

# KNX secure Sensor Interface REG/AP

Software manual



## General notes

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## 1 Overview



This manual describes the functions of the KNX secure Sensor Interfaces. Please refer to the relevant information at the beginning of the chapter to find out which functions are available for your device variant.

The designations and the number of objects, as shown in the figures, may vary depending on the device and software version.

### 1.1 General information about the KNX secure Sensor Interface

The KNX secure Sensor Interface REG/AP evaluates the data of the connected WAREMA Weather station pro. This data can be made available to other participants via the KNX bus system and linked to the integrated control and safety functions.

### 1.2 Device product variants

WAREMA supplies the KNX secure Sensor Interface in surface-mounted housing (AP) and as DIN rail-mounted housing (REG).

#### Both devices have the following features:

- ▶ Support KNX Data Secure
- ▶ Can be updated via the KNX bus
- ▶ Optionally available WAREMA Plug-in Protect overvoltage protection (Art. no. 2081974)
- ▶ Output of sensor data
- ▶ Sun shading and safety channels for implementing sun shading-specific controls and Timer Schedulers
- ▶ General and combined sensor evaluations
- ▶ Logic and timer

| Actuator                        | Housing                 | Housing width | Art. no. |
|---------------------------------|-------------------------|---------------|----------|
| KNX secure Sensor Interface REG | DIN rail-mounted device | 6 MW          | 2065317  |
| KNX secure Sensor Interface AP  | Surface-mounted housing | 6 MW (106 mm) | 2065318  |

You can find the dimensions in the installation instructions for the devices.

### 1.3 Additional documentation

Further information on the installation and commissioning of the KNX secure Sensor Interface and the WAREMA Weather station pro can be found in the relevant installation instructions.



Hereinafter, group objects will be abbreviated as **GO**.

## 2 Safety instructions

We have developed and tested the KNX secure Sensor Interface in compliance with the essential safety requirements.

**Residual risks nevertheless remain.**

- For this reason, please read this manual before commissioning and operating the control.
- **It is very important that you adhere to the safety instructions listed here and the warnings contained in this manual. Failure to do so will void any warranty claims against the manufacturer.**
- Keep this manual for future use.

### 2.1 Explanation of symbols and pictograms

The safety instructions contained in these instructions are marked with warning symbols. They are classified hierarchically according to their respective risk potential as follows:



#### **DANGER**

Warns of an **imminent dangerous situation**.

Possible consequences **may include serious injuries and even death (personal injury), property damage or environmental damage.**



#### **WARNING**

Warns of a **potential dangerous situation**.

Possible consequences **may include mild or serious injuries and even death (personal injury), property damage or environmental damage.**



#### **CAUTION**

Reminder to **exercise caution**.

Failure to comply may result in **property damage**.

The following pictograms or symbols may have been affixed to the control itself or to the connected devices alerting you to specific potential dangers:



#### **WARNING**

Warns of **dangerous electrical voltage**.



The **i** symbol indicates important **information** and helpful **tips**.

**Example** The term **Example** denotes an **example**.

- The **square** denotes an **instruction** or a **prompt for action**. Perform this action.
- ▶ The **triangle** denotes an **event** or the **result** of a previous action.
- ▶ The **black triangle** is a **bullet point** for lists or selections.

## 2.2 Intended use

The KNX secure Sensor Interface is an electronic device for forwarding and evaluating measuring values of a WAREMA Weather station pro.



### WARNING

**Please obtain the approval of the manufacturer if you have questions regarding the connection of devices not listed in these instructions!**

All control devices are intended to be installed **indoors** unless specified otherwise.



### WARNING

**The approval of the manufacturer must be obtained for uses outside of those listed here! The consequences of unintended use may include personal injury to the operator or third parties as well as property damage to the control itself, to connected devices or to movable mechanical parts of the entire unit.**

- Therefore, use our product only as intended!

## 2.3 Target group

These instructions are intended for persons who are commissioning a sun shading system using KNX technology, as well as for qualified technicians. Knowledge of KNX technology is essential.



### WARNING

**Commissioning and operation by persons who are not sufficiently qualified and informed can cause severe damage to the unit or may even cause personal injury.**

- Commissioning may therefore only be performed by properly trained and qualified technicians. These technicians must be able to recognise danger that may be caused by the mechanical, electrical or electronic equipment.
- Persons commissioning the unit must be familiar with and understand the content of these instructions.

## 2.4 General safety instructions

The control system controls the sun shading system automatically. You must therefore observe the following safety instructions:



### WARNING

**An automatically controlled mechanism may begin to move unexpectedly.**

- Therefore, never place any objects in the area of an automatically controlled mechanism. Make sure that no persons are located in the movement range of automatically controlled sun shading products during commissioning.
- If measuring or test work needs to be carried out on the active unit, make sure that applicable accident prevention regulations are observed under all circumstances.



### CAUTION

The entire unit becomes non-functional in the event of a power failure. Therefore, move your sun shading system to a safe position ahead of time if a storm is imminent. Changing individual parameters may impair the safety of the unit or reduce its effectiveness. It is better to consult a qualified specialist if you are not sure about the effects of a change.

## 3 General information

### 3.1 Technical data

Technical data, wiring diagrams and specifications for electrical lines and connectable devices can be found in the installation instructions for the KNX secure Sensor Interface (Art. no. 2081121) and the weather station that is to be connected (Art. no. 2052445).

### 3.2 Master reset

The master reset resets the KNX secure Sensor Interface to its delivery condition. All group addresses in the device are deleted, all parameters are set to the default values and the physical address is set to 15.15.255.

The key to access the device is reset to the factory default setup key (FDSK, pre-set in the factory).

**A master reset is performed as follows:**

1. Switch off the operating voltage
2. Press and hold the programming button
3. Switch on the operating voltage
4. Wait for the programming LED to start flashing and release the button after approx. 10 seconds
5. Wait for the programming LED to go out
6. Switch off the operating voltage
7. The master reset is finished

After a master reset, the device must be recommissioned.

## 4 Commissioning

The KNX secure Sensor Interface is commissioned using the Engineering Tool Software (from ETS 5).

Before initial operation of the KNX secure Sensor Interface, move all controlled sun shading equipment to a safe position, e.g. move external venetian blinds to the upper limit position.

### 4.1 Electrical connections

Technical data, wiring diagrams and specifications for electrical lines and connectable devices can be found in the installation instructions for the respective devices.



#### **CAUTION**

Only connect sun shading products with correctly adjusted limit switches to prevent damage when commissioning.

### 4.2 Commissioning (using ETS in standard mode)

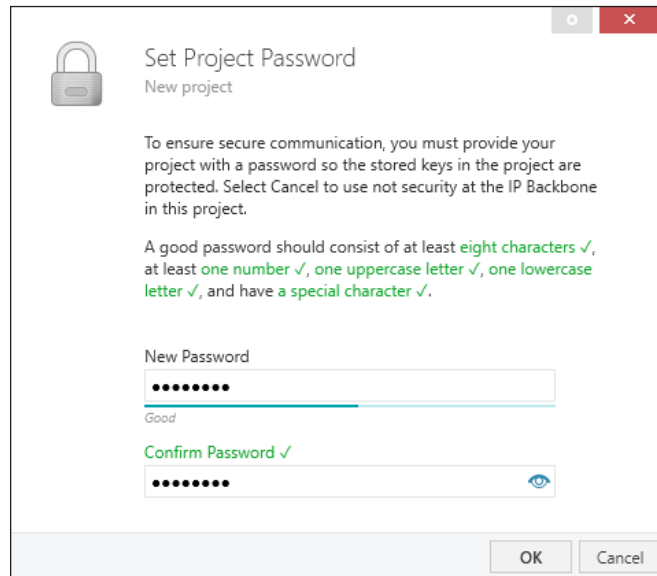
#### **Commissioning is performed as follows:**

1. Switch on the operating voltage
2. Switch on the bus voltage
3. Press programming button on the device (programming LED lights up)
4. Load the physical address and application into the device from the ETS
5. Wait for the programming LED to go out
6. Check function of the device

## 4.3 Secure commissioning (using ETS in secure mode)

**Commissioning is performed as described in section 4.2. The following additional steps are required when planning in the ETS:**

1. Add KNX secure Sensor Interface
2. Set project password (this window is only displayed when the first secure device is added to the project).




**Set Project Password**  
New project

To ensure secure communication, you must provide your project with a password so the stored keys in the project are protected. Select Cancel to use not security at the IP Backbone in this project.

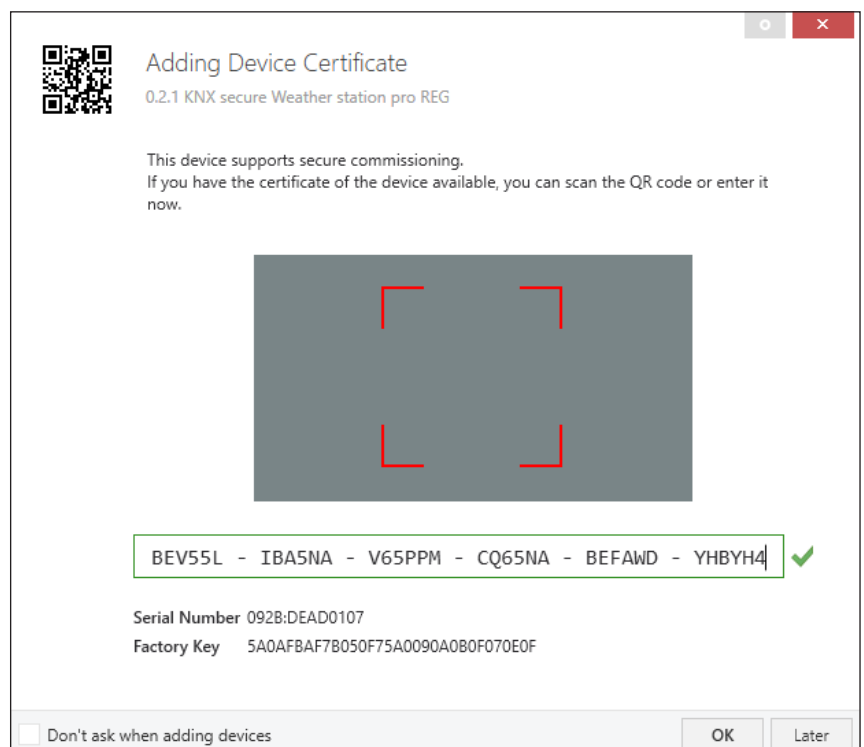
A good password should consist of at least **eight characters** ✓, at least **one number** ✓, **one uppercase letter** ✓, **one lowercase letter** ✓, and have a **special character** ✓.

New Password  
  
 Good

Confirm Password ✓  
 


OK Cancel


3. Add device certificate (scan QR code on the KNX secure Sensor Interface or enter code via the keyboard. If entered correctly, the serial number and factory key (FDSK) of the actuator are displayed in the same window).



**Adding Device Certificate**  
0.2.1 KNX secure Weather station pro REG

This device supports secure commissioning.  
If you have the certificate of the device available, you can scan the QR code or enter it now.





BEV55L - IBA5NA - V65PPM - CQ65NA - BEFAWD - YHBYH4 ✓

Serial Number 092B:DEAD0107  
Factory Key 5A0AFBAF7B050F75A0090A0B0F070E0F

Don't ask when adding devices

OK Later

## 5 Planning

The KNX secure Sensor Interface is commissioned using the Engineering Tool Software (**from ETS 5**).

The required product database (.knxprod) can be found in the online catalogue of the ETS or on the internet at <http://www.warema.de/knx>.



Further information on safe commissioning is provided in section 4.3 *Secure commissioning (using ETS in secure mode)* on page 11.

### 5.1 Parameterising

The KNX secure Sensor Interface is parameterised via the parameter dialogue of the ETS. For the sake of clarity, the parameters there are presented in parameter groups.

Parameterisation should be carried out in the following order:

1. **Device parameters**  
Essential parameters to parameterise the device, time, geographical position etc.
2. **SD: Sensor data (transmit)**  
Activate required measuring values in the project and determine their transmission behaviour
3. **SAC: Safety channels** (if necessary)  
Activate safety channels and assigned alarm functions (wind, precipitation, ice).
4. **SUC: Sun shading channels** (if necessary)  
Activate sun shading channels and parameterise required functions
5. **TS: Timer Scheduler** (if necessary)  
Activate Timer Scheduler and parameterise required triggers and actions
6. **SE: Sensor evaluation** (if necessary)  
Activate sensor evaluations and define the objects that are to be transmitted
6. **SEC: Sensor evaluation combined** (if necessary)  
Activate combined sensor evaluation and parameterise
6. **L/T: Logic/time** (if necessary)  
Activate functions 1 - 16 and parameterise

Detailed explanations of all parameters are provided in *Chapter 6 Parameter dialogue* on page 15.

### 5.2 Group addresses/linking

Many functions are set during parameterisation. Only a specific set of group objects are required for each function in the ETS. Group objects that are not required are automatically hidden by the ETS. This means that any links already planned in the ETS project may be deleted when the functionality is changed.

## 5.3 Physical address

The physical address is used for the exact identification of a device.

### 5.3.1 Programming addresses via them programming button

You can trigger the programming process directly on the KNX secure Sensor Interface. For this purpose, the KNX secure Sensor Interface has a prog button for programming and an LED display.

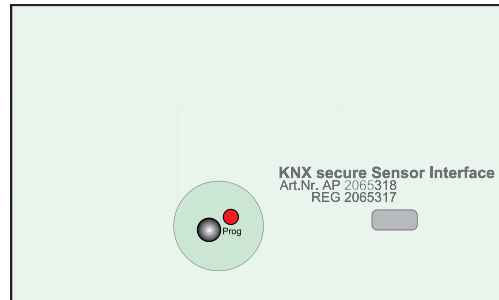


Fig. 1 Programming button on the front of the device

Procedure:

- Start the programming process in the ETS with [program physical address].
- Press the programming button on the KNX secure Sensor Interface to put the device into programming mode.
- ▶ The red LED lights up when the programming mode is active. Programming is started using the ETS. Programming mode is terminated automatically and the red LED goes out.



If the programming mode is ended prematurely, press the programming button again. The red LED goes out.



In the delivery condition, the device is delivered with the physical address 15.15.255.

5.3.2 Programming address via the ETS App

To enable commissioning of the devices via the ETS using the serial number, a two-part label is affixed to the device. The serial number of the device appears on both parts of the label as a barcode and plain text. One part of the label can be removed by the installer and applied to the floor plan of the building.

Thanks to the free ETS app, **SIEMENS Address by ID**, provided by Siemens, it is then possible to commission the devices without having to press the programming button.

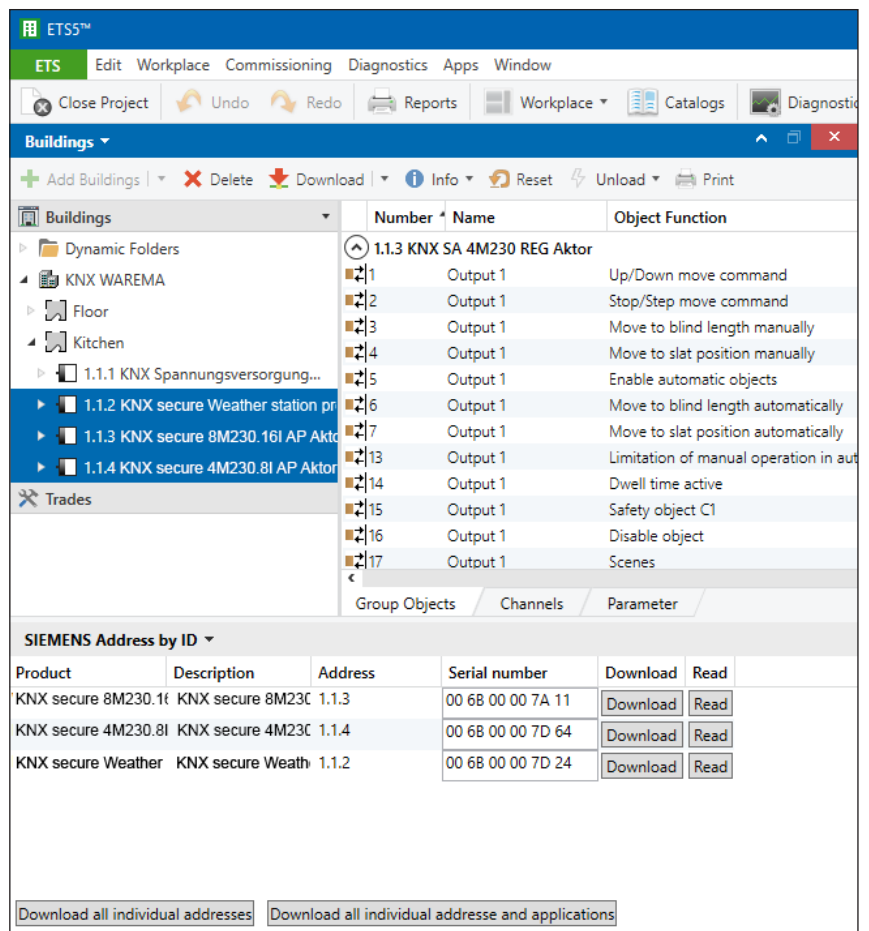


Fig. 2 SIEMENS ETS app for commissioning via the serial number



The "Addressing via serial number" function is also possible without an additional app from ETS version 6.1.1 onwards.

5.4 Application programme

Physical addresses, group objects, parameters and group addresses must be programmed during the initial operation of the KNX secure Sensor Interface. If a project is subsequently changed, only the group addresses and parameters need to be programmed.



Group objects are loaded, for example, by selecting [Programming...] > [Application programme] in the ETS.

## 6 Parameter dialogue

For the KNX secure Sensor Interface, the parameter dialogue is divided into eight groups in the ETS:

| Parameter group                     | Functions  | Description            |
|-------------------------------------|--|------------------------|
| Overview                            | Here you will find references to further links and help  | Section 6.1 on page 17 |
| Device parameters                   | Basic settings, alignment of the weather station and time signal   | Section 6.2 on page 18 |
| SD: Sensor data (transmit), general | The sensor data to be used is specified here.<br>The parameter dialogues and associated GOs are only displayed for activated sensor data.  | Section 6.3 on page 21 |
| SD: Name of measuring value         | The parameters for each recorded value are set here.<br><i>SD: Name of measuring value</i> menus appear as soon as the corresponding sensor data has been activated.   |                        |
| SAC: Safety channel, general        | The safety channels are activated here.<br>The parameter dialogues and associated GOs are only displayed for activated safety channels.  | Section 6.4 on page 32 |
| SACn: Safety channel                | The alarms and the transmission behaviour for the respective safety channel is parameterised here.<br><i>SACn: Safety channel</i> menus appear as soon as the corresponding safety channels have been activated. If a name has been assigned to a safety channel, this name will appear instead of the designation "Safety channel".                 |                        |
| SUC: Sun shading channels, general  | The sun shading channels are activated here.<br>The parameter dialogues and associated GOs are only displayed for activated sun shading channels.  | Section 6.5 on page 38 |
| SUCn: Sun shading channel           | The function of the respective sun shading channel is parameterised here.<br><i>SUCn: Sun shading channel</i> menus and the associated sub-menus appear as soon as the respective safety channels have been activated. If a name has been assigned to a sun shading channel, this name will appear instead of the designation "Sun shading channel". |                        |
| TS: Timer Scheduler, general        | The Timer Schedulers are activated here.<br>The parameter dialogues and associated GOs are only displayed for activated Timer Schedulers.  | Section 6.6 on page 58 |
| TSn: Timer Scheduler                | The triggers and actions for the respective Timer Scheduler are parameterised here.<br><i>TSn: Timer Scheduler</i> menus appear as soon as the respective Timer Schedulers have been activated. If a name has been assigned to the Timer Scheduler, this name will appear instead of the designation "Timer Scheduler".                              |                        |

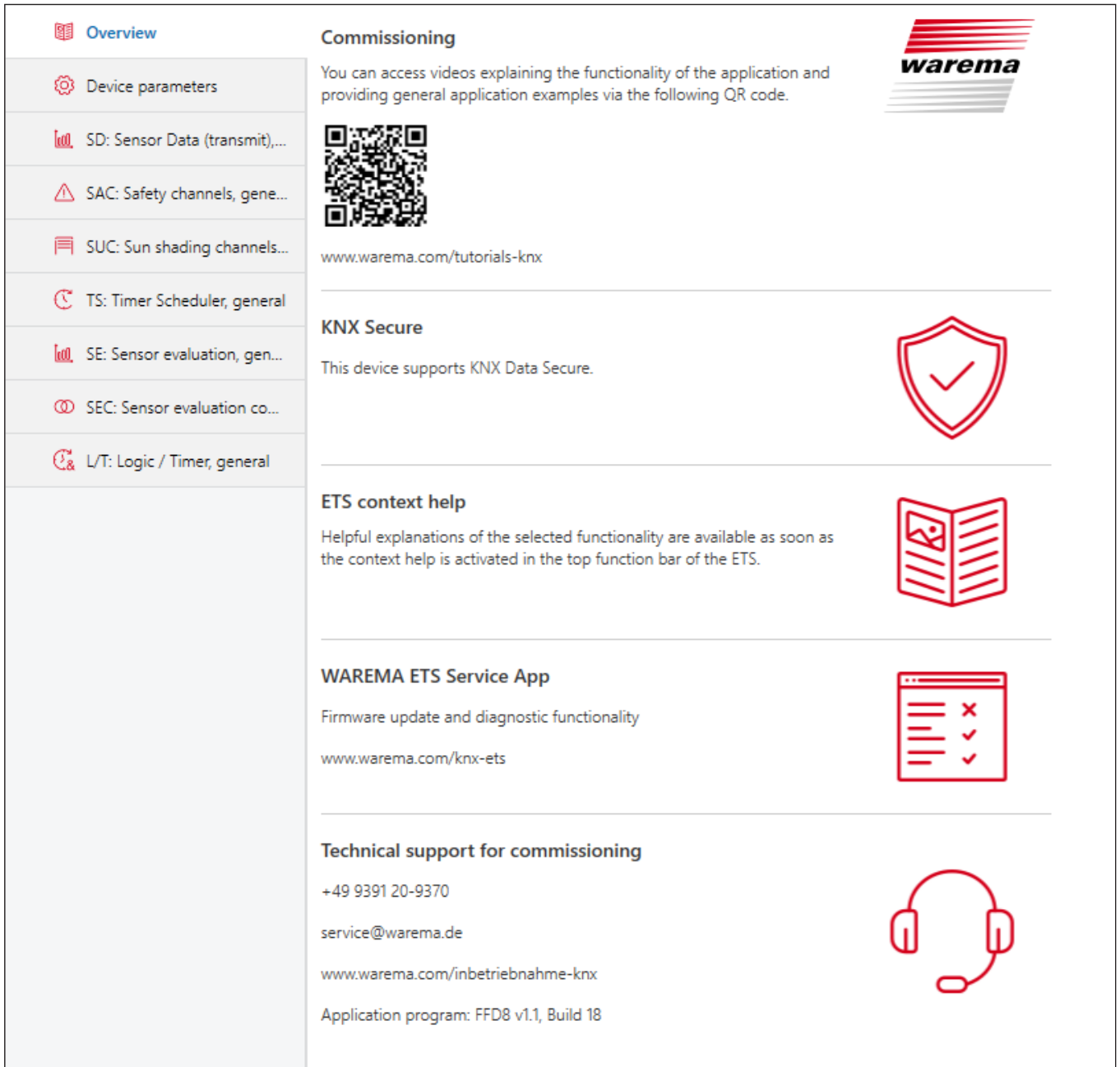
|                                 |   |                         |
|---------------------------------|---|-------------------------|
| SE: Sensor evaluation, general  | Which sensor data is to be evaluated is specified here.<br>The parameter dialogues and associated GOs are only displayed for activated sensor evaluations.  | Section 6.7 on page 61  |
| SE: Name of measuring value     | Here, the parameters for the respective evaluated value are set and it is determined which information is then to be sent to the bus.<br><br><i>SE: Names of measuring value</i> menus appear as soon as the respective sensor evaluations have been activated.   |                         |
| SEC: Sensor evaluation combined | The combined sensor evaluations are activated here.<br>The parameter dialogues and associated GOs are only displayed for activated sensor evaluations.  | Section 6.8 on page 98  |
| SECn: Combined evaluation       | Here, the parameters for the respective combined evaluation are set and it is determined which sensor data should be correlated with each other.<br><br><i>SECn: Combined evaluation</i> menus appear as soon as the respective combined evaluations have been activated. If a name has been assigned to the combined evaluation, this name will appear instead of the designation "Combined evaluation". |                         |
| L/T: Logic/Timer, general       | The 16 available logical links or timer functions are switched on or off here.<br>The parameter dialogues and associated GOs are only displayed for activated functions.  | Section 6.9 on page 105 |
| Ln/Tn: Logic/Timer              | The functionality of the respective function is parametrised here.<br><br><i>Ln/Tn: Logic/Timer</i> menus appear as soon as the respective functions have been activated. If a name has been assigned to the function, this name will appear instead of the designation "Logic/Timer".  |                         |



The default values are shown in **bold** in the following parameter tables.

## 6.1 Overview

The home page of the parameter dialogue in the ETS provides references to further links and help.




**Overview**

- Device parameters
- SD: Sensor Data (transmit),...
- SAC: Safety channels, gene...
- SUC: Sun shading channels...
- TS: Timer Scheduler, general
- SE: Sensor evaluation, gen...
- SEC: Sensor evaluation co...
- L/T: Logic / Timer, general

**Commissioning**


You can access videos explaining the functionality of the application and providing general application examples via the following QR code.



[www.warema.com/tutorials-knx](http://www.warema.com/tutorials-knx)


**KNX Secure**

This device supports KNX Data Secure.



**ETS context help**


Helpful explanations of the selected functionality are available as soon as the context help is activated in the top function bar of the ETS.



**WAREMA ETS Service App**

Firmware update and diagnostic functionality

[www.warema.com/knx-ets](http://www.warema.com/knx-ets)



**Technical support for commissioning**

+49 9391 20-9370

[service@warema.de](mailto:service@warema.de)

[www.warema.com/inbetriebnahme-knx](http://www.warema.com/inbetriebnahme-knx)

Application program: FFD8 v1.1, Build 18




Fig. 3 Parameter dialogue: Overview



The **ETS Context Assistance** is available for all parameter pages at the bottom of the page. It is activated via the question mark in the toolbar and can be enlarged or reduced by moving the grey dividing line. Context Assistance cannot be activated in the "Overview" window.



## 6.2 Device parameters

This window contains the device-specific settings.

|  |  |
|--|--|
| <div style="padding: 5px;">  Overview         </div>                       | <div style="padding: 5px;"> <b>Basic settings</b> </div>   |
| <div style="padding: 5px;"> <b>Device parameters</b> </div>                | <div style="padding: 5px;">           Transmission and switch delay <span style="float: right;">Start time <input type="text"/></span> </div>  |
| <div style="padding: 5px;">  SD: Sensor Data (transmit),...         </div> | <div style="padding: 5px;">           Maximum telegram rate <span style="float: right;">No restriction <input type="text"/></span> </div>  |
| <div style="padding: 5px;">  SAC: Safety channels, gene...         </div>  | <div style="padding: 5px;"> <b>Temperature offset</b> </div>   |
| <div style="padding: 5px;">  SUC: Sun shading channels...         </div>   | <div style="padding: 5px;">           Offset <span style="float: right;">0 °C <input type="text"/></span> </div>   |
| <div style="padding: 5px;">  TS: Timer Scheduler, general         </div>   | <div style="padding: 5px;"> <b>Sensor alignment</b> </div>   |
| <div style="padding: 5px;">  SE: Sensor evaluation, gen...         </div>  | <div style="padding: 5px; border: 1px solid #ccc;"> <p><b>i</b> If Photo 1 of the weather station points North, enter 0° here. East corresponds to 90°, South 180° and West 270°</p> </div>  |
| <div style="padding: 5px;">  SEC: Sensor evaluation co...         </div>   | <div style="padding: 5px;">           Alignment [°] <span style="float: right;">0 <input type="text"/></span> </div>   |
| <div style="padding: 5px;">  L/T: Logic / Timer, general         </div>    | <div style="padding: 5px;"> <b>Object "Device available"</b> </div>  |
|  | <div style="padding: 5px;">           Object "Device available" active <input checked="" type="checkbox"/> </div>  |
|  | <div style="padding: 5px;">           Time for cyclic transmission [hh:mm:ss] <span style="float: right;">00:05:00 <input type="text"/> hh:mm:ss</span> </div>   |
|  | <div style="padding: 5px;">           Object value <span style="float: right;"><input checked="" type="radio"/> 1 <input type="radio"/> 0</span> </div>  |
|  | <div style="padding: 5px;"> <b>Objects "Auxiliary voltage monitoring"</b> </div>   |
|  | <div style="padding: 5px; border: 1px solid #ccc;"> <p><b>i</b> Activate auxiliary voltage monitoring, reports the current voltage value of the auxiliary voltage and whether the operating voltage falls below the minimum</p> </div> |
|  | <div style="padding: 5px;">           Object "Auxiliary voltage monitoring" active <input checked="" type="checkbox"/> </div>  |
|  | <div style="padding: 5px;">           Time for cyclic transmission [hh:mm:ss] <span style="float: right;">00:05:00 <input type="text"/> hh:mm:ss</span> </div>   |
|  | <div style="padding: 5px;"> <b>Objects weather station communication monitoring</b> </div>   |
|  | <div style="padding: 5px; border: 1px solid #ccc;"> <p><b>i</b> Activate monitoring of communication with the weather station, reports the failure of communication</p> </div>   |
|  | <div style="padding: 5px;">           Object "Communication monitoring" active <input checked="" type="checkbox"/> </div>  |
|  | <div style="padding: 5px;">           Time for cyclic transmission [hh:mm:ss] <span style="float: right;">00:05:00 <input type="text"/> hh:mm:ss</span> </div>   |
|  | <div style="padding: 5px;">           Object value in case of error <span style="float: right;"><input checked="" type="radio"/> 1 <input type="radio"/> 0</span> </div>   |
|  | <div style="padding: 5px;"> <b>Time</b> </div>   |
|  | <div style="padding: 5px;">           Use GPS Time <input type="checkbox"/> </div>   |
|  | <div style="padding: 5px;">           Input object type <span style="float: right;"><input checked="" type="radio"/> 2x 3-Byte <input type="radio"/> 8-Byte</span> </div>  |
|  | <div style="padding: 5px;">           Local time difference <span style="float: right;">UTC+1 - Berlin, Paris, Madrid <input type="text"/></span> </div>   |
|  | <div style="padding: 5px;">           Daylight saving time rule <span style="float: right;">EU/UK <input type="text"/></span> </div>   |

Fig. 4 Parameter dialogue: Device parameters

| Parameter  | Function  | Values                               |
|--|---|--------------------------------------|
| Transmission and switching delay time                    | Here you can define whether the device starts up with a delay after being switched on   | <b>Boot time</b>                     |
|  |   | Boot time + 1 second                 |
|  |   | Boot time + 3 seconds                |
|  |   | Boot time + 10 seconds               |
| Maximum telegram rate                                    | Restriction of the maximum number of telegrams that the device transmits per second. The load of the KNX bus from the device can thus be reduced if necessary.  | <b>No restriction</b>                |
|  |   | 20 telegrams per second              |
|  |   | 10 telegrams per second              |
|  |   | 3 telegrams per second               |
| Temperature offset                                       | Here, the temperature value can be corrected in 0.5° increments if, for example, sources of heat or cold or other local conditions in the vicinity of the weather station influence the measured temperature. | -10 °C                               |
|  |   | :                                    |
|  |   | <b>0 °C</b>                          |
|  |   | :                                    |
| Sensor alignment   | Here you can set the angle of the weather station's "Photo 1" sensor in relation to north.  | 10 °C                                |
|  |   | :                                    |
|  |   | <b>0</b>                             |
|  |   | :                                    |
| "Device available" object active                         | The "Device available" object indicates whether the Sensor Interface is ready for operation. Here you can set whether the object should be used.  | 359                                  |
|  |   | :                                    |
|  |   | <b>0</b>                             |
|  |   | :                                    |
| Time for cyclical transmission [hh:mm:ss]                | The "Device available" object can be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here.  | On                                   |
|  |   | :                                    |
|  |   | <b>Off</b>                           |
|  |   | :                                    |
| Object value   | Specifies whether the "Device available" object transmits a 0 or a 1 for a Sensor Interface that is ready for operation.  | 00:00:05                             |
|  |   | :                                    |
|  |   | <b>00:05:00</b>                      |
|  |   | :                                    |
| "Auxiliary voltage monitoring" object active             | Activates monitoring of the auxiliary voltage for the weather station and displays the two objects "Auxiliary voltage error output" and "Auxiliary voltage output".   | 23:59:59                             |
|  |   | :                                    |
|  |   | <b>0</b>                             |
|  |   | :                                    |
| Time for cyclical transmission [hh:mm:ss]                | The objects "Auxiliary voltage error output" and "Auxiliary voltage output" can be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here.                        | On                                   |
|  |   | :                                    |
|  |   | <b>Off</b>                           |
|  |   | :                                    |
| "Weather station communication monitoring" object active | The "Weather station communication monitoring" object signals whether the communication with the weather station is still active. Here you can set whether the object should be used.                         | 00:00:05                             |
|  |   | :                                    |
|  |   | <b>00:05:00</b>                      |
|  |   | :                                    |
| Time for cyclical transmission [hh:mm:ss]                | The "Weather station communication monitoring" object can be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here.  | 23:59:59                             |
|  |   | :                                    |
|  |   | <b>0</b>                             |
|  |   | :                                    |
| Object value in case of error                            | Determines whether the "Weather station communication monitoring" object transmits 0 or 1 in the case of an error.  | 0                                    |
|  |   | :                                    |
|  |   | <b>1</b>                             |
|  |   | :                                    |
| Use GPS time   | Determines whether the time and date information received via GPS should be used. If not, GO "Local time input" and "Local date input" can be used.   | On                                   |
|  |   | :                                    |
|  |   | <b>Off</b>                           |
|  |   | :                                    |
| Input object type  | Determines whether two separate 3-byte GOs for date and time or a combined 8-byte GO (which also contains information for daylight saving time) should be used.   | 2× 3-byte                            |
|  |   | :                                    |
|  |   | <b>8-byte</b>                        |
|  |   | :                                    |
| Local time difference                                    | Setting the time zone of the location (time difference between UTC and local time)  | UTC-11                               |
|  |   | :                                    |
|  |   | <b>UTC+1 - Berlin, Paris, Madrid</b> |
|  |   | :                                    |
|  |   | UTC+14                               |

|  |   |   |
|--|---|---|
| Daylight saving time rule                        | Determines the local standard procedure for daylight saving time change (e.g. EU/UK or USA). "No daylight saving time" disables the deactivates saving time change. The "From date/time object" option evaluates the daylight saving time bit contained in the 8-byte GO.                                 | No daylight saving time                               |
|  |   | From date/time object                                 |
|  |   | <b>EU/UK</b>  |
|  |   | USA   |
|  |   | Australia   |
|  |   | Australia, Lord Howe Island                           |
|  |   | New Zealand   |
|  |   | Chile   |
| Position of the sun                              | Determines the information from which the position of the sun is to be determined.  | <b>from time and parameters Geographical position</b> |
|  |   | from time and GPS data                                |
| Geographical position<br>Degree of latitude [°]  | If the GPS data is not used, the "Degree of latitude [°]" is entered here for the location (accurate to four decimal places).   | -90<br>:<br>90  |
| Geographical position<br>Degree of longitude [°] | If the GPS data is not used, the "Degree of longitude [°]" is entered here for the location (accurate to four decimal places).  | -180<br>:<br>180                                      |
| Wind speed sensor monitoring active              | Activates monitoring of the wind speed sensors and displays the two objects "Wind speed monitoring output" and "Acknowledge wind speed monitoring input". The error can be reset via the "Acknowledge wind speed monitoring input" object. The object is reset if the error still exists or occurs again. | On  |
|  |   | <b>Off</b>  |
| Time for cyclical transmission<br>[hh:mm:ss]     | The "Wind speed monitoring output" object can be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here.  | 00:00:05<br>:<br><b>00:05:00</b><br>:<br>23:59:59     |
| Object value in case of error                    | Determines whether the "Wind speed monitoring output" object transmits a 0 or a 1 in the event that the wind speed sensors fail.  | 0   |
|  |   | <b>1</b>  |

### 6.3 SD: Sensor data (transmit)

Provides the sensor values to the bus.

For some sensor values (e.g. wind speed), sensor data can be transmitted to the bus in different formats.

