## Use of the application program

Product family: Shutter<br>Product type: Input / Shutter<br>Manufacturer: Siemens<br>Name: Combi Sunblind Actuator N 501<br>Order no.: $\quad$ 5WG1 501-1AB01

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## 1. Functional description

The N 501 combination sunblind actuator N 501 is a device for DIN-rail mounting with N -system dimensions, 8 inputs for $12-230 \mathrm{~V}$ AC/DC and 4 channels ( $=8$ relay contact outputs) for 230 V AC, 6 A (with a resistive load) for the control of 1 sun protection drive each. 8 red lightemitting diodes (LED) on top of the device indicate the switching status of each of the inputs. The power supply of the electronics is carried out via an integrated power supply unit for 230V AC.
Only one 230V AC drive (motor), with electromechanical limit switches or with integrated limit switching electronics, may be connected at a time to each of the 4 sunblind channels. Parallel operation of a number of drives on a single channel requires intermediate switching by an isolating relay. The pause time for a change of movement direction must not be configured. The default setting for all channels is approx. 1 second.
The device is used in the as delivered state for standalone sun protection control, (even without a bus line connected and without prior configuration with the Engineering Tool Software (ETS)) without networking with other devices. When connected to a KNX network, the features and properties of the inputs and sunblind channels are configured jointly or individually with the ETS from Version ETS3.Of and upwards.

## As-delivered state (stand-alone mode)

In the as-delivered state and with no bus line connected, the device works fully in "Stand-alone mode". In the asdelivered state, the inputs act directly on the corresponding outputs, i.e. a pushbutton on input a disables (i.e. drives up) the sunblind on channel $A$, a pushbutton on input $b$ enables (i.e. drives down) the sunblind on channel $A$, etc.. The time to drive the sunblind from one end position to the other is set to approx. 120 s and the time for slat or sunblind adjustment by one step to approx. 200 ms . It should be noted that, for sunblinds with horizontal slats and a standard blind motor, changing the slat position always leads also to a small change of the blind position. Opening the slats is always associated with a small moving up and closing the slats with a small moving down.
If a sunblind is to be operated from several points, then a number of pushbuttons can be connected in parallel to the corresponding inputs.
The long operation of a pushbutton drives the sunblind into the relevant end position whereas tapping a pushbutton (it is immaterial which of the two pushbuttons assigned to a sunblind channel is tapped) stops a blind movement or, with a stationary blind, leads to opening or closing the slats by one step or to moving the sunblind up or down by one step.

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If the potential-free alarm contact of a wind sensor is connected in parallel with the pushbuttons to one, a number of or all input(s) to deactivate (move up) sun protection, then sun protection on the outputs assigned to the inputs will be deactivated when the alarm contact is closed (i.e. moved up) and remains deactivated (even if pressing the pushbutton to activate sun protection remains ineffective meanwhile) while the alarm contact is closed.

## Switching-on an output in direct mode

You switch each output on in "Direct mode" by pressing the corresponding pushbutton on the top of the device. To do this, first switch on this mode by pressing the "Direct mode" pushbutton (yellow LED for direct mode indication comes on) and then press the pushbutton assigned to the output to be switched. Because direct mode is decoupled completely from the bus communication, when directly switching-on a sunblind output an alarm received via the bus or a movement blockade enabled via the bus or via a closed contact at an input are not taken into account.
If, after direct switching of an output, direct mode is not ended by another press of the "Direct mode" pushbutton, then this occurs automatically 15 minutes (value in the as-delivered state) after the last press of one of the pushbuttons on the top of the device.

## Bus mode

With a N 501 combination sunblind actuator connected to the KNX bus line, the behavior of each input and each sunblind channel can be set with the ETS. An N 501 output can be controlled directly not only via a pushbutton connected to the corresponding N 501 input, but also, via a bus pushbutton connected to the bus. A pushbutton connected to an input of the N 501 not only controls its corresponding output, but may be also used to control (switching, dimming, scene control, etc.) other KNX actuators.
Inputs and outputs may also be used completely independently of each other (decoupled) when configuring with ETS. Each input may be configured and used similarly as inputs of a $\mathrm{N} 263 / \mathrm{EO1}$ binary input device and each sunblind channel may be configured and used similarly as with a N 523/11 sunblind actuator.

## Input functions

With the ETS one of the following functions can be assigned to one of two adjacent inputs which do not act directly on a sunblind channel:

- Switching, edge-triggered
- Switching, short / long operation
- Send switching status, binary value
- 1 button switching sequence control
- 1 button dimming
- 1 button sunblind control
- 8 bit value, edge-triggered
- 8 bit value, short / long operation
- 16 bit value, edge-triggered
- 16 bit value, short / long operation
- 16 bit floating point value, edge-triggered
- 16 bit floating point value, short / long operation
- 1 bit scene control
- 8 bit scene control.

With the ETS one of the following functions can be assigned to an input pair, i.e. two adjacent inputs ( $a$ and $b$, c and d, etc.):

- 2 buttons dimming with stop telegram
- 2 buttons dimming with cyclic transmission
- 2 buttons sunblind control.


## Sun protection functions

With a sunblind channel, on which the corresponding inputs act directly, you can adjust with the ETS only the sunblind drive time and the time for adjusting the slats by one step.
If an input pair does not act directly on the corresponding sunblind channel, then both the two inputs and the sunblind channel can be configured with the ETS. With the sunblind channel, you can then set whether a single alarm object acting on all channels or an alarm object per channel is wanted, where, if there is a wind or rain alarm, the sunblind at all channels is driven up automatically and driving down is prevented while the alarm remains active. You can also set whether a single movement blockade object acting on all channels or a movement blockade object per channel is wanted, by means of which a travel of the sunblind can be blocked at any time (e.g. while cleaning outside blinds).
You can also add two objects per channel to store/restore 2 positions and up to two 1-bit status objects "End position up / down".

## Automatic / manual mode or standard mode

You use the parameter " Differentiation automatic mode / manual mode " in the parameter window "Functions, objects sunblind" to set whether for the sunblind channels there is to be a distinction between automatic mode and
manual mode or whether there is only one mode (Standard mode).
In standard mode, there are always the two 1-bit objects for each channel for starting or stopping the sunblind movement or for driving the sunblind up or down (or for adjusting the slats) by one step. These objects can be complemented by further objects as required via the parameter window "Functions, objects sunblind".
The "Channel X, sunblind, centrally up/down" object, available only in automatic mode, switches a sunblind channel via the corresponding central command first to automatic mode and then moves the sunblind into the respective end position. This central command also ensures that sun protection for rooms where the user has switched to manual mode and has then forgotten to switch back to automatic mode when leaving the room (or building) are driven up centrally in the evening and driven down again centrally in the morning. If a blind is used inside to darken a room, e.g. and shall be driven only locally by hand and not automatically by central commands, then the linking of the central command with a group address must be dispensed with for this sunblind channel.
Moreover, for each channel, the blinds and their slats can be moved into intermediate positions in automatic mode by commands with setting information in the range $0 . . .100 \%$. How exactly the desired position in \% of the sunblind and the slats will be reached is determined by the motor and gear used and not by this software.
In automatic mode, there are for each channel an object to switch the channel to manual or automatic mode and two 1-bit objects to control the sunblind and slats in manual mode. Use the "Functions, objects sunblind" parameter window to add further objects as required.
If a weather station is installed which can send the object "Sunshine" this object can be used in automatic mode to block and release the positioning of the slats after the sunblind was driven before into the top or bottom position.
In automatic mode, a manual control of a sunblind or an adjustment of slats via the two 1-bit objects for manual mode (e.g. by using a sunblind pushbutton in the room) always results in an automatic switching-over from automatic to manual mode for the channel in question. Then, in manual mode, all automatic commands for the channel in manual mode are no longer executed. This ensures that the user of a room can bring its sun / anti-glare protection permanently into his desired position and that this can only be changed by a superior automatic control (e.g. a weather station) if the channel has been switched back to automatic mode or can be overridden by a central command if this command is released for the channel.

## Behavior on failure / recovery of bus / mains voltage Behavior of the sunblind channels

If the bus voltage fails, a sunblind travel or slat adjustment that has started is completed. The new sunblind and slat positions will be stored and transferred automatically after bus voltage recovery.
A mains voltage failure leads to immediate switching off of all sunblind channels (mandated by the mains supply of the electronics and the relays used). The current sunblind and slat positions for all channels will be stored permanently so that they can be reproduced if necessary after mains voltage recovery.
After mains voltage recovery, the configured actions are executed and new positions reported when indicated. If the current sunblind and slat positions are unknown after mains voltage recovery or after the application program has been loaded or after a switching-over from direct to bus mode, then the first telegram for a travel of the sunblind triggers a reference travel into one of the end positions. If the sunblind is already in the end position to which it is to move, then the relay of the relevant sunblind output is nonetheless switched-on for the period of the configured movement time.

## Behavior of the inputs

If the mains voltage fails, no input statuses are stored and after mains voltage recovery, no current input status is sent.
If the signal status at an input is changed once or several times during a bus voltage failure, then a changed respectively the last changed object value ( 0 or 1 ) is sent after bus voltage recovery.
However, if the function "Send switching status, binary value" is assigned to an input and the corresponding parameter "Send current binary value after mains / bus voltage recovery" is set to "Yes", then the current input status is sent both after mains and after bus voltage recovery.

## 2. Communication objects

Maximum number of group addresses:
Maximum number of assignments:
220
Subsequently, the communication objects are set out in detail when the bus line is connected and the device is in bus mode.

## Note

Type and number of available objects are determined by the parameter setting with the ETS, i.e. the views can vary. In particular, the type and number of objects from object number 77 onwards will be determined by the functions which were assigned with the ETS to inputs a...h.

| No. | Object name | Function | Bits | Flags |
| :---: | :---: | :---: | :---: | :---: |
| 0 | Status direct mode | On/Off | 1 | CRT |
| 1 | 8 bit scene | restore/store | 8 | CRWT |
| 2 | Alarm | On/Off | 1 | CRWT |
| 3 | Movement blockade | On/Off | 1 | CRWT |
| 4 | Sunblind, centrally | Up/Down | 1 | CRWT |
| 5 | Channel A, Alarm | On/Off | 1 | CRWT |
| 6 | Channel A, Movement blockade | On/Off | 1 | CRWT |
| 7 | Channel A, Sunblind, centrally | Up/Down | 1 | CRWT |
| 8 | Channel A, Automatic mode | On/Off | 1 | CRWT |
| 9 | Channel A, Sunshine | On/Off | 1 | CRWT |
| 10 | Channel A, Automatic mode, Sunblind position | 0...100\% | 8 | CRWT |
| 11 | Channel A, Automatic mode, Slats position | 0...100\% | 8 | CRWT |
| 12 | Channel A, Sunblind position | 0...100\% | 8 | CRWT |
| 13 | Channel A, Slats position | 0...100\% | 8 | CRWT |
| 14 | Channel A, Sunblind | Up/Down | 1 | CRWT |
| 15 | Channel A, Stop/Slats | Open/Close | 1 | CRWT |
| 16 | Channel A, Position 1/2 | restore | 1 | CRWT |
| 17 | Channel A, Position 1/2 | store | 1 | CRWT |
| 18 | Channel A, Status Automatic mode | On/Off | 1 | CRT |
| 19 | Channel A, Status Sunblind position | 0...100\% | 8 | CRT |
| 20 | Channel A, Status Slats position | 0...100\% | 8 | CRT |
| 21 | Channel A, Status End position up | On/Off | 1 | CRT |
| 22 | Channel A, Status End position down | On/Off | 1 | CRT |
| 23 | Channel B, Alarm | On/Off | 1 | CRWT |
| 24 | Channel B, Movement blockade | On/Off | 1 | CRWT |
| 25 | Channel B, Sunblind, centrally | Up/Down | 1 | CRWT |
| 26 | Channel B, Automatic mode | On/Off | 1 | CRWT |
| 27 | Channel B, Sunshine | On/Off | 1 | CRWT |
| 28 | Channel B, Automatic mode, Sunblind position | 0...100\% | 8 | CRWT |
| 29 | Channel B, Automatic mode, Slats position | 0...100\% | 8 | CRWT |
| 30 | Channel B, Sunblind position | 0...100\% | 8 | CRWT |
| 31 | Channel B, Slats position | 0...100\% | 8 | CRWT |
| 32 | Channel B, Sunblind | Up/Down | 1 | CRWT |
| 33 | Channel B, Stop/Slats | Open/Close | 1 | CRWT |
| 34 | Channel B, Position 1/2 | restore | 1 | CRWT |
| 35 | Channel B, Position 1/2 | store | 1 | CRWT |
| 36 | Channel B, Status Automatic mode | On/Off | 1 | CRT |
| 37 | Channel B, Status Sunblind position | 0...100\% | 8 | CRT |
| 38 | Channel B, Status Slats position | 0...100\% | 8 | CRT |
| 39 | Channel B, Status End position up | On/Off | 1 | CRT |
| 40 | Channel B, Status End position down | On/Off | 1 | CRT |


