LED (under the cover)*
5 *Lower part of housing*
6 *Temperature and humidity sensor*
7 *Programming key on the bottom of the housing (recessed),* see *Addressing the device, page 13*
8 *Wall/Pole holder*

2.4. Installing the device

ATTENTION!
Even a few drops of water can damage the device electronics.
- Do not open the device if water (e.g. rain) can get into it.

2.4.1. Preparation for installation

Fig. 5
The cover and lower part of the housing are connected together. Pull both parts apart in a straight line.

2.4.2. Fitting the lower part of the housing with mounting

Now, first of all, assemble the lower part of the housing with the integrated mounting for wall or pole installation.

Wall installation

Use fixing materials (dowels, screws) that are suitable for the base.

Fig. 6
The device is installed with two screws. Break off the two longitudinal holes in the housing.

Fig. 7 a+b
a) If the power lead is to be hidden when installed, it must emerge from the wall in the vicinity of the rear of the housing (marked area).

b) If the power lead is to be surface-mounted, the cable guide is broken off. The lead is then fed into the device from the bottom of the housing.

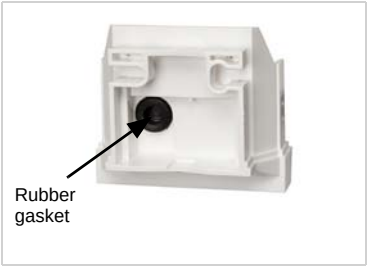


Fig. 8
Feed the power lead through the rubber gasket.

Drilling plan

ATTENTION! The print out of the data sheet doesn‘t have original size!
A separate, dimensionally correct drilling plan is included ex works and this can be used as a template.

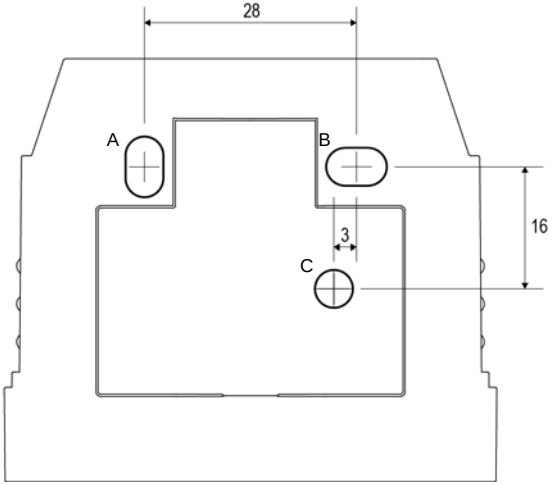


Fig. 9
Dimensions in mm. Variations are possible for technical reasons

A/B 2× longitudinal holes 8 mm × 5 mm
C Position of the cable outlet (rubber gasket) in the housing

Pole installation

The device is installed on the pole with the enclosed stainless steel mounting band.

Fig. 10
Feed the mounting band through the eyelets in the lower part of the housing.

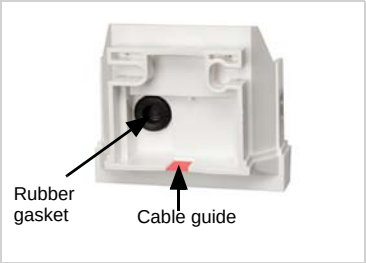


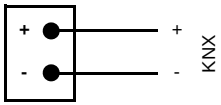
Fig. 11
Break the cable guide off.

Feed the power lead through the rubber gasket.

2.4.3. Connection

The connector is in the lower part of the housing.

Fig. 12
Connect the device to the KNX bus via the pluggable terminal (+|-).



2.4.4. Completing the installation

Fig. 13
Put the cover on the lower part. This also makes the plug-in connection between the board in the cover and the socket in the lower part.

3. Addressing the device

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

The programming button can be reached through the opening on the underside of the housing; it is recessed by approx. 8 mm. Use a thin object to reach the button, e.g. a 1.5 mm² wire.

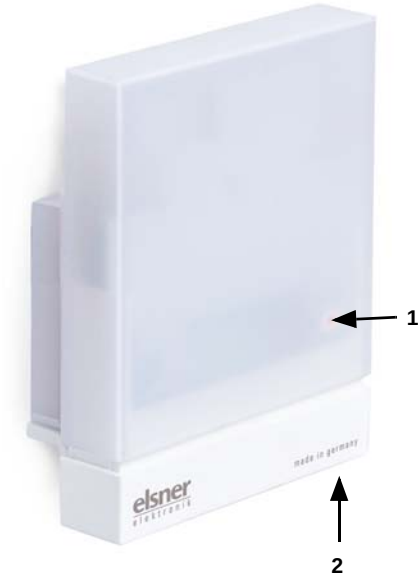


Fig. 14 a+b
1 Programming LED (under the semi-transparent cover)
2 Programming button for teaching the device

Housing from below

4. Maintenance

WARNING!
Risk of injury due to automatically moved components!
The automatic control may cause parts of the system to start up and pose a danger to humans.
- Always disconnect the system from the mains power before maintenance or cleaning.

The device should be regularly checked twice a year for soiling and cleaned if required. If there is major soiling, the function of the sensor may be compromised.

ATTENTION
The device may be damaged if water penetrates the housing.
- Do not clean with high pressure cleaners or steam jets.

5. Transfer protocol

Units:

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

5.1. List of all communication objects

Abbreviation flags:

C Communication
R Read
W Write
T Transfer
U Update

No.	Text	Function	Flags	DPT type	Size
1	Software version	Output	R-CT	[217.1] DPT_Version	2 bytes
21	Signal LED object 1s cycle	Input	-WC-	[1.1] DPT_Switch	1 bit
22	Signal LED object 4s cycle	Input	-WC-	[1.1] DPT_Switch	1 bit
24	GPS malfunction (0 : OK | 1: NOK)	Output	R-CT	[1.2] DPT_Bool	1 bit
25	Date / time	Output	RWCT	[19.1] DPT_DateTime	8 bytes
26	Date	Output	RWCT	[11.1] DPT_Date	3 bytes
27	Time	Output	RWCT	[10.1] DPT_TimeOfDay	3 bytes
28	Date and time query	Input	-WC-	[1.017] DPT_Trigger	1 bit
30	Location: Northern latitude [°]	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
31	Location: Eastern longitude [°]	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
32	Location: Height above NN [m]	Output	R-CT	[14.39] DPT_Value_Length	4 bytes
41	Temperature sensor: Malfunction	Output	R-CT	[1.1] DPT_Switch	1 bit
42	Temperature sensor: External measurement	Input	-WCT	[9.1] DPT_Value_Temp	2 bytes

No.	Text	Function	Flags	DPT type	Size
43	Temperature sensor: Measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
44	Temperature sensor: Total measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
45	Temperature sensor: Min./Max. measurement query	Input	-WC-	[1.017] DPT_Trigger	1 bit
46	Temperature sensor: Minimum measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
47	Temperature sensor: Maximum measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
48	Temperature sensor: Min./Max. measurement reset	Input	-WC-	[1.017] DPT_Trigger	1 bit
51	Temp. threshold value 1: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
52	Temp. threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
53	Temp. threshold value 1: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
54	Temp. threshold value 1: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
55	Temp. threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
56	Temp. threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
58	Temp. threshold value 2: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
59	Temp. threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
60	Temp. threshold value 2: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
61	Temp. threshold value 2: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
62	Temp. threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
63	Temp. threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
65	Temp. threshold value 3: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
66	Temp. threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
67	Temp. threshold value 3: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
68	Temp. threshold value 3: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
69	Temp. threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit

No.	Text	Function	Flags	DPT type	Size
70	Temp. threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
72	Temp. threshold value 4: Absolute value	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
73	Temp. threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
74	Temp. threshold value 4: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
75	Temp. threshold value 4: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
76	Temp. threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
77	Temp. threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
95	Brightness measured value sensor 1	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
96	Brightness measured value sensor 2	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
97	Brightness measured value sensor 3	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
98	Total brightness measured value	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
101	Brightness sensor 1 threshold value 1: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
102	Brightness sensor 1 threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
103	Brightness sensor 1 threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
104	Brightness sensor 1 threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
105	Brightness sensor 1 threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
106	Brightness sensor 1 threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
108	Brightness sensor 1 threshold value 2: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
109	Brightness sensor 1 threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
110	Brightness sensor 1 threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
111	Brightness sensor 1 threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes

No.	Text	Function	Flags	DPT type	Size
112	Brightness sensor 1 threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
113	Brightness sensor 1 threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
115	Brightness sensor 1 threshold value 3: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
116	Brightness sensor 1 threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
117	Brightness sensor 1 threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
118	Brightness sensor 1 threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
119	Brightness sensor 1 threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
120	Brightness sensor 1 threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
122	Brightness sensor 1 threshold value 4: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
123	Brightness sensor 1 threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
124	Brightness sensor 1 threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
125	Brightness sensor 1 threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
126	Brightness sensor 1 threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
127	Brightness sensor 1 threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
129	Brightness sensor 2 threshold value 1: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
130	Brightness sensor 2 threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
131	Brightness sensor 2 threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
132	Brightness sensor 2 threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
133	Brightness sensor 2 threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
134	Brightness sensor 2 threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
136	Brightness sensor 2 threshold value 2: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes

No.	Text	Function	Flags	DPT type	Size
137	Brightness sensor 2 threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
138	Brightness sensor 2 threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
139	Brightness sensor 2 threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
140	Brightness sensor 2 threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
141	Brightness sensor 2 threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
143	Brightness sensor 2 threshold value 3: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
144	Brightness sensor 2 threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
145	Brightness sensor 2 threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
146	Brightness sensor 2 threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
147	Brightness sensor 2 threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
148	Brightness sensor 2 threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
150	Brightness sensor 2 threshold value 4: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
151	Brightness sensor 2 threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
152	Brightness sensor 2 threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
153	Brightness sensor 2 threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
154	Brightness sensor 2 threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
155	Brightness sensor 2 threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
157	Brightness sensor 3 threshold value 1: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
158	Brightness sensor 3 threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
159	Brightness sensor 3 threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
160	Brightness sensor 3 threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes

No.	Text	Function	Flags	DPT type	Size
161	Brightness sensor 3 threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
162	Brightness sensor 3 threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
164	Brightness sensor 3 threshold value 2: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
165	Brightness sensor 3 threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
166	Brightness sensor 3 threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
167	Brightness sensor 3 threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
168	Brightness sensor 3 threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
169	Brightness sensor 3 threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
171	Brightness sensor 3 threshold value 3: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
172	Brightness sensor 3 threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
173	Brightness sensor 3 threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
174	Brightness sensor 3 threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
175	Brightness sensor 3 threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
176	Brightness sensor 3 threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
178	Brightness sensor 3 threshold value 4: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
179	Brightness sensor 3 threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
180	Brightness sensor 3 threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
181	Brightness sensor 3 threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
182	Brightness sensor 3 threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
183	Brightness sensor 3 threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
185	Total brightness threshold value 1: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes

No.	Text	Function	Flags	DPT type	Size
186	Total brightness threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
187	Total brightness threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
188	Total brightness threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
189	Total brightness threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
190	Total brightness threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
192	Total brightness threshold value 2: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
193	Total brightness threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
194	Total brightness threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
195	Total brightness threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
196	Total brightness threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
197	Total brightness threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
199	Total brightness threshold value 3: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
200	Total brightness threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
201	Total brightness threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
202	Total brightness threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
203	Total brightness threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
204	Total brightness threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
206	Total brightness threshold value 4: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
207	Total brightness threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
208	Total brightness threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
209	Total brightness threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes

No.	Text	Function	Flags	DPT type	Size
210	Total brightness threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
211	Total brightness threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
213	Twilight brightness threshold value 1: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
214	Twilight brightness threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
215	Twilight brightness threshold 1: delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
216	Twilight brightness threshold 1: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
217	Twilight brightness threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
218	Twilight brightness threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
220	Twilight brightness threshold value 2: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
221	Twilight brightness threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
222	Twilight brightness threshold 2: delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
223	Twilight brightness threshold 2: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
224	Twilight brightness threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
225	Twilight brightness threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
227	Twilight brightness threshold value 3: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
228	Twilight brightness threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
229	Twilight brightness threshold 3: delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
230	Twilight brightness threshold 3: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
231	Twilight brightness threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
232	Twilight brightness threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
234	Twilight brightness threshold value 4: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes

No.	Text	Function	Flags	DPT type	Size
235	Twilight brightness threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
236	Twilight brightness threshold 4: delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
237	Twilight brightness threshold 4: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
238	Twilight brightness threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
239	Twilight brightness threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
251	Night: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
252	Night: Switching delay on night	Input	-WC-	[7,005] DPT_TimePeriodSec	2 bytes
253	Night: Switching delay on day	Input	-WC-	[7,005] DPT_TimePeriodSec	2 bytes
261	Sun position: Azimuth	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
262	Sun position: Elevation	Output	R-CT	[14.7] DPT_Value_AngleDeg	4 bytes
263	Sun position: Azimuth	Output	R-CT	[9] 9.xxx	2 bytes
264	Sun position: Elevation	Output	R-CT	[9] 9.xxx	2 bytes
311	Humidity sensor: Malfunction	Output	R-CT	[1.1] DPT_Switch	1 bit
314	Humidity sensor: External measurement	Input	-WCT	[9.7] DPT_Value_Humidity	2 bytes
315	Humidity sensor: Measured value	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes
316	Humidity sensor: Total measurement	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes
317	Humidity sensor: Min./Max. measurement query	Input	-WC-	[1.017] DPT_Trigger	1 bit
318	Humidity sensor: Minimum measurement	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes
319	Humidity sensor: Maximum measurement	Output	R-CT	[9.7] DPT_Value_Humidity	2 bytes
320	Humidity sensor: Min./Max. measurement reset	Input	-WC-	[1.017] DPT_Trigger	1 bit
331	Humidity threshold value 1: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
332	Humidity threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
333	Humidity threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes

No.	Text	Function	Flags	DPT type	Size
334	Humidity threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
335	Humidity threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
336	Humidity threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
337	Humidity threshold value 2: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
338	Humidity threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
339	Humidity threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
340	Humidity threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
341	Humidity threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
342	Humidity threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
343	Humidity threshold value 3: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
344	Humidity threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
345	Humidity threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
346	Humidity threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
347	Humidity threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
348	Humidity threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
349	Humidity threshold value 4: Absolute value	Input/ Output	RWCT	[9.7] DPT_Value_Humidity	2 bytes
350	Humidity threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
351	Humidity threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
352	Humidity threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
353	Humidity threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
354	Humidity threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
381	Dewpoint: Measured value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes

No.	Text	Function	Flags	DPT type	Size
382	Coolant temp.: Threshold value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
383	Coolant temp.: Actual value	Input	RWCT	[9.1] DPT_Value_Temp	2 bytes
384	Coolant temp.: Offset change (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
385	Coolant temp.: Current offset	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
386	Coolant temp.: Switching delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
387	Coolant temp.: Switching delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
388	Coolant temp.: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
389	Coolant temp.: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
391	Absolute humidity [g/kg]	Output	R-CT	[14.5] DPT_Value_Amplitude	4 bytes
392	Absolute humidity [g/m³]	Output	R-CT	[14.17] DPT_Value_Density	4 bytes
394	Ambient climate status: 1 = comfortable | 0 = uncomfortable	Output	R-CT	[1.1] DPT_Switch	1 bit
395	Ambient climate status: Text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
401	Air pressure sensor: Malfunction	Output	R-CT	[1.1] DPT_Switch	1 bit
402	Air pressure sensor: Normal measurement [Pa]	Output	R-CT	[14.58] DPT_Value_Pressure	4 bytes
403	Air pressure sensor: Barometric measurement [Pa]	Output	R-CT	[14.58] DPT_Value_Pressure	4 bytes
404	Air pressure sensor: Min./Max. measurement query	Input	-WC-	[1.017] DPT_Trigger	1 bit
405	Air pressure sensor: Min. normal measurement [Pa]	Output	R-CT	[14.58] DPT_Value_Pressure	4 bytes
406	Air pressure sensor: Min. barometric measurement [Pa]	Output	R-CT	[14.58] DPT_Value_Pressure	4 bytes
407	Air pressure sensor: Max. normal measurement [Pa]	Output	R-CT	[14.58] DPT_Value_Pressure	4 bytes
408	Air pressure sensor: Max. barometric measurement [Pa]	Output	R-CT	[14.58] DPT_Value_Pressure	4 bytes
409	Air pressure sensor: Min./Max. measurement reset	Input	-WC-	[1.017] DPT_Trigger	1 bit
410	Air pressure sensor: Pressure range text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes

No.	Text	Function	Flags	DPT type	Size
411	Air pressure threshold value 1: Absolute value	Input/ Output	RWCT	[14.58] DPT_Value_Pressure	4 bytes
412	Air pressure threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
413	Air pressure threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
414	Air pressure threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
415	Air pressure threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
416	Air pressure threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
417	Air pressure threshold value 2: Absolute value	Input/ Output	RWCT	[14.58] DPT_Value_Pressure	4 bytes
418	Air pressure threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
419	Air pressure threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
420	Air pressure threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
421	Air pressure threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
422	Air pressure threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
423	Air pressure threshold value 3: Absolute value	Input/ Output	RWCT	[14.58] DPT_Value_Pressure	4 bytes
424	Air pressure threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
425	Air pressure threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
426	Air pressure threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
427	Air pressure threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
428	Air pressure threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
429	Air pressure threshold value 4: Absolute value	Input/ Output	RWCT	[14.58] DPT_Value_Pressure	4 bytes
430	Air pressure threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
431	Air pressure threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes

No.	Text	Function	Flags	DPT type	Size
432	Air pressure threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
433	Air pressure threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
434	Air pressure threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
481	Temp. controller: HVAC mode (priority 1)	Input	-WC-	[20.102] DPT_HVACMode	1 byte
482	Temp. controller: HVAC mode (priority 2)	Input	RWCT	[20.102] DPT_HVACMode	1 byte
483	Temp. controller: Mode frost/heat protection activation	Input	RWCT	[1.1] DPT_Switch	1 bit
484	Temp. controller: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 bit
485	Temp. controller: Current setpoint	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
486	Temp. controller: Switching (0: Heating | 1: Cooling)	Input	-WC-	[1.1] DPT_Switch	1 bit
487	Temp. controller: Setpoint comfort heating	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
488	Temp. controller: Setpoint comfort heating (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
489	Temp. controller: Setpoint comfort cooling	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
490	Temp. controller: Setpoint comfort cooling (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
491	Temp. controller: Basic setpoint shift 16 bit	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
492	Temp. controller: Setpoint standby heating	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
493	Temp. controller: Setpoint standby heating (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
494	Temp. controller: Setpoint standby cooling	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
495	Temp. controller: Setpoint standby cooling (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
496	Temp. controller: Setpoint eco heating	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes
497	Temp. controller: Setpoint, eco heating (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
498	Temp. controller: Setpoint eco cooling	Input/ Output	RWCT	[9.1] DPT_Value_Temp	2 bytes

