Vari KNX 3L

Brightness Sensor

Item number 70382

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** for the KNX building bus system records the brightness outside or inside the building.

The 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.

The compact housing of the **Vari KNX 3L** 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.
- **Switching outputs** for all measured and computed values. Threshold values can be adjusted per parameter or via communication objects
- **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

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 -30…+50°C, Storage -30…+70°C
Operating voltage	KNX bus voltage
Bus current	max. 20 mA

Data output	KNX +/- bus connector terminal
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 2000
Assignments	max. 2000
Communication objects:	274
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

The **Sensor Vari KNX 3L** can be installed outside or inside the building.

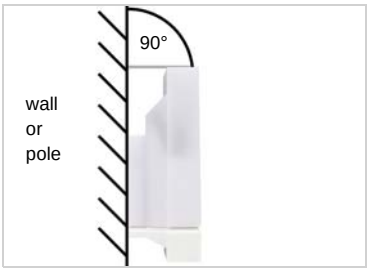


Fig. 1
The device must be attached to a vertical wall (or a pole).

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.

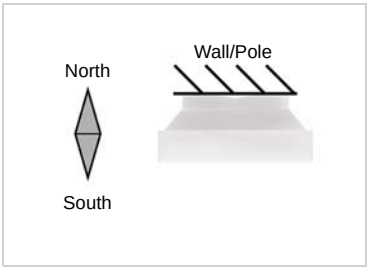


Fig. 3
For installation in the northern hemisphere, the device must be aligned to face south.

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

2.3. Device design

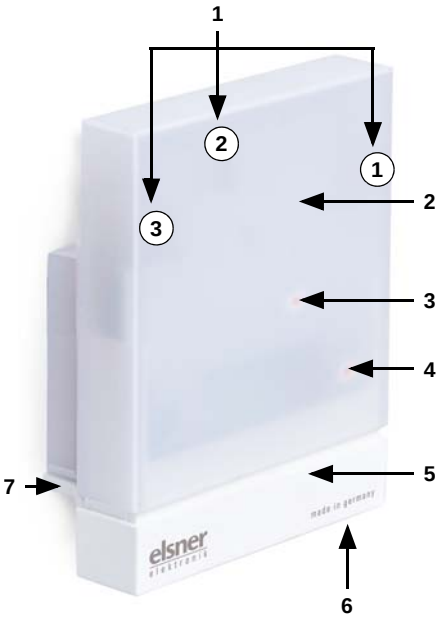


Fig. 4

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*
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 *Programming key on the bottom of the housing (recessed),* see *Addressing the device*, page 9
7 *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.

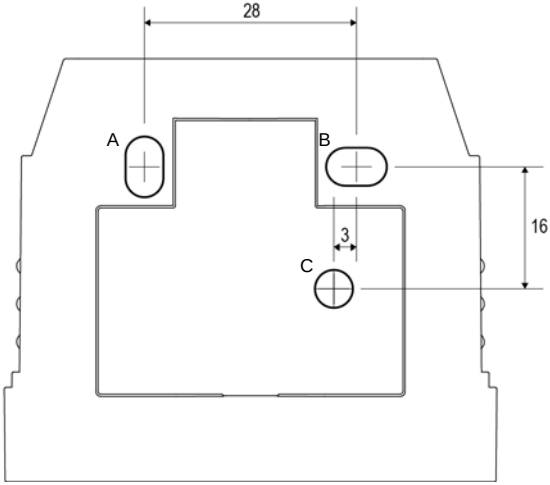


Fig. 9
Dimensions in mm. Variations are possible for technical reasons

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.

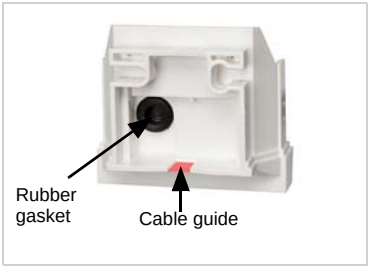


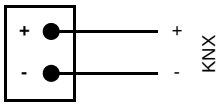
Fig. 11
Break the cable guide off.

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.

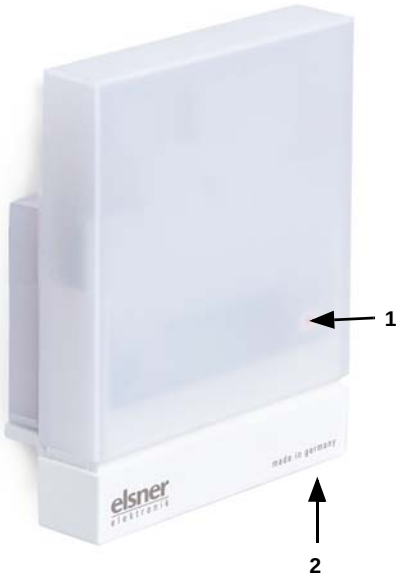


Fig. 14 a+b
1 Programming LED (under the semi-transparent cover)
2 Programming button for teaching the device

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:

Brightness in Lux

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
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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
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
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
1158	Computer 3: Input I2	Input	RWCT		4 bytes

No.	Text	Function	Flags	DPT type	Size
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
1391	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 bit
1392	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 bit
1393	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 bit
1394	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 bit
1395	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 bit
1396	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 bit
1397	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 bit
1398	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 bit
1399	Logic input 9	Input	-WC-	[1.2] DPT_Bool	1 bit
1400	Logic input 10	Input	-WC-	[1.2] DPT_Bool	1 bit
1401	Logic input 11	Input	-WC-	[1.2] DPT_Bool	1 bit
1402	Logic input 12	Input	-WC-	[1.2] DPT_Bool	1 bit
1403	Logic input 13	Input	-WC-	[1.2] DPT_Bool	1 bit
1404	Logic input 14	Input	-WC-	[1.2] DPT_Bool	1 bit
1405	Logic input 15	Input	-WC-	[1.2] DPT_Bool	1 bit
1406	Logic input 16	Input	-WC-	[1.2] DPT_Bool	1 bit
1411	AND logic 1: 1 bit switching output	Output	R-CT	[1.2] DPT_Bool	1 bit
1412	AND logic 1: 8 bit output A	Output	R-CT		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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
Computer 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. 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

6.3. 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

6.3.1. 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

6.4. 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.

6.4.1. 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	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

6.5. 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

6.6. 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

6.6.1. 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

6.7. 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

6.7.1. 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"]

6.7.2. 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
Switching output night
Switching output night 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

6.7.3. 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

Elsner Elektronik GmbH Control and Automation Technology
Sohlengrund 16
75395 Ostelsheim
Germany
Phone +49 (0) 7033/30945-0
Fax +49 (0) 7033/30945-20
info@elsner-elektronik.de
www.elsner-elektronik.de

Technical support: +49 (0) 70 33 / 30 945-250