| No. | Object name | Function | Bits | Flags |
| :---: | :---: | :---: | :---: | :---: |
| 41 | Channel C, Alarm | On/Off | 1 | CRWT |
| 42 | Channel C, Movement blockade | On/Off | 1 | CRWT |
| 43 | Channel C, Sunblind, centrally | Up/Down | 1 | CRWT |
| 44 | Channel C, Automatic mode | On/Off | 1 | CRWT |
| 45 | Channel C, Sunshine | On/Off | 1 | CRWT |
| 46 | Channel C, Automatic mode, Sunblind position | 0...100\% | 8 | CRWT |
| 47 | Channel C, Automatic mode, Slats position | 0...100\% | 8 | CRWT |
| 48 | Channel C, Sunblind position | 0...100\% | 8 | CRWT |
| 49 | Channel C, Slats position | 0...100\% | 8 | CRWT |
| 50 | Channel C, Sunblind | Up/Down | 1 | CRWT |
| 51 | Channel C, Stop/Slats | Open/Close | 1 | CRWT |
| 52 | Channel C, Position 1/2 | restore | 1 | CRWT |
| 53 | Channel C, Position 1/2 | store | 1 | CRWT |
| 54 | Channel C, Status Automatic mode | On/Off | 1 | CRT |
| 55 | Channel C, Status Sunblind position | 0...100\% | 8 | CRT |
| 56 | Channel C, Status Slats position | 0...100\% | 8 | CRT |
| 57 | Channel C, Status End position up | On/Off | 1 | CRT |
| 58 | Channel C, Status End position down | On/Off | 1 | CRT |
| 59 | Channel D, Alarm | On/Off | 1 | CRWT |
| 60 | Channel D, Movement blockade | On/Off | 1 | CRWT |
| 61 | Channel D, Sunblind, centrally | Up/Down | 1 | CRWT |
| 62 | Channel D, Automatic mode | On/Off | 1 | CRWT |
| 63 | Channel D, Sunshine | On/Off | 1 | CRWT |
| 64 | Channel D, Automatic mode, Sunblind position | 0...100\% | 8 | CRWT |
| 65 | Channel D, Automatic mode, Slats position | 0...100\% | 8 | CRWT |
| 66 | Channel D, Sunblind position | 0...100\% | 8 | CRWT |
| 67 | Channel D, Slats position | 0...100\% | 8 | CRWT |
| 68 | Channel D, Sunblind | Up/Down | 1 | CRWT |
| 69 | Channel D, Stop/Slats | Open/Close | 1 | CRWT |
| 70 | Channel D, Position 1/2 | restore | 1 | CRWT |
| 71 | Channel D, Position 1/2 | store | 1 | CRWT |
| 72 | Channel D, Status Automatic mode | On/Off | 1 | CRT |
| 73 | Channel D, Status Sunblind position | 0...100\% | 8 | CRT |
| 74 | Channel D, Status Slats position | 0...100\% | 8 | CRT |
| 75 | Channel D, Status End position up | On/Off | 1 | CRT |
| 76 | Channel D, Status End position down | On/Off | 1 | CRT |
| 77 | Input a, Switching | On/Off/Toggle | 1 | CRWT |
| 77 | Input a, Status switching/binary value | On/Off | 1 | CRWT |
| 77 | Input a, Switching Group 1 | On/Off | 1 | CRWT |
| 77 | Input a, Sunblind | Up/Down | 1 | CRWT |
| 77 | Input a, 8 bit value | send | 8 | CRWT |
| 77 | Input a, 16 bit value | send | 16 | CRWT |
| 77 | Input a, Scene 1/2 | restore | 1 | CRWT |
| 77 | Input a, 8 bit scene | restore/ store | 8 | CRWT |
| 77 | Inputs a+b, Switching | On/Off/Toggle | 1 | CRWT |
| 77 | Inputs a+b, Slats | Stop/Open/Close | 1 | CRWT |
| 78 | Input a, Dimming | brighter/darker | 4 | CRWT |
| 78 | Input a, Switching Group 2 | On/Off | 1 | CRWT |
| 78 | Input a, Slats | Stop/Open/Close | 1 | CRWT |
| 78 | Input a, Scene 1/2 | store | 1 | CRWT |
| 78 | Inputs a+b, Dimming | brighter/darker | 4 | CRWT |
| 78 | Inputs a+b, Sunblind | Up/Down | 1 | CRWT |
| 79 | Input a, Switching Group 3 | On/Off | 1 | CRWT |
| 79 | Input a, Dimming Value Status | 0...100\% | 8 | CWTU |
| 80 | Input a | lock/release | 1 | CRWT |
| 80 | Inputs a+b | lock/release | 1 | CRWT |


| No. | Object name | Function | Bits | Flags |
| :---: | :---: | :---: | :---: | :---: |
| 81 | Input b, Switching | On/Off/Toggle | 1 | CRWT |
| 81 | Input b, Status switching/binary value | On/Off | 1 | CRWT |
| 81 | Input b, Switching Group 1 | On/Off | 1 | CRWT |
| 81 | Input b, Sunblind | Up/Down | 1 | CRWT |
| 81 | Input b, 8 bit value | send | 8 | CRWT |
| 81 | Input b, 16 bit value | send | 16 | CRWT |
| 81 | Input b, Scene 1/2 | restore | 1 | CRWT |
| 81 | Input b, 8 bit scene | restore/ store | 8 | CRWT |
| 82 | Input b, Dimming | brighter/darker | 4 | CRWT |
| 82 | Input b, Switching Group 2 | On/Off | 1 | CRWT |
| 82 | Input b, Slats | Stop/Open/Close | 1 | CRWT |
| 82 | Input b, Scene 1/2 | store | 1 | CRWT |
| 83 | Input b, Switching Group 3 | On/Off | 1 | CRWT |
| 83 | Input b, Dimming Value Status | 0...100\% | 8 | CWTU |
| 84 | Input b | lock/release | 1 | CRWT |
| 85 | Input c, Switching | On/Off/Toggle | 1 | CRWT |
| 85 | Input c, Status switching/binary value | On/Off | 1 | CRWT |
| 85 | Input c, Switching Group 1 | On/Off | 1 | CRWT |
| 85 | Input c, Sunblind | Up/Down | 1 | CRWT |
| 85 | Input c, 8 bit value | send | 8 | CRWT |
| 85 | Input c, 16 bit value | send | 16 | CRWT |
| 85 | Input c, Scene 1/2 | restore | 1 | CRWT |
| 85 | Input c, 8 bit scene | restore/ store | 8 | CRWT |
| 85 | Inputs c+d, Switching | On/Off/Toggle | 1 | CRWT |
| 85 | Inputs c+d, Slats | Stop/Open/Close | 1 | CRWT |
| 86 | Input c, Dimming | brighter/darker | 4 | CRWT |
| 86 | Input c, Switching Group 2 | On/Off | 1 | CRWT |
| 86 | Input c, Slats | Stop/Open/Close | 1 | CRWT |
| 86 | Input c, Scene 1/2 | store | 1 | CRWT |
| 86 | Inputs c+d, Dimming | brighter/darker | 4 | CRWT |
| 86 | Inputs c+d, Sunblind | Up/Down | 1 | CRWT |
| 87 | Input c, Switching Group 3 | On/Off | 1 | CRWT |
| 87 | Input c, Dimming Value Status | 0...100\% | 8 | CWTU |
| 88 | Input c | lock/release | 1 | CRWT |
| 88 | Inputs c+d | lock/release | 1 | CRWT |
| 89 | Input d, Switching | On/Off/Toggle | 1 | CRWT |
| 89 | Input d, Status switching/binary value | On/Off | 1 | CRWT |
| 89 | Input d, Switching Group 1 | On/Off | 1 | CRWT |
| 89 | Input d, Sunblind | Up/Down | 1 | CRWT |
| 89 | Input d, 8 bit value | send | 8 | CRWT |
| 89 | Input d, 16 bit value | send | 16 | CRWT |
| 89 | Input d, Scene 1/2 | restore | 1 | CRWT |
| 89 | Input d, 8 bit scene | restore/ store | 8 | CRWT |
| 90 | Input d, Dimming | brighter/darker | 4 | CRWT |
| 90 | Input d, Switching Group 2 | On/Off | 1 | CRWT |
| 90 | Input d, Slats | Stop/Open/Close | 1 | CRWT |
| 90 | Input d, Scene 1/2 | store | 1 | CRWT |
| 91 | Input d, Switching Group 3 | On/Off | 1 | CRWT |
| 91 | Input d, Dimming Value Status | 0...100\% | 8 | CWTU |
| 92 | Input d | lock/release | 1 | CRWT |
| 93 | Input e, Switching | On/Off/Toggle | 1 | CRWT |
| 93 | Input e, Status switching/binary value | On/Off | 1 | CRWT |
| 93 | Input e, Switching Group 1 | On/Off | 1 | CRWT |
| 93 | Input e, Sunblind | Up/Down | 1 | CRWT |
| 93 | Input e, 8 bit value | send | 8 | CRWT |
| 93 | Input e, 16 bit value | send | 16 | CRWT |
| 93 | Input e, Scene 1/2 | restore | 1 | CRWT |
| 93 | Input e, 8 bit scene | restore/ store | 8 | CRWT |
| 93 | Inputs e+f, Switching | On/Off/Toggle | 1 | CRWT |
| 93 | Inputs e+f, Slats | Stop/Open/Close | 1 | CRWT |


| No. | Object name | Function | Bits | Flags |
| :---: | :---: | :---: | :---: | :---: |
| 94 | Input e, Dimming | brighter/darker | 4 | CRWT |
| 94 | Input e, Switching Group 2 | On/Off | 1 | CRWT |
| 94 | Input e, Slats | Stop/Open/Close | 1 | CRWT |
| 94 | Input e, Scene 1/2 | store | 1 | CRWT |
| 94 | Inputs e+f, Dimming | brighter/darker | 4 | CRWT |
| 94 | Inputs e+f, Sunblind | Up/Down | 1 | CRWT |
| 95 | Input e, Switching Group 3 | On/Off | 1 | CRWT |
| 95 | Input e, Dimming Value Status | 0...100\% | 8 | CWTU |
| 96 | Input e | lock/release | 1 | CRWT |
| 96 | Inputs e+f | lock/release | 1 | CRWT |
| 97 | Input f, Switching | On/Off/Toggle | 1 | CRWT |
| 97 | Input f, Status switching/binary value | On/Off | 1 | CRWT |
| 97 | Input f, Switching Group 1 | On/Off | 1 | CRWT |
| 97 | Input f, Sunblind | Up/Down | 1 | CRWT |
| 97 | Input f, 8 bit value | send | 8 | CRWT |
| 97 | Input f, 16 bit value | send | 16 | CRWT |
| 97 | Input f, Scene 1/2 | restore | 1 | CRWT |
| 97 | Input f, 8 bit scene | restore/ store | 8 | CRWT |
| 98 | Input f, Dimming | brighter/darker | 4 | CRWT |
| 98 | Input f, Switching Group 2 | On/Off | 1 | CRWT |
| 98 | Input f, Slats | Stop/Open/Close | 1 | CRWT |
| 98 | Input f, Scene 1/2 | store | 1 | CRWT |
| 99 | Input f, Switching Group 3 | On/Off | 1 | CRWT |
| 99 | Input f, Dimming Value Status | 0...100\% | 8 | CWTU |
| 100 | Input f | lock/release | 1 | CRWT |
| 101 | Input g, Switching | On/Off/Toggle | 1 | CRWT |
| 101 | Input g, Status switching/binary value | On/Off | 1 | CRWT |
| 101 | Input g, Switching Group 1 | On/Off | 1 | CRWT |
| 101 | Input g, Sunblind | Up/Down | 1 | CRWT |
| 101 | Input g, 8 bit value | send | 8 | CRWT |
| 101 | Input g, 16 bit value | send | 16 | CRWT |
| 101 | Input g, Scene 1/2 | restore | 1 | CRWT |
| 101 | Input g, 8 bit scene | restore/ store | 8 | CRWT |
| 101 | Inputs g+h, Switching | On/Off/Toggle | 1 | CRWT |
| 101 | Inputs g+h, Slats | Stop/Open/Close | 1 | CRWT |
| 102 | Input g, Dimming | brighter/darker | 4 | CRWT |
| 102 | Input g, Switching Group 2 | On/Off | 1 | CRWT |
| 102 | Input g, Slats | Stop/Open/Close | 1 | CRWT |
| 102 | Input g, Scene 1/2 | store | 1 | CRWT |
| 102 | Inputs g+h, Dimming | brighter/darker | 4 | CRWT |
| 102 | Inputs g+h, Sunblind | Up/Down | 1 | CRWT |
| 103 | Input g, Switching Group 3 | On/Off | 1 | CRWT |
| 103 | Input g, Dimming Value Status | 0...100\% | 8 | CWTU |
| 104 | Input g | lock/release | 1 | CRWT |
| 104 | Inputs g+h | lock/release | 1 | CRWT |
| 105 | Input h, Switching | On/Off/Toggle | 1 | CRWT |
| 105 | Input h, Status switching/binary value | On/Off | 1 | CRWT |
| 105 | Input h, Switching Group 1 | On/Off | 1 | CRWT |
| 105 | Input h, Sunblind | Up/Down | 1 | CRWT |
| 105 | Input $\mathrm{h}, 8$ bit value | send | 8 | CRWT |
| 105 | Input $\mathrm{h}, 16$ bit value | send | 16 | CRWT |
| 105 | Input h, Scene 1/2 | restore | 1 | CRWT |
| 105 | Input h, 8 bit scene | restore/ store | 8 | CRWT |
| 106 | Input h, Dimming | brighter/darker | 4 | CRWT |
| 106 | Input h, Switching Group 2 | On/Off | 1 | CRWT |
| 106 | Input h, Slats | Stop/Open/Close | 1 | CRWT |
| 106 | Input h, Scene 1/2 | store | 1 | CRWT |
| 107 | Input h, Switching Group 3 | On/Off | 1 | CRWT |
| 107 | Input h, Dimming Value Status | 0...100\% | 8 | CWTU |
| 108 | Input h | lock/release | 1 | CRWT |

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| Obj. no. | Object name | Function | Type | Flags |
| :---: | :--- | :--- | :--- | :--- |
| 0 | Status direct mode | On/Off | 1 bit | CRT |

This object is used to report that the combi sunblind actuator was switched from bus mode to direct mode using the "direct operation" button on its top (status direct mode $=$ On) or that it was switched back from direct mode to bus mode (status direct mode $=$ Off). With direct mode switched on (the respective yellow LED on top of the actuator lights up) the direct switching-on of an output using the corresponding button on top of the device is released.
Command telegrams received via the bus are not carried out by the combi sunblind actuator in direct mode; instead they are stored as the desired target state. After switching back to bus mode (the yellow LED to indicate direct operation on top of the device is switched off again) the combi sunblind actuator compares the current states of the outputs with the stored target conditions and automatically eliminates deviations of the current states from the target conditions.
After mains voltage recovery, the object "Status direct mode" is transmitted automatically.

| 1 | 8 bit scene | re- <br> store/store | 1 Byte | CRWT |
| :---: | :--- | :--- | :--- | :--- |

This parameter window is only visible if the " 8 bit scene control" parameter in the "Basic settings" parameter window is set to "Yes".
This object is used to restore (recall) or store (program) the 8 bit scene with the number $x$. Bits $0 . . .5$ here contain the scene number. If bit $7=\log .1$, then the scene is stored, if bit $7=$ log. 0 , then it is restored. Bit 6 currently has no significance and must be set to log. 0 . If automatic mode is activated (automatic mode $=$ On), then storing or restoring a scene automatically leads to switching the sunblind channels to manual mode (automatic mode = Off).
Successfully storing a sunblind position is only possible if the travel time of the sunblind and the adjustment time of the slats have been specified, the status objects for the sunblind and slat positions have been synchronized with a reference movement into the upper end position and the sun blind is not moving.

