07 B0 A2 Shutter actuator 982B01

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Use of the application program

Product family:	Room controller
Product type:	Blind
Manufacturer:	Siemens
Name:	Shutter Blind Actuator RL521/23
Description:	Shutter Blind Actuator, 2 x 6 A, AC 230 V (Relay)
Order no.:	5WG1521-4AB23
Name:	Solar Protection Actuator JB 521C23
Description:	Solar Protection Actuator, 2 x 6 A, AC 120 V (Relay)
Order no.:	5WG1521-4CB23

1. Functional description

The application program " 07 B0 A2 Shutter actuator 982B01" can be used for the KNX devices listed in section "Use of the application program". These devices are briefly described in the next section.

The RL 521/23 shutter / blind actuator is a KNX device with two relay output channels. The device is installed in an AP 118 Control Module Box, AP 641 room control box or an M 590 DIN rail housing. The bus is connected via a bus terminal block. The actuator electronics are supplied via the bus voltage.

The JB 521C23 solar protection actuator is a KNX device with two relay output channels. The device is installed in a UL/NEMA junction box with minimum 4 inch length, 4 inch width and 2 inch depth. The bus is connected via a bus terminal block. The device electronics are supplied via the bus voltage.

These devices share the following features.

The device may be used to control blinds, shutters, awnings, windows, or doors.
The device is designed to drive (per channel) one drive (motor) with electromechanical limit switches or with integrated electronics for disconnection at the limit positions.
For drives with electromechanical limit switches the actuator can be configured to detect the status of the electromechanical limit switches such that the travel time between the end positions can be measured via a synchronization run. The travel time of the blind /

shutter is automatically measured from the upper end position to the lower end position and vice versa. The measurement is only reliable for drives with electromechanical limit switches.
The travel time cannot be automatically adjusted for drives with integrated electronics for disconnection at the limit positions. These drives have to be controlled via a time limit. Their travel times have to be manually measured as precisely as possible and configured in the application program.
Parallel operation of several drives on one channel requires the intermediate switching of a special separation relay. If such a separation relay is connected to the output to drive several drives in parallel, then the travel time has to be configured manually.
If the device is configured for automatic detection of the travel time, then parallel operation of several drives with electromechanical limit switches or mixed operation with drives with integrated electronics for disconnection at the limit positions is not permitted.

Detection of final positions, Automatic detection of travel times
The device can detect if the blind / shutter is in the upper or lower end position. This detection depends on the solar protection drive (motor) itself and on the wiring and specifically cannot be guaranteed for drives with integrated electronics for disconnection at the limit positions. Hence, the detection can be disabled by a parameter. If automatic detection of end positions is enabled, the travel time is set to the maximum value after a download of the configuration. If the end positions were detected successfully and the solar protection moved without interruption from the lower position to the upper position, then the parameter value for the travel time is updated and saved. The same applies to the travel time from the upper to the lower end position.
When the end position is detected, then the parameter value for the travel time extension is set to 10 % of the travel time. In principal, the travel time, i.e. the time the relay contacts are closed, is determined based on the configured value or the parameter value updated based on the travel times measured between end positions

After a download of the application program respectively of addresses and parameters the solar protection must be synchronized. This is triggered when a telegram "solar protection up/down" or "central up/down" is received. The solar protection then performs a synchronization run. First it briefly moves down, then fully into the upper end position. Then it moves from the upper end position to the lower end position measuring the associated travel time. Finally, it moves from the lower end position to the upper end position measuring the associated travel time. After this procedure the solar protection is synchronized and remains in the upper end position until a motion is triggered by another telegram.
If the actuator does not detect the upper end position at the start of the synchronization run, then the measurement travels are not executed. In that case, the actuator is not synchronized. The synchronization run has to be initiated again as described above.
Any additional telegram "solar protection up/down" or "central up/down" received during the synchronization run is ignored. If a telegram "slats open/close" is received this is interpreted as stop and the solar protection is stopped without finalizing the synchronization of the actuator. The synchronization run has to be initiated again as described above.
If a message "block motion" is received during the synchronization run, then the synchronization run is aborted. It can only be initiated again, when the motion blockage is ended by a respective telegram.
All other telegrams received after a download before and during a synchronization run are ignored.

If the solar protection shall move to the upper or lower end position in normal operation, the travel time is calculated such that the drive reaches the respective end position. The actuator stops the motion when the end position is detected. A possible short opening movement of the slats or a short lifting of a roller shade is immediately executed after stopping the motion.

When a change of the solar protection travel times of more than +-5 % is detected during normal operation based on the end position detection, then the travel time configuration settings are corrected and saved accordingly.

Because the electromechanical end position switch does not close at the same time the solar protection leaves the end position, it is necessary to block evaluation of the end position for this period. This "blocking period" can be configured via a parameter. Typical values for the blocking period" are 0.5 to 1.0 seconds.

The pause before a change of travel direction does not have to be configured. It is fixed at about 1 second for all channels.

Functions and objects
The application program can be configured for control of solar protection with Venetian blinds or with roller shutters / awnings.
In the default configuration it provides sufficient basic functionality for simple applications in combination with five basic communication objects. Three alarm objects for wind, rain, and frost, as well as two 1-bit

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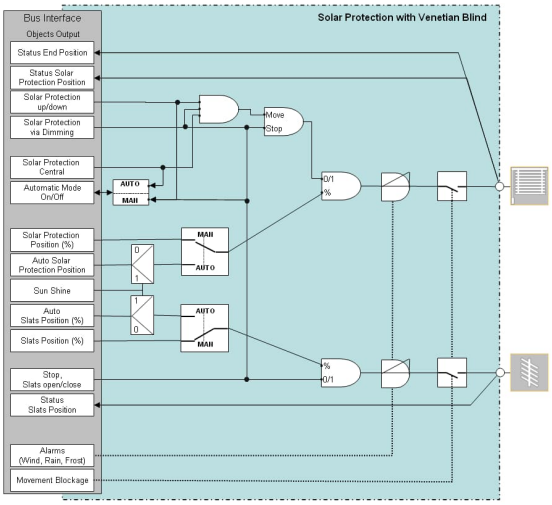
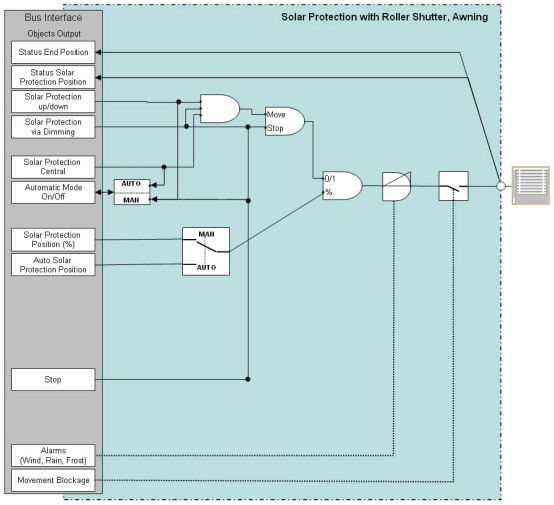
command objects for moving the solar protection into one of the limit positions and for stopping the travel movement respectively for stepwise movement of the slats.

The following functions and the associated objects can be added and configured via the parameter window "Functions, Objects" for each channel:
- manual / automatic or standard operation mode,
- standard operation mode with objects for solar protection position in % and slats position in %,
- automatic mode with four objects: one object to switch between automatic / manual mode, one object for centrally moving solar protection up/down as well as the 8-bit command objects for positioning of sun blinds and slats via percentage values in automatic mode,
- solar protection control via dimming,
- status message for solar protection position, slat position and end positions,
- movement into two configurable and optionally by the user amendable positions 1 and 2,
- 8-bit scene control,
- movement blockage.

The following schema shows the named features in a logical overview for Venetian blind and roller shutter / awning.



Solar protection via blind



Solar protection via roller shutter / awning

The functions and objects are separately described for Venetian blind and roller shutter / awning in sections 3 and 4.

Apart from moving the solar protection into one of the two limit positions, for each channel, both the solar protection and the slats can be moved into an intermediate position using commands with a position specification in the range of 0...100 %. How exactly the desired position in percent is taken by the solar protection and the slats is determined by the drive used and the gear, not by the solar protection actuator.

The current position of the solar protection as well as the slats can be transmitted, on request or automatically after reaching a new position, via two status objects as percent value in the range 0...100% (0% = solar protection respectively slats fully open, 100% = solar protection respectively slats fully closed).

To enable a certain level of daylight to enter the room for example, it is possible to set, once the blind has been lowered into the lower final position without disruption and the limit switch has been addressed, which intermediate position the slats should then be rotated into respectively for a shutter, how long it is to be raised again.
To guarantee the uniform final positions of all the blinds on a façade, when a movement command into the lower or upper final position of the sun blind is given, the set travel time can be extended by an

adjustable time to safely reach the upper or lower final position by addressing the respective limit switch.
Note: For a blind with horizontal slats and a standard blind drive, changing the slats position also leads to a small change of the blind position. Opening the slats is tied to a minor upward movement, closing the slats to a minor downward movement of the blind.

Normal mode or differentiation automatic / manual mode
It can be set via the "Differentiation automatic / manual mode" parameter in the "Functions, Objects" parameter window whether a distinction is to be made between automatic and manual mode or whether there is only one operating mode (standard mode).

Normal mode
During standard mode, the two 1-bit objects for controlling a Venetian blind and its slats are always available per channel. These can be supplemented by further objects via the "Functions, Objects" parameter window if required. There are further configuration settings for these partial functions
- Status messages
- Solar protection via dimming
- Alarms
- Movement blockage
- Position 1 or 2
- 8-bit scene control

Differentiation automatic / manual mode
In automatic mode there is one object available per channel to switch the channel to manual or automatic mode and two 1-bit objects to control Venetian blinds and slats in manual mode.
Switching from manual operation mode to automatic operation mode and vice versa is triggered by receiving values on the following objects:
change manual mode → automatic mode
- central solar protection

change automatic mode → manual mode
- solar protection up/down
- slats open/close
- recall / save position 1 / 2
- recall / save 8-bit scene

Further objects can be supplemented via the parameter window "Functions, Objects" if required.
There are further configuration settings for these partial functions
- Status messages
- Solar protection via dimming
- Alarms
- Movement blockage
- Position 1 or 2
- 8-bit scene control

Manually moving a blind or adjusting its slats when the blind is in automatic mode by using the two 1-bit objects for manual operation (e.g. by using a Venetian blind pushbutton in the room) always results in an automatic switching from automatic mode to manual mode for the affected channel. All automatic commands for the channel set to manual mode are no longer carried out. This ensures that a person using a room can permanently bring his blind into a desired position that can only be changed by a superior automatic system once the channel has been switched back to automatic mode or can be superseded by the central command if this has been released for the channel.

Via the object "solar protection central Up / Down", the channel of the actuator is first of all switched to automatic mode and then moved into the specified final position. Use of this central command guarantees that the blinds in rooms that are switched to manual mode by their user and not switched back to automatic mode before the user leaves the room or premise can also be raised centrally at night and lowered centrally in the morning when the sun starts shining. If for a channel a roller blind positioned on the inside and serving to darken the room is to be moved only locally and manually (not automatically via a central command), then the linking of this central command with a group address has to be omitted for this channel.
In addition, for each channel, both the blinds and the slats are to be moved in automatic mode into an intermediate position using commands with a position specification in the range of 0...100 %. How exactly the desired position in percent is to be taken in by the blinds and the slats is determined by the drive used and the gear, not by this software.
When using a weather station or a shutter control unit that can send the object "Sunshine", this object can be used to block or release the adjusting of the slats on those channels for which the automatic mode is switched on and this object is released, after the blinds have been moved into the upper or lower final position.

Behavior at bus voltage failure / recovery
In the event of bus voltage failure the current positions of solar protection and slats as well as the travel time configuration is permanently saved to be restored on bus voltage recovery. Object values are not saved.

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Status objects are not read after a bus reset.
Actions configured for execution on bus voltage failure are only executed, if no alarm or blockage is active.

Actions configured for execution on bus voltage recovery are only executed and possible new positions transmitted, if no alarm or blockage was active before bus voltage failure. The information (not the object values) about alarm and blockage before bus voltage failure is only saved for the initialization phase after bus voltage recovery. It is reset (no alarm active, no blockage active) after initialization. Consequently, if e.g. before bus voltage failure a blockage was active, the solar protection cannot be moved into a configured position on bus voltage failure or on bus voltage recovery. If after bus voltage recovery further messages to move the solar protection are received, then these are executed because the blockage present before bus voltage failure is not saved. Thus an explicit release of a blockage after bus voltage recovery is not required.
If alarm surveillance periods are configured, then these are restarted on bus voltage recovery.
The synchronization is retained on bus voltage failure and recovery. Yet, the actuator assumes that any function configured for bus voltage failure has been fully executed. If this is not the case, the calculated position may deviate from the actual position until the solar protection has been moved to an end position.

Behavior on unloading the application program
When the application program is unloaded with ETS the device does not function.

Resetting the device to factory default settings
A very long push of the programming button (> 20 s) effects a reset to factory settings. This is indicated by constant flashing for 8 seconds.
All configuration settings are lost.