No.	Text	Function	Flags	DPT type	Size
499	Temp. controller: Setpoint, eco cooling (1:+ | 0: -)	Input	-WC-	[1.1] DPT_Switch	1 bit
500	Temp. controller: Heating control variable (1. level)	Output	R-CT	[5.1] DPT_Scaling	1 byte
501	Temp. controller: Heating control variable (2nd level)	Output	R-CT	[5.1] DPT_Scaling	1 byte
502	Temp. controller: Control variable, cooling (1st level)	Output	R-CT	[5.1] DPT_Scaling	1 byte
503	Temp. controller: Control variable cooling (2nd level)	Output	R-CT	[5.1] DPT_Scaling	1 byte
504	Temp. controller: Variable for 4/6-way valve	Output	R-CT	[5.1] DPT_Scaling	1 byte
505	Temp. controller: Status heating level 1 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
506	Temp. controller: Status heating level 2 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
507	Temp. controller: Status cooling level 1 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
508	Temp. controller: Status cooling level 2 (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
509	Temp. controller: Comfort extension status	Input/ Output	RWCT	[1.1] DPT_Switch	1 bit
510	Temp. controller: Comfort extension time	Input	RWCT	[7.5] DPT_TimePeriodSec	2 bytes
515	European Summer Time: Outside temperature	Input	-WCT	[9.1] DPT_Value_Temp	2 bytes
516	European Summer Time: Setpoint value	Output	R-CT	[9.1] DPT_Value_Temp	2 bytes
517	European Summer Time: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 bit
521	Humidity controller: Block (1: block)	Input	-WC-	[1.2] DPT_Bool	1 bit
522	Humidity controller: Setpoint value	Input/ Output	RWCT	[9,007] DPT_Value_Humidity	2 bytes
523	Humidity controller: Setpoint value (1:+ | 0:-)	Input	-WC-	[1.2] DPT_Bool	1 bit
524	Humidity controller: Control variable dehumidification	Output	R-CT	[5.1] DPT_Scaling	1 byte
525	Humidity controller: Control variable dehumidification of the 2nd level	Output	R-CT	[5.1] DPT_Scaling	1 byte
526	Humidity controller: Control variable humidification	Output	R-CT	[5.1] DPT_Scaling	1 byte

No.	Text	Function	Flags	DPT type	Size
527	Humidity controller: Dehumidification status (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
528	Humidity controller: Dehumidification 2 status (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
529	Humidity controller: Humidification status (1:ON | 0:OFF)	Output	R-CT	[1.1] DPT_Switch	1 bit
1111	Control variable Comparator 1: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1112	Control variable Comparator 1: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte
1113	Control variable Comparator 1: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte
1114	Control variable Comparator 1: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1115	Control variable Comparator 1: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1116	Control variable Comparator 1: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1117	Control variable Comparator 1: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
1118	Control variable Comparator 2: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1119	Control variable Comparator 2: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte
1120	Control variable Comparator 2: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte
1121	Control variable Comparator 2: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1122	Control variable Comparator 2: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1123	Control variable Comparator 2: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1124	Control variable Comparator 2: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
1125	Control variable Comparator 3: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1126	Control variable Comparator 3: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte
1127	Control variable Comparator 3: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte

No.	Text	Function	Flags	DPT type	Size
1128	Control variable Comparator 3: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1129	Control variable Comparator 3: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1130	Control variable Comparator 3: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1131	Control variable Comparator 3: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
1132	Control variable Comparator 4: Input 1	Input	-WC-	[5.1] DPT_Scaling	1 byte
1133	Control variable Comparator 4: Input 2	Input	-WC-	[5.1] DPT_Scaling	1 byte
1134	Control variable Comparator 4: Input 3	Input	-WC-	[5.1] DPT_Scaling	1 byte
1135	Control variable Comparator 4: Input 4	Input	-WC-	[5.1] DPT_Scaling	1 byte
1136	Control variable Comparator 4: Input 5	Input	-WC-	[5.1] DPT_Scaling	1 byte
1137	Control variable Comparator 4: Output	Output	R-CT	[5.1] DPT_Scaling	1 byte
1138	Control variable Comparator 4: Block (1: block)	Output	-WC-	[1.2] DPT_Bool	1 bit
1141	Computer 1: Input I1	Input	RWCT		4 bytes
1142	Computer 1: Input I2	Input	RWCT		4 bytes
1143	Computer 1: Input I3	Input	RWCT		4 bytes
1144	Computer 1: Output O1	Output	R-CT		4 bytes
1145	Computer 1: Output O2	Output	R-CT		4 bytes
1146	Computer 1: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1147	Computer 1: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1148	Computer 1: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1149	Computer 2: Input I1	Input	RWCT		4 bytes
1150	Computer 2: Input I2	Input	RWCT		4 bytes
1151	Computer 2: Input I3	Input	RWCT		4 bytes
1152	Computer 2: Output O1	Output	R-CT		4 bytes
1153	Computer 2: Output O2	Output	R-CT		4 bytes
1154	Computer 2: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1155	Computer 2: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1156	Computer 2: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1157	Computer 3: Input I1	Input	RWCT		4 bytes

No.	Text	Function	Flags	DPT type	Size
1158	Computer 3: Input I2	Input	RWCT		4 bytes
1159	Computer 3: Input I3	Input	RWCT		4 bytes
1160	Computer 3: Output O1	Output	R-CT		4 bytes
1161	Computer 3: Output O2	Output	R-CT		4 bytes
1162	Computer 3: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1163	Computer 3: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1164	Computer 3: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1165	Computer 4: Input I1	Input	RWCT		4 bytes
1166	Computer 4: Input I2	Input	RWCT		4 bytes
1167	Computer 4: Input I3	Input	RWCT		4 bytes
1168	Computer 4: Output O1	Output	R-CT		4 bytes
1169	Computer 4: Output O2	Output	R-CT		4 bytes
1170	Computer 4: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1171	Computer 4: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1172	Computer 4: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1173	Computer 5: Input I1	Input	RWCT		4 bytes
1174	Computer 5: Input I2	Input	RWCT		4 bytes
1175	Computer 5: Input I3	Input	RWCT		4 bytes
1176	Computer 5: Output O1	Output	R-CT		4 bytes
1177	Computer 5: Output O2	Output	R-CT		4 bytes
1178	Computer 5: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1179	Computer 5: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1180	Computer 5: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1181	Computer 6: Input I1	Input	RWCT		4 bytes
1182	Computer 6: Input I2	Input	RWCT		4 bytes
1183	Computer 6: Input I3	Input	RWCT		4 bytes
1184	Computer 6: Output O1	Output	R-CT		4 bytes
1185	Computer 6: Output O2	Output	R-CT		4 bytes
1186	Computer 6: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1187	Computer 6: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1188	Computer 6: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1189	Computer 7: Input I1	Input	RWCT		4 bytes
1190	Computer 7: Input I2	Input	RWCT		4 bytes
1191	Computer 7: Input I3	Input	RWCT		4 bytes
1192	Computer 7: Output O1	Output	R-CT		4 bytes
1193	Computer 7: Output O2	Output	R-CT		4 bytes

No.	Text	Function	Flags	DPT type	Size
1194	Computer 7: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1195	Computer 7: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1196	Computer 7: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1197	Computer 8: Input I1	Input	RWCT		4 bytes
1198	Computer 8: Input I2	Input	RWCT		4 bytes
1199	Computer 8: Input I3	Input	RWCT		4 bytes
1200	Computer 8: Output O1	Output	R-CT		4 bytes
1201	Computer 8: Output O2	Output	R-CT		4 bytes
1202	Computer 8: Condition text	Output	R-CT	[16.0] DPT_String_ASCII	14 bytes
1203	Computer 8: Monitoring status	Output	R-CT	[1.1] DPT_Switch	1 bit
1204	Computer 8: Block (1: block)	Input	-WC-	[1.1] DPT_Switch	1 bit
1211	Weekly timer period 1: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1212	Weekly timer period 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1213	Weekly timer period 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1214	Weekly timer period 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1215	Weekly timer period 2: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1216	Weekly timer period 2: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1217	Weekly timer period 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1218	Weekly timer period 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1219	Weekly timer period 3: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1220	Weekly timer period 3: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1221	Weekly timer period 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1222	Weekly timer period 3: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1223	Weekly timer period 4: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1224	Weekly timer period 4: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes

No.	Text	Function	Flags	DPT type	Size
1225	Weekly timer period 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1226	Weekly timer period 4: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1227	Weekly timer period 5: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1228	Weekly timer period 5: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1229	Weekly timer period 5: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1230	Weekly timer period 5: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1231	Weekly timer period 6: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1232	Weekly timer period 6: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1233	Weekly timer period 6: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1234	Weekly timer period 6: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1235	Weekly timer period 7: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1236	Weekly timer period 7: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1237	Weekly timer period 7: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1238	Weekly timer period 7: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1239	Weekly timer period 8: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1240	Weekly timer period 8: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1241	Weekly timer period 8: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1242	Weekly timer period 8: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1243	Weekly timer period 9: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1244	Weekly timer period 9: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1245	Weekly timer period 9: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit

No.	Text	Function	Flags	DPT type	Size
1246	Weekly timer period 9: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1247	Weekly timer period 10: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1248	Weekly timer period 10: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1249	Weekly timer period 10: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1250	Weekly timer period 10: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1251	Weekly timer period 11: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1252	Weekly timer period 11: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1253	Weekly timer period 11: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1254	Weekly timer period 11: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1255	Weekly timer period 12: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1256	Weekly timer period 12: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1257	Weekly timer period 12: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1258	Weekly timer period 12: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1259	Weekly timer period 13: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1260	Weekly timer period 13: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1261	Weekly timer period 13: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1262	Weekly timer period 13: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1263	Weekly timer period 14: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1264	Weekly timer period 14: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1265	Weekly timer period 14: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1266	Weekly timer period 14: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte

No.	Text	Function	Flags	DPT type	Size
1267	Weekly timer period 15: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1268	Weekly timer period 15: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1269	Weekly timer period 15: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1270	Weekly timer period 15: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1271	Weekly timer period 16: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1272	Weekly timer period 16: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1273	Weekly timer period 16: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1274	Weekly timer period 16: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1275	Weekly timer period 17: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1276	Weekly timer period 17: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1277	Weekly timer period 17: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1278	Weekly timer period 17: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1279	Weekly timer period 18: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1280	Weekly timer period 18: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1281	Weekly timer period 18: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1282	Weekly timer period 18: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1283	Weekly timer period 19: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1284	Weekly timer period 19: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1285	Weekly timer period 19: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1286	Weekly timer period 19: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1287	Weekly timer period 20: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes

No.	Text	Function	Flags	DPT type	Size
1288	Weekly timer period 20: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1289	Weekly timer period 20: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1290	Weekly timer period 20: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1291	Weekly timer period 21: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1292	Weekly timer period 21: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1293	Weekly timer period 21: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1294	Weekly timer period 21: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1295	Weekly timer period 22: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1296	Weekly timer period 22: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1297	Weekly timer period 22: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1298	Weekly timer period 22: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1299	Weekly timer period 23: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1300	Weekly timer period 23: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1301	Weekly timer period 23: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1302	Weekly timer period 23: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1303	Weekly timer period 24: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1304	Weekly timer period 24: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1305	Weekly timer period 24: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1306	Weekly timer period 24: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1331	Calendar timer period 1: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1332	Calendar timer period 1: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1333	Calendar timer period 1 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes

No.	Text	Function	Flags	DPT type	Size
1334	Calendar timer period 1 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1335	Calendar timer period 1 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1336	Calendar timer period 1 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1337	Calendar timer period 2 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1338	Calendar timer period 2 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1339	Calendar timer period 2 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1340	Calendar timer period 2 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1341	Calendar timer period 2: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1342	Calendar timer period 2: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1343	Calendar timer period 2 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1344	Calendar timer period 2 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1345	Calendar timer period 2 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1346	Calendar timer period 2 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1347	Calendar timer period 2 sequence 2: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1348	Calendar timer period 2 sequence 2: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1349	Calendar timer period 2 sequence 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1350	Calendar timer period 2 sequence 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1351	Calendar timer period 3: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1352	Calendar timer period 3: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1353	Calendar timer period 3 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1354	Calendar timer period 3 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_-TimeOfDay	3 bytes
1355	Calendar timer period 3 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1356	Calendar timer period 3 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte

No.	Text	Function	Flags	DPT type	Size
1357	Calendar timer period 3 sequence 2: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1358	Calendar timer period 3 sequence 2: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1359	Calendar timer period 3 sequence 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1360	Calendar timer period 3 sequence 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1361	Calendar timer period 4: Start date	Input	RWCT	[11.1] DPT_Date	3 bytes
1362	Calendar timer period 4: End date	Input	RWCT	[11.1] DPT_Date	3 bytes
1363	Calendar timer period 4 sequence 1: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1364	Calendar timer period 4 sequence 1: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1365	Calendar timer period 4 sequence 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1366	Calendar timer period 4 sequence 1: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1367	Calendar timer period 4 sequence 2: Switch-on time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1368	Calendar timer period 4 sequence 2: Switch-off time	Input	RWCT	[10.1] DPT_TimeOfDay	3 bytes
1369	Calendar timer period 4 sequence 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
1370	Calendar timer period 4 sequence 2: 8 bit output	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 byte
1391	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 bit
1392	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 bit
1393	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 bit
1394	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 bit
1395	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 bit
1396	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 bit
1397	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 bit
1398	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 bit
1399	Logic input 9	Input	-WC-	[1.2] DPT_Bool	1 bit
1400	Logic input 10	Input	-WC-	[1.2] DPT_Bool	1 bit
1401	Logic input 11	Input	-WC-	[1.2] DPT_Bool	1 bit
1402	Logic input 12	Input	-WC-	[1.2] DPT_Bool	1 bit
1403	Logic input 13	Input	-WC-	[1.2] DPT_Bool	1 bit
1404	Logic input 14	Input	-WC-	[1.2] DPT_Bool	1 bit
1405	Logic input 15	Input	-WC-	[1.2] DPT_Bool	1 bit

No.	Text	Function	Flags	DPT type	Size
1406	Logic input 16	Input	-WC-	[1.2] DPT_Bool	1 bit
1411	AND logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1412	AND logic 1: 8 bit output A	Output	R-CT		1 byte
1413	AND logic 1: 8 bit output B	Output	R-CT		1 byte
1414	AND logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1415	AND logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1416	AND logic 2: 8 bit output A	Output	R-CT		1 byte
1417	AND logic 2: 8 bit output B	Output	R-CT		1 byte
1418	AND logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1419	AND logic 3: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1420	AND logic 3: 8 bit output A	Output	R-CT		1 byte
1421	AND logic 3: 8 bit output B	Output	R-CT		1 byte
1422	AND logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1423	AND logic 4: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1424	AND logic 4: 8 bit output A	Output	R-CT		1 byte
1425	AND logic 4: 8 bit output B	Output	R-CT		1 byte
1426	AND logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1427	AND logic 5: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1428	AND logic 5: 8 bit output A	Output	R-CT		1 byte
1429	AND logic 5: 8 bit output B	Output	R-CT		1 byte
1430	AND logic 5: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1431	AND logic 6: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1432	AND logic 6: 8 bit output A	Output	R-CT		1 byte
1433	AND logic 6: 8 bit output B	Output	R-CT		1 byte
1434	AND logic 6: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1435	AND logic 7: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1436	AND logic 7: 8 bit output A	Output	R-CT		1 byte
1437	AND logic 7: 8 bit output B	Output	R-CT		1 byte
1438	AND logic 7: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1439	AND logic 8: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1440	AND logic 8: 8 bit output A	Output	R-CT		1 byte
1441	AND logic 8: 8 bit output B	Output	R-CT		1 byte
1442	AND logic 8: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1443	OR logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1444	OR logic 1: 8 bit output A	Output	R-CT		1 byte
1445	OR logic 1: 8 bit output B	Output	R-CT		1 byte
1446	OR logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1447	OR logic 2: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1448	OR logic 2: 8 bit output A	Output	R-CT		1 byte
1449	OR logic 2: 8 bit output B	Output	R-CT		1 byte

No.	Text	Function	Flags	DPT type	Size
1450	OR logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1451	OR logic 3: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1452	OR logic 3: 8 bit output A	Output	R-CT		1 byte
1453	OR logic 3: 8 bit output B	Output	R-CT		1 byte
1454	OR logic 3: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1455	OR logic 4: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1456	OR logic 4: 8 bit output A	Output	R-CT		1 byte
1457	OR logic 4: 8 bit output B	Output	R-CT		1 byte
1458	OR logic 4: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1459	OR logic 5: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1460	OR logic 5: 8 bit output A	Output	R-CT		1 byte
1461	OR logic 5: 8 bit output B	Output	R-CT		1 byte
1462	OR logic 5: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1463	OR logic 6: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1464	OR logic 6: 8 bit output A	Output	R-CT		1 byte
1465	OR logic 6: 8 bit output B	Output	R-CT		1 byte
1466	OR logic 6: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1467	OR logic 7: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1468	OR logic 7: 8 bit output A	Output	R-CT		1 byte
1469	OR logic 7: 8 bit output B	Output	R-CT		1 byte
1470	OR logic 7: Block	Input	-WC-	[1.1] DPT_Switch	1 bit
1471	OR logic 8: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1472	OR logic 8: 8 bit output A	Output	R-CT		1 byte
1473	OR logic 8: 8 bit output B	Output	R-CT		1 byte
1474	OR logic 8: Block	Input	-WC-	[1.1] DPT_Switch	1 bit

6. Parameter setting

6.1. Behaviour on power failure/ restoration of power

Behaviour following a failure of the bus power supply:

The device sends nothing.

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

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

6.1.1. Storage of threshold values

For threshold values that are specified via a communication object, a starting value must be entered for the first commissioning. It is valid until the first communication of a new threshold value.

After this, a threshold value once set per parameter or via a communication object is retained until a new threshold value is sent via a communication object. The last threshold value set by communication object is saved in the device, so that it is retained during a power outage and is available once again when power is restored.

6.1.2. Malfunction objects

Malfunction objects are sent after every reset and, additionally, after changes (i.e. at the beginning and end of a malfunction).