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $2(5,23$, <br> $41,59)$ | Alarm (Channel A, <br> B, C, D, Alarm) | On/Off | 1 bit | CRWT |

This object can be linked with an alarm signal from a wind, rain or frost sensor, which sends cyclically a logical 0 in the idle state and a logical 1 in the event of an alarm. Via the parameter "Behavior on alarm" in the parameter window "Channel X ", it can be set individually per channel whether the channel should not react to an alarm ("no action", e.g. in the case of an interior blind) or whether the sunblind actuator should e.g. move the outer Venetian blind connected to this channel into the upper end position in the event of a wind alarm and block movement out of this position while the wind alarm is still present.
Automatic mode commands with sunblind and slat positions received during alarm operation, as well as commands for switching the automatic mode On or Off, are stored and carried out later when Alarm $=0$.
The sunblind likewise moves to the set safety position if a time has been assigned to the parameter "Monitoring time for alarm" in the "Functions, objects sunblind" parameter window and no telegrams have been received during the set time interval.
Caution: If the device is switched to direct mode, the movement of a sunblind by pressing the corresponding button on top of the device is possible in spite of an alarm which was received via the bus.

| $3(6,24$, | Movement blockade <br> $42,60)$ | On/Off <br> (Channel A, B, C, D, <br> movement <br> blockade) | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |

If a logical 1 is received via this object, then movement of the sunblind via bus telegrams is blocked until a logical 0 is received via this object. This object can therefore be used e.g. while outer Venetian blinds are being cleaned to prevent the blinds from being raised e.g. by a time switch so that the cleaning staff are not endangered, or when the window is open, to prevent an internal blind from being lowered and damaged as a result or to prevent a roller shutter from being lowered when the patio door is open and thus locking out the occupants.
Movement blockade $=1$ has the highest priority and cannot be overridden by an alarm. Alarm commands, automatic mode commands with sunblind and slat positions, commands to switch automatic mode On or Off as well as commands for the "Sunblind, centrally" object or for one of the "Channel X, sunblind, centrally" objects or one of the "Channel $x$, sunshine" objects received with Movement blockade $=1$ are stored and carried out later when Movement blockade $=0$, i.e. if at the end of a movement blockade an alarm is still active, the concerned channel will be moved automatically to the set safety position for alarm.
Caution: If the device is switched to direct mode, the movement of a sunblind by pressing the corresponding button on top of the device is possible even if the "Movement blockade" object has been activated via the bus.

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| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $4(7,25$, <br> $43,61)$ | Sunblind, centrally <br> (Channel A, B, C, D, <br> sunblind, centrally) | Up/Down | 1 bit | CRWT |

If a telegram is received at this object, all channels that are released for this object are first of all switched to "Automatic mode" (if released in the parameter setting) and then the sunblinds are moved by all channels simultaneously. If a logical 0 is received, then the blind is raised (opened); if a logical 1 is received, then it is lowered (closed). If Venetian blinds travel into the lower end position via this object, the slats position stipulated via the "Position of slats after sunblind DOWN in percent" parameter in the "Channel X " parameter window is then approached automatically.

| 8,26, <br> 44,62 | Channel A, B, C, D, <br> automatic mode | On/Off | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |
| With these objects, the corresponding channels can be <br> switched between the operating modes "Automatic mode" <br> and "Manual mode". The object value ( $=$ automatic mode, 0 <br> $=$ <br> manual mode) of these objects is updated when the channel <br> operating mode is changed and can be queried via the bus. |  |  |  |  |
| 9,27, <br> 45,63 | Channel A, B, C, D, <br> sunshine | On/Off | 1 bit | CRWT |

When using a weather station with façade control, this object serves to release or lock the slats positioning and possibly to travel the sunblinds into the upper or lower end position additionally. To do this, this object "Channel X , sunshine" must be linked to the corresponding object of the weather station.
If a telegram is received for this object, then all blinds of those channels for which automatic mode is switched On will be moved at the same time, and subsequently the positioning of the blinds and slats via percentage commands will be released or locked.
If a log. 0 is received, then the sunblinds will be moved to the upper end position (opened) and the positioning of blinds and slats via percentage commands will be locked; if a log. 1 is received, then the sunblinds will be moved to the lower end position (closed) and the positioning of blinds and slats via percentage commands will be released. If a Venetian blind is moved into the lower limit position, then the slats are subsequently rotated into the position specified by the "Position of slats after sunblind DOWN in percent" parameter in the "Channel X" parameter window.

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| 10, 28, <br> 46,64 | Channel A, B, C, D, <br> automatic mode, <br> sunblind position | $0 \ldots 100 \%$ | 1 Byte | CRWT |

Using this object, the blind of the corresponding channel can only be moved into any position if automatic mode is active. If the channel is in "manual mode", a movement command is not executed but is stored and executed after switching back to automatic mode.
Using this object, sunblind positions can be transmitted in a value range of 0 to 255 . The following definitions have to be kept:

| 0 or 1 | $(=0 \%)$ | Blind fully Up |
| :--- | :--- | :--- |
| 255 | $(=100 \%)$ | Blind fully Down |

As soon as the sunblind position stipulated via this object has been reached, the slats position which was last set via the "Automatic mode, slats position" object belonging to the respective channel is automatically restored.
If the blind is moved into an intermediate position via this object for the first time after mains voltage recovery, then an end position switch is approached beforehand in order to synchronize the position. In addition, the slats then remain fully open (horizontal slat position) until a positioning command to adjust the slats is received. If one of the end positions is to be approached, the set travel time is automatically extended by the set prolongation time, so that the reaching of the upper or lower end position is guaranteed by addressing the limit switch.
Once the blind adjustment has been completed or the end position has been reached, the object value of all status objects (status sunblind and slats position together with status end position up/down) is updated and, if set correspondingly, transmitted via the bus.

| 11,29, <br> 47,65 | Channel A, B, C, D, <br> automatic mode, <br> slats position | $0 \ldots 100 \%$ | 1 Byte | CRWT |
| :--- | :--- | :--- | :--- | :--- |

Using this object, the slats of the corresponding channel can only be moved into a chosen position if "automatic mode" is active. If the channel is in "manual mode", the movement command is not executed but is stored and executed after switching back to automatic mode. The slat adjustment may cause the height of the blind to vary slightly. If the current slat position is invalid (status value $=0$, e.g. after bus voltage recovery), the slat is not adjusted. The slat position becomes valid and is applied only after a final position has been reached.
Using this object, slat positions can be transmitted in a value range of 0 to 255 . The following definitions have to be kept:
$\begin{array}{lll}0 \text { or } 1 & (=0 \%) & \text { Slats fully open (horizontal) } \\ 255 & (=100 \%) & \text { Slats fully cized (vertical) }\end{array}$
255 (=100\%) Slats fully closed (vertical)
As soon as the slat adjustment has been completed or the end position has been reached, the object value of all status objects (status blind and slat position together with status end position up/down) is updated and, if set correspondingly, transmitted via the bus.

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| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| 12,30, <br> 48,66 | Channel A, B, C, D, <br> sunblind position | $0 . .100 \%$ | 1 Byte | CRWT |
|  |  |  |  |  |

Using this object, the sunblind of the corresponding channel can be moved into a chosen position in standard mode.
Using this object, sunblind positions can be transmitted in a value range of 0 to 255 . The following definitions have to be kept:
0 or 1
(=0\%)
Sunblind fully Up
255 (=100\%) Sunblind fully Down

As soon as the sunblind position stipulated via this object has been reached, the slat position which was last set via the "Slats position" object belonging to the respective channel is automatically restored.
If the blind is moved into an intermediate position via this object for the first time after mains voltage recovery, then an end position switch is approached beforehand in order to synchronise the position. In addition, the slats then remain fully open (horizontal slat position) until a positioning command to adjust the slats is received.
If one of the end positions is to be approached, the set travel time is automatically extended by the set prolongation time, so that the reaching of the upper or lower end position is guaranteed by addressing the limit switch.
Once the slat adjustment has been completed or the end position has been reached, the object value of all status objects (status blind and slats position together with status end position up/down) is updated and, if set correspondingly, transmitted via the bus.

| 13,31, <br> 49,67 | Channel A, B, C, D, <br> slats position | $0 \ldots 100 \%$ | 1 Byte | CRWT |
| :--- | :--- | :--- | :--- | :--- |

Using this object, the slats of the corresponding channel can be moved into a chosen position in standard mode. The slats adjustment may cause the height of the Venetian blind to vary slightly. If the current slat position is invalid (status value $=0$, e.g. after bus voltage recovery), the slat is not adjusted. The slats position becomes valid and is applied only after a final position has been reached.
Using this object, slat positions can be transmitted in a value range of 0 to 255 . The following definitions have to be kept:
0 or $1(=0 \%) \quad$ Slats fully open (horizontal)
255 (=100\%) Slats fully closed (vertical)
As soon as the slats adjustment has been completed or the end position has been reached, the object value of all status objects (status blind and slats position together with status end position up/down) is updated and, if set correspondingly, transmitted via the bus.

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| 14,32, <br> 50,68 | Channel A, B, C, D, <br> sunblind | Up/Down | 1 bit | CRWT |

The Up/Down movement of the sunblind for the corresponding channel is initiated via these objects. The sunblind is raised on receipt of a logical 0 and lowered on receipt of a logical 1. The motor of the blind remains switched-on until either a stop command is received or the set travel time including the prolongation time has elapsed and the end position must therefore have been reached.
If the blind moves without any intermediate stop from the upper to the lower end position via this object and a "Slats position after blind DOWN in percent" has been set in the "Channel X" parameter window, the slats are opened accordingly.
During automatic mode, the receipt of a telegram to one of these objects always effects automatic switching from automatic to manual mode for the channel in question. All automatic mode commands for a channel being in manual mode then are not executed.

| 15,33, <br> 51,69 | Channel A, B, C, D, <br> stop/slats | Open/Clos <br> e | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |

Via these objects, the movement of a sunblind is stopped for the respective channel regardless of whether the telegram contains a logical 0 or a logical 1. If the sunblind is stationary, the slats are opened by one step on receipt of a logical 0 and closed by one step on receipt of a logical 1.
The receipt of a telegram to one of these objects always effects automatic switching from automatic to manual mode for the channel in question. All automatic mode commands for a channel being operated manually then are not executed.

| 16,34, <br> 52,70 | Channel A, B, C, D, <br> position $1 / 2$ | restore | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |

This and the following object make it possible for a person using a room with a pair of bus pushbuttons allocated to the function "Store/restore 1 bit scene", to store (program) a desired position of the sunblind and its slats by pressing the corresponding bus pushbutton for at least 1 s and to restore (recall) the stored position of the sunblind and its slats automatically by briefly pressing this button.
With this object, two desired intermediate positions of the sunblind connected to the respective channel as well as of its slats can be restored automatically. To make this possible, these settings first need to have been stored via the following object.
On receiving a " 0 " telegram, the blind and slat setting stored in position 1 is approached; on receiving a " 1 " telegram, the blind and slat setting stored in position 2 is approached.

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| 17,35, <br> 53,71 | Channel A, B, C, D, <br> position $1 / 2$ | store | 1 bit | CRWT |

Via this object, the storing of two desired intermediate positions of the sunblind connected to this channel as well as of its slats can be initiated. The stored (programmed) positions can subsequently be approached again (restored) via the preceding object at any time.
Successfully storing a position is only possible if the travel time of the sunblind and the adjustment of the slats have been specified and the status objects for the sunblind and the slats positions have been synchronised with reference movements into the upper end position.
On receiving a " 0 "-telegram, the current states of the "Status sunblind position" and „Status slats position" objects are queried and stored as position 1. Position 2 is stored accordingly after receiving a " 1 "-telegram.

| 18,36, <br> 54,72 | Channel A, B, C, D, <br> status automatic <br> mode | On/Off | 1 bit | CRT |
| :--- | :--- | :--- | :--- | :--- |

These objects are only shown if the "Differentiation automatic mode/manual mode" parameter in the "Functions, objects sunblind" parameter window is set, i.e. if this differentiation is desired.
With these objects, the status of the automatic mode can be queried per channel and, depending on the configuration, may also be sent automatically in case of a change in status as well as after mains voltage recovery.
The "automatic mode" operating mode is maintained in the background even during activated direct operation, movement blockage and alarm, and the status object is set accordingly, even if another operating mode overrides the automatic operation.

| 19, 37, <br> 55,73 | Channel A, B, C, D, <br> status sunblind <br> position | $0 \ldots 100 \%$ | 1 Byte | CRT |
| :--- | :--- | :--- | :--- | :--- | Via this object, the position of the sunblind (as a percentage value) can be queried at any time or sent automatically after the travel has stopped. The upper end position corresponds to the value 1 ( $=0 \%$ ) and the lower end position to the value 255 $(=100 \%)$. The value 0 is used to indicate an unknown position (e.g. after the device has just been (re-)started).

Updating this status object takes place for the first time when the travel time of the sunblind and the adjustment times of the slats have been entered and an uninterrupted travel to a final position has taken place.