Addressing mode
A short push of learning button (< 2 s) enables the addressing mode. This is indicated by a continuously lit programming mode LED. A second push disables this mode.

Note
A long push of the learning button (> 5 s and <20 s) enables the Connection Test for commissioning with Desigo. Any time this mode can be disabled by a short push of the learning button.

2. Communication objects

Maximum number of group addresses: 120
Maximum number of associations: 120

Note

The number and names of communication objects visible can vary depending on the parameter settings.

The application program already has been loaded in the factory.

The device is configured and commissioned with Engineering Tool Software (ETS) version ETS v3.0f or higher.
With the ETS (Engineering Tool Software) the specific parameters and addresses are assigned appropriately, and downloaded into the device.

The following list shows all objects of the device for these configurations:
- Solar protection by Venetian blind without differentiation of automatic / manual mode (normal mode)
- Solar protection by Venetian blind with differentiation of automatic / manual mode
- Solar protection by roller shutter / awning without differentiation of automatic / manual mode (normal mode)
- Solar protection by roller shutter / awning with differentiation of automatic / manual mode

Which objects are visible and linkable to group addresses is defined via the functions assigned to the inputs.
The objects and associated parameter settings are described with the functions.

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Solar protection by Venetian blind without differentiation of automatic / manual mode (normal mode)

Nr.	Object name	Function	Number of bits	Flags
1	Channel A 8-bit scene	recall / save	1 byte	CW
2	Channel A position	recall	1 bit	CW
3	Channel A position	save	1 bit	CW
7	Channel A wind alarm	on / off	1 bit	CRWT
8	Channel A rain alarm	on / off	1 bit	CRWT
9	Channel A frost alarm	on / off	1 bit	CRWT
10	Channel A movement blockage	on / off	1 bit	CRWT
13	Channel A solar protection position	0...100%	1 byte	CRW
14	Channel A slat position	0...100%	1 byte	CRW
16	Channel A solar protection	up / down	1 bit	CRW
17	Channel A stop / slats	open / close	1 bit	CRW
	Channel A solar protection via dimming	open / close via on / off	1 bit	CRW
18	Channel A solar protection via dimming	up / down via brighter / darker	4 bit	CRW
21	Channel A status solar protection position	0...100%	1 byte	CRWT
22	Channel A status slat position	0...100%	1 byte	CRWT
23	Channel A status upper end position	on / off	1 bit	CRWT
24	Channel A status bottom end position	on / off	1 bit	CRWT
25	Channel B 8-bit scene	recall / save	1 byte	CW
26	Channel B position	recall	1 bit	CW
27	Channel B position	save	1 bit	CW
31	Channel B wind alarm	on / off	1 bit	CRWT
32	Channel B rain alarm	on / off	1 bit	CRWT
33	Channel B frost alarm	on / off	1 bit	CRWT
34	Channel B movement blockage	on / off	1 bit	CRWT
37	Channel B solar protection position	0...100%	1 byte	CRW
38	Channel B slat position	0...100%	1 byte	CRW
40	Channel B solar protection	up / down	1 bit	CRW
41	Channel B stop / slats	open / close	1 bit	CRW
	Channel B solar protection via dimming	open / close via on / off	1 bit	CRW
42	Channel B solar protection via dimming	up / down via brighter / darker	4 bit	CRW
45	Channel B status solar protection position	0...100%	1 byte	CRWT
46	Channel B status slat position	0...100%	1 byte	CRWT
47	Channel B status upper end position	on / off	1 bit	CRWT
48	Channel B status bottom end position	on / off	1 bit	CRWT

Solar protection by Venetian blind with differentiation of automatic / manual mode

Nr.	Object name	Function	Number of bits	Flags
1	Channel A 8-bit scene	recall / save	1 byte	CW
2	Channel A position	recall	1 bit	CW
3	Channel A position	save	1 bit	CW
4	Channel A solar protection central	up / down	1 bit	CRW
5	Channel A automatic mode	on / off	1 bit	CRWT
6	Channel A sunshine	on / off	1 bit	CRW
7	Channel A wind alarm	on / off	1 bit	CRWT
8	Channel A rain alarm	on / off	1 bit	CRWT
9	Channel A frost alarm	on / off	1 bit	CRWT
10	Channel A movement blockage	on / off	1 bit	CRWT
11	Channel A automatic mode solar protection position	0...100%	1 byte	CRW
12	Channel A automatic mode slat position	0...100%	1 byte	CRW
16	Channel A solar protection	up / down	1 bit	CRW
17	Channel A stop / slats	open / close	1 bit	CRW
	Channel A solar protection via dimming	open / close via on / off	1 bit	CRW
18	Channel A solar protection via dimming	up / down via brighter / darker	4 bit	CRW
20	Channel A status automatic mode	on / off	1 bit	CRWT
21	Channel A status solar protection position	0...100%	1 byte	CRWT
22	Channel A status slat position	0...100%	1 byte	CRWT
23	Channel A status upper end position	on / off	1 bit	CRWT
24	Channel A status bottom end position	on / off	1 bit	CRWT
25	Channel B 8-bit scene	recall / save	1 byte	CW
26	Channel B position	recall	1 bit	CW
27	Channel B position	save	1 bit	CW
28	Channel B solar protection central	up / down	1 bit	CRW
29	Channel B automatic mode	on / off	1 bit	CRWT
30	Channel B sunshine	on / off	1 bit	CRW
31	Channel B wind alarm	on / off	1 bit	CRWT
32	Channel B rain alarm	on / off	1 bit	CRWT
33	Channel B frost alarm	on / off	1 bit	CRWT
34	Channel B movement blockage	on / off	1 bit	CRWT
35	Channel B automatic mode solar protection position	0...100%	1 byte	CRW
36	Channel B automatic mode slat position	0...100%	1 byte	CRW
40	Channel B solar protection	up / down	1 bit	CRW
41	Channel B stop / slats	open / close	1 bit	CRW
	Channel B solar protection via dimming	open / close via on / off	1 bit	CRW
42	Channel B solar protection via dimming	up / down via brighter / darker	4 bit	CRW
44	Channel B status automatic mode	on / off	1 bit	CRWT
45	Channel B status solar protection position	0...100%	1 byte	CRWT
46	Channel B status slat position	0...100%	1 byte	CRWT
47	Channel B status upper end position	on / off	1 bit	CRWT
48	Channel B status bottom end position	on / off	1 bit	CRWT

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Solar protection by roller shutter / awning without differentiation of automatic / manual mode (normal mode)

Nr.	Object name	Function	Number of bits	Flags
1	Channel A 8-bit scene	recall / save	1 byte	CW
2	Channel A position	recall	1 bit	CW
3	Channel A position	save	1 bit	CW
7	Channel A wind alarm	on / off	1 bit	CRWT
8	Channel A rain alarm	on / off	1 bit	CRWT
9	Channel A frost alarm	on / off	1 bit	CRWT
10	Channel A movement blockage	on / off	1 bit	CRWT
13	Channel A solar protection position	0...100%	1 byte	CRW
16	Channel A solar protection	up / down	1 bit	CRW
17	Channel A stop	open / close	1 bit	CRW
18	Channel A solar protection via dimming	up / down via brighter / darker	4 bit	CRW
21	Channel A status solar protection position	0...100%	1 byte	CRWT
23	Channel A status upper end position	on / off	1 bit	CRWT
24	Channel A status bottom end position	on / off	1 bit	CRWT
25	Channel B 8-bit scene	recall / save	1 byte	CW
26	Channel B position	recall	1 bit	CW
27	Channel B position	save	1 bit	CW
31	Channel B wind alarm	on / off	1 bit	CRWT
32	Channel B rain alarm	on / off	1 bit	CRWT
33	Channel B frost alarm	on / off	1 bit	CRWT
34	Channel B movement blockage	on / off	1 bit	CRWT
37	Channel B solar protection position	0...100%	1 byte	CRW
40	Channel B solar protection	up / down	1 bit	CRW
41	Channel B stop	open / close	1 bit	CRW
42	Channel B solar protection via dimming	up / down via brighter / darker	4 bit	CRW
45	Channel B status solar protection position	0...100%	1 byte	CRWT
47	Channel B status upper end position	on / off	1 bit	CRWT
48	Channel B status bottom end position	on / off	1 bit	CRWT

Solar protection by roller shutter / awning with differentiation of automatic / manual mode

Nr.	Object name	Function	Number of bits	Flags
1	Channel A 8-bit scene	recall / save	1 byte	CW
2	Channel A position	recall	1 bit	CW
3	Channel A position	save	1 bit	CW
4	Channel A solar protection central	up / down	1 bit	CRW
5	Channel A automatic mode	on / off	1 bit	CRWT
7	Channel A wind alarm	on / off	1 bit	CRWT
8	Channel A rain alarm	on / off	1 bit	CRWT
9	Channel A frost alarm	on / off	1 bit	CRWT
10	Channel A movement blockage	on / off	1 bit	CRWT
11	Channel A automatic mode solar protection position	0...100%	1 byte	CRW
16	Channel A solar protection	up / down	1 bit	CRW
17	Channel A stop	open / close	1 bit	CRW
18	Channel A solar protection via dimming	up / down via brighter / darker	4 bit	CRW
20	Channel A status automatic mode	on / off	1 bit	CRWT
21	Channel A status solar protection position	0...100%	1 byte	CRWT
23	Channel A status upper end position	on / off	1 bit	CRWT
24	Channel A status bottom end position	on / off	1 bit	CRWT
25	Channel B 8-bit scene	recall / save	1 byte	CW
26	Channel B position	recall	1 bit	CW
27	Channel B position	save	1 bit	CW
28	Channel B solar protection central	up / down	1 bit	CRW
29	Channel B automatic mode	on / off	1 bit	CRWT
31	Channel B wind alarm	on / off	1 bit	CRWT
32	Channel B rain alarm	on / off	1 bit	CRWT
33	Channel B frost alarm	on / off	1 bit	CRWT
34	Channel B movement blockage	on / off	1 bit	CRWT
35	Channel B automatic mode solar protection position	0...100%	1 byte	CRW
40	Channel B solar protection	up / down	1 bit	CRW
41	Channel B stop	open / close	1 bit	CRW
42	Channel B solar protection via dimming	up / down via brighter / darker	4 bit	CRW
44	Channel B status automatic mode	on / off	1 bit	CRWT
45	Channel B status solar protection position	0...100%	1 byte	CRWT
47	Channel B status upper end position	on / off	1 bit	CRWT
48	Channel B status bottom end position	on / off	1 bit	CRWT

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3. Functions (Objects, Parameter), Blind

Configuration of the objects and parameters for channels A and B is done identically and thus is only described once.

Each actuator output can be configured individually with the following partial functions:

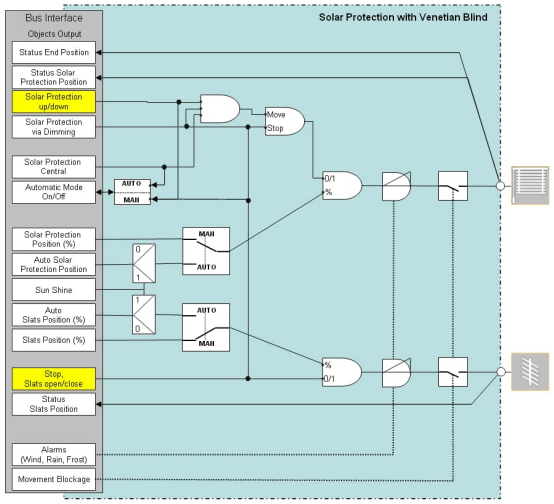
- Basic function
- Normal mode
- Manual / automatic mode
- Solar protection via dimming
- Status messages
- Alarms
- Movement blockage
- Position 1 or 2
- 8-bit scene control

The following sections describe the functions, which can be configured for each channel, including the associated objects and parameter settings.

Note

The number and names of the parameter windows in the ETS menues may vary as they are controlled via parameter settings.
Another parameter window may appear if due to dynamically added parameters the space in the first parameter window is exhausted.

Basic function



Function blind, basic function

Objects

Obj	Object name	Function	Type	Flags
16	Channel A solar protection	up / down	1 bit	CRW
40	Channel B solar protection	up / down	1 bit	CRW

The Up / Down movement of the blind for the corresponding channel is initiated via these objects. The blind 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 final position must therefore have been reached.
If the blind moves without any intermediate stop from the upper to the lower final position (Down) via this object and a "Slats position after blind DOWN in percent" has been set, 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.

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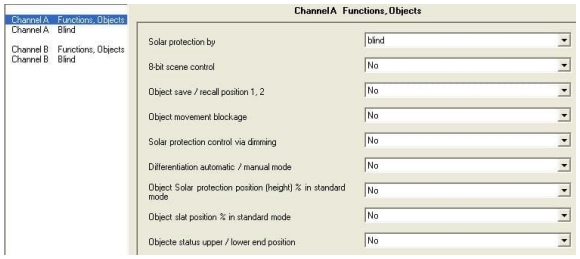
Obj	Object name	Function	Type	Flags
17	Channel A Stop / slats	open / close	1 bit	CRW
41	Channel B Stop / slats	open / close	1 bit	CRW
Via these objects, the movement of a blind is stopped for the respective channel regardless of whether the telegram contains a logical 0 or a logical 1. If the blind is stationary, the slats are opened commands 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 for a channel being operated manually then are not executed.				