#### 6.3.1 SD: Sensor data (transmit), general

For an enhanced overview, all required sensor data can be activated separately. The parameter dialogues and associated GOs are only displayed for activated sensor data.










|   |  |                          |
|---|--|--------------------------|
|  Overview                        | <b>Temperature</b>                           |                          |
|  Device parameters               | Active                                       | <input type="checkbox"/> |
|  SD: Sensor Data (transmi...     | <b>Brightness</b>                            |                          |
|  SAC: Safety channels, gene...   | Active                                       | <input type="checkbox"/> |
|  SUC: Sun shading channels...    | <b>Radiation</b>                             |                          |
|  TS: Timer Scheduler, general  | Active                                       | <input type="checkbox"/> |
|  SE: Sensor evaluation, gen... | <b>Dawn/dusk</b>                             |                          |
|  SEC: Sensor evaluation co...  | Active                                       | <input type="checkbox"/> |
|  L/T: Logic / Timer, general   | <b>Wind speed</b>                            |                          |
|   | Active                                       | <input type="checkbox"/> |
|   | <b>Wind direction 1 minute average value</b> |                          |
|   | Active                                       | <input type="checkbox"/> |

Fig. 5 Parameter dialogue: SD: Sensor data (transmit), general

| Parameter | Function                                       | Values |
|-----------|--|--------|
| Active    | Determines whether the sensor value is to used | On     |
|           |  | Off    |

## 6.3.2 SD: Temperature

Measuring value of the temperature sensor. Any temperature offset that may be required can be set in the device parameters.



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).

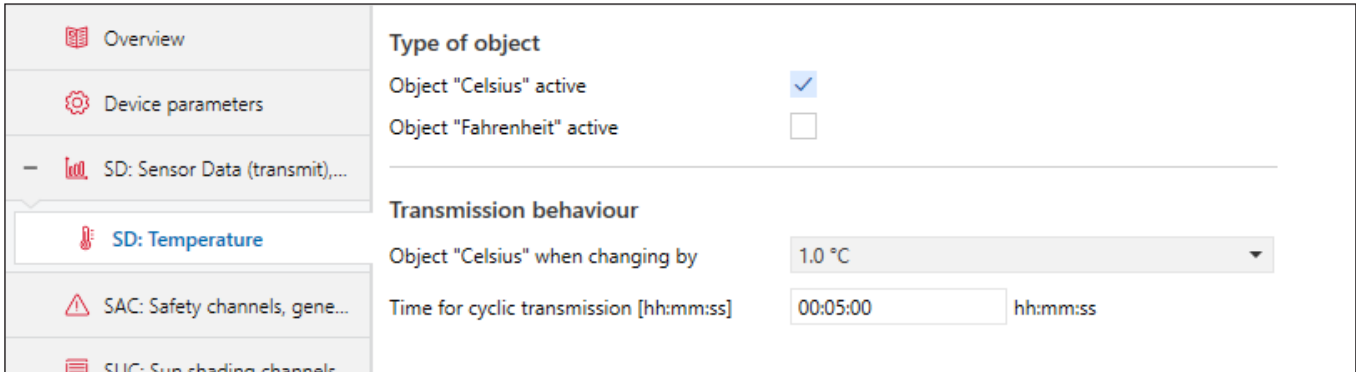


Fig. 6 Parameter dialogue: SD: Temperature

| Parameter                                 | Function   | Values  |
|---|--|---|
| "Celsius" object active                   | Determines whether the object is to be used  | On<br>Off   |
| "Fahrenheit" object active                | Determines whether the object is to be used  | On<br>Off   |
| "Celsius" object when changing by         | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | 0.5 °C<br>:<br><b>1.0 °C</b><br>:<br>5.0 °C       |
| "Fahrenheit" object when changing by      | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | 0.9 °F<br>:<br><b>1.8 °F</b><br>:<br>9.0 °F       |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |

### 6.3.3 SD: Brightness

Measuring values of the photodiodes. An object is available for each of the four photo sensors. In addition, there is an object that outputs the maximum brightness value measured at all four photodiodes.



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).

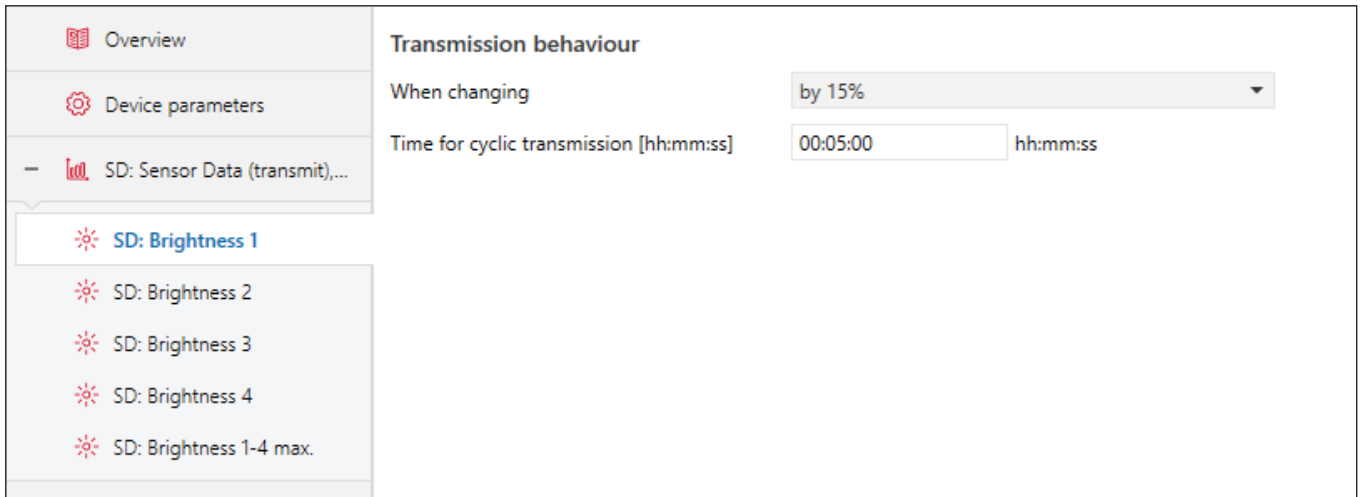


Fig. 7 Parameter dialogue: SD: Brightness

| Parameter                                 | Function   | Values  |
|---|--|---|
| In case of change                         | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | Do not transmit                                   |
|   |  | by 5%   |
|   |  | by 10%  |
|   |  | <b>by 15%</b>                                     |
|   |  | by 20%  |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |

## 6.3.4 SD: Radiation

Measuring values of the radiation sensors. An object is available for each of the four radiation sensors. In addition, there is an object that outputs the maximum radiation input measured at all four radiation sensors.



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).

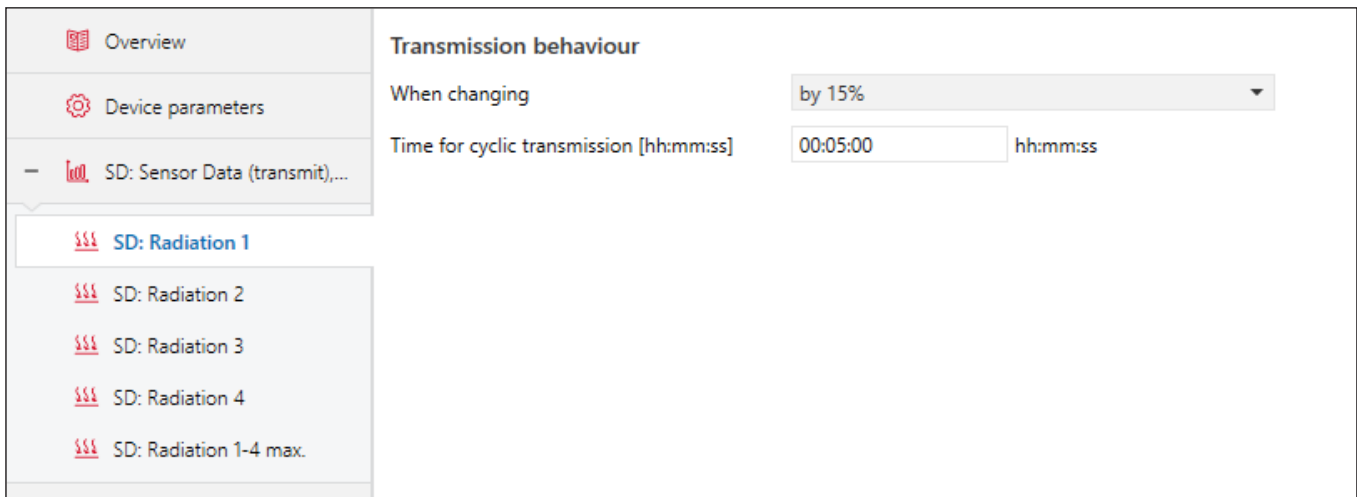


Fig. 8 Parameter dialogue: SD: Radiation

| Parameter                                 | Function   | Values  |
|---|--|---|
| In case of change                         | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | Do not transmit                                   |
|   |  | by 5%   |
|   |  | by 10%  |
|   |  | <b>by 15%</b>                                     |
|   |  | by 20%  |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |

### 6.3.5 SD: Dusk/dawn

Measuring value for brightness at dawn/dusk (measured via photodiodes 1 and 3)



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).

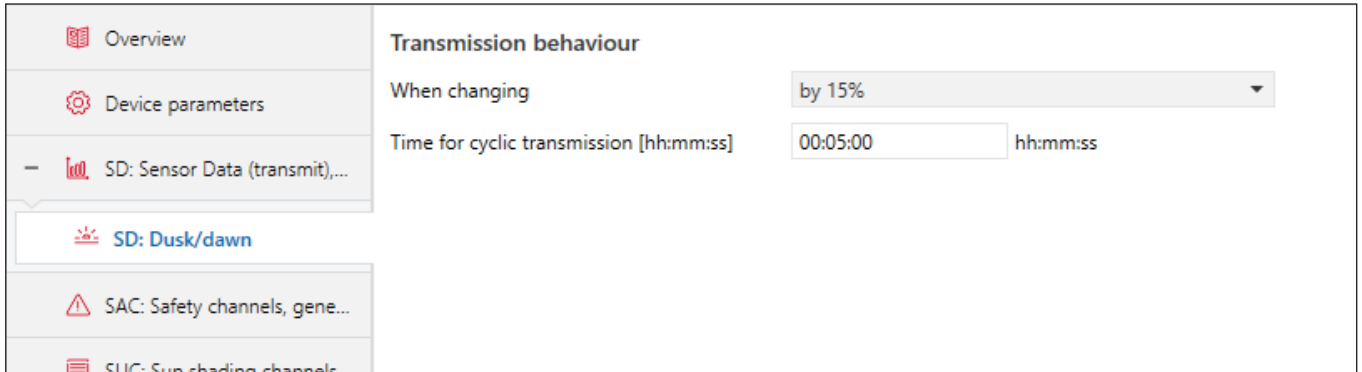


Fig. 9 Parameter dialogue: SD: Dawn/dusk

| Parameter                                 | Function   | Values  |
|---|--|---|
| In case of change                         | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | Do not transmit                                   |
|   |  | by 5%   |
|   |  | by 10%  |
|   |  | <b>by 15%</b>                                     |
|   |  | by 20%  |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |

## 6.3.6 SD: Wind speed

Measuring value for the wind speed determined by the four ultrasonic transducers.



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).

Fig. 10 Parameter dialogue: SD: Wind speed

| Parameter                                 | Function   | Values  |
|---|--|---|
| "m/s" object active                       | Determines whether the object is to be used  | On<br>Off   |
| "km/h" object active                      | Determines whether the object is to be used  | On<br>Off   |
| "Beaufort" object active                  | Determines whether the object is to be used  | On<br>Off   |
| "max. m/s" object active                  | Determines whether the object is to be used  | On<br>Off   |
| Time range                                | If the <b>"max. m/s active"</b> object is activated, a time range can be selected for which the maximum value is to be determined.   | 1 min<br>:<br><b>1 h</b><br>:<br>24 h             |
| "m/s" object when changing by             | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | 1 m/s<br>:<br><b>3 m/s</b><br>:<br>10 m/s         |
| "km/h" object when changing by            | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | 3.6 km/h<br>:<br><b>10.8 km/h</b><br>:<br>36 km/h |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |

### 6.3.7 SD: Wind direction 1 minute average value

Average value of wind direction within the last minute



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).

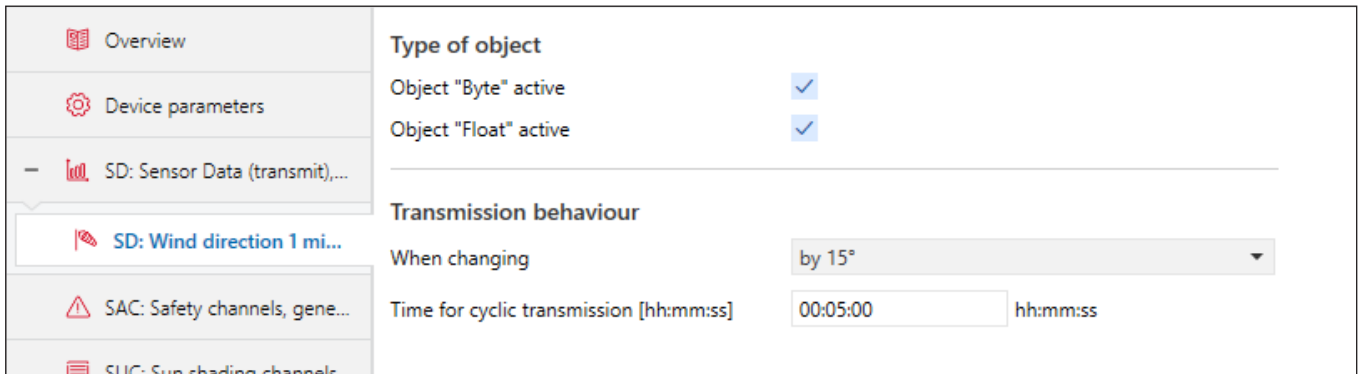


Fig. 11 Parameter dialogue: SD: Wind direction 1 minute average value

| Parameter                                 | Function   | Values  |
|---|--|---|
| "Byte" object active                      | Determines whether the object is to be used  | On<br>Off   |
| "Float" object active                     | Determines whether the object is to be used  | On<br>Off   |
| In case of change                         | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | Do not transmit<br>by 5%<br>by 10%<br><b>by 15%</b><br>by 20% |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59             |

## 6.3.8 SD: Wind direction 10 minutes average value

Average value of wind direction within the last 10 minutes



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).

|                                  |   |                                     |
|----------------------------------|---|-------------------------------------|
| Overview                         | <b>Type of object</b>                   |                                     |
| Device parameters                | Object "Byte" active                    | <input checked="" type="checkbox"/> |
| - SD: Sensor Data (transmit),... | Object "Float" active                   | <input checked="" type="checkbox"/> |
| SD: Wind direction 10 m...       | <b>Transmission behaviour</b>           |                                     |
| SAC: Safety channels, gene...    | When changing                           | by 15°                              |
| SUC: Sun shading channels        | Time for cyclic transmission [hh:mm:ss] | 00:05:00 hh:mm:ss                   |

Fig. 12 Parameter dialogue: SD: Wind direction 10 minute average value

| Parameter                                 | Function   | Values  |
|---|--|---|
| "Byte" object active                      | Determines whether the object is to be used  | On<br>Off   |
| "Float" object active                     | Determines whether the object is to be used  | On<br>Off   |
| In case of change                         | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | Do not transmit<br>by 5%<br>by 10%<br><b>by 15%</b><br>by 20% |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59             |

### 6.3.9 SD: Time/GPS

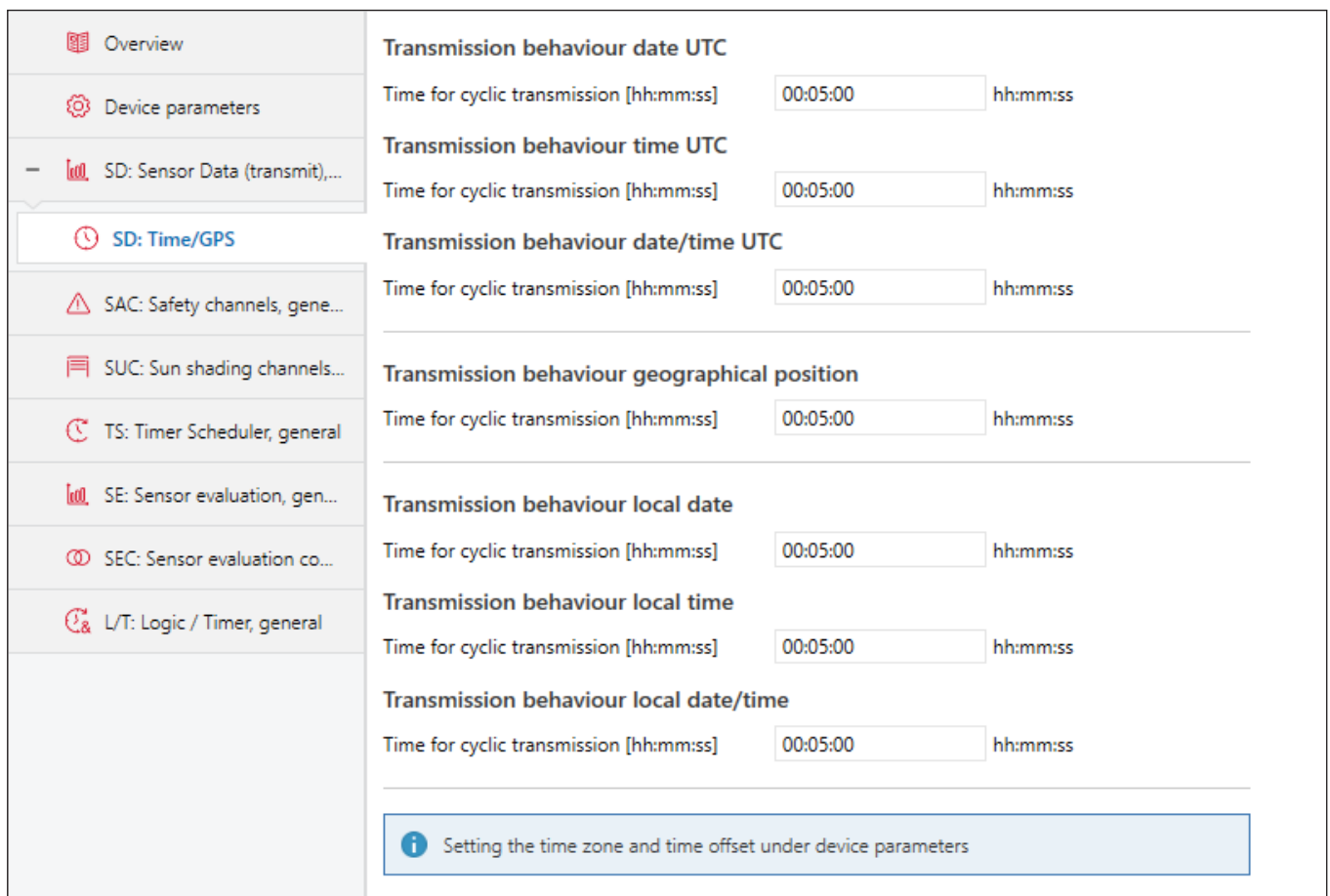
Setting the transmission behaviour of time and date information. Values for UTC and local time as well as the geographical position can be transmitted.

The RTC (Real Time Clock) of the weather station is synchronised after each reset and after the time has been correctly received via GPS. The RTC is also synchronised with the GPS time every hour.

In addition, objects are available for the height and number of satellites received. These are transmitted every 10 minutes.



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).



The screenshot shows the 'SD: Time/GPS' parameter dialogue. On the left is a sidebar with navigation items: Overview, Device parameters, SD: Sensor Data (transmit), SD: Time/GPS (selected), SAC: Safety channels, SUC: Sun shading channels, TS: Timer Scheduler, SE: Sensor evaluation, SEC: Sensor evaluation co..., and L/T: Logic / Timer, general. The main content area is divided into several sections, each with a title and a 'Time for cyclic transmission [hh:mm:ss]' input field:

- Transmission behaviour date UTC**: Time for cyclic transmission [hh:mm:ss] 00:05:00 hh:mm:ss
- Transmission behaviour time UTC**: Time for cyclic transmission [hh:mm:ss] 00:05:00 hh:mm:ss
- Transmission behaviour date/time UTC**: Time for cyclic transmission [hh:mm:ss] 00:05:00 hh:mm:ss
- Transmission behaviour geographical position**: Time for cyclic transmission [hh:mm:ss] 00:05:00 hh:mm:ss
- Transmission behaviour local date**: Time for cyclic transmission [hh:mm:ss] 00:05:00 hh:mm:ss
- Transmission behaviour local time**: Time for cyclic transmission [hh:mm:ss] 00:05:00 hh:mm:ss
- Transmission behaviour local date/time**: Time for cyclic transmission [hh:mm:ss] 00:05:00 hh:mm:ss

At the bottom, there is a blue information box with the text: 'Setting the time zone and time offset under device parameters'.

Fig. 13 Parameter dialogue: SD: Time/GPS

| Parameter                                 | Function   | Values  |
|---|--|---|
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |

## 6.3.10 SD: Position of the sun

The position of the sun is calculated based on the geographical location, date and time. The parameters for calculating the position of the sun contained in the device parameter/time and device parameter/position of the sun parameter dialogue.

Four separate objects are available for elevation and azimuth in 4-byte and 2-byte formats.



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).



Fig. 14 Parameter dialogue: SD: Position of the sun

| Parameter                                 | Function   | Values  |
|---|--|---|
| In case of change                         | Determines after which change in the measuring values a new value is to be transmitted to the bus.   | Do not transmit                                   |
|   |  | by 5%   |
|   |  | by 10%  |
|   |  | <b>by 15%</b>                                     |
|   |  | by 20%  |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |

### 6.3.11 SD: Precipitation

Measuring value for precipitation yes/no (1 bit)



The parameter dialogues and the associated GOs are only displayed for activated sensor data (see Chapter 6.3.1 on page 21).



Fig. 15 Parameter dialogue: SD: Precipitation

| Parameter                                 | Function  | Values  |
|---|---|---|
| Off delay [sec]                           | Determines the waiting time before the value changes from "Precipitation yes" to "Precipitation no" when no more precipitation is detected.   | 0<br>:<br><b>600</b><br>:<br>65535  |
| Behaviour                                 | Determines after which change in the measuring values a new value is to be transmitted to the bus. If "Transmit after every change and cyclically" is selected, the parameter "Time for cyclical transmission [hh:mm:ss]" appears | Do not transmit<br>Only transmit following change from 0 to 1<br>Only transmit following change from 1 to 0<br><b>Transmit after every change</b><br>Transmit cyclically after every change |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.                                      | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59   |

## 6.4 SAC: Safety channel

The safety channels complement the sun shading channels. Three different alarms can be evaluated. The alarms are evaluated via an OR link. If one of the alarms is active, a 1 is transmitted to the GO of the safety channel.

Three different alarms can be evaluated:

- ▶ Wind alarm
- ▶ Precipitation alarm
- ▶ Ice alarm as a combination of precipitation and temperature falling below the temperature limit value for ice alarm

### 6.4.1 SAC: Safety channel, general

There are 8 safety channels. For an enhanced overview, all required safety channels can be activated separately and named individually. The parameter dialogues and associated GOs are only displayed for activated safety channels.

|                                      |  |
|--------------------------------------|--|
| Overview                             | <b>Safety Channel 1</b>                    |
| Device parameters                    | Active <input checked="" type="checkbox"/> |
| SD: Sensor Data (transmit),...       | Safety channel name <input type="text"/>   |
| + <b>SAC: Safety channels, ge...</b> | <b>Safety Channel 2</b>                    |
| SUC: Sun shading channels...         | Active <input type="checkbox"/>            |
| TS: Timer Scheduler, general         | <b>Safety Channel 3</b>                    |
| SE: Sensor evaluation, gen...        | Active <input type="checkbox"/>            |
| SEC: Sensor evaluation co...         | <b>Safety Channel 4</b>                    |
| L/T: Logic / Timer, general          | Active <input type="checkbox"/>            |
|                                      | <b>Safety Channel 5</b>                    |
|                                      | Active <input type="checkbox"/>            |
|                                      | <b>Safety Channel 6</b>                    |
|                                      | Active <input type="checkbox"/>            |
|                                      | <b>Safety Channel 7</b>                    |
|                                      | Active <input type="checkbox"/>            |
|                                      | <b>Safety Channel 8</b>                    |
|                                      | Active <input type="checkbox"/>            |

Fig. 16 Parameter dialogue: SAC: Safety channel, general

| Parameter           | Function  | Values                    |
|---------------------|---|---------------------------|
| Active              | Determines whether the safety channel is to be used   | On                        |
|                     |   | <b>Off</b>                |
| Safety channel name | A name entered here replaces the default entry "Safety channel n" in the associated parameter dialogues and GOs | Text (max. 80 characters) |

### 6.4.2 SACn: Safety channel

For an enhanced overview, all required alarms can be activated separately for each safety channel. The parameter dialogues and associated GOs are only displayed for activated alarms.

|                                |                            |                                     |
|--------------------------------|----------------------------|-------------------------------------|
| Overview                       | <b>Wind alarm</b>          |                                     |
| Device parameters              | Active                     | <input checked="" type="checkbox"/> |
| SD: Sensor Data (transmit),... | <b>Precipitation alarm</b> |                                     |
| SAC: Safety channels, gene...  | Active                     | <input checked="" type="checkbox"/> |
| <b>SAC1: Safety channel</b>    | <b>Ice alarm</b>           |                                     |
| SUC: Sun shading channels...   | Active                     | <input checked="" type="checkbox"/> |
| TS: Timer Scheduler, general   |                            |                                     |
| SE: Sensor evaluation, gen...  |                            |                                     |

Fig. 17 Parameter dialogue: SACn: Safety channel

| Parameter | Function  | Values     |
|-----------|---|------------|
| Active    | Determines whether the respective alarm is to be used | On         |
|           |   | <b>Off</b> |

## 6.4.3 Wind alarm

The wind alarm is activated if the parameterised limit value is exceeded. If necessary, the limit value can also be influenced via a GO.

Additional delay times can be determined for activating/deactivating the alarm.

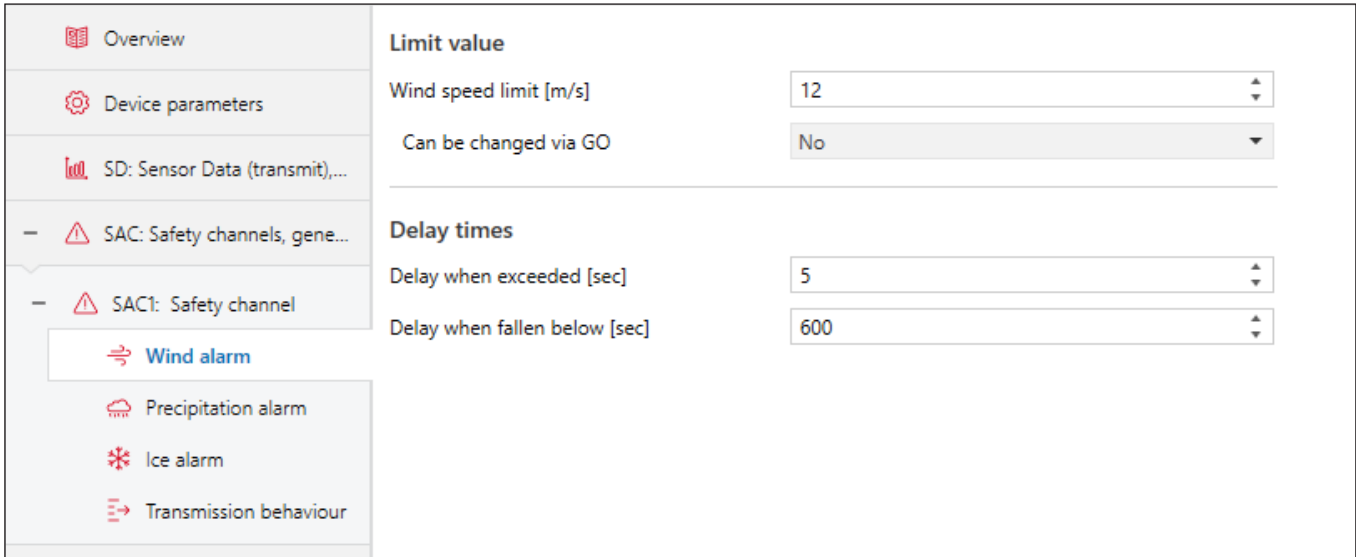


Fig. 18 Parameter dialogue: SACn: Safety channel, wind alarm

| Parameter                          | Function  | Values   |
|------------------------------------|---|--|
| Wind speed limit [m/s]             | Limit value of the wind speed that must be exceeded for the wind alarm to be detected.  | 0 m/s<br>:<br><b>12 m/s</b><br>:<br>50 m/s   |
| Can be changed via GO              | Activates a GO for changing the "wind speed limit". You can choose whether the current wind speed limit value can be overwritten during programming or whether it should be retained. | <b>No</b><br>Yes, overwrite during programming<br>Yes, do not overwrite during programming |
| Delay when exceeded [sec]          | Delay time during which "wind speed limit" must be exceeded before a wind alarm is detected.  | 0<br>:<br><b>5</b><br>:<br>65535   |
| Delay when value falls below [sec] | Delay time during which the "wind speed limit" must remain fallen below before the wind alarm ends.   | 0<br>:<br><b>600</b><br>:<br>65535   |

#### 6.4.4 Precipitation alarm

The precipitation alarm is activated when precipitation is detected.  
An additional delay time can be specified for deactivating the alarm.

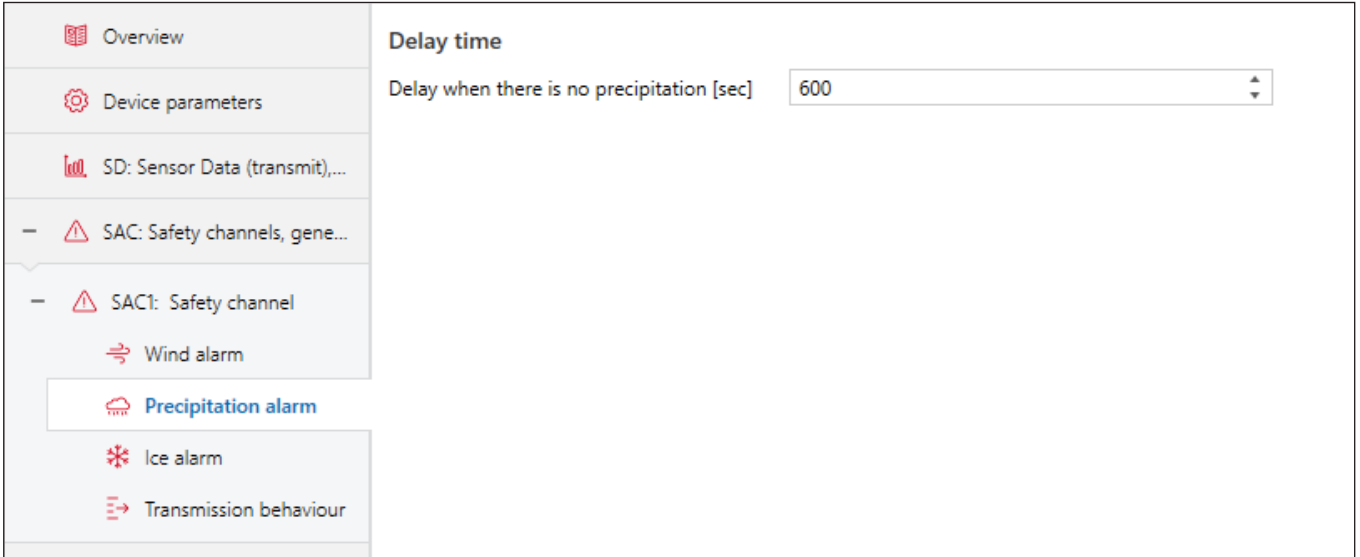


Fig. 19 Parameter dialogue: SACn: Safety channel, precipitation alarm

| Parameter                                  | Function   | Values                             |
|--|--|------------------------------------|
| Delay when there is no precipitation [sec] | Defines the waiting time before the precipitation alarm is reset if no more precipitation is detected. | 0<br>:<br><b>600</b><br>:<br>65535 |

## 6.4.5 Ice alarm

The ice alarm is activated if the parameterised limit value is fallen below and precipitation is detected at the same time. If necessary, the limit value can also be influenced via a GO. Hysteresis specifies when the alarm is deactivated again once the limit value has been exceeded.

Fig. 20 Parameter dialogue: SACn: Safety channel, ice alarm

| Parameter   | Function   | Values   |
|---|--|--|
| Ice alarm limit value [°C]                        | Temperature that must be fallen below when precipitation is simultaneously detected in order for an ice alarm to be triggered.   | -30 °C<br>:<br><b>3 °C</b><br>:<br>40 °C   |
| Can be changed via GO                             | Activates a GO for changing the "Ice alarm limit value [°C]". You can choose whether the current limit value can be overwritten during programming or whether it should be retained. | <b>No</b><br>Yes, overwrite during programming<br>Yes, do not overwrite during programming |
| Hysteresis [°C]                                   | Value by which the "Ice alarm limit value [°C]" must be exceeded for the off delay (1 hour) to start.  | 0<br>:<br><b>2</b><br>:<br>10  |
| Alarm can be reset automatically                  | Activates an automatic reset of the alarm when the hysteresis is exceeded.   | <b>On</b><br>Off   |
| Alarm can be reset via GO                         | Activates a GO for resetting the ice alarm and displays the "Alarm not active after reset via GO" parameter.   | On<br><b>Off</b>   |
| Alarm not active after reset via GO for [d-hh:mm] | Time after the ice alarm has been reset by GO before the ice alarm can be triggered again.   | 0-00:00<br>:<br><b>0-01:00</b><br>:<br>7-00:00   |

### 6.4.6 Transmission behaviour

Determines when the safety channel sends an alarm to the bus.

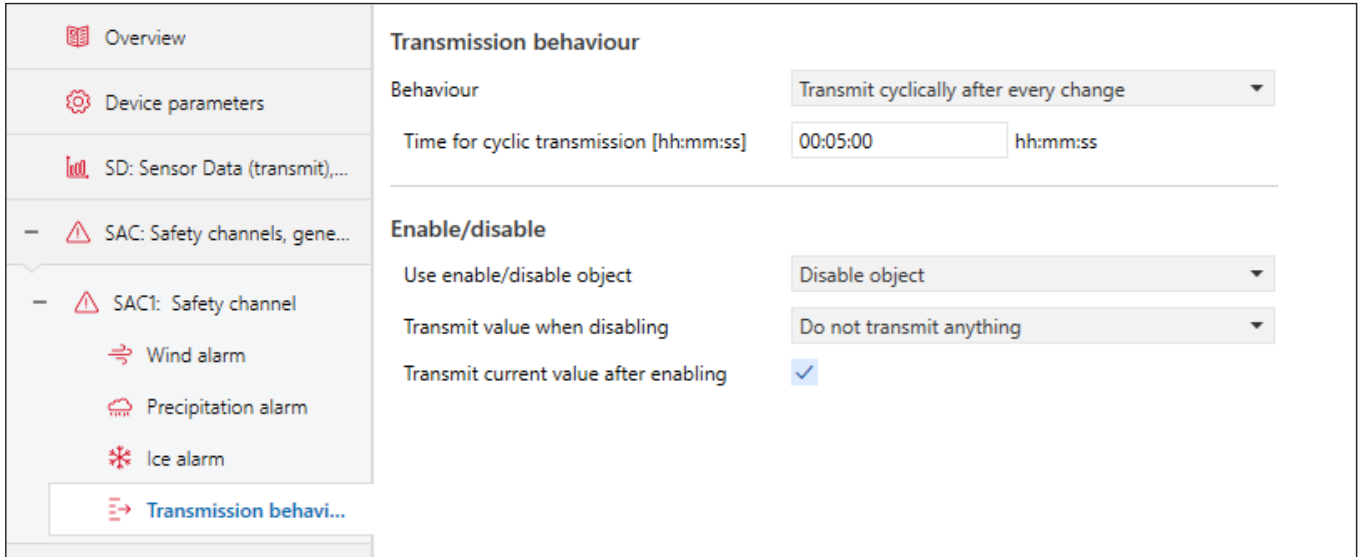


Fig. 21 Parameter dialogue: SACn: Safety channel, transmission behaviours

| Parameter                                 | Function  | Values   |
|---|---|--|
| Behaviour                                 | Determines after which change to the alarm status a new value should be sent to the bus. If "Transmit after every change and cyclically" is selected, the parameter "Time for cyclical transmission [hh:mm:ss]" appears | Do not transmit  |
|   |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|   |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|   |   | <b>Transmit after every change</b>                               |
|   |   | Transmit cyclically after every change                           |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.                            | 00:00:00<br>.<br><b>00:05:00</b><br>.<br>23:59:59                |
| Use enable/disable object                 | An enable or disable object can be displayed here.  | <b>Do not use</b>  |
|   |   | Enable object  |
|   |   | Disable object   |
| Transmit value when disabling             | Here you can specify whether the value for alarm ,no alarm or nothing should be transmitted when disabling.   | <b>Do not transmit anything</b>                                  |
|   |   | Value "Alarm"  |
|   |   | Value "No Alarm"   |
| Transmit current value after enabling     | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b>  |
|   |   | Off  |

## 6.5 SUC: Sun shading channels

The sun shading channels provide a wide range of sun shading functions and transmit the corresponding move commands to the bus.