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Objects for „1 button switching-sequence control"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $77(81,85$, <br> $89,93,97$, <br> $101,105)$ | Input a (b, c, d, e, f, <br> g, h), switching <br> group 1 | On/Off | 1 bit | CRWT |
| These objects with this name and function are only visible if <br> the "1 button switching-sequence control" function was allo- <br> cated to the respective input. |  |  |  |  |
| 78 (82, 86, <br> $90,94,98$, <br> $102,106)$ | Input a (b, c, d, e, f, <br> g, h), switching <br> group 2 | On/Off | 1 bit | CRWT |

These objects with this name and function are only visible if the "1 button switching-sequence control" function was allocated to the respective input.

| 79 (83, 87, <br> $91,95,99$, <br> $103,107)$ | Input a (b, c, d, e, f, <br> g, h), switching <br> group 3 | On/Off | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |

These objects with this name and function are only visible if the "1 button switching-sequence control" function was allocated to the respective input.

## Objects for „1 button dimming"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $77(81,85$, <br> $89,93,97$, <br> $101,105)$ | Input a (b, c, d, e, f, | On/Off | 1 bit | CRWitching |

These objects with this name and function are only visible if the "1 button dimming" function was allocated to the respective input.

| $78(82,86$, | Input a (b, c, d, e, f, <br> 90, 94, 98, <br> 102, 106) | brighter/d <br> arker | 4 bits | CRWT |
| :--- | :--- | :--- | :--- | :--- |

These objects with this name and function are only visible if the " 1 button dimming" function was allocated to the respective input.

| 79 (83, 87, <br> $91,95,99$, <br> $103,107)$ | Input a (b, c, d, e, f, <br> g, h), status <br> dimming value | $0 \ldots 100 \%$ | 1 Byte | CWTU |
| :--- | :--- | :--- | :--- | :--- |

These objects with this name and function are only visible if the "1 button dimming" function was allocated to the respective input.
This object must be linked with the dimming actuator's "Status dimming value" object, in order that it is possible to distinguish correctly whether the dimming actuator is to be switched on or off by a short operation of the pushbutton.

Objects for „1 button sunblind control"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $77(81,85$, <br> 89, 93, 97, <br> $101,105)$ | Input a (b, c, d, e, f, <br> g, h), sunblind | Up/Down | 1 bit | CRWT |

These objects with this name and function are only visible if the " 1 button sunblind control" function was allocated to the respective input.

| 78 (82, 86, <br> 90,94, 98, <br> $102,106)$ | Input a (b, c, d, e, f, <br> $\mathrm{g}, \mathrm{h})$, slats | Stop/Ope <br> n/Close | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |

These objects with this name and function are only visible if the " 1 button sunblind control" function was allocated to the respective input.

Objects for „8 bit value, edge-triggered" or 8 bit value, short/long operation"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| 77 (81, 85, <br> 89, 93, 97, <br> 101, 105) | Input a (b, c, d, e, f, <br> g, h), 8 bit value | send | 1 Byte | CRWT |

These objects with this name and function are only visible if either the " 8 bit value, edge-triggered" function or the " 8 bit value, short/long operation" function was allocated to the respective input.

Objects for „16 bit value, edge-triggered" or „16 bit value, short/long operation"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| 77 (81, 85, <br> $89,93,97$, <br> $101,105)$ | Input a (b, c, d, e, f, <br> $\mathrm{g}, \mathrm{h}), 16$ bit value | send | 2 | CRWT |

These objects with this name and function are only visible if either the " 16 bit value, edge-triggered" function or the "16 bit value, short/long operation" function was allocated to the respective input.

Objects for „16 bit floating point value, edge-triggered" or "16 bit floating point value, short/long operation"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| 77 (81, 85, <br> $89,93,97$, <br> $101,105)$ | Input a (b, c, d, e, f, <br> $\mathrm{g}, \mathrm{h}), 16$ bit value | send | 2 | CRWT |
|  |  |  |  | Bytes |

These objects with this name and function are only visible if either the " 16 bit floating point value, edge-triggered" function or the " 16 bit floating point value, short/long operation" function was allocated to the respective input.

Objects for „1 bit scene control"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $77(81,85$, <br> $89,93,97$, <br> $101,105)$ | Input a (b, c, d, e, f, | restore | 1 bit | CRWT |

These objects with this name and function are only visible if the " 1 bit scene control" function was allocated to the respective input.

| 78 (82, 86, <br> $90,94,98$, <br> $102,106)$ | Input a (b, c, d, e, f, <br> $\mathrm{g}, \mathrm{h})$, scene $1 / 2$ | store | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |

These objects with this name and function are only visible if the "1 bit scene control" function was allocated to the respective input.

## Objects for „,8 bit scene control"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $77(81,85$, Input a (b, c, d, e, | re- <br> $89,93,97$, <br> f, g, h), 8 bit sce- <br> 101, 105) | store/store <br> ne | Byte | CRWT |

These objects with this name and function are only visible if the " 8 bit scene control" function was allocated to the respective input.

## Objects for „2 buttons dimming"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $77(85,93$, <br> $101)$ | Inputs a+b (c+d, <br> $e+f, g+h)$, switching | On/Off/To <br> ggle | 1 bit | CRWT |

These objects with this name and function are only visible if either the " 2 buttons dimming with stop telegram" function or the " 2 buttons dimming with cyclic transmission" function was allocated to the respective input pair.

| $78(86,94$, <br> $102)$ | Inputs a+b (c+d, <br> e+f, $g+h), ~ d i m m i n g ~$ | brighter/d <br> arker | 4 bits | CRWT |
| :--- | :--- | :--- | :--- | :--- |

These objects with this name and function are only visible if either the " 2 buttons dimming with stop telegram" function or the "2 buttons dimming with cyclic transmission" function was allocated to the respective input pair.

Objects for „2 buttons sunblind control"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $77(85,93$, <br> $101)$ | Inputs a+b (c+d, <br> e+f, g+h), slats | Stop/Ope <br> n/Close | 1 bit | CRWT |

These objects with this name and function are only visible if the "2 buttons sunblind control" function was allocated to the respective input pair.

| $78(86,94$, <br> $102)$ | Inputs a+b (c+d, <br> $e+f, g+h), ~ s u n b l i n d ~$ | Up/Down | 1 bit | CRWT |
| :--- | :--- | :--- | :--- | :--- |

These objects with this name and function are only visible if the "2 buttons sunblind control" function was allocated to the respective input pair.

Objects for „Insert blocking object"

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $80(84,88$, <br> 92,96, | Input a (b, c, d, e, f, | lockl | 1 bit | CRWT |
| 100,104, <br> $108)$ |  | release |  |  |

These objects with this name and function are only visible if the "Insert blocking object" parameter was set to "Yes" for the respective input.

| Obj. no. | Object name | Function | Type | Flags |
| :--- | :--- | :--- | :--- | :--- |
| $80(88,96$, <br> $104)$ | Inputs $\mathrm{a}+\mathrm{b}(\mathrm{c}+\mathrm{d}$, <br> $\mathrm{e}+\mathrm{f}, \mathrm{g}+\mathrm{h})$ | lockl <br> release | 1 bit | CRWT |

These objects with this name and function are only visible if the "Insert blocking object" parameter was set to "Yes" for the respective input pair with a 2 buttons function.

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## 3. Parameter windows

## 3.1 „Basic settings"



Parameter window in the as-delivered state

| Bate eflima | Basic sentiong: |  |  |
| :---: | :---: | :---: | :---: |
| 8tu temen charel 8 |  |  |  |
| 8 ba corese chamelC |  | ${ }^{\text {No }}$ | - |
| 8tia wowe charmel0 |  | Dopowser | - |
| Cosmela |  |  | - |
| Cosmen 0 | Pasmetes semprila rout i in | meoswey | - |
| Chsmel 10 | ONese ding drect mose | 15 minues | $\rightarrow$ |
|  | Obex ceene corrol | Yes | - |
| Inatie +1 |  |  |  |
| \|ratis ${ }^{\text {ch }}$ |  |  |  |

Parameter window for configuring all inputs and sunblind channels individually

| Parameter | Settings |
| :--- | :--- |
| Inputs, each directly operating a <br> sunblind output | Yes, all inputs; |
|  | Yes, only inputs a to f; |
|  | Yes, only inputs a to d; |
|  | Yes, only inputs a to b; |
|  | Yes, only in the as- |
|  | delivered condition; |
|  | No |

These parameters set whether and which binary inputs are to act directly on the corresponding sunblind output in each case. Yes, all inputs: All inputs act directly on the corresponding sunblind output. All sunblind channels work in stand-alone mode. For each sunblind channel the movement time and the adjustment time for one step can be set individually.
Yes, only inputs a to f: Only inputs a to fact directly on the corresponding sunblind output in each case. Sunblind channels A to $C$ then work in stand-alone mode. Inputs $g+h$ and channel $D$ are freely configurable.
Yes, only inputs a to d: Only inputs a to d act directly on the corresponding sunblind output in each case. Sunblind channels $A$ and $B$ then work in stand-alone mode. Inputs $e$ to $h$ and channels $C$ and $D$ are freely configurable.
Yes, only inputs a to b: Only inputs a and b act directly on the corresponding sunblind output in each case. Sunblind channel A then works in stand-alone mode. Inputs c to $h$ and channels B to D are freely configurable.
Yes, only in the as-delivered condition: The device is reset to the as-delivered state. All inputs act directly on the corresponding sunblind output. All sunblind channels then work in stand-alone mode. For all sunblind channels, the movement time is preset to 120 s and the adjustment time to 200 ms and these cannot be changed.
No: All inputs and sunblind channels can be configured individually with the ETS.

| Parameter | Settings |
| :--- | :--- |
| Parameter settings for sunblind <br> channels A...D | identically <br> separately |

This parameter is visible only if the "Inputs, each directly operating a sunblind output" parameter is set to "No".
This parameter is used to set whether only one parameter window is shown for the joint and identical parameter setting of the sunblind channels A...D or one parameter window per channel for the individual parameter setting of every channel.

| Parameter settings for inputs a...h | identically <br> separately |
| :--- | :--- |

This parameter is visible only if the "Inputs, each directly operating a sunblind output" parameter is set to "No".
This parameter is used to set whether only one parameter window is shown for the joint and identical parameter setting of the inputs a...h or one parameter window for any two inputs for the individual parameter setting of every input pair.

| ON-time during direct mode | unlimited; |
| :--- | :--- |
|  | 5 minutes; 10 minutes; |
|  | 15 minutes; 20 minutes; |
|  | 30 minutes; 45 minutes; |
|  | 60 minutes |

This parameter is not visible only if the preceding "Inputs, each directly operating a sunblind output" parameter is set to "Yes, only in the as-delivered condition".
This parameter is used to set whether the direct operating mode is switched on permanently via the button for switching the operating modes and needs to be switched off again through a second push of the button ("unlimited"), or whether it is switched on for a limited time and is switched off automatically again after the expiration of the set on-time. The limited switching of the direct operating mode ensures that the bus mode can not be blocked permanently through the direct operation. Every push of the button in direct operation always leads to an extension of direct operation by the set on-time. After the expiration of the on-time without an additional push of the button, the direct operation is switched off automatically and thus the "bus mode" is activated again (as far as a communication via the bus is possible). The beginning and end of the direct operation are reported via the respective communication object "Status direct mode" via the bus.

| 8 bit scene control | No <br> Yes |
| :--- | :--- |

This parameter is used to set whether the sunblind channels are to be integrated in an 8 bit scene control. If yes, then the respective communication object and the parameter windows " 8 bit scenes channel $X^{\prime \prime}$ for the allocation of up to 8 scene numbers per sunblind channel are shown.

## 3.2 „Stand-alone mode, channel X"

| Stand-alone mode, channel A |  |
| :--- | :--- |
| Sunblind as | Venetian blind |
| Factor travel time <br> sunblind (basis 1 s) | $\boxed{120}$ |
| Factor travel time <br> slats (basis: 50 ms ) | $\boxed{4}$ |

These parameter windows are visible only if one, several or all input pairs act directly on the corresponding sunblind channels, i.e. if the parameter "Inputs, each directly operating a sunblind output" is set either to "Yes, all inputs" or "Yes, only inputs a to $\mathrm{f}^{\prime}$ or to "Yes, only inputs a to d" or to "Yes, only inputs a to b".

| Parameter | Settings |
| :--- | :--- |
| Sunblind as | Venetian blind; <br> Roller shutter, awning |
| This parameter is used to set whether a drive for a Venetian <br> blind or a roller shutter or an awning is connected to the chan- <br> nel. | Factor travel time sunblind <br> (basis: 1 s ) $6 \ldots 255$ <br> 120 <br> The travel time of the sunblind from the upper to the lower <br> end position is set via this parameter.  <br> Factor travel time slats <br> (basis: 50ms) $3 \ldots 255$ <br> 4 <br> This parameter only appears if the "Sunblind as" parameter is <br> set to "Venetian blind". <br> This parameter is used to set the movement time of the Ve- <br> netian blind slats for 1 step or to set the travel time of a sun- <br> blind for 1 step.  |

## 3.3 „ 8 bit scenes channel X"

8 bit scenes channel A

| Assignment 1 <br> to scene [1...64] (0=disabled) | 0 | $\div$ |
| :---: | :---: | :---: |
| Assignment 2 | 0 | $\div$ |
| Assignment 3 | 0 | $\div$ |
| Assignment 4 | 0 | $\div$ |
| Assignment 5 | 0 | $\div$ |
| Assignment 6 | 0 | $\div$ |
| Assignment 7 | 0 | $\div$ |
| Assignment 8 | 0 | $\div$ |

This parameter window can be selected only if the parameter "8-bit scene control" in the "Basic settings" parameter window is set to "Yes".

| Parameter | Settings |
| :--- | :--- |
| Assignment 1 to scene <br> [1...64] (0=disabled) | $0-64,0$ |

This parameter can be used to link the selected channel A with a scene number in the range from 1 to 64 . " 0 " in this case means "no scene assigned" (link not used).
Notes:
If a scene is called-up before the positions of sunblind and slats have been stored (programmed) for this scene and this channel, then the affected channel is not taken into account.
Successfully storing a position is only possible if the travel time of the sunblind and the adjustment time of the slats have been specified and the status objects for sunblind and slats position have been synchronized with a reference movement into a final position.
If automatic mode is activated (automatic mode $=$ On), then storing or restoring a scene automatically leads to switching to manual mode (automatic mode = Off).

| Assignment 2 | $0-64,0$ |
| :--- | :--- |
| see channel A, assignment 1 |  |

and so on until

| Parameter | Settings |
| :--- | :--- |
| Assignment 8 | $0-64,0$ |
| see channel A, assignment 1 |  |

## 3.4 „Functions, objects sunblind"

| Functions, objects sunblind |  |  |
| :---: | :---: | :---: |
| Object Alarm per | channel | - |
| Monitoring time for alarm | 15 minutes |  |
| Object Movement blockade per | channel |  |
| Objects Store / restore position 1 /2 per channel | Yes | - |
| Differentiation automatic mode / manual mode | Yes | - |
| Object Sunblind centrally UP / DOWN per | channel | - |
| Objects Centrally UP / DOWN, switching-on of channels temporally shifted by | appr. 1s | - |
| Object Status automatic mode per channel | Yes | - |
| Object Status sunblind position in \% per channel | Yes | - |
| Objects Status end position up / down per channel | Yes | - |
| Send end position ON / OFF | Yes | - |
| Send status objects | on change | - |

This parameter window can be selected only if the parameter "Inputs, each directly operating a sunblind output" in the "Basic settings" parameter window is set either to "No" or to "Yes, only inputs a to f " or to "Yes, only inputs a to d" or to "Yes, only inputs a to b".