Parameter „Channel A Functions, Objects"



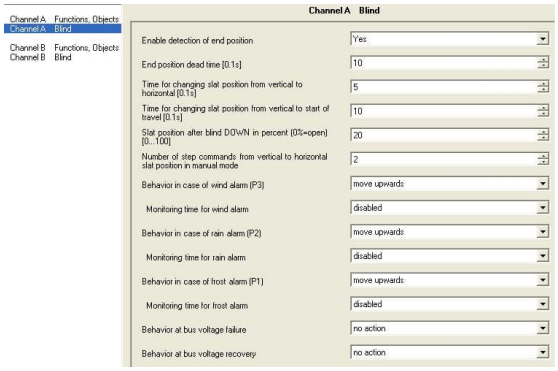
This parameter window provides selection of the basic function (solar protection via Venetian blind or roller shutter/awning) and further functions of this actuator output. This includes

- whether an 8-bit scene control shall be added for this output channel,
- whether positioning of the blind in two preset positions shall be added for this output channel,
- whether a movement blockage shall be added for this output channel,
- whether control via dimming up/down shall be added for this output channel,
- whether manual and automatic operation mode shall be differentiated,
- whether the blind and / or the slats shall be controlled via percentage telegrams,
- whether reaching the upper or lower limit position shall be indicated via objects.

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

The parameter "Solar protection by" shall be set to "blind".

Parameter „Channel A Blind"



Parameter	Settings
Enable detection of end position	No; **Yes**
This parameter determines whether the automatic end position detection is used. If it is used, it must be ensured that the connected solar protection reliably supports this. If this cannot be guaranteed, i.e. the detection is not always reliably possible (e.g. signal cross-talk because of long cables, electronic end position detection), then detection of end position has to be disabled. In that case, the travel times have to be determined. If the parameter is set to „No" then, after a download with ETS, on the first control command the solar protection briefly moves down and then moves up into the upper end position.	
End position dead time [0,1s]	**10;** 5...50
This parameter is visible, if the parameter "Enable detection of end position" is set to "Yes". This parameter determines how long, after the end position has been left, the end position is not evaluated. This dead time is necessary because the end position switches is not closed immediately after the end position has been left. Typical values are 0.5 to 1.0 seconds.	

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Parameter	Settings
Travel time of solar protection from upper end position to bottom end position in seconds [3...300]	**300;** 3...300
This parameter is visible, if the parameter "Enable detection of end position" is set to "No". This parameter determines the travel time of the solar protection from the upper to the lower end position. Note: If detection of the end position is enabled this parameter is set during initialization of the device.	
Travel time of solar protection from bottom end position to upper end position in seconds [3...300]	**300;** 3...300
This parameter is visible, if the parameter "Enable detection of end position" is set to "No". This parameter determines the travel time of the solar protection from the lower to the upper end position. Note: If detection of the end position is enabled this parameter is set during initialization of the device.	
Prolongation of in-motion time by	no additional time; 1...20 seconds **20 seconds**
This parameter is visible, if the parameter "Enable detection of end position" is set to "No". This parameter determines if, when the solar protection moves to the end position, the travel time shall be extended by an additional time to ensure that the solar protection reaches the end position and the drive motor is turned off by the end position limit switches.	
Time for changing slat position from vertical to horizontal [0,1s]	**5;** 0...100
This parameter determines the time it takes to move the slats of the Venetian blind from completely closed (=100%) to the horizontal slat position (=0%) in the range from 0.2s to 10s. Note: This time is to be determined as accurately as possible. If the value 0 (or 1) is set, the value of the parameter "Time for changing salt position from vertical to start of travel" is used. All parameter values then refer to the full slat motion range – i.e. from vertical to start of travel. This allows for two alternatives: Either the active slat range is from vertical to horizontal or from vertical to start of motion. If both parameters ("Time for changing slat position from vertical to horizontal" and "Time for changing salt position from vertical to start of travel" are set to the same value, then all following parameters then refer to the full slat motion range (from vertical to start of travel). If both parameters are not accurately determined, then different slat positions can occur e.g. for scenes. This depends on the direction, opening or closing of the Venetian blind, the slat position is determined from.	

Parameter	Settings
Time for changing slat position from vertical to start of travel [0,1s]	**10;** 3...125
This parameter determines the time it takes to move the slats of the Venetian blind from completely closed to the slat position at which the upward travel of the Venetian blind begins, in the range from 0.3s to 12.5s. Opening the slats, they can be rotated beyond the horizontal position (i.e. turned backwards so that they are again partially closed). Note: This time is to be determined as accurately as possible.	
Slat position after blind DOWN in percent (0% = open) [0...100]	**20;** 0...100
This parameter only appears if the "Solar shading as" parameter is set to "Venetian blind". After an uninterrupted movement of the Venetian blind from the upper to the lower limit position via one of the corresponding objects, the slats are adjusted from their vertical position to the position specified in this parameter. 0% = slats completely opened (horizontal) 100% = slats completely closed (vertical) Note: With Venetian blinds it is a prerequisite that they move downwards with closed slats.	
Number of step commands from vertical to horizontal slat position in manual mode	**2;** 2...255
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.	
Behaviour on bus voltage failure	move upwards move downwards; **no action;** stop (for testing)
This parameter determines how the actuator channel acts on bus voltage failure.	
Behaviour on bus voltage recovery	move upwards; move downwards; move to %-value; **no action;** stop (for testing)
This parameter determines how the actuator channel acts on bus voltage recovery. Note: On bus voltage recovery the assumption is that the action configured for bus voltage failure was fully completed. If "move upwards" is configured for bus voltage failure and the bus voltage returns before the solar protection could fully open, then the status of the solar protection is set to "upper end position" at the start even if the end position has not (yet) been reached. In this case the status message can deviate from the true position.	

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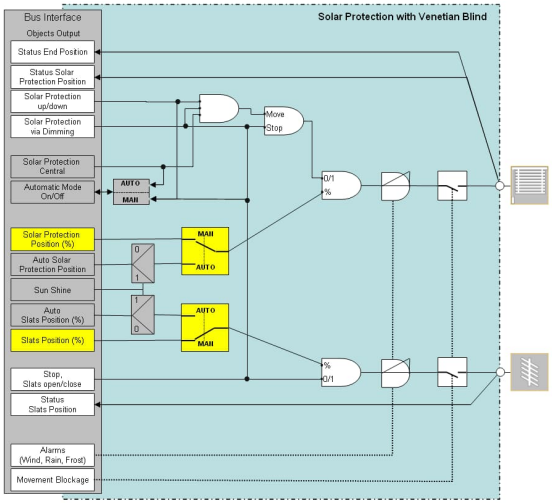
Parameter	Settings
Value solar protection position	**0;** 0...100
This parameter is visible, if the parameter "Behaviour on bus voltage recovery" is set to "move to %-value". This parameter determines the position the solar protection shall move to on bus voltage recovery.	
Value slat position	**0;** 0...100
This parameter is visible, if the parameter "Behaviour on bus voltage recovery" is set to "move to %-value". This parameter determines the position the slats shall move to on bus voltage recovery.	

The additional parameters are covered in the sections for the partial functions

- Solar protection / slat position (normal mode)
- Manual / automatic mode
- Status messages
- Solar protection via dimming
- Alarms
- Movement blockage
- Position 1 or 2
- 8-bit scene control

Solar protection / slat position (normal mode)



Function blind, solar protection / slat position

Objects

Obj	Object name	Function	Type	Flags
13	Channel A solar protection position	0...100%	1 byte	CRW
37	Channel B solar protection position	0...100%	1 byte	CRW

This object is visible, if the parameter "Differentiation automatic / manual mode" is set to "No" and the parameter "Object status solar protection position in %" is set to "Yes".
Using this object, the blind of the corresponding channel can be moved into a chosen position in standard mode.
Blind positions can be transmitted in a value range of 0 to 255 (DPT 5.001) using this object. The following definitions have to be kept:

0	(=0%)	Blind fully Up
255	(=100%)	Blind fully Down

As soon as the blind 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 one of the final 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 final position is guaranteed by addressing the limit switch.
Once the slat adjustment has been completed or the final 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.

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Obj	Object name	Function	Type	Flags
14	Channel A slat position	0...100%	1 byte	CRW
38	Channel B slat position	0...100%	1 byte	CRW

This object is visible, if the parameter "Differentiation automatic / manual mode" is set to "No" and the parameter "Object slat position in % in standard mode" is set to "Yes".

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.

Slat positions can be transmitted in a value range of 0 to 255 (DPT 5003) using this object. The following definitions have to be kept:

0 (=0%) Slats fully open (horizontal)
255 (=100%) Slats fully closed (vertical)

As soon as the slats adjustment has been completed or the final 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.

Note:

After bus voltage recovery this object is always set to zero.

Parameter „Channel A Functions, Objects"

Parameter	Settings
Differentiation automatic / manual mode	**No;** Yes

For normal mode this parameter must be set to "No".
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 sun blind actuators as well as one object per channel to move the blind 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 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.

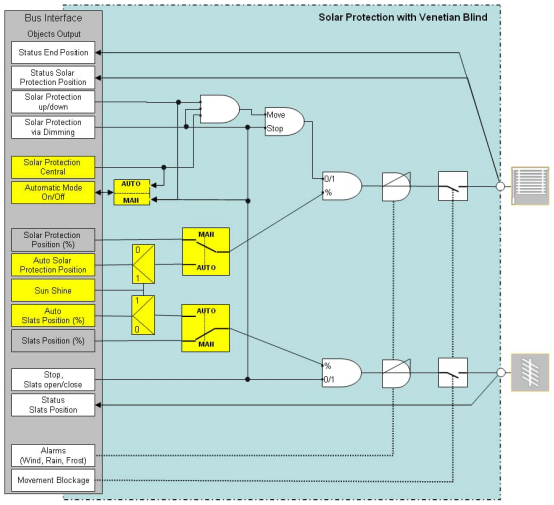
Object status solar protection position in %	**No;** Yes

This parameter only appears in standard mode if the parameter "Distinction automatic / manual mode" is set to "No".
It is used to set whether communication objects to adjust the blind position shall be available in standard mode.

Object slat position % in standard mode	**No;** Yes

This parameter only appears in standard mode if the parameter "Distinction automatic / manual mode" is set to "No".
It is used to set whether communication objects to adjust the blind position shall be available in standard mode.

Manual / automatic mode



Function blind, manual / automatic mode

Objects

Obj	Object name	Function	Type	Flags
4	Channel A solar protection central	up / down	1 bit	CRW
28	Channel B solar protection central	up / down	1 bit	CRW

If a telegram is received at this object, all channels of the Venetian blind actuator that are enabled for this object are first of all switched to "Automatic mode" (if released in the parameter setting) and then the blinds 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 final position via this object, the slats position stipulated via the "Slats position after blind DOWN in percent" parameter is then approached automatically.

5	Channel A automatic mode	on / off	1 bit	CRWT
29	Channel B automatic mode	on / off	1 bit	CRWT

With these objects, the corresponding channels can be switched between the operating modes "Automatic mode" and "Manual mode". The object value (1 = automatic mode, 0 = manual mode) of these objects is updated when the channel operating mode is changed and can be queried via the bus.

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Obj	Object name	Function	Type	Flags
6	Channel A sunshine	on / off	1 bit	CRW
30	Channel B sunshine	on / off	1 bit	CRW

When using a shutter control unit, this object serves to release or block the slats positioning and possibly to travel the blinds into the upper or lower limit position additionally. To do this, this object sunshine must be linked to the corresponding object of the shutter control unit or 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 blocked.
If a log. 0 is received, then the blinds will be moved to the upper limit position (opened) and the positioning of blinds and slats via percentage commands will be blocked; if a log. 1 is received, then the blinds will be moved to the lower limit 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 "Slats position after blind DOWN in percent" parameter.

Obj	Object name	Function	Type	Flags
11	Channel A autom. mode, solar protection position	0...100%	1 byte	CRW
35	Channel B automatic mode, solar protection position	0...100%	1 byte	CRW

Using this object, the blind of the corresponding channel can only be moved into a chosen position in automatic mode. If the channel is in "manual mode", a movement command is not executed but is stored and executed after switching back to automatic mode.
Blind positions can be transmitted in a value range of 0 to 255 (DPT 5.001) using this object. The following definitions have to be kept:

0	(=0%)	Blind fully Up
255	(=100%)	Blind fully Down

If one of the final 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 final position is guaranteed by addressing the limit switch. Once the blind adjustment has been completed or the final 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	Object name	Function	Type	Flags
12	Channel A automatic mode, slat position	0...100%	1 byte	CRW
36	Channel B automatic mode, slat position	0...100%	1 byte	CRW

Using this object, the slats of the corresponding channel can only be moved into a chosen position in automatic mode. 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.
Slat positions can be transmitted (DPT 5.003) in a value range of 0 to 255 using this object. The following definitions have to be kept:

0	(=0%)	Slats fully open (horizontal)
255	(=100%)	Slats fully closed (vertical)

As soon as the slat adjustment has been completed or the final 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.

