KNX LW sI

Brightness and Wind Sensor

Item number 70164

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 **Brightness and Wind Sensor KNX LW sl** for the KNX building bus system measures brightness and wind speed.

All 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 **KNX LW sl** accommodates the sensors, evaluation circuits and bus-coupling electronics.

Functions:

- **Brightness**: The current light intensity is measured by a sensor
- **Wind measurement**: The wind strength is measured electronically and thus noiselessly and reliably, even during hail, snow and sub-zero temperatures. Even turbulent air and rising winds in the vicinity of the device are recorded
- **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. Deliverables

- Sensor
- Connection line, approx. 3 m, with plug
- Surface-mounted junction box (IP 55, not weatherproof)
- Worm drive hose clip for pole mounting (Ø 40-60 mm)
- 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. 62 × 71 × 152 (W × H × D, mm)

Weight	Weather station with mount, approx. 90 g, Total weight including accessories, approx. 280 g
Ambient temperature	Operation -30…+50°C, storage -30…+70°C
Auxiliary supply	12…40 V DC, 12…28 V AC. An appropriate power supply unit can be purchased from Elsner Elektronik.
Auxiliary current	at 12V DC: max. 185 mA at 24V DC: max. 90 mA at 24V AC: max. 82 mA
Bus current	max. 10 mA
Data output	KNX +/-
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 2000
Assignments	max. 2000
Communication objects	303
Wind sensor:	
Measurement range	0 m/s ... 35 m/s
Resolution	0.1 m/s
Accuracy	±15% of the measurement value when incoming flow is 45°…315° (Frontal incoming flow corresponds to 180°)
Brightness sensor:	
Measurement range	0 lux ... 150,000 lux
Resolution	1 lux up to 300 lux 2 lux up to 1000 lux 25 lux up to 150,000 lux
Accuracy	±15% of the measurement value at 30 lux ... 30,000 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

Select an installation position on the building where the sensors can measure wind and sunshine without hindrance. The weather station should not be shaded by structures or, for example, trees.

At least 60 cm of clearance must be left around the device. This facilitates correct wind speed measurement without eddies. At the same time, this prevents spray (raindrops hitting the device) or snow (snow penetration) from impairing the measurement. The wind sensor must not come into contact with water. This also prevents birds from biting it.

The mounting position must be selected so that the wind sensor cannot be touched by persons.

Please ensure that the extended awning does not cast shade on the unit, and that it is protected from the wind.

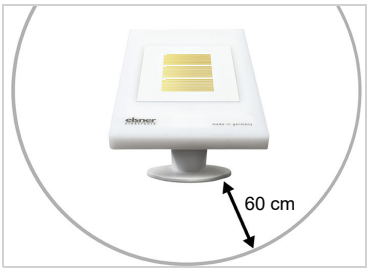

Fig. 1
There must be at least 60 cm clearance to other elements (structures, construction parts, etc.) below, to the sides and in front of the device.

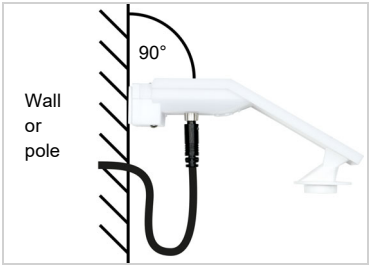

Fig. 2
The device must be attached to a vertical wall (or a pole).

Place the supply line in a loop before leading it into the wall or junction box. This will allow rain to drip off and not drain into the wall or box.

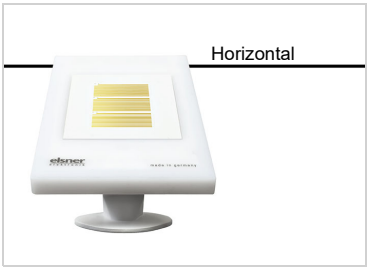

Fig. 3
The device must be mounted in the horizontal (transverse) direction.

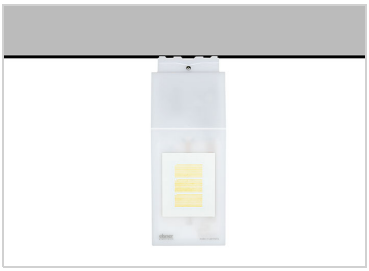

Fig. 4
The device must be aligned in the direction of the façade which is to be shaded.