The following functions can be individually parameterised in each sun shading channel:

- ▶ Safety
- ▶ Timer Scheduler
- ▶ Night (dawn)
- ▶ Heating support
- ▶ Cooling support
- ▶ Sun control
- ▶ Slat tracking

### 6.5.1 SUC: Sun shading channels, general

There are 16 sun shading channels. For an enhanced overview, all required sun shading channels can be activated separately and named individually. The parameter dialogues and associated GOs are only displayed for activated sun shading channels.

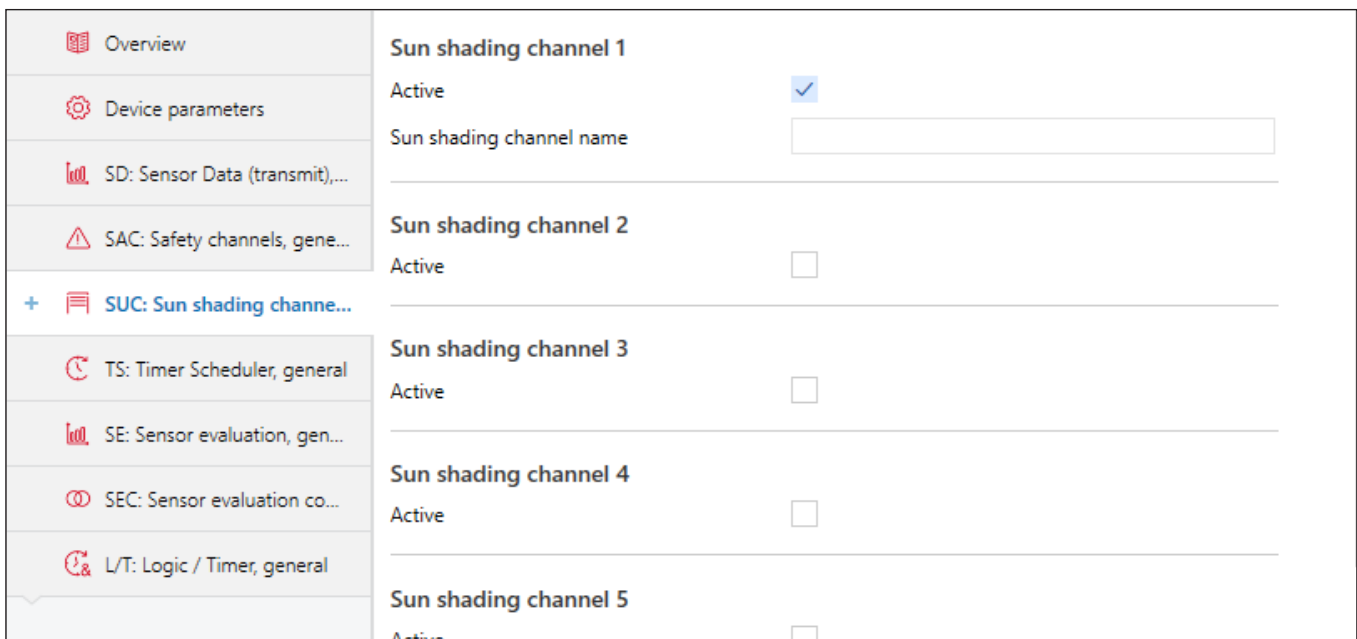
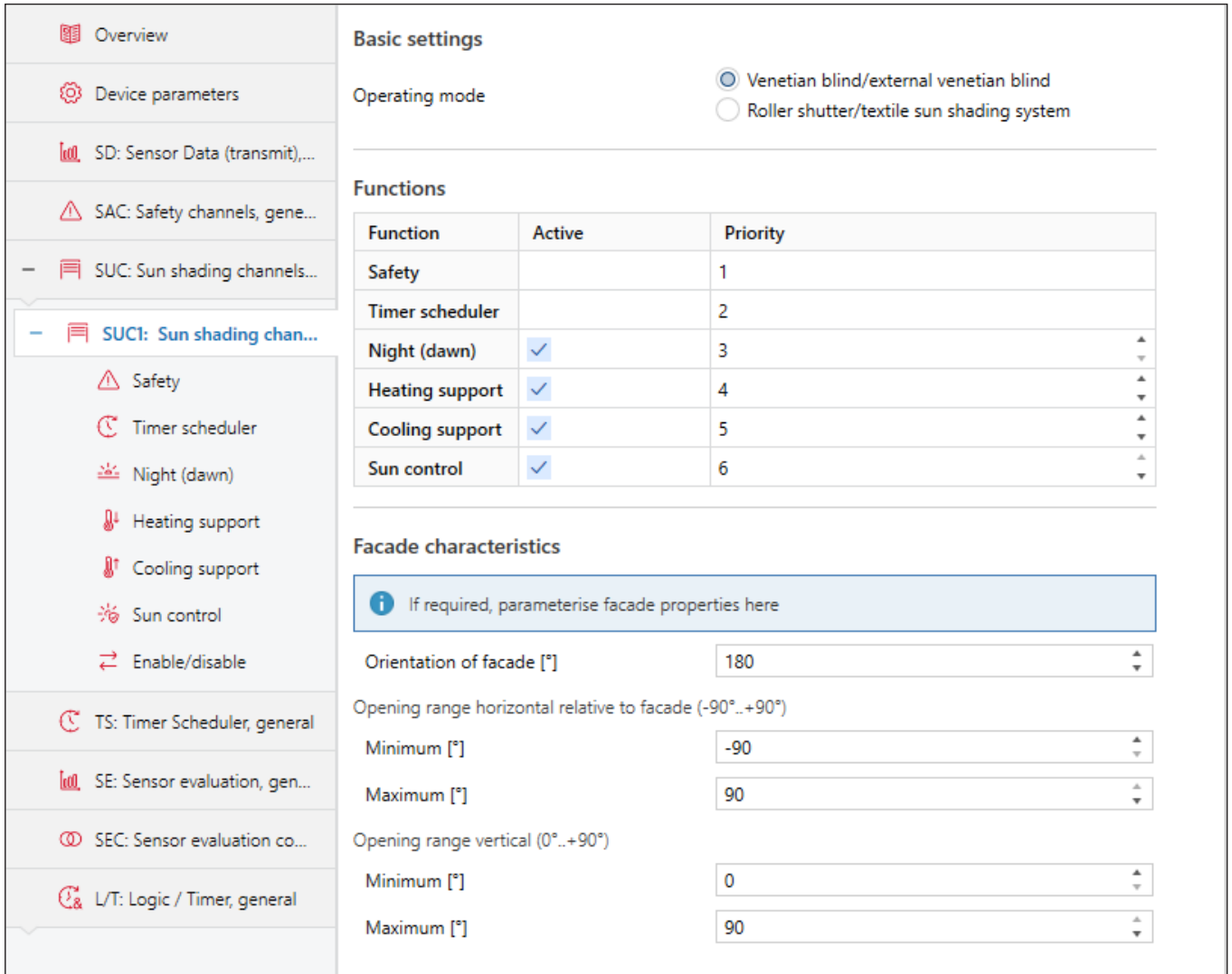


Fig. 22 Parameter dialogue: SUC: Sun shading channels, general

| Parameter                | Function   | Values                    |
|--------------------------|--|---------------------------|
| Active                   | Determines whether the sun shading channel is to used  | On<br><b>Off</b>          |
| Sun shading channel name | A name entered here replaces the default entry "Sun shading channel n" in the associated parameter dialogues and GOs | Text (max. 80 characters) |

### 6.5.2 SUCn: Sun shading channel

The operating mode (basic function) can be determined for each sun shading channel. All required functions can be activated separately and be prioritised over other functions. Depending on the functions used (e.g. slat tracking), the characteristics of the assigned facade can also be specified here. The parameter dialogues and associated GOs are only displayed for activated functions.



**Basic settings**

Operating mode  Venetian blind/external venetian blind  
 Roller shutter/textile sun shading system

---

**Functions**

| Function        | Active                              | Priority |
|-----------------|-------------------------------------|----------|
| Safety          |                                     | 1        |
| Timer scheduler |                                     | 2        |
| Night (dawn)    | <input checked="" type="checkbox"/> | 3        |
| Heating support | <input checked="" type="checkbox"/> | 4        |
| Cooling support | <input checked="" type="checkbox"/> | 5        |
| Sun control     | <input checked="" type="checkbox"/> | 6        |

---

**Facade characteristics**

**i** If required, parameterise facade properties here

Orientation of facade [°]

Opening range horizontal relative to facade (-90°..+90°)

Minimum [°]

Maximum [°]

Opening range vertical (0°..+90°)

Minimum [°]

Maximum [°]

Fig. 23 Parameter dialogue: SUCn: Sun shading channel

| Parameter   | Function  | Values   |
|---|---|--|
| Operating mode  | Operating mode of the output, a distinction is made between sun shading blind types with and without slats  | <b>Venetian blinds/external venetian blinds</b><br>Roller shutters/textile sun shading systems |
| Functions   | Priority of the functions from 1-6, with 1 having the highest priority. The priority of safety and the Timer Scheduler is fixed. The other functions of the sun shading channel can be activated individually and the priority can be set from 3-6. | <b>Safety (Priority 1)</b>   |
|   |   | <b>Timer Scheduler (Priority 2)</b>  |
|   |   | Night (dawn) (Priority 3)  |
|   |   | Heating support (Priority 4)   |
|   |   | Cooling support (Priority 5)   |
|   |   | <b>Sun control (Priority 6)</b>  |
| Orientation of facade [°]                                     | 0°=north, 90°=east, 180°=south, 270°=west   | 0<br>:<br><b>180</b><br>:<br>359   |
| Horizontal opening range relative to the facade (-90°...+90°) | The horizontal opening range can be adjusted, e.g. if deep reveals limit sunlight exposure.<br>-90°=to the left, 0°=vertical to the facade, 90°=to the right  | <b>-90</b><br>: Minimum [°]<br>0   |
|   |   | 0<br>: Maximum [°]<br><b>90</b>  |
| Vertical opening range (0°...+90°)                            | The vertical opening range can be adjusted, e.g. if roof overhangs limit sunlight exposure.<br>0°=vertical to the facade, 90°=upwards   | 90<br>: Minimum [°]<br><b>0</b>  |
|   |   | <b>90</b><br>: Maximum [°]<br>0  |

### 6.5.3 Safety

The sun shading channel itself does not generate any alarms. However, it can respond to telegrams received externally, for example via SE (sensor evaluation) or SEC (combined sensor evaluation), and treat these as alarms.

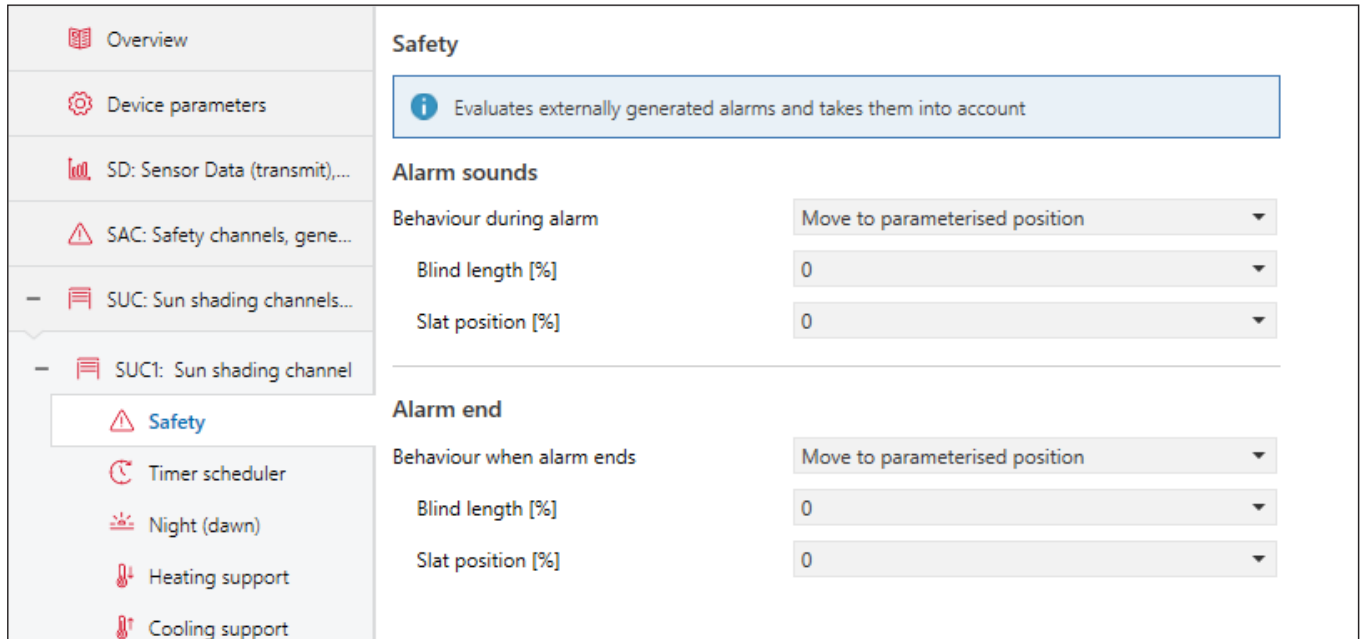


Fig. 24 Parameter dialogue: SUCn: Sun shading channel, safety


















| Parameter                 | Function   | Values                          |
|---------------------------|--|---------------------------------|
| Behaviour during alarm    | Behaviour of the sun shading channel when the value 1 is received externally via GO "SUCn: Sun shading channel - Safety input bit". An UP or DOWN move command can be triggered or a parameterised position can be approached. | No reaction                     |
|                           |  | <b>Raise</b>                    |
|                           |  | Lower                           |
|                           |  | Approach parameterised position |
| Blind length [%]          | Blind length which is to be approached during an alarm.  | –                               |
|                           |  | :                               |
|                           |  | <b>0</b>                        |
|                           |  | :<br>100                        |
| Slat position [%]         | Slat position which is to be approached during an alarm.   | –                               |
|                           |  | :                               |
|                           |  | <b>0</b>                        |
|                           |  | :<br>100                        |
| Behaviour when alarm ends | Behaviour of the sun shading channel when the value 0 is received externally via GO "SUCn: Sun shading channel - Safety input bit". An UP or DOWN move command can be triggered or a parameterised position can be approached. | <b>No reaction</b>              |
|                           |  | Raise                           |
|                           |  | Lower                           |
|                           |  | Approach parameterised position |
| Blind length [%]          | Blind length which is to be approached when the alarm ends.  | –                               |
|                           |  | :                               |
|                           |  | <b>0</b>                        |
|                           |  | :<br>100                        |

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|                   |  |                                |
|-------------------|--|--------------------------------|
| Slat position [%] | Slat position which is to be approached when the alarm ends. | -<br>:<br><b>0</b><br>:<br>100 |
|-------------------|--|--------------------------------|

### 6.5.4 Timer Scheduler

The Timer Scheduler is equipped with 10 switching times (No. 1 to No. 10) for transmitting move commands. The parameter "Do not repeat this function after a higher function" can be used to determine whether move commands are repeated if they have been disabled in the meantime (e.g. by a safety function).

-  Overview
-  Device parameters
-  SD: Sensor Data (transmit),...
-  SAC: Safety channels, gene...
-  SUC: Sun shading channels...
-  SUC1: Sun shading channel
-  Safety
-  **Timer scheduler**
-  Night (dawn)
-  Heating support
-  Cooling support
-  Sun control
-  Enable/disable
-  TS: Timer Scheduler, general
-  SE: Sensor evaluation, gen...
-  SEC: Sensor evaluation co...
-  L/T: Logic / Timer, general

#### Timer scheduler

Do not repeat this function after higher function

---

#### Trigger

|        | M                        | T                        | W                        | T                        | F                        | S                        | S                        | Event | Time  |
|--------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------|-------|
| No. 1  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 2  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 3  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 4  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 5  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 6  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 7  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 8  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 9  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 10 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |

#### Actions

|        | Blind length [%] | Slat position [%] | Comment |
|--------|------------------|-------------------|---------|
| No. 1  | -- ▼             | -- ▼              |         |
| No. 2  | -- ▼             | -- ▼              |         |
| No. 3  | -- ▼             | -- ▼              |         |
| No. 4  | -- ▼             | -- ▼              |         |
| No. 5  | -- ▼             | -- ▼              |         |
| No. 6  | -- ▼             | -- ▼              |         |
| No. 7  | -- ▼             | -- ▼              |         |
| No. 8  | -- ▼             | -- ▼              |         |
| No. 9  | -- ▼             | -- ▼              |         |
| No. 10 | -- ▼             | -- ▼              |         |

Fig. 25 Parameter dialogue: SUCn: Sun shading channel, Timer Scheduler

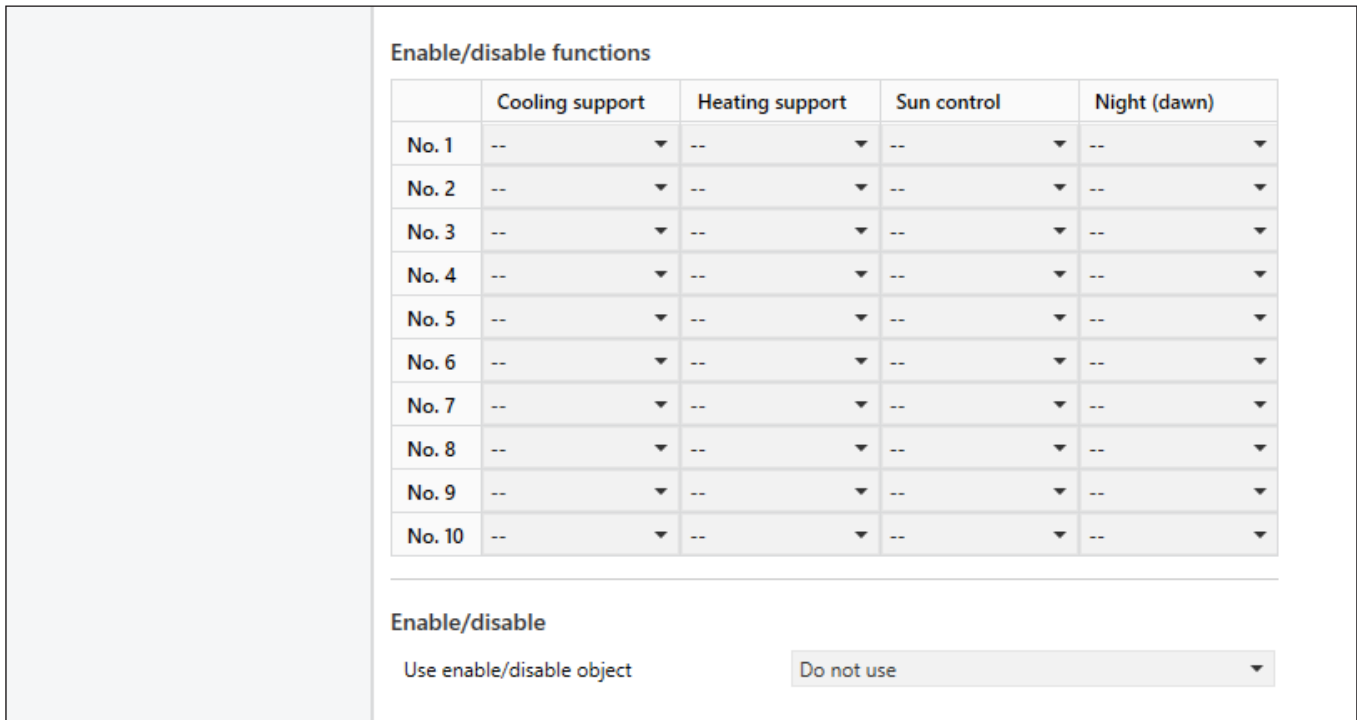


Fig. 26 Parameter dialogue: SUCn: Sun shading channel, Timer Scheduler

### Triggers

The triggers for the 10 possible switching times are defined here.

- ▶ Application on specific weekdays (e.g. Saturday and Sunday)
- ▶ Application when an event occurs (at sunrise)
- ▶ Application at a specific time (e.g. 22:00)

Information always displayed in the table according to the scheme *weekdays + event + time*.

A set time is not evaluated for the events "at sunrise" and "at sunset".



The time of sunrise/sunset is calculated based on the geographical position (see Chapter 6.2 on page 18).

### Actions

The actions for the 10 possible switching times are defined here. Transmission of blind length and/or slat position.

### Activating/deactivating functions

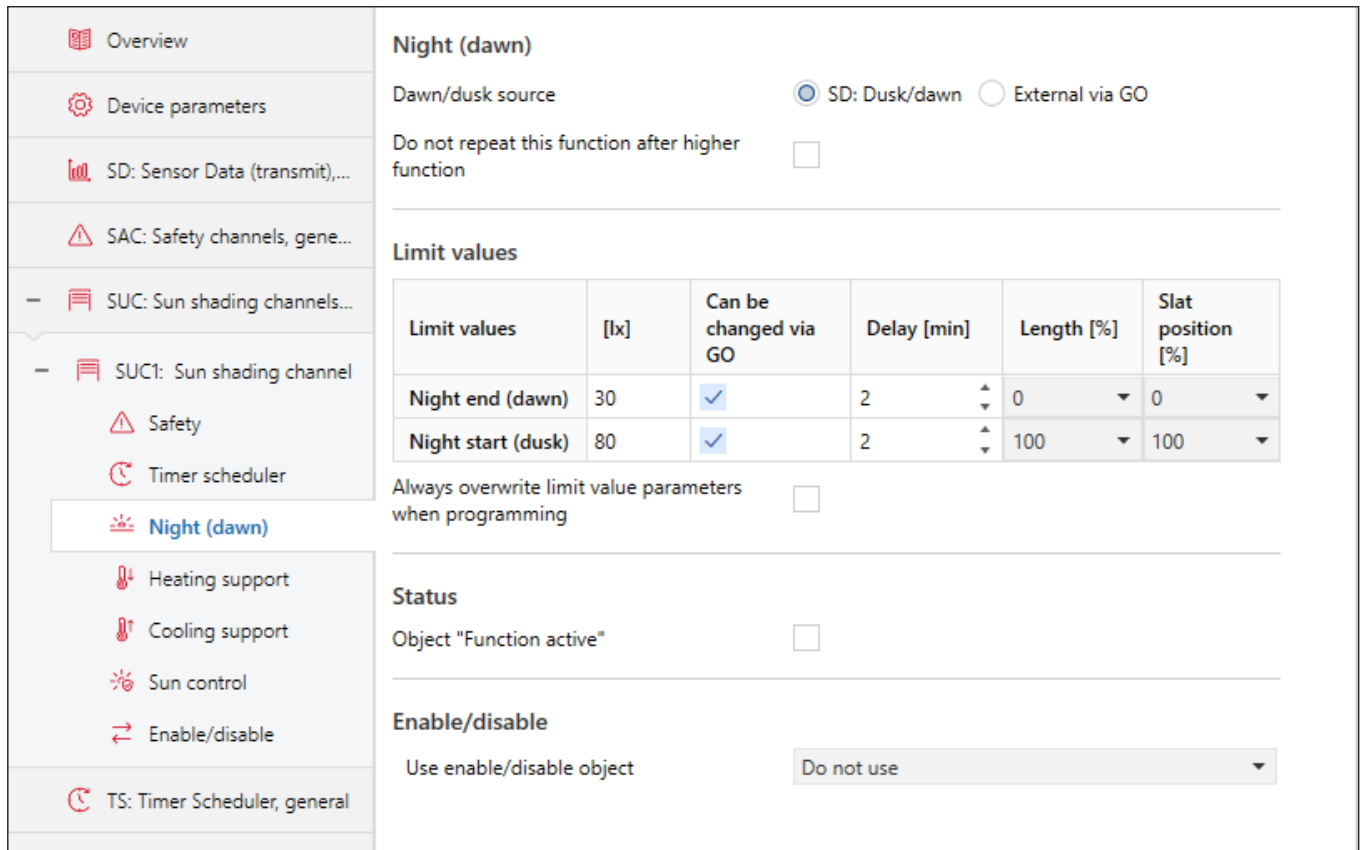
The functions of the sun shading channel (*night (dawn)*, *heating support*, *cooling support* and *sun control*) can also be activated or deactivated via each timer switching time.

For *Night (dawn)*, the settings "Force" and "Force end" are also available. The "Night" status can be explicitly set or ended without the brightness evaluation of the *Night (dawn)* function having any influence.

### Enable/disable

An enable or disable object can be displayed here.

### 6.5.5 Night (dawn)



**Night (dawn)**

Dawn/dusk source  SD: Dusk/dawn  External via GO

Do not repeat this function after higher function

**Limit values**

| Limit values       | [lx] | Can be changed via GO               | Delay [min] | Length [%] | Slat position [%] |
|--------------------|------|-------------------------------------|-------------|------------|-------------------|
| Night end (dawn)   | 30   | <input checked="" type="checkbox"/> | 2           | 0          | 0                 |
| Night start (dusk) | 80   | <input checked="" type="checkbox"/> | 2           | 100        | 100               |

Always overwrite limit value parameters when programming

**Status**

Object "Function active"

**Enable/disable**

Use enable/disable object

Fig. 27 Parameter dialogue: SUCn: Sun shading channel, Night (dawn)

| Parameter  | Function   | Values                                    |
|--|--|---|
| Dawn/dusk source   | Alternatively, the "SD: dawn/dusk" of the weather station or an external GO can be evaluated.  | <b>SD: Dusk/dawn</b><br>Externally via GO |
| Do not repeat this function after higher function        | Option to not repeat the function if it was already active, was overridden by a higher function, and the higher function becomes inactive.       | On<br><b>Off</b>                          |
| Limit values [lx]<br>End of night (dawn)                 | Limit value that must be exceeded so that the parameterised position can be approached.  | 0<br>:<br><b>30</b><br>:<br>1000          |
| Limit values [lx]<br>Night start (dusk)                  | Limit value that must be fallen below so that the parameterised position can be approached.  | 0<br>:<br><b>80</b><br>:<br>1000          |
| Can be changed via GO                                    | Activates corresponding GOs "SUCn: sun shading channel dawn limit value input ext." i.e. "SUCn: sun shading channel dusk limit value input ext." | <b>No</b><br>Yes                          |
| Always overwrite limit value parameters when programming | You can then select whether the current limit values may be overwritten or retained during programming.  | <b>No</b><br>Yes                          |

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|                                    |  |  |
|------------------------------------|--|--|
| Delay [min]                        | Time period in which the limit value must be permanently exceeded/fallen below for a move command to be triggered. | 0<br>:<br><b>2</b><br>:<br>255                       |
| Length [%]                         | Blind length that is approached during an active status.   | –<br>:<br><b>n</b><br>:<br>100                       |
| Slat position [%]                  | Slat position that is approached during an active status.  | –<br>:<br><b>n</b><br>:<br>100                       |
| Status<br>"Function active" object | A status object can be displayed here to indicate when the dawn/dusk control mode is active.                       | On<br><b>Off</b>                                     |
| Enable/disable                     | An enable or disable object that affects the dawn/dusk control mode can be displayed here.                         | <b>Do not use</b><br>Enable object<br>Disable object |

## 6.5.6 Heating support

















|   |  |  |
|---|--|--|
|  Overview                        | <b>Heating support</b>                               |  |
|  Device parameters               | Temperature source                                   | <input checked="" type="radio"/> SD: Temperature <input type="radio"/> External GO |
|  SD: Sensor Data (transmit),...  | Function only active when there is sun on the facade | <input type="checkbox"/>   |
|  SAC: Safety channels, gene...   | Do not repeat this function after higher function    | <input type="checkbox"/>   |
| <hr/>   |  |  |
|  SUC: Sun shading channels...    | <b>Limit value</b>                                   |  |
|  SUC1: Sun shading channel       | Limit value cold weather [°C]                        | <input type="text" value="10"/>  |
|  Safety                          | Can be changed via GO                                | <input type="text" value="No"/>  |
|  Timer scheduler                 | Hysteresis [°C]                                      | <input type="text" value="3"/>   |
|  Night (dawn)                   | <hr/>  |  |
|  <b>Heating support</b>        | <b>Move command</b>                                  |  |
|  Cooling support               | Blind length [%]                                     | <input type="text" value="0"/>   |
|  Sun control                   | Slat position [%]                                    | <input type="text" value="0"/>   |
|  Enable/disable                | <hr/>  |  |
|  TS: Timer Scheduler, general  | <b>Status</b>  |  |
|  SE: Sensor evaluation, gen... | Object "Function active"                             | <input type="checkbox"/>   |
|  SEC: Sensor evaluation co...  | <hr/>  |  |
|   | <b>Enable/disable</b>                                |  |
|   | Use enable/disable object                            | <input type="text" value="Do not use"/>  |

Fig. 28 Parameter dialogue: SUCn: Sun shading channel, heating support

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| Parameter  | Function  | Values                                    |
|--|---|---|
| Temperature source                                   | Alternatively, the temperature source of the weather station or an external GO can be evaluated.  | <b>SD: Temperature</b>                    |
|  |   | External GO                               |
| Function only active when there is sun on the facade | Here you can set the function to be activated only when the facade is exposed to sunlight. The correct facade properties must be set on the "SUCn: Sun shading channel" parameter page. | On  |
|  |   | <b>Off</b>                                |
| Do not repeat this function after higher function    | Option to not repeat the function if it was already active, was overridden by a higher function, and the higher function becomes inactive.  | On  |
|  |   | <b>Off</b>                                |
| Limit value cold weather [°C]                        | Limit value that must be fallen below for heating support to be activated.  | -50 °C<br>:<br><b>10 °C</b><br>:<br>50 °C |
| Can be changed via GO                                | Activates a GO "Cooling support limit value input ext.". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.         | <b>No</b>                                 |
|  |   | Yes, overwrite during programming         |
|  |   | Yes, do not overwrite during programming  |
| Hysteresis [°C]                                      | Value by which the limit value must be exceeded for the heating support to be deactivated again.  | 1<br>:<br><b>3</b><br>:<br>20             |
| Move command<br>Blind length [%]                     | Blind length that is approached when the function is active.  | –<br>:<br><b>0</b><br>:<br>100            |
| Move command<br>Slat position [%]                    | Slat position that is approached when the function is active.   | –<br>:<br><b>0</b><br>:<br>100            |
| Status<br>"Function active" object                   | A status object can be displayed here to indicate when the heating support is active.   | On  |
|  |   | <b>Off</b>                                |
| Enable/disable                                       | An enable or disable object that affects the heating support can be displayed here.   | <b>Do not use</b>                         |
|  |   | Enable object                             |
|  |   | Disable object                            |

## 6.5.7 Cooling support

|                                |  |  |
|--------------------------------|--|--|
| Overview                       | <b>Cooling support</b>                               |  |
| Device parameters              | Temperature source                                   | <input checked="" type="radio"/> SD: Temperature <input type="radio"/> External GO |
| SD: Sensor Data (transmit),... | Function only active when there is sun on the facade | <input type="checkbox"/>   |
| SAC: Safety channels, gene...  | Do not repeat this function after higher function    | <input type="checkbox"/>   |
| SUC: Sun shading channels...   | <b>Limit value</b>                                   |  |
| SUC1: Sun shading channel      | Limit value heat [°C]                                | <input type="text" value="25"/>  |
| Safety                         | Can be changed via GO                                | <input type="text" value="No"/>  |
| Timer scheduler                | Hysteresis [°C]                                      | <input type="text" value="3"/>   |
| Night (dawn)                   | <b>Move command</b>                                  |  |
| Heating support                | Blind length [%]                                     | <input type="text" value="100"/>   |
| <b>Cooling support</b>         | Slat position [%]                                    | <input type="text" value="100"/>   |
| Sun control                    | <b>Status</b>  |  |
| Enable/disable                 | Object "Function active"                             | <input type="checkbox"/>   |
| TS: Timer Scheduler, general   | <b>Enable/disable</b>                                |  |
| SE: Sensor evaluation, gen...  | Use enable/disable object                            | <input type="text" value="Do not use"/>  |
| SEC: Sensor evaluation co...   |  |  |

Fig. 29 Parameter dialogue: SUCn: Sun shading channel, cooling support

# KNX secure sensor interface REG/AP

| Parameter  | Function  | Values                                    |
|--|---|---|
| Temperature source                                   | Alternatively, the temperature source of the weather station or an external GO can be evaluated.  | <b>SD: Temperature</b>                    |
|  |   | External GO                               |
| Function only active when there is sun on the facade | Here you can set the function to be activated only when the facade is exposed to sunlight. The correct facade properties must be set on the "SUCn: Sun shading channel" parameter page. | On  |
|  |   | <b>Off</b>                                |
| Do not repeat this function after higher function    | Option to not repeat the function if it was already active, was overridden by a higher function, and the higher function becomes inactive.  | On  |
|  |   | <b>Off</b>                                |
| Limit value heat [°C]                                | Limit value that must be exceeded for the cooling support to be activated.  | -50 °C<br>:<br><b>25 °C</b><br>:<br>50 °C |
| Can be changed via GO                                | Activates a GO "Cooling support limit value input ext.". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.         | <b>No</b>                                 |
|  |   | Yes, overwrite during programming         |
|  |   | Yes, do not overwrite during programming  |
| Hysteresis [°C]                                      | Value by which the limit value must be fallen below for the cooling support to be deactivated again.  | 1<br>:<br><b>3</b><br>:<br>20             |
| Move command<br>Blind length [%]                     | Blind length that is approached when the function is active.  | –<br>:<br>0<br>:<br><b>100</b>            |
| Move command<br>Slat position [%]                    | Slat position that is approached when the function is active.   | –<br>:<br>0<br>:<br><b>100</b>            |
| Status<br>"Function active" object                   | A status object can be displayed here to indicate when the cooling support is active.   | On  |
|  |   | <b>Off</b>                                |
| Enable/disable                                       | An enable or disable object that affects the cooling support can be displayed here.   | <b>Do not use</b>                         |
|  |   | Enable object                             |
|  |   | Disable object                            |

### 6.5.8 Sun control

Three methods are available for calculating the sun control.

- ▶ WAREMA Sun-Fair-Cloud
- ▶ WAREMA Fair-Sun-Fair-Cloud
- ▶ WAREMA Sun-Cloud

Depending on the selected method, the following tables are supplemented with the required limit values and delay times.