Parameter „Channel A Functions, Objects"

Parameter	Settings
Differentiation automatic / manual mode	**No;** Yes

For automatic mode this parameter must be set to "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 sun blind actuators as well as one object per channel to move the blind 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 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 sunshine	**No;** Yes

This parameter is only visible if the distinction between automatic and manual mode was desired.
This parameter is used to enable 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 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 enabled here.

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Parameter „Channel A Blind“

Parameter	Settings
Min. change of value for slat position in automatic mode (in °)	**3;** 3...45
This parameter is visible, if the parameter "Differentiation automatic / manual mode" is set to "Yes". This parameter determines 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 a shutter control unit or a 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 limit is always approached. If this results in the smallest possible activation time of the Venetian blind drive of 50ms, then it depends on the drive used whether this short impulse leads to a change in position or not.	
Behaviour when sunshine = On	execute automatic commands + move to stored position; **blind down + execute automatic commands**
This parameter only appears if the "Object Sunshine" parameter is set to "enabled". It is used to set how an actuator 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. "blind down + execute automatic commands": The Venetian blind is moved into the lower limit 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 limit 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.	
Behaviour when sunshine = Off	**ignore automatic commands ;** blind up + ignore automatic commands;
This parameter only appears if the "Object Sunshine" parameter is set to "enabled". It is used to set how an actuator 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 enabled. If automatic mode has not been activated for the affected channel, then the telegram for this channel is 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. "blind up + ignore automatic commands": The Venetian blind is moved into the end position up 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 limit position, a telegram with a Venetian blind or slat position in percent is received, then this new telegram is already ignored.	

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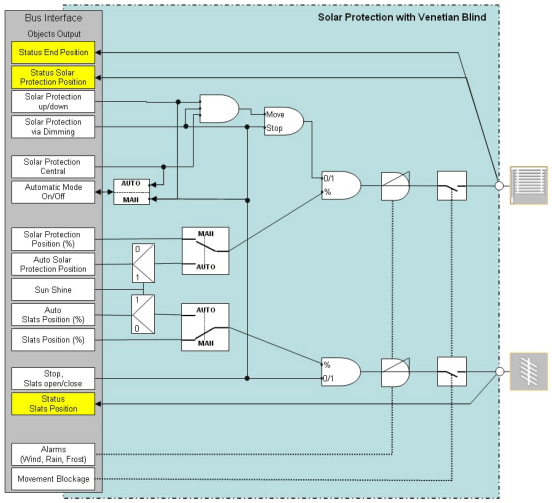
Status messages



Function blind, status messages

Objects

Obj	Object name	Function	Type	Flags
20	Channel A status automatic mode	On/Off	1 bit	CRWT
44	Channel B status automatic mode	On/Off	1 bit	CRWT
This object is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes" and the parameter "Object status automatic mode" is set to "Yes". With this object, 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 set is accordingly, even if another operating mode overrides the automatic operation.				
21	Channel A status solar protection position	0...100%	1 byte	CRWT
45	Channel B status solar protection position	0...100%	1 byte	CRWT
This object is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes" and the parameter "Object status solar protection position in % " is set to "Yes". Via this object, the position of the blind (as a percentage value) can be queried at any time or sent automatically after the travel has stopped. The upper limit position corresponds to the value 1 (= 0%) and the lower limit position to the value 255 (= 100%). The value 0 is used to indicate an unknown position (e.g. after the actuator has just been (re-started). Updating the status object takes place for the first time when the travel time of the blind and the adjustment times of the slats have been entered and an uninterrupted travel to a limit position has taken place.				
22	Channel A status slat position	0...100%	1 byte	CRWT
46	Channel B status slat position	0...100%	1 byte	CRWT
This object is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes" and the parameter "Object status slat position in % " is set to "Yes". Via this object, the position of Venetian blind slats (as a percentage value) can be queried at any time or sent automatically after the slats have been adjusted. The upper slat position (slats fully opened) corresponds to the value 0 (= 0%) and the lower limit position (slats completely closed) to the value 255 (= 100%). Updating the status object takes place for the first time when the travel time of the blind and the adjustment times of the slats have been entered and an uninterrupted travel to a limit position has taken place.				
23	Channel A status upper end position	On/Off	1 bit	CRWT
47	Channel B status upper end position	On/Off	1 bit	CRWT
This object is only visible if the "Object status upper / lower end position" parameter is set to "Yes". Via this object, a logical 1 object value reports that the blind is in the upper final position.				
24	Channel A status lower end position	On/Off	1 bit	CRWT
48	Channel B status lower end position	On/Off	1 bit	CRWT
This object is only visible if the "Object status upper / lower end position" parameter is set to "Yes". Via this object, a logical 1 object value reports that the blind is in the lower final position.				

Parameter „A Functions, Objects"

Parameter	Settings
Object status automatic mode	**No**; Yes
This parameter is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes". This parameter determines whether a communication object "Status automatic mode" is available for the channel.	
Object status solar protection position in %	**No;** Yes
This parameter is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes" or if the parameter "Object status solar protection position in % in normal mode" is set to "Yes".	

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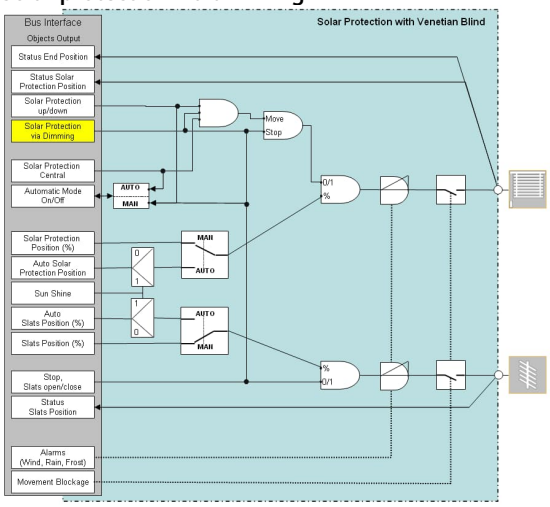
Parameter	Settings
This parameter determines whether a communication object "Status solar protection position" is available for the channel.	
Object status slat position in %	**No;** Yes
This parameter is only visible, if the parameter "Solar protection by" is set to "blind" and if either the "Differentiation automatic / manual mode" parameter is set to "Yes" or if the parameter "Object status slat position in % in normal mode" is set to "Yes". This parameter determines whether a communication object "Status slat position" is available for the channel.	
Object status upper / lower end position	**No;** Yes; only status upper end position; only status lower end position
This parameter determines whether none, both or only 1 communication object "Status upper end position" or "Status lower end position" is available for the channel. The object „Status upper end position" (or „Status lower end position") is only equal to log. 1 if the blind is in the top (or bottom) end position.	
Send end position On / Off	Yes; **only send On**
This parameter is only visible, if the parameter "Object status upper / lower end position" is not set to "No". This parameter determines 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.	
Lower end position reached after tilting slats up	**No;** Yes
*This parameter is only visible, if the parameter "Object status upper / lower end position" is set to "Yes" or "*only status lower end position*".* This parameter determines if reaching the lower end position is sent or not sent as a status message after tilting the slats up has been finished.	
Send status objects	**Only on read request;** on change of status and on read request
Depending on the parameter setting the status objects are sent automatically every time the status is changed or only on read request.	

Solar protection via dimming



Function blind, solar protection via dimming

Objects

Obj	Object name	Function	Type	Flags
17	Channel A solar protection via dimming	open / close via on / off	1 bit	CRW
41	Channel B solar protection via dimming	open / close via on / off	1 bit	CRW
This object is only visible if the parameter "Solar protection control via dimming"is set to "Yes". Via this object a dimming sensor can control a solar protection. On means move solar protection up, Off means move solar protection down.				
18	Channel A solar protection via dimming	up / down via brighter / darker	4 bit	CRW
42	Channel B solar protection via dimming	up / down via brighter / darker	4 bit	CRW
This object is only visible if the parameter "Solar protection control via dimming"is set to "Yes". Via this object a dimming sensor can control a solar protection. Dimming brighter means move solar protection up, dimming darker means move solar protection down. All dimming telegrams are interpreted as a change by 100% because the actuator does not know the current position. For this reason, only the configuration "dimming with stop telegram" makes sense for the dimming sensor.				

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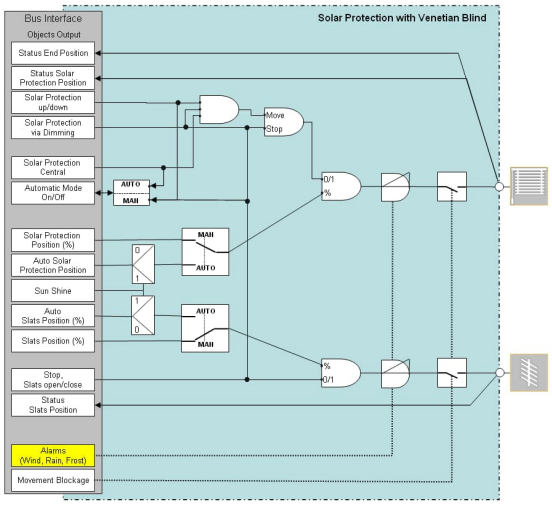
Parameter „Channel A Functions, Objects“

Parameter	Settings
Solar protection control via dimming	**No;** Yes
This parameter determines if the actuator shall have two additional controlobjects. The 4-bit object must be connected with the dimming sensor object “dimming brighter/darker”. The 1-bit object must be connected with the dimming sensor object “switching on/off”. Via the 4-bit object the solar protection can be moved up/down and via the 1-bit object the solar protection can be opened / closed. The 1-bit object works like the object for controlling the slats, yet with inverse values. The On telegram with object value 1 equals the up telegram with object value 0.	

Alarms



Function blind, alarms

It is ensured via the objects “wind alarm”, “rain alarm”, and “frost alarm” that the blind is raised automatically in the event of a wind, rain or frost alarm and that it is prevented from being lowered via the bus when the alarm is still present.

Objects

Obj	Object name	Function	Type	Flags
7	Channel A wind alarm	On/Off	1 bit	CRWT
31	Channel B wind alarm	On/Off	1 bit	CRWT
This object can be linked with an alarm signal from a wind sensor, which sends cyclically a logical 0 in the idle state and a logical 1 in the event of an alarm. Via the parameter “Behaviour on alarm”, 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 Venetian blind actuator should e.g. move the outer Venetian blind connected to this channel into the upper final position in the event of a wind alarm and block movement out of this position while the wind alarm is still present. Sun blind and slat commands 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 blind likewise moves to the set safety position if a time has been assigned to the parameter “Monitoring time for alarm” and no telegrams have been received during the set time interval.				

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Obj	Object name	Function	Type	Flags
8	Channel A rain alarm	On/Off	1 bit	CRWT
32	Channel B rain alarm	On/Off	1 bit	CRWT
This object can be linked with an alarm signal from a rain sensor, which sends cyclically a logical 0 in the idle state and a logical 1 in the event of an alarm. Via the parameter "Behaviour on alarm", 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 Venetian blind actuator should e.g. move the outer Venetian blind connected to this channel into the upper final position in the event of a rain alarm and block movement out of this position while the rain alarm is still present. Sun blind and slat commands 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 blind likewise moves to the set safety position if a time has been assigned to the parameter "Monitoring time for alarm" and no telegrams have been received during the set time interval.				
9	Channel A frost alarm	On/Off	1 bit	CRWT
33	Channel B frost alarm	On/Off	1 bit	CRWT
This object can be linked with an alarm signal from a 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 "Behaviour on alarm", 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 Venetian blind actuator should e.g. move the outer Venetian blind connected to this channel into the upper final position in the event of a frost alarm and block movement out of this position while the frost alarm is still present. Sun blind and slat commands 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 blind likewise moves to the set safety position if a time has been assigned to the parameter "Monitoring time for alarm" and no telegrams have been received during the set time interval.				