6.1.3. General settings

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

Transmission delay after reset/restoration of bus for:	
Measured values	5 ... 300 seconds
Threshold values and switching outputs	5 ... 300 seconds
Controller objects	5 ... 300 seconds
Comparator and computer objects	5 ... 300 seconds
Time switch objects	5 ... 300 seconds
Logic objects	5 ... 300 seconds
Maximum telegram quota	1 • 2 • 5 • 10 • 20 • 50 Telegrams per sec.

Set the function of the signal LED. Via the input objects "Signal LED object 1s/4s cycle", the LED can visualise two different types of information flashing slowly or quickly. If both objects receive a 1, it flashes in the prioritised cycle.

Function of the signal LED	• always OFF • flashes if a signal LED object receives a 1
The following has priority *(if the signal LED is being used)*	• Signal LED object 1s cycle • Signal LED object 4s cycle

6.2. GPS

Set whether the time and date are to be sent as separate objects or as one common object. Specify whether the time and date are to be set by the GPS signal or objects.

If time and date are **set by the GPS-Signal**, the data is available as soon as a valid GPS signal is received.

If time and date are **set by two objects**, then only a maximum of 10 seconds may elapse between receiving the date and receiving the time Furthermore, a change of date may not occur between receiving both objects. The objects must be received by the device on the same day.

The device has an integrated real-time clock. Therefore, time keeps on running internally and can be sent to the bus, even when no GPS coverage is available or no time object has been received for some time. The internal clock can show a time drift of up to ±6 seconds per day.

Object type date and time	• two separate objects • a common object
Date and time will be set by	• GPS signal and not sent • GPS signal and sent periodically • GPS signal and sent on request • GPS signal and sent on request + periodically • object(s) and not sent
Send cycle *(if sent periodically)*	5 s ... 2 h; 1 min

Set what happens in the event of a GPS malfunction. Please note, that after return of auxiliary voltage, it can take up to 10 minutes before the GPS signal is received.

If there is no reception, GPS fault is ... recognised after the last reception	20 min • 30 min • 1 h • 1.5 h • 2 h
GPS fault object sends (1: malfunction| 0: no malfunction)	• never • on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically

Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s

6.3. Location

The location data is required in order to be able to calculate the **position of the sun** with the help of the date and time.

The **location** is received via GPS or entered manually (selection of the nearest town or by entering coordinates). Also when using the GPS signal coordinates can be entered manually for the initial commissioning. This data is used as long as no GPS reception exists. For this you select the option "Input (only valid until the first GPS reception)".

Location is determined by	• input • input (only valid until the first GPS reception) • GPS reception	
Location input using *(if input selected)*	• Town • Coordinates	
Country *(if input by town is selected)*	• Belgium • Denmark • Germany • France • Great Britain • Italy	• Liechtenstein • Luxembourg • Netherlands • Austria • Switzerland • USA
Town *(if input by town is selected)*	6 towns in Belgium 1 town in Denmark 48 towns in Germany; Stuttgart 23 towns in France 4 towns in Great Britain 10 towns in Italy 1 town in Liechtenstein 1 town in Luxembourg 2 towns in the Netherlands 4 towns in Austria 4 towns in Switzerland 2 towns in the USA	
E. longitude [degrees, -180...+180] *(if input by coordinates is selected)*	0 [negative values mean "western longitude"]	
E. longitude [minutes, -59...+59] *(if input by coordinates is selected)*	0 [negative values mean "western longitude"]	
Northern latitude [Degrees, -90...+90] *(if input by coordinates is selected)*	0 [negative values mean "southern latitude"]	
Northern latitude [minutes, -59...+59] *(if input by coordinates is selected)*	0 [negative values mean "southern latitude"]	

The location-**height** above sea level is used to calculate the normal air pressure (see also chapter *Information on air pressure*, page 62).

The height is received via GPS or entered manually. When using the GPS signal, a height can be entered manually for the initial commissioning. This data is used as long as there is no GPS reception. Select the option "Input (only valid until the first GPS reception)".

Height is determined by	• Input • input (valid until the first GPS reception) • GPS reception
Height above sea level in metres	-1000 ... 10000; 200

In order to be able to output the **local time**, the time zone (difference to world time (Coordinated Universal Time)) and the summer time rules must be defined. Specify the hours and minutes after winter time (standard time).

Time zone (relative to GMT):	
Prefix	• positive (+) • negative (-)
Hours	0 ... 13; 1
Minutes	0 ... 59; 0
Summertime rule	• Europe • USA • user-defined • none
All the following times are to be entered as winter time = standard time	
Start of Summer Time:	
on	• Monday ... Sunday • Date
From (day) *(for Europe or USA summer time rules)* (Day) *(For user defined summer time rules)*	1 ... 31; 25
(Month)	1 ... 12; 3
(Hour)	0 ... 23; 2
(minutes)	0 ... 59
End of Summer Time:	
on	• Monday ... Sunday • Date
From (day) *(for Europe or USA summer time rules)* (Day) *(For user defined summer time rules)*	1 ... 31; 25
(Month)	1 ... 12; 10
(hour)	0 ... 23; 2
(minutes)	0 ... 59

Time shift:	
hours	-12 ... 12; 1
minutes	0 ... 59

The standard coordinates can be transmitted from the device to the bus and thus be used in other applications, no matter whether they have been received via GPS or specified manually.

Send coordinates	• never • periodically • on change • on change and periodically
on change of	0.5° • 1° • 2° • 5° • 10°
Send cycle	5 s ... 2 h; 5 min

6.4. Temperature Measurement

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

Use malfunction object	No • Yes

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

Offset in 0.1°C	-50...50; 0

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

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

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

Use minimum and maximum value	No • Yes

6.5. Temperature threshold values

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

Use threshold value 1/2/3/4	Yes • No

6.5.1. Threshold values 1-4

Threshold value

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

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

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

Threshold value setting using parameters:

Set the threshold values and hysteresis directly.

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

Threshold value setting using a communication object:

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

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

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

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

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

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

Switching output

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

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

Block

The switching output can be blocked using an object.

Use switching output block	No • Yes

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

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

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

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

6.6. Brightness measurement value

Sensor 1-3

Give the brightness sensors 1-3 a nomenclature and set the transmission behaviour for the measurement values.

Sensor nomenclature	S1 [Free text]
Send pattern	• never • periodically • on change • on change and periodically
at and above change in % *(if sent on change)*	1 ... 100; 20
Send cycle *(if sent periodically)*	5 s ... 2 h

Total measurement

Select the type of the total measurement and set the transmission behaviour for the total measurement.

Type of total measured value	• Mixed value from all 3 sensors • Maximum value of the 3 sensors
Sensor 1-3 share in % *(if total measured value is a mixed value)*	0...100; 33
Send pattern	• never • periodically • On change • on change and periodically
at and above change in % *(if sent on change)*	1 ... 100; 20
Send cycle *(if sent periodically)*	5 s ... 2 h

6.7. Brightness threshold values sensor 1-3 and total brightness threshold values

Activate the required brightness threshold values at the individual sensors and at the total threshold value (in each case a maximum of four). The menus for setting the threshold values are displayed.

Threshold value 1/2/3/4	No • Yes

6.7.1. Threshold values 1-4

Threshold value

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

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

Select whether the threshold value is to be specified per parameter or via a communication object.

Threshold value setpoint using	Parameter • Communications object

When the **threshold value per parameter** is specified, then the value is set.

Threshold value in kLux	1000 ... 150000; 60000

When the **threshold value per communication object** is specified, the starting value, object value limit and type of change to the threshold value are then set.

Start threshold value in Lux valid until first call	1000 ... 150000; 60000
Object value limit (min.) in Lux	1000 ... 150000
Object value limit (max.) in Lux	1000 ... 150000
Type of threshold change	Absolute value • Increase/decrease
Increment in Lux *(upon increase/decrease change)*	1000 • 2000 • 5000 • 10000 • 20000

With both of the methods for specifying the threshold values the hysteresis is set.

Hysteresis setting	in % • absolute
Hysteresis in % of the threshold value *(for setting in %)*	0 ... 100; 50
Hysteresis in Lux *(for absolute setting)*	0 ... 150000; 30000

Switching output

Define which value the output transmits if the threshold value is exceeded or undercut. Set the delay for the switching and in which cases the switch output transmits.

When the following conditions apply, the output is (LV = Threshold value)	• GW above = 1 | GW - Hyst. below = 0 • GW above = 0 | GW - Hyst. below = 1 • GW below = 1 | GW + Hyst. above = 0 • GW below = 0 | GW + Hyst. above = 1
Delays can be set via objects (in seconds)	No • Yes
Delay from 0 to 1	none • 1 s ... 2 h
Delay from 1 to 0	none • 1 s ... 2 h
Switching output sends	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle *(if sent periodically)*	5 s ... 2 h

Block

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

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

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

Switching output sends on change	do not send message • Status object/s send/s
Switching output sends on change to 1	do not send message • If switching output = 1 ➔ send 1
Switching output sends on change to 0	do not send message •
	If switching output = 0 ➔ send 0
Switching output sends on change and periodically	Send switching output status
Switching output sends on change to 1 and periodically	If switching output = 1 ➔send 1
Switching output sends on change to 0 and periodically	If switching output = 0 ➔send 0

6.8. Twilight brightness threshold values

Activate the twilight threshold values required (maximum four). The menus for setting the threshold values are displayed.

Threshold value 1/2/3/4	No • Yes

The reading of the brightness sensor 2 is relevant for the twilight threshold values. The use of the total value of the brightness for the twilight threshold values is not possible.