- Overview
- Device parameters
- SD: Sensor Data (transmit),...
- SAC: Safety channels, gene...
- SUC: Sun shading channels...
- SUC1: Sun shading channel
  - Safety
  - Timer scheduler
  - Night (dawn)
  - Heating support
  - Cooling support
  - Sun control
  - Slat tracking
  - Enable/disable
- TS: Timer Scheduler, general
- SE: Sensor evaluation, gen...
- SEC: Sensor evaluation co...
- L/T: Logic / Timer, general

#### Sun control

Brightness source SD: Brightness 1-4 max. ▼

Function only active when there is sun on the facade

Do not repeat this function after higher function

---

#### Limit values

Evaluation method WAREMA Sun-Fair-Cloud ▼

| Limit values  | Limit values [lx] | Can be changed via GO               | Length [%] | Slat position [%] |
|---------------|-------------------|-------------------------------------|------------|-------------------|
| "Sun" above   | 50000             | <input checked="" type="checkbox"/> | 100 ▼      | 80 ▼              |
| "Fair" below  | 35000             | <input type="checkbox"/>            | 100 ▼      | 50 ▼              |
| "Cloud" below | 20000             | <input type="checkbox"/>            | 0 ▼        | 0 ▼               |

| Delay times        | [min] |
|--------------------|-------|
| "Sun"              | 2 ▲▼  |
| "Sun" after "fair" | 10 ▲▼ |
| "Cloud"            | 20 ▲▼ |

Always overwrite limit value parameters when programming

---

#### Slat tracking

Activate slat tracking

**i** If slat tracking is used, see separate parameter dialog

---

#### Status

Object "Function active"

---

#### Enable/disable

Fig. 30 Parameter dialogue: SUCn: Sun shading channel, sun control

# KNX secure sensor interface REG/AP

| Parameter  | Function  | Values                               |
|--|---|--------------------------------------|
| Brightness source  | Alternatively the "SD: Brightness" of the weather station or an external GO can be evaluated.   | SD: Brightness 1                     |
|  |   | SD: Brightness 2                     |
|  |   | SD: Brightness 3                     |
|  |   | SD: Brightness 4                     |
|  |   | <b>SD: Brightness 1-4 max.</b>       |
|  |   | Externally via GO                    |
| Function only active when there is sun on the facade     | Here you can set the function to be activated only when the facade is exposed to sunlight. The correct facade properties must be set on the "SUCn: Sun shading channel" parameter page. | On<br><b>Off</b>                     |
| Do not repeat this function after higher function        | Option to not repeat the function if it was already active, was overridden by a higher function, and the higher function becomes inactive.  | On<br><b>Off</b>                     |
| Evaluation method  | Three methods are available for calculating the sun control.  | <b>WAREMA Sun-Fair-Cloud</b>         |
|  |   | WAREMA Fair-Sun-Fair-Cloud           |
|  |   | WAREMA Sun-Cloud                     |
| Limit values [lx]  | Limit values that must be exceeded/fallen below for the parameterised positions to be approached.   | 1000<br>:<br><b>n</b><br>:<br>100000 |
| Can be changed via GO                                    | Activates the corresponding GOs "Sun control sun/fair/cloud limit value ext. input".  | <b>No</b>                            |
|  |   | Yes                                  |
| Always overwrite limit value parameters when programming | You can then select whether the current limit values may be overwritten or retained during programming.   | <b>No</b>                            |
|  |   | Yes                                  |
| Length [%]   | Blind length that is approached when the status is active (sun/fair/cloud).   | –<br>:<br><b>n</b><br>:<br>100       |
| Slat position [%]  | Slat position that is approached when the status is active (sun/fair/cloud).  | –<br>:<br><b>n</b><br>:<br>100       |
| Delay times [min]  | Time periods in which the limit values must be permanently exceeded/fallen below in order for a move command to be triggered.   | 0<br>:<br><b>n</b><br>:<br>255       |
| Slat tracking  | The slat tracking for the sun control can be activated here. An additional parameter dialogue will then appear.   | On                                   |
|  |   | <b>Off</b>                           |
| Status "Function active" object                          | A status object can be displayed here to indicate when the sun control is active.   | On                                   |
|  |   | <b>Off</b>                           |
| Enable/disable   | An enable or disable object that affects the sun control can be displayed here.   | <b>Do not use</b>                    |
|  |   | Enable object                        |
|  |   | Disable object                       |

## 6.5.9 Slat tracking

Slat tracking can alternatively be carried out, either depending on the geometry of the blind or in detail using a table with individual steps.

The correct facade properties must be set on the "SUCn: Sun shading channel" parameter page.

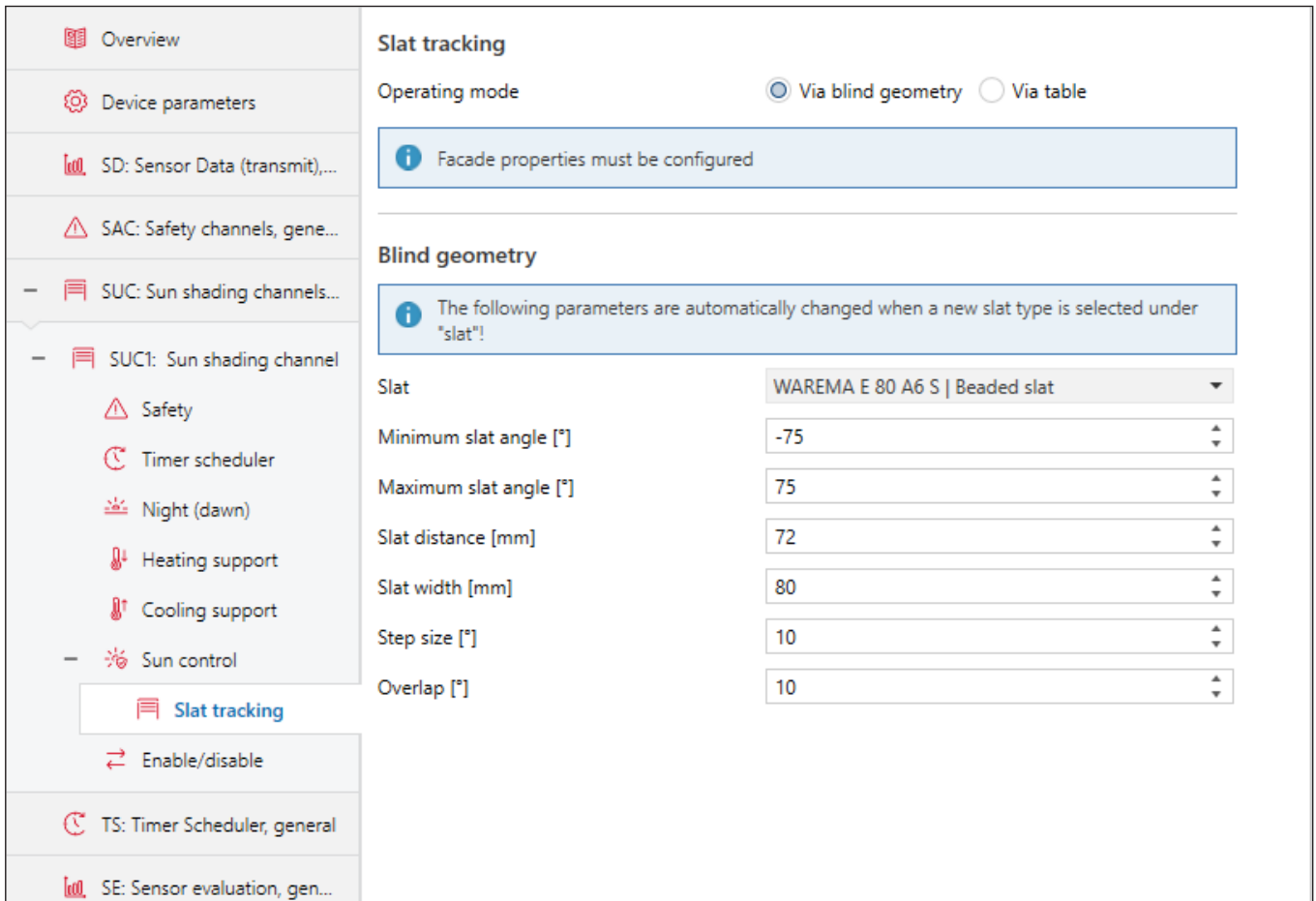


The parameter dialogue and the associated GOs for slat tracking are only displayed if the slat tracking has been activated in the "sun control" dialog of the sun shading channel (see Chapter 6.5.8 on page 51).

### 6.5.9.1 "Via blind geometry" operating mode

Here, the slat tracking is calculated automatically from the values of the blind geometry in conjunction with the step size and overlap.

All steps have the same size.



The screenshot shows the configuration interface for slat tracking. On the left is a navigation menu with options like Overview, Device parameters, and SUC: Sun shading channels. The main area is titled 'Slat tracking' and has two radio buttons: 'Via blind geometry' (selected) and 'Via table'. Below this is an information box stating 'Facade properties must be configured'. Another information box notes that parameters are automatically changed when a new slat type is selected. The 'Blind geometry' section contains several adjustable parameters:

| Parameter              | Value                          |
|------------------------|--------------------------------|
| Slat                   | WAREMA E 80 A6 S   Beaded slat |
| Minimum slat angle [°] | -75                            |
| Maximum slat angle [°] | 75                             |
| Slat distance [mm]     | 72                             |
| Slat width [mm]        | 80                             |
| Step size [°]          | 10                             |
| Overlap [°]            | 10                             |

Fig. 31 Parameter dialogue: SUCn: Sun shading channel, slat tracking via blind geometry

| Parameter              | Function   | Values                                 |
|------------------------|--|--|
| Operating mode         | Slat tracking can alternatively be carried out, either depending on the geometry of the blind or in detail using a table with individual steps.  | <b>Via blind geometry</b><br>Via table |
| Slat                   | WAREMA products can be selected directly from the menu according to type. All following parameters are automatically entered. Select "User-defined" here for third-party products. The parameters must then be adjusted manually. NOTICE: if a parameter is changed for a selected WAREMA product, the entry for slat changes to "User-defined". | Selection list of slat types           |
| Minimum slat angle [°] | Angle by which the slat is turned inwards  | -90<br>:<br>90                         |
| Maximum slat angle [°] | Angle by which the slat is turned outwards   | -90<br>:<br>90                         |
| Slat distance [mm]     | Distance between two slats   | 10<br>:<br>250                         |
| Slat width [mm]        | Width of a slat  | 10<br>:<br>250                         |
| Step size [°]          | Tilt angle for one step. In conjunction with the minimum and maximum slat angle, this results in the number of steps over the entire blind application. (only for blind geometry operating mode)   | 5<br>:<br>45                           |
| Overlap [°]            | Overlap of the shade of the slat with the shade of the next slat to prevent the sun from shining through. (only for blind geometry operating mode)   | -90<br>:<br>90                         |

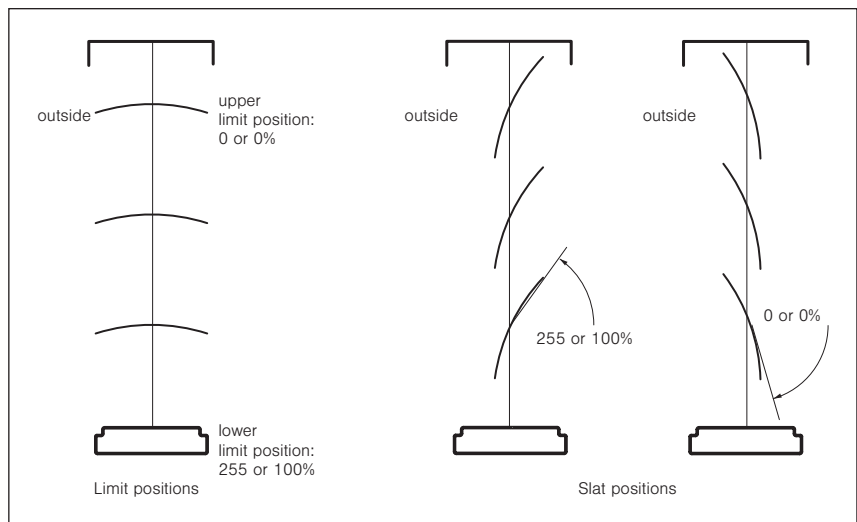


Fig. 32 Motor limit positions, slat positions

### 6.5.9.2 "Via table" operating mode

Here, the values for slat tracking (for freely adjustable areas of the projected angle on the facade) are read from the table.

A length and an individual slat angle can be specified for each area. A maximum of 6 steps are possible. The size of each step depends on the parameterised values and can therefore also be freely determined.

- Overview
- Device parameters
- SD: Sensor Data (transmit),...
- SAC: Safety channels, gene...
- SUC: Sun shading channels...
- SUC1: Sun shading channel
  - Safety
  - Timer scheduler
  - Night (dawn)
  - Heating support
  - Cooling support
  - Sun control
  - Slat tracking
  - Enable/disable
  - TS: Timer Scheduler, general

#### Slat tracking

Operating mode  Via blind geometry  Via table

**i** Facade properties must be configured

| Slat tracking     | Proj. angle [°] | Length [%] | Slat position [°] |
|-------------------|-----------------|------------|-------------------|
| From 0° to:       | 16              | 100        | 72                |
| From previous to: | 25              | 100        | 57                |
| From previous to: | 34              | 100        | 42                |
| From previous to: | 43              | 100        | 27                |
| From previous to: | 50              | 100        | 11                |
| From previous to: | 90              | 100        | 0                 |
| Sun not on facade |                 | 100        | 0                 |

#### Blind geometry

**i** The following parameters are automatically changed when a new slat type is selected under "slat"!

Slat: WAREMA E 80 A6 S | Beaded slat

Minimum slat angle [°]: -75

Maximum slat angle [°]: 75

Fig. 33 Parameter dialogue: SUCn: Sun shading channel, slat tracking and blind geometry via table

# KNX secure sensor interface REG/AP

| Parameter              | Function   | Values                                 |
|------------------------|--|--|
| Operating mode         | Slat tracking can alternatively be carried out, either depending on the geometry of the blind or in detail using a table with individual steps.  | <b>Via blind geometry</b><br>Via table |
| Slat                   | WAREMA products can be selected directly from the menu according to type. All following parameters are automatically entered. Select "User-defined" here for third-party products. The parameters must then be adjusted manually. NOTICE: if a parameter is changed for a selected WAREMA product, the entry for slat changes to "User-defined". | Selection list of slat types           |
| Minimum slat angle [°] | Angle by which the slat is turned inwards  | -90<br>:<br>90                         |
| Maximum slat angle [°] | Angle by which the slat is turned outwards   | -90<br>:<br>90                         |

### 6.5.10 Enable/disable sun shading channel

An enable or disable object which affects the complete sun shading channel can be displayed here.

|                                |   |                          |
|--------------------------------|---|--------------------------|
| Overview                       | <b>Enable/disable sun shading channel</b> |                          |
| Device parameters              | Use enable/disable object                 | Disable object ▼         |
| SD: Sensor Data (transmit),... | Transmit current value after enabling     | <input type="checkbox"/> |
| SAC: Safety channels, gene...  |   |                          |

Fig. 34 Parameter dialogue: SUCn: Sun shading channel, enable/disable

| Parameter                             | Function  | Values            |
|---------------------------------------|---|-------------------|
| Use enable/disable object             | An enable or disable object which affects the complete sun shading channel can be displayed here. | <b>Do not use</b> |
|                                       |   | Enable object     |
|                                       |   | Disable object    |
| Transmit current value after enabling | Here you can specify whether the current value is to be transmitted after enabling.               | On                |
|                                       |   | <b>Off</b>        |

## 6.6 TS: Timer Scheduler

### 6.6.1 TS: Timer Scheduler, general

There are 12 Timer Schedulers. For an enhanced overview, all required Timer Schedulers can be activated separately and named individually. The parameter dialogues and associated GOs are only displayed for activated Timer Schedulers.











|                                |  |
|--------------------------------|--|
| Overview                       | <b>Timer Scheduler 1</b>                   |
| Device parameters              | Active <input checked="" type="checkbox"/> |
| SD: Sensor Data (transmit),... | Timer scheduler name <input type="text"/>  |
| SAC: Safety channels, gene...  | <b>Timer Scheduler 2</b>                   |
| SUC: Sun shading channels...   | Active <input type="checkbox"/>            |
| + TS: Timer Scheduler, gen...  | <b>Timer Scheduler 3</b>                   |
| SE: Sensor evaluation, gen...  | Active <input type="checkbox"/>            |
| SEC: Sensor evaluation co...   | <b>Timer Scheduler 4</b>                   |
| L/T: Logic / Timer, general    | Active <input type="checkbox"/>            |
|                                | <b>Timer Scheduler 5</b>                   |
|                                | Active <input type="checkbox"/>            |
|                                | <b>Timer Scheduler 6</b>                   |

Fig. 35 Parameter dialogue: TS: Timer Scheduler, general

| Parameter            | Function  | Values                    |
|----------------------|---|---------------------------|
| Active               | Determines whether the Timer Scheduler is to be used  | On<br>Off                 |
| Timer Scheduler name | A name entered here replaces the default entry "Timer Scheduler" in the corresponding parameter dialogues and GOs | Text (max. 80 characters) |

### 6.6.2 TSn: Timer Scheduler

The Timer Scheduler is equipped with 10 switching times (No. 1 to No. 10). For each switching time, all available actions can generally be performed at once (e.g. approach the blind length and call up a scenario at the same time...). There are five separate action-specific GOs for each Timer Scheduler. Two 1-byte objects for blind length and slat position and a combined 3-byte object are available for move commands.

-  Overview
-  Device parameters
-  SD: Sensor Data (transmit),...
-  SAC: Safety channels, gene...
-  SUC: Sun shading channels...
-  TS: Timer Scheduler, general
-  **TS1: Timer scheduler**
-  SE: Sensor evaluation, gen...
-  SEC: Sensor evaluation co...
-  L/T: Logic / Timer, general

#### Timer scheduler

**Trigger**

|        | M                        | T                        | W                        | T                        | F                        | S                        | S                        | Event | Time  |
|--------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------|-------|
| No. 1  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 2  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 3  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 4  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 5  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 6  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 7  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 8  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 9  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |
| No. 10 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | by ▼  | 00:00 |

**Actions**

|        | Blind length [%] | Slat position [%] | Scenario number | Bit  | Comment |
|--------|------------------|-------------------|-----------------|------|---------|
| No. 1  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 2  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 3  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 4  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 5  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 6  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 7  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 8  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 9  | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |
| No. 10 | -- ▼             | -- ▼              | -- ▼            | -- ▼ |         |

**Enable/disable**

Enable or disable GO Do not use ▼

Fig. 36 Parameter dialogue: TSn: Timer Scheduler

## Triggers

The triggers for the 10 possible switching times are defined here.

- ▶ Application on specific weekdays (e.g. Saturday and Sunday)
- ▶ Application when an event occurs (at sunrise)
- ▶ Application at a specific time (e.g. 22:00)

Information always displayed in the table according to the scheme *weekdays + event + time*.

A set time is not evaluated for the events "at sunrise" and "at sunset".



The time of sunrise/sunset is calculated based on the geographical position (see *Chapter 6.2 on page 18*).

## Actions

The actions for the 10 possible switching times are defined here.

- ▶ Transmission of blind length and/or slat position (to move the sun shading system to a desired position/angle)
- ▶ Transmission of a scenario number
- ▶ Transmission of a bit object (e.g. to activate control modes of other devices)

| Parameter   | Function   | Values                    |
|---|--|---------------------------|
| Enable/disable                                    | An enable or disable object can be displayed here.   | <b>Do not use</b>         |
|   |  | Enable GO                 |
|   |  | Disable GO                |
| Transmit value when disabling Blind length [%]    | Blind length to be transmitted when disabling.   | --<br>:<br>0<br>:<br>100  |
| Transmit value when disabling Slat position [%]   | Slat position to be sent when disabling.   | --<br>:<br>0<br>:<br>100  |
| Transmit value when disabling Bit                 | Bit transmitted when disabling.  | --<br>:<br>On<br>:<br>Off |
| Transmit last value upon enable Blind length [%]  | Here you can specify whether the last value is to be repeated and transmitted when enabling. | <b>Inactive</b>           |
|   |  | Active                    |
| Transmit last value upon enable Slat position [%] | Here you can specify whether the last value is to be repeated and transmitted when enabling. | <b>Inactive</b>           |
|   |  | Active                    |
| Transmit last value upon enable Bit               | Here you can specify whether the last value is to be repeated and transmitted when enabling. | <b>Inactive</b>           |
|   |  | Active                    |

## 6.7 SE: Sensor evaluation

A sensor evaluation is available for each sensor. This evaluates the recorded sensor data (e.g. limit value exceeded/fallen below) and transmits the parameterised information to the bus. The following objects can be transmitted for each status of the sensor evaluation (fulfilled/not fulfilled):

- ▶ Transmission of a bit object (e.g. to activate control modes of other devices)
- ▶ Transmission of a byte object (0...255)
- ▶ Transmission of a scenario number (execute or learn)

Each sensor evaluation can transmit all available objects at once (e.g. transmit bit and call up a scenario at the same time...).

For each sensor evaluation, individual transmission behaviour can be defined and an enable or disable object can be displayed.

There are also 10 generic sensor evaluations with a freely selectable data source. In addition to the sensor data from the weather station, data from external GOs can also be evaluated. A name entered here (max. 80 characters) replaces the default entry "Generic" in the associated parameter dialogues and GOs.

## 6.7.1 SE: Sensor evaluation, general

For an enhanced overview, all required sensor evaluations can be activated separately.



The parameter dialogues and associated GOs are only displayed for activated sensor evaluations.

|                                |                                  |
|--------------------------------|----------------------------------|
| Overview                       | <b>Temperature</b>               |
| Device parameters              | Active <input type="checkbox"/>  |
| SD: Sensor Data (transmit),... | <b>Brightness</b>                |
| SAC: Safety channels, gene...  | Active <input type="checkbox"/>  |
| SUC: Sun shading channels...   | <b>Radiation</b>                 |
| TS: Timer Scheduler, general   | Active <input type="checkbox"/>  |
| SE: Sensor evaluation, ge...   | <b>Dawn/dusk</b>                 |
| SEC: Sensor evaluation co...   | Active <input type="checkbox"/>  |
| L/T: Logic / Timer, general    | <b>Wind speed</b>                |
|                                | Active <input type="checkbox"/>  |
|                                | <b>Wind direction 1 minute</b>   |
|                                | Active <input type="checkbox"/>  |
|                                | <b>Wind direction 10 minutes</b> |
|                                | Active <input type="checkbox"/>  |
|                                | <b>Time range</b>                |
|                                | Active <input type="checkbox"/>  |
|                                | <b>Date range</b>                |
|                                | Active <input type="checkbox"/>  |
|                                | <b>Position of the sun</b>       |
|                                | Active <input type="checkbox"/>  |

Fig. 37 Parameter dialogue: SE: Sensor evaluation, general

| Parameter | Function   | Values                    |
|-----------|--|---------------------------|
| Active    | Determines whether the sensor evaluation is to be used   | On<br>Off                 |
| SEn: name | A name entered here replaces the default entry "Generic" in the associated parameter dialogues and GOs | Text (max. 80 characters) |

## 6.7.2 SE: Temperature

Evaluation of the temperature from SD: Temperature

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE: Temperature</b></li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Operating mode</b></p> <p>Exceeded/fallen below <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit value</b></p> <p>Temperature [°C] <input type="text" value="25"/></p> <p>Can be changed via GO <input type="text" value="No"/></p> <p>Hysteresis [°C] <input type="text" value="3"/></p> <p>Delay when fulfilled [sec] <input type="text" value="60"/></p> <p>Delay when not fulfilled [sec] <input type="text" value="300"/></p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/></p> <p>Not fulfilled <input type="text" value="128"/></p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss</p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/></p> <p>Transmit value when disabling <input type="text" value="Do not transmit anything"/></p> <p>Transmit current value after enabling <input type="checkbox"/></p> |
|--|--|

Fig. 38 Parameter dialogue: SE: Temperature

# KNX secure sensor interface REG/AP

| Parameter   | Function  | Values                                   |
|---|---|--|
| Operating mode<br>Exceeding/falling below                   | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>           |
|   |   | Not fulfilled/fulfilled                  |
| Limit value<br>Temperature [°C]                             | Limit value that must be exceeded/fallen below (for the duration of the "Delay if fulfilled [sec]" parameter) for the sensor evaluation to reach the "Fulfilled" status.  | -20<br>:<br><b>25</b><br>:<br>60         |
|   |   |  |
| Can be changed via GO                                       | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | <b>No</b>                                |
|   |   | Yes, overwrite during programming        |
|   |   | Yes, do not overwrite during programming |
| Hysteresis [°C]   | <p>Value by which the limit value (for the duration of the "Delay if not fulfilled [sec]" parameter) must additionally be exceeded/fallen below so that the sensor evaluation falls back to the status "Not fulfilled".</p> <ul style="list-style-type: none"> <li>The following applies for the "Exceeded" operating mode: the value must fall below the "Limit value - hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".</li> <li>The following applies to the "Fall below fulfilled" operating mode: the value must exceed the "Limit value + hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".</li> </ul> | 0<br>:<br><b>3</b><br>:<br>60            |
|   |   |  |
| Delay when fulfilled [sec]                                  | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>60</b><br>:<br>65535        |
| Delay when not fulfilled [sec]                              | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>300</b><br>:<br>65535       |
| "Bit" object<br>Fulfilled                                   | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>                                |
|   |   | Off                                      |
| "Bit" object<br>Not fulfilled                               | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On                                       |
|   |   | <b>Off</b>                               |
| "Byte" object active  | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On                                       |
|   |   | <b>Off</b>                               |
| "Byte" object active<br>Fulfilled                           | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255         |
|   |   |  |
| "Byte" object active<br>Not fulfilled                       | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255         |
|   |   |  |
| "Scenario" object active                                    | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On                                       |
|   |   | <b>Off</b>                               |
| "Scenario" object active - Fulfilled<br>Scenario number     | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64                      |
|   |   |  |
| "Scenario" object active - Fulfilled<br>Scenarios function  | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>                           |
|   |   | Learn                                    |
| "Scenario" object active - Not fulfilled<br>Scenario number | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64                      |
|   |   |  |

|  |   |   |
|--|---|---|
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Learn<br>Do not transmit<br>Only transmit after a change from "Not fulfilled" to "Fulfilled"<br>Only transmit after a change from "Fulfilled" to "Not fulfilled"<br><b>Transmit after every change</b><br>Transmit after any update and transmit cyclically |
| Time for cyclical transmission [hh:mm:ss]                      | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59   |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>Do not use</b><br>Enable object<br>Disable object  |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b><br>"Fulfilled" value<br>"Not fulfilled" value   |
| Transmit current value after enabling                          | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b><br>Off  |

## 6.7.3 SE: Brightness

Evaluation of brightness from SD: Brightness. A total of five sensor evaluations are available (for "SD: Brightness 1" to 4 and for "SD: Brightness 1-4 max.").

|                                |  |
|--------------------------------|--|
| Overview                       | <b>Operating mode</b>  |
| Device parameters              | Exceeded/fallen below <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled |
| SD: Sensor Data (transmit),... | <b>Limit value</b>   |
| SAC: Safety channels, gene...  | Brightness [lx] <input type="text" value="25000"/>   |
| SUC: Sun shading channels...   | Can be changed via GO <input type="text" value="No"/>  |
| TS: Timer Scheduler, general   | Hysteresis [lx] <input type="text" value="2000"/>  |
| SE: Sensor evaluation, gen...  | Delay when fulfilled [sec] <input type="text" value="60"/>   |
| SE: Brightness 1               | Delay when not fulfilled [sec] <input type="text" value="300"/>  |
| SE: Brightness 2               | <b>Type of object</b>  |
| SE: Brightness 3               | Object "Bit"   |
| SE: Brightness 4               | Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off  |
| SE: Brightness 1-4 max.        | Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off  |
| SEC: Sensor evaluation co...   | Object "Byte" active <input checked="" type="checkbox"/>   |
| L/T: Logic / Timer, general    | Fulfilled <input type="text" value="128"/>   |
|                                | Not fulfilled <input type="text" value="128"/>   |
|                                | Object "Scenario" active <input checked="" type="checkbox"/>   |
|                                | Fulfilled  |
|                                | Scenario number <input type="text" value="1"/>   |
|                                | Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn                                       |
|                                | Not fulfilled  |
|                                | Scenario number <input type="text" value="1"/>   |
|                                | Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn                                       |
|                                | <b>Transmission behaviour</b>  |
|                                | Behaviour <input type="text" value="Transmit cyclically after every update"/>  |
|                                | Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss                                       |
|                                | <b>Enable/disable</b>  |
|                                | Use enable/disable object <input type="text" value="Disable object"/>  |

Fig. 39 Parameter dialogue: SE: Brightness

| Parameter   | Function  | Values  |
|---|---|---|
| Operating mode<br>Exceeding/falling below                   | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>  |
|   |   | Not fulfilled/fulfilled   |
| Limit value<br>Brightness [lx]                              | Limit value that must be exceeded/fallen below (for the duration of the "Delay if fulfilled [sec]" parameter) for the sensor evaluation to reach the "Fulfilled" status.  | 0<br>:<br><b>25000</b><br>:<br>100000   |
| Can be changed via GO                                       | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | <b>No</b>   |
|   |   | Yes, overwrite during programming<br>Yes, do not overwrite during programming |
| Hysteresis [lx]   | Value by which the limit value (for the duration of the "Delay if not fulfilled [sec]" parameter) must additionally be exceeded/fallen below so that the sensor evaluation falls back to the status "Not fulfilled".<br>• The following applies for the "Exceeded" operating mode: the value must fall below the "Limit value - hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".<br>• The following applies to the "Fall below fulfilled" operating mode: the value must exceed the "Limit value + hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled". | 0<br>:<br><b>2000</b><br>:<br>100000  |
| Delay when fulfilled [sec]                                  | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>60</b><br>:<br>65535   |
| Delay when not fulfilled [sec]                              | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>300</b><br>:<br>65535  |
| "Bit" object<br>Fulfilled                                   | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>   |
|   |   | Off   |
| "Bit" object<br>Not fulfilled                               | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On  |
|   |   | <b>Off</b>  |
| "Byte" object active  | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On  |
|   |   | <b>Off</b>  |
| "Byte" object active<br>Fulfilled                           | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255  |
| "Byte" object active<br>Not fulfilled                       | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255  |
| "Scenario" object active                                    | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On  |
|   |   | <b>Off</b>  |
| "Scenario" object active - Fulfilled<br>Scenario number     | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64   |
|   |   | <b>Execute</b>  |
| "Scenario" object active - Fulfilled<br>Scenarios function  | Scenario function sent if the "Fulfilled" status is reached.  | Learn   |
|   |   | <b>1</b><br>:<br>64   |
| "Scenario" object active - Not fulfilled<br>Scenario number | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64   |

|  |   |  |
|--|---|--|
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Learn  |
|  |   | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
| Transmit after any update and transmit cyclically              | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00   |
| Time for cyclical transmission [hh:mm:ss]                      |   | :  |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>00:05:00</b>  |
|  |   | :  |
|  |   | 23:59:59   |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not use</b>  |
|  |   | Enable object  |
|  |   | Disable object   |
| Transmit current value after enabling                          | Here you can specify whether the current value is to be transmitted when enabling.  | <b>Do not transmit anything</b>                                  |
|  |   | "Fulfilled" value  |
|  |   | "Not fulfilled" value  |
|  |   | <b>On</b>  |
|  |   | Off  |

### 6.7.4 SE: Radiation

Evaluation of the radiation from SD: Radiation. A total of five sensor evaluations are available (for "SD: Radiation 1" to 4 and for "SD: Radiation 1-4 max.>").

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE: Radiation 1</b></li> <li>SE: Radiation 2</li> <li>SE: Radiation 3</li> <li>SE: Radiation 4</li> <li>SE: Radiation 1-4 max.</li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Operating mode</b></p> <p>Exceeded/fallen below <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit value</b></p> <p>Radiation [W/m<sup>2</sup>] <input type="text" value="250"/></p> <p>Can be changed via GO <input type="text" value="No"/></p> <p>Hysteresis [W/m<sup>2</sup>] <input type="text" value="20"/></p> <p>Delay when fulfilled [sec] <input type="text" value="60"/></p> <p>Delay when not fulfilled [sec] <input type="text" value="300"/></p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/></p> <p>Not fulfilled <input type="text" value="128"/></p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss</p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/></p> |
|---|---|

Fig. 40 Parameter dialogue: SE: Radiation

# KNX secure sensor interface REG/AP

| Parameter   | Function  | Values                                   |
|---|---|--|
| Operating mode<br>Exceeding/falling below                   | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>           |
|   |   | Not fulfilled/fulfilled                  |
| Limit value<br>Radiation [W/m <sup>2</sup> ]                | Limit value that must be exceeded/fallen below (for the duration of the "Delay if fulfilled [sec]" parameter) for the sensor evaluation to reach the "Fulfilled" status.  | 0<br>:<br><b>250</b><br>:<br>1300        |
|   |   |  |
| Can be changed via GO                                       | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | <b>No</b>                                |
|   |   | Yes, overwrite during programming        |
|   |   | Yes, do not overwrite during programming |
| Hysteresis [W/m <sup>2</sup> ]                              | <p>Value by which the limit value (for the duration of the "Delay if not fulfilled [sec]" parameter) must additionally be exceeded/fallen below so that the sensor evaluation falls back to the status "Not fulfilled".</p> <ul style="list-style-type: none"> <li>The following applies for the "Exceeded" operating mode: the value must fall below the "Limit value - hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".</li> <li>The following applies to the "Fall below fulfilled" operating mode: the value must exceed the "Limit value + hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".</li> </ul> | 0<br>:<br><b>20</b><br>:<br>1300         |
|   |   |  |
| Delay when fulfilled [sec]                                  | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>60</b><br>:<br>65535        |
| Delay when not fulfilled [sec]                              | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>300</b><br>:<br>65535       |
| "Bit" object<br>Fulfilled                                   | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>                                |
|   |   | Off                                      |
| "Bit" object<br>Not fulfilled                               | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On                                       |
|   |   | <b>Off</b>                               |
| "Byte" object active  | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On                                       |
|   |   | <b>Off</b>                               |
| "Byte" object active<br>Fulfilled                           | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255         |
|   |   |  |
| "Byte" object active<br>Not fulfilled                       | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255         |
|   |   |  |
| "Scenario" object active                                    | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On                                       |
|   |   | <b>Off</b>                               |
| "Scenario" object active - Fulfilled<br>Scenario number     | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64                      |
|   |   |  |
| "Scenario" object active - Fulfilled<br>Scenarios function  | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>                           |
|   |   | Learn                                    |
| "Scenario" object active - Not fulfilled<br>Scenario number | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64                      |
|   |   |  |

|  |   |  |
|--|---|--|
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
|  | Transmit after any update and transmit cyclically   |  |
| Time for cyclical transmission [hh:mm:ss]                      | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59                |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>Do not use</b>  |
|  |   | Enable object  |
|  |   | Disable object   |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b>                                  |
|  |   | "Fulfilled" value  |
|  |   | "Not fulfilled" value  |
| Transmit current value after enabling                          | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b>  |
|  |   | Off  |

## 6.7.5 SE: Dawn/dusk

Evaluation of dawn/dusk from SD: Dawn/dusk

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE: Dawn/dusk</b></li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Operating mode</b></p> <p>Exceeded/fallen below <input type="radio"/> Fulfilled/not fulfilled <input checked="" type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit value</b></p> <p>Brightness [lx] <input type="text" value="200"/></p> <p>Can be changed via GO <input type="text" value="No"/></p> <p>Hysteresis [lx] <input type="text" value="20"/></p> <p>Delay when fulfilled [sec] <input type="text" value="60"/></p> <p>Delay when not fulfilled [sec] <input type="text" value="300"/></p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/></p> <p>Not fulfilled <input type="text" value="128"/></p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss</p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/></p> <p>Transmit value when disabling <input type="text" value="Do not transmit anything"/></p> <p>Transmit current value after enabling <input type="checkbox"/></p> |
|--|---|

Fig. 41 Parameter dialogue: SE: Dawn/dusk

| Parameter   | Function  | Values  |
|---|---|---|
| Operating mode<br>Exceeding/falling below                   | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>  |
|   |   | Not fulfilled/fulfilled   |
| Limit value<br>Brightness [lx]                              | Limit value that must be exceeded/fallen below (for the duration of the "Delay if fulfilled [sec]" parameter) for the sensor evaluation to reach the "Fulfilled" status.  | 0<br>:<br><b>200</b><br>:<br>1000   |
| Can be changed via GO                                       | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | <b>No</b>   |
|   |   | Yes, overwrite during programming<br>Yes, do not overwrite during programming |
| Hysteresis [lx]   | Value by which the limit value (for the duration of the "Delay if not fulfilled [sec]" parameter) must additionally be exceeded/fallen below so that the sensor evaluation falls back to the status "Not fulfilled".<br>• The following applies for the "Exceeded" operating mode: the value must fall below the "Limit value - hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".<br>• The following applies to the "Fall below fulfilled" operating mode: the value must exceed the "Limit value + hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled". | 0<br>:<br><b>20</b><br>:<br>1000  |
| Delay when fulfilled [sec]                                  | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>60</b><br>:<br>65535   |
| Delay when not fulfilled [sec]                              | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>300</b><br>:<br>65535  |
| "Bit" object<br>Fulfilled                                   | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>   |
|   |   | Off   |
| "Bit" object<br>Not fulfilled                               | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On  |
|   |   | <b>Off</b>  |
| "Byte" object active  | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On  |
|   |   | <b>Off</b>  |
| "Byte" object active<br>Fulfilled                           | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255  |
| "Byte" object active<br>Not fulfilled                       | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255  |
| "Scenario" object active                                    | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On  |
|   |   | <b>Off</b>  |
| "Scenario" object active - Fulfilled<br>Scenario number     | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64   |
|   |   | <b>Execute</b>  |
| "Scenario" object active - Fulfilled<br>Scenarios function  | Scenario function sent if the "Fulfilled" status is reached.  | Learn   |
|   |   | <b>1</b><br>:<br>64   |
| "Scenario" object active - Not fulfilled<br>Scenario number | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64   |

|  |   |   |
|--|---|---|
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Learn<br>Do not transmit<br>Only transmit after a change from "Not fulfilled" to "Fulfilled"<br>Only transmit after a change from "Fulfilled" to "Not fulfilled"<br><b>Transmit after every change</b><br>Transmit after any update and transmit cyclically |
| Time for cyclical transmission [hh:mm:ss]                      | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59   |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>Do not use</b><br>Enable object<br>Disable object  |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b><br>"Fulfilled" value<br>"Not fulfilled" value   |
| Transmit current value after enabling                          | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b><br>Off  |