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| Parameter | Settings |
| :--- | :--- |
| Object Alarm per | device; channel |
| This parameter determines whether one single alarm object <br> should be available to have an influence on all sunblind chan- <br> nels, or whether each sunblind channel should receive its own <br> alarm object. Whether and how to react on an alarm object set <br> to logical 1 has to be adjusted per channel. |  |


| Monitoring time for alarm | disabled; |
| :--- | :--- |
|  | 1 minute; 2 minutes; |
|  | 3 minutes; 4 minutes; |
|  | 5 minutes; 7 minutes; |
|  | 10 minutes; 15 minutes; |
|  | 30 minutes; 60 minutes |

This monitoring time applies, even with one alarm object per channel, for all alarm objects at once.
If e.g. a wind detector is faulty or the bus cable to it is disrupted, gusts of wind can lead to the damage or destruction of an exterior solar protection. To prevent this, the combi sunblind actuator can monitor whether the wind detector assigned to it or to a channel is sending telegrams cyclically. If the setting "disabled" is assigned to the parameter "Monitoring time for alarm", the cyclical sending of the alarm object is not monitored. Otherwise, this parameter determines within which period at least one telegram with a logical 0 must be received at the alarm object. If no telegrams are received at the alarm object during the "Monitoring time for alarm", then this object is set to logical 1 inside the actuator, i.e. the sunblind connected to the actuator channel is moved into the set position according to the "Behavior on alarm" parameter and remains in that position (even when alarm telegrams with a logical 0 are received cyclically again) until a telegram with a movement command is received.
After a restart of the device (e.g. after mains voltage recovery), the monitoring time is only started after the first reception of the "Alarm" object.

| Object Movement blockade <br> per | device; <br> channel |
| :--- | :--- |

This parameter determines whether a "Movement blockade" communication object should be available per device or per sunblind channel. If a telegram with "Movement blockade = ON" is received via this channel, then the current position of the Venetian blind and its slats is frozen at the addressed channel (i.e. all commands to move the Venetian blind or adjust the slats or restore a position as well as a movement command generated via the alarm object remain ineffective and are also not stored intermediately) until a telegram with "Movement blockade $=$ OFF" is received. If an alarm is still present at this point in time, the action configured for the alarm event is then carried out.
If "direct mode" is switched on, no account of an activated move-up blockade is taken while the direct mode lasts.

| Parameter | Settings |
| :--- | :--- |
| Objects Store/restore position | No; |
| $1 / 2$ per channel | Yes |

This parameter determines whether the two communications objects "Channel X, position $1 / 2$ store/restore" are to be available per sunblind channel. In connection with a "scene pushbutton" up to two desired positions of sunblind and slats per channel can be stored by the push of a button and also automatically restored.

| Differentiation automatic <br> mode/manual mode | No; |
| :--- | :--- |
|  | Yes |

This parameter determines whether a distinction is to be made between automatic and manual mode. If this parameter is set to "Yes", then the objects are supplemented to switch between automatic and manual mode and for the central control of all sunblind drives as well as one object per channel to move the sunblind and one to adjust the slats via percentage values in automatic mode.
The differentiation between automatic and manual mode is required if, for example, the Venetian blind slats are to follow up the position of the sun via commands from the weather station (sun tracking control), but the user of the room shall be able to stop this.

| Object Sunblind position in\% <br> per channel with standard <br> mode | No; <br> Yes |
| :--- | :--- |

This parameter only appears in standard mode if the parameter "Differentiation automatic mode/manual mode" is set to "No". It is used to set whether communication objects to adjust the sunblind position in\% shall be available in standard mode.
Note: If in standard mode "Slat position in\%" objects are also desired, then this can be adjusted in the parameter window "Channels A - D" or per channel via the parameter window "Channel X".

| Object Sunblind centrally <br> UP/DOWN per | device; <br> channel |
| :--- | :--- |

This parameter is only visible if the distinction between automatic mode and manual mode was desired.
This parameter is used to set whether the object for a central command to move the sunblind into the specified final position is to be made available only once ("Device" setting) or per channel respectively ("Channel" setting). The "Channel" setting makes it possible that not all channels are controlled jointly with the central command, but only those channels for which this object was linked to the central command. This is required, for example, if one or more sunblind channels serve to activate an externally mounted Venetian blind, but the others are used to activate an internally mounted sunblind or a roller shutter to darken the room.

| Parameter | Settings |
| :--- | :--- |
| Objects Centrally UP/DOWN, <br> switching-on of channels <br> temporally shifted by | No; appr. 0.3s; appr. 0.5s; <br> appr. O.7s; appr. 1s |
| This parameter is only visible if the distinction between auto- <br> matic mode and manual mode was desired. <br> Depending on the configuration, the sunblind channels linked <br> with the "Sunblind centrally UP/DOWN" object are switched-on <br> staggered in time. This can prevent a high current spike as <br> well as an increased telegram frequency. |  |
| Object Status automatic mode <br> per channel | No; <br> Yes |
| This parameter is only visible if the distinction between auto- <br> matic mode and manual mode was desired. |  |
| This parameter is used to set whether a communication object <br> "Status automatic mode" is to be available per channel. |  |
| Object Status sunblind <br> position in\% per channel | No; <br> Yes |
| This parameter is only visible if either the distinction between <br> automatic mode and manual mode was desired or if the pa- |  |
| rameter "Object sunblind position in\% per channel with stan- <br> dard mode" is set to "Yes". <br> This parameter is used to set whether a communication object <br> "Status sunblind position" is to be available per channel. |  |
| Note: If in standard mode "Status slats position in\%" objects |  |
| are also desired, then this can be adjusted in the parameter <br> window "Channels A - D" or per channel via the parameter <br> window "Channel X". |  |
| Objects Status end position <br> up/down per channel | No; <br> Yes; <br> only status up-position; <br> only status down-position |

This parameter is used to set whether none, both or only 1 communication object "Status end position up" or "Status end position down" is to be available per channel.
The object "Status end position up" (or "Status end position down") is only equal to log. 1 if the sunblind is in the upper (or lower) end position.

| Send end position ON/OFF | Yes; send only ON |
| :--- | :--- |

This parameter is only visible if the preceding parameter is not set to "No".
This parameter is used to set whether both the reaching (ON) as well as the leaving (OFF) of an end position is to be sent or whether only the reaching of an end position is to be sent.

| Send status objects | using read request only; <br> on change or using read <br> request |
| :--- | :--- |

Depending on the parameter setting the status objects are sent automatically every time the status is changed or only on read request.

## 3.5 „Channels A-D" or „Channel X" (with Venetian blind)

| Channel A |  |  |
| :---: | :---: | :---: |
| Sunblind as | Venetian blind |  |
| Factor travel time sunblind from upper to lower end position (basis 1s) | 255 |  |
| Factor travel time sunblind from lower to upper end position (basis 1s) | 255 |  |
| Prolongation of in-motion time by | 5 seconds |  |
| Positioning time of slats from vertical to horizontal | 0.58 (max Step = 5; min cha |  |
| Positioning time of slats from vertical until start of sunblind motion | 1.0s |  |
| Position of slats after sunblind DOW/N in percent (0-100) | 50 |  |
| Number of steps from slats position vertical to horizontal in manual mode | 2 |  |
| Min. change of value for initiation of slats positioning in automatic mode (") | 3 |  |
| Channels A-D, automatic mode $=0 \mathrm{~N}+$ sunblinds centrally UP / DOW/N | released | - |
| Object Sunshine | released | - |
| Behavior on sunshine $=0 \mathrm{n}$ | execute autom. commands + |  |
| Behavior on sunshine $=$ Off | ignore automatic-commands | - |
| Object Status slats position in \% | Yes |  |
| Behavior on alarm | move upwards |  |
| Behavior at mains voltage recovery | no action | - |
| Behavior at bus voltage failure | no action |  |

The parameters in the parameter window shown above are visible only if the parameter "Sunblind as" is set to "Venetian blind".

| Parameter | Settings |
| :--- | :--- |
| Sunblind as | Venetian blind; <br> Roller shutter, awning |

This parameter is used to set whether a drive for a Venetian blind or a roller shutter or an awning is connected to the channel. If a roller shutter or awning drive is connected, then the special objects and parameters for Venetian blinds and their slats are not shown.

| Factor travel time sunblind <br> from upper to lower end <br> position (basis: 1s) | $3 \ldots 255$ |
| :--- | :--- | position (basis: 1s)

The travel time of the sunblind from the upper to the lower end position is set via this parameter.

| Factor travel time sunblind | $3 \ldots 255$ |
| :--- | :--- |

from lower to upper end
255 position (basis: 1s)
This parameter is used to set the travel time of the sunblind from the lower to the upper end position. This travel time must be at least as long or up to $20 \%$ longer than the travel time from the top to the bottom end position.

|  |  |
| :---: | :---: |
| Prolongation of in-motio | no additional tim 1... 20 seconds (5 seconds) |
| This parameter is used to set whether during the movement of the sunblind to the end position the set travel time is to be extended by an additional period to ensure that the sunblind has reached the end position and the drive is switched off via the end position switch. |  |
| Positionin | $\begin{aligned} & \hline 0.2 \mathrm{~s}(\text { max Step }=2 ; \min \\ & \text { change of value } \left.=45^{\circ}\right) \\ & \ldots \\ & 0.5 \mathrm{~s}(\text { max Step }=5 ; \\ & \left.\min \text { change of value }=18^{\circ}\right) ; \\ & \ldots \\ & 10 \mathrm{~s}(\text { max Step }=100 ; \\ & \left.\min \text { change of value }=1^{\circ}\right) \\ & \hline \end{aligned}$ |
| This parameter only appears if the "Sunblind as" parameter is set to "Venetian blind". <br> This parameter is used to set the adjusting time of the Venetian blind slats from completely closed $(=100 \%)$ to the horizontal slat position ( $=0 \%$ ) in the range from 0.2 s to 10 s . Note: This time is to be determined as accurately as possible. The values behind the specified time indicate which value is permissible for the subsequent parameter "Number of step commands from slats position vertical to horizontal in manual mode" as max. value as well as which value is permissible for the subsequent parameter „Min. change of value (in\%) for slats positioning in automatic mode" as the smallest value. |  |
| Positioning time of slats from vertical until start of sunblind motion | 0.3s;...1.0s;...12.5s |
| This parameter only appears if the "Sunblind as" parameter is set to "Venetian blind". <br> This parameter is used to set the adjusting time of the Venetian blind slats from completely closed to the slat position at which the upward travel of the Venetian blind begins, in the range from 0.3 s to 12.5 s . Opening the slats, they can be rotated beyond the horizontal position (i.e. turned backwards so that they are again partially closed). <br> Note: This time is to be determined as accurately as possible. |  |
| Position of slats after sunblind DOWN in percent (0-100) | $\begin{aligned} & 0 \ldots . .100 \\ & 50 \end{aligned}$ |
| This parameter only appears if the "Sunblind as" parameter is set to "Venetian blind". <br> After an uninterrupted movement of the Venetian blind from the upper to the lower end position or a centrally initiated travel DOWN via one of the corresponding objects, the slats are adjusted from their vertical position to the position specified in this parameter. <br> 0\% = slats completely opened (horizontal) <br> $100 \%$ = slats completely closed (vertical) <br> Note: With Venetian blinds it is a prerequisite that they move downwards with closed slats. |  |


| Parameter | Settings |
| :--- | :--- |
| Number of steps from slats <br> position vertical to horizon- <br> tal in manual mode | $0 . . .255$ |
| This parat |  |

This parameter is used to set the number of steps required to move the slats from the vertical to the horizontal position. This number is taken into account in the sun tracking control of the slats, i.e. the slats are only re-adjusted if the sun position has changed by a percentage value (angle) that corresponds to at least one step.

| $\begin{array}{l}\text { Min. change of value for ini- } \\ \text { tiation of slats positioning }\end{array}$ | $0 \ldots 45$ |
| :--- | :--- | in automatic mode ( ${ }^{\circ}$ )

This parameter is only visible if the distinction between automatic mode and manual mode was set.
This parameter is used to set by what difference (in degrees) in automatic mode a new slats position received via the "Automatic mode, slats position" object has to differ from the current one so that the new slats position is approached. The value set here is to correspond to a change of the slats position set in the weather station that leads to the sending of a new slats position.
If the value 0 as well as 1 or the value 255 are received via the "Automatic mode, slats position" object, then the corresponding end position is always approached. If this results in the smallest possible activation time of the Venetian blind drive of 50 ms , then it depends on the drive used whether this short impulse leads to a change in position or not.