2.3. Sensor positions

Fig. 5

1 Brightness sensor
2 Wind measurement element

ATTENTION!
Sensitive wind sensor.
- Remove the protective transport sticker after installation.
- Do not touch the sensor on the wind measuring element (on bottom, recessed).

2.3.1. Measurement direction of the brightness sensor

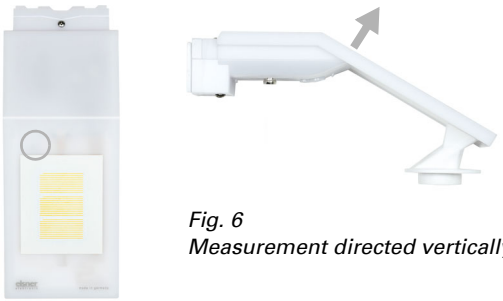

Fig. 6
Measurement directed vertically to the device surface

2.4. Sensor assembly

2.4.1. Attach mount

First, assemble the mount for wall/pole mounting. Release the screw joint of the mount with a cross-headed screwdriver.

Wall installation

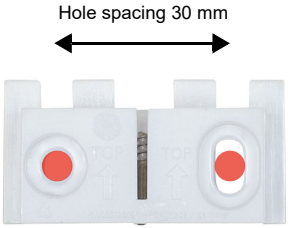

Fig. 7 Front view

Use two screws to attach the mount to the wall. Use the fastening material (dowels, screws) that is suitable for the base.

Make sure that the arrows are pointing upward.

Pole installation

The device is installed on the pole with the enclosed clamp.

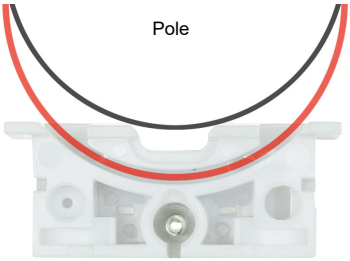

Fig. 8 Bottom view

Insert the clamp in the mount through the recess. Tighten the clamp on the pole.

Make sure that the arrows are pointing upward.

2.4.2. Attaching and connecting the device

Fig. 9

1. Slide the device onto the mounting from above.
2. Tighten the screw of the mount to secure the device.
3. Screw the M8 connectors of the connection cable onto the connection socket on the bottom side of the device.

Connect the loose end of the connection cable to the KNX bus and auxiliary voltage. Use the connection sockets and clips included for this purpose.

KNX bus:	*Auxiliary voltage:*
+ Red	*+ Yellow*
- Black	*- White*

2.5. Instructions for assembly and initial start-up

Remove all transport protection stickers present after installation.

The wind measurement value and thus also all wind switching outputs cannot be output until 35 seconds after the power is turned on.

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

3. Addressing the equipment

The equipment is delivered ex works with the bus address 15.15.255. You program a different address in the ETS by overwriting the address 15.15.255 or teach the device using the programming button.

The programming button can be reached through the opening on the underside of the housing; it is recessed by approx. 15 mm. Use a thin object to reach the key, e. g. a 1.5 mm² wire.

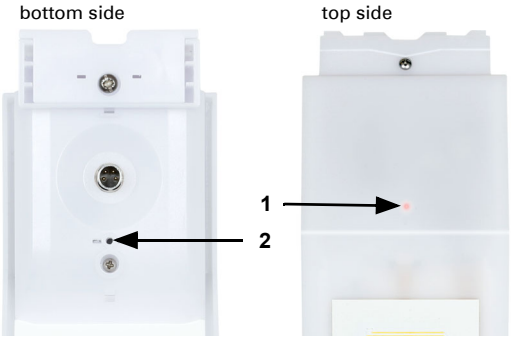

Fig. 10
1 Programming LED (under the semi-transparent lid)
2 Programming button for teaching the device

4. Maintenance

WARNING!
Risk of injury caused by components moved automatically!
The automatic control can start system components and place people in danger (e.g. moving windows/awnings if a rain/wind alarm has been triggered while cleaning).
- Always isolate the device from the mains for servicing and cleaning.

The device must regularly be checked for dirt twice a year and cleaned if necessary. In case of severe dirt, the sensor may not work properly anymore.