Parameter „Channel A Blind"

Parameter	Settings
Behaviour in case of wind alarm (P3)	**move upwards ;** move downwards; ignore alarm (no action)
This parameter determines how the actuator channel acts when receiving a wind alarm or when the cyclical message that there is no pending alarm is omitted. Note: This alarm has the lowest priority of the three possible alarms.	
Monitoring time for wind alarm	**disabled;** 1 minute; 2 minutes; 3 minutes; 4 minutes; 5 minutes; 7 minutes; 10 minutes; 15 minutes; 30 minutes; 60 minutes
This parameter is visible, if the parameter " Behaviour in case of wind alarm (P3)" is not set to "ignore alarm (no action)". This monitoring time applies to the wind alarm object of this channel. 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 actuator can monitor whether the wind detector assigned to the actuator or to a channel is sending telegrams cyclically. If the setting "disabled" is assigned to the parameter "Monitoring time for wind 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 blind connected to the actuator channel is moved into the set position according to the "Behaviour 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 bus voltage recovery), the monitoring time is only started after the first reception of the "Alarm" object. If no message is received via the alarm object within the configured monitoring time, then the alarm is also triggered after a download or new start.	
Behaviour in case of rain alarm (P2)	**move upwards;** move downwards; ignore alarm (no action)
This parameter determines how the actuator channel acts when receiving a rain alarm or when the cyclical message that there is no pending alarm is omitted. Note: This alarm has the middle priority of the three possible alarms.	
Monitoring time for rain alarm	**disabled;** 1 minute; 2 minutes; 3 minutes; 4 minutes; 5 minutes; 7 minutes; 10 minutes; 15 minutes; 30 minutes; 60 minutes
This parameter is visible, if the parameter " Behaviour in case of rain alarm (P2)" is not set to "ignore alarm (no action)". This monitoring time applies to the rain alarm object of this channel. The explanations for the parameter "Monitoring time for wind alarm" apply likewise.	
Behaviour in case of frost alarm (P1)	**move upwards ;** move downwards; ignore alarm (no action)
This parameter determines how the actuator channel acts when receiving a frost alarm or when the cyclical message	

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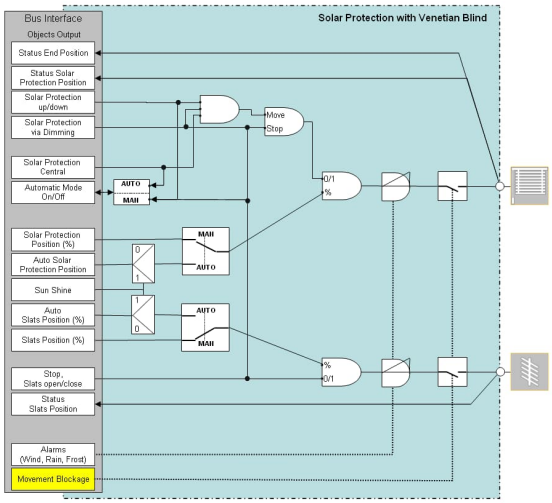
Parameter	Settings
that there is no pending alarm is omitted. Note: This alarm has the highest priority of the three possible alarms.	
Monitoring time for frost alarm	**disabled;** 1 minute; 2 minutes; 3 minutes; 4 minutes; 5 minutes; 7 minutes; 10 minutes; 15 minutes; 30 minutes; 60 minutes
This parameter is visible, if the parameter " Behaviour in case of frost alarm (P1)" is not set to "ignore alarm (no action)". This monitoring time applies to the frost alarm object of this channel. The explanations for the parameter "Monitoring time for wind alarm" apply likewise.	

Movement blockage



Function blind, movement blockage

Via the object "Movement blockage" the movement of the solar protection can be locked at any time (e.g. for cleaning the outdoor solar protection.
The "Movement blockage" object has a higher priority than the "Alarm" objects, i.e. if the movement blockage object is set to logical 1 then the sun blind can also not be moved via an alarm object changing to a logical 1. However, if an alarm signal is still present after the blockage has been ended, then the channel in question moves automatically into the set safety position. In all other respects the behaviour of the "Movement blockage" object corresponds to that of the "Alarm" object.

Objects

Obj	Object name	Function	Type	Flags
10	Channel A movement blockage	On/Off	1 bit	CRWT
34	Channel B movement blockage	On/Off	1 bit	CRWT
If a logical 1 is received via this object, then movement of the blind via bus telegrams is blocked until a logical 0 is received via this object. This object can therefore be used e.g. while the 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 blockage = 1 has the highest priority and cannot				

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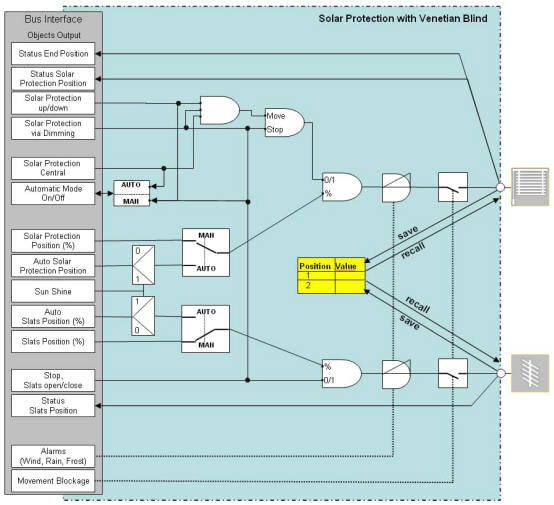
Obj	Object name	Function	Type	Flags
be overridden by an alarm. Alarm commands, automatic mode commands for sun blind and slat positioning, commands to switch automatic mode On or Off as well as orders for the “Blinds centrally” object or for one of the “Channel x, blind centrally” objects or one of the “Channel x, sunshine” objects received with Movement blockage = 1 are stored and carried out later when Movement blockage = 0.				

Parameter „Channel A Functions, Objects”

Parameter	Settings
Object movement blockage	**No;** Yes
This parameter determines if an object for locking and unlocking motion of the solar protection is available. A “Movement blockage” object is visible if “Yes” is selected. As long as the movement blockage is active, the actuator channel is stopped.	

Position 1 or 2



Function blind, position 1 or 2

Objects

Obj	Object name	Function	Type	Flags
2	Channel A position	recall	1 bit	CW
26	Channel B position	recall	1 bit	CW
This and the following object make it possible for a person using a room with a pair of bus pushbuttons allocated to the function “Program / recall 1-bit scene”, to program a desired position of the blind and its slats by pressing the corresponding bus pushbutton for at least 1 s and to recall the programmed position of the blind and its slats automatically by briefly pressing this button. With this object, two desired intermediate positions of the blind connected to the respective channel as well as its slats can be recalled automatically. To make this possible, these settings first need to have been programmed 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.				
3	Channel A position	save	1 bit	CW
27	Channel B position	save	1 bit	CW
Via this object, the programming of two desired intermediate positions of the blind connected to this channel as well as its slats can be initiated. The programmed (stored) positions can subsequently be approached again (recalled) via the preceding object at any time. Successfully programming a position is only possible if the				

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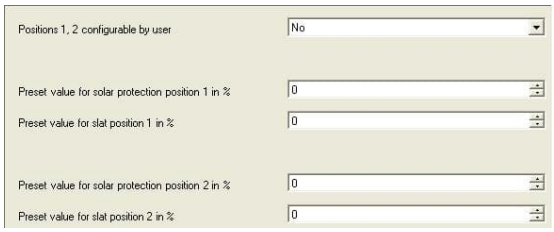
Obj	Object name	Function	Type	Flags
travel time of the sun blind and the adjustment of the slats have been specified and the status objects for the blind and slats positions have been synchronized with reference movements into the upper limit position. On receiving a "0"-telegram, the current states of the „Status sunshine position" and „Status slats position" objects are queried and stored as position 1. Position 2 is stored accordingly after receiving a "1"-telegram.				

Parameter „Channel A Functions, Objects"

Parameter	Settings
Object save / recall position 1, 2	**No;** Yes
This parameter determines if the actuator channel has one object each for saving and recalling position 1 / 2. The objects are visible if "Yes" is selected.	

Parameter „Channel A Position"



The following parameters are presented in a separate parameter window if the parameter "Object save / recall position 1, 2" is set to "Yes".

Parameter	Settings
Positions 1, 2 configurable by user	**No;** Yes
This parameter applies to both positions 1 / 2. If the value "No" is selected then the positions are not configurable (via a position telegram) and the associated communication object for saving is not visible. The following parameter values for "solar protection position" and "slat position" cannot be changed during operation.	

Parameter	Settings
Delete saved position values for position 1	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "Yes". This parameter determines if the position values saved in the device for position 1 are deleted (setting "Yes") or not (setting "No") with a download. If "No" is selected then the saved values are not replaced during configuration of the device with ETS. If "Yes" is selected then further parameters determine if the respective position shall be preset or not. If it shall be preset then a further parameter for the solar protection height and, if applicable, the slat position in percent can be entered. If it shall not be preset then the position first has to be set during operation by a corresponding message (save position). If "Yes" is selected then the following parameters appear.	
Preset position 1	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "Yes" and the parameter "Delete saved position values for position 1" is set to "Yes". This parameter determines if the position (solar protection and slat position) can be preset. If "Yes" is selected then the following two parameters appear.	
Preset value for solar protection position 1 in %	**0;** 0...100
This parameter is visible, if the parameter "Preset position 1" is set to "Yes". This parameter determines the preset value for the solar protection position of position 1.	
Preset value for slat position 1 in %	**0;** 0...100
This parameter is visible, if the parameter "Preset position 1" is set to "Yes". This parameter determines the preset value for the slats position of position 1.	
Delete saved position values for position 2	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "Yes". This parameter determines if the position values saved in the device for position 2 are deleted (setting "Yes") or not (setting "No") with a download. If "No" is selected then the saved values are not replaced during configuration of the device with ETS. If "Yes" is selected then further parameters determine if the respective position shall be preset or not. If it shall be preset then a further parameter for the solar protection height and, if applicable, the slat position in percent can be entered. If it shall not be preset then the position first has to be set during operation by a corresponding message (save position). If "Yes" is selected then the following parameters appear.	
Preset position 2	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2	

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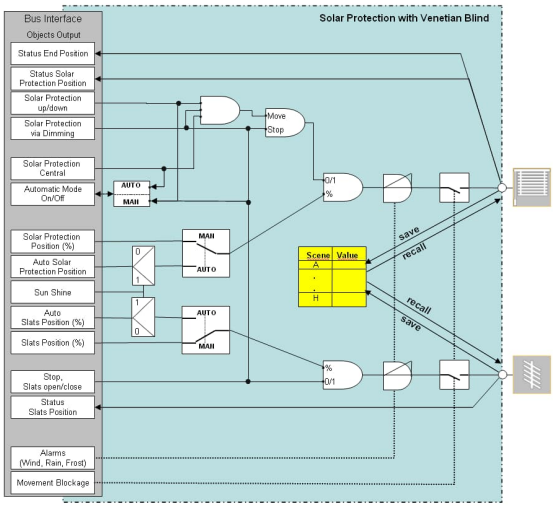
Parameter	Settings
configurable by user" is set to "Yes" and the parameter "Delete saved position values for position 2" is set to "Yes". This parameter determines if the position (solar protection and slat position) can be preset. If "Yes" is selected then the following two parameters appear.	
Preset value for solar protection position 2 in %	**0;** 0...100
This parameter is visible, if the parameter "Preset position 2" is set to "Yes". This parameter determines the preset value for the solar protection position of position 2.	
Preset value for slat position 2 in %	**0;** 0...100
This parameter is visible, if the parameter "Preset position 2" is set to "Yes". This parameter determines the preset value for the slats position of position 2.	

8-bit scene control



Function blind, 8-bit scene control

Objects

Obj	Object name	Function	Type	Flags
1	Channel A 8-bit scene	recall / save	1 byte	CW
25	Channel B 8-bit scene	recall / save	1 byte	CW
With this object, the 8-bit scene with the number x is recalled (restored) or programmed (stored). Bit 0...5 contain the scene number. If Bit 7 is set to log. 1, then the scene is programmed. If Bit 7 is set to log. 0, then the scene is recalled. Bit 6 does not have any meaning at this point and must be set to log. 0. If automatic mode is activated (automatic mode = On), then programming or recalling a scene automatically leads to switching to manual mode (automatic mode = Off). Successfully programming a blind position is only possible if the travel time of the blind and the adjustment time of the slats have been specified, the status objects for the blind and slat positions have been synchronized with a reference movement into the upper final position and the sun blind is not moving.				

Parameter „Channel A Functions, Objects"

Parameter	Settings
8-bit scene control	**No;** Yes
Use this parameter to set whether the 8-bit scene control incorporated in the actuator is to be enabled. If so, the corresponding communication object and the parameter window "8-bit scenes" are added for assignment of up to 8 scene numbers per output channel.	

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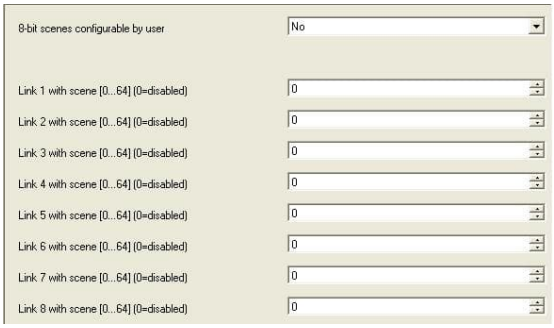
Parameter „Channel A 8-bit Scenes“



The following parameters appear in a separate parameter window if “8-bit scene control” is set to “Yes”.

Parameter	Settings
8-bit scenes configurable by user	**No;** Yes
This parameter applies to all 8 scene links. If “No” is selected the scenes are not configurable (via a scene telegram) by the user. The position values for “solar protection position” and “slat position” preset with the following parameters cannot be changed by the user during operation.	
Link 1 with scene [0...64] (0=disabled)	**0;** 0...64
Via this parameter the selected channel can be linked with a scene number in the range 1 to 64. “0” means “not assigned to a scene” (link is not used). Notes: If a scene is recalled before the positions of solar protection and slats were saved for this scene and this channel then the solar protection moves to the upper end position. Successfully saving a scene/position is not possible before the travel time of the solar protection and the tilting time of the slats are valid. If automatic operation mode is active (automatic mode = On) then saving or recalling a scene automatically switches the operation mode to manual (automatic mode = Off).	
Link 2 with scene [0...64] (0=disabled)	**0;** 0...64
see Link 1	

and so on until

Link 8 with scene [0...64] (0=disabled)	**0;** 0...64
see Link 1	

Additionally, these parameters for setting scene values are available for each scene.