| Channels A-D, automatic <br> mode $=$ ON + sunblinds <br> centrally UP/DOWN | locked; |
| :--- | :--- |
| released |  |

This parameter is visible only if the difference between automatic and manual modes was wanted and if the parameter "Object Sunblind centrally UP / DOWN per" is set to "Device". This parameter sets whether the central travel command with additional switching on of automatic mode for this channel is released (i.e. can act on it) or is blocked, so that the channel ignores the central command (e.g. if a channel is used for darkening a room).

| Object Sunshine | locked; released |
| :--- | :--- |

This parameter is only visible if the distinction between automatic mode and manual mode was desired.
This parameter is used to release the "Sunshine" object for this channel (i.e. that this object can have an effect on the channel if the channel is in automatic mode) or to lock (disable) it (i.e. that this object is not taken into account for this channel).
The corresponding communication object is only available if it is released here.

| Parameter | Settings |
| :--- | :--- |
| Behavior on sunshine $=$ On | sunblind down + execute <br> automatic-commands; <br> execute autom. commands <br> + move to stored position |

This parameter only appears if the "Object Sunshine" parameter is set to "released". It is used to set how a sunblind channel is to act when receiving a telegram for the "Sunshine" object with the object value " 1 ", as long as automatic mode has been activated for it and the object has been enabled. If automatic mode has not been activated for the affected channel, then the telegram for this channel is ignored.
"sunblind down + execute automatic-commands": The Venetian blind is moved into the lower end position, the slats may be rotated into the configured position, the execution of automatic commands is released and subsequent automatic commands are awaited. If, while moving into the lower end position, a telegram with a Venetian blind or slats position in percent is received, then this new telegram is carried out right away.
"execute autom. commands + move to stored position": The stored Venetian blind position is approached. Only the execution of automatic commands is released and subsequent automatic commands are awaited.
Behavior on sunshine $=$ Off $\quad$ sunblind up + ignore auto-matic-commands; ignore automaticcommands
This parameter only appears if the "Object Sunshine" parameter is set to "released". It is used to set how a sunblind channel is to act when receiving a telegram for the "Sunshine" object with the object value " 0 ", as long as automatic mode has been activated for it and the object has been released. If automatic mode has not been activated for the affected channel, then the telegram for this channel is ignored.
"sunblind up + ignore automatic-commands": The Venetian blind is moved into the upper end position and the execution of automatic commands is blocked, i.e. automatic commands for the affected channel are ignored and not carried out as long as "Sunshine = Off" is set. If, while moving into the upper end position, a telegram with a Venetian blind or slat position in percent is received, then this new telegram is already ignored.
"Ignore automatic commands": The Venetian blind position remains unchanged. Only the execution of automatic commands is blocked, i.e. automatic commands for the affected channel are ignored and not carried out as long as "Sunshine = Off" is set.

| Parameter | Settings |
| :---: | :---: |
| Object Status slats position in\% | No; Yes |
| This parameter only appears if the "Sunblind as" parameter has been set to "Venetian blind" and also a distinction between automatic mode and manual mode or a "Slat position in\%" object was desired in standard operation mode. <br> This parameter is used to set whether a communication object "Status slats position" is to be available for the channel (or for all channels). |  |
| Behavior on alarm | move upwards; move downwards; ignore alarm (no action) |
| This parameter is used to set how the sunblind channel is to act when receiving an alarm or when the cyclical message that there is no pending alarm is omitted. |  |
| Behavior at mains voltage recovery | move upwards; move downwards; no action |
| This parameter is used to set how the sunblind channel is to act when the mains voltage is recovered. |  |
| Behavior at bus voltage failure | move upwards; move downwards; no action |
| This parameter is used to set how the sunblind channel is to act when the bus voltage supply fails (without simultaneous mains voltage failure). |  |

## 3.6 „Channels A-D" or „Channel X" (with Roller shutter, awning)

Channel A

| Sunblind as | Roller shutter, awning |  |
| :---: | :---: | :---: |
| Factor travel time sunblind from upper to lower end position (basis 1s) | 255 |  |
| Factor travel time sunblind from lower to upper end position (basis 1s) | 255 |  |
| Prolongation of in-motion time by | 5 seconds |  |
| Factor travel time for opening the blind out of end position down (basis 0.1s) | 0 |  |
| Stepwise positioning (travel time for 1 step) | No |  |
| Channels A.D. automatic mode $=0 N+$ sunblinds centrally UP / DOWN | released | - |
| Object Sunshine | released |  |
| Behavior on sunshine $=0 n$ | execute autom. commands + |  |
| Behavior on sunshine $=0$ ff | ignore automatic-commands | - |
| Behavior on alarm | move upwards | - |
| Behavior at mains voltage recovery | no action | - |
| Behavior at bus voltage failure | no action |  |

The parameters in the parameter window shown above are visible only if the parameter "Sunblind as" is set to "Roller shutter, awning".

| Parameter | Settings |
| :--- | :--- |
| Factor travel time for open- <br> ing the blind out of end po- <br> sition down (basis 0.1s) | $0 . . .255$ |
| This parameter only appears if the "Sunblind as" parameter is <br> set to "Roller shutter, awning". <br> After an uninterrupted travel of the roller shutter from the up- <br> per into the lower end position, it can be moved up again a lit- <br> tle, so that light can get into the room through the spaces in <br> between. If the value is " 0 ", then the roller shutter is not <br> moved up again. |  |
| Stepwise positioning <br> (travel time for 1 step) | No; $0.1 \mathrm{~s} ; 0.2 \mathrm{~s} ; 0.3 \mathrm{~s} ; \ldots$... 1s |
| This parameter only appears if the "Sunblind as" parameter is <br> set to "Roller shutter, awning". <br> This parameter is used to set whether for a roller shutter, after <br> stopping a movement with a brief push of the button, any <br> subsequent brief push of the button is to be ignored ("No") or <br> whether it should move the roller shutter by one step. If Yes, <br> then it is set how long the drive is to be switched on for one <br> step. |  |

Note: All other parameters comply with the aforementioned descriptions when setting the parameter "Sunblind as" to "Venetian blind".

## 3.7 „Inputs a to ${ }^{\prime \prime}$ or "Inputs $x+y "$

The number and type of the parameters shown in these parameter windows are both determined by the "Function of inputs" parameter (i.e. whether two inputs are adjustable separately or adjustable jointly for a 2-button function) as well as especially by the parameter "Function input x " or "Function inputs $\mathrm{x}+\mathrm{y}$ ".

| Parameter | Settings |
| :--- | :--- |
| Function of inputs | separately adjustable; <br> jointly adjustable <br> (dimming, sunblind) |

This parameter is used to set whether a joint 2-button function should be allocated to an input pair (dimming or solar protection) or whether it should be possible for each of the two inputs to be configured separately.

| Parameter | Settings |
| :--- | :--- |
| Function of input a (b, c, d, e, f, g, | Switching, edge- |
| h) | triggered; |
| (or Function of inputs a, c, e, g) | Switching, short/long |
|  | operation; |
|  | Send switching status, |
|  | binary value; |
|  | 1 button switching |
|  | sequence control; |
|  | 1 button dimming; |
|  | 1 button sunblind |
|  | control; |
|  | 8 bit value, edge- |
|  | triggered; |
|  | 8 bit value, short/long |
|  | operation; |
|  | 16 bit value, edge- |
|  | triggered; |
|  | 16 bit value, short/long |
|  | operation; |
|  | 16 bit floating point |
|  | value, edge-triggered; |
|  | 16 bit floating point |
|  | value, short/long opera- |
|  | tion; |
|  | 1 bit scene control; |
|  | 8 bit scene control |

This parameter is used to allocate the desired function to an input. Depending on the selected function, the following parameters that are shown will change.

| Function of inputs $a+b(c+d, e+f$, <br> $g+h)$ | $\mathbf{2}$ buttons dimming <br> with stop telegram; <br> (2 buttons dimming with |
| :--- | :--- |
|  | cyclic transmission); |
|  | 2 buttons sunblind con- |
|  | trol |

This parameter is only visible if a common 2-button function is to be assigned to an input pair, i.e. if the parameter "Function of inputs" is set to "jointly adjustable (dimming, sunblind)". The subsequently shown parameters depend on the selected function (dimming or sunblind).

| Insert blocking object | No; Yes |
| :--- | :--- |

This parameter sets for the chosen function whether the input or two functionally associated inputs are to be blocked by an additional blocking object or not. If an input or two functionally associated inputs are blocked (blocking object =1), then status changes at this input or these inputs during the blocking are not analyzed. If, after the blocking has ended, there is a signal level at the input differing from that at the start of the blocking, then this status change is analyzed and transferred if necessary.

### 3.7.1 Switching, edge-triggered

For inputs to which a switch or a pushbutton is connected, this function serves to send a switching telegram (ON, OFF or TOGGLE) as a reaction to a rising and/or falling signal edge on this input (i.e. when pushing and/or releasing the pushbutton or closing and/or opening the switch, a telegram is sent).

| Inputs a + b |  |  |
| :---: | :---: | :---: |
| Function of inputs | separately adiustable | $\checkmark$ |
| Function of input a | Switching, edge-triggered | $\checkmark$ |
| Reaction on rising edge | Toggle | $\checkmark$ |
| Reaction on falling edge | no reaction | $\checkmark$ |
| Insert blocking object | No | $\checkmark$ |


| Parameter | Settings |
| :--- | :--- |
| Reaction on leading edge | no reaction; <br> On; Off; Toggle |
| This parameter is used to set which switching value should be |  |

This parameter is used to set which switching value should be sent after a leading edge of the input signal. The leading edge corresponds to a change of the signal state on the input from logical " 0 " to " 1 ".
"no reaction": An edge change on the input does not result in a telegram being sent.
" On ": In case of a leading edge, an " $O N$ " is sent.
"Off": In case of a leading edge, an "OFF" is sent.
"Toggle": In case of a leading edge, the last switching value sent/received is inverted and the new value is sent.

| Reaction on trailing edge | no reaction; <br> On; Off; Toggle |
| :--- | :--- |

This parameter is used to set which switching value should be sent after a trailing edge of the input signal. The trailing edge corresponds to a change of the signal state on the input from logical " 1 " to " 0 ".
"no reaction": An edge change on the input does not result in a telegram being sent.
"On": In case of a trailing edge, an "ON" is sent.
"Off": In case of a trailing edge, an "OFF" is sent.
"Toggle": In case of a trailing edge, the last switching value sent/received is inverted and the new value is sent.

### 3.7.2 Switching, short/long operation

For inputs to which a pushbutton is connected, this function serves to send a switching telegram (ON, OFF or TOGGLE) as a reaction to a short or long pressing of the button.

Inputs a + b

| Function of inputs | separately adiustable | $\checkmark$ |
| :---: | :---: | :---: |
| Function of input a | Switching, short / long operation | $\checkmark$ |
| Reaction on short operation | Toggle | $\checkmark$ |
| Reaction on long operation | no reaction | $\checkmark$ |
| Long pushbutton action min. | 0.5 seconds | $\checkmark$ |
| Insert blocking object | No | $\checkmark$ |


| Parameter | Settings |
| :--- | :--- |
| Reaction on short operation | no reaction; <br> On; Off; Toggle |

This parameter is used to set which switching value should be sent after a short pressing of the button connected to the input.
"no reaction": A short pressing of the button does not result in a telegram being sent.
"On": After a short pressing of the button, an "ON" is sent.
"Off": After a short pressing of the button, an "OFF" is sent.
"Toggle": After a short pressing of the button, the last switching value sent/received is inverted and the new value is sent.

| Reaction on long operation | no reaction; <br> On; Off; Toggle |
| :--- | :--- |

This parameter is used to set which switching value should be sent after a long pressing of the button connected to the input. From which point on a button push is to be interpreted as "long" can be adjusted in the subsequent "Long pushbutton action min" parameter.
"no reaction": A long pressing of the button does not result in a telegram being sent.
"On": After a long pressing of the button, an "ON" is sent.
"Off": After a long pressing of the button, an "OFF" is sent.
"Toggle": After a long pressing of the button, the last switching value sent/received is inverted and the new value is sent.

| Parameter | Settings |
| :--- | :--- |
| Long pushbutton action min. | 0.3 seconds |
|  | 0.4 seconds |
|  | 0.5 seconds |
|  | 0.6 seconds |
|  | 0.8 seconds |
|  | 1.0 seconds |
|  | 1.2 seconds |
|  | 1.5 seconds |
|  | 2.0 seconds |
|  | 2.5 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |
| This parameter is used to set the duration from which a button |  |
| counts as being pressed long. |  |

### 3.7.3 Send switching status, binary value

This function serves, for example, to query and transmit the switching status of a contact or the voltage level present at this input. Parameters can be used to adjust which binary value is to be sent after a status change, whether the switching status/binary value is to be sent cyclically in addition and whether the current switching status/binary value is also to be sent automatically after the recovery of bus/mains voltage.

| Inputs a + b |  |  |
| :---: | :---: | :---: |
| Function of inputs | separately adjustable | : |
| Function of input a | Send switching status, binary value |  |
| Reaction on rising edge | 0 n | - |
| Reaction on falling edge | Off |  |
| Send cyclically if | ON- and OFF-level at input |  |
| Cycle time in minutes (1-255) | 1 | - |
| Send current binary value after mains/ bus voltage recovery | Yes | - |
| Insert blocking object | No |  |


| Parameter | Settings |
| :--- | :--- |
| Reaction on leading edge | no reaction; <br> On; Off |

This parameter is used to set which switching value should be sent after a leading edge of the input signal. The leading edge corresponds to a change of the signal state on the input from logical " 0 " to " 1 ".
"no reaction": An edge change on the input does not result in a telegram being sent.
"On": In case of a leading edge, the switching value "ON" is sent.
"Off": In case of a leading edge, the switching value "OFF" is sent.

| Reaction on trailing edge | no reaction; <br> On; Off |
| :--- | :--- |

This parameter is used to set which switching value should be sent after a trailing edge of the input signal. The trailing edge corresponds to a change of the signal state on the input from logical " 1 " to " 0 ".
"no reaction": An edge change on the input does not result in a telegram being sent.
"On": In case of a trailing edge, the switching value "ON" is sent.
"Off": In case of a trailing edge, the switching value "OFF" is sent.

| Send cyclically if | ON-level at input; <br> OFF-level at input; <br> ON- and OFF-level at <br> input |
| :--- | :--- |

This parameter is used to set whether the communication object belonging to the input should be sent cyclically in addition to the spontaneous sending of a condition change: as long as an ON-level $\left(V_{\text {in }}>9 \mathrm{~V}=\log .1\right)$ is present at the input, as long as an OFF-level ( $\mathrm{V}_{\text {in }}<2 \mathrm{~V}=\log$. 0 ) is present at the input or whether it should always be sent cyclically.

| Cycle time in minutes (1-255) | $1 \ldots 255$ |
| :--- | :--- |

This parameter is used to set the desired cycle time in minutes.

| Send current binary value after | No; |
| :--- | :--- |
| mains/bus voltage recovery | Yes |

This parameter sets whether the current status (logical 0 or logical 1) of the signal level at the input is to be sent after mains and bus voltage recovery (logical 0 for $\mathrm{V}_{\text {in }}<2 \mathrm{~V}$; logical 1 for $\mathrm{V}_{\text {in }}$ $>9 \mathrm{~V}$ ).