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

5. Transfer protocol

Units:

Brightness in Lux
Wind in metres per second

5.1. List of all communications objects

Abbreviation flags:

C Communication
R Read
W Write
T Transmit
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 sensor measurement	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
96	Brightness sensor 2 measurement	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
97	Brightness sensor 3 measurement	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
98	Total brightness measurement	Output	R-CT	[9.4] DPT_Value_Lux	2 bytes
101	Brightness sensor threshold value 1: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
102	Brightness sensor threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
103	Brightness sensor threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 bytes
104	Brightness sensor threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 bytes
105	Brightness sensor threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
106	Brightness sensor threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
108	Brightness sensor threshold value 2: Absolute value	Input/ Output	RWCT	[9.4] DPT_Value_Lux	2 bytes
109	Brightness sensor threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
110	Brightness sensor threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 bytes
111	Brightness sensor threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 bytes
112	Brightness sensor threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
113	Brightness sensor threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit

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

No.	Text	Function	Flags	DPT type	Size
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_TimePeriod-Sec	2 bytes
146	Brightness sensor 2 threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
153	Brightness sensor 2 threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
160	Brightness sensor 3 threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
167	Brightness sensor 3 threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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

No.	Text	Function	Flags	DPT type	Size
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_TimePeriod-Sec	2 bytes
174	Brightness sensor 3 threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
181	Brightness sensor 3 threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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
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_TimePeriod-Sec	2 bytes
188	Total brightness threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
195	Total brightness threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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

No.	Text	Function	Flags	DPT type	Size
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_TimePeriod-Sec	2 bytes
202	Total brightness threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
209	Total brightness threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
216	Twilight brightness threshold 1: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeriod-Sec	2 bytes
223	Twilight brightness threshold 2: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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

No.	Text	Function	Flags	DPT type	Size
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_TimePeriod-Sec	2 bytes
230	Twilight brightness threshold 3: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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
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_TimePeriod-Sec	2 bytes
237	Twilight brightness threshold 4: delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	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_TimePeri-odSec	2 bytes
253	Night: Switching delay on day	Input	-WC-	[7,005] DPT_TimePeri-odSec	2 bytes
271	Wind sensor: Malfunction	Output	R-CT	[1.1] DPT_Switch	1 bit
272	Wind sensor: Measurement [m/s]	Output	R-CT	[9.5] DPT_Value_Wsp	2 bytes
273	Wind sensor: Measurement [Beaufort]	Output	R-CT	[20.014] DPT_Beau-fort_Wind_Force_S-cale	1 byte
274	Wind sensor: Max. query measure-ment	Input	-WC-	[1.017] DPT_Trigger	1 bit
275	Wind sensor: Maximum measurement [m/s]	Output	R-CT	[9.5] DPT_Value_Wsp	2 bytes
276	Wind sensor: Maximum measurement [Beaufort]	Output	R-CT	[20.014] DPT_Beau-fort_Wind_Force_S-cale	1 byte
277	Wind sensor: Max. reset measurement	Input	-WC-	[1.017] DPT_Trigger	1 bit
281	Wind threshold value 1: Absolute value	Input/ Output	RWCT	[9.5] DPT_Value_Wsp	2 bytes
282	Wind threshold value 1: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
283	Wind threshold value 1: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 bytes
284	Wind threshold value 1: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriod-Sec	2 bytes

No.	Text	Function	Flags	DPT type	Size
285	Wind threshold value 1: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
286	Wind threshold value 1: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
287	Wind threshold value 2: Absolute value	Input/ Output	RWCT	[9.5] DPT_Value_Wsp	2 bytes
288	Wind threshold value 2: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
289	Wind threshold value 2: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
290	Wind threshold value 2: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
291	Wind threshold value 2: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
292	Wind threshold value 2: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
293	Wind threshold value 3: Absolute value	Input/ Output	RWCT	[9.5] DPT_Value_Wsp	2 bytes
294	Wind threshold value 3: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
295	Wind threshold value 3: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
296	Wind threshold value 3: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
297	Wind threshold value 3: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
298	Wind threshold value 3: Switching output block	Input	-WC-	[1.1] DPT_Switch	1 bit
299	Wind threshold value 4: Absolute value	Input/ Output	RWCT	[9.5] DPT_Value_Wsp	2 bytes
300	Wind threshold value 4: (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 bit
301	Wind threshold value 4: Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
302	Wind threshold value 4: Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 bytes
303	Wind threshold value 4: Switching output	Output	R-CT	[1.1] DPT_Switch	1 bit
304	Wind threshold value 4: Switching output block	Input	-WC-	[1.1] DPT_Switch	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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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
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

No.	Text	Function	Flags	DPT type	Size
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

6.0.1. Behaviour on power failure/power restoration

Behaviour on bus or auxiliary power failure

The device sends nothing.