Parameter	Settings
Link 1: delete saved scene values	**No;** Yes
This parameter is only visible for an activated link, if the parameter “ 8-bit scenes configurable by user” is set to “Yes” and if the parameter “Link 1 with scene [0...64] (0=disabled)” is set to a value no equal to zero. This parameter determines if the position value for link 1 saved in the device is deleted with a download (setting “Yes”) or not (setting “No”). If this parameter is set to “No” then the saved scene values are not deleted when the configuration is downloaded to the device using the ETS. If “Yes” is selected then further parameters determine if the respective scene shall be preset or not. If it shall be preset then a further parameter for the solar protection height and, if applicable, the slat position in percent can be entered. If it shall not be preset then the position first has to be set during operation by a corresponding message (save position). If “Yes” is selected then the following parameters appear.	
Link 1: preset scene values	**No;** Yes
This parameter is visible, if the parameter “ Link 1: delete saved scene values” is set to “Yes”. This parameter determines if the position values (solar protection and slat position) for link 1 shall be preset (setting “Yes”) or not (setting “No”). If this parameter is set to “No” then the saved scene values are not deleted when the configuration is downloaded to the device using the ETS. If the scene is recalled before the positions of solar protection and slats were saved for this scene and this channel then the solar protection moves to the upper end position. The scene settings must be saved during operation by a corresponding message (save scene). If “Yes” is selected then two further parameters appear, with which the solar protection height and, if applicable, the slat position in percent can be entered. If “Yes” is selected then the following two parameters appear.	
Solar protection position (height) in %	**0;** 0...100
This parameter is visible, if the parameters “ Link 1: delete saved scene values” and “Link 1: preset scene values” are set to “Yes” or the parameter “8-bit scenes configurable by user” is set to “No” . This parameter determines the preset value for the solar protection position of the scene.	
Slat position in %	**0;** 0...100
This parameter is visible, if the parameters “ Link 1: delete saved scene values” and “Link 1: preset scene values” are set to “Yes” or the parameter “8-bit scenes configurable by user” is set to “No” . This parameter determines the preset value for the slat position of the scene.	

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4. Functions (Objects, Parameters), roller shutter / awning

Configuration of the objects and parameters for channels A and B is done identically and thus is only described once.

Each actuator output can be configured individually with the following partial functions:

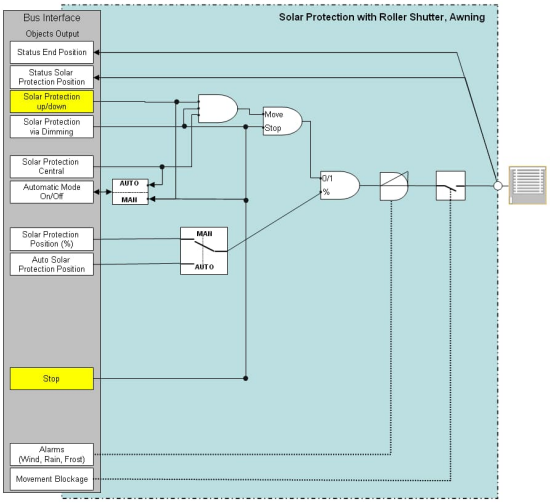
- Basic function
- Normal mode
- Manual / automatic mode
- Solar protection via dimming
- Status messages
- Alarms
- Movement blockage
- Position 1 or 2
- 8-bit scene control

The following sections describe the functions, which can be configured for each channel, including the associated objects and parameter settings.

Note

The number and names of the parameter windows in the ETS menu may vary as they are controlled via parameter settings.
Another parameter window may appear if due to dynamically added parameters the space in the first parameter window is exhausted.

Basic function



Function roller shutter/awning, basic function

Objects

Obj	Object name	Function	Type	Flags
16	Channel A solar protection	on / off	1 bit	CRW
40	Channel B solar protection	on / off	1 bit	CRW

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

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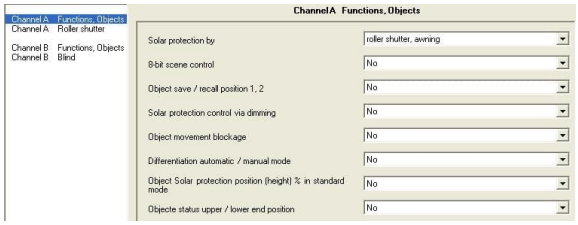
Obj	Object name	Function	Type	Flags
17	Channel A Stop / slats	open / close	1 bit	CRW
41	Channel B Stop / slats	open / close	1 bit	CRW
Via these objects, the movement of a blind is stopped for the respective channel regardless of whether the telegram contains a logical 0 or a logical 1. If the blind is 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.				

Parameter „Channel A Functions, Objects"



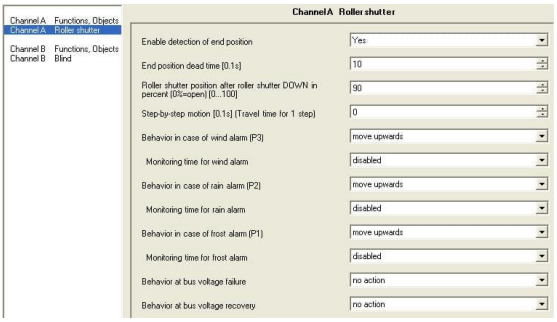
This parameter window provides selection of the basic function (solar protection via Venetian blind or roller shutter/awning) and further functions of this actuator output. This includes

- whether an 8-bit scene control shall be added for this output channel,
- whether positioning of the blind in two preset positions shall be added for this output channel,
- whether a movement blockage shall be added for this output channel,
- whether control via dimming up/down shall be added for this output channel,
- whether manual and automatic operation mode shall be differentiated,
- whether the blind and / or the slats shall be controlled via percentage telegrams,
- whether reaching the upper or lower limit position shall be indicated via objects.

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

The parameter "Solar protection by" shall be set to "roller shutter / awning".

Parameter „Channel A Roller shutter"



Parameter	Settings
Enable detection of end position	No; **Yes**
This parameter determines whether the automatic end position detection is used. If it is used, it must be ensured that the connected solar protection reliably supports this. If this cannot be guaranteed, i.e. the detection is not always reliably possible (e.g. signal cross-talk because of long cables, electronic end position detection), then detection of end position has to be disabled. In that case, the travel times have to be determined. If the parameter is set to „No" then, after a download with ETS, on the first control command the solar protection briefly moves down and then moves up into the upper end position.	
End position dead time [0,1s]	**10;** 5...50
This parameter is visible, if the parameter "Enable detection of end position" is set to "Yes". This parameter determines how long, after the end position has been left, the end position is not evaluated. This dead time is necessary because the end position switches is not closed immediately after the end position has been left. Typical values are 0.5 to 1.0 seconds.	

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Parameter	Settings
Travel time of solar protection from upper end position to bottom end position in seconds [3...300]	**300;** 3...300
This parameter is visible, if the parameter "Enable detection of end position" is set to "No". This parameter determines the travel time of the solar protection from the upper to the lower end position. Note: If detection of the end position is enabled this parameter is set during initialization of the device.	
Travel time of solar protection from bottom end position to upper end position in seconds [3...300]	**300;** 3...300
This parameter is visible, if the parameter "Enable detection of end position" is set to "No". This parameter determines the travel time of the solar protection from the lower to the upper end position. Note: If detection of the end position is enabled this parameter is set during initialization of the device.	
Prolongation of in-motion time by	no additional time 1...20 seconds **20 seconds**
This parameter is visible, if the parameter "Enable detection of end position" is set to "No". This parameter determines if, when the solar protection moves to the end position, the travel time shall be extended by an additional time to ensure that the solar protection reaches the end position and the drive motor is turned off by the end position limit switches.	
Roller shutter position after roller shutter DOWN in percent (0% = open) [0...100]	**90;** 0...100
This parameter only appears if the "Solar shading as" parameter is set to "roller shutter / awning". After an uninterrupted movement of the roller shutter from the upper to the lower limit position via one of the corresponding objects, the roller shutter is moved from the lower end position to the position specified in this parameter. 0% = roller shutter completely opened 100% = roller shutter completely closed With this setting the roller shutter can be moved up a bit after travelling from the upper to the lower end position, so that light can enter the room through the roller shutter bars.	
Step-by-step motion [0,1 s](Travel time for 1 step)	**0;** 0...100
This parameter determines whether a roller shutter, after having been stopped by a short button press, shall ignore further short button press commands ("0") or whether it shall move step by step with each short button press. If a value other than zero ("0") is set, then that value determines the duration of the step motion.	

Parameter	Settings
Behaviour at bus voltage failure	move upwards; move downwards; **no action;** stop (for testing)
This parameter determines how the actuator channel acts on bus voltage failure.	
Behaviour at bus voltage recovery	move upwards; move downwards; move to %-value; **no action;** stop (for testing)
This parameter determines how the actuator channel acts on bus voltage recovery. Note: On bus voltage recovery the assumption is that the action configured for bus voltage failure was fully completed. If "move upwards" is configured for bus voltage failure and the bus voltage returns before the solar protection could fully open, then the status of the solar protection is set to "upper end position" at the start even if the end position has not (yet) been reached. In this case the status message can deviate from the true position.	
Value solar protection position	**0;** 0...100
This parameter is visible, if the parameter "Behaviour on bus voltage recovery" is set to "move to %-value". This parameter determines the position the solar protection shall move to on bus voltage recovery.	

The additional parameters are covered in the sections for the partial functions

- Solar protection position (normal mode)
- Manual / automatic mode
- Status messages
- Solar protection via dimming
- Alarms
- Movement blockage
- Position 1 or 2
- 8-bit scene control

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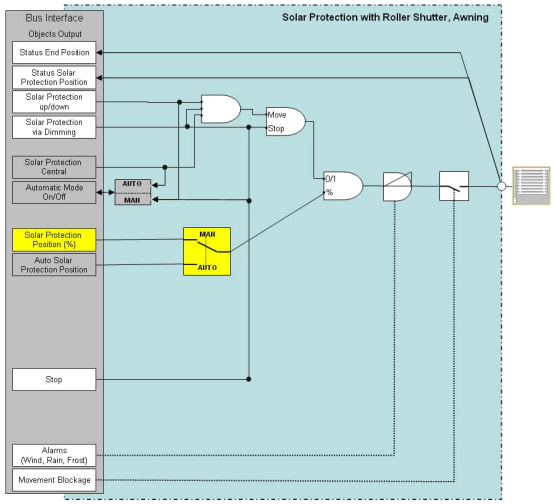
Solar protection position (normal mode)



Function roller shutter/awning, solar protection position

Objects

Obj	Object name	Function	Type	Flags
13	Channel A position of solar protection	0...100%	1 byte	CRW
37	Channel B position of solar protection	0...100%	1 byte	CRW

This object is visible, if the parameter "Differentiation automatic / manual mode" is set to "No" and the parameter "Object Solar protection position (heigh) % in standard mode" is set to "Yes".

Using this object, the blind of the corresponding channel can be moved into a chosen position in standard mode.

Blind positions can be transmitted in a value range of 0 to 255 (DPT 5.001) using this object. The following definitions have to be kept:

0	(=0%)	Blind fully Up
255	(=100%)	Blind fully Down

As soon as the blind 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 one of the final 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 final position is guaranteed by addressing the limit switch.

Once the slat adjustment has been completed or the final 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.

Parameter „Channel A Functions, Objects"

Parameter	Settings
Differentiation automatic / manual mode	**No;** Yes
For normal mode this parameter must be set to "No". 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 sun blind actuators as well as one object per channel to move the blind via percentage values in automatic mode. The differentiation between automatic and manual mode is required if, for example, the solar protection position is to follow up the position of the sun via commands from the weather station (shadow edge tracking control), but the user of the room shall be able to stop this.	
Object solar protection position (height) % in standard mode	**No;** Yes
This parameter only appears in standard mode if the parameter "Distinction automatic / manual mode" is set to "No". It is used to set whether communication objects to adjust the blind position shall be available in standard mode.	

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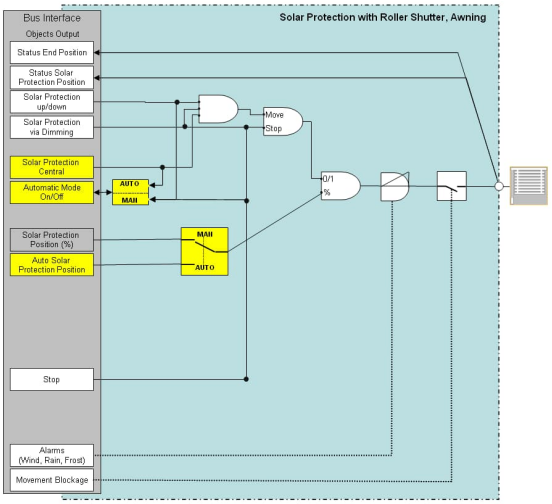
Manual / automatic mode



Function roller shutter/awning, manual / automatic mode

Objects

Obj	Object name	Function	Type	Flags
4	Channel A solar protection central	up / down	1 bit	CRW
28	Channel B solar protection central	up / down	1 bit	CRW
If a telegram is received at this object, all channels of the Venetian blind actuator that are enabled for this object are first of all switched to “Automatic mode” (if released in the parameter setting) and then the blinds 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 final position via this object, the slats position stipulated via the “Slats position after blind DOWN in percent” parameter is then approached automatically.				
5	Channel A automatic mode	on / off	1 bit	CRWT
29	Channel B automatic mode	on / off	1 bit	CRWT
With these objects, the corresponding channels can be switched between the operating modes “Automatic mode” and “Manual mode”. The object value (1 = automatic mode, 0 = manual mode) of these objects is updated when the channel operating mode is changed and can be queried via the bus.				