6.8.1. Threshold values 1-4

Threshold value

Set, in which cases threshold values and delay times received are to be kept per object. The parameter is only taken into consideration if the specification/ setting by object is activated further down. Please note that the setting "After power restoration and pro-

gramming" should not be used for the initial start-up, as the factory settings are always used until the first call (setting via objects is ignored).

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

Select whether the threshold value is to be specified per parameter or via a communication object.

Threshold value setpoint using	Parameter • Communications object

When the **threshold value per parameter** is specified, then the value is set.

Threshold value in kLux	1 ... 1000; 10

When the **threshold value per communication object** is specified, the starting value, object value limit and type of change to the threshold value are then set.

Start threshold value in Lux valid until first call	1 ... 1000; 10
Object value limit (min.) in Lux	1 ... 1000
Object value limit (max.) in Lux	1 ... 1000
Type of threshold change	Absolute value • Increase/decrease
Increment in Lux *(upon increase/decrease change)*	1000 • 2000 • 5000 • 10000 • 20000

With both of the methods for specifying the threshold values the hysteresis is set.

Hysteresis setting	in % • absolute
Hysteresis in % of the threshold value *(for setting in %)*	0 ... 100; 50
Hysteresis in Lux *(for absolute setting)*	0 ... 1000; 5

Switching output

Define which value the output transmits if the threshold value is exceeded or undercut. Set the delay for the switching and in which cases the switch output transmits.

When the following conditions apply, the output is (LV = Threshold value)	• GW above = 1 | GW - Hyst. below = 0 • GW above = 0 | GW - Hyst. below = 1 • GW below = 1 | GW + Hyst. above = 0 • GW below = 0 | GW + Hyst. above = 1
Delays can be set via objects (in seconds)	No • Yes
Delay from 0 to 1	none • 1 s ... 2 h
Delay from 1 to 0	none • 1 s ... 2 h

Switching output sends	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle *(if sent periodically)*	5 s ... 2 h

Block

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

Use switching output block	No • Yes
Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first call	0 • 1
Action when locking	• do not send message • send 0 • send 1
Action upon release (with 2 seconds release delay)	[Dependent on the "Switching output sends" setting]

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

Switching output sends on change	do not send message • status object/s send/s
Switching output sends on change to 1	do not send message • if switching output = 1 ➔ send 1
Switching output sends on change to 0	do not send message •
	if switching output = 0 ➔ send 0
Switching output sends on change and periodically	send switching output status
Switching output sends on change to 1 and periodically	if switching output = 1 ➔ send 1
Switching output sends on change to 0 and periodically	if switching output = 0 ➔ send 0

6.9. Night

If necessary, activate the night recognition.

Use night recognition	No • **Yes**

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

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

Specify below which brightness the device should recognise "night" and with which hysteresis this is to be outputted.

Night is recognised below Lux	1 ... 1000; 10
Hysteresis in Lux	0 ... 500; 5

Set the delay for the switching and in which cases the switch output sends and which value is output at night.

Delays can be set via objects (in seconds)	No • Yes
Switching delay on night	none • 1 s ... 2 h
Switching delay on day	none • 1 s ... 2 h
Switching output sends	• on change • on change to night • on change to day • on change and periodically • on change to night and periodically • on change to day and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h
Object value at night	0 • 1

6.10. Sun position

Select whether the device should calculate the sun position itself or if the values are received via the bus. The type of object and send pattern are also set.

Sun position	is calculated • is received
Object type	4 Byte floating point • 2 Byte floating point
Send pattern *(if the sun position is calculated by the device)*	• never • periodically • on change • on change and periodically

on change of *(if sent on change)*	0.1 degrees • 0.2 degrees • 0.5 degrees • 1.0 degree • 2.0 degrees • 5.0 degrees
Send cycle *(if sent periodically)*	5 s ... 2 h; 1 min

6.11. Humidity Measurement

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

Use malfunction object	No • Yes

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

Offset in 0.1°C	-50…50; 0

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

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

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

Use minimum and maximum value	No • Yes

6.12. Humidity threshold values

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

Use threshold value 1/2/3/4	Yes • No

6.12.1. Threshold values 1-4

Threshold value

Set, in which cases **threshold values and delay times** received via object are to be retained. The parameter is only taken into consideration if the setting via object is ac-

tivated below. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first communication (setting via objects is ignored).

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

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

Threshold value setting using parameters:

Set the threshold values and hysteresis directly.

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

Threshold value setting using a communication object:

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

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

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

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

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

Hysteresis setting	in % • absolute

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

Switching output

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

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

Block

The switching output can be blocked using an object.

Use switching output block	No • Yes

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

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

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

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

6.13. Dewpoint measurement

The **Sensor Vari KNX 3L-TH-D GPS** calculates the dewpoint temperature and can output the value to the bus.

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

Activate monitoring of the coolant temperature if required. The menu for setting the monitoring is displayed.

Use monitoring of the coolant temperature	No • Yes

6.13.1. Cooling medium temperature monitoring

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

Threshold value

Threshold value = dewpoint temperature + offset

Set, in which cases an **offset** received via object is to be retained. Please note that the setting "After power supply restoration and programming" should not be used for the

initial start-up, as the factory settings are always used until the first communication (setting via objects is ignored).

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

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

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

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

Switching output

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

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

Switching delay from 1 to 0 *for setting via objects: valid until 1st communication*	None • 1 s • 2 s • 5 s • 10 s • ... • 2 h
Switching output sends	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Send cycle *(is only sent if periodically is selected)*	5 s • 10 s • 30 s... • 2 h

Blocking

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

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

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

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

6.14. Absolute humidity

The absolute humidity value for the air is detected from the **Vari KNX 3L-TH-D GPS** and can be output to the bus.

Use measured values	No • Yes

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

6.15. Comfort field

The **Sensor Vari KNX 3L-TH-D GPS** can send a message to the bus if the limits of the comfort field are exceeded. In this way, it is for example possible to monitor compliance with DIN 1946 (standard values) or even to define your own comfort field.

Use comfort field	No • Yes

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

Sending pattern	• never • periodically • on change • on change and periodically
Text for comfortable	[Free text max. 14 chars.]
Text for uncomfortable	[Free text max. 14 chars.]
Object value is at	• comfortable = 1 | uncomfortable = 0 • comfortable = 0 | uncomfortable = 1
Send cycle *(if sent periodically)*	5 s • 10 s • 30 s... • 2 h

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

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

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

6.16. Air pressure measurement

If necessary, activate the air pressure malfunction object. Specify whether the measured value is, in addition, to be outputted as barometric pressure (see below *Information on air pressure*).

Use malfunction object	No • Yes
Measured value additionally output as barometric pressure	No • Yes

Define the send pattern and, if necessary, activate the minimum and maximum value (these values are not retained after a reset).

Send pattern measurement	• never • periodically • on change • on change and periodically
on change of *(if sent on change)*	10 Pa • 20 Pa • 50 Pa • 100 Pa • 200 Pa • 500 Pa
Send cycle *(if sent periodically)*	5 s ... 2 h; 1 min
Use minimum and maximum value	No • Yes

Information on air pressure

The unit for air pressure is Pascal (Pa).
1 Pa = 0,01 hPa = 0,01 mbar

The air pressure is specified as "normal air pressure" or as "barometric pressure". The normal air pressure is the pressure compensated for height and temperature. The barometric air pressure is the pressure measured directly by the sensor (without compensation).

Air pressure (in Pa)	Meaning	Weather tendency
up to 98,000 Pa	very low	stormy
98,000 ... 100,000 Pa	low	rainy
100,000 ... 102,000 Pa	normal	changeable
102,000 ... 104,000 Pa	high	sunny
104,000 Pa:	very high	very dry

6.17. Wind threshold values

Activate the wind threshold values required (maximum four) The menus for the further setting of the threshold values are then displayed.

Threshold value 1/2/3/4	No • Yes

6.17.1. Wind threshold values 1-4

Threshold value

Set, in which cases threshold values and delay times received are to be kept per object. The parameter is only taken into consideration if the specification/ setting by object is activated further down. Please note that the setting "After power restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first call (setting via objects is ignored).
Select the type of measured value for the calculation of the threshold value (siehe *Information on air pressure*, page 39)

Maintain the	
threshold values and delays received via communication object	• never • after power supply restoration • after power supply restoration and programming
Type of measurement for threshold value calculation	• Normal air pressure • Barometric pressure

Select whether the threshold value is to be specified per parameter or via a communication object.

Threshold value setpoint using	Parameter • Communications object

When the **threshold value per parameter** is specified, then the value is set.

Threshold value in 10 Pa	3000 ... 11000; 10200

When the **threshold value per communication object** is specified, the starting value, object value limit and type of change to the threshold value are then set.

Start threshold value in 10 Pa valid until first call	3000 ... 11000; 10200
Object value limit (min.) in 10 Pa	3000 ... 11000
Object value limit (max.) in 10 Pa	3000 ... 11000
Type of threshold change	Absolute value • Increase/decrease
Step size *(upon increase/decrease change)*	10 Pa • 20 Pa • 50 Pa • 100 Pa • 200 Pa • 500 Pa

With both of the methods for specifying the threshold values the hysteresis is set.

Hysteresis setting	in % • absolute
Hysteresis in % (relative to threshold value) *(for setting in %)*	0 ... 50; 20
Hysteresis in 10 Pa *(for absolute setting)*	0 ... 11000; 100

Switching output

Define which value the output transmits if the threshold value is exceeded or undercut. Set the delay for the switching and in which cases the switch output transmits.