Behaviour on bus or auxiliary voltage restoration and following programming or reset

The device sends all measurement values as well as switching and status outputs according to their send pattern set in the parameters with the delays established in the "General settings" parameter block. The "Software version" communications object is sent once after 5 seconds.

6.0.2. 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.

6.0.3. 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. 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.

6.2. Brightness measurement value

Set the send pattern for the measured brightness.

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

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

Threshold value 1	No • Yes
Threshold value...	No • Yes
Threshold value 4	No • Yes

6.3.1. Brightness threshold value 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	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 the further setting of the threshold values are then displayed.

Threshold value 1	No • Yes

Threshold value...	No • Yes
Threshold value 4	No • Yes

6.4.1. Twilight threshold value 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)*	1 • 2 • 5 • 10 • 20 • 50

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. Wind measurement

If necessary, activate the wind malfunction object. Specify whether the measurement should also be output in Beaufort.

Use malfunction object	No • Yes
Measured value additionally output in the Beaufort scale	No • Yes

Define the send pattern and, if necessary, activate the maximum value (this value is not retained after a reset).

Send pattern	• never • periodically • on change • on change and periodically
on change of *(if sent on change)*	2% • 5% • 10% • 25% • 50%
Send cycle *(if sent periodically)*	5 s ... 2 h; 10 s
Use maximum value	No • Yes

Beaufort scale

Beaufort	Meaning
0	Calm
1	Light air
2	Light breeze
3	Gentle breeze
4	Moderate breeze
5	Fresh breeze
6	Strong breeze
7	High wind
8	Gale
9	Severe gale
10	Storm
11	Violent storm
12	Hurricane

6.7. 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	No • Yes
Threshold value...	No • Yes
Threshold value 4	No • Yes

6.7.1. Wind threshold value 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 0.1 m/s	1 ... 350; 40

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.
From the 1st communication onwards, the threshold value corresponds to the value of the communication object and is not multiplied by the factor 0.1.

Start threshold value in 0.1 m/s valid until first call	1 ... 350; 40
Object value limit (min.) in 0.1 m/s increments	1 ... 350
Object value limit (max.) in 0.1 m/s increments	1 ... 350
Type of threshold change	Absolute value • Increase/decrease
Step size *(upon increase/decrease change)*	0.1 m/s • 0.2 m/s • 0.5 m/s • 1.0 m/s • 2.0 m/s • 5.0 m/s

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 0.1 m/s *(for absolute setting)*	0 ... 350; 20

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. 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 the further setting of the computer are then displayed.

Computer 1	No • Yes
Computer...	No • Yes
Computer 8	No • Yes

6.8.1. 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

6.9. 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

6.9.1. 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"]

6.9.2. AND logic connection inputs

Do not use
Logic input 1
Logic input 1 inverted
Logic input 2
Logic input 2 inverted
Logic input 3
Logic input 3 inverted
Logic input 4
Logic input 4 inverted
Logic input 5
Logic input 5 inverted
Logic input 6
Logic input 6 inverted
Logic input 7
Logic input 7 inverted

Logic input 8
Logic input 8 inverted
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
Wind Sensor malfunction ON
Wind sensor malfunction OFF
Switching output night
Switching output night inverted
Brightness sensor switching output 1
Brightness sensor switching output 1 inverted
Brightness sensor switching output 2
Brightness sensor switching output 2 inverted
Brightness sensor switching output 3
Brightness sensor switching output 3 inverted
Brightness sensor switching output 4
Brightness sensor switching output 4 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
Wind switching output 1
Wind switching output 1 inverted
Wind switching output 2
Wind switching output 2 inverted
Wind switching output 3
Wind switching output 3 inverted
Wind switching output 4
Wind switching output 4 inverted

6.9.3. 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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