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Obj	Object name	Function	Type	Flags
11	Channel A autom. mode solar protection position	0...100%	1 byte	CRW
35	Channel B autom. mode solar protection position	0...100%	1 byte	CRW

Using this object, the blind of the corresponding channel can only be moved into a chosen position in automatic mode. If the channel is in "manual mode", a movement command is not executed but is stored and executed after switching back to automatic mode.
Blind positions can be transmitted in a value range of 0 to 255 (DPT 5.001) using this object. The following definitions have to be kept:

0	(=0%)	Blind fully Up
255	(=100%)	Blind fully Down

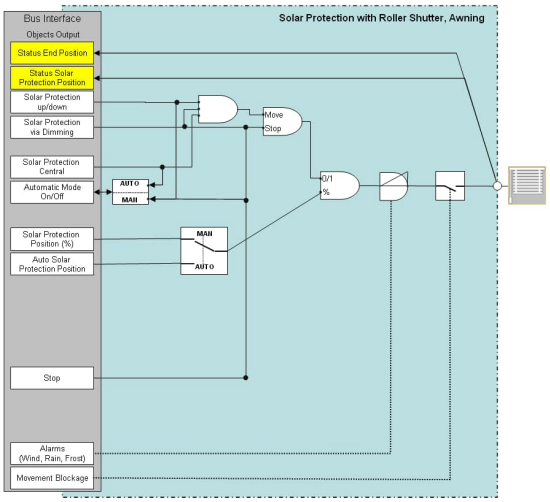
If one of the final positions is to be approached, the set travel time is automatically extended by the set prolongation time, so that the reaching of the upper or lower final position is guaranteed by addressing the limit switch. Once the blind adjustment has been completed or the final position has 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.

Parameter „Channel A Functions, Objects"

Parameter	Settings
Differentiation automatic / manual mode	**No;** Yes

For automatic mode this parameter must be set to "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 sun blind actuators as well as one object per channel to move the blind via percentage values in automatic mode. The differentiation between automatic and manual mode is required if, for example, the blind is to follow up the position of the sun via commands from the weather station (shadow edge tracking control), but the user of the room shall be able to stop this.

Status messages



Function roller shutter/awning, status note

Objects

Obj	Object name	Function	Type	Flags
20	Channel A status automatic mode	On/Off	1 bit	CRWT
44	Channel B status automatic mode	On/Off	1 bit	CRWT

This object is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes" and the parameter "Object status automatic mode" is set to "Yes".
With this object, 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 set is accordingly, even if another operating mode overrides the automatic operation.

21	Channel A status solar protection position	0...100%	1 byte	CRWT
45	Channel B status solar protection position	0...100%	1 byte	CRWT

This object is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes" and the parameter "Object status solar protection position in % " is set to "Yes".
Via this object, the position of the blind (as a percentage value) can be queried at any time or sent automatically after the travel has stopped. The upper limit position corresponds to the value 1 (= 0%) and the lower limit position to the value 255 (= 100%). The value 0 is used to indicate an unknown position (e.g. after the actuator has just been (re-

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Obj	Object name	Function	Type	Flags
)started). Updating the status object takes place for the first time when the travel time of the blind and the adjustment times of the slats have been entered and an uninterrupted travel to a limit position has taken place.				
23	Channel A status upper end position	On/Off	1 bit	CRWT
47	Channel B status upper end position	On/Off	1 bit	CRWT
This object is only visible if the "Object status upper / lower end position" parameter is set to "Yes". Via this object, a logical 1 object value reports that the blind is in the upper final position.				
24	Channel A status lower end position	On/Off	1 bit	CRWT
48	Channel B status lower end position	On/Off	1 bit	CRWT
This object is only visible if the "Object status upper / lower end position" parameter is set to "Yes". Via this object, a logical 1 object value reports that the blind is in the lower final position.				

Parameter „A Functions, Objects"

Parameter	Settings
Object status automatic mode	**No**; Yes
This parameter is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes". This parameter determines whether a communication object "Status automatic mode" is available for the channel.	
Object status solar protection position in %	**No;** Yes
This parameter is only visible if the "Differentiation automatic / manual mode" parameter is set to "Yes" or if the parameter "Object status solar protection position in % in normal mode" is set to "Yes". This parameter determines whether a communication object "Status solar protection position" is available for the channel.	
Object status upper / lower end position	**No;** Yes; only status upper end position; only status lower end position
This parameter determines whether none, both or only 1 communication object "Status upper end position" or "Status lower end position" is available for the channel. The object „Status upper end position" (or „Status lower end position") is only equal to log. 1 if the blind is in the top (or bottom) end position.	
Send end position On / Off	Yes; **only send On**
This parameter is only visible, if the parameter "Object status upper / lower end position" is not set to "No". This parameter determines 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.	
Lower end position reached after tilting slats up	**No;** Yes
*This parameter is only visible, if the parameter "Object status upper / lower end position" is set to "Yes" or "*only status lower end position*".* This parameter determines if reaching the lower end position is sent or not sent as a status message after moving the blind up to the final position has been finished.	
Send status objects	**Only on read request;** on change of status and on read request
Depending on the parameter setting the status objects are sent automatically every time the status is changed or only on read request.	

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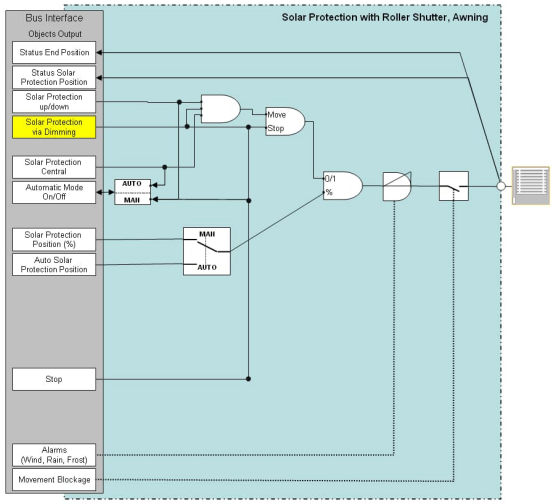
Solar protection via dimming



Function roller shutter/awning, solar protection via dimming

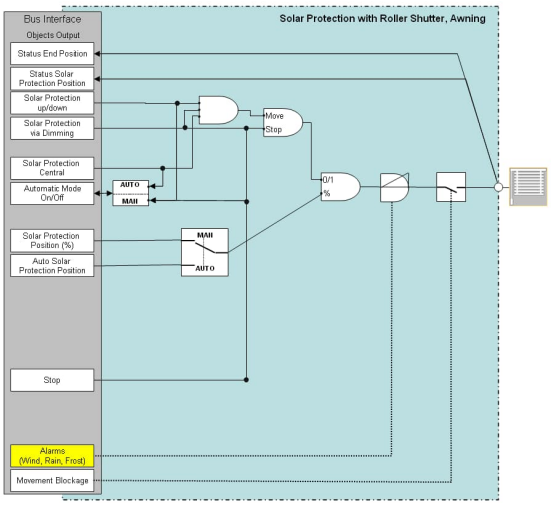
Objects

Obj	Object name	Function	Type	Flags2
18	Channel A solar protection via dimming	up / down via brighter / darker	4 bit	CRW
42	Channel B solar protection via dimming	up / down via brighter / darker	4 bit	CRW
This object is only visible if the parameter "Solar protection control via dimming"is set to "Yes". Via this object a dimming sensor can control a solar protection. Dimming brighter means move solar protection up, dimming darker means move solar protection down. All dimming telegrams are interpreted as a change by 100% because the actuator does not know the current position. For this reason, only the configuration "dimming with stop telegram" makes sense for the dimming sensor.				

Parameter „Channel A Functions, Objects"

Parameter	Settings
Solar protection control via dimming	**No;** Yes
This parameter determines if the actuator shall have an additional control object. The 4-bit object must be connected with the dimming sensor object "dimming brighter/darker". Via the 4-bit object the solar protection can be moved up/down.	

Alarms



Function roller shutter/awning, alarms

It is ensured via the objects "wind alarm", "rain alarm", and "frost alarm" that the blind is raised automatically in the event of a wind, rain or frost alarm and that it is prevented from being lowered via the bus when the alarm is still present.

Objects

Obj	Object name	Function	Type	Flags
7	Channel A wind alarm	On/Off	1 bit	CRWT
31	Channel B wind alarm	On/Off	1 bit	CRWT
This object can be linked with an alarm signal from a wind sensor, which sends cyclically a logical 0 in the idle state and a logical 1 in the event of an alarm. Via the parameter "Behaviour on alarm", 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 Venetian blind actuator should e.g. move the outer Venetian blind connected to this channel into the upper final position in the event of a wind alarm and block movement out of this position while the wind alarm is still present. Sun blind and slat commands 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 blind likewise moves to the set safety position if a time has been assigned to the parameter "Monitoring time for alarm" and no telegrams have been received during the set time interval.				

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Obj	Object name	Function	Type	Flags
8	Channel A precipitation alarm	On/Off	1 bit	CRWT
32	Channel B precipitation alarm	On/Off	1 bit	CRWT
This object can be linked with an alarm signal from a precipitation sensor, which sends cyclically a logical 0 in the idle state and a logical 1 in the event of an alarm. Via the parameter "Behaviour on alarm", 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 Venetian blind actuator should e.g. move the outer Venetian blind connected to this channel into the upper final position in the event of a rain alarm and block movement out of this position while the rain alarm is still present. Sun blind and slat commands 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 blind likewise moves to the set safety position if a time has been assigned to the parameter "Monitoring time for alarm" and no telegrams have been received during the set time interval.				
9	Channel A frost alarm	On/Off	1 bit	CRWT
33	Channel B frost alarm	On/Off	1 bit	CRWT
This object can be linked with an alarm signal from a 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 "Behaviour on alarm", 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 Venetian blind actuator should e.g. move the outer Venetian blind connected to this channel into the upper final position in the event of a frost alarm and block movement out of this position while the frost alarm is still present. Sun blind and slat commands 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 blind likewise moves to the set safety position if a time has been assigned to the parameter "Monitoring time for alarm" and no telegrams have been received during the set time interval.				

Parameter „Channel A Blind"

Parameter	Settings
Behaviour in case of wind alarm (P3)	**move upwards ;** move downwards; ignore alarm (no action)
This parameter determines how the actuator channel acts when receiving a wind alarm or when the cyclical message that there is no pending alarm is omitted. Note: This alarm has the lowest priority of the three possible alarms.	

Parameter	Settings
Monitoring time for wind alarm	**disabled;** 1 minute; 2 minutes; 3 minutes; 4 minutes; 5 minutes; 7 minutes; 10 minutes; 15 minutes; 30 minutes; 60 minutes
This parameter is visible, if the parameter " Behaviour in case of wind alarm (P3)" is not set to "ignore alarm (no action)". This monitoring time applies to the wind alarm object of this channel. 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 actuator can monitor whether the wind detector assigned to the actuator or to a channel is sending telegrams cyclically. If the setting "disabled" is assigned to the parameter "Monitoring time for wind 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 blind connected to the actuator channel is moved into the set position according to the "Behaviour 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 bus voltage recovery), the monitoring time is only started after the first reception of the "Alarm" object. If no message is received via the alarm object within the configured monitoring time, then the alarm is also triggered after a download or new start.	
Behaviour in case of rain alarm (P2)	**move upwards ;** move downwards; ignore alarm (no action)
This parameter determines how the actuator channel acts when receiving a rain alarm or when the cyclical message that there is no pending alarm is omitted. Note: This alarm has the middle priority of the three possible alarms.	
Monitoring time for rain alarm	**disabled;** 1 minute; 2 minutes; 3 minutes; 4 minutes; 5 minutes; 7 minutes; 10 minutes; 15 minutes; 30 minutes; 60 minutes
This parameter is visible, if the parameter " Behaviour in case of rain alarm (P2)" is not set to "ignore alarm (no action)". This monitoring time applies to the rain alarm object of this channel. The explanations for the parameter "Monitoring time for wind alarm" apply likewise.	

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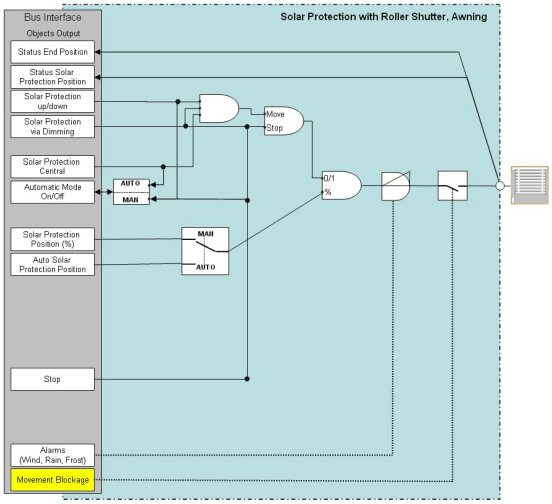
Parameter	Settings
Behaviour in case of frost alarm (P1)	**move upwards ;** move downwards; ignore alarm (no action)
This parameter determines how the actuator channel acts when receiving a frost alarm or when the cyclical message that there is no pending alarm is omitted. Note: This alarm has the highest priority of the three possible alarms.	
Monitoring time for frost alarm	**disabled;** 1 minute; 2 minutes; 3 minutes; 4 minutes; 5 minutes; 7 minutes; 10 minutes; 15 minutes; 30 minutes; 60 minutes
This parameter is visible, if the parameter " Behaviour in case of frost alarm (P1)" is not set to "ignore alarm (no action)". This monitoring time applies to the frost alarm object of this channel. The explanations for the parameter "Monitoring time for wind alarm" apply likewise.	