When the following conditions apply, the output is (LV = Threshold value)	• GW above = 1 | GW - Hyst. below = 0 • GW above = 0 | GW - Hyst. below = 1 • GW below = 1 | GW + Hyst. above = 0 • GW below = 0 | GW + Hyst. above = 1
Delays can be set via objects (in seconds)	No • Yes
Delay from 0 to 1	none • 1 s ... 2 h
Delay from 1 to 0	none • 1 s ... 2 h
Switching output sends	• on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
Cycle *(if sent periodically)*	5 s ... 2 h

Block

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

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

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

Switching output sends on change	do not send message • Status object/s send/s

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

6.18. Temperature PI control

Activate the control, if you want to use it.

Use controller	No • Yes

General control

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

Maintain the	
setpoint values and extension times received via communication object	• never • after power supply restoration • after power supply restoration and programming
.	

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

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

The **mode** may be switched with two 8 bit objects of different priority. Objects
„... HVAC mode (Prio 2)“ for switching in everyday operation and
„... HVAC mode (Prio 1)“ for central switching with higher priority.
The objects are coded as follows:

ID	Name	Encoding	Range	Use
20.102	DPT_HVACMode	field1 = HVACMode 0 = Auto 1 = Comfort 2 = Standby 3 = Economy 4 = Building Protection	[0 ... 4]	HVAC

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

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

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

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

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

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

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

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

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

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

General setpoint values

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

Setting the setpoint values	• with separate setpoint values with Switching object • with separate setpoint values without Switching object • with comfort setpoint as a basis with Switching object • with comfort setpoint as a basis without Switching object
Behaviour of the switching object at value *(with switching object)*	• 0 = Heating | 1 = Cooling • 1 = Heating | 0 = Cooling
Value of the switching object after reset *(with switching object)*	0 • 1

The **increment** for the setpoint changes is predefined. Whether the change only remains temporarily active (not saved) or is also retained after power supply restoration

(and programming), is specified in the first section of "General control". This also applies to a comfort extension.

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

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

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

Comfort setpoint

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

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

If setpoint values are entered separately:

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

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the deviation from this value is set.

Minimum base setpoint (in 0.1°C)	-300...800; 160
Maximum base setpoint (in 0.1°C)	-300...800; 280
Reduction by up to (in 0.1°C)	0...200; 50
Increase by up to (in 0.1°C)	0...200; 50

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

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

Standby setpoint

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

If setpoint values are entered separately:

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

Starting heating/cooling setpoint (in 0.1 °C) valid until first communication	-300…800; 210
Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the deviation from this value is set.

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

Eco setpoint

Eco mode is usually used for night mode.

If setpoint values are entered separately:

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

Starting heating/cooling setpoint (in 0.1 °C) valid until first communication	-300…800; 210
Min. object value heating/cooling (in 0.1 °C)	-300…800; 160
Max. object value heating/cooling (in 0.1 °C)	-300…800; 280

If the comfort setpoint value is used as a basis:

If the comfort setpoint value is used as a basis, the deviation from this value is set.

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

Setpoint values for frost/heat protection (building protection)

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

Setpoint frost protection (in 0.1°C)	-300…800; 70

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

General control variables

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

For heating and cooling	• separate control variables are used • common control variables are used for Level 1 • common control variables are used for Level 2 • common control variables are used for Level 1+2
Use control variable for 4/6 way valve *(only for common control variable in level 1)*	No • Yes
Control type *(for level 2 only)*	• 2-point-control • PI control
Control variable of the 2nd Level is on *(only for level 3 with 2 point control)*	• 1 bit object • 8 bit object

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

6.18.1. Heating control level 1/2

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

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

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

Setpoint difference between levels 1 and 2 levels (in 0.1°C) *(for level 2)*	0...100; 40
Control type *(for level 2, no common control variables)*	• 2-point-control • PI control

Control variable is a *(for level 2 with 2-point controlling, no common control variables)*	• 1 bit object • 8 bit object

PI control with control parameters:

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

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

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

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

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

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

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

PI control with predetermined application:

This setting provides fixed parameters for frequent applications.

Control type	• **PI control**
Setting of the controller by	• Controller parameter • **specified applications**
Application	• Warm water heating • Floor heating • Convection unit • Electric heating

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

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

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

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

2-point-control (only level 2):

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

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

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

Hysteresis (in 0.1°C)	0...100; 20

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

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

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

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

6.18.2. Cooling control level 1/2

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

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

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

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

PI control with control parameters:

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

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

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

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

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

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

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

PI control with predetermined application:

This setting provides fixed parameters for a cooling ceiling

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

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

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

2-point-control (only level 2):

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

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

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

Hysteresis (in 0.1°C)	0...100; 20

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

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

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

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

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

6.19. Summer Compensation

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

Activate the summer compensation.

Use summer compensation	No • **Yes**

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

Standard values according to DIN EN 60529

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

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

Set the send pattern for the summer compensation.

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

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

Use block	No • Yes
Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first call	0 • 1
Action when locking	• do not send • Send value

Value (in increments of 0.1°C) *(if a value is sent during blocking)*	0 ... 500; 200

6.20. Humidity PI control

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

Use humidity control	No • Yes

General control

Sensor Vari KNX 3L-TH-D GPS can be used to control one- or two-level dehumidification or combined humidification/dehumidification.

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

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

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

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

Send control variable	• on change • on change and periodically
Send cycle (*is only sent if "periodically" is selected)*	5 s • ... • 5 min • ... • 2 h

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

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

Controller setpoint

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

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

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

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

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

Start setpoint in % valid until first communication *(not upon saving the setpoint value after programming)*	0 ... 100; 50
Object value limit (min.) in %	0...100; 30
Object value limit (max.) in %	0...100; 70
Type of setpoint value change	Absolute value • Increase/decrease
Increment *(upon increase/decrease change)*	1% • 2% • 3% • 5% • 10%

In "Humidification and dehumidification" control mode, a dead zone is specified so that no direct changeover switching between humidification and dehumidification is possible.

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

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

Dehumidification and/or humidification

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

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

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

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

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

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

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

6.21. Variable comparator

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

Use comparator 1/2/3/4	No • Yes

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

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

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

6.22. Computer

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

Computers 1/2/3/.../8	No • Yes

6.22.1. Computers 1-8

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

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

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

Function (I = Input)	• Prerequisite: E1 = E2 • Prerequisite: E1 > E2 • Prerequisite: E1 >= E2 • Prerequisite: E1 < E2 • Prerequisite: E1 <= E2 • Prerequisite: E1 - E2 >= E3 • Prerequisite: E2 - E1 >= E3 • Prerequisite: E1 - E2 amount >= E3 • Calculation: E1 + E2 • Calculation: E1 - E2 • Calculation: E2 - E1 • Calculation: E1 - E2 Amount • Calculation: Output 1 = E1 × X + Y | Output 2 = E2 × X + Y | • Transformation: General
Tolerance for comparison *(in the case of prerequisite E1 = E2)*	0 ... 4,294,967,295
Input type	[Selection options depending on the function] • 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 2 byte counter without math. symbol • 2 byte counter with math. symbol • 2 byte floating point • 4 byte counter without math. symbol • 4 byte counter with math. symbol • 4 byte floating point
Starting value E1 / E2 / E3	[Input range depending on the type of input]

Prerequisites

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

Output type	• 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 2 byte counter without math. symbol • 2 byte counter with math. symbol • 2 byte floating point • 4 byte counter without math. symbol • 4 byte counter with math. symbol • 4 byte floating point
Output value *(if applicable output value A1 / A2)*	

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

Set the output send pattern.

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

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

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

If applicable set the send delays.

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

Calculations and transformation

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

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

Set the output send pattern.

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

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

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

Further settings for all formulas

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

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

If necessary, activate the computer block and set what a 1 or 0 at the block entry means and what happens in the event of a block.

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

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

6.23. Weekly timer

The weekly timer in the device allows for 24 periods to be defined.

The respective period objects can be configured as inputs or outputs, i.e. send to the bus (internal timer function, use internal and for other bus members) or be switched from there (timer function via an external device). If several devices are used in the system, the timer settings may be done on one device that sends the period objects as output. The other devices apply the timer-command (input), whereby a better synchronisation is achieved.

Activate the required periods for the weekly timer. The menus for setting the timer are loaded.

Use period 1/2/3/.../24	No • Yes

6.23.1. Weekly timer period 1-24

Set whether the period can be set (period object is the output and is sent to the bus) or if the period is received externally via the bus (period object is the input).

Period	• can be set (period object is output) • can be switched (time period object is output)

Period can be set (time period object is output)

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

Use objects for switching times	No • Yes
The threshold values and delays received by the communication object	
Switching data should	• not be retained • be retained after power restoration • be retained after power restoration and programming

Set the switching on and off times and the days of the week for this period. If, for example, 15:35 is set as the switch-off time, the output switches off on the change from 15:35 to 15:36.

Switch on time (hours)	0 ... 23
Switch on time (minutes)	0 ... 59
Switch-off time (hours)	0 ... 23
Switch-off time (minutes)	0 ... 59
Period switches to	
Monday ... Sunday	No • Yes

Set the send pattern for the week clock switch output and the value of the output.

Switching output sends	• never • on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s
8-bit output value if Period active	0 ... 255
8-bit output value if Period not active	0 ... 255

Period that can be switched externally (time period is the input)

The time switches are taken over from an external timer switch. Set at which value the period is to be active and define the object value before the first communication.

Period is active	• at object value = 1 • at object value = 0
Object value prior to initial communication	0 • 1

6.24. Calendar timer

In the device's calendar timer, four periods with two switching sequences can be defined.

Activate the required periods for the calendar timer. The menus for setting the timer are loaded.