### 6.7.6 SE: Wind speed

Evaluation of the wind speed from SD: Wind speed

|                                |   |  |
|--------------------------------|---|--|
| Overview                       | <b>Operating mode</b>                   | <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled |
| Device parameters              | Exceeded/fallen below                   |  |
| SD: Sensor Data (transmit),... | <b>Limit value</b>                      |  |
| SAC: Safety channels, gene...  | Wind speed limit [m/s]                  | 12   |
| SUC: Sun shading channels...   | Can be changed via GO                   | No   |
| TS: Timer Scheduler, general   | Delay when fulfilled [sec]              | 1  |
| SE: Sensor evaluation, gen...  | Delay when not fulfilled [sec]          | 300  |
| SE: Wind speed                 | <b>Type of object</b>                   |  |
| SEC: Sensor evaluation co...   | Object "Bit"                            |  |
| L/T: Logic / Timer, general    | Fulfilled                               | <input checked="" type="radio"/> On <input type="radio"/> Off  |
|                                | Not fulfilled                           | <input type="radio"/> On <input checked="" type="radio"/> Off  |
|                                | Object "Byte" active                    | <input checked="" type="checkbox"/>  |
|                                | Fulfilled                               | 128  |
|                                | Not fulfilled                           | 128  |
|                                | Object "Scenario" active                | <input checked="" type="checkbox"/>  |
|                                | Fulfilled                               |  |
|                                | Scenario number                         | 1  |
|                                | Scenario function                       | <input checked="" type="radio"/> Execute <input type="radio"/> Learn                                   |
|                                | Not fulfilled                           |  |
|                                | Scenario number                         | 1  |
|                                | Scenario function                       | <input checked="" type="radio"/> Execute <input type="radio"/> Learn                                   |
|                                | <b>Transmission behaviour</b>           |  |
|                                | Behaviour                               | Transmit cyclically after every update   |
|                                | Time for cyclic transmission [hh:mm:ss] | 00:05:00 hh:mm:ss  |
|                                | <b>Enable/disable</b>                   |  |
|                                | Use enable/disable object               | Disable object   |
|                                | Transmit value when disabling           | Do not transmit anything   |
|                                | Transmit current value after enabling   | <input type="checkbox"/>   |

Fig. 42 Parameter dialogue: SE: Wind speed

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| Parameter  | Function  | Values   |
|--|---|--|
| Operating mode<br>Exceeding/falling below                      | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>                                   |
|  |   | Not fulfilled/fulfilled  |
| Limit value<br>Wind speed [m/s]                                | Limit value that must be exceeded/fallen below (for the duration of the "Delay if fulfilled [sec]" parameter) for the sensor evaluation to reach the "Fulfilled" status.  | 0<br>:<br><b>12</b><br>:<br>40                                   |
|  |   |  |
| Can be changed via GO  | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | <b>No</b>  |
|  |   | Yes, overwrite during programming                                |
|  |   | Yes, do not overwrite during programming                         |
| Delay when fulfilled [sec]                                     | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>1</b><br>:<br>65535                                 |
|  |   |  |
| Delay when not fulfilled [sec]                                 | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>300</b><br>:<br>65535                               |
|  |   |  |
| "Bit" object<br>Fulfilled                                      | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>  |
|  |   | Off  |
| "Bit" object<br>Not fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active<br>Fulfilled                              | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
|  |   |  |
| "Byte" object active<br>Not fulfilled                          | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
|  |   |  |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On   |
|  |   | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
|  |   |  |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
|  |   |  |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
|  |   | Transmit after any update and transmit cyclically                |



|  |  |   |                                 |                   |                       |
|--|--|---|---------------------------------|-------------------|-----------------------|
| Time for cyclical transmission<br>[hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>.<br><b>00:05:00</b><br>.<br>23:59:59   |                                 |                   |                       |
| Use enable/disable object                    | An enable or disable object can be displayed here.   | <table border="1"> <tr> <td data-bbox="1114 434 1498 472"><b>Do not use</b></td> </tr> <tr> <td data-bbox="1114 472 1498 510">Enable object</td> </tr> <tr> <td data-bbox="1114 510 1498 548">Disable object</td> </tr> </table>                          | <b>Do not use</b>               | Enable object     | Disable object        |
| <b>Do not use</b>                            |  |   |                                 |                   |                       |
| Enable object                                |  |   |                                 |                   |                       |
| Disable object                               |  |   |                                 |                   |                       |
| Transmit value when disabling                | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.   | <table border="1"> <tr> <td data-bbox="1114 548 1498 586"><b>Do not transmit anything</b></td> </tr> <tr> <td data-bbox="1114 586 1498 624">"Fulfilled" value</td> </tr> <tr> <td data-bbox="1114 624 1498 663">"Not fulfilled" value</td> </tr> </table> | <b>Do not transmit anything</b> | "Fulfilled" value | "Not fulfilled" value |
| <b>Do not transmit anything</b>              |  |   |                                 |                   |                       |
| "Fulfilled" value                            |  |   |                                 |                   |                       |
| "Not fulfilled" value                        |  |   |                                 |                   |                       |
| Transmit current value after enabling        | Here you can specify whether the current value is to be transmitted when enabling.   | <table border="1"> <tr> <td data-bbox="1114 663 1498 701"><b>On</b></td> </tr> <tr> <td data-bbox="1114 701 1498 734">Off</td> </tr> </table>   | <b>On</b>                       | Off               |                       |
| <b>On</b>                                    |  |   |                                 |                   |                       |
| Off  |  |   |                                 |                   |                       |

## 6.7.7 SE: Wind direction 1 minute

Evaluation of the wind direction from SD: Wind direction 1 minute.  
Average value of wind direction within the last minute.

|                                |   |  |
|--------------------------------|---|--|
| Overview                       | <b>Operating mode</b>                   | <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled |
| Device parameters              | In range/out of range                   |  |
| SD: Sensor Data (transmit),... | <b>Limit values</b>                     |  |
| SAC: Safety channels, gene...  | Wind direction from [°]                 | 0  |
| SUC: Sun shading channels...   | Wind direction to [°]                   | 0  |
| TS: Timer Scheduler, general   | Can be changed via GO                   | No   |
| SE: Sensor evaluation, gen...  | Delay when fulfilled [sec]              | 10   |
| SE: Wind direction 1 min...    | Delay when not fulfilled [sec]          | 300  |
| SEC: Sensor evaluation co...   | <b>Type of object</b>                   |  |
| L/T: Logic / Timer, general    | Object "Bit"                            |  |
|                                | Fulfilled                               | <input checked="" type="radio"/> On <input type="radio"/> Off  |
|                                | Not fulfilled                           | <input type="radio"/> On <input checked="" type="radio"/> Off  |
|                                | Object "Byte" active                    | <input checked="" type="checkbox"/>  |
|                                | Fulfilled                               | 128  |
|                                | Not fulfilled                           | 128  |
|                                | Object "Scenario" active                | <input checked="" type="checkbox"/>  |
|                                | Fulfilled                               |  |
|                                | Scenario number                         | 1  |
|                                | Scenario function                       | <input checked="" type="radio"/> Execute <input type="radio"/> Learn                                   |
|                                | Not fulfilled                           |  |
|                                | Scenario number                         | 1  |
|                                | Scenario function                       | <input checked="" type="radio"/> Execute <input type="radio"/> Learn                                   |
|                                | <b>Transmission behaviour</b>           |  |
|                                | Behaviour                               | Transmit cyclically after every update   |
|                                | Time for cyclic transmission [hh:mm:ss] | 00:05:00 hh:mm:ss  |
|                                | <b>Enable/disable</b>                   |  |
|                                | Use enable/disable object               | Disable object   |
|                                | Transmit value when disabling           | Do not transmit anything   |
|                                | Transmit current value after enabling   | <input type="checkbox"/>   |

Fig. 43 Parameter dialogue: SE: Wind direction 1 minute

| Parameter  | Function   | Values   |
|--|--|--|
| Operating mode<br>Exceeding/falling below                        | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".  | <b>Fulfilled/not fulfilled</b>                                   |
|  |  | Not fulfilled/fulfilled  |
| Limit values<br>Wind direction from [°]<br>Wind direction to [°] | Limit values within which (for the duration of the "Delay if fulfilled [sec]" parameter) the value must be in order for the sensor evaluation to reach the status "Fulfilled".   | <b>0</b><br>:<br>359   |
|  |  | <b>No</b>  |
| Can be changed via GO  | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.   | Yes, overwrite during programming                                |
|  |  | Yes, do not overwrite during programming                         |
| Delay when fulfilled [sec]                                       | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".  | 0<br>:<br><b>1</b><br>:<br>65535                                 |
| Delay when not fulfilled [sec]                                   | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".  | 0<br>:<br><b>300</b><br>:<br>65535                               |
| "Bit" object<br>Fulfilled  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status  | <b>On</b>  |
|  |  | Off  |
| "Bit" object<br>Not fulfilled                                    | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status  | On   |
|  |  | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.  | On   |
|  |  | <b>Off</b>   |
| "Byte" object active<br>Fulfilled                                | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.  | 0<br>:<br><b>128</b><br>:<br>255                                 |
|  |  | 0<br>:<br><b>128</b><br>:<br>255                                 |
| "Byte" object active<br>Not fulfilled                            | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.  | 0<br>:<br><b>128</b><br>:<br>255                                 |
|  |  | 0<br>:<br><b>128</b><br>:<br>255                                 |
| "Scenario" object active   | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.   | On   |
|  |  | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number          | Scenario number sent if the "Fulfilled" status is reached.   | <b>1</b><br>:<br>64  |
|  |  | <b>Execute</b>   |
| "Scenario" object active - Fulfilled<br>Scenarios function       | Scenario function sent if the "Fulfilled" status is reached.   | Learn  |
|  |  | <b>Execute</b>   |
| "Scenario" object active - Not fulfilled<br>Scenario number      | Scenario number to be sent if the "Not fulfilled" status is reached.   | <b>1</b><br>:<br>64  |
|  |  | <b>Execute</b>   |
| "Scenario" object active - Not fulfilled<br>Scenarios function   | Scenario function to be sent if the "Not fulfilled" status is reached.   | Learn  |
|  |  | <b>Execute</b>   |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter "Time for cyclical transmission [hh:mm:ss]" appears | Do not transmit  |
|  |  | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |  | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |  | <b>Transmit after every change</b>                               |
|  |  | Transmit after any update and transmit cyclically                |

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|  |  |   |                                 |                   |                       |
|--|--|---|---------------------------------|-------------------|-----------------------|
| Time for cyclical transmission<br>[hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59   |                                 |                   |                       |
| Use enable/disable object                    | An enable or disable object can be displayed here.   | <table border="1"> <tr> <td data-bbox="1080 443 1455 474"><b>Do not use</b></td> </tr> <tr> <td data-bbox="1080 479 1455 510">Enable object</td> </tr> <tr> <td data-bbox="1080 515 1455 546">Disable object</td> </tr> </table>                          | <b>Do not use</b>               | Enable object     | Disable object        |
| <b>Do not use</b>                            |  |   |                                 |                   |                       |
| Enable object                                |  |   |                                 |                   |                       |
| Disable object                               |  |   |                                 |                   |                       |
| Transmit value when disabling                | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.   | <table border="1"> <tr> <td data-bbox="1080 557 1455 589"><b>Do not transmit anything</b></td> </tr> <tr> <td data-bbox="1080 593 1455 624">"Fulfilled" value</td> </tr> <tr> <td data-bbox="1080 629 1455 660">"Not fulfilled" value</td> </tr> </table> | <b>Do not transmit anything</b> | "Fulfilled" value | "Not fulfilled" value |
| <b>Do not transmit anything</b>              |  |   |                                 |                   |                       |
| "Fulfilled" value                            |  |   |                                 |                   |                       |
| "Not fulfilled" value                        |  |   |                                 |                   |                       |
| Transmit current value after enabling        | Here you can specify whether the current value is to be transmitted when enabling.   | <table border="1"> <tr> <td data-bbox="1080 672 1455 703"><b>On</b></td> </tr> <tr> <td data-bbox="1080 707 1455 739">Off</td> </tr> </table>   | <b>On</b>                       | Off               |                       |
| <b>On</b>                                    |  |   |                                 |                   |                       |
| Off  |  |   |                                 |                   |                       |

### 6.7.8 SE: Wind direction 10 minutes

Evaluation of the wind direction from SD: Wind direction 10 minutes.  
Average value of wind direction within the last 10 minutes.

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE: Wind direction 10 mi...</b></li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Operating mode</b></p> <p>In range/out of range <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit values</b></p> <p>Wind direction from [°] <input type="text" value="0"/></p> <p>Wind direction to [°] <input type="text" value="0"/></p> <p>Can be changed via GO <input type="text" value="No"/></p> <p>Delay when fulfilled [sec] <input type="text" value="10"/></p> <p>Delay when not fulfilled [sec] <input type="text" value="300"/></p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/></p> <p>Not fulfilled <input type="text" value="128"/></p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss</p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/></p> <p>Transmit value when disabling <input type="text" value="Do not transmit anything"/></p> <p>Transmit current value after enabling <input type="checkbox"/></p> |
|--|---|

Fig. 44 Parameter dialogue: SE: Wind direction 10 minute average value

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| Parameter  | Function  | Values   |
|--|---|--|
| Operating mode<br>Exceeding/falling below                        | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>                                   |
|  |   | Not fulfilled/fulfilled  |
| Limit values<br>Wind direction from [°]<br>Wind direction to [°] | Limit values within which (for the duration of the "Delay if fulfilled [sec]" parameter) the value must be in order for the sensor evaluation to reach the status "Fulfilled".  | <b>0</b>   |
|  |   | :<br>359   |
| Can be changed via GO  | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | <b>No</b>  |
|  |   | Yes, overwrite during programming                                |
|  |   | Yes, do not overwrite during programming                         |
| Delay when fulfilled [sec]                                       | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>1</b><br>:<br>65535                                 |
| Delay when not fulfilled [sec]                                   | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>300</b><br>:<br>65535                               |
| "Bit" object<br>Fulfilled  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>  |
|  |   | Off  |
| "Bit" object<br>Not fulfilled                                    | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On<br><b>Off</b>   |
| "Byte" object active<br>Fulfilled                                | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
| "Byte" object active<br>Not fulfilled                            | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
| "Scenario" object active   | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On   |
|  |   | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number          | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Fulfilled<br>Scenarios function       | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number      | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Not fulfilled<br>Scenarios function   | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
|  |   | Transmit after any update and transmit cyclically                |

|  |  |   |                                 |                   |                       |
|--|--|---|---------------------------------|-------------------|-----------------------|
| Time for cyclical transmission<br>[hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>.<br><b>00:05:00</b><br>.<br>23:59:59   |                                 |                   |                       |
| Use enable/disable object                    | An enable or disable object can be displayed here.   | <table border="1"> <tr> <td data-bbox="1114 434 1498 472"><b>Do not use</b></td> </tr> <tr> <td data-bbox="1114 472 1498 510">Enable object</td> </tr> <tr> <td data-bbox="1114 510 1498 546">Disable object</td> </tr> </table>                          | <b>Do not use</b>               | Enable object     | Disable object        |
| <b>Do not use</b>                            |  |   |                                 |                   |                       |
| Enable object                                |  |   |                                 |                   |                       |
| Disable object                               |  |   |                                 |                   |                       |
| Transmit value when disabling                | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.   | <table border="1"> <tr> <td data-bbox="1114 546 1498 584"><b>Do not transmit anything</b></td> </tr> <tr> <td data-bbox="1114 584 1498 622">"Fulfilled" value</td> </tr> <tr> <td data-bbox="1114 622 1498 658">"Not fulfilled" value</td> </tr> </table> | <b>Do not transmit anything</b> | "Fulfilled" value | "Not fulfilled" value |
| <b>Do not transmit anything</b>              |  |   |                                 |                   |                       |
| "Fulfilled" value                            |  |   |                                 |                   |                       |
| "Not fulfilled" value                        |  |   |                                 |                   |                       |
| Transmit current value after enabling        | Here you can specify whether the current value is to be transmitted when enabling.   | <table border="1"> <tr> <td data-bbox="1114 658 1498 696"><b>On</b></td> </tr> <tr> <td data-bbox="1114 696 1498 734">Off</td> </tr> </table>   | <b>On</b>                       | Off               |                       |
| <b>On</b>                                    |  |   |                                 |                   |                       |
| Off  |  |   |                                 |                   |                       |

## 6.7.9 SE: Time range

Evaluation of the time from SD: Time/GPS

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li style="color: #0070c0;">SE: Time range</li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Operating mode</b></p> <p>In range/out of range <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit values</b></p> <p>Time start <input type="text" value="00:00"/> hh:mm</p> <p>Time end <input type="text" value="00:00"/> hh:mm</p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/> ▲▼</p> <p>Not fulfilled <input type="text" value="128"/> ▲▼</p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/> ▲▼</p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/> ▲▼</p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/> ▼</p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss</p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/> ▼</p> <p>Transmit value when disabling <input type="text" value="Do not transmit anything"/> ▼</p> <p>Transmit current value after enabling <input type="checkbox"/></p> |
|--|---|

Fig. 45 Parameter dialogue: SE: Time range

| Parameter  | Function  | Values   |
|--|---|--|
| Operating mode<br>Exceeding/falling below                      | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>                                   |
|  |   | Not fulfilled/fulfilled  |
| Limit values<br>Start time [hh:mm]<br>End time [hh:mm]         | Limit values within which the value must be in order for the sensor evaluation to reach the status "Fulfilled".   | <b>00:00</b>   |
|  |   | :<br>23:59   |
| "Bit" object<br>Fulfilled                                      | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>  |
|  |   | Off  |
| "Bit" object<br>Not fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active<br>Fulfilled                              | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0  |
|  |   | :<br><b>128</b><br>:<br>255                                      |
| "Byte" object active<br>Not fulfilled                          | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0  |
|  |   | :<br><b>128</b><br>:<br>255                                      |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On   |
|  |   | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
| Time for cyclical transmission<br>[hh:mm:ss]                   | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00   |
|  |   | :<br><b>00:05:00</b><br>:<br>23:59:59                            |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>Do not use</b>  |
|  |   | Enable object<br>Disable object                                  |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b>                                  |
|  |   | "Fulfilled" value<br>"Not fulfilled" value                       |
| Transmit current value after enabling                          | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b>  |
|  |   | Off  |

## 6.7.10 SE: Date range

Evaluation of the date from SD: Time/GPS

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE: Date range</b></li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Operating mode</b></p> <p>In range/out of range <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit values</b></p> <p>Date start <input type="text" value="01.01.2000"/> <input type="button" value="15"/></p> <p>Date end <input type="text" value="01.01.2000"/> <input type="button" value="15"/></p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 5px; margin: 5px 0;"> <p><b>i</b> The year is not evaluated</p> </div> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/> <input type="button" value="▲"/></p> <p>Not fulfilled <input type="text" value="128"/> <input type="button" value="▲"/></p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/> <input type="button" value="▲"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/> <input type="button" value="▲"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/> <input type="button" value="▼"/></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> <input type="text" value="hh:mm:ss"/></p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/> <input type="button" value="▼"/></p> <p>Transmit value when disabling <input type="text" value="Do not transmit anything"/> <input type="button" value="▼"/></p> <p>Transmit current value after enabling <input type="checkbox"/></p> |
|---|--|

Fig. 46 Parameter dialogue: SE: Date range

| Parameter  | Function  | Values   |
|--|---|--|
| Operating mode<br>Exceeding/falling below                      | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>                                   |
|  |   | Not fulfilled/fulfilled  |
| Limit values<br>Start date [hh:mm]<br>End time [hh:mm]         | Limit values within which the value must be in order for the sensor evaluation to reach the status "Fulfilled".<br>The year is not evaluated.   | <b>01.01.1990</b>  |
|  |   | :<br>01.01.2000<br>:<br>31.12.2089                               |
| "Bit" object<br>Fulfilled                                      | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>  |
|  |   | Off  |
| "Bit" object<br>Not fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active<br>Fulfilled                              | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0  |
|  |   | :<br><b>128</b><br>:<br>255                                      |
| "Byte" object active<br>Not fulfilled                          | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0  |
|  |   | :<br><b>128</b><br>:<br>255                                      |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On   |
|  |   | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
| Time for cyclical transmission<br>[hh:mm:ss]                   | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00   |
|  |   | :<br><b>00:05:00</b><br>:<br>23:59:59                            |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>Do not use</b>  |
|  |   | Enable object  |
|  |   | Disable object   |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b>                                  |
|  |   | "Fulfilled" value  |
|  |   | "Not fulfilled" value  |

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|                                       |  |           |
|---------------------------------------|--|-----------|
| Transmit current value after enabling | Here you can specify whether the current value is to be transmitted when enabling. | <b>On</b> |
|                                       |  | Off       |

### 6.7.11 SE: Position of the sun

Evaluation of the position of the sun from SD: Position of the sun

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE: Position of the sun</b></li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Operating mode</b></p> <p>In range/out of range <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit values</b></p> <p>Elevation max. [°] <input type="text" value="90"/></p> <p>Elevation min. [°] <input type="text" value="-10"/></p> <p>Azimuth max. [°] <input type="text" value="270"/></p> <p>Azimuth min. [°] <input type="text" value="90"/></p> <p>Delay when fulfilled [sec] <input type="text" value="10"/></p> <p>Delay when not fulfilled [sec] <input type="text" value="300"/></p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/></p> <p>Not fulfilled <input type="text" value="128"/></p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss</p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/></p> <p>Transmit value when disabling <input type="text" value="Do not transmit anything"/></p> <p>Transmit current value after enabling <input type="checkbox"/></p> |
|--|--|

Fig. 47 Parameter dialogue: SE: Position of the sun

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| Parameter  | Function  | Values   |
|--|---|--|
| Operating mode<br>Exceeding/falling below                      | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>                                   |
|  |   | Not fulfilled/fulfilled  |
| Limit value<br>Elevation max. [°]<br>Elevation min. [°]        | Limit values within which (for the duration of the "Delay if fulfilled [sec]" parameter) the value must be in order for the sensor evaluation to reach the status "Fulfilled".  | -10<br>:<br><b>-10 (min.), 90 (max.)</b><br>:<br>90              |
|  |   |  |
| Limit values<br>Azimuth max. [°]<br>Azimuth min. [°]           | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | 0<br>:<br><b>90 (min.), 270 (max.)</b><br>:<br>360               |
|  |   |  |
| Delay when fulfilled [sec]                                     | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>10</b><br>:<br>65535                                |
| Delay when not fulfilled [sec]                                 | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>300</b><br>:<br>65535                               |
| "Bit" object<br>Fulfilled                                      | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>  |
|  |   | Off  |
| "Bit" object<br>Not fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active<br>Fulfilled                              | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
|  |   |  |
| "Byte" object active<br>Not fulfilled                          | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
|  |   |  |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On   |
|  |   | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
|  |   |  |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
|  |   |  |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
|  |   | Transmit after any update and transmit cyclically                |



|  |  |   |                                 |                   |                       |
|--|--|---|---------------------------------|-------------------|-----------------------|
| Time for cyclical transmission<br>[hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically. | 00:00:00<br>.<br><b>00:05:00</b><br>.<br>23:59:59   |                                 |                   |                       |
| Use enable/disable object                    | An enable or disable object can be displayed here.   | <table border="1"> <tr> <td data-bbox="1114 434 1498 472"><b>Do not use</b></td> </tr> <tr> <td data-bbox="1114 472 1498 510">Enable object</td> </tr> <tr> <td data-bbox="1114 510 1498 548">Disable object</td> </tr> </table>                          | <b>Do not use</b>               | Enable object     | Disable object        |
| <b>Do not use</b>                            |  |   |                                 |                   |                       |
| Enable object                                |  |   |                                 |                   |                       |
| Disable object                               |  |   |                                 |                   |                       |
| Transmit value when disabling                | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.   | <table border="1"> <tr> <td data-bbox="1114 548 1498 586"><b>Do not transmit anything</b></td> </tr> <tr> <td data-bbox="1114 586 1498 624">"Fulfilled" value</td> </tr> <tr> <td data-bbox="1114 624 1498 663">"Not fulfilled" value</td> </tr> </table> | <b>Do not transmit anything</b> | "Fulfilled" value | "Not fulfilled" value |
| <b>Do not transmit anything</b>              |  |   |                                 |                   |                       |
| "Fulfilled" value                            |  |   |                                 |                   |                       |
| "Not fulfilled" value                        |  |   |                                 |                   |                       |
| Transmit current value after enabling        | Here you can specify whether the current value is to be transmitted when enabling.   | <table border="1"> <tr> <td data-bbox="1114 663 1498 701"><b>On</b></td> </tr> <tr> <td data-bbox="1114 701 1498 734">Off</td> </tr> </table>   | <b>On</b>                       | Off               |                       |
| <b>On</b>                                    |  |   |                                 |                   |                       |
| Off  |  |   |                                 |                   |                       |

## 6.7.12 SE: Precipitation

Evaluation of the precipitation from SD: Precipitation

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE: Precipitation</b></li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Delay times</b></p> <p>Delay when fulfilled [sec] <input type="text" value="0"/></p> <p>Delay when not fulfilled [sec] <input type="text" value="600"/></p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active <input checked="" type="checkbox"/></p> <p>Fulfilled <input type="text" value="128"/></p> <p>Not fulfilled <input type="text" value="128"/></p> <p>Object "Scenario" active <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number <input type="text" value="1"/></p> <p>Scenario function <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour <input type="text" value="Transmit cyclically after every update"/></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss</p> <hr/> <p><b>Enable/disable</b></p> <p>Use enable/disable object <input type="text" value="Disable object"/></p> <p>Transmit value when disabling <input type="text" value="Do not transmit anything"/></p> <p>Transmit current value after enabling <input type="checkbox"/></p> |
|--|---|

Fig. 48 Parameter dialogue: SE: Precipitation

| Parameter  | Function  | Values   |
|--|---|--|
| Operating mode<br>Exceeding/falling below                      | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed" or "Fall below".   | <b>Fulfilled/not fulfilled</b>                                   |
|  |   | Not fulfilled/fulfilled  |
| Delay when fulfilled [sec]                                     | Time period in which precipitation must be detected for the sensor evaluation to reach the status "Fulfilled".  | 0<br>:<br><b>0</b><br>:<br>65535                                 |
|  |   | 0<br>:<br><b>300</b><br>:<br>65535                               |
| "Bit" object<br>Fulfilled                                      | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>  |
|  |   | Off  |
| "Bit" object<br>Not fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active<br>Fulfilled                              | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
|  |   | 0<br>:<br><b>128</b><br>:<br>255                                 |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On   |
|  |   | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
|  |   | <b>Execute</b>   |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.  | Learn  |
|  |   | <b>1</b><br>:<br>64  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
|  |   | <b>Execute</b>   |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | Learn  |
|  |   | Do not transmit  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
|  |   | Transmit after any update and transmit cyclically                |
| Time for cyclical transmission [hh:mm:ss]                      | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59                |
|  |   | <b>Do not use</b>  |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | Enable object  |
|  |   | Disable object   |

|                                       |  |                                 |
|---------------------------------------|--|---------------------------------|
| Transmit value when disabling         | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled. | <b>Do not transmit anything</b> |
|                                       |  | "Fulfilled" value               |
|                                       |  | "Not fulfilled" value           |
| Transmit current value after enabling | Here you can specify whether the current value is to be transmitted when enabling.   | <b>On</b>                       |
|                                       |  | Off                             |

### 6.7.13 SEn: Generic

A total of 10 generic sensor evaluations with a freely selectable data source are available. In addition to the sensor data from the weather station, data from external GOs can also be evaluated.



A name entered under "SE: Sensor evaluation, general" (max. 80 characters) replaces the "Generic" default entry in the corresponding parameter dialogues and GOs.

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li><b>SE1: Generic</b></li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> </ul> | <p><b>Data source</b></p> <p>Data source: <span style="border: 1px solid #ccc; padding: 2px;">🔥 SD: Temperature</span></p> <hr/> <p><b>Operating mode</b></p> <p>Operating mode: Exceeded/fallen below</p> <p>Operating mode: <input checked="" type="radio"/> Fulfilled/not fulfilled <input type="radio"/> Not fulfilled/fulfilled</p> <hr/> <p><b>Limit value</b></p> <p>Temperature [°C]: <span style="border: 1px solid #ccc; padding: 2px;">25</span></p> <p>Can be changed via GO: <span style="border: 1px solid #ccc; padding: 2px;">No</span></p> <p>Hysteresis [°C]: <span style="border: 1px solid #ccc; padding: 2px;">3</span></p> <p>Delay when fulfilled [sec]: <span style="border: 1px solid #ccc; padding: 2px;">10</span></p> <p>Delay when not fulfilled [sec]: <span style="border: 1px solid #ccc; padding: 2px;">50</span></p> <hr/> <p><b>Type of object</b></p> <p>Object "Bit"</p> <p>Fulfilled: <input checked="" type="radio"/> On <input type="radio"/> Off</p> <p>Not fulfilled: <input type="radio"/> On <input checked="" type="radio"/> Off</p> <p>Object "Byte" active: <input checked="" type="checkbox"/></p> <p>Fulfilled: <span style="border: 1px solid #ccc; padding: 2px;">128</span></p> <p>Not fulfilled: <span style="border: 1px solid #ccc; padding: 2px;">128</span></p> <p>Object "Scenario" active: <input checked="" type="checkbox"/></p> <p>Fulfilled</p> <p>Scenario number: <span style="border: 1px solid #ccc; padding: 2px;">1</span></p> <p>Scenario function: <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <p>Not fulfilled</p> <p>Scenario number: <span style="border: 1px solid #ccc; padding: 2px;">1</span></p> <p>Scenario function: <input checked="" type="radio"/> Execute <input type="radio"/> Learn</p> <hr/> <p><b>Transmission behaviour</b></p> <p>Behaviour: <span style="border: 1px solid #ccc; padding: 2px;">Transmit directly, Process data</span></p> |
|---|---|

Fig. 49 Parameter dialogue: SEn: Generic



If "External GO" is selected as the data source and „DPT Typ: 9.001, [-273 ... 670 433.28]°C“ is selected as the GO type, only values between [-273 ... 670 433.28]°C may be set as the limit value.

| Parameter   | Function  | Values                                   |
|---|---|--|
| Data source   | Any measuring value from the weather station or an external GO can be selected as the source for the limit value.   | List of sensor data + external GO        |
| GO type   | If "SD: External GO" is selected as the data source, the DPT type of the GO can be set here.  | <b>DPT Type: 5.001, [0...100]%</b>       |
|   |   | DPT Type: 5.010, [0...65535]             |
|   |   | DPT Type: 7.001, [0...100]               |
|   |   | DPT Type: 9.001, [-273...670433.28]°C    |
| Mode  | <i>dependent on selected data source, cannot be changed</i>   | Exceeding/falling below                  |
|   |   | In/outside the range                     |
| Operating mode  | Determines whether the sensor evaluation for the specified limit value is fulfilled for "Exceed"/"In range" or "Fall below"/"Outside range".  | <b>Fulfilled/not fulfilled</b>           |
|   |   | Not fulfilled/fulfilled                  |
| Limit value<br><i>dependent on selected data source</i> | Limit value that must be exceeded/fallen below (for the duration of the "Delay if fulfilled [sec]" parameter) for the sensor evaluation to reach the "Fulfilled" status.  | <i>dependent on selected data source</i> |
| Can be changed via GO                                   | Activates a GO "Limit value input". You can choose whether the current limit value can be overwritten during programming or whether it should be retained.  | <b>No</b>                                |
|   |   | Yes, overwrite during programming        |
|   |   | Yes, do not overwrite during programming |
| Hysteresis [...]  | Value by which the limit value (for the duration of the "Delay if not fulfilled [sec]" parameter) must additionally be exceeded/fallen below so that the sensor evaluation falls back to the status "Not fulfilled".<br><ul style="list-style-type: none"> <li>The following applies for the "Exceeded" operating mode: the value must fall below the "Limit value - hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".</li> <li>The following applies to the "Fall below fulfilled" operating mode: the value must exceed the "Limit value + hysteresis" for the sensor evaluation to fall back to the status "Not fulfilled".</li> </ul> | <i>dependent on selected data source</i> |
| Delay when fulfilled [sec]                              | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Fulfilled".   | 0<br>:<br><b>10</b><br>:<br>65535        |
| Delay when not fulfilled [sec]                          | Time period in which the limit value must be permanently exceeded/fallen below for the sensor evaluation to reach the status "Not fulfilled".   | 0<br>:<br><b>50</b><br>:<br>65535        |
| "Bit" object Fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>                                |
|   |   | Off                                      |
| "Bit" object Not fulfilled                              | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On                                       |
|   |   | <b>Off</b>                               |
| "Byte" object active                                    | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On                                       |
|   |   | <b>Off</b>                               |
| "Byte" object active Fulfilled                          | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255         |

|  |   |  |
|--|---|--|
| "Byte" object active<br>Not fulfilled                          | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0<br>:<br><b>128</b><br>:<br>255                                 |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On<br><b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b><br>Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b><br>:<br>64  |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b><br>Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
| Time for cyclical transmission [hh:mm:ss]                      | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59                |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>Do not use</b>  |
|  |   | Enable object  |
|  |   | Disable object   |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b>                                  |
|  |   | "Fulfilled" value  |
|  |   | "Not fulfilled" value  |
| Transmit current value after enabling                          | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b>  |
|  |   | Off  |

## 6.8 SEC: Sensor evaluation combined

The combined sensor evaluation links up to four previously created sensor evaluations or external GOs via an AND/OR function and transmits the parameterised information to the bus. A combined sensor evaluation enables the definition of complex correlations from several measuring values (e.g. a warm summer night).

In addition, a combined sensor evaluation is available which evaluates the ice alarm and then transmits the parameterised information to the bus.

The following objects can be transmitted for each status of the combined evaluation (fulfilled/not fulfilled):

- ▶ Transmission of a bit object (e.g. to activate control modes of other devices)
- ▶ Transmission of a byte object (0...255)
- ▶ Transmission of a scenario number (execute or learn)

Each combined evaluation can transmit all available objects at once (e.g. transmit bit and call up a scenario at the same time...).

For each combined evaluation, individual transmission behaviour can be defined and an enable or disable object can be displayed.

A total of 10 combined sensor evaluations are available. For an enhanced overview, all required combined evaluations can be activated separately. The parameter dialogues and associated GOs are only displayed for activated sensor evaluations.



A name entered under "SEC: Sensor evaluation, general" (max. 80 characters) replaces the "Sensor evaluation combined n" default entry in the corresponding parameter dialogues and GOs.

### 6.8.1 SEC: Sensor evaluation combined, general

For an enhanced overview, all required combined evaluations can be activated separately.



The parameter dialogues and associated GOs are only displayed for activated combined sensor evaluations.

|                                |  |
|--------------------------------|--|
| Overview                       | <b>Sensor evaluation combined 1</b>        |
| Device parameters              | Active <input checked="" type="checkbox"/> |
| SD: Sensor Data (transmit),... | SEC1: Name <input type="text"/>            |
| SAC: Safety channels, gene...  | <b>Sensor evaluation combined 2</b>        |
| SUC: Sun shading channels...   | Active <input type="checkbox"/>            |
| TS: Timer Scheduler, general   | <b>Sensor evaluation combined 3</b>        |
| SE: Sensor evaluation, gen...  | Active <input type="checkbox"/>            |
| + SEC: Sensor evaluation c...  | <b>Sensor evaluation combined 4</b>        |
| L/T: Logic / Timer, general    | Active <input type="checkbox"/>            |
|                                | <b>Sensor evaluation combined 5</b>        |
|                                | Active <input type="checkbox"/>            |
|                                | <b>Sensor evaluation combined 6</b>        |
|                                | Active <input type="checkbox"/>            |
|                                | <b>Sensor evaluation combined 7</b>        |
|                                | Active <input type="checkbox"/>            |
|                                | <b>Sensor evaluation combined 8</b>        |
|                                | Active <input type="checkbox"/>            |
|                                | <b>Sensor evaluation combined 9</b>        |
|                                | Active <input type="checkbox"/>            |

Fig. 50 Parameter dialogue: SEC: Sensor evaluation combined, general

| Parameter  | Function  | Values                    |
|------------|---|---------------------------|
| Active     | Determines whether the combined sensor evaluation is to be used   | On<br>Off                 |
| SECn: Name | A name entered here replaces the default entry "Sensor evaluation combined n" in the associated parameter dialogues and GOs | Text (max. 80 characters) |

## 6.8.2 SECn: Combined evaluation

The combined evaluation can either be operated in the "AND/OR link" or "Ice alarm" operation mode.