Movement blockage



Function roller shutter/awning, movement blockage

Via the object "Movement blockage" the movement of the solar protection can be locked at any time (e.g. for cleaning the outdoor solar protection).
The "Movement blockage" object has a higher priority than the "Alarm" objects, i.e. if the movement blockage object is set to logical 1 then the sun blind can also not be moved via an alarm object changing to a logical 1. However, if an alarm signal is still present after the blockage has been ended, then the channel in question moves automatically into the set safety position. In all other respects the behaviour of the "Movement blockage" object corresponds to that of the "Alarm" object.

Objects

Obj	Object name	Function	Type	Flags
10	Channel A movement blockage	on / off	1 bit	CRWT
34	Channel B movement blockage	on / off	1 bit	CRWT
If a logical 1 is received via this object, then movement of the blind via bus telegrams is blocked until a logical 0 is received via this object. This object can therefore be used e.g. while the 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.				

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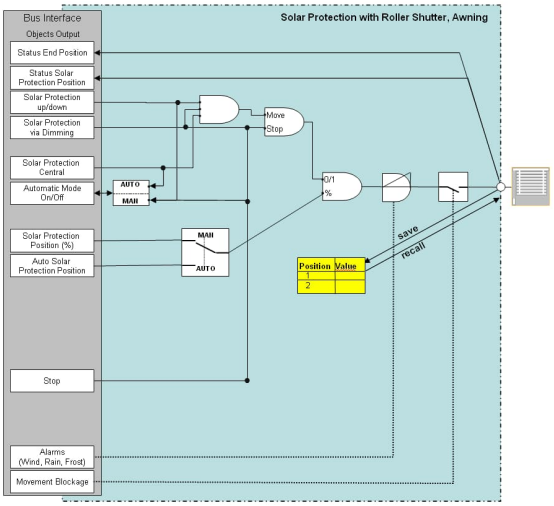
Obj	Object name	Function	Type	Flags
Movement blockage = 1 has the highest priority and cannot be overridden by an alarm. Alarm commands, automatic mode commands for sun blind and slat positioning, commands to switch automatic mode On or Off as well as orders for the “Blinds centrally” object or for one of the “Channel x, blind centrally” objects or one of the “Channel x, sunshine” objects received with Movement blockage = 1 are stored and carried out later when Movement blockage = 0.				

Parameter „Channel A Functions, Objects“

Parameter	Settings
Object movement blockage	**No;** Yes
This parameter determines if an object for locking and unlocking motion of the solar protection is available. A “Movement blockage” object is visible if “Yes” is selected. As long as the movement blockage is active, the actuator channel is stopped.	

Position 1 or 2



Function roller shutter/awning, Position 1 or 2

Objects

Obj	Object name	Function	Type	Flags
2	Channel A position	recall	1 bit	CW
26	Channel B position	recall	1 bit	CW
This and the following object make it possible for a person using a room with a pair of bus pushbuttons allocated to the function “Program / recall 1-bit scene”, to program a desired position of the blind and its slats by pressing the corresponding bus pushbutton for at least 1 s and to recall the programmed position of the blind and its slats automatically by briefly pressing this button. With this object, two desired intermediate positions of the blind connected to the respective channel as well as its slats can be recalled automatically. To make this possible, these settings first need to have been programmed 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.				
3	Channel A position	save	1 bit	CW
27	Channel B position	save	1 bit	CW
Via this object, the programming of two desired intermediate positions of the blind connected to this channel as well as its slats can be initiated. The programmed (stored) positions can subsequently be approached again (recalled) via the preceding object at any time. Successfully programming a position is only possible if the				

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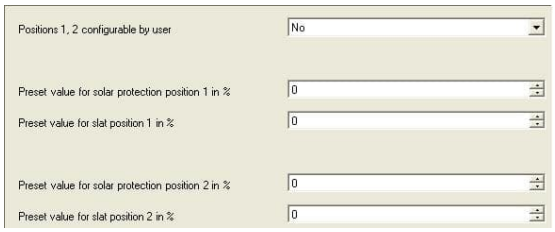
Obj	Object name	Function	Type	Flags
travel time of the sun blind and the adjustment of the slats have been specified and the status objects for the blind and slats positions have been synchronized with reference movements into the upper limit position. On receiving a "0"-telegram, the current states of the „Status sunshine position" and „Status slats position" objects are queried and stored as position 1. Position 2 is stored accordingly after receiving a "1"-telegram.				

Parameter „Channel A Functions, Objects"

Parameter	Settings
Object save / recall position 1, 2	**No;** Yes
This parameter determines if the actuator channel has one object each for saving and recalling position 1 / 2. The objects are visible if "Yes" is selected.	

Parameter „Channel A Position"



The following parameters are presented in a separate parameter window if the parameter "Object save / recall position 1, 2" is set to "Yes".

Parameter	Settings
Positions 1, 2 configurable by user	**No;** Yes
This parameter applies to both positions 1 / 2. If the value "No" is selected then the positions are not configurable (via a position telegram) and the associated communication object for saving is not visible. The following parameter value for "solar protection position" cannot be changed during operation.	

Parameter	Settings
Delete saved position values for position 1	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "Yes". This parameter determines if the position values saved in the device for position 1 are deleted (setting "Yes") or not (setting "No") with a download. If "No" is selected then the saved values are not replaced during configuration of the device with ETS. If "Yes" is selected then further parameters determine if the respective position shall be preset or not. If it shall be preset then a further parameter for the solar protection height in percent can be entered. If it shall not be preset then the position first has to be set during operation by a corresponding message (save position). If "Yes" is selected then the following parameters appear.	
Preset position 1	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "Yes" and the parameter "Delete saved position values for position 1" is set to "Yes". This parameter determines if the position (solar protection position) can be preset. If "Yes" is selected then the following two parameters appear.	
Preset value for solar protection position 1 in %	**0;** 0...100
This parameter is visible, if the parameter "Preset position 1" is set to "Yes". This parameter determines the preset value for the solar protection position of position 1.	
Delete saved position values for position 2	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "Yes". This parameter determines if the position values saved in the device for position 2 are deleted (setting "Yes") or not (setting "No") with a download. If "No" is selected then the saved values are not replaced during configuration of the device with ETS. If "Yes" is selected then further parameters determine if the respective position shall be preset or not. If it shall be preset then a further parameter for the solar protection height in percent can be entered. If it shall not be preset then the position first has to be set during operation by a corresponding message (save position). If "Yes" is selected then the following parameters appear.	
Preset position 2	No; **Yes**
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "Yes" and the parameter "Delete saved position values for position 2" is set to "Yes". This parameter determines if the position (solar protection position) can be preset. If "Yes" is selected then the following parameter appears.	

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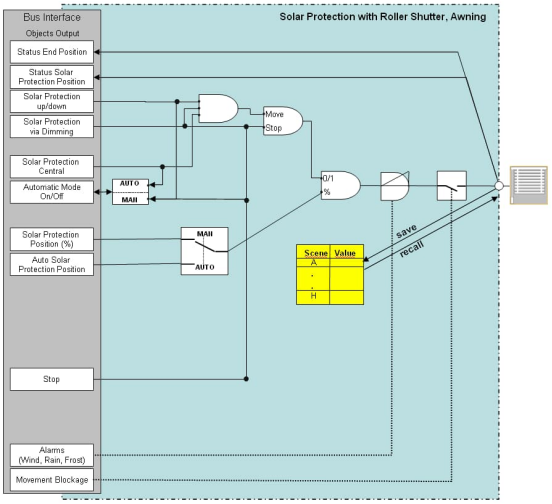
Parameter	Settings
Preset value for solar protection position 2 in %	**0;** 0...100
This parameter is visible, if the parameter "Positions 1, 2 configurable by user" is set to "No" or if the parameter "Preset position 2" is set to "Yes". This parameter determines the preset value for the solar protection position of position 2.	

8-bit scene control



Function roller shutter/awning, 8-bit scene control

Objects

Obj	Object name	Function	Type	Flags
1	Channel A 8-bit scene	recall / save	1 byte	CW
25	Channel B 8-bit scene	recall / save	1 byte	CW
With this object, the 8-bit scene with the number x is recalled (restored) or programmed (stored). Bit 0...5 contain the scene number. If Bit 7 is set to log. 1, then the scene is programmed. If Bit 7 is set to log. 0, then the scene is recalled. Bit 6 does not have any meaning at this point and must be set to log. 0. If automatic mode is activated (automatic mode = On), then programming or recalling a scene automatically leads to switching to manual mode (automatic mode = Off). Successfully programming a blind position is only possible if the travel time of the blind and the adjustment time of the slats have been specified, the status objects for the blind and slat positions have been synchronized with a reference movement into the upper final position and the sun blind is not moving.				

Parameter „Channel A Functions, Objects"

Parameter	Settings
8-bit scene control	**No;** Yes
Use this parameter to set whether the 8-bit scene control incorporated in the actuator is to be enabled. If so, the corresponding communication object and the parameter window "8-bit scenes" are added for assignment of up to 8 scene numbers per output channel.	

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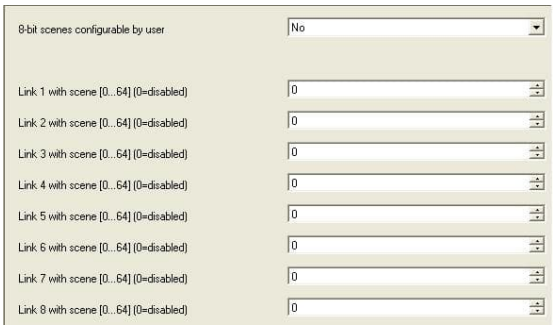
Parameter „Channel A 8-bit Scenes“



The following parameters appear in a separate parameter window if “8-bit scene control” is set to “Yes”.

Parameter	Settings
8-bit configurable by user	**No;** Yes
This parameter applies to all 8 scene links. If “No” is selected the scenes are not configurable (via a scene telegram) by the user. The position values for “solar protection position” and “slat position” preset with the following parameters cannot be changed by the user during operation.	
Link 1 with scene [1...64] (0=disabled)	**0;** 0...64
Via this parameter the selected channel can be linked with a scene number in the range 1 to 64. “0” means “not assigned to a scene” (link is not used). Notes: If a scene is recalled before the position of the solar protection was saved for this scene and this channel then the solar protection moves to the upper end position. Successfully saving a scene/position is not possible before the travel time of the solar protection is valid. If automatic operation mode is active (automatic mode = On) then saving or recalling a scene automatically switches the operation mode to manual (automatic mode = Off).	
Link 2 with scene [1...64] (0=disabled)	**0;** 0...64
see Link 1	

and so on until

Link 8 with scene [1...64] (0=disabled)	**0;** 0...64
see Link 1	

Additionally, these parameters for setting scene values are available for each scene.

Parameter	Settings
Link 1: delete saved scene values	**No;** Yes
This parameter is only visible for an activated link, if the parameter “ 8-bit scenes configurable by user” is set to “Yes” and if the parameter “Link 1 with scene [1...64] (0=disabled)” is set to a value no equal to zero. This parameter determines if the position value for link 1 saved in the device is deleted with a download (setting “Yes”) or not (setting “No”). If this parameter is set to “No” then the saved scene values are not deleted when the configuration is downloaded to the device using the ETS. If “Yes” is selected then further parameters determine if the respective scene shall be preset or not. If it shall be preset then a further parameter for the solar protection height in percent can be entered. If it shall not be preset then the position first has to be set during operation by a corresponding message (save position). If “Yes” is selected then the following parameters appear.	
Link 1: preset scene values	**No;** Yes
This parameter is visible, if the parameter “ Link 1: delete saved scene values” is set to “Yes”. This parameter determines if the position values (solar protection and slat position) for link 1 shall be preset (setting “Yes”) or not (setting “No”). If this parameter is set to “No” then the saved scene values are not deleted when the configuration is downloaded to the device using the ETS. If the scene is recalled before the positions of solar protection was saved for this scene and this channel then the solar protection moves to the upper end position. The scene settings must be saved during operation by a corresponding message (save scene). If “Yes” is selected then a further parameter appears, with which the solar protection height in percent can be entered. If “Yes” is selected then the following two parameters appear.	
Solar protection position (height) in %	**0;** 0...100
This parameter is visible, if the parameters “ Link 1: delete saved scene values” and “Link 1: preset scene values” are set to “Yes” or the parameter “8-bit scenes configurable by user” is set to “No” . This parameter determines the preset value for the solar protection position of the scene.	

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Space for Notes