### 3.7.4 1 button switching-sequence control

The "1-button switching-sequence control" function makes it possible, for example, to use a single button to switch the lamps of a luminaire with two or three lamp groups on and off again in groups by multiple pushes of the button. The number of switchable groups is set via a parameter. The switching sequence is fixed and cannot be changed by the user. If the same groups are controlled by several buttons with switching-sequence control, then this takes place by each button independently of the other buttons, i.e. every button only remembers which switching command combination it sent last, and when pushed again it sends the next switching command combination that follows for that button.

Inputs a + b

| Function of inputs | separately adiustable |
| :--- | :--- |
| Function of input a | 1 button switching sequence control |
| Number of switching-sequence groups | $\boxed{3}$ |
| Insert blocking obiect | No |


| Parameter | Settings |
| :--- | :--- |
| Number of switching-sequence <br> groups | 3,2 |
| The number of switchable groups is set via this parameter. |  |

The number of switchable groups is set via this parameter.
"2": 2 groups are controlled via 2 switching command telegrams per button push, generating the following switching sequence ( $0=$ group switched off, $1=$ group switched on):
00-01-11-10-00
"3": 3 groups are controlled via 3 switching command telegrams per button push, generating the following switching sequence ( $0=$ group switched off, $1=$ group switched on):
000-001-010-011-111-110-101-100-000
After mains voltage recovery, the procedure always starts with the switching telegrams Off/On for group B/A or Off/Off/On for group C/B/A.

### 3.7.5 1 button dimming

This function makes it possible, to switch On/Off as well as dim brighter/darker a luminaire/group of luminaires with only one button. A differentiation is made here between a short push of the button and a long push of the button.

- Switching TOGGLE (short press of the button)

In case of a short push of the button, the value that is in the switching object (Input $x$, switching) is inverted and the ON- or OFF-telegram is sent when the button is released (=falling edge). If the input object "Status dimming
value" is linked with the corresponding status object of the controlled dimming actuator, then whether the actuator is to be switched on or off is derived from the last received dimming value status.

- Dimming brighter/darker (long push of the button) In case of a long push of the button (the duration can be set via the "Long push button action min." parameter), the lamp is dimmed brighter or darker depending on the object value and the dimming direction that was controlled last. If the dimming actuator was switched off, then a long push of the button results in the light being switched on and dimmed brighter. If the actuator was previously switched on with a short push of the button, then it is dimmed darker by the first long push of the button. If the dimming actuator is set to a dimming value of 1 to $99 \%$, the last dimming direction used is inverted and the light dimmed in the new direction. In case of a long push of the button, the command " $100 \%$ dimming" is sent via the dimming object and when the button is released (=trailing edge), the command "Stop" is sent.


| Parameter | Settings |
| :--- | :--- |
| Long pushbutton action min. | 0.3 seconds |
|  | 0.4 seconds |
|  | 0.5 seconds |
|  | 0.6 seconds |
|  | 0.8 seconds |
|  | 1.0 seconds |
|  | 1.2 seconds |
|  | 1.5 seconds |
|  | 2.0 seconds |
|  | 2.5 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |

This parameter is used to set the duration from which a button counts as being pressed long.

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### 3.7.6 1 button sunblind control

| Inputs $\mathbf{a}+\mathbf{b}$ |  |
| :--- | :--- |
| Function of inputs | $\sqrt{\text { separately adiustable }}$ |
| Function of input a | $\boxed{1 \text { button sunblind control }}$ |
| Long pushbutton action min. | $\boxed{0.5 \text { seconds }}$ |
| Insert blocking object | No |
|  |  |

This function makes it possible to move the sunblind up and down with only one button, to stop the movement and to open and close slats. A differentiation is made here between a short push of the button and a long push of the button.

- Sunblind Up/Down (long button push)

In case of a long push of the button (the duration can be set via the "Long pushbutton action min." parameter), depending of the last direction stored in the "Sunblind Up/Down" object, this is inverted and the sunblind moved up or down until the respective limit position is reached and the actuator is switched off via the limit switch.
If a stop command is received before a limit position is reached and the limit switch responds, then the movement is ended immediately, the attained position is maintained and the last movement direction stored.

- Stop or slats Open/Close (short button push)

In case of a short push of the button, a telegram is sent that leads to the actuator being stopped if the sunblind is moving and that leads to short movement opposite the previous movement direction (which is stored in the movement object) in case of a resting sunblind. In case of a closed blind, this would lead, for example, to the opening of the slats by one step. The STOP- or OPEN- or CLOSE slats telegram is only generated when the button is released (=trailing edge). With every additional short push of the button an additional "Open/Close slats" telegram is sent, in which the movement direction is not changed. The software of the sunblind actuator determines whether and how several successive "Open/Close slats" telegrams can be interpreted and carried out.

| Parameter | Settings |
| :--- | :--- |
| Long pushbutton action min. | 0.3 seconds |
|  | 0.4 seconds |
|  | 0.5 seconds |
|  | 0.6 seconds |
|  | 0.8 seconds |
|  | 1.0 seconds |
|  | 1.2 seconds |
|  | 1.5 seconds |
|  | 2.0 seconds |
|  | 2.5 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |
|  |  |
| This parameter is used to set the duration from which a button |  |
| counts as being pressed long. |  |

### 3.7.7 8 bit value, edge-triggered

This function serves to send 8 -bit integer values in the range of $0 . . .255$. It can be adjusted whether a value telegram is sent either as a reaction to a rising and/or falling signal edge on the output (e.g. when pushing and/or releasing a button). With this function it is possible, for example, to allocate a dimming value to a button to dim the connected lights to the configured value with the push of a button, or one can assign different values to several buttons to make it possible to control, for example, the rotational speed of a fan with these buttons.

| Inputs a + |  |  |
| :---: | :---: | :---: |
| Function of inputs | separately adiustable | - |
| Function of input a | 8 bit value edge-triggered | - |
| Send value on rising edge | Yes | - |
| Value on rising edge | 0 |  |
| Send value on falling edge | Yes | - |
| Value on falling edge | 0 | - |
| Insert blocking object | No | - |


| Parameter | Settings |
| :--- | :--- |
| Send value on leading edge | No <br> Yes |

This parameter is used to set whether the configured 8-bit value is to be written into the memory cell of the communication object and to be sent or not after a leading edge of the signal state at the input. The leading edge corresponds to a change of the signal state on the input from logical " 0 " to " 1 ".

| Value on leading edge | $\mathbf{0}(0 . .255)$ |
| :--- | :--- |

This parameter is used to set which value (0...255) is to be written into the memory cell of the communication object and to be sent after a leading edge of the signal state at the input. The leading edge corresponds to a change of the signal state on the input from logical " 0 " to " 1 ".

| Send value on trailing edge | No |
| :--- | :--- |

This parameter is used to set whether the configured 8-bit value is to be written into the memory cell of the communication object and to be sent or not after a trailing edge of the signal state at the input. The trailing edge corresponds to a change of the signal state on the input from logical " 1 " to " 0 ".

| Value on trailing edge | $0(0 . .255)$ |
| :--- | :--- |

This parameter is used to set which value (0...255) is to be written into the memory cell of the communication object and to be sent after a trailing edge of the signal state at the input. The trailing edge corresponds to a change of the signal state on the input from logical " 1 " to " 0 ".

### 3.7.8 8 bit value, short/long operation

This function serves to send 8 -bit integer values in the range of $0 . . .255$. It can be adjusted whether a value telegram is sent either as a reaction to a short and/or long push of a button.

Inputs a + b

| Function of inputs | $\sqrt{\text { separately adjustable }}$ |
| :--- | :--- |
| Function of input a | $\boxed{8 \text { bit value short / long operation }}$ |
| Send value on short operation | $\sqrt{\text { Yes }}$ |
| Value on short operation | $\boxed{0}$ |
| Send value on long operation | $\sqrt{\text { Yes }}$ |
| Value on long operation | $\sqrt{0}$ |
| Long pushbutton action min. | $\sqrt{0.5 \text { seconds }}$ |
| Insert blocking object | $\sqrt{N o}$ |


| Parameter | Settings |
| :--- | :--- |
| Send value on short <br> operation | No <br> Yes |

This parameter is used to set whether the configured 8-bit value is to be written into the memory cell of the communication object and to be sent or not after a short push of the button connected to the input.

| Value on short operation | $0(0 . .255)$ |
| :--- | :--- |

This parameter is used to set which value ( $0 . . .255$ ) is to be written into the memory cell of the communication object and to be sent after a short push of the button connected to the input.

| Send value on long <br> operation | No <br> Yes |
| :--- | :--- |

This parameter is used to set whether the configured 8-bit value is to be written into the memory cell of the communication object and to be sent or not after a long push of the button connected to the input.

| Value on long operation | $0(0 \ldots . .255)$ |
| :--- | :--- |

This parameter is used to set which value ( $0 . . .255$ ) is to be written into the memory cell of the communication object and to be sent after a long push of the button connected to the input.

| Long pushbutton action min. | 0.3 seconds |
| :--- | :--- |
|  | 0.4 seconds |
|  | 0.5 seconds |
|  | 0.6 seconds |
|  | 0.8 seconds |
|  | 1.0 seconds |
|  | 1.2 seconds |
|  | 1.5 seconds |
|  | 2.0 seconds |
|  | 2.5 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |

This parameter is used to set the duration from which a button counts as being pressed long.

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### 3.7.9 16 bit value, edge-triggered

This function serves to send 16 -bit integer values in the range of $0 . . .65535$. It can be adjusted whether a value telegram is sent either as a reaction to a rising and/or falling signal edge on the output (e.g. when pushing and/or releasing a button).

| Inputs $\mathbf{a}+\mathbf{b}$ |  |
| :--- | :--- |
| Function of inputs | $\sqrt{\text { separately adiustable }}$ |
| Function of input a | $\boxed{16 \text { bit value edge-triggered }}$ |
| Send value on rising edge | $\boxed{Y e s}$ |
| Value on rising edge | $\boxed{0}$ |
| Send value on falling edge | $\sqrt{\text { Yes }}$ |
| Value on falling edge | $\sqrt{0}$ |
| Insert blocking object | $\sqrt{N o}$ |


| Parameter | Settings |
| :--- | :--- |
| Send value on leading edge | No <br> Yes |
| This parameter is used to set whether the configured 16-bit <br> value is to be written into the memory cell of the communica- <br> tion object and to be sent or not after a leading edge of the sig- <br> nal state at the input. The leading edge corresponds to a change <br> of the signal state on the input from logical " 0 " to " " 1 ". |  |
| Value on leading edge | 0 ( $0 . . .65535$ ) |
| This parameter is used to set which value (0...65535) is to be <br> written into the memory cell of the communication object and <br> to be sent after a leading edge of the signal state at the input. <br> The leading edge corresponds to a change of the signal state on <br> the input from logical " 0 " to " 1 ". |  |
| Send value on trailing edge | No <br> Yes |
| This parameter is used to set whether the configured 16 -bit <br> value is to be written into the memory cell of the communica- <br> tion object and to be sent or not after a trailing edge of the sig- <br> nal state at the input. The trailing edge corresponds to a change <br> of the signal state on the input from logical " 1 " to " 0 ". |  |
| Value on trailing edge | 0 (0...65535) |
| This parameter is used to set which value (0...65535) is to be <br> written into the memory cell of the communication object and <br> to be sent after a trailing edge of the signal state at the input. <br> The trailing edge corresponds to a change of the signal state on <br> the input from logical " 1 " to " 0 ". |  |

### 3.7.10 16 bit value, short/long operation

This function serves to send 16 -bit integer values in the range of $0 . . .65535$. It can be adjusted whether a value telegram is sent either as a reaction to a short and/or long push of a button.

| Inputs $\mathbf{a}+\mathbf{b}$ |  |
| :--- | :--- |
| Function of inputs | $\sqrt{\text { separately adjustable }}$ |
| Function of input a | $\boxed{16 \text { bit value short / long operation }}$ |
| Send value on short operation | $\sqrt[Y e s]{-}$ |
| Value on short operation | $\sqrt{0}$ |
| Send value on long operation | $\sqrt{\text { Yes }}$ |
| Value on long operation | $\sqrt{0}$ |
| Long pushbutton action min. | $\sqrt{0.5 \text { seconds }}$ |
| Insert blocking object | $\sqrt{\text { No }}$ |


| Parameter | Settings |
| :--- | :--- |
| Send value on short <br> operation | No <br> Yes |

This parameter is used to set whether the configured 16-bit value is to be written into the memory cell of the communication object and to be sent or not after a short push of the button connected to the input.

| Value on short operation | $\mathbf{0}(0 . .65535)$ |
| :--- | :--- |

This parameter is used to set which value ( $0 . . .65535$ ) is to be written into the memory cell of the communication object and to be sent after a short push of the button connected to the input.

| Send value on long <br> operation | No <br> Yes |
| :--- | :--- |

This parameter is used to set whether the configured 16-bit value is to be written into the memory cell of the communication object and to be sent or not after a long push of the button connected to the input.

| Value on long operation | $0(0 . .65535)$ |
| :--- | :--- |

This parameter is used to set which value (0...65535) is to be written into the memory cell of the communication object and to be sent after a long push of the button connected to the input.

| Parameter | Settings |
| :--- | :--- |
| Long pushbutton action min. | 0.3 seconds |
|  | 0.4 seconds |
|  | 0.5 seconds |
|  | 0.6 seconds |
|  | 0.8 seconds |
|  | 1.0 seconds |
|  | 1.2 seconds |
|  | 1.5 seconds |
|  | 2.0 seconds |
|  | 2.5 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |

This parameter is used to set the duration from which a button counts as being pressed long.