### 6.8.2.1 "AND/OR link" operating mode

Up to four previously created sensor evaluations or external GOs are linked via a AND/OR function and the parameterised information is transmitted to the bus.

**Operating mode**

Link: AND link

Input 1: Not active

Input 2: Not active

Input 3: Not active

Input 4: Not active

---

**Type of object**

Object "Bit"

Condition met:  On  Off

Condition not met:  On  Off

Object "Byte" active:

Condition met: 128

Condition not met: 128

Object "Scenario" active:

Condition met: Scenario number: 1

Scenario function:  Execute  Learn

Condition not met: Scenario number: 1

Scenario function:  Execute  Learn

---

**Transmission behaviour**

Behaviour: Transmit cyclically after every update

Time for cyclic transmission [hh:mm:ss]: 00:05:00 hh:mm:ss

---

**Enable/disable**

Use enable/disable object: Disable object

Fig. 51 Parameter dialogue: SECn: Combined evaluation ("AND/OR link" operating mode)

| Parameter  | Function  | Values   |
|--|---|--|
| Operating mode<br>Link   | Specifies whether the AND or OR inputs are to be linked or whether the ice alarm is to be evaluated.  | <b>AND link</b>  |
|  |   | OR link  |
|  |   | Ice alarm  |
| Input 1-4  | Selection of the created sensor evaluations or external GOs that are to be linked (max. 4)  | List of the sensor evaluations + four external GOs               |
| "Bit" object<br>Fulfilled                                      | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status   | <b>On</b>  |
|  |   | Off  |
| "Bit" object<br>Not fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.   | On   |
|  |   | <b>Off</b>   |
| "Byte" object active<br>Fulfilled                              | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.   | 0  |
|  |   | :<br><b>128</b>  |
|  |   | :<br>255   |
| "Byte" object active<br>Not fulfilled                          | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.   | 0  |
|  |   | :<br><b>128</b>  |
|  |   | :<br>255   |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.  | On   |
|  |   | <b>Off</b>   |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.  | <b>1</b>   |
|  |   | :<br>64  |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.  | <b>Execute</b>   |
|  |   | Learn  |
| Behaviour  | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|  |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|  |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|  |   | <b>Transmit after every change</b>                               |
|  |   | Transmit after any update and transmit cyclically                |
| Time for cyclical transmission<br>[hh:mm:ss]                   | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00   |
|  |   | :<br><b>00:05:00</b>   |
|  |   | :<br>23:59:59  |
| Use enable/disable object                                      | An enable or disable object can be displayed here.  | <b>Do not use</b>  |
|  |   | Enable object  |
|  |   | Disable object   |
| Transmit value when disabling                                  | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b>                                  |
|  |   | "Fulfilled" value  |
|  |   | "Not fulfilled" value  |
| Transmit current value after enabling                          | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b>  |
|  |   | Off  |

## 6.8.2.2 "Ice alarm" operating mode

The ice alarm is evaluated and the parameterised information is transmitted to the bus.

The screenshot displays the parameter dialogue for the SECn: Combined evaluation object in "Ice alarm" operating mode. The interface is divided into a left sidebar with navigation options and a main content area with several sections of settings.

- Operating mode:** Link is set to "Ice alarm".
- Limit value:**
  - Outside temperature limit value [°C]: 3
  - Can be changed via GO: No
  - Hysteresis [°C]: 2
- Alarm reset:**
  - Alarm can be reset automatically:
  - Alarm can be reset via GO:
  - Alarm not active after reset via GO for: 0-01:00 d-hh:mm
- Type of object:**
  - Object "Bit":
    - Condition met:  On  Off
    - Condition not met:  On  Off
  - Object "Byte" active: 
    - Condition met: 128
    - Condition not met: 128
  - Object "Scenario" active: 
    - Condition met:
      - Scenario number: 1
      - Scenario function:  Execute  Learn
    - Condition not met:
      - Scenario number: 1
      - Scenario function:  Execute  Learn
- Transmission behaviour:** Behaviour is set to "Transmit cyclically after every update".

Fig. 52 Parameter dialogue: SECn: Combined evaluation ("Ice alarm" operating mode)

| Parameter  | Function   | Values   |
|--|--|--|
| Operating mode<br>Link   | Specifies whether the AND or OR inputs are to be linked or whether the ice alarm is to be evaluated.   | <b>AND link</b>                                |
|  |  | OR link  |
|  |  | Ice alarm                                      |
| Limit value<br>Outside temperature [°C]                        | Temperature that must be fallen below when precipitation is simultaneously detected in order for an ice alarm to be triggered.   | -30<br>:<br><b>3</b><br>:<br>40                |
|  |  |  |
| Can be changed via GO  | Activates a GO for changing the "Outside temperature limit value [°C]". You can choose whether the current limit value can be overwritten during programming or whether it should be retained. | <b>No</b>                                      |
|  |  | Yes, overwrite during programming              |
|  |  | Yes, do not overwrite during programming       |
| Hysteresis [°C]  | Value by which the "Outside temperature limit value [°C]" must be exceeded for the off delay (1 hour) to start.  | 0<br>:<br><b>2</b><br>:<br>10                  |
|  |  |  |
| Alarm can be reset automatically                               | Activates an automatic reset of the alarm when the hysteresis is exceeded.   | <b>On</b>                                      |
|  |  | Off  |
| Alarm can be reset via GO                                      | Activates a GO for resetting the ice alarm and displays the "Alarm not active after reset via GO" parameter.   | On   |
|  |  | <b>Off</b>                                     |
| Alarm not active after reset via GO for                        | Time after the ice alarm has been reset by GO before the ice alarm can be triggered again.   | 0-00:00<br>:<br><b>0-01:00</b><br>:<br>7-00:00 |
|  |  |  |
|  |  |  |
| "Bit" object<br>Fulfilled                                      | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Fulfilled" status  | <b>On</b>                                      |
|  |  | Off  |
| "Bit" object<br>Not fulfilled                                  | Transmission of a bit object (e.g. to activate control modes of other devices) for the "Not fulfilled" status  | On   |
|  |  | <b>Off</b>                                     |
| "Byte" object active   | Activates a GO "Byte output". A byte object (0...255) can be transmitted for both statuses.  | On   |
|  |  | <b>Off</b>                                     |
| "Byte" object active<br>Fulfilled                              | Value transmitted for the "Byte" object if the "Fulfilled" status is reached.  | 0<br>:<br><b>128</b><br>:<br>255               |
|  |  |  |
| "Byte" object active<br>Not fulfilled                          | Value transmitted for the "Byte" object if the "Not fulfilled" status is reached.  | 0<br>:<br><b>128</b><br>:<br>255               |
|  |  |  |
| "Scenario" object active                                       | Activates a GO "Scenario output". A scenario object (1...64, alternatively "execute" or "learn") can be transmitted for both statuses.   | On   |
|  |  | <b>Off</b>                                     |
| "Scenario" object active - Fulfilled<br>Scenario number        | Scenario number sent if the "Fulfilled" status is reached.   | <b>1</b><br>:<br>64                            |
|  |  |  |
| "Scenario" object active - Fulfilled<br>Scenarios function     | Scenario function sent if the "Fulfilled" status is reached.   | <b>Execute</b>                                 |
|  |  | Learn  |
| "Scenario" object active - Not fulfilled<br>Scenario number    | Scenario number to be sent if the "Not fulfilled" status is reached.   | <b>1</b><br>:<br>64                            |
|  |  |  |
| "Scenario" object active - Not fulfilled<br>Scenarios function | Scenario function to be sent if the "Not fulfilled" status is reached.   | <b>Execute</b>                                 |
|  |  | Learn  |

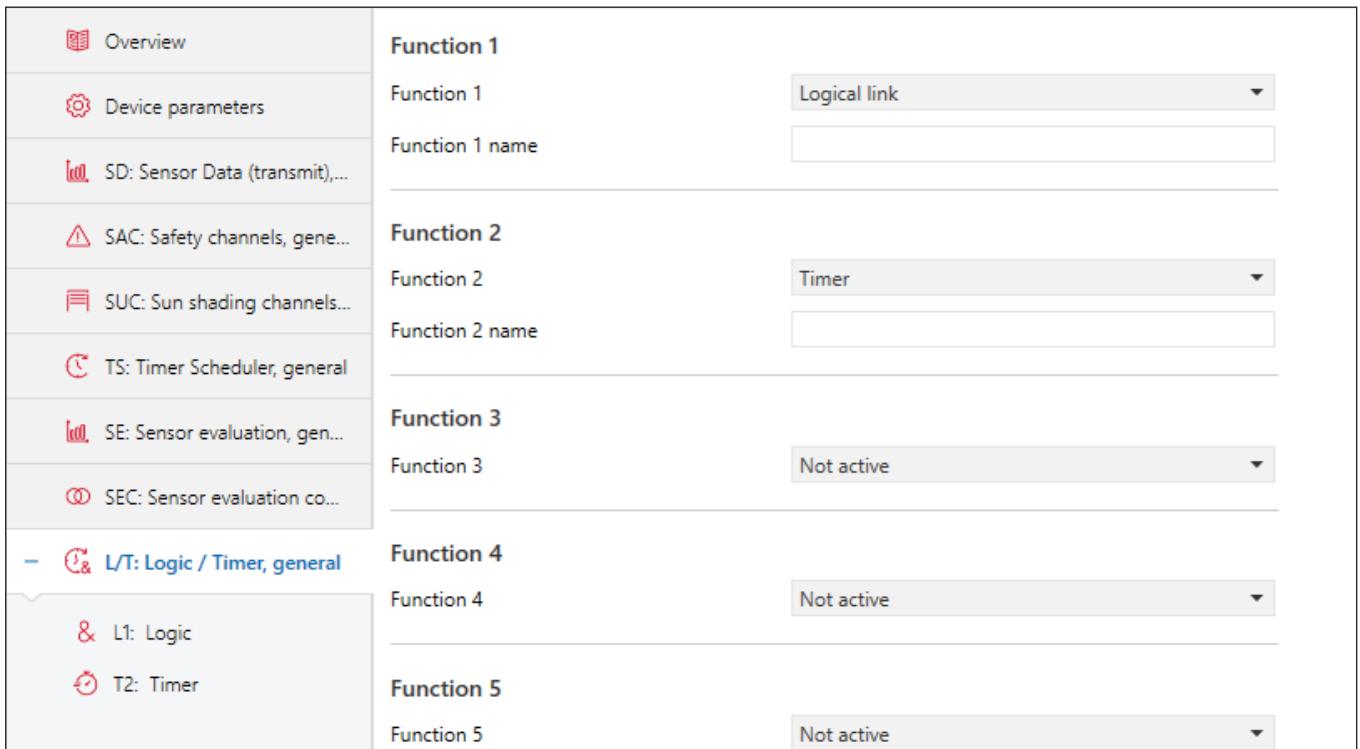
|   |   |  |
|---|---|--|
| Behaviour                                 | Defines after which change to the sensor evaluation a new value is to be transmitted to the bus. If "Transmit after every update and transmit cyclically" is selected, the parameter " <i>Time for cyclical transmission [hh:mm:ss]</i> " appears | Do not transmit  |
|   |   | Only transmit after a change from "Not fulfilled" to "Fulfilled" |
|   |   | Only transmit after a change from "Fulfilled" to "Not fulfilled" |
|   |   | <b>Transmit after every change</b>                               |
|   |   | Transmit after any update and transmit cyclically                |
| Time for cyclical transmission [hh:mm:ss] | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.  | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59                |
| Use enable/disable object                 | An enable or disable object can be displayed here.  | <b>Do not use</b>  |
|   |   | Enable object  |
|   |   | Disable object   |
| Transmit value when disabling             | Here you can specify whether the value for <i>fulfilled</i> , <i>not fulfilled</i> or nothing should be transmitted when disabled.  | <b>Do not transmit anything</b>                                  |
|   |   | "Fulfilled" value  |
|   |   | "Not fulfilled" value  |
| Transmit current value after enabling     | Here you can specify whether the current value is to be transmitted when enabling.  | <b>On</b>  |
|   |   | Off  |

## 6.9 Logic / Timer

There are 16 functions. For each of these functions, you can select whether they should not be used, should be used as a logical link or as a timer.

Bit objects, byte objects (value pairs consisting of blind length/slat position) or scenario numbers can be used as output objects for a function.

### 6.9.1 Logic/Timer, general



The screenshot shows a software interface for configuring Logic/Timer functions. On the left is a navigation menu with options: Overview, Device parameters, SD: Sensor Data (transmit),..., SAC: Safety channels, gene..., SUC: Sun shading channels..., TS: Timer Scheduler, general, SE: Sensor evaluation, gen..., SEC: Sensor evaluation co..., L/T: Logic / Timer, general (selected), L1: Logic, and T2: Timer. The main area displays five function settings:

- Function 1:** Mode: Logical link; Name: (empty text field)
- Function 2:** Mode: Timer; Name: (empty text field)
- Function 3:** Mode: Not active
- Function 4:** Mode: Not active
- Function 5:** Mode: Not active

Fig. 53 Parameter dialogue: Logic/Timer, general

| Parameter       | Function  | Values                    |
|-----------------|---|---------------------------|
| Function n      | Specifies the operating mode of a function.   | Not used                  |
|                 |   | Logical link              |
|                 |   | Timer                     |
| Function n name | A name entered here replaces the default entry "Function" in the associated parameter dialogues and GOs | Text (max. 80 characters) |

## 6.9.2 Logical link

The logical links (AND/OR/XOR) provide up to 4 inputs. Each of these inputs can be inverted (before processing).

The linking result can also be inverted again.

Input 1 and 2 are always displayed, input 3 and 4 can be displayed in addition.

The output can be transmitted cyclically, only in the event of a change or not at all (value is set in the GO, but is not transmitted and can be read). Transmission can also be limited to an edge change, for example, only when the linking result switches from 0 to 1.

You can also set whether the output GO is only transmitted if all the inputs used have been written to at least once. Otherwise, inputs that have not yet been written to will be processed with the preset start value.

As is the case with the inputs, the enable/disable GO can be used.

The type of output can be selected:

### Bit object

The GO of the bit type is displayed.

Result of the linking is issued directly as a bit value.

### Scenario

The GO of the scenario type is displayed.

A scenario command consisting of the scenario number and learn/execute can be transmitted for each of the TRUE and FALSE results.

### Blind length and slat position

Two GOs for the blind length and slat position are displayed.

A combination of the blind length and slat position can be transmitted for each of the TRUE and FALSE results.



If more than two inputs are used, the XOR function behaves as illustrated in the following truth table:

| In3 | In2 | In1 | In0 | Out |
|-----|-----|-----|-----|-----|
| 0   | 0   | 0   | 0   | 0   |
| 0   | 0   | 0   | 1   | 1   |
| 0   | 0   | 1   | 0   | 1   |
| 0   | 0   | 1   | 1   | 0   |
| 0   | 1   | 0   | 0   | 1   |
| 0   | 1   | 0   | 1   | 0   |
| 0   | 1   | 1   | 0   | 0   |
| 0   | 1   | 1   | 1   | 0   |
| 1   | 0   | 0   | 0   | 1   |
| 1   | 0   | 0   | 1   | 0   |
| 1   | 0   | 1   | 0   | 0   |
| 1   | 0   | 1   | 1   | 0   |
| 1   | 1   | 0   | 0   | 0   |
| 1   | 1   | 0   | 1   | 0   |
| 1   | 1   | 1   | 0   | 0   |
| 1   | 1   | 1   | 1   | 0   |

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>Overview</li> <li>Device parameters</li> <li>SD: Sensor Data (transmit),...</li> <li>SAC: Safety channels, gene...</li> <li>SUC: Sun shading channels...</li> <li>TS: Timer Scheduler, general</li> <li>SE: Sensor evaluation, gen...</li> <li>SEC: Sensor evaluation co...</li> <li>L/T: Logic / Timer, general</li> <li style="background-color: #e0e0e0;">&amp; L1: Logic</li> <li style="background-color: #e0e0e0;">T2: Timer</li> </ul> | <h3>Logic 1</h3> <p>Logic function with selectable link (AND, OR, XOR). Inputs: Up to four bit objects. Output selectable: bit object, blind length/slat position or scenario object.</p> <p>Function 1 <span style="float: right;">AND link ▼</span></p> <hr/> <h4>Input 1</h4> <p>Input 1 inverted <input type="checkbox"/></p> <p>Input 1 initial value <input checked="" type="radio"/> false <input type="radio"/> true</p> <hr/> <h4>Input 2</h4> <p>Input 2 inverted <input type="checkbox"/></p> <p>Input 2 initial value <input checked="" type="radio"/> false <input type="radio"/> true</p> <hr/> <h4>Input 3</h4> <p>Input 3 used <input type="checkbox"/></p> <hr/> <h4>Input 4</h4> <p>Input 4 used <input type="checkbox"/></p> <hr/> <h4>Output</h4> <p>Link result inverted <input type="checkbox"/></p> <p>Output type <span style="float: right;">Bit object ▼</span></p> <hr/> <h4>Transmission behaviour</h4> <p>Behaviour <span style="float: right;">Transmit cyclically after every update ▼</span></p> <p>Time for cyclic transmission [hh:mm:ss] <input type="text" value="00:00:00"/> hh:mm:ss</p> <p>Only transmit output value if all inputs have been written <input type="checkbox"/></p> <p>Transmit current value after reset <input type="checkbox"/></p> <p>Behaviour after bus voltage recovery <span style="float: right;">Do not transmit a value ▼</span></p> <hr/> <h4>Enable/disable</h4> <p>Use enable/disable object <span style="float: right;">Disable object ▼</span></p> <p>Behaviour after enabling <span style="float: right;">Do not transmit a value ▼</span></p> |
|--|---|

Fig. 54 Parameter dialogue: Logic/Timer → Ln: Logic

| Parameter   | Function   | Values  |
|---|--|---|
| Function n  | Specifies the operating mode of the logic function.  | <b>AND link</b>                                   |
|   |  | OR link   |
|   |  | XOR link  |
| Input n inverted  | Specifies whether the value at the input should be inverted.   | Yes   |
|   |  | <b>No</b>   |
| Input n initial value   | Specifies with which value the logical link should start at the input.   | <b>false</b>                                      |
|   |  | true  |
| Input n used  | Input 1 and 2 are always displayed, input 3 and 4 can be displayed in addition.  | Yes   |
|   |  | <b>No</b>   |
| Output Linking result inverted                                | Specifies whether the result of the link should be inverted.   | Yes   |
|   |  | <b>No</b>   |
| Type of output  | Type of telegrams issued at the output of the logical link.  | <b>Bit object</b>                                 |
|   |  | Scenario  |
|   |  | Blind length and slat position                    |
| Scenario function   | This parameter is only displayed for the <i>Scenario</i> type of output. It can be set separately for the state of the output (true/false).  | <b>Execute scenario</b>                           |
|   | Specifies whether the scenario should be executed or learned.  | Learn scenario                                    |
| Scenario number   | This parameter is only displayed for the <i>Scenario</i> type of output. It can be set separately for the state of the output (true/false).  | <b>1</b><br>:<br>64                               |
|   | Specifies the scenario number that should be transmitted.  |   |
| Blind length [%]  | This parameter is only displayed for the output type <i>blind length and slat position</i> . It can be set separately for the state of the output (true/false).  | <b>0</b><br>:<br>100                              |
|   | Value for the blind length in percent that is transmitted.   |   |
| Slat position [%]   | This parameter is only displayed for the output type <i>blind length and slat position</i> . It can be set separately for the state of the output (true/false).  | <b>0</b><br>:<br>100                              |
|   | Value for the slat position in percent that is transmitted.  |   |
| Behaviour   | Specifies when an object should be transmitted at the output. If "Transmit after every update and transmit cyclically" is selected, the parameter "Time for cyclical transmission [hh:mm:ss]" appears. | Do not transmit                                   |
|   |  | Only transmit following change from 0 to 1        |
|   |  | Only transmit following change from 1 to 0        |
|   |  | <b>Transmit after every change</b>                |
|   |  | Transmit after every update                       |
|   |  | Transmit after any update and transmit cyclically |
| Time for cyclical transmission [hh:mm:ss]                     | The object can also be transmitted repeatedly. The interval between two consecutive repetitions can be parameterised here. By setting the parameter to 0, the object is not sent cyclically.           | 00:00:00<br>:<br><b>00:00:00</b><br>:<br>23:59:59 |
|   |  |   |
| Transmit output value only if all inputs have been written to | Specifies whether the current output value should only be sent if a value has been actively written to all inputs of the logical link.   | Yes   |
|   |  | <b>No</b>   |
| Transmit current value after reset                            | Specifies whether the current output value of the logical link should be transmitted after a reset.  | Yes   |
|   |  | <b>No</b>   |



|                                      |  |   |
|--------------------------------------|--|---|
| Behaviour after bus voltage recovery | Specifies which value should be transmitted after a bus voltage recovery.  | <b>Do not transmit any value</b>            |
|                                      |  | Transmit current value                      |
|                                      |  | Transmit value "Output true"                |
| Use enable/disable object            | An enable or disable object can be displayed here.                         | Transmit value "Output false"               |
|                                      |  | <b>Do not use</b>                           |
|                                      |  | Enable object                               |
| Behaviour after enable               | Specifies which value should be transmitted to the object after an enable. | Disable object                              |
|                                      |  | <b>Do not transmit any value</b>            |
|                                      |  | Transmit current value                      |
|                                      |  | Set current value in GO but do not transmit |

## 6.9.3 Timer

The timer function is controlled via the GO and transmits values to the output GOs following start/stop/expiry.

The timer offers a setting in seconds from 0 to 23:59:59

- ▶ The *retrigger* parameter determines whether the timer should restart at 0 or whether the new start command should be ignored if a start command is issued when the timer is already running.
- ▶ It is possible to parameterise how the timer should react to edge changes at the GO start/stop
- ▶ The type of output can be selected:

### Bit object

The GO of the bit type is displayed.

### Scenario

The GO of the scenario type is displayed.

A scenario command consisting of the scenario number and learn/execute can be transmitted.

### Blind length and slat position

Two GOs for the blind length and slat position are displayed.

- ▶ There are three timer events:

**Start** (can be initiated via GO Start/Stop)

**Stop** (can be initiated via GO Start/Stop)

**Expiry** of the timer

For each of the three events, you can specify separately whether the output GO should be written and, if so, with which value.

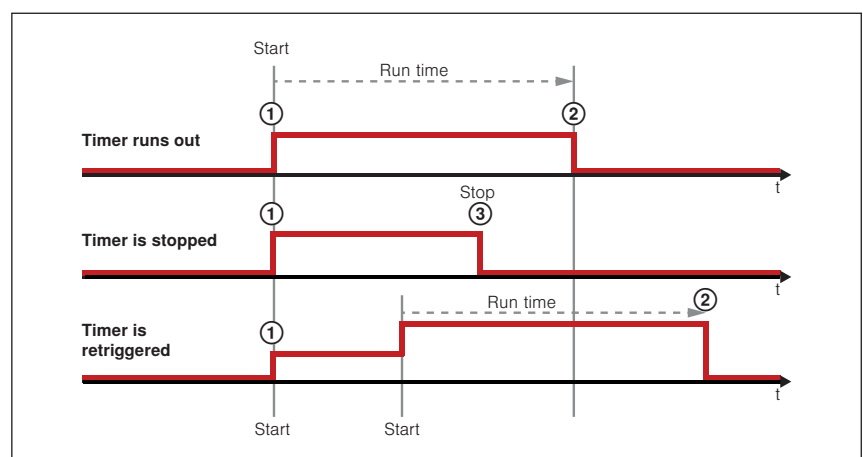


Fig. 55 Function of the timer

- ① Value at start
- ② Value at expiry
- ③ Value at stop

|                                |   |
|--------------------------------|---|
| Overview                       | <b>Timer 2</b>  |
| Device parameters              | Timer function that can be started via the KNX bus and transmits values to the KNX bus on start/stop/ expiry. Selectable output: bit object, blind length/slat position or scenario object. |
| SD: Sensor Data (transmit),... | Runtime [hh:mm:ss] <input type="text" value="00:05:00"/> hh:mm:ss   |
| SAC: Safety channels, gene...  | <b>Input</b>  |
| SUC: Sun shading channels...   | Retrigger (renewed start command) <input checked="" type="radio"/> Ignore <input type="radio"/> Restart timer   |
| TS: Timer Scheduler, general   | Evaluation start/stop input <input type="text" value="1=Start, 0=Stop"/> ▼  |
| SE: Sensor evaluation, gen...  | <b>Output</b>   |
| SEC: Sensor evaluation co...   | Output type <input type="text" value="Bit object"/> ▼   |
| - L/T: Logic / Timer, general  | <b>Value at start</b>   |
| & L1: Logic                    | Value <input type="radio"/> 0 <input checked="" type="radio"/> 1  |
| ⌚ T2: Timer                    | Transmit value <input type="checkbox"/>   |
|                                | <b>Value at stop</b>  |
|                                | Value <input checked="" type="radio"/> 0 <input type="radio"/> 1  |
|                                | Transmit value <input type="checkbox"/>   |
|                                | <b>Value at expiration</b>  |
|                                | Value <input checked="" type="radio"/> 0 <input type="radio"/> 1  |
|                                | Transmit value <input type="checkbox"/>   |
|                                | <b>Transmission behaviour</b>   |
|                                | Behaviour after prog./reset/bus voltage recovery <input type="text" value="Do not transmit a value"/> ▼   |
|                                | <b>Enable/disable</b>   |
|                                | Use enable/disable object <input type="text" value="Do not use"/> ▼   |

Fig. 56 Parameter dialogue: Logic/Timer → Tn: Timer

| Parameter                         | Function   | Values  |
|-----------------------------------|--|---|
| Run time [hh:mm:ss]               | Run time for the timer function  | 00:00:00<br>:<br><b>00:05:00</b><br>:<br>23:59:59 |
| Retrigger (renewed start command) | Specifies whether the timer can be restarted at zero if there is a new start command during the run time.  | <b>Ignore</b><br>Restart timer                    |
| Start/Stop input evaluation       | The logic of the start/stop input is specified here.   | <b>1=Start, 0=Stop</b>                            |
|                                   |  | 0=Start, 1=Stop                                   |
|                                   |  | 1=Start, 0 Ignore                                 |
|                                   |  | 0=Start, 1 Ignore                                 |
|                                   |  | 1=Start/Stop                                      |
|                                   |  | 0=Start/Stop                                      |
| Type of output                    | Type of telegrams issued at the output of the timer  | <b>Bit object</b>                                 |
|                                   |  | Scenario  |
|                                   |  | Blind length and slat position                    |
| Value                             | This parameter is only displayed for the <b>bit object</b> type of output. It can be set separately for the status of the timer ( <b>at start/at stop/upon expiry</b> ).                   | 0 (default for stop and expiry)                   |
|                                   | Specifies which value should be sent for the relevant status of the timer.   | 1 (default for start)                             |
| Transmit value                    | This parameter is only displayed for the <b>bit object</b> type of output. It can be set separately for the status of the timer ( <b>at start/at stop/upon expiry</b> ).                   | Yes   |
|                                   | Specifies whether a value should be sent for the relevant status of the timer.   | <b>No</b>   |
| Scenario function                 | This parameter is only displayed for the <b>Scenario</b> type of output. It can be set separately for the status of the timer ( <b>at start/at stop/upon expiry</b> ).                     | <b>Execute scenario</b>                           |
|                                   | Specifies whether the scenario should be executed or learned for the relevant status of the timer.   | Learn scenario                                    |
| Scenario number                   | This parameter is only displayed for the <b>Scenario</b> type of output. It can be set separately for the status of the timer ( <b>at start/at stop/upon expiry</b> ).                     | <b>1</b><br>:<br>64                               |
| Transmit value                    | This parameter is only displayed for the <b>Scenario</b> type of output. It can be set separately for the status of the timer ( <b>at start/at stop/upon expiry</b> ).                     | Yes   |
|                                   | Specifies whether a value should be sent for the relevant status of the timer.   | <b>No</b>   |
| Blind length [%]                  | This parameter is only displayed for the output type <b>blind length and slat position</b> . It can be set separately for the status of the timer ( <b>at start/at stop/upon expiry</b> ). | <b>0</b><br>:<br>100                              |
| Slat position [%]                 | This parameter is only displayed for the output type <b>blind length and slat position</b> . It can be set separately for the status of the timer ( <b>at start/at stop/upon expiry</b> ). | <b>0</b><br>:<br>100                              |
|                                   | Value for the slat position in percent that is sent for the relevant status of the timer.  |   |

|  |  |                                  |
|--|--|----------------------------------|
| Transmit value                         | <p>This parameter is only displayed for the output type <b>blind length and slat position</b>. It can be set separately for the status of the timer (<b>at start/at stop/upon expiry</b>).</p> <p>Specifies whether a value should be sent for the relevant status of the timer.</p> | Yes                              |
|  |  | <b>No</b>                        |
| Behaviour after prog./reset/bus return | Specifies when an object should be transmitted at the output.  | <b>Do not transmit any value</b> |
|  |  | Transmit "Start" value           |
|  |  | Transmit "Expired" value         |
| Use enable/disable object              | An enable or disable object can be displayed here.   | <b>Do not use</b>                |
|  |  | Enable object                    |
|  |  | Disable object                   |

## 7 Group objects

The KNX secure Sensor Interface is equipped with a number of group objects (GO).

Depending on the parameter setting (e.g. sensor data), the available group objects are displayed in the ETS interface.

### 7.1 Overview

The following tables contains all group objects with the associated specifications.



The group objects 326 to 437 for the logic and timer functions are listed twice in the table to provide a better overview. The logic functions are listed first followed by the timer functions.

#### 7.1.1 Sensor data

| No. | Name                                       | Object function                    | Length  | Flags   | Data type                             |
|-----|--|------------------------------------|---------|---------|---------------------------------------|
| 1   | SD: Sensor data, Temperature               | Celsius output                     | 2 bytes | C, R, T | [9.1] DPT_Value_Temp                  |
| 2   | SD: Sensor data, Temperature               | Fahrenheit output                  | 2 bytes | C, R, T | [9.27] DPT_Value_Temp_F               |
| 3   | SD: Sensor data, Brightness 1              | Brightness output                  | 2 bytes | C, R, T | [9.4] DPT_Value_Lux                   |
| 4   | SD: Sensor data, Brightness 2              | Brightness output                  | 2 bytes | C, R, T | [9.4] DPT_Value_Lux                   |
| 5   | SD: Sensor data, Brightness 3              | Brightness output                  | 2 bytes | C, R, T | [9.4] DPT_Value_Lux                   |
| 6   | SD: Sensor data, Brightness 4              | Brightness output                  | 2 bytes | C, R, T | [9.4] DPT_Value_Lux                   |
| 7   | SD: Sensor data, Brightness 1-4 max.       | Brightness output                  | 2 bytes | C, R, T | [9.4] DPT_Value_Lux                   |
| 8   | SD: Sensor data, Radiation 1               | Radiation output                   | 2 bytes | C, R, T | [9.22] DPT_PowerDensity               |
| 9   | SD: Sensor data, Radiation 2               | Radiation output                   | 2 bytes | C, R, T | [9.22] DPT_PowerDensity               |
| 10  | SD: Sensor data, Radiation 3               | Radiation output                   | 2 bytes | C, R, T | [9.22] DPT_PowerDensity               |
| 11  | SD: Sensor data, Radiation 4               | Radiation output                   | 2 bytes | C, R, T | [9.22] DPT_PowerDensity               |
| 12  | SD: Sensor data, Radiation 1-4 max.        | Radiation output                   | 2 bytes | C, R, T | [9.22] DPT_PowerDensity               |
| 13  | SD: Sensor data, dusk/dawn                 | Dusk/dawn output                   | 2 bytes | C, R, T | [9.4] DPT_Value_Lux                   |
| 14  | SD: Sensor data, wind speed                | Wind speed m/s output              | 2 bytes | C, R, T | [9.5] DPT_Value_Wsp                   |
| 15  | SD: Sensor data, wind speed                | Wind speed km/h output             | 2 bytes | C, R, T | [9.28] DPT_Value_Wsp_kmh              |
| 16  | SD: Sensor data, wind speed                | Wind speed Beaufort output         | 1 byte  | C, R, T | [20.14] DPT_Beaufort_Wind_Force_Scale |
| 17  | SD: Sensor data, wind speed                | Wind speed max. m/s output         | 2 bytes | C, R, T | [9.5] DPT_Value_Wsp                   |
| 18  | SD: Sensor data, wind direction 1 minute   | Wind direction output              | 1 byte  | C, R, T | [5.3] DPT_Angle                       |
| 19  | SD: Sensor data, wind direction 1 minute   | Wind direction float 4 Byte output | 4 bytes | C, R, T | [14.7] DPT_Value_AngleDeg             |
| 20  | SD: Sensor data, wind direction 10 minutes | Wind direction output              | 1 byte  | C, R, T | [5.3] DPT_Angle                       |
| 21  | SD: Sensor data, wind direction 10 minutes | Wind direction float 4 Byte output | 4 bytes | C, R, T | [14.7] DPT_Value_AngleDeg             |
| 22  | SD: Sensor data, time/GPS                  | Date UTC output                    | 3 bytes | C, R, T | [11.1] DPT_Date                       |
| 23  | SD: Sensor data, time/GPS                  | Time UTC output                    | 3 bytes | C, R, T | [10.1] DPT_TimeOfDay                  |
| 24  | SD: Sensor data, time/GPS                  | Date/time UTC output               | 8 bytes | C, R, T | [19.1] DPT_DateTime                   |

| No. | Name                                 | Object function                                    | Length  | Flags   | Data type                 |
|-----|--------------------------------------|--|---------|---------|---------------------------|
| 25  | SD: Sensor data, time/GPS            | Local date output                                  | 3 bytes | C, R, T | [11.1] DPT_Date           |
| 26  | SD: Sensor data, time/GPS            | Local time output                                  | 3 bytes | C, R, T | [10.1] DPT_TimeOfDay      |
| 27  | SD: Sensor data, time/GPS            | Local date/time output                             | 8 bytes | C, R, T | [19.1] DPT_DateTime       |
| 28  | SD: Sensor data, time/GPS            | Degree of longitude output                         | 4 bytes | C, R, T | [14.7] DPT_Value_AngleDeg |
| 29  | SD: Sensor data, time/GPS            | Degree of latitude output                          | 4 bytes | C, R, T | [14.7] DPT_Value_AngleDeg |
| 30  | SD: Sensor data, time/GPS            | Height output                                      | 2 bytes | C, R, T | [8.1] DPT_Value_2_Count   |
| 31  | SD: Sensor data, time/GPS            | Number of satellites output                        | 1 byte  | C, R, T | [5.10] DPT_Value_1_Ucount |
| 32  | SD: Sensor data, position of the sun | Position of the sun, elevation float 4 byte output | 4 bytes | C, R, T | [14.7] DPT_Value_AngleDeg |
| 33  | SD: Sensor data, position of the sun | Position of the sun, elevation output              | 2 bytes | C, R, T | [8.11] DPT_Rotation_Angle |
| 34  | SD: Sensor data, position of the sun | Position of the sun, azimuth float 4 byte output   | 4 bytes | C, R, T | [14.7] DPT_Value_AngleDeg |
| 35  | SD: Sensor data, position of the sun | Position of the sun, azimuth output                | 2 bytes | C, R, T | [8.11] DPT_Rotation_Angle |
| 36  | SD: Sensor data, precipitation       | Precipitation output                               | 1 bit   | C, R, T | [1.2] DPT_Bool            |

### 7.1.2 Safety channels

| No. | Name                 | Object function              | Length  | Flags      | Data type               |
|-----|----------------------|------------------------------|---------|------------|-------------------------|
| 37  | SAC1: Safety channel | Alarm output                 | 1 bit   | C, R, T    | [9.1] DPT_Value_Temp    |
| 38  | SAC1: Safety channel | Wind speed limit value input | 2 bytes | C, R, W, U | [9.27] DPT_Value_Temp_F |
| 39  | SAC1: Safety channel | Ice alarm limit value input  | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux     |
| 40  | SAC1: Safety channel | Reset ice alarm input        | 1 bit   | C, W, U    | [9.4] DPT_Value_Lux     |
| 41  | SAC1: Safety channel | Enable/disable input         | 1 bit   | C, W       | [9.4] DPT_Value_Lux     |



Safety channels 2 to 8 are equipped with the same group objects as safety channel 1 (with corresponding consecutive GO numbers).