Use period 1	No • Yes
Use ... period	No • Yes
Use period 4	No • Yes

6.24.1. Calendar clock Period 1-4

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

Use objects for switching times	No • Yes
Maintain the	
switching data and times received via communication objects	• never • after power restoration • after power restoration and programming
.	

Define the period

From:	
Month	January ... December
Day	1 ... 29 / 1 ... 30 / 1 ... 31 (according to month)
Up to and including:	
Month	January ... December
Day	1 ... 29 / 1 ... 30 / 1 ... 31 (according to month)

Sequence 1 / 2

Define the switching times.

Switch on time (hours)	0 ... 23
Switch on time (minutes)	0 ... 59
Switch-off time (hours)	0 ... 23
Switch-off time (minutes)	0 ... 59
Switching output sends	• never • on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s

Set the send pattern for the switch sequence and the value of the 8-bit output.

Switching output sends	• never • on change • on change to active • on change to inactive • on change and periodically • on change to active and periodically • on change to inactive and periodically
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s
8-bit output value if Period active	0 ... 255
8-bit output value if Period not active	0 ... 255

6.25. Logic

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

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

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

Activate the required logic outputs.

AND logic

AND logic 1	not active • active
AND logic ...	not active • active
AND logic 8	not active • active

OR logic

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

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

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

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

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

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

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

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

Object type	• Value (0...255) • Percent (0...100%) • Angle (0...360°) • Scene call-up (0...127)
Output value object A if logic = 1	0 ... 255 / 100% / 360° / 127; 1
Output value object B if logic = 1	0 ... 255 / 100% / 360° / 127; 1
Output value object A if logic = 0	0 ... 255 / 100% / 360° / 127; 0
Output value object B if logic = 0	0 ... 255 / 100% / 360° / 127; 0
Output value object A if block is active	0 ... 255 / 100% / 360° / 127; 0
Output value object B if block is active	0 ... 255 / 100% / 360° / 127; 0
Output value object A if monitoring period is exceeded	0 ... 255 / 100% / 360° / 127; 0
Output value object B if monitoring period is exceeded	0 ... 255 / 100% / 360° / 127; 0

Set the output send pattern.

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

Block

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

Use block	No • Yes
Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first call	0 • 1
Output pattern On block	• Do not send message • Transmit block value [see above, Output value if blocking active]
On release (with 2 seconds release delay)	[send value for current logic status]

Monitoring

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

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

6.25.2.AND logic connection inputs

Do not use
Logic input 1

Logic input 1 inverted
Logic input 2
Logic input 2 inverted
Logic input 3
Logic input 3 inverted
Logic input 4
Logic input 4 inverted
Logic input 5
Logic input 5 inverted
Logic input 6
Logic input 6 inverted
Logic input 7
Logic input 7 inverted
Logic input 8
Logic input 8 inverted
Logic input 9
Logic input 9 inverted
Logic input 10
Logic input 10 inverted
Logic input 11
Logic input 11 inverted
Logic input 12
Logic input 12 inverted
Logic input 13
Logic input 13 inverted
Logic input 14
Logic input 14 inverted
Logic input 15
Logic input 15 inverted
Logic input 16
Logic input 16 inverted
Temperature sensor malfunction ON
Temperature sensor malfunction OFF
Humidity sensor malfunction ON
Humidity sensor malfunction OFF
Pressure sensor malfunction ON
Pressure sensor malfunction OFF
GPS malfunction ON
GPS malfunction OFF
Switching output night
Switching output night inverted
Switching output 1 Temperature
Switching output 1 Temperature inverted
Switching output 2 Temperature
Switching output 2 Temperature inverted
Switching output 3 Temperature
Switching output 3 Temperature inverted
Switching output 4 Temperature

Switching output 4 Temperature inverted
Switching output 1 Brightness sensor 1
Switching output 1 Brightness sensor 1 inverted
Switching output 2 Brightness sensor 1
Switching output 2 Brightness sensor 1 inverted
Switching output 3 Brightness sensor 1
Switching output 3 Brightness sensor 1 inverted
Switching output 4 Brightness sensor 1
Switching output 4 Brightness sensor 1 inverted
Switching output 1 Brightness sensor 2
Switching output 1 Brightness sensor 2 inverted
Switching output 2 Brightness sensor 2
Switching output 2 Brightness sensor 2 inverted
Switching output 3 Brightness sensor 2
Switching output 3 Brightness sensor 2 inverted
Switching output 4 Brightness sensor 2
Switching output 4 Brightness sensor 2 inverted
Switching output 1 Brightness sensor 3
Switching output 1 Brightness sensor 3 inverted
Switching output 2 Brightness sensor 3
Switching output 2 Brightness sensor 3 inverted
Switching output 3 Brightness sensor 3
Switching output 3 Brightness sensor 3 inverted
Switching output 4 Brightness sensor 3
Switching output 4 Brightness sensor 3 inverted
Switching output 1 Total brightness
Switching output 1 Total brightness inverted
Switching output 2 Total brightness
Switching output 2 Total brightness inverted
Switching output 3 Total brightness
Switching output 3 Total brightness inverted
Switching output 4 Total brightness
Switching output 4 Total brightness inverted
Switching output 1 Twilight
Switching output 1 Twilight inverted
Switching output 2 Twilight
Switching output 2 Twilight inverted
Switching output 3 Twilight
Switching output 3 Twilight inverted
Switching output 4 Twilight
Switching output 4 Twilight inverted
Switching output 1 Humidity
Switching output 1 Humidity inverted
Switching output 2 Humidity
Switching output 2 Humidity inverted
Switching output 3 Humidity
Switching output 3 Humidity inverted
Switching output 4 Humidity

Switching output 4 Humidity inverted
Switching output coolant temperature
Switching output coolant temperature inverted
Ambient climate is comfortable
Ambient climate is uncomfortable
Switching output 1 Pressure
Switching output 1 Pressure inverted
Switching output 2 Pressure
Switching output 2 Pressure inverted
Switching output 3 Pressure
Switching output 3 Pressure inverted
Switching output 4 Pressure
Switching output 4 Pressure inverted
Comfort temperature controller active
Comfort temperature controller inactive
Standby temperature controller active
Standby temperature controller inactive
Eco temperature controller active
Eco temperature controller inactive
Frost protection temperature controller active
Frost protection temperature controller inactive
Heating 1 temperature controller active
Heating 1 temperature controller inactive
Heating 2 temperature controller active
Heating 2 temperature controller inactive
Cooling 1 temperature controller active
Cooling 1 temperature controller inactive
Cooling 2 temperature controller active
Cooling 2 temperature controller inactive
Humidity controller dehumidification 1 active
Humidity controller dehumidification 1 inactive
Humidity controller dehumidification 2 active
Humidity controller dehumidification 2 inactive
Humidity controller humidification active
Humidity controller humidification 1 inactive
Weekly timer period 1 active
Weekly timer period 1 inactive
Weekly timer period 2 active
Weekly timer period 2 inactive
Weekly timer period 3 active
Weekly timer period 3 inactive
Weekly timer period 4 active
Weekly timer period 4 inactive
Weekly timer period 5 active
Weekly timer period 5 inactive
Weekly timer period 6 active
Weekly timer period 6 inactive
Weekly timer period 7 active

Weekly timer period 7 inactive
Weekly timer period 8 active
Weekly timer period 8 inactive
Weekly timer period 9 active
Weekly timer period 9 inactive
Weekly timer period 10 active
Weekly timer period 10 inactive
Weekly timer period 11 active
Weekly timer period 11 inactive
Weekly timer period 12 active
Weekly timer period 12 inactive
Weekly timer period 13 active
Weekly timer period 13 inactive
Weekly timer period 14 active
Weekly timer period 14 inactive
Weekly timer period 15 active
Weekly timer period 15 inactive
Weekly timer period 16 active
Weekly timer period 16 inactive
Weekly timer period 17 active
Weekly timer period 17 inactive
Weekly timer period 18 active
Weekly timer period 18 inactive
Weekly timer period 19 active
Weekly timer period 19 inactive
Weekly timer period 20 active
Weekly timer period 20 inactive
Weekly timer period 21 active
Weekly timer period 21 inactive
Weekly timer period 22 active
Weekly timer period 22 inactive
Weekly timer period 23 active
Weekly timer period 23 inactive
Weekly timer period 24 active
Weekly timer period 24 inactive
Calendar timer period 1 sequence 1 active
Calendar timer period 1 sequence 1 inactive
Calendar timer period 1 sequence 2 active
Calendar timer period 1 sequence 2 inactive
Calendar timer period 2 sequence 1 active
Calendar timer period 2 sequence 1 inactive
Calendar timer period 2 sequence 2 active
Calendar timer period 2 sequence 2 inactive
Calendar timer period 3 sequence 1 active
Calendar timer period 3 sequence 1 inactive
Calendar timer period 3 sequence 2 active
Calendar timer period 3 sequence 2 inactive
Calendar timer period 4 sequence 1 active

Calendar timer period 4 sequence 1 inactive
Calendar timer period 4 sequence 2 active
Calendar timer period 4 sequence 2 inactive

6.25.3. Connection inputs of the OR logic

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

AND logic output 1
AND logic output 1 inverted
AND logic output 2
AND logic output 2 inverted
AND logic output 3
AND logic output 3 inverted
AND logic output 4
AND logic output 4 inverted
AND logic output 5
AND logic output 5 inverted
AND logic output 6
AND logic output 6 inverted
AND logic output 7
AND logic output 7 inverted
AND logic output 8
AND logic output 8 inverted

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