### 3.7.11 16 bit floating point value, edge-triggered

This function serves to send 16 -bit floating point values (floating point value as EIS 5) in the range of -3276.8 to +3276.7 (with one decimal place). The exponent of the 16 -bit floating point value is set automatically during this. It can be adjusted whether a value telegram is sent either as a reaction to a rising and/or falling signal edge on the output (e.g. when pushing and/or releasing a button).
With this function it is possible, for example, to toggle between a daytime and a night-time setpoint value for the room temperature control using a switch.

| Inputs a + |  |  |
| :---: | :---: | :---: |
| Function of inputs | separately adiustable | $\because$ |
| Function of input a | 16 bit floating point value edge-triggered |  |
| Send value on rising edge | Yes | - |
| Value on rising edge ( $\times 0.1$ ) | 0 |  |
| Send value on falling edge | Yes |  |
| Value on falling edge ( $\times 0.1$ ) | 0 | , |
| Insert blocking object | No |  |


| Parameter | Settings |
| :--- | :--- |
| Send value on leading edge | No <br> Yes |

This parameter is used to set whether the configured 16-bit floating point value is to be written into the memory cell of the communication object and to be sent or not after a leading edge of the signal state at the input. The leading edge corresponds to a change of the signal state on the input from logical " 0 " to " 1 ".

| Parameter | Settings |
| :--- | :--- |
| Value on leading edge ( x 0.1) | $0(-32768 \ldots+32767)$ |

This parameter is used to set which floating point value is to be written into the memory cell of the communication object and to be sent after a leading edge of the signal state at the input. The floating point value to be sent is to be entered (possibly with prefix) as ten times the desired floating point value (i.e. including the decimal place but without comma or point). The leading edge corresponds to a change of the signal state on the input from logical "0" to " 1 ".

\section*{| Send value on trailing edge | No; Yes |
| :--- | :--- |}

This parameter is used to set whether the configured 16-bit floating point value is to be written into the memory cell of the communication object and to be sent or not after a trailing edge of the signal state at the input. The trailing edge corresponds to a change of the signal state on the input from logical " 1 " to " 0 ".

| Value on trailing edge $(x 0.1)$ | $0(-32768 \ldots+32767)$ |
| :--- | :--- |

This parameter is used to set which floating point value is to be written into the memory cell of the communication object and to be sent after a trailing edge of the signal state at the input. The floating point value to be sent is to be entered (possibly with prefix) as ten times the desired floating point value (i.e. including the decimal place but without comma or point). The trailing edge corresponds to a change of the signal state on the input from logical " 1 " to " 0 ".

### 3.7.12 16 bit floating point value, short/long operation

This function serves to send 16 -bit floating point values (floating point value as EIS 5) in the range of -3276.8 to +3276.7 (with one decimal place). The exponent of the 16 -bit floating point value is set automatically during this. It can be adjusted whether a value telegram is sent either as a reaction to a short and/or long push of a button.

Inputs a + b

| Function of inputs | $\sqrt{\text { separately adjustable }}$ |
| :--- | :--- |
| Function of input a | $\sqrt{16 \text { bit floating point value short / long operatiol }}$ |
| Send value on short operation | $\sqrt{\text { Yes }}$ |
| Value on short operation $(\times 0.1)$ | $\sqrt{0}$ |
| Send value on long operation | $\boxed{Y e s}$ |
| Value on long operation $(\times 0.1)$ | $\sqrt{0}$ |
| Long pushbutton action min. | $\sqrt{0.5 \text { seconds }}$ |
| Insert blocking object | $\sqrt{\text { No }}$ |

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| Parameter | Settings |
| :---: | :---: |
| Send value on short operation | $\begin{array}{\|l\|} \hline \text { No } \\ \text { Yes } \end{array}$ |
| This parameter is used to set whether the configured 16-bit floating point value is to be written into the memory cell of the communication object and to be sent or not after a short push of the button connected to the input. |  |
| Value on short operation ( x 0.1) | 0 (-32768...+32767) |
| This parameter is used to set which floating point value is to be written into the memory cell of the communication object and to be sent after a short push of the button connected to the input. The floating point value to be sent is to be entered (possibly with prefix) as ten times the desired floating point value (i.e. including the decimal place but without comma or point). |  |
| Send value on long operation | No Yes |
| This parameter is used to set whether the configured 16-bit floating point value is to be written into the memory cell of the communication object and to be sent or not after a long push of the button connected to the input. |  |
| Value on long operation $(x 0.1)$ | 0 (-32768...+32767) |
| This parameter is used to set which floating point value is to be written into the memory cell of the communication object and to be sent after a long push of the button connected to the input. The floating point value to be sent is to be entered (possibly with prefix) as ten times the desired floating point value (i.e. including the decimal place but without comma or point). |  |
| Long pushbutton action min. | 0.3 seconds 0.4 seconds 0.5 seconds 0.6 seconds 0.8 seconds <br> 1.0 seconds <br> 1.2 seconds <br> 1.5 seconds <br> 2.0 seconds <br> 2.5 seconds <br> 3.0 seconds <br> 4.0 seconds <br> 5.0 seconds <br> 6.0 seconds <br> 7.0 seconds |
| This parameter is used to set the duration from which a button counts as being pressed long. |  |

### 3.7.13 1 bit scene control

The " 1 bit scene control" function makes it possible for the user him- or herself to reprogram a scene controller to the 1 bit scene control without using the ETS (Engineering Tool Software), i.e. other brightness values or switching states are allocated to the individual groups of the respective scene. A scene can be restored (recalled) with a short push of the button and stored (programmed) with a long push of the button, with one communication object serving to store a scene and a second to restore a scene. A parameter setting determines whether a telegram with the value " 0 " stores or restores scene 1 and a telegram with the value " 1 " stores or restores scene 2.
Before storing a scene, the affected actuators have to be set for the desired brightness values or switching states via the buttons/sensors provided for the purpose. The reception of a "store" telegram results in the addressed scene controllers being requested to query the current values and status information on the actuators integrated in the scene and to store them in the corresponding scene.
So as not to accidentally trigger a scene being stored with the touch of a button that is only marginally longer than a short touch of a button, storing a scene should only be initiated with an "extra long" push of a button.

| Inputs a + b |  |  |
| :---: | :---: | :---: |
| Function of inputs | separately adiustable | $\checkmark$ |
| Function of input a | 1 bit scene control | $\checkmark$ |
| Scene number | 1 | $\checkmark$ |
| Long pushbutton action min. | 3.0 seconds | $\checkmark$ |
| Insert blocking object | No | $\checkmark$ |


| Parameter | Settings |
| :--- | :--- |
| Scene number | 1 |
|  | 2 |

This parameter specifies which scene should be stored or restored.
" 1 ": a short push of the button sends a telegram with the value " 0 ", so that scene 1 is restored by the addressed scene controllers. A long push of the button results in the addressed scene controllers being requested to query the currently set values and conditions on the actuators integrated in the scene and to store them under the scene with the number 1 .
" 2 ": With this setting, scene 2 is stored and restored.

| Parameter | Settings |
| :--- | :--- |
| Long pushbutton action min. | 1.0 seconds |
|  | 2.0 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |

This parameter is used for scene control to set the duration from which a button counts as being pressed long to initiate the storing of a scene via this long push of a button.

### 3.7.14 8 bit scene control

The "8 bit scene control" function makes it possible for the user to restore (recall) 8 bit scenes and to store (program) a scene controller with 8 bit scene control or actuators with integrated 8 bit scene control without using the ETS, i.e. current values or switching states are allocated to the respective scene.
The scene with the set number (1...64) can be restored with a short push of the button and stored with a long push of the button, with a single communication object transmitting as well the number of the desired scene as the command to store a scene as the command to restore a scene.
Before storing a scene, the affected actuators have to be set to the desired brightness values or switching states with the buttons/sensors provided for the purpose. The reception of a telegram to store a scene results in the addressed scene controllers or actuators with an integrated scene control function being requested to query the current values and status information on the actuators integrated in the scene and to store them in the corresponding scene.
A parameter setting determines whether the button should only serve to restore a scene (telegrams to store a scene are not sent) or whether one can also initiate the storing of a scene with the button. So as not to accidentally trigger a scene being stored with the touch of a button that is only marginally longer than a short touch of a button, storing a scene should only be initiated with an "extra long" push of a button.


| Parameter | Settings |
| :--- | :--- |
| Scene number (1...64) | 1 |

This parameter specifies which scene (1...64) should be stored or restored.

| Programming of scenes possible | No <br> Yes |
| :--- | :--- |
| This pent |  |

This parameter is used to set whether telegrams are only sent to restore a scene or whether telegrams are also sent to store a scene.

| Long pushbutton action min. | 1.0 seconds |
| :--- | :--- |
|  | 2.0 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |

This parameter is used for scene control to set the duration from which a button counts as being pressed long to initiate the storing of a scene via this long push of a button.

### 3.7.15 2 buttons dimming with stop telegram

With the pair of buttons connected to the two inputs, a short push of the button can switch the light on/off and a long push of the button can dim the light brighter or darker. It is possible to adjust with which button (or via which input) the light is to be switched off and dimmed darker or switched on and dimmed brighter.
With "2 buttons dimming with stop telegram", as soon as a long push of a button is detected, a " $100 \%$ brighter" or " $100 \%$ darker" dimming telegram is sent, and as soon as the button is released, a stop-telegram is sent.

| Inputs $\mathbf{a + b}$ |  |
| :--- | :--- |
| Function of inputs | $\boxed{\text { ointly adjustable [dimming, solar protection) }}$ |
| Function of inputs a+b | 2 buttons dimming with stop telegram |
| Function per input | Off, darker/On, brighter |
| Long pushbutton action min. | 0.5 seconds |
| Insert blocking object | No |
|  |  |

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| Parameter | Settings |
| :---: | :---: |
| Function per input | Off, darker/On, brighter; On, brighter/Off, darker; Toggle, darker/Toggle, brighter; <br> Toggle, brighter/Toggle, darker |
| This parameter is used to set which bus telegram is sent for a short or long push of the respective button. |  |
| Long pushbutton action min. | 0.3 seconds 0.4 seconds 0.5 seconds 0.6 seconds 0.8 seconds 1.0 seconds 1.2 seconds 1.5 seconds 2.0 seconds 2.5 seconds 3.0 seconds 4.0 seconds 5.0 seconds 6.0 seconds 7.0 seconds |
| This parameter is used to set the duration from which a button counts as being pressed long. |  |
| Insert blocking object | No; Yes |
| This parameter is used to set whether the two functionally related inputs are to be jointly blocked/released via an additional blocking object or not. If both inputs are blocked (blocking object $=1$ ), then condition changes on these inputs are no longer evaluated and transmitted. |  |



| Parameter | Settings |
| :--- | :--- |
| Function per input | Off, darker/On, brighter; <br> On, brighter/fff, darker; <br>  <br> Togle, darker/Toggle, <br>  <br>  <br> brighter; <br> Toggle, brighter/Toggle, <br> darker |

This parameter is used to set which bus telegram is sent for a short or long push of the respective button.

| Long pushbutton action min. | 0.3 seconds |
| :--- | :--- |
|  | 0.4 seconds |
|  | 0.5 seconds |
|  | 0.6 seconds |
|  | 0.8 seconds |
|  | 1.0 seconds |
|  | 1.2 seconds |
|  | 1.5 seconds |
|  | 2.0 seconds |
|  | 2.5 seconds |
|  | 3.0 seconds |
|  | 4.0 seconds |
|  | 5.0 seconds |
|  | 6.0 seconds |
|  | 7.0 seconds |

This parameter is used to set the duration from which a button counts as being pressed long.

| Insert blocking object | No; Yes |
| :--- | :--- |

This parameter is used to set whether the two functionally related inputs are to be jointly blocked/released via an additional blocking object or not. If both inputs are blocked (blocking object $=1$ ), then condition changes on these inputs are no longer evaluated and transmitted.

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### 3.7.17 2 buttons sunblind control

With a pair of buttons it is possible, with a long push, to move the sunblind up or down to the respective limit position as well as to stop the movement or move the slats by one step with a short push of a button. It is possible to adjust with which button (or via which input) the sunblind is moved down and the slats may be closed by one step or the sunblind is moved up and the slats may be opened by one step.


| Parameter | Settings |
| :---: | :---: |
| Function per input | Blind down, close slats/blind up, open slats; <br> Blind up, open slats/ blind down, close slats |
| This parameter is used to set which bus telegram is sent on a short or long push of the respective button. |  |
| Long pushbutton action min. | 0.3 seconds 0.4 seconds 0.5 seconds 0.6 seconds 0.8 seconds 1.0 seconds 1.2 seconds 1.5 seconds 2.0 seconds 2.5 seconds 3.0 seconds 4.0 seconds 5.0 seconds 6.0 seconds 7.0 seconds |

This parameter is used to set the duration from which a button counts as being pressed long.

| Insert blocking object | No; Yes |
| :--- | :--- |

This parameter is used to set whether the two functionally related inputs are to be jointly blocked/released via an additional blocking object or not. If both inputs are blocked (blocking object $=1$ ), then condition changes on these inputs are no longer evaluated and transmitted.

## Space for notes