## 7.1.3 Sun shading channels

| No. | Name                      | Object function                             | Length  | Flags      | Data type                      |
|-----|---------------------------|---|---------|------------|--------------------------------|
| 77  | SUC1: Sun shading channel | Blind length output                         | 1 byte  | C, R, T    | [5.1] DPT_Scaling              |
| 78  | SUC1: Sun shading channel | Slat position output                        | 1 byte  | C, R, T    | [5.1] DPT_Scaling              |
| 79  | SUC1: Sun shading channel | Blind/slats output                          | 3 bytes | C, R, T    | [240.800] DPT_CombinedPosition |
| 80  | SUC1: Sun shading channel | Safety bit input                            | 1 bit   | C, W       | [1.5] DPT_Alarm                |
| 81  | SUC1: Sun shading channel | Cooling support limit value ext. input      | 2 bytes | C, R, W, U | [9.1] DPT_Value_Temp           |
| 82  | SUC1: Sun shading channel | Cooling support measuring values ext. input | 2 bytes | C, W       | [9.1] DPT_Value_Temp           |
| 83  | SUC1: Sun shading channel | Cooling support active output               | 1 bit   | C, R, T    | [1.2] DPT_Bool                 |
| 84  | SUC1: Sun shading channel | Enable/disable cooling support input        | 1 bit   | C, W       | [1.3] DPT_Enable               |
| 85  | SUC1: Sun shading channel | Heating support limit value ext. input      | 2 bytes | C, R, W, U | [9.1] DPT_Value_Temp           |
| 86  | SUC1: Sun shading channel | Heating support measuring values ext. input | 2 bytes | C, W       | [9.1] DPT_Value_Temp           |
| 87  | SUC1: Sun shading channel | Heating support active output               | 1 bit   | C, R, T    | [1.2] DPT_Bool                 |
| 88  | SUC1: Sun shading channel | Enable/disable heating support input        | 1 bit   | C, W       | [1.3] DPT_Enable               |
| 89  | SUC1: Sun shading channel | Sun control brightness ext. input           | 2 bytes | C, W       | [9.4] DPT_Value_Lux            |
| 90  | SUC1: Sun shading channel | Sun control sun limit value ext. input      | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux            |
| 91  | SUC1: Sun shading channel | Sun control fair limit value ext. input     | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux            |
| 92  | SUC1: Sun shading channel | Sun control cloud limit value ext. input    | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux            |
| 93  | SUC1: Sun shading channel | Sun control active output                   | 1 bit   | C, R, T    | [1.2] DPT_Bool                 |
| 94  | SUC1: Sun shading channel | Enable/disable sun control input            | 1 bit   | C, W       | [1.3] DPT_Enable               |
| 95  | SUC1: Sun shading channel | Dusk/dawn measuring value ext. input        | 2 bytes | C, W       | [9.4] DPT_Value_Lux            |
| 96  | SUC1: Sun shading channel | Dawn limit value ext. input                 | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux            |
| 97  | SUC1: Sun shading channel | Dusk limit value ext. input                 | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux            |
| 98  | SUC1: Sun shading channel | Night (dawn) active output                  | 1 bit   | C, R, T    | [1.2] DPT_Bool                 |
| 99  | SUC1: Sun shading channel | Enable/disable night (dawn) input           | 1 bit   | C, W       | [1.3] DPT_Enable               |
| 100 | SUC1: Sun shading channel | Enable/disable Timer Scheduler input        | 1 bit   | C, W       | [1.3] DPT_Enable               |
| 101 | SUC1: Sun shading channel | Enable/disable sun shading channel input    | 1 bit   | C, W       | [1.3] DPT_Enable               |



Sun shading channels 2 to 16 are equipped with the same group objects as sun shading channel 1 (with corresponding consecutive GO numbers).

### 7.1.4 Timer Scheduler

| No. | Name                 | Object function      | Length  | Flags   | Data type                      |
|-----|----------------------|----------------------|---------|---------|--------------------------------|
| 477 | TS1: Timer Scheduler | Blind length output  | 1 byte  | C, R, T | [5.1] DPT_Scaling              |
| 478 | TS1: Timer Scheduler | Slat position output | 1 byte  | C, R, T | [5.1] DPT_Scaling              |
| 479 | TS1: Timer Scheduler | Blind/slats output   | 3 bytes | C, R, T | [240.800] DPT_CombinedPosition |
| 480 | TS1: Timer Scheduler | Bit output           | 1 bit   | C, R, T | [1.1] DPT_Switch               |
| 481 | TS1: Timer Scheduler | Scenario output      | 1 byte  | C, R, T | [18.1] DPT_SceneControl        |
| 482 | TS1: Timer Scheduler | Enable/disable input | 1 bit   | C, W    | [1.3] DPT_Enable               |



Timer Schedulers 2 to 12 are equipped with the same group objects as Timer Scheduler 1 (with corresponding consecutive Go numbers).

### 7.1.5 Sensor evaluation

| No. | Name                                | Object function      | Length  | Flags      | Data type                 |
|-----|-------------------------------------|----------------------|---------|------------|---------------------------|
| 549 | SE: Sensor evaluation, temperature  | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 550 | SE: Sensor evaluation, temperature  | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 551 | SE: Sensor evaluation, temperature  | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 552 | SE: Sensor evaluation, temperature  | Limit value input    | 2 bytes | C, R, W, U | [9.1] DPT_Value_Temp      |
| 553 | SE: Sensor evaluation, temperature  | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 555 | SE: Sensor evaluation, brightness 1 | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 556 | SE: Sensor evaluation, brightness 1 | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 557 | SE: Sensor evaluation, brightness 1 | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 558 | SE: Sensor evaluation, brightness 1 | Limit value input    | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux       |
| 559 | SE: Sensor evaluation, brightness 1 | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 561 | SE: Sensor evaluation, brightness 2 | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 562 | SE: Sensor evaluation, brightness 2 | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 563 | SE: Sensor evaluation, brightness 2 | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 564 | SE: Sensor evaluation, brightness 2 | Limit value input    | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux       |
| 565 | SE: Sensor evaluation, brightness 2 | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 567 | SE: Sensor evaluation, brightness 3 | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 568 | SE: Sensor evaluation, brightness 3 | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 569 | SE: Sensor evaluation, brightness 3 | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 570 | SE: Sensor evaluation, brightness 3 | Limit value input    | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux       |
| 571 | SE: Sensor evaluation, brightness 3 | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 573 | SE: Sensor evaluation, brightness 4 | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |

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| No. | Name                                       | Object function      | Length  | Flags      | Data type                 |
|-----|--|----------------------|---------|------------|---------------------------|
| 574 | SE: Sensor evaluation, brightness 4        | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 575 | SE: Sensor evaluation, brightness 4        | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 576 | SE: Sensor evaluation, brightness 4        | Limit value input    | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux       |
| 577 | SE: Sensor evaluation, brightness 4        | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 579 | SE: Sensor evaluation, brightness 1-4 max. | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 580 | SE: Sensor evaluation, brightness 1-4 max. | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 581 | SE: Sensor evaluation, brightness 1-4 max. | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 582 | SE: Sensor evaluation, brightness 1-4 max. | Limit value input    | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux       |
| 583 | SE: Sensor evaluation, brightness 1-4 max. | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 585 | SE: Sensor evaluation, radiation 1         | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 586 | SE: Sensor evaluation, radiation 1         | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 587 | SE: Sensor evaluation, radiation 1         | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 588 | SE: Sensor evaluation, radiation 1         | Limit value input    | 2 bytes | C, R, W, U | [9.22] DPT_PowerDensity   |
| 589 | SE: Sensor evaluation, radiation 1         | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 591 | SE: Sensor evaluation, radiation 2         | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 592 | SE: Sensor evaluation, radiation 2         | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 593 | SE: Sensor evaluation, radiation 2         | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 594 | SE: Sensor evaluation, radiation 2         | Limit value input    | 2 bytes | C, R, W, U | [9.22] DPT_PowerDensity   |
| 595 | SE: Sensor evaluation, radiation 2         | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 597 | SE: Sensor evaluation, radiation 3         | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 598 | SE: Sensor evaluation, radiation 3         | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 599 | SE: Sensor evaluation, radiation 3         | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 600 | SE: Sensor evaluation, radiation 3         | Limit value input    | 2 bytes | C, R, W, U | [9.22] DPT_PowerDensity   |
| 601 | SE: Sensor evaluation, radiation 3         | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 603 | SE: Sensor evaluation, radiation 4         | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 604 | SE: Sensor evaluation, radiation 4         | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 605 | SE: Sensor evaluation, radiation 4         | Scenario output      | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 606 | SE: Sensor evaluation, radiation 4         | Limit value input    | 2 bytes | C, R, W, U | [9.22] DPT_PowerDensity   |
| 607 | SE: Sensor evaluation, radiation 4         | Enable/disable input | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 609 | SE: Sensor evaluation, radiation 1-4 max.  | Bit output           | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 610 | SE: Sensor evaluation, radiation 1-4 max.  | Byte output          | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |

| No. | Name   | Object function        | Length  | Flags      | Data type                 |
|-----|--|------------------------|---------|------------|---------------------------|
| 611 | SE: Sensor evaluation, radiation 1-4 max.        | Scenario output        | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 612 | SE: Sensor evaluation, radiation 1-4 max.        | Limit value input      | 2 bytes | C, R, W, U | [9.22] DPT_PowerDensity   |
| 613 | SE: Sensor evaluation, radiation 1-4 max.        | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 615 | SE: Sensor evaluation, dusk/dawn                 | Bit output             | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 616 | SE: Sensor evaluation, dusk/dawn                 | Byte output            | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 617 | SE: Sensor evaluation, dusk/dawn                 | Scenario output        | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 618 | SE: Sensor evaluation, dusk/dawn                 | Limit value input      | 2 bytes | C, R, W, U | [9.4] DPT_Value_Lux       |
| 619 | SE: Sensor evaluation, dusk/dawn                 | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 621 | SE: Sensor evaluation, wind speed                | Bit output             | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 622 | SE: Sensor evaluation, wind speed                | Byte output            | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 623 | SE: Sensor evaluation, wind speed                | Scenario output        | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 624 | SE: Sensor evaluation, wind speed                | Limit value input      | 2 bytes | C, R, W, U | [9.5] DPT_Value_Wsp       |
| 625 | SE: Sensor evaluation, wind speed                | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 627 | SE: Sensor evaluation, wind direction 1 minute   | Bit output             | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 628 | SE: Sensor evaluation, wind direction 1 minute   | Byte output            | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 629 | SE: Sensor evaluation, wind direction 1 minute   | Scenario output        | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 630 | SE: Sensor evaluation, wind direction 1 minute   | Limit value min. input | 1 byte  | C, R, W, U | [5.3] DPT_Angle           |
| 631 | SE: Sensor evaluation, wind direction 1 minute   | Limit value max. input | 1 byte  | C, R, W, U | [5.3] DPT_Angle           |
| 632 | SE: Sensor evaluation, wind direction 1 minute   | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 633 | SE: Sensor evaluation, wind direction 10 minutes | Bit output             | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 634 | SE: Sensor evaluation, wind direction 10 minutes | Byte output            | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 635 | SE: Sensor evaluation, wind direction 10 minutes | Scenario output        | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 636 | SE: Sensor evaluation, wind direction 10 minutes | Limit value min. input | 1 byte  | C, R, W, U | [5.3] DPT_Angle           |
| 637 | SE: Sensor evaluation, wind direction 10 minutes | Limit value max. input | 1 byte  | C, R, W, U | [5.3] DPT_Angle           |
| 638 | SE: Sensor evaluation, wind direction 10 minutes | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 639 | SE: Sensor evaluation, time range                | Bit output             | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 640 | SE: Sensor evaluation, time range                | Byte output            | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |
| 641 | SE: Sensor evaluation, time range                | Scenario output        | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 643 | SE: Sensor evaluation, time range                | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable          |
| 645 | SE: Sensor evaluation, date range                | Bit output             | 1 bit   | C, R, T    | [1.2] DPT_Bool            |
| 646 | SE: Sensor evaluation, date range                | Byte output            | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount |

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| No. | Name                                       | Object function  | Length  | Flags      | Data type   |
|-----|--|--|---|------------|---|
| 647 | SE: Sensor evaluation, date range          | Scenario output  | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 649 | SE: Evaluation, date range input           | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable  |
| 651 | SE: Sensor evaluation, position of the sun | Bit output   | 1 bit   | C, R, T    | [1.2] DPT_Bool  |
| 652 | SE: Sensor evaluation, position of the sun | Byte output  | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount   |
| 653 | SE: Sensor evaluation, position of the sun | Scenario output  | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 654 | SE: Sensor evaluation, position of the sun | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable  |
| 657 | SE: Sensor evaluation, precipitation       | Bit output   | 1 bit   | C, R, T    | [1.2] DPT_Bool  |
| 658 | SE: Sensor evaluation, precipitation       | Byte output  | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount   |
| 659 | SE: Sensor evaluation, precipitation       | Scenario output  | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 660 | SE: Sensor evaluation, precipitation       | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable  |
| 663 | SE1: Sensor evaluation, generic            | External GO input  | 1 byte<br>1 byte<br>2 bytes<br>2 bytes                            | C, W, U    | [5.1] DPT_Scaling<br>[5.10] DPT_Value_1_Ucount<br>[7.1] DPT_Value_2_Ucount<br>[9.1] DPT_Value_Temp                                      |
| 664 | SE1: Sensor evaluation, generic            | Bit output   | 1 bit   | C, R, T    | [1.2] DPT_Bool  |
| 665 | SE1: Sensor evaluation, generic            | Byte output  | 1 byte  | C, R, T    | [5.10] DPT_Value_1_Ucount   |
| 666 | SE1: Sensor evaluation, generic            | Scenario output  | 1 byte  | C, R, T    | [18.1] DPT_SceneControl   |
| 667 | SE1: Sensor evaluation, generic            | Temperature limit value input<br>Brightness limit value input<br>Radiation limit value input<br><br>Dusk/dawn limit value input<br>Wind speed limit value input<br>Wind direction limit value min. input | 2 bytes<br>2 bytes<br>2 bytes<br><br>2 bytes<br>2 bytes<br>1 byte | C, R, W, U | [9.1] DPT_Value_Temp<br>[9.4] DPT_Value_Lux<br>[9.22] DPT_PowerDensity<br>[9.4] DPT_Value_Lux<br>[9.5] DPT_Value_Wsp<br>[5.3] DPT_Angle |
| 668 | SE1: Sensor evaluation, generic            | Wind direction limit value max. input  | 1 byte  | C, R, W, U | [5.3] DPT_Angle   |
| 669 | SE1: Sensor evaluation, generic            | External GO limit value input  | 1 byte<br>1 byte<br>2 bytes<br>2 bytes                            | C, R, W, U | [5.1] DPT_Scaling<br>[5.10] DPT_Value_1_Ucount<br>[7.1] DPT_Value_2_Ucount<br>[9.1] DPT_Value_Temp                                      |
| 670 | SE1: Sensor evaluation, generic            | Enable/disable input   | 1 bit   | C, W       | [1.3] DPT_Enable  |



The generic sensor evaluations 2 to 10 are equipped with the same group objects as generic sensor evaluation 1 (with corresponding consecutive GO numbers).

### 7.1.6 Sensor evaluation combined

| No. | Name                             | Object function              | Length  | Flags      | Data type                      |
|-----|----------------------------------|------------------------------|---------|------------|--------------------------------|
| 743 | SEC1: Sensor evaluation combined | Bit output                   | 1 bit   | C, R, T    | [5.1] DPT_Scaling              |
| 744 | SEC1: Sensor evaluation combined | Byte output                  | 1 byte  | C, R, T    | [5.1] DPT_Scaling              |
| 745 | SEC1: Sensor evaluation combined | Scenario output              | 1 byte  | C, R, T    | [240.800] DPT_CombinedPosition |
| 746 | SEC1: Sensor evaluation combined | Ice alarm limit value input  | 2 bytes | C, R, W, U | [1.1] DPT_Switch               |
| 747 | SEC1: Sensor evaluation combined | Reset ice alarm input        | 1 bit   | C, W, U    | [18.1] DPT_SceneControl        |
| 748 | SEC1: Sensor evaluation combined | Enable/disable input         | 1 bit   | C, W       | [1.3] DPT_Enable               |
| 803 | SEC: Sensor evaluation combined  | DPT 1.002 Global No. 1 input | 1 bit   | C, W, U    | [1.2] DPT_Bool                 |
| 804 | SEC: Sensor evaluation combined  | DPT 1.002 Global No. 2 input | 1 bit   | C, W, U    | [1.2] DPT_Bool                 |
| 805 | SEC: Sensor evaluation combined  | DPT 1.002 Global No. 3 input | 1 bit   | C, W, U    | [1.2] DPT_Bool                 |
| 806 | SEC: Sensor evaluation combined  | DPT 1.002 Global No. 4 input | 1 bit   | C, W, U    | [1.2] DPT_Bool                 |



Combined sensor evaluations 2 to 10 are equipped with the same group objects as the combined sensor evaluation 1 (with corresponding consecutive GO numbers).

## 7.1.7 Logic / Timer

Group objects 807 to 813 for the logic and timer functions are listed twice in the table to provide a better overview.

| No. | Name      | Object function  | Length | Flags      | Data type               |
|-----|-----------|--|--------|------------|-------------------------|
| 807 | L1: Logic | Input 1  | 1 bit  | C, W, T, U | [1.2] DPT_Bool          |
| 808 | L1: Logic | Input 2  | 1 bit  | C, W, T, U | [1.2] DPT_Bool          |
| 809 | L1: Logic | Input 3  | 1 bit  | C, W, T, U | [1.2] DPT_Bool          |
| 810 | L1: Logic | Input 4  | 1 bit  | C, W, T, U | [1.2] DPT_Bool          |
| 811 | L1: Logic | Bit object output type: Bit output   | 1 bit  | C, R, T    | [1.1] DPT_Switch        |
|     |           | Scenario output type: Scenario output  | 1 byte | C, R, T    | [18.1] DPT_SceneControl |
| 812 | L1: Logic | Blind length and slat position output type: Blind length output  | 1 byte | C, R, T    | [5.1] DPT_Scaling       |
|     |           | Bit object output type: –<br>Scenario output type: –<br>Blind length and slat position output type: Slat position output | 1 byte | C, R, T    | [5.1] DPT_Scaling       |
| 813 | L1: Logic | Enable/disable   | 1 bit  | C, W       | 1 bit, 1.003 enable     |



Logic functions 2 to 16 are equipped with the same group objects as logic function 1 (with corresponding consecutive GO numbers).

| No. | Name      | Object function  | Length | Flags   | Data type               |
|-----|-----------|--|--------|---------|-------------------------|
| 807 | T1: Timer | Start/stop input   | 1 bit  | C, W, T | [1.2] DPT_Bool          |
| 808 | T1: Timer | Bit object output type: Bit output   | 1 bit  | C, R, T | [1.1] DPT_Switch        |
|     |           | Scenario output type: Scenario output  | 1 byte | C, R, T | [18.1] DPT_SceneControl |
| 809 | T1: Timer | Blind length and slat position output type: Blind length output  | 1 byte | C, R, T | [5.1] DPT_Scaling       |
|     |           | Bit object output type: –<br>Scenario output type: –<br>Blind length and slat position output type: Slat position output | 1 byte | C, R, T | [5.1] DPT_Scaling       |
| 810 | T1: Timer | –  |        |         |                         |
| 811 | T1: Timer | –  |        |         |                         |
| 812 | T1: Timer | –  |        |         |                         |
| 813 | T1: Timer | Enable/disable   | 1 bit  | C, W    | 1 bit, 1.003 enable     |



Timer functions 2 to 16 are equipped with the same group objects as timer function 1 (with corresponding consecutive GO numbers).

## 7.1.8 Device functions

| No. | Name   | Object function                                 | Length  | Flags   | Data type             |
|-----|--------|---|---------|---------|-----------------------|
| 919 | Device | Auxiliary voltage error output                  | 1 bit   | C, R, T | [1.2] DPT_Bool        |
| 920 | Device | Auxiliary voltage output                        | 2 bytes | C, R, T | [9.20] DPT_Value_Volt |
| 921 | Device | Weather station communication monitoring output | 1 bit   | C, R, T | [1.2] DPT_Bool        |
| 922 | Device | Local time input                                | 3 bytes | C, W    | [10.1] DPT_TimeOfDay  |
| 923 | Device | Local date input                                | 3 bytes | C, W    | [11.1] DPT_Date       |
| 924 | Device | Local time/date input                           | 8 bytes | C, W    | [19.1] DPT_DateTime   |
| 925 | Device | Device available output                         | 1 bit   | C, R, T | [1.2] DPT_Bool        |
| 926 | Device | Wind speed monitoring output                    | 1 bit   | C, R, T | [1.2] DPT_Bool        |
| 927 | Device | Acknowledge wind speed monitoring input         | 1 bit   | C, W    | [1.2] DPT_Bool        |

## 7.2 Group objects in detail

Below you will find a function description of the group objects used, as well as the possible values. The "Required approvals" column contains the prerequisites for activating the respective group object and displaying it in ETS.

### 7.2.1 Group objects for the sensor data

| Name                                     | Object function  | Values   | required approvals in the parameter dialogue  |
|--|--|--|---|
| Temperature Celsius output               | <b>GO temperature output Celsius</b> transmits the measured temperature in degrees Celsius plus any temperature offset entered in the device parameters.                                       | -20 °C<br>...60 °C                             | SD: Sensor data (transmit), general \ temperature active<br>AND<br>SD: Temperature \ "Celsius" object active    |
| Temperature Fahrenheit output            | <b>GO temperature output Fahrenheit</b> transmits the measured temperature in degrees Fahrenheit plus any temperature offset entered in the device parameters.                                 | -4 °F<br>...140 °F                             | SD: Sensor data (transmit), general \ temperature active<br>AND<br>SD: Temperature \ "Fahrenheit" object active |
| Brightness n<br>Brightness output        | <b>GO output brightness n</b> transmits the measured brightness value measured at the respective photodiode.   | 0 klx<br>...100 klx                            | SD: Sensor data (transmit), general \ brightness active   |
| Brightness 1-4 max.<br>Brightness output | <b>GO output brightness 1-4 max.</b> transmits the highest brightness value measured at one of the four photodiodes.   | 0 klx<br>...100 klx                            | SD: Sensor data (transmit), general \ brightness active   |
| Radiation<br>Radiation output            | <b>GO output radiation n</b> transmits the brightness value measured at the respective radiation sensor.   | 0 W/m <sup>2</sup><br>...1300 W/m <sup>2</sup> | SD: Sensor data (transmit), general \ radiation active  |
| Radiation 1-4 max.<br>Radiation output   | <b>GO output radiation 1-4 max.</b> transmits the highest brightness value measured at one of the four radiation sensors.  | 0 W/m <sup>2</sup><br>...1300 W/m <sup>2</sup> | SD: Sensor data (transmit), general \ radiation active  |
| Dusk/dawn output                         | <b>GO output dawn/dusk</b> transmits the measuring value of the brightness at dawn/dusk (measured via photodiodes 1 and 3)   | 0 lx<br>...100 klx                             | SD: Sensor data (transmit), general \ dawn/dusk active  |
| Wind speed m/s output                    | <b>GO output wind speed m/s</b> transmits the determined wind speed in m/s   | 0.0 m/s<br>...40.0 m/s                         | SD: Sensor data (transmit), general \ wind speed active<br>AND<br>SD: Wind speed \ "m/s" object active          |
| Wind speed km/h output                   | <b>GO output wind speed km/h</b> transmits the determined wind speed in km/h   | 0.0 km/h<br>...144.0 km/h                      | SD: Sensor data (transmit), general \ wind speed active<br>AND<br>SD: Wind speed \ "km/h" object active         |
| Wind speed Beaufort output               | <b>GO output wind speed Beaufort</b> transmits the determined wind speed in km/h   | 0 Bft<br>...13 Bft                             | SD: Sensor data (transmit), general \ wind speed active<br>AND<br>SD: Wind speed \ "Beaufort" object active     |
| Wind speed max. m/s output               | <b>GO output wind speed max. m/s</b> transmits the highest wind speed in m/s that has been detected in the parameterised time range.<br>(Parameter SD: <i>Wind speed</i>   <i>time range</i> ) | 0.0 m/s<br>...40.0 m/s                         | SD: Sensor data (transmit), general \ wind speed active<br>AND<br>SD: Wind speed \ "max m/s" object active      |

| Name   | Object function   | Values   | required approvals in the parameter dialogue   |
|--|---|--|--|
| Wind direction (1 min) output                      | <b>GO output wind direction (1 min)</b> transmits the average value of the wind direction within the last minute (1-byte value)   | 0°<br>...359°  | SD: Sensor data (transmit), general \ wind direction 1 minute average value active<br>AND<br>SD: Wind direction 1 minute \ average value "Byte" object active    |
| Wind direction float 4 byte output (1 min)         | <b>GO output wind direction (1 min) float 4 byte</b> transmits the average value of the wind direction within the last minute (4-byte value)                                      | 0°<br>...359°<br>4-byte floating point value<br>Angle (degree) | SD: Sensor data (transmit), general \ wind direction 1 minute average value active<br>AND<br>SD: Wind direction 1 minute average value \ "Float" object active   |
| Wind direction (10 min) output                     | <b>GO output wind direction (10 min)</b> transmits the average value of the wind direction within the last 10 minutes (1-byte value)  | 0°<br>...359°  | SD: Sensor data (transmit), general \ wind direction 10 minute average value active<br>AND<br>SD: Wind direction 10 minute average value \ "Byte" object active  |
| Wind direction float 4 byte output (10 min)        | <b>GO output wind direction (10 min) float 4 byte</b> transmits the average value of the wind direction within the last 10 minutes (4-byte value)                                 | 0°<br>...359°<br>4-byte floating point value<br>Angle (degree) | SD: Sensor data (transmit), general \ wind direction 10 minute average value active<br>AND<br>SD: Wind direction 10 minute average value \ "Float" object active |
| Date UTC output                                    | <b>GO output date UTC</b> transmits the date of the coordinated universal time (UTC)  | 01.01.2021<br>...31.12.2099                                    | SD: Sensor data (transmit), general \ time/GPS active  |
| Time UTC output                                    | <b>GO output time UTC</b> transmits the time of the coordinated universal time (UTC)  | 00:00:00<br>...23:59:59  | SD: Sensor data (transmit), general \ time/GPS active  |
| Date/time UTC output                               | <b>GO output date/time UTC</b> transmits the time and date of the coordinated universal time (UTC)  | DPT 19.001 date/time   | SD: Sensor data (transmit), general \ time/GPS active  |
| Local date output                                  | <b>GO output local date</b> transmits the valid date for the current geographical position (UTC±12, depending on time zone)   | 01.01.2021<br>...31.12.2099                                    | SD: Sensor data (transmit), general \ time/GPS active  |
| Local time output                                  | <b>GO output local time</b> transmits the valid time for the current geographical position (UTC±12, depending on time zone)   | 00:00:00<br>...23:59:59  | SD: Sensor data (transmit), general \ time/GPS active  |
| Local date/time output                             | <b>GO output local date/time</b> transmits the time, date and daylight saving time for the current geographical position (UTC±12, depending on time zone)                         | DPT 19.001 date/time   | SD: Sensor data (transmit), general \ time/GPS active  |
| Degree of longitude output                         | <b>GO output degree of longitude</b> transmits the degree of longitude of the current geographical position (from the parameter value or GPS value, see device parameter)         | -180.0000°<br>...180.0000°                                     | SD: Sensor data (transmit), general \ time/GPS active  |
| Degree of latitude output                          | <b>GO output degree of latitude</b> transmits the degree of latitude of the current geographical location (from the parameter value or GPS value, see device parameter)           | -90.0000°<br>...90.0000°                                       | SD: Sensor data (transmit), general \ time/GPS active  |
| Height output                                      | <b>GO output height</b> transmits the height of the received GPS satellites every 10 minutes  | -1000...32766<br>(2-byte value)                                | SD: Sensor data (transmit), general \ time/GPS active  |
| Number of satellites output                        | <b>GO output number of satellites</b> transmits the number of the received GPS satellites every 10 minutes  | 0..16<br>(1-byte value)  | SD: Sensor data (transmit), general \ time/GPS active  |
| Position of the sun, elevation float 4 byte output | <b>GO output position of the sun, elevation float 4 byte</b> transmits the elevation angle of the position of the sun, calculated from the position, date and time (4-byte value) | 0°<br>...90°<br>4-byte floating point value<br>Angle (degree)  | SD: Sensor data (transmit), general \ position of the sun active   |
| Position of the sun, elevation output              | <b>GO output position of the sun, elevation</b> transmits the elevation angle of the position of the sun, calculated from the position, date and time (2-byte value)              | 0°<br>...90°   | SD: Sensor data (transmit), general \ position of the sun active   |

| Name   | Object function  | Values   | required approvals in the parameter dialogue                     |
|--|--|--|--|
| Position of the sun, azimuth float 4 byte output | <b>GO output position of the sun, azimuth float 4 byte</b> transmits the horizontal angle of the position of the sun, calculated from the position, date and time (4-byte value) | 0°<br>...359°<br>4-byte floating point value<br>Angle (degree) | SD: Sensor data (transmit), general \ position of the sun active |
| Position of the sun, azimuth output              | <b>GO output position of the sun, azimuth</b> transmits the horizontal angle of the position of the sun, calculated from the position, date and time (2-byte value)              | 0°<br>...359°  | SD: Sensor data (transmit), general \ position of the sun active |
| Precipitation output                             | <b>GO output precipitation</b> transmits a 1 if precipitation is detected or if the parameterised off delay has not expired yet.   | 0 = no precipitation<br>1 = precipitation                      | SD: Sensor data (transmit), general \ precipitation active       |

## 7.2.2 Group objects for the safety channels

| Name                         | Object function   | Values  | required approvals in the parameter dialogue  |
|------------------------------|---|---|---|
| Alarm output                 | Depending on the "Transmission behaviour" parameter, the safety channel sends an <b>alarm to the GO output</b> as soon as a parameterised alarm is triggered.   | 0 = no alarm<br>1 = alarm                       | SAC: Safety channel, general \ safety channel n active  |
| Wind speed limit value input | An external set value provided via the <b>GO input wind speed limit value</b> replaces the limit value parameterised for the wind alarm.  | 2-byte floating point value<br>Speed (m/s)      | SAC: Safety channel, general \ safety channel n active<br>AND<br>SACn: Safety channel \ wind alarm active<br>AND<br>SACn: Safety channel \ wind alarm \ can be changed via GO                 |
| Ice alarm limit value input  | An external limit value provided via the <b>GO input ice alarm limit value</b> replaces the limit value parameterised for the ice alarm.  | 2-byte floating point value<br>Temperature (°C) | SAC: Safety channel, general \ safety channel n active<br>AND<br>SACn: Safety channel \ ice alarm active<br>AND<br>SACn: Safety channel \ ice alarm \ limit value \ can be changed via GO     |
| Reset ice alarm input        | An ice alarm can be reset via the <b>reset GO input ice alarm</b> .<br><br>The ice alarm is not active for the time parameterised in the ETS after resetting (SECn: Combined evaluation \ reset alarm \ alarm can be reset via GO active \ alarm not active by resetting via GO for ...)  | 1 = Reset ice alarm                             | SAC: Safety channel, general \ safety channel n active<br>AND<br>SACn: Safety channel \ ice alarm active<br>AND<br>SACn: Safety channel \ ice alarm \ reset alarm \ alarm can be reset via GO |
| Enable/disable input         | For DISABLE OBJECT ( <b>disable input</b> ):<br>Disables the safety channel. After reset, a signal is always transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> until <b>GO disable</b> receives a FALSE again.<br><br>For ENABLE OBJECT ( <b>enable input</b> ):<br>Enables the safety channel. After reset, no signal is transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> until <b>GO enable</b> receives a FALSE again. | 0 = Enable<br>1 = Disable                       | SAC: Safety channel, general \ safety channel n active<br>AND<br>SACn: Safety channel \ Transmission behaviour \ Use enable/disable object  |

## 7.2.3 Group objects for the sun shading channels

| Name  | Object function  | Values  | required approvals in the parameter dialogue   |
|---|--|---|--|
| Blind length output                         | <b>GO output blind length</b> transmits a position command (in conjunction with <b>GO output slat position</b> ).  | 0% (top)<br>...100% (bottom)  | SUC: Sun shading channels, general \ sun shading channel n active  |
| Slat position output                        | <b>GO output slat position</b> transmits a position command (in conjunction with <b>GO output slat length</b> ).   | 0% (slat OPEN) ...100% (slat CLOSED)  | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ venetian blind / external venetian blind operating mode  |
| Blind/slats output                          | <b>GO output blind length/slat</b> transmits a combined position command ([240.800] DPT_CombinedPosition).   | 0% (top)<br>...100% (bottom)<br>AND<br>0% (slat OPEN) ...100% (slat CLOSED) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ venetian blind / external venetian blind operating mode  |
| Safety bit input                            | An externally generated alarm is received and evaluated via the <b>GO input safety bit</b> . Parameterised move commands can be triggered at the beginning and end of the alarm. | 0 = no alarm<br>1 = alarm   | SUC: Sun shading channels, general \ sun shading channel n active  |
| Cooling support limit value ext. input      | An external limit value provided via the <b>GO input cooling support limit value ext.</b> replaces the limit value parameterised for the cooling support.                        | 2-byte floating point value<br>Temperature (°C)                             | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ cooling support active<br>AND<br>SUCn: Sun shading channel \ cooling support \ limit value \ can be changed via GO |
| Cooling support measuring values ext. input | An external limit value provided via the <b>GO input cooling support measuring value ext.</b> can be used instead of the internal "SD: Temperature" measuring value.             | 2-byte floating point value<br>Temperature (°C)                             | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ cooling support active<br>AND<br>SUCn: Sun shading channel \ cooling support \ temperature source \ external GO    |
| Cooling support active output               | The <b>GO output cooling support active</b> signals whether the cooling support is currently active.   | 0 = not active<br>1 = active  | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ cooling support active<br>AND<br>SUCn: Sun shading channel \ cooling support \ status \ "Function active" object   |

| Name  | Object function   | Values  | required approvals in the parameter dialogue   |
|---|---|---|--|
| Enable/disable cooling support input        | <p>For DISABLE OBJECT (<b>disable input</b>):<br/>Disables the cooling support. After reset, a signal is always transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> by the cooling support until <b>GO disable</b> receives a FALSE again.</p> <p>For ENABLE OBJECT (<b>enable input</b>):<br/>Enables the cooling support. After reset, no signal is transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> by the cooling support until <b>GO disable</b> receives a FALSE again.</p> | 0 = Enable<br>1 = Disable                       | <p>SUC: Sun shading channels, general \ sun shading channel n active<br/>AND<br/>SUCn: Sun shading channel \ cooling support active<br/>AND<br/>SUCn: Sun shading channel \ Cooling support \ Enable/disable \ Use enable/disable object</p> |
| Heating support limit value ext. input      | An external limit value provided via the <b>GO input heating support limit value ext.</b> replaces the limit value parameterised for the heating support.   | 2-byte floating point value<br>Temperature (°C) | <p>SUC: Sun shading channels, general \ sun shading channel n active<br/>AND<br/>SUCn: Sun shading channel \ heating support active<br/>AND<br/>SUCn: Sun shading channel \ heating support \ limit value \ can be changed via GO</p>        |
| Heating support measuring values ext. input | An external limit value provided via the <b>GO input heating support measuring value ext.</b> can be used instead of the internal "SD: Temperature" measuring value.  | 2-byte floating point value<br>Temperature (°C) | <p>SUC: Sun shading channels, general \ sun shading channel n active<br/>AND<br/>SUCn: Sun shading channel \ heating support active<br/>AND<br/>SUCn: Sun shading channel \ heating support \ temperature source \ external GO</p>           |
| Heating support active output               | The <b>GO output heating support active</b> signals whether the heating support is currently active.  | 0 = not active<br>1 = active                    | <p>SUC: Sun shading channels, general \ sun shading channel n active<br/>AND<br/>SUCn: Sun shading channel \ heating support active<br/>AND<br/>SUCn: Sun shading channel \ heating support \ status \ "Function active" object</p>          |
| Enable/disable heating support input        | <p>For DISABLE OBJECT (<b>disable input</b>):<br/>Disables the heating support. After reset, a signal is always transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> by the heating support until <b>GO disable</b> receives a FALSE again.</p> <p>For ENABLE OBJECT (<b>enable input</b>):<br/>Enables the heating support. After reset, no signal is transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> by the heating support until <b>GO enable</b> receives a FALSE again.</p>  | 0 = Enable<br>1 = Disable                       | <p>SUC: Sun shading channels, general \ sun shading channel n active<br/>AND<br/>SUCn: Sun shading channel \ heating support active<br/>AND<br/>SUCn: Sun shading channel \ Heating support \ Enable/disable \ Use enable/disable object</p> |

| Name                                     | Object function  | Values  | required approvals in the parameter dialogue  |
|--|--|---|---|
| Sun control brightness ext. input        | An external limit value provided via the <b>GO input sun control measuring value ext.</b> can be used instead of the internal "SD: Brightness n/max." measuring value.   | 2-byte floating point value<br>Brightness (Lux) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ sun control active<br>AND<br>SUCn: Sun shading channel \ sun control \ brightness source \ externally via GO                |
| Sun control sun limit value ext. input   | An external limit value provided via the <b>GO input sun control sun limit value ext.</b> replaces the "Sun" over limit value parameterised for the sun control.   | 2-byte floating point value<br>Brightness (Lux) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ sun control active<br>AND<br>SUCn: Sun shading channel \ sun control \ limit values \ "sun" over \ can be changed via GO    |
| Sun control fair limit value ext. input  | An external limit value provided via the <b>GO input sun control clear limit value ext.</b> replaces the "Clear" under limit value parameterised for the sun control.  | 2-byte floating point value<br>Brightness (Lux) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ sun control active<br>AND<br>SUCn: Sun shading channel \ sun control \ limit values \ "clear" under \ can be changed via GO |
| Sun control cloud limit value ext. input | An external limit value provided via the <b>GO input sun control cloud limit value ext.</b> replaces the "Cloud" under limit value parameterised for the sun control.  | 2-byte floating point value<br>Brightness (Lux) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ sun control active<br>AND<br>SUCn: Sun shading channel \ sun control \ limit values \ "cloud" under \ can be changed via GO |
| Sun control active output                | The <b>GO output sun control active</b> signals whether the sun control is currently active.   | 0 = not active<br>1 = active                    | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ sun control active<br>AND<br>SUCn: Sun shading channel \ sun control \ status \ "Function active" object                    |
| Enable/disable sun control input         | <p>For DISABLE OBJECT (<b>disable input</b>):<br/>Disables the sun control. After reset, a signal is always transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> by the sun control until <b>GO disable</b> receives a FALSE again.</p> <p>For ENABLE OBJECT (<b>enable input</b>):<br/>Enables the sun control. After reset, no signal is transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> by the sun control until <b>GO enable</b> receives a FALSE again.</p> | 0 = Enable<br>1 = Disable                       | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ sun control active<br>AND<br>SUCn: Sun shading channel \ Sun control \ Enable/disable \ Use enable/disable object           |

| Name                                 | Object function  | Values  | required approvals in the parameter dialogue  |
|--------------------------------------|--|---|---|
| Dusk/dawn measuring value ext. input | An external limit value provided via the <b>GO input dusk/dawn measuring value ext.</b> can be used instead of the internal "SD: Dusk/dawn" measuring value.   | 2-byte floating point value<br>Brightness (Lux) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ night (dusk) active<br>AND<br>SUCn: Sun shading channel \ night (dusk) \ dusk/dawn source \ externally via GO                       |
| Dawn limit value ext. input          | An external limit value provided via the <b>GO input dawn limit value ext.</b> replaces the "End of night (dawn)" limit value parameterised for the "Night (dawn)" function.   | 2-byte floating point value<br>Brightness (Lux) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ night (dusk) active<br>AND<br>SUCn: Sun shading channel \ night (dusk) \ limit values \ end of night (dawn) \ can be changed via GO |
| Dusk limit value ext. input          | An external limit value provided via the <b>GO input dusk limit value ext.</b> replaces the "Start of night (dusk) limit value parameterised for the "Night (dawn)" function.  | 2-byte floating point value<br>Brightness (Lux) | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ night (dusk) active<br>AND<br>SUCn: Sun shading channel \ night (dusk) \ limit value \ night start (dusk) \ can be changed via GO   |
| Night (dawn) active output           | The <b>GO output night (dusk) active</b> signals whether the "Night (dusk)" function is currently active.  | 0 = not active<br>1 = active                    | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ night (dusk) active<br>AND<br>SUCn: Sun shading channel \ night (dusk) \ status \ "Function active" object                          |
| Enable/disable night (dawn) input    | For DISABLE OBJECT ( <b>disable input</b> ):<br>Disables the "Night (dusk)" function. After reset, a signal is always transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> by the "Night (dusk)" function until <b>GO disable</b> receives a FALSE again.<br><br>For ENABLE OBJECT ( <b>enable input</b> ):<br>Enables the "Night (dusk)"function. After reset, no signal is transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> by the "Night (dusk)" function until <b>GO enable</b> receives a FALSE again. | 0 = Enable<br>1 = Disable                       | SUC: Sun shading channels, general \ sun shading channel n active<br>AND<br>SUCn: Sun shading channel \ night (dusk) active<br>AND<br>SUCn: Sun shading channel \ Night (dusk) \ Enable/disable \ Use enable/disable object                 |

| Name                                     | Object function  | Values                            | required approvals in the parameter dialogue   |
|--|--|-----------------------------------|--|
| Enable/disable Timer Scheduler input     | <p>Disables the Timer Scheduler. After reset, a signal is always transmitted to the <b>GOs output</b>.</p> <p>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> by the Timer Scheduler until <b>GO disable</b> receives a FALSE again.</p>   | <p>0 = Enable<br/>1 = Disable</p> | <p>SUC: Sun shading channels, general \ sun shading channel n active<br/>AND<br/>SUCn: Sun shading channel \ Timer Scheduler active<br/>AND<br/>SUCn: Sun shading channel \ Timer Scheduler \ Enable/disable \ Use enable/disable object</p> |
| Enable/disable sun shading channel input | <p>For DISABLE OBJECT (<b>disable input</b>):<br/>Disables the complete sun shading channel. After reset, a signal is always transmitted to the <b>GOs output</b>.</p> <p>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> by the sun shading channel until <b>GO disable</b> receives a FALSE again.</p> <p>For ENABLE OBJECT (<b>enable input</b>):<br/>Enables the complete sun shading channel. After reset, no signal is transmitted to the <b>GOs output</b>.</p> <p>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> by the sun shading channel until <b>GO enable</b> receives a FALSE again.</p> | <p>0 = Enable<br/>1 = Disable</p> | <p>SUC: Sun shading channels, general \ sun shading channel n active<br/>AND<br/>SUCn: Sun shading channel \ Enable/disable \ Use enable/disable object</p>  |

## 7.2.4 Group objects for the Timer Scheduler

| Name                 | Object function  | Values  | required approvals in the parameter dialogue   |
|----------------------|--|---|--|
| Blind length output  | <b>GO output blind length</b> transmits a position command (in conjunction with <b>GO output slat position</b> ).  | 0% (top)<br>...100% (bottom)  | TS: Timer Scheduler, general \ Timer Scheduler n active  |
| Slat position output | <b>GO output slat position</b> transmits a position command (in conjunction with <b>GO output slat length</b> ).   | 0% (slat OPEN) ...100% (slat CLOSED)  | TS: Timer Scheduler, general \ Timer Scheduler n active  |
| Blind/slats output   | <b>GO output blind length/slat</b> transmits a combined position command ([240.800] DPT_CombinedPosition).   | 0% (top)<br>...100% (bottom)<br>AND<br>0% (slat OPEN) ...100% (slat CLOSED) | TS: Timer Scheduler, general \ Timer Scheduler n active  |
| Bit output           | <b>GO output bit</b> sends a 1-bit telegram.   | 0 = Off<br>1 = On   | TS: Timer Scheduler, general \ Timer Scheduler n active  |
| Scenario output      | <b>GO output scenario</b> transmits a scenario number.   | 1...64 = Scenario number  | TS: Timer Scheduler, general \ Timer Scheduler n active  |
| Enable/disable input | <p>For DISABLE OBJECT (<b>disable input</b>):<br/>Disables the Timer Scheduler. After reset, a signal is always transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> by the Timer Scheduler until <b>GO disable</b> receives a FALSE again.</p> <p>For ENABLE OBJECT (<b>enable input</b>):<br/>Enables the Timer Scheduler. After reset, no signal is transmitted to the <b>GOs output</b>.<br/>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> by the Timer Scheduler until <b>GO enable</b> receives a FALSE again.</p> | 0 = Enable<br>1 = Disable   | <p>TS: Timer Scheduler, general \ Timer Scheduler n active<br/>AND<br/>TSn: Timer Scheduler n \ Enable/disable \ Use enable/disable object</p> |

## 7.2.5 Group objects for the sensor evaluation

| Name                 | Object function   | Values   | required approvals in the parameter dialogue  |
|----------------------|---|--|---|
| Bit output           | <b>GO output bit</b> sends a 1-bit telegram for "Fulfilled" and "Not fulfilled". The output can be inverted.  | 0 = FALSE<br>1 = TRUE<br>or inverted   | SE: Sensor evaluation, general<br>\ <i>measuring value description</i><br>active  |
| Byte output          | <b>GO output bit</b> transmits a 1-byte telegram for "Fulfilled" and "Not fulfilled".   | 0...255  | SE: Sensor evaluation, general<br>\ <i>measuring value description</i><br>active<br>AND<br>SE: <i>Measuring value description</i><br>\ "Byte" object active                       |
| Scenario output      | <b>GO output scenario</b> transmits a scenario command consisting of the scenario number and learn/execute for "Fulfilled" and "Not fulfilled".   | 0 = Activate scenario<br>1 = Learn scenario<br>1...64 = Scenario number                                  | SE: Sensor evaluation, general<br>\ <i>measuring value description</i><br>active<br>AND<br>SE: <i>Measuring value description</i><br>\ "Scenario" object active                   |
| Limit value input    | An external limit value provided via the <b>GO input limit value</b> replaces the limit value parameterised for the sensor evaluation.<br><br>For SE: <i>Wind direction</i> (two limit values), there are two corresponding GOs available.  | depending on the respective measuring value and its unit (1 byte or 2 byte)                              | SE: Sensor evaluation, general<br>\ <i>measuring value description</i><br>active<br>AND<br>SE: <i>Measuring value description</i><br>\ limit value \ can be changed via GO = yes  |
| Enable/disable input | For DISABLE OBJECT ( <b>disable input</b> ):<br>Disables the sensor evaluation for the corresponding measuring value. After reset, a signal is always transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> until <b>GO disable</b> receives a FALSE again.<br><br>For ENABLE OBJECT ( <b>enable input</b> ):<br>Enables the sensor evaluation for the corresponding measuring value. After reset, no signal is transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> until <b>GO enable</b> receives a FALSE again. | 0 = Enable<br>1 = Disable  | SE: Sensor evaluation, general<br>\ <i>measuring value description</i><br>active<br>AND<br>SE: <i>Measuring value description</i><br>\ Enable/disable \ Use enable/disable object |
| External GO input    | The sensor evaluations SE: <i>Generic</i> can evaluate all internal measuring values in addition to externally supplied values received via <b>input external GO</b> .<br>Four different data point types are available.  | DPT types:<br>5.001, [0...100]%<br>5.010, [0...65535]<br>7.001, [0...100]<br>9.001, [-273...670433.28]°C | SE: Sensor evaluation, general<br>\ <i>generic n</i> , active<br>AND<br>SE: <i>Generic</i> \ data source \ external GO  |

## 7.2.6 Group objects for the sensor evaluation combined

| Name                         | Object function   | Values  | required approvals in the parameter dialogue  |
|------------------------------|---|---|---|
| Bit output                   | <b>GO output bit</b> transmits a 1-bit telegram for "Condition fulfilled" and "Condition not fulfilled". The output can be inverted.  | 0 = FALSE<br>1 = TRUE<br>or inverted                                    | SEC: Sensor evaluation combined, general, sensor evaluation combined n active   |
| Byte output                  | <b>GO output byte</b> transmits a 1-byte telegram for "Condition fulfilled" and for "Condition not fulfilled".  | 0...255   | SEC: Sensor evaluation combined, general, sensor evaluation combined n active<br>AND<br>SECn: Combined evaluation \ "Byte" object active  |
| Scenario output              | <b>GO output scenario</b> transmits a scenario command consisting of a scenario number and learn/execute for "Condition fulfilled" and "Condition not fulfilled".   | 0 = Activate scenario<br>1 = Learn scenario<br>1...64 = Scenario number | SEC: Sensor evaluation combined, general, sensor evaluation combined n active<br>AND<br>SECn: Combined evaluation \ "Scenario" object active  |
| Ice alarm limit value input  | An external limit value provided via the <b>GO input ice alarm limit value</b> replaces the limit value parameterised for the ice alarm.  | 2-byte floating point value<br>Temperature (°C)                         | SEC: Sensor evaluation combined, general, sensor evaluation combined n active<br>AND<br>SECn: Combined evaluation \ linking \ ice alarm active<br>AND<br>SECn: Combined evaluation \ limit value \ can be changed via GO = yes      |
| Reset ice alarm input        | An ice alarm can be reset via the <b>reset GO input ice alarm</b> .<br><br>The ice alarm is not active for the time parameterised in the ETS after resetting (SECn: Combined evaluation \ reset alarm \ alarm can be reset via GO active \ alarm not active by resetting via GO for ...)  | 1 = Reset ice alarm   | SEC: Sensor evaluation combined, general, sensor evaluation combined n active<br>AND<br>SECn: Combined evaluation \ linking \ ice alarm active<br>AND<br>SECn: Combined evaluation \ reset alarm \ alarm can be reset via GO active |
| Enable/disable input         | For DISABLE OBJECT ( <b>disable input</b> ):<br>Disables the combined sensor evaluation. After reset, a signal is always transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> until <b>GO disable</b> receives a FALSE again.<br><br>For ENABLE OBJECT ( <b>enable input</b> ):<br>Enables the combined sensor evaluation. After reset, no signal is transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> until <b>GO enable</b> receives a FALSE again. | 0 = Enable<br>1 = Disable   | SEC: Sensor evaluation combined, general, sensor evaluation combined n active<br>AND<br>SECn: Combined evaluation \ Enable/disable \ Use enable/disable object  |
| Input DPT 1.002 Global No. n | A total of four GOs are available for the combined sensor evaluation. These GOs can be used to integrate external logical states into the AND/OR links.   | 0 = FALSE<br>1 = TRUE   | SEC: Sensor evaluation combined, general, sensor evaluation combined n active   |

## 7.2.7 Group objects for the logic functions

| Name                 | Object function   | Values  | required approvals in the parameter dialogue   |
|----------------------|---|---|--|
| Input n              | Up to four <b>GO input n</b> with different impacts on the input value, depending on the parameterisation (see section 6.9.2 on page 106).  | 0 or 1  | Logic/Timer, general \ Function<br>n = Logical linking   |
| Bit output           | <b>GO output bit</b> transmits a 1-bit telegram for the TRUE and FALSE result. The output can be inverted.  | 0 = FALSE<br>1 = TRUE<br>or inverted                                    | Logic/Timer, general \ Function<br>n = Logical linking<br>AND<br>Ln: Logic \ output type =<br>bit object                     |
| Scenario output      | <b>GO output scenario</b> transmits a scenario command consisting of the scenario number and learn/execute for the TRUE and FALSE result.   | 0 = Activate scenario<br>1 = Learn scenario<br>1...64 = Scenario number | Logic/Timer, general \ Function<br>n = Logical linking<br>AND<br>Ln: Logic \ output type =<br>scenario                       |
| Blind length output  | <b>GO output blind length</b> sends a position command for the TRUE and FALSE result (in conjunction with <b>GO output slat position</b> ).   | 0% (top)<br>...100% (bottom)  | Logic/Timer, general \ Function<br>n = Logical linking<br>AND<br>Ln: Logic \ output type =<br>blind length and slat position |
| Slat position output | <b>GO output slat position</b> transmits a position command for the TRUE and FALSE result (in conjunction with <b>GO output blind length</b> ).   | 0% (slat OPEN) ...100%<br>(slat CLOSED)                                 | Logic/Timer, general \ Function<br>n = Logical linking<br>AND<br>Ln: Logic \ output type =<br>blind length and slat position |
| Enable/disable input | For DISABLE OBJECT ( <b>disable input</b> ):<br>Disables the logic function. After reset, a signal is always transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> until <b>GO disable</b> receives a FALSE again.<br><br>For ENABLE OBJECT ( <b>enable input</b> ):<br>Enables the logic function. After reset, no signal is transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> until <b>GO enable</b> receives a FALSE again. | 0 = Enable<br>1 = Disable   | Logic/Timer, general \ Function<br>n = Logical linking<br>AND<br>Ln: Logic \ Use enable/disable<br>object                    |

## 7.2.8 Group objects for the timer functions

| Name                 | Object function   | Values  | required approvals in the parameter dialogue  |
|----------------------|---|---|---|
| Start/Stop           | <b>GO start/stop</b> starts or stops the timer depending on the parameterisation (see section 6.9.3 on page 110).   | 0 or 1  | Logic/Timer, general \ Function<br>n = Timer  |
| Bit output           | <b>GO output bit</b> transmits a 1-bit telegram upon start, stop or expiry of the timer.  | 0 or 1  | Logic/Timer, general \ Function<br>n = Timer<br>AND<br>Tn: Timer \ output type = bit object                     |
| Scenario output      | <b>GO output scenario</b> transmits a scenario command, consisting of the scenario number and learn/execute upon start, stop or expiry of the timer.  | 0 = Activate scenario<br>1 = Learn scenario<br>1...64 = Scenario number | Logic/Timer, general \ Function<br>n = Timer<br>AND<br>Tn: Timer \ output type = scenario                       |
| Blind length output  | <b>GO output blind length</b> transmits a position command upon start, stop or expiry of the timer (in conjunction with <b>GO output slat position</b> ).   | 0% (top)<br>...100% (bottom)  | Logic/Timer, general \ Function<br>n = Timer<br>AND<br>Tn: Timer \ output type = blind length and slat position |
| Slat position output | <b>GO output slat position</b> transmits a position command upon start, stop or expiry of the timer (in conjunction with <b>GO output blind length</b> ).   | 0% (slat OPEN) ...100% (slat CLOSED)                                    | Logic/Timer, general \ Function<br>n = Timer<br>AND<br>Tn: Timer \ output type = blind length and slat position |
| Enable/disable input | For DISABLE OBJECT ( <b>disable input</b> ):<br>Disables the timer function. After reset, a signal is always transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO disable</b> via the bus, no more telegrams are sent to <b>GO output</b> until <b>GO disable</b> receives a FALSE again.<br><br>For ENABLE OBJECT ( <b>enable input</b> ):<br>Enables the timer function. After reset, no signal is transmitted to the <b>GOs output</b> .<br>If TRUE was received by <b>GO enable</b> via the bus, telegrams are sent to <b>GO output</b> until <b>GO enable</b> receives a FALSE again. | 0 = Enable<br>1 = Disable   | Logic/Timer, general \ Function<br>n = Timer<br>AND<br>Tn: Timer \ Use enable/disable object                    |

## 7.2.9 Group objects for the device

| Name  | Object function   | Values  | required approvals in the parameter dialogue  |
|---|---|---|---|
| Auxiliary voltage error output                  | The <b>GO output auxiliary voltage error</b> signals whether the minimum auxiliary voltage is available.<br><br>The output can be issued once or cyclically.                                  | 0 = OK<br>1 = Error   | Device parameters \ "Auxiliary voltage monitoring" object \ "Auxiliary voltage monitoring" object active = yes          |
| Auxiliary voltage output                        | The <b>GO output auxiliary voltage</b> displays the current voltage value of the auxiliary voltage.<br><br>The output can be issued once or cyclically.                                       | Voltage [mV]  | Device parameters \ "Auxiliary voltage monitoring" object \ "Auxiliary voltage monitoring" object active = yes          |
| Weather station communication monitoring output | The <b>GO output weather station communication monitoring</b> reports communication failure.<br><br>The output can be issued once or cyclically.  | 0 or 1<br>Is determined by Device parameters \ "Device available" object \ object value                     | Device parameters \ "Weather station communication monitoring" objects \ "Communication monitoring" object active = yes |
| Local time input<br>Local date input            | Via <b>GO input local time</b> and <b>GO input local date</b> the external time and date information is received via two separated objects.   | per 3 bytes   | Device parameters \ Time \ "Use GPS time" = no<br>AND<br>"Input object type" = 2x 3-byte                                |
| Local time/date input                           | Via <b>GO input local date/time</b> the external time and date information is received via a combined object.   | 8-byte  | Device parameters \ Time \ "Use GPS time" = no<br>AND<br>"Input object type" = 8-byte                                   |
| Device available output                         | The <b>GO output device available</b> signals whether the device is ready for operation.<br><br>The output can be issued once or cyclically.  | 0 or 1<br>Is determined by Device parameters \ "Device available" object \ object value                     | Device parameters \ "Device available" object \ "Device available" object active= yes                                   |
| Wind speed monitoring output                    | The <b>GO output wind speed monitoring</b> signals whether the wind speed sensors are active.<br><br>The output can be issued once or cyclically.   | 0 or 1<br>Is determined by Device parameters \ wind speed sensor monitoring \ object value in case of error | Device parameters \ wind speed sensor monitoring \ monitoring active = yes  |
| Acknowledge wind speed monitoring input         | An existing error can be reset by <b>acknowledging the GO input wind speed monitoring</b> .<br>The <b>GO output wind speed monitoring</b> is reset if the error still exists or occurs again. | 1 = Reset error   | Device parameters \ wind speed sensor monitoring \ monitoring active = yes  |

## 8 WAREMA KNX Service App

The ETS app **WAREMA KNX Service App** can be used to manage the firmware of WAREMA Renkhoff SE KNX devices.



Die **WAREMA KNX Service App** is available free of charge from the ETS App Store.

When connected to the internet, the app attempts to download the latest data from the "WAREMA KNX Versions Server" each time the programme starts.

The received data is saved locally as an offline copy, allowing the app to access it in the future if there is no Internet connection.

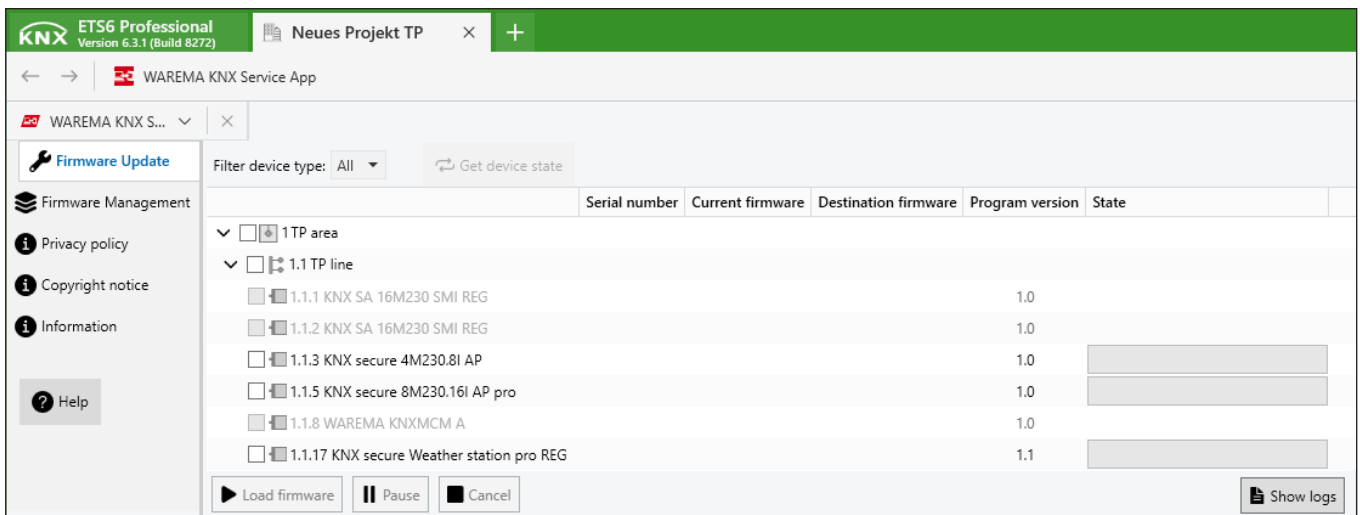







Fig. 57 WAREMA KNX Service App

The symbol in the upper right-hand corner indicates the status of the app:

|   |   |
|---|---|
|  | → Update from WAREMA KNX Versions Server successful.  |
|  | → Data from the local cache is currently being used.<br>→ An update from the WAREMA KNX Versions Server is being attempted. |
|  | → Data from the local cache is currently being used.<br>→ Update from WAREMA KNX Versions Server failed.                    |
|  | → No data available.<br>→ An update from the WAREMA KNX Versions Server is being attempted.                                 |
|  | → No data available.<br>→ Update from WAREMA KNX Versions Server failed.  |

## 8.1 Firmware update

The app always starts in the *Firmware Update* tab and displays an overview of all WAREMA devices contained in the KNX project, sorted by topology.

WAREMA devices that cannot be updated or are not supported by the app are displayed in grey.

- Select the desired devices using the checkboxes (selecting parent checkboxes selects all child lines/devices).
- Start the query by clicking the *Get device state* button.
- ▶ The app queries the status of all selected devices.

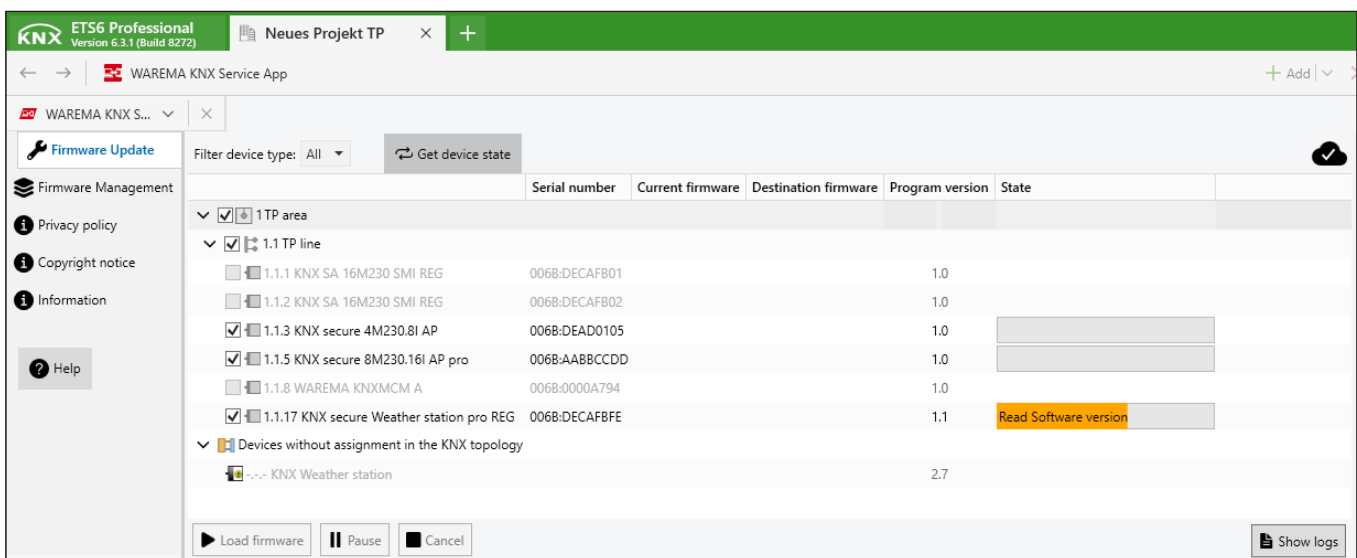


Fig. 58 WAREMA KNX Service App - Get device state

- ▶ The information determined (serial number and current firmware version) is displayed for each device:

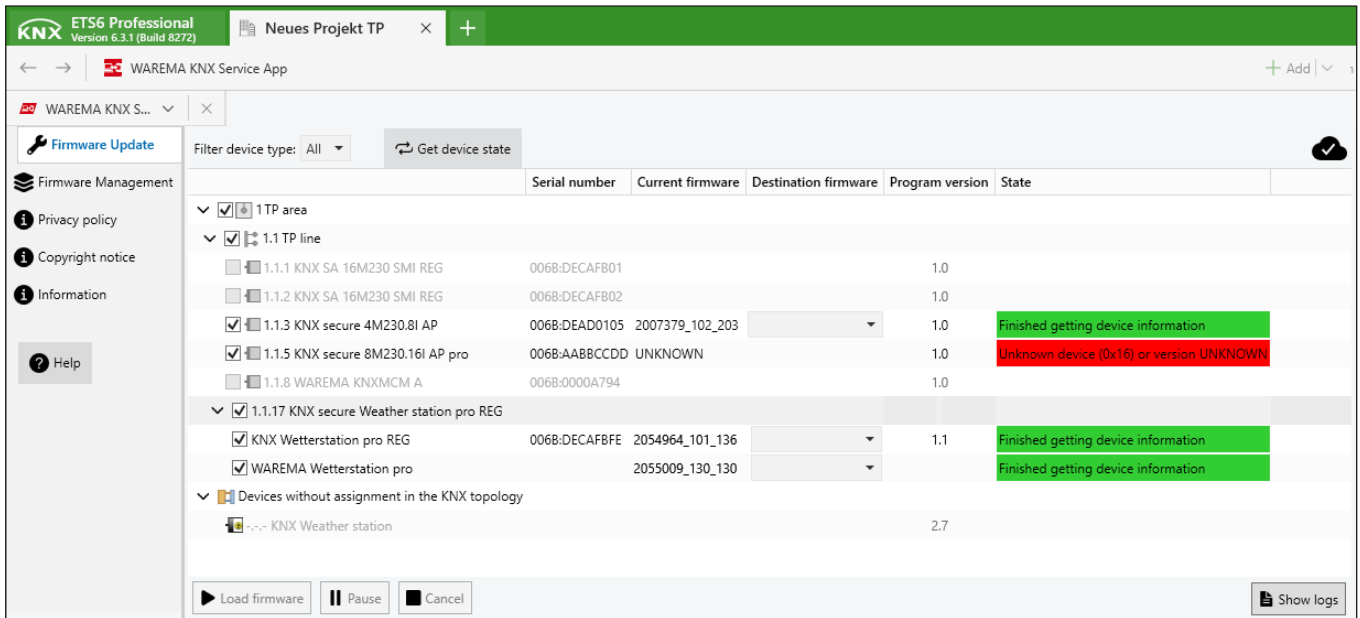
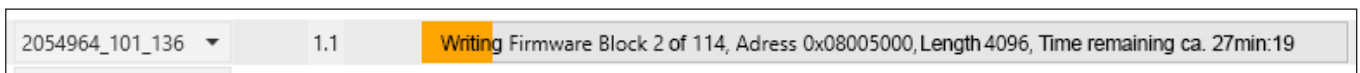


Fig. 59 WAREMA KNX Service App - Firmware Update



The **WAREMA KNX secure Weather station pro** has a drop-down submenu. This displays the Sensor Interface (KNX secure Weather station pro AP/REG) and the WAREMA Weather station pro. Both components are updatable and can be updated independently of each other using the app.

- ▶ For updateable devices in the project, a pull-down menu is displayed under Destination Firmware for selecting the available software versions.
- Select desired Destination Firmware.
- Start firmware update using the button *Load Firmware*.
- ▶ The status field displays the current charging status and the expected duration:



The duration of the update depends on the firmware size and the number of updates running simultaneously. Since the KNX bus does not allow high transmission speeds, the update process may take some time.

## Special marking

| Number | Current firmware | Destination firmware | Pro   |  |
|--------|------------------|----------------------|-------|--|
| 006F9A |                  |                      |       |  |
| 0E7105 | 2007379_101_195  |                      | Finis | <b>RED:</b> The firmware is outdated and is no longer provided by WAREMA.                        |
| 0E7100 | 2007379_103_205  |                      | Finis | <b>YELLOW:</b> The firmware is only accessible with an access key (see chapter 8.2 on page 143). |

## Show Logs

The update history can be viewed, copied, or saved using the *Show Logs* button. If unexpected problems occur while using the app, the information in the log function can provide valuable assistance.

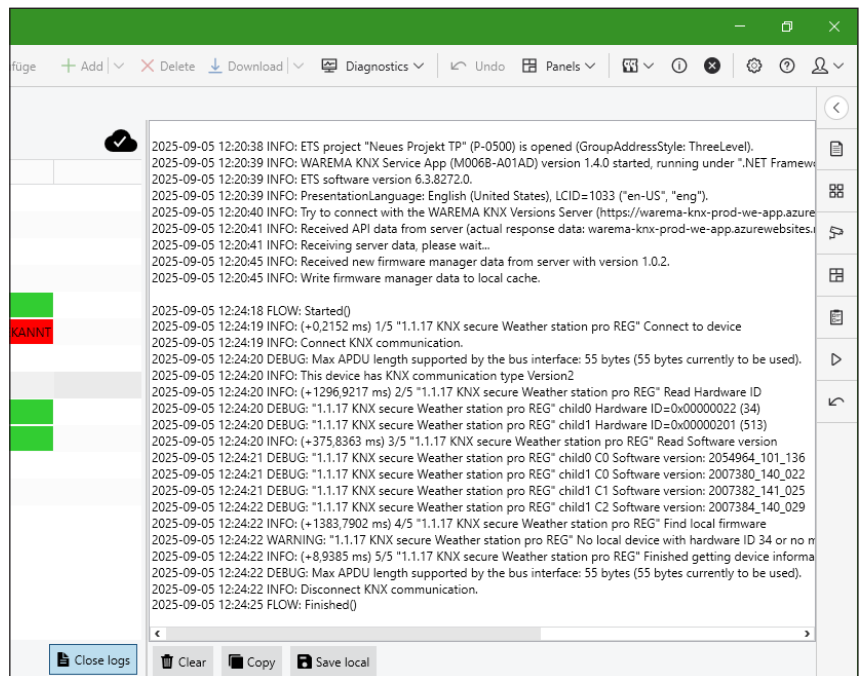


Fig. 60 Shown Logs

## 8.2 Firmware management

All available firmware versions for every supported KNX device of WAREMA Renkhoff SE can be managed under this menu item.



Each time the programme is started, the app attempts to download the latest data from the “WAREMA KNX Version Server” if an internet connection is available.

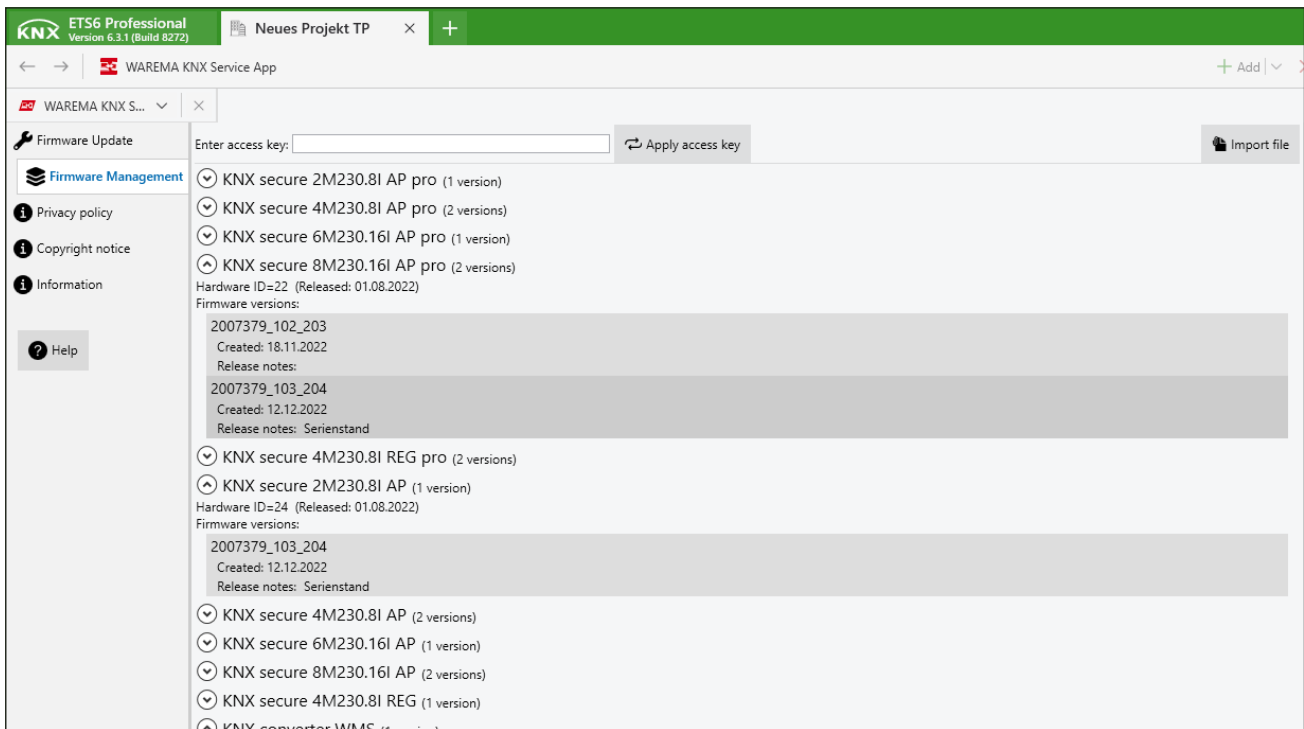


Fig. 61 WAREMA KNX Service App - Firmware management

### Apply access key

By entering an access key, additional, customer-specific firmware versions can be activated.

### Import file

Firmware files provided by WAREMA can be imported